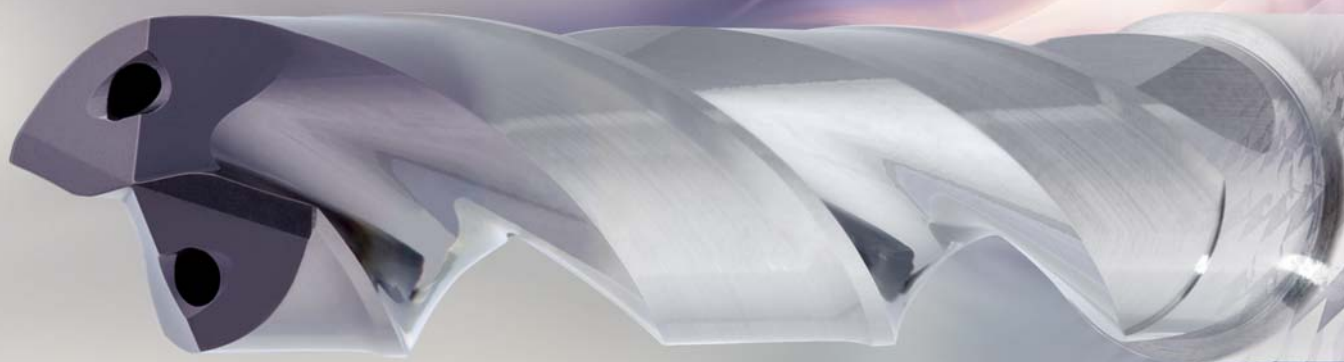


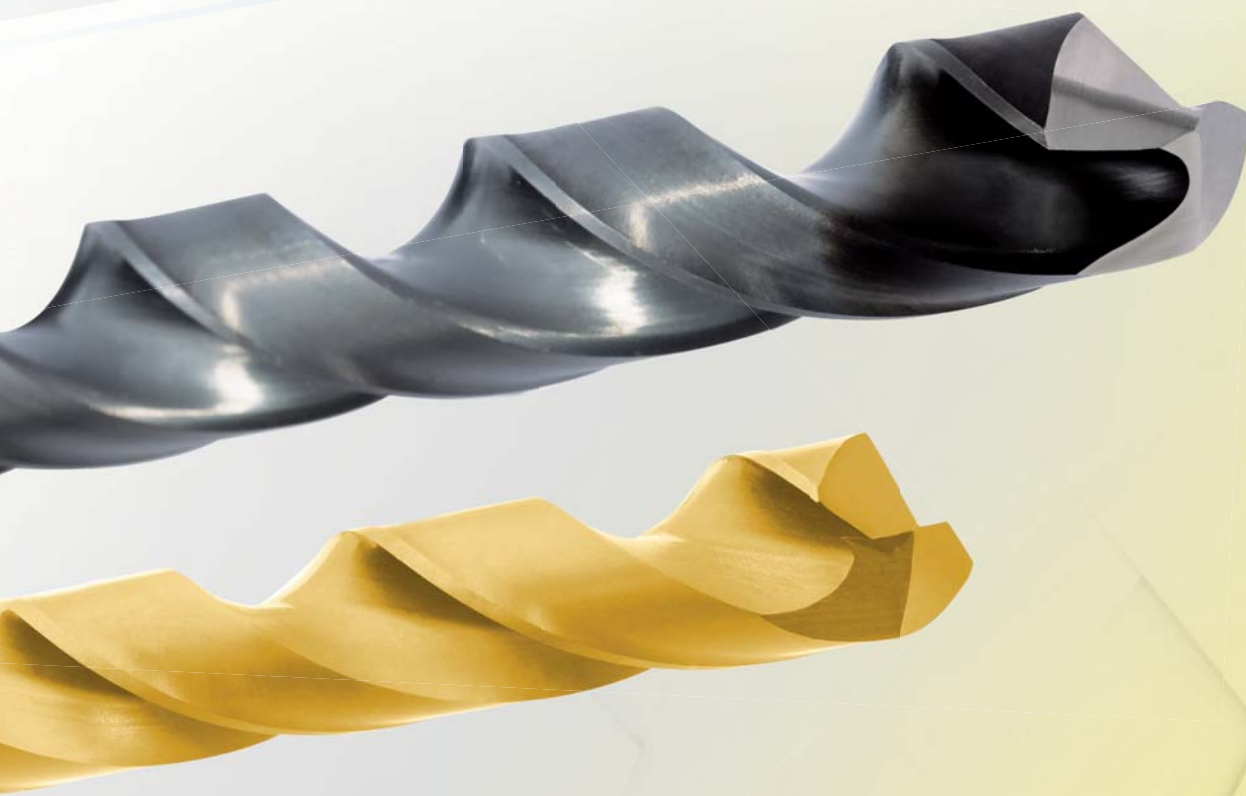
GÜHRING

UTENSILI A FORARE



PRECISIONE

PUNTE CILINDRICHE





P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte elicoidali, extra corte

Punte cilindriche

•	•	•	•	•	•		~3xD	DIN 1897	N	R	HSS		0,350 - 44,000	223	772	192
•	•	•	•	•	•		~3xD	DIN 1897	N	R	HSS		0,500 - 30,160	653	772	196
•	•	•	•	•	•		~3xD	DIN 1897	N	R	HSS		1,000 - 15,000	2460	772	199
•	•	•	•	•	•		~3xD	DIN 1897	N	L	HSS		0,320 - 50,000	226	772	200
•	•	•	•	•	•		~3xD	DIN 1897	N	L	HSS		0,900 - 13,000	672	772	203
•	•	•	•	•	•		~3xD	DIN 1897	H	R	HSS		0,690 - 21,000	224	772	204
•	•	•	•	•	•		~3xD	DIN 1897	H	L	HSS		0,750 - 24,000	227	772	206
•	•	•	•	•	•		~3xD	DIN 1897	W	R	HSS		1,000 - 20,000	225	772	208
•	•	•	•	•	•		~3xD	DIN 1897	W	L	HSS		1,000 - 20,000	228	772	210
•	•	•	•	•	•		~3xD	DIN 1897	GT 80	R	HSS		1,000 - 20,000	552	772	212
•	•	•	•	•	•		~3xD	DIN 1897	GT 80	L	HSS		1,000 - 19,840	553	772	215
•	•	•	•	•	•		~3xD	DIN 1897	GV 120	R	HSCO		0,400 - 48,000	329	772	218
•	•	•	•	•	•		~3xD	DIN 1897	GV 120	R	HSCO		0,500 - 15,500	659	774	222
•	•	•	•	•	•		~3xD	DIN 1897	GV 120	R	HSCO		1,000 - 13,000	2461	774	224
•	•	•	•	•	•		~3xD	DIN 1897	GV 120	L	HSCO		0,450 - 32,000	330	772	225
•	•	•	•	•	•		~3xD	DIN 1897	GT 80	R	HSCO		1,000 - 20,000	1228	774	227
•	•	•	•	•	•		~3xD	DIN 1897	GT 80	R	HSCO		1,000 - 16,000	2498	774	229
•	•	•	•	•	•		~3xD	DIN 1897	VA	R	HSCO		1,000 - 12,000	1261	772	230
•	•	•	•	•	•		~3xD	DIN 1897	VA	R	HSCO		1,000 - 13,000	572	774	231
•	•	•	•	•	•		~3xD	DIN 1897	P2000	R	HSCO		1,000 - 13,000	2048	774	233
•	•	•	•	•	•		~3xD	DIN 1897	N	R	M42		1,000 - 15,870	1259	772	235
•	•	•	•	•	•		~3xD	DIN 1897	GT 500	R	HSS-E-PM		1,000 - 14,290	515	774	237
•	•	•	•	•	•		3xD	DIN 6539	N	R	VHM		0,500 - 16,000	730	776	239
•	•	•	•	•	•		~3xD	DIN 6539	N	R	VHM		1,000 - 16,000	2463	776	241



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte elicoidali, extra corte

							~3xD	WN	N	R	VHM	○	0,500 - 6,500	702	776	243
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Punte elicoidali, corte

•	•	•	•	•			~5xD	DIN 338	N	R	HSS	○ _{2,36} ^{>0}	0,200 - 20,000	205	778	244
•	•	•	•	•			~5xD	DIN 338	N	R	HSS	Ⓢ	0,200 - 19,000	651	780	250
•	•	•	•	•			~5xD	DIN 338	N	R	HSS	F	1,000 - 14,500	2456	780	254
•	•	•	•	•			~5xD	DIN 338	N	R	HSS	○	2,400 - 5,610	560	778	256
•	•	•	•	•			~5xD	DIN 338	N	R	HSS	●	3,000 - 16,000	240	778	257
•	•	•	•	•			~5xD	DIN 338	N	L	HSS	○ _{6,00} ^{>0}	0,200 - 20,000	208	778	258
•	•	•	•	•			~5xD	DIN 338	N	L	HSS	Ⓢ	0,250 - 14,250	664	780	261
				•			~5xD	DIN 338	H	R	HSS	○	0,200 - 20,000	206	778	263
				•			~5xD	DIN 338	H	L	HSS	○	0,300 - 20,000	209	778	266
				•			~5xD	DIN 338	W	R	HSS	○	0,200 - 20,000	207	778	269
				•			~5xD	DIN 338	W	L	HSS	○	0,250 - 20,000	210	778	272
•	•	•	•	•			~5xD	DIN 338	GT 100	R	HSS	○ _{2,36} ^{>0}	0,600 - 16,000	549	778	274
•	•	•	•	•			~5xD	DIN 338	GT 100	R	HSS	Ⓢ	1,000 - 15,000	652	780	277
•	•	•	•	•			~5xD	DIN 338	GT 100	R	HSS	F	1,000 - 15,000	2457	780	280
•	•	•	•	•			~5xD	DIN 338	GT 100	L	HSS	○ _{2,36} ^{>0}	1,000 - 15,500	550	778	281
•	•	•	•	•			~5xD	DIN 338	GT 100	L	HSS	Ⓢ	1,300 - 9,800	665	780	283
•	•	•	•	•	•		~5xD	DIN 338	N	R	HSSCO	○ _{2,36} ^{>0}	0,200 - 20,000	305	780	284
•	•	•	•	•	•		~5xD	DIN 338	N	R	HSSCO	Ⓢ	1,200 - 13,000	2997	782	288
•	•	•	•	•	•		~5xD	DIN 338	N	L	HSSCO	○ _{6,00} ^{>0}	0,360 - 18,500	308	780	289
•	•	•	•	•	•		~5xD	DIN 338	GT 100	R	HSSCO	○ _{2,36} ^{>0}	1,000 - 16,000	622	780	291
•	•	•	•	•	•		~5xD	DIN 338	GT 100	R	HSSCO	Ⓢ	1,000 - 15,000	658	782	294
•	•	•	•	•	•		~5xD	DIN 338	GT 100	R	HSSCO	F	1,000 - 14,000	2459	782	296

Punte cilindriche



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte elicoidali, corte

Punte cilindriche

●	○						~5xD	DIN 338	GT 100	(R)	HSCO	C	3,000 - 11,910	1221	782	298
○	●	○					~5xD	DIN 338	GT 100	(R)	HSCO	A	3,000 - 12,000	1223	782	299
○	●		●				~5xD	DIN 338	Ti	(R)	HSCO	○	0,200 - 19,000	605	780	301
○	●		●				~5xD	DIN 338	Ti	(R)	HSCO	S	0,500 - 14,500	657	782	304
○	●		●				~5xD	DIN 338	Ti	(R)	HSCO	F	0,400 - 15,000	2458	782	306
○	●		●				~5xD	DIN 338	Ti	(L)	HSCO	○	1,300 - 9,500	608	780	308
○	●	○	○				~5xD	DIN 338	VA	(R)	HSCO	○	1,000 - 13,000	1260	780	309
●	○	○	○				~5xD	DIN 338	P2000	(R)	HSCO	●	1,000 - 13,000	2047	784	311
●	●	●	●	○			~5xD	DIN 338	AeroX	(R)	M42	●	1,000 - 13,000	1018	784	313
●	○	○	○	○			~5xD	DIN 338	N	(R)	M42	○	0,400 - 16,000	1146	780	315
●	●	○	○	○			~5xD	DIN 338	N	(R)	M42	F	1,000 - 16,000	1199	784	317
○	○	○	○	○			~5xD	WN	N	(R)	VHM	○	1,000 - 12,700	732	784	319
○	○	○	○	○			~5xD	WN	N	(R)	VHM	F	1,000 - 12,700	2464	784	321
○	○		○		●		~5xD	WN	Duro 150	(R)	HM	○	3,000 - 14,000	710	776	323

Punte per foratura con bussola di guida

●	●	○					~10xD	DIN 339	N	(R)	HSS	○ ^{>0} _{2,36}	0,800 - 20,000	211	786	325
●	●	○					~10xD	DIN 339	N	(R)	HSS	○	2,400 - 5,000	561	786	327
●	●	●					~10xD	DIN 339	N	(R)	HSS	S	1,000 - 13,000	666	786	328
●	○	●	○				~10xD	DIN 339	N	(R)	HSCO	○ ^{>0} _{2,36}	1,100 - 19,000	311	792	330

Punte elicoidali, lunghe

●	●	○					~10xD	DIN 340	N	(R)	HSS	○ ^{>0} _{2,36}	0,400 - 36,510	217	786	331
●	●	○					~10xD	DIN 340	N	(R)	HSS	S	0,500 - 22,220	667	786	334
●	●	○					~10xD	DIN 340	N	(L)	HSS	○ ^{>0} _{6,00}	0,450 - 29,000	220	786	336
●	●	○					~10xD	DIN 340	N	(R)	HSS	○	2,950 - 25,250	204	786	338
○	○	○	○	○	●		~10xD	DIN 340	H	(R)	HSS	○	0,500 - 16,000	218	786	339



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte elicoidali, lunghe

							~10xD	DIN 340	H	L	HSS	○	0,450 - 15,000	221	786	341
							~10xD	DIN 340	W	R	HSS	○	0,500 - 20,640	219	786	342
							~10xD	DIN 340	GT 100	R	HSS	○	1,000 - 14,000	535	786	344
							~10xD	DIN 340	GT 100	R	HSS	Ⓢ	1,000 - 14,000	668	786	347
							~10xD	DIN 340	GT 100	R	HSS	F	1,000 - 10,000	2462	786	349
							~10xD	DIN 340	GT 100	L	HSS	○	1,400 - 13,000	506	786	350
							~10xD	DIN 340	GT 50	R	HSS	○	1,000 - 32,600	501	786	351
							~10xD	DIN 340	N	R	HSCO	○	0,500 - 22,000	317	792	353
							~10xD	DIN 340	GT 100	R	HSCO	○	1,000 - 16,000	336	792	355
							~10xD	DIN 340	GT 100	R	HSCO	F	1,000 - 12,000	396	792	357
							~10xD	DIN 340	Ti	R	HSCO	○	1,000 - 15,000	617	792	358
							~10xD	DIN 340	Ti	R	HSCO	Ⓢ	1,000 - 10,200	669	792	360
							~10xD	WN	N	R	VHM	○	0,500 - 1,450	706	792	362

Punte cilindriche

Punte elicoidali in lunghezze speciali, grandezza 1

							~15xD	DIN 1869	N	R	HSS	○	1,600 - 13,000	235	788	363
							~15xD	DIN 1869	GT 100	R	HSS	○	1,950 - 13,000	502	790	365
							~15xD	DIN 1869	GT 100	R	HSS	Ⓢ	2,000 - 12,700	670	790	367
							~15xD	DIN 1869	GT 50	R	HSS	○	2,000 - 12,700	524	788	368
							~15xD	DIN 1869	GT 100	R	HSCO	○	2,700 - 10,000	618	794	370

Punte elicoidali in lunghezze speciali, grandezza 2

							~20xD	DIN 1869	N	R	HSS	○	2,700 - 13,000	236	788	371
							~20xD	DIN 1869	GT 100	R	HSS	○	2,000 - 13,000	503	790	372
							~20xD	DIN 1869	GT 100	R	HSS	Ⓢ	2,700 - 8,500	671	790	374
							~20xD	DIN 1869	GT 50	R	HSS	○	3,000 - 13,000	528	788	375
							~20xD	DIN 1869	GT 100	R	HSCO	○	3,000 - 10,000	619	794	376



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte elicoidali in lunghezze speciali, grandezza 3

•	•	•	•	•	•		~25xD	DIN 1869	N	(R)	HSS	○	3,500 - 13,000	237	788	377
•	•	•	•	•	•		~25xD	DIN 1869	GT 100	(R)	HSS	●	2,500 - 13,000	504	790	378
○	•	•	•	•	•		~25xD	DIN 1869	GT 50	(R)	HSS	○	2,500 - 10,000	529	788	379
•	•	•	•	•	•		~25xD	DIN 1869	GT 100	(R)	HSCO	●	2,500 - 13,000	571	794	380

Punte elicoidali, extra lunghe

•	•	•	•	•	•		>25xD	WN	GT 100	(R)	HSS	●	6,000 - 12,000	242	790	381
•	•	•	•	•	•		>25xD	WN	GT 100	(R)	HSS	○	8,000 - 12,000	243	790	382
•	•	•	•	•	•		>25xD	WN	GT 100	(R)	HSS	○	10,000 - 12,000	244	790	383

Punte con codolo rinforzato

•	•	•	•	•	•		~3xD	WN	GU500	(R)	HSCO	Ⓢ	2,000 - 20,000	512	774	384
•	•	•	•	•	•		~5xD	WN	GU500	(R)	HSCO	Ⓢ	2,000 - 20,000	511	784	386
•	•	•	•	•	•		~5xD	WN	GT 500	(R)	HSS-E-PM	Ⓢ	2,000 - 12,900	513	784	388
○	•	•	•	•	•		~3xD	DIN 6537 K	H	(R)	VHM	Ⓢ	2,600 - 14,100	1946	776	389

Punte ad asta cilindriche 6 pollici

•	•	•	•	•	•			NAS 907	N	(R)	HSS	○	1,500 - 8,000	577		390
•	•	•	•	•	•			NAS 907	N	(R)	HSS	● _{2,36}	1,500 - 8,000	579		391

Punte ad asta cilindriche 12 pollici

•	•	•	•	•	•			NAS 907	N	(R)	HSS	○	1,500 - 8,000	578		392
•	•	•	•	•	•			NAS 907	N	(R)	HSS	● _{2,36}	1,500 - 8,000	580		393

Punte con fori di refrigerazione

•	•	•	•	•	•		~10xD	WN	N	(R)	HSS	○	3,000 - 13,000	390	788	394
•	•	•	•	•	•		~5xD	WN	GT80 IK	(R)	HSCO	○	5,000 - 20,000	1131	784	395
•	•	•	•	•	•		~5xD	WN	GT80 IK	(R)	HSCO	Ⓢ	5,000 - 20,000	1132	784	396

Micropunte HSS-E-PM senza condotto di lubrificazione

•	•	•	•	•	•		~5xD	DIN 1899	N	(R)	HSS-E-PM	○	0,050 - 1,920	301	796	397
•	•	•	•	•	•		~5xD	DIN 1899	N	(R)	HSS-E-PM	Ⓢ	0,160 - 1,900	660	796	400

Punte cilindriche



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
•	•	•	•	•	•	Micropunte HSS-E-PM senza condotto di lubrificazione	~5xD	DIN 1899	N	L	HSS-E-PM	○	0,130 - 1,850	303	796	402
•	•	•	•	•	•	Micropunte in MD senza condotto di lubrificazione	~5xD	WN	N	R	VHM	○	0,200 - 1,400	701	796	404
•	•	•	•	•	•	Micropunte ExclusiveLine senza condotto di lubrificazione	~5xD	WN	N	R	VHM	ⓐ	0,100 - 3,000	3899	796	405
•	•	•	•	•	•	Micropunte ExclusiveLine senza condotto di lubrificazione	4xD	WN	N	R	VHM	ⓐ	0,500 - 3,000	6400	796	407
•	•	•	•	•	•	Micropunte ExclusiveLine senza condotto di lubrificazione	7xD	WN	N	R	VHM	ⓐ	0,500 - 3,000	6401	796	408
•	•	•	•	•	•	Micropunte ExclusiveLine con condotto di lubrificazione	5xD	WN	N	R	VHM	ⓐ	1,400 - 3,000	6405	796	409
•	•	•	•	•	•	Micropunte ExclusiveLine con condotto di lubrificazione	8xD	WN	N	R	VHM	ⓐ	1,400 - 3,000	6408	796	410
•	•	•	•	•	•	Micropunte ExclusiveLine con condotto di lubrificazione	15xD	WN	N	R	VHM	ⓐ	1,400 - 3,000	6412	796	411
•	•	•	•	•	•	Punte corte, con codolo cil. Ø 12,7 mm		WN	N	R	HSS	●	13,000 - 28,570	268	778	412
•	•	•	•	•	•	Punte corte, con codolo cil. Ø 16,0 mm		WN	V72	R	HSCO	○	16,000 - 40,000	128	772	413
•	•	•	•	•	•	Punte corte, con codolo cil. Ø 25,4 mm		WN	V72	R	HSCO	○	25,000 - 40,000	129	772	414
•	•	•	•	•	•	Punte corte, con codolo cil. Ø 25,4 mm		WN	V72	L	HSCO	○	25,000 - 39,000	136	772	415
•	•	•	•	•	•	Punte per fori conici		DIN 1898	N	R	HSS	● _{2,36} ^{>0}	2,000 - 12,000	531		416
•	•	•	•	•	•	Serie di punte	~5xD	DIN 338	N	R	HSS	● _{2,36} ^{>0}		201		417

Punte cilindriche



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Serie di punte

Punte cilindriche

•	•	○					~5xD	DIN 338	N	R	HSS	$\begin{matrix} >0 \\ 2,36 \end{matrix}$		200		418
•	•	○					~5xD	DIN 338	N	R	HSS	S		17		419
•	○	•	○				~5xD	DIN 338	N	R	HSCO	○		16		420
○	•		•				~5xD	DIN 338	Ti	R	HSCO	○		18		421
○	•	○	○				~5xD	DIN 338	VA	R	HSCO	○		195		422
•	○	○	○				~5xD	DIN 338	P2000	R	HSCO	●		2049		423
•	○	○	○				~3xD	DIN 1897	P2000	R	HSCO	M		2050		424
•	•	•	•	○			~5xD	DIN 338	AeroX	R	M42	●		1083		425



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Serie di punte

											WN			36	426	
											WN			73	427	Punte cilindriche
											WN			11	428	

Punte speciali, con taglienti in MD

○	○						DIN 8037	N	R	HM	○	1,700 - 24,000	703	776	429
							DIN 8038	N	R	HM	○	1,900 - 24,000	704	776	430

Punte FK per kevlar

							WN	FK	R	VHM	○	2,500 - 10,000	1149	776	431
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Punte a lancia

○							WN	H	R	HM	○	3,000 - 12,000	707	776	432
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Punte per muro

							WN	N	R	HM	○	4,000 - 12,000	716		433
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ACCIAIO



ACCIAIO
TEMPRATO

~ 3xD
DIN 1897

~ 5xD
DIN 338

~ 10xD
DIN 340

~ 15xD
DIN 1869
R1

No 1

Ø 1,00 - 14,00 mm
Articolo nr. 2459
da pag. 296



No 1

Ø 1,00 - 12,00 mm
Articolo nr. 396
da pag. 357



No 1

Ø 2,70 - 10,00 mm
Articolo nr. 618
da pag. 370



Ø 1,00 - 15,00 mm
Articolo nr. 2457
da pag. 280



Ø 1,00 - 10,00 mm
Articolo nr. 2462
da pag. 349



Ø 2,00 - 12,70 mm
Articolo nr. 670
da pag. 367



No 1

Ø 1,00 - 13,00 mm
Articolo nr. 2461
da pag. 224



Ø 1,00 - 15,00 mm
Articolo nr. 2460
da pag. 199



Ø 1,00 - 14,50 mm
Articolo nr. 2456
da pag. 254



Ø 0,50 - 22,22 mm
Articolo nr. 667
da pag. 334



Ø 1,60 - 13,00 mm
Articolo nr. 235
da pag. 363



Ø 1,20 - 13,00 mm
Articolo nr. 2997
da pag. 288



Ø 0,50 - 22,00 mm
Articolo nr. 317
da pag. 353



No 1

Ø 2,00 - 20,00 mm
Articolo nr. 512
da pag. 384



No 1

Ø 2,00 - 20,00 mm
Articolo nr. 511
da pag. 386



Ø 2,00 - 12,90 mm
Articolo nr. 513
da pag. 388



No 1

Ø 5,00 - 20,00 mm
Articolo nr. 1132
da pag. 396



PER RIDURRE GLI SFORZI
DI MANIPOLAZIONE
DURANTE IL SERRAGGIO

PER APPLICAZIONI CON
REFRIGERAZIONE
INTERNA

Punte cilindriche

codolo cilindrico

codolo unificato

con refrig.
interna



QUICKFINDER

~20xD
DIN 1869
R2

~25xD
DIN 1869
R3

>25xD
Norma di fab.
extra lungo

No 1 utensile ideale

No 1

Ø 3,00 - 10,00 mm
Articolo nr. 619
da pag. 376



No 1

Ø 2,50 - 13,00 mm
Articolo nr. 571
da pag. 380



GT100, HSCO

No 1

Ø 2,70 - 8,50 mm
Articolo nr. 671
da pag. 374



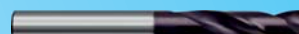
Ø 2,50 - 13,00 mm
Articolo nr. 504
da pag. 378



Ø 6,00 - 12,00 mm
Articolo nr. 242
da pag. 381



GT100, HSS



GV120, HSCO

Ø 2,70 - 13,00 mm
Articolo nr. 236
da pag. 371



Ø 3,50 - 13,00 mm
Articolo nr. 237
da pag. 377



Tipo N, HSS



Tipo N, HSCO



GU500, HSCO



GT500, HSS-E-PM



GT80IK, HSCO

Punte cilindriche



ACCIAI
INOSSIDABILI



TITANIO &
LEGHE SPECIALI

~ 3xD
DIN 1897

~ 5xD
DIN 338

~ 10xD
DIN 340

~ 15xD
DIN 1869
R1

No 1 No 1

Ø 0,40 - 15,00 mm
Articolo nr. 2458
da pag. 306
F S O

No 1 No 1

Ø 1,00 - 10,2 mm
Articolo nr. 669
da pag. 360
S O

No 1 No 1

Ø 1,00 - 13,00 mm
Articolo nr. 572
da pag. 231
S O

Ø 1,00 - 13,00 mm
Articolo nr. 1260
da pag. 309
O

Ø 1,00 - 14,00 mm
Articolo nr. 2459
da pag. 296
F S O

Ø 1,00 - 12,00 mm
Articolo nr. 396
da pag. 357
F O

No 1 No 1

Ø 2,70 - 10,00 mm
Articolo nr. 618
da pag. 370
O

Ø 1,00 - 13,00 mm
Articolo nr. 2461
da pag. 224
F S O

Ø 1,00 - 15,87 mm
Articolo nr.1259
da pag. 235
O

Ø 1,00 - 16,00 mm
Articolo nr.1199
da pag. 317
F O

No 1

Ø 2,00 - 20,00 mm
Articolo nr. 512
da pag. 384
S

No 1

Ø 2,00 - 20,00 mm
Articolo nr.511
da pag. 386
S

Ø 2,00 - 12,900 mm
Articolo nr.513
da pag. 388
F

PER RIDURRE GLI SFORZI
DI MANIPOLAZIONE
DURANTE IL SERRAGGIO

No 1 No 1

Ø 5,00 - 20,00 mm
Articolo nr.1132
da pag. 396
S O

PER APPLICAZIONI CON
REFRIGERAZIONE
INTERNA

Punte cilindriche

codolo cilindrico

codolo unificato

con refrigerazione
interna



QUICKFINDER

~20xD
DIN 1869
R2

~25xD
DIN 1869
R3

>25xD
Norma di fab.
extra lungo

No 1 utensile ideale per acciaio inossidabile

No 1 utensile ideale per leghe di titanio



Tipo Ti, HSCO



Tipo VA, HSCO

No 1 **No 1**

Ø 3,00 - 10,00 mm
Articolo nr. 619
da pag. 376



No 1 **No 1**

Ø 2,50 - 13,00 mm
Articolo nr. 571
da pag. 380



GT100, HSCO



GV120, HSCO



Tipo N, M42



GU500, HSCO



GT500, HSS-E-PM



GT80IK, HSCO

Punte cilindriche



~ 3xD
DIN 1897

~ 5xD
DIN 338

~ 10xD
DIN 340

~ 15xD
DIN 1869
R1

Punte cilindriche

codolo cilindrico

codolo unificato

con refrigerazione
interna

No 1

Ø 1,00 - 14,00 mm
Articolo nr. 2459
da pag. 296



No 1

Ø 1,00 - 12,00 mm
Articolo nr. 396
da pag. 357



No 1

Ø 2,70 - 10,00 mm
Articolo nr. 618
da pag. 370



Ø 1,00 - 15,00 mm
Articolo nr. 2457
da pag. 280



Ø 1,00 - 10,00 mm
Articolo nr. 2462
da pag. 349



Ø 2,00 - 12,70 mm
Articolo nr. 670
da pag. 367



No 1

Ø 1,00 - 15,00 mm
Articolo nr. 2460
da pag. 199



Ø 1,00 - 14,50 mm
Articolo nr. 2456
da pag. 254



Ø 0,50 - 22,22 mm
Articolo nr. 667
da pag. 334



Ø 1,60 - 13,00 mm
Articolo nr. 235
da pag. 363



Ø 1,20 - 13,00 mm
Articolo nr. 2997
da pag. 288



Ø 0,50 - 22,00 mm
Articolo nr. 317
da pag. 353



No 1

Ø 2,00 - 20,00 mm
Articolo nr. 512
da pag. 384



No 1

Ø 2,00 - 20,00 mm
Articolo nr. 511
da pag. 386



Ø 2,00 - 12,90 mm
Articolo nr. 513
da pag. 388



PER RIDURRE GLI SFORZI
DI MANIPOLAZIONE
DURANTE IL SERRAGGIO

No 1

Ø 5,00 - 20,00 mm
Articolo nr. 1132
da pag. 396



PER APPLICAZIONI CON
REFRIGERAZIONE
INTERNA



QUICKFINDER

~20xD
DIN 1869
R2

~25xD
DIN 1869
R3

>25xD
Norma di fab.
extra lungo

No 1 utensile ideale

No 1

Ø 3,00 - 10,00 mm
Articolo nr. 619
da pag. 376



No 1

Ø 2,50 - 13,00 mm
Articolo nr. 571
da pag. 380



GT100, HSCO

No 1

Ø 2,70 - 8,50 mm
Articolo nr. 671
da pag. 374



Ø 2,50 - 13,00 mm
Articolo nr. 504
da pag. 378



Ø 6,00 - 12,00 mm
Articolo nr. 242
da pag. 381



GT100, HSS

Ø 2,70 - 13,00 mm
Articolo nr. 236
da pag. 371



Ø 3,50 - 13,00 mm
Articolo nr. 237
da pag. 377



Tipo N, HSS



Tipo N, HSCO



GU500, HSCO



GT500, HSS-E-PM



GT80IK, HSCO

Punte cilindriche



N ALLUMINIO, NE, PLASTICA

~ 3xD
DIN 1897

~ 5xD
DIN 338

~ 10xD
DIN 340

~ 15xD
DIN 1869
R1

No 1

Ø 1,00 - 20,00 mm
Articolo nr. 225
da pag. 208



No 1

Ø 0,20 - 20,00 mm
Articolo nr. 207
da pag. 269



No 1

Ø 0,50 - 20,64 mm
Articolo nr. 219
da pag. 342



tipo W per materiali con
truciolo lungo

No 1

Ø 0,69 - 21,00 mm
Articolo nr. 224
da pag. 204



No 1

Ø 0,20 - 20,00 mm
Articolo nr. 206
da pag. 263



No 1

Ø 0,50 - 16,00 mm
Articolo nr. 218
da pag. 339



tipo H per per materiali
duri e fragili

No 1

Ø 2,00 - 12,70 mm
Articolo nr. 524
da pag. 368



tipo GT50 per materiali con
truciolo lungo

Ø 1,00 - 32,60 mm
Articolo nr. 501
da pag. 351



codolo cilindrico

Ø 1,00 - 15,50 mm
Articolo nr. 550
da pag. 281



Ø 1,00 - 14,00 mm
Articolo nr. 535
da pag. 344



Ø 1,95 - 13,00 mm
Articolo nr. 502
da pag. 365



Ø 1,00 - 16,00 mm
Articolo nr. 622
da pag. 291



Ø 1,00 - 16,00 mm
Articolo nr. 336
da pag. 355



Ø 2,70 - 10,00 mm
Articolo nr. 618
da pag. 370



codolo
unificato

No 1

Ø 2,00 - 20,00 mm
Articolo nr. 512
da pag. 384



No 1

Ø 2,00 - 20,00 mm
Articolo nr. 511
da pag. 386



PER RIDURRE GLI SFORZI
DI MANIPOLAZIONE
DURANTE IL SERRAGGIO

con refrig.
interna

No 1

Ø 5,00 - 20,00 mm
Articolo nr. 1131
da pag. 395



PER APPLICAZIONI CON
REFRIGERAZIONE
INTERNA



QUICKFINDER

~20xD
DIN 1869
R2

~25xD
DIN 1869
R3

>25xD
Norma di fab.
extra lungo

No 1 utensile ideale



Tipo W, HSS



Tipo H, HSS

No 1

Ø 3,00 - 13,00 mm
Articolo nr. 528
da pag. 375



No 1

Ø 2,50 - 10,00 mm
Articolo nr. 529
da pag. 379



GT50, HSS

No 1

Ø 2,70 - 8,50 mm
Articolo nr. 671
da pag. 374



Ø 2,50 - 13,00 mm
Articolo nr. 504
da pag. 378



Ø 6,00 - 12,00 mm
Articolo nr. 242
da pag. 381



GT100, HSS

Ø 3,00 - 10,00 mm
Articolo nr. 619
da pag. 376



Ø 2,50 - 13,00 mm
Articolo nr. 571
da pag. 380



GT100, HSCO



GU500, HSCO

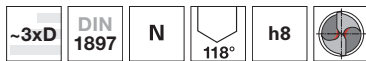


GT80IK, HSCO

Punte cilindriche



Punte elicoidali, extra corte



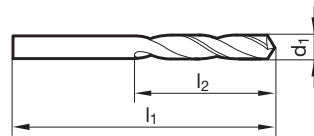
- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • per torni automatici/revolver • anche per trapani a mano
- M**
- K** •
- N** ○ materiale a spessore sottile
- S**
- H**

Materiale tagliente	HSS
Superficie	$\frac{0}{2,36}$
Direzione di taglio	R

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **223**

d1		l1	l2
mm	inch	mm	mm
0,350		19,000	2,000
0,400	1/64	19,000	2,500
0,480		19,000	2,500
0,500		20,000	3,000
0,550		21,000	3,500
0,575		21,000	3,500
0,600		21,000	3,500
0,650		22,000	4,000
0,660		22,000	4,000
0,700		23,000	4,500
0,720		23,000	4,500
0,750		23,000	4,500
0,790	1/32	24,000	5,000
0,800		24,000	5,000
0,820		24,000	5,000
0,850		24,000	5,000
0,890		25,000	5,500
0,900		25,000	5,500
0,930		25,000	5,500
0,950		25,000	5,500
0,980		26,000	6,000
1,000		26,000	6,000
1,020		26,000	6,000
1,030		26,000	6,000
1,040		26,000	6,000
1,050		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,110		28,000	7,000
1,120		28,000	7,000
1,150		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,220		30,000	8,000
1,250		30,000	8,000
1,260		30,000	8,000
1,280		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,350		32,000	9,000

d1		l1	l2
mm	inch	mm	mm
1,400		32,000	9,000
1,430		32,000	9,000
1,450		32,000	9,000
1,480		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,520		34,000	10,000
1,550		34,000	10,000
1,570		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,650		34,000	10,000
1,700		34,000	10,000
1,720		36,000	11,000
1,730		36,000	11,000
1,740		36,000	11,000
1,750		36,000	11,000
1,770		36,000	11,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,950		38,000	12,000
1,970		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,020		38,000	12,000
2,050		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,120		38,000	12,000
2,150		40,000	13,000
2,180		40,000	13,000
2,200		40,000	13,000
2,220		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000



d1		l1	l2
mm	inch	mm	mm
2,350		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,420		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,480		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,520		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,650		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,850		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,920		46,000	16,000
2,950		46,000	16,000
2,970		46,000	16,000
3,000		46,000	16,000
3,020		49,000	18,000
3,050		49,000	18,000
3,100		49,000	18,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,220		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,350		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,550		52,000	20,000
3,570	9/64	52,000	20,000
3,580		52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,800		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,960		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,020		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,080		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000

d1		l1	l2
mm	inch	mm	mm
4,220		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,380		58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,550		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,020		62,000	26,000
5,050		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,150		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,350		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,450		66,000	28,000
5,500		66,000	28,000
5,550		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,450		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,550		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,760		74,000	34,000



d1		l1	l2
mm	inch	mm	mm
6,800		74,000	34,000
6,850		74,000	34,000
6,900		74,000	34,000
6,950		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,050		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,150		74,000	34,000
7,200		74,000	34,000
7,250		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,450		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,550		79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,750		79,000	37,000
7,800		79,000	37,000
7,850		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,050		79,000	37,000
8,100		79,000	37,000
8,150		79,000	37,000
8,200		79,000	37,000
8,250		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,450		79,000	37,000
8,500		79,000	37,000
8,550		84,000	40,000
8,600		84,000	40,000
8,610		84,000	40,000
8,650		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,750		84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
8,950		84,000	40,000
9,000		84,000	40,000
9,050		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,150		84,000	40,000
9,200		84,000	40,000
9,250		84,000	40,000
9,270		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,350		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,650		89,000	43,000
9,700		89,000	43,000
9,750		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
9,800		89,000	43,000
9,850		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,050		89,000	43,000
10,080		89,000	43,000
10,100		89,000	43,000
10,150		89,000	43,000
10,200		89,000	43,000
10,250		89,000	43,000
10,260		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,400		89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,600		89,000	43,000
10,700		95,000	47,000
10,720	27/64	95,000	47,000
10,750		95,000	47,000
10,800		95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,100		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,250		95,000	47,000
11,300		95,000	47,000
11,400		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,600		95,000	47,000
11,700		95,000	47,000
11,750		95,000	47,000
11,800		95,000	47,000
11,900		102,000	51,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,050		102,000	51,000
12,100		102,000	51,000
12,150		102,000	51,000
12,200		102,000	51,000
12,250		102,000	51,000
12,300	31/64	102,000	51,000
12,400		102,000	51,000
12,500		102,000	51,000
12,600		102,000	51,000
12,700	1/2	102,000	51,000
12,750		102,000	51,000
12,800		102,000	51,000
12,900		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,200		102,000	51,000
13,250		107,000	54,000
13,300		107,000	54,000
13,400		107,000	54,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,600		107,000	54,000
13,700		107,000	54,000
13,750		107,000	54,000
13,800		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,100		111,000	56,000
14,200		111,000	56,000
14,290	9/16	111,000	56,000
14,300		111,000	56,000
14,400		111,000	56,000
14,500		111,000	56,000

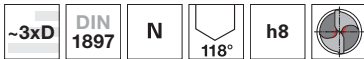


d1		l1	l2
mm	inch	mm	mm
14,600		111,000	56,000
14,680	37/64	111,000	56,000
14,700		111,000	56,000
14,750		111,000	56,000
14,800		111,000	56,000
14,900		111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,100		115,000	58,000
15,200		115,000	58,000
15,250		115,000	58,000
15,400		115,000	58,000
15,480	39/64	115,000	58,000
15,500		115,000	58,000
15,600		115,000	58,000
15,700		115,000	58,000
15,750		115,000	58,000
15,800		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,100		119,000	60,000
16,150		119,000	60,000
16,200		119,000	60,000
16,250		119,000	60,000
16,270	41/64	119,000	60,000
16,300		119,000	60,000
16,500		119,000	60,000
16,670	21/32	119,000	60,000
16,750		119,000	60,000
17,000		119,000	60,000
17,070	43/64	123,000	62,000
17,100		123,000	62,000
17,200		123,000	62,000
17,250		123,000	62,000
17,460	11/16	123,000	62,000
17,500		123,000	62,000
17,600		123,000	62,000
17,750		123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,100		127,000	64,000
18,200		127,000	64,000
18,250		127,000	64,000
18,260	23/32	127,000	64,000
18,500		127,000	64,000
18,650	47/64	127,000	64,000
18,750		127,000	64,000
19,000		127,000	64,000

d1		l1	l2
mm	inch	mm	mm
19,050		131,000	66,000
19,100	3/4	131,000	66,000
19,250		131,000	66,000
19,500		131,000	66,000
19,840	25/32	131,000	66,000
20,000		131,000	66,000
20,100		136,000	68,000
20,240	51/64	136,000	68,000
20,250		136,000	68,000
20,500		136,000	68,000
20,640	13/16	136,000	68,000
20,750		136,000	68,000
20,800		136,000	68,000
21,000		136,000	68,000
21,030	53/64	136,000	68,000
21,430	27/32	141,000	70,000
21,500		141,000	70,000
21,830	55/64	141,000	70,000
22,000		141,000	70,000
22,220	7/8	141,000	70,000
22,500		146,000	72,000
23,000		146,000	72,000
23,020	29/32	146,000	72,000
23,420	59/64	146,000	72,000
23,500		146,000	72,000
23,810	15/16	151,000	75,000
24,000		151,000	75,000
24,210	61/64	151,000	75,000
24,500		151,000	75,000
24,610	31/32	151,000	75,000
25,000	63/64	151,000	75,000
25,400	1	156,000	78,000
26,000		156,000	78,000
26,500		156,000	78,000
27,000		162,000	81,000
27,500		162,000	81,000
28,000		162,000	81,000
28,570	1 1/8	168,000	84,000
29,000		168,000	84,000
29,370	1 5/32	168,000	84,000
30,000		168,000	84,000
31,000		174,000	87,000
32,000		180,000	90,000
33,000		180,000	90,000
40,000		200,000	100,000
44,000		214,000	108,000



Punte elicoidali, extra corte



- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • anche per trapani a mano • per torni automatici/revolver
- M**
- K** •
- N** ○ materiale a spessore sottile
- S**
- H**

Materiale tagliente **HSS**

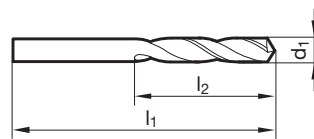
Superficie **S**

Direzione di taglio **R**

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **653**

d1		l1	l2
mm	inch	mm	mm
0,500		20,000	3,000
0,600		21,000	3,500
0,700		23,000	4,500
0,750		23,000	4,500
0,790	1/32	24,000	5,000
0,800		24,000	5,000
0,900		25,000	5,500
1,000		26,000	6,000
1,020		26,000	6,000
1,050		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,110		28,000	7,000
1,120		28,000	7,000
1,150		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,250		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,350		32,000	9,000
1,400		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,550		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,650		34,000	10,000
1,700		34,000	10,000
1,750		36,000	11,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,950		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000

d1		l1	l2
mm	inch	mm	mm
2,000		38,000	12,000
2,050		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,150		40,000	13,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,500		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,650		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,850		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000



d1		l1	l2
mm	inch	mm	mm
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,550		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,800		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,050		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,450		66,000	28,000
5,500		66,000	28,000
5,520		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000

d1		l1	l2
mm	inch	mm	mm
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,450		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,250		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,250		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,550		84,000	40,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,750		84,000	40,000
8,800		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,250		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,100		89,000	43,000
10,200		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,400		89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,600		89,000	43,000
10,720	27/64	95,000	47,000
10,750		95,000	47,000



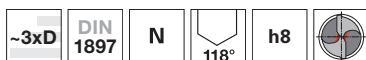
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d1		l1	l2
mm	inch	mm	mm
10,800		95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,300		95,000	47,000
11,400		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,750		95,000	47,000
11,800		95,000	47,000
11,900		102,000	51,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,100		102,000	51,000
12,200		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,700		107,000	54,000
13,800		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,200		111,000	56,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,800		111,000	56,000
14,900		111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,250		115,000	58,000
15,500		115,000	58,000
15,800		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,250		119,000	60,000
16,270	41/64	119,000	60,000
16,500		119,000	60,000

d1		l1	l2
mm	inch	mm	mm
16,670	21/32	119,000	60,000
17,000		119,000	60,000
17,460	11/16	123,000	62,000
17,500		123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,250		127,000	64,000
18,260	23/32	127,000	64,000
18,500		127,000	64,000
18,650	47/64	127,000	64,000
19,000		127,000	64,000
19,050	3/4	131,000	66,000
19,500		131,000	66,000
20,000		131,000	66,000
20,500		136,000	68,000
20,640	13/16	136,000	68,000
21,000		136,000	68,000
21,500		141,000	70,000
22,000		141,000	70,000
22,500		146,000	72,000
22,620	57/64	146,000	72,000
23,000		146,000	72,000
23,420	59/64	146,000	72,000
24,000		151,000	75,000
24,500		151,000	75,000
25,000	63/64	151,000	75,000
25,400	1	156,000	78,000
27,500		162,000	81,000
28,500		168,000	84,000
29,370	1 5/32	168,000	84,000
29,500		168,000	84,000
30,000		168,000	84,000
30,160	1 3/16	174,000	87,000



Punte elicoidali, extra corte



P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • per torni automatici/revolver • anche per trapani a mano

M

K •

N • materiale a spessore sottile

S

H

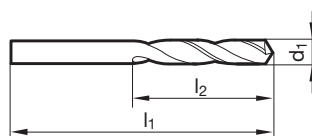
Materiale tagliente **HSS**

Superficie **F**

Direzione di taglio **R**

GUHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **2460**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,200		30,000	8,000
1,300		30,000	8,000
2,000		38,000	12,000
2,200		40,000	13,000
2,500		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,900		55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,700		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000

d1		l1	l2
mm	inch	mm	mm
6,200		70,000	31,000
6,300		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,800		74,000	34,000
7,100		74,000	34,000
7,300		74,000	34,000
7,500		74,000	34,000
7,800		79,000	37,000
8,300		79,000	37,000
8,500		79,000	37,000
8,700		84,000	40,000
8,800		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,100		84,000	40,000
9,300		84,000	40,000
9,600		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,100		89,000	43,000
10,500		89,000	43,000
11,200		95,000	47,000
12,200		102,000	51,000
12,300	31/64	102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,500		107,000	54,000
14,500		111,000	56,000
15,000		111,000	56,000

Punte cilindriche



Punte elicoidali, extra corte



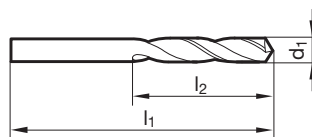
Materiale tagliente	HSS
Superficie	>0.060
Direzione di taglio	L

P	•	Assott. del nocc. $\geq \varnothing 14,050$ • spoglia sul cono tagliente • per torni automatici/revolver
M		
K	•	
N	○	materiale a spessore sottile
S		
H		

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **226**

d1		l1	l2
mm	inch	mm	mm
0,320		19,000	2,000
0,500		20,000	3,000
0,550		21,000	3,500
0,580		21,000	3,500
0,620		22,000	4,000
0,650		22,000	4,000
0,700		23,000	4,500
0,740		23,000	4,500
0,750		23,000	4,500
0,800		24,000	5,000
0,810		24,000	5,000
0,850		24,000	5,000
0,875		25,000	5,500
0,890		25,000	5,500
0,900		25,000	5,500
0,950		25,000	5,500
0,970		26,000	6,000
0,975		26,000	6,000
1,000		26,000	6,000
1,020		26,000	6,000
1,030		26,000	6,000
1,040		26,000	6,000
1,050		26,000	6,000
1,060		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,150		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,220		30,000	8,000
1,250		30,000	8,000
1,320		30,000	8,000
1,330		32,000	9,000
1,350		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,550		34,000	10,000
1,580		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000

d1		l1	l2
mm	inch	mm	mm
1,610		34,000	10,000
1,650		34,000	10,000
1,670		34,000	10,000
1,700		34,000	10,000
1,720		36,000	11,000
1,750		36,000	11,000
1,780		36,000	11,000
1,800		36,000	11,000
1,810		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,940		38,000	12,000
1,950		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,010		38,000	12,000
2,050		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,180		40,000	13,000
2,200		40,000	13,000
2,220		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,360		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,520		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000



d1		l1	l2
mm	inch	mm	mm
2,650		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,720		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,870		46,000	16,000
2,880		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,020		49,000	18,000
3,050		49,000	18,000
3,100		49,000	18,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,230		49,000	18,000
3,250		49,000	18,000
3,300		49,000	18,000
3,330		49,000	18,000
3,400		52,000	20,000
3,420		52,000	20,000
3,450		52,000	20,000
3,480		52,000	20,000
3,500		52,000	20,000
3,530		52,000	20,000
3,700		52,000	20,000
3,710		52,000	20,000
3,720		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,770		55,000	22,000
3,800		55,000	22,000
3,840		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,020		55,000	22,000
4,030		55,000	22,000
4,033		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,230		55,000	22,000
4,250		55,000	22,000
4,290		58,000	24,000
4,300		58,000	24,000
4,350		58,000	24,000
4,370	11/64	58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,520		58,000	24,000
4,560		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,920		62,000	26,000
4,930		62,000	26,000
4,950		62,000	26,000
4,970		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000

d1		l1	l2
mm	inch	mm	mm
5,050		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,150		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,450		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,620		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,150		70,000	31,000
6,170		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,540		70,000	31,000
6,550		70,000	31,000
6,570		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
6,920		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,250		74,000	34,000
7,350		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,450		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,550		79,000	37,000
7,700		79,000	37,000
7,750		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000

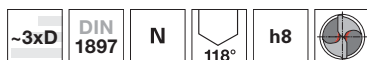


d1		l1	l2
mm	inch	mm	mm
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,850		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,130	23/64	84,000	40,000
9,150		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,350		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,700		89,000	43,000
9,750		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,050		89,000	43,000
10,080		89,000	43,000
10,100		89,000	43,000
10,200		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,600		89,000	43,000
10,800		95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,250		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,750		95,000	47,000
11,800		95,000	47,000
12,000		102,000	51,000
12,200		102,000	51,000
12,450		102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,900		102,000	51,000
13,000		102,000	51,000
13,200		102,000	51,000
13,250		107,000	54,000
13,750		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,050		111,000	56,000
14,200		111,000	56,000

d1		l1	l2
mm	inch	mm	mm
14,250		111,000	56,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,700		111,000	56,000
15,000		111,000	56,000
15,200		115,000	58,000
15,480	39/64	115,000	58,000
15,600		115,000	58,000
15,750		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,200		119,000	60,000
16,500		119,000	60,000
16,670	21/32	119,000	60,000
17,000		119,000	60,000
17,070	43/64	123,000	62,000
17,750		123,000	62,000
18,000		123,000	62,000
18,500		127,000	64,000
19,050	3/4	131,000	66,000
19,840	25/32	131,000	66,000
20,000		131,000	66,000
20,640	13/16	136,000	68,000
21,000		136,000	68,000
21,250		141,000	70,000
21,750		141,000	70,000
21,830	55/64	141,000	70,000
22,000		141,000	70,000
22,400		141,000	70,000
23,000		146,000	72,000
24,000		151,000	75,000
25,500		156,000	78,000
26,190	1 1/32	156,000	78,000
26,590	1 3/64	162,000	81,000
26,990	1 1/16	162,000	81,000
27,380	1 5/64	162,000	81,000
29,000		168,000	84,000
30,960	1 7/32	174,000	87,000
31,500		174,000	87,000
32,150	1 17/64	180,000	90,000
32,940	1 19/64	180,000	90,000
33,000		180,000	90,000
34,500		186,000	93,000
34,920	1 3/8	186,000	93,000
36,000		193,000	96,000
37,000		193,000	96,000
40,000		200,000	100,000
45,000		214,000	108,000
48,000		228,000	116,000
50,000		228,000	116,000



Punte elicoidali, extra corte



Materiale tagliente **HSS**

Superficie **S**

Direzione di taglio **L**

P • Assott. del nocc. $\geq \varnothing 2,400$ • spoglia sul cono tagliente • per torni automatici/revolver

M

K •

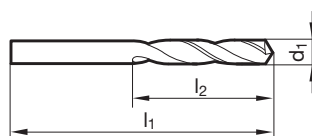
N ○ materiale a spessore sottile

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 772



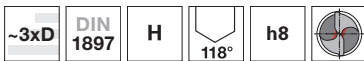
Articolo nr. **672**

d1		l1	l2
mm	inch	mm	mm
0,900		25,000	5,500
0,950		25,000	5,500
1,000		26,000	6,000
1,100		28,000	7,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,800		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,400		43,000	14,000
2,500		43,000	14,000
2,550		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,920		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,150		49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
4,000		55,000	22,000
4,200		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,400		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000

d1		l1	l2
mm	inch	mm	mm
4,900		62,000	26,000
5,000		62,000	26,000
5,200		62,000	26,000
5,600		66,000	28,000
5,700		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,500		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,500		74,000	34,000
7,900		79,000	37,000
8,000		79,000	37,000
8,500		79,000	37,000
8,700		84,000	40,000
8,800		84,000	40,000
9,000		84,000	40,000
9,500		84,000	40,000
9,800		89,000	43,000
10,000		89,000	43,000
11,000		95,000	47,000
11,500		95,000	47,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000



Punte elicoidali, extra corte



- P** Assott. del nocc. $\geq \varnothing 14,500$ • spoglia sul cono tagliente
- M**
- K**
- N** • materiali duri e secchi • ottone, leghe di magnesio • bronze, bronzo fosforoso • ardesia, mica, pertinax
- S**
- H**

Materiale tagliente **HSS**

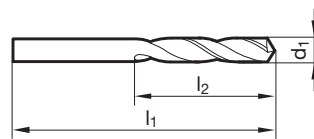
Superficie

Direzione di taglio

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **224**

d1		l1	l2
mm	inch	mm	mm
0,690		23,000	4,500
0,900		25,000	5,500
0,950		25,000	5,500
1,000		26,000	6,000
1,100		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,550		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,620		34,000	10,000
1,700		34,000	10,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,950		38,000	12,000
1,980	5/64	38,000	12,000
2,000		38,000	12,000
2,020		38,000	12,000
2,050		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,250		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,450		43,000	14,000
2,500		43,000	14,000
2,550		43,000	14,000
2,600		43,000	14,000
2,650		43,000	14,000
2,700		46,000	16,000
2,780	7/64	46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	16,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,250		49,000	18,000
3,300		49,000	18,000
3,350		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,850		55,000	22,000
3,900		55,000	22,000
3,970	5/32	55,000	22,000
4,000		55,000	22,000
4,050		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000

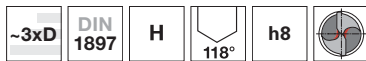


d1		l1	l2
mm	inch	mm	mm
5,900		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,140	9/32	74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,750		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,500		79,000	37,000
9,000		84,000	40,000

d1		l1	l2
mm	inch	mm	mm
9,200		84,000	40,000
9,500		84,000	40,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,320	13/32	89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,500		102,000	51,000
13,000		102,000	51,000
14,000		107,000	54,000
14,500		111,000	56,000
15,000		111,000	56,000
16,000		115,000	58,000
17,000		119,000	60,000
18,000		123,000	62,000
19,000		127,000	64,000
20,000		131,000	66,000
21,000		136,000	68,000



Punte elicoidali, extra corte



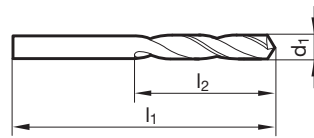
Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓛ

- P** Assott. del nocc. ≥ Ø 15,000 • spoglia sul cono tagliente
- M**
- K**
- N** • per materiali duri e secchi • ottone, leghe di magnesio • bronze, bronzo fosforoso • ardesia, mica, pertinax
- S**
- H**

Punte cilindriche

GUHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **227**

d1		l1	l2
mm	inch	mm	mm
0,750		23,000	4,500
1,040		26,000	6,000
1,150		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,350		32,000	9,000
1,540		34,000	10,000
1,590	1/16	34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
1,950		38,000	12,000
1,980	5/64	38,000	12,000
2,100		38,000	12,000
2,150		40,000	13,000
2,200		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,480		43,000	14,000
2,500		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,780	7/64	46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,350		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,970	5/32	55,000	22,000
4,100		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,600		58,000	24,000

d1		l1	l2
mm	inch	mm	mm
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,150		62,000	26,000
5,160	13/64	62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,950	15/64	66,000	28,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,600		70,000	31,000
6,750	17/64	74,000	34,000
7,000		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,750		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,500		79,000	37,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
9,130	23/64	84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,320	13/32	89,000	43,000
10,720	27/64	95,000	47,000

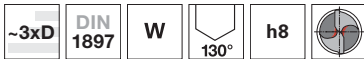


d1		l1	l2
mm	inch	mm	mm
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,510	29/64	95,000	47,000
11,910	15/32	102,000	51,000
13,500		107,000	54,000
15,000		111,000	56,000

d1		l1	l2
mm	inch	mm	mm
22,200		141,000	70,000
24,000		151,000	75,000



Punte elicoidali, extra corte



P Assott. del nocc. $\geq \varnothing 2,380$ • spoglia sul cono tagliente

- M**
- K**
- N** • materiali teneri a truciolo lungo • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • materie sintetiche (tenere) e legno
- S**
- H**

Materiale tagliente **HSS**

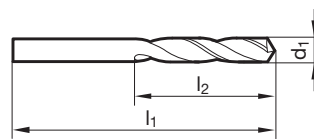
Superficie

Direzione di taglio

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **225**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
1,980	5/64	38,000	12,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,250		40,000	13,000
2,300		40,000	13,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,500		43,000	14,000
2,550		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
3,970	5/32	55,000	22,000

d1		l1	l2
mm	inch	mm	mm
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,200		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,560	7/32	66,000	28,000
5,700		66,000	28,000
5,900		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,300		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,800		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,200		79,000	37,000

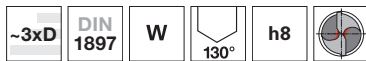


d1		l1	l2
mm	inch	mm	mm
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,730		84,000	40,000
8,900	11/32	84,000	40,000
9,000		84,000	40,000
9,200		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,400		84,000	40,000
9,520	3/8	89,000	43,000
9,800		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000
10,500		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
12,000		102,000	51,000
12,100		102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
14,500		111,000	56,000
15,000		111,000	56,000
16,000		115,000	58,000
17,500		123,000	62,000
18,000	3/4	123,000	62,000
19,050		131,000	66,000
19,750		131,000	66,000
20,000		131,000	66,000



Punte elicoidali, extra corte



P Assott. del nocc. $\geq \varnothing 2,380$ • spoglia sul cono tagliente

- M**
- K**
- N** • materiali teneri a truciolo lungo • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • materie sintetiche (tenere) e legno
- S**
- H**

Materiale tagliente **HSS**

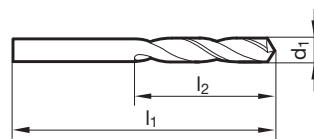
Superficie

Direzione di taglio

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **228**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,150		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
1,980	5/64	38,000	12,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,420		43,000	14,000
2,500		43,000	14,000
2,570		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,780	7/64	46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
2,920		46,000	16,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,970	5/32	55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000

d1		l1	l2
mm	inch	mm	mm
4,200		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,900		62,000	26,000
5,100		62,000	26,000
5,160	13/64	62,000	26,000
5,200		62,000	26,000
5,400		66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,950	15/64	66,000	28,000
6,100		70,000	31,000
6,150		70,000	31,000
6,350	1/4	70,000	31,000
6,500		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,140	9/32	74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,800		79,000	37,000
7,940	5/16	79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,730	11/32	84,000	40,000
9,000		84,000	40,000
9,130	23/64	84,000	40,000
9,500		84,000	40,000
9,920	25/64	89,000	43,000
10,320	13/32	89,000	43,000

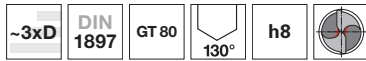


d1		l1	l2
mm	inch	mm	mm
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,910	15/32	102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
13,500		107,000	54,000
14,000		107,000	54,000

d1		l1	l2
mm	inch	mm	mm
14,500		111,000	56,000
14,700		111,000	56,000
15,000		111,000	56,000
15,500		115,000	58,000
16,500		119,000	60,000
18,000		123,000	62,000
20,000		131,000	66,000



Punte elicoidali, extra corte



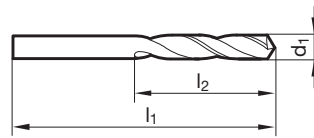
Materiale tagliente	HSS
Superficie	$>\varnothing$ 16,0
Direzione di taglio	R

- P** ● Assott. del nocc. $\geq \varnothing$ 1,000 • spoglia sul cono tagliente • per acciai molto duri • lucida < 2,36 mm
- M** ○
- K** ○
- N** ● acciai automatici • acciai inossidabili e resist. al calore • acciai da cementazione e da bonifica
- S** ● con R fino a ca. 800 N/mm² • leghe di alluminio e rame a truciolo corto e medio
- H** ○

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **552**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,020		26,000	6,000
1,040		26,000	6,000
1,050		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,150		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,250		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,350		32,000	9,000
1,400		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,530		34,000	10,000
1,550		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,650		34,000	10,000
1,700		34,000	10,000
1,750		36,000	11,000
1,780		36,000	11,000
1,800		36,000	11,000
1,820		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,950		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,050		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,130		40,000	13,000

d1		l1	l2
mm	inch	mm	mm
2,150		40,000	13,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,320		40,000	13,000
2,350		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,650		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,850		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,350		49,000	18,000



d1		l1	l2
mm	inch	mm	mm
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,550		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,800		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,350		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,550		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,050		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000

d1		l1	l2
mm	inch	mm	mm
6,000		66,000	28,000
6,040		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
10,500		89,000	43,000
10,600		89,000	43,000
10,720	27/64	95,000	47,000
10,800		95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,300		95,000	47,000
11,400		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,800		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,400		102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,900		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,890	35/64	107,000	54,000

d1		l1	l2
mm	inch	mm	mm
14,000		107,000	54,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,680	37/64	111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,480	39/64	115,000	58,000
15,500		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,270	41/64	119,000	60,000
16,500		119,000	60,000
17,000		119,000	60,000
17,070	43/64	123,000	62,000
17,460	11/16	123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,260	23/32	127,000	64,000
19,000		127,000	64,000
19,050	3/4	131,000	66,000
19,840	25/32	131,000	66,000
20,000		131,000	66,000



Punte elicoidali, extra corte

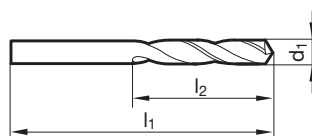


Materiale tagliente	HSS
Superficie	$\geq \varnothing 16,0$
Direzione di taglio	(L)

- P** ● Assott. del nocch. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • per acciai molto duri • lucida $< 2,36$ mm
- M** ○
- K** ○
- N** ● acciai automatici • acciai inossidabili e resist. al calore • acciai da cementazione e da bonifica
- S** ● con R fino a ca. 800 N/mm^2 • leghe di alluminio e rame a truciolo corto e medio
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **553**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,020		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,150		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,250		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,350		32,000	9,000
1,400		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,550		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,650		34,000	10,000
1,700		34,000	10,000
1,750		36,000	11,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,950		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,050		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000

d1		l1	l2
mm	inch	mm	mm
2,350		40,000	13,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,850		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,350		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,660		52,000	20,000
3,680		52,000	20,000
3,700		52,000	20,000
3,750		52,000	20,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
3,800		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,550		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000

d1		l1	l2
mm	inch	mm	mm
7,030		74,000	34,000
7,140	9/32	74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,200		79,000	37,000
8,330	21/64	79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,730	11/32	84,000	40,000
8,840		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,130	23/64	84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,700		95,000	47,000
10,720	27/64	95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,100		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,800		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,250		111,000	56,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,680	37/64	111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,480	39/64	115,000	58,000
15,500		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,270	41/64	119,000	60,000

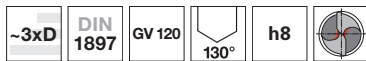


d1		l1	l2
mm	inch	mm	mm
17,070	43/64	123,000	62,000
17,460	11/16	123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,260	23/32	127,000	64,000
18,500		127,000	64,000

d1		l1	l2
mm	inch	mm	mm
18,650	47/64	127,000	64,000
19,000		127,000	64,000
19,500		131,000	66,000
19,840	25/32	131,000	66,000



Punte elicoidali, extra corte



Materiale tagliente **HSCO**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M •

K •

N ○ acciai inossidabili e resist. al calore • acciai per molle • acciai austenitici
• Hastelloy, Inconel, Nimonic

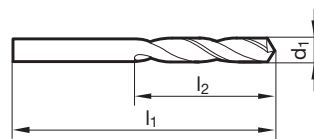
S •

H ○

GUHRING NAVIGATOR

Dati di taglio a pag. 772

Punte cilindriche



Articolo nr. **329**

d1		l1	l2
mm	inch	mm	mm
0,400	1/64	19,000	2,500
0,500		20,000	3,000
0,510		20,000	3,000
0,520		20,000	3,000
0,550		21,000	3,500
0,570		21,000	3,500
0,580		21,000	3,500
0,590		21,000	3,500
0,600		21,000	3,500
0,610		22,000	4,000
0,640		22,000	4,000
0,650		22,000	4,000
0,700		23,000	4,500
0,730		23,000	4,500
0,740		23,000	4,500
0,750		23,000	4,500
0,790	1/32	24,000	5,000
0,800		24,000	5,000
0,810		24,000	5,000
0,820		24,000	5,000
0,840		24,000	5,000
0,850		24,000	5,000
0,860		25,000	5,500
0,870		25,000	5,500
0,900		25,000	5,500
0,910		25,000	5,500
0,940		25,000	5,500
0,950		25,000	5,500
0,960		26,000	6,000
0,970		26,000	6,000
0,990		26,000	6,000
1,000		26,000	6,000
1,020		26,000	6,000
1,030		26,000	6,000
1,050		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,150		28,000	7,000
1,170		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000

d1		l1	l2
mm	inch	mm	mm
1,200		30,000	8,000
1,210		30,000	8,000
1,230		30,000	8,000
1,250		30,000	8,000
1,280		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,330		32,000	9,000
1,350		32,000	9,000
1,370		32,000	9,000
1,400		32,000	9,000
1,450		32,000	9,000
1,470		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,550		34,000	10,000
1,570		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,630		34,000	10,000
1,650		34,000	10,000
1,680		34,000	10,000
1,700		34,000	10,000
1,730		36,000	11,000
1,750		36,000	11,000
1,780		36,000	11,000
1,800		36,000	11,000
1,820		36,000	11,000
1,830		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,950		38,000	12,000
1,970		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,030		38,000	12,000
2,050		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000



d1		l1	l2
mm	inch	mm	mm
2,100		38,000	12,000
2,150		40,000	13,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,320		40,000	13,000
2,350		40,000	13,000
2,360		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,420		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,470		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,520		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,650		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,830		46,000	16,000
2,850		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,020		49,000	18,000
3,050		49,000	18,000
3,100		49,000	18,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,350		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,520		52,000	20,000
3,550		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,800		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000

d1		l1	l2
mm	inch	mm	mm
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,350		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,550		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,020		62,000	26,000
5,050		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,150		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,350		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,450		66,000	28,000
5,500		66,000	28,000
5,550		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,850		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,320		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,450		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,550		70,000	31,000



d1		l1	l2
mm	inch	mm	mm
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,850		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,050		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,250		74,000	34,000
7,300		74,000	34,000
7,350		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,550		79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,750		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,050		79,000	37,000
8,100		79,000	37,000
8,150		79,000	37,000
8,200		79,000	37,000
8,250		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,520		84,000	40,000
8,550		84,000	40,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,750		84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,050		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,250		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,750		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,050		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
10,080		89,000	43,000
10,100		89,000	43,000
10,200		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,400		89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,600		89,000	43,000
10,700		95,000	47,000
10,720	27/64	95,000	47,000
10,800		95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,100		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,250		95,000	47,000
11,300		95,000	47,000
11,400		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,600		95,000	47,000
11,700		95,000	47,000
11,800		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,100		102,000	51,000
12,200		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,600		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
12,900		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,200		102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,600		107,000	54,000
13,750		107,000	54,000
13,800		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,200		111,000	56,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,680	37/64	111,000	56,000
14,750		111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,480	39/64	115,000	58,000
15,500		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,200		119,000	60,000
16,270	41/64	119,000	60,000
16,500		119,000	60,000
16,670	21/32	119,000	60,000
17,000		119,000	60,000
17,070	43/64	123,000	62,000
17,460	11/16	123,000	62,000
17,500		123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,500		127,000	64,000
18,650	47/64	127,000	64,000
19,000		127,000	64,000
19,050	3/4	131,000	66,000
19,450	49/64	131,000	66,000
19,500		131,000	66,000

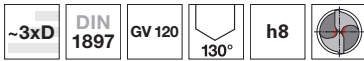


d1		l1	l2
mm	inch	mm	mm
19,840	25/32	131,000	66,000
20,000		131,000	66,000
20,250		136,000	68,000
20,500	13/16	136,000	68,000
20,640		136,000	68,000
21,000		136,000	68,000
22,000		141,000	70,000
22,200	63/64	141,000	70,000
23,000		146,000	72,000
24,000		151,000	75,000
24,500		151,000	75,000
25,000		151,000	75,000

d1		l1	l2
mm	inch	mm	mm
25,400	1	156,000	78,000
25,500		156,000	78,000
26,000		156,000	78,000
28,000		162,000	81,000
48,000		228,000	116,000



Punte elicoidali, extra corte



Materiale tagliente **HSCO**

Superficie **S**

Direzione di taglio **R**

P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M •

K •

N ○ acciai inossidabili e resist. al calore • acciai per molle • acciai austenitici
• Hastelloy, Inconel, Nimonic

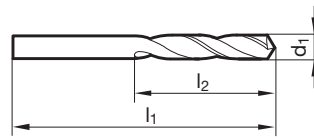
S •

H ○

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 774



Articolo nr. **659**

d1		l1	l2
mm	inch	mm	mm
0,500		20,000	3,000
0,600		21,000	3,500
0,650		22,000	4,000
0,700		23,000	4,500
0,740		23,000	4,500
0,750		23,000	4,500
0,780		24,000	5,000
0,790	1/32	24,000	5,000
0,800		24,000	5,000
0,850		24,000	5,000
0,900		25,000	5,500
0,950		25,000	5,500
1,000		26,000	6,000
1,020		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,150		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,250		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,400		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,530		34,000	10,000
1,550		34,000	10,000
1,570		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,700		34,000	10,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,970		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000

d1		l1	l2
mm	inch	mm	mm
2,000		38,000	12,000
2,050		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,780	7/64	46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,850		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,030		49,000	18,000
3,050		49,000	18,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,350		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000

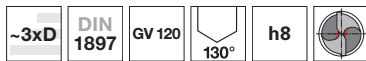


d1		l1	l2
mm	inch	mm	mm
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,800		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,160	13/64	62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000

d1		l1	l2
mm	inch	mm	mm
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,400		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
9,000		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,100		89,000	43,000
10,200		89,000	43,000
10,250		89,000	43,000
10,320	13/32	89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
10,800		95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
12,000		102,000	51,000
12,100		102,000	51,000
12,200		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
13,300		107,000	54,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
14,000		107,000	54,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
15,000		111,000	56,000
15,500		115,000	58,000



Punte elicoidali, extra corte



Materiale tagliente **HSC0**

Superficie **F**

Direzione di taglio **R**

P • Assott. del noc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M •

K •

N ○ acciai inossidabili e resist. al calore • acciai per molle • acciai austenitici
• Hastelloy, Inconel, Nimonic

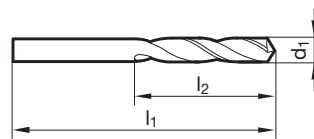
S •

H ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 774

Punte cilindriche



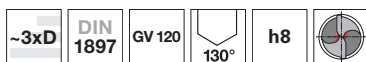
Articolo nr. **2461**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,400		43,000	14,000
2,500		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
4,000		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,200		62,000	26,000

d1		l1	l2
mm	inch	mm	mm
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,600		66,000	28,000
5,800		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,600		79,000	37,000
7,800		79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,800		84,000	40,000
9,000		84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,500		84,000	40,000
9,800		89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000
10,500		89,000	43,000
11,000		95,000	47,000
11,500		95,000	47,000
12,000		102,000	51,000
13,000		102,000	51,000



Punte elicoidali, extra corte

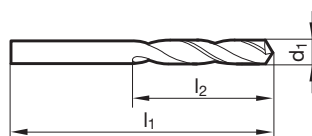


Materiale tagliente	HSCO
Superficie	$\frac{+0}{6,00}$
Direzione di taglio	(L)

- P** • Assott. del nocc. $\geq \varnothing 2,370$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** •
- K** •
- N** ○ acciai inossidabili e resist. al calore • acciai per molle • acciai austenitici • Hastelloy, Inconel, Nimonic
- S** •
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **330**

d1		l1	l2
mm	inch	mm	mm
0,450		19,000	2,500
0,500		20,000	3,000
0,620		22,000	4,000
0,700		23,000	4,500
0,710		23,000	4,500
0,750		23,000	4,500
0,800		24,000	5,000
0,900		25,000	5,500
1,000		26,000	6,000
1,030		26,000	6,000
1,040		26,000	6,000
1,050		26,000	6,000
1,060		26,000	6,000
1,090		28,000	7,000
1,150		28,000	7,000
1,170		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,210		30,000	8,000
1,220		30,000	8,000
1,230		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,350		32,000	9,000
1,420		32,000	9,000
1,450		32,000	9,000
1,470		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,530		34,000	10,000
1,550		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,650		34,000	10,000
1,700		34,000	10,000
1,780		36,000	11,000
1,800		36,000	11,000
1,930		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000

d1		l1	l2
mm	inch	mm	mm
2,000		38,000	12,000
2,020		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,180		40,000	13,000
2,200		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,440		43,000	14,000
2,500		43,000	14,000
2,550		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,750		46,000	16,000
2,770		46,000	16,000
2,780	7/64	46,000	16,000
2,820		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,860		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000

Punte cilindriche



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
4,570		58,000	24,000
4,620		58,000	24,000
4,760	3/16	62,000	26,000
4,850		62,000	26,000
4,920		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,300		70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,050		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,370		74,000	34,000
7,490		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,700		79,000	37,000
7,900		79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,330	21/64	79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,610		84,000	40,000

d1		l1	l2
mm	inch	mm	mm
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,700		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,260		89,000	43,000
10,490		89,000	43,000
10,720	27/64	95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,100		95,000	47,000
11,200		95,000	47,000
11,300		95,000	47,000
11,510	29/64	95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,400		102,000	51,000
13,000		102,000	51,000
13,500		107,000	54,000
14,000		107,000	54,000
14,700		111,000	56,000
15,100		115,000	58,000
15,500		115,000	58,000
16,000		115,000	58,000
19,500		131,000	66,000
19,750		131,000	66,000
22,500		146,000	72,000
23,500		146,000	72,000
24,000		151,000	75,000
25,000	63/64	151,000	75,000
25,500		156,000	78,000
26,000		156,000	78,000
27,000		162,000	81,000
32,000		180,000	90,000



Punte elicoidali, extra corte

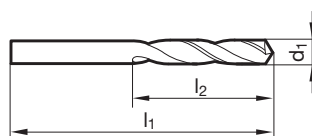


- P** ● Assott. del noc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ○
- K** ○
- N** ○ per acciai molto duri
- S** ○ • materiali a truciolo lungo con R fino a ca. 1000 N/mm² • leghe di Al e rame • bronzi teneri • rame elettrolitico • ottone tenace
- H** ○

Materiale tagliente	HSCO
Superficie	S
Direzione di taglio	R

GUHRING NAVIGATOR

Dati di taglio a pag. 774



Punte cilindriche

Articolo nr. **1228**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,400		43,000	14,000
2,500		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
3,970	5/32	55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000

d1		l1	l2
mm	inch	mm	mm
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,160	13/64	62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,800		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,500		79,000	37,000



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
8,600		84,000	40,000
8,700		84,000	40,000
9,000		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000
10,320	13/32	89,000	43,000
10,500		89,000	43,000
11,000		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,800		95,000	47,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000

d1		l1	l2
mm	inch	mm	mm
12,800		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
14,000		107,000	54,000
14,500		111,000	56,000
15,000		111,000	56,000
15,500		115,000	58,000
16,000		115,000	58,000
16,500		119,000	60,000
17,000		119,000	60,000
17,500		123,000	62,000
18,000		123,000	62,000
18,500		127,000	64,000
19,000		127,000	64,000
20,000		131,000	66,000



Punte elicoidali, extra corte

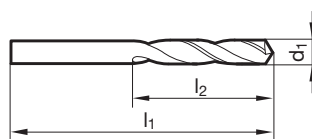


- P** ● Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ○
- K** ○
- N** ○ materiali a truciolo lungo con R fino a ca. 1000 N/mm^2 • leghe di Al e rame • bronzi teneri • rame elettrolitico • ottone tenace
- S** ○
- H** ○

Materiale tagliente	HSC0
Superficie	F
Direzione di taglio	R

GUHRING NAVIGATOR

Dati di taglio a pag. 774



Punte cilindriche

Articolo nr. **2498**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,200		30,000	8,000
1,300		30,000	8,000
1,500		32,000	9,000
1,600		34,000	10,000
1,800		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,400		43,000	14,000
2,500		43,000	14,000
2,600		43,000	14,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
5,000		62,000	26,000
5,100		62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,500		66,000	28,000

d1		l1	l2
mm	inch	mm	mm
5,600		66,000	28,000
6,000		66,000	28,000
6,200		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,500		74,000	34,000
7,600		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
8,000		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
9,000		84,000	40,000
9,300		84,000	40,000
9,500		84,000	40,000
10,000		89,000	43,000
10,200		89,000	43,000
10,500		89,000	43,000
10,800		95,000	47,000
11,000		95,000	47,000
11,800		95,000	47,000
12,000		102,000	51,000
12,500		102,000	51,000
13,000		102,000	51,000
13,500		107,000	54,000
14,000		107,000	54,000
14,500		111,000	56,000
15,000		111,000	56,000
16,000		115,000	58,000



Punte elicoidali, extra corte



- P** ○ spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ●
- K** ●
- N** ○ acciai inossidabili, resistenti al calore ed austenitici (V2A e V4A)
- S** ○
- H** ●

Materiale tagliente **HSCO**

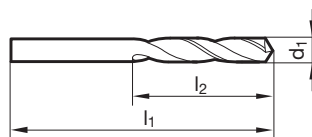
Superficie ○

Direzione di taglio

Punte cilindriche

GUHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **1261**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,200		30,000	8,000
1,300		30,000	8,000
1,500		32,000	9,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,700		34,000	10,000
1,900		36,000	11,000
2,000		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,400		43,000	14,000
2,500		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,500		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,200		62,000	26,000
5,500		66,000	28,000
5,600		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000

d1		l1	l2
mm	inch	mm	mm
6,100		70,000	31,000
6,300		70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,800		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
8,000		79,000	37,000
8,300		79,000	37,000
8,400		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,800		84,000	40,000
9,000		84,000	40,000
9,100		84,000	40,000
9,300		84,000	40,000
9,500		84,000	40,000
9,900		89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000
10,900		95,000	47,000
11,500		95,000	47,000
12,000		102,000	51,000



Punte elicoidali, extra corte



Materiale tagliente **HSCO**

Superficie **S**

Direzione di taglio **R**



P ○ Assott. del nocc. ≥ Ø 1,000 • affilatura a croce ottimizzata • acciaio HSS legato al Co • massima resistenza all'usura

M ●

K ○

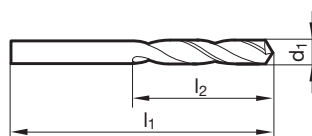
N ○ acciai inossidabili, resistenti al calore ed austenitici (V2A e V4A) • leghe speciali

S ●

H

GUHRING NAVIGATOR

Dati di taglio a pag. 774



Articolo nr. **572**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,400		43,000	14,000
2,500		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000

d1		l1	l2
mm	inch	mm	mm
5,100		62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,550		66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,400		74,000	34,000
7,450		74,000	34,000
7,500		74,000	34,000
7,600		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,400		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,800		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000



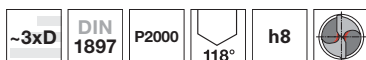
d1		l1	l2
mm	inch	mm	mm
9,100		84,000	40,000
9,200		84,000	40,000
9,250		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
10,500		89,000	43,000
11,000		95,000	47,000
11,200		95,000	47,000
11,500		95,000	47,000
11,800		95,000	47,000
12,000		102,000	51,000
12,500		102,000	51,000
13,000		102,000	51,000

Punte cilindriche



Punte elicoidali, extra corte



Materiale tagliente **HSCO**

Superficie **M**

Direzione di taglio **R**

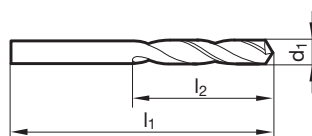
P • Assott. del nocch. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • uso universale con wave grind • acciaio HSS legato al Co • massima resistenza all'usura
M ○ • per montaggio • anche per trapani a mano

K ○
N ○ acciai con R fino a 1000 N/mm² a truciolo lungo • ghisa e leghe di AlSi

S
H

GUHRING NAVIGATOR

Dati di taglio a pag. 774



Articolo nr. **2048**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,400		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000

d1		l1	l2
mm	inch	mm	mm
5,800		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,900		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,600		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,400		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,800		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,100		84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
10,500		89,000	43,000
11,500		95,000	47,000
12,000		102,000	51,000
12,500		102,000	51,000
13,000		102,000	51,000

d1		l1	l2
mm	inch	mm	mm

Punte cilindriche



Punte elicoidali, extra corte

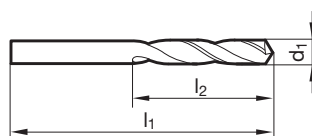


- P** ● Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • con alta perc. di CoMo • specialmente per resistenza all'usura
- M** ○
- K** ○
- N** ● leghe tenaci e molto ten. base di CrNi • Hastelloy, Inconel, Nimonic
- S** ● acciai inossidabili e resistenti al calore • lamiera resistente all'usura
- H** ○
- acciai o bronzi con R fino a ca. 1400 N/mm²

Materiale tagliente	M42
Superficie	○
Direzione di taglio	Ⓜ

GUHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **1259**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,500		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,780	7/64	46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
3,970	5/32	55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000

d1		l1	l2
mm	inch	mm	mm
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,800		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
9,000		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,800		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,500		89,000	43,000
11,000		95,000	47,000

d1		l1	l2
mm	inch	mm	mm
11,500		95,000	47,000
12,000		102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000
14,000		107,000	54,000
15,000		111,000	56,000
15,870	5/8	115,000	58,000

Punte cilindriche



Punte elicoidali, extra corte



Materiale tagliente **HSS-E-PM**

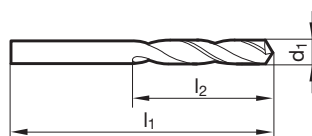
Superficie **F**

Direzione di taglio **R**

- P** • Assott. del nocch. $\geq \varnothing 1,000$ • relieved cone point geometry with special type B web thinning • acciaio HSS legato al Co PM • stabilità elevata
- M** ○ • specialmente per resistenza all'usura
- K** •
- N** ○ acciai ed acciai legati in alta percentuale • acciai da bonifica e da cementazione • ghise, ottone e bronzo
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 774



Articolo nr. **515**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,020		26,000	6,000
1,040		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,700		34,000	10,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,180		40,000	13,000
2,200		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,530		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000

d1		l1	l2
mm	inch	mm	mm
2,640		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,800		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000

Punte cilindriche

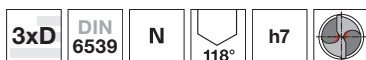


d1		l1	l2
mm	inch	mm	mm
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000

d1		l1	l2
mm	inch	mm	mm
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,350		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,800		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
14,000		107,000	54,000
14,290	9/16	111,000	56,000



Punte elicoidali, extra corte



Materiale tagliente **Int. in MD**

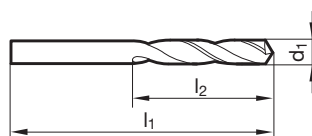
Superficie

Direzione di taglio

- P** Assott. del noc. $\geq \varnothing 2,060$ • affilatura su piani • forma del tagliente principale diritta
- M**
- K**
- N** acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • ghisa grigia • bronzo/ottone • alluminio e leghe di alluminio
- S** • magnesio e leghe di magnesio • materie sintetiche e materie sintetiche a fibre rinforzate
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 776



Articolo nr. **730**

d1		l1	l2
mm	inch	mm	mm
0,500		20,000	3,000
0,600		21,000	3,500
0,700		23,000	4,500
0,800		24,000	5,000
0,900		25,000	5,500
1,000		26,000	6,000
1,020		26,000	6,000
1,040		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,700		34,000	10,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000

d1		l1	l2
mm	inch	mm	mm
2,440		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,530		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,800		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000

Punte cilindriche



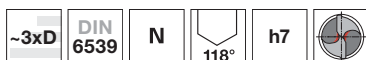
Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000

d1		l1	l2
mm	inch	mm	mm
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,700		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000
13,490	17/32	107,000	54,000
14,000		107,000	54,000
14,290	9/16	111,000	56,000
15,000		111,000	56,000
16,000		115,000	58,000



Punte elicoidali, extra corte



Materiale tagliente **Int. in MD**

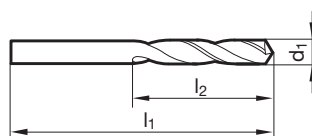
Superficie **F**

Direzione di taglio **R**

- P** ○ Assott. del nocc. ≥ Ø 2,060 • affilatura su piani • forma del tagliente principale diritta
- M** ○
- K** ○
- N** ● acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • ghise • ottone • leghe di alluminio con elevato contenuto di silicio • magnesio e leghe di magnesio • materie sintetiche e materie sintetiche a fibre rinforzate
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 776



Articolo nr. **2463**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,020		26,000	6,000
1,040		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,700		34,000	10,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,530		43,000	14,000
2,580		43,000	14,000

d1		l1	l2
mm	inch	mm	mm
2,600		43,000	14,000
2,640		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,800		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000

Punte cilindriche

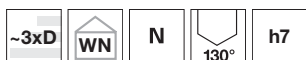


d1		l1	l2
mm	inch	mm	mm
4,500		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000

d1		l1	l2
mm	inch	mm	mm
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000
13,490	17/32	107,000	54,000
14,000		107,000	54,000
14,290	9/16	111,000	56,000
15,000		111,000	56,000
16,000		115,000	58,000



Punte elicoidali, extra corte



P affilatura su piani • forma del tagliente principale diritta

M

K

N materie sintetiche a fibre vetrose • altri materiali che esercitano un'azione abrasiva sui taglienti e sulle fasi della punta

S

H

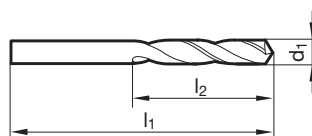
Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

GUHRING NAVIGATOR

Dati di taglio a pag. 776



Articolo nr. **702**

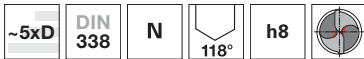
d1		l1	l2
mm	inch	mm	mm
0,500		30,000	6,500
0,550		30,000	6,500
0,600		30,000	6,500
0,650		30,000	6,500
0,700		30,000	6,500
0,750		30,000	8,500
0,800		30,000	8,500
0,900		30,000	9,500
1,000		30,000	11,000
1,050		30,000	11,000
1,100		30,000	11,000
1,200		30,000	13,000
1,350		30,000	13,000
1,400		30,000	13,000
1,450		30,000	13,000
1,500		30,000	13,000
1,600		40,000	17,500
1,650		40,000	17,500
1,700		40,000	17,500
1,800		40,000	17,500
1,850		40,000	17,500
1,900		40,000	17,500
2,000		40,000	17,500
2,010		40,000	17,500
2,050		40,000	17,500
2,100		40,000	17,500
2,200		40,000	17,500
2,260		40,000	17,500
2,300		40,000	17,500
2,400		40,000	17,500
2,490		40,000	17,500
2,500		40,000	17,500
2,530		45,000	20,000
2,600		45,000	20,000
2,700		45,000	20,000
2,800		45,000	20,000

d1		l1	l2
mm	inch	mm	mm
3,000		45,000	20,000
3,050		50,000	22,000
3,100		50,000	22,000
3,200		50,000	22,000
3,260		50,000	22,000
3,300		50,000	22,000
3,400		50,000	22,000
3,450		50,000	22,000
3,500		50,000	22,000
3,570	9/64	50,000	22,000
3,600		50,000	22,000
3,910		50,000	22,000
4,000		50,000	22,000
4,200		50,000	25,000
4,300		50,000	25,000
4,400		50,000	25,000
4,700		50,000	25,000
5,000		50,000	25,000
5,200		50,000	25,000
5,310		50,000	25,000
5,610		50,000	25,000
5,790		50,000	25,000
5,950	15/64	50,000	25,000
6,000		50,000	25,000
6,250		65,000	30,000
6,350	1/4	65,000	30,000
6,500		65,000	30,000

Punte cilindriche



Punte elicoidali, corte



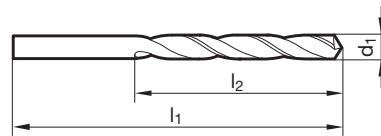
- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	$> \varnothing_{2,36}$
Direzione di taglio	(R)

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **205**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,200		19,000	2,500	0,620		26,000	8,000
0,210		19,000	2,500	0,630		26,000	8,000
0,220		19,000	2,500	0,640		26,000	8,000
0,230		19,000	2,500	0,650		26,000	8,000
0,240		19,000	2,500	0,660		26,000	8,000
0,250		19,000	3,000	0,670		26,000	8,000
0,260		19,000	3,000	0,680		28,000	9,000
0,270		19,000	3,000	0,690		28,000	9,000
0,280		19,000	3,000	0,700		28,000	9,000
0,290		19,000	3,000	0,710		28,000	9,000
0,300		19,000	3,000	0,720		28,000	9,000
0,310		19,000	4,000	0,730		28,000	9,000
0,320		19,000	4,000	0,740		28,000	9,000
0,330		19,000	4,000	0,750		28,000	9,000
0,340		19,000	4,000	0,760		30,000	10,000
0,350		19,000	4,000	0,770		30,000	10,000
0,360		19,000	4,000	0,780		30,000	10,000
0,370		19,000	4,000	0,790	1/32	30,000	10,000
0,380		19,000	4,000	0,800		30,000	10,000
0,390		20,000	5,000	0,810		30,000	10,000
0,400	1/64	20,000	5,000	0,820		30,000	10,000
0,410		20,000	5,000	0,830		30,000	10,000
0,420		20,000	5,000	0,840		30,000	10,000
0,430		20,000	5,000	0,850		30,000	10,000
0,440		20,000	5,000	0,860		32,000	11,000
0,450		20,000	5,000	0,870		32,000	11,000
0,460		20,000	5,000	0,880		32,000	11,000
0,470		20,000	5,000	0,890		32,000	11,000
0,480		20,000	5,000	0,900		32,000	11,000
0,490		22,000	6,000	0,910		32,000	11,000
0,500		22,000	6,000	0,920		32,000	11,000
0,510		22,000	6,000	0,930		32,000	11,000
0,520		22,000	6,000	0,940		32,000	11,000
0,530		22,000	6,000	0,950		32,000	11,000
0,540		24,000	7,000	0,960		34,000	12,000
0,550		24,000	7,000	0,970		34,000	12,000
0,560		24,000	7,000	0,980		34,000	12,000
0,570		24,000	7,000	0,990		34,000	12,000
0,580		24,000	7,000	1,000		34,000	12,000
0,590		24,000	7,000	1,010		34,000	12,000
0,600		24,000	7,000	1,020		34,000	12,000
0,610		26,000	8,000	1,030		34,000	12,000



d1		l1	l2
mm	inch	mm	mm
1,040		34,000	12,000
1,050		34,000	12,000
1,060		34,000	12,000
1,070		36,000	14,000
1,080		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,110		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000
1,170		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,240		38,000	16,000
1,250		38,000	16,000
1,260		38,000	16,000
1,270		38,000	16,000
1,280		38,000	16,000
1,290		38,000	16,000
1,300		38,000	16,000
1,310		38,000	16,000
1,320		38,000	16,000
1,330		40,000	18,000
1,340		40,000	18,000
1,350		40,000	18,000
1,360		40,000	18,000
1,370		40,000	18,000
1,380		40,000	18,000
1,390		40,000	18,000
1,400		40,000	18,000
1,410		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,440		40,000	18,000
1,450		40,000	18,000
1,460		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,530		43,000	20,000
1,540		43,000	20,000
1,550		43,000	20,000
1,560		43,000	20,000
1,570		43,000	20,000
1,580		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,630		43,000	20,000
1,640		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,670		43,000	20,000
1,680		43,000	20,000
1,690		43,000	20,000
1,700		43,000	20,000
1,710		46,000	22,000
1,720		46,000	22,000
1,730		46,000	22,000
1,740		46,000	22,000
1,750		46,000	22,000

d1		l1	l2
mm	inch	mm	mm
1,760		46,000	22,000
1,770		46,000	22,000
1,780		46,000	22,000
1,790		46,000	22,000
1,800		46,000	22,000
1,810		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,840		46,000	22,000
1,850		46,000	22,000
1,860		46,000	22,000
1,870		46,000	22,000
1,880		46,000	22,000
1,890		46,000	22,000
1,900		46,000	22,000
1,910		49,000	24,000
1,920		49,000	24,000
1,930		49,000	24,000
1,940		49,000	24,000
1,950		49,000	24,000
1,960		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,010		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,040		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,070		49,000	24,000
2,080		49,000	24,000
2,090		49,000	24,000
2,100		49,000	24,000
2,110		49,000	24,000
2,120		49,000	24,000
2,130		53,000	27,000
2,140		53,000	27,000
2,150		53,000	27,000
2,170		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,210		53,000	27,000
2,220		53,000	27,000
2,230		53,000	27,000
2,240		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,270		53,000	27,000
2,280		53,000	27,000
2,290		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,330		53,000	27,000
2,340		53,000	27,000
2,350		53,000	27,000
2,360		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,390		57,000	30,000
2,400		57,000	30,000
2,420		57,000	30,000
2,430		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,460		57,000	30,000
2,470		57,000	30,000
2,480		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,510		57,000	30,000



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
2,520		57,000	30,000
2,530		57,000	30,000
2,540		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,610		57,000	30,000
2,620		57,000	30,000
2,630		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,660		61,000	33,000
2,670		61,000	33,000
2,680		61,000	33,000
2,700		61,000	33,000
2,710		61,000	33,000
2,720		61,000	33,000
2,730		61,000	33,000
2,750		61,000	33,000
2,760		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,830		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,880		61,000	33,000
2,900		61,000	33,000
2,910		61,000	33,000
2,920		61,000	33,000
2,930		61,000	33,000
2,940		61,000	33,000
2,950		61,000	33,000
2,960		61,000	33,000
2,970		61,000	33,000
2,980		61,000	33,000
2,990		61,000	33,000
3,000		61,000	33,000
3,010		65,000	36,000
3,020		65,000	36,000
3,030		65,000	36,000
3,040		65,000	36,000
3,050		65,000	36,000
3,060		65,000	36,000
3,070		65,000	36,000
3,080		65,000	36,000
3,100		65,000	36,000
3,120		65,000	36,000
3,130		65,000	36,000
3,150		65,000	36,000
3,160		65,000	36,000
3,170	1/8	65,000	36,000
3,180		65,000	36,000
3,200		65,000	36,000
3,220		65,000	36,000
3,230		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,320		65,000	36,000
3,330		65,000	36,000
3,350		65,000	36,000
3,360		70,000	39,000
3,370		70,000	39,000
3,380		70,000	39,000
3,400		70,000	39,000
3,420		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,520		70,000	39,000

d1		l1	l2
mm	inch	mm	mm
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,610		70,000	39,000
3,620		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,680		70,000	39,000
3,700		70,000	39,000
3,725		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,820		75,000	43,000
3,830		75,000	43,000
3,850		75,000	43,000
3,860		75,000	43,000
3,870		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,920		75,000	43,000
3,930		75,000	43,000
3,940		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
3,980		75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,010		75,000	43,000
4,020		75,000	43,000
4,030		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,060		75,000	43,000
4,070		75,000	43,000
4,080		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,120		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,270		80,000	47,000
4,300		80,000	47,000
4,320		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,380		80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,420		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,520		80,000	47,000
4,530		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,730		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,770		86,000	52,000
4,800		86,000	52,000
4,830		86,000	52,000
4,850		86,000	52,000
4,860		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000



d1		l1	l2
mm	inch	mm	mm
4,930		86,000	52,000
4,950		86,000	52,000
4,970		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,020		86,000	52,000
5,025		86,000	52,000
5,030		86,000	52,000
5,050		86,000	52,000
5,060		86,000	52,000
5,080		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,120		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,190		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,260		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,350		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,420		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,630		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,920		93,000	57,000
5,930		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
5,960		93,000	57,000
5,970		93,000	57,000
5,980		93,000	57,000
5,990		93,000	57,000
6,000		93,000	57,000
6,030		101,000	63,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,170		101,000	63,000
6,200		101,000	63,000
6,210		101,000	63,000
6,220		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,380		101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,650		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,760		109,000	69,000
6,800		109,000	69,000
6,850		109,000	69,000
6,900		109,000	69,000
6,950		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,040		109,000	69,000
7,050		109,000	69,000
7,070		109,000	69,000
7,100		109,000	69,000
7,130		109,000	69,000
7,140	9/32	109,000	69,000
7,150		109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,320		109,000	69,000
7,350		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,450		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,550		117,000	75,000
7,600		117,000	75,000
7,650		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,850		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
7,950		117,000	75,000
7,980		117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,130		117,000	75,000
8,150		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,350		117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,450		117,000	75,000
8,500		117,000	75,000
8,550		125,000	81,000
8,600		125,000	81,000
8,610		125,000	81,000
8,650		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,850		125,000	81,000
8,900		125,000	81,000
8,950		125,000	81,000
9,000		125,000	81,000
9,050		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,150		125,000	81,000



d1		l1	l2
mm	inch	mm	mm
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,350		125,000	81,000
9,400		125,000	81,000
9,450		125,000	81,000
9,500		125,000	81,000
9,510		133,000	87,000
9,520	3/8	133,000	87,000
9,570		133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,650		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
9,850		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
9,950		133,000	87,000
10,000		133,000	87,000
10,050		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,150		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,350		133,000	87,000
10,400		133,000	87,000
10,450		133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,550		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,750		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,050		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,150		142,000	94,000
11,200		142,000	94,000
11,250		142,000	94,000
11,300		142,000	94,000
11,350		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,050		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000
12,300	31/64	151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,650		151,000	101,000
12,700	1/2	151,000	101,000

d1		l1	l2
mm	inch	mm	mm
12,750		151,000	101,000
12,800		151,000	101,000
12,850		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,250		160,000	108,000
13,300		160,000	108,000
13,400		160,000	108,000
13,490	17/32	160,000	108,000
13,500		160,000	108,000
13,530		160,000	108,000
13,600		160,000	108,000
13,700		160,000	108,000
13,750		160,000	108,000
13,800		160,000	108,000
13,890	35/64	160,000	108,000
13,900		160,000	108,000
14,000		160,000	108,000
14,100		169,000	114,000
14,200		169,000	114,000
14,250		169,000	114,000
14,290	9/16	169,000	114,000
14,300		169,000	114,000
14,400		169,000	114,000
14,450		169,000	114,000
14,500		169,000	114,000
14,600		169,000	114,000
14,680	37/64	169,000	114,000
14,700		169,000	114,000
14,750		169,000	114,000
14,800		169,000	114,000
14,900		169,000	114,000
15,000		169,000	114,000
15,080	19/32	178,000	120,000
15,100		178,000	120,000
15,200		178,000	120,000
15,250		178,000	120,000
15,300		178,000	120,000
15,400		178,000	120,000
15,480	39/64	178,000	120,000
15,500		178,000	120,000
15,600		178,000	120,000
15,700		178,000	120,000
15,750		178,000	120,000
15,800		178,000	120,000
15,870	5/8	178,000	120,000
15,900		178,000	120,000
16,000		178,000	120,000
16,100		184,000	125,000
16,200		184,000	125,000
16,250		184,000	125,000
16,270	41/64	184,000	125,000
16,300		184,000	125,000
16,400		184,000	125,000
16,500		184,000	125,000
16,600		184,000	125,000
16,670	21/32	184,000	125,000
16,700		184,000	125,000
16,750		184,000	125,000
16,800		184,000	125,000
16,900		184,000	125,000
17,000		184,000	125,000
17,070	43/64	191,000	130,000
17,200		191,000	130,000
17,250		191,000	130,000
17,300		191,000	130,000
17,400		191,000	130,000
17,460	11/16	191,000	130,000
17,500		191,000	130,000
17,600		191,000	130,000

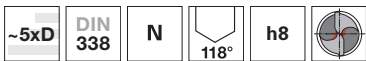


d1		l1	l2
mm	inch	mm	mm
17,700		191,000	130,000
17,750		191,000	130,000
17,800		191,000	130,000
17,860	45/64	191,000	130,000
17,900		191,000	130,000
18,000		191,000	130,000
18,100		198,000	135,000
18,200		198,000	135,000
18,260	23/32	198,000	135,000
18,400		198,000	135,000
18,500		198,000	135,000
18,650	47/64	198,000	135,000

d1		l1	l2
mm	inch	mm	mm
18,750		198,000	135,000
18,800		198,000	135,000
19,000		198,000	135,000
19,050	3/4	205,000	140,000
19,100		205,000	140,000
19,200		205,000	140,000
19,250		205,000	140,000
19,500		205,000	140,000
19,600		205,000	140,000
19,750		205,000	140,000
19,840	25/32	205,000	140,000
20,000		205,000	140,000



Punte elicoidali, corte



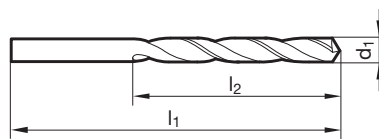
- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	S
Direzione di taglio	R

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **651**

d1		l1	l2
mm	inch	mm	mm
0,200		19,000	2,500
0,250		19,000	3,000
0,280		19,000	3,000
0,300		19,000	3,000
0,310		19,000	4,000
0,320		19,000	4,000
0,330		19,000	4,000
0,340		19,000	4,000
0,360		19,000	4,000
0,370		19,000	4,000
0,380		19,000	4,000
0,390		20,000	5,000
0,400	1/64	20,000	5,000
0,410		20,000	5,000
0,420		20,000	5,000
0,430		20,000	5,000
0,440		20,000	5,000
0,450		20,000	5,000
0,460		20,000	5,000
0,470		20,000	5,000
0,480		20,000	5,000
0,490		22,000	6,000
0,500		22,000	6,000
0,510		22,000	6,000
0,520		22,000	6,000
0,530		22,000	6,000
0,540		24,000	7,000
0,550		24,000	7,000
0,570		24,000	7,000
0,580		24,000	7,000
0,590		24,000	7,000
0,600		24,000	7,000
0,610		26,000	8,000
0,620		26,000	8,000
0,630		26,000	8,000
0,640		26,000	8,000
0,650		26,000	8,000
0,660		26,000	8,000
0,680		28,000	9,000
0,690		28,000	9,000
0,700		28,000	9,000
0,710		28,000	9,000

d1		l1	l2
mm	inch	mm	mm
0,720		28,000	9,000
0,740		28,000	9,000
0,750		28,000	9,000
0,770		30,000	10,000
0,780		30,000	10,000
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,820		30,000	10,000
0,830		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,870		32,000	11,000
0,880		32,000	11,000
0,890		32,000	11,000
0,900		32,000	11,000
0,910		32,000	11,000
0,920		32,000	11,000
0,930		32,000	11,000
0,940		32,000	11,000
0,950		32,000	11,000
0,960		34,000	12,000
0,970		34,000	12,000
0,980		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,030		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,060		34,000	12,000
1,070		36,000	14,000
1,080		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,110		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000



d1		l1	l2
mm	inch	mm	mm
1,170		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,240		38,000	16,000
1,250		38,000	16,000
1,260		38,000	16,000
1,270		38,000	16,000
1,280		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,330		40,000	18,000
1,340		40,000	18,000
1,350		40,000	18,000
1,400		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,450		40,000	18,000
1,460		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,530		43,000	20,000
1,540		43,000	20,000
1,550		43,000	20,000
1,560		43,000	20,000
1,570		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,640		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,680		43,000	20,000
1,700		43,000	20,000
1,710		46,000	22,000
1,720		46,000	22,000
1,730		46,000	22,000
1,750		46,000	22,000
1,770		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,850		46,000	22,000
1,870		46,000	22,000
1,900		46,000	22,000
1,910		49,000	24,000
1,930		49,000	24,000
1,950		49,000	24,000
1,960		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000

d1		l1	l2
mm	inch	mm	mm
2,300		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,720		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,020		65,000	36,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,850		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,070		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000



d1		l1	l2
mm	inch	mm	mm
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,950		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,020		86,000	52,000
5,050		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,650		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,850		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,020		109,000	69,000

d1		l1	l2
mm	inch	mm	mm
7,030		109,000	69,000
7,050		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,450		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,150		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,450		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,850		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,050		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,350		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,550		133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,060		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000

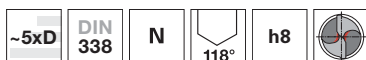


d1		l1	l2
mm	inch	mm	mm
10,400		133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,550		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,750		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,250		142,000	94,000
11,300		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,650		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000
12,300	31/64	151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,490	17/32	160,000	108,000
13,500		160,000	108,000

d1		l1	l2
mm	inch	mm	mm
13,700		160,000	108,000
13,750		160,000	108,000
13,800		160,000	108,000
13,890	35/64	160,000	108,000
13,900		160,000	108,000
14,000		160,000	108,000
14,100		169,000	114,000
14,200		169,000	114,000
14,250		169,000	114,000
14,290	9/16	169,000	114,000
14,300		169,000	114,000
14,400		169,000	114,000
14,500		169,000	114,000
14,680	37/64	169,000	114,000
15,000		169,000	114,000
15,080	19/32	178,000	120,000
15,250		178,000	120,000
15,480	39/64	178,000	120,000
15,500		178,000	120,000
15,800		178,000	120,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000
16,500		184,000	125,000
16,750		184,000	125,000
17,000		184,000	125,000
17,250		191,000	130,000
17,500		191,000	130,000
18,000		191,000	130,000
18,500		198,000	135,000
18,800		198,000	135,000
19,000		198,000	135,000



Punte elicoidali, corte



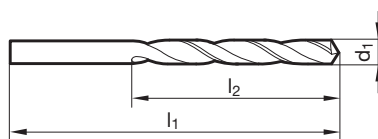
- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente
- M**
- K** •
- N** • acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	F
Direzione di taglio	R

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **2456**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,100		36,000	14,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,800		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,500		93,000	57,000

d1		l1	l2
mm	inch	mm	mm
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000

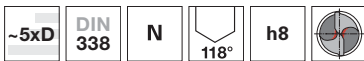


d1		l1	l2
mm	inch	mm	mm
10,400		133,000	87,000
10,700		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,400		142,000	94,000
11,700		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,900		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000
14,000		160,000	108,000
14,500		169,000	114,000



Punte elicoidali, corte



P •	Assott. del nocc. $\geq \varnothing 2,370$ • spoglia sul cono tagliente
M	
K •	
N ○	acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
S	
H	

Materiale tagliente **HSS**

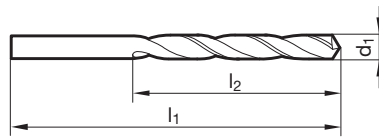
Superficie ○

Direzione di taglio (R)

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **560**

d1		l1	l2
mm	inch	mm	mm
2,400		57,000	30,000
2,500		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,200		65,000	36,000
3,240		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,800		75,000	43,000

d1		l1	l2
mm	inch	mm	mm
3,860		75,000	43,000
3,900		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,950		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,610		93,000	57,000



Punte elicoidali, corte



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • con dente di trascinamento secondo DIN 1809

M

K •

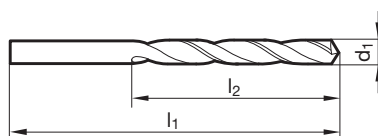
N ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **240**

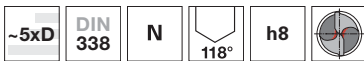
d1		l1	l2
mm	inch	mm	mm
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,800		133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
11,000		142,000	94,000
11,500		142,000	94,000
12,000		151,000	101,000
13,000		151,000	101,000
13,490	17/32	160,000	108,000
15,000		169,000	114,000
16,000		178,000	120,000

Punte cilindriche



Punte elicoidali, corte



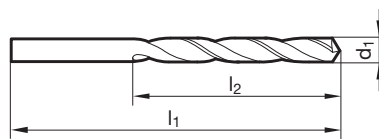
- P** • Assott. del nocc. $\geq \varnothing 14,700$ • spoglia sul cono tagliente
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	$>0,6,00$
Direzione di taglio	(L)

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **208**

d1		l1	l2
mm	inch	mm	mm
0,200		19,000	2,500
0,240		19,000	2,500
0,290		19,000	3,000
0,300		19,000	3,000
0,340		19,000	4,000
0,350		19,000	4,000
0,360		19,000	4,000
0,370		19,000	4,000
0,390		20,000	5,000
0,400	1/64	20,000	5,000
0,410		20,000	5,000
0,420		20,000	5,000
0,430		20,000	5,000
0,440		20,000	5,000
0,450		20,000	5,000
0,460		20,000	5,000
0,470		20,000	5,000
0,480		20,000	5,000
0,500		22,000	6,000
0,510		22,000	6,000
0,520		22,000	6,000
0,530		22,000	6,000
0,540		24,000	7,000
0,550		24,000	7,000
0,560		24,000	7,000
0,570		24,000	7,000
0,580		24,000	7,000
0,600		24,000	7,000
0,610		26,000	8,000
0,620		26,000	8,000
0,630		26,000	8,000
0,640		26,000	8,000
0,650		26,000	8,000
0,660		26,000	8,000
0,670		26,000	8,000
0,680		28,000	9,000
0,690		28,000	9,000
0,700		28,000	9,000
0,710		28,000	9,000
0,720		28,000	9,000
0,730		28,000	9,000
0,740		28,000	9,000

d1		l1	l2
mm	inch	mm	mm
0,750		28,000	9,000
0,770		30,000	10,000
0,775		30,000	10,000
0,780		30,000	10,000
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,820		30,000	10,000
0,830		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,870		32,000	11,000
0,880		32,000	11,000
0,890		32,000	11,000
0,900		32,000	11,000
0,910		32,000	11,000
0,930		32,000	11,000
0,950		32,000	11,000
0,960		34,000	12,000
0,970		34,000	12,000
0,980		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,080		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,110		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,150		36,000	14,000
1,170		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,250		38,000	16,000



d1		l1	l2
mm	inch	mm	mm
1,270		38,000	16,000
1,290		38,000	16,000
1,300		38,000	16,000
1,310		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,380		40,000	18,000
1,390		40,000	18,000
1,400		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,450		40,000	18,000
1,465		40,000	18,000
1,470		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,630		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,750		46,000	22,000
1,760		46,000	22,000
1,770		46,000	22,000
1,780		46,000	22,000
1,790		46,000	22,000
1,800		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,840		46,000	22,000
1,850		46,000	22,000
1,880		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,940		49,000	24,000
1,950		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,040		49,000	24,000
2,050		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,120		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,240		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,360		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,420		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000
2,580		57,000	30,000

d1		l1	l2
mm	inch	mm	mm
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,660		61,000	33,000
2,670		61,000	33,000
2,700		61,000	33,000
2,710		61,000	33,000
2,730		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,870		61,000	33,000
2,880		61,000	33,000
2,900		61,000	33,000
2,910		61,000	33,000
2,950		61,000	33,000
2,970		61,000	33,000
3,000		61,000	33,000
3,020		65,000	36,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,220		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,280		65,000	36,000
3,300		65,000	36,000
3,320		65,000	36,000
3,330		65,000	36,000
3,340		65,000	36,000
3,370		70,000	39,000
3,380		70,000	39,000
3,400		70,000	39,000
3,450		70,000	39,000
3,470		70,000	39,000
3,500		70,000	39,000
3,530		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,850		75,000	43,000
3,870		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,130		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,520		80,000	47,000
4,530		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000

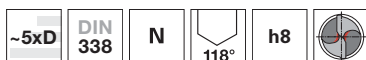


d1		l1	l2
mm	inch	mm	mm
4,680		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,930		86,000	52,000
4,950		86,000	52,000
4,970		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,080		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,520		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,570		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,880		109,000	69,000
6,900		109,000	69,000
6,910		109,000	69,000
6,950		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,040		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,220		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,520		117,000	75,000
7,540	19/64	117,000	75,000
7,550		117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,850		117,000	75,000
7,900		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,330	21/64	117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,650		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,500		133,000	87,000
10,750		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,250		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
12,750		151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,250		160,000	108,000
13,400		160,000	108,000
13,600		160,000	108,000
13,750		160,000	108,000
13,800		160,000	108,000
14,000		160,000	108,000
14,700		169,000	114,000
14,800		169,000	114,000
14,900		169,000	114,000
15,000		169,000	114,000
15,050		178,000	120,000
15,500		178,000	120,000
15,600		178,000	120,000
15,700		178,000	120,000
15,750		178,000	120,000
15,800		178,000	120,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000
17,250		191,000	130,000
17,500		191,000	130,000
19,000		198,000	135,000
19,050	3/4	205,000	140,000
19,500		205,000	140,000
20,000		205,000	140,000



Punte elicoidali, corte



Materiale tagliente **HSS**

Superficie **S**

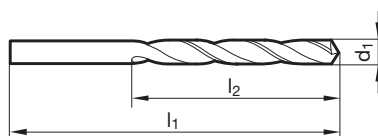
Direzione di taglio **L**

P • Assott. del noc. $\geq \varnothing 2,380$ • spoglia sul cono tagliente

- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Punte cilindriche

Articolo nr. **664**

d1		l1	l2
mm	inch	mm	mm
0,250		19,000	3,000
0,420		20,000	5,000
0,430		20,000	5,000
0,450		20,000	5,000
0,500		22,000	6,000
0,550		24,000	7,000
0,575		24,000	7,000
0,600		24,000	7,000
0,670		26,000	8,000
0,680		28,000	9,000
0,770		30,000	10,000
0,800		30,000	10,000
0,900		32,000	11,000
0,950		32,000	11,000
1,000		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,150		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,250		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,400		40,000	18,000
1,420		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,550		43,000	20,000
1,580		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,750		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000

d1		l1	l2
mm	inch	mm	mm
2,050		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,300		53,000	27,000
2,360		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,450		57,000	30,000
2,500		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,060	13/64	86,000	52,000
5,100		86,000	52,000
5,160		86,000	52,000
5,200		86,000	52,000
5,300	7/32	86,000	52,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	15/64	93,000	57,000
5,700		93,000	57,000
5,950		93,000	57,000
6,000		93,000	57,000
6,200	1/4	101,000	63,000
6,250		101,000	63,000
6,350		101,000	63,000
6,400		101,000	63,000
6,700	9/32	101,000	63,000
6,800		109,000	69,000
7,000		109,000	69,000
7,140		109,000	69,000
7,200	19/64	109,000	69,000
7,300		109,000	69,000
7,500		109,000	69,000
7,540		117,000	75,000
7,850	19/64	117,000	75,000
7,900		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
8,000	11/32	117,000	75,000
8,500		117,000	75,000
8,730		125,000	81,000
8,800		125,000	81,000
9,100	23/64	125,000	81,000
9,130		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600	25/64	133,000	87,000
9,800		133,000	87,000
9,920		133,000	87,000
10,000		133,000	87,000
10,200	13/32	133,000	87,000
10,320		133,000	87,000
10,900		142,000	94,000
11,000		142,000	94,000
12,000		151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
13,500		160,000	108,000
14,250		169,000	114,000



Punte elicoidali, corte



Materiale tagliente **HSS**

Superficie

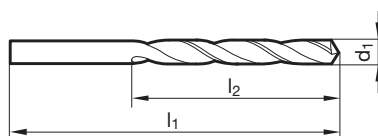
Direzione di taglio

P Assott. del nocc. $\geq \varnothing 14,500$ • spoglia sul cono tagliente

- M**
- K**
- N** • materiali duri e secchi • ottone, leghe di magnesio • bronze, bronzo fosforoso • ardesia, mica, pertinax
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 778



Punte cilindriche

Articolo nr. **206**

d1		l1	l2
mm	inch	mm	mm
0,200		19,000	2,500
0,210		19,000	2,500
0,220		19,000	2,500
0,240		19,000	2,500
0,250		19,000	3,000
0,280		19,000	3,000
0,290		19,000	3,000
0,300		19,000	3,000
0,310		19,000	4,000
0,320		19,000	4,000
0,340		19,000	4,000
0,350		19,000	4,000
0,400	1/64	20,000	5,000
0,410		20,000	5,000
0,420		20,000	5,000
0,440		20,000	5,000
0,450		20,000	5,000
0,460		20,000	5,000
0,480		20,000	5,000
0,500		22,000	6,000
0,520		22,000	6,000
0,530		22,000	6,000
0,550		24,000	7,000
0,560		24,000	7,000
0,570		24,000	7,000
0,600		24,000	7,000
0,620		26,000	8,000
0,640		26,000	8,000
0,650		26,000	8,000
0,660		26,000	8,000
0,670		26,000	8,000
0,680		28,000	9,000
0,690		28,000	9,000
0,700		28,000	9,000
0,710		28,000	9,000
0,720		28,000	9,000
0,730		28,000	9,000
0,740		28,000	9,000
0,750		28,000	9,000
0,760		30,000	10,000
0,770		30,000	10,000
0,780		30,000	10,000

d1		l1	l2
mm	inch	mm	mm
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,820		30,000	10,000
0,830		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,870		32,000	11,000
0,880		32,000	11,000
0,890		32,000	11,000
0,900		32,000	11,000
0,910		32,000	11,000
0,930		32,000	11,000
0,950		32,000	11,000
0,960		34,000	12,000
0,970		34,000	12,000
0,980		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,030		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,060		34,000	12,000
1,070		36,000	14,000
1,080		36,000	14,000
1,100		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,250		38,000	16,000
1,270		38,000	16,000
1,280		38,000	16,000
1,300		38,000	16,000



d1		l1	l2
mm	inch	mm	mm
1,320		38,000	16,000
1,330		40,000	18,000
1,350		40,000	18,000
1,370		40,000	18,000
1,380		40,000	18,000
1,400		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,440		40,000	18,000
1,450		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,520		43,000	20,000
1,530		43,000	20,000
1,540		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,620		43,000	20,000
1,650		43,000	20,000
1,670		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,730		46,000	22,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,820		46,000	22,000
1,850		46,000	22,000
1,870		46,000	22,000
1,900		46,000	22,000
1,920		49,000	24,000
1,950		49,000	24,000
1,960		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,010		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,040		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,070		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,120		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,220		53,000	27,000
2,230		53,000	27,000
2,250		53,000	27,000
2,270		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,450		57,000	30,000
2,470		57,000	30,000
2,480		57,000	30,000
2,500		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000

d1		l1	l2
mm	inch	mm	mm
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,840		61,000	33,000
2,850		61,000	33,000
2,900		61,000	33,000
2,920		61,000	33,000
2,950		61,000	33,000
2,970		61,000	33,000
3,000		61,000	33,000
3,010		65,000	36,000
3,020		65,000	36,000
3,030		65,000	36,000
3,040		65,000	36,000
3,050		65,000	36,000
3,060		65,000	36,000
3,070		65,000	36,000
3,100		65,000	36,000
3,120		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,220		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,410		70,000	39,000
3,450		70,000	39,000
3,470		70,000	39,000
3,500		70,000	39,000
3,520		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,720		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,830		75,000	43,000
3,850		75,000	43,000
3,870		75,000	43,000
3,880		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,020		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,070		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,420		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000



d1		l1	l2
mm	inch	mm	mm
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,950		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,050		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,350		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,850		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000

d1		l1	l2
mm	inch	mm	mm
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,150		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,700		142,000	94,000
11,900		151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,200		151,000	101,000
13,500		160,000	108,000
14,000		160,000	108,000
14,500		169,000	114,000
15,000		169,000	114,000
15,500		178,000	120,000
16,000		178,000	120,000
17,000		184,000	125,000
18,000		191,000	130,000
19,000		198,000	135,000
20,000		205,000	140,000



Punte elicoidali, corte



Materiale tagliente **HSS**

Superficie

Direzione di taglio

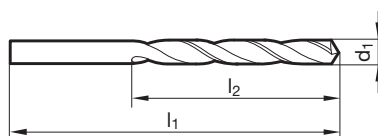
P Assott. del nocc. $\geq \varnothing 14,200$ • spoglia sul cono tagliente

- M**
- K**
- N** • materiali duri e secchi • ottone, leghe di magnesio • bronze, bronzo fosforoso • ardesia, mica, pertinax
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 778

Punte cilindriche



Articolo nr. **209**

d1		l1	l2
mm	inch	mm	mm
0,300		19,000	3,000
0,400	1/64	20,000	5,000
0,450		20,000	5,000
0,480		20,000	5,000
0,490		22,000	6,000
0,500		22,000	6,000
0,530		22,000	6,000
0,540		24,000	7,000
0,550		24,000	7,000
0,580		24,000	7,000
0,590		24,000	7,000
0,600		24,000	7,000
0,620		26,000	8,000
0,640		26,000	8,000
0,660		26,000	8,000
0,670		26,000	8,000
0,680		28,000	9,000
0,700		28,000	9,000
0,710		28,000	9,000
0,720		28,000	9,000
0,730		28,000	9,000
0,740		28,000	9,000
0,750		28,000	9,000
0,780		30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,860		32,000	11,000
0,880		32,000	11,000
0,900		32,000	11,000
0,910		32,000	11,000
0,920		32,000	11,000
0,940		32,000	11,000
0,950		32,000	11,000
0,960		34,000	12,000
0,970		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,030		34,000	12,000
1,060		34,000	12,000
1,080		36,000	14,000
1,100		36,000	14,000
1,120		36,000	14,000

d1		l1	l2
mm	inch	mm	mm
1,130		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000
1,165		36,000	14,000
1,170		36,000	14,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,240		38,000	16,000
1,250		38,000	16,000
1,260		38,000	16,000
1,270		38,000	16,000
1,280		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,380		40,000	18,000
1,400		40,000	18,000
1,410		40,000	18,000
1,450		40,000	18,000
1,480		40,000	18,000
1,500		40,000	18,000
1,520		43,000	20,000
1,550		43,000	20,000
1,560		43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,640		43,000	20,000
1,650		43,000	20,000
1,670		43,000	20,000
1,680		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,730		46,000	22,000
1,740		46,000	22,000
1,750		46,000	22,000
1,800		46,000	22,000
1,810		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,850		46,000	22,000



d1		l1	l2
mm	inch	mm	mm
1,860		46,000	22,000
1,870		46,000	22,000
1,890		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,030		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,100		49,000	24,000
2,140		53,000	27,000
2,150		53,000	27,000
2,200		53,000	27,000
2,220		53,000	27,000
2,230		53,000	27,000
2,240		53,000	27,000
2,250		53,000	27,000
2,280		53,000	27,000
2,290		53,000	27,000
2,300		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,390		57,000	30,000
2,400		57,000	30,000
2,420		57,000	30,000
2,450		57,000	30,000
2,470		57,000	30,000
2,500		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,830		61,000	33,000
2,850		61,000	33,000
2,900		61,000	33,000
2,930		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,070		65,000	36,000
3,080		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,160		65,000	36,000
3,170	1/8	65,000	36,000
3,175		65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,270		65,000	36,000
3,300		65,000	36,000
3,340		65,000	36,000
3,350		65,000	36,000
3,380		70,000	39,000
3,400		70,000	39,000
3,450		70,000	39,000
3,470		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,580		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,710		70,000	39,000
3,730		70,000	39,000
3,830		75,000	43,000
3,900		75,000	43,000

d1		l1	l2
mm	inch	mm	mm
3,950		75,000	43,000
3,960		75,000	43,000
4,000		75,000	43,000
4,050		75,000	43,000
4,070		75,000	43,000
4,100		75,000	43,000
4,120		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,280		80,000	47,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,850		86,000	52,000
4,870		86,000	52,000
4,950		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,650		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,100		101,000	63,000
6,120		101,000	63,000
6,130		101,000	63,000
6,150		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,650		101,000	63,000
6,700		101,000	63,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,150		109,000	69,000
7,200		109,000	69,000
7,220		109,000	69,000
7,300		109,000	69,000
7,350		109,000	69,000
7,550		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
8,000		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,450		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,250		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,750		133,000	87,000



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
9,800		133,000	87,000
9,850		133,000	87,000
10,000		133,000	87,000
10,500		133,000	87,000
11,100		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
12,050		151,000	101,000
12,100		151,000	101,000
12,150		151,000	101,000
12,200		151,000	101,000
12,300	31/64	151,000	101,000
12,800		151,000	101,000
13,100	33/64	151,000	101,000
13,300		160,000	108,000
13,500		160,000	108,000
13,800		160,000	108,000
14,200		169,000	114,000

d1		l1	l2
mm	inch	mm	mm
14,300		169,000	114,000
14,400		169,000	114,000
14,500		169,000	114,000
15,100		178,000	120,000
15,300		178,000	120,000
15,500		178,000	120,000
16,000		178,000	120,000
17,000		184,000	125,000
18,000		191,000	130,000
20,000		205,000	140,000



Punte elicoidali, corte



Materiale tagliente **HSS**

Superficie

Direzione di taglio

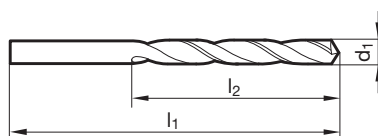
P Assott. del nocc. $\geq \varnothing 14,500$ • spoglia sul cono tagliente

- M**
- K**
- N** •
- S**
- H**

materiali teneri a truciolo lungo • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • materie sintetiche (tenere) • legno

GUHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **207**

d1		l1	l2
mm	inch	mm	mm
0,200		19,000	2,500
0,250		19,000	3,000
0,300		19,000	3,000
0,340		19,000	4,000
0,350		19,000	4,000
0,400	1/64	20,000	5,000
0,410		20,000	5,000
0,450		20,000	5,000
0,460		20,000	5,000
0,500		22,000	6,000
0,520		22,000	6,000
0,550		24,000	7,000
0,570		24,000	7,000
0,600		24,000	7,000
0,610		26,000	8,000
0,620		26,000	8,000
0,650		26,000	8,000
0,660		26,000	8,000
0,700		28,000	9,000
0,720		28,000	9,000
0,750		28,000	9,000
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,870		32,000	11,000
0,900		32,000	11,000
0,950		32,000	11,000
0,970		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,010		34,000	12,000
1,020		34,000	12,000
1,050		34,000	12,000
1,100		36,000	14,000
1,110		36,000	14,000
1,120		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,180		36,000	14,000

d1		l1	l2
mm	inch	mm	mm
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,220		38,000	16,000
1,250		38,000	16,000
1,270		38,000	16,000
1,280		38,000	16,000
1,300		38,000	16,000
1,330		40,000	18,000
1,350		40,000	18,000
1,380		40,000	18,000
1,400		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,530		43,000	20,000
1,550		43,000	20,000
1,570		43,000	20,000
1,580		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,630		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,680		43,000	20,000
1,700		43,000	20,000
1,750		46,000	22,000
1,770		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,820		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,920		49,000	24,000
1,930		49,000	24,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,020		49,000	24,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
2,030		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,270		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,450		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,730		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,830		61,000	33,000
2,850		61,000	33,000
2,900		61,000	33,000
2,930		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,380		70,000	39,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,850		75,000	43,000
3,900		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,030		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,500		80,000	47,000
4,550		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,030		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,650		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,850		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000

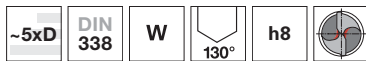


d1		l1	l2
mm	inch	mm	mm
8,450		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,700		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,000		142,000	94,000
11,100		142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,500		160,000	108,000
13,800		160,000	108,000
14,000		160,000	108,000
14,500		169,000	114,000
14,700		169,000	114,000
15,000		169,000	114,000
15,600		178,000	120,000
16,000		178,000	120,000
16,500		184,000	125,000
17,000		184,000	125,000
17,500		191,000	130,000
18,000		191,000	130,000
20,000		205,000	140,000



Punte elicoidali, corte



Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓛ

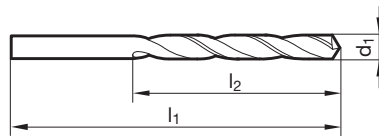
P Assott. del nocc. ≥ Ø 14,500 • spoglia sul cono tagliente

- M**
- K**
- N** • materiali teneri a truciolo lungo • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • materie sintetiche (tenere) • legno
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 778

Punte cilindriche



Articolo nr. **210**

d1		l1	l2
mm	inch	mm	mm
0,250		19,000	3,000
0,270		19,000	3,000
0,280		19,000	3,000
0,320		19,000	4,000
0,330		19,000	4,000
0,340		19,000	4,000
0,360		19,000	4,000
0,390		20,000	5,000
0,400	1/64	20,000	5,000
0,410		20,000	5,000
0,420		20,000	5,000
0,430		20,000	5,000
0,450		20,000	5,000
0,470		20,000	5,000
0,490		22,000	6,000
0,500		22,000	6,000
0,525		22,000	6,000
0,530		22,000	6,000
0,560		24,000	7,000
0,590		24,000	7,000
0,600		24,000	7,000
0,610		26,000	8,000
0,660		26,000	8,000
0,710		28,000	9,000
0,720		28,000	9,000
0,730		28,000	9,000
0,740		28,000	9,000
0,750		28,000	9,000
0,760		30,000	10,000
0,770		30,000	10,000
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,825		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,880		32,000	11,000
0,890		32,000	11,000
0,900		32,000	11,000
0,950		32,000	11,000
0,970		34,000	12,000

d1		l1	l2
mm	inch	mm	mm
0,980		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,100		36,000	14,000
1,120		36,000	14,000
1,150		36,000	14,000
1,210		38,000	16,000
1,220		38,000	16,000
1,250		38,000	16,000
1,290		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,400		40,000	18,000
1,450		40,000	18,000
1,480		40,000	18,000
1,500		40,000	18,000
1,540		43,000	20,000
1,550		43,000	20,000
1,580		43,000	20,000
1,600		43,000	20,000
1,630		43,000	20,000
1,700		43,000	20,000
1,750		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,950		49,000	24,000
2,000		49,000	24,000
2,150		53,000	27,000
2,200		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,340		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,450		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000

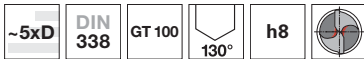


d1		l1	l2
mm	inch	mm	mm
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
2,970		61,000	33,000
3,000		61,000	33,000
3,130		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,280		65,000	36,000
3,300		65,000	36,000
3,380		70,000	39,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,820		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,920		75,000	43,000
4,000		75,000	43,000
4,030		75,000	43,000
4,050		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,400		80,000	47,000
4,500		80,000	47,000
4,520		80,000	47,000
4,550		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,720		80,000	47,000
4,750		80,000	47,000
4,850		86,000	52,000
4,900		86,000	52,000
4,950		86,000	52,000
5,000		86,000	52,000
5,020		86,000	52,000
5,100		86,000	52,000
5,150		86,000	52,000
5,200		86,000	52,000
5,400		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,620		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,030		101,000	63,000
6,050		101,000	63,000
6,080		101,000	63,000
6,100		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,150		101,000	63,000
6,200		101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
6,950		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,250		109,000	69,000
7,350		109,000	69,000
7,400		109,000	69,000
7,450		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,900		117,000	75,000
8,050		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,750		125,000	81,000
9,350		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,650		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
10,700		142,000	94,000
10,750		142,000	94,000
11,100		142,000	94,000
11,500		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,950		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000
12,500		151,000	101,000
12,800		151,000	101,000
13,200		151,000	101,000
14,500		169,000	114,000
15,000		169,000	114,000
15,500		178,000	120,000
16,000		178,000	120,000
16,200		184,000	125,000
17,000		184,000	125,000
17,300		191,000	130,000
17,500		191,000	130,000
17,600		191,000	130,000
18,000		191,000	130,000
19,000		198,000	135,000
19,500		205,000	140,000
19,800		205,000	140,000
20,000		205,000	140,000



Punte elicoidali, corte



Materiale tagliente	HSS
Superficie	
Direzione di taglio	

P • Assott. del nocc. $\geq \varnothing 0,970$ • spoglia sul cono tagliente • scanalature larghe • specifiche per prof. di foro oltre 3xD

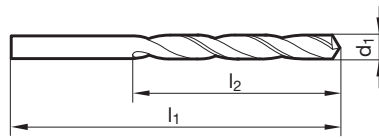
- M**
- K** •
- N** • ghisa grigia • acciai con R fino a 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

ghisa grigia • acciai con R fino a 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

GÜHRING NAVIGATOR

Dati di taglio a pag. 778

Punte cilindriche



Articolo nr. **549**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,600		24,000	7,000	1,620		43,000	20,000
0,700		28,000	9,000	1,650		43,000	20,000
0,710		28,000	9,000	1,660		43,000	20,000
0,790	1/32	30,000	10,000	1,670		43,000	20,000
0,800		30,000	10,000	1,680		43,000	20,000
0,890		32,000	11,000	1,690		43,000	20,000
0,900		32,000	11,000	1,700		43,000	20,000
0,950		32,000	11,000	1,720		46,000	22,000
0,970		34,000	12,000	1,750		46,000	22,000
0,990		34,000	12,000	1,780		46,000	22,000
1,000		34,000	12,000	1,800		46,000	22,000
1,020		34,000	12,000	1,820		46,000	22,000
1,040		34,000	12,000	1,850		46,000	22,000
1,050		34,000	12,000	1,860		46,000	22,000
1,070		36,000	14,000	1,900		46,000	22,000
1,090		36,000	14,000	1,930		49,000	24,000
1,100		36,000	14,000	1,950		49,000	24,000
1,150		36,000	14,000	1,980	5/64	49,000	24,000
1,180		36,000	14,000	1,990		49,000	24,000
1,190	3/64	38,000	16,000	2,000		49,000	24,000
1,200		38,000	16,000	2,020		49,000	24,000
1,220		38,000	16,000	2,050		49,000	24,000
1,230		38,000	16,000	2,060		49,000	24,000
1,240		38,000	16,000	2,080		49,000	24,000
1,250		38,000	16,000	2,100		49,000	24,000
1,300		38,000	16,000	2,150		53,000	27,000
1,305		38,000	16,000	2,180		53,000	27,000
1,320		38,000	16,000	2,200		53,000	27,000
1,350		40,000	18,000	2,250		53,000	27,000
1,400		40,000	18,000	2,260		53,000	27,000
1,450		40,000	18,000	2,300		53,000	27,000
1,500		40,000	18,000	2,330		53,000	27,000
1,510		43,000	20,000	2,350		53,000	27,000
1,520		43,000	20,000	2,370	3/32	57,000	30,000
1,530		43,000	20,000	2,380		57,000	30,000
1,550		43,000	20,000	2,400		57,000	30,000
1,560		43,000	20,000	2,420		57,000	30,000
1,570		43,000	20,000	2,440		57,000	30,000
1,580		43,000	20,000	2,450		57,000	30,000
1,590	1/16	43,000	20,000	2,480		57,000	30,000
1,600		43,000	20,000	2,490		57,000	30,000
1,610		43,000	20,000	2,500		57,000	30,000



d1		l1	l2
mm	inch	mm	mm
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
2,980		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,080		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,220		65,000	36,000
3,230		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,580		70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,680		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,870		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,210		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,950		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,030		86,000	52,000
5,050		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,350		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,830		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,040		109,000	69,000
7,050		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,290		109,000	69,000
7,300		109,000	69,000



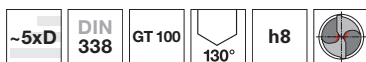
Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,580		117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,350		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,750		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,300		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,150		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000
12,300	31/64	151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,750		151,000	101,000
12,800		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,490	17/32	160,000	108,000
13,500		160,000	108,000
13,600		160,000	108,000
13,700		160,000	108,000
13,890	35/64	160,000	108,000
14,000		160,000	108,000
14,250		169,000	114,000
14,290	9/16	169,000	114,000
14,500		169,000	114,000
14,680	37/64	169,000	114,000
15,000		169,000	114,000
15,080	19/32	178,000	120,000
15,400		178,000	120,000
15,480	39/64	178,000	120,000
15,500		178,000	120,000
15,750		178,000	120,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000



Punte elicoidali, corte



Materiale tagliente **HSS**

Superficie **S**

Direzione di taglio **R**

P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • scanalature larghe • specifiche per prof. di foro oltre 3xD

M

K •

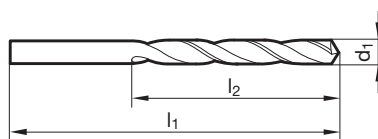
N • ghisa grigia • acciai con R fino a 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **652**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,220		38,000	16,000
1,250		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,530		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000

d1		l1	l2
mm	inch	mm	mm
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,490	17/32	160,000	108,000
13,890	35/64	160,000	108,000

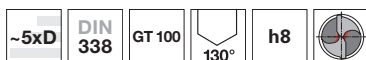


d1		l1	l2
mm	inch	mm	mm
14,000		160,000	108,000
14,290	9/16	169,000	114,000
15,000		169,000	114,000

d1		l1	l2
mm	inch	mm	mm



Punte elicoidali, corte



P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • scanalature larghe • specifiche per prof. di foro oltre 3xD

M

K •

N • ghisa grigia • acciai con R fino a 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

Materiale tagliente **HSS**

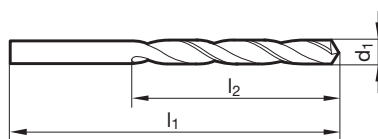
Superficie **F**

Direzione di taglio **R**

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 780



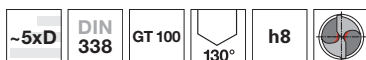
Articolo nr. **2457**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,300		38,000	16,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,400		57,000	30,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,800		75,000	43,000
4,000		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000

d1		l1	l2
mm	inch	mm	mm
5,600		93,000	57,000
5,700		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,600		101,000	63,000
6,800		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,700		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,100		125,000	81,000
9,400		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
10,300		133,000	87,000
10,700		142,000	94,000
11,400		142,000	94,000
11,700		142,000	94,000
11,800		142,000	94,000
15,000		169,000	114,000



Punte elicoidali, corte



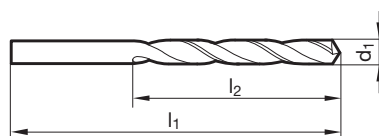
Materiale tagliente	HSS
Superficie	
Direzione di taglio	

P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • scanalature larghe • specifiche per prof. di foro oltre 3xD

- M**
- K** •
- N** • ghisa grigia • acciai con R fino a 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **550**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,300		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,450		40,000	18,000
1,485		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,550		43,000	20,000
1,580		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,030		49,000	24,000
2,050		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,670		61,000	33,000
2,700		61,000	33,000

d1		l1	l2
mm	inch	mm	mm
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,020		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,175	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000

Punte cilindriche



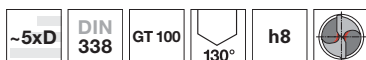
Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
4,620		80,000	47,000
4,760	3/16	86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,700		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,200		125,000	81,000
9,400		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,600		133,000	87,000
10,800		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,900		151,000	101,000
12,400		151,000	101,000
12,800		151,000	101,000
14,290	9/16	169,000	114,000
15,000		169,000	114,000
15,500		178,000	120,000



Punte elicoidali, corte



Materiale tagliente **HSS**

Superficie **S**

Direzione di taglio **L**

P • Assott. del nocc. $\geq \varnothing 1,300$ • spoglia sul cono tagliente • scanalature larghe • specifiche per prof. di foro oltre 3xD

M

K •

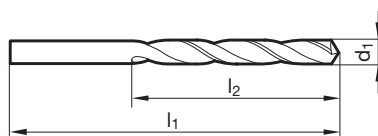
N • ghisa grigia • acciai con R fino a 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **665**

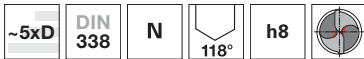
d1		l1	l2
mm	inch	mm	mm
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,570	9/64	70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000

d1		l1	l2
mm	inch	mm	mm
3,900		75,000	43,000
4,000		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,500		101,000	63,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,540	19/64	117,000	75,000
7,800		117,000	75,000
7,940	5/16	117,000	75,000
8,600		125,000	81,000
9,130	23/64	125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,800		133,000	87,000

Punte cilindriche



Punte elicoidali, corte



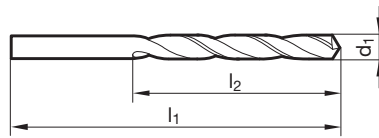
- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ○
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghise con R superiore a 800 N/mm² • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- S** ○
- H** ○

Materiale tagliente	HSCO
Superficie	$\geq \varnothing_{2,36}$
Direzione di taglio	(R)

Punte cilindriche

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **305**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,200		19,000	2,500	0,660		26,000	8,000
0,220		19,000	2,500	0,670		26,000	8,000
0,230		19,000	2,500	0,680		28,000	9,000
0,250		19,000	3,000	0,700		28,000	9,000
0,260		19,000	3,000	0,710		28,000	9,000
0,270		19,000	3,000	0,720		28,000	9,000
0,280		19,000	3,000	0,730		28,000	9,000
0,300		19,000	3,000	0,740		28,000	9,000
0,310		19,000	4,000	0,750		28,000	9,000
0,320		19,000	4,000	0,760		30,000	10,000
0,330		19,000	4,000	0,770		30,000	10,000
0,340		19,000	4,000	0,780		30,000	10,000
0,350		19,000	4,000	0,790	1/32	30,000	10,000
0,360		19,000	4,000	0,800		30,000	10,000
0,370		19,000	4,000	0,810		30,000	10,000
0,380		19,000	4,000	0,820		30,000	10,000
0,390		20,000	5,000	0,830		30,000	10,000
0,400	1/64	20,000	5,000	0,840		30,000	10,000
0,410		20,000	5,000	0,850		30,000	10,000
0,420		20,000	5,000	0,860		32,000	11,000
0,430		20,000	5,000	0,870		32,000	11,000
0,440		20,000	5,000	0,880		32,000	11,000
0,450		20,000	5,000	0,890		32,000	11,000
0,460		20,000	5,000	0,900		32,000	11,000
0,470		20,000	5,000	0,910		32,000	11,000
0,480		20,000	5,000	0,920		32,000	11,000
0,490		22,000	6,000	0,930		32,000	11,000
0,500		22,000	6,000	0,940		32,000	11,000
0,510		22,000	6,000	0,950		32,000	11,000
0,520		22,000	6,000	0,960		34,000	12,000
0,530		22,000	6,000	0,970		34,000	12,000
0,540		24,000	7,000	0,980		34,000	12,000
0,550		24,000	7,000	0,990		34,000	12,000
0,560		24,000	7,000	1,000		34,000	12,000
0,570		24,000	7,000	1,010		34,000	12,000
0,580		24,000	7,000	1,020		34,000	12,000
0,590		24,000	7,000	1,030		34,000	12,000
0,600		24,000	7,000	1,040		34,000	12,000
0,610		26,000	8,000	1,050		34,000	12,000
0,620		26,000	8,000	1,070		36,000	14,000
0,640		26,000	8,000	1,080		36,000	14,000
0,650		26,000	8,000	1,090		36,000	14,000



d1		l1	l2
mm	inch	mm	mm
1,100		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000
1,170		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,250		38,000	16,000
1,260		38,000	16,000
1,280		38,000	16,000
1,290		38,000	16,000
1,300		38,000	16,000
1,310		38,000	16,000
1,320		38,000	16,000
1,330		40,000	18,000
1,350		40,000	18,000
1,360		40,000	18,000
1,370		40,000	18,000
1,380		40,000	18,000
1,400		40,000	18,000
1,410		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,440		40,000	18,000
1,450		40,000	18,000
1,460		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,530		43,000	20,000
1,540		43,000	20,000
1,550		43,000	20,000
1,560		43,000	20,000
1,570		43,000	20,000
1,580		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,640		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,670		43,000	20,000
1,680		43,000	20,000
1,700		43,000	20,000
1,710		46,000	22,000
1,720		46,000	22,000
1,730		46,000	22,000
1,740		46,000	22,000
1,750		46,000	22,000
1,760		46,000	22,000
1,780		46,000	22,000
1,790		46,000	22,000
1,800		46,000	22,000
1,810		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,840		46,000	22,000
1,850		46,000	22,000
1,860		46,000	22,000
1,900		46,000	22,000
1,910		49,000	24,000
1,930		49,000	24,000

d1		l1	l2
mm	inch	mm	mm
1,950		49,000	24,000
1,960		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,010		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,040		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,070		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,120		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,230		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,470		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,510		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,920		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,020		65,000	36,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,330		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000



d1		l1	l2
mm	inch	mm	mm
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,850		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,020		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,070		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,120		75,000	43,000
4,150		75,000	43,000
4,170		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,020		86,000	52,000
5,050		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000

d1		l1	l2
mm	inch	mm	mm
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,760		109,000	69,000
6,800		109,000	69,000
6,850		109,000	69,000
6,900		109,000	69,000
6,950		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,050		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,150		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000

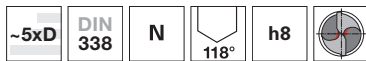


d1		l1	l2
mm	inch	mm	mm
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,050		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,750		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,250		142,000	94,000
11,300		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000

d1		l1	l2
mm	inch	mm	mm
12,300	31/64	151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
12,750		151,000	101,000
12,800		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,300		160,000	108,000
13,490	17/32	160,000	108,000
13,500		160,000	108,000
13,600		160,000	108,000
13,700		160,000	108,000
13,750		160,000	108,000
13,800		160,000	108,000
13,890	35/64	160,000	108,000
13,900		160,000	108,000
14,000		160,000	108,000
14,100		169,000	114,000
14,200		169,000	114,000
14,290	9/16	169,000	114,000
14,500		169,000	114,000
14,680	37/64	169,000	114,000
15,000		169,000	114,000
15,250		178,000	120,000
15,480	39/64	178,000	120,000
15,500		178,000	120,000
15,750		178,000	120,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000
16,500		184,000	125,000
16,670	21/32	184,000	125,000
17,000		184,000	125,000
17,460	11/16	191,000	130,000
17,500		191,000	130,000
18,000		191,000	130,000
18,500		198,000	135,000
19,000		198,000	135,000
19,500		205,000	140,000
20,000		205,000	140,000



Punte elicoidali, corte



Materiale tagliente **HSCO**

Superficie **S**

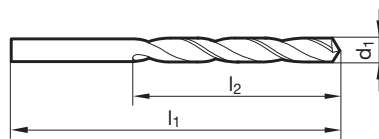
Direzione di taglio **R**

- P** ● Assott. del noc. ≥ Ø 1,200 • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ○
- K** ●
- N** ○ acciai legati e non legati • tipi di ghisa con R superiore a 800 N/mm²
- S** ○ • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 782



Articolo nr. **2997**

d1		l1	l2
mm	inch	mm	mm
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,500		57,000	30,000
2,700		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,800		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,200		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
10,000		133,000	87,000
10,300		133,000	87,000
10,500		133,000	87,000
10,800		142,000	94,000
11,000		142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
12,000		151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000



Punte elicoidali, corte

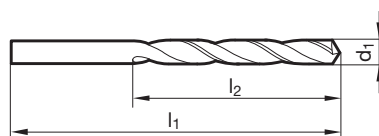


Materiale tagliente	HSCO
Superficie	
Direzione di taglio	

- P** ● Assott. del nocc. ≥ Ø 2,370 • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ○
- K** ●
- N** ○ acciai legati e non legati • tipi di ghisa con R superiore a 800 N/mm²
- S** ○ • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Punte cilindriche

Articolo nr. **308**

d1		l1	l2
mm	inch	mm	mm
0,360		19,000	4,000
0,390		20,000	5,000
0,500		22,000	6,000
0,560		24,000	7,000
0,590		24,000	7,000
0,600		24,000	7,000
0,620		26,000	8,000
0,630		26,000	8,000
0,650		26,000	8,000
0,750		28,000	9,000
0,780		30,000	10,000
0,800		30,000	10,000
0,820		30,000	10,000
0,900		32,000	11,000
0,910		32,000	11,000
0,920		32,000	11,000
0,930		32,000	11,000
0,950		32,000	11,000
0,980		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,030		34,000	12,000
1,050		34,000	12,000
1,080		36,000	14,000
1,100		36,000	14,000
1,150		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,230		38,000	16,000
1,320		38,000	16,000
1,330		40,000	18,000
1,350		40,000	18,000
1,400		40,000	18,000
1,430		40,000	18,000
1,450		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000

d1		l1	l2
mm	inch	mm	mm
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,830		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,350		53,000	27,000
2,370	3/32	57,000	30,000
2,380		57,000	30,000
2,400		57,000	30,000
2,500		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000

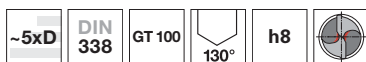


d1		l1	l2
mm	inch	mm	mm
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,420		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,530		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,830		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,570		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,530		101,000	63,000
6,700		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,750	17/64	109,000	69,000
7,040		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,040		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,260		133,000	87,000
10,320	13/32	133,000	87,000
10,490		133,000	87,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,050		151,000	101,000
12,250		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
13,750		160,000	108,000
14,300		169,000	114,000
14,500		169,000	114,000
16,200		184,000	125,000
16,500		184,000	125,000
18,000		191,000	130,000
18,500		198,000	135,000



Punte elicoidali, corte



Materiale tagliente **HSCO**

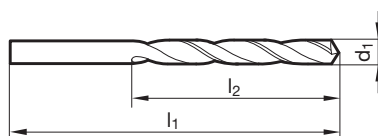
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura
- M** ○ • specifiche per prof. di foro oltre 3xD
- K** •
- N** • acciai legati e non legati • ghise con R superiore a 800 N/mm² • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Punte cilindriche

Articolo nr. **622**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,130		36,000	14,000
1,150		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,250		38,000	16,000
1,270		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,430		40,000	18,000
1,440		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,920		49,000	24,000
1,930		49,000	24,000
1,950		49,000	24,000
1,960		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000

d1		l1	l2
mm	inch	mm	mm
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,420		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000



d1		l1	l2
mm	inch	mm	mm
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,020		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,650		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,450		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000

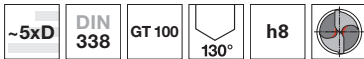


d1		l1	l2
mm	inch	mm	mm
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,300		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,700		142,000	94,000
11,800		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,500		160,000	108,000
13,800		160,000	108,000
14,000		160,000	108,000
16,000		178,000	120,000



Punte elicoidali, corte



- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura
- M** ○ • specifiche per prof. di foro oltre 3xD
- K** •
- N** ○ acciai legati e non legati • ghise con R superiore a 800 N/mm² • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- S** ○
- H** ○

Materiale tagliente **HSCO**

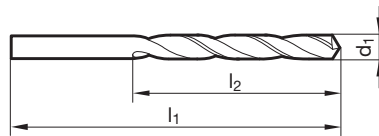
Superficie **S**

Direzione di taglio **R**

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 782



Articolo nr. **658**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,020		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,100		36,000	14,000
1,130		36,000	14,000
1,150		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,430		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,630		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000

d1		l1	l2
mm	inch	mm	mm
2,300		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000

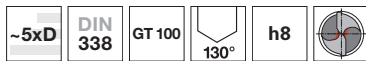


d1		l1	l2
mm	inch	mm	mm
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,030		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000

d1		l1	l2
mm	inch	mm	mm
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,700		142,000	94,000
11,800		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,500		151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,500		160,000	108,000
13,800		160,000	108,000
14,000		160,000	108,000
14,500		169,000	114,000
15,000		169,000	114,000



Punte elicoidali, corte



- P** • Assott. del noc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura
- M** ○ • specifiche per prof. di foro oltre 3xD
- K** •
- N** • acciai legati e non legati • ghise con R superiore a 800 N/mm² • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- S** ○
- H** ○

Materiale tagliente **HSCO**

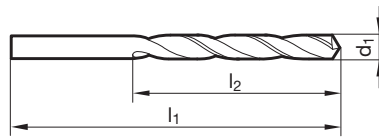
Superficie **F**

Direzione di taglio **R**

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 782



Articolo nr. **2459**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,000		34,000	12,000	5,200		86,000	52,000
1,100		36,000	14,000	5,300		86,000	52,000
1,200		38,000	16,000	5,400		93,000	57,000
1,300		38,000	16,000	5,500		93,000	57,000
1,400		40,000	18,000	5,600		93,000	57,000
1,500		40,000	18,000	5,700		93,000	57,000
1,600		43,000	20,000	5,800		93,000	57,000
1,700		43,000	20,000	5,900		93,000	57,000
1,800		46,000	22,000	6,000		93,000	57,000
1,900		46,000	22,000	6,100		101,000	63,000
2,000		49,000	24,000	6,200		101,000	63,000
2,100		49,000	24,000	6,300		101,000	63,000
2,200		53,000	27,000	6,400		101,000	63,000
2,300		53,000	27,000	6,500		101,000	63,000
2,400		57,000	30,000	6,600		101,000	63,000
2,500		57,000	30,000	6,700		101,000	63,000
2,600		57,000	30,000	6,800		109,000	69,000
2,700		61,000	33,000	6,900		109,000	69,000
2,800		61,000	33,000	7,000		109,000	69,000
2,900		61,000	33,000	7,100		109,000	69,000
3,000		61,000	33,000	7,300		109,000	69,000
3,100		65,000	36,000	7,400		109,000	69,000
3,200		65,000	36,000	7,500		109,000	69,000
3,300		65,000	36,000	7,700		117,000	75,000
3,400		70,000	39,000	7,800		117,000	75,000
3,500		70,000	39,000	7,900		117,000	75,000
3,600		70,000	39,000	8,000		117,000	75,000
3,700		70,000	39,000	8,100		117,000	75,000
3,800		75,000	43,000	8,200		117,000	75,000
3,900		75,000	43,000	8,300		117,000	75,000
4,000		75,000	43,000	8,400		117,000	75,000
4,100		75,000	43,000	8,500		117,000	75,000
4,200		75,000	43,000	8,600		125,000	81,000
4,300		80,000	47,000	8,700		125,000	81,000
4,400		80,000	47,000	8,800		125,000	81,000
4,500		80,000	47,000	9,000		125,000	81,000
4,600		80,000	47,000	9,200		125,000	81,000
4,700		80,000	47,000	9,400		125,000	81,000
4,800		86,000	52,000	9,500		125,000	81,000
4,900		86,000	52,000	9,700		133,000	87,000
5,000		86,000	52,000	9,800		133,000	87,000
5,100		86,000	52,000	9,900		133,000	87,000

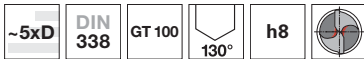


d1		l1	l2
mm	inch	mm	mm
10,000		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
11,000		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,500		142,000	94,000
12,000		151,000	101,000
13,000		151,000	101,000
14,000		160,000	108,000



Punte elicoidali, corte



- P** • Assott. del noc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • specifiche per prof. di foro oltre 3xD
- M** •
- K** ○
- N** acciai legati e non legati • ghise con R superiore a 800 N/mm² • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- S** •
- H** •

Materiale tagliente **HSCO**

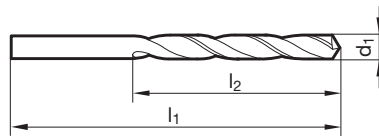
Superficie **G**

Direzione di taglio **R**

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 782



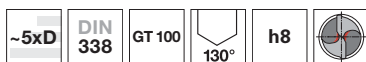
Articolo nr. **1221**

d1		l1	l2
mm	inch	mm	mm
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,050		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,700		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,400		109,000	69,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,130	23/64	125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,400		133,000	87,000
10,700		142,000	94,000
11,200		142,000	94,000
11,910	15/32	151,000	101,000



Punte elicoidali, corte



- P** ○ Assott. del nocc. ≥ Ø 3,000 • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • specifiche per prof. di foro oltre 3xD
- M** ○
- K** ●
- N** ○ acciai legati e non legati • ghise con R superiore a 800 N/mm² • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- S** ○
- H** ○

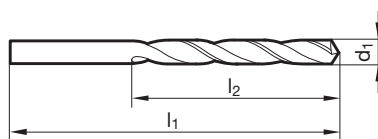
Materiale tagliente **HSCO**

Superficie **A**

Direzione di taglio **R**

GUHRING NAVIGATOR

Dati di taglio a pag. 782



Punte cilindriche

Articolo nr. **1223**

d1		l1	l2
mm	inch	mm	mm
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,530		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,400		133,000	87,000



d1		l1	l2
mm	inch	mm	mm
10,500		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,200		142,000	94,000
11,500		142,000	94,000
11,700		142,000	94,000
12,000		151,000	101,000

Punte cilindriche



Punte elicoidali, corte



P ○ Assott. del noc. ≥ Ø 0,970 • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M ●

K ●

N ● Titanio e leghe di titanio • acciai inossidabili, resistenti al calore ed austenitici • acciai molto tenaci ed a truciolo corto con R da ca. 900 N/mm² • Hastelloy, Inconel, Nimonic

S ●

H ●

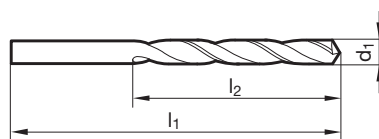
Materiale tagliente **HSCO**

Superficie ○

Direzione di taglio **R**

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **605**

d1		l1	l2
mm	inch	mm	mm
0,200		19,000	2,500
0,300		19,000	3,000
0,380		19,000	4,000
0,400	1/64	20,000	5,000
0,440		20,000	5,000
0,450		20,000	5,000
0,500		22,000	6,000
0,510		22,000	6,000
0,530		22,000	6,000
0,550		24,000	7,000
0,570		24,000	7,000
0,580		24,000	7,000
0,600		24,000	7,000
0,610		26,000	8,000
0,640		26,000	8,000
0,650		26,000	8,000
0,700		28,000	9,000
0,710		28,000	9,000
0,720		28,000	9,000
0,750		28,000	9,000
0,760		30,000	10,000
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,820		30,000	10,000
0,830		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,870		32,000	11,000
0,880		32,000	11,000
0,887		32,000	11,000
0,890		32,000	11,000
0,900		32,000	11,000
0,910		32,000	11,000
0,920		32,000	11,000
0,940		32,000	11,000
0,950		32,000	11,000
0,980		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000

d1		l1	l2
mm	inch	mm	mm
1,040		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,080		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,250		38,000	16,000
1,290		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,450		40,000	18,000
1,460		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,530		43,000	20,000
1,550		43,000	20,000
1,570		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,650		43,000	20,000
1,680		43,000	20,000
1,700		43,000	20,000
1,730		46,000	22,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,820		46,000	22,000
1,850		46,000	22,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
1,900		46,000	22,000
1,930		49,000	24,000
1,950		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,050		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,120		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,810		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,790		75,000	43,000
3,800		75,000	43,000
3,900		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
3,980		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000

d1		l1	l2
mm	inch	mm	mm
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,790		86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,080		101,000	63,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000

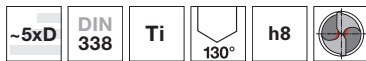


d1		l1	l2
mm	inch	mm	mm
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,550		125,000	81,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,200		142,000	94,000
11,300		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,500		160,000	108,000
13,800		160,000	108,000
13,890	35/64	160,000	108,000
13,970		160,000	108,000
14,000		160,000	108,000
14,290	9/16	169,000	114,000
14,500		169,000	114,000
14,680	37/64	169,000	114,000
15,000		169,000	114,000
15,500		178,000	120,000
16,000		178,000	120,000
16,500		184,000	125,000
17,000		184,000	125,000
17,500		191,000	130,000
18,000		191,000	130,000
19,000		198,000	135,000



Punte elicoidali, corte



P ○ Assott. del nocc. ≥ Ø 1,000 • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M ●

K ●

N ● Titanio e leghe di titanio • acciai inossidabili, resistenti al calore ed austenitici • acciai molto tenaci ed a truciolo corto con R da ca. 900 N/mm² • Hastelloy, Inconel, Nimonic

S ●

H ●

Materiale tagliente **HSCO**

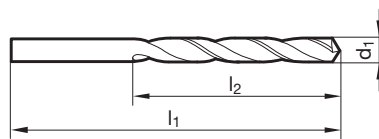
Superficie **S**

Direzione di taglio **R**

Punte cilindriche

GUHRING NAVIGATOR

Dati di taglio a pag. 782



Articolo nr. **657**

d1		l1	l2
mm	inch	mm	mm
0,500		22,000	6,000
0,530		22,000	6,000
0,600		24,000	7,000
0,650		26,000	8,000
0,700		28,000	9,000
0,750		28,000	9,000
0,800		30,000	10,000
0,850		30,000	10,000
0,880		32,000	11,000
0,900		32,000	11,000
0,920		32,000	11,000
0,940		32,000	11,000
0,950		32,000	11,000
1,000		34,000	12,000
1,050		34,000	12,000
1,100		36,000	14,000
1,150		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,250		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,390		40,000	18,000
1,400		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000

d1		l1	l2
mm	inch	mm	mm
1,900		46,000	22,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,050		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000

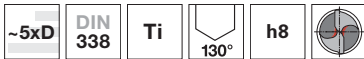


d1		l1	l2
mm	inch	mm	mm
3,750		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,050		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000

d1		l1	l2
mm	inch	mm	mm
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,550		125,000	81,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000
13,500		160,000	108,000
14,000		160,000	108,000
14,500		169,000	114,000



Punte elicoidali, corte



P ○ Assott. del nocc. ≥ Ø 1,000 • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M ●

K ●

N ● Titanio e leghe di titanio • acciai inossidabili, resistenti al calore ed austenitici • acciai molto tenaci ed a truciolo corto con R da ca. 900 N/mm² • Hastelloy, Inconel, Nimonic

S ●

H ●

Materiale tagliente **HSCO**

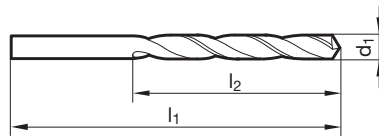
Superficie **F**

Direzione di taglio **R**

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 782



Articolo nr. **2458**

d1		l1	l2
mm	inch	mm	mm
0,400	1/64	20,000	5,000
0,810		30,000	10,000
1,000		34,000	12,000
1,100		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,530		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,050		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000

d1		l1	l2
mm	inch	mm	mm
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000

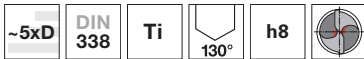


d1		l1	l2
mm	inch	mm	mm
6,900		109,000	69,000
7,000		109,000	69,000
7,140	9/32	109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
9,800		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,490	17/32	160,000	108,000
14,000		160,000	108,000
14,290	9/16	169,000	114,000
14,500		169,000	114,000
15,000		169,000	114,000



Punte elicoidali, corte



P ○ Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M ●

K ●

N ● Titanio e leghe di titanio • acciai inossidabili, resistenti al calore ed austenitici • acciai molto tenaci ed a truciolo corto con R da ca. 900 N/mm² • Hastelloy, Inconel, Nimonic

S ●

H ●

Materiale tagliente **HSCO**

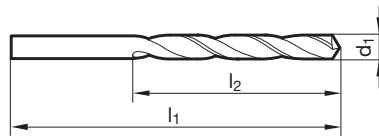
Superficie ○

Direzione di taglio (L)

Punte cilindriche

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **608**

d1		l1	l2
mm	inch	mm	mm
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,600		43,000	20,000
1,620		43,000	20,000
1,640		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
1,950		49,000	24,000
2,000		49,000	24,000
2,150		53,000	27,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,750		61,000	33,000
2,800		61,000	33,000
3,000		61,000	33,000
3,300		65,000	36,000
3,320		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,900		75,000	43,000
4,000		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000

d1		l1	l2
mm	inch	mm	mm
4,920		86,000	52,000
5,000		86,000	52,000
5,200		86,000	52,000
5,400		93,000	57,000
5,450		93,000	57,000
5,580		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,300		101,000	63,000
6,600		101,000	63,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,100		117,000	75,000
8,400		117,000	75,000
8,750		125,000	81,000
8,800		125,000	81,000
9,100		125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,500		125,000	81,000



Punte elicoidali, corte



- P** ○ spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ●
- K** ●
- N** ○ acciai inossidabili, resistenti al calore ed austenitici (V2A e V4A)
- S** ○
- H** ●

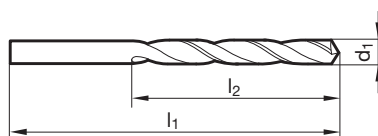
Materiale tagliente **HSCO**

Superficie ○

Direzione di taglio **R**

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Punte cilindriche

Articolo nr. **1260**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,100		36,000	14,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000

d1		l1	l2
mm	inch	mm	mm
5,100		86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,200		125,000	81,000
9,400		125,000	81,000



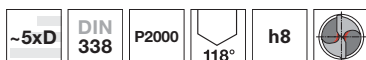
d1		l1	l2
mm	inch	mm	mm
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,800		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,000		142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
12,000		151,000	101,000
12,500		151,000	101,000
13,000		151,000	101,000

Punte cilindriche



Punte elicoidali, corte



Materiale tagliente **HSCO**

Superficie

Direzione di taglio

P ● Assott. del noc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • uso universale con wave grind • acciaio HSS legato al Co • massima resistenza all'usura

M ○

K ○

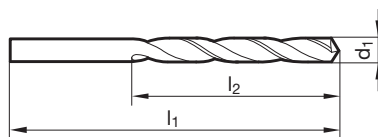
N ○ acciai con R fino a 1000 N/mm² • leghe di AISi

S ○

H ○

GUHRING NAVIGATOR

Dati di taglio a pag. 784



Articolo nr. **2047**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,100		36,000	14,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000

d1		l1	l2
mm	inch	mm	mm
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
11,000		142,000	94,000
11,500		142,000	94,000
12,000		151,000	101,000

d1		l1	l2
mm	inch	mm	mm
12,500		151,000	101,000
13,000		151,000	101,000

Punte cilindriche



Punte elicoidali Aerox affilatura a croce



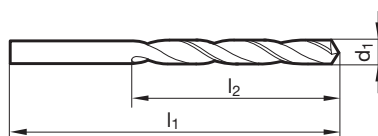
- P** • Assott. del nocc. $\geq \varnothing 1,000$ • affilatura a croce ottimizzata • acciaio rapido HSCO legato con l' 8% di cobalto per la massima durata dell' utensile, ad alta resistenza termica e durezza
- M** •
- K** •
- N** • materiali in acciaio non legati e altamente legati • ghise • metalli non ferrosi • Titanio e leghe di titanio
- S** •
- H** ○

Materiale tagliente	M42
Superficie	
Direzione di taglio	



GUHRING NAVIGATOR

Dati di taglio a pag. 784



Articolo nr. **1018**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,100		36,000	14,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000

Punte cilindriche



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,200		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000



Punte elicoidali, corte



Materiale tagliente **M42**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • con alta perc. di CoMo • specialmente per resistenza all'usura

M ○

K ○

N • leghe tenaci e molto ten. base di CrNi • Hastelloy, Inconel, Nimonic

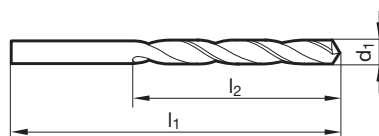
• acciai inossidabili e resistenti al calore • lamiera resistente all'usura

S • acciai o bronzi con R fino a ca. 1400 N/mm²

H ○

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **1146**

d1		l1	l2
mm	inch	mm	mm
0,400	1/64	20,000	5,000
0,500		22,000	6,000
0,800		30,000	10,000
0,900		32,000	11,000
1,000		34,000	12,000
1,100		36,000	14,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000

d1		l1	l2
mm	inch	mm	mm
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000

Punte cilindriche



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
11,000		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,500		160,000	108,000
14,000		160,000	108,000
15,000		169,000	114,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000



Punte elicoidali, corte



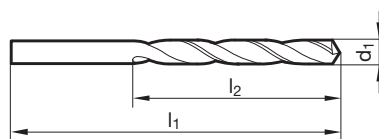
- P** • Assott. del nocc. $\geq \varnothing 1,000$ • affilatura a croce ottimizzata • acciaio rapido HSCO legato con l' 8% di cobalto • specialmente per resistenza all'usura
- M** •
- K** •
- N** ○ leghe tenaci e molto ten. base di CrNi • Hastelloy, Inconel, Nimonic
- S** • acciai inossidabili e resistenti al calore • lamiera resistente all'usura
- acciai o bronzi con R fino a ca. 1400 N/mm²
- H**

Materiale tagliente	M42
Superficie	F
Direzione di taglio	R



GUHRING NAVIGATOR

Dati di taglio a pag. 784



Punte cilindriche

Articolo nr. **1199**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,000		34,000	12,000	4,760	3/16	86,000	52,000
1,100		36,000	14,000	4,800		86,000	52,000
1,200		38,000	16,000	4,900		86,000	52,000
1,300		38,000	16,000	5,000		86,000	52,000
1,400		40,000	18,000	5,100		86,000	52,000
1,500		40,000	18,000	5,160	13/64	86,000	52,000
1,590	1/16	43,000	20,000	5,200		86,000	52,000
1,600		43,000	20,000	5,300		86,000	52,000
1,700		43,000	20,000	5,400		93,000	57,000
1,800		46,000	22,000	5,500		93,000	57,000
1,900		46,000	22,000	5,600		93,000	57,000
2,000		49,000	24,000	5,700		93,000	57,000
2,100		49,000	24,000	5,800		93,000	57,000
2,200		53,000	27,000	5,900		93,000	57,000
2,300		53,000	27,000	5,950	15/64	93,000	57,000
2,380	3/32	57,000	30,000	6,000		93,000	57,000
2,400		57,000	30,000	6,100		101,000	63,000
2,500		57,000	30,000	6,200		101,000	63,000
2,600		57,000	30,000	6,300		101,000	63,000
2,700		61,000	33,000	6,350	1/4	101,000	63,000
2,800		61,000	33,000	6,400		101,000	63,000
2,900		61,000	33,000	6,500		101,000	63,000
3,000		61,000	33,000	6,600		101,000	63,000
3,100		65,000	36,000	6,700		101,000	63,000
3,170	1/8	65,000	36,000	6,750	17/64	109,000	69,000
3,200		65,000	36,000	6,800		109,000	69,000
3,300		65,000	36,000	6,900		109,000	69,000
3,400		70,000	39,000	7,000		109,000	69,000
3,500		70,000	39,000	7,100		109,000	69,000
3,600		70,000	39,000	7,200		109,000	69,000
3,700		70,000	39,000	7,300		109,000	69,000
3,800		75,000	43,000	7,400		109,000	69,000
3,900		75,000	43,000	7,500		109,000	69,000
3,970	5/32	75,000	43,000	7,600		117,000	75,000
4,000		75,000	43,000	7,700		117,000	75,000
4,100		75,000	43,000	7,800		117,000	75,000
4,200		75,000	43,000	7,900		117,000	75,000
4,300		80,000	47,000	8,000		117,000	75,000
4,400		80,000	47,000	8,100		117,000	75,000
4,500		80,000	47,000	8,200		117,000	75,000
4,600		80,000	47,000	8,300		117,000	75,000
4,700		80,000	47,000	8,400		117,000	75,000



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
10,100		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
10,800		142,000	94,000
11,000		142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,800		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,200		151,000	101,000
12,500		151,000	101,000
13,000		151,000	101,000
14,000		160,000	108,000
15,000		169,000	114,000
16,000		178,000	120,000



Punte elicoidali, corte



Materiale tagliente **Int. in MD**

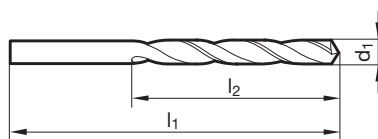
Superficie

Direzione di taglio

- P** ○ Assott. del nocc. ≥ Ø 2,060 • affilatura su piani • forma del tagliente principale diritta
- M** ○
- K** ○
- N** ● acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • ghisa grigia • bronzo/ottone • alluminio e leghe di alluminio
- S** ○ • magnesio e leghe di magnesio • materie sintetiche e materie sintetiche a fibre rinforzate
- H** ○

GUHRINGNAVIGATOR

Dati di taglio a pag. 784



Articolo nr. **732**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,700		43,000	20,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,180		53,000	27,000
2,200		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000

d1		l1	l2
mm	inch	mm	mm
2,640		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,200		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,700	1/2	151,000	101,000



Punte elicoidali, corte



Materiale tagliente **Int. in MD**

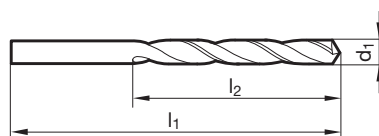
Superficie **F**

Direzione di taglio **R**

- P** ○ Assott. del nocc. ≥ Ø 2,060 • affilatura su piani • forma del tagliente principale diritta
- M** ○
- K** ○
- N** ● acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • ghise • ottone • leghe di alluminio con elevato contenuto di silicio • magnesio e leghe di magnesio • materie sintetiche e materie sintetiche a fibre rinforzate
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 784



Articolo nr. **2464**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,700		43,000	20,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,180		53,000	27,000
2,200		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000

d1		l1	l2
mm	inch	mm	mm
2,640		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,200		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,700	1/2	151,000	101,000



Punte elicoidali, corte



Materiale tagliente **Metallo duro**

Superficie

Direzione di taglio

P ○ Assott. del noc. ≥ Ø 2,700 • affilatura su piani • Punte speciali • con
riporti in MD

M

K ○

N materiali molto abrasivi • acciaio trattato termicamente e temprato

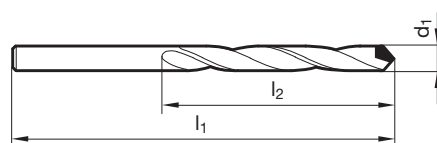
• ghisa in conchiglia

S acciaio al manganese e bronzi duri

H •

GUHRING NAVIGATOR

Dati di taglio a pag. 776



Punte cilindriche

Articolo nr. **710**

d1		l1	l2
mm	inch	mm	mm
3,000		61,000	33,000
3,100		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
4,000		75,000	43,000
4,200		75,000	43,000
4,500		80,000	47,000
4,700		80,000	47,000
5,000		86,000	52,000
5,100		86,000	52,000
5,500		93,000	57,000
6,000		93,000	57,000
6,300		101,000	63,000
6,500		101,000	63,000
6,800		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000

d1		l1	l2
mm	inch	mm	mm
7,200		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
8,000		117,000	75,000
8,500		117,000	75,000
9,000		125,000	81,000
9,500		125,000	81,000
10,000		133,000	87,000
10,200		133,000	87,000
11,000		142,000	94,000
12,000		151,000	101,000
12,500		151,000	101,000
13,000		151,000	101,000
14,000		160,000	108,000

Specialisti dell'HSS

Punte speciali in acciaio ad alta velocità per le lavorazioni speciali

Guhring eccelle soprattutto nella produzione di acciaio ad alta velocità grazie ad più di cento anni di esperienza, tecnologie di produzione sempre aggiornate, produzione rapida di utensili speciali, rivestimenti specifici e un valido rapporto prezzo-prestazioni.

La nostra esperienza eccezionale nel segmento HSS assicura una massima affidabilità sia per le micro punte di precisione, che per le punte a gradino che per gli utensili multiscanalati.





Punte per foratura con bussola di guida

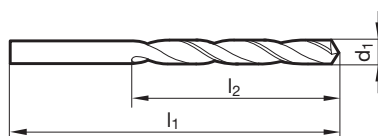


Materiale tagliente	HSS
Superficie	>0.2,36
Direzione di taglio	R

- P** • Assott. del noc. ≥ Ø 1,000 • spoglia sul cono tagliente • per forare con bussola di guida
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **211**

d1		l1	l2
mm	inch	mm	mm
0,800		42,000	22,000
1,000		48,000	26,000
1,050		48,000	26,000
1,080		50,000	28,000
1,100		50,000	28,000
1,110		50,000	28,000
1,150		50,000	28,000
1,200		52,000	30,000
1,230		52,000	30,000
1,250		52,000	30,000
1,300		52,000	30,000
1,350		55,000	33,000
1,380		55,000	33,000
1,400		55,000	33,000
1,430		55,000	33,000
1,450		55,000	33,000
1,460		55,000	33,000
1,480		55,000	33,000
1,500		55,000	33,000
1,520		58,000	35,000
1,580		58,000	35,000
1,600		58,000	35,000
1,620		58,000	35,000
1,650		58,000	35,000
1,700		58,000	35,000
1,800		62,000	38,000
1,810		62,000	38,000
1,850		62,000	38,000
1,870		62,000	38,000
1,900		62,000	38,000
1,930		66,000	41,000
1,980	5/64	66,000	41,000
1,990		66,000	41,000
2,000		66,000	41,000
2,020		66,000	41,000
2,030		66,000	41,000
2,050		66,000	41,000
2,100		66,000	41,000
2,150		70,000	44,000
2,200		70,000	44,000
2,220		70,000	44,000
2,320		70,000	44,000

d1		l1	l2
mm	inch	mm	mm
2,350		70,000	44,000
2,360		70,000	44,000
2,400		74,000	47,000
2,450		74,000	47,000
2,470		74,000	47,000
2,500		74,000	47,000
2,550		74,000	47,000
2,600		74,000	47,000
2,620		74,000	47,000
2,650		74,000	47,000
2,680		79,000	51,000
2,700		79,000	51,000
2,730		79,000	51,000
2,800		79,000	51,000
2,900		79,000	51,000
2,950		79,000	51,000
2,960		79,000	51,000
3,000		79,000	51,000
3,050		84,000	55,000
3,070		84,000	55,000
3,100		84,000	55,000
3,150		84,000	55,000
3,170	1/8	84,000	55,000
3,200		84,000	55,000
3,250		84,000	55,000
3,300		84,000	55,000
3,400		91,000	60,000
3,480		91,000	60,000
3,500		91,000	60,000
3,600		91,000	60,000
3,700		91,000	60,000
3,730		91,000	60,000
3,800		96,000	64,000
3,900		96,000	64,000
3,950		96,000	64,000
4,000		96,000	64,000
4,100		96,000	64,000
4,200		96,000	64,000
4,300		102,000	69,000
4,400		102,000	69,000
4,500		102,000	69,000
4,580		102,000	69,000

Punte cilindriche



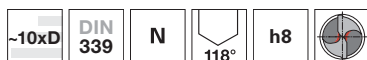
Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
4,600		102,000	69,000
4,700		102,000	69,000
4,750		102,000	69,000
4,800		108,000	74,000
4,900		108,000	74,000
4,950		108,000	74,000
5,000		108,000	74,000
5,100		108,000	74,000
5,200		108,000	74,000
5,300		108,000	74,000
5,330		116,000	80,000
5,350		116,000	80,000
5,400		116,000	80,000
5,500		116,000	80,000
5,550		116,000	80,000
5,600		116,000	80,000
5,700		116,000	80,000
5,800		116,000	80,000
5,900		116,000	80,000
6,000		116,000	80,000
6,100		124,000	86,000
6,150		124,000	86,000
6,200		124,000	86,000
6,350	1/4	124,000	86,000
6,400		124,000	86,000
6,500		124,000	86,000
6,600		124,000	86,000
6,700		124,000	86,000
6,800		133,000	93,000
6,900		133,000	93,000
7,000		133,000	93,000
7,050		133,000	93,000
7,100		133,000	93,000
7,150		133,000	93,000
7,200		133,000	93,000
7,300		133,000	93,000
7,400		133,000	93,000
7,600		142,000	100,000
7,750		142,000	100,000
7,800		142,000	100,000
7,950		142,000	100,000
8,000		142,000	100,000
8,100		142,000	100,000
8,120		142,000	100,000
8,200		142,000	100,000
8,300		142,000	100,000
8,500		142,000	100,000
8,600		151,000	107,000

d1		l1	l2
mm	inch	mm	mm
8,700		151,000	107,000
8,730	11/32	151,000	107,000
8,900		151,000	107,000
9,000		151,000	107,000
9,100		151,000	107,000
9,200		151,000	107,000
9,300		151,000	107,000
9,500		151,000	107,000
9,600		162,000	116,000
9,650		162,000	116,000
9,700		162,000	116,000
9,750		162,000	116,000
9,800		162,000	116,000
10,000		162,000	116,000
10,200		162,000	116,000
10,500		162,000	116,000
10,800		173,000	125,000
10,900		173,000	125,000
11,000		173,000	125,000
11,300		173,000	125,000
11,400		173,000	125,000
11,500		173,000	125,000
11,700		173,000	125,000
11,750		173,000	125,000
12,000		184,000	134,000
12,100		184,000	134,000
12,300	31/64	184,000	134,000
12,500		184,000	134,000
13,000		184,000	134,000
13,200		184,000	134,000
13,500		194,000	142,000
13,800		194,000	142,000
14,200		202,000	147,000
14,500		202,000	147,000
15,000		202,000	147,000
15,500		211,000	153,000
16,500		218,000	159,000
17,000		218,000	159,000
18,000		226,000	165,000
18,250		234,000	171,000
18,500		234,000	171,000
19,000		234,000	171,000
19,500		242,000	177,000
20,000		242,000	177,000



Punte per foratura con bussola di guida



Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

P • Assott. del nocc. $\geq \varnothing 2,400$ • spoglia sul cono tagliente • per forare con bussola di guida

M

K •

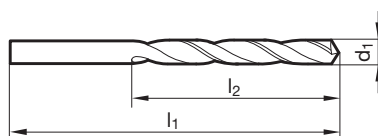
N ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **561**

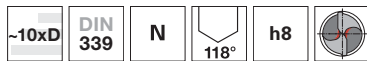
d1		l1	l2
mm	inch	mm	mm
2,400		74,000	47,000
2,500		74,000	47,000
2,600		74,000	47,000
3,000		79,000	51,000
3,100		84,000	55,000
3,120		84,000	55,000
3,200		84,000	55,000
3,300		84,000	55,000
4,000		96,000	64,000
4,250		96,000	64,000
4,400		102,000	69,000
4,800		108,000	74,000

d1		l1	l2
mm	inch	mm	mm
5,000		108,000	74,000

Punte cilindriche



Punte per foratura con bussola di guida

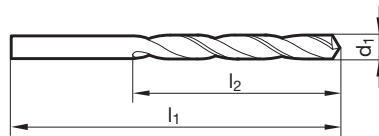


Materiale tagliente	HSS
Superficie	S
Direzione di taglio	R

- P** • Assott. del nocch. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • per forare con bussola di guida
- M**
- K** •
- N** • acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **666**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,000		48,000	26,000	4,100		96,000	64,000
1,100		50,000	28,000	4,200		96,000	64,000
1,200		52,000	30,000	4,300		102,000	69,000
1,280		52,000	30,000	4,400		102,000	69,000
1,300		52,000	30,000	4,500		102,000	69,000
1,350		55,000	33,000	4,600		102,000	69,000
1,400		55,000	33,000	4,800		108,000	74,000
1,450		55,000	33,000	5,000		108,000	74,000
1,500		55,000	33,000	5,100		108,000	74,000
1,510		58,000	35,000	5,150		108,000	74,000
1,550		58,000	35,000	5,300		108,000	74,000
1,600		58,000	35,000	5,400		116,000	80,000
1,700		58,000	35,000	5,500		116,000	80,000
1,800		62,000	38,000	5,600		116,000	80,000
1,900		62,000	38,000	5,700		116,000	80,000
1,980	5/64	66,000	41,000	5,800		116,000	80,000
1,990		66,000	41,000	6,000		116,000	80,000
2,000		66,000	41,000	6,100		124,000	86,000
2,020		66,000	41,000	6,200		124,000	86,000
2,100		66,000	41,000	6,350	1/4	124,000	86,000
2,200		70,000	44,000	6,400		124,000	86,000
2,300		70,000	44,000	6,500		124,000	86,000
2,400		74,000	47,000	6,600		124,000	86,000
2,450		74,000	47,000	6,700		124,000	86,000
2,500		74,000	47,000	6,800		133,000	93,000
2,550		74,000	47,000	6,900		133,000	93,000
2,600		74,000	47,000	7,000		133,000	93,000
2,800		79,000	51,000	7,100		133,000	93,000
2,900		79,000	51,000	7,200		133,000	93,000
3,000		79,000	51,000	7,300		133,000	93,000
3,100		84,000	55,000	7,500		133,000	93,000
3,150		84,000	55,000	7,600		142,000	100,000
3,200		84,000	55,000	7,700		142,000	100,000
3,300		84,000	55,000	7,800		142,000	100,000
3,400		91,000	60,000	7,900		142,000	100,000
3,500		91,000	60,000	7,940	5/16	142,000	100,000
3,570	9/64	91,000	60,000	8,000		142,000	100,000
3,600		91,000	60,000	8,200		142,000	100,000
3,700		91,000	60,000	8,500		142,000	100,000
3,800		96,000	64,000	8,600		151,000	107,000
3,900		96,000	64,000	9,000		151,000	107,000
4,000		96,000	64,000	9,600		162,000	116,000



d1		l1	l2
mm	inch	mm	mm
9,800		162,000	116,000
10,000		162,000	116,000
10,200		162,000	116,000
11,000		173,000	125,000
11,500		173,000	125,000
11,910	15/32	184,000	134,000

d1		l1	l2
mm	inch	mm	mm
12,500		184,000	134,000
13,000		184,000	134,000



Punte per foratura con bussola di guida



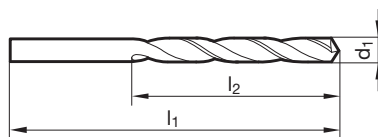
Materiale tagliente	HSCO
Superficie	$\geq \frac{0}{2,36}$
Direzione di taglio	(R)

- P** ● Assott. del noc. $\geq \varnothing 1,100$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida
- M** ○
- K** ●
- N** ● acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** ○ • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 792



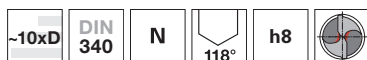
Articolo nr. **311**

d1		l1	l2
mm	inch	mm	mm
1,100		50,000	28,000
1,300		52,000	30,000
1,500		55,000	33,000
1,600		58,000	35,000
1,800		62,000	38,000
1,900		62,000	38,000
1,950		66,000	41,000
2,000		66,000	41,000
2,500		74,000	47,000
3,000		79,000	51,000
3,100		84,000	55,000
3,200		84,000	55,000
4,000		96,000	64,000
4,500		102,000	69,000
5,000		108,000	74,000
5,100		108,000	74,000
6,100		124,000	86,000
6,400		124,000	86,000

d1		l1	l2
mm	inch	mm	mm
6,800		133,000	93,000
7,000		133,000	93,000
8,200		142,000	100,000
8,500		142,000	100,000
10,000		162,000	116,000
10,800		173,000	125,000
17,500		226,000	165,000
19,000		234,000	171,000



Punte elicoidali, lunghe

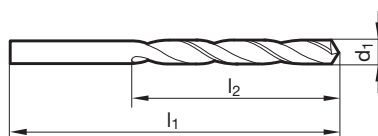


Materiale tagliente	HSS
Superficie	>0.2,36
Direzione di taglio	R

P	•	Assott. del noc. ≥ Ø 1,000 • spoglia sul cono tagliente • per fori profondi
M		
K	•	
N	○	acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
S		
H		

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **217**

d1		l1	l2
mm	inch	mm	mm
0,400	1/64	30,000	10,000
0,440		30,000	10,000
0,450		30,000	10,000
0,470		30,000	10,000
0,500		32,000	12,000
0,520		32,000	12,000
0,550		35,000	15,000
0,570		35,000	15,000
0,600		35,000	15,000
0,620		38,000	18,000
0,650		38,000	18,000
0,700		42,000	21,000
0,730		42,000	21,000
0,750		42,000	21,000
0,760		46,000	25,000
0,790	1/32	46,000	25,000
0,800		46,000	25,000
0,820		46,000	25,000
0,850		46,000	25,000
0,900		51,000	29,000
0,910		51,000	29,000
0,920		51,000	29,000
0,950		51,000	29,000
0,970		56,000	33,000
1,000		56,000	33,000
1,040		56,000	33,000
1,050		56,000	33,000
1,080		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,120		60,000	37,000
1,130		60,000	37,000
1,150		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,490		70,000	45,000

d1		l1	l2
mm	inch	mm	mm
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,030		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,420		95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,620		95,000	62,000
2,640		95,000	62,000
2,650		95,000	62,000

Punte cilindriche



d1		l1	l2
mm	inch	mm	mm
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,030		106,000	69,000
3,050		106,000	69,000
3,100		106,000	69,000
3,150		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,650		112,000	73,000
3,660		112,000	73,000
3,700		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,850		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,950		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,030		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,450		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,650		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,950		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,030		132,000	87,000
5,050		132,000	87,000

d1		l1	l2
mm	inch	mm	mm
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,150		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,350		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,450		139,000	91,000
5,500		139,000	91,000
5,550		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,750		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,060		148,000	97,000
6,100		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,700		165,000	109,000
7,750		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000

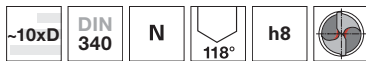


d1		l1	l2
mm	inch	mm	mm
9,200		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,600		184,000	121,000
9,700		184,000	121,000
9,750		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,250		184,000	121,000
10,300		184,000	121,000
10,320	13/32	184,000	121,000
10,400		184,000	121,000
10,500		184,000	121,000
10,700		195,000	128,000
10,720	27/64	195,000	128,000
10,750		195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,600		195,000	128,000
11,700		195,000	128,000
11,750		195,000	128,000
11,800		195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,100		205,000	134,000
12,200		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
12,800		205,000	134,000
13,000		205,000	134,000
13,200		205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,800		214,000	140,000
13,890	35/64	214,000	140,000
14,000		214,000	140,000
14,200		220,000	144,000
14,250		220,000	144,000
14,290	9/16	220,000	144,000
14,490		220,000	144,000
14,500		220,000	144,000
14,900		220,000	144,000

d1		l1	l2
mm	inch	mm	mm
15,000		220,000	144,000
15,080	19/32	227,000	149,000
15,200		227,000	149,000
15,250		227,000	149,000
15,400		227,000	149,000
15,480	39/64	227,000	149,000
15,500		227,000	149,000
15,600		227,000	149,000
15,870	5/8	227,000	149,000
16,000		227,000	149,000
16,270	41/64	235,000	154,000
16,500		235,000	154,000
16,670	21/32	235,000	154,000
17,000		235,000	154,000
17,070	43/64	241,000	158,000
17,460	11/16	241,000	158,000
17,500		241,000	158,000
18,000		241,000	158,000
18,500		247,000	162,000
18,650	47/64	247,000	162,000
19,000		247,000	162,000
19,050	3/4	254,000	166,000
19,500		254,000	166,000
20,000		254,000	166,000
20,500		261,000	171,000
20,640	13/16	261,000	171,000
21,000		261,000	171,000
21,500		268,000	176,000
22,000		268,000	176,000
23,300		275,000	180,000
23,810	15/16	282,000	185,000
24,000		282,000	185,000
25,000	63/64	282,000	185,000
26,190	1 1/32	290,000	190,000
26,500		290,000	190,000
26,990	1 1/16	298,000	195,000
28,570	1 1/8	307,000	201,000
29,000		307,000	201,000
29,370	1 5/32	307,000	201,000
29,500		307,000	201,000
30,160	1 3/16	316,000	207,000
30,960	1 7/32	316,000	207,000
31,000		316,000	207,000
36,510	1 7/16	345,000	225,000



Punte elicoidali, lunghe



- P** • Assott. del noc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • per fori profondi • per forare con bussola di guida
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente **HSS**

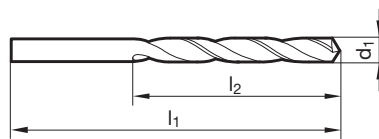
Superficie **S**

Direzione di taglio **R**

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **667**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,500		32,000	12,000	2,800		100,000	66,000
0,600		35,000	15,000	2,850		100,000	66,000
0,700		42,000	21,000	2,870		100,000	66,000
0,750		42,000	21,000	2,900		100,000	66,000
0,800		46,000	25,000	3,000		100,000	66,000
0,900		51,000	29,000	3,030		106,000	69,000
0,950		51,000	29,000	3,050		106,000	69,000
1,000		56,000	33,000	3,100		106,000	69,000
1,100		60,000	37,000	3,170	1/8	106,000	69,000
1,150		60,000	37,000	3,200		106,000	69,000
1,200		65,000	41,000	3,250		106,000	69,000
1,250		65,000	41,000	3,260		106,000	69,000
1,300		65,000	41,000	3,300		106,000	69,000
1,350		70,000	45,000	3,350		106,000	69,000
1,400		70,000	45,000	3,400		112,000	73,000
1,450		70,000	45,000	3,500		112,000	73,000
1,500		70,000	45,000	3,570	9/64	112,000	73,000
1,550		76,000	50,000	3,600		112,000	73,000
1,590	1/16	76,000	50,000	3,650		112,000	73,000
1,600		76,000	50,000	3,700		112,000	73,000
1,650		76,000	50,000	3,730		112,000	73,000
1,700		76,000	50,000	3,750		112,000	73,000
1,800		80,000	53,000	3,800		119,000	78,000
1,850		80,000	53,000	3,850		119,000	78,000
1,900		80,000	53,000	3,850		119,000	78,000
1,950		85,000	56,000	3,900		119,000	78,000
1,980	5/64	85,000	56,000	3,950		119,000	78,000
2,000		85,000	56,000	3,970	5/32	119,000	78,000
2,100		85,000	56,000	4,000		119,000	78,000
2,200		90,000	59,000	4,050		119,000	78,000
2,300		90,000	59,000	4,100		119,000	78,000
2,350		90,000	59,000	4,200		119,000	78,000
2,370		95,000	62,000	4,250		119,000	78,000
2,380	3/32	95,000	62,000	4,300		126,000	82,000
2,440		95,000	62,000	4,370	11/64	126,000	82,000
2,450		95,000	62,000	4,400		126,000	82,000
2,500		95,000	62,000	4,500		126,000	82,000
2,530		95,000	62,000	4,570		126,000	82,000
2,650		95,000	62,000	4,600		126,000	82,000
2,700		100,000	66,000	4,620		126,000	82,000
2,750		100,000	66,000	4,650		126,000	82,000
2,780	7/64	100,000	66,000	4,700		126,000	82,000
				4,750		126,000	82,000

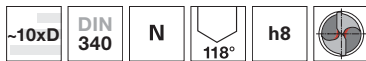


d1		l1	l2
mm	inch	mm	mm
4,760	3/16	132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,700		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,050		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,100		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,500		195,000	128,000
11,750		195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,800		214,000	140,000
13,890	35/64	214,000	140,000
14,000		214,000	140,000
14,290	9/16	220,000	144,000
14,500		220,000	144,000
14,750		220,000	144,000
14,800		220,000	144,000
14,900		220,000	144,000
15,000		220,000	144,000
15,080	19/32	227,000	149,000
16,000		227,000	149,000
16,500		235,000	154,000
16,670	21/32	235,000	154,000
16,750		235,000	154,000
17,000		235,000	154,000
17,460	11/16	241,000	158,000
18,000		241,000	158,000
18,250		247,000	162,000
22,220	7/8	268,000	176,000



Punte elicoidali, lunghe



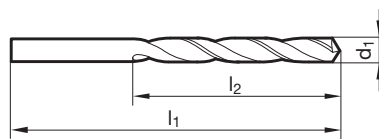
- P** • Assott. del noc. $\geq \varnothing 14,750$ • spoglia sul cono tagliente • per fori profondi • per forare con bussola di guida
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	$> \frac{\varnothing}{6,00}$
Direzione di taglio	(L)



GÜHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **220**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,450		30,000	10,000	4,500		126,000	82,000
0,470		30,000	10,000	4,600		126,000	82,000
0,900		51,000	29,000	4,780		132,000	87,000
0,950		51,000	29,000	4,800		132,000	87,000
1,100		60,000	37,000	4,950		132,000	87,000
1,150		60,000	37,000	5,000		132,000	87,000
1,200		65,000	41,000	5,100		132,000	87,000
1,250		65,000	41,000	5,200		132,000	87,000
1,400		70,000	45,000	5,600		139,000	91,000
1,450		70,000	45,000	5,700		139,000	91,000
1,500		70,000	45,000	6,000		139,000	91,000
1,600		76,000	50,000	6,050		148,000	97,000
1,630		76,000	50,000	6,100		148,000	97,000
1,660		76,000	50,000	6,400		148,000	97,000
1,730		80,000	53,000	6,500		148,000	97,000
1,800		80,000	53,000	6,600		148,000	97,000
1,850		80,000	53,000	6,800		156,000	102,000
1,900		80,000	53,000	7,200		156,000	102,000
2,000		85,000	56,000	7,500		156,000	102,000
2,300		90,000	59,000	7,800		165,000	109,000
2,500		95,000	62,000	8,000		165,000	109,000
2,700		100,000	66,000	8,100		165,000	109,000
2,750		100,000	66,000	8,250		165,000	109,000
2,900		100,000	66,000	8,400		165,000	109,000
2,950		100,000	66,000	8,800		175,000	115,000
3,000		100,000	66,000	9,000		175,000	115,000
3,050		106,000	69,000	9,520	3/8	184,000	121,000
3,070		106,000	69,000	9,700		184,000	121,000
3,100		106,000	69,000	9,800		184,000	121,000
3,250		106,000	69,000	9,900		184,000	121,000
3,300		106,000	69,000	10,000		184,000	121,000
3,350		106,000	69,000	10,100		184,000	121,000
3,400		112,000	73,000	10,500		184,000	121,000
3,500		112,000	73,000	11,000		195,000	128,000
3,550		112,000	73,000	11,500		195,000	128,000
3,600		112,000	73,000	11,900		205,000	134,000
3,700		112,000	73,000	12,000		205,000	134,000
3,800		119,000	78,000	12,200		205,000	134,000
4,000		119,000	78,000	12,500		205,000	134,000
4,050		119,000	78,000	13,000		205,000	134,000
4,250		119,000	78,000	13,500		214,000	140,000
4,300		126,000	82,000	14,750		220,000	144,000

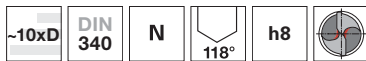


d1		l1	l2
mm	inch	mm	mm
19,000		247,000	162,000
20,000		254,000	166,000
22,000		268,000	176,000
25,000	63/64	282,000	185,000
25,500		290,000	190,000
29,000		307,000	201,000

d1		l1	l2
mm	inch	mm	mm



Punte elicoidali, lunghe



- P** • Assott. del noc. $\geq \varnothing 2,950$ • spoglia sul cono tagliente • con dente di trascinamento
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente **HSS**

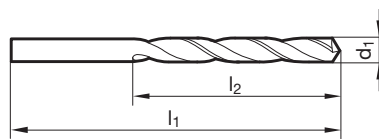
Superficie

Direzione di taglio

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **204**

d1		l1	l2
mm	inch	mm	mm
2,950		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,600		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
5,000		132,000	87,000
5,080		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,500		139,000	91,000
5,600		139,000	91,000
5,800		139,000	91,000
5,850		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
7,000		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,400		165,000	109,000
8,450		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
9,000		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,300		184,000	121,000
10,400		184,000	121,000
10,500		184,000	121,000
10,800		195,000	128,000
11,600		195,000	128,000
12,000		205,000	134,000
13,000		205,000	134,000
25,250		290,000	190,000



Punte elicoidali, lunghe



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P Assott. del nocch. $\geq \varnothing 15,000$ • spoglia sul cono tagliente • per fori profondi

M

K

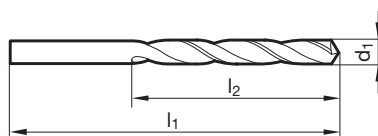
N • materiali duri e secchi • ottone, leghe di magnesio • bronze, bronzo fosforoso • ardesia, mica, pertinax

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **218**

d1		l1	l2
mm	inch	mm	mm
0,500		32,000	12,000
0,520		32,000	12,000
0,550		35,000	15,000
0,600		35,000	15,000
0,650		38,000	18,000
0,700		42,000	21,000
0,750		42,000	21,000
0,800		46,000	25,000
0,820		46,000	25,000
0,840		46,000	25,000
0,850		46,000	25,000
0,900		51,000	29,000
0,950		51,000	29,000
0,970		56,000	33,000
1,000		56,000	33,000
1,050		56,000	33,000
1,100		60,000	37,000
1,150		60,000	37,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,550		76,000	50,000
1,560		76,000	50,000
1,570		76,000	50,000
1,580		76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,800		80,000	53,000
1,820		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,950		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000

d1		l1	l2
mm	inch	mm	mm
2,300		90,000	59,000
2,350		90,000	59,000
2,400		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,600		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,800		100,000	66,000
2,830		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,940		100,000	66,000
3,000		100,000	66,000
3,020		106,000	69,000
3,050		106,000	69,000
3,060		106,000	69,000
3,100		106,000	69,000
3,150		106,000	69,000
3,180		106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,270		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,600		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
4,000		119,000	78,000
4,030		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,900		132,000	87,000

Punte cilindriche



Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,450		139,000	91,000
5,500		139,000	91,000
5,600		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,420		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,350		156,000	102,000
7,500		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,700		175,000	115,000
9,000		175,000	115,000
9,500		175,000	115,000
9,700		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
11,250		195,000	128,000
12,100		205,000	134,000
14,000		214,000	140,000
15,000		220,000	144,000
16,000		227,000	149,000



Punte elicoidali, lunghe

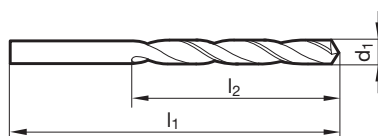


- P** Assott. del nocc. $\geq \varnothing 15,000$ • spoglia sul cono tagliente • per fori profondi
- M**
- K**
- N** • materiali duri e secchi • ottone, leghe di magnesio • bronze, bronzo fosforoso • ardesia, mica, pertinax
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 786

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓛ



Articolo nr. **221**

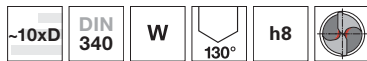
d1		l1	l2
mm	inch	mm	mm
0,450		30,000	10,000
0,600		35,000	15,000
0,650		38,000	18,000
0,900		51,000	29,000
1,100		60,000	37,000
1,240		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,370		70,000	45,000
1,400		70,000	45,000
1,500		70,000	45,000
1,550		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
2,000		85,000	56,000
2,160		90,000	59,000
2,180		90,000	59,000
2,200		90,000	59,000
2,270		90,000	59,000
2,350		90,000	59,000
2,850		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000

d1		l1	l2
mm	inch	mm	mm
3,510		112,000	73,000
3,700		112,000	73,000
4,100		119,000	78,000
4,200		119,000	78,000
4,400		126,000	82,000
4,500		126,000	82,000
4,900		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,100		132,000	87,000
5,400		139,000	91,000
5,600		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,800		156,000	102,000
8,000		165,000	109,000
9,000		175,000	115,000
12,800		205,000	134,000
15,000		220,000	144,000

Punte cilindriche



Punte elicoidali, lunghe



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P Assott. del noc. $\geq \varnothing 14,500$ • spoglia sul cono tagliente • per fori profondi

M

K

N • materiali teneri a truciolo lungo • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • materie sintetiche (tenere) e legno

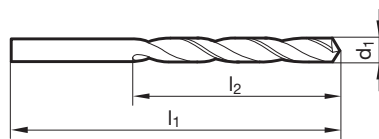
S

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 786

Punte cilindriche



Articolo nr. **219**

d1		l1	l2
mm	inch	mm	mm
0,500		32,000	12,000
0,600		35,000	15,000
0,650		38,000	18,000
0,700		42,000	21,000
0,740		42,000	21,000
0,750		42,000	21,000
0,800		46,000	25,000
0,850		46,000	25,000
0,900		51,000	29,000
0,950		51,000	29,000
0,970		56,000	33,000
0,980		56,000	33,000
1,000		56,000	33,000
1,100		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,220		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,350		70,000	45,000
1,370		70,000	45,000
1,400		70,000	45,000
1,440		70,000	45,000
1,500		70,000	45,000
1,520		76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,760		80,000	53,000
1,770		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,950		85,000	56,000
1,970		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,070		85,000	56,000

d1		l1	l2
mm	inch	mm	mm
2,100		85,000	56,000
2,150		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,430		95,000	62,000
2,450		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,600		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,800		100,000	66,000
2,850		100,000	66,000
2,880		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,180		106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,600		112,000	73,000
3,650		112,000	73,000
3,700		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,830		119,000	78,000
3,900		119,000	78,000

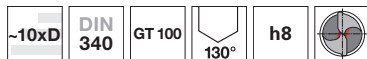


d1		l1	l2
mm	inch	mm	mm
3,920		119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,700		126,000	82,000
4,800		132,000	87,000
4,830		132,000	87,000
4,870		132,000	87,000
4,900		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,430		139,000	91,000
5,500		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,980		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,300		156,000	102,000
7,400		156,000	102,000
7,450		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,550		165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000

d1		l1	l2
mm	inch	mm	mm
7,850		165,000	109,000
7,900		165,000	109,000
7,950		165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,500		165,000	109,000
8,550		175,000	115,000
8,600		175,000	115,000
8,700		175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,500		175,000	115,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,300		184,000	121,000
10,700		195,000	128,000
10,750		195,000	128,000
11,000		195,000	128,000
11,300		195,000	128,000
11,400		195,000	128,000
12,000		205,000	134,000
13,100	33/64	205,000	134,000
13,500		214,000	140,000
13,750		214,000	140,000
14,000		214,000	140,000
14,500		220,000	144,000
15,000		220,000	144,000
15,500		227,000	149,000
17,000		235,000	154,000
18,000		241,000	158,000
18,250		247,000	162,000
19,000		247,000	162,000
19,840	25/32	254,000	166,000
20,000		254,000	166,000
20,640	13/16	261,000	171,000



Punte elicoidali, lunghe



Materiale tagliente	HSS
Superficie	
Direzione di taglio	

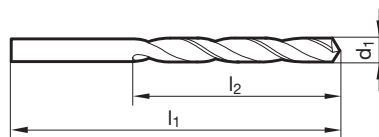
P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente

- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 786

Punte cilindriche



Articolo nr. **535**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,020		56,000	33,000
1,040		56,000	33,000
1,050		56,000	33,000
1,070		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,150		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,520		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,670		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,180		90,000	59,000

d1		l1	l2
mm	inch	mm	mm
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,480		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,830		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,940		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,150		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,270		106,000	69,000
3,300		106,000	69,000



d1		l1	l2
mm	inch	mm	mm
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,660		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,130		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,750		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,050		148,000	97,000
6,100		148,000	97,000

d1		l1	l2
mm	inch	mm	mm
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
6,910		156,000	102,000
7,000		156,000	102,000
7,030		156,000	102,000
7,040		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000
7,750		165,000	109,000
7,800		165,000	109,000
7,850		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,840		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,340		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,600		184,000	121,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,080		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000



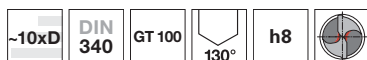
Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
10,300		184,000	121,000
10,320	13/32	184,000	121,000
10,400		184,000	121,000
10,490		184,000	121,000
10,500		184,000	121,000
10,600		184,000	121,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,100		195,000	128,000
11,110	7/16	195,000	128,000
11,300		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,800		195,000	128,000
11,900		205,000	134,000
11,910	15/32	205,000	134,000

d1		l1	l2
mm	inch	mm	mm
12,000		205,000	134,000
12,150		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,600		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,700		214,000	140,000
13,890	35/64	214,000	140,000
13,900		214,000	140,000
14,000		214,000	140,000



Punte elicoidali, lunghe



Materiale tagliente **HSS**

Superficie **S**

Direzione di taglio **R**

P • Assott. del noc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente

M

K •

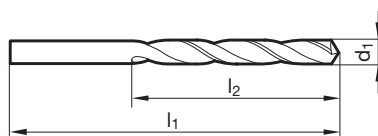
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **668**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,090		60,000	37,000
1,100		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,780	7/64	100,000	66,000

d1		l1	l2
mm	inch	mm	mm
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,870		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000

Punte cilindriche



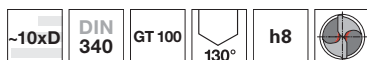
Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
4,850		132,000	87,000
4,900		132,000	87,000
4,910		132,000	87,000
4,920		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,100		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,760		156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000

d1		l1	l2
mm	inch	mm	mm
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,340		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,300	31/64	205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
14,000		214,000	140,000



Punte elicoidali, lunghe



Materiale tagliente **HSS**

Superficie **F**

Direzione di taglio **R**

P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente

M

K •

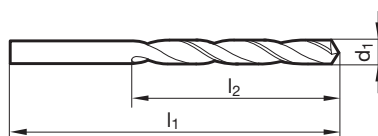
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **2462**

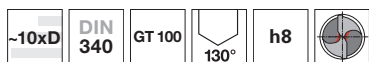
d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,500		70,000	45,000
1,600		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
2,000		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,400		95,000	62,000
2,500		95,000	62,000
2,600		95,000	62,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000

d1		l1	l2
mm	inch	mm	mm
3,800		119,000	78,000
4,000		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,500		126,000	82,000
4,800		132,000	87,000
5,000		132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,800		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,600		165,000	109,000
8,000		165,000	109,000
9,000		175,000	115,000
10,000		184,000	121,000

Punte cilindriche



Punte elicoidali, lunghe



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del noc. $\geq \varnothing 1,400$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente

M

K •

N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

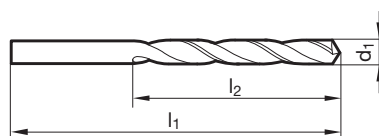
S

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 786

Punte cilindriche



Articolo nr. **506**

d1		l1	l2
mm	inch	mm	mm
1,400		70,000	45,000
1,500		70,000	45,000
1,600		76,000	50,000
1,680		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
2,000		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,500		95,000	62,000
2,800		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,800		119,000	78,000
3,950		119,000	78,000
4,000		119,000	78,000
4,400		126,000	82,000
4,500		126,000	82,000

d1		l1	l2
mm	inch	mm	mm
4,600		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,950		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
7,400		156,000	102,000
7,800		165,000	109,000
8,500		165,000	109,000
9,000		175,000	115,000
9,900		184,000	121,000
10,320	13/32	184,000	121,000
11,000		195,000	128,000
11,500		195,000	128,000
11,600		195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000



Punte elicoidali, lunghe



Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

P ○ Assott. del noc. ≥ Ø 2,370 • spoglia sul cono tagliente • scanalature particolarmente larghe

M

K

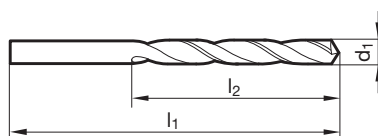
N • materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **501**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,020		56,000	33,000
1,030		56,000	33,000
1,040		56,000	33,000
1,070		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,400		70,000	45,000
1,450		70,000	45,000
1,480		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000

d1		l1	l2
mm	inch	mm	mm
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,520		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,650		112,000	73,000
3,660		112,000	73,000

Punte cilindriche



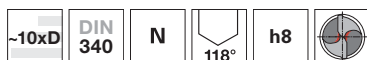
Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
3,700		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,030		148,000	97,000
6,040		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,040		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,670		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,025		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,330	21/64	165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,750		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000
9,300		175,000	115,000
9,340		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,580		184,000	121,000
9,600		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,080		184,000	121,000
10,200		184,000	121,000
10,260		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,600		184,000	121,000
10,700		195,000	128,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,750		195,000	128,000
11,800		195,000	128,000
11,900		205,000	134,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,200		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,490	17/32	214,000	140,000
14,000		214,000	140,000
32,600		325,000	213,000



Punte elicoidali, lunghe

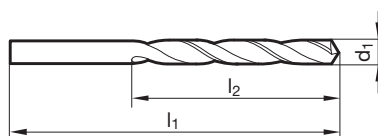


Materiale tagliente	HSCO
Superficie	$>0,2,36$
Direzione di taglio	R

- P** ● Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ○
- K** ●
- N** ● acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm² • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 792



Articolo nr. **317**

d1		l1	l2
mm	inch	mm	mm
0,500		32,000	12,000
0,600		35,000	15,000
0,700		42,000	21,000
0,750		42,000	21,000
0,800		46,000	25,000
0,850		46,000	25,000
0,900		51,000	29,000
0,950		51,000	29,000
0,960		56,000	33,000
1,000		56,000	33,000
1,020		56,000	33,000
1,050		56,000	33,000
1,100		60,000	37,000
1,150		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000

d1		l1	l2
mm	inch	mm	mm
2,500		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000



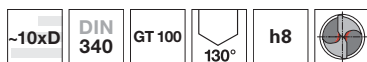
Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
5,400		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,330	21/64	165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,500		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,720	27/64	195,000	128,000
10,750		195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,500		214,000	140,000
13,700		214,000	140,000
13,890	35/64	214,000	140,000
13,900		214,000	140,000
14,000		214,000	140,000
14,290	9/16	220,000	144,000
14,400		220,000	144,000
14,600		220,000	144,000
14,680	37/64	220,000	144,000
14,700		220,000	144,000
14,750		220,000	144,000
14,900		220,000	144,000
15,000		220,000	144,000
15,080	19/32	227,000	149,000
15,480	39/64	227,000	149,000
15,800		227,000	149,000
15,870	5/8	227,000	149,000
16,000		227,000	149,000
22,000		268,000	176,000



Punte elicoidali, lunghe

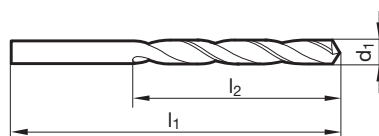


Materiale tagliente	HSCO
Superficie	
Direzione di taglio	

- P** • Assott. del noc. ≥ Ø 1,000 • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 792



Punte cilindriche

Articolo nr. **336**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,020		56,000	33,000
1,040		56,000	33,000
1,070		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000

d1		l1	l2
mm	inch	mm	mm
2,440		95,000	62,000
2,450		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,440		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,660		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000

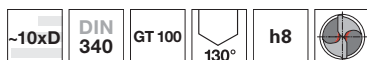


d1		l1	l2
mm	inch	mm	mm
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,100		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
6,900		156,000	102,000
7,000		156,000	102,000
7,030		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,840		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,750		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
10,750		195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,500		195,000	128,000
11,800		195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000
15,500		227,000	149,000
16,000		227,000	149,000



Punte elicoidali, lunghe



Materiale tagliente **HSCO**

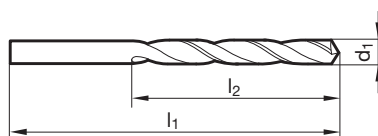
Superficie **F**

Direzione di taglio **R**

- P** • Assott. del noc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • specialmente per resistenza all'usura
- M** • • in caso di scarico truciolo insufficiente
- K** •
- N** • acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 792



Articolo nr. **396**

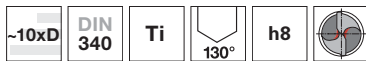
d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,500		70,000	45,000
1,600		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
2,000		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,400		95,000	62,000
2,500		95,000	62,000
2,700		100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,600		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,500		126,000	82,000
4,800		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000

d1		l1	l2
mm	inch	mm	mm
5,800		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,200		148,000	97,000
6,500		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,500		175,000	115,000
9,600		184,000	121,000
9,700		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,500		195,000	128,000
12,000		205,000	134,000

Punte cilindriche



Punte elicoidali, lunghe



P ○ Assott. del nocc. ≥ Ø 1,000 • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M ●

K ●

N ● Titanio e leghe di titanio • acciai inossidabili, resistenti al calore ed austenitici • acciai molto tenaci ed a truciolo corto con R da ca. 900 N/mm² • acciai per cuscinetti • Hastelloy, Inconel, Nimonic

S ●

H ●

Materiale tagliente **HSCO**

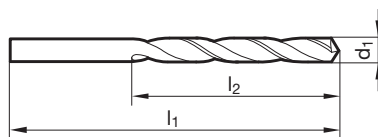
Superficie ○

Direzione di taglio (R)

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 792



Articolo nr. **617**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,200		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,450		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000

d1		l1	l2
mm	inch	mm	mm
3,300		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,900		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000

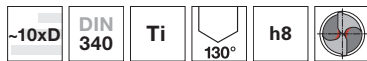


d1		l1	l2
mm	inch	mm	mm
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,250		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,000		175,000	115,000
9,100		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,800		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,510	29/64	195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000
15,000		220,000	144,000



Punte elicoidali, lunghe



P ○ Assott. del noc. ≥ Ø 1,000 • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M ●

K ●

N ● Titanio e leghe di titanio • acciai inossidabili, resistenti al calore ed austenitici • acciai molto tenaci ed a truciolo corto con R da ca. 900 N/mm² • acciai per cuscinetti • Hastelloy, Inconel, Nimonic

S ●

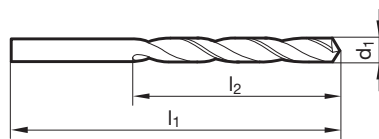
H ●

Materiale tagliente	HSCO
Superficie	S
Direzione di taglio	R

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 792



Articolo nr. **669**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,200		65,000	41,000
1,300		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,500		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000

d1		l1	l2
mm	inch	mm	mm
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,500		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,500		165,000	109,000
8,730	11/32	175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000

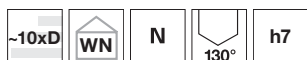


d1		l1	l2
mm	inch	mm	mm
9,300		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000

d1		l1	l2
mm	inch	mm	mm



Punte elicoidali, lunghe



Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

P affilatura su piani • forma del tagliente principale diritta

M

K

N

S

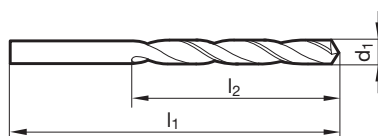
H

materie sintetiche a fibre vetrose • altri materiali che esercitano un'azione abrasiva sui taglienti e sulle fasi della punta

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 792



Articolo nr. **706**

d1		l1	l2
mm	inch	mm	mm
0,500		38,000	8,500
0,600		38,000	9,500
0,650		38,000	10,500
0,700		38,000	10,500
0,750		38,000	12,500
0,800		38,000	12,500
0,850		38,000	14,500
0,900		38,000	14,500
1,000		38,000	17,000
1,050		38,000	17,000
1,100		38,000	17,000
1,400		38,000	17,000

d1		l1	l2
mm	inch	mm	mm
1,450		38,000	17,000



Punte elicoidali in lunghezze speciali, grandezza 1

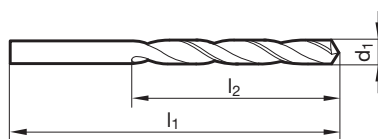


Materiale tagliente	HSS
Superficie	0.236
Direzione di taglio	

P	•	Assott. del nocc. $\geq \varnothing 2,380$ • spoglia sul cono tagliente • per fori estremamente profondi
M		
K	•	
N	○	acciaio e ghisa acciainata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
S		
H		

GUHRING NAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **235**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,600		115,000	75,000	4,600		185,000	125,000
1,700		115,000	75,000	4,700		185,000	125,000
1,800		120,000	80,000	4,760	3/16	195,000	135,000
1,900		120,000	80,000	4,800		195,000	135,000
1,930		125,000	85,000	4,900		195,000	135,000
1,950		125,000	85,000	5,000		195,000	135,000
2,000		125,000	85,000	5,100		195,000	135,000
2,050		125,000	85,000	5,200		195,000	135,000
2,100		125,000	85,000	5,300		195,000	135,000
2,200		135,000	90,000	5,340		205,000	140,000
2,300		135,000	90,000	5,400		205,000	140,000
2,350		135,000	90,000	5,500		205,000	140,000
2,380	3/32	140,000	95,000	5,560	7/32	205,000	140,000
2,400		140,000	95,000	5,600		205,000	140,000
2,500		140,000	95,000	5,700		205,000	140,000
2,600		140,000	95,000	5,800		205,000	140,000
2,700		150,000	100,000	5,900		205,000	140,000
2,800		150,000	100,000	6,000		205,000	140,000
2,900		150,000	100,000	6,100		215,000	150,000
3,000		150,000	100,000	6,200		215,000	150,000
3,100		155,000	105,000	6,250		215,000	150,000
3,170	1/8	155,000	105,000	6,300		215,000	150,000
3,200		155,000	105,000	6,350	1/4	215,000	150,000
3,250		155,000	105,000	6,400		215,000	150,000
3,300		155,000	105,000	6,500		215,000	150,000
3,400		165,000	115,000	6,600		215,000	150,000
3,500		165,000	115,000	6,700		215,000	150,000
3,570	9/64	165,000	115,000	6,750	17/64	225,000	155,000
3,600		165,000	115,000	6,800		225,000	155,000
3,650		165,000	115,000	7,000		225,000	155,000
3,700		165,000	115,000	7,200		225,000	155,000
3,750		165,000	115,000	7,400		225,000	155,000
3,800		175,000	120,000	7,500		225,000	155,000
3,900		175,000	120,000	7,700		240,000	165,000
3,970	5/32	175,000	120,000	7,800		240,000	165,000
4,000		175,000	120,000	7,900		240,000	165,000
4,100		175,000	120,000	7,940	5/16	240,000	165,000
4,200		175,000	120,000	8,000		240,000	165,000
4,300		185,000	125,000	8,100		240,000	165,000
4,370	11/64	185,000	125,000	8,200		240,000	165,000
4,400		185,000	125,000	8,330	21/64	240,000	165,000
4,500		185,000	125,000	8,400		240,000	165,000

Punte cilindriche

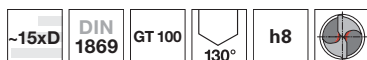


d1		l1	l2
mm	inch	mm	mm
8,500		240,000	165,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
8,900		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000
9,700		265,000	185,000
9,800		265,000	185,000
9,900		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,100		265,000	185,000
10,200		265,000	185,000
10,250		265,000	185,000

d1		l1	l2
mm	inch	mm	mm
10,320	13/32	265,000	185,000
10,500		265,000	185,000
11,000		280,000	195,000
11,500		280,000	195,000
11,510	29/64	280,000	195,000
11,800		280,000	195,000
12,000		295,000	205,000
12,100		295,000	205,000
12,250		295,000	205,000
12,300	31/64	295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000
13,000		295,000	205,000



Punte elicoidali in lunghezze speciali, grandezza 1

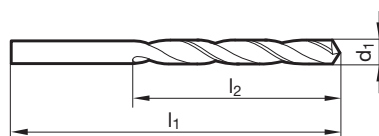


Materiale tagliente	HSS
Superficie	
Direzione di taglio	

- P** • Assott. del noc. $\geq \varnothing 1,950$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 790



Punte cilindriche

Articolo nr. **502**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,950		125,000	85,000	4,400		185,000	125,000
2,000		125,000	85,000	4,500		185,000	125,000
2,050		125,000	85,000	4,570		185,000	125,000
2,100		125,000	85,000	4,600		185,000	125,000
2,200		135,000	90,000	4,700		185,000	125,000
2,300		135,000	90,000	4,760	3/16	195,000	135,000
2,370		140,000	95,000	4,800		195,000	135,000
2,380	3/32	140,000	95,000	4,900		195,000	135,000
2,400		140,000	95,000	5,000		195,000	135,000
2,500		140,000	95,000	5,100		195,000	135,000
2,550		140,000	95,000	5,110		195,000	135,000
2,580		140,000	95,000	5,160	13/64	195,000	135,000
2,600		140,000	95,000	5,200		195,000	135,000
2,700		150,000	100,000	5,300		195,000	135,000
2,780	7/64	150,000	100,000	5,400		205,000	140,000
2,800		150,000	100,000	5,500		205,000	140,000
2,850		150,000	100,000	5,560	7/32	205,000	140,000
2,870		150,000	100,000	5,600		205,000	140,000
2,900		150,000	100,000	5,700		205,000	140,000
2,950		150,000	100,000	5,750		205,000	140,000
3,000		150,000	100,000	5,800		205,000	140,000
3,030		155,000	105,000	5,900		205,000	140,000
3,100		155,000	105,000	5,950	15/64	205,000	140,000
3,170	1/8	155,000	105,000	6,000		205,000	140,000
3,200		155,000	105,000	6,100		215,000	150,000
3,250		155,000	105,000	6,200		215,000	150,000
3,300		155,000	105,000	6,250		215,000	150,000
3,400		165,000	115,000	6,300		215,000	150,000
3,500		165,000	115,000	6,350	1/4	215,000	150,000
3,570	9/64	165,000	115,000	6,400		215,000	150,000
3,600		165,000	115,000	6,500		215,000	150,000
3,700		165,000	115,000	6,600		215,000	150,000
3,750		165,000	115,000	6,700		215,000	150,000
3,800		175,000	120,000	6,750	17/64	225,000	155,000
3,860		175,000	120,000	6,800		225,000	155,000
3,900		175,000	120,000	6,900		225,000	155,000
3,970	5/32	175,000	120,000	7,000		225,000	155,000
4,000		175,000	120,000	7,100		225,000	155,000
4,100		175,000	120,000	7,200		225,000	155,000
4,200		175,000	120,000	7,300		225,000	155,000
4,300		185,000	125,000	7,500		225,000	155,000
4,370	11/64	185,000	125,000	7,540	19/64	240,000	165,000



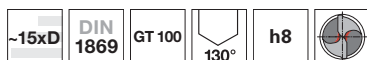
Punte cilindriche

d1		l1	l2
mm	inch	mm	mm
7,700		240,000	165,000
7,750		240,000	165,000
7,800		240,000	165,000
7,900		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,100		240,000	165,000
8,200		240,000	165,000
8,300		240,000	165,000
8,330	21/64	240,000	165,000
8,400		240,000	165,000
8,430		240,000	165,000
8,500		240,000	165,000
8,600		250,000	175,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
9,000		250,000	175,000
9,200		250,000	175,000
9,300		250,000	175,000
9,400		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000

d1		l1	l2
mm	inch	mm	mm
9,700		265,000	185,000
9,800		265,000	185,000
9,900		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,200		265,000	185,000
10,320	13/32	265,000	185,000
10,500		265,000	185,000
10,720	27/64	280,000	195,000
11,000		280,000	195,000
11,110	7/16	280,000	195,000
11,200		280,000	195,000
11,500		280,000	195,000
11,510	29/64	280,000	195,000
11,750		280,000	195,000
11,800		280,000	195,000
12,000		295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000
13,000		295,000	205,000



Punte elicoidali in lunghezze speciali, grandezza 1



Materiale tagliente **HSS**

Superficie **S**

Direzione di taglio **R**

P • Assott. del nocc. $\geq \varnothing 1,980$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente

M

K •

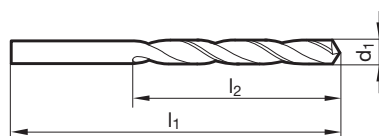
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S ○

H

GUHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **670**

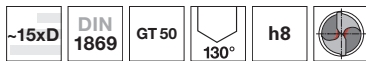
d1		l1	l2
mm	inch	mm	mm
2,000		125,000	85,000
2,100		125,000	85,000
2,200		135,000	90,000
2,300		135,000	90,000
2,380	3/32	140,000	95,000
2,400		140,000	95,000
2,500		140,000	95,000
2,780	7/64	150,000	100,000
2,800		150,000	100,000
2,950		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,800		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,200		175,000	120,000
4,370	11/64	185,000	125,000
4,500		185,000	125,000
4,600		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000

d1		l1	l2
mm	inch	mm	mm
6,350	1/4	215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,800		225,000	155,000
7,000		225,000	155,000
7,140	9/32	225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,200		240,000	165,000
8,500		240,000	165,000
8,730	11/32	250,000	175,000
9,000		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,900		280,000	195,000
11,000		280,000	195,000
11,900		295,000	205,000
11,910	15/32	295,000	205,000
12,000		295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000

Punte cilindriche



Punte elicoidali in lunghezze speciali, grandezza 1



P ○ Assott. del nocc. ≥ Ø 2,380 • spoglia sul cono tagliente • per fori estremamente profondi

M

K

N ● materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno

S

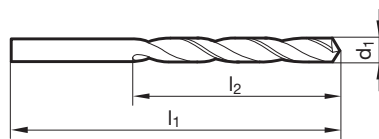
H

GÜHRINGNAVIGATOR

Dati di taglio a pag. 788

Punte cilindriche

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ



Articolo nr. **524**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
2,000		125,000	85,000	5,200		195,000	135,000
2,100		125,000	85,000	5,400		205,000	140,000
2,200		135,000	90,000	5,600		205,000	140,000
2,300		135,000	90,000	5,700		205,000	140,000
2,350		135,000	90,000	5,800		205,000	140,000
2,380	3/32	140,000	95,000	5,900		205,000	140,000
2,400		140,000	95,000	5,950	15/64	205,000	140,000
2,450		140,000	95,000	6,000		205,000	140,000
2,500		140,000	95,000	6,100		215,000	150,000
2,600		140,000	95,000	6,350	1/4	215,000	150,000
2,780	7/64	150,000	100,000	6,400		215,000	150,000
2,800		150,000	100,000	6,500		215,000	150,000
2,900		150,000	100,000	6,600		215,000	150,000
2,950		150,000	100,000	6,750	17/64	225,000	155,000
3,000		150,000	100,000	6,800		225,000	155,000
3,100		155,000	105,000	7,000		225,000	155,000
3,170	1/8	155,000	105,000	7,100		225,000	155,000
3,200		155,000	105,000	7,140	9/32	225,000	155,000
3,300		155,000	105,000	7,300		225,000	155,000
3,350		155,000	105,000	7,400		225,000	155,000
3,400		165,000	115,000	7,500		225,000	155,000
3,450		165,000	115,000	7,540	19/64	240,000	165,000
3,500		165,000	115,000	7,800		240,000	165,000
3,530		165,000	115,000	7,900		240,000	165,000
3,570	9/64	165,000	115,000	7,940	5/16	240,000	165,000
3,600		165,000	115,000	8,000		240,000	165,000
3,800		175,000	120,000	8,100		240,000	165,000
3,900		175,000	120,000	8,330	21/64	240,000	165,000
3,970	5/32	175,000	120,000	8,600		250,000	175,000
4,000		175,000	120,000	8,730	11/32	250,000	175,000
4,100		175,000	120,000	8,900		250,000	175,000
4,200		175,000	120,000	9,000		250,000	175,000
4,250		175,000	120,000	9,130	23/64	250,000	175,000
4,300		185,000	125,000	9,200		250,000	175,000
4,370	11/64	185,000	125,000	9,500		250,000	175,000
4,400		185,000	125,000	9,520	3/8	265,000	185,000
4,500		185,000	125,000	9,920	25/64	265,000	185,000
4,760	3/16	195,000	135,000	10,000		265,000	185,000
4,900		195,000	135,000	10,320	13/32	265,000	185,000
5,000		195,000	135,000	10,500		265,000	185,000
5,100		195,000	135,000	11,000		280,000	195,000
5,160	13/64	195,000	135,000	11,110	7/16	280,000	195,000

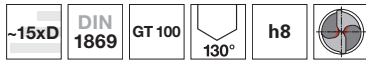


d1		l1	l2
mm	inch	mm	mm
11,500		280,000	195,000
11,910	15/32	295,000	205,000
12,000		295,000	205,000
12,700	1/2	295,000	205,000

d1		l1	l2
mm	inch	mm	mm



Punte elicoidali in lunghezze speciali, grandezza 1



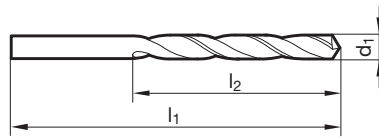
- P** • Assott. del noc. $\geq \varnothing 2,700$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai e ghisa acciainosa ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale
- S** •
- H** ○

Materiale tagliente	HSCO
Superficie	
Direzione di taglio	

Punte cilindriche

GUHRING NAVIGATOR

Dati di taglio a pag. 794



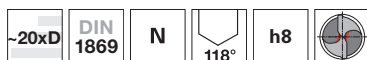
Articolo nr. **618**

d1		l1	l2
mm	inch	mm	mm
2,700		150,000	100,000
2,900		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,400		165,000	115,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,700		165,000	115,000
3,750		165,000	115,000
3,800		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,100		175,000	120,000
4,200		175,000	120,000
4,300		185,000	125,000
4,370	11/64	185,000	125,000
4,400		185,000	125,000
4,500		185,000	125,000
4,600		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
4,850		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,300		195,000	135,000
5,400		205,000	140,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
5,600		205,000	140,000
5,700		205,000	140,000

d1		l1	l2
mm	inch	mm	mm
5,800		205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000
6,300		215,000	150,000
6,350	1/4	215,000	150,000
6,400		215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,700		215,000	150,000
6,750	17/64	225,000	155,000
6,800		225,000	155,000
7,000		225,000	155,000
7,140	9/32	225,000	155,000
7,400		225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,700		240,000	165,000
7,800		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,200		240,000	165,000
8,330	21/64	240,000	165,000
8,500		240,000	165,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,400		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,700		265,000	185,000
10,000		265,000	185,000



Punte elicoidali in lunghezze speciali, grandezza 2

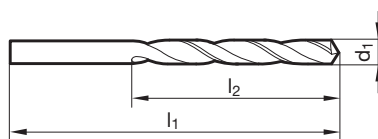


- P** • Assott. del nocc. $\geq \varnothing 2,700$ • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 788

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)



Articolo nr. **236**

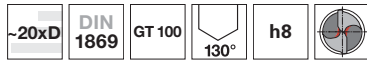
d1		l1	l2
mm	inch	mm	mm
2,700		190,000	130,000
2,800		190,000	130,000
2,900		190,000	130,000
3,000		190,000	130,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,600		210,000	145,000
3,800		220,000	150,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,200		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,800		260,000	180,000
5,900		260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000

d1		l1	l2
mm	inch	mm	mm
6,500		275,000	190,000
6,700		275,000	190,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,800		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,100		305,000	210,000
8,500		305,000	210,000
8,700		320,000	220,000
8,730	11/32	320,000	220,000
8,800		320,000	220,000
8,900		320,000	220,000
9,000		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,800		340,000	235,000
10,000		340,000	235,000
10,200		340,000	235,000
10,500		340,000	235,000
11,000		365,000	250,000
11,110	7/16	365,000	250,000
11,500		365,000	250,000
11,510	29/64	365,000	250,000
11,750		365,000	250,000
12,000		375,000	260,000
13,000		375,000	260,000

Punte cilindriche



Punte elicoidali in lunghezze speciali, grandezza 2



Materiale tagliente	HSS
Superficie	
Direzione di taglio	

P • Assott. del noc. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente

K •

N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

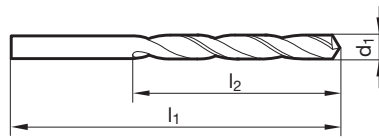
S

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 790

Punte cilindriche



Articolo nr. **503**

d1		l1	l2
mm	inch	mm	mm
2,000		160,000	110,000
2,200		170,000	115,000
2,300		170,000	115,000
2,500		180,000	120,000
2,800		190,000	130,000
3,000		190,000	130,000
3,030		200,000	135,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,400		210,000	145,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,600		210,000	145,000
3,700		210,000	145,000
3,800		220,000	150,000
3,900		220,000	150,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,300		235,000	160,000
4,370	11/64	235,000	160,000
4,400		235,000	160,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,100		245,000	170,000
5,160	13/64	245,000	170,000
5,200		245,000	170,000
5,300		245,000	170,000
5,400		260,000	180,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,700		260,000	180,000
5,800		260,000	180,000
5,900		260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000

d1		l1	l2
mm	inch	mm	mm
6,100		275,000	190,000
6,150		275,000	190,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000
6,400		275,000	190,000
6,500		275,000	190,000
6,600		275,000	190,000
6,700		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
6,900		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,800		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,200		305,000	210,000
8,330	21/64	305,000	210,000
8,500		305,000	210,000
8,600		320,000	220,000
8,730	11/32	320,000	220,000
8,800		320,000	220,000
9,000		320,000	220,000
9,100		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,520	3/8	340,000	235,000
9,700		340,000	235,000
9,800		340,000	235,000
9,920	25/64	340,000	235,000
10,000		340,000	235,000
10,200		340,000	235,000
10,500		340,000	235,000
10,720	27/64	365,000	250,000
11,000		365,000	250,000
11,110	7/16	365,000	250,000
11,500		365,000	250,000
11,510	29/64	365,000	250,000
11,750		365,000	250,000
11,910	15/32	375,000	260,000

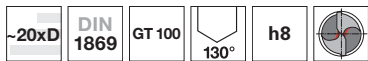


d1		l1	l2
mm	inch	mm	mm
12,000		375,000	260,000
12,300	31/64	375,000	260,000
12,500		375,000	260,000
12,700	1/2	375,000	260,000
13,000		375,000	260,000

d1		l1	l2
mm	inch	mm	mm



Punte elicoidali in lunghezze speciali, grandezza 2



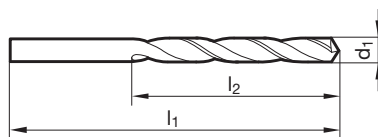
- P** • Assott. del noc. $\geq \varnothing 2,300$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S** ○
- H**

Materiale tagliente	HSS
Superficie	S
Direzione di taglio	R

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **671**

d1		l1	l2
mm	inch	mm	mm
2,700		190,000	130,000
2,800		190,000	130,000
3,000		190,000	130,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,090		220,000	150,000
4,370	11/64	235,000	160,000
4,400		235,000	160,000
4,500		235,000	160,000
4,600		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
5,000		245,000	170,000

d1		l1	l2
mm	inch	mm	mm
5,300		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
6,000		260,000	180,000
6,350	1/4	275,000	190,000
6,500		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,500		305,000	210,000



Punte elicoidali in lunghezze speciali, grandezza 2



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P Assott. del nocc. $\geq \varnothing 2,800$ • spoglia sul cono tagliente • per fori estremamente profondi

M

K

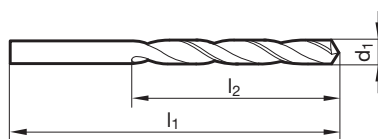
N materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **528**

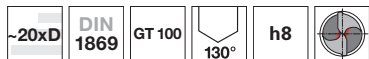
d1		l1	l2
mm	inch	mm	mm
3,000		190,000	130,000
3,030		200,000	135,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,500		210,000	145,000
3,650		210,000	145,000
3,800		220,000	150,000
4,000		220,000	150,000
4,200		220,000	150,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
5,000		245,000	170,000
5,110		245,000	170,000
5,500		260,000	180,000
5,800		260,000	180,000
6,000		260,000	180,000
7,000		290,000	200,000

d1		l1	l2
mm	inch	mm	mm
7,500		290,000	200,000
8,000		305,000	210,000
8,500		305,000	210,000
9,000		320,000	220,000
10,000		340,000	235,000
10,500		340,000	235,000
11,500		365,000	250,000
13,000		375,000	260,000

Punte cilindriche



Punte elicoidali in lunghezze speciali, grandezza 2



Materiale tagliente **HSCO**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • per fori estremamente profondi • in caso di scarico truciolo insufficiente

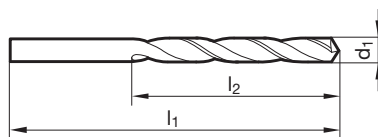
K •
N • acciai e ghisa acciaiata ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale

S •
H ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 794

Punte cilindriche



Articolo nr. **619**

d1		l1	l2
mm	inch	mm	mm
3,000		190,000	130,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,370	11/64	235,000	160,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,200		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000
6,100		275,000	190,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000

d1		l1	l2
mm	inch	mm	mm
6,500		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,400		290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,600		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,200		305,000	210,000
8,500		305,000	210,000
8,730	11/32	320,000	220,000
9,000		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,520	3/8	340,000	235,000
9,600		340,000	235,000
9,900		340,000	235,000
10,000		340,000	235,000



Punte elicoidali in lunghezze speciali, grandezza 3

Materiale tagliente **HSS**

Superficie

Direzione di taglio

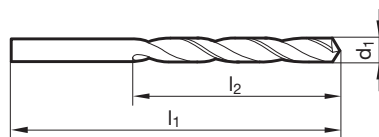
P • Assott. del nocc. $\geq \varnothing 3,500$ • spoglia sul cono tagliente • per fori estremamente profondi

M**K** •

N ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite

S**H****GUHRING** NAVIGATOR

Dati di taglio a pag. 788



Articolo nr.

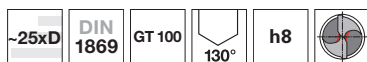
237

d1		l1	l2
mm	inch	mm	mm
3,500		265,000	180,000
3,800		280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,500		295,000	200,000
5,000		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,800		330,000	225,000
5,900		330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000
6,800		370,000	250,000
7,000		370,000	250,000

d1		l1	l2
mm	inch	mm	mm
7,500		370,000	250,000
7,800		390,000	265,000
8,000		390,000	265,000
8,500		390,000	265,000
9,000		410,000	280,000
9,500		410,000	280,000
9,800		430,000	295,000
10,000		430,000	295,000
10,300		430,000	295,000
10,500		430,000	295,000
11,000		455,000	310,000
11,500		455,000	310,000
11,750		455,000	310,000
12,000		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000



Punte elicoidali in lunghezze speciali, grandezza 3



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 2,500$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi

M

K •

N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

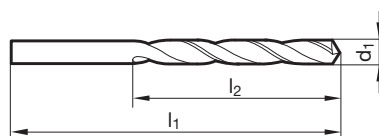
S

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 790

Punte cilindriche



Articolo nr. **504**

d1		l1	l2
mm	inch	mm	mm
2,500		225,000	150,000
3,000		240,000	160,000
3,100		250,000	170,000
3,170	1/8	250,000	170,000
3,200		250,000	170,000
3,300		250,000	170,000
3,400		265,000	180,000
3,500		265,000	180,000
3,570	9/64	265,000	180,000
3,600		265,000	180,000
3,700		265,000	180,000
3,800		280,000	190,000
3,900		280,000	190,000
3,970	5/32	280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,300		295,000	200,000
4,370	11/64	295,000	200,000
4,400		295,000	200,000
4,500		295,000	200,000
4,600		295,000	200,000
4,760	3/16	315,000	210,000
4,800		315,000	210,000
4,900		315,000	210,000
5,000		315,000	210,000
5,100		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,560	7/32	330,000	225,000
5,800		330,000	225,000
5,950	15/64	330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,300		350,000	235,000
6,350	1/4	350,000	235,000
6,400		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000
6,750	17/64	370,000	250,000
6,800		370,000	250,000

d1		l1	l2
mm	inch	mm	mm
7,000		370,000	250,000
7,140	9/32	370,000	250,000
7,200		370,000	250,000
7,500		370,000	250,000
7,540	19/64	390,000	265,000
7,750		390,000	265,000
7,800		390,000	265,000
7,940	5/16	390,000	265,000
8,000		390,000	265,000
8,200		390,000	265,000
8,330	21/64	390,000	265,000
8,500		390,000	265,000
8,600		410,000	280,000
8,730	11/32	410,000	280,000
8,800		410,000	280,000
8,900		410,000	280,000
9,000		410,000	280,000
9,200		410,000	280,000
9,500		410,000	280,000
9,520	3/8	430,000	295,000
9,530		430,000	295,000
9,920	25/64	430,000	295,000
10,000		430,000	295,000
10,320	13/32	430,000	295,000
10,500		430,000	295,000
10,720	27/64	455,000	310,000
11,000		455,000	310,000
11,110	7/16	455,000	310,000
11,500		455,000	310,000
12,000		480,000	330,000
12,200		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000



Punte elicoidali in lunghezze speciali, grandezza 3



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P Assott. del nocc. $\geq \varnothing 2,500$ • spoglia sul cono tagliente • per fori estremamente profondi

M

K

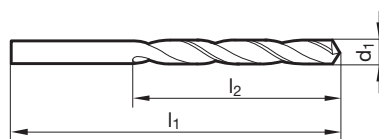
N materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 788



Punte cilindriche

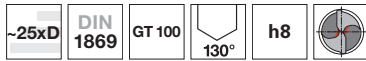
Articolo nr. **529**

d1		l1	l2
mm	inch	mm	mm
2,500		225,000	150,000
3,000		240,000	160,000
3,500		265,000	180,000
3,800		280,000	190,000
4,000		280,000	190,000
4,500		295,000	200,000
5,000		315,000	210,000
6,000		330,000	225,000
6,500		350,000	235,000
6,700		350,000	235,000
6,800		370,000	250,000
7,500		370,000	250,000

d1		l1	l2
mm	inch	mm	mm
8,000		390,000	265,000
9,500		410,000	280,000
10,000		430,000	295,000



Punte elicoidali in lunghezze speciali, grandezza 3



- P** • Assott. del nocch. $\geq \varnothing 2,500$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai e ghisa acciaiata ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale
- S** •
- H** ○

Materiale tagliente **HSCO**

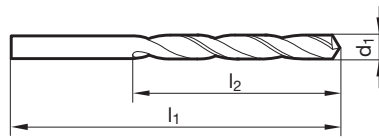
Superficie

Direzione di taglio

Punte cilindriche

GÜHRINGNAVIGATOR

Dati di taglio a pag. 794



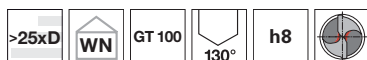
Articolo nr. **571**

d1		l1	l2
mm	inch	mm	mm
2,500		225,000	150,000
3,000		240,000	160,000
3,100		250,000	170,000
3,170	1/8	250,000	170,000
3,200		250,000	170,000
3,300		250,000	170,000
3,400		265,000	180,000
3,500		265,000	180,000
3,700		265,000	180,000
3,800		280,000	190,000
3,900		280,000	190,000
3,970	5/32	280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,300		295,000	200,000
4,500		295,000	200,000
4,600		295,000	200,000
4,760	3/16	315,000	210,000
4,800		315,000	210,000
4,900		315,000	210,000
5,000		315,000	210,000
5,100		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,560	7/32	330,000	225,000
5,800		330,000	225,000
5,950	15/64	330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,300		350,000	235,000
6,350	1/4	350,000	235,000
6,400		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000

d1		l1	l2
mm	inch	mm	mm
6,750	17/64	370,000	250,000
6,800		370,000	250,000
7,000		370,000	250,000
7,140	9/32	370,000	250,000
7,200		370,000	250,000
7,500		370,000	250,000
7,750		390,000	265,000
7,800		390,000	265,000
7,940	5/16	390,000	265,000
8,000		390,000	265,000
8,200		390,000	265,000
8,500		390,000	265,000
8,600		410,000	280,000
8,730	11/32	410,000	280,000
8,800		410,000	280,000
9,000		410,000	280,000
9,500		410,000	280,000
9,520	3/8	430,000	295,000
10,000		430,000	295,000
10,320	13/32	430,000	295,000
10,500		430,000	295,000
10,720	27/64	455,000	310,000
11,000		455,000	310,000
11,110	7/16	455,000	310,000
11,500		455,000	310,000
12,000		480,000	330,000
12,200		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000



Punte elicoidali, extra lunghe



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del noc. $\geq \varnothing 6,000$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente

M

K •

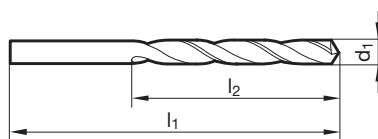
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **242**

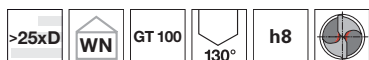
d1		l1	l2
mm	inch		
6,000		500,000	400,000
8,000		500,000	400,000
10,000		600,000	500,000
11,000		600,000	500,000
12,000		600,000	500,000

d1		l1	l2
mm	inch		

Punte cilindriche



Punte elicoidali, extra lunghe



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del noc. $\geq \varnothing 8,000$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente

M

K • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

N

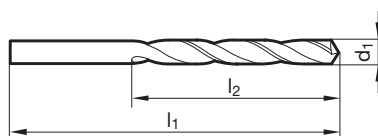
S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 790

Punte cilindriche



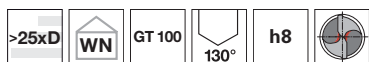
Articolo nr. **243**

d1		l1	l2
mm	inch	mm	mm
8,000		750,000	650,000
10,000		750,000	650,000
11,000		750,000	650,000
12,000		750,000	650,000

d1		l1	l2
mm	inch	mm	mm



Punte elicoidali, extra lunghe



Materiale tagliente **HSS**

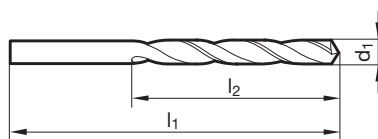
Superficie ○

Direzione di taglio (R)

- P** • Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **244**

d1		l1	l2
mm	inch	mm	mm
10,000		1000,000	850,000
11,000		1000,000	850,000
12,000		1000,000	850,000

d1		l1	l2
mm	inch	mm	mm

Punte cilindriche



Punte con codolo rinforzato



Materiale tagliente **HSCO**

Superficie **S**

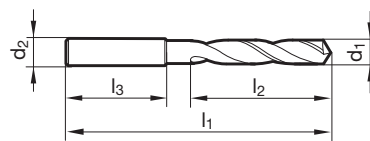
Direzione di taglio **R**

- P** • Assott. del nocc. $\geq \varnothing 2,000$ • affilatura su piani • acciaio HSS legato al Co • è necess. una limitata forza di avanz. • è necess. un limitato momento torcente • massima resistenza all'usura • uso universale
- M** •
- K** •
- N** • acciai legati e non legati con R fino a 800 N/mm^2 • acciai per lav. a caldo e a freddo • acciai inossidabili • metalli non ferrosi • ghise • plastica
- S**
- H**

Punte cilindriche

GÜHRINGNAVIGATOR

Dati di taglio a pag. 774



Articolo nr. **512**

d1	d2 h6	l1	l2	l3	d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
2,000	3,000	44,000	12,000	28,000	5,800	6,000	72,000	28,000	36,000
2,100	3,000	44,000	12,000	28,000	5,900	6,000	72,000	28,000	36,000
2,200	3,000	45,000	13,000	28,000	5,950	6,000	72,000	28,000	36,000
2,300	3,000	45,000	13,000	28,000	6,000	6,000	72,000	28,000	36,000
2,400	3,000	46,000	14,000	28,000	6,100	8,000	75,000	31,000	36,000
2,500	3,000	46,000	14,000	28,000	6,200	8,000	75,000	31,000	36,000
2,600	3,000	46,000	14,000	28,000	6,300	8,000	75,000	31,000	36,000
2,700	3,000	48,000	16,000	28,000	6,350	8,000	75,000	31,000	36,000
2,780	3,000	48,000	16,000	28,000	6,400	8,000	75,000	31,000	36,000
2,800	3,000	48,000	16,000	28,000	6,500	8,000	75,000	31,000	36,000
2,900	3,000	48,000	16,000	28,000	6,600	8,000	75,000	31,000	36,000
3,000	3,000	48,000	16,000	28,000	6,750	8,000	78,000	34,000	36,000
3,100	4,000	50,000	18,000	28,000	6,800	8,000	78,000	34,000	36,000
3,170	4,000	50,000	18,000	28,000	6,900	8,000	78,000	34,000	36,000
3,200	4,000	50,000	18,000	28,000	7,000	8,000	78,000	34,000	36,000
3,300	4,000	50,000	18,000	28,000	7,100	8,000	78,000	34,000	36,000
3,400	4,000	52,000	20,000	28,000	7,140	8,000	78,000	34,000	36,000
3,500	4,000	52,000	20,000	28,000	7,200	8,000	78,000	34,000	36,000
3,570	4,000	52,000	20,000	28,000	7,300	8,000	78,000	34,000	36,000
3,600	4,000	52,000	20,000	28,000	7,500	8,000	78,000	34,000	36,000
3,700	4,000	52,000	20,000	28,000	7,600	8,000	81,000	37,000	36,000
3,800	4,000	54,000	22,000	28,000	7,800	8,000	81,000	37,000	36,000
3,900	4,000	54,000	22,000	28,000	7,900	8,000	81,000	37,000	36,000
4,000	4,000	54,000	22,000	28,000	7,940	8,000	81,000	37,000	36,000
4,100	6,000	66,000	22,000	36,000	8,000	8,000	81,000	37,000	36,000
4,200	6,000	66,000	22,000	36,000	8,100	10,000	87,000	37,000	40,000
4,300	6,000	68,000	24,000	36,000	8,200	10,000	87,000	37,000	40,000
4,370	6,000	68,000	24,000	36,000	8,300	10,000	87,000	37,000	40,000
4,400	6,000	68,000	24,000	36,000	8,330	10,000	87,000	37,000	40,000
4,500	6,000	68,000	24,000	36,000	8,500	10,000	87,000	37,000	40,000
4,700	6,000	68,000	24,000	36,000	8,600	10,000	91,000	40,000	40,000
4,760	6,000	70,000	26,000	36,000	8,730	10,000	91,000	40,000	40,000
4,800	6,000	70,000	26,000	36,000	8,800	10,000	91,000	40,000	40,000
4,900	6,000	70,000	26,000	36,000	8,900	10,000	91,000	40,000	40,000
5,000	6,000	70,000	26,000	36,000	9,000	10,000	91,000	40,000	40,000
5,100	6,000	70,000	26,000	36,000	9,100	10,000	91,000	40,000	40,000
5,200	6,000	70,000	26,000	36,000	9,130	10,000	91,000	40,000	40,000
5,300	6,000	70,000	26,000	36,000	9,200	10,000	91,000	40,000	40,000
5,400	6,000	72,000	28,000	36,000	9,300	10,000	91,000	40,000	40,000
5,500	6,000	72,000	28,000	36,000	9,400	10,000	91,000	40,000	40,000
5,560	6,000	72,000	28,000	36,000	9,500	10,000	91,000	40,000	40,000
5,600	6,000	72,000	28,000	36,000	9,520	10,000	93,000	43,000	40,000



d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
9,800	10,000	93,000	43,000	40,000
9,900	10,000	93,000	43,000	40,000
9,920	10,000	93,000	43,000	40,000
10,000	10,000	93,000	43,000	40,000
10,100	12,000	100,000	43,000	45,000
10,200	12,000	100,000	43,000	45,000
10,300	12,000	100,000	43,000	45,000
10,320	12,000	100,000	43,000	45,000
10,500	12,000	100,000	43,000	45,000
10,800	12,000	104,000	47,000	45,000
11,000	12,000	104,000	47,000	45,000
11,100	12,000	104,000	47,000	45,000
11,110	12,000	104,000	47,000	45,000
11,200	12,000	104,000	47,000	45,000
11,300	12,000	104,000	47,000	45,000
11,400	12,000	104,000	47,000	45,000
11,500	12,000	104,000	47,000	45,000
11,510	12,000	104,000	47,000	45,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
11,700	12,000	104,000	47,000	45,000
11,800	12,000	104,000	47,000	45,000
12,000	12,000	108,000	51,000	45,000
12,300	16,000	111,000	51,000	48,000
12,500	16,000	111,000	51,000	48,000
13,000	16,000	111,000	51,000	48,000
13,490	16,000	114,000	54,000	48,000
13,500	16,000	114,000	54,000	48,000
14,000	16,000	114,000	54,000	48,000
15,000	16,000	116,000	56,000	48,000
16,000	16,000	118,000	58,000	48,000
16,500	20,000	126,000	60,000	50,000
16,670	20,000	126,000	60,000	50,000
17,500	20,000	128,000	62,000	50,000
18,000	20,000	128,000	62,000	50,000
18,500	20,000	130,000	64,000	50,000
19,500	20,000	132,000	66,000	50,000
20,000	20,000	132,000	66,000	50,000

Punte cilindriche



Punte con codolo rinforzato



Materiale tagliente **HSCO**

Superficie **S**

Direzione di taglio **R**

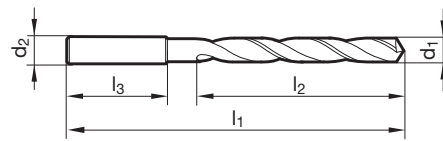
- P** • Assott. del nocc. $\geq \varnothing 2,000$ • affilatura su piani • acciaio HSS legato al Co • è necess. una limitata forza di avanzz. • è necess. un limitato momento torcente • massima resistenza all'usura • uso universale
- M** •
- K** •
- N** • acciai legati e non legati con R fino a 800 N/mm^2 • acciai per lav. a caldo e a freddo • acciai inossidabili • metalli non ferrosi • ghise • plastica
- S**
- H**



Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 784



Articolo nr. **511**

d1	d2 h6	l1	l2	l3	d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
2,000	3,000	56,000	24,000	28,000	6,300	8,000	107,000	63,000	36,000
2,100	3,000	56,000	24,000	28,000	6,350	8,000	107,000	63,000	36,000
2,300	3,000	59,000	27,000	28,000	6,400	8,000	107,000	63,000	36,000
2,380	3,000	62,000	30,000	28,000	6,500	8,000	107,000	63,000	36,000
2,400	3,000	62,000	30,000	28,000	6,600	8,000	107,000	63,000	36,000
2,500	3,000	62,000	30,000	28,000	6,750	8,000	113,000	69,000	36,000
2,600	3,000	62,000	30,000	28,000	6,800	8,000	113,000	69,000	36,000
2,780	3,000	65,000	33,000	28,000	6,900	8,000	113,000	69,000	36,000
2,800	3,000	65,000	33,000	28,000	7,000	8,000	113,000	69,000	36,000
2,900	3,000	65,000	33,000	28,000	7,100	8,000	113,000	69,000	36,000
3,000	3,000	65,000	33,000	28,000	7,140	8,000	113,000	69,000	36,000
3,100	4,000	68,000	36,000	28,000	7,200	8,000	113,000	69,000	36,000
3,200	4,000	68,000	36,000	28,000	7,300	8,000	113,000	69,000	36,000
3,300	4,000	68,000	36,000	28,000	7,400	8,000	113,000	69,000	36,000
3,400	4,000	71,000	39,000	28,000	7,500	8,000	113,000	69,000	36,000
3,500	4,000	71,000	39,000	28,000	7,540	8,000	119,000	75,000	36,000
3,570	4,000	71,000	39,000	28,000	7,550	8,000	119,000	75,000	36,000
3,900	4,000	75,000	43,000	28,000	7,600	8,000	119,000	75,000	36,000
3,970	4,000	75,000	43,000	28,000	7,700	8,000	119,000	75,000	36,000
4,000	4,000	75,000	43,000	28,000	7,800	8,000	119,000	75,000	36,000
4,200	6,000	87,000	43,000	36,000	7,900	8,000	119,000	75,000	36,000
4,300	6,000	91,000	47,000	36,000	8,000	8,000	119,000	75,000	36,000
4,370	6,000	91,000	47,000	36,000	8,100	10,000	125,000	75,000	40,000
4,400	6,000	91,000	47,000	36,000	8,200	10,000	125,000	75,000	40,000
4,500	6,000	91,000	47,000	36,000	8,300	10,000	125,000	75,000	40,000
4,650	6,000	91,000	47,000	36,000	8,330	10,000	125,000	75,000	40,000
4,700	6,000	91,000	47,000	36,000	8,500	10,000	125,000	75,000	40,000
4,760	6,000	96,000	52,000	36,000	8,600	10,000	131,000	81,000	40,000
4,800	6,000	96,000	52,000	36,000	8,730	10,000	131,000	81,000	40,000
4,900	6,000	96,000	52,000	36,000	8,800	10,000	131,000	81,000	40,000
5,000	6,000	96,000	52,000	36,000	8,900	10,000	131,000	81,000	40,000
5,100	6,000	96,000	52,000	36,000	9,000	10,000	131,000	81,000	40,000
5,160	6,000	96,000	52,000	36,000	9,100	10,000	131,000	81,000	40,000
5,200	6,000	96,000	52,000	36,000	9,130	10,000	131,000	81,000	40,000
5,300	6,000	96,000	52,000	36,000	9,400	10,000	131,000	81,000	40,000
5,400	6,000	101,000	57,000	36,000	9,500	10,000	131,000	81,000	40,000
5,500	6,000	101,000	57,000	36,000	9,520	10,000	137,000	87,000	40,000
5,600	6,000	101,000	57,000	36,000	9,550	10,000	137,000	87,000	40,000
5,800	6,000	101,000	57,000	36,000	9,600	10,000	137,000	87,000	40,000
5,900	6,000	101,000	57,000	36,000	9,900	10,000	137,000	87,000	40,000
6,000	6,000	101,000	57,000	36,000	9,920	10,000	137,000	87,000	40,000
6,100	8,000	107,000	63,000	36,000	10,000	10,000	137,000	87,000	40,000

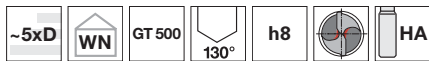


d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
10,100	12,000	144,000	87,000	45,000
10,200	12,000	144,000	87,000	45,000
10,400	12,000	144,000	87,000	45,000
10,500	12,000	144,000	87,000	45,000
10,600	12,000	144,000	87,000	45,000
10,800	12,000	151,000	94,000	45,000
11,000	12,000	151,000	94,000	45,000
11,110	12,000	151,000	94,000	45,000
11,200	12,000	151,000	94,000	45,000
11,300	12,000	151,000	94,000	45,000
11,510	12,000	151,000	94,000	45,000
11,800	12,000	151,000	94,000	45,000
11,910	12,000	158,000	101,000	45,000
12,000	12,000	158,000	101,000	45,000
12,200	16,000	161,000	101,000	48,000
12,500	16,000	161,000	101,000	48,000
12,700	16,000	161,000	101,000	48,000
13,000	16,000	161,000	101,000	48,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
13,500	16,000	166,000	106,000	48,000
13,890	16,000	166,000	106,000	48,000
14,000	16,000	166,000	106,000	48,000
14,500	16,000	169,000	109,000	48,000
15,000	16,000	169,000	109,000	48,000
15,500	16,000	172,000	112,000	48,000
16,000	16,000	172,000	112,000	48,000
16,500	20,000	181,000	115,000	50,000
17,000	20,000	181,000	115,000	50,000
17,460	20,000	184,000	118,000	50,000
17,500	20,000	184,000	118,000	50,000
18,000	20,000	184,000	118,000	50,000
19,000	20,000	188,000	122,000	50,000
19,500	20,000	191,000	125,000	50,000
20,000	20,000	191,000	125,000	50,000



Punte con codolo rinforzato



Materiale tagliente **HSS-E-PM**

Superficie **F**

Direzione di taglio **R**

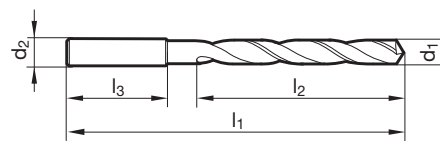
- P** • Assott. del nocc. $\geq \varnothing 2,000$ • relieved cone point geometry with special type B web thinning • acciaio HSS legato al Co PM • stabilità elevata
- M** ○ • specialmente per resistenza all'usura
- K** •
- N** ○ acciai ed acciai legati in alta percentuale • acciai da bonifica e da cementazione • ghise, ottone e bronzo
- S** ○
- H** ○



Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 784

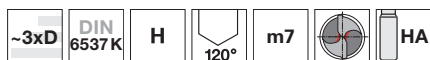


Articolo nr. **513**

d1	d2 h6	l1	l2	l3	d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
2,000	3,000	56,000	24,000	28,000	7,800	8,000	119,000	75,000	36,000
2,100	3,000	56,000	24,000	28,000	7,940	8,000	119,000	75,000	36,000
2,380	3,000	62,000	30,000	28,000	8,000	8,000	119,000	75,000	36,000
2,500	3,000	62,000	30,000	28,000	8,330	10,000	125,000	75,000	40,000
2,780	3,000	65,000	33,000	28,000	8,500	10,000	125,000	75,000	40,000
3,000	3,000	65,000	33,000	28,000	8,730	10,000	131,000	81,000	40,000
3,170	4,000	68,000	36,000	28,000	8,800	10,000	131,000	81,000	40,000
3,300	4,000	68,000	36,000	28,000	9,000	10,000	131,000	81,000	40,000
3,500	4,000	71,000	39,000	28,000	9,130	10,000	131,000	81,000	40,000
3,570	4,000	71,000	39,000	28,000	9,300	10,000	131,000	81,000	40,000
3,970	4,000	75,000	43,000	28,000	9,500	10,000	131,000	81,000	40,000
4,000	4,000	75,000	43,000	28,000	9,520	10,000	137,000	87,000	40,000
4,200	6,000	87,000	43,000	36,000	9,600	10,000	137,000	87,000	40,000
4,370	6,000	91,000	47,000	36,000	9,800	10,000	137,000	87,000	40,000
4,500	6,000	91,000	47,000	36,000	9,920	10,000	137,000	87,000	40,000
4,650	6,000	91,000	47,000	36,000	10,000	10,000	137,000	87,000	40,000
4,760	6,000	96,000	52,000	36,000	10,200	12,000	144,000	87,000	45,000
4,800	6,000	96,000	52,000	36,000	10,500	12,000	144,000	87,000	45,000
5,000	6,000	96,000	52,000	36,000	10,600	12,000	144,000	87,000	45,000
5,100	6,000	96,000	52,000	36,000	10,700	12,000	151,000	94,000	45,000
5,160	6,000	96,000	52,000	36,000	10,900	12,000	151,000	94,000	45,000
5,200	6,000	96,000	52,000	36,000	11,000	12,000	151,000	94,000	45,000
5,300	6,000	96,000	52,000	36,000	11,100	12,000	151,000	94,000	45,000
5,500	6,000	101,000	57,000	36,000	11,300	12,000	151,000	94,000	45,000
5,800	6,000	101,000	57,000	36,000	11,400	12,000	151,000	94,000	45,000
6,000	6,000	101,000	57,000	36,000	11,500	12,000	151,000	94,000	45,000
6,350	8,000	107,000	63,000	36,000	11,900	12,000	158,000	101,000	45,000
6,500	8,000	107,000	63,000	36,000	12,000	12,000	158,000	101,000	45,000
6,600	8,000	107,000	63,000	36,000	12,200	14,000	161,000	101,000	45,000
6,750	8,000	113,000	69,000	36,000	12,300	14,000	161,000	101,000	45,000
6,800	8,000	113,000	69,000	36,000	12,400	14,000	161,000	101,000	45,000
7,000	8,000	113,000	69,000	36,000	12,500	14,000	161,000	101,000	45,000
7,140	8,000	113,000	69,000	36,000	12,600	14,000	161,000	101,000	45,000
7,400	8,000	113,000	69,000	36,000	12,700	14,000	161,000	101,000	45,000
7,500	8,000	113,000	69,000	36,000	12,900	14,000	161,000	101,000	45,000
7,540	8,000	119,000	75,000	36,000					



Punte con codolo rinforzato



Materiale tagliente **Int. in MD**

Superficie **A**

Direzione di taglio **R**

P ○ Assott. del nocc. ≥ Ø 2,600 • affilatura su piani • tagliente principale forma diritta (dopo correzione)

M

K ○

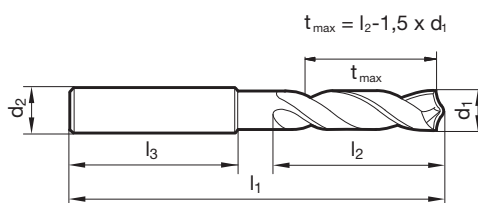
N acciai temperati con durezza fino a ca. HRC62

S

H •

GÜHRING NAVIGATOR

Dati di taglio a pag. 776



Punte cilindriche

Articolo nr. **1946**

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
2,600	6,000	62,000	20,000	36,000
3,000	6,000	62,000	20,000	36,000
3,400	6,000	62,000	20,000	36,000
4,000	6,000	66,000	24,000	36,000
4,300	6,000	66,000	24,000	36,000
5,000	6,000	66,000	28,000	36,000
5,100	6,000	66,000	28,000	36,000
5,600	6,000	66,000	28,000	36,000
6,000	6,000	66,000	28,000	36,000
6,900	8,000	79,000	34,000	36,000
7,100	8,000	79,000	41,000	36,000
8,000	8,000	79,000	41,000	36,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
8,600	10,000	89,000	47,000	40,000
9,100	10,000	89,000	47,000	40,000
10,000	10,000	89,000	47,000	40,000
10,400	12,000	102,000	55,000	45,000
10,600	12,000	102,000	55,000	45,000
11,100	12,000	102,000	55,000	45,000
12,000	12,000	102,000	55,000	45,000
14,100	16,000	115,000	65,000	48,000



Punte ad asta cilindriche 6 pollici



P • Assott. del nocc. $\geq \varnothing 1,500$ • spoglia sul cono tagliente

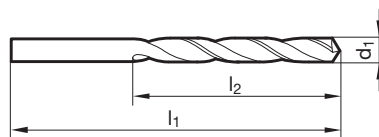
- M**
- K** •
- N** • lamiere in leghe di alluminio • piastre stratificate (str. a sandwich) • acciai e ghisa
- S**
- H**

Materiale tagliente **HSS**

Superficie

Direzione di taglio

Punte cilindriche



Articolo nr. **577**

d1		l1	l2
mm	inch	mm	mm
1,500		153,000	23,000
1,590	1/16	153,000	26,000
1,650		153,000	26,000
1,750		153,000	26,000
1,780		153,000	26,000
1,900		153,000	26,000
1,930		153,000	29,000
1,980	5/64	153,000	29,000
1,990		153,000	29,000
2,000		153,000	29,000
2,100		153,000	29,000
2,300		153,000	32,500
2,380	3/32	153,000	37,000
2,400		153,000	37,000
2,490		153,000	37,000
2,500		153,000	37,000
2,530		153,000	37,000
2,580		153,000	37,000
2,870		153,000	42,000
2,950		153,000	42,000
3,000		153,000	42,000
3,170	1/8	153,000	42,000
3,200		153,000	42,000
3,260		153,000	42,000
3,500		154,000	49,000
3,570	9/64	154,000	49,000
3,800		154,000	55,000
3,860		154,000	55,000
3,910		154,000	55,000
3,970	5/32	154,000	55,000
4,000		154,000	55,000
4,040		154,000	55,000
4,090		154,000	55,000
4,220		154,000	55,000
4,390		154,000	60,000
4,500		154,000	60,000

d1		l1	l2
mm	inch	mm	mm
4,570		154,000	60,000
4,700		154,000	60,000
4,760	3/16	154,000	63,500
4,800		154,000	63,500
4,850		154,000	63,500
4,920		154,000	63,500
4,980		154,000	63,500
5,000		154,000	63,500
5,160	13/64	154,000	63,500
5,500		154,000	68,500
5,560	7/32	154,000	68,500
5,800		154,000	68,500
5,940		154,000	68,500
5,950	15/64	154,000	68,500
6,040		154,000	75,000
6,150		154,000	75,000
6,200		154,000	75,000
6,250		154,000	75,000
6,350	1/4	154,000	75,000
6,530		154,000	75,000
6,800		155,000	80,000
7,000		155,000	80,000
7,700		155,000	90,000
7,940	5/16	155,000	90,000
8,000		155,000	90,000

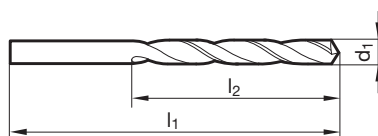


Punte ad asta cilindriche 6 pollici



Materiale tagliente	HSS
Superficie	$\text{Ra} > 0,2,36$
Direzione di taglio	R

- P** • Assott. del noc. $\geq \varnothing 1,500$ • spoglia sul cono tagliente
- M**
- K** •
- N** • lamiere in leghe di alluminio • piastre stratificate (str. a sandwich) • acciai e ghisa
- S**
- H**



Punte cilindriche

Articolo nr. **579**

d1		l1	l2
mm	inch	mm	mm
1,500		153,000	23,000
1,590	1/16	153,000	26,000
1,780		153,000	26,000
1,980	5/64	153,000	29,000
2,000		153,000	29,000
2,380	3/32	153,000	37,000
2,400		153,000	37,000
2,490		153,000	37,000
2,500		153,000	37,000
2,580		153,000	37,000
2,640		153,000	37,000
2,710		153,000	42,000
2,780	7/64	153,000	42,000
2,790		153,000	42,000
2,820		153,000	42,000
2,870		153,000	42,000
2,950		153,000	42,000
3,000		153,000	42,000
3,050		153,000	42,000
3,170	1/8	153,000	42,000
3,200		153,000	42,000
3,260		153,000	42,000
3,450		154,000	49,000
3,500		154,000	49,000
3,570	9/64	154,000	49,000
3,600		154,000	49,000
3,660		154,000	49,000
3,700		154,000	49,000
3,800		154,000	55,000
3,970	5/32	154,000	55,000

d1		l1	l2
mm	inch	mm	mm
3,990		154,000	55,000
4,000		154,000	55,000
4,040		154,000	55,000
4,090		154,000	55,000
4,370	11/64	154,000	60,000
4,390		154,000	60,000
4,500		154,000	60,000
4,570		154,000	60,000
4,620		154,000	60,000
4,760	3/16	154,000	63,500
4,800		154,000	63,500
4,850		154,000	63,500
4,920		154,000	63,500
4,980		154,000	63,500
5,000		154,000	63,500
5,160	13/64	154,000	63,500
5,560	7/32	154,000	68,500
5,800		154,000	68,500
5,940		154,000	68,500
5,950	15/64	154,000	68,500
6,040		154,000	75,000
6,250		154,000	75,000
6,350	1/4	154,000	75,000
6,450		154,000	75,000
6,530		154,000	75,000
6,750	17/64	155,000	80,000
7,940	5/16	155,000	90,000
8,000		155,000	90,000



Punte ad asta cilindriche 12 pollici



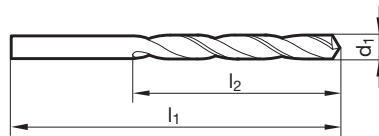
- P** • Assott. del nocc. $\geq \varnothing 1,500$ • spoglia sul cono tagliente
- M**
- K** •
- N** • lamiere in leghe di alluminio • piastre stratificate (str. a sandwich) • acciai e ghisa
- S**
- H**

Materiale tagliente **HSS**

Superficie

Direzione di taglio

Punte cilindriche



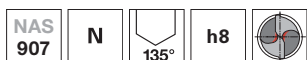
Articolo nr. **578**

d1		l1	l2
mm	inch	mm	mm
1,500		306,000	23,000
1,590	1/16	306,000	26,000
1,780		306,000	26,000
1,850		306,000	26,000
1,930		306,000	29,000
2,000		306,000	29,000
2,180		306,000	32,500
2,260		306,000	32,500
2,380	3/32	306,000	37,000
2,440		306,000	37,000
2,490		306,000	37,000
2,500		306,000	37,000
2,580		306,000	37,000
2,640		306,000	37,000
2,790		306,000	42,000
2,820		306,000	42,000
3,000		306,000	42,000
3,170	1/8	306,000	42,000
3,200		306,000	42,000
3,260		306,000	42,000
3,500		308,000	49,000
3,570	9/64	308,000	49,000
3,660		308,000	49,000
3,800		308,000	55,000
3,970	5/32	308,000	55,000
4,000		308,000	55,000
4,040		308,000	55,000
4,090		308,000	55,000
4,220		308,000	55,000
4,370	11/64	308,000	60,000

d1		l1	l2
mm	inch	mm	mm
4,390		308,000	60,000
4,500		308,000	60,000
4,570		308,000	60,000
4,620		308,000	60,000
4,700		308,000	60,000
4,760	3/16	308,000	63,500
4,800		308,000	63,500
4,850		308,000	63,500
4,920		308,000	63,500
4,980		308,000	63,500
5,000		308,000	63,500
5,160	13/64	308,000	63,500
5,500		308,000	68,500
5,800		308,000	68,500
5,950	15/64	308,000	68,500
6,000		308,000	68,500
6,040		308,000	75,000
6,350	1/4	308,000	75,000
6,530		308,000	75,000
7,000		310,000	80,000
8,000		310,000	90,000

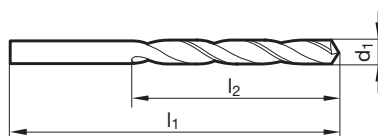


Punte ad asta cilindriche 12 pollici



Materiale tagliente	HSS
Superficie	
Direzione di taglio	

- P** • Assott. del nocc. ≥ Ø 1,500 • spoglia sul cono tagliente
- M**
- K** •
- N** • lamiere in leghe di alluminio • piastre stratificate (str. a sandwich) • acciai e ghisa
- S**
- H**



Articolo nr. **580**

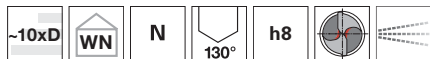
d1		l1	l2
mm	inch	mm	mm
1,500		306,000	23,000
1,590	1/16	306,000	26,000
1,780		306,000	26,000
1,980	5/64	306,000	29,000
2,000		306,000	29,000
2,380	3/32	306,000	37,000
2,490		306,000	37,000
2,500		306,000	37,000
2,580		306,000	37,000
2,640		306,000	37,000
2,710		306,000	42,000
2,780	7/64	306,000	42,000
2,790		306,000	42,000
2,820		306,000	42,000
2,870		306,000	42,000
2,950		306,000	42,000
3,000		306,000	42,000
3,170	1/8	306,000	42,000
3,260		306,000	42,000
3,450		308,000	49,000
3,500		308,000	49,000
3,660		308,000	49,000
3,730		308,000	49,000
3,800		308,000	55,000
3,970	5/32	308,000	55,000
3,990		308,000	55,000
4,000		308,000	55,000
4,040		308,000	55,000
4,300		308,000	60,000
4,370	11/64	308,000	60,000

d1		l1	l2
mm	inch	mm	mm
4,390		308,000	60,000
4,500		308,000	60,000
4,570		308,000	60,000
4,620		308,000	60,000
4,700		308,000	60,000
4,760	3/16	308,000	63,500
4,800		308,000	63,500
4,850		308,000	63,500
4,920		308,000	63,500
4,980		308,000	63,500
5,000		308,000	63,500
5,060		308,000	63,500
5,110		308,000	63,500
5,160	13/64	308,000	63,500
5,560	7/32	308,000	68,500
5,790		308,000	68,500
5,940		308,000	68,500
5,950	15/64	308,000	68,500
6,000		308,000	68,500
6,040		308,000	75,000
6,150		308,000	75,000
6,250		308,000	75,000
6,350	1/4	308,000	75,000
6,530		308,000	75,000
7,940	5/16	310,000	90,000
8,000		310,000	90,000

Punte cilindriche



Punte con fori di refrigerazione



Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

P ● Assott. del nocc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • per forare con bussola di guida • specifiche per prof. di foro oltre 5xD

M ○

K ●

N ● pacchi di lamierini • acciaio e ghisa acciaiata, ghisa grigia • acciai austenitici a ca. 800 N/mm²

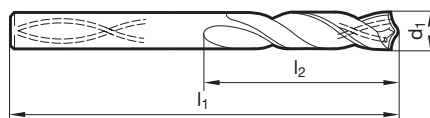
S ○

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 788

Punte cilindriche



Articolo nr. **390**

d1	l1	l2
mm	mm	mm
3,000	100,000	66,000
3,300	106,000	69,000
3,500	112,000	73,000
4,000	119,000	78,000
4,200	119,000	78,000
4,500	126,000	82,000
5,000	132,000	87,000
5,500	139,000	91,000
6,000	139,000	91,000
6,500	148,000	97,000
6,800	156,000	102,000
6,900	156,000	102,000
7,000	156,000	102,000
7,500	156,000	102,000
8,000	165,000	109,000
8,500	165,000	109,000
9,000	175,000	115,000
9,500	175,000	115,000

d1	l1	l2
mm	mm	mm
10,000	184,000	121,000
10,200	184,000	121,000
10,500	184,000	121,000
11,000	195,000	128,000
11,500	195,000	128,000
12,000	205,000	134,000
13,000	205,000	134,000



Punte con fori di refrigerazione



Materiale tagliente **HSCO**

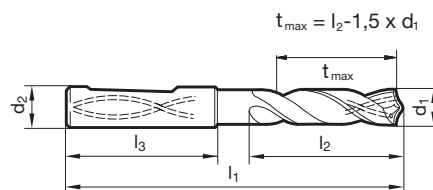
Superficie ○

Forma del gambo HE

- P** ● Assott. del nocc. ≥ Ø 5,000 • spoglia sul cono tagliente • acciaio HSS legato al Co
- M** ●
- K** ●
- N** ● materiali a truciolo lungo con R fino a ca. 1000 N/mm² • acciai inossidabili
- S** ● • ghise • metalli non ferrosi
- H** ○

GUHRINGNAVIGATOR

Dati di taglio a pag. 784



Punte cilindriche

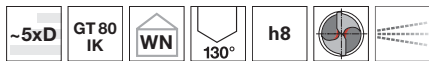
Articolo nr. **1131**

d1		d6 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
5,000		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
9,000		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,200		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,500		14,000	124,000	77,000	45,000

d1		d6 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,000		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,290	9/16	16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,870	5/8	16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000



Punte con fori di refrigerazione



Materiale tagliente **HSCO**

Superficie **S**

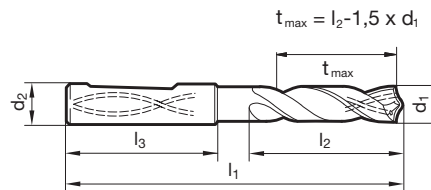
Forma del gambo HE

- P** • Assott. del nocc. $\geq \varnothing 5,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** •
- K** •
- N** • materiali a truciolo lungo con R fino a ca. 1000 N/mm² • acciai inossidabili
- S** • ghise • metalli non ferrosi
- H** ○

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 784



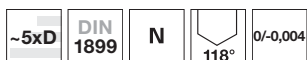
Articolo nr. **1132**

d1		d6 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
5,000		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,500		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,500		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,200		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000

d1		d6 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
12,000		12,000	118,000	71,000	45,000
12,500		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,500		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,870	5/8	16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
19,000		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000



Micropunte HSS-E-PM senza condotto di lubrificazione



Materiale tagliente **HSS-E-PM**

Superficie



Direzione di taglio



P • affilatura su piani • con codolo rinforzato • $\varnothing 0,15\text{ mm}$ acciaio HSS legato al Co

M •

K •

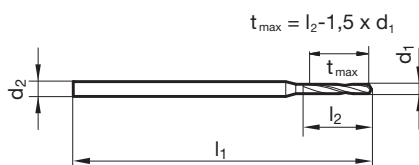
N • acciai legati in alta percentuale

S ○

H

GUHRING NAVIGATOR

Dati di taglio a pag. 796



Punte cilindriche

Articolo nr. **301**

d1	d2	l1	l2
mm	mm	mm	mm
0,050	1,000	25,000	0,400
0,060	1,000	25,000	0,400
0,070	1,000	25,000	0,500
0,075	1,000	25,000	0,500
0,080	1,000	25,000	0,500
0,090	1,000	25,000	0,500
0,100	1,000	25,000	0,500
0,105	1,000	25,000	0,500
0,110	1,000	25,000	0,500
0,115	1,000	25,000	0,500
0,120	1,000	25,000	0,500
0,121	1,000	25,000	0,800
0,125	1,000	25,000	0,800
0,128	1,000	25,000	0,800
0,130	1,000	25,000	0,800
0,140	1,000	25,000	0,800
0,143	1,000	25,000	0,800
0,145	1,000	25,000	0,800
0,147	1,000	25,000	0,800
0,150	1,000	25,000	0,800
0,155	1,000	25,000	1,100
0,160	1,000	25,000	1,100
0,170	1,000	25,000	1,100
0,175	1,000	25,000	1,100
0,180	1,000	25,000	1,100
0,190	1,000	25,000	1,100
0,195	1,000	25,000	1,500
0,200	1,000	25,000	1,500
0,205	1,000	25,000	1,500
0,210	1,000	25,000	1,500
0,215	1,000	25,000	1,500
0,220	1,000	25,000	1,500
0,225	1,000	25,000	1,500
0,230	1,000	25,000	1,500
0,235	1,000	25,000	1,500
0,240	1,000	25,000	1,500
0,245	1,000	25,000	1,900
0,250	1,000	25,000	1,900
0,255	1,000	25,000	1,900
0,260	1,000	25,000	1,900
0,265	1,000	25,000	1,900
0,270	1,000	25,000	1,900

d1	d2	l1	l2
mm	mm	mm	mm
0,275	1,000	25,000	1,900
0,280	1,000	25,000	1,900
0,285	1,000	25,000	1,900
0,290	1,000	25,000	1,900
0,295	1,000	25,000	1,900
0,300	1,000	25,000	1,900
0,305	1,000	25,000	2,400
0,310	1,000	25,000	2,400
0,315	1,000	25,000	2,400
0,320	1,000	25,000	2,400
0,325	1,000	25,000	2,400
0,330	1,000	25,000	2,400
0,335	1,000	25,000	2,400
0,340	1,000	25,000	2,400
0,345	1,000	25,000	2,400
0,350	1,000	25,000	2,400
0,355	1,000	25,000	2,400
0,360	1,000	25,000	2,400
0,365	1,000	25,000	2,400
0,370	1,000	25,000	2,400
0,375	1,000	25,000	2,400
0,380	1,000	25,000	2,400
0,385	1,000	25,000	3,000
0,390	1,000	25,000	3,000
0,400	1,000	25,000	3,000
0,405	1,000	25,000	3,000
0,410	1,000	25,000	3,000
0,415	1,000	25,000	3,000
0,420	1,000	25,000	3,000
0,425	1,000	25,000	3,000
0,430	1,000	25,000	3,000
0,432	1,000	25,000	3,000
0,435	1,000	25,000	3,000
0,440	1,000	25,000	3,000
0,445	1,000	25,000	3,000
0,450	1,000	25,000	3,000
0,455	1,000	25,000	3,000
0,460	1,000	25,000	3,000
0,470	1,000	25,000	3,000
0,475	1,000	25,000	3,000
0,480	1,000	25,000	3,000
0,485	1,000	25,000	3,400



d1	d2	l1	l2
mm	mm	mm	mm
0,490	1,000	25,000	3,400
0,495	1,000	25,000	3,400
0,500	1,000	25,000	3,400
0,505	1,000	25,000	3,400
0,510	1,000	25,000	3,400
0,515	1,000	25,000	3,400
0,520	1,000	25,000	3,400
0,525	1,000	25,000	3,400
0,530	1,000	25,000	3,400
0,535	1,000	25,000	3,900
0,540	1,000	25,000	3,900
0,545	1,000	25,000	3,900
0,550	1,000	25,000	3,900
0,560	1,000	25,000	3,900
0,570	1,000	25,000	3,900
0,580	1,000	25,000	3,900
0,585	1,000	25,000	3,900
0,590	1,000	25,000	3,900
0,595	1,000	25,000	3,900
0,600	1,000	25,000	3,900
0,605	1,000	25,000	4,200
0,610	1,000	25,000	4,200
0,615	1,000	25,000	4,200
0,620	1,000	25,000	4,200
0,625	1,000	25,000	4,200
0,630	1,000	25,000	4,200
0,632	1,000	25,000	4,200
0,640	1,000	25,000	4,200
0,650	1,000	25,000	4,200
0,655	1,000	25,000	4,200
0,660	1,000	25,000	4,200
0,665	1,000	25,000	4,200
0,670	1,000	25,000	4,200
0,675	1,000	25,000	4,800
0,680	1,000	25,000	4,800
0,690	1,000	25,000	4,800
0,695	1,000	25,000	4,800
0,700	1,000	25,000	4,800
0,705	1,000	25,000	4,800
0,710	1,000	25,000	4,800
0,720	1,000	25,000	4,800
0,725	1,000	25,000	4,800
0,730	1,000	25,000	4,800
0,740	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,760	1,000	25,000	5,300
0,770	1,000	25,000	5,300
0,780	1,000	25,000	5,300
0,790	1,000	25,000	5,300
0,795	1,500	25,000	5,300
0,800	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,820	1,500	25,000	5,300
0,825	1,500	25,000	5,300
0,830	1,500	25,000	5,300
0,840	1,500	25,000	5,300
0,845	1,500	25,000	5,300
0,850	1,500	25,000	5,300
0,860	1,500	25,000	6,000
0,870	1,500	25,000	6,000
0,880	1,500	25,000	6,000
0,890	1,500	25,000	6,000
0,900	1,500	25,000	6,000
0,910	1,500	25,000	6,000
0,920	1,500	25,000	6,000
0,925	1,500	25,000	6,000
0,930	1,500	25,000	6,000
0,940	1,500	25,000	6,000
0,950	1,500	25,000	6,000
0,960	1,500	25,000	6,800
0,970	1,500	25,000	6,800
0,980	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
0,990	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,010	1,500	25,000	6,800
1,020	1,500	25,000	6,800
1,030	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,055	1,500	25,000	6,800
1,060	1,500	25,000	6,800
1,070	1,500	25,000	7,600
1,080	1,500	25,000	7,600
1,090	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,110	1,500	25,000	7,600
1,120	1,500	25,000	7,600
1,130	1,500	25,000	7,600
1,140	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,160	1,500	25,000	7,600
1,170	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,190	1,500	25,000	8,500
1,200	1,500	25,000	8,500
1,210	1,500	25,000	8,500
1,220	1,500	25,000	8,500
1,230	1,500	25,000	8,500
1,240	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,260	1,500	25,000	8,500
1,265	1,500	25,000	8,500
1,270	1,500	25,000	8,500
1,280	1,500	25,000	8,500
1,290	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,310	1,500	25,000	8,500
1,320	1,500	25,000	8,500
1,325	1,500	25,000	9,500
1,330	1,500	25,000	9,500
1,340	1,500	25,000	9,500
1,350	1,500	25,000	9,500
1,370	1,500	25,000	9,500
1,380	1,500	25,000	9,500
1,390	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,410	1,500	25,000	9,500
1,420	1,500	25,000	9,500
1,430	1,500	25,000	9,500
1,440	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,460	2,000	30,000	9,500
1,470	2,000	30,000	9,500
1,500	2,000	30,000	9,500
1,520	2,000	30,000	10,600
1,530	2,000	30,000	10,600
1,540	2,000	30,000	10,600
1,550	2,000	30,000	10,600
1,590	2,000	30,000	10,600
1,600	2,000	30,000	10,600
1,610	2,000	30,000	10,600
1,630	2,000	30,000	10,600
1,640	2,000	30,000	10,600
1,650	2,000	30,000	10,600
1,660	2,000	30,000	10,600
1,690	2,000	30,000	10,600
1,700	2,000	30,000	10,600
1,710	2,000	30,000	11,800
1,715	2,000	30,000	11,800
1,730	2,000	30,000	11,800
1,745	2,000	30,000	11,800
1,750	2,000	30,000	11,800
1,775	2,000	30,000	11,800
1,800	2,000	30,000	11,800

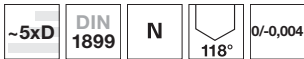


d1	d2	l1	l2
mm	mm	mm	mm
1,830	2,000	30,000	11,800
1,840	2,000	30,000	11,800
1,850	2,000	30,000	11,800
1,860	2,000	30,000	11,800
1,900	2,000	30,000	11,800
1,920	2,000	30,000	13,200

d1	d2	l1	l2
mm	mm	mm	mm



Micropunte HSS-E-PM senza condotto di lubrificazione



Materiale tagliente **HSS-E-PM**

Superficie **S**

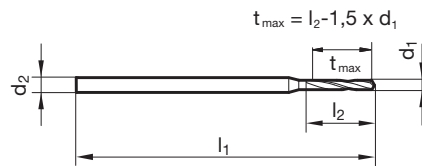
Direzione di taglio **R**

- P** • affilatura su piani • con codolo rinforzato • massima resistenza all'usura
- M** •
- K** •
- N** • acciai legati in alta percentuale
- S** ○
- H** □

GUHRING NAVIGATOR

Dati di taglio a pag. 796

Punte cilindriche



Articolo nr. **660**

d1	d2	l1	l2	d1	d2	l1	l2
mm	mm	mm	mm	mm	mm	mm	mm
0,160	1,000	25,000	1,100	0,530	1,000	25,000	3,400
0,170	1,000	25,000	1,100	0,540	1,000	25,000	3,900
0,180	1,000	25,000	1,100	0,550	1,000	25,000	3,900
0,190	1,000	25,000	1,100	0,560	1,000	25,000	3,900
0,200	1,000	25,000	1,500	0,570	1,000	25,000	3,900
0,210	1,000	25,000	1,500	0,580	1,000	25,000	3,900
0,220	1,000	25,000	1,500	0,590	1,000	25,000	3,900
0,230	1,000	25,000	1,500	0,600	1,000	25,000	3,900
0,240	1,000	25,000	1,500	0,610	1,000	25,000	4,200
0,250	1,000	25,000	1,900	0,620	1,000	25,000	4,200
0,255	1,000	25,000	1,900	0,630	1,000	25,000	4,200
0,260	1,000	25,000	1,900	0,640	1,000	25,000	4,200
0,265	1,000	25,000	1,900	0,650	1,000	25,000	4,200
0,270	1,000	25,000	1,900	0,660	1,000	25,000	4,200
0,280	1,000	25,000	1,900	0,670	1,000	25,000	4,200
0,290	1,000	25,000	1,900	0,680	1,000	25,000	4,800
0,295	1,000	25,000	1,900	0,690	1,000	25,000	4,800
0,300	1,000	25,000	1,900	0,700	1,000	25,000	4,800
0,305	1,000	25,000	2,400	0,710	1,000	25,000	4,800
0,310	1,000	25,000	2,400	0,720	1,000	25,000	4,800
0,320	1,000	25,000	2,400	0,730	1,000	25,000	4,800
0,325	1,000	25,000	2,400	0,740	1,000	25,000	4,800
0,330	1,000	25,000	2,400	0,750	1,000	25,000	4,800
0,340	1,000	25,000	2,400	0,760	1,000	25,000	5,300
0,350	1,000	25,000	2,400	0,770	1,000	25,000	5,300
0,360	1,000	25,000	2,400	0,780	1,000	25,000	5,300
0,370	1,000	25,000	2,400	0,790	1,000	25,000	5,300
0,380	1,000	25,000	2,400	0,800	1,500	25,000	5,300
0,390	1,000	25,000	3,000	0,810	1,500	25,000	5,300
0,400	1,000	25,000	3,000	0,820	1,500	25,000	5,300
0,410	1,000	25,000	3,000	0,830	1,500	25,000	5,300
0,420	1,000	25,000	3,000	0,840	1,500	25,000	5,300
0,430	1,000	25,000	3,000	0,850	1,500	25,000	5,300
0,440	1,000	25,000	3,000	0,860	1,500	25,000	6,000
0,450	1,000	25,000	3,000	0,870	1,500	25,000	6,000
0,460	1,000	25,000	3,000	0,880	1,500	25,000	6,000
0,470	1,000	25,000	3,000	0,900	1,500	25,000	6,000
0,480	1,000	25,000	3,000	0,910	1,500	25,000	6,000
0,490	1,000	25,000	3,400	0,920	1,500	25,000	6,000
0,500	1,000	25,000	3,400	0,940	1,500	25,000	6,000
0,510	1,000	25,000	3,400	0,950	1,500	25,000	6,000
0,520	1,000	25,000	3,400	0,960	1,500	25,000	6,800

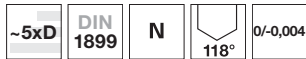


d1	d2	l1	l2
mm	mm	mm	mm
0,970	1,500	25,000	6,800
0,980	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,020	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,070	1,500	25,000	7,600
1,080	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,190	1,500	25,000	8,500

d1	d2	l1	l2
mm	mm	mm	mm
1,200	1,500	25,000	8,500
1,220	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,350	1,500	25,000	9,500
1,390	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,420	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,500	2,000	30,000	9,500
1,800	2,000	30,000	11,800
1,900	2,000	30,000	11,800



Micropunte HSS-E-PM senza condotto di lubrificazione



Materiale tagliente **HSS-E-PM**

Superficie

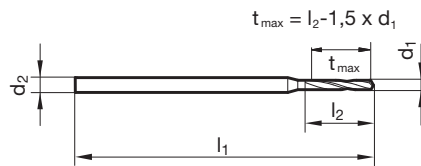
Direzione di taglio

- P** • affilatura su piani • con codolo rinforzato • $\varnothing 0,15\text{ mm}$ acciaio HSS legato al Co
- M** •
- K** •
- N** • acciai legati in alta percentuale
- S** ○
- H**

Punte cilindriche

GUHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr. **303**

d1	d2	l1	l2
mm	mm	mm	mm
0,130	1,000	25,000	0,800
0,140	1,000	25,000	0,800
0,150	1,000	25,000	0,800
0,155	1,000	25,000	1,100
0,160	1,000	25,000	1,100
0,170	1,000	25,000	1,100
0,175	1,000	25,000	1,100
0,180	1,000	25,000	1,100
0,185	1,000	25,000	1,100
0,190	1,000	25,000	1,100
0,195	1,000	25,000	1,500
0,200	1,000	25,000	1,500
0,210	1,000	25,000	1,500
0,215	1,000	25,000	1,500
0,220	1,000	25,000	1,500
0,225	1,000	25,000	1,500
0,230	1,000	25,000	1,500
0,235	1,000	25,000	1,500
0,240	1,000	25,000	1,500
0,245	1,000	25,000	1,900
0,250	1,000	25,000	1,900
0,255	1,000	25,000	1,900
0,260	1,000	25,000	1,900
0,265	1,000	25,000	1,900
0,270	1,000	25,000	1,900
0,275	1,000	25,000	1,900
0,280	1,000	25,000	1,900
0,290	1,000	25,000	1,900
0,295	1,000	25,000	1,900
0,300	1,000	25,000	1,900
0,310	1,000	25,000	2,400
0,315	1,000	25,000	2,400
0,330	1,000	25,000	2,400
0,340	1,000	25,000	2,400
0,345	1,000	25,000	2,400
0,350	1,000	25,000	2,400
0,355	1,000	25,000	2,400
0,360	1,000	25,000	2,400
0,370	1,000	25,000	2,400
0,380	1,000	25,000	2,400
0,390	1,000	25,000	3,000
0,400	1,000	25,000	3,000

d1	d2	l1	l2
mm	mm	mm	mm
0,410	1,000	25,000	3,000
0,415	1,000	25,000	3,000
0,420	1,000	25,000	3,000
0,430	1,000	25,000	3,000
0,435	1,000	25,000	3,000
0,440	1,000	25,000	3,000
0,450	1,000	25,000	3,000
0,460	1,000	25,000	3,000
0,465	1,000	25,000	3,000
0,470	1,000	25,000	3,000
0,480	1,000	25,000	3,000
0,485	1,000	25,000	3,400
0,490	1,000	25,000	3,400
0,495	1,000	25,000	3,400
0,500	1,000	25,000	3,400
0,510	1,000	25,000	3,400
0,520	1,000	25,000	3,400
0,525	1,000	25,000	3,400
0,540	1,000	25,000	3,900
0,545	1,000	25,000	3,900
0,550	1,000	25,000	3,900
0,555	1,000	25,000	3,900
0,565	1,000	25,000	3,900
0,570	1,000	25,000	3,900
0,580	1,000	25,000	3,900
0,590	1,000	25,000	3,900
0,600	1,000	25,000	3,900
0,615	1,000	25,000	4,200
0,620	1,000	25,000	4,200
0,630	1,000	25,000	4,200
0,640	1,000	25,000	4,200
0,650	1,000	25,000	4,200
0,660	1,000	25,000	4,200
0,670	1,000	25,000	4,200
0,675	1,000	25,000	4,800
0,680	1,000	25,000	4,800
0,685	1,000	25,000	4,800
0,690	1,000	25,000	4,800
0,695	1,000	25,000	4,800
0,700	1,000	25,000	4,800
0,710	1,000	25,000	4,800
0,720	1,000	25,000	4,800

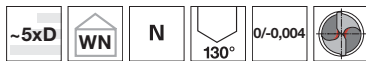


d1	d2	l1	l2
mm	mm	mm	mm
0,740	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,760	1,000	25,000	5,300
0,770	1,000	25,000	5,300
0,780	1,000	25,000	5,300
0,790	1,000	25,000	5,300
0,800	1,500	25,000	5,300
0,805	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,820	1,500	25,000	5,300
0,830	1,500	25,000	5,300
0,840	1,500	25,000	5,300
0,850	1,500	25,000	5,300
0,855	1,500	25,000	6,000
0,860	1,500	25,000	6,000
0,870	1,500	25,000	6,000
0,880	1,500	25,000	6,000
0,885	1,500	25,000	6,000
0,890	1,500	25,000	6,000
0,900	1,500	25,000	6,000
0,910	1,500	25,000	6,000
0,915	1,500	25,000	6,000
0,920	1,500	25,000	6,000
0,925	1,500	25,000	6,000
0,935	1,500	25,000	6,000
0,940	1,500	25,000	6,000
0,950	1,500	25,000	6,000
0,960	1,500	25,000	6,800
0,970	1,500	25,000	6,800
0,975	1,500	25,000	6,800
0,980	1,500	25,000	6,800
0,985	1,500	25,000	6,800
0,990	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,005	1,500	25,000	6,800
1,020	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
1,030	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,060	1,500	25,000	6,800
1,080	1,500	25,000	7,600
1,085	1,500	25,000	7,600
1,090	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,110	1,500	25,000	7,600
1,120	1,500	25,000	7,600
1,125	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,160	1,500	25,000	7,600
1,170	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,200	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,270	1,500	25,000	8,500
1,280	1,500	25,000	8,500
1,285	1,500	25,000	8,500
1,290	1,500	25,000	8,500
1,310	1,500	25,000	8,500
1,330	1,500	25,000	9,500
1,350	1,500	25,000	9,500
1,360	1,500	25,000	9,500
1,375	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,405	1,500	25,000	9,500
1,425	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,460	2,000	30,000	9,500
1,500	2,000	30,000	9,500
1,600	2,000	30,000	10,600
1,615	2,000	30,000	10,600
1,800	2,000	30,000	11,800
1,850	2,000	30,000	11,800



Micropunte in MD senza condotto di lubrificazione



Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 0,800$ • affilatura su piani • forma del tagliente principale diritta

M ○

K •

N ○ acciai da costruzione e da cementazione • ghise • bronzo/ottone

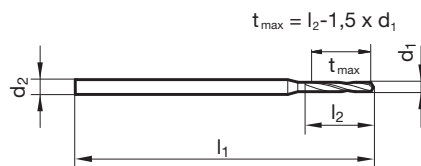
S ○ alluminio e leghe di alluminio • magnesio e leghe di magnesio • materie sintetiche e materie sintetiche a fibre rinforzate

H ○

Punte cilindriche

GUHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr. **701**

d1	d2	l1	l2
mm	mm	mm	mm
0,200	1,000	25,000	1,500
0,220	1,000	25,000	1,500
0,250	1,000	25,000	1,900
0,260	1,000	25,000	1,900
0,280	1,000	25,000	1,900
0,300	1,000	25,000	1,900
0,330	1,000	25,000	2,400
0,350	1,000	25,000	2,400
0,400	1,000	25,000	3,000
0,450	1,000	25,000	3,000
0,500	1,000	25,000	3,400
0,600	1,000	25,000	3,900
0,650	1,000	25,000	4,200
0,700	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,800	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,830	1,500	25,000	5,300

d1	d2	l1	l2
mm	mm	mm	mm
0,850	1,500	25,000	5,300
0,900	1,500	25,000	6,000
1,000	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,100	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,200	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,350	1,500	25,000	9,500
1,400	1,500	25,000	9,500



Micropunte in MD senza condotto di lubrificazione



Materiale tagliente **Int. in MD**

Superficie **A**

Direzione di taglio **R**

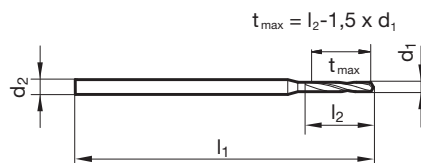
P • Assott. del nocc. ≥ Ø 0,800 • affilatura su piani

- M**
- K** •
- N**
- S**
- H**

acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • ghise

GUHRING NAVIGATOR

Dati di taglio a pag. 796



Punte cilindriche

Articolo nr. **3899**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,100	3,000	38,000	1,200
0,150	3,000	38,000	2,000
0,200	3,000	38,000	2,500
0,250	3,000	38,000	3,000
0,260	3,000	38,000	3,000
0,270	3,000	38,000	3,000
0,280	3,000	38,000	3,000
0,300	3,000	38,000	5,000
0,310	3,000	38,000	5,000
0,330	3,000	38,000	5,000
0,350	3,000	38,000	6,000
0,360	3,000	38,000	6,000
0,370	3,000	38,000	6,000
0,380	3,000	38,000	6,000
0,400	3,000	38,000	7,000
0,410	3,000	38,000	7,000
0,430	3,000	38,000	7,000
0,440	3,000	38,000	7,000
0,450	3,000	38,000	7,000
0,480	3,000	38,000	7,000
0,500	3,000	38,000	7,000
0,510	3,000	38,000	7,000
0,530	3,000	38,000	7,000
0,550	3,000	38,000	7,000
0,570	3,000	38,000	7,000
0,600	3,000	38,000	7,000
0,640	3,000	38,000	7,000
0,650	3,000	38,000	7,000
0,660	3,000	38,000	7,000
0,680	3,000	38,000	7,000
0,700	3,000	38,000	8,000
0,710	3,000	38,000	8,000
0,720	3,000	38,000	8,000
0,740	3,000	38,000	8,000
0,750	3,000	38,000	8,000
0,760	3,000	38,000	8,000
0,770	3,000	38,000	8,000
0,780	3,000	38,000	8,000
0,790	3,000	38,000	8,000
0,800	3,000	38,000	10,000
0,810	3,000	38,000	10,000
0,820	3,000	38,000	10,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,830	3,000	38,000	10,000
0,840	3,000	38,000	10,000
0,850	3,000	38,000	10,000
0,860	3,000	38,000	10,000
0,870	3,000	38,000	10,000
0,880	3,000	38,000	10,000
0,890	3,000	38,000	10,000
0,900	3,000	38,000	10,000
0,910	3,000	38,000	10,000
0,920	3,000	38,000	10,000
0,930	3,000	38,000	10,000
0,940	3,000	38,000	10,000
0,950	3,000	38,000	10,000
0,960	3,000	38,000	10,000
0,970	3,000	38,000	10,000
0,980	3,000	38,000	10,000
0,990	3,000	38,000	10,000
1,000	3,000	38,000	10,000
1,010	3,000	38,000	10,000
1,020	3,000	38,000	10,000
1,050	3,000	38,000	10,000
1,060	3,000	38,000	10,000
1,070	3,000	38,000	10,000
1,090	3,000	38,000	10,000
1,100	3,000	38,000	10,000
1,110	3,000	38,000	10,000
1,150	3,000	38,000	10,000
1,170	3,000	38,000	10,000
1,190	3,000	38,000	10,000
1,200	3,000	38,000	10,000
1,210	3,000	38,000	10,000
1,220	3,000	38,000	10,000
1,230	3,000	38,000	10,000
1,240	3,000	38,000	10,000
1,260	3,000	38,000	10,000
1,270	3,000	38,000	10,000
1,280	3,000	38,000	10,000
1,300	3,000	38,000	10,000
1,370	3,000	38,000	10,000
1,400	3,000	38,000	10,000
1,420	3,000	38,000	10,000
1,450	3,000	38,000	10,000



Punte cilindriche

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,490	3,000	38,000	10,000
1,500	3,000	38,000	10,000
1,510	3,000	38,000	10,000
1,520	3,000	38,000	10,000
1,550	3,000	38,000	10,000
1,560	3,000	38,000	10,000
1,580	3,000	38,000	10,000
1,590	3,000	38,000	10,000
1,600	3,000	38,000	12,000
1,630	3,000	38,000	12,000
1,650	3,000	38,000	12,000
1,700	3,000	38,000	12,000
1,750	3,000	38,000	12,000
1,800	3,000	38,000	12,000
1,810	3,000	38,000	12,000
1,820	3,000	38,000	12,000
1,830	3,000	38,000	12,000
1,840	3,000	38,000	12,000
1,850	3,000	38,000	12,000
1,860	3,000	38,000	12,000
1,900	3,000	38,000	12,000
1,920	3,000	38,000	12,000
1,950	3,000	38,000	12,000
1,980	3,000	38,000	12,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,000	3,000	38,000	12,000
2,050	3,000	38,000	12,000
2,100	3,000	38,000	12,000
2,150	3,000	38,000	12,000
2,200	3,000	38,000	12,000
2,400	3,000	38,000	12,000
2,500	3,000	38,000	12,000
2,550	3,000	38,000	12,000
2,600	3,000	38,000	12,000
2,750	3,000	38,000	12,000
2,800	3,000	38,000	12,000
2,950	3,000	38,000	12,000
3,000	3,000	38,000	12,000



Micropunte ExclusiveLine senza condotto di lubrificazione

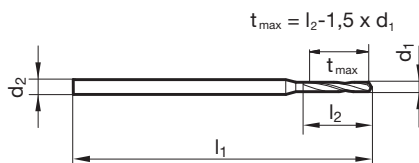


- P** • Assott. del nocc. $\geq \varnothing 0,500$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H**

Materiale tagliente	Int. in MD
Superficie	A
Direzione di taglio	R

GUHRING NAVIGATOR

Dati di taglio a pag. 796



Punte cilindriche

Articolo nr. **6400**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,500	3,000	47,000	3,000
0,550	3,000	47,000	3,300
0,600	3,000	47,000	3,600
0,650	3,000	47,000	3,900
0,700	3,000	47,000	4,200
0,750	3,000	47,000	4,500
0,800	3,000	47,000	4,800
0,850	3,000	47,000	5,100
0,900	3,000	47,000	5,400
0,950	3,000	47,000	5,700
1,000	3,000	47,000	6,000
1,050	3,000	47,000	6,300
1,100	3,000	47,000	6,600
1,150	3,000	47,000	6,900
1,200	3,000	47,000	7,200
1,250	3,000	47,000	7,500
1,300	3,000	47,000	7,800
1,350	3,000	47,000	8,100
1,400	3,000	47,000	8,400
1,450	3,000	47,000	8,700
1,500	3,000	47,000	9,000
1,550	3,000	47,000	9,300
1,590	3,000	47,000	9,600
1,600	3,000	47,000	9,600
1,650	3,000	47,000	9,900
1,700	3,000	47,000	10,200
1,750	3,000	47,000	10,500
1,800	3,000	52,000	10,800
1,850	3,000	52,000	11,100
1,900	3,000	52,000	11,400

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,950	3,000	52,000	11,700
1,980	4,000	59,000	12,000
2,000	4,000	59,000	12,000
2,050	4,000	59,000	12,300
2,100	4,000	59,000	12,600
2,150	4,000	59,000	12,900
2,200	4,000	59,000	13,200
2,250	4,000	59,000	13,500
2,300	4,000	59,000	13,800
2,350	4,000	59,000	14,100
2,380	4,000	59,000	14,400
2,400	4,000	59,000	14,400
2,450	4,000	59,000	14,700
2,500	4,000	59,000	15,000
2,550	4,000	59,000	15,300
2,600	4,000	59,000	15,600
2,650	4,000	59,000	15,900
2,700	4,000	59,000	16,200
2,750	4,000	59,000	16,500
2,780	4,000	59,000	16,800
2,800	4,000	59,000	16,800
2,850	4,000	59,000	17,100
2,900	4,000	59,000	17,400
2,950	4,000	59,000	17,700
3,000	4,000	59,000	18,000



Micropunte ExclusiveLine senza condotto di lubrificazione



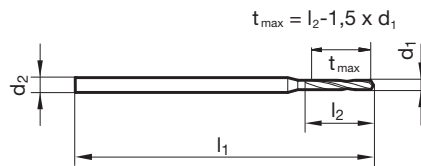
- P** • Assott. del nocc. $\geq \varnothing 0,500$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H**

Materiale tagliente	Int. in MD
Superficie	A
Direzione di taglio	R

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr. **6401**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,500	3,000	47,000	4,000
0,550	3,000	47,000	4,400
0,600	3,000	47,000	4,800
0,650	3,000	47,000	5,200
0,700	3,000	47,000	5,600
0,750	3,000	47,000	6,000
0,800	3,000	47,000	6,400
0,850	3,000	47,000	6,800
0,900	3,000	47,000	7,200
0,950	3,000	47,000	7,600
1,000	3,000	47,000	8,000
1,050	3,000	47,000	8,400
1,100	3,000	47,000	8,800
1,150	3,000	47,000	9,200
1,200	3,000	52,000	10,800
1,250	3,000	52,000	11,300
1,300	3,000	52,000	11,700
1,350	3,000	52,000	12,200
1,400	3,000	52,000	12,600
1,450	3,000	52,000	13,100
1,500	3,000	52,000	13,500
1,550	3,000	52,000	14,000
1,590	3,000	52,000	14,400
1,600	3,000	52,000	14,400
1,650	3,000	52,000	14,900
1,700	3,000	52,000	15,300
1,750	3,000	52,000	15,800
1,800	3,000	52,000	16,200
1,850	3,000	52,000	16,700
1,900	3,000	52,000	17,100

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,950	3,000	52,000	17,600
1,980	4,000	63,000	18,000
2,000	4,000	63,000	18,000
2,050	4,000	63,000	18,500
2,100	4,000	63,000	18,900
2,150	4,000	63,000	19,400
2,200	4,000	63,000	19,800
2,250	4,000	63,000	20,300
2,300	4,000	63,000	20,700
2,350	4,000	63,000	21,200
2,380	4,000	63,000	21,600
2,400	4,000	63,000	21,600
2,450	4,000	63,000	22,100
2,500	4,000	63,000	22,500
2,550	4,000	63,000	23,000
2,600	4,000	67,000	23,400
2,650	4,000	67,000	23,900
2,700	4,000	67,000	24,300
2,750	4,000	67,000	24,800
2,780	4,000	67,000	25,200
2,800	4,000	67,000	25,200
2,850	4,000	67,000	25,700
2,900	4,000	67,000	26,100
2,950	4,000	67,000	26,600
3,000	4,000	67,000	27,000



Micropunte ExclusiveLine con condotto di lubrificazione



- P** • Assott. del nocc. $\geq \varnothing 1,400$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H**

Materiale tagliente **Int. in MD**

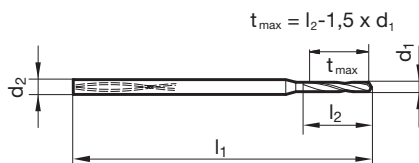
Superficie **A**

Direzione di taglio **R**



GUHRING NAVIGATOR

Dati di taglio a pag. 796



Punte cilindriche

Articolo nr. **6405**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	11,000
1,450	4,000	52,000	12,000
1,500	4,000	52,000	12,000
1,550	4,000	52,000	12,000
1,590	4,000	52,000	13,000
1,600	4,000	52,000	13,000
1,650	4,000	52,000	13,000
1,700	4,000	56,000	14,000
1,750	4,000	56,000	14,000
1,800	4,000	56,000	14,000
1,850	4,000	56,000	15,000
1,900	4,000	56,000	15,000
1,950	4,000	56,000	16,000
1,980	4,000	56,000	16,000
2,000	4,000	56,000	16,000
2,050	4,000	56,000	16,000
2,100	4,000	62,000	17,000
2,150	4,000	62,000	17,000
2,200	4,000	62,000	18,000
2,250	4,000	62,000	18,000
2,300	4,000	62,000	18,000
2,350	4,000	62,000	19,000
2,380	4,000	62,000	19,000
2,400	4,000	62,000	19,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,450	4,000	62,000	20,000
2,500	4,000	62,000	20,000
2,550	4,000	62,000	20,000
2,600	4,000	66,000	21,000
2,650	4,000	66,000	21,000
2,700	4,000	66,000	22,000
2,750	4,000	66,000	22,000
2,780	4,000	66,000	22,000
2,800	4,000	66,000	22,000
2,850	4,000	66,000	23,000
2,900	4,000	66,000	23,000
2,950	4,000	66,000	24,000
3,000	4,000	66,000	24,000



Micropunte ExclusiveLine con condotto di lubrificazione



- P** • Assott. del nocc. $\geq \varnothing 1,400$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H**

Materiale tagliente **Int. in MD**

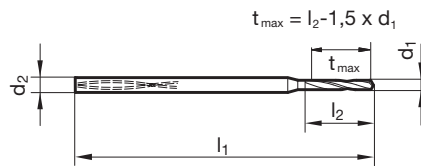
Superficie **A**

Direzione di taglio **R**

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr. **6408**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	15,000
1,450	4,000	52,000	16,000
1,500	4,000	52,000	17,000
1,550	4,000	52,000	17,000
1,590	4,000	52,000	18,000
1,600	4,000	52,000	18,000
1,650	4,000	52,000	18,000
1,700	4,000	56,000	19,000
1,750	4,000	56,000	19,000
1,800	4,000	56,000	20,000
1,850	4,000	56,000	20,000
1,900	4,000	56,000	21,000
1,950	4,000	56,000	21,000
1,980	4,000	56,000	22,000
2,000	4,000	56,000	22,000
2,050	4,000	56,000	23,000
2,100	4,000	62,000	23,000
2,150	4,000	62,000	24,000
2,200	4,000	62,000	24,000
2,250	4,000	62,000	25,000
2,300	4,000	62,000	25,000
2,320	4,000	62,000	26,000
2,350	4,000	62,000	26,000
2,380	4,000	62,000	26,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,400	4,000	62,000	26,000
2,450	4,000	62,000	27,000
2,500	4,000	62,000	28,000
2,550	4,000	62,000	28,000
2,600	4,000	66,000	29,000
2,650	4,000	66,000	29,000
2,700	4,000	66,000	30,000
2,750	4,000	66,000	30,000
2,780	4,000	66,000	31,000
2,800	4,000	66,000	31,000
2,850	4,000	66,000	31,000
2,900	4,000	66,000	32,000
2,950	4,000	66,000	32,000
3,000	4,000	66,000	33,000



Micropunte ExclusiveLine con condotto di lubrificazione



- P** • Assott. del nocc. $\geq \varnothing 1,400$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H**

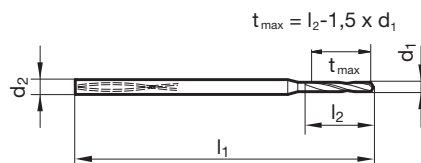
Materiale tagliente **Int. in MD**

Superficie **A**

Direzione di taglio **R**

GUHRING NAVIGATOR

Dati di taglio a pag. 796



Punte cilindriche

Articolo nr. **6412**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	62,000	25,000
1,500	4,000	62,000	27,000
1,590	4,000	62,000	29,000
1,600	4,000	62,000	29,000
1,600	4,000	62,000	29,000
1,600	4,000	62,000	29,000
1,700	4,000	70,000	31,000
1,800	4,000	70,000	32,000
1,900	4,000	70,000	34,000
1,980	4,000	70,000	36,000
2,000	4,000	70,000	36,000
2,100	4,000	78,000	38,000
2,200	4,000	78,000	40,000
2,300	4,000	78,000	42,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,380	4,000	78,000	44,000
2,400	4,000	78,000	44,000
2,500	4,000	78,000	45,000
2,600	4,000	87,000	47,000
2,700	4,000	87,000	48,000
2,780	4,000	87,000	50,000
2,800	4,000	87,000	50,000
2,900	4,000	87,000	52,000
3,000	4,000	87,000	54,000



Punte corte, con codolo cil. Ø 12,7 mm



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. ≥ Ø 14,290 • spoglia sul cono tagliente • con codolo unificato

M

K •

N ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite

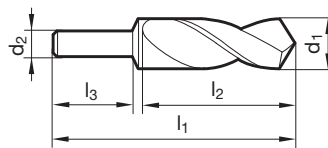
S

H

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **268**

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
13,000	12,700	156,000	82,000	57,000
13,490	12,700	156,000	82,000	57,000
13,500	12,700	156,000	82,000	57,000
14,000	12,700	156,000	82,000	57,000
14,290	12,700	157,000	83,000	57,000
14,500	12,700	157,000	83,000	57,000
15,000	12,700	157,000	83,000	57,000
15,500	12,700	157,000	83,000	57,000
15,870	12,700	157,000	83,000	57,000
16,000	12,700	157,000	83,000	57,000
16,500	12,700	158,000	84,000	57,000
16,670	12,700	158,000	84,000	57,000
17,000	12,700	158,000	84,000	57,000
17,460	12,700	158,000	84,000	57,000
17,500	12,700	158,000	84,000	57,000
18,000	12,700	158,000	84,000	57,000
19,000	12,700	158,000	84,000	57,000
19,050	12,700	159,000	85,000	57,000

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
19,840	12,700	159,000	85,000	57,000
20,000	12,700	159,000	85,000	57,000
21,000	12,700	159,000	85,000	57,000
21,430	12,700	159,000	85,000	57,000
22,000	12,700	159,000	85,000	57,000
22,220	12,700	159,000	85,000	57,000
23,000	12,700	159,000	85,000	57,000
23,020	12,700	159,000	85,000	57,000
23,810	12,700	160,000	86,000	57,000
24,000	12,700	160,000	86,000	57,000
25,000	12,700	160,000	86,000	57,000
25,400	12,700	160,000	86,000	57,000
28,570	12,700	160,000	86,000	57,000



Punte corte, con codolo cil. Ø 16,0 mm



Materiale tagliente **HSCO**

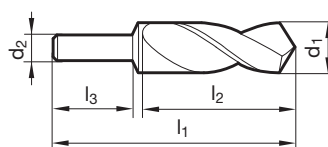
Superficie

Direzione di taglio

- P** • senza affilatura • acciaio HSS legato al Co • massima resistenza all'usura • con codolo unificato
- M** • semilavorati con centrino su entrambi i lati • per modifiche, come, p. es.: correzione del diametro, rettifica gradino, rettifica sagoma
- K** ○
- N** ○ materiali difficili da lavorare • acciai inossidabili e resist. al calore • acciai per molle • acciai austenitici
- S** ○
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 772



Punte cilindriche

Articolo nr. **128**

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
16,000	16,000	130,000	88,000	42,000
16,500	16,000	130,000	88,000	40,000
17,000	16,000	130,000	88,000	40,000
17,500	16,000	130,000	88,000	40,000
18,000	16,000	130,000	88,000	40,000
19,000	16,000	130,000	88,000	40,000
20,000	16,000	130,000	88,000	40,000
20,500	16,000	130,000	88,000	40,000
21,000	16,000	130,000	88,000	40,000
21,500	16,000	130,000	88,000	40,000
22,000	16,000	130,000	88,000	40,000
22,500	16,000	130,000	88,000	40,000
23,000	16,000	130,000	88,000	40,000
23,500	16,000	130,000	88,000	40,000
24,000	16,000	130,000	88,000	40,000
24,500	16,000	130,000	88,000	40,000
25,000	16,000	130,000	88,000	40,000
25,500	16,000	140,000	98,000	40,000

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
26,000	16,000	140,000	98,000	40,000
27,000	16,000	140,000	98,000	40,000
28,000	16,000	140,000	98,000	40,000
28,500	16,000	140,000	98,000	40,000
30,000	16,000	140,000	98,000	40,000
31,000	16,000	140,000	98,000	40,000
32,000	16,000	140,000	98,000	40,000
35,000	16,000	140,000	98,000	40,000
38,000	16,000	140,000	98,000	40,000
40,000	16,000	140,000	98,000	40,000



Punte corte, con codolo cil. Ø 25,4 mm



Materiale tagliente **HSCO**

Superficie

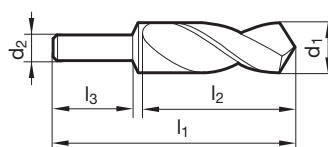
Direzione di taglio

- P** • senza affilatura • acciaio HSS legato al Co • massima resistenza all'usura • con codolo unificato
- M** • semilavorati con centrino su entrambi i lati • per modifiche, come, p. es.: correzione del diametro, rettifica gradino, rettifica sagoma
- K** ○
- N** ○ acciai inossidabili e resist. al calore • materiali difficili da lavorare • acciai per molle • acciai austenitici
- S** ○
- H** ○

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **129**

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
25,000	25,400	140,000	93,000	45,000
26,000	25,400	140,000	93,000	45,000
28,000	25,400	140,000	93,000	45,000
29,500	25,400	140,000	93,000	45,000
30,000	25,400	140,000	93,000	45,000
32,000	25,400	140,000	93,000	45,000
33,000	25,400	140,000	93,000	45,000
34,000	25,400	140,000	93,000	45,000
35,000	25,400	140,000	93,000	45,000
36,000	25,400	140,000	93,000	45,000
37,000	25,400	140,000	93,000	45,000
38,000	25,400	140,000	93,000	45,000

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
40,000	25,400	140,000	93,000	45,000



Punte corte, con codolo cil. Ø 25,4 mm



Materiale tagliente **HSCO**

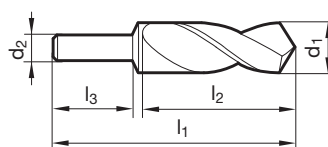
Superficie

Direzione di taglio

- P** • senza affilatura • acciaio HSS legato al Co • massima resistenza all'usura
• con codolo unificato
- M** • semilavorati con centrino su entrambi i lati • per modifiche, come, p.
es.: correzione del diametro, rettifica gradino, rettifica sagoma
- K** ○
- N** ○ materiali difficili da lavorare • acciai inossidabili/resist. al calore (al VA)
• acciai per molle • acciai austenitici
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 772



Punte cilindriche

Articolo nr. **136**

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
25,000	25,400	140,000	93,000	45,000
25,500	25,400	140,000	93,000	45,000
26,000	25,400	140,000	93,000	45,000
26,500	25,400	140,000	93,000	45,000
27,500	25,400	140,000	93,000	45,000
29,500	25,400	140,000	93,000	45,000

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
36,000	25,400	140,000	93,000	45,000
38,000	25,400	140,000	93,000	45,000
39,000	25,400	140,000	93,000	45,000



Punte per fori conici

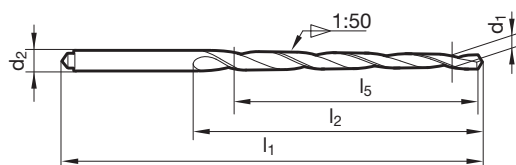


Materiale tagliente	HSS
Superficie	$\frac{0}{2,36}$
Direzione di taglio	(R)

P ● Assott. del noc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • per fori conici
 • con dente di trascinamento

M	○
K	●
N	○
S	○
H	○

Punte cilindriche



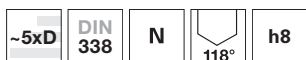
Articolo nr. **531**

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
2,000	3,150	86,000	52,000	48,000
2,500	3,150	86,000	52,000	48,000
3,000	4,000	100,000	63,000	58,000
3,500	5,000	112,000	74,000	68,000
4,000	5,000	112,000	74,000	68,000
4,500	6,300	122,000	81,000	73,000

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
5,000	6,300	122,000	81,000	73,000
5,500	8,000	160,000	114,000	105,000
6,000	8,000	160,000	114,000	105,000
8,000	10,000	207,000	157,000	145,000
10,000	12,500	245,000	190,000	175,000
12,000	16,000	290,000	228,000	210,000



Serie di punte



P • spoglia sul cono tagliente • Per montatori ed artigiani abbiamo previsto assortimenti di punte standard nelle misure maggiormente usate.
M Le punte possono essere fornite con supporto in bachelite, per uso d'officine, ed in scatola, per il viaggio. A richiesta sono disponibili altri assortimenti.
K •
N ○
S
H

Materiale tagliente **HSS**Superficie Direzione di taglio 

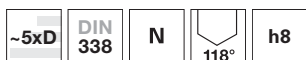
Punte cilindriche

Articolo nr. **201**

d1	in progr.	Pezzi/set	Codice
mm	mm		
1,0-5,0	0,1	41	0,011
5,1-10,0	0,1	50	0,012
1,0-10,0	0,5	19	0,013
1,0-13,0	0,5	25	0,014
1,0-5,9	0,1	50	0,015
6,0-10,0	0,1	41	0,016
1,0-10,5	0,5	24	0,018
1,0-10,5	0,5	32	0,019
1/16 - 1/2	1/64	29	0,021
1,02-5,79	1/64	60	0,026



Set di punte elicoidali sciolte



P • spoglia sul cono tagliente • Per montatori ed artigiani abbiamo previsto assortimenti di punte standard nelle misure maggiormente usate.
M Le punte possono essere fornite con supporto in bachelite, per uso d'officine, ed in scatola, per il viaggio. A richiesta sono disponibili altri assortimenti.
K •
N ○
S
H

Materiale tagliente	HSS
Superficie	$\frac{+0}{-2,36}$
Direzione di taglio	(R)



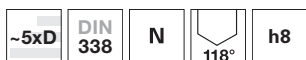
Punte cilindriche

Articolo nr. 200

d1 mm	in progr. mm	Pezzi/set	Codice
1,0-5,0	0,1	41	0,011
5,1-10,0	0,1	50	0,012
1,0-10,0	0,5	19	0,013
1,0-13,0	0,5	25	0,014
1,0-5,9	0,1	50	0,015
6,0-10,0	0,1	41	0,016
1,0-10,5	0,5	24	0,018



Serie di punte

Materiale tagliente **HSS**Superficie **S**Direzione di taglio **R**

P • spoglia sul cono tagliente • Per montatori ed artigiani abbiamo previsto assortimenti di punte standard nelle misure maggiormente usate.

M Le punte possono essere fornite con supporto in bachelite, per uso d'officine, ed in scatola, per il viaggio. A richiesta sono disponibili altri assortimenti.

K •

N ○

S

H



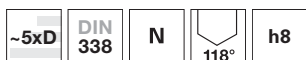
Punte cilindriche

Articolo nr. **17**

d1	in progr.	Pezzi/set	Codice
mm	mm		
1,0-10,0	0,5	19	6,013
1,0-13,0	0,5	25	6,014
1,0-5,9	0,1	50	6,015
6,0-10,0	0,1	41	6,016
1/16 - 1/2	1/64	29	6,021



Serie di punte



- P** ● spoglia sul cono tagliente ● Per montatori ed artigiani abbiamo previsto assortimenti di punte standard nelle misure maggiormente usate.
- M** ○ Le punte possono essere fornite con supporto in bachelite, per uso d'officine, ed in scatola, per il viaggio. A richiesta sono disponibili altri assortimenti.
- K** ●
- N** ○
- S**
- H**

Punte cilindriche

Materiale tagliente **HSCO**

Superficie ○

Direzione di taglio

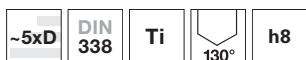


Articolo nr. **16**

d1	in progr.	Pezzi/set	Codice
mm	mm		
1,0-10,0	0,5	19	3,013
1,0-13,0	0,5	25	3,014
1,0-5,9	0,1	50	3,015
6,0-10,0	0,1	41	3,016
1/16 - 1/2	1/64	29	3,021



Serie di punte

Materiale tagliente **HSCO**

Superficie

Direzione di taglio

P spoglia sul cono tagliente • Per montatori ed artigiani abbiamo previsto assortimenti di punte standard nelle misure maggiormente usate.

M Le punte possono essere fornite con supporto in bachelite, per uso d'officine, ed in scatola, per il viaggio. A richiesta sono disponibili altri assortimenti.

K

N

S

H



Punte cilindriche

Articolo nr. **18**

d1	in progr.	Pezzi/set	Codice
mm	mm		
1,0-10,0	0,5	19	8,013
1,0-13,0	0,5	25	8,014
1,0-5,9	0,1	50	8,015
6,0-10,0	0,1	41	8,016
1,0-10,5	0,5	24	8,018



Serie di punte



- P** ○ spoglia sul cono tagliente • Per montatori ed artigiani abbiamo previsto assortimenti di punte standard nelle misure maggiormente usate.
- M** ● Le punte possono essere fornite con supporto in bachelite, per uso d'officine, ed in scatola, per il viaggio. A richiesta sono disponibili altri assortimenti.
- K** ○
- N** ○
- S** ○
- H** ○

Punte cilindriche

Materiale tagliente	HSCO
Superficie	○
Direzione di taglio	Ⓜ



Articolo nr. **195**


d1	in progr.	Pezzi/set	Codice
mm	mm		
1,0-13,0	0,5	25	8,014
1,0-10,5	0,5	24	8,018



Serie di punte



P	●	spoglia sul cono tagliente • Per montatori ed artigiani abbiamo previsto assortimenti di punte standard nelle misure maggiormente usate.
M	○	Le punte possono essere fornite con supporto in bachelite, per uso d'officine, ed in scatola, per il viaggio. A richiesta sono disponibili altri assortimenti.
K	○	
N	○	
S		
H		

Materiale tagliente **HSCO**Superficie Direzione di taglio 

Punte cilindriche

Articolo nr.

2049

d1	in progr.	Pezzi/set	Codice
mm	mm		
1,0-13,0	0,5	25	0,014
1,0-10,0	0,5	19	0,013
1,0-10,5	0,5	24	0,018
1,0-5,0	0,1	41	0,011
5,1-10,0	0,1	50	0,012



Serie di punte



- P** ● spoglia sul cono tagliente • Per montatori ed artigiani abbiamo previsto assortimenti di punte standard nelle misure maggiormente usate.
- M** ○ Le punte possono essere fornite con supporto in bachelite, per uso d'officine, ed in scatola, per il viaggio. A richiesta sono disponibili altri assortimenti.
- K** ○
- N** ○
- S** ○
- H** ○

Punte cilindriche

Materiale tagliente	HSCO
Superficie	M
Direzione di taglio	R



Articolo nr. **2050**

d1	in progr.	Pezzi/set	Codice
mm	mm		
1,0-10,0	0,5	19	0,013
5,1-10,0	0,1	50	0,012



Set di punte elicoidali Aerox affilatura a croce



P	•	affilatura a croce ottimizzata • acciaio rapido HSCO legato con l' 8% di cobalto • Per montatori ed artigiani abbiamo previsto assortimenti di punte standard nelle misure maggiormente usate. Le punte possono essere fornite con supporto in bachelite, per uso d'officine, ed in scatola, per il viaggio. A richiesta sono disponibili altri assortimenti.
M	•	
K	•	
N	•	materiali in acciaio non legati e altamente legati • ghise • metalli non ferrosi • Titanio e leghe di titanio
S	•	
H	○	

Materiale tagliente **M42**

Superficie

Direzione di taglio

NEW

Punte cilindriche

Articolo nr. **1083**

d1	in progr.	Pezzi/set	Codice
mm	mm		
1,0-13,0	0,5	25	0,014
1,0-10,0	0,5	19	0,013



Serie di punte



Cassetta vuota in plastica

Punte cilindriche



Articolo nr. 36

d1 mm	in progr. mm	Pezzi/set	Codice
1,0-13,0			0,214
1,0-10,0			0,213
1,0-5,9			0,215
6,0-10,0			0,216
1,0-10,5			0,218



Serie di punte



Cassetta vuota in plastica



Punte cilindriche

Articolo nr. 73

d1 mm	in progr. mm	Pezzi/set	Codice
1,0-13,0			0,614



Serie di punte



livello di bachelite

Punte cilindriche



Articolo nr. 11

d1 mm	in progr. mm	Pezzi/set	Codice
1,0-13,0			0,114
5,1-10,0			0,112
1,0-5,0			0,111
1,0-5,9			0,115
1,0-10,0			0,113
1/16 - 1/2			0,121
1/16 - 1/2			0,122



Punte speciali, con taglienti in MD

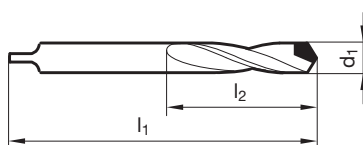


Materiale tagliente	Metallo duro
Superficie	○
Direzione di taglio	Ⓜ

- P** ○ Assott. del nocc. ≥ Ø 1,700 • affilatura su piani • con riporti in MD
- M**
- K** ○
- N** acciaio per nastri per molle • ghisa conchigliata con oltre 300 HB
- S** • molibdeno puro • bronzi duri
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 776



Articolo nr. **703**

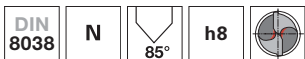
d1	l1	l2
mm	mm	mm
1,700	45,000	18,000
2,600	50,000	20,000
2,700	50,000	20,000
2,900	50,000	20,000
3,000	50,000	20,000
3,100	56,000	25,000
3,200	56,000	25,000
3,250	56,000	25,000
3,300	56,000	25,000
3,500	56,000	25,000
3,700	56,000	25,000
3,800	56,000	25,000
3,900	56,000	25,000
4,000	56,000	25,000
4,100	63,000	28,000
4,200	63,000	28,000
4,300	63,000	28,000
4,500	63,000	28,000
4,800	63,000	28,000
4,900	63,000	28,000
5,000	63,000	28,000
5,100	71,000	32,000
5,200	71,000	32,000
5,300	71,000	32,000
5,400	71,000	32,000
5,500	71,000	32,000
5,800	71,000	32,000
6,000	71,000	32,000
6,200	71,000	32,000
6,300	71,000	32,000
6,350	71,000	32,000
6,400	71,000	32,000
6,500	71,000	32,000
6,700	80,000	40,000
6,800	80,000	40,000
7,000	80,000	40,000

d1	l1	l2
mm	mm	mm
7,200	80,000	40,000
7,500	80,000	40,000
7,800	80,000	40,000
8,000	80,000	40,000
8,200	90,000	50,000
8,400	90,000	50,000
8,500	90,000	50,000
9,000	90,000	50,000
9,500	90,000	50,000
9,800	100,000	56,000
10,000	100,000	56,000
10,200	100,000	56,000
10,400	100,000	56,000
10,500	100,000	56,000
11,000	100,000	56,000
11,500	112,000	63,000
12,000	112,000	63,000
12,500	112,000	63,000
12,700	112,000	63,000
13,000	112,000	63,000
13,500	125,000	71,000
14,000	125,000	71,000
14,500	125,000	71,000
15,000	125,000	71,000
15,500	140,000	80,000
16,000	140,000	80,000
16,500	140,000	80,000
17,000	140,000	80,000
17,500	160,000	90,000
18,000	160,000	90,000
19,000	160,000	90,000
19,500	160,000	90,000
20,000	160,000	90,000
21,000	160,000	90,000
22,000	160,000	90,000
24,000	170,000	100,000

Punte cilindriche



Punte speciali, con taglienti in MD



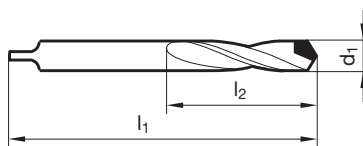
P	Assott. del nocc. $\geq \varnothing 1,500$ • affilatura su piani • con riporti in MD
M	
K	
N	materie sintetiche a fibre vetrose • altri materiali che esercitano un'azione abrasiva sui taglienti e sulle fasi della punta
S	
H	

Materiale tagliente	Metallo duro
Superficie	○
Direzione di taglio	Ⓜ

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 776



Articolo nr. **704**

d1	l1	l2
mm	mm	mm
1,900	45,000	18,000
2,200	45,000	18,000
3,100	56,000	25,000
3,200	56,000	25,000
3,500	56,000	25,000
4,200	63,000	28,000

d1	l1	l2
mm	mm	mm
5,000	63,000	28,000
6,000	71,000	32,000
8,000	80,000	40,000
24,000	170,000	100,000



Punte FK per kevlar



Materiale tagliente **Int. in MD**

Superficie ○

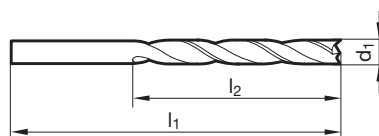
Direzione di taglio (R)

P Assott. del nocc. $\geq \varnothing 2,380$ • con affilatura speciale

- M**
- K**
- N** materie sintetiche a fibre rinforzate
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 776



Articolo nr. **1149**

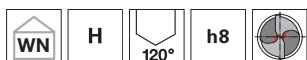
d1		l1	l2
mm	inch	mm	mm
2,500		43,000	14,000
3,200		49,000	18,000
3,570	9/64	52,000	20,000
4,000		55,000	22,000
4,760	3/16	62,000	26,000
5,000		62,000	26,000

d1		l1	l2
mm	inch	mm	mm
6,000		66,000	28,000
8,000		79,000	37,000
10,000		89,000	43,000

Punte cilindriche



Punte a lancia



Materiale tagliente **Metallo duro**

Superficie

Direzione di taglio

P Assott. del nocc. $\geq \varnothing 3,000$ • affilatura su piani • Punte speciali • in condizioni difficili

M

K

N ghisa in conchiglia • acciaio temprato

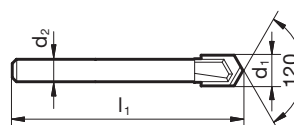
S

H

Punte cilindriche

GÜHRING NAVIGATOR

Dati di taglio a pag. 776



Articolo nr. **707**

d1	l1	l2
mm	mm	mm
3,000	50,000	
5,000	63,000	
5,500	70,000	
6,000	70,000	
8,000	80,000	
9,000	90,000	

d1	l1	l2
mm	mm	mm
12,000	112,000	



Punte per muro



Materiale tagliente **Metallo duro**

Superficie ○

Direzione di taglio (R)

P affilatura su piani • con riporti in MD • per foratrici e trapani a percussione • forare piastrelle senza martellare

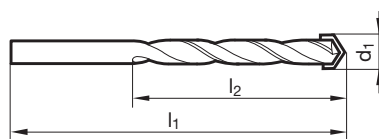
M

K

N murature, cemento, piastrelle

S

H



Punte cilindriche

Articolo nr. **716**

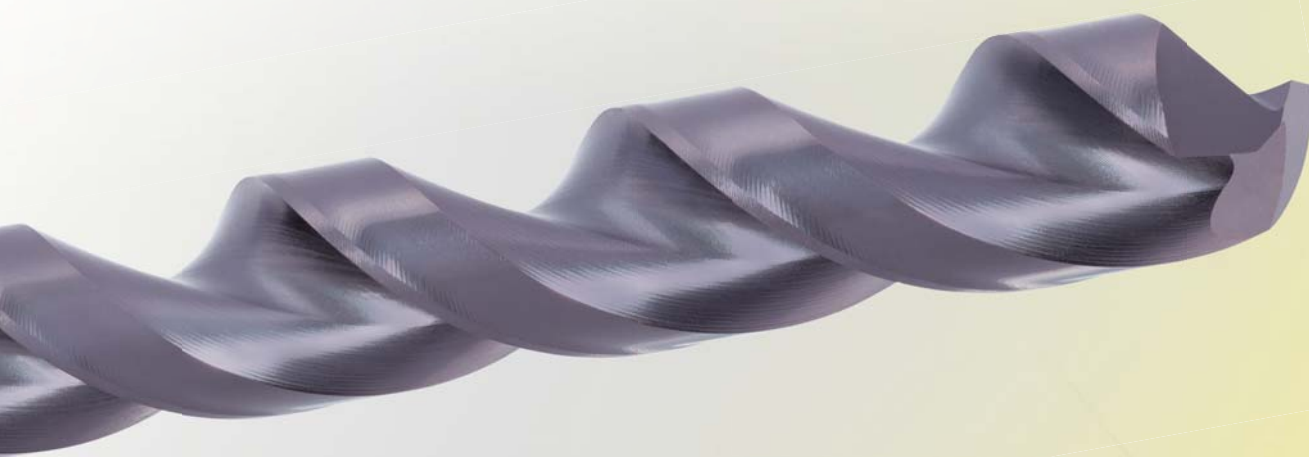
d1	l1	l2
mm	mm	mm
4,000	75,000	40,000
5,000	85,000	50,000
6,000	100,000	60,000
8,000	120,000	80,000
10,000	120,000	80,000
12,000	150,000	90,000

d1	l1	l2
mm	mm	mm



PUNTE CON CODOLO CONICO MORSE

Punte con codolo
conico Morse





P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte elicoidali, corte

•	•	•	•	•	•		~3xD	WN	GV 120	R	HSCO	○	8,100 - 38,000	363	772	448
•	•	•	•	•	•		~3xD	WN	GV 120	R	HSCO	Ⓢ	10,500 - 31,000	663	774	449

Punte elicoidali

•	•	•	•	•	•		~5xD	DIN 345	N	R	HSS	○ ⁺⁰ / _{2,36}	2,380 - 96,000	245	778	450
•	•	•	•	•	•		~5xD	DIN 345	N	R	HSS	○ ⁺⁰ / _{16,0}	10,000 - 28,000	592	778	454
•	•	•	•	•	•		~5xD	DIN 345	N	R	HSS	Ⓢ	3,000 - 31,000	654	780	455
•	•	•	•	•	•		~5xD	DIN 345	N	L	HSS	○	6,000 - 60,000	248	778	457
•	•	•	•	•	•		~5xD	DIN 345	N	R	HSS	○	8,500 - 59,000	229	778	458
•	•	•	•	•	•		~5xD	DIN 345	H	R	HSS	○	6,700 - 25,250	246	778	459
•	•	•	•	•	•		~5xD	DIN 345	W	R	HSS	○	3,200 - 32,000	247	778	460
•	•	•	•	•	•		~5xD	DIN 345	GT 100	R	HSS	○ ⁺⁰ / _{16,0}	7,940 - 31,750	558	778	461
•	•	•	•	•	•		~5xD	DIN 345	GT 100	R	HSS	Ⓢ	7,940 - 31,500	606	780	462
•	•	•	•	•	•		~5xD	DIN 345	N	R	HSCO	○	4,000 - 50,000	345	780	463
•	•	•	•	•	•		~5xD	DIN 345	N	R	HSCO	Ⓢ	8,000 - 30,000	661	782	465
•	•	•	•	•	•		~5xD	DIN 345	GT 100	R	HSCO	○ ⁺⁰ / _{16,0}	10,000 - 39,000	645	780	466
•	•	•	•	•	•		~5xD	DIN 345	GT 100	R	HSCO	Ⓢ	10,000 - 23,810	662	782	467
•	•	•	•	•	•		~5xD	DIN 345	GT 100	R	HSCO	Ⓒ	10,000 - 30,160	1222	782	468
•	•	•	•	•	•		~5xD	DIN 345	GT 100	R	HSCO	Ⓐ	10,400 - 30,160	1224	782	469
•	•	•	•	•	•		~5xD	DIN 345	VA	R	HSCO	○	10,000 - 34,000	1262	780	470
•	•	•	•	•	•		~5xD	DIN 346	N	R	HSS	○	10,000 - 73,000	251	778	471
•	•	•	•	•	•		~5xD	DIN 346	N	R	HSCO	○	12,000 - 31,500	351	780	472

Punte per foratura con bussola di guida

•	•	•	•	•	•		~10xD	DIN 341	N	R	HSS	○	2,900 - 50,000	257	786	473
•	•	•	•	•	•		~10xD	DIN 341	N	R	HSS	Ⓢ	5,500 - 22,000	655	786	475
•	•	•	•	•	•		~10xD	DIN 341	GT 100	R	HSS	○ ⁺⁰ / _{16,0}	5,500 - 32,000	551	786	476

Punte con codolo conico Morse



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte per foratura con bussola di guida

•	•	•					~10xD	DIN 341	GT 100	(R)	HSS	Ⓢ	7,000 - 23,000	656	786	478
○		•					~10xD	DIN 341	GT 50	(R)	HSS	○	5,500 - 29,500	505	786	479
•	○	•	•	○			~10xD	DIN 341	N	(R)	HSCO	●	4,750 - 40,000	357	792	480
•	•	•	•	○			~10xD	DIN 341	GT 100	(R)	HSCO	● _{≥0/160}	10,000 - 26,000	623	792	481
•	•	○					~10xD	WN	N	(R)	HSS	●	10,000 - 29,000	523	786	482

Punte elicoidali in lunghezze speciali, grandezza 1

•	•	○					~15xD	DIN 1870	N	(R)	HSS	●	8,000 - 50,000	266	788	483
•	•	•					~15xD	DIN 1870	GT 100	(R)	HSS	● _{≥0/160}	8,000 - 30,000	526	790	484
○		•					~15xD	DIN 1870	GT 50	(R)	HSS	○	8,500 - 33,000	525	788	485
•	•	•	•	○			~15xD	DIN 1870	GT 100	(R)	HSCO	● _{≥0/160}	9,520 - 30,000	620	794	486

Punte elicoidali in lunghezze speciali, grandezza 2

•	•	○					~20xD	DIN 1870	N	(R)	HSS	●	8,000 - 45,000	267	788	487
•	•	•					~20xD	DIN 1870	GT 100	(R)	HSS	● _{≥0/160}	8,000 - 30,000	527	790	488
○		•					~20xD	DIN 1870	GT 50	(R)	HSS	○	8,500 - 31,000	542	788	489
•	•	•	•	○			~20xD	DIN 1870	GT 100	(R)	HSCO	● _{≥0/160}	9,520 - 23,420	621	794	490

Punte elicoidali, extra lunghe

•	•	•					>20xD	WN	GT 100	(R)	HSS	●	6,000 - 7,500	563	790	491
•	•	•					>20xD	WN	GT 100	(R)	HSS	●	6,000 - 10,000	564	790	492
•	•	•					>20xD	WN	GT 100	(R)	HSS	● _{≥0/160}	6,000 - 17,000	565	790	493
•	•	•					>20xD	WN	GT 100	(R)	HSS	● _{≥0/160}	8,000 - 40,000	566	790	494
•	•	•					>20xD	WN	GT 100	(R)	HSS	● _{≥0/160}	14,000 - 40,000	293	790	495
•	•	•					>20xD	WN	GT 100	(R)	HSS	○	14,000 - 18,000	298	790	496
•	•	•					>20xD	WN	GT 100	(R)	HSS	○	14,000 - 18,000	299	790	497

Punte con fori di refrigerazione, corte

•	○	•	•				~7xD	WN	N	(R)	HSS	●	9,920 - 23,020	269	788	498
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Punte con codolo conico Morse



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte con fori di refr., lung. elica a norma di fab.

•	○	•	•				WN	N	R	HSS	●	8,000 - 50,000	254	788	499
•	○	•	•				WN	N	R	HSS	●	8,000 - 42,000	255	788	500

Punte con fori di refr., lung. elica DIN 341

•	○	•	•				~10xD	WN	N	R	HSS	●	10,000 - 32,000	1101	788	501
•	○	•	•				~10xD	WN	N	R	HSS	●	10,000 - 40,000	270	788	502
•	○	•	•				~10xD	WN	N	R	HSS	●	10,000 - 44,450	271	788	503
•	○	•	•				~10xD	WN	N	R	HSS	●	10,000 - 44,450	272	788	504
•	•	•	•	○			~10xD	WN	GT 100	R	HSCO	●	11,000 - 34,920	370	794	505
•	•	•	•	○			~10xD	WN	GT 100	R	HSCO	●	11,000 - 34,920	371	794	506
•	•	•	•	○			~10xD	WN	GT 100	R	HSCO	●	12,500 - 34,000	372	794	507

Punte con fori di refr., lung. elica DIN 1870

•	•	•	•	○			~15xD	WN	GT 100	R	HSCO	●	11,000 - 34,000	374	794	508
•	•	•	•	○			~15xD	WN	GT 100	R	HSCO	●	11,000 - 34,000	375	794	509
•	•	•	•	○			~15xD	WN	GT 100	R	HSCO	●	11,000 - 29,000	376	794	510

Punte per fori conici

•	○	•	○				DIN 1898	N	R	HSS	●	5,000 - 25,000	532		511
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Punte speciali, con taglienti in MD

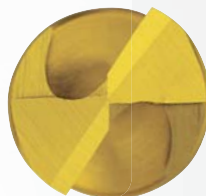
○	○	○	○				DIN 8041	N	R	HM	○	8,000 - 40,000	705	776	512
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Punte con codolo conico Morse

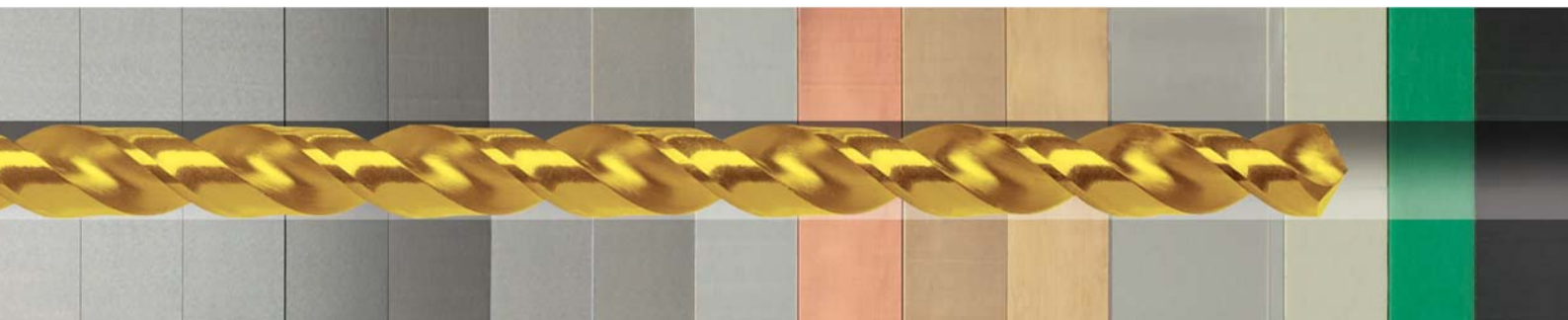
GU 500

punte universali in HSCO

- **applicazione universale** sulla maggior parte dei materiali
- 4 piani di affilatura per un eccellente centraggio e per una foratura eccellente dimensionalmente
- basse forze di avanzamento e di valori torcenti grazie alla precisione della geometria rettificata
- **ottima evacuazione** del truciolo grazie alla geometria delle scanalature laminata



16MnCr5
11SMn30+C
S237
GG
GGG
C45
VA
Alluminio
Rame
Bronzo
Ottone
Plexiglas
PVC
PE 1000
Makrolon



GU 500 - **applicazione universale** sulla maggior parte dei materiali

acciai strutturali e acciai al carbonio · acciai altamente legati fino a 850 N / mm² · acciai inossidabili · materiali fusi
metalli non ferrosi · alluminio · leghe di magnesio · plastica



ACCIAIO

~ 3xD
Norma di fab.

~ 5xD
DIN 345

~ 10xD
DIN 341

~ 15xD
DIN 1870
R1

No 1

Ø 3,00 - 31,00 mm
Articolo nr. 654
da pag. 455



No 1

Ø 5,50 - 22,00 mm
Articolo nr. 655
da pag. 475



Ø 8,00 - 50,00 mm
Articolo nr. 266
da pag. 483



Ø 8,00 - 30,00 mm
Articolo nr. 661
da pag. 465



Ø 4,75 - 40,00 mm
Articolo nr. 357
da pag. 480



Ø 7,94 - 31,50 mm
Articolo nr. 606
da pag. 462



Ø 7,00 - 23,00 mm
Articolo nr. 656
da pag. 478



Ø 8,00 - 30,00 mm
Articolo nr. 526
da pag. 484



No 1

Ø 10,00 - 23,81 mm
Articolo nr. 662
da pag. 467



Ø 10,00 - 26,00 mm
Articolo nr. 623
da pag. 481



Ø 9,52 - 30,00 mm
Articolo nr. 620
da pag. 486



No 1

Ø 10,50 - 31,00 mm
Articolo nr. 663
da pag. 449



~ 10xD
lung. scan. fino a
DIN 341

~ 15xD
lung. scan. fino a
DIN 1870 R1

No 1

Ø 10,00 - 32,00 mm
Articolo nr. 1101
da pag. 501



Ø 11,00 - 34,92 mm
Articolo nr. 370
da pag. 505



No 1

Ø 11,00 - 34,00 mm
Articolo nr. 374
da pag. 508



Punte con codolo
conico Morse

no refrigerazione interna

con refrigerazione interna



QUICKFINDER

~20xD
DIN 1870
R2

>20xD
Norma di fab.
extra lungo

No 1 utensile ideale

Ø 8,00 - 45,00 mm
Articolo nr. 267
da pag. 487



Tipo N, HSS



Tipo N, HSCO

Ø 8,00 - 30,00 mm
Articolo nr. 527
da pag. 488



No 1

Ø 8,00 - 40,00 mm
Articolo nr. 566
da pag. 494



GT100, HSS

No 1

Ø 9,52 - 23,42 mm
Articolo nr. 621
da pag. 490



GT100, HSCO



GV120, HSCO



Tipo N, HSS



GT100, HSCO

Punte con codolo conico Morse



ACCIAI
INOSSIDABILI



TITANIO &
LEGHE SPECIALI

~ 3xD
Norma di fab.

~ 5xD
DIN 345

~ 10xD
DIN 341

~ 15xD
DIN 1870
R1

No 1 No 1

Ø 10,00 - 34,00 mm
Articolo nr. 1262
da pag. 470



No 1 No 1

Ø 10,00 - 26,00 mm
Articolo nr. 623
da pag. 481



No 1 No 1

Ø 9,52 - 30,00 mm
Articolo nr. 620
da pag. 486



No 1 No 1

Ø 10,50 - 31,00 mm
Articolo nr. 663
ab S.449



Ø 8,00 - 30,00 mm
Articolo nr. 661
da pag. 465



Ø 4,75 - 40,00 mm
Articolo nr. 357
da pag. 480



~ 10xD
lung. scan. fino a
DIN 341

~ 15xD
lung. scan. fino a
DIN 1870 R1

No 1 No 1

Ø 11,00 - 34,92 mm
Articolo nr. 370
da pag. 505



No 1 No 1

Ø 11,00 - 34,00 mm
Articolo nr. 374
da pag. 508



Punte con codolo
conico Morse

no refrigerazione interna

con refrigerazione interna



QUICKFINDER

~20xD
DIN 1870
R2

>20xD
Norma di fab.
extra lungo

No 1 utensile ideale per l'acciaio inossidabile

No 1 utensile ideale per Titanio e leghe speciali

No 1 **No 1**

Ø 9,52 - 23,42 mm
Articolo nr. 621
da pag. 490



Tipo VA, HSCO



GT100, HSCO



GV120, HSCO



Tipo N, HSCO



GT100, HSCO

Punte con codolo
conico Morse



GHISA

~ 3xD
Norma di fab.

~ 5xD
DIN 345

~ 10xD
DIN 341

~ 15xD
DIN 1870
R1

No 1

Ø 3,00 - 31,00 mm
Articolo nr. 654
da pag. 455



No 1

Ø 5,50 - 22,00 mm
Articolo nr. 655
da pag. 475



Ø 8,00 - 50,00 mm
Articolo nr. 266
da pag. 483



Ø 8,00 - 30,00 mm
Articolo nr. 661
da pag. 465



Ø 4,75 - 40,00 mm
Articolo nr. 357
da pag. 480



Ø 7,94 - 31,50 mm
Articolo nr. 606
da pag. 462



Ø 7,00 - 23,00 mm
Articolo nr. 656
da pag. 478



Ø 8,00 - 30,00 mm
Articolo nr. 526
da pag. 484



Ø 10,00 - 23,81 mm
Articolo nr. 662
da pag. 467



Ø 10,00 - 26,00 mm
Articolo nr. 623
da pag. 481



Ø 9,52 - 30,00 mm
Articolo nr. 620
da pag. 486



No 1

Ø 10,50 - 31,00 mm
Articolo nr. 663
da pag. 449



~ 10xD
lung. scan. fino a
DIN 341

~ 15xD
lung. scan. fino a
DIN 1870 R1

No 1

Ø 10,00 - 32,00 mm
Articolo nr. 1101
da pag. 501



Ø 11,00 - 34,92 mm
Articolo nr. 370
da pag. 505



No 1

Ø 11,00 - 34,00 mm
Articolo nr. 374
da pag. 508



Punte con codolo
conico Morse

no refrigerazione interna

con refrigerazione interna



QUICKFINDER

~20xD
DIN 1870
R2

>20xD
Norma di fab.
extra lungo

No 1 utensile ideale

Ø 8,00 - 45,00 mm
Articolo nr. 267
da pag. 487



Tipo N, HSS



Tipo N, HSCO

Ø 8,00 - 30,00 mm
Articolo nr. 527
da pag. 488



No 1

Ø 8,00 - 40,00 mm
Articolo nr. 566
da pag. 494



GT100, HSS

No 1

Ø 9,52 - 23,42 mm
Articolo nr. 621
da pag. 490



GT100, HSCO



GV120, HSCO



Tipo N, HSS



GT100, HSCO

Punte con codolo conico Morse



ALLUMINIO, NE, PLASTICA

~ 3xD
Norma di fab.

~ 5xD
DIN 345

~ 10xD
DIN 341

~ 15xD
DIN 1870
R1

No 1

Ø 3,20 - 32,00 mm
Articolo nr. 247
da pag. 460

tipo W per materiali con
truciolo lungo

No 1

Ø 6,70 - 25,25 mm
Articolo nr. 246
da pag. 459

tipo H per materiali
duri e fragili

No 1

Ø 5,50 - 29,50 mm
Articolo nr. 505
da pag. 479

No 1

Ø 8,50 - 33,00 mm
Articolo nr. 525
da pag. 485

tipo GT50 per materiali
con truciolo lungo

Ø 7,94 - 31,75 mm
Articolo nr. 558
da pag. 461



Ø 5,50 - 32,00 mm
Articolo nr. 551
da pag. 476



Ø 8,00 - 30,00 mm
Articolo nr. 526
da pag. 484



Ø 10,00 - 39,00 mm
Articolo nr. 645
da pag. 466



Ø 10,00 - 26,00 mm
Articolo nr. 623
da pag. 481



Ø 9,52 - 30,00 mm
Articolo nr. 620
da pag. 486



~ 10xD
lung. scan. fino a
DIN 341

~ 15xD
lung. scan. fino a
DIN 1870 R1

No 1

Ø 10,00 - 32,00 mm
Articolo nr. 1101
da pag. 501



Ø 11,00 - 34,92 mm
Articolo nr. 370
da pag. 505



No 1

Ø 11,00 - 34,00 mm
Articolo nr. 374
da pag. 508



Punte con codolo
conico Morse

no refrigerazione interna

con refrigerazione interna



QUICKFINDER

~20xD
DIN 1870
R2

>20xD
Norma di fab.
extra lungo

No 1 utensile ideale



Tipo W, HSS



Tipo H, HSS

No 1

Ø 8,50 - 31,00 mm
Articolo nr. 542
da pag. 489



GT50, HSS

No 1

Ø 8,00 - 30,00 mm
Articolo nr. 527
da pag. 488



Ø 8,00 - 40,00 mm
Articolo nr. 566
da pag. 494



GT100, HSS

Ø 9,52 - 23,42 mm
Articolo nr. 621
da pag. 490



GT100, HSCO



Tipo N, HSS

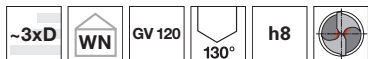


GT100, HSCO

Punte con codolo conico Morse



Punte elicoidali, corte



Materiale tagliente **HSCO**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 7,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M •

K •

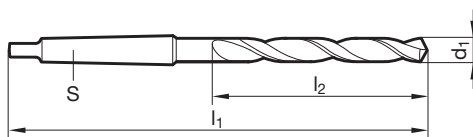
N ○ materiali difficili da lavorare • acciai inossidabili e resist. al calore • acciai per molle, acciai austenitici

S •

H ○

GUHRING NAVIGATOR

Dati di taglio a pag. 772



Articolo nr. **363**

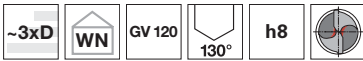
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,100		MK-1	130,000	49,000
8,200		MK-1	130,000	49,000
8,300		MK-1	130,000	49,000
8,500		MK-1	130,000	49,000
8,600		MK-1	134,000	53,000
8,730	11/32	MK-1	134,000	53,000
9,000		MK-1	134,000	53,000
9,520	3/8	MK-1	138,000	57,000
9,920	25/64	MK-1	138,000	57,000
10,000		MK-1	138,000	57,000
10,100		MK-1	138,000	57,000
10,200		MK-1	138,000	57,000
10,500		MK-1	138,000	57,000
11,000		MK-1	142,000	61,000
11,750		MK-1	142,000	61,000
12,000		MK-1	147,000	66,000
12,500		MK-1	147,000	66,000
12,700	1/2	MK-1	147,000	66,000
13,000		MK-1	147,000	66,000
13,490	17/32	MK-2	168,000	70,000
13,500		MK-2	168,000	70,000
14,000		MK-2	168,000	70,000
14,500		MK-2	172,000	74,000
15,000		MK-2	172,000	74,000
15,500		MK-2	176,000	78,000
16,000		MK-2	176,000	78,000
16,500		MK-2	179,000	81,000
17,000		MK-2	179,000	81,000
17,500		MK-2	183,000	85,000
18,000		MK-2	183,000	85,000

d1		S	l1	l2
mm	inch		mm	mm
18,500		MK-2	186,000	88,000
19,000		MK-2	186,000	88,000
19,450	49/64	MK-3	212,000	91,000
20,000		MK-3	212,000	91,000
20,500		MK-3	216,000	95,000
20,900		MK-3	216,000	95,000
21,000		MK-3	216,000	95,000
21,500		MK-3	219,000	98,000
22,000		MK-3	219,000	98,000
22,220	7/8	MK-3	219,000	98,000
23,000		MK-3	222,000	101,000
23,020	29/32	MK-3	222,000	101,000
24,000		MK-3	225,000	104,000
24,500		MK-3	225,000	104,000
25,000	63/64	MK-3	225,000	104,000
26,000		MK-4	256,000	107,000
26,500		MK-4	256,000	107,000
27,000		MK-4	259,000	110,000
27,500		MK-4	259,000	110,000
28,000		MK-4	259,000	110,000
29,000		MK-4	263,000	114,000
29,370	1 5/32	MK-4	263,000	114,000
30,000		MK-4	263,000	114,000
32,000		MK-4	269,000	120,000
33,000		MK-4	269,000	120,000
37,000		MK-4	276,000	127,000
38,000		MK-5	317,000	130,000



Punte elicoidali, corte



Materiale tagliente **HSCO**

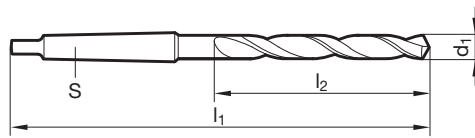
Superficie **S**

Direzione di taglio **R**

- P** • Assott. del nocc. $\geq \varnothing 9,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** •
- K** •
- N** ○ materiali difficili da lavorare • acciai inossidabili/resist. al calore (al VA)
• acciai per molle, acciai austenitici
- S** •
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 774



Articolo nr. **663**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
10,500		MK-1	138,000	57,000
10,750		MK-1	142,000	61,000
11,500		MK-1	142,000	61,000
12,500		MK-1	147,000	66,000
13,500		MK-2	168,000	70,000
14,000		MK-2	168,000	70,000
14,250		MK-2	172,000	74,000
15,000		MK-2	172,000	74,000
16,000		MK-2	176,000	78,000
16,500		MK-2	179,000	81,000
17,000		MK-2	179,000	81,000
17,500		MK-2	183,000	85,000

d1		S	l1	l2
mm	inch		mm	mm
18,000		MK-2	183,000	85,000
19,000		MK-2	186,000	88,000
20,000		MK-3	212,000	91,000
21,000		MK-3	216,000	95,000
22,000		MK-3	219,000	98,000
23,000		MK-3	222,000	101,000
25,000	63/64	MK-3	225,000	104,000
27,000		MK-4	259,000	110,000
29,000		MK-4	263,000	114,000
30,000		MK-4	263,000	114,000
31,000		MK-4	266,000	117,000



Punte elicoidali

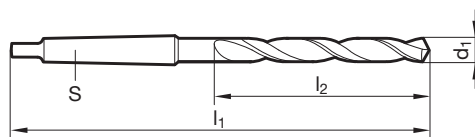


Materiale tagliente	HSS
Superficie	$\frac{0}{2,36}$
Direzione di taglio	(R)

P •	Assott. del nocc. $\geq \varnothing 14,050$ • spoglia sul cono tagliente
M	
K •	
N ○	acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
S	
H	

GUHRINGNAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **245**

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
2,380	3/32	MK-1	111,000	30,000	5,950	15/64	MK-1	138,000	57,000
2,400		MK-1	111,000	30,000	6,000		MK-1	138,000	57,000
2,450		MK-1	111,000	30,000	6,050		MK-1	144,000	63,000
2,500		MK-1	111,000	30,000	6,100		MK-1	144,000	63,000
2,650		MK-1	111,000	30,000	6,200		MK-1	144,000	63,000
2,780	7/64	MK-1	114,000	33,000	6,300		MK-1	144,000	63,000
2,900		MK-1	114,000	33,000	6,350	1/4	MK-1	144,000	63,000
3,000		MK-1	114,000	33,000	6,400		MK-1	144,000	63,000
3,050		MK-1	117,000	36,000	6,500		MK-1	144,000	63,000
3,170	1/8	MK-1	117,000	36,000	6,600		MK-1	144,000	63,000
3,200		MK-1	117,000	36,000	6,700		MK-1	144,000	63,000
3,250		MK-1	117,000	36,000	6,750	17/64	MK-1	150,000	69,000
3,300		MK-1	117,000	36,000	6,800		MK-1	150,000	69,000
3,450		MK-1	120,000	39,000	6,900		MK-1	150,000	69,000
3,500		MK-1	120,000	39,000	7,000		MK-1	150,000	69,000
3,570	9/64	MK-1	120,000	39,000	7,140	9/32	MK-1	150,000	69,000
3,600		MK-1	120,000	39,000	7,200		MK-1	150,000	69,000
3,970	5/32	MK-1	124,000	43,000	7,250		MK-1	150,000	69,000
4,000		MK-1	124,000	43,000	7,300		MK-1	150,000	69,000
4,200		MK-1	124,000	43,000	7,400		MK-1	150,000	69,000
4,250		MK-1	124,000	43,000	7,500		MK-1	150,000	69,000
4,300		MK-1	128,000	47,000	7,540	19/64	MK-1	156,000	75,000
4,370	11/64	MK-1	128,000	47,000	7,600		MK-1	156,000	75,000
4,400		MK-1	128,000	47,000	7,700		MK-1	156,000	75,000
4,500		MK-1	128,000	47,000	7,750		MK-1	156,000	75,000
4,600		MK-1	128,000	47,000	7,800		MK-1	156,000	75,000
4,750		MK-1	128,000	47,000	7,900		MK-1	156,000	75,000
4,760	3/16	MK-1	133,000	52,000	7,940	5/16	MK-1	156,000	75,000
4,800		MK-1	133,000	52,000	8,000		MK-1	156,000	75,000
5,000		MK-1	133,000	52,000	8,050		MK-1	156,000	75,000
5,100		MK-1	133,000	52,000	8,100		MK-1	156,000	75,000
5,160	13/64	MK-1	133,000	52,000	8,200		MK-1	156,000	75,000
5,200		MK-1	133,000	52,000	8,250		MK-1	156,000	75,000
5,250		MK-1	133,000	52,000	8,300		MK-1	156,000	75,000
5,300		MK-1	133,000	52,000	8,330	21/64	MK-1	156,000	75,000
5,500		MK-1	138,000	57,000	8,400		MK-1	156,000	75,000
5,560	7/32	MK-1	138,000	57,000	8,500		MK-1	156,000	75,000
5,600		MK-1	138,000	57,000	8,600		MK-1	162,000	81,000
5,700		MK-1	138,000	57,000	8,700		MK-1	162,000	81,000
5,750		MK-1	138,000	57,000	8,730	11/32	MK-1	162,000	81,000
5,800		MK-1	138,000	57,000	8,750		MK-1	162,000	81,000
5,900		MK-1	138,000	57,000	8,800		MK-1	162,000	81,000



d1		S	l1	l2
mm	inch		mm	mm
8,900		MK-1	162,000	81,000
9,000		MK-1	162,000	81,000
9,050		MK-1	162,000	81,000
9,100		MK-1	162,000	81,000
9,130	23/64	MK-1	162,000	81,000
9,200		MK-1	162,000	81,000
9,250		MK-1	162,000	81,000
9,300		MK-1	162,000	81,000
9,500		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
9,750		MK-1	168,000	87,000
9,800		MK-1	168,000	87,000
9,900		MK-1	168,000	87,000
9,920	25/64	MK-1	168,000	87,000
10,000		MK-1	168,000	87,000
10,100		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
10,250		MK-1	168,000	87,000
10,300		MK-1	168,000	87,000
10,320	13/32	MK-1	168,000	87,000
10,400		MK-1	168,000	87,000
10,500		MK-1	168,000	87,000
10,520		MK-1	168,000	87,000
10,600		MK-1	168,000	87,000
10,700		MK-1	175,000	94,000
10,720	27/64	MK-1	175,000	94,000
10,750		MK-1	175,000	94,000
10,800		MK-1	175,000	94,000
10,900		MK-1	175,000	94,000
11,000		MK-1	175,000	94,000
11,100		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
11,200		MK-1	175,000	94,000
11,250		MK-1	175,000	94,000
11,300		MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
11,600		MK-1	175,000	94,000
11,700		MK-1	175,000	94,000
11,750		MK-1	175,000	94,000
11,800		MK-1	175,000	94,000
11,900		MK-1	182,000	101,000
11,910	15/32	MK-1	182,000	101,000
12,000		MK-1	182,000	101,000
12,100		MK-1	182,000	101,000
12,200		MK-1	182,000	101,000
12,250		MK-1	182,000	101,000
12,300	31/64	MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
12,550		MK-1	182,000	101,000
12,600		MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
12,750		MK-1	182,000	101,000
12,800		MK-1	182,000	101,000
12,900		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,100	33/64	MK-1	182,000	101,000
13,200		MK-1	182,000	101,000
13,250		MK-1	189,000	108,000
13,300		MK-1	189,000	108,000
13,490	17/32	MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
13,600		MK-1	189,000	108,000
13,700		MK-1	189,000	108,000
13,750		MK-1	189,000	108,000
13,800		MK-1	189,000	108,000
13,890	35/64	MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,050		MK-2	212,000	114,000
14,100		MK-2	212,000	114,000
14,200		MK-2	212,000	114,000
14,250		MK-2	212,000	114,000
14,290	9/16	MK-2	212,000	114,000

d1		S	l1	l2
mm	inch		mm	mm
14,300		MK-2	212,000	114,000
14,400		MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
14,600		MK-2	212,000	114,000
14,680	37/64	MK-2	212,000	114,000
14,700		MK-2	212,000	114,000
14,750		MK-2	212,000	114,000
14,800		MK-2	212,000	114,000
14,900		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,080	19/32	MK-2	218,000	120,000
15,100		MK-2	218,000	120,000
15,200		MK-2	218,000	120,000
15,250		MK-2	218,000	120,000
15,300		MK-2	218,000	120,000
15,400		MK-2	218,000	120,000
15,500		MK-2	218,000	120,000
15,600		MK-2	218,000	120,000
15,700		MK-2	218,000	120,000
15,750		MK-2	218,000	120,000
15,800		MK-2	218,000	120,000
15,870	5/8	MK-2	218,000	120,000
15,900		MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,100		MK-2	223,000	125,000
16,200		MK-2	223,000	125,000
16,250		MK-2	223,000	125,000
16,270	41/64	MK-2	223,000	125,000
16,300		MK-2	223,000	125,000
16,400		MK-2	223,000	125,000
16,500		MK-2	223,000	125,000
16,670	21/32	MK-2	223,000	125,000
16,700		MK-2	223,000	125,000
16,750		MK-2	223,000	125,000
16,800		MK-2	223,000	125,000
17,000		MK-2	223,000	125,000
17,070	43/64	MK-2	228,000	130,000
17,100		MK-2	228,000	130,000
17,250		MK-2	228,000	130,000
17,300		MK-2	228,000	130,000
17,400		MK-2	228,000	130,000
17,460	11/16	MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
17,600		MK-2	228,000	130,000
17,700		MK-2	228,000	130,000
17,750		MK-2	228,000	130,000
17,800		MK-2	228,000	130,000
17,860	45/64	MK-2	228,000	130,000
17,900		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
18,100		MK-2	233,000	135,000
18,200		MK-2	233,000	135,000
18,250		MK-2	233,000	135,000
18,260	23/32	MK-2	233,000	135,000
18,300		MK-2	233,000	135,000
18,500		MK-2	233,000	135,000
18,650	47/64	MK-2	233,000	135,000
18,750		MK-2	233,000	135,000
18,800		MK-2	233,000	135,000
18,900		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
19,050	3/4	MK-2	238,000	140,000
19,100		MK-2	238,000	140,000
19,200		MK-2	238,000	140,000
19,250		MK-2	238,000	140,000
19,450	49/64	MK-2	238,000	140,000
19,500		MK-2	238,000	140,000
19,700		MK-2	238,000	140,000
19,750		MK-2	238,000	140,000
19,800		MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000

Punte con codolo conico Morse



d1		S	l1	l2
mm	inch		mm	mm
53,400		MK-5	417,000	230,000
54,000		MK-5	417,000	230,000
55,000		MK-5	417,000	230,000
56,000		MK-5	417,000	230,000
57,000		MK-5	422,000	235,000
58,000		MK-5	422,000	235,000
59,000		MK-5	422,000	235,000
60,000		MK-5	422,000	235,000
61,000		MK-5	427,000	240,000
62,000		MK-5	427,000	240,000
63,000		MK-5	427,000	240,000
63,500	2 1/2	MK-5	432,000	245,000
65,000		MK-5	432,000	245,000
66,670	2 5/8	MK-5	432,000	245,000
67,500		MK-5	437,000	250,000
68,000		MK-5	437,000	250,000
69,850	2 3/4	MK-5	437,000	250,000
70,000		MK-5	437,000	250,000

d1		S	l1	l2
mm	inch		mm	mm
71,500		MK-5	442,000	255,000
72,000		MK-5	442,000	255,000
75,000		MK-5	442,000	255,000
76,990	3 1/32	MK-6	514,000	260,000
77,000		MK-6	514,000	260,000
77,790	3 1/16	MK-6	514,000	260,000
78,580	3 3/32	MK-6	514,000	260,000
79,500		MK-6	514,000	260,000
87,310	3 7/16	MK-6	524,000	270,000
89,000		MK-6	524,000	270,000
92,500		MK-6	529,000	275,000
93,000		MK-6	529,000	275,000
94,000		MK-6	529,000	275,000
94,500		MK-6	529,000	275,000
95,250	3 3/4	MK-6	534,000	280,000
95,500		MK-6	534,000	280,000
96,000		MK-6	534,000	280,000

Punte con codolo
conico Morse



Punte elicoidali

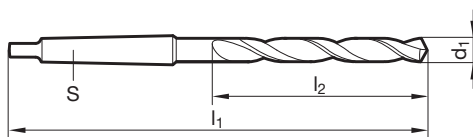


- P** • Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • per lavori grossolani in carpenteria
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati)
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 778

Materiale tagliente	HSS
Superficie	$\frac{+0}{-16,0}$
Direzione di taglio	R



Articolo nr. **592**

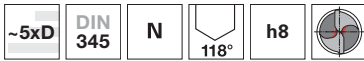
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-1	168,000	87,000
10,320	13/32	MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
11,910	15/32	MK-1	182,000	101,000
12,000		MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,490	17/32	MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000

d1		S	l1	l2
mm	inch		mm	mm
14,290	9/16	MK-2	212,000	114,000
15,080	19/32	MK-2	218,000	120,000
17,000		MK-2	223,000	125,000
18,000		MK-2	228,000	130,000
19,050	3/4	MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
21,430	27/32	MK-2	248,000	150,000
22,000		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
28,000		MK-3	291,000	170,000



Punte elicoidali

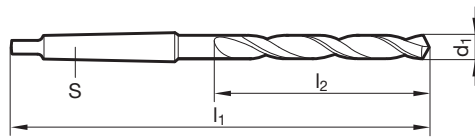


- P** • Assott. del nocc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	S
Direzione di taglio	R

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **654**

Punte con codolo conico Morse

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
3,000		MK-1	114,000	33,000	11,110	7/16	MK-1	175,000	94,000
3,170	1/8	MK-1	117,000	36,000	11,200		MK-1	175,000	94,000
3,500		MK-1	120,000	39,000	11,250		MK-1	175,000	94,000
3,970	5/32	MK-1	124,000	43,000	11,500		MK-1	175,000	94,000
4,000		MK-1	124,000	43,000	11,510	29/64	MK-1	175,000	94,000
4,100		MK-1	124,000	43,000	11,750		MK-1	175,000	94,000
4,370	11/64	MK-1	128,000	47,000	11,910	15/32	MK-1	182,000	101,000
4,500		MK-1	128,000	47,000	12,000		MK-1	182,000	101,000
4,760	3/16	MK-1	133,000	52,000	12,200		MK-1	182,000	101,000
5,000		MK-1	133,000	52,000	12,400		MK-1	182,000	101,000
5,160	13/64	MK-1	133,000	52,000	12,500		MK-1	182,000	101,000
5,560	7/32	MK-1	138,000	57,000	12,700	1/2	MK-1	182,000	101,000
6,000		MK-1	138,000	57,000	12,750		MK-1	182,000	101,000
6,500		MK-1	144,000	63,000	13,000		MK-1	182,000	101,000
6,750	17/64	MK-1	150,000	69,000	13,250		MK-1	189,000	108,000
6,800		MK-1	150,000	69,000	13,490	17/32	MK-1	189,000	108,000
7,000		MK-1	150,000	69,000	13,500		MK-1	189,000	108,000
7,100		MK-1	150,000	69,000	13,890	35/64	MK-1	189,000	108,000
7,140	9/32	MK-1	150,000	69,000	14,000		MK-1	189,000	108,000
7,400		MK-1	150,000	69,000	14,200		MK-2	212,000	114,000
7,700		MK-1	156,000	75,000	14,250		MK-2	212,000	114,000
8,000		MK-1	156,000	75,000	14,290	9/16	MK-2	212,000	114,000
8,500		MK-1	156,000	75,000	14,500		MK-2	212,000	114,000
8,730	11/32	MK-1	162,000	81,000	14,680	37/64	MK-2	212,000	114,000
8,800		MK-1	162,000	81,000	14,750		MK-2	212,000	114,000
9,000		MK-1	162,000	81,000	14,900		MK-2	212,000	114,000
9,400		MK-1	162,000	81,000	15,000		MK-2	212,000	114,000
9,520	3/8	MK-1	168,000	87,000	15,250		MK-2	218,000	120,000
9,600		MK-1	168,000	87,000	15,500		MK-2	218,000	120,000
9,750		MK-1	168,000	87,000	15,750		MK-2	218,000	120,000
9,800		MK-1	168,000	87,000	15,870	5/8	MK-2	218,000	120,000
10,000		MK-1	168,000	87,000	16,000		MK-2	218,000	120,000
10,200		MK-1	168,000	87,000	16,200		MK-2	223,000	125,000
10,250		MK-1	168,000	87,000	16,500		MK-2	223,000	125,000
10,300		MK-1	168,000	87,000	17,000		MK-2	223,000	125,000
10,320	13/32	MK-1	168,000	87,000	17,070	43/64	MK-2	228,000	130,000
10,400		MK-1	168,000	87,000	17,250		MK-2	228,000	130,000
10,500		MK-1	168,000	87,000	17,500		MK-2	228,000	130,000
10,720	27/64	MK-1	175,000	94,000	17,750		MK-2	228,000	130,000
10,750		MK-1	175,000	94,000	18,000		MK-2	228,000	130,000
10,800		MK-1	175,000	94,000	18,250		MK-2	233,000	135,000
11,000		MK-1	175,000	94,000	18,260	23/32	MK-2	233,000	135,000



d1		S	l1	l2
mm	inch		mm	mm
18,500		MK-2	233,000	135,000
18,650	47/64	MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
19,050	3/4	MK-2	238,000	140,000
19,450	49/64	MK-2	238,000	140,000
19,500		MK-2	238,000	140,000
19,750		MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
20,250		MK-2	243,000	145,000
20,500		MK-2	243,000	145,000
20,640	13/16	MK-2	243,000	145,000
20,750		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
21,250		MK-2	248,000	150,000
21,500		MK-2	248,000	150,000
21,750		MK-2	248,000	150,000
21,830	55/64	MK-2	248,000	150,000
22,000		MK-2	248,000	150,000
22,220	7/8	MK-2	248,000	150,000
22,500		MK-2	253,000	155,000
23,000		MK-2	253,000	155,000
23,500		MK-3	276,000	155,000
23,750		MK-3	281,000	160,000

d1		S	l1	l2
mm	inch		mm	mm
24,000		MK-3	281,000	160,000
24,500		MK-3	281,000	160,000
24,750		MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
25,400	1	MK-3	286,000	165,000
25,500		MK-3	286,000	165,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
27,000		MK-3	291,000	170,000
27,380	1 5/64	MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
28,570	1 1/8	MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
29,500		MK-3	296,000	175,000
29,750		MK-3	296,000	175,000
30,000		MK-3	296,000	175,000
30,500		MK-3	301,000	180,000
31,000		MK-3	301,000	180,000

Punte con codolo
conico Morse



Punte elicoidali



- P** • Assott. del nocc. $\geq \varnothing 14,750$ • spoglia sul cono tagliente
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

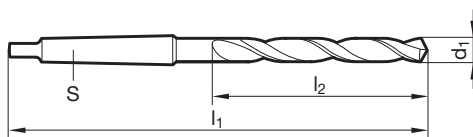
Materiale tagliente **HSS**

Superficie

Direzione di taglio

GUHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **248**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
6,000		MK-1	138,000	57,000
8,000		MK-1	156,000	75,000
8,100		MK-1	156,000	75,000
8,400		MK-1	156,000	75,000
8,500		MK-1	156,000	75,000
9,000		MK-1	162,000	81,000
10,500		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
13,000		MK-1	182,000	101,000
14,000		MK-1	189,000	108,000
15,000		MK-2	212,000	114,000
17,200		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
25,500		MK-3	286,000	165,000
28,000		MK-3	291,000	170,000

d1		S	l1	l2
mm	inch		mm	mm
29,000		MK-3	296,000	175,000
30,500		MK-3	301,000	180,000
32,500		MK-4	334,000	185,000
33,000		MK-4	334,000	185,000
34,000		MK-4	339,000	190,000
38,000		MK-4	349,000	200,000
40,000		MK-4	349,000	200,000
60,000		MK-5	422,000	235,000



Punte elicoidali



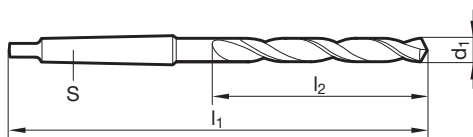
P • Assott. del nocc. $\geq \varnothing 8,500$ • spoglia sul cono tagliente • rottura del truciolo migliorata grazie a speciali rompitruciolo • especially suitable for rotary transfer machines

- M**
- K** •
- N** ○ materiali a truciolo lungo
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 778

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)



Articolo nr. **229**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,500		MK-1	156,000	75,000
8,730	11/32	MK-1	162,000	81,000
9,000		MK-1	162,000	81,000
9,500		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,910	15/32	MK-1	182,000	101,000
12,250		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,250		MK-1	189,000	108,000
13,490	17/32	MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,290	9/16	MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,080	19/32	MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
18,000		MK-2	228,000	130,000
18,250		MK-2	233,000	135,000
19,500		MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
20,640	13/16	MK-2	243,000	145,000

d1		S	l1	l2
mm	inch		mm	mm
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
22,220	7/8	MK-2	248,000	150,000
23,810	15/16	MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
25,400	1	MK-3	286,000	165,000
26,000		MK-3	286,000	165,000
26,190	1 1/32	MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
35,000		MK-4	339,000	190,000
39,500		MK-4	349,000	200,000
42,500		MK-4	354,000	205,000
43,500		MK-4	359,000	210,000
46,040	1 13/16	MK-4	364,000	215,000
46,500		MK-4	364,000	215,000
47,500		MK-4	364,000	215,000
56,000		MK-5	417,000	230,000
57,000		MK-5	422,000	235,000
58,000		MK-5	422,000	235,000
59,000		MK-5	422,000	235,000



Punte elicoidali



Materiale tagliente **HSS**

Superficie

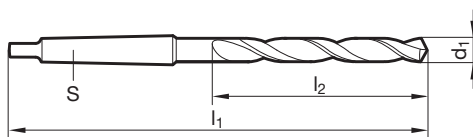
Direzione di taglio

P Assott. del nocc. $\geq \varnothing 14,500$ • spoglia sul cono tagliente

- M**
- K**
- N** • materiali duri e secchi • ottone, leghe di magnesio • bronze, bronzo fosforoso • ardesia, mica, pertinax
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **246**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
6,700		MK-1	144,000	63,000
8,200		MK-1	156,000	75,000
11,000		MK-1	175,000	94,000
11,750		MK-1	175,000	94,000
12,600		MK-1	182,000	101,000
12,800		MK-1	182,000	101,000
13,750		MK-1	189,000	108,000
14,500		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,500		MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,500		MK-2	223,000	125,000

d1		S	l1	l2
mm	inch		mm	mm
17,000		MK-2	223,000	125,000
20,500		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
22,250		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
25,000	63/64	MK-3	281,000	160,000
25,250		MK-3	286,000	165,000



Punte elicoidali



P Assott. del nocc. $\geq \varnothing 14,100$ • spoglia sul cono tagliente

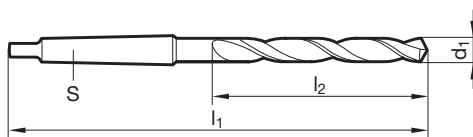


N • materiali teneri a truciolo lungo • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron

GÜHRING NAVIGATOR

Dati di taglio a pag. 778

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ



Articolo nr. **247**

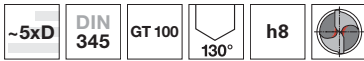
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
3,200		MK-1	117,000	36,000
3,300		MK-1	117,000	36,000
3,800		MK-1	124,000	43,000
4,000		MK-1	124,000	43,000
5,000		MK-1	133,000	52,000
5,400		MK-1	138,000	57,000
5,500		MK-1	138,000	57,000
6,000		MK-1	138,000	57,000
6,300		MK-1	144,000	63,000
6,500		MK-1	144,000	63,000
6,600		MK-1	144,000	63,000
6,750	17/64	MK-1	150,000	69,000
6,800		MK-1	150,000	69,000
7,000		MK-1	150,000	69,000
7,500		MK-1	150,000	69,000
7,750		MK-1	156,000	75,000
8,000		MK-1	156,000	75,000
9,200		MK-1	162,000	81,000
9,500		MK-1	162,000	81,000
9,750		MK-1	168,000	87,000
9,800		MK-1	168,000	87,000
12,000		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000

d1		S	l1	l2
mm	inch		mm	mm
13,200		MK-1	182,000	101,000
14,000		MK-1	189,000	108,000
16,000		MK-2	218,000	120,000
17,000		MK-2	223,000	125,000
18,000		MK-2	228,000	130,000
18,500		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
20,000		MK-2	238,000	140,000
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
27,000		MK-3	291,000	170,000
27,200		MK-3	291,000	170,000
27,250		MK-3	291,000	170,000
27,500		MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
30,300		MK-3	301,000	180,000
30,500		MK-3	301,000	180,000
31,000		MK-3	301,000	180,000
31,500		MK-3	301,000	180,000
32,000		MK-4	334,000	185,000



Punte elicoidali



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 7,940$ • spoglia sul cono tagliente • scanalature larghe • specifiche per prof. di foro oltre 3xD

M

K •

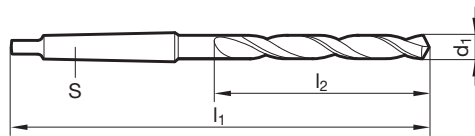
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **558**

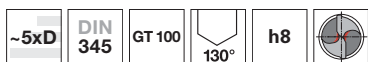
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
7,940	5/16	MK-1	156,000	75,000
8,000		MK-1	156,000	75,000
8,250		MK-1	156,000	75,000
9,500		MK-1	162,000	81,000
10,000		MK-1	168,000	87,000
10,250		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
12,700	1/2	MK-1	182,000	101,000
12,750		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,250		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,290	9/16	MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
19,500		MK-2	238,000	140,000

d1		S	l1	l2
mm	inch		mm	mm
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
21,250		MK-2	248,000	150,000
27,500		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
28,570	1 1/8	MK-3	296,000	175,000
29,500		MK-3	296,000	175,000
30,160	1 3/16	MK-3	301,000	180,000
30,500		MK-3	301,000	180,000
31,500		MK-3	301,000	180,000
31,750	1 1/4	MK-3	306,000	185,000



Punte elicoidali



Materiale tagliente **HSS**

Superficie **S**

Direzione di taglio **R**

P • Assott. del nocc. $\geq \varnothing 7,940$ • spoglia sul cono tagliente • scanalature larghe • specifiche per prof. di foro oltre 3xD

M

K •

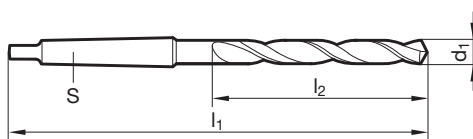
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **606**

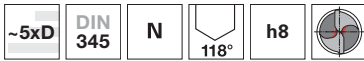
d1		S	l1	l2
mm	inch		mm	mm
7,940	5/16	MK-1	156,000	75,000
8,750		MK-1	162,000	81,000
9,000		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
10,000		MK-1	168,000	87,000
11,110	7/16	MK-1	175,000	94,000
12,250		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
12,750		MK-1	182,000	101,000
14,000		MK-1	189,000	108,000
14,500		MK-2	212,000	114,000
15,750		MK-2	218,000	120,000

d1		S	l1	l2
mm	inch		mm	mm
15,870	5/8	MK-2	218,000	120,000
17,500		MK-2	228,000	130,000
23,500		MK-3	276,000	155,000
23,810	15/16	MK-3	281,000	160,000
25,400	1	MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
28,570	1 1/8	MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
31,500		MK-3	301,000	180,000

Punte con codolo conico Morse



Punte elicoidali

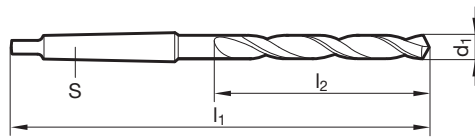


- P** ● Assott. del nocc. $\geq \varnothing 3,000$ ● spoglia sul cono tagliente ● acciaio HSS legato al Co ● massima resistenza all'usura
- M** ○
- K** ●
- N** ○ acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm² ● acciai per lavorazioni a caldo e a freddo ● acciai per cuscinetti ● acciai legati in alta percentuale ● acciai da bonifica e da cementazione
- S** ○
- H** ○

Materiale tagliente	HSCO
Superficie	●
Direzione di taglio	Ⓜ

GUHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **345**

Punte con codolo conico Morse

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
4,000		MK-1	124,000	43,000	12,700	1/2	MK-1	182,000	101,000
5,000		MK-1	133,000	52,000	12,750		MK-1	182,000	101,000
5,200		MK-1	133,000	52,000	13,000		MK-1	182,000	101,000
5,500		MK-1	138,000	57,000	13,100	33/64	MK-1	182,000	101,000
6,000		MK-1	138,000	57,000	13,200		MK-1	182,000	101,000
6,500		MK-1	144,000	63,000	13,250		MK-1	189,000	108,000
6,700		MK-1	144,000	63,000	13,490	17/32	MK-1	189,000	108,000
6,750	17/64	MK-1	150,000	69,000	13,500		MK-1	189,000	108,000
6,800		MK-1	150,000	69,000	13,700		MK-1	189,000	108,000
7,000		MK-1	150,000	69,000	13,750		MK-1	189,000	108,000
7,500		MK-1	150,000	69,000	13,800		MK-1	189,000	108,000
8,000		MK-1	156,000	75,000	13,900		MK-1	189,000	108,000
8,200		MK-1	156,000	75,000	14,000		MK-1	189,000	108,000
8,500		MK-1	156,000	75,000	14,100		MK-2	212,000	114,000
8,700		MK-1	162,000	81,000	14,200		MK-2	212,000	114,000
9,000		MK-1	162,000	81,000	14,250		MK-2	212,000	114,000
9,500		MK-1	162,000	81,000	14,290	9/16	MK-2	212,000	114,000
9,520	3/8	MK-1	168,000	87,000	14,500		MK-2	212,000	114,000
10,000		MK-1	168,000	87,000	14,750		MK-2	212,000	114,000
10,100		MK-1	168,000	87,000	15,000		MK-2	212,000	114,000
10,150		MK-1	168,000	87,000	15,080	19/32	MK-2	218,000	120,000
10,200		MK-1	168,000	87,000	15,250		MK-2	218,000	120,000
10,250		MK-1	168,000	87,000	15,500		MK-2	218,000	120,000
10,320	13/32	MK-1	168,000	87,000	15,750		MK-2	218,000	120,000
10,500		MK-1	168,000	87,000	15,870	5/8	MK-2	218,000	120,000
10,700		MK-1	175,000	94,000	16,000		MK-2	218,000	120,000
10,720	27/64	MK-1	175,000	94,000	16,100		MK-2	223,000	125,000
10,750		MK-1	175,000	94,000	16,250		MK-2	223,000	125,000
10,800		MK-1	175,000	94,000	16,270	41/64	MK-2	223,000	125,000
11,000		MK-1	175,000	94,000	16,500		MK-2	223,000	125,000
11,110	7/16	MK-1	175,000	94,000	16,670	21/32	MK-2	223,000	125,000
11,200		MK-1	175,000	94,000	16,750		MK-2	223,000	125,000
11,500		MK-1	175,000	94,000	17,000		MK-2	223,000	125,000
11,600		MK-1	175,000	94,000	17,460	11/16	MK-2	228,000	130,000
11,750		MK-1	175,000	94,000	17,500		MK-2	228,000	130,000
11,800		MK-1	175,000	94,000	17,750		MK-2	228,000	130,000
11,900		MK-1	182,000	101,000	17,860	45/64	MK-2	228,000	130,000
12,000		MK-1	182,000	101,000	18,000		MK-2	228,000	130,000
12,100		MK-1	182,000	101,000	18,200		MK-2	233,000	135,000
12,200		MK-1	182,000	101,000	18,250		MK-2	233,000	135,000
12,250		MK-1	182,000	101,000	18,260	23/32	MK-2	233,000	135,000
12,500		MK-1	182,000	101,000	18,500		MK-2	233,000	135,000



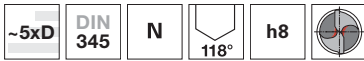
Punte con codolo
conico Morse

d1		S	l1	l2
mm	inch		mm	mm
18,650	47/64	MK-2	233,000	135,000
18,750		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
19,050	3/4	MK-2	238,000	140,000
19,250		MK-2	238,000	140,000
19,500		MK-2	238,000	140,000
19,750		MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
20,250		MK-2	243,000	145,000
20,500	13/16	MK-2	243,000	145,000
20,640		MK-2	243,000	145,000
20,750		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
21,250		MK-2	248,000	150,000
21,500		MK-2	248,000	150,000
22,000		MK-2	248,000	150,000
22,220	7/8	MK-2	248,000	150,000
22,250		MK-2	248,000	150,000
22,500		MK-2	253,000	155,000
22,620	57/64	MK-2	253,000	155,000
23,000		MK-2	253,000	155,000
23,020	29/32	MK-2	253,000	155,000
23,500		MK-3	276,000	155,000
24,000	61/64	MK-3	281,000	160,000
24,210		MK-3	281,000	160,000
24,500		MK-3	281,000	160,000
25,000		MK-3	281,000	160,000
25,250	63/64	MK-3	286,000	165,000
25,400		MK-3	286,000	165,000

d1		S	l1	l2
mm	inch		mm	mm
25,500		MK-3	286,000	165,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
27,000		MK-3	291,000	170,000
27,500	1 1/8	MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
28,570		MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
29,500		MK-3	296,000	175,000
30,000		MK-3	296,000	175,000
30,500	1 1/4	MK-3	301,000	180,000
31,000		MK-3	301,000	180,000
31,500		MK-3	301,000	180,000
31,750		MK-3	306,000	185,000
32,000		MK-4	334,000	185,000
32,500		MK-4	334,000	185,000
33,000		MK-4	334,000	185,000
34,000	1 21/32	MK-4	339,000	190,000
35,000		MK-4	339,000	190,000
36,000		MK-4	344,000	195,000
37,000		MK-4	344,000	195,000
38,000		MK-4	349,000	200,000
39,000		MK-4	349,000	200,000
40,000		MK-4	349,000	200,000
42,000		MK-4	354,000	205,000
42,070		MK-4	354,000	205,000
43,000		MK-4	359,000	210,000
45,000	MK-4	359,000	210,000	
50,000	MK-4	369,000	220,000	



Punte elicoidali



Materiale tagliente **HSCO**

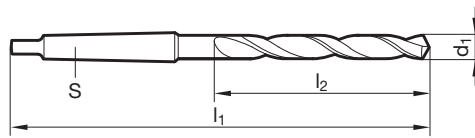
Superficie **S**

Direzione di taglio **R**

- P** ● Assott. del nocc. $\geq \varnothing 7,940$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ○
- K** ●
- N** ○ acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** ○ • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 782



Articolo nr. **661**

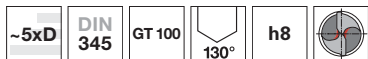
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-1	156,000	75,000
8,500		MK-1	156,000	75,000
9,000		MK-1	162,000	81,000
9,500		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
10,000		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
12,000		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,500		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,500		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
16,000		MK-2	218,000	120,000
17,000		MK-2	223,000	125,000
17,070	43/64	MK-2	228,000	130,000

d1		S	l1	l2
mm	inch		mm	mm
17,460	11/16	MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
19,000		MK-2	233,000	135,000
19,500		MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
23,810	15/16	MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
29,000		MK-3	296,000	175,000
30,000		MK-3	296,000	175,000



Punte elicoidali

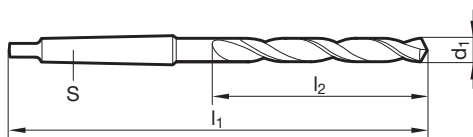


- P** • Assott. del nocc. $\geq \varnothing 9,520$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura
- M** ○ • specifiche per prof. di foro oltre 3xD
- K** •
- N** ○ acciai legati e non legati e tipi di ghisa con R superiore a 1000 N/mm²
- S** ○ • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 780

Materiale tagliente	HSCO
Superficie	$\frac{+0}{-16,0}$
Direzione di taglio	(R)



Articolo nr. **645**

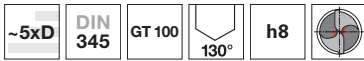
d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-1	168,000	87,000
10,100		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
10,500		MK-1	168,000	87,000
10,720	27/64	MK-1	175,000	94,000
10,800		MK-1	175,000	94,000
11,000		MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
11,510	29/64	MK-1	175,000	94,000
12,000		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,300		MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,250		MK-2	212,000	114,000
14,290	9/16	MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,250		MK-2	218,000	120,000
15,500		MK-2	218,000	120,000
15,750		MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,500		MK-2	223,000	125,000
16,670	21/32	MK-2	223,000	125,000
17,000		MK-2	223,000	125,000
17,250		MK-2	228,000	130,000
17,460	11/16	MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000

d1		S	l1	l2
mm	inch		mm	mm
18,250		MK-2	233,000	135,000
18,500		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
22,220	7/8	MK-2	248,000	150,000
22,620	57/64	MK-2	253,000	155,000
23,000		MK-2	253,000	155,000
24,000		MK-3	281,000	160,000
24,210	61/64	MK-3	281,000	160,000
24,610	31/32	MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
27,780	1 3/32	MK-3	291,000	170,000
28,570	1 1/8	MK-3	296,000	175,000
30,000		MK-3	296,000	175,000
31,000		MK-3	301,000	180,000
33,000		MK-4	334,000	185,000
35,000		MK-4	339,000	190,000
37,000		MK-4	344,000	195,000
38,000		MK-4	349,000	200,000
39,000		MK-4	349,000	200,000

Punte con codolo conico Morse



Punte elicoidali

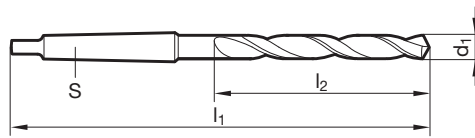


- P** ● Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura
- M** ○ • specifiche per prof. di foro oltre 3xD
- K** ●
- N** ○ acciai legati e non legati e tipi di ghisa con R superiore a 1000 N/mm²
- S** ○ • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

Materiale tagliente	HSCO
Superficie	S
Direzione di taglio	R

GUHRING NAVIGATOR

Dati di taglio a pag. 782



Articolo nr. **662**

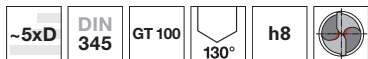
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
11,400		MK-1	175,000	94,000
12,200		MK-1	182,000	101,000
12,300	31/64	MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
14,000		MK-1	189,000	108,000
14,290	9/16	MK-2	212,000	114,000
15,000		MK-2	212,000	114,000

d1		S	l1	l2
mm	inch		mm	mm
16,000		MK-2	218,000	120,000
17,460	11/16	MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
23,500		MK-3	276,000	155,000
23,810	15/16	MK-3	281,000	160,000



Punte elicoidali

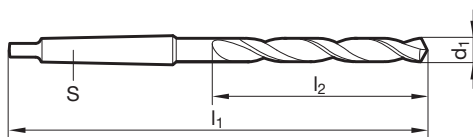


- P** • Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • specifiche per prof. di foro oltre 3xD
- M** •
- K** ○
- N** acciai legati e non legati e tipi di ghisa con R superiore a 1000 N/mm² • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- S** •
- H** •

GÜHRING NAVIGATOR

Dati di taglio a pag. 782

Materiale tagliente	HSCO
Superficie	G
Direzione di taglio	R



Articolo nr. **1222**

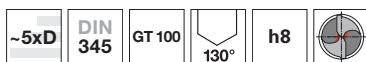
d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
12,500		MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
14,200		MK-2	212,000	114,000
15,870	5/8	MK-2	218,000	120,000
16,500		MK-2	223,000	125,000
16,670	21/32	MK-2	223,000	125,000
17,460	11/16	MK-2	228,000	130,000
19,500		MK-2	238,000	140,000

d1		S	l1	l2
mm	inch		mm	mm
23,500		MK-3	276,000	155,000
23,810	15/16	MK-3	281,000	160,000
25,500		MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
27,500		MK-3	291,000	170,000
29,500		MK-3	296,000	175,000
30,160	1 3/16	MK-3	301,000	180,000

Punte con codolo conico Morse



Punte elicoidali



- P** ○ Assott. del nocc. $\geq \varnothing 10,400$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • specifiche per prof. di foro oltre 3xD
- M** ○
- K** ●
- N** ○ acciai legati e non legati e tipi di ghisa con R superiore a 1000 N/mm² • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- S** ○
- H** ○

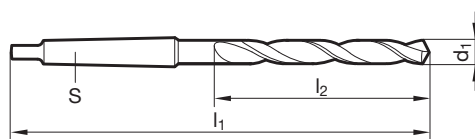
Materiale tagliente **HSCO**

Superficie **A**

Direzione di taglio **R**

GUHRING NAVIGATOR

Dati di taglio a pag. 782



Articolo nr. **1224**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
10,400		MK-1	168,000	87,000
11,110	7/16	MK-1	175,000	94,000
12,300	31/64	MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
14,200		MK-2	212,000	114,000
14,290	9/16	MK-2	212,000	114,000
15,870	5/8	MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,500		MK-2	223,000	125,000
19,000		MK-2	233,000	135,000
19,500		MK-2	238,000	140,000
23,810	15/16	MK-3	281,000	160,000

d1		S	l1	l2
mm	inch		mm	mm
25,500		MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
27,000		MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
29,500		MK-3	296,000	175,000
30,160	1 3/16	MK-3	301,000	180,000



Punte elicoidali

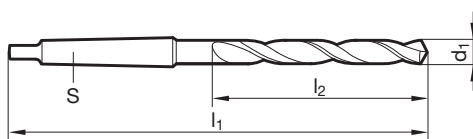


- P** ○ spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ●
- K** ●
- N** ○ acciai inossidabili, resistenti al calore ed austenitici (V2A e V4A)
- S** ○
- H** ●

GÜHRINGNAVIGATOR

Dati di taglio a pag. 780

Materiale tagliente	HSCO
Superficie	○
Direzione di taglio	Ⓜ



Articolo nr. **1262**

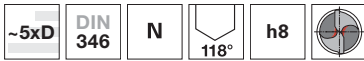
d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
10,500		MK-1	168,000	87,000
10,800		MK-1	175,000	94,000
11,000		MK-1	175,000	94,000
11,200		MK-1	175,000	94,000
11,800		MK-1	175,000	94,000
12,000		MK-1	182,000	101,000
12,300	31/64	MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,490	17/32	MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
13,800		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,250		MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
14,750		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,250		MK-2	218,000	120,000
15,480	39/64	MK-2	218,000	120,000
15,500		MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,250		MK-2	223,000	125,000
16,500		MK-2	223,000	125,000
17,000		MK-2	223,000	125,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
18,500		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000

d1		S	l1	l2
mm	inch		mm	mm
19,500		MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
21,500		MK-2	248,000	150,000
21,750		MK-2	248,000	150,000
22,000		MK-2	248,000	150,000
22,500		MK-2	253,000	155,000
23,000		MK-2	253,000	155,000
23,420	59/64	MK-3	276,000	155,000
24,000		MK-3	281,000	160,000
24,500		MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
25,500		MK-3	286,000	165,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
27,000		MK-3	291,000	170,000
27,500		MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
30,000		MK-3	296,000	175,000
32,000		MK-4	334,000	185,000
34,000		MK-4	339,000	190,000

Punte con codolo conico Morse



Punte elicoidali

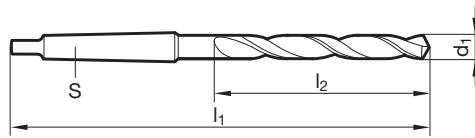


- P** • Assott. del nocc. $\geq \varnothing 14,200$ • spoglia sul cono tagliente • cono Morse rinforzato
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ

GUHRING NAVIGATOR

Dati di taglio a pag. 778



Articolo nr. **251**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-2	185,000	87,000
10,500		MK-2	185,000	87,000
11,000		MK-2	192,000	94,000
11,910	15/32	MK-2	199,000	101,000
12,000		MK-2	199,000	101,000
12,250		MK-2	199,000	101,000
12,500		MK-2	199,000	101,000
13,000		MK-2	199,000	101,000
13,100	33/64	MK-2	199,000	101,000
13,250		MK-2	206,000	108,000
13,490	17/32	MK-2	206,000	108,000
13,500		MK-2	206,000	108,000
13,890	35/64	MK-2	206,000	108,000
14,000		MK-2	206,000	108,000
16,700		MK-3	246,000	125,000
17,000		MK-3	246,000	125,000
17,250		MK-3	251,000	130,000
18,250		MK-3	256,000	135,000
18,260	23/32	MK-3	256,000	135,000
18,650	47/64	MK-3	256,000	135,000
18,750		MK-3	256,000	135,000
19,000		MK-3	256,000	135,000
19,050	3/4	MK-3	261,000	140,000
19,450	49/64	MK-3	261,000	140,000
19,840	25/32	MK-3	261,000	140,000
20,000		MK-3	261,000	140,000
20,250		MK-3	266,000	145,000
20,640	13/16	MK-3	266,000	145,000
21,000		MK-3	266,000	145,000
21,030	53/64	MK-3	266,000	145,000

d1		S	l1	l2
mm	inch		mm	mm
21,430	27/32	MK-3	271,000	150,000
21,500		MK-3	271,000	150,000
22,000		MK-3	271,000	150,000
22,220	7/8	MK-3	271,000	150,000
23,000		MK-3	276,000	155,000
23,020	29/32	MK-3	276,000	155,000
27,500		MK-4	319,000	170,000
27,750		MK-4	319,000	170,000
27,780	1 3/32	MK-4	319,000	170,000
28,000		MK-4	319,000	170,000
28,180	1 7/64	MK-4	324,000	175,000
28,500		MK-4	324,000	175,000
28,570	1 1/8	MK-4	324,000	175,000
28,970	1 9/64	MK-4	324,000	175,000
29,770	1 11/64	MK-4	324,000	175,000
31,500		MK-4	329,000	180,000
32,000		MK-5	372,000	185,000
36,000		MK-5	382,000	195,000
40,080	1 37/64	MK-5	392,000	205,000
41,000		MK-5	392,000	205,000
41,500		MK-5	392,000	205,000
42,070	1 21/32	MK-5	392,000	205,000
44,050	1 47/64	MK-5	397,000	210,000
45,000		MK-5	397,000	210,000
46,040	1 13/16	MK-5	402,000	215,000
47,000		MK-5	402,000	215,000
49,000		MK-5	407,000	220,000
49,500		MK-5	407,000	220,000
73,000		MK-6	509,000	255,000



Punte elicoidali



Materiale tagliente **HSCO**

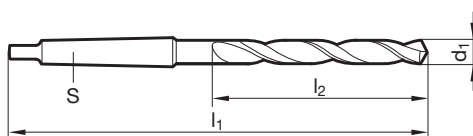
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura • con cono Morse rinforzato
- M** ○
- K** •
- N** • acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 780



Articolo nr. **351**

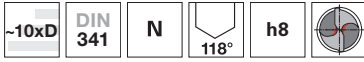
d1		S	l1	l2
mm	inch		mm	mm
12,000		MK-2	199,000	101,000
13,000		MK-2	199,000	101,000
14,000		MK-2	206,000	108,000
17,500		MK-3	251,000	130,000
18,500		MK-3	256,000	135,000
20,000		MK-3	261,000	140,000
21,000		MK-3	266,000	145,000
21,500		MK-3	271,000	150,000
22,750		MK-3	276,000	155,000
23,000		MK-3	276,000	155,000
29,000		MK-4	324,000	175,000
30,000		MK-4	324,000	175,000

d1		S	l1	l2
mm	inch		mm	mm
31,000		MK-4	329,000	180,000
31,500		MK-4	329,000	180,000

Punte con codolo conico Morse



Punte per foratura con bussola di guida



Materiale tagliente **HSS**

Superficie

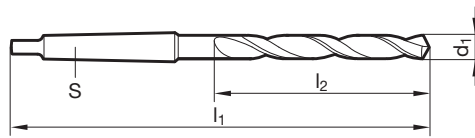
Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 14,100$ • spoglia sul cono tagliente • per forare con bussola di guida

- M**
- K** •
- N** ○ acciaio e ghisa acciainata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **257**

Punte con codolo conico Morse

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
2,900		MK-1	132,000	51,000	9,900		MK-1	197,000	116,000
3,900		MK-1	145,000	64,000	10,000		MK-1	197,000	116,000
4,000		MK-1	145,000	64,000	10,050		MK-1	197,000	116,000
4,100		MK-1	145,000	64,000	10,100		MK-1	197,000	116,000
4,200		MK-1	145,000	64,000	10,200		MK-1	197,000	116,000
4,500		MK-1	150,000	69,000	10,250		MK-1	197,000	116,000
4,700		MK-1	150,000	69,000	10,300		MK-1	197,000	116,000
5,000		MK-1	155,000	74,000	10,400		MK-1	197,000	116,000
5,100		MK-1	155,000	74,000	10,500		MK-1	197,000	116,000
5,200		MK-1	155,000	74,000	10,600		MK-1	197,000	116,000
5,250		MK-1	155,000	74,000	10,700		MK-1	206,000	125,000
5,500		MK-1	161,000	80,000	10,750		MK-1	206,000	125,000
5,800		MK-1	161,000	80,000	10,800		MK-1	206,000	125,000
6,000		MK-1	161,000	80,000	10,900		MK-1	206,000	125,000
6,500		MK-1	167,000	86,000	11,000		MK-1	206,000	125,000
6,700		MK-1	167,000	86,000	11,250		MK-1	206,000	125,000
6,800		MK-1	174,000	93,000	11,400		MK-1	206,000	125,000
7,000		MK-1	174,000	93,000	11,500		MK-1	206,000	125,000
7,100		MK-1	174,000	93,000	11,750		MK-1	206,000	125,000
7,200		MK-1	174,000	93,000	11,800		MK-1	206,000	125,000
7,300		MK-1	174,000	93,000	12,000		MK-1	215,000	134,000
7,400		MK-1	174,000	93,000	12,100		MK-1	215,000	134,000
7,500		MK-1	174,000	93,000	12,200		MK-1	215,000	134,000
7,600		MK-1	181,000	100,000	12,250		MK-1	215,000	134,000
7,800		MK-1	181,000	100,000	12,300	31/64	MK-1	215,000	134,000
8,000		MK-1	181,000	100,000	12,400		MK-1	215,000	134,000
8,050		MK-1	181,000	100,000	12,500		MK-1	215,000	134,000
8,200		MK-1	181,000	100,000	12,600		MK-1	215,000	134,000
8,250		MK-1	181,000	100,000	13,000		MK-1	215,000	134,000
8,500		MK-1	181,000	100,000	13,100	33/64	MK-1	215,000	134,000
8,600		MK-1	188,000	107,000	13,200		MK-1	215,000	134,000
8,750		MK-1	188,000	107,000	13,490	17/32	MK-1	223,000	142,000
8,800		MK-1	188,000	107,000	13,500		MK-1	223,000	142,000
8,900		MK-1	188,000	107,000	13,750		MK-1	223,000	142,000
9,000		MK-1	188,000	107,000	13,900		MK-1	223,000	142,000
9,100		MK-1	188,000	107,000	14,000		MK-1	223,000	142,000
9,300		MK-1	188,000	107,000	14,100		MK-2	245,000	147,000
9,400		MK-1	188,000	107,000	14,250		MK-2	245,000	147,000
9,500		MK-1	188,000	107,000	14,290	9/16	MK-2	245,000	147,000
9,600		MK-1	197,000	116,000	14,300		MK-2	245,000	147,000
9,700		MK-1	197,000	116,000	14,400		MK-2	245,000	147,000
9,800		MK-1	197,000	116,000	14,500		MK-2	245,000	147,000



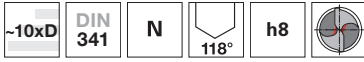
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
14,750		MK-2	245,000	147,000
14,900		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000
15,200		MK-2	251,000	153,000
15,250		MK-2	251,000	153,000
15,500		MK-2	251,000	153,000
15,600		MK-2	251,000	153,000
15,750		MK-2	251,000	153,000
16,000		MK-2	251,000	153,000
16,100		MK-2	257,000	159,000
16,200		MK-2	257,000	159,000
16,250		MK-2	257,000	159,000
16,500		MK-2	257,000	159,000
16,670	21/32	MK-2	257,000	159,000
16,750		MK-2	257,000	159,000
17,000		MK-2	257,000	159,000
17,250		MK-2	263,000	165,000
17,460	11/16	MK-2	263,000	165,000
17,500		MK-2	263,000	165,000
17,750		MK-2	263,000	165,000
18,000		MK-2	263,000	165,000
18,250		MK-2	269,000	171,000
18,500		MK-2	269,000	171,000
18,750		MK-2	269,000	171,000
19,000		MK-2	269,000	171,000
19,500		MK-2	275,000	177,000
19,750		MK-2	275,000	177,000
19,840	25/32	MK-2	275,000	177,000
20,000		MK-2	275,000	177,000
20,250		MK-2	282,000	184,000
20,500		MK-2	282,000	184,000
20,640	13/16	MK-2	282,000	184,000
21,000		MK-2	282,000	184,000
21,500		MK-2	289,000	191,000
21,750		MK-2	289,000	191,000
21,830	55/64	MK-2	289,000	191,000
22,000		MK-2	289,000	191,000
22,220	7/8	MK-2	289,000	191,000
22,250		MK-2	289,000	191,000
22,500		MK-2	296,000	198,000
23,000		MK-2	296,000	198,000
23,500		MK-3	319,000	198,000
23,750		MK-3	327,000	206,000
23,810	15/16	MK-3	327,000	206,000
24,000		MK-3	327,000	206,000
24,250		MK-3	327,000	206,000
24,500		MK-3	327,000	206,000
25,000	63/64	MK-3	327,000	206,000

d1		S	l1	l2
mm	inch		mm	mm
25,250		MK-3	335,000	214,000
25,500		MK-3	335,000	214,000
26,000		MK-3	335,000	214,000
26,500		MK-3	335,000	214,000
26,590	1 3/64	MK-3	343,000	222,000
26,990	1 1/16	MK-3	343,000	222,000
27,000		MK-3	343,000	222,000
27,380	1 5/64	MK-3	343,000	222,000
27,500		MK-3	343,000	222,000
28,000		MK-3	343,000	222,000
28,500		MK-3	351,000	230,000
29,000		MK-3	351,000	230,000
29,500		MK-3	351,000	230,000
30,000		MK-3	351,000	230,000
30,500		MK-3	360,000	239,000
31,000		MK-3	360,000	239,000
32,000		MK-4	397,000	248,000
33,000		MK-4	397,000	248,000
33,500		MK-4	397,000	248,000
34,000		MK-4	406,000	257,000
35,000		MK-4	406,000	257,000
36,000		MK-4	416,000	267,000
36,120	1 27/64	MK-4	416,000	267,000
36,910	1 29/64	MK-4	416,000	267,000
37,000		MK-4	416,000	267,000
37,500		MK-4	416,000	267,000
38,000		MK-4	426,000	277,000
39,000		MK-4	426,000	277,000
39,500		MK-4	426,000	277,000
40,000		MK-4	426,000	277,000
40,080	1 37/64	MK-4	436,000	287,000
40,880	1 39/64	MK-4	436,000	287,000
41,000		MK-4	436,000	287,000
41,670	1 41/64	MK-4	436,000	287,000
42,000		MK-4	436,000	287,000
43,000		MK-4	447,000	298,000
43,660	1 23/32	MK-4	447,000	298,000
44,000		MK-4	447,000	298,000
45,000		MK-4	447,000	298,000
46,830	1 27/32	MK-4	459,000	310,000
48,000		MK-4	470,000	321,000
49,000		MK-4	470,000	321,000
50,000		MK-4	470,000	321,000



Punte elicoidali, corte

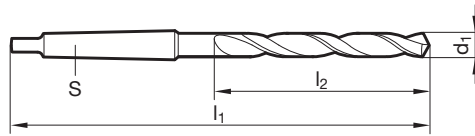


- P** • Assott. del nocc. $\geq \varnothing 4,000$ • spoglia sul cono tagliente • per forare con bussola di guida
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	S
Direzione di taglio	R

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **655**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
5,500		MK-1	161,000	80,000
6,000		MK-1	161,000	80,000
6,800		MK-1	174,000	93,000
7,000		MK-1	174,000	93,000
7,300		MK-1	174,000	93,000
8,000		MK-1	181,000	100,000
8,200		MK-1	181,000	100,000
8,400		MK-1	181,000	100,000
8,500		MK-1	181,000	100,000
8,600		MK-1	188,000	107,000
8,700		MK-1	188,000	107,000
8,800		MK-1	188,000	107,000
9,000		MK-1	188,000	107,000
9,500		MK-1	188,000	107,000
10,000		MK-1	197,000	116,000
10,050		MK-1	197,000	116,000
10,100		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,400		MK-1	197,000	116,000
10,500		MK-1	197,000	116,000
11,000		MK-1	206,000	125,000
11,400		MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
11,750		MK-1	206,000	125,000

d1		S	l1	l2
mm	inch		mm	mm
12,000		MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
13,000		MK-1	215,000	134,000
13,500		MK-1	223,000	142,000
14,000		MK-1	223,000	142,000
14,250		MK-2	245,000	147,000
14,500		MK-2	245,000	147,000
14,750		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000
15,250		MK-2	251,000	153,000
15,870	5/8	MK-2	251,000	153,000
17,000		MK-2	257,000	159,000
17,500		MK-2	263,000	165,000
18,000		MK-2	263,000	165,000
21,000		MK-2	282,000	184,000
22,000		MK-2	289,000	191,000



Punte per foratura con bussola di guida



Materiale tagliente **HSS**

Superficie  $\frac{0}{+0.160}$

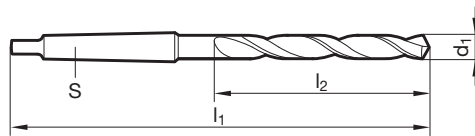
Direzione di taglio 

P • Assott. del nocc. $\geq \varnothing 5,500$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente

- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GÜHRINGNAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **551**

Punte con codolo conico Morse

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
5,500		MK-1	161,000	80,000	13,100	33/64	MK-1	215,000	134,000
5,550		MK-1	161,000	80,000	13,490	17/32	MK-1	223,000	142,000
6,350	1/4	MK-1	167,000	86,000	13,500		MK-1	223,000	142,000
6,500		MK-1	167,000	86,000	13,800		MK-1	223,000	142,000
6,750	17/64	MK-1	174,000	93,000	13,890	35/64	MK-1	223,000	142,000
6,800		MK-1	174,000	93,000	14,000		MK-1	223,000	142,000
7,000		MK-1	174,000	93,000	14,200		MK-2	245,000	147,000
7,500		MK-1	174,000	93,000	14,250		MK-2	245,000	147,000
7,940	5/16	MK-1	181,000	100,000	14,290	9/16	MK-2	245,000	147,000
8,000		MK-1	181,000	100,000	14,500		MK-2	245,000	147,000
8,100		MK-1	181,000	100,000	14,750		MK-2	245,000	147,000
8,200		MK-1	181,000	100,000	15,000		MK-2	245,000	147,000
8,300		MK-1	181,000	100,000	15,250		MK-2	251,000	153,000
8,330	21/64	MK-1	181,000	100,000	15,480	39/64	MK-2	251,000	153,000
8,500		MK-1	181,000	100,000	15,750		MK-2	251,000	153,000
8,600		MK-1	188,000	107,000	16,000		MK-2	251,000	153,000
8,700		MK-1	188,000	107,000	16,500		MK-2	257,000	159,000
8,750		MK-1	188,000	107,000	16,670	21/32	MK-2	257,000	159,000
9,000		MK-1	188,000	107,000	17,000		MK-2	257,000	159,000
9,500		MK-1	188,000	107,000	17,460	11/16	MK-2	263,000	165,000
9,520	3/8	MK-1	197,000	116,000	17,500		MK-2	263,000	165,000
9,800		MK-1	197,000	116,000	18,000		MK-2	263,000	165,000
9,900		MK-1	197,000	116,000	18,260	23/32	MK-2	269,000	171,000
9,920	25/64	MK-1	197,000	116,000	19,000		MK-2	269,000	171,000
10,000		MK-1	197,000	116,000	19,500		MK-2	275,000	177,000
10,200		MK-1	197,000	116,000	19,840	25/32	MK-2	275,000	177,000
10,250		MK-1	197,000	116,000	20,000		MK-2	275,000	177,000
10,320	13/32	MK-1	197,000	116,000	21,000		MK-2	282,000	184,000
10,500		MK-1	197,000	116,000	22,000		MK-2	289,000	191,000
10,750		MK-1	206,000	125,000	23,000		MK-2	296,000	198,000
11,000		MK-1	206,000	125,000	23,020	29/32	MK-2	296,000	198,000
11,110	7/16	MK-1	206,000	125,000	23,500		MK-3	319,000	198,000
11,500		MK-1	206,000	125,000	24,000		MK-3	327,000	206,000
11,510	29/64	MK-1	206,000	125,000	25,000	63/64	MK-3	327,000	206,000
11,750		MK-1	206,000	125,000	26,000		MK-3	335,000	214,000
11,800		MK-1	206,000	125,000	26,590	1 3/64	MK-3	343,000	222,000
12,000		MK-1	215,000	134,000	28,570	1 1/8	MK-3	351,000	230,000
12,300	31/64	MK-1	215,000	134,000	28,900		MK-3	351,000	230,000
12,500		MK-1	215,000	134,000	28,970	1 9/64	MK-3	351,000	230,000
12,700	1/2	MK-1	215,000	134,000	29,000		MK-3	351,000	230,000
12,800		MK-1	215,000	134,000	30,000		MK-3	351,000	230,000
13,000		MK-1	215,000	134,000	30,500		MK-3	360,000	239,000

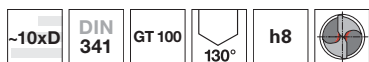


d1		S	l1	l2
mm	inch		mm	mm
30,560	1 13/64	MK-3	360,000	239,000
30,960	1 7/32	MK-3	360,000	239,000
31,000		MK-3	360,000	239,000
31,500		MK-3	360,000	239,000
32,000		MK-4	397,000	248,000

d1		S	l1	l2
mm	inch		mm	mm



Punte per foratura con bussola di guida



Materiale tagliente **HSS**

Superficie **S**

Direzione di taglio **R**

P • Assott. del nocc. $\geq \varnothing 5,600$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente

M

K •

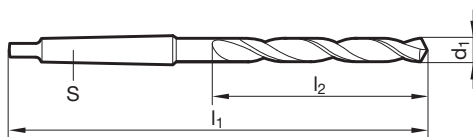
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **656**

d1		S	l1	l2
mm	inch		mm	mm
7,000		MK-1	174,000	93,000
9,000		MK-1	188,000	107,000
9,500		MK-1	188,000	107,000
9,920	25/64	MK-1	197,000	116,000
10,000		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,320	13/32	MK-1	197,000	116,000
10,500		MK-1	197,000	116,000
11,000		MK-1	206,000	125,000
11,110	7/16	MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
12,000		MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
13,000		MK-1	215,000	134,000
13,800		MK-1	223,000	142,000
14,000		MK-1	223,000	142,000
14,500		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000

d1		S	l1	l2
mm	inch		mm	mm
16,000		MK-2	251,000	153,000
16,670	21/32	MK-2	257,000	159,000
17,460	11/16	MK-2	263,000	165,000
17,500		MK-2	263,000	165,000
18,000		MK-2	263,000	165,000
19,050	3/4	MK-2	275,000	177,000
20,500		MK-2	282,000	184,000
20,640	13/16	MK-2	282,000	184,000
21,500		MK-2	289,000	191,000
23,000		MK-2	296,000	198,000

Punte con codolo conico Morse



Punte per foratura con bussola di guida

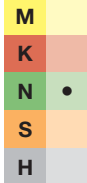


Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

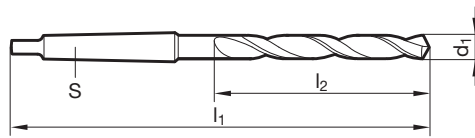
P ○ Assott. del nocc. ≥ Ø 4,200 • spoglia sul cono tagliente • scanalature particolarmente larghe



N • materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (teneri) e legno

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **505**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
5,500		MK-1	161,000	80,000
5,600		MK-1	161,000	80,000
5,800		MK-1	161,000	80,000
6,000		MK-1	161,000	80,000
6,100		MK-1	167,000	86,000
6,300		MK-1	167,000	86,000
6,500		MK-1	167,000	86,000
6,700		MK-1	167,000	86,000
6,800		MK-1	174,000	93,000
7,000		MK-1	174,000	93,000
7,200		MK-1	174,000	93,000
7,300		MK-1	174,000	93,000
7,500		MK-1	174,000	93,000
7,700		MK-1	181,000	100,000
7,950		MK-1	181,000	100,000
8,000		MK-1	181,000	100,000
8,200		MK-1	181,000	100,000
8,300		MK-1	181,000	100,000
8,400		MK-1	181,000	100,000
8,500		MK-1	181,000	100,000
8,600		MK-1	188,000	107,000
9,050		MK-1	188,000	107,000
9,300		MK-1	188,000	107,000
9,500		MK-1	188,000	107,000
9,600		MK-1	197,000	116,000
9,700		MK-1	197,000	116,000
9,800		MK-1	197,000	116,000
10,000		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,250		MK-1	197,000	116,000

d1		S	l1	l2
mm	inch		mm	mm
10,700		MK-1	206,000	125,000
10,750		MK-1	206,000	125,000
10,800		MK-1	206,000	125,000
11,200		MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
11,800		MK-1	206,000	125,000
12,000		MK-1	215,000	134,000
12,200		MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
12,700	1/2	MK-1	215,000	134,000
12,800		MK-1	215,000	134,000
13,250		MK-1	223,000	142,000
13,750		MK-1	223,000	142,000
13,800		MK-1	223,000	142,000
14,200		MK-2	245,000	147,000
14,250		MK-2	245,000	147,000
14,300		MK-2	245,000	147,000
14,500		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000
16,000		MK-2	251,000	153,000
16,500		MK-2	257,000	159,000
16,800		MK-2	257,000	159,000
18,500		MK-2	269,000	171,000
19,250		MK-2	275,000	177,000
21,000		MK-2	282,000	184,000
23,500		MK-3	319,000	198,000
24,000		MK-3	327,000	206,000
29,000		MK-3	351,000	230,000
29,500		MK-3	351,000	230,000



Punte per foratura con bussola di guida

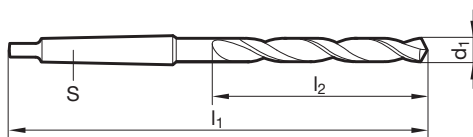


- P** ● Assott. del nocc. $\geq \varnothing 4,750$ ● spoglia sul cono tagliente ● acciaio HSS legato al Co ● massima resistenza all'usura ● per forare con bussola di guida
- M** ○
- K** ●
- N** ● acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** ○ ● acciai per lavorazioni a caldo e a freddo ● acciai per cuscinetti ● acciai legati in alta percentuale ● acciai da bonifica e da cementazione
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 792

Materiale tagliente	HSCO
Superficie	●
Direzione di taglio	Ⓜ



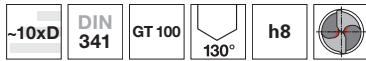
Articolo nr. **357**

Punte con codolo conico Morse

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
4,750		MK-1	150,000	69,000	13,500		MK-1	223,000	142,000
5,000		MK-1	155,000	74,000	14,000		MK-1	223,000	142,000
5,400		MK-1	161,000	80,000	14,500		MK-2	245,000	147,000
6,000		MK-1	161,000	80,000	14,750		MK-2	245,000	147,000
6,750	17/64	MK-1	174,000	93,000	15,000		MK-2	245,000	147,000
6,800		MK-1	174,000	93,000	15,500		MK-2	251,000	153,000
7,000		MK-1	174,000	93,000	16,000		MK-2	251,000	153,000
8,000		MK-1	181,000	100,000	16,750		MK-2	257,000	159,000
8,200		MK-1	181,000	100,000	17,000		MK-2	257,000	159,000
8,500		MK-1	181,000	100,000	17,500		MK-2	263,000	165,000
8,800		MK-1	188,000	107,000	18,000		MK-2	263,000	165,000
9,000		MK-1	188,000	107,000	20,000		MK-2	275,000	177,000
9,500		MK-1	188,000	107,000	21,000		MK-2	282,000	184,000
9,800		MK-1	197,000	116,000	22,000		MK-2	289,000	191,000
10,000		MK-1	197,000	116,000	23,000		MK-2	296,000	198,000
10,200		MK-1	197,000	116,000	24,000		MK-3	327,000	206,000
10,250		MK-1	197,000	116,000	25,000	63/64	MK-3	327,000	206,000
10,500		MK-1	197,000	116,000	26,000		MK-3	335,000	214,000
11,000		MK-1	206,000	125,000	26,500		MK-3	335,000	214,000
11,500		MK-1	206,000	125,000	27,000		MK-3	343,000	222,000
12,000		MK-1	215,000	134,000	28,000		MK-3	343,000	222,000
12,250		MK-1	215,000	134,000	30,000		MK-3	351,000	230,000
12,500		MK-1	215,000	134,000	33,000		MK-4	397,000	248,000
13,000		MK-1	215,000	134,000	40,000		MK-4	426,000	277,000



Punte per foratura con bussola di guida

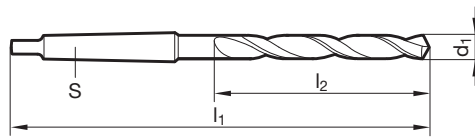


- P** • Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

Materiale tagliente	HSCO
Superficie	$\geq \frac{\varnothing}{16,0}$
Direzione di taglio	(R)

GUHRINGNAVIGATOR

Dati di taglio a pag. 792



Articolo nr. **623**

Punte con codolo conico Morse

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
10,000		MK-1	197,000	116,000	15,500		MK-2	251,000	153,000
10,200		MK-1	197,000	116,000	16,000		MK-2	251,000	153,000
10,320	13/32	MK-1	197,000	116,000	16,500		MK-2	257,000	159,000
10,500		MK-1	197,000	116,000	17,000		MK-2	257,000	159,000
10,800		MK-1	206,000	125,000	17,460	11/16	MK-2	263,000	165,000
11,000		MK-1	206,000	125,000	17,500		MK-2	263,000	165,000
11,200		MK-1	206,000	125,000	18,000		MK-2	263,000	165,000
11,500		MK-1	206,000	125,000	18,500		MK-2	269,000	171,000
11,510	29/64	MK-1	206,000	125,000	19,000		MK-2	269,000	171,000
11,800		MK-1	206,000	125,000	19,500		MK-2	275,000	177,000
12,000		MK-1	215,000	134,000	20,000		MK-2	275,000	177,000
12,200		MK-1	215,000	134,000	20,500		MK-2	282,000	184,000
12,400		MK-1	215,000	134,000	21,000		MK-2	282,000	184,000
12,500		MK-1	215,000	134,000	22,000		MK-2	289,000	191,000
13,000		MK-1	215,000	134,000	22,500		MK-2	296,000	198,000
13,490	17/32	MK-1	223,000	142,000	24,000		MK-3	327,000	206,000
13,500		MK-1	223,000	142,000	25,000	63/64	MK-3	327,000	206,000
13,890	35/64	MK-1	223,000	142,000	26,000		MK-3	335,000	214,000
14,000		MK-1	223,000	142,000					
14,200		MK-2	245,000	147,000					
14,290	9/16	MK-2	245,000	147,000					
14,500		MK-2	245,000	147,000					
14,680	37/64	MK-2	245,000	147,000					
15,000		MK-2	245,000	147,000					



Punte per foratura con bussola di guida



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 16,500$ • spoglia sul cono tagliente • cono Morse rinforzato • per forare con bussola di guida

M

K •

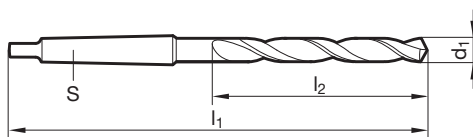
N ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite

S

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **523**

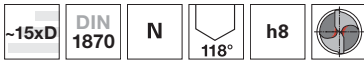
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-2	214,000	116,000
11,000		MK-2	223,000	125,000
12,300	31/64	MK-2	232,000	134,000
12,500		MK-2	232,000	134,000
14,000		MK-2	240,000	142,000
21,000		MK-3	305,000	184,000

d1		S	l1	l2
mm	inch		mm	mm
23,000		MK-3	319,000	198,000
29,000		MK-4	379,000	230,000



Punte elicoidali in lunghezze speciali, grandezza 1

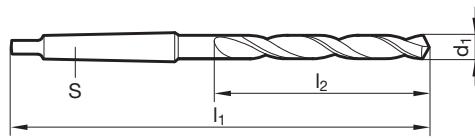


- P** • Assott. del nocc. $\geq \varnothing 7,800$ • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ

GUHRING NAVIGATOR

Dati di taglio a pag. 788



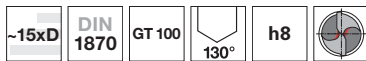
Articolo nr. **266**

Punte con codolo conico Morse

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
8,000		MK-1	265,000	165,000	20,500		MK-2	385,000	260,000
8,500		MK-1	265,000	165,000	20,640	13/16	MK-2	385,000	260,000
9,000		MK-1	275,000	175,000	21,000		MK-2	385,000	260,000
9,500		MK-1	275,000	175,000	21,430	27/32	MK-2	405,000	270,000
10,000		MK-1	285,000	185,000	21,500		MK-2	405,000	270,000
10,200		MK-1	285,000	185,000	22,000		MK-2	405,000	270,000
10,250		MK-1	285,000	185,000	22,500		MK-2	405,000	270,000
10,500		MK-1	285,000	185,000	23,000		MK-2	405,000	270,000
11,000		MK-1	300,000	195,000	23,020	29/32	MK-2	405,000	270,000
11,400		MK-1	300,000	195,000	23,500		MK-3	425,000	270,000
11,500		MK-1	300,000	195,000	24,000		MK-3	440,000	290,000
11,750		MK-1	300,000	195,000	24,500		MK-3	440,000	290,000
11,800		MK-1	300,000	195,000	25,000	63/64	MK-3	440,000	290,000
12,000		MK-1	310,000	205,000	26,000		MK-3	440,000	290,000
12,200		MK-1	310,000	205,000	26,500		MK-3	440,000	290,000
12,500		MK-1	310,000	205,000	27,000		MK-3	460,000	305,000
12,700	1/2	MK-1	310,000	205,000	28,000		MK-3	460,000	305,000
13,000		MK-1	310,000	205,000	30,000		MK-3	460,000	305,000
13,500		MK-1	325,000	220,000	30,500		MK-3	480,000	320,000
13,750		MK-1	325,000	220,000	31,000		MK-3	480,000	320,000
14,000		MK-1	325,000	220,000	32,000		MK-4	505,000	320,000
14,290	9/16	MK-2	340,000	220,000	33,000		MK-4	505,000	320,000
14,500		MK-2	340,000	220,000	34,000		MK-4	530,000	340,000
15,000		MK-2	340,000	220,000	35,000		MK-4	530,000	340,000
15,250		MK-2	355,000	230,000	36,000		MK-4	530,000	340,000
15,500		MK-2	355,000	230,000	38,000		MK-4	555,000	360,000
15,750		MK-2	355,000	230,000	39,000		MK-4	555,000	360,000
15,800		MK-2	355,000	230,000	40,000		MK-4	555,000	360,000
16,000		MK-2	355,000	230,000	42,000		MK-4	555,000	360,000
16,250		MK-2	355,000	230,000	45,000		MK-4	585,000	385,000
16,500		MK-2	355,000	230,000	45,240	1 25/32	MK-4	585,000	385,000
16,670	21/32	MK-2	355,000	230,000	48,000		MK-4	605,000	405,000
17,000		MK-2	355,000	230,000	50,000		MK-4	605,000	405,000
17,500		MK-2	370,000	245,000					
17,750		MK-2	370,000	245,000					
18,000		MK-2	370,000	245,000					
18,500		MK-2	370,000	245,000					
18,650	47/64	MK-2	370,000	245,000					
19,000		MK-2	370,000	245,000					
19,500		MK-2	385,000	260,000					
19,750		MK-2	385,000	260,000					
20,000		MK-2	385,000	260,000					



Punte elicoidali in lunghezze speciali, grandezza 1



P • Assott. del nocc. $\geq \varnothing 5,800$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente

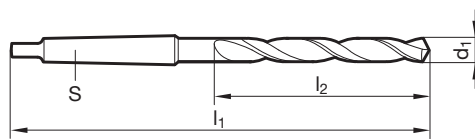
K • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

H

GUHRING NAVIGATOR

Dati di taglio a pag. 790

Materiale tagliente	HSS
Superficie	$\geq \varnothing 16,0$
Direzione di taglio	(R)



Articolo nr. **526**

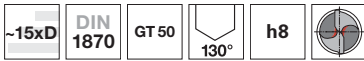
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-1	265,000	165,000
8,500		MK-1	265,000	165,000
8,600		MK-1	275,000	175,000
8,700		MK-1	275,000	175,000
9,000		MK-1	275,000	175,000
9,500		MK-1	275,000	175,000
9,520	3/8	MK-1	285,000	185,000
9,800		MK-1	285,000	185,000
10,000		MK-1	285,000	185,000
10,200		MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
10,720	27/64	MK-1	300,000	195,000
11,000		MK-1	300,000	195,000
11,110	7/16	MK-1	300,000	195,000
11,500		MK-1	300,000	195,000
11,510	29/64	MK-1	300,000	195,000
11,750		MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
12,700	1/2	MK-1	310,000	205,000
12,800		MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,490	17/32	MK-1	325,000	220,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
14,200		MK-2	340,000	220,000
14,290	9/16	MK-2	340,000	220,000
14,500		MK-2	340,000	220,000
15,000		MK-2	340,000	220,000
15,500		MK-2	355,000	230,000

d1		S	l1	l2
mm	inch		mm	mm
15,870	5/8	MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
16,500		MK-2	355,000	230,000
17,000		MK-2	355,000	230,000
17,460	11/16	MK-2	370,000	245,000
17,500		MK-2	370,000	245,000
18,000		MK-2	370,000	245,000
18,500		MK-2	370,000	245,000
19,000		MK-2	370,000	245,000
19,500		MK-2	385,000	260,000
20,000		MK-2	385,000	260,000
20,500		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000
21,500		MK-2	405,000	270,000
22,000		MK-2	405,000	270,000
23,000		MK-2	405,000	270,000
24,000		MK-3	440,000	290,000
25,000	63/64	MK-3	440,000	290,000
26,000		MK-3	440,000	290,000
26,500		MK-3	440,000	290,000
28,000		MK-3	460,000	305,000
28,500		MK-3	460,000	305,000
29,000		MK-3	460,000	305,000
30,000		MK-3	460,000	305,000



Punte elicoidali in lunghezze speciali, grandezza 1



P ○ Assott. del nocc. $\geq \varnothing 7,900$ • spoglia sul cono tagliente • per fori estremamente profondi • per materiali teneri a truciolo lungo

M

K

N • materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno

S

H

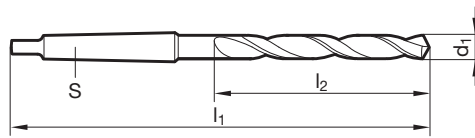
Materiale tagliente **HSS**

Superficie ○

Direzione di taglio **R**

GUHRING NAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **525**

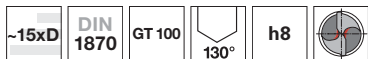
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,500		MK-1	265,000	165,000
8,700		MK-1	275,000	175,000
9,000		MK-1	275,000	175,000
9,500		MK-1	275,000	175,000
10,000		MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
11,000		MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
15,000		MK-2	340,000	220,000
15,500		MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
18,000		MK-2	370,000	245,000
19,500		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000

d1		S	l1	l2
mm	inch		mm	mm
23,000		MK-2	405,000	270,000
24,000		MK-3	440,000	290,000
24,300		MK-3	440,000	290,000
24,380		MK-3	440,000	290,000
24,500		MK-3	440,000	290,000
25,500		MK-3	440,000	290,000
26,500		MK-3	440,000	290,000
27,500		MK-3	460,000	305,000
28,000		MK-3	460,000	305,000
29,000		MK-3	460,000	305,000
31,000		MK-3	480,000	320,000
33,000		MK-4	505,000	320,000



Punte elicoidali in lunghezze speciali, grandezza 1

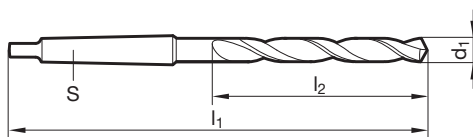


- P** • Assott. del nocc. $\geq \varnothing 9,520$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai e ghisa acciaiata ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale
- S** •
- H** ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 794

Materiale tagliente	HSCO
Superficie	$\geq \frac{\varnothing}{16,0}$
Direzione di taglio	(R)



Articolo nr. **620**

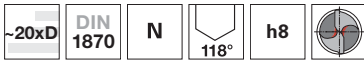
d1		S	l1	l2
mm	inch		mm	mm
9,520	3/8	MK-1	285,000	185,000
10,000		MK-1	285,000	185,000
10,200		MK-1	285,000	185,000
10,320	13/32	MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
11,000		MK-1	300,000	195,000
11,110	7/16	MK-1	300,000	195,000
11,500		MK-1	300,000	195,000
11,510	29/64	MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,300	31/64	MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
12,700	1/2	MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
14,290	9/16	MK-2	340,000	220,000
14,500		MK-2	340,000	220,000
15,000		MK-2	340,000	220,000
15,080	19/32	MK-2	355,000	230,000
15,500		MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
16,500		MK-2	355,000	230,000
17,000		MK-2	355,000	230,000

d1		S	l1	l2
mm	inch		mm	mm
17,500		MK-2	370,000	245,000
18,000		MK-2	370,000	245,000
18,500		MK-2	370,000	245,000
19,000		MK-2	370,000	245,000
20,000		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000
21,830		MK-2	405,000	270,000
22,000		MK-2	405,000	270,000
22,620		MK-2	405,000	270,000
23,000		MK-2	405,000	270,000
25,500		MK-3	440,000	290,000
26,000		MK-3	440,000	290,000
27,180		MK-3	460,000	305,000
29,370	1 5/32	MK-3	460,000	305,000
30,000		MK-3	460,000	305,000

Punte con codolo conico Morse



Punte elicoidali in lunghezze speciali, grandezza 2

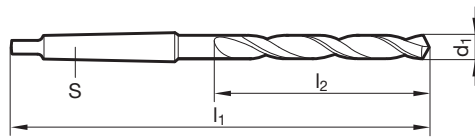


- P** • Assott. del nocc. $\geq \varnothing 7,700$ • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 788

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)



Articolo nr. **267**

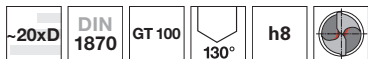
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-1	330,000	210,000
8,500		MK-1	330,000	210,000
9,000		MK-1	345,000	220,000
10,000		MK-1	360,000	235,000
10,200		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,750		MK-1	375,000	250,000
11,800		MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,490	17/32	MK-1	410,000	275,000
13,500		MK-1	410,000	275,000
14,000		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
15,480	39/64	MK-2	445,000	295,000
15,500		MK-2	445,000	295,000
16,000		MK-2	445,000	295,000
16,500		MK-2	445,000	295,000
17,000		MK-2	445,000	295,000
17,070	43/64	MK-2	465,000	310,000
17,500		MK-2	465,000	310,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
19,050	3/4	MK-2	490,000	325,000
19,500		MK-2	490,000	325,000
20,000		MK-2	490,000	325,000

d1		S	l1	l2
mm	inch		mm	mm
20,640	13/16	MK-2	490,000	325,000
21,000		MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
21,500		MK-2	515,000	345,000
21,830	55/64	MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
22,800		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
23,020	29/32	MK-2	515,000	345,000
23,750		MK-3	555,000	365,000
23,810	15/16	MK-3	555,000	365,000
24,000		MK-3	555,000	365,000
24,500		MK-3	555,000	365,000
25,000	63/64	MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
28,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000
31,000		MK-3	610,000	410,000
32,000		MK-4	635,000	410,000
34,000		MK-4	665,000	430,000
40,000		MK-4	695,000	460,000
45,000		MK-4	735,000	490,000



Punte elicoidali in lunghezze speciali, grandezza 2

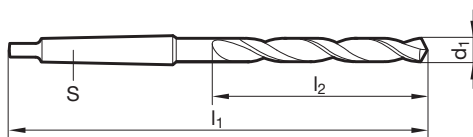


- P** • Assott. del nocc. $\geq \varnothing 7,800$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 790

Materiale tagliente	HSS
Superficie	$\frac{+0}{-16,0}$
Direzione di taglio	(R)



Articolo nr. **527**

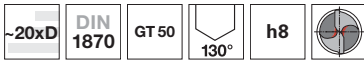
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-1	330,000	210,000
8,400		MK-1	330,000	210,000
8,500		MK-1	330,000	210,000
9,000		MK-1	345,000	220,000
9,500		MK-1	345,000	220,000
10,000		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
11,000		MK-1	375,000	250,000
11,110	7/16	MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,510	29/64	MK-1	375,000	250,000
11,800		MK-1	375,000	250,000
11,910	15/32	MK-1	395,000	260,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
12,700	1/2	MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000
13,700		MK-1	410,000	275,000
13,800		MK-1	410,000	275,000
13,890	35/64	MK-1	410,000	275,000
14,000		MK-1	410,000	275,000
14,290	9/16	MK-2	425,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
15,500		MK-2	445,000	295,000
16,000		MK-2	445,000	295,000
16,500		MK-2	445,000	295,000
17,000		MK-2	445,000	295,000
17,070	43/64	MK-2	465,000	310,000

d1		S	l1	l2
mm	inch		mm	mm
17,500		MK-2	465,000	310,000
17,800		MK-2	465,000	310,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
19,450	49/64	MK-2	490,000	325,000
19,500		MK-2	490,000	325,000
20,000		MK-2	490,000	325,000
20,500		MK-2	490,000	325,000
21,000		MK-2	490,000	325,000
21,030	53/64	MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
23,020	29/32	MK-2	515,000	345,000
23,810	15/16	MK-3	555,000	365,000
24,000		MK-3	555,000	365,000
24,210	61/64	MK-3	555,000	365,000
25,000	63/64	MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
26,190	1 1/32	MK-3	555,000	365,000
26,500		MK-3	555,000	365,000
27,000		MK-3	580,000	385,000
28,000		MK-3	580,000	385,000
28,750		MK-3	580,000	385,000
29,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000



Punte elicoidali in lunghezze speciali, grandezza 2



P ○ Assott. del nocc. $\geq \varnothing 8,000$ • spoglia sul cono tagliente • per fori estremamente profondi

M

K

N ● materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno

S

H

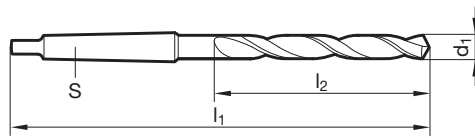
Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

GUHRING NAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **542**

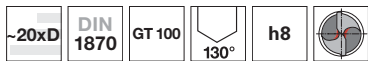
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,500		MK-1	330,000	210,000
8,600		MK-1	345,000	220,000
8,800		MK-1	345,000	220,000
9,000		MK-1	345,000	220,000
9,500		MK-1	345,000	220,000
10,500		MK-1	360,000	235,000
10,700		MK-1	375,000	250,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
17,000		MK-2	445,000	295,000
17,500		MK-2	465,000	310,000
20,500		MK-2	490,000	325,000

d1		S	l1	l2
mm	inch		mm	mm
21,000		MK-2	490,000	325,000
21,500		MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
24,000		MK-3	555,000	365,000
24,500		MK-3	555,000	365,000
25,500		MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
26,500		MK-3	555,000	365,000
27,500		MK-3	580,000	385,000
28,000		MK-3	580,000	385,000
29,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000
31,000		MK-3	610,000	410,000



Punte elicoidali in lunghezze speciali, grandezza 2

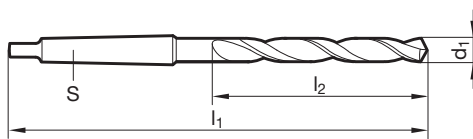


- P** • Assott. del nocc. $\geq \varnothing 9,520$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • in caso di scarico truciolo insufficiente • per fori estremamente profondi
- M** •
- K** •
- N** • acciai e ghisa acciaiata ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale
- S** •
- H** ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 794

Materiale tagliente	HSCO
Superficie	$\geq \frac{\varnothing}{16,0}$
Direzione di taglio	(R)



Articolo nr. **621**

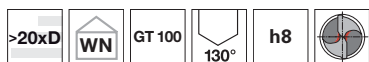
d1		S	l1	l2
mm	inch		mm	mm
9,520	3/8	MK-1	360,000	235,000
10,000		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
10,720	27/64	MK-1	375,000	250,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,510	29/64	MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
12,700	1/2	MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000

d1		S	l1	l2
mm	inch		mm	mm
14,000		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
16,000		MK-2	445,000	295,000
16,270		MK-2	445,000	295,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
20,000		MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
23,420	59/64	MK-3	535,000	345,000

Punte con codolo conico Morse



Punte elicoidali, extra lunghe



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 6,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi

M

K •

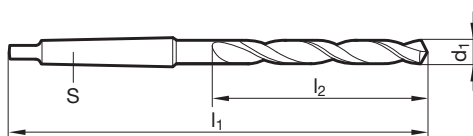
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **563**

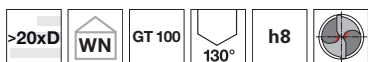
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
6,000		MK-1	200,000	120,000
6,500		MK-1	200,000	120,000
7,000		MK-1	200,000	120,000
7,500		MK-1	200,000	120,000

d1		S	l1	l2
mm	inch		mm	mm



Punte elicoidali, extra lunghe

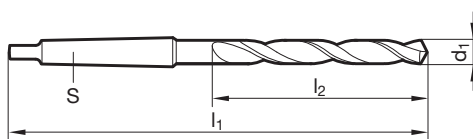


- P** • Assott. del nocc. $\geq \varnothing 6,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 790

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ



Articolo nr. **564**

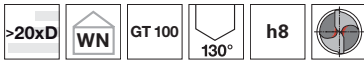
d1		S	l1	l2
mm	inch		mm	mm
6,000		MK-1	300,000	220,000
6,500		MK-1	300,000	220,000
7,000		MK-1	300,000	220,000
8,000		MK-1	350,000	270,000
8,500		MK-1	350,000	270,000
9,000		MK-1	350,000	270,000

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-1	350,000	270,000

Punte con codolo conico Morse



Punte elicoidali, extra lunghe



- P** • Assott. del nocc. $\geq \varnothing 6,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

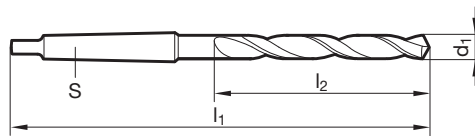
Materiale tagliente **HSS**

Superficie $\frac{0}{16,0}$

Direzione di taglio

GUHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **565**

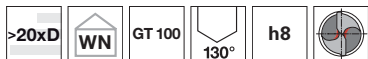
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
6,000		MK-1	425,000	345,000
6,500		MK-1	425,000	345,000
7,000		MK-1	425,000	345,000
7,500		MK-1	425,000	345,000
8,000		MK-1	425,000	345,000
8,500		MK-1	425,000	345,000
9,000		MK-1	425,000	345,000
10,000		MK-1	425,000	345,000
11,000		MK-1	425,000	345,000
12,000		MK-1	425,000	345,000
13,000		MK-1	425,000	345,000
14,000		MK-1	425,000	345,000

d1		S	l1	l2
mm	inch		mm	mm
15,000		MK-2	425,000	325,000
16,000		MK-2	425,000	325,000
17,000		MK-2	425,000	325,000



Punte elicoidali, extra lunghe

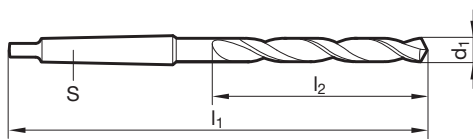


- P** • Assott. del nocc. $\geq \varnothing 8,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 790

Materiale tagliente	HSS
Superficie	$\geq \frac{\varnothing}{16,0}$
Direzione di taglio	(R)



Articolo nr. **566**

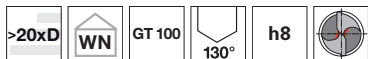
d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-1	500,000	420,000
8,500		MK-1	500,000	420,000
9,000		MK-1	500,000	420,000
9,500		MK-1	500,000	420,000
10,000		MK-1	500,000	420,000
11,000		MK-1	500,000	420,000
12,000		MK-1	500,000	420,000
13,000		MK-1	500,000	420,000
14,000		MK-1	500,000	420,000
15,000		MK-2	500,000	400,000
16,000		MK-2	500,000	400,000
17,000		MK-2	500,000	400,000

d1		S	l1	l2
mm	inch		mm	mm
18,000		MK-2	500,000	400,000
19,000		MK-2	500,000	400,000
20,000		MK-2	500,000	400,000
21,000		MK-2	500,000	400,000
22,000		MK-2	500,000	400,000
35,000		MK-4	500,000	350,000
40,000		MK-4	500,000	350,000

Punte con codolo conico Morse



Punte elicoidali, extra lunghe

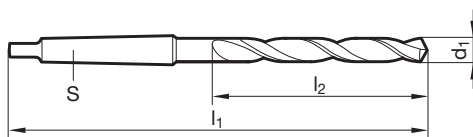


- P** • Assott. del nocc. $\geq \varnothing 14,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

Materiale tagliente	HSS
Superficie	$\frac{+0}{16,0}$
Direzione di taglio	(R)

GUHRINGNAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **293**

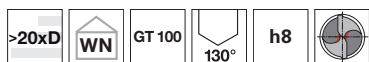
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
14,000		MK-1	600,000	500,000
15,000		MK-2	600,000	500,000
16,000		MK-2	600,000	500,000
17,000		MK-2	600,000	500,000
18,000		MK-2	600,000	500,000
19,000		MK-2	600,000	500,000
20,000		MK-2	600,000	500,000
21,000		MK-2	600,000	500,000
22,000		MK-2	600,000	500,000
23,000		MK-2	600,000	500,000
24,000		MK-3	600,000	475,000
25,000	63/64	MK-3	600,000	475,000

d1		S	l1	l2
mm	inch		mm	mm
26,000		MK-3	600,000	475,000
28,000		MK-3	600,000	475,000
30,000		MK-3	600,000	475,000
32,000		MK-4	600,000	450,000
35,000		MK-4	600,000	450,000
38,000		MK-4	600,000	450,000
40,000		MK-4	600,000	450,000



Punte elicoidali, extra lunghe



Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

P • Assott. del nocc. $\geq \varnothing 14,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi

M

K •

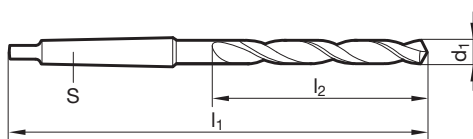
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **298**

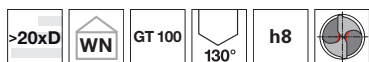
d1		S	l1	l2
mm	inch		mm	mm
14,000		MK-1	750,000	650,000
15,000		MK-2	750,000	650,000
16,000		MK-2	750,000	650,000
18,000		MK-2	750,000	650,000

d1		S	l1	l2
mm	inch		mm	mm

Punte con codolo conico Morse



Punte elicoidali, extra lunghe



Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

P • Assott. del nocc. $\geq \varnothing 14,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi

M

K •

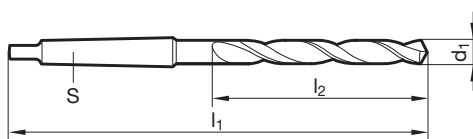
N • ghisa grigia ed acciai con R max. 1000 N/mm^2 • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **299**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
14,000		MK-1	1000,000	850,000
15,000		MK-2	1000,000	850,000
16,000		MK-2	1000,000	850,000
18,000		MK-2	1000,000	850,000

d1		S	l1	l2
mm	inch		mm	mm



Punte con fori di refrigerazione, corte

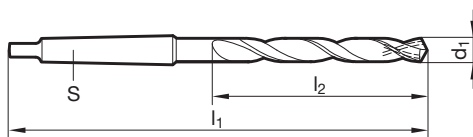


- P** • Assott. del nocc. $\geq \varnothing 9,520$ • spoglia sul cono tagliente • per forare con bussola di guida • radial coolant supply via Guhring coolant rings
- M** ○
- K** •
- N** • pacchi di lamierini • acciaio e ghisa acciaiata, ghisa grigia • acciai austenitici a ca. 800 N/mm²
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 788

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)



Articolo nr. **269**

d1		S	l1	l2
mm	inch		mm	mm
9,920	25/64	MK-1	197,000	101,000
10,320	13/32	MK-1	197,000	101,000
10,500		MK-1	197,000	101,000
11,000		MK-1	206,000	110,000
11,110	7/16	MK-1	206,000	110,000
11,500		MK-1	206,000	110,000
12,500		MK-1	215,000	119,000
12,700	1/2	MK-1	215,000	119,000
12,800		MK-1	215,000	119,000
13,000		MK-1	215,000	119,000
13,200		MK-1	215,000	119,000
13,490	17/32	MK-1	223,000	127,000
13,500		MK-1	223,000	127,000
13,800		MK-1	223,000	127,000
14,000		MK-1	223,000	127,000
14,250		MK-2	245,000	133,000
14,290	9/16	MK-2	245,000	133,000
14,500		MK-2	245,000	133,000
15,000		MK-2	245,000	133,000
15,080	19/32	MK-2	251,000	139,000
15,150		MK-2	251,000	139,000
15,180		MK-2	251,000	139,000
15,250		MK-2	251,000	139,000
15,870	5/8	MK-2	251,000	139,000
16,000		MK-2	251,000	139,000
16,500		MK-2	257,000	145,000
16,670	21/32	MK-2	257,000	145,000
16,750		MK-2	257,000	145,000
17,000		MK-2	257,000	145,000
17,100		MK-2	263,000	151,000

d1		S	l1	l2
mm	inch		mm	mm
17,460	11/16	MK-2	263,000	151,000
17,500		MK-2	263,000	151,000
17,750		MK-2	263,000	151,000
18,000		MK-2	263,000	151,000
18,260	23/32	MK-2	269,000	157,000
18,500		MK-2	269,000	157,000
19,000		MK-2	269,000	157,000
19,050	3/4	MK-2	275,000	163,000
19,200		MK-2	275,000	163,000
19,250		MK-2	275,000	163,000
19,500		MK-2	275,000	163,000
19,750		MK-2	275,000	163,000
19,840	25/32	MK-2	275,000	163,000
20,250		MK-2	282,000	170,000
20,640	13/16	MK-2	282,000	170,000
20,750		MK-2	282,000	170,000
21,000		MK-2	282,000	170,000
21,430	27/32	MK-2	289,000	177,000
21,500		MK-2	289,000	177,000
22,220	7/8	MK-2	289,000	177,000
23,020	29/32	MK-2	296,000	184,000

Punte con codolo conico Morse



Punte con fori di refr., lung. elica a norma di fab.



- P** • Assott. del nocc. $\geq \varnothing 8,000$ • spoglia sul cono tagliente • rifornimento del refrig. assiale e radiale attraverso il gambo conico Morse (simile a DIN 228, forma BK) • calibrazione del refrig. necessario grazie alla vite di regolazione fornita
- M** ○
- K** •
- N** • ottimizzato per la lavorazioni di travi in acciaio su macchine dedicate
- S** • pacchi di lamierini • acciaio e ghisa acciaiata, ghisa grigia • acciai austenitici a ca. 800 N/mm²
- H**

Materiale tagliente **HSS**

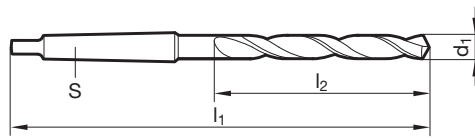
Superficie

Direzione di taglio



GUHRING NAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **254**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-2	268,000	116,000
9,000		MK-2	268,000	116,000
10,000		MK-3	268,000	116,000
10,500		MK-3	268,000	116,000
11,000		MK-3	278,000	125,000
12,000		MK-3	287,000	134,000
13,000		MK-3	287,000	134,000
13,500		MK-3	285,000	142,000
14,000		MK-3	285,000	142,000
15,000		MK-3	300,000	147,000
16,000		MK-3	306,000	153,000
17,000		MK-3	311,000	159,000
17,500		MK-3	318,000	165,000
18,000		MK-3	318,000	165,000
19,000		MK-3	324,000	171,000
20,000		MK-3	330,000	177,000
21,000		MK-3	343,000	184,000
22,000		MK-3	350,000	191,000
23,000		MK-3	357,000	198,000
24,000		MK-3	365,000	206,000
25,000	63/64	MK-3	365,000	206,000
26,000		MK-3	373,000	214,000
27,000		MK-4	407,000	222,000
28,000		MK-4	407,000	222,000

d1		S	l1	l2
mm	inch		mm	mm
29,000		MK-4	410,000	225,000
30,000		MK-4	410,000	225,000
31,000		MK-4	410,000	225,000
32,000		MK-4	410,000	225,000
33,000		MK-4	410,000	225,000
34,000		MK-4	410,000	225,000
35,000		MK-4	410,000	225,000
36,000		MK-4	410,000	225,000
37,000		MK-4	410,000	225,000
38,000		MK-4	410,000	225,000
39,000		MK-4	410,000	225,000
40,000		MK-4	410,000	225,000
41,000		MK-4	410,000	225,000
42,000		MK-4	410,000	225,000
43,000		MK-4	410,000	225,000
44,000		MK-4	410,000	225,000
45,000		MK-4	410,000	225,000
46,000		MK-4	410,000	225,000
47,000		MK-4	410,000	225,000
48,000		MK-4	410,000	225,000
49,000		MK-4	410,000	225,000
50,000		MK-4	410,000	225,000



Punte con fori di refr., lung. elica a norma di fab.



- P** • Assott. del nocc. $\geq \varnothing 8,000$ • spoglia sul cono tagliente • speciale geometria con angolo di punta a 170° e punto centrale a 90°
- M** ○ • allineamento interno efficiente • rifornimento del refrig. assiale e radiale attraverso il gambo conico Morse (simile a DIN 228, forma BK)
- K** • • calibrazione del refrig. necessario grazie alla vite di regolazione fornita
- N** • ottimizzato per la lavorazioni di travi in acciaio su macchine dedicate
- S** • acciaio e ghisa acciaiata, ghisa grigia • acciai austenitici a ca. 800 N/mm^2
- H**

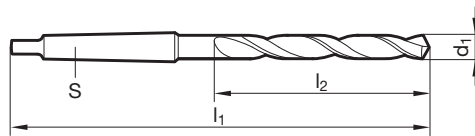
GÜHRINGNAVIGATOR

Dati di taglio a pag. 788

Materiale tagliente **HSS**

Superficie

Direzione di taglio



Articolo nr. **255**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-2	268,000	116,000
9,000		MK-2	268,000	116,000
10,000		MK-3	268,000	116,000
10,500		MK-3	268,000	116,000
11,000		MK-3	278,000	125,000
12,000		MK-3	287,000	134,000
13,000		MK-3	287,000	134,000
13,500		MK-3	285,000	142,000
14,000		MK-3	285,000	142,000
15,000		MK-3	300,000	147,000
16,000		MK-3	306,000	153,000
17,000		MK-3	311,000	159,000
17,500		MK-3	318,000	165,000
18,000		MK-3	318,000	165,000
19,000		MK-3	324,000	171,000
20,000		MK-3	330,000	177,000
21,000		MK-3	343,000	184,000
22,000		MK-3	350,000	191,000
23,000		MK-3	357,000	198,000
24,000		MK-3	365,000	206,000
25,000	63/64	MK-3	365,000	206,000
26,000		MK-3	373,000	214,000
27,000		MK-4	375,000	193,000
28,000		MK-4	375,000	193,000

d1		S	l1	l2
mm	inch		mm	mm
29,000		MK-4	375,000	193,000
30,000		MK-4	375,000	193,000
31,000		MK-4	375,000	193,000
32,000		MK-4	375,000	193,000
33,000		MK-4	375,000	193,000
34,000		MK-4	375,000	193,000
35,000		MK-4	375,000	193,000
36,000		MK-4	375,000	193,000
37,000		MK-4	375,000	193,000
38,000		MK-4	375,000	193,000
39,000		MK-4	375,000	193,000
40,000		MK-4	375,000	193,000
41,000		MK-4	375,000	193,000
42,000		MK-4	375,000	193,000



Punte con fori di refr., lung. elica DIN 341



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • Per la foratura attraverso boccole. Fornitura di refrigerante a DIN 228 BK.

M ○

K •

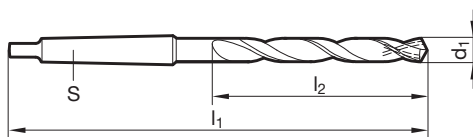
N • pacchi di lamierini • acciaio e ghisa acciaiata, ghisa grigia • acciai austenitici a ca. 800 N/mm²

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **1101**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-2	223,000	116,000
10,500		MK-2	223,000	116,000
11,000		MK-2	232,000	125,000
11,500		MK-2	232,000	125,000
12,000		MK-2	241,000	134,000
12,500		MK-2	241,000	134,000
13,000		MK-2	241,000	134,000
13,500		MK-2	249,000	142,000
14,000		MK-2	249,000	142,000
14,750		MK-2	254,000	147,000
15,000		MK-2	254,000	147,000
16,000		MK-2	260,000	153,000
16,250		MK-2	266,000	159,000
17,000		MK-2	266,000	159,000
17,500		MK-2	272,000	165,000
18,000		MK-2	272,000	165,000
19,000		MK-2	278,000	171,000
20,000		MK-2	284,000	177,000

d1		S	l1	l2
mm	inch		mm	mm
21,000		MK-2	291,000	184,000
22,000		MK-2	298,000	191,000
24,000		MK-3	332,000	206,000
25,000	63/64	MK-3	332,000	206,000
26,000		MK-3	340,000	214,000
28,000		MK-3	348,000	222,000
29,000		MK-3	356,000	230,000
30,000		MK-3	356,000	230,000
32,000		MK-4	409,000	248,000



Punte con fori di refr., lung. elica DIN 341



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del noc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • per forare con bussola di guida • refrigerazione assiale attraverso l'attacco CM

M ○

K •

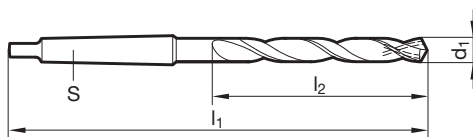
N • pacchi di lamierini • acciaio e ghisa acciaiata, ghisa grigia • acciai austenitici a ca. 800 N/mm²

S ○

H ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **270**

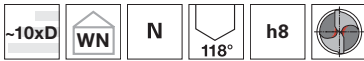
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-2	233,000	116,000
11,000		MK-2	242,000	125,000
12,000		MK-2	251,000	134,000
13,000		MK-2	251,000	134,000
13,200		MK-2	251,000	134,000
13,500		MK-2	259,000	142,000
14,000		MK-2	259,000	142,000
14,290	9/16	MK-2	264,000	147,000
15,000		MK-2	264,000	147,000
15,500		MK-2	270,000	153,000
16,000		MK-2	270,000	153,000
16,500		MK-2	276,000	159,000
17,000		MK-2	276,000	159,000
17,460	11/16	MK-2	282,000	165,000
17,500		MK-2	282,000	165,000
18,000		MK-2	282,000	165,000
18,500		MK-3	307,000	171,000
19,000		MK-3	307,000	171,000
19,500		MK-3	313,000	177,000
20,000		MK-3	313,000	177,000
20,500		MK-3	320,000	184,000
21,000		MK-3	320,000	184,000
22,000		MK-3	327,000	191,000
23,000		MK-3	334,000	198,000

d1		S	l1	l2
mm	inch		mm	mm
23,020	29/32	MK-3	334,000	198,000
24,000		MK-3	342,000	206,000
25,000	63/64	MK-3	342,000	206,000
26,000		MK-3	350,000	214,000
26,500		MK-3	350,000	214,000
27,000		MK-4	385,000	222,000
28,000		MK-4	385,000	222,000
29,000		MK-4	393,000	230,000
29,500		MK-4	393,000	230,000
30,000		MK-4	393,000	230,000
32,000		MK-4	421,000	248,000
33,000		MK-4	421,000	248,000
34,000		MK-4	430,000	257,000
35,000		MK-4	430,000	257,000
40,000		MK-4	450,000	277,000



Punte con fori di refr., lung. elica DIN 341



Materiale tagliente **HSS**

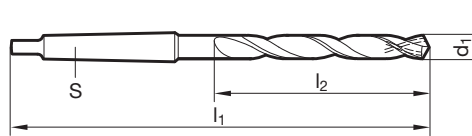
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • per forare con bussola di guida • radial coolant supply via Guhring coolant rings
- M** ○
- K** •
- N** • pacchi di lamierini • acciaio e ghisa acciaiosa, ghisa grigia • acciai austenitici a ca. 800 N/mm²
- S** ○
- H** ○

GUHRINGNAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **271**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-2	233,000	116,000
10,500		MK-2	233,000	116,000
10,720	27/64	MK-2	242,000	125,000
11,000		MK-2	242,000	125,000
11,510	29/64	MK-2	242,000	125,000
11,910	15/32	MK-2	251,000	134,000
12,300	31/64	MK-2	251,000	134,000
13,000		MK-2	251,000	134,000
13,800		MK-2	259,000	142,000
14,000		MK-2	259,000	142,000
14,250		MK-2	264,000	147,000
14,290	9/16	MK-2	264,000	147,000
14,500		MK-2	264,000	147,000
15,000		MK-2	264,000	147,000
15,080	19/32	MK-2	270,000	153,000
15,500		MK-2	270,000	153,000
16,000		MK-2	270,000	153,000
16,500		MK-2	276,000	159,000
17,000		MK-2	276,000	159,000
17,250		MK-2	282,000	165,000
17,500		MK-2	282,000	165,000
18,250		MK-3	307,000	171,000
18,500		MK-3	307,000	171,000
19,050	3/4	MK-3	313,000	177,000

d1		S	l1	l2
mm	inch		mm	mm
19,500		MK-3	313,000	177,000
19,840	25/32	MK-3	313,000	177,000
20,000		MK-3	313,000	177,000
20,250		MK-3	320,000	184,000
22,500		MK-3	334,000	198,000
23,000		MK-3	334,000	198,000
23,750		MK-3	342,000	206,000
24,250		MK-3	342,000	206,000
24,610	31/32	MK-3	342,000	206,000
25,400	1	MK-3	350,000	214,000
26,000		MK-3	350,000	214,000
26,990	1 1/16	MK-4	385,000	222,000
27,780	1 3/32	MK-4	385,000	222,000
28,570	1 1/8	MK-4	393,000	230,000
28,750		MK-4	393,000	230,000
29,000		MK-4	393,000	230,000
29,500		MK-4	393,000	230,000
30,000		MK-4	393,000	230,000
30,500		MK-4	402,000	239,000
34,000		MK-4	430,000	257,000
44,450		MK-4	471,000	298,000



Punte con fori di refr., lung. elica DIN 341



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • per forare con bussola di guida • radial coolant supply in Morse taper

M ○

K •

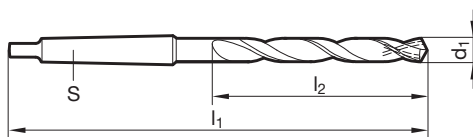
N • pacchi di lamierini • acciaio e ghisa acciaiata, ghisa grigia • acciai austenitici a ca. 800 N/mm²

S ○

H ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **272**

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-2	233,000	116,000
12,500		MK-2	251,000	134,000
13,200		MK-2	251,000	134,000
13,500		MK-2	259,000	142,000
14,750		MK-2	264,000	147,000
15,500		MK-2	270,000	153,000
15,870	5/8	MK-2	270,000	153,000
16,500		MK-2	276,000	159,000
16,670	21/32	MK-2	276,000	159,000
17,000		MK-2	276,000	159,000
18,000		MK-2	282,000	165,000
18,500		MK-3	307,000	171,000

d1		S	l1	l2
mm	inch		mm	mm
20,000		MK-3	313,000	177,000
22,000		MK-3	327,000	191,000
22,500		MK-3	334,000	198,000
24,000		MK-3	342,000	206,000
26,000		MK-3	350,000	214,000
26,990	1 1/16	MK-4	385,000	222,000
29,500		MK-4	393,000	230,000
32,000		MK-4	421,000	248,000
44,450	1 3/4	MK-4	471,000	298,000

Punte con codolo conico Morse



Punte con fori di refr., lung. elica DIN 341



Materiale tagliente **HSCO**

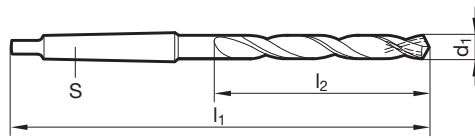
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 11,000$ • spoglia sul cono tagliente • refrigerazione assiale attraverso l'attacco CM • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida
- M** •
- K** •
- N** • acciai ad alta resistenza • acciaio e ghisa acciaiata • acciai inossidabili e resistenti al calore • con R superiore fino a 1300 N/mm²
- S** •
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 794



Articolo nr. **370**

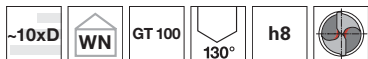
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
11,000		MK-2	242,000	125,000
12,000		MK-2	251,000	134,000
12,500		MK-2	251,000	134,000
13,000		MK-2	251,000	134,000
13,500		MK-2	259,000	142,000
14,000		MK-2	259,000	142,000
15,000		MK-2	264,000	147,000
15,080	19/32	MK-2	270,000	153,000
16,000		MK-2	270,000	153,000
17,000		MK-2	276,000	159,000
17,500		MK-2	282,000	165,000
18,000		MK-2	282,000	165,000
18,500		MK-3	307,000	171,000
19,000		MK-3	307,000	171,000
20,000		MK-3	313,000	177,000
21,000		MK-3	320,000	184,000
21,500		MK-3	327,000	191,000
22,000		MK-3	327,000	191,000

d1		S	l1	l2
mm	inch		mm	mm
24,000		MK-3	342,000	206,000
24,610	31/32	MK-3	342,000	206,000
29,370	1 5/32	MK-4	393,000	230,000
29,500		MK-4	393,000	230,000
30,000		MK-4	393,000	230,000
30,960	1 7/32	MK-4	402,000	239,000
31,000		MK-4	402,000	239,000
32,000		MK-4	421,000	248,000
32,250		MK-4	421,000	248,000
32,500		MK-4	421,000	248,000
32,540	1 9/32	MK-4	421,000	248,000
33,000		MK-4	421,000	248,000
34,130	1 11/32	MK-4	430,000	257,000
34,920	1 3/8	MK-4	430,000	257,000



Punte con fori di refr., lung. elica DIN 341

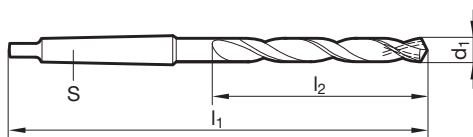


- P** • Assott. del nocc. $\geq \varnothing 11,000$ • spoglia sul cono tagliente • radial coolant supply via Gühring coolant rings • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida
- M** •
- K** •
- N** • acciai ad alta resistenza • acciaio e ghisa acciaiata • acciai inossidabili e resistenti al calore • con R superiore fino a 1300 N/mm²
- S** •
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 794

Materiale tagliente	HSCO
Superficie	●
Direzione di taglio	Ⓜ



Articolo nr. **371**

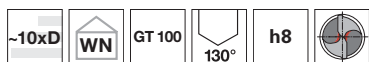
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
11,000		MK-2	242,000	125,000
11,110	7/16	MK-2	242,000	125,000
11,500		MK-2	242,000	125,000
12,300	31/64	MK-2	251,000	134,000
12,500		MK-2	251,000	134,000
12,800		MK-2	251,000	134,000
13,000		MK-2	251,000	134,000
13,490	17/32	MK-2	259,000	142,000
13,500		MK-2	259,000	142,000
14,000		MK-2	259,000	142,000
14,290	9/16	MK-2	264,000	147,000
14,500		MK-2	264,000	147,000
15,000		MK-2	264,000	147,000
16,000		MK-2	270,000	153,000
16,500		MK-2	276,000	159,000
16,670	21/32	MK-2	276,000	159,000
17,000		MK-2	276,000	159,000
17,460	11/16	MK-2	282,000	165,000
18,260	23/32	MK-3	307,000	171,000
19,500		MK-3	313,000	177,000
19,840	25/32	MK-3	313,000	177,000
20,500		MK-3	320,000	184,000
20,640	13/16	MK-3	320,000	184,000
21,000		MK-3	320,000	184,000

d1		S	l1	l2
mm	inch		mm	mm
21,500		MK-3	327,000	191,000
22,220	7/8	MK-3	327,000	191,000
22,500		MK-3	334,000	198,000
23,020	29/32	MK-3	334,000	198,000
23,810	15/16	MK-3	342,000	206,000
28,570	1 1/8	MK-4	393,000	230,000
29,000		MK-4	393,000	230,000
30,000		MK-4	393,000	230,000
30,960	1 7/32	MK-4	402,000	239,000
31,750	1 1/4	MK-4	411,000	248,000
32,000		MK-4	421,000	248,000
32,540	1 9/32	MK-4	421,000	248,000
33,340	1 5/16	MK-4	421,000	248,000
34,000		MK-4	430,000	257,000
34,920	1 3/8	MK-4	430,000	257,000



Punte con fori di refr., lung. elica DIN 341



Materiale tagliente **HSCO**

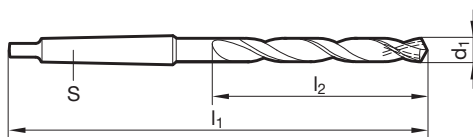
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 11,500$ • spoglia sul cono tagliente • radial coolant supply in Morse taper • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida
- M** •
- K** •
- N** • acciai ad alta resistenza • acciaio e ghisa acciaiata • acciai inossidabili e resistenti al calore • con R superiore fino a 1300 N/mm²
- S** •
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 794



Articolo nr. **372**

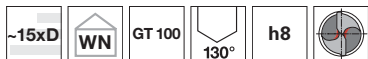
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
12,500		MK-2	251,000	134,000
12,700	1/2	MK-2	251,000	134,000
14,000		MK-2	259,000	142,000
16,000		MK-2	270,000	153,000
17,000		MK-2	276,000	159,000
18,500		MK-3	307,000	171,000

d1		S	l1	l2
mm	inch		mm	mm
21,500		MK-3	327,000	191,000
23,810	15/16	MK-3	342,000	206,000
27,000		MK-4	385,000	222,000
30,000		MK-4	393,000	230,000
34,000		MK-4	430,000	257,000



Punte con fori di refr., lung. elica DIN 1870



Materiale tagliente **HSCO**

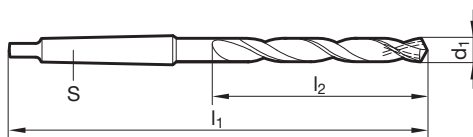
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 11,000$ • spoglia sul cono tagliente • refrigerazione assiale attraverso l'attacco CM • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida
- M** •
- K** •
- N** • acciai ad alta resistenza • acciaio e ghisa acciaiata • acciai inossidabili e resistenti al calore • con R superiore fino a 1300 N/mm²
- S** •
- H** ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 794



Articolo nr. **374**

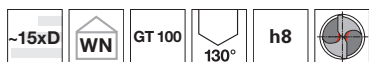
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
11,000		MK-2	312,000	195,000
12,000		MK-2	322,000	205,000
12,300	31/64	MK-2	322,000	205,000
12,500		MK-2	322,000	205,000
13,000		MK-2	322,000	205,000
14,000		MK-2	337,000	220,000
15,000		MK-2	337,000	220,000
16,000		MK-2	347,000	230,000
16,500		MK-2	347,000	230,000
17,500		MK-2	362,000	245,000
18,000		MK-2	362,000	245,000
18,500		MK-3	381,000	245,000
19,840	25/32	MK-3	396,000	260,000
20,000		MK-3	396,000	260,000
21,000		MK-3	396,000	260,000
21,430	27/32	MK-3	406,000	270,000
21,500		MK-3	406,000	270,000
24,610	31/32	MK-3	426,000	290,000

d1		S	l1	l2
mm	inch		mm	mm
28,570	1 1/8	MK-4	468,000	305,000
28,750		MK-4	468,000	305,000
29,370	1 5/32	MK-4	468,000	305,000
30,960	1 7/32	MK-4	483,000	320,000
32,250		MK-4	493,000	320,000
32,540	1 9/32	MK-4	493,000	320,000
34,000		MK-4	513,000	340,000



Punte con fori di refr., lung. elica DIN 1870



Materiale tagliente **HSCO**

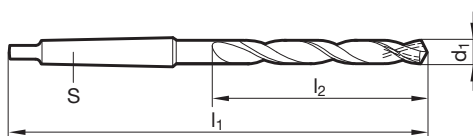
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 11,000$ • spoglia sul cono tagliente • radial coolant supply via Gühring coolant rings • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida
- M** •
- K** •
- N** • acciai ad alta resistenza • acciaio e ghisa acciaiata • acciai inossidabili e resistenti al calore • con R superiore fino a 1300 N/mm²
- S** •
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 794



Articolo nr. **375**

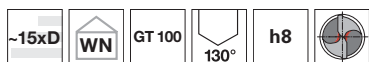
Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
11,000		MK-2	312,000	195,000
11,110	7/16	MK-2	312,000	195,000
11,510	29/64	MK-2	312,000	195,000
12,800		MK-2	322,000	205,000
13,500		MK-2	337,000	220,000
18,260	23/32	MK-3	381,000	245,000
19,000		MK-3	381,000	245,000
21,000		MK-3	396,000	260,000
21,430	27/32	MK-3	406,000	270,000
24,500		MK-3	426,000	290,000
25,000	63/64	MK-3	426,000	290,000
25,400	1	MK-3	426,000	290,000

d1		S	l1	l2
mm	inch		mm	mm
26,500		MK-3	426,000	290,000
28,570	1 1/8	MK-4	468,000	305,000
30,960	1 7/32	MK-4	483,000	320,000
32,540	1 9/32	MK-4	493,000	320,000
33,340	1 5/16	MK-4	493,000	320,000
34,000		MK-4	513,000	340,000



Punte con fori di refr., lung. elica DIN 1870



Materiale tagliente **HSCO**

Superficie

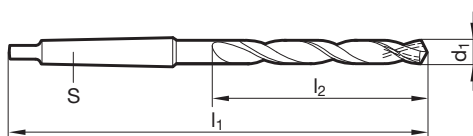
Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 11,000$ • spoglia sul cono tagliente • radial coolant supply in Morse taper • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida

M •
K •
N • acciai ad alta resistenza • acciaio e ghisa acciaiata • acciai inossidabili e resistenti al calore • con R superiore fino a 1300 N/mm²
S •
H ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 794



Articolo nr. **376**

d1		S	l1	l2
mm	inch		mm	mm
11,000		MK-2	312,000	195,000
13,000		MK-2	322,000	205,000
14,000		MK-2	337,000	220,000
16,500		MK-2	347,000	230,000
18,000		MK-2	362,000	245,000
19,840	25/32	MK-3	396,000	260,000

d1		S	l1	l2
mm	inch		mm	mm
21,500		MK-3	406,000	270,000
27,780	1 3/32	MK-4	468,000	305,000
29,000		MK-4	468,000	305,000

Punte con codolo conico Morse



Punte per fori conici



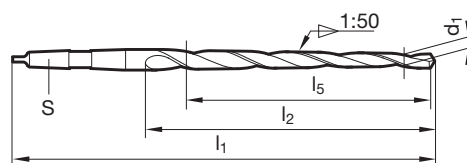
Materiale tagliente **HSS**

Superficie

Direzione di taglio

P ● Assott. del nocc. $\geq \varnothing 5,000$ • spoglia sul cono tagliente • per fori sferici su attacchi di perni sferici secondo DIN 1 (nuovo: DIN EN 22339), DIN 7978 (nuovo: DIN EN 28736), DIN 7977 (nuovo: DIN EN 28737) e DIN 258

- M** ○
- K** ●
- N** ○
- S** ○
- H** ○



Articolo nr. **532**

Punte con codolo conico Morse

d1	S	l1	l2	l5
mm		mm	mm	mm
5,000	MK-1	155,000	81,000	73,000
6,000	MK-1	187,000	108,000	105,000
8,000	MK-1	227,000	149,000	145,000
10,000	MK-1	257,000	180,000	175,000
12,000	MK-2	315,000	219,000	210,000
13,000	MK-2	325,000	229,000	220,000

d1	S	l1	l2	l5
mm		mm	mm	mm
14,000	MK-2	325,000	229,000	220,000
16,000	MK-2	335,000	239,000	230,000
20,000	MK-3	377,000	263,000	250,000
25,000	MK-3	427,000	311,000	300,000



Punte speciali, con taglienti in MD



- P** ○ Assott. del nocc. ≥ Ø 8,000 • affilatura su piani • con riporti in MD
- M** □
- K** ○
- N** □ acciaio per nastri per molle • ghisa conchigliata con oltre 300 HB
- S** □ • molibdeno puro • bronzi duri
- H** ○

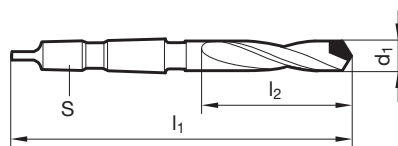
GÜHRINGNAVIGATOR

Dati di taglio a pag. 776

Materiale tagliente **Metallo duro**

Superficie ○

Direzione di taglio



Articolo nr. **705**

Punte con codolo conico Morse

d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-1	130,000	40,000
8,500		MK-1	135,000	45,000
10,000		MK-1	140,000	50,000
10,200		MK-1	140,000	50,000
10,500		MK-1	140,000	50,000
11,000		MK-1	140,000	50,000
11,500		MK-1	146,000	56,000
12,000		MK-1	146,000	56,000
13,000		MK-1	146,000	56,000
13,500		MK-2	168,000	63,000
14,000		MK-2	168,000	63,000
14,500		MK-2	168,000	63,000
15,000		MK-2	168,000	63,000
15,500		MK-2	175,000	70,000
16,000		MK-2	175,000	70,000
16,500		MK-2	175,000	70,000
17,000		MK-2	175,000	70,000
17,500		MK-2	185,000	80,000
18,000		MK-2	185,000	80,000
19,000		MK-2	185,000	80,000
19,500		MK-3	215,000	90,000
20,000		MK-3	215,000	90,000
21,000		MK-3	215,000	90,000
21,500		MK-3	215,000	90,000

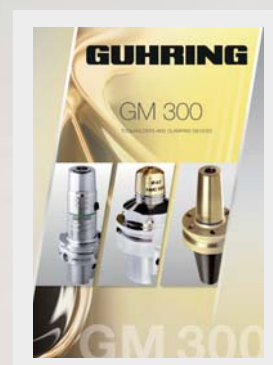
d1		S	l1	l2
mm	inch		mm	mm
22,000		MK-3	215,000	90,000
23,000		MK-3	225,000	100,000
24,000		MK-3	225,000	100,000
24,500		MK-3	225,000	100,000
25,000	63/64	MK-3	225,000	100,000
26,000		MK-4	260,000	110,000
26,500		MK-4	260,000	110,000
27,000		MK-4	260,000	110,000
28,000		MK-4	260,000	110,000
30,000		MK-4	275,000	125,000
32,000		MK-4	275,000	125,000
33,000		MK-4	290,000	140,000
38,000		MK-4	310,000	160,000
40,000		MK-4	310,000	160,000

Supporti cono Morse HSK-A

Per supporti cono Morse
con tenone

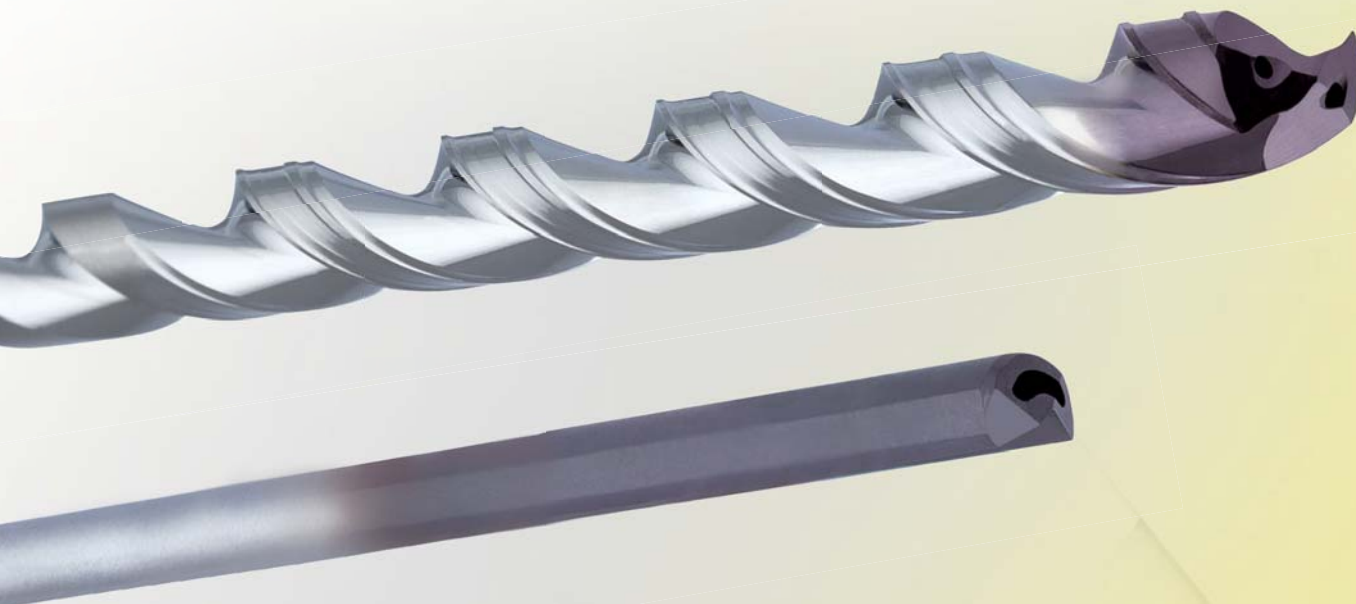


Ulteriori informazioni le trovate
nel nostro catalogo GM300.





PUNTE A CANNONE





PUNTE ELICOIDALI PER FORATURA PROFONDA IN MD



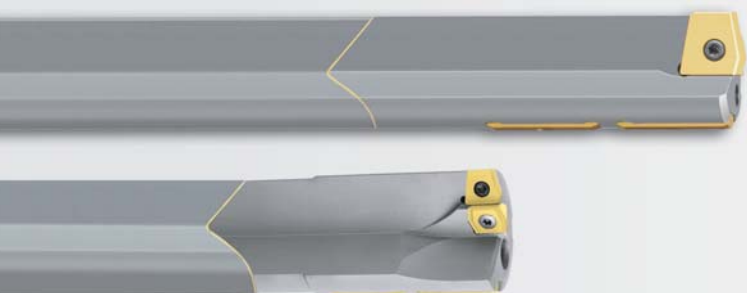
PUNTE A CANNONE A 1 TAGLIENTE IN MD
EB 100



PUNTE A CANNONE A 1 TAGLIENTE SALDO BRASATE
EB 80



PUNTE A CANNONE A 2 TAGLIENTI SALDO BRASATE
ZB 80



PUNTE A CANNONE A 1 TAGLIENTE A FISSAGGIO MECCANICO
EB 800



PUNTE PER FORATURA PROFONDA IN HSS/HSCO



- punte in Md per foratura profonda per velocità di taglio elevate e alta velocità di avanzamento
- profondità di foratura di 15xD
- diametro nominale 3,00 – 14,00 mm
- stabilità dell'utensile e raffreddamento ottimali
- lunga vita dell'utensile con tempi di lavorazione ridotti
- adatto alla maggior parte dei materiali

da pagina 523

- punte a cannone per le tolleranze strette di perforazione a 1 tagliente
- costruite a partire dal diametro nominale 0,9 mm
- diametro nominale fino a 16,00 mm
- lunghezza scanalatura a 500,00 mm; tuttavia max. 100xD
- fino a 80xD con un solo utensile
- adatte alla maggior parte dei materiali

da pagina 529

- punte a cannone con la testa in MD saldobrasato a scanalatura singola
- lunghezza totale di 3000.00 mm
- diametro nominale 2,00 – 40,00 mm
- vasta gamma di opzioni, es. punte a testa raggiate o a gradino
- adatte alla maggior parte dei materiali

da pagina 540

Punte a cannone

- punte a cannone in MD saldobrasato a 2 taglienti
- diametro nominale da 6.00 a 30.00 mm
- perfette per GG25, GGG40, GGV
- condotti di raffreddamento molto ampi
- affilatura frontale ottimizzata

da pagina 551

- punte a cannone a 1 tagliente con inserti intercambiabili e pattini di guida
- diametro nominale da 12.00 a 52.00 mm
- è possibile ogni combinazione di grado di metallo duro e rivestimento
- adatte per la maggior parte dei materiali

da pagina 553

- punte a spirale in HSS/HSCO per fori profondi per processi di lavorazione stabili
- gamma diametri 0,40 – 50,00 mm
- lunghezza scanalatura fino a 850 mm
- disponibili con codolo cilindrico o cono morse
- adatte a svariati materiali

da pagina 580



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte Ratio, con fori di refrigerazione

●	●	○	○	○	○		15xD	WN	RT 100 T	R	VHM	A	3,000 - 14,000	6509	760	523
●	●	○	○	○	○		20xD	WN	RT 100 T	R	VHM	A	3,000 - 14,000	6511	760	524
●	●	○	○	○	○		25xD	WN	RT 100 T	R	VHM	A	3,000 - 12,000	6512	760	525
●	●	○	○	○	○		30xD	WN	RT 100 T	R	VHM	A	3,000 - 10,000	6513	760	526
●	●	○	○	○	○		40xD	WN	RT 100 T	R	VHM	A	3,000 - 8,000	6514	760	527

Punte a cannone ad 1 tagliente EB 100

●	●	○	○	○	○		25xD	WN	EB 100	R	VHM	a	2,380 - 12,000	5646	808	529
●	●	○	○	○	○		50xD	WN	EB 100	R	VHM	a	2,380 - 8,000	5647	808	530
●	●	○	○	○	○		75xD	WN	EB 100	R	VHM	a	2,380 - 6,000	5648	808	531
○	○	○	●	●	○		45,00	WN	EB 100	R	VHM	○	1,200 - 3,200	5024	808	532
●	○	○	○	○	○		45,00	WN	EB 100	R	VHM	A	1,200 - 3,200	5632	808	533
○	○	○	●	●	○		80,00	WN	EB 100	R	VHM	○	1,200 - 5,000	5020	808	534
●	○	○	○	○	○		80,00	WN	EB 100	R	VHM	A	1,200 - 5,000	5633	808	535
○	○	○	●	●	○		120,00	WN	EB 100	R	VHM	○	1,500 - 5,000	5026	808	536
●	○	○	○	○	○		120,00	WN	EB 100	R	VHM	A	1,500 - 5,000	5637	808	537
○	○	○	●	●	○		160,00	WN	EB 100	R	VHM	○	1,500 - 8,000	5021	808	538
●	○	○	○	○	○		160,00	WN	EB 100	R	VHM	A	1,500 - 8,000	5638	808	539

Punte a cannone

Punte a cannone ad 1 tagliente EB 100

●	○	○	○	○	○		20xD	WN	EB 80	R	HM	S	4,000 - 12,000	5018	808	540
○	●	○	○	○	○		20xD	WN	EB 80	R	HM	C	3,970 - 12,700	5639	808	541
●	○	○	○	○	○		30xD	WN	EB 80	R	HM	S	4,000 - 12,000	5460	808	542
○	●	○	○	○	○		30xD	WN	EB 80	R	HM	C	3,970 - 12,700	5640	808	543
●	○	○	○	○	○		40xD	WN	EB 80	R	HM	○	4,000 - 12,000	5689	808	544
●	○	○	○	○	○		40xD	WN	EB 80	R	HM	S	4,000 - 12,000	5022	808	545
○	●	○	○	○	○		40xD	WN	EB 80	R	HM	C	3,970 - 12,700	5641	808	546



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
Punte a cannone ad 1 tagliente EB 100																
•	○	•	○	○	○		80xD	WN	EB 80	R	HM	○	3,970 - 11,950	5690	808	547
•	○	•	○	○	○		80xD	WN	EB 80	R	HM	Ⓢ	4,950 - 11,950	5023	808	548
○	•	○	•	○	○		80xD	WN	EB 80	R	HM	Ⓢ	4,950 - 12,650	5642	808	549
•	○	•	•	○	○		1100,00	WN	EB 80	R	HM	Ⓢ	6,000 - 22,000	5164	808	550
Punte a cannone a 2 taglienti ZB 80																
•	○	•	○	○	○		30xD	WN	ZB 80	R	HM	○	8,000 - 12,000	5019	808	551
•	○	•	○	○	○		30xD	WN	ZB 80	R	HM	○	8,000 - 12,000	5643	808	552
Punte a cannone ad 1 tagliente EB 800																
•	○	•	○	○	○		30xD	WN	EB 800	R	HM	Ⓢ	12,000 - 24,000	5644	808	555
Giravite Torx																
•	○	•	○	○	○			WN						1612		558
Chiavi dinamometriche																
•	○	•	○	○	○			WN						4915		559
Spine Torx																
•	○	•	○	○	○			WN						4917		560
Viti di serraggio																
•	○	•	○	○	○			WN						4071		561
Bussole di foratura																
•	○	•	○	○	○			WN			VHM			5748		565
•	○	•	○	○	○			WN			HSS			5747		566
Dischi a tenuta stagna per punte a cannone ad 1 tagliente																
•	○	•	○	○	○			WN						5752		569
Bussole a lunetta per punte a cannone ad 1 tagliente																
•	○	•	○	○	○			WN						5750		571
Bussole lunetta per punte a cannone ad 1 e 2 taglienti																
•	○	•	○	○	○			WN						5749		573

Punte a cannone



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Dischi a tenuta stagna per punta a cannone a 2 taglienti

															5753	575
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Bussole a lunetta per punta a cannone a 2 taglienti

															5751	576
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Viti di regolazione

															5754	577
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															5755	578
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Punte elicoidali, lunghe

Punte a cannone

•	•	•	•	•	•		~10xD	DIN 340	N	(R)	HSS		0,400 - 36,510	217	786	580
•	•	•	•	•	•		~10xD	DIN 340	N	(R)	HSS		0,500 - 22,220	667	786	583
•	•	•	•	•	•		~10xD	DIN 340	N	(L)	HSS		0,450 - 29,000	220	786	585
•	•	•	•	•	•		~10xD	DIN 340	N	(R)	HSS		2,950 - 25,250	204	786	587
•	•	•	•	•	•		~10xD	DIN 340	H	(R)	HSS		0,500 - 16,000	218	786	588
•	•	•	•	•	•		~10xD	DIN 340	H	(L)	HSS		0,450 - 15,000	221	786	590
•	•	•	•	•	•		~10xD	DIN 340	W	(R)	HSS		0,500 - 20,640	219	786	591
•	•	•	•	•	•		~10xD	DIN 340	GT 100	(R)	HSS		1,000 - 14,000	535	786	593
•	•	•	•	•	•		~10xD	DIN 340	GT 100	(R)	HSS		1,000 - 14,000	668	786	596
•	•	•	•	•	•		~10xD	DIN 340	GT 100	(R)	HSS		1,000 - 10,000	2462	786	598
•	•	•	•	•	•		~10xD	DIN 340	GT 100	(L)	HSS		1,400 - 13,000	506	786	599
•	•	•	•	•	•		~10xD	DIN 340	GT 50	(R)	HSS		1,000 - 32,600	501	786	600
•	•	•	•	•	•		~10xD	DIN 340	N	(R)	HSCO		0,500 - 22,000	317	792	602
•	•	•	•	•	•		~10xD	DIN 340	GT 100	(R)	HSCO		1,000 - 16,000	336	792	604
•	•	•	•	•	•		~10xD	DIN 340	GT 100	(R)	HSCO		1,000 - 12,000	396	792	606
•	•	•	•	•	•		~10xD	DIN 340	Ti	(R)	HSCO		1,000 - 15,000	617	792	607
•	•	•	•	•	•		~10xD	DIN 340	Ti	(R)	HSCO		1,000 - 10,200	669	792	609
•	•	•	•	•	•		~10xD	WN	N	(R)	VHM		0,500 - 1,450	706	792	611



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte elicoidali in lunghezze speciali, grandezza 1

•	•	•	•	•	•		~15xD	DIN 1869	N	(R)	HSS		1,600 - 13,000	235	788	612
•	•	•	•	•	•		~15xD	DIN 1869	GT 100	(R)	HSS		1,950 - 13,000	502	790	614
•	•	•	•	•	•		~15xD	DIN 1869	GT 100	(R)	HSS		2,000 - 12,700	670	790	616
•	•	•	•	•	•		~15xD	DIN 1869	GT 50	(R)	HSS		2,000 - 12,700	524	788	617
•	•	•	•	•	•		~15xD	DIN 1869	GT 100	(R)	HSCO		2,700 - 10,000	618	794	619

Punte elicoidali in lunghezze speciali, grandezza 2

•	•	•	•	•	•		~20xD	DIN 1869	N	(R)	HSS		2,700 - 13,000	236	788	620
•	•	•	•	•	•		~20xD	DIN 1869	GT 100	(R)	HSS		2,000 - 13,000	503	790	621
•	•	•	•	•	•		~20xD	DIN 1869	GT 100	(R)	HSS		2,700 - 8,500	671	790	623
•	•	•	•	•	•		~20xD	DIN 1869	GT 50	(R)	HSS		3,000 - 13,000	528	788	624
•	•	•	•	•	•		~20xD	DIN 1869	GT 100	(R)	HSCO		3,000 - 10,000	619	794	625

Punte elicoidali in lunghezze speciali, grandezza 3

•	•	•	•	•	•		~25xD	DIN 1869	N	(R)	HSS		3,500 - 13,000	237	788	626
•	•	•	•	•	•		~25xD	DIN 1869	GT 100	(R)	HSS		2,500 - 13,000	504	790	627
•	•	•	•	•	•		~25xD	DIN 1869	GT 50	(R)	HSS		2,500 - 10,000	529	788	628
•	•	•	•	•	•		~25xD	DIN 1869	GT 100	(R)	HSCO		2,500 - 13,000	571	794	629

Punte elicoidali, extra lunghe

•	•	•	•	•	•		>25xD	WN	GT 100	(R)	HSS		6,000 - 12,000	242	790	630
•	•	•	•	•	•		>25xD	WN	GT 100	(R)	HSS		8,000 - 12,000	243	790	631
•	•	•	•	•	•		>25xD	WN	GT 100	(R)	HSS		10,000 - 12,000	244	790	632

Punte elicoidali in lunghezze speciali, grandezza 1

•	•	•	•	•	•		~15xD	DIN 1870	N	(R)	HSS		8,000 - 50,000	266	788	633
•	•	•	•	•	•		~15xD	DIN 1870	GT 100	(R)	HSS		8,000 - 30,000	526	790	634
•	•	•	•	•	•		~15xD	DIN 1870	GT 50	(R)	HSS		8,500 - 33,000	525	788	635
•	•	•	•	•	•		~15xD	DIN 1870	GT 100	(R)	HSCO		9,520 - 30,000	620	794	636

Punte a cannone



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte elicoidali in lunghezze speciali, grandezza 2

•	•	•	•	•	•		~20xD	DIN 1870	N	(R)	HSS	○	8,000 - 45,000	267	788	637
•	•	•	•	•	•		~20xD	DIN 1870	GT 100	(R)	HSS	○ ⁺⁰ / _{16,0}	8,000 - 30,000	527	790	638
○	•	•	•	•	•		~20xD	DIN 1870	GT 50	(R)	HSS	○	8,500 - 31,000	542	788	639
•	•	•	•	•	•		~20xD	DIN 1870	GT 100	(R)	HSCO	○ ⁺⁰ / _{16,0}	9,520 - 23,420	621	794	640

Punte con fori di refr., lung. elica DIN 1870

•	•	•	•	•	•		~15xD	WN	GT 100	(R)	HSCO	○	11,000 - 34,000	374	794	641
•	•	•	•	•	•		~15xD	WN	GT 100	(R)	HSCO	○	11,000 - 34,000	375	794	642
•	•	•	•	•	•		~15xD	WN	GT 100	(R)	HSCO	○	11,000 - 29,000	376	794	643

Punte a cannone



Punte Ratio, con fori di refrigerazione

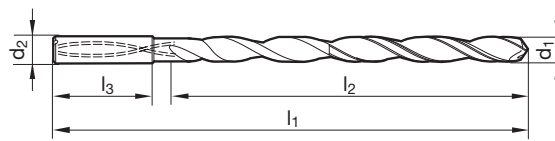


- P** • Assott. del nocc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • tagliente principale forma concava • taglio trasversale della scanalatura ottimizzato • max. taglio trasversale del foro • attenzione alla press. del refrig.
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H** ○

Materiale tagliente	Int. in MD
Superficie	A
Forma del gambo	HA

GÜHRING NAVIGATOR

Dati di taglio a pag. 760



Articolo nr. **6509**

d1		d2 h6	l1	l2	l3	d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	95,000	55,000	36,000	7,940	5/16	8,000	183,000	143,000	36,000
3,170	1/8	6,000	106,000	67,000	36,000	8,000		8,000	183,000	143,000	36,000
3,500		6,000	116,000	76,000	36,000	8,330	21/64	10,000	204,000	160,000	40,000
3,570	9/64	6,000	116,000	76,000	36,000	8,500		10,000	204,000	160,000	40,000
3,970	5/32	6,000	116,000	76,000	36,000	8,730	11/32	10,000	204,000	160,000	40,000
4,000		6,000	116,000	76,000	36,000	9,000		10,000	204,000	160,000	40,000
4,370	11/64	6,000	133,000	93,000	36,000	9,130	23/64	10,000	221,000	177,000	40,000
4,500		6,000	133,000	93,000	36,000	9,520	3/8	10,000	221,000	177,000	40,000
4,760	3/16	6,000	133,000	93,000	36,000	9,920	25/64	10,000	221,000	177,000	40,000
5,000		6,000	133,000	93,000	36,000	10,000		10,000	221,000	177,000	40,000
5,100		6,000	150,000	110,000	36,000	10,320	13/32	12,000	247,000	198,000	45,000
5,160	13/64	6,000	150,000	110,000	36,000	10,720	27/64	12,000	247,000	198,000	45,000
5,410		6,000	150,000	110,000	36,000	11,000		12,000	247,000	198,000	45,000
5,500		6,000	150,000	110,000	36,000	11,110	7/16	12,000	263,000	214,000	45,000
5,560	7/32	6,000	150,000	110,000	36,000	11,510	29/64	12,000	263,000	214,000	45,000
5,950	15/64	6,000	150,000	110,000	36,000	11,910	15/32	12,000	263,000	214,000	45,000
6,000		6,000	150,000	110,000	36,000	12,000		12,000	263,000	214,000	45,000
6,350	1/4	8,000	167,000	127,000	36,000	12,300	31/64	14,000	297,000	248,000	45,000
6,500		8,000	167,000	127,000	36,000	12,700	1/2	14,000	297,000	248,000	45,000
6,750	17/64	8,000	167,000	127,000	36,000	13,100	33/64	14,000	297,000	248,000	45,000
7,000		8,000	167,000	127,000	36,000	13,490	17/32	14,000	297,000	248,000	45,000
7,140	9/32	8,000	183,000	143,000	36,000	13,890	35/64	14,000	297,000	248,000	45,000
7,500		8,000	183,000	143,000	36,000	14,000		14,000	297,000	248,000	45,000
7,540	19/64	8,000	183,000	143,000	36,000						

Punte a cannone



Punte Ratio, con fori di refrigerazione

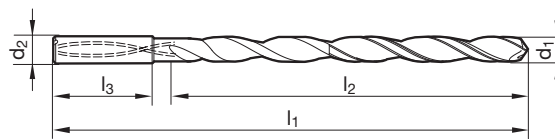


- P** • Assott. del noc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • tagliente principale forma concava • taglio trasversale della scanalatura ottimizzato • max. taglio trasversale del foro • attenzione alla press. del refrig.
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H** ○

Materiale tagliente	Int. in MD
Superficie	A
Forma del gambo	HA

GÜHRING NAVIGATOR

Dati di taglio a pag. 760



Articolo nr. **6511**

Punte a cannone

d1		d2 h6	l1	l2	l3	d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	110,000	70,000	36,000	8,730	11/32	10,000	249,000	205,000	40,000
3,100		6,000	123,000	83,000	36,000	9,000		10,000	249,000	205,000	40,000
3,170	1/8	6,000	123,000	83,000	36,000	9,130	23/64	10,000	271,000	227,000	40,000
3,500		6,000	136,000	96,000	36,000	9,520	3/8	10,000	271,000	227,000	40,000
3,570	9/64	6,000	136,000	96,000	36,000	9,920	25/64	10,000	271,000	227,000	40,000
3,970	5/32	6,000	136,000	96,000	36,000	10,000		10,000	271,000	227,000	40,000
4,000		6,000	136,000	96,000	36,000	10,320	13/32	12,000	302,000	253,000	45,000
4,200		6,000	158,000	118,000	36,000	10,720	27/64	12,000	302,000	253,000	45,000
4,370	11/64	6,000	158,000	118,000	36,000	11,000		12,000	302,000	253,000	45,000
4,500		6,000	158,000	118,000	36,000	11,110	7/16	12,000	323,000	274,000	45,000
4,760	3/16	6,000	158,000	118,000	36,000	11,510	29/64	12,000	323,000	274,000	45,000
5,000		6,000	158,000	118,000	36,000	11,910	15/32	12,000	323,000	274,000	45,000
5,100		6,000	180,000	140,000	36,000	12,000		12,000	323,000	274,000	45,000
5,160	13/64	6,000	180,000	140,000	36,000	12,300	31/64	14,000	367,000	318,000	45,000
5,410		6,000	180,000	140,000	36,000	12,700	1/2	14,000	367,000	318,000	45,000
5,500		6,000	180,000	140,000	36,000	13,100	33/64	14,000	367,000	318,000	45,000
5,560	7/32	6,000	180,000	140,000	36,000	13,490	17/32	14,000	367,000	318,000	45,000
5,950	15/64	6,000	180,000	140,000	36,000	13,890	35/64	14,000	367,000	318,000	45,000
6,000		6,000	180,000	140,000	36,000	14,000		14,000	367,000	318,000	45,000
6,350	1/4	8,000	202,000	162,000	36,000						
6,500		8,000	202,000	162,000	36,000						
6,750	17/64	8,000	202,000	162,000	36,000						
7,000		8,000	202,000	162,000	36,000						
7,140	9/32	8,000	223,000	183,000	36,000						
7,500		8,000	223,000	183,000	36,000						
7,540	19/64	8,000	223,000	183,000	36,000						
7,940	5/16	8,000	223,000	183,000	36,000						
8,000		8,000	223,000	183,000	36,000						
8,330	21/64	10,000	249,000	205,000	40,000						
8,500		10,000	249,000	205,000	40,000						



Punte Ratio, con fori di refrigerazione

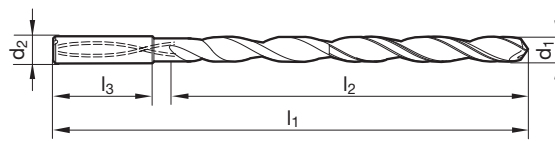


- P** • Assott. del nocch. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • tagliente principale forma concava • taglio trasversale della scanalatura ottimizzato • max. taglio trasversale del foro • attenzione alla press. del refrig.
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H** ○

Materiale tagliente	Int. in MD
Superficie	A
Forma del gambo	HA

GÜHRING NAVIGATOR

Dati di taglio a pag. 760



Articolo nr. **6512**

d1		d2 h6	l1	l2	l3	d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	125,000	85,000	36,000	7,000		8,000	237,000	197,000	36,000
3,100		6,000	141,000	101,000	36,000	7,140	9/32	8,000	263,000	223,000	36,000
3,170	1/8	6,000	141,000	101,000	36,000	7,500		8,000	263,000	223,000	36,000
3,500		6,000	156,000	116,000	36,000	7,540	19/64	8,000	263,000	223,000	36,000
3,570	9/64	6,000	156,000	116,000	36,000	7,940	5/16	8,000	263,000	223,000	36,000
3,800		6,000	156,000	116,000	36,000	8,000		8,000	263,000	223,000	36,000
3,970	5/32	6,000	156,000	116,000	36,000	8,330	21/64	10,000	294,000	250,000	40,000
4,000		6,000	156,000	116,000	36,000	8,500		10,000	294,000	250,000	40,000
4,200		6,000	183,000	143,000	36,000	8,730	11/32	10,000	294,000	250,000	40,000
4,370	11/64	6,000	183,000	143,000	36,000	8,800		10,000	294,000	250,000	40,000
4,500		6,000	183,000	143,000	36,000	9,000		10,000	294,000	250,000	40,000
4,760	3/16	6,000	183,000	143,000	36,000	9,130	23/64	10,000	321,000	277,000	40,000
5,000		6,000	183,000	143,000	36,000	9,520	3/8	10,000	321,000	277,000	40,000
5,100		6,000	210,000	170,000	36,000	9,920	25/64	10,000	321,000	277,000	40,000
5,160	13/64	6,000	210,000	170,000	36,000	10,000		10,000	321,000	277,000	40,000
5,410		6,000	210,000	170,000	36,000	10,320	13/32	12,000	359,000	310,000	45,000
5,500		6,000	210,000	170,000	36,000	10,720	27/64	12,000	359,000	310,000	45,000
5,560	7/32	6,000	210,000	170,000	36,000	11,000		12,000	359,000	310,000	45,000
5,950	15/64	6,000	210,000	170,000	36,000	11,110	7/16	12,000	386,000	337,000	45,000
6,000		6,000	210,000	170,000	36,000	11,510	29/64	12,000	386,000	337,000	45,000
6,300		8,000	237,000	197,000	36,000	11,910	15/32	12,000	386,000	337,000	45,000
6,350	1/4	8,000	237,000	197,000	36,000	12,000		12,000	386,000	337,000	45,000
6,500		8,000	237,000	197,000	36,000						
6,750	17/64	8,000	237,000	197,000	36,000						

Punte a cannone



Punte Ratio, con fori di refrigerazione

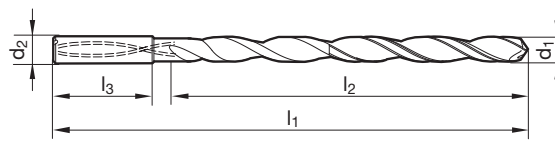


- P** • Assott. del nocc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • tagliente principale forma concava • taglio trasversale della scanalatura ottimizzato • max. taglio trasversale del foro • attenzione alla press. del refrig.
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H** ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 760

Materiale tagliente	Int. in MD
Superficie	A
Forma del gambo	HA



Articolo nr. **6513**

Punte a cannone

d1		d2 h6	l1	l2	l3	d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	140,000	100,000	36,000	7,000		8,000	272,000	232,000	36,000
3,100		6,000	158,000	118,000	36,000	7,140	9/32	8,000	303,000	263,000	36,000
3,170	1/8	6,000	158,000	118,000	36,000	7,500		8,000	303,000	263,000	36,000
3,500		6,000	176,000	136,000	36,000	7,540	19/64	8,000	303,000	263,000	36,000
3,570	9/64	6,000	176,000	136,000	36,000	7,940	5/16	8,000	303,000	263,000	36,000
3,800		6,000	176,000	136,000	36,000	8,000		8,000	303,000	263,000	36,000
3,970	5/32	6,000	176,000	136,000	36,000	8,330	21/64	10,000	339,000	295,000	40,000
4,000		6,000	176,000	136,000	36,000	8,500		10,000	339,000	295,000	40,000
4,200		6,000	208,000	168,000	36,000	8,730	11/32	10,000	339,000	295,000	40,000
4,370	11/64	6,000	208,000	168,000	36,000	8,800		10,000	339,000	295,000	40,000
4,500		6,000	208,000	168,000	36,000	9,000		10,000	339,000	295,000	40,000
4,760	3/16	6,000	208,000	168,000	36,000	9,130	23/64	10,000	371,000	327,000	40,000
5,000		6,000	208,000	168,000	36,000	9,520	3/8	10,000	371,000	327,000	40,000
5,100		6,000	240,000	200,000	36,000	9,920	25/64	10,000	371,000	327,000	40,000
5,160	13/64	6,000	240,000	200,000	36,000	10,000		10,000	371,000	327,000	40,000
5,410		6,000	240,000	200,000	36,000						
5,500		6,000	240,000	200,000	36,000						
5,560	7/32	6,000	240,000	200,000	36,000						
5,950	15/64	6,000	240,000	200,000	36,000						
6,000		6,000	240,000	200,000	36,000						
6,300		8,000	272,000	232,000	36,000						
6,350	1/4	8,000	272,000	232,000	36,000						
6,500		8,000	272,000	232,000	36,000						
6,750	17/64	8,000	272,000	232,000	36,000						



Punte Ratio, con fori di refrigerazione



Materiale tagliente **Int. in MD**

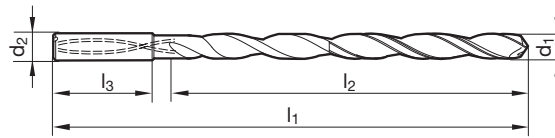
Superficie **A**

Forma del gambo HA

- P** • Assott. del nocc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • tagliente principale forma concava • taglio trasversale della scanalatura ottimizzato • max. taglio trasversale del foro • attenzione alla press. del refrig.
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H** ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 760



Articolo nr. **6514**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	170,000	130,000	36,000
3,100		6,000	193,000	153,000	36,000
3,170	1/8	6,000	193,000	153,000	36,000
3,500		6,000	193,000	153,000	36,000
3,570	9/64	6,000	216,000	176,000	36,000
3,800		6,000	216,000	176,000	36,000
3,970	5/32	6,000	216,000	176,000	36,000
4,000		6,000	216,000	176,000	36,000
4,200		6,000	238,000	198,000	36,000
4,370	11/64	6,000	238,000	198,000	36,000
4,500		6,000	238,000	198,000	36,000
4,760	3/16	6,000	258,000	218,000	36,000
5,000		6,000	258,000	218,000	36,000
5,100		6,000	280,000	240,000	36,000
5,160	13/64	6,000	280,000	240,000	36,000
5,410		6,000	280,000	240,000	36,000
5,500		6,000	280,000	240,000	36,000
5,560	7/32	6,000	300,000	260,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
5,950	15/64	6,000	300,000	260,000	36,000
6,000		6,000	300,000	260,000	36,000
6,300		8,000	322,000	282,000	36,000
6,350	1/4	8,000	322,000	282,000	36,000
6,500		8,000	322,000	282,000	36,000
6,750	17/64	8,000	342,000	302,000	36,000
7,000		8,000	342,000	302,000	36,000
7,140	9/32	8,000	363,000	323,000	36,000
7,500		8,000	363,000	323,000	36,000
7,540	19/64	8,000	383,000	343,000	36,000
7,940	5/16	8,000	383,000	343,000	36,000
8,000		8,000	383,000	343,000	36,000

Punte a cannone



servizio super veloce per le punte a cannone

potete ottenere la vostra punta a cannone a 1 tagliente fatta ad hoc in breve tempo: l'offerta super rapida di punte a cannone Gühring lo rende possibile

EB 100

Opzioni di costruzione:

- lunghezza elica:

45 mm Ø 1,2 / 1,5 / 1,59 / 1,6 / 1,98 / 2,0 / 2,5 / 2,7 / 3,0 / 3,2

80 mm Ø 1,5 / 1,59 / 1,6 / 1,98 / 2,0 / 2,5 / 2,7 / 3,0 / 3,2 / 3,5 / 4,0 / 4,2 / 4,5 / 5,0

120 mm Ø 1,5 / 1,59 / 1,6 / 1,98 / 2,0 / 2,5 / 2,7 / 3,0 / 3,2 / 3,5 / 4,0 / 4,2 / 4,5 / 5,0

160 mm Ø 1,5 / 1,59 / 1,6 / 1,98 / 2,0 / 2,5 / 2,7 / 3,0 / 3,2 / 3,5 / 4,0 / 4,2 / 4,5 / 5,0 / 6,0 / 8,0

- soluzioni speciali: diametro 0.9 – 16.0 mm, massima lung tagliente 500 mm
- qualità di metallo duro: K30/K40
- forma taglienti: G
- lucide o rivestite
- in combinazione con i codoli standard

EB 80

Opzioni di costruzione:

- diametro nominale 2,0 – 13,9 mm con incrementi di 0,1 mm
- diametro nominale 14,0 – 22,0 mm con incrementi di 0,5 mm
- lunghezza totale di 1.200 mm, lunghezza elica min. 20xD
- forma G
- serraggio comune
- Tipo di carburo K15
- lucide con affilatura frontale per la ghisa e l'alluminio
- rivestimento S(TiN) con rompitruciolo longitudinale per acciai a truciolo lungo
- in combinazione con rivestimenti convenzionali



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Int. in MD**

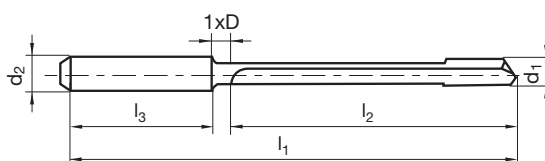
Superficie **ⓐ**

Forma del gambo HA

P	•	forma tagliente G • punta in metallo duro con attacco in metallo duro integrale e parte terminale conica MMS da d1 =3 mm e d2 = 6 mm
M	•	
K	○	
N		
S	○	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5646**

d1 h5		d2 h6		l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	mm	
2,380	3/32	4,000	100,000	70,000	28,000	2,380	
2,500		4,000	115,000	85,000	28,000	2,500	
2,780	7/64	4,000	115,000	85,000	28,000	2,780	
3,000		6,000	145,000	105,000	36,000	3,000	
3,170	1/8	6,000	145,000	105,000	36,000	3,170	
3,500		6,000	145,000	105,000	36,000	3,500	
3,570	9/64	6,000	160,000	120,000	36,000	3,570	
3,970	5/32	6,000	160,000	120,000	36,000	3,970	
4,000		6,000	160,000	120,000	36,000	4,000	
4,370	11/64	6,000	220,000	180,000	36,000	4,370	
4,760	3/16	6,000	220,000	180,000	36,000	4,760	
5,000		6,000	220,000	180,000	36,000	5,000	
5,160	13/64	6,000	220,000	180,000	36,000	5,160	
5,560	7/32	6,000	220,000	180,000	36,000	5,560	
5,950	15/64	6,000	220,000	180,000	36,000	5,950	
6,000		6,000	220,000	180,000	36,000	6,000	
6,350	1/4	8,000	260,000	210,000	36,000	6,350	
6,750	17/64	8,000	260,000	210,000	36,000	6,750	
7,000		8,000	260,000	210,000	36,000	7,000	
7,140	9/32	8,000	285,000	240,000	36,000	7,140	
7,540	19/64	8,000	285,000	240,000	36,000	7,540	
7,940	5/16	8,000	285,000	240,000	36,000	7,940	
8,000		8,000	285,000	240,000	36,000	8,000	
9,000		10,000	350,000	300,000	40,000	9,000	
10,000		10,000	350,000	300,000	40,000	10,000	
11,000		12,000	420,000	360,000	45,000	11,000	
12,000		12,000	420,000	360,000	45,000	12,000	

Punte a cannone



Punte a cannone ad 1 tagliente EB 100

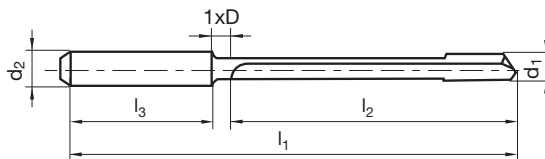


P	•	forma tagliente G • punta in metallo duro con attacco in metallo duro integrale e parte terminale conica MMS da d1 =3 mm e d2 = 6 mm
M	•	
K	○	
N		
S	○	
H	○	

GÜHRING NAVIGATOR

Dati di taglio a pag. 808

Materiale tagliente	Int. in MD
Superficie	
Forma del gambo	HA



Articolo nr. **5647**

Punte a cannone

d1 h5		d2 h6		l1	l2	l3	Codice
mm	inch	mm		mm	mm	mm	
2,380	3/32	4,000		160,000	130,000	28,000	2,380
2,500		4,000		185,000	155,000	28,000	2,500
2,780	7/64	4,000		185,000	155,000	28,000	2,780
3,000		6,000		230,000	190,000	36,000	3,000
3,170	1/8	6,000		230,000	190,000	36,000	3,170
3,500		6,000		230,000	190,000	36,000	3,500
3,570	9/64	6,000		260,000	220,000	36,000	3,570
3,970	5/32	6,000		260,000	220,000	36,000	3,970
4,000		6,000		260,000	220,000	36,000	4,000
4,370	11/64	6,000		370,000	330,000	36,000	4,370
4,760	3/16	6,000		370,000	330,000	36,000	4,760
5,000		6,000		370,000	330,000	36,000	5,000
5,160	13/64	6,000		370,000	330,000	36,000	5,160
5,560	7/32	6,000		370,000	330,000	36,000	5,560
5,950	15/64	6,000		370,000	330,000	36,000	5,950
6,000		6,000		370,000	330,000	36,000	6,000
6,350	1/4	8,000		430,000	385,000	36,000	6,350
6,750	17/64	8,000		430,000	385,000	36,000	6,750
7,000		8,000		430,000	385,000	36,000	7,000
7,140	9/32	8,000		485,000	440,000	36,000	7,140
7,540	19/64	8,000		485,000	440,000	36,000	7,540
7,940	5/16	8,000		485,000	440,000	36,000	7,940
8,000		8,000		485,000	440,000	36,000	8,000



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Int. in MD**

Superficie **ⓐ**

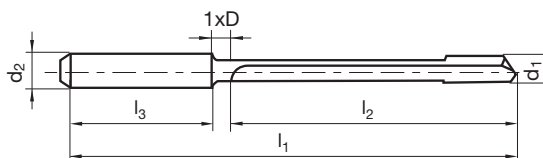
Forma del gambo HA

P • forma tagliente G • punta in metallo duro con attacco in metallo duro integrale e parte terminale conica MMS da d1 = 3 mm e d2 = 6 mm

P	•
M	•
K	○
N	○
S	○
H	○

GÜHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5648**

d1 h5		d2 h6		l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	mm	
2,380	3/32	4,000	220,000	190,000	28,000	2,380	
2,500		4,000	255,000	220,000	28,000	2,500	
2,780	7/64	4,000	255,000	220,000	28,000	2,780	
3,000		6,000	320,000	280,000	36,000	3,000	
3,170	1/8	6,000	320,000	280,000	36,000	3,170	
3,500		6,000	320,000	280,000	36,000	3,500	
3,570	9/64	6,000	360,000	320,000	36,000	3,570	
3,970	5/32	6,000	360,000	320,000	36,000	3,970	
4,000		6,000	360,000	320,000	36,000	4,000	
4,370	11/64	6,000	525,000	485,000	36,000	4,370	
4,760	3/16	6,000	525,000	485,000	36,000	4,760	
5,000		6,000	525,000	485,000	36,000	5,000	
5,160	13/64	6,000	525,000	485,000	36,000	5,160	
5,560	7/32	6,000	525,000	485,000	36,000	5,560	
5,950	15/64	6,000	525,000	485,000	36,000	5,950	
6,000		6,000	525,000	485,000	36,000	6,000	

Punte a cannone



Punte a cannone ad 1 tagliente EB 100

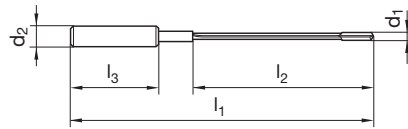


P	○	lunghezza elica 45 mm • forma tagliente G
M	○	
K	○	
N	●	
S	●	
H	○	

GÜHRING NAVIGATOR

Dati di taglio a pag. 808

Materiale tagliente	Int. in MD
Superficie	○
Forma del gambo	HA



Articolo nr. **5024**

Punte a cannone

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
1,200		4,000	90,000	45,000	28,000	1,200
1,500		4,000	90,000	45,000	28,000	1,500
1,590	1/16	4,000	90,000	45,000	28,000	1,590
1,600		4,000	90,000	45,000	28,000	1,600
1,980	5/64	4,000	90,000	45,000	28,000	1,980
2,000		4,000	90,000	45,000	28,000	2,000
2,500		10,000	100,000	45,000	40,000	2,500
2,700		10,000	100,000	45,000	40,000	2,700
3,000		10,000	100,000	45,000	40,000	3,000
3,200		10,000	100,000	45,000	40,000	3,200



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Int. in MD**

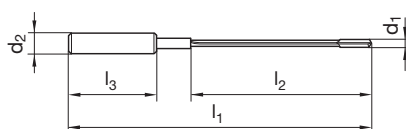
Superficie **A**

Forma del gambo HA

P	•	lunghezza elica 45 mm • forma tagliente G
M	○	
K	•	
N	○	
S	○	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5632**

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
1,200		4,000	90,000	45,000	28,000	1,200
1,500		4,000	90,000	45,000	28,000	1,500
1,590	1/16	4,000	90,000	45,000	28,000	1,590
1,600		4,000	90,000	45,000	28,000	1,600
1,980	5/64	4,000	90,000	45,000	28,000	1,980
2,000		4,000	90,000	45,000	28,000	2,000
2,500		10,000	100,000	45,000	40,000	2,500
2,700		10,000	100,000	45,000	40,000	2,700
3,000		10,000	100,000	45,000	40,000	3,000
3,200		10,000	100,000	45,000	40,000	3,200

Punte a cannone



Punte a cannone ad 1 tagliente EB 100

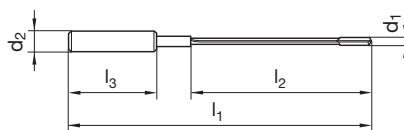


P	○	lunghezza elica 80 mm • forma tagliente G
M	○	
K	○	
N	●	
S	●	
H	○	

GÜHRING NAVIGATOR

Dati di taglio a pag. 808

Materiale tagliente	Int. in MD
Superficie	○
Forma del gambo	HA



Articolo nr. **5020**

Punte a cannone

d1 h5		d2 h6		l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	mm	
1,200		4,000	125,000	80,000	28,000	1,200	
1,500		4,000	125,000	80,000	28,000	1,500	
1,590	1/16	4,000	125,000	80,000	28,000	1,590	
1,600		4,000	125,000	80,000	28,000	1,600	
1,980	5/64	4,000	125,000	80,000	28,000	1,980	
2,000		4,000	125,000	80,000	28,000	2,000	
2,500		10,000	135,000	80,000	40,000	2,500	
2,700		10,000	135,000	80,000	40,000	2,700	
3,000		10,000	135,000	80,000	40,000	3,000	
3,200		10,000	135,000	80,000	40,000	3,200	
3,500		10,000	135,000	80,000	40,000	3,500	
4,000		10,000	135,000	80,000	40,000	4,000	
4,200		10,000	135,000	80,000	40,000	4,200	
4,500		10,000	135,000	80,000	40,000	4,500	
5,000		10,000	135,000	80,000	40,000	5,000	



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Int. in MD**

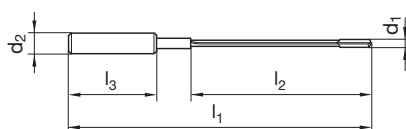
Superficie **A**

Forma del gambo HA

P	•	lunghezza elica 80 mm • forma tagliente G
M	○	
K	•	
N	○	
S	○	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5633**

d1 h5		d2 h6		l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	mm	
1,200		4,000	125,000	80,000	28,000	1,200	
1,500		4,000	125,000	80,000	28,000	1,500	
1,590	1/16	4,000	125,000	80,000	28,000	1,590	
1,600		4,000	125,000	80,000	28,000	1,600	
1,980	5/64	4,000	125,000	80,000	28,000	1,980	
2,000		4,000	125,000	80,000	28,000	2,000	
2,500		10,000	135,000	80,000	40,000	2,500	
2,700		10,000	135,000	80,000	40,000	2,700	
3,000		10,000	135,000	80,000	40,000	3,000	
3,200		10,000	135,000	80,000	40,000	3,200	
3,500		10,000	135,000	80,000	40,000	3,500	
4,000		10,000	135,000	80,000	40,000	4,000	
4,200		10,000	135,000	80,000	40,000	4,200	
4,500		10,000	135,000	80,000	40,000	4,500	
5,000		10,000	135,000	80,000	40,000	5,000	

Punte a cannone



Punte a cannone ad 1 tagliente EB 100

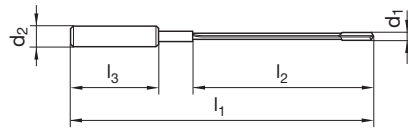


P	○	lunghezza elica 120 mm • forma tagliente G
M	○	
K	○	
N	●	
S	●	
H	○	

GÜHRING NAVIGATOR

Dati di taglio a pag. 808

Materiale tagliente	Int. in MD
Superficie	○
Forma del gambo	HA



Articolo nr. **5026**

Punte a cannone

d1 h5		d2 h6		l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	mm	
1,500		4,000	165,000	120,000	28,000	1,500	
1,590	1/16	4,000	165,000	120,000	28,000	1,590	
1,600		4,000	165,000	120,000	28,000	1,600	
1,980	5/64	4,000	165,000	120,000	28,000	1,980	
2,000		4,000	165,000	120,000	28,000	2,000	
2,500		10,000	175,000	120,000	40,000	2,500	
2,700		10,000	175,000	120,000	40,000	2,700	
3,000		10,000	175,000	120,000	40,000	3,000	
3,200		10,000	175,000	120,000	40,000	3,200	
3,500		10,000	175,000	120,000	40,000	3,500	
4,000		10,000	175,000	120,000	40,000	4,000	
4,200		10,000	175,000	120,000	40,000	4,200	
4,500		10,000	175,000	120,000	40,000	4,500	
5,000		10,000	175,000	120,000	40,000	5,000	



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Int. in MD**

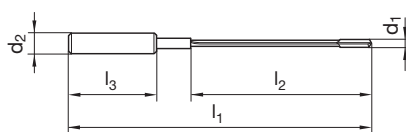
Superficie **A**

Forma del gambo HA

P	•	lunghezza elica 120 mm • forma tagliente G
M	○	
K	•	
N	○	
S	○	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5637**

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
1,500		4,000	165,000	120,000	28,000	1,500
1,590	1/16	4,000	165,000	120,000	28,000	1,590
1,600		4,000	165,000	120,000	28,000	1,600
1,980	5/64	4,000	165,000	120,000	28,000	1,980
2,000		4,000	165,000	120,000	28,000	2,000
2,500		10,000	175,000	120,000	40,000	2,500
2,700		10,000	175,000	120,000	40,000	2,700
3,000		10,000	175,000	120,000	40,000	3,000
3,200		10,000	175,000	120,000	40,000	3,200
3,500		10,000	175,000	120,000	40,000	3,500
4,000		10,000	175,000	120,000	40,000	4,000
4,200		10,000	175,000	120,000	40,000	4,200
4,500		10,000	175,000	120,000	40,000	4,500
5,000		10,000	175,000	120,000	40,000	5,000

Punte a cannone



Punte a cannone ad 1 tagliente EB 100

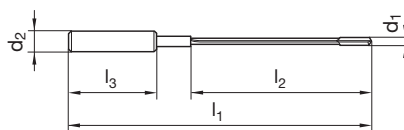


P	○	lunghezza elica 160 mm • forma tagliente G
M	○	
K	○	
N	●	
S	●	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808

Materiale tagliente	Int. in MD
Superficie	○
Forma del gambo	HA



Articolo nr. **5021**

Punte a cannone

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
1,500		4,000	205,000	160,000	28,000	1,500
1,590	1/16	4,000	205,000	160,000	28,000	1,590
1,600		4,000	205,000	160,000	28,000	1,600
1,980	5/64	4,000	205,000	160,000	28,000	1,980
2,000		4,000	205,000	160,000	28,000	2,000
2,500		10,000	215,000	160,000	40,000	2,500
2,700		10,000	215,000	160,000	40,000	2,700
3,000		10,000	215,000	160,000	40,000	3,000
3,200		10,000	215,000	160,000	40,000	3,200
3,500		10,000	215,000	160,000	40,000	3,500
4,000		10,000	215,000	160,000	40,000	4,000
4,200		10,000	215,000	160,000	40,000	4,200
4,500		10,000	215,000	160,000	40,000	4,500
5,000		10,000	215,000	160,000	40,000	5,000
6,000		16,000	225,000	160,000	48,000	6,000
8,000		16,000	225,000	160,000	48,000	8,000



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Int. in MD**

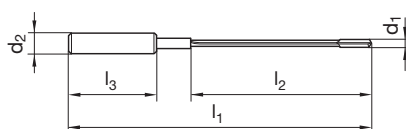
Superficie **A**

Forma del gambo HA

P	•	lunghezza elica 160 mm • forma tagliente G
M	○	
K	•	
N	○	
S	○	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5638**

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
1,500		4,000	205,000	160,000	28,000	1,500
1,590	1/16	4,000	205,000	160,000	28,000	1,590
1,600		4,000	205,000	160,000	28,000	1,600
1,980	5/64	4,000	205,000	160,000	28,000	1,980
2,000		4,000	205,000	160,000	28,000	2,000
2,500		10,000	215,000	160,000	40,000	2,500
2,700		10,000	215,000	160,000	40,000	2,700
3,000		10,000	215,000	160,000	40,000	3,000
3,200		10,000	215,000	160,000	40,000	3,200
3,500		10,000	215,000	160,000	40,000	3,500
4,000		10,000	215,000	160,000	40,000	4,000
4,200		10,000	215,000	160,000	40,000	4,200
4,500		10,000	215,000	160,000	40,000	4,500
5,000		10,000	215,000	160,000	40,000	5,000
6,000		16,000	225,000	160,000	48,000	6,000
8,000		16,000	225,000	160,000	48,000	8,000

Punte a cannone



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Metallo duro**

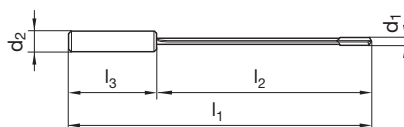
Superficie **S**

Forma del gambo HA

P	•	con vano olio ampliato • forma tagliente G • con rompitruciolo
M	○	
K	•	
N	○	
S	○	
H	○	

GÜHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5018**

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
4,000		12,000	150,000	100,000	45,000	4,000
4,200		12,000	160,000	110,000	45,000	4,200
4,500		12,000	170,000	120,000	45,000	4,500
5,000		16,000	180,000	130,000	48,000	5,000
5,500		16,000	190,000	140,000	48,000	5,500
6,000		16,000	210,000	160,000	48,000	6,000
6,500		16,000	220,000	170,000	48,000	6,500
7,000		16,000	235,000	185,000	48,000	7,000
8,000		16,000	260,000	210,000	48,000	8,000
9,000		16,000	280,000	230,000	48,000	9,000
10,000		20,000	320,000	260,000	50,000	10,000
12,000		20,000	370,000	310,000	50,000	12,000

Punte a cannone



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Metallo duro**

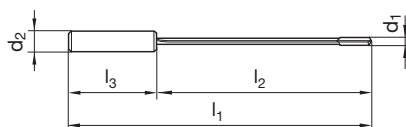
Superficie **C**

Forma del gambo HA

P	○	forma tagliente G
M	●	
K	○	
N	○	
S	●	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5639**

d1 h5		d2 h6		l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	mm	
3,970	5/32	10,000	150,000	100,000	40,000	3,970	
4,000		12,000	150,000	100,000	45,000	4,000	
5,000		16,000	180,000	130,000	48,000	5,000	
5,156	13/64	16,000	180,000	130,000	48,000	5,156	
6,000		16,000	210,000	160,000	48,000	6,000	
6,350	1/4	16,000	220,000	170,000	48,000	6,350	
7,000		16,000	235,000	185,000	48,000	7,000	
7,938	5/16	16,000	260,000	210,000	48,000	7,938	
8,000		16,000	260,000	210,000	48,000	8,000	
9,000		16,000	280,000	230,000	48,000	9,000	
9,525	3/8	16,000	290,000	240,000	48,000	9,525	
10,000		20,000	320,000	260,000	50,000	10,000	
11,000		20,000	340,000	290,000	50,000	11,000	
11,113	7/16	20,000	340,000	290,000	50,000	11,113	
12,000		20,000	370,000	310,000	50,000	12,000	
12,700	1/2	20,000	385,000	330,000	50,000	12,700	

Punte a cannone



Punte a cannone ad 1 tagliente EB 100

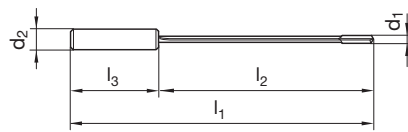


P	•	con vano olio ampliato • forma tagliente G • con rompitruciolo
M	○	
K	•	
N	○	
S	○	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808

Materiale tagliente	Metallo duro
Superficie	S
Forma del gambo	HA



Articolo nr. **5460**

Punte a cannone

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
4,000		12,000	200,000	155,000	45,000	4,000
4,200		12,000	210,000	165,000	45,000	4,200
4,500		12,000	220,000	175,000	45,000	4,500
5,000		16,000	230,000	182,000	48,000	5,000
5,500		16,000	245,000	197,000	48,000	5,500
6,000		16,000	260,000	212,000	48,000	6,000
6,500		16,000	275,000	227,000	48,000	6,500
7,000		16,000	290,000	242,000	48,000	7,000
8,000		16,000	320,000	272,000	48,000	8,000
9,000		16,000	350,000	302,000	48,000	9,000
10,000		20,000	400,000	350,000	50,000	10,000
12,000		20,000	450,000	400,000	50,000	12,000



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Metallo duro**

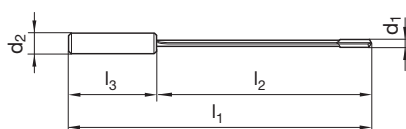
Superficie **C**

Forma del gambo **HA**

P	○	forma tagliente G
M	●	
K	○	
N	○	
S	●	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5640**

d1 h5		d2 h6		l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	mm	
3,970	5/32	10,000	200,000	155,000	40,000	3,970	
4,000		12,000	200,000	155,000	45,000	4,000	
5,000		16,000	230,000	182,000	48,000	5,000	
5,156	13/64	16,000	230,000	182,000	48,000	5,156	
6,000		16,000	260,000	212,000	48,000	6,000	
6,350	1/4	16,000	275,000	227,000	48,000	6,350	
7,000		16,000	290,000	242,000	48,000	7,000	
7,938	5/16	16,000	320,000	272,000	48,000	7,938	
8,000		16,000	320,000	272,000	48,000	8,000	
9,000		16,000	350,000	302,000	48,000	9,000	
9,525	3/8	16,000	380,000	330,000	48,000	9,525	
10,000		20,000	400,000	350,000	50,000	10,000	
11,000		20,000	430,000	380,000	50,000	11,000	
11,113	7/16	20,000	430,000	380,000	50,000	11,113	
12,000		20,000	450,000	400,000	50,000	12,000	
12,700	1/2	20,000	500,000	450,000	50,000	12,700	

Punte a cannone



Punte a cannone ad 1 tagliente EB 100

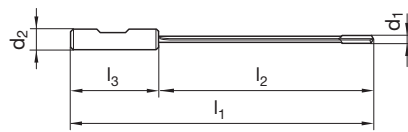


P	•	con vano olio ampliato • forma tagliente G • con rompitruciolo
M	○	
K	•	
N	○	
S	○	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808

Materiale tagliente	Metallo duro
Superficie	○
Forma del gambo	HB



Articolo nr. **5689**

Punte a cannone

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
4,000		12,000	230,000	185,000	45,000	4,000
5,000		16,000	280,000	232,000	48,000	5,000
6,000		16,000	320,000	272,000	48,000	6,000
8,000		16,000	420,000	372,000	48,000	8,000
10,000		20,000	510,000	460,000	50,000	10,000
12,000		20,000	600,000	550,000	50,000	12,000



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Metallo duro**

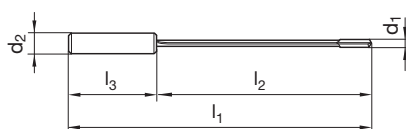
Superficie **S**

Forma del gambo HA

P	•	con vano olio ampliato • forma tagliente G • con rompitruciolo
M	○	
K	•	
N	○	
S	○	
H	○	

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5022**

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
4,000		12,000	230,000	185,000	45,000	4,000
4,200		12,000	240,000	195,000	45,000	4,200
4,500		12,000	250,000	205,000	45,000	4,500
5,000		16,000	280,000	232,000	48,000	5,000
5,500		16,000	300,000	252,000	48,000	5,500
6,000		16,000	320,000	272,000	48,000	6,000
6,500		16,000	340,000	292,000	48,000	6,500
7,000		16,000	370,000	322,000	48,000	7,000
8,000		16,000	420,000	372,000	48,000	8,000
9,000		16,000	450,000	402,000	48,000	9,000
10,000		20,000	510,000	460,000	50,000	10,000
12,000		20,000	600,000	550,000	50,000	12,000

Punte a cannone



Punte a cannone ad 1 tagliente EB 100

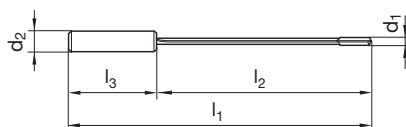


P	○	forma tagliente G
M	●	
K	○	
N	○	
S	●	
H	○	

GÜHRING NAVIGATOR

Dati di taglio a pag. 808

Materiale tagliente	Metallo duro
Superficie	C
Forma del gambo	HA



Articolo nr. **5641**

Punte a cannone

d1 h5		d2 h6		l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	mm	
3,970	5/32	10,000	230,000	185,000	40,000	3,970	
4,000		12,000	230,000	185,000	45,000	4,000	
5,000		16,000	280,000	232,000	48,000	5,000	
5,156	13/64	16,000	280,000	232,000	48,000	5,156	
6,000		16,000	320,000	272,000	48,000	6,000	
6,350	1/4	16,000	340,000	292,000	48,000	6,350	
7,000		16,000	370,000	322,000	48,000	7,000	
7,938	5/16	16,000	420,000	372,000	48,000	7,938	
8,000		16,000	420,000	372,000	48,000	8,000	
9,000		16,000	450,000	402,000	48,000	9,000	
9,525	3/8	16,000	480,000	432,000	48,000	9,525	
10,000		20,000	510,000	460,000	50,000	10,000	
11,000		20,000	550,000	500,000	50,000	11,000	
11,113	7/16	20,000	550,000	500,000	50,000	11,113	
12,000		20,000	600,000	550,000	50,000	12,000	
12,700	1/2	20,000	635,000	585,000	50,000	12,700	



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Metallo duro**

Superficie ○

Forma del gambo HB



P ● con vano olio ampliato • forma tagliente G • con rompitruciolo

M ○

K ●

N ○

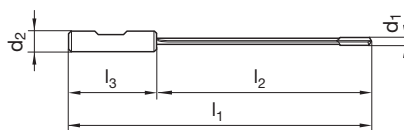
profondità massima di foratura per utensili 40xD , per i più grandi profondità di foro usare per prmo l'articolo 5689

S ○

H ○

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5690**

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
3,970	5/32	10,000	390,000	350,000	40,000	3,970
4,950		16,000	480,000	432,000	48,000	4,950
5,950	15/64	16,000	560,000	512,000	48,000	5,950
7,950		16,000	740,000	692,000	48,000	7,950
9,950		20,000	910,000	860,000	50,000	9,950
11,950		20,000	1080,000	1030,000	50,000	11,950

Punte a cannone



Punte a cannone ad 1 tagliente EB 100



P ● con vano olio ampliato • forma tagliente G • con rompitruciolo

M ○

K ●

N ○ max. flute length per tool 40 x D, for larger drilling depths apply art. no. 5022 as first tool

S ○

H ○

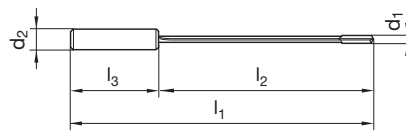
Materiale tagliente **Metallo duro**

Superficie **S**

Forma del gambo HA

GÜHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5023**

Punte a cannone

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
4,950		16,000	480,000	432,000	48,000	4,950
5,950	15/64	16,000	560,000	512,000	48,000	5,950
7,950		16,000	740,000	692,000	48,000	7,950
9,950		20,000	910,000	860,000	50,000	9,950
11,950		20,000	1080,000	1030,000	50,000	11,950



Punte a cannone ad 1 tagliente EB 100



Materiale tagliente **Metallo duro**

Superficie **C**

Forma del gambo HA

P ○ forma tagliente G

M ●

K ○

N □

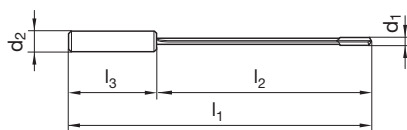
S ●

H ○

profondità massima di foratura per utensili 40xD , per i più grandi profondità di foro usare per prmo l'articolo 5641

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5642**

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
4,950		16,000	480,000	432,000	48,000	4,950
5,106		16,000	480,000	432,000	48,000	5,106
5,950	15/64	16,000	560,000	512,000	48,000	5,950
6,300		16,000	590,000	542,000	48,000	6,300
6,950		16,000	650,000	602,000	48,000	6,950
7,888		16,000	740,000	692,000	48,000	7,888
7,950		16,000	740,000	692,000	48,000	7,950
8,950		16,000	820,000	772,000	48,000	8,950
9,475		16,000	870,000	822,000	48,000	9,475
9,950		20,000	910,000	860,000	50,000	9,950
10,950		20,000	995,000	945,000	50,000	10,950
11,063		20,000	995,000	945,000	50,000	11,063
11,950		20,000	1080,000	1030,000	50,000	11,950
12,650		20,000	1140,000	1090,000	50,000	12,650

Punte a cannone



Punte a cannone ad 1 tagliente EB 100

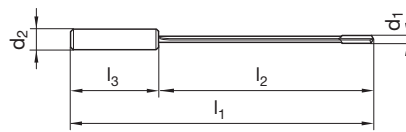


P	•	lunghezza totale= 1100.00 mm • forma tagliente G • pilota per lavorazioni di foratura profonda (T3.1)
M	○	
K	•	
N	•	
S	○	
H	○	

GÜHRING NAVIGATOR

Dati di taglio a pag. 808

Materiale tagliente	Metallo duro
Superficie	S
Forma del gambo	cil.



Articolo nr. **5164**

Punte a cannone

d1 h5		d2 h6	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
6,000		25,000	1100,000	1010,000	70,000	6,000
7,000		25,000	1100,000	1010,000	70,000	7,000
8,000		25,000	1100,000	1010,000	70,000	8,000
10,000		25,000	1100,000	1010,000	70,000	10,000
12,000		25,000	1100,000	1010,000	70,000	12,000
16,000		25,000	1100,000	1010,000	70,000	16,000
20,000		25,000	1100,000	1010,000	70,000	20,000
22,000		25,000	1100,000	1000,000	70,000	22,000



Punte a cannone a 2 taglienti ZB 80



Materiale tagliente **Metallo duro**

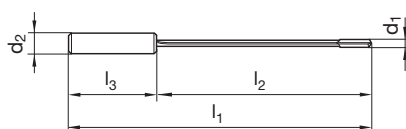
Superficie ○

Forma del gambo HA

P	Punte a cannone a 4 fasi • per alluminio
M	
K	
N	•
S	
H	

GUHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5019**

d1 h5	d2	l1	l2	l3	Codice
mm	mm	mm	mm	mm	
8,000	16,000	330,000	280,000	48,000	8,000
10,000	20,000	390,000	340,000	50,000	10,000
12,000	20,000	450,000	400,000	50,000	12,000

Punte a cannone



Punte a cannone a 2 taglienti ZB 80



Materiale tagliente **Metallo duro**

Superficie ○

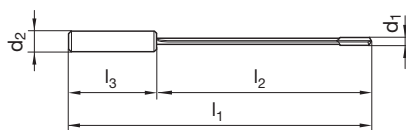
Forma del gambo HA

P Punte a cannone a 4 fasi • per ghise



GÜHRING NAVIGATOR

Dati di taglio a pag. 808



Articolo nr. **5643**

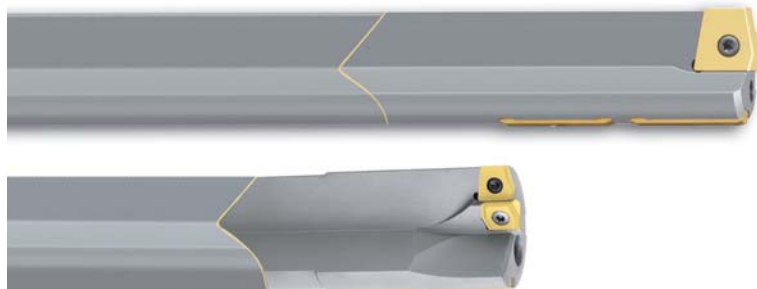
Punte a cannone

d1 h5	d2	l1	l2	l3	Codice
mm	mm	mm	mm	mm	
8,000	16,000	330,000	280,000	48,000	8,000
10,000	20,000	390,000	340,000	50,000	10,000
12,000	20,000	450,000	400,000	50,000	12,000



EB 800

- Soluzioni speciali a \varnothing 52,00 mm
- Inserti e pattini di guida in misure da 1 a 10 mm, da 1 a 100 mm per utensili speciali con componenti aggiuntivi



Le punte a cannone ad un tagliente Gühring con inserti e pattini di guida intercambiabili, sono prodotte esclusivamente come utensili speciali a richiesta del cliente. Esse sono adatte per lavorare quasi tutti i materiali e sono producibili nei diametri da 16,0 a 40,0 mm con una lunghezza totale massima di 3000 mm.

Specifici vantaggi:

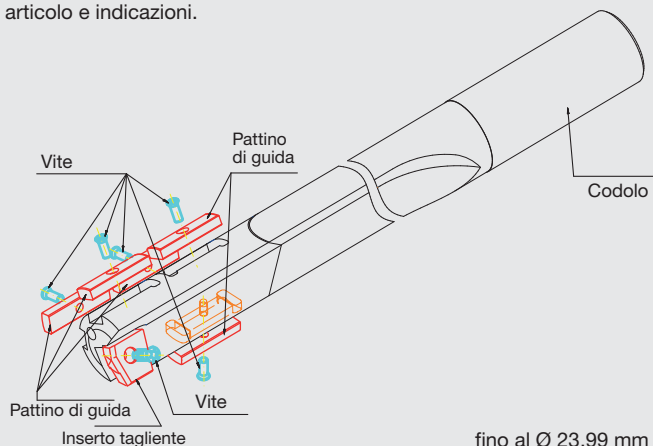
- La tecnica della intercambiabilità per inserti e pattini di guida rende possibile ogni combinazione tra tipi di metallo duro e ricoperture.
- Grazie agli inserti ed ai pattini di guida, entrambe di precisione ed intercambiabili, non sono necessarie complicate regolazioni.
- I pattini di guida di precisione, in metallo duro Gühring, sono personalizzati per le vostre esigenze di fori profondi. Tali pattini sono reversibili, raddoppiando così la loro durata. Sono inoltre abbinabili a ciascuna delle ricoperture Gühring.
- Grazie alla precisione degli inserti intercambiabili e delle rispettive sedi, il numero di componenti intercambiabili è minimizzato. L'utensile risulta quindi particolarmente stabile.

- Si eliminano costosi tempi di arresto, poiché i componenti usurati possono essere sostituiti senza rimuovere l'utensile dalla macchina.
 - Grazie alla tecnica degli inserti intercambiabili si evitano costosi processi di riaffilatura.
 - La scelta, orientata all'applicazione, degli inserti intercambiabili più adatti garantisce sempre un'ottimale asportazione del truciolo anche in materiali problematici.
 - Anche gli inserti intercambiabili di precisione, specificatamente ottimizzati per le Vostre realizzazioni di fori profondi, sono prodotti in metallo duro Gühring. Sono inoltre abbinabili a tutte le ricoperture Gühring.
 - Nell'ambito dei diametri indicati è possibile modificare, in ogni momento, il diametro nominale semplicemente attraverso la sostituzione dei componenti intercambiabili.
 - Produciamo il codolo in acciaio da bonifica a:
 - DIN 6535 HA • DIN 6535 HE
 - DIN 6535 HB • DIN 1835 E
- Sono realizzabili anche tutte le forme normalmente richieste per macchine per punte a cannone.



Attenzione: - lunghezza minima elica 15 x D
 - tolleranze realizzabili sul Ø it9/it10

Con ogni offerta riceverete un disegno completo di numeri articolo e indicazioni.



fino al Ø 23.99 mm 4 pattini guida
 fino al Ø 24.00 mm 5 pattini guida

Punte a cannone

Forza di serraggio - Guida ai valori

Inserto esterno

Misura	Diametro in mm	Filettatura metrica ISO in mm	Misura Torx	Forza di serraggio - in Nm
0.	12,00 – 15,99	M2,5 x 5,2	T8	1,00
1.	16,00 – 19,99	M3,0 x 6,4	T9	1,40
2.	20,00 – 25,99	M4,0 x 7,7	T15	2,50
3.	26,00 – 29,99	M4,0 x 10,6	T15	2,50
4.	30,00 – 33,99	M4,0 x 10,6	T15	2,50
5.	34,00 – 37,99	M5,0 x 14,2	T20	5,00
6.	38,00 – 40,00	M5,0 x 14,2	T20	5,00
7.	40,01 – 43,99	M3,0 x 6,4	T9	1,40
8.	44,00 – 47,99	M4,0 x 7,7	T15	2,50
9.	48,00 – 52,00	M4,0 x 10,6	T15	2,50

Inserto interno

Misura	Diametro in mm	Filettatura metrica ISO in mm	Misura Torx	Forza di serraggio - in Nm
7. – 9.	40,01 – 52,00	M4,5 x 11,8	T15	3,00

Pattini guida

Misura	Diametro in mm	Filettatura metrica ISO in mm	Misura Torx	Forza di serraggio - in Nm
0.	12,00 – 15,99	M1,6 x 4,4	T5	0,40
1.	16,00 – 17,99	M2,2 x 4,6	T7	0,60
1.	18,00 – 19,99	M2,2 x 5,6	T7	0,60
2.	20,00 – 22,49	M2,5 x 5,2	T8	1,00
2.	22,50 – 25,99	M2,5 x 6,4	T8	1,00
3.	26,00 – 29,99	M2,5 x 6,4	T8	1,00
4. – 9.	30,00 – 52,00	M3,0 x 8,0	T9	1,40



Punte a cannone ad 1 tagliente EB 800



Materiale tagliente **Metallo duro**

Superficie **S**

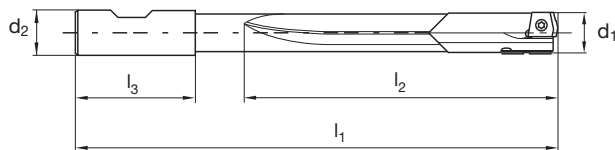
Forma del gambo HB

P • con inserti intercambiabili • con pattini di guida intercambiabili • con giravite • con viti • uso universale • ordinare la chiave dinamometrica articolo nr. 4915 separatamente

M	○
K	○
N	•
S	○
H	

GUHRING NAVIGATOR

Dati di taglio a pag. 808









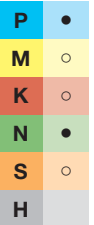
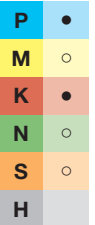
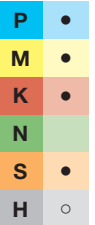
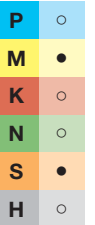




Articolo nr. **5644**

d1 h8		d2	l1	l2	l3	Codice
mm	inch	mm	mm	mm	mm	
12,000		20,000	446,000	384,000	50,000	12,000
12,700	1/2	20,000	468,000	406,000	50,000	12,700
14,000		20,000	510,000	448,000	50,000	14,000
15,000		25,000	548,000	480,000	56,000	15,000
16,000		25,000	580,000	512,000	56,000	16,000
18,000		25,000	644,000	576,000	56,000	18,000
20,000		32,000	712,000	640,000	60,000	20,000
24,000		32,000	840,000	768,000	60,000	24,000

Punte a cannone












Soluzioni speciali dal Ø 12,0 - 52,0 mm, Lunghezza totale max. 3000 mm

Misura supporto	Misure Diametro supporto	Corpo/Supporto	Inserto esterno				Inserto		
							Vite	Cacciavite	
			 TiN-rivestimento	 FIRE-rivestimento	 Signum-rivestimento	 TiAlN nanoA-rivestimento			
0.	Ø12.00 - Ø12.49 Ø12.50 - Ø12.99 Ø13.00 - Ø13.49 Ø13.50 - Ø13.99 Ø14.00 - Ø14.49 Ø14.50 - Ø14.99 Ø15.00 - Ø15.49 Ø15.50 - Ø15.99	Corpo/ Port utensile a richiesta del cliente. Lung totale fino a 3000 mm. Lunghezza utile da 10xD					Articolo nr. 4071 2.502 T8 M2.5x 5.2	Articolo nr. 1612 8.001	
	1.		Ø16.00 - Ø16.49 Ø16.50 - Ø16.99 Ø17.00 - Ø17.49 Ø17.50 - Ø17.99 Ø18.00 - Ø18.49 Ø18.50 - Ø18.99 Ø19.00 - Ø19.49 Ø19.50 - Ø19.99						
2.			Ø20.00 - Ø20.49 Ø20.50 - Ø20.99 Ø21.00 - Ø21.49 Ø21.50 - Ø21.99 Ø22.00 - Ø22.49 Ø22.50 - Ø22.99 Ø23.00 - Ø23.49 Ø23.50 - Ø23.99 Ø24.00 - Ø24.49 Ø24.50 - Ø24.99 Ø25.00 - Ø25.49 Ø25.50 - Ø25.99	Alternativa: Programma standard Articolo nr. 5644 da diametro 12,00 mm a 24,00 mm con misure complete con placchette e pattini di guida TiN	Articolo nr. 5029 + nom.-Ø = order no.	Articolo nr. 5704 + nom.-Ø = order no.	Articolo nr. 5702 + nom.-Ø = order no.	Articolo nr. 5706 + nom.-Ø = order no.	Articolo nr. 4071 4.001 T15 M4x7.7
	3.		Ø26.00 - Ø26.49 Ø26.50 - Ø26.99 Ø27.00 - Ø27.49 Ø27.50 - Ø27.99 Ø28.00 - Ø28.49 Ø28.50 - Ø28.99 Ø29.00 - Ø29.49 Ø29.50 - Ø29.99						
4.			Ø30.00 - Ø30.49 Ø30.50 - Ø30.99 Ø31.00 - Ø31.49 Ø31.50 - Ø31.99 Ø32.00 - Ø32.49 Ø32.50 - Ø32.99 Ø33.00 - Ø33.49 Ø33.50 - Ø33.99	Punte speciali	Punte speciali	Punte speciali	Punte speciali	Articolo nr. 4071 4.001 TX15 M4x7.7	Articolo nr. 1612 15.001
	5.		Ø34.00 - Ø34.49 Ø34.50 - Ø34.99 Ø35.00 - Ø35.49 Ø35.50 - Ø35.99 Ø36.00 - Ø36.49 Ø36.50 - Ø36.99 Ø37.00 - Ø37.49 Ø37.50 - Ø37.99						
6.			Ø38.00 - Ø38.49 Ø38.50 - Ø38.99 Ø39.00 - Ø39.49 Ø39.50 - Ø40.00	Articolo nr. 4071 3.002 TX9 M3x6.4	Articolo nr. 1612 20.001	Articolo nr. 1612 9.001			
	7.		Ø40.01 - Ø40.49 Ø40.50 - Ø40.99 Ø41.00 - Ø41.49 Ø41.50 - Ø41.99 Ø42.00 - Ø42.49 Ø42.50 - Ø42.99 Ø43.00 - Ø43.49 Ø43.50 - Ø43.99				Articolo nr. 4071 4.001 TX15 M4x7.7	Articolo nr. 4071 3.002 TX9 M3x6.4	Articolo nr. 1612 20.001
8.			Ø44.00 - Ø44.49 Ø44.50 - Ø44.99 Ø45.00 - Ø45.49 Ø45.50 - Ø45.99 Ø46.00 - Ø46.49 Ø46.50 - Ø46.99 Ø47.00 - Ø47.49 Ø47.50 - Ø47.99	Articolo nr. 4071 4.002 TX15 M4x10.6	Articolo nr. 4071 3.002 TX9 M3x6.4	Articolo nr. 1612 20.001			
	9.	Ø48.00 - Ø48.49 Ø48.50 - Ø48.99 Ø49.00 - Ø49.49 Ø49.50 - Ø49.99 Ø50.00 - Ø50.49 Ø50.50 - Ø50.99 Ø51.00 - Ø51.49 Ø51.50 - Ø52.00	Articolo nr. 4071 4.002 TX15 M4x10.6				Articolo nr. 4071 3.002 TX9 M3x6.4	Articolo nr. 1612 20.001	Articolo nr. 1612 9.001

Punte a cannone

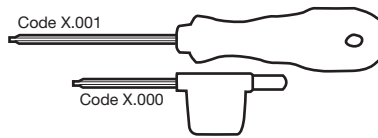


Inserts (internal)	Vite	Cacciavite	Pattini guida				Vite	Cacciavite																																																
			TiN-rivestimento	FIRE-rivestimento	Signum-rivestimento	TiAlN nanoA-rivestimento																																																		
																																																								
			<table border="1"> <tr><td>P</td><td>•</td></tr> <tr><td>M</td><td>○</td></tr> <tr><td>K</td><td>○</td></tr> <tr><td>N</td><td>•</td></tr> <tr><td>S</td><td>○</td></tr> <tr><td>H</td><td>○</td></tr> </table>	P	•	M	○	K	○	N	•	S	○	H	○	<table border="1"> <tr><td>P</td><td>•</td></tr> <tr><td>M</td><td>○</td></tr> <tr><td>K</td><td>•</td></tr> <tr><td>N</td><td>○</td></tr> <tr><td>S</td><td>○</td></tr> <tr><td>H</td><td>○</td></tr> </table>	P	•	M	○	K	•	N	○	S	○	H	○	<table border="1"> <tr><td>P</td><td>•</td></tr> <tr><td>M</td><td>•</td></tr> <tr><td>K</td><td>•</td></tr> <tr><td>N</td><td>•</td></tr> <tr><td>S</td><td>•</td></tr> <tr><td>H</td><td>○</td></tr> </table>	P	•	M	•	K	•	N	•	S	•	H	○	<table border="1"> <tr><td>P</td><td>○</td></tr> <tr><td>M</td><td>•</td></tr> <tr><td>K</td><td>○</td></tr> <tr><td>N</td><td>○</td></tr> <tr><td>S</td><td>•</td></tr> <tr><td>H</td><td>○</td></tr> </table>	P	○	M	•	K	○	N	○	S	•	H	○	Articolo nr. 4071 1.601 T5 M1.6x4.4 Articolo nr. 4071 2.203 T7 / M2.2x 4,6 Articolo nr. 4071 2.202 T7 / M2.2x5.6 Articolo nr. 4071 2.502 T8 M2.5x 5.2 Articolo nr. 4071 2.501 T8 M2.5x6.4	Articolo nr. 1612 5.001 Articolo nr. 1612 7.001 Articolo nr. 1612 8.001
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lucido Punte speciali TiN Punte speciali FIRE Punte speciali	Articolo nr. 4071 4.501 T15 M4.5x11.8	Articolo nr. 1612 15.001	Punte speciali	Punte speciali	Punte speciali	Punte speciali	Articolo nr. 4071 3.003 T9 M3x8	Articolo nr. 1612 9.001																																																

Punte a cannone



Giravite Torx



Articolo nr. **1612**

Grandezza	Codice
T5	5,001
T7	7,001
T8	8,001
T9	9,001
T15	15,001
T20	20,001

Punte a cannone



Chiavi dinamometriche



Articolo nr.

4915

Esagono		Nm	Tipo	Codice
1/4"	esagono	0,4-1	A	1,001
1/4"	esagono	1-5	A	5,001



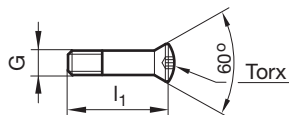
Spine Torx

Articolo nr. **4917**

Esagono		Torx	L	Codice
			mm	
1/4	esagono	T5	25,000	5,000
1/4	esagono	T7	25,000	7,000
1/4	esagono	T8	25,000	8,000
1/4	esagono	T9	25,000	9,000
1/4	esagono	T15	25,000	15,000
1/4	esagono	T20	25,000	20,000



Viti di serraggio



Articolo nr. 4071

G	l1 mm	Torx	Codice
M1,6	4,400	T5	1,601
M2,2	5,600	T7	2,202
M2,2	4,600	T7	2,203
M2,5	6,400	T8	2,501
M2,5	5,200	T8	2,502
M3	6,400	T9	3,002
M3	8,000	T9	3,003
M4	7,700	T15	4,001
M4	10,600	T15	4,002
M5	14,200	T20	5,002

Punte a cannone



Macchina affilatrice per punte a cannone ad un tagliente TBM 116

La TBM 116 è una affilatrice manuale universale. E' molto compatta e, con il dispositivo Gühring per affilatura di punte a cannone e la mola doppia Gühring, forma una perfetta unità. E' particolarmente adatta per riaffilare lotti da piccoli a medi, di differenti diametri e lunghezze. Inoltre consente di produrre un rompitrucolo trasversale su punte a cannone ad un tagliente.

Programma di vendita:

Una affilatrice e due lampade macchina complete di scatole per presa corrente a 220 V (dispositivo di affilatura e mole da ordinare separatamente)

Dati macchina:

Tensione di esercizio 380 V/50 Hz, numero giri mola 2850 giri/min, diametro mola max. 150 mm

Codice per ordinare: 600 127 170





Macchina affilatrice per punte a cannone ad un tagliente TBV 116 da Ø 3 fino a 30 mm

Il dispositivo è concepito per riaffilare punte a cannone ad un tagliente nei diametri da 3 mm fino a 30 mm. Esegue affilature standard e speciali. Grazie al canotto corto si può non tenere conto di una lunghezza elica minima. In dotazione viene data anche una barra di appoggio per utensili lunghi. In questo modo il TBV 116 diventa universale ed è applicabile a qualsiasi affilatrice manuale. **Consigliamo l'impiego della nostra mola doppia DSS 125.**

Attenzione:

le punte a cannone ad un tagliente hanno un angolo di apertura della scanalatura a 120° e quindi non possono essere serrate con pinze in una macchina a dividere, perchè ciò causerebbe la loro distruzione.

Codice per ordinare: 600 127 171



Macchina affilatrice per punte a cannone ad un tagliente TBV 216 per Ø da 1 a 6 mm

Il nuovo dispositivo di affilatura universale TBV 216, specifico per punte a cannone ad un tagliente con diametri da 1,0 a 6,0 mm ed una lunghezza massima di 350 mm, consente la riaffilatura e la rettifica di tali utensili con poche semplici manopole e quattro operazioni. L'affilatura avviene con un dispositivo orientabile su 3 assi, che consente di ottenere differenti angoli di affilatura. Tutti gli angoli possono essere regolati ed, eventualmente, corretti singolarmente.

Consigliamo l'impiego delle nostre mole singole ESS 125.

I dispositivo viene fornito con:

- una serie di bussole di guida con i diametri 1,0 / 1,5 / 2,0 / 2,5 / 3,0 / 3,5 mm
- diverse parti intermedie
- microscopio di centratura
- irradiatore di punto e lente di ingrandimento

Codice per ordinare: 600 132 346





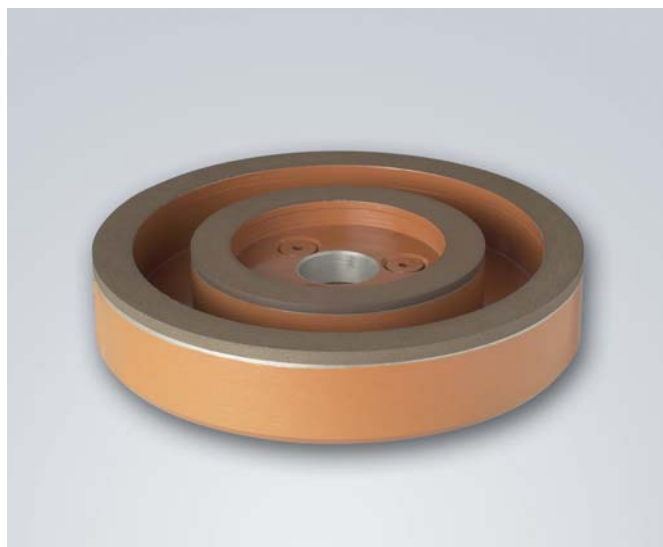
La mola doppia DSS 125

La mola doppia DDS 125 è composta da un set di mole avvitate strettamente tra di loro e ravvivate insieme. Si tratta di una mola esterna diamantata a grana grossa, con la quale si elimina la gran parte dell'usura, e di una mola interna diamantata a grana fine, con la quale si finiscono gli spigoli taglienti. E' consigliabile eliminare dalla mola di tanto in tanto la polvere di molatura con una pietra di pulitura, altrimenti potrebbe svilupparsi un calore eccessivo, che danneggerebbe il tagliente in metallo duro.

La DSS 125 è composta da:

- una mola esterna di diametro 125 mm, altezza rivestimento 10 mm, spessore rivestimento 3 mm, foro 20 mm, grana di 126 mm
- una mola interna di diametro 75 mm altezza rivestimento 10 mm, spessore rivestimento 2 mm, foro 20 mm, grana di 46 mm

Codice per ordinare: 400 110 098



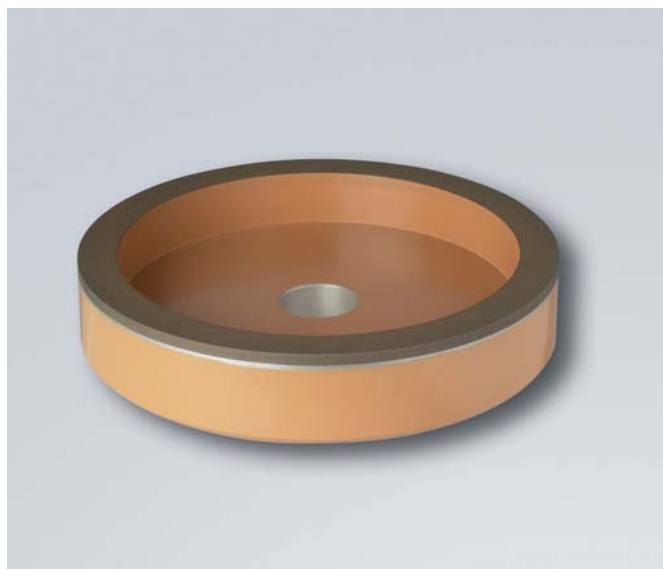
Mola singola ESS 125

La mola ESS 125 è diamantata a grana fine e consente una buona finitura degli spigoli taglienti. E' consigliabile eliminare dalla mola ogni tanto la polvere di molatura con una pietra di pulitura, altrimenti potrebbe svilupparsi un calore eccessivo, che danneggerebbe il tagliente in metallo duro.

La ESS 125 è composta da:

- una mola diametro 125 mm, altezza rivestimento 10 mm, spessore rivestimento 3 mm, foro 20 mm, grana di 25 mm

Codice per ordinare: 400 119 203





Bussole di foratura



Materiale tagliente

Int. in MD



Articolo nr.

5748

d2	d1	l1	Codice
mm	mm	mm	
0,900	3,000	9,000	0,900
1,590	4,000	9,000	1,590
1,600	4,000	9,000	1,600
1,605	4,000	9,000	1,605
2,000	5,000	9,000	2,000
2,030	5,000	9,000	2,030
2,040	5,000	9,000	2,040
2,500	5,000	9,000	2,500
3,000	6,000	12,000	3,000
3,500	7,000	12,000	3,500
3,750	7,000	12,000	3,750
4,000	7,000	12,000	4,000
4,500	8,000	12,000	4,500
5,000	8,000	12,000	5,000
5,200	10,000	16,000	5,200
5,500	10,000	16,000	5,500
5,515	10,000	16,000	5,515
5,525	10,000	16,000	5,525
6,000	10,000	16,000	6,000
6,100	12,000	16,000	6,100
6,900	12,000	16,000	6,900
7,100	12,000	16,000	7,100
8,000	12,000	16,000	8,000
8,015	12,000	16,000	8,015
8,510	15,000	20,000	8,510
10,000	15,000	20,000	10,000
10,920	18,000	20,000	10,920
11,000	18,000	20,000	11,000
12,000	18,000	20,000	12,000
12,030	18,000	20,000	12,030

d2	d1	l1	Codice
mm	mm	mm	
12,600	22,000	28,000	12,600
14,000	22,000	28,000	14,000
14,030	22,000	28,000	14,030
14,400	22,000	28,000	14,400
16,000	26,000	28,000	16,000
16,030	26,000	28,000	16,030
16,200	26,000	28,000	16,200
18,000	26,000	28,000	18,000
18,030	26,000	28,000	18,030
18,050	26,000	28,000	18,050
20,000	30,000	36,000	20,000
20,030	30,000	36,000	20,030
22,000	30,000	36,000	22,000
22,030	30,000	36,000	22,030
22,120	35,000	36,000	22,120
23,500	35,000	36,000	23,500
24,000	35,000	36,000	24,000
24,030	35,000	36,000	24,030
25,000	35,000	36,000	25,000
26,000	35,000	36,000	26,000
30,000	42,000	45,000	30,000
34,000	48,000	45,000	34,000
40,000	55,000	55,000	40,000



Bussole di foratura



Materiale tagliente

HSS

Articolo nr.

5747

Punte a cannone

d2	d1	l1	Codice	d2	d1	l1	Codice
mm	mm	mm		mm	mm	mm	
0,900	3,000	9,000	0,900	6,800	12,000	16,000	6,800
1,600	4,000	9,000	1,600	7,000	12,000	16,000	7,000
2,000	5,000	9,000	2,000	7,100	12,000	16,000	7,100
2,200	5,000	9,000	2,200	7,400	12,000	16,000	7,400
2,340	5,000	9,000	2,340	7,500	12,000	16,000	7,500
2,700	6,000	12,000	2,700	7,600	12,000	16,000	7,600
3,000	6,000	12,000	3,000	7,800	12,000	16,000	7,800
3,100	6,000	12,000	3,100	7,830	12,000	16,000	7,830
3,255	6,000	12,000	3,255	7,938	12,000	16,000	7,938
3,300	6,000	12,000	3,300	8,000	12,000	16,000	8,000
3,400	7,000	12,000	3,400	8,020	12,000	16,000	8,020
3,500	7,000	12,000	3,500	8,050	12,000	16,000	8,050
3,650	7,000	12,000	3,650	8,100	15,000	20,000	8,100
3,700	7,000	12,000	3,700	8,500	15,000	20,000	8,500
3,800	7,000	12,000	3,800	8,530	15,000	20,000	8,530
4,000	7,000	12,000	4,000	8,800	15,000	20,000	8,800
4,100	8,000	12,000	4,100	9,000	15,000	20,000	9,000
4,300	8,000	12,000	4,300	9,100	15,000	20,000	9,100
4,500	8,000	12,000	4,500	9,200	15,000	20,000	9,200
4,600	8,000	12,000	4,600	9,300	15,000	20,000	9,300
4,760	8,000	12,000	4,760	9,500	15,000	20,000	9,500
4,763	8,000	12,000	4,763	9,525	15,000	20,000	9,525
4,800	8,000	12,000	4,800	9,530	15,000	20,000	9,530
5,000	8,000	12,000	5,000	9,570	15,000	20,000	9,570
5,020	8,000	12,000	5,020	9,652	15,000	20,000	9,652
5,100	10,000	16,000	5,100	9,800	15,000	20,000	9,800
5,200	10,000	16,000	5,200	10,000	15,000	20,000	10,000
5,300	10,000	16,000	5,300	10,100	18,000	20,000	10,100
5,500	10,000	16,000	5,500	10,600	18,000	20,000	10,600
5,600	10,000	16,000	5,600	11,080	18,000	20,000	11,080
5,800	10,000	16,000	5,800	11,100	18,000	20,000	11,100
6,000	10,000	16,000	6,000	11,113	18,000	20,000	11,113
6,050	10,000	16,000	6,050	11,500	18,000	20,000	11,500
6,100	12,000	16,000	6,100	11,600	18,000	20,000	11,600
6,300	12,000	16,000	6,300	12,000	18,000	20,000	12,000
6,350	12,000	16,000	6,350	12,020	18,000	20,000	12,020
6,370	12,000	16,000	6,370	12,100	22,000	28,000	12,100
6,502	12,000	16,000	6,502	12,530	22,000	28,000	12,530
6,600	12,000	16,000	6,600	12,600	22,000	28,000	12,600
6,730	12,000	16,000	6,730	12,700	22,000	28,000	12,700
6,731	12,000	16,000	6,731	12,800	22,000	28,000	12,800
6,750	12,000	16,000	6,750	12,954	22,000	28,000	12,954



d2	d1	l1	Codice
mm	mm	mm	
13,000	22,000	28,000	13,000
13,400	22,000	28,000	13,400
13,500	22,000	28,000	13,500
13,700	22,000	28,000	13,700
13,800	22,000	28,000	13,800
14,000	22,000	28,000	14,000
14,310	22,000	28,000	14,310
14,620	22,000	28,000	14,620
14,770	22,000	28,000	14,770
15,000	22,000	28,000	15,000
15,875	26,000	28,000	15,875
16,000	26,000	28,000	16,000
16,330	26,000	28,000	16,330
17,040	26,000	28,000	17,040
17,080	26,000	28,000	17,080
18,000	26,000	28,000	18,000
18,255	30,000	36,000	18,255
18,450	30,000	36,000	18,450
19,000	30,000	36,000	19,000
19,050	30,000	36,000	19,050
19,300	30,000	36,000	19,300
19,700	30,000	36,000	19,700
20,000	30,000	36,000	20,000
21,050	30,000	36,000	21,050

d2	d1	l1	Codice
mm	mm	mm	
22,000	30,000	36,000	22,000
22,100	35,000	36,000	22,100
22,120	35,000	36,000	22,120
22,225	35,000	36,000	22,225
23,500	35,000	36,000	23,500
24,000	35,000	36,000	24,000
24,500	35,000	36,000	24,500
25,000	35,000	36,000	25,000
25,250	35,000	36,000	25,250
25,400	35,000	36,000	25,400
26,000	35,000	36,000	26,000
28,000	42,000	45,000	28,000
28,169	42,000	45,000	28,169
30,000	42,000	45,000	30,000
30,100	48,000	45,000	30,100
34,000	48,000	45,000	34,000
38,100	55,000	55,000	38,100
40,000	55,000	55,000	40,000

**Accessori per macchine p. punte a cannone**

Contrariamente all'uso su macchine convenzionali, per impiego su specifiche macchine per punte a cannone occorrono determinati accessori, p.es.: bussole di guida, dischi a tenuta stagna, bussole a lunetta, ecc., che appartengono alla dotazione standard. Nella figura a lato trovate una scelta di tali prodotti.



immagine a solo scopo illustrativo

Accessori

Dischi a tenuta stagna e bussole a lunetta, Guhring n. 5749, 5750, 5751, 5752 e 5753 coprono sempre una gamma di diametro nominale delle punte a cannone da conservare. Al momento dell'ordine, si prega di indicare sempre il n. Guhring. + il codice. dalla tabella seguente!

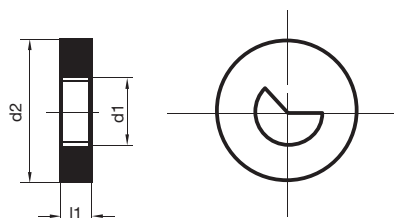
Tabella riepilogativa Codice  Diametro punte a cannone accessori

Codice	per punte a cannone con diametro nominale d1	
	da mm	a mm
1,900	2,000	2,099
2,000	2,100	2,199
2,100	2,200	2,299
2,200	2,300	2,399
2,300	2,400	2,499
2,400	2,500	2,599
2,500	2,600	2,699
2,600	2,700	2,799
2,700	2,800	2,899
2,800	2,900	3,099
3,000	3,100	3,359
3,200	3,360	3,459
3,300	3,460	3,559
3,400	3,560	3,799
3,600	3,800	3,959
3,700	3,960	4,259
4,000	4,260	4,499
4,200	4,500	4,749
4,500	4,750	4,999
4,700	5,000	5,249
5,000	5,250	5,499
5,200	5,500	5,749
5,500	5,750	5,999
5,700	6,000	6,249
6,000	6,250	6,449
6,200	6,450	6,749
6,500	6,750	6,999
6,700	7,000	7,299
7,000	7,300	7,599
7,300	7,600	7,799
7,500	7,800	7,999
7,700	8,000	8,299
8,000	8,300	8,699
8,400	8,700	8,999
8,700	9,000	9,299
9,000	9,300	9,699

Codice	per punte a cannone con diametro nominale d1	
	da mm	a mm
9,400	9,700	9,999
9,700	10,000	10,299
10,000	10,300	10,799
10,500	10,800	11,299
11,000	11,300	11,799
11,500	11,800	12,399
12,000	12,400	12,899
12,500	12,900	13,399
13,000	13,400	13,899
13,500	13,900	14,399
14,000	14,400	14,899
14,500	14,900	15,399
15,000	15,400	15,899
15,500	15,900	16,399
16,000	16,400	16,899
16,500	16,900	17,399
17,000	17,400	17,899
17,500	17,900	18,399
18,000	18,400	19,509
19,000	19,510	20,509
20,000	20,510	21,509
21,000	21,510	22,609
22,000	22,610	23,609
23,000	23,610	24,609
24,000	24,610	25,609
25,000	25,610	26,609
26,000	26,610	27,609
27,000	27,610	28,609
28,000	28,610	29,609
29,000	29,610	30,609
30,000	30,610	32,609
32,000	32,610	34,699
34,000	34,700	36,699
36,000	36,700	38,699
38,000	38,700	40,000



Dischi a tenuta stagna per punte a cannone ad 1 tagliente

Articolo nr. **5752**

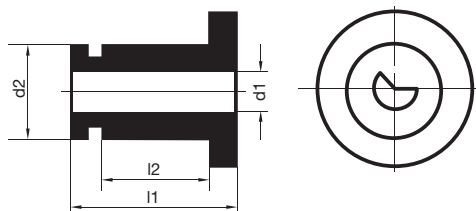
d1 mm	Campo Ø	d2 mm	l1 mm	Codice
2,100	2,200-2,299	20,000	4,000	2,100
2,200	2,300-2,399	20,000	4,000	2,200
2,600	2,700-2,799	20,000	4,000	2,600
2,800	2,900-3,099	20,000	4,000	2,800
3,000	3,100-3,359	20,000	4,000	3,000
3,300	3,460-3,559	20,000	4,000	3,300
3,400	3,560-3,799	20,000	4,000	3,400
3,600	3,800-3,959	20,000	4,000	3,600
3,700	3,960-4,259	20,000	4,000	3,700
4,000	4,260-4,499	20,000	4,000	4,000
4,200	4,500-4,749	20,000	4,000	4,200
4,500	4,750-4,999	20,000	4,000	4,500
4,700	5,000-5,249	20,000	4,000	4,700
5,000	5,250-5,499	32,000	4,000	5,000
5,200	5,500-5,749	32,000	4,000	5,200
5,500	5,750-5,999	32,000	4,000	5,500
5,700	6,000-6,249	32,000	4,000	5,700
6,000	6,250-6,449	32,000	4,000	6,000
6,200	6,450-6,749	32,000	4,000	6,200
6,500	6,750-6,999	32,000	4,000	6,500
6,700	7,000-7,299	32,000	4,000	6,700
7,000	7,300-7,599	32,000	4,000	7,000
7,300	7,600-7,799	32,000	4,000	7,300
7,500	7,800-7,999	32,000	4,000	7,500
7,700	8,000-8,299	32,000	4,000	7,700
8,000	8,300-8,699	32,000	4,000	8,000
8,400	8,700-8,999	32,000	4,000	8,400
8,700	9,000-9,299	32,000	4,000	8,700
9,000	9,300-9,699	32,000	4,000	9,000
9,400	9,700-9,999	32,000	4,000	9,400
9,700	10,000-10,299	32,000	4,000	9,700
10,000	11,300-11,799	32,000	4,000	10,000
10,500	10,800-11,299	32,000	4,000	10,500
11,000	11,300-11,799	32,000	4,000	11,000
11,500	11,800-12,399	32,000	4,000	11,500
12,000	12,400-12,899	32,000	4,000	12,000
12,500	12,900-13,399	32,000	4,000	12,500
13,500	13,900-14,399	32,000	4,000	13,500
14,000	14,400-14,899	32,000	4,000	14,000
14,500	14,900-15,399	32,000	4,000	14,500
15,000	15,400-15,899	32,000	4,000	15,000
15,500	15,900-16,399	40,000	4,000	15,500
16,500	16,900-17,399	40,000	4,000	16,500
17,000	17,400-17,899	40,000	4,000	17,000
17,500	17,900-18,399	40,000	4,000	17,500
18,000	18,400-19,509	40,000	4,000	18,000
19,000	19,510-20,509	40,000	4,000	19,000
20,000	20,510-21,509	40,000	4,000	20,000



d1	Campo Ø	d2	l1	Codice
mm		mm	mm	
21,000	21,510-22,609	40,000	4,000	21,000
22,000	22,610-23,609	40,000	4,000	22,000
23,000	23,610-24,609	40,000	4,000	23,000
24,000	24,610-25,609	40,000	4,000	24,000
25,000	25,610-26,609	40,000	4,000	25,000
27,000	27,610-28,609	90,000	4,000	27,000
29,000	29,610-30,609	90,000	4,000	29,000
30,000	30,610-32,609	90,000	4,000	30,000
32,000	32,610-34,699	90,000	4,000	32,000
36,000	36,700-38,699	90,000	4,000	36,000
38,000	38,700-40,000	90,000	4,000	38,000



Bussole a lunetta per punte a cannone ad 1 tagliente



Articolo nr.

5750

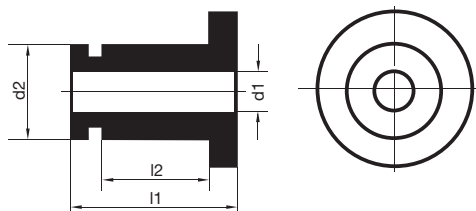
d1	Campo Ø	d2	l1	l2	Codice
mm		mm	mm	mm	
2,100	2,200-2,299	20,000	20,000	12,000	202,100
2,600	2,700-2,799	20,000	20,000	12,000	202,600
2,800	2,900-3,099	20,000	20,000	12,000	202,800
3,000	3,100-3,359	20,000	20,000	12,000	203,000
3,300	3,460-3,559	20,000	20,000	12,000	203,300
3,700	3,960-4,259	20,000	20,000	12,000	203,700
4,700	5,000-5,249	20,000	20,000	12,000	204,700
5,700	6,000-6,249	20,000	20,000	12,000	205,700
6,700	7,000-7,299	20,000	20,000	12,000	206,700
7,700	8,000-8,299	20,000	20,000	12,000	207,700
8,000	8,300-8,699	20,000	20,000	12,000	208,000
8,700	9,000-9,299	20,000	20,000	12,000	208,700
9,700	10,000-10,299	20,000	20,000	12,000	209,700
11,500	11,800-12,399	20,000	20,000	12,000	211,500
3,700	3,960-4,259	30,000	26,000	13,000	303,700
4,000	4,260-4,499	30,000	26,000	13,000	304,000
4,200	4,500-4,749	30,000	26,000	13,000	304,200
4,500	4,750-4,999	30,000	26,000	13,000	304,500
4,700	5,000-5,249	30,000	26,000	13,000	304,700
5,000	5,250-5,499	30,000	26,000	13,000	305,000
5,200	5,500-5,749	30,000	26,000	13,000	305,200
5,500	5,750-5,999	30,000	26,000	13,000	305,500
5,700	6,000-6,249	30,000	26,000	13,000	305,700
6,000	6,250-6,449	30,000	26,000	13,000	306,000
6,200	6,450-6,749	30,000	26,000	13,000	306,200
6,500	6,750-6,999	30,000	26,000	13,000	306,500
6,700	7,000-7,299	30,000	26,000	13,000	306,700
7,000	7,300-7,599	30,000	26,000	13,000	307,000
7,300	7,600-7,799	30,000	26,000	13,000	307,300
7,500	7,800-7,999	30,000	26,000	13,000	307,500
7,700	8,000-8,299	30,000	26,000	13,000	307,700
8,000	8,300-8,699	30,000	26,000	13,000	308,000
8,400	8,700-8,999	30,000	26,000	13,000	308,400
8,700	9,000-9,299	30,000	26,000	13,000	308,700
9,000	9,300-9,699	30,000	26,000	13,000	309,000
9,400	9,700-9,999	30,000	26,000	13,000	309,400
9,700	10,000-10,299	30,000	26,000	13,000	309,700
10,000	10,300-10,799	30,000	26,000	13,000	310,000
10,500	10,800-11,299	30,000	26,000	13,000	310,500
11,000	11,300-11,799	30,000	26,000	13,000	311,000
11,500	11,800-12,399	30,000	26,000	13,000	311,500
12,000	12,400-12,899	30,000	26,000	13,000	312,000
12,500	12,900-13,399	30,000	26,000	13,000	312,500
13,500	13,900-14,399	30,000	26,000	13,000	313,500
14,000	14,400-14,899	30,000	26,000	13,000	314,000
14,500	14,900-15,399	30,000	26,000	13,000	314,500
15,000	15,400-15,899	30,000	26,000	13,000	315,000
15,500	15,900-16,399	30,000	26,000	13,000	315,500



d1	Campo Ø	d2	l1	l2	Codice
mm		mm	mm	mm	
16,500	16,900-17,399	30,000	26,000	13,000	316,500
17,000	17,400-17,899	30,000	26,000	13,000	317,000
17,500	17,900-18,399	30,000	26,000	13,000	317,500
18,000	18,400-19,509	30,000	26,000	13,000	318,000
19,000	19,510-20,509	30,000	26,000	13,000	319,000
21,000	21,510-22,609	30,000	26,000	13,000	321,000
20,000	20,510-21,509	45,000	26,000	16,000	420,000
21,000	21,510-22,609	45,000	26,000	16,000	421,000
22,000	22,610-23,609	45,000	26,000	16,000	422,000
23,000	23,610-24,609	45,000	26,000	16,000	423,000
24,000	24,610-25,609	45,000	26,000	16,000	424,000
25,000	25,610-26,609	45,000	26,000	16,000	425,000
27,000	27,610-28,609	45,000	26,000	16,000	427,000
28,000	28,610-29,609	45,000	26,000	16,000	428,000
29,000	29,610-30,609	45,000	26,000	16,000	429,000
30,000	30,610-32,609	45,000	26,000	16,000	430,000
32,000	32,610-34,699	45,000	26,000	16,000	432,000
34,000	34,700-36,699	45,000	26,000	16,000	434,000



Bussole lunetta per punte a cannone ad 1 e 2 taglianti



Articolo nr.

5749

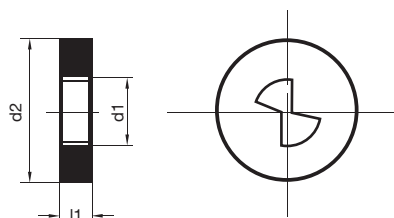
d1	Campo Ø	d2	l1	l2	Codice
mm		mm	mm	mm	
3,000	3,100-3,359	20,000	22,000	12,000	203,000
3,700	3,960-4,259	20,000	22,000	12,000	203,700
4,500	4,750-4,999	20,000	22,000	12,000	204,500
4,700	5,000-5,249	20,000	22,000	12,000	204,700
5,700	6,000-6,249	20,000	22,000	12,000	205,700
8,000	8,300-8,699	20,000	22,000	12,000	208,000
9,700	10,000-10,299	20,000	22,000	12,000	209,700
2,200	2,300-2,399	30,000	26,000	13,000	302,200
3,000	3,100-3,359	30,000	26,000	13,000	303,000
3,300	3,460-3,559	30,000	26,000	13,000	303,300
3,400	3,560-3,799	30,000	26,000	13,000	303,400
3,600	3,800-3,959	30,000	26,000	13,000	303,600
3,700	3,960-4,259	30,000	26,000	13,000	303,700
4,000	4,260-4,499	30,000	26,000	13,000	304,000
4,200	4,500-4,749	30,000	26,000	13,000	304,200
4,500	4,750-4,999	30,000	26,000	13,000	304,500
4,700	5,000-5,249	30,000	26,000	13,000	304,700
5,000	5,250-5,499	30,000	26,000	13,000	305,000
5,200	5,500-5,749	30,000	26,000	13,000	305,200
5,500	5,750-5,999	30,000	26,000	13,000	305,500
5,700	6,000-6,249	30,000	26,000	13,000	305,700
6,000	6,250-6,449	30,000	26,000	13,000	306,000
6,200	6,450-6,749	30,000	26,000	13,000	306,200
6,700	7,000-7,299	30,000	26,000	13,000	306,700
7,500	7,800-7,999	30,000	26,000	13,000	307,500
7,700	8,000-8,299	30,000	26,000	13,000	307,700
8,700	9,000-9,299	30,000	26,000	13,000	308,700
9,000	9,300-9,699	30,000	26,000	13,000	309,000
9,700	10,000-10,299	30,000	26,000	13,000	309,700
10,000	10,300-10,799	30,000	26,000	13,000	310,000
10,500	10,800-11,299	30,000	26,000	13,000	310,500
11,000	11,300-11,799	30,000	26,000	13,000	311,000
11,500	11,800-12,399	30,000	26,000	13,000	311,500
12,000	12,400-12,899	30,000	26,000	13,000	312,000
12,500	12,900-13,399	30,000	26,000	13,000	312,500
13,500	13,900-14,399	30,000	26,000	13,000	313,500
14,000	14,400-14,899	30,000	26,000	13,000	314,000
14,500	14,900-15,399	30,000	26,000	13,000	314,500
15,000	15,400-15,899	30,000	26,000	13,000	315,000
15,500	15,900-16,399	30,000	26,000	13,000	315,500
16,600	17,900-18,399	30,000	26,000	13,000	316,600
17,000	17,400-17,899	30,000	26,000	13,000	317,000
17,500	17,900-18,399	30,000	26,000	13,000	317,500
18,000	18,400-19,509	30,000	26,000	13,000	318,000
19,000	19,510-20,509	30,000	26,000	13,000	319,000
20,000	20,510-21,509	30,000	26,000	13,000	320,000
21,000	21,510-22,609	30,000	26,000	13,000	321,000
22,000	22,610-23,609	30,000	26,000	13,000	322,000



d1	Campo Ø	d2	l1	l2	Codice
mm		mm	mm	mm	
23,000	23,610-24,609	30,000	26,000	13,000	323,000
24,000	24,610-25,609	30,000	26,000	13,000	324,000
4,700	5,000-5,249	45,000	26,000	16,000	404,700
6,200	6,450-6,749	45,000	26,000	16,000	406,200
7,500	7,800-7,999	45,000	26,000	16,000	407,500
7,700	8,000-8,299	45,000	26,000	16,000	407,700
9,000	9,300-9,699	45,000	26,000	16,000	409,000
9,400	9,700-9,999	45,000	26,000	16,000	409,400
9,700	10,000-10,299	45,000	26,000	16,000	409,700
11,500	11,800-12,399	45,000	26,000	16,000	411,500
14,000	14,400-14,899	45,000	26,000	16,000	414,000
15,000	15,400-15,899	45,000	26,000	16,000	415,000
15,500	15,900-16,399	45,000	26,000	16,000	415,500
17,500	17,900-18,399	45,000	26,000	16,000	417,500
18,000	18,400-19,509	45,000	26,000	16,000	418,000
19,000	19,510-20,509	45,000	26,000	16,000	419,000
21,000	21,510-22,609	45,000	26,000	16,000	421,000
24,000	24,610-25,609	45,000	26,000	16,000	424,000
25,000	25,610-26,609	45,000	26,000	16,000	425,000
26,000	26,610-27,609	45,000	26,000	16,000	426,000
27,000	27,610-28,609	45,000	26,000	16,000	427,000
29,000	29,610-30,609	45,000	26,000	16,000	429,000
32,000	32,610-34,699	45,000	26,000	16,000	432,000



Dischi a tenuta stagna per punte a cannone a 2 taglienti

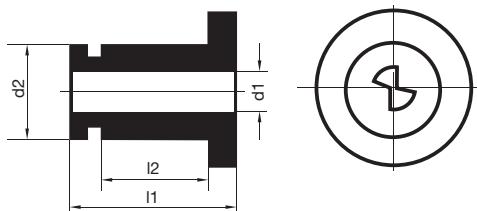
Articolo nr. **5753**

d1 mm	Campo Ø	d2 mm	l1 mm	Codice
5,700	6,000-6,249	32,000	4,000	5,700
7,700	8,000-8,299	32,000	4,000	7,700
8,700	9,000-9,299	32,000	4,000	8,700
9,000	9,300-9,699	32,000	4,000	9,000
9,700	10,000-10,299	32,000	4,000	9,700
11,500	11,800-12,399	32,000	4,000	11,500
13,500	13,900-14,399	32,000	4,000	13,500
15,500	15,900-16,399	40,000	4,000	15,500
19,000	19,510-20,509	40,000	4,000	19,000
23,000	23,610-24,609	40,000	4,000	23,000
25,000	25,610-26,609	40,000	4,000	25,000

Punte a cannone



Bussole a lunetta per punte a cannone a 2 taglienti



Articolo nr.

5751

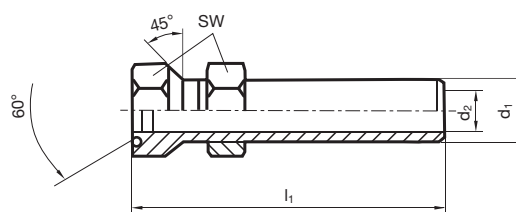
d1	Campo Ø	d2	l1	l2	Codice
mm		mm	mm	mm	
5,700	6,000-6,249	20,000	20,000	12,000	205,700
9,700	10,000-10,299	20,000	20,000	12,000	209,700
6,500	6,750-6,999	30,000	26,000	13,000	306,500
6,700	7,000-7,299	30,000	26,000	13,000	306,700
7,700	8,000-8,299	30,000	26,000	13,000	307,700
9,400	9,700-9,999	30,000	26,000	13,000	309,400
9,700	10,000-10,299	30,000	26,000	13,000	309,700
11,500	11,800-12,399	30,000	26,000	13,000	311,500
15,000	15,400-15,899	30,000	26,000	13,000	315,000
15,500	15,900-16,399	30,000	26,000	13,000	315,500
16,600	17,900-18,399	30,000	26,000	13,000	316,600
17,000	17,400-17,899	30,000	26,000	13,000	317,000
17,500	17,900-18,399	30,000	26,000	13,000	317,500
8,700	9,000-9,299	45,000	26,000	16,000	408,700
13,500	13,900-14,399	45,000	26,000	16,000	413,500
19,000	19,510-20,509	45,000	26,000	16,000	419,000
23,000	23,610-24,609	45,000	26,000	16,000	423,000
24,000	24,610-25,609	45,000	26,000	16,000	424,000
25,000	25,610-26,609	45,000	26,000	16,000	425,000
26,000	26,610-27,609	45,000	26,000	16,000	426,000
27,000	27,610-28,609	45,000	26,000	16,000	427,000



Viti di regolazione



Regolazione viti senza elemento di tenuta



Articolo nr.

5754

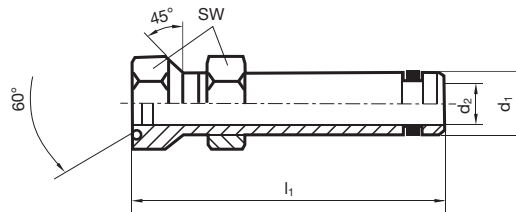
d1	d2	l1	SW	Codice
	mm	mm	mm	
M6 x 0,5	3,500	26,000	9,000	6,000
M10 x 1	6,000	38,000	13,000	10,000
M16 x 1,5	10,000	57,000	22,000	16,000



Viti di regolazione



Viti di regolazione con elemento di tenuta



Articolo nr.

5755

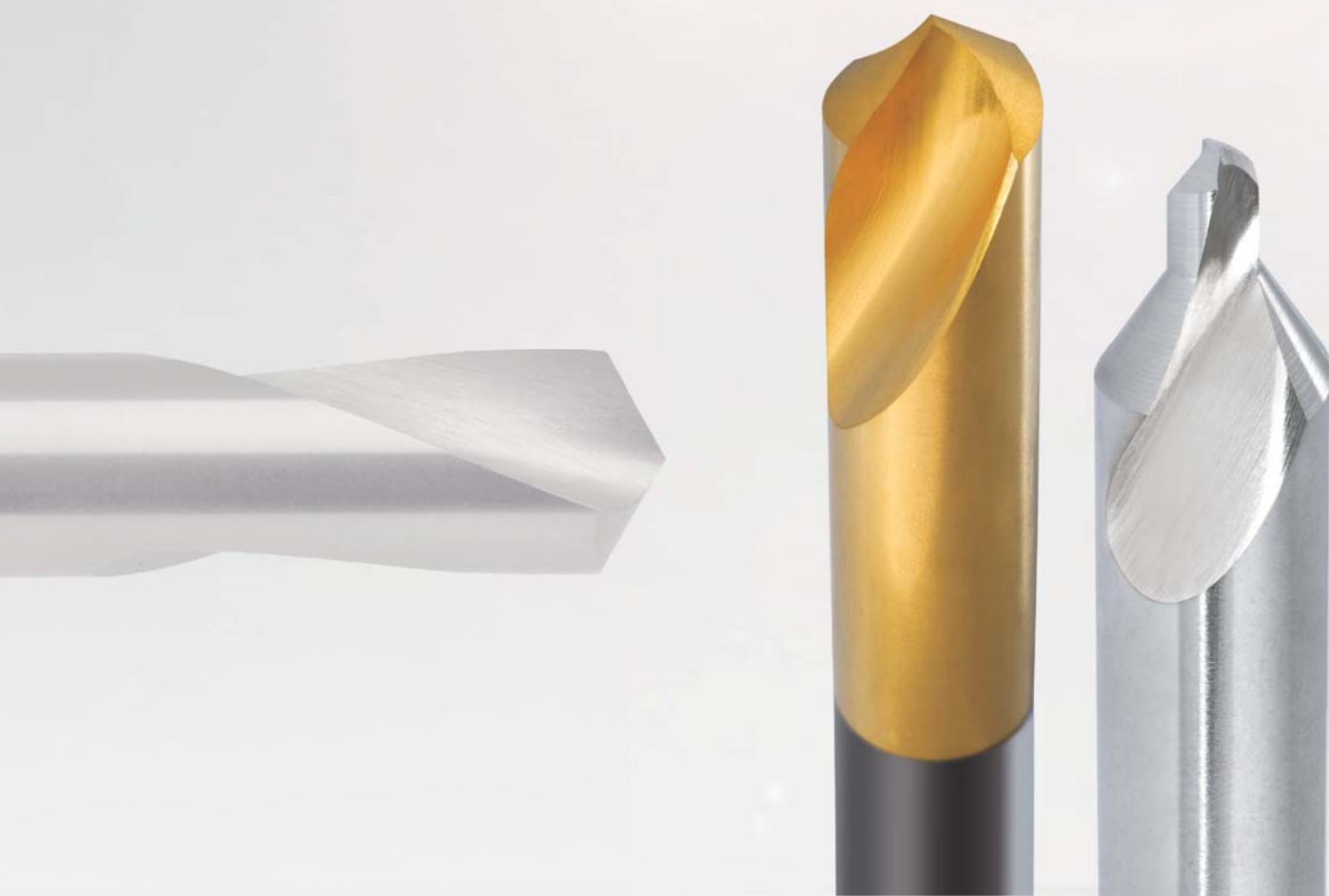
d1	d2	l1	SW	Codice
	mm	mm	mm	
M6 x 0,5	3,500	45,000	9,000	6,000
M10 x 1	6,000	50,000	13,000	10,000
M16 x 1,5	10,000	65,000	22,000	16,000
M24X1,5	16,000	90,000	30,000	24,000

Punte da centro CN e punte a centrare

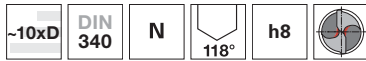
Quando si usano punte elicoidali lunghe si consiglia di fare un centrino.

Le nostre punte CN sono perfettamente adatte per questo.

Per la produzione di fori sagomati consigliamo le nostre punte da centro.



Punte elicoidali, lunghe



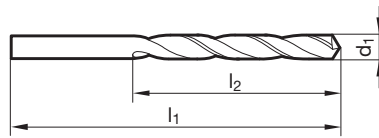
- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • per fori profondi
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	$>0,2,36$
Direzione di taglio	R



GÜHRINGNAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **217**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,400	1/64	30,000	10,000	1,500		70,000	45,000
0,440		30,000	10,000	1,510		76,000	50,000
0,450		30,000	10,000	1,550		76,000	50,000
0,470		30,000	10,000	1,590	1/16	76,000	50,000
0,500		32,000	12,000	1,600		76,000	50,000
0,520		32,000	12,000	1,610		76,000	50,000
0,550		35,000	15,000	1,650		76,000	50,000
0,570		35,000	15,000	1,700		76,000	50,000
0,600		35,000	15,000	1,750		80,000	53,000
0,620		38,000	18,000	1,780		80,000	53,000
0,650		38,000	18,000	1,800		80,000	53,000
0,700		42,000	21,000	1,850		80,000	53,000
0,730		42,000	21,000	1,900		80,000	53,000
0,750		42,000	21,000	1,930		85,000	56,000
0,760		46,000	25,000	1,950		85,000	56,000
0,790	1/32	46,000	25,000	1,980	5/64	85,000	56,000
0,800		46,000	25,000	2,000		85,000	56,000
0,820		46,000	25,000	2,030		85,000	56,000
0,850		46,000	25,000	2,050		85,000	56,000
0,900		51,000	29,000	2,060		85,000	56,000
0,910		51,000	29,000	2,080		85,000	56,000
0,920		51,000	29,000	2,100		85,000	56,000
0,950		51,000	29,000	2,150		90,000	59,000
0,970		56,000	33,000	2,200		90,000	59,000
1,000		56,000	33,000	2,250		90,000	59,000
1,040		56,000	33,000	2,260		90,000	59,000
1,050		56,000	33,000	2,300		90,000	59,000
1,080		60,000	37,000	2,350		90,000	59,000
1,090		60,000	37,000	2,370		95,000	62,000
1,100		60,000	37,000	2,380	3/32	95,000	62,000
1,120		60,000	37,000	2,400		95,000	62,000
1,130		60,000	37,000	2,420		95,000	62,000
1,150		60,000	37,000	2,440		95,000	62,000
1,180		60,000	37,000	2,450		95,000	62,000
1,190	3/64	65,000	41,000	2,490		95,000	62,000
1,200		65,000	41,000	2,500		95,000	62,000
1,250		65,000	41,000	2,550		95,000	62,000
1,300		65,000	41,000	2,580		95,000	62,000
1,350		70,000	45,000	2,600		95,000	62,000
1,400		70,000	45,000	2,620		95,000	62,000
1,450		70,000	45,000	2,640		95,000	62,000
1,490		70,000	45,000	2,650		95,000	62,000



d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
2,700		100,000	66,000	5,060		132,000	87,000
2,710		100,000	66,000	5,100		132,000	87,000
2,750		100,000	66,000	5,110		132,000	87,000
2,780	7/64	100,000	66,000	5,150		132,000	87,000
2,790		100,000	66,000	5,160	13/64	132,000	87,000
2,800		100,000	66,000	5,180		132,000	87,000
2,820		100,000	66,000	5,200		132,000	87,000
2,850		100,000	66,000	5,220		132,000	87,000
2,870		100,000	66,000	5,250		132,000	87,000
2,900		100,000	66,000	5,300		132,000	87,000
2,950		100,000	66,000	5,310		139,000	91,000
3,000		100,000	66,000	5,350		139,000	91,000
3,030		106,000	69,000	5,400		139,000	91,000
3,050		106,000	69,000	5,410		139,000	91,000
3,100		106,000	69,000	5,450		139,000	91,000
3,150		106,000	69,000	5,500		139,000	91,000
3,170	1/8	106,000	69,000	5,550		139,000	91,000
3,200		106,000	69,000	5,560	7/32	139,000	91,000
3,250		106,000	69,000	5,600		139,000	91,000
3,260		106,000	69,000	5,650		139,000	91,000
3,300		106,000	69,000	5,700		139,000	91,000
3,350		106,000	69,000	5,750		139,000	91,000
3,400		112,000	73,000	5,790		139,000	91,000
3,450		112,000	73,000	5,790		139,000	91,000
3,500		112,000	73,000	5,800		139,000	91,000
3,550		112,000	73,000	5,900		139,000	91,000
3,570	9/64	112,000	73,000	5,950	15/64	139,000	91,000
3,600		112,000	73,000	6,000		139,000	91,000
3,650		112,000	73,000	6,060		148,000	97,000
3,660		112,000	73,000	6,100		148,000	97,000
3,700		112,000	73,000	6,200		148,000	97,000
3,750		112,000	73,000	6,250		148,000	97,000
3,800		119,000	78,000	6,300		148,000	97,000
3,850		119,000	78,000	6,350	1/4	148,000	97,000
3,860		119,000	78,000	6,400		148,000	97,000
3,900		119,000	78,000	6,500		148,000	97,000
3,910		119,000	78,000	6,600		148,000	97,000
3,950		119,000	78,000	6,700		148,000	97,000
3,970	5/32	119,000	78,000	6,750	17/64	156,000	102,000
3,990		119,000	78,000	6,800		156,000	102,000
4,000		119,000	78,000	6,900		156,000	102,000
4,030		119,000	78,000	7,000		156,000	102,000
4,040		119,000	78,000	7,100		156,000	102,000
4,050		119,000	78,000	7,140	9/32	156,000	102,000
4,090		119,000	78,000	7,200		156,000	102,000
4,100		119,000	78,000	7,250		156,000	102,000
4,150		119,000	78,000	7,300		156,000	102,000
4,200		119,000	78,000	7,400		156,000	102,000
4,220		119,000	78,000	7,500		156,000	102,000
4,250		119,000	78,000	7,540	19/64	165,000	109,000
4,300		126,000	82,000	7,600		165,000	109,000
4,350		126,000	82,000	7,700		165,000	109,000
4,370	11/64	126,000	82,000	7,750		165,000	109,000
4,390		126,000	82,000	7,800		165,000	109,000
4,400		126,000	82,000	7,900		165,000	109,000
4,450		126,000	82,000	7,940	5/16	165,000	109,000
4,500		126,000	82,000	8,000		165,000	109,000
4,570		126,000	82,000	8,100		165,000	109,000
4,600		126,000	82,000	8,200		165,000	109,000
4,650		126,000	82,000	8,250		165,000	109,000
4,700		126,000	82,000	8,300		165,000	109,000
4,750		126,000	82,000	8,330	21/64	165,000	109,000
4,760	3/16	132,000	87,000	8,400		165,000	109,000
4,800		132,000	87,000	8,500		165,000	109,000
4,850		132,000	87,000	8,600		175,000	115,000
4,900		132,000	87,000	8,700		175,000	115,000
4,920		132,000	87,000	8,730	11/32	175,000	115,000
4,950		132,000	87,000	8,750		175,000	115,000
4,980		132,000	87,000	8,800		175,000	115,000
5,000		132,000	87,000	8,900		175,000	115,000
5,030		132,000	87,000	9,000		175,000	115,000
5,050		132,000	87,000	9,100		175,000	115,000
				9,130	23/64	175,000	115,000

Punte a cannone



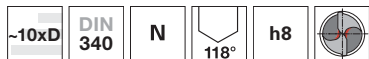
Punte a cannone

d1		l1	l2
mm	inch	mm	mm
9,200		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,600		184,000	121,000
9,700		184,000	121,000
9,750		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,250		184,000	121,000
10,300		184,000	121,000
10,320	13/32	184,000	121,000
10,400		184,000	121,000
10,500		184,000	121,000
10,700		195,000	128,000
10,720	27/64	195,000	128,000
10,750		195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,600		195,000	128,000
11,700		195,000	128,000
11,750		195,000	128,000
11,800		195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,100		205,000	134,000
12,200		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
12,800		205,000	134,000
13,000		205,000	134,000
13,200		205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,800		214,000	140,000
13,890	35/64	214,000	140,000
14,000		214,000	140,000
14,200		220,000	144,000
14,250		220,000	144,000
14,290	9/16	220,000	144,000
14,490		220,000	144,000
14,500		220,000	144,000
14,900		220,000	144,000

d1		l1	l2
mm	inch	mm	mm
15,000		220,000	144,000
15,080	19/32	227,000	149,000
15,200		227,000	149,000
15,250		227,000	149,000
15,400		227,000	149,000
15,480	39/64	227,000	149,000
15,500		227,000	149,000
15,600		227,000	149,000
15,870	5/8	227,000	149,000
16,000		227,000	149,000
16,270	41/64	235,000	154,000
16,500		235,000	154,000
16,670	21/32	235,000	154,000
17,000		235,000	154,000
17,070	43/64	241,000	158,000
17,460	11/16	241,000	158,000
17,500		241,000	158,000
18,000		241,000	158,000
18,500		247,000	162,000
18,650	47/64	247,000	162,000
19,000		247,000	162,000
19,050	3/4	254,000	166,000
19,500		254,000	166,000
20,000		254,000	166,000
20,500		261,000	171,000
20,640	13/16	261,000	171,000
21,000		261,000	171,000
21,500		268,000	176,000
22,000		268,000	176,000
23,300		275,000	180,000
23,810	15/16	282,000	185,000
24,000		282,000	185,000
25,000	63/64	282,000	185,000
26,190	1 1/32	290,000	190,000
26,500		290,000	190,000
26,990	1 1/16	298,000	195,000
28,570	1 1/8	307,000	201,000
29,000		307,000	201,000
29,370	1 5/32	307,000	201,000
29,500		307,000	201,000
30,160	1 3/16	316,000	207,000
30,960	1 7/32	316,000	207,000
31,000		316,000	207,000
36,510	1 7/16	345,000	225,000



Punte elicoidali, lunghe

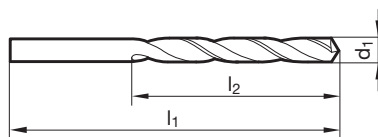


Materiale tagliente	HSS
Superficie	S
Direzione di taglio	R

- P** • Assott. del noc. ≥ Ø 1,000 • spoglia sul cono tagliente • per fori profondi • per forare con bussola di guida
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GUHRINGNAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **667**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,500		32,000	12,000	2,800		100,000	66,000
0,600		35,000	15,000	2,850		100,000	66,000
0,700		42,000	21,000	2,870		100,000	66,000
0,750		42,000	21,000	2,900		100,000	66,000
0,800		46,000	25,000	3,000		100,000	66,000
0,900		51,000	29,000	3,030		106,000	69,000
0,950		51,000	29,000	3,050		106,000	69,000
1,000		56,000	33,000	3,100		106,000	69,000
1,100		60,000	37,000	3,170	1/8	106,000	69,000
1,150		60,000	37,000	3,200		106,000	69,000
1,200		65,000	41,000	3,250		106,000	69,000
1,250		65,000	41,000	3,260		106,000	69,000
1,300		65,000	41,000	3,300		106,000	69,000
1,350		70,000	45,000	3,350		106,000	69,000
1,400		70,000	45,000	3,400		112,000	73,000
1,450		70,000	45,000	3,500		112,000	73,000
1,500		70,000	45,000	3,570	9/64	112,000	73,000
1,550		76,000	50,000	3,600		112,000	73,000
1,590	1/16	76,000	50,000	3,650		112,000	73,000
1,600		76,000	50,000	3,700		112,000	73,000
1,650		76,000	50,000	3,730		112,000	73,000
1,700		76,000	50,000	3,750		112,000	73,000
1,800		80,000	53,000	3,800		119,000	78,000
1,850		80,000	53,000	3,850		119,000	78,000
1,900		80,000	53,000	3,900		119,000	78,000
1,950		85,000	56,000	3,950		119,000	78,000
1,980	5/64	85,000	56,000	3,970	5/32	119,000	78,000
2,000		85,000	56,000	4,000		119,000	78,000
2,100		85,000	56,000	4,050		119,000	78,000
2,200		90,000	59,000	4,100		119,000	78,000
2,300		90,000	59,000	4,200		119,000	78,000
2,350		90,000	59,000	4,250		119,000	78,000
2,370		95,000	62,000	4,300		126,000	82,000
2,380	3/32	95,000	62,000	4,370	11/64	126,000	82,000
2,440		95,000	62,000	4,400		126,000	82,000
2,450		95,000	62,000	4,500		126,000	82,000
2,500		95,000	62,000	4,570		126,000	82,000
2,530		95,000	62,000	4,600		126,000	82,000
2,650		95,000	62,000	4,620		126,000	82,000
2,700		100,000	66,000	4,650		126,000	82,000
2,750		100,000	66,000	4,700		126,000	82,000
2,780	7/64	100,000	66,000	4,750		126,000	82,000

Punte a cannone



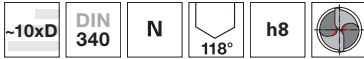
Punte a cannone

d1		l1	l2	
mm	inch	mm	mm	
4,760	3/16	132,000	87,000	
4,850		132,000	87,000	
4,900		132,000	87,000	
5,000	13/64	132,000	87,000	
5,100		132,000	87,000	
5,160		132,000	87,000	
5,200		132,000	87,000	
5,250		132,000	87,000	
5,300	7/32	132,000	87,000	
5,310		139,000	91,000	
5,400		139,000	91,000	
5,410		139,000	91,000	
5,500		139,000	91,000	
5,560		139,000	91,000	
5,600		139,000	91,000	
5,610	1/4	139,000	91,000	
5,700		139,000	91,000	
5,790		139,000	91,000	
5,900		139,000	91,000	
6,000		139,000	91,000	
6,100		148,000	97,000	
6,200		148,000	97,000	
6,250		148,000	97,000	
6,350		148,000	97,000	
6,400		17/64	148,000	97,000
6,500	148,000		97,000	
6,600	148,000		97,000	
6,750	156,000		102,000	
6,800	156,000		102,000	
7,000	156,000		102,000	
7,100	9/32		156,000	102,000
7,140			156,000	102,000
7,200			156,000	102,000
7,250			156,000	102,000
7,300	5/16		156,000	102,000
7,370			156,000	102,000
7,400		156,000	102,000	
7,500		156,000	102,000	
7,540		165,000	109,000	
7,700		165,000	109,000	
7,940		165,000	109,000	
8,000		165,000	109,000	
8,050		165,000	109,000	
8,100		165,000	109,000	
8,200	19/64	165,000	109,000	
8,250		165,000	109,000	
8,300		165,000	109,000	
8,400		165,000	109,000	
8,500		165,000	109,000	
8,700		175,000	115,000	
8,730		11/32	175,000	115,000
8,800			175,000	115,000
8,900			175,000	115,000
9,000			175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,100	3/8	175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	25/64	184,000	121,000
9,700		184,000	121,000
9,900		184,000	121,000
9,920		184,000	121,000
10,000		184,000	121,000
10,200	13/32	184,000	121,000
10,320		184,000	121,000
10,500		184,000	121,000
10,720	7/16	195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,110	15/32	195,000	128,000
11,500		195,000	128,000
11,750		195,000	128,000
11,910		205,000	134,000
12,000		205,000	134,000
12,500	1/2	205,000	134,000
12,700		205,000	134,000
13,000		205,000	134,000
13,490		214,000	140,000
13,500	17/32	214,000	140,000
13,800		214,000	140,000
13,890		214,000	140,000
14,000	35/64	214,000	140,000
14,290		220,000	144,000
14,500		220,000	144,000
14,750		220,000	144,000
14,800	9/16	220,000	144,000
14,900		220,000	144,000
15,000		220,000	144,000
15,080		227,000	149,000
16,000		227,000	149,000
16,500	19/32	235,000	154,000
16,670		235,000	154,000
16,750		235,000	154,000
17,000	21/32	235,000	154,000
17,460		241,000	158,000
18,000		241,000	158,000
18,250		247,000	162,000
22,220	7/8	268,000	176,000
		268,000	176,000

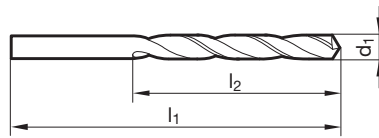


Punte elicoidali, lunghe



- P** • Assott. del nocc. $\geq \varnothing 14,750$ • spoglia sul cono tagliente • per fori profondi • per forare con bussola di guida
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	$>0,6,00$
Direzione di taglio	(L)



Articolo nr. **220**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,450		30,000	10,000	4,500		126,000	82,000
0,470		30,000	10,000	4,600		126,000	82,000
0,900		51,000	29,000	4,780		132,000	87,000
0,950		51,000	29,000	4,800		132,000	87,000
1,100		60,000	37,000	4,950		132,000	87,000
1,150		60,000	37,000	5,000		132,000	87,000
1,200		65,000	41,000	5,100		132,000	87,000
1,250		65,000	41,000	5,200		132,000	87,000
1,400		70,000	45,000	5,600		139,000	91,000
1,450		70,000	45,000	5,700		139,000	91,000
1,500		70,000	45,000	6,000		139,000	91,000
1,600		76,000	50,000	6,050		148,000	97,000
1,630		76,000	50,000	6,100		148,000	97,000
1,660		76,000	50,000	6,400		148,000	97,000
1,730		80,000	53,000	6,500		148,000	97,000
1,800		80,000	53,000	6,600		148,000	97,000
1,850		80,000	53,000	6,800		156,000	102,000
1,900		80,000	53,000	7,200		156,000	102,000
2,000		85,000	56,000	7,500		156,000	102,000
2,300		90,000	59,000	7,800		165,000	109,000
2,500		95,000	62,000	8,000		165,000	109,000
2,700		100,000	66,000	8,100		165,000	109,000
2,750		100,000	66,000	8,250		165,000	109,000
2,900		100,000	66,000	8,400		165,000	109,000
2,950		100,000	66,000	8,800		175,000	115,000
3,000		100,000	66,000	9,000		175,000	115,000
3,050		106,000	69,000	9,520	3/8	184,000	121,000
3,070		106,000	69,000	9,700		184,000	121,000
3,100		106,000	69,000	9,800		184,000	121,000
3,250		106,000	69,000	9,900		184,000	121,000
3,300		106,000	69,000	10,000		184,000	121,000
3,350		106,000	69,000	10,100		184,000	121,000
3,400		112,000	73,000	10,500		184,000	121,000
3,500		112,000	73,000	11,000		195,000	128,000
3,550		112,000	73,000	11,500		195,000	128,000
3,600		112,000	73,000	11,900		205,000	134,000
3,700		112,000	73,000	12,000		205,000	134,000
3,800		119,000	78,000	12,200		205,000	134,000
4,000		119,000	78,000	12,500		205,000	134,000
4,050		119,000	78,000	13,000		205,000	134,000
4,250		119,000	78,000	13,500		214,000	140,000
4,300		126,000	82,000	14,750		220,000	144,000

Punte a cannone



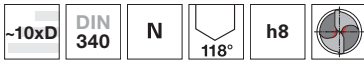
d1		l1	l2
mm	inch	mm	mm
19,000		247,000	162,000
20,000		254,000	166,000
22,000		268,000	176,000
25,000	63/64	282,000	185,000
25,500		290,000	190,000
29,000		307,000	201,000

d1		l1	l2
mm	inch	mm	mm

Punte a cannone



Punte elicoidali, lunghe

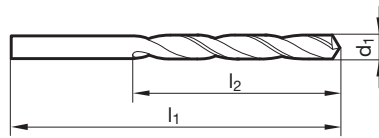


- P** • Assott. del noc. $\geq \varnothing 2,950$ • spoglia sul cono tagliente • con dente di trascinamento
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **204**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
2,950		100,000	66,000	7,000		156,000	102,000
3,000		100,000	66,000	7,400		156,000	102,000
3,100		106,000	69,000	7,500		156,000	102,000
3,170	1/8	106,000	69,000	7,600		165,000	109,000
3,200		106,000	69,000	7,700		165,000	109,000
3,300		106,000	69,000	7,800		165,000	109,000
3,400		112,000	73,000	8,000		165,000	109,000
3,500		112,000	73,000	8,100		165,000	109,000
3,600		112,000	73,000	8,200		165,000	109,000
3,800		119,000	78,000	8,250		165,000	109,000
3,900		119,000	78,000	8,400		165,000	109,000
4,000		119,000	78,000	8,450		165,000	109,000
4,050		119,000	78,000	8,500		165,000	109,000
4,100		119,000	78,000	8,600		175,000	115,000
4,200		119,000	78,000	8,750		175,000	115,000
4,250		119,000	78,000	8,800		175,000	115,000
4,300		126,000	82,000	9,000		175,000	115,000
4,400		126,000	82,000	9,300		175,000	115,000
4,500		126,000	82,000	9,400		175,000	115,000
4,760	3/16	132,000	87,000	9,700		184,000	121,000
4,800		132,000	87,000	9,800		184,000	121,000
5,000		132,000	87,000	9,900		184,000	121,000
5,080		132,000	87,000	10,000		184,000	121,000
5,100		132,000	87,000	10,200		184,000	121,000
5,200		132,000	87,000	10,300		184,000	121,000
5,500		139,000	91,000	10,400		184,000	121,000
5,600		139,000	91,000	10,500		184,000	121,000
5,800		139,000	91,000	10,800		195,000	128,000
5,850		139,000	91,000	11,600		195,000	128,000
5,900		139,000	91,000	12,000		205,000	134,000
6,000		139,000	91,000	13,000		205,000	134,000
6,100		148,000	97,000	25,250		290,000	190,000
6,200		148,000	97,000				
6,300		148,000	97,000				
6,350	1/4	148,000	97,000				
6,400		148,000	97,000				
6,500		148,000	97,000				
6,600		148,000	97,000				
6,700		148,000	97,000				
6,750	17/64	156,000	102,000				
6,800		156,000	102,000				
6,900		156,000	102,000				

Punte a cannone

Punte elicoidali, lunghe

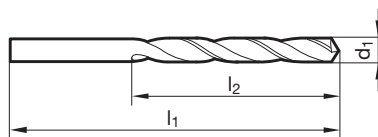


- P** Assott. del nocc. $\geq \varnothing 15,000$ • spoglia sul cono tagliente • per fori profondi
- M**
- K**
- N** • materiali duri e secchi • ottone, leghe di magnesio • bronze, bronzo fosforoso • ardesia, mica, pertinax
- S**
- H**

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ

GÜHRINGNAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **218**

Punte a cannone

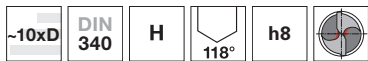
d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,500		32,000	12,000	2,300		90,000	59,000
0,520		32,000	12,000	2,350		90,000	59,000
0,550		35,000	15,000	2,400		95,000	62,000
0,600		35,000	15,000	2,500		95,000	62,000
0,650		38,000	18,000	2,550		95,000	62,000
0,700		42,000	21,000	2,600		95,000	62,000
0,750		42,000	21,000	2,650		95,000	62,000
0,800		46,000	25,000	2,700		100,000	66,000
0,820		46,000	25,000	2,800		100,000	66,000
0,840		46,000	25,000	2,830		100,000	66,000
0,850		46,000	25,000	2,870		100,000	66,000
0,900		51,000	29,000	2,900		100,000	66,000
0,950		51,000	29,000	2,940		100,000	66,000
0,970		56,000	33,000	3,000		100,000	66,000
1,000		56,000	33,000	3,020		106,000	69,000
1,050		56,000	33,000	3,050		106,000	69,000
1,100		60,000	37,000	3,060		106,000	69,000
1,150		60,000	37,000	3,100		106,000	69,000
1,200		65,000	41,000	3,150		106,000	69,000
1,250		65,000	41,000	3,180		106,000	69,000
1,300		65,000	41,000	3,200		106,000	69,000
1,400		70,000	45,000	3,250		106,000	69,000
1,500		70,000	45,000	3,270		106,000	69,000
1,550		76,000	50,000	3,300		106,000	69,000
1,560		76,000	50,000	3,400		112,000	73,000
1,570		76,000	50,000	3,500		112,000	73,000
1,580		76,000	50,000	3,550		112,000	73,000
1,600		76,000	50,000	3,600		112,000	73,000
1,650		76,000	50,000	3,800		119,000	78,000
1,700		76,000	50,000	3,900		119,000	78,000
1,750		80,000	53,000	4,000		119,000	78,000
1,800		80,000	53,000	4,030		119,000	78,000
1,820		80,000	53,000	4,100		119,000	78,000
1,850		80,000	53,000	4,200		119,000	78,000
1,900		80,000	53,000	4,300		126,000	82,000
1,950		85,000	56,000	4,400		126,000	82,000
2,000		85,000	56,000	4,500		126,000	82,000
2,050		85,000	56,000	4,600		126,000	82,000
2,100		85,000	56,000	4,700		126,000	82,000
2,180		90,000	59,000	4,760	3/16	132,000	87,000
2,200		90,000	59,000	4,800		132,000	87,000
2,250		90,000	59,000	4,900		132,000	87,000



d1		l1	l2
mm	inch	mm	mm
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,450		139,000	91,000
5,500		139,000	91,000
5,600		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,420		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,350		156,000	102,000
7,500		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,700		175,000	115,000
9,000		175,000	115,000
9,500		175,000	115,000
9,700		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
11,250		195,000	128,000
12,100		205,000	134,000
14,000		214,000	140,000
15,000		220,000	144,000
16,000		227,000	149,000

Punte elicoidali, lunghe

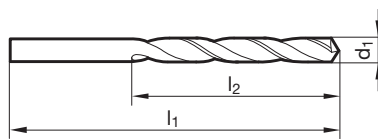


- P** Assott. del nocc. $\geq \varnothing 15,000$ • spoglia sul cono tagliente • per fori profondi
- M**
- K**
- N** • materiali duri e secchi • ottone, leghe di magnesio • bronze, bronzo fosforoso • ardesia, mica, pertinax
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 786

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓛ



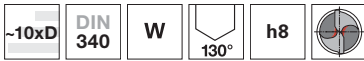
Articolo nr. **221**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,450		30,000	10,000	3,510		112,000	73,000
0,600		35,000	15,000	3,700		112,000	73,000
0,650		38,000	18,000	4,100		119,000	78,000
0,900		51,000	29,000	4,200		119,000	78,000
1,100		60,000	37,000	4,400		126,000	82,000
1,240		65,000	41,000	4,500		126,000	82,000
1,300		65,000	41,000	4,900		132,000	87,000
1,320		65,000	41,000	5,000		132,000	87,000
1,370		70,000	45,000	5,050		132,000	87,000
1,400		70,000	45,000	5,100		132,000	87,000
1,500		70,000	45,000	5,400		139,000	91,000
1,550		76,000	50,000	5,600		139,000	91,000
1,800		80,000	53,000	5,900		139,000	91,000
1,850		80,000	53,000	6,000		139,000	91,000
2,000		85,000	56,000	6,800		156,000	102,000
2,160		90,000	59,000	8,000		165,000	109,000
2,180		90,000	59,000	9,000		175,000	115,000
2,200		90,000	59,000	12,800		205,000	134,000
2,270		90,000	59,000	15,000		220,000	144,000
2,350		90,000	59,000				
2,850		100,000	66,000				
2,900		100,000	66,000				
2,950		100,000	66,000				
3,000		100,000	66,000				
3,170	1/8	106,000	69,000				
3,200		106,000	69,000				
3,250		106,000	69,000				
3,400		112,000	73,000				
3,450		112,000	73,000				
3,500		112,000	73,000				



Punte elicoidali, lunghe



P Assott. del nocc. $\geq \varnothing 14,500$ • spoglia sul cono tagliente • per fori profondi

M
K
N •
S
H

materiali teneri a truciolo lungo • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • materie sintetiche (tenere) e legno

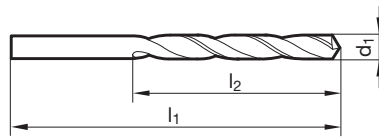
Materiale tagliente **HSS**

Superficie

Direzione di taglio

GUHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **219**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,500		32,000	12,000	2,100		85,000	56,000
0,600		35,000	15,000	2,150		90,000	59,000
0,650		38,000	18,000	2,200		90,000	59,000
0,700		42,000	21,000	2,250		90,000	59,000
0,740		42,000	21,000	2,300		90,000	59,000
0,750		42,000	21,000	2,350		90,000	59,000
0,800		46,000	25,000	2,380	3/32	95,000	62,000
0,850		46,000	25,000	2,400		95,000	62,000
0,900		51,000	29,000	2,430		95,000	62,000
0,950		51,000	29,000	2,450		95,000	62,000
0,970		56,000	33,000	2,490		95,000	62,000
0,980		56,000	33,000	2,500		95,000	62,000
1,000		56,000	33,000	2,550		95,000	62,000
1,100		60,000	37,000	2,600		95,000	62,000
1,180		60,000	37,000	2,650		95,000	62,000
1,190	3/64	65,000	41,000	2,700		100,000	66,000
1,200		65,000	41,000	2,710		100,000	66,000
1,220		65,000	41,000	2,750		100,000	66,000
1,250		65,000	41,000	2,800		100,000	66,000
1,300		65,000	41,000	2,850		100,000	66,000
1,350		70,000	45,000	2,880		100,000	66,000
1,370		70,000	45,000	2,900		100,000	66,000
1,400		70,000	45,000	2,950		100,000	66,000
1,440		70,000	45,000	3,000		100,000	66,000
1,500		70,000	45,000	3,100		106,000	69,000
1,520		76,000	50,000	3,170	1/8	106,000	69,000
1,600		76,000	50,000	3,180		106,000	69,000
1,610		76,000	50,000	3,200		106,000	69,000
1,650		76,000	50,000	3,250		106,000	69,000
1,700		76,000	50,000	3,260		106,000	69,000
1,750		80,000	53,000	3,300		106,000	69,000
1,760		80,000	53,000	3,350		106,000	69,000
1,770		80,000	53,000	3,400		112,000	73,000
1,780		80,000	53,000	3,500		112,000	73,000
1,800		80,000	53,000	3,550		112,000	73,000
1,850		80,000	53,000	3,600		112,000	73,000
1,900		80,000	53,000	3,650		112,000	73,000
1,950		85,000	56,000	3,700		112,000	73,000
1,970		85,000	56,000	3,750		112,000	73,000
2,000		85,000	56,000	3,800		119,000	78,000
2,050		85,000	56,000	3,830		119,000	78,000
2,070		85,000	56,000	3,900		119,000	78,000

Punte a cannone



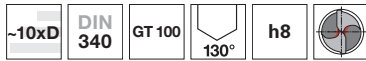
Punte a cannone

d1		l1	l2
mm	inch	mm	mm
3,920		119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,700		126,000	82,000
4,800		132,000	87,000
4,830		132,000	87,000
4,870		132,000	87,000
4,900		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,430		139,000	91,000
5,500		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,980		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,300		156,000	102,000
7,400		156,000	102,000
7,450		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,550		165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000

d1		l1	l2
mm	inch	mm	mm
7,850		165,000	109,000
7,900		165,000	109,000
7,950		165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,500		165,000	109,000
8,550		175,000	115,000
8,600		175,000	115,000
8,700		175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,500		175,000	115,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,300		184,000	121,000
10,700		195,000	128,000
10,750		195,000	128,000
11,000		195,000	128,000
11,300		195,000	128,000
11,400		195,000	128,000
12,000		205,000	134,000
13,100	33/64	205,000	134,000
13,500		214,000	140,000
13,750		214,000	140,000
14,000		214,000	140,000
14,500		220,000	144,000
15,000		220,000	144,000
15,500		227,000	149,000
17,000		235,000	154,000
18,000		241,000	158,000
18,250		247,000	162,000
19,000		247,000	162,000
19,840	25/32	254,000	166,000
20,000		254,000	166,000
20,640	13/16	261,000	171,000

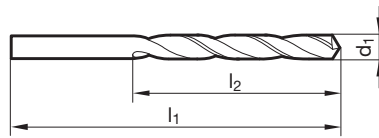


Punte elicoidali, lunghe



- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

Materiale tagliente	HSS
Superficie	
Direzione di taglio	



Articolo nr. **535**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,000		56,000	33,000	2,200		90,000	59,000
1,020		56,000	33,000	2,250		90,000	59,000
1,040		56,000	33,000	2,260		90,000	59,000
1,050		56,000	33,000	2,300		90,000	59,000
1,070		60,000	37,000	2,350		90,000	59,000
1,090		60,000	37,000	2,370		95,000	62,000
1,100		60,000	37,000	2,380	3/32	95,000	62,000
1,150		60,000	37,000	2,400		95,000	62,000
1,180		60,000	37,000	2,440		95,000	62,000
1,190	3/64	65,000	41,000	2,450		95,000	62,000
1,200		65,000	41,000	2,480		95,000	62,000
1,250		65,000	41,000	2,490		95,000	62,000
1,300		65,000	41,000	2,500		95,000	62,000
1,320		65,000	41,000	2,530		95,000	62,000
1,350		70,000	45,000	2,550		95,000	62,000
1,400		70,000	45,000	2,580		95,000	62,000
1,450		70,000	45,000	2,600		95,000	62,000
1,500		70,000	45,000	2,640		95,000	62,000
1,510		76,000	50,000	2,650		95,000	62,000
1,520		76,000	50,000	2,700		100,000	66,000
1,550		76,000	50,000	2,710		100,000	66,000
1,590	1/16	76,000	50,000	2,750		100,000	66,000
1,600		76,000	50,000	2,780	7/64	100,000	66,000
1,650		76,000	50,000	2,790		100,000	66,000
1,670		76,000	50,000	2,800		100,000	66,000
1,700		76,000	50,000	2,820		100,000	66,000
1,750		80,000	53,000	2,830		100,000	66,000
1,780		80,000	53,000	2,850		100,000	66,000
1,800		80,000	53,000	2,870		100,000	66,000
1,850		80,000	53,000	2,900		100,000	66,000
1,900		80,000	53,000	2,940		100,000	66,000
1,930		85,000	56,000	2,950		100,000	66,000
1,950		85,000	56,000	3,000		100,000	66,000
1,980	5/64	85,000	56,000	3,050		106,000	69,000
1,990		85,000	56,000	3,100		106,000	69,000
2,000		85,000	56,000	3,150		106,000	69,000
2,050		85,000	56,000	3,170	1/8	106,000	69,000
2,060		85,000	56,000	3,200		106,000	69,000
2,080		85,000	56,000	3,250		106,000	69,000
2,100		85,000	56,000	3,260		106,000	69,000
2,150		90,000	59,000	3,270		106,000	69,000
2,180		90,000	59,000	3,300		106,000	69,000

Punte a cannone



d1		l1	l2
mm	inch	mm	mm
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,660		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,130		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,750		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,050		148,000	97,000
6,100		148,000	97,000

d1		l1	l2
mm	inch	mm	mm
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
6,910		156,000	102,000
7,000		156,000	102,000
7,030		156,000	102,000
7,040		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000
7,750		165,000	109,000
7,800		165,000	109,000
7,850		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,840		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,340		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,600		184,000	121,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,080		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000

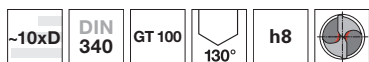
Punte a cannone



d1		l1	l2
mm	inch	mm	mm
10,300		184,000	121,000
10,320	13/32	184,000	121,000
10,400		184,000	121,000
10,490		184,000	121,000
10,500		184,000	121,000
10,600		184,000	121,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,100		195,000	128,000
11,110	7/16	195,000	128,000
11,300		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,800		195,000	128,000
11,900		205,000	134,000
11,910	15/32	205,000	134,000

d1		l1	l2
mm	inch	mm	mm
12,000		205,000	134,000
12,150		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,600		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,700		214,000	140,000
13,890	35/64	214,000	140,000
13,900		214,000	140,000
14,000		214,000	140,000

Punte elicoidali, lunghe



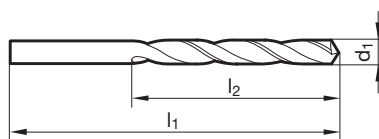
Materiale tagliente	HSS
Superficie	S
Direzione di taglio	R

P • Assott. del noc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente

- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **668**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,000		56,000	33,000	2,800		100,000	66,000
1,090		60,000	37,000	2,820		100,000	66,000
1,100		60,000	37,000	2,850		100,000	66,000
1,180		60,000	37,000	2,870		100,000	66,000
1,190	3/64	65,000	41,000	2,900		100,000	66,000
1,200		65,000	41,000	2,950		100,000	66,000
1,300		65,000	41,000	3,000		100,000	66,000
1,320		65,000	41,000	3,050		106,000	69,000
1,400		70,000	45,000	3,100		106,000	69,000
1,500		70,000	45,000	3,170	1/8	106,000	69,000
1,510		76,000	50,000	3,200		106,000	69,000
1,590	1/16	76,000	50,000	3,250		106,000	69,000
1,600		76,000	50,000	3,260		106,000	69,000
1,650		76,000	50,000	3,300		106,000	69,000
1,700		76,000	50,000	3,400		112,000	73,000
1,800		80,000	53,000	3,450		112,000	73,000
1,850		80,000	53,000	3,500		112,000	73,000
1,900		80,000	53,000	3,570	9/64	112,000	73,000
1,930		85,000	56,000	3,600		112,000	73,000
1,950		85,000	56,000	3,700		112,000	73,000
1,980	5/64	85,000	56,000	3,730		112,000	73,000
1,990		85,000	56,000	3,750		112,000	73,000
2,000		85,000	56,000	3,800		119,000	78,000
2,060		85,000	56,000	3,860		119,000	78,000
2,080		85,000	56,000	3,870		119,000	78,000
2,100		85,000	56,000	3,900		119,000	78,000
2,180		90,000	59,000	3,910		119,000	78,000
2,200		90,000	59,000	3,970	5/32	119,000	78,000
2,260		90,000	59,000	4,000		119,000	78,000
2,300		90,000	59,000	4,040		119,000	78,000
2,380	3/32	95,000	62,000	4,090		119,000	78,000
2,400		95,000	62,000	4,100		119,000	78,000
2,490		95,000	62,000	4,200		119,000	78,000
2,500		95,000	62,000	4,220		119,000	78,000
2,530		95,000	62,000	4,300		126,000	82,000
2,550		95,000	62,000	4,370	11/64	126,000	82,000
2,580		95,000	62,000	4,400		126,000	82,000
2,600		95,000	62,000	4,500		126,000	82,000
2,640		95,000	62,000	4,600		126,000	82,000
2,700		100,000	66,000	4,700		126,000	82,000
2,710		100,000	66,000	4,760	3/16	132,000	87,000
2,780	7/64	100,000	66,000	4,800		132,000	87,000



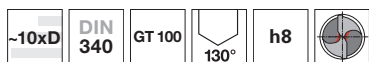
d1		l1	l2
mm	inch	mm	mm
4,850		132,000	87,000
4,900		132,000	87,000
4,910		132,000	87,000
4,920		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,100		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,760		156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000

d1		l1	l2
mm	inch	mm	mm
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,340		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,300	31/64	205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
14,000		214,000	140,000

Punte a cannone



Punte elicoidali, lunghe



Materiale tagliente **HSS**

Superficie **F**

Direzione di taglio **R**

P • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente

M

K •

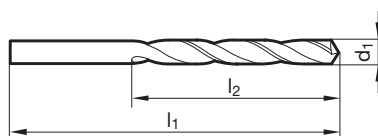
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GÜHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **2462**

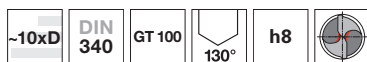
Punte a cannone

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,500		70,000	45,000
1,600		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
2,000		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,400		95,000	62,000
2,500		95,000	62,000
2,600		95,000	62,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000

d1		l1	l2
mm	inch	mm	mm
3,800		119,000	78,000
4,000		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,500		126,000	82,000
4,800		132,000	87,000
5,000		132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,800		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,600		165,000	109,000
8,000		165,000	109,000
9,000		175,000	115,000
10,000		184,000	121,000



Punte elicoidali, lunghe



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 1,400$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente

M

K •

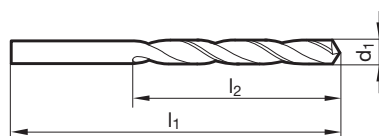
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 786



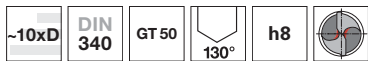
Articolo nr. **506**

d1		l1	l2
mm	inch	mm	mm
1,400		70,000	45,000
1,500		70,000	45,000
1,600		76,000	50,000
1,680		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
2,000		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,500		95,000	62,000
2,800		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,800		119,000	78,000
3,950		119,000	78,000
4,000		119,000	78,000
4,400		126,000	82,000
4,500		126,000	82,000

d1		l1	l2
mm	inch	mm	mm
4,600		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,950		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
7,400		156,000	102,000
7,800		165,000	109,000
8,500		165,000	109,000
9,000		175,000	115,000
9,900		184,000	121,000
10,320	13/32	184,000	121,000
11,000		195,000	128,000
11,500		195,000	128,000
11,600		195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000

Punte a cannone

Punte elicoidali, lunghe

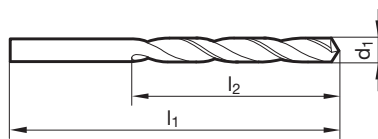


- P** ○ Assott. del noc. ≥ Ø 2,370 • spoglia sul cono tagliente • scanalature particolarmente larghe
- M**
- K**
- N** ● materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno
- S**
- H**

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ

GÜHRING NAVIGATOR

Dati di taglio a pag. 786



Articolo nr. **501**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,000		56,000	33,000	2,350		90,000	59,000
1,020		56,000	33,000	2,370		95,000	62,000
1,030		56,000	33,000	2,380	3/32	95,000	62,000
1,040		56,000	33,000	2,400		95,000	62,000
1,070		60,000	37,000	2,440		95,000	62,000
1,090		60,000	37,000	2,450		95,000	62,000
1,100		60,000	37,000	2,490		95,000	62,000
1,180		60,000	37,000	2,500		95,000	62,000
1,190	3/64	65,000	41,000	2,520		95,000	62,000
1,200		65,000	41,000	2,530		95,000	62,000
1,250		65,000	41,000	2,550		95,000	62,000
1,300		65,000	41,000	2,580		95,000	62,000
1,320		65,000	41,000	2,600		95,000	62,000
1,400		70,000	45,000	2,640		95,000	62,000
1,450		70,000	45,000	2,650		95,000	62,000
1,480		70,000	45,000	2,700		100,000	66,000
1,500		70,000	45,000	2,710		100,000	66,000
1,510		76,000	50,000	2,750		100,000	66,000
1,550		76,000	50,000	2,780	7/64	100,000	66,000
1,590	1/16	76,000	50,000	2,790		100,000	66,000
1,600		76,000	50,000	2,800		100,000	66,000
1,610		76,000	50,000	2,820		100,000	66,000
1,700		76,000	50,000	2,850		100,000	66,000
1,750		80,000	53,000	2,870		100,000	66,000
1,780		80,000	53,000	2,900		100,000	66,000
1,800		80,000	53,000	2,950		100,000	66,000
1,850		80,000	53,000	3,000		100,000	66,000
1,900		80,000	53,000	3,050		106,000	69,000
1,930		85,000	56,000	3,100		106,000	69,000
1,950		85,000	56,000	3,170	1/8	106,000	69,000
1,980	5/64	85,000	56,000	3,200		106,000	69,000
1,990		85,000	56,000	3,250		106,000	69,000
2,000		85,000	56,000	3,260		106,000	69,000
2,050		85,000	56,000	3,300		106,000	69,000
2,060		85,000	56,000	3,350		106,000	69,000
2,080		85,000	56,000	3,400		112,000	73,000
2,100		85,000	56,000	3,450		112,000	73,000
2,180		90,000	59,000	3,500		112,000	73,000
2,200		90,000	59,000	3,570	9/64	112,000	73,000
2,250		90,000	59,000	3,600		112,000	73,000
2,260		90,000	59,000	3,650		112,000	73,000
2,300		90,000	59,000	3,660		112,000	73,000

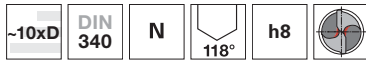


d1		l1	l2
mm	inch	mm	mm
3,700		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,030		148,000	97,000
6,040		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,040		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,670		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,025		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,330	21/64	165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,750		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000
9,300		175,000	115,000
9,340		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,580		184,000	121,000
9,600		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,080		184,000	121,000
10,200		184,000	121,000
10,260		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,600		184,000	121,000
10,700		195,000	128,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,750		195,000	128,000
11,800		195,000	128,000
11,900		205,000	134,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,200		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,490	17/32	214,000	140,000
14,000		214,000	140,000
32,600		325,000	213,000

Punte a cannone

Punte elicoidali, lunghe



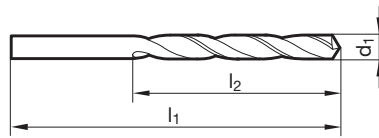
- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ○
- K** •
- N** • acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** ○ • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

Materiale tagliente	HSCO
Superficie	$\text{Ra} > 0,2,36$
Direzione di taglio	R



GÜHRING NAVIGATOR

Dati di taglio a pag. 792



Articolo nr. **317**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
0,500		32,000	12,000	2,500		95,000	62,000
0,600		35,000	15,000	2,600		95,000	62,000
0,700		42,000	21,000	2,700		100,000	66,000
0,750		42,000	21,000	2,780	7/64	100,000	66,000
0,800		46,000	25,000	2,800		100,000	66,000
0,850		46,000	25,000	2,900		100,000	66,000
0,900		51,000	29,000	3,000		100,000	66,000
0,950		51,000	29,000	3,050		106,000	69,000
0,960		56,000	33,000	3,100		106,000	69,000
1,000		56,000	33,000	3,170	1/8	106,000	69,000
1,020		56,000	33,000	3,200		106,000	69,000
1,050		56,000	33,000	3,250		106,000	69,000
1,100		60,000	37,000	3,300		106,000	69,000
1,150		60,000	37,000	3,400		112,000	73,000
1,190	3/64	65,000	41,000	3,500		112,000	73,000
1,200		65,000	41,000	3,550		112,000	73,000
1,250		65,000	41,000	3,570	9/64	112,000	73,000
1,300		65,000	41,000	3,600		112,000	73,000
1,350		70,000	45,000	3,700		112,000	73,000
1,400		70,000	45,000	3,800		119,000	78,000
1,450		70,000	45,000	3,900		119,000	78,000
1,500		70,000	45,000	3,970	5/32	119,000	78,000
1,510		76,000	50,000	4,000		119,000	78,000
1,550		76,000	50,000	4,040		119,000	78,000
1,590	1/16	76,000	50,000	4,100		119,000	78,000
1,600		76,000	50,000	4,200		119,000	78,000
1,650		76,000	50,000	4,300		126,000	82,000
1,700		76,000	50,000	4,370	11/64	126,000	82,000
1,780		80,000	53,000	4,400		126,000	82,000
1,800		80,000	53,000	4,500		126,000	82,000
1,850		80,000	53,000	4,600		126,000	82,000
1,900		80,000	53,000	4,700		126,000	82,000
1,950		85,000	56,000	4,760	3/16	132,000	87,000
1,980	5/64	85,000	56,000	4,800		132,000	87,000
2,000		85,000	56,000	4,850		132,000	87,000
2,050		85,000	56,000	4,900		132,000	87,000
2,060		85,000	56,000	5,000		132,000	87,000
2,100		85,000	56,000	5,050		132,000	87,000
2,200		90,000	59,000	5,100		132,000	87,000
2,300		90,000	59,000	5,160	13/64	132,000	87,000
2,380	3/32	95,000	62,000	5,200		132,000	87,000
2,400		95,000	62,000	5,300		132,000	87,000

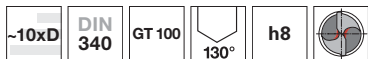


d1		l1	l2
mm	inch	mm	mm
5,400		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,330	21/64	165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,500		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,720	27/64	195,000	128,000
10,750		195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,500		214,000	140,000
13,700		214,000	140,000
13,890	35/64	214,000	140,000
13,900		214,000	140,000
14,000		214,000	140,000
14,290	9/16	220,000	144,000
14,400		220,000	144,000
14,600		220,000	144,000
14,680	37/64	220,000	144,000
14,700		220,000	144,000
14,750		220,000	144,000
14,900		220,000	144,000
15,000		220,000	144,000
15,080	19/32	227,000	149,000
15,480	39/64	227,000	149,000
15,800		227,000	149,000
15,870	5/8	227,000	149,000
16,000		227,000	149,000
22,000		268,000	176,000

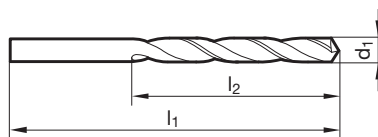
Punte a cannone

Punte elicoidali, lunghe



- P** • Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

Materiale tagliente	HSCO
Superficie	
Direzione di taglio	



Articolo nr. **336**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,000		56,000	33,000	2,440		95,000	62,000
1,020		56,000	33,000	2,450		95,000	62,000
1,040		56,000	33,000	2,490		95,000	62,000
1,070		60,000	37,000	2,500		95,000	62,000
1,090		60,000	37,000	2,530		95,000	62,000
1,100		60,000	37,000	2,550		95,000	62,000
1,180		60,000	37,000	2,580		95,000	62,000
1,190	3/64	65,000	41,000	2,600		95,000	62,000
1,200		65,000	41,000	2,640		95,000	62,000
1,250		65,000	41,000	2,700		100,000	66,000
1,300		65,000	41,000	2,710		100,000	66,000
1,320		65,000	41,000	2,750		100,000	66,000
1,400		70,000	45,000	2,780	7/64	100,000	66,000
1,500		70,000	45,000	2,790		100,000	66,000
1,510		76,000	50,000	2,800		100,000	66,000
1,550		76,000	50,000	2,820		100,000	66,000
1,590	1/16	76,000	50,000	2,850		100,000	66,000
1,600		76,000	50,000	2,870		100,000	66,000
1,610		76,000	50,000	2,900		100,000	66,000
1,700		76,000	50,000	2,950		100,000	66,000
1,750		80,000	53,000	3,000		100,000	66,000
1,780		80,000	53,000	3,050		106,000	69,000
1,800		80,000	53,000	3,100		106,000	69,000
1,850		80,000	53,000	3,170	1/8	106,000	69,000
1,900		80,000	53,000	3,200		106,000	69,000
1,930		85,000	56,000	3,260		106,000	69,000
1,980	5/64	85,000	56,000	3,300		106,000	69,000
1,990		85,000	56,000	3,400		112,000	73,000
2,000		85,000	56,000	3,440		112,000	73,000
2,050		85,000	56,000	3,450		112,000	73,000
2,060		85,000	56,000	3,500		112,000	73,000
2,080		85,000	56,000	3,570	9/64	112,000	73,000
2,100		85,000	56,000	3,600		112,000	73,000
2,180		90,000	59,000	3,660		112,000	73,000
2,200		90,000	59,000	3,700		112,000	73,000
2,250		90,000	59,000	3,730		112,000	73,000
2,260		90,000	59,000	3,750		112,000	73,000
2,300		90,000	59,000	3,800		119,000	78,000
2,350		90,000	59,000	3,860		119,000	78,000
2,370		95,000	62,000	3,900		119,000	78,000
2,380	3/32	95,000	62,000	3,910		119,000	78,000
2,400		95,000	62,000	3,970	5/32	119,000	78,000

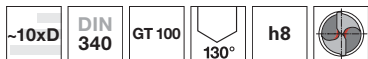


d1		l1	l2
mm	inch	mm	mm
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,100		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
6,900		156,000	102,000
7,000		156,000	102,000
7,030		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,840		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,750		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
10,750		195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,500		195,000	128,000
11,800		195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000
15,500		227,000	149,000
16,000		227,000	149,000

Punte a cannone

Punte elicoidali, lunghe

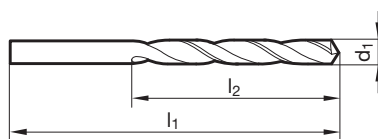


- P** • Assott. del nocch. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • specialmente per resistenza all'usura
- M** • • in caso di scarico truciolo insufficiente
- K** •
- N** • acciai legati e non legati e tipi di ghisa con R superiore a 800 N/mm²
- S** • acciai per lavorazioni a caldo e a freddo • acciai per cuscinetti • acciai legati in alta percentuale • acciai da bonifica e da cementazione
- H** ○

GÜHRINGNAVIGATOR

Dati di taglio a pag. 792

Materiale tagliente	HSCO
Superficie	F
Direzione di taglio	R



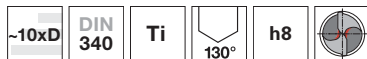
Articolo nr. **396**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,000		56,000	33,000	5,800		139,000	91,000
1,100		60,000	37,000	5,900		139,000	91,000
1,200		65,000	41,000	6,000		139,000	91,000
1,300		65,000	41,000	6,200		148,000	97,000
1,500		70,000	45,000	6,500		148,000	97,000
1,600		76,000	50,000	6,700		148,000	97,000
1,800		80,000	53,000	6,800		156,000	102,000
1,900		80,000	53,000	7,000		156,000	102,000
2,000		85,000	56,000	7,200		156,000	102,000
2,100		85,000	56,000	7,400		156,000	102,000
2,200		90,000	59,000	7,500		156,000	102,000
2,300		90,000	59,000	7,600		165,000	109,000
2,400		95,000	62,000	7,700		165,000	109,000
2,500		95,000	62,000	7,800		165,000	109,000
2,700		100,000	66,000	7,900		165,000	109,000
2,800		100,000	66,000	8,000		165,000	109,000
2,900		100,000	66,000	8,200		165,000	109,000
3,000		100,000	66,000	8,300		165,000	109,000
3,100		106,000	69,000	8,500		165,000	109,000
3,200		106,000	69,000	8,600		175,000	115,000
3,300		106,000	69,000	8,800		175,000	115,000
3,400		112,000	73,000	8,900		175,000	115,000
3,500		112,000	73,000	9,000		175,000	115,000
3,600		112,000	73,000	9,100		175,000	115,000
3,800		119,000	78,000	9,200		175,000	115,000
3,900		119,000	78,000	9,300		175,000	115,000
4,000		119,000	78,000	9,500		175,000	115,000
4,100		119,000	78,000	9,600		184,000	121,000
4,200		119,000	78,000	9,700		184,000	121,000
4,500		126,000	82,000	10,000		184,000	121,000
4,800		132,000	87,000	10,200		184,000	121,000
5,000		132,000	87,000	10,500		184,000	121,000
5,100		132,000	87,000	11,000		195,000	128,000
5,200		132,000	87,000	11,500		195,000	128,000
5,400		139,000	91,000	12,000		205,000	134,000
5,500		139,000	91,000				



Punte elicoidali, lunghe



Materiale tagliente **HSCO**

Superficie

Direzione di taglio

P Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura

M

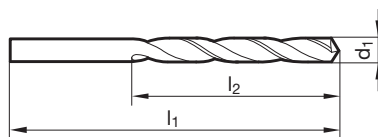
K

N Titanio e leghe di titanio • acciai inossidabili, resistenti al calore ed austenitici • acciai molto tenaci ed a truciolo corto con R da ca. 900 N/mm² • acciai per cuscinetti • Hastelloy, Inconel, Nimonic

H

GUHRING NAVIGATOR

Dati di taglio a pag. 792



Articolo nr. **617**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,200		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,450		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000

d1		l1	l2
mm	inch	mm	mm
3,300		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,900		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000

Punte a cannone



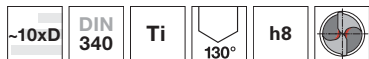
d1		l1	l2
mm	inch	mm	mm
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000	9/32	156,000	102,000
7,100		156,000	102,000
7,140		156,000	102,000
7,250		156,000	102,000
7,400		156,000	102,000
7,500	19/64	156,000	102,000
7,540		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,940		165,000	109,000
8,000	5/16	165,000	109,000
8,100		165,000	109,000
8,200	21/64	165,000	109,000
8,300		165,000	109,000
8,330		165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,700	11/32	175,000	115,000
8,730		175,000	115,000
8,800		175,000	115,000
8,800		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,000		175,000	115,000
9,100		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,800		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500	7/16	184,000	121,000
11,000		195,000	128,000
11,110		195,000	128,000
11,510		195,000	128,000
12,000		205,000	134,000
12,500	29/64	205,000	134,000
13,000		205,000	134,000
15,000		220,000	144,000

Punte a cannone



Punte elicoidali, lunghe

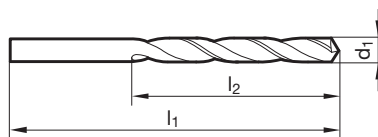


- P** ○ Assott. del nocc. ≥ Ø 1,000 • spoglia sul cono tagliente • acciaio HSS legato al Co • massima resistenza all'usura
- M** ●
- K** ●
- N** ● Titanio e leghe di titanio • acciai inossidabili, resistenti al calore ed austenitici • acciai molto tenaci ed a truciolo corto con R da ca. 900 N/mm² • acciai per cuscinetti • Hastelloy, Inconel, Nimonic
- S** ●
- H** ●

Materiale tagliente	HSCO
Superficie	S
Direzione di taglio	R

GUHRING NAVIGATOR

Dati di taglio a pag. 792



Articolo nr. **669**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,000		56,000	33,000	4,300		126,000	82,000
1,200		65,000	41,000	4,370	11/64	126,000	82,000
1,300		65,000	41,000	4,400		126,000	82,000
1,400		70,000	45,000	4,500		126,000	82,000
1,500		70,000	45,000	4,700		126,000	82,000
1,590	1/16	76,000	50,000	4,760	3/16	132,000	87,000
1,600		76,000	50,000	4,800		132,000	87,000
1,700		76,000	50,000	5,000		132,000	87,000
1,800		80,000	53,000	5,100		132,000	87,000
1,900		80,000	53,000	5,160	13/64	132,000	87,000
1,980	5/64	85,000	56,000	5,200		132,000	87,000
2,000		85,000	56,000	5,300		132,000	87,000
2,050		85,000	56,000	5,500		139,000	91,000
2,100		85,000	56,000	5,600		139,000	91,000
2,200		90,000	59,000	5,700		139,000	91,000
2,300		90,000	59,000	5,800		139,000	91,000
2,380	3/32	95,000	62,000	6,000		139,000	91,000
2,400		95,000	62,000	6,100		148,000	97,000
2,500		95,000	62,000	6,200		148,000	97,000
2,600		95,000	62,000	6,300		148,000	97,000
2,700		100,000	66,000	6,350	1/4	148,000	97,000
2,750		100,000	66,000	6,400		148,000	97,000
2,780	7/64	100,000	66,000	6,500		148,000	97,000
2,800		100,000	66,000	6,700		148,000	97,000
2,900		100,000	66,000	6,750	17/64	156,000	102,000
3,000		100,000	66,000	6,800		156,000	102,000
3,100		106,000	69,000	7,000		156,000	102,000
3,170	1/8	106,000	69,000	7,100		156,000	102,000
3,200		106,000	69,000	7,140	9/32	156,000	102,000
3,250		106,000	69,000	7,200		156,000	102,000
3,300		106,000	69,000	7,400		156,000	102,000
3,400		112,000	73,000	7,500		156,000	102,000
3,500		112,000	73,000	7,540	19/64	165,000	109,000
3,570	9/64	112,000	73,000	7,800		165,000	109,000
3,600		112,000	73,000	7,900		165,000	109,000
3,700		112,000	73,000	7,940	5/16	165,000	109,000
3,800		119,000	78,000	8,000		165,000	109,000
3,900		119,000	78,000	8,200		165,000	109,000
3,970	5/32	119,000	78,000	8,500		165,000	109,000
4,000		119,000	78,000	8,730	11/32	175,000	115,000
4,100		119,000	78,000	9,000		175,000	115,000
4,200		119,000	78,000	9,130	23/64	175,000	115,000

Punte a cannone



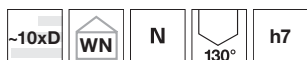
d1		l1	l2
mm	inch	mm	mm
9,300		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000

d1		l1	l2
mm	inch	mm	mm

Punte a cannone



Punte elicoidali, lunghe



Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

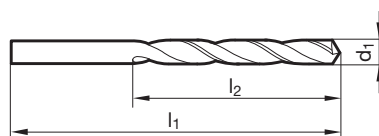
P affilatura su piani • forma del tagliente principale diritta

- M**
- K**
- N**
- S**
- H**

materie sintetiche a fibre vetrose • altri materiali che esercitano un'azione abrasiva sui taglienti e sulle fasi della punta

GUHRING NAVIGATOR

Dati di taglio a pag. 792



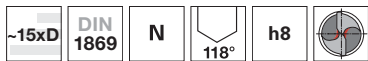
Articolo nr. **706**

d1		l1	l2
mm	inch	mm	mm
0,500		38,000	8,500
0,600		38,000	9,500
0,650		38,000	10,500
0,700		38,000	10,500
0,750		38,000	12,500
0,800		38,000	12,500
0,850		38,000	14,500
0,900		38,000	14,500
1,000		38,000	17,000
1,050		38,000	17,000
1,100		38,000	17,000
1,400		38,000	17,000

d1		l1	l2
mm	inch	mm	mm
1,450		38,000	17,000

Punte a cannone

Punte elicoidali in lunghezze speciali, grandezza 1

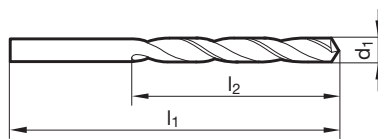


- P** • Assott. del noc. $\geq \varnothing 2,380$ • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 788

Materiale tagliente	HSS
Superficie	>0.236
Direzione di taglio	



Articolo nr. **235**

Punte a cannone

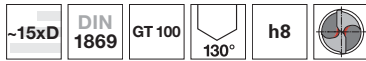
d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,600		115,000	75,000	4,600		185,000	125,000
1,700		115,000	75,000	4,700		185,000	125,000
1,800		120,000	80,000	4,760	3/16	195,000	135,000
1,900		120,000	80,000	4,800		195,000	135,000
1,930		125,000	85,000	4,900		195,000	135,000
1,950		125,000	85,000	5,000		195,000	135,000
2,000		125,000	85,000	5,100		195,000	135,000
2,050		125,000	85,000	5,200		195,000	135,000
2,100		125,000	85,000	5,300		195,000	135,000
2,200		135,000	90,000	5,340		205,000	140,000
2,300		135,000	90,000	5,400		205,000	140,000
2,350		135,000	90,000	5,500		205,000	140,000
2,380	3/32	140,000	95,000	5,560	7/32	205,000	140,000
2,400		140,000	95,000	5,600		205,000	140,000
2,500		140,000	95,000	5,700		205,000	140,000
2,600		140,000	95,000	5,800		205,000	140,000
2,700		150,000	100,000	5,900		205,000	140,000
2,800		150,000	100,000	6,000		205,000	140,000
2,900		150,000	100,000	6,100		215,000	150,000
3,000		150,000	100,000	6,200		215,000	150,000
3,100		155,000	105,000	6,250		215,000	150,000
3,170	1/8	155,000	105,000	6,300		215,000	150,000
3,200		155,000	105,000	6,350	1/4	215,000	150,000
3,250		155,000	105,000	6,400		215,000	150,000
3,300		155,000	105,000	6,500		215,000	150,000
3,400		165,000	115,000	6,600		215,000	150,000
3,500		165,000	115,000	6,700		215,000	150,000
3,570	9/64	165,000	115,000	6,750	17/64	225,000	155,000
3,600		165,000	115,000	6,800		225,000	155,000
3,650		165,000	115,000	7,000		225,000	155,000
3,700		165,000	115,000	7,200		225,000	155,000
3,750		165,000	115,000	7,400		225,000	155,000
3,800		175,000	120,000	7,500		225,000	155,000
3,900		175,000	120,000	7,700		240,000	165,000
3,970	5/32	175,000	120,000	7,800		240,000	165,000
4,000		175,000	120,000	7,900		240,000	165,000
4,100		175,000	120,000	7,940	5/16	240,000	165,000
4,200		175,000	120,000	8,000		240,000	165,000
4,300		185,000	125,000	8,100		240,000	165,000
4,370	11/64	185,000	125,000	8,200		240,000	165,000
4,400		185,000	125,000	8,330	21/64	240,000	165,000
4,500		185,000	125,000	8,400		240,000	165,000



d1		l1	l2
mm	inch	mm	mm
8,500		240,000	165,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
8,900		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000
9,700		265,000	185,000
9,800		265,000	185,000
9,900		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,100		265,000	185,000
10,200		265,000	185,000
10,250		265,000	185,000

d1		l1	l2
mm	inch	mm	mm
10,320	13/32	265,000	185,000
10,500		265,000	185,000
11,000		280,000	195,000
11,500		280,000	195,000
11,510	29/64	280,000	195,000
11,800		280,000	195,000
12,000		295,000	205,000
12,100		295,000	205,000
12,250		295,000	205,000
12,300	31/64	295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000
13,000		295,000	205,000

Punte elicoidali in lunghezze speciali, grandezza 1

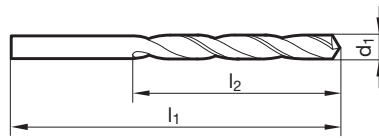


- P** • Assott. del noc. $\geq \varnothing 1,950$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

Materiale tagliente	HSS
Superficie	
Direzione di taglio	

GÜHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **502**

Punte a cannone

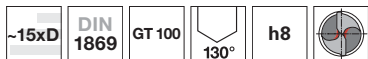
d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
1,950		125,000	85,000	4,400		185,000	125,000
2,000		125,000	85,000	4,500		185,000	125,000
2,050		125,000	85,000	4,570		185,000	125,000
2,100		125,000	85,000	4,600		185,000	125,000
2,200		135,000	90,000	4,700		185,000	125,000
2,300		135,000	90,000	4,760	3/16	195,000	135,000
2,370		140,000	95,000	4,800		195,000	135,000
2,380	3/32	140,000	95,000	4,900		195,000	135,000
2,400		140,000	95,000	5,000		195,000	135,000
2,500		140,000	95,000	5,100		195,000	135,000
2,550		140,000	95,000	5,110		195,000	135,000
2,580		140,000	95,000	5,160	13/64	195,000	135,000
2,600		140,000	95,000	5,200		195,000	135,000
2,700		150,000	100,000	5,300		195,000	135,000
2,780	7/64	150,000	100,000	5,400		205,000	140,000
2,800		150,000	100,000	5,500		205,000	140,000
2,850		150,000	100,000	5,560	7/32	205,000	140,000
2,870		150,000	100,000	5,600		205,000	140,000
2,900		150,000	100,000	5,700		205,000	140,000
2,950		150,000	100,000	5,750		205,000	140,000
3,000		150,000	100,000	5,800		205,000	140,000
3,030		155,000	105,000	5,900		205,000	140,000
3,100		155,000	105,000	5,950	15/64	205,000	140,000
3,170	1/8	155,000	105,000	6,000		205,000	140,000
3,200		155,000	105,000	6,100		215,000	150,000
3,250		155,000	105,000	6,200		215,000	150,000
3,300		155,000	105,000	6,250		215,000	150,000
3,400		165,000	115,000	6,300		215,000	150,000
3,500		165,000	115,000	6,350	1/4	215,000	150,000
3,570	9/64	165,000	115,000	6,400		215,000	150,000
3,600		165,000	115,000	6,500		215,000	150,000
3,700		165,000	115,000	6,600		215,000	150,000
3,750		165,000	115,000	6,700		215,000	150,000
3,800		175,000	120,000	6,750	17/64	225,000	155,000
3,860		175,000	120,000	6,800		225,000	155,000
3,900		175,000	120,000	6,900		225,000	155,000
3,970	5/32	175,000	120,000	7,000		225,000	155,000
4,000		175,000	120,000	7,100		225,000	155,000
4,100		175,000	120,000	7,200		225,000	155,000
4,200		175,000	120,000	7,300		225,000	155,000
4,300		185,000	125,000	7,500		225,000	155,000
4,370	11/64	185,000	125,000	7,540	19/64	240,000	165,000



d1		l1	l2
mm	inch	mm	mm
7,700		240,000	165,000
7,750		240,000	165,000
7,800		240,000	165,000
7,900		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,100		240,000	165,000
8,200		240,000	165,000
8,300		240,000	165,000
8,330	21/64	240,000	165,000
8,400		240,000	165,000
8,430		240,000	165,000
8,500		240,000	165,000
8,600		250,000	175,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
9,000		250,000	175,000
9,200		250,000	175,000
9,300		250,000	175,000
9,400		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000

d1		l1	l2
mm	inch	mm	mm
9,700		265,000	185,000
9,800		265,000	185,000
9,900		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,200		265,000	185,000
10,320	13/32	265,000	185,000
10,500		265,000	185,000
10,720	27/64	280,000	195,000
11,000		280,000	195,000
11,110	7/16	280,000	195,000
11,200		280,000	195,000
11,500		280,000	195,000
11,510	29/64	280,000	195,000
11,750		280,000	195,000
11,800		280,000	195,000
12,000		295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000
13,000		295,000	205,000

Punte elicoidali in lunghezze speciali, grandezza 1



P • Assott. del nocc. $\geq \varnothing 1,980$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente

K •
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
S ○
H

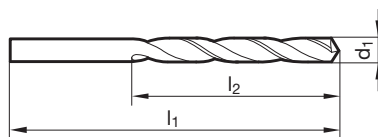
Materiale tagliente **HSS**

Superficie **S**

Direzione di taglio **R**

GÜHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **670**

Punte a cannone

d1		l1	l2
mm	inch	mm	mm
2,000		125,000	85,000
2,100		125,000	85,000
2,200		135,000	90,000
2,300		135,000	90,000
2,380	3/32	140,000	95,000
2,400		140,000	95,000
2,500		140,000	95,000
2,780	7/64	150,000	100,000
2,800		150,000	100,000
2,950		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,800		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,200		175,000	120,000
4,370	11/64	185,000	125,000
4,500		185,000	125,000
4,600		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000

d1		l1	l2
mm	inch	mm	mm
6,350	1/4	215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,800		225,000	155,000
7,000		225,000	155,000
7,140	9/32	225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,200		240,000	165,000
8,500		240,000	165,000
8,730	11/32	250,000	175,000
9,000		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,900		280,000	195,000
11,000		280,000	195,000
11,900		295,000	205,000
11,910	15/32	295,000	205,000
12,000		295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000



Punte elicoidali in lunghezze speciali, grandezza 1

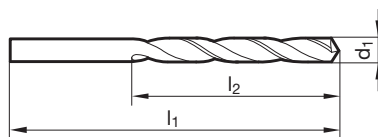


Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ

- P** ○ Assott. del nocc. ≥ Ø 2,380 • spoglia sul cono tagliente • per fori estremamente profondi
- M** □
- K** □
- N** ● materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno
- S** □
- H** □

GUHRING NAVIGATOR

Dati di taglio a pag. 788



Articolo nr. **524**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
2,000		125,000	85,000	5,200		195,000	135,000
2,100		125,000	85,000	5,400		205,000	140,000
2,200		135,000	90,000	5,600		205,000	140,000
2,300		135,000	90,000	5,700		205,000	140,000
2,350		135,000	90,000	5,800		205,000	140,000
2,380	3/32	140,000	95,000	5,900		205,000	140,000
2,400		140,000	95,000	5,950	15/64	205,000	140,000
2,450		140,000	95,000	6,000		205,000	140,000
2,500		140,000	95,000	6,100		215,000	150,000
2,600		140,000	95,000	6,350	1/4	215,000	150,000
2,780	7/64	150,000	100,000	6,400		215,000	150,000
2,800		150,000	100,000	6,500		215,000	150,000
2,900		150,000	100,000	6,600		215,000	150,000
2,950		150,000	100,000	6,750	17/64	225,000	155,000
3,000		150,000	100,000	6,800		225,000	155,000
3,100		155,000	105,000	7,000		225,000	155,000
3,170	1/8	155,000	105,000	7,100		225,000	155,000
3,200		155,000	105,000	7,140	9/32	225,000	155,000
3,300		155,000	105,000	7,300		225,000	155,000
3,350		155,000	105,000	7,400		225,000	155,000
3,400		165,000	115,000	7,500		225,000	155,000
3,450		165,000	115,000	7,540	19/64	240,000	165,000
3,500		165,000	115,000	7,800		240,000	165,000
3,530		165,000	115,000	7,900		240,000	165,000
3,570	9/64	165,000	115,000	7,940	5/16	240,000	165,000
3,600		165,000	115,000	8,000		240,000	165,000
3,800		175,000	120,000	8,100		240,000	165,000
3,900		175,000	120,000	8,330	21/64	240,000	165,000
3,970	5/32	175,000	120,000	8,600		250,000	175,000
4,000		175,000	120,000	8,730	11/32	250,000	175,000
4,100		175,000	120,000	8,900		250,000	175,000
4,200		175,000	120,000	9,000		250,000	175,000
4,250		175,000	120,000	9,130	23/64	250,000	175,000
4,300		185,000	125,000	9,200		250,000	175,000
4,370	11/64	185,000	125,000	9,500		250,000	175,000
4,400		185,000	125,000	9,520	3/8	265,000	185,000
4,500		185,000	125,000	9,920	25/64	265,000	185,000
4,760	3/16	195,000	135,000	10,000		265,000	185,000
4,900		195,000	135,000	10,320	13/32	265,000	185,000
5,000		195,000	135,000	10,500		265,000	185,000
5,100		195,000	135,000	11,000		280,000	195,000
5,160	13/64	195,000	135,000	11,110	7/16	280,000	195,000

Punte a cannone



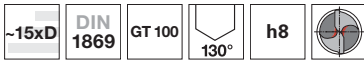
d1		l1	l2
mm	inch	mm	mm
11,500		280,000	195,000
11,910	15/32	295,000	205,000
12,000		295,000	205,000
12,700	1/2	295,000	205,000

d1		l1	l2
mm	inch	mm	mm

Punte a cannone



Punte elicoidali in lunghezze speciali, grandezza 1

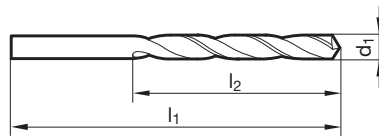


- P** • Assott. del noc. $\geq \varnothing 2,700$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai e ghisa acciaiata ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale
- S** •
- H** ○

Materiale tagliente **HSCO**

Superficie

Direzione di taglio



Articolo nr. **618**

d1		l1	l2
mm	inch	mm	mm
2,700		150,000	100,000
2,900		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,400		165,000	115,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,700		165,000	115,000
3,750		165,000	115,000
3,800		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,100		175,000	120,000
4,200		175,000	120,000
4,300		185,000	125,000
4,370	11/64	185,000	125,000
4,400		185,000	125,000
4,500		185,000	125,000
4,600		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
4,850		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,300		195,000	135,000
5,400		205,000	140,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
5,600		205,000	140,000
5,700		205,000	140,000

d1		l1	l2
mm	inch	mm	mm
5,800		205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000
6,300		215,000	150,000
6,350	1/4	215,000	150,000
6,400		215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,700		215,000	150,000
6,750	17/64	225,000	155,000
6,800		225,000	155,000
7,000		225,000	155,000
7,140	9/32	225,000	155,000
7,400		225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,700		240,000	165,000
7,800		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,200		240,000	165,000
8,330	21/64	240,000	165,000
8,500		240,000	165,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,400		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,700		265,000	185,000
10,000		265,000	185,000

Punte a cannone

Punte elicoidali in lunghezze speciali, grandezza 2

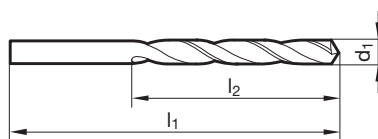


- P** • Assott. del nocch. $\geq \varnothing 2,700$ • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 788

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ



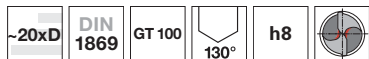
Articolo nr. **236**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
2,700		190,000	130,000	6,500		275,000	190,000
2,800		190,000	130,000	6,700		275,000	190,000
2,900		190,000	130,000	6,800		290,000	200,000
3,000		190,000	130,000	7,000		290,000	200,000
3,100		200,000	135,000	7,140	9/32	290,000	200,000
3,170	1/8	200,000	135,000	7,500		290,000	200,000
3,200		200,000	135,000	7,540	19/64	305,000	210,000
3,300		200,000	135,000	7,800		305,000	210,000
3,500		210,000	145,000	7,940	5/16	305,000	210,000
3,570	9/64	210,000	145,000	8,000		305,000	210,000
3,600		210,000	145,000	8,100		305,000	210,000
3,800		220,000	150,000	8,500		305,000	210,000
3,970	5/32	220,000	150,000	8,700		320,000	220,000
4,000		220,000	150,000	8,730	11/32	320,000	220,000
4,100		220,000	150,000	8,800		320,000	220,000
4,200		220,000	150,000	8,900		320,000	220,000
4,500		235,000	160,000	9,000		320,000	220,000
4,760	3/16	245,000	170,000	9,130	23/64	320,000	220,000
4,800		245,000	170,000	9,500		320,000	220,000
4,900		245,000	170,000	9,800		340,000	235,000
5,000		245,000	170,000	10,000		340,000	235,000
5,200		245,000	170,000	10,200		340,000	235,000
5,500		260,000	180,000	10,500		340,000	235,000
5,560	7/32	260,000	180,000	11,000		365,000	250,000
5,800		260,000	180,000	11,110	7/16	365,000	250,000
5,900		260,000	180,000	11,500		365,000	250,000
5,950	15/64	260,000	180,000	11,510	29/64	365,000	250,000
6,000		260,000	180,000	11,750		365,000	250,000
6,200		275,000	190,000	12,000		375,000	260,000
6,350	1/4	275,000	190,000	13,000		375,000	260,000



Punte elicoidali in lunghezze speciali, grandezza 2

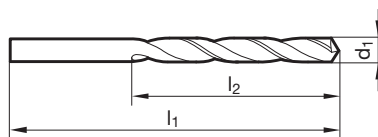


Materiale tagliente	HSS
Superficie	
Direzione di taglio	

- P** • Assott. del noc. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 790



Articolo nr. **503**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
2,000		160,000	110,000	6,100		275,000	190,000
2,200		170,000	115,000	6,150		275,000	190,000
2,300		170,000	115,000	6,200		275,000	190,000
2,500		180,000	120,000	6,350	1/4	275,000	190,000
2,800		190,000	130,000	6,400		275,000	190,000
3,000		190,000	130,000	6,500		275,000	190,000
3,030		200,000	135,000	6,600		275,000	190,000
3,100		200,000	135,000	6,700		275,000	190,000
3,170	1/8	200,000	135,000	6,750	17/64	290,000	200,000
3,200		200,000	135,000	6,800		290,000	200,000
3,300		200,000	135,000	6,900		290,000	200,000
3,400		210,000	145,000	7,000		290,000	200,000
3,500		210,000	145,000	7,140	9/32	290,000	200,000
3,570	9/64	210,000	145,000	7,500		290,000	200,000
3,600		210,000	145,000	7,540	19/64	305,000	210,000
3,700		210,000	145,000	7,800		305,000	210,000
3,800		220,000	150,000	7,940	5/16	305,000	210,000
3,900		220,000	150,000	8,000		305,000	210,000
3,970	5/32	220,000	150,000	8,200		305,000	210,000
4,000		220,000	150,000	8,330	21/64	305,000	210,000
4,100		220,000	150,000	8,500		305,000	210,000
4,200		220,000	150,000	8,600		320,000	220,000
4,300		235,000	160,000	8,730	11/32	320,000	220,000
4,370	11/64	235,000	160,000	8,800		320,000	220,000
4,400		235,000	160,000	9,000		320,000	220,000
4,500		235,000	160,000	9,100		320,000	220,000
4,760	3/16	245,000	170,000	9,130	23/64	320,000	220,000
4,800		245,000	170,000	9,500		320,000	220,000
4,900		245,000	170,000	9,520	3/8	340,000	235,000
5,000		245,000	170,000	9,700		340,000	235,000
5,100		245,000	170,000	9,800		340,000	235,000
5,160	13/64	245,000	170,000	9,920	25/64	340,000	235,000
5,200		245,000	170,000	10,000		340,000	235,000
5,300		245,000	170,000	10,200		340,000	235,000
5,400		260,000	180,000	10,500		340,000	235,000
5,500		260,000	180,000	10,720	27/64	365,000	250,000
5,560	7/32	260,000	180,000	11,000		365,000	250,000
5,700		260,000	180,000	11,110	7/16	365,000	250,000
5,800		260,000	180,000	11,500		365,000	250,000
5,900		260,000	180,000	11,510	29/64	365,000	250,000
5,950	15/64	260,000	180,000	11,750		365,000	250,000
6,000		260,000	180,000	11,910	15/32	375,000	260,000

Punte a cannone



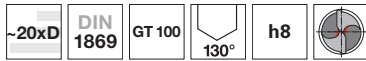
d1		l1	l2
mm	inch	mm	mm
12,000		375,000	260,000
12,300	31/64	375,000	260,000
12,500		375,000	260,000
12,700	1/2	375,000	260,000
13,000		375,000	260,000

d1		l1	l2
mm	inch	mm	mm

Punte a cannone



Punte elicoidali in lunghezze speciali, grandezza 2

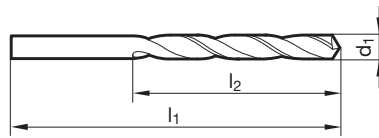


- P** • Assott. del noc. $\geq \varnothing 2,300$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S** ○
- H**

Materiale tagliente	HSS
Superficie	S
Direzione di taglio	R

GUHRING NAVIGATOR

Dati di taglio a pag. 790



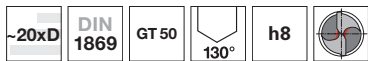
Articolo nr. **671**

d1		l1	l2
mm	inch	mm	mm
2,700		190,000	130,000
2,800		190,000	130,000
3,000		190,000	130,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,090		220,000	150,000
4,370	11/64	235,000	160,000
4,400		235,000	160,000
4,500		235,000	160,000
4,600		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
5,000		245,000	170,000

d1		l1	l2
mm	inch	mm	mm
5,300		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
6,000		260,000	180,000
6,350	1/4	275,000	190,000
6,500		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,500		305,000	210,000

Punte a cannone

Punte elicoidali in lunghezze speciali, grandezza 2

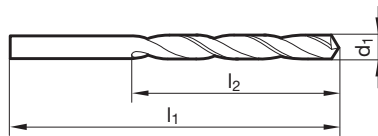


- P** ○ Assott. del nocc. $\geq \varnothing 2,800$ • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K**
- N** ● materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 788

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ



Articolo nr. **528**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
3,000		190,000	130,000	7,500		290,000	200,000
3,030		200,000	135,000	8,000		305,000	210,000
3,100		200,000	135,000	8,500		305,000	210,000
3,170	1/8	200,000	135,000	9,000		320,000	220,000
3,500		210,000	145,000	10,000		340,000	235,000
3,650		210,000	145,000	10,500		340,000	235,000
3,800		220,000	150,000	11,500		365,000	250,000
4,000		220,000	150,000	13,000		375,000	260,000
4,200		220,000	150,000				
4,500		235,000	160,000				
4,760	3/16	245,000	170,000				
4,800		245,000	170,000				
5,000		245,000	170,000				
5,110		245,000	170,000				
5,500		260,000	180,000				
5,800		260,000	180,000				
6,000		260,000	180,000				
7,000		290,000	200,000				



Punte elicoidali in lunghezze speciali, grandezza 2



- P** • Assott. del nocc. $\geq \varnothing 3,000$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai e ghisa acciaiata ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale
- S** •
- H** ○

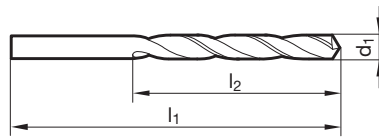
Materiale tagliente **HSCO**

Superficie

Direzione di taglio

GUHRING NAVIGATOR

Dati di taglio a pag. 794



Articolo nr. **619**

d1		l1	l2
mm	inch	mm	mm
3,000		190,000	130,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,370	11/64	235,000	160,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,200		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000
6,100		275,000	190,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000

d1		l1	l2
mm	inch	mm	mm
6,500		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,400		290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,600		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,200		305,000	210,000
8,500		305,000	210,000
8,730	11/32	320,000	220,000
9,000		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,520	3/8	340,000	235,000
9,600		340,000	235,000
9,900		340,000	235,000
10,000		340,000	235,000

Punte a cannone

Punte elicoidali in lunghezze speciali, grandezza 3

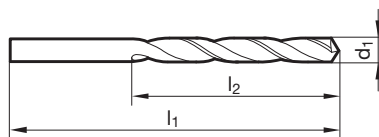


- P** • Assott. del nocc. $\geq \varnothing 3,500$ • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 788

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)



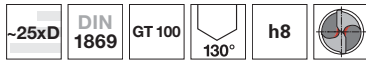
Articolo nr. **237**

Punte a cannone

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
3,500		265,000	180,000	7,500		370,000	250,000
3,800		280,000	190,000	7,800		390,000	265,000
4,000		280,000	190,000	8,000		390,000	265,000
4,100		280,000	190,000	8,500		390,000	265,000
4,200		280,000	190,000	9,000		410,000	280,000
4,500		295,000	200,000	9,500		410,000	280,000
5,000		315,000	210,000	9,800		430,000	295,000
5,200		315,000	210,000	10,000		430,000	295,000
5,500		330,000	225,000	10,300		430,000	295,000
5,800		330,000	225,000	10,500		430,000	295,000
5,900		330,000	225,000	11,000		455,000	310,000
6,000		330,000	225,000	11,500		455,000	310,000
6,100		350,000	235,000	11,750		455,000	310,000
6,200		350,000	235,000	12,000		480,000	330,000
6,500		350,000	235,000	12,500		480,000	330,000
6,700		350,000	235,000	13,000		480,000	330,000
6,800		370,000	250,000				
7,000		370,000	250,000				



Punte elicoidali in lunghezze speciali, grandezza 3

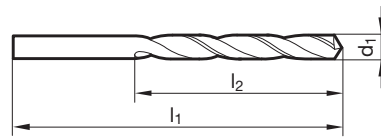


- P** • Assott. del nocc. $\geq \varnothing 2,500$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)

GUHRING NAVIGATOR

Dati di taglio a pag. 790

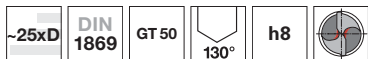


Articolo nr. **504**

d1		l1	l2	d1		l1	l2
mm	inch	mm	mm	mm	inch	mm	mm
2,500		225,000	150,000	7,000		370,000	250,000
3,000		240,000	160,000	7,140	9/32	370,000	250,000
3,100		250,000	170,000	7,200		370,000	250,000
3,170	1/8	250,000	170,000	7,500		370,000	250,000
3,200		250,000	170,000	7,540	19/64	390,000	265,000
3,300		250,000	170,000	7,750		390,000	265,000
3,400		265,000	180,000	7,800		390,000	265,000
3,500		265,000	180,000	7,940	5/16	390,000	265,000
3,570	9/64	265,000	180,000	8,000		390,000	265,000
3,600		265,000	180,000	8,200		390,000	265,000
3,700		265,000	180,000	8,330	21/64	390,000	265,000
3,800		280,000	190,000	8,500		390,000	265,000
3,900		280,000	190,000	8,600		410,000	280,000
3,970	5/32	280,000	190,000	8,730	11/32	410,000	280,000
4,000		280,000	190,000	8,800		410,000	280,000
4,100		280,000	190,000	8,900		410,000	280,000
4,200		280,000	190,000	9,000		410,000	280,000
4,300		295,000	200,000	9,200		410,000	280,000
4,370	11/64	295,000	200,000	9,500		410,000	280,000
4,400		295,000	200,000	9,520	3/8	430,000	295,000
4,500		295,000	200,000	9,530		430,000	295,000
4,600		295,000	200,000	9,920	25/64	430,000	295,000
4,760	3/16	315,000	210,000	10,000		430,000	295,000
4,800		315,000	210,000	10,320	13/32	430,000	295,000
4,900		315,000	210,000	10,500		430,000	295,000
5,000		315,000	210,000	10,720	27/64	455,000	310,000
5,100		315,000	210,000	11,000		455,000	310,000
5,200		315,000	210,000	11,110	7/16	455,000	310,000
5,500		330,000	225,000	11,500		455,000	310,000
5,560	7/32	330,000	225,000	12,000		480,000	330,000
5,800		330,000	225,000	12,200		480,000	330,000
5,950	15/64	330,000	225,000	12,500		480,000	330,000
6,000		330,000	225,000	13,000		480,000	330,000
6,100		350,000	235,000				
6,200		350,000	235,000				
6,300		350,000	235,000				
6,350	1/4	350,000	235,000				
6,400		350,000	235,000				
6,500		350,000	235,000				
6,700		350,000	235,000				
6,750	17/64	370,000	250,000				
6,800		370,000	250,000				

Punte a cannone

Punte elicoidali in lunghezze speciali, grandezza 3

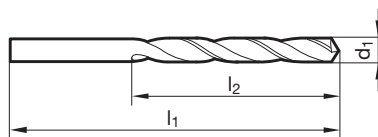


- P** ○ Assott. del nocc. $\geq \varnothing 2,500$ • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K**
- N** ● materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 788

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ



Articolo nr. **529**

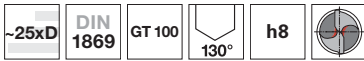
Punte a cannone

d1		l1	l2
mm	inch	mm	mm
2,500		225,000	150,000
3,000		240,000	160,000
3,500		265,000	180,000
3,800		280,000	190,000
4,000		280,000	190,000
4,500		295,000	200,000
5,000		315,000	210,000
6,000		330,000	225,000
6,500		350,000	235,000
6,700		350,000	235,000
6,800		370,000	250,000
7,500		370,000	250,000

d1		l1	l2
mm	inch	mm	mm
8,000		390,000	265,000
9,500		410,000	280,000
10,000		430,000	295,000



Punte elicoidali in lunghezze speciali, grandezza 3

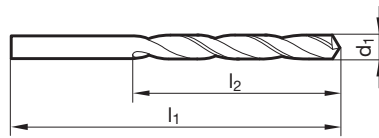


- P** • Assott. del nocc. $\geq \varnothing 2,500$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai e ghisa acciaiata ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale
- S** •
- H** ○

Materiale tagliente **HSCO**

Superficie

Direzione di taglio



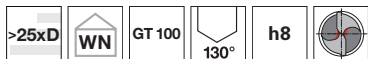
Articolo nr. **571**

d1		l1	l2
mm	inch	mm	mm
2,500		225,000	150,000
3,000		240,000	160,000
3,100		250,000	170,000
3,170	1/8	250,000	170,000
3,200		250,000	170,000
3,300		250,000	170,000
3,400		265,000	180,000
3,500		265,000	180,000
3,700		265,000	180,000
3,800		280,000	190,000
3,900		280,000	190,000
3,970	5/32	280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,300		295,000	200,000
4,500		295,000	200,000
4,600		295,000	200,000
4,760	3/16	315,000	210,000
4,800		315,000	210,000
4,900		315,000	210,000
5,000		315,000	210,000
5,100		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,560	7/32	330,000	225,000
5,800		330,000	225,000
5,950	15/64	330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,300		350,000	235,000
6,350	1/4	350,000	235,000
6,400		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000

d1		l1	l2
mm	inch	mm	mm
6,750	17/64	370,000	250,000
6,800		370,000	250,000
7,000		370,000	250,000
7,140	9/32	370,000	250,000
7,200		370,000	250,000
7,500		370,000	250,000
7,750		390,000	265,000
7,800		390,000	265,000
7,940	5/16	390,000	265,000
8,000		390,000	265,000
8,200		390,000	265,000
8,500		390,000	265,000
8,600		410,000	280,000
8,730	11/32	410,000	280,000
8,800		410,000	280,000
9,000		410,000	280,000
9,500		410,000	280,000
9,520	3/8	430,000	295,000
10,000		430,000	295,000
10,320	13/32	430,000	295,000
10,500		430,000	295,000
10,720	27/64	455,000	310,000
11,000		455,000	310,000
11,110	7/16	455,000	310,000
11,500		455,000	310,000
12,000		480,000	330,000
12,200		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000

Punte a cannone

Punte elicoidali, extra lunghe

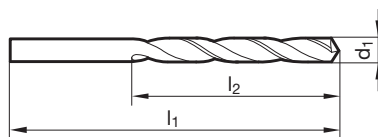


- P** • Assott. del noc. $\geq \varnothing 6,000$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 790

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)



Articolo nr. **242**

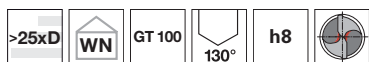
Punte a cannone

d1		l1	l2
mm	inch		
6,000		500,000	400,000
8,000		500,000	400,000
10,000		600,000	500,000
11,000		600,000	500,000
12,000		600,000	500,000

d1		l1	l2
mm	inch		



Punte elicoidali, extra lunghe



Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

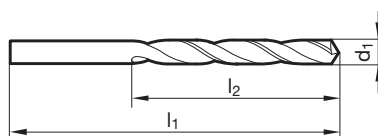
P • Assott. del nocc. $\geq \varnothing 8,000$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente

K •
N • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili

S
H

GUHRING NAVIGATOR

Dati di taglio a pag. 790



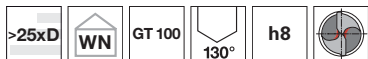
Articolo nr. **243**

d1		l1	l2
mm	inch	mm	mm
8,000		750,000	650,000
10,000		750,000	650,000
11,000		750,000	650,000
12,000		750,000	650,000

d1		l1	l2
mm	inch	mm	mm

Punte a cannone

Punte elicoidali, extra lunghe

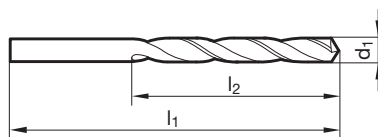


- P** • Assott. del nocc. $\geq \varnothing 10,000$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 790

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ



Articolo nr. **244**

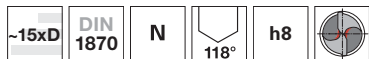
Punte a cannone

d1		l1	l2
mm	inch	mm	mm
10,000		1000,000	850,000
11,000		1000,000	850,000
12,000		1000,000	850,000

d1		l1	l2
mm	inch	mm	mm



Punte elicoidali in lunghezze speciali, grandezza 1

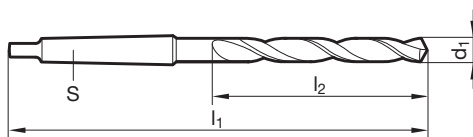


Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ

- P** ● Assott. del nocc. ≥ Ø 7,800 • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K** ●
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 788

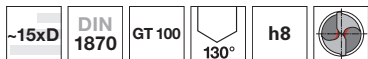


Articolo nr. **266**

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
8,000		MK-1	265,000	165,000	20,500		MK-2	385,000	260,000
8,500		MK-1	265,000	165,000	20,640	13/16	MK-2	385,000	260,000
9,000		MK-1	275,000	175,000	21,000		MK-2	385,000	260,000
9,500		MK-1	275,000	175,000	21,430	27/32	MK-2	405,000	270,000
10,000		MK-1	285,000	185,000	21,500		MK-2	405,000	270,000
10,200		MK-1	285,000	185,000	22,000		MK-2	405,000	270,000
10,250		MK-1	285,000	185,000	22,500		MK-2	405,000	270,000
10,500		MK-1	285,000	185,000	23,000		MK-2	405,000	270,000
11,000		MK-1	300,000	195,000	23,020	29/32	MK-2	405,000	270,000
11,400		MK-1	300,000	195,000	23,500		MK-3	425,000	270,000
11,500		MK-1	300,000	195,000	24,000		MK-3	440,000	290,000
11,750		MK-1	300,000	195,000	24,500		MK-3	440,000	290,000
11,800		MK-1	300,000	195,000	25,000	63/64	MK-3	440,000	290,000
12,000		MK-1	310,000	205,000	26,000		MK-3	440,000	290,000
12,200		MK-1	310,000	205,000	26,500		MK-3	440,000	290,000
12,500		MK-1	310,000	205,000	27,000		MK-3	460,000	305,000
12,700	1/2	MK-1	310,000	205,000	28,000		MK-3	460,000	305,000
13,000		MK-1	310,000	205,000	30,000		MK-3	460,000	305,000
13,500		MK-1	325,000	220,000	30,500		MK-3	480,000	320,000
13,750		MK-1	325,000	220,000	31,000		MK-3	480,000	320,000
14,000		MK-1	325,000	220,000	32,000		MK-4	505,000	320,000
14,290	9/16	MK-2	340,000	220,000	33,000		MK-4	505,000	320,000
14,500		MK-2	340,000	220,000	34,000		MK-4	530,000	340,000
15,000		MK-2	340,000	220,000	35,000		MK-4	530,000	340,000
15,250		MK-2	355,000	230,000	36,000		MK-4	530,000	340,000
15,500		MK-2	355,000	230,000	38,000		MK-4	555,000	360,000
15,750		MK-2	355,000	230,000	39,000		MK-4	555,000	360,000
15,800		MK-2	355,000	230,000	40,000		MK-4	555,000	360,000
16,000		MK-2	355,000	230,000	42,000		MK-4	555,000	360,000
16,250		MK-2	355,000	230,000	45,000		MK-4	585,000	385,000
16,500		MK-2	355,000	230,000	45,240	1 25/32	MK-4	585,000	385,000
16,670	21/32	MK-2	355,000	230,000	48,000		MK-4	605,000	405,000
17,000		MK-2	355,000	230,000	50,000		MK-4	605,000	405,000
17,500		MK-2	370,000	245,000					
17,750		MK-2	370,000	245,000					
18,000		MK-2	370,000	245,000					
18,500		MK-2	370,000	245,000					
18,650	47/64	MK-2	370,000	245,000					
19,000		MK-2	370,000	245,000					
19,500		MK-2	385,000	260,000					
19,750		MK-2	385,000	260,000					
20,000		MK-2	385,000	260,000					

Punte a cannone

Punte elicoidali in lunghezze speciali, grandezza 1

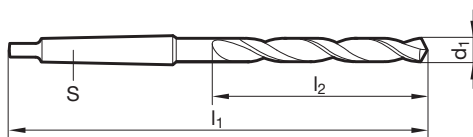


- P** • Assott. del nocc. $\geq \varnothing 5,800$ • spoglia sul cono tagliente • scanalature larghe • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 790

Materiale tagliente	HSS
Superficie	$> \frac{\varnothing}{16,0}$
Direzione di taglio	(R)



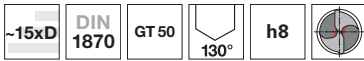
Articolo nr. **526**

Punte a cannone

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
8,000		MK-1	265,000	165,000	15,870	5/8	MK-2	355,000	230,000
8,500		MK-1	265,000	165,000	16,000		MK-2	355,000	230,000
8,600		MK-1	275,000	175,000	16,500		MK-2	355,000	230,000
8,700		MK-1	275,000	175,000	17,000		MK-2	355,000	230,000
9,000		MK-1	275,000	175,000	17,460	11/16	MK-2	370,000	245,000
9,500		MK-1	275,000	175,000	17,500		MK-2	370,000	245,000
9,520	3/8	MK-1	285,000	185,000	18,000		MK-2	370,000	245,000
9,800		MK-1	285,000	185,000	18,500		MK-2	370,000	245,000
10,000		MK-1	285,000	185,000	19,000		MK-2	370,000	245,000
10,200		MK-1	285,000	185,000	19,500		MK-2	385,000	260,000
10,500		MK-1	285,000	185,000	20,000		MK-2	385,000	260,000
10,720	27/64	MK-1	300,000	195,000	20,500		MK-2	385,000	260,000
11,000		MK-1	300,000	195,000	21,000		MK-2	385,000	260,000
11,110	7/16	MK-1	300,000	195,000	21,500		MK-2	405,000	270,000
11,500		MK-1	300,000	195,000	22,000		MK-2	405,000	270,000
11,510	29/64	MK-1	300,000	195,000	23,000		MK-2	405,000	270,000
11,750		MK-1	300,000	195,000	24,000		MK-3	440,000	290,000
12,000		MK-1	310,000	205,000	25,000	63/64	MK-3	440,000	290,000
12,500		MK-1	310,000	205,000	26,000		MK-3	440,000	290,000
12,700	1/2	MK-1	310,000	205,000	26,500		MK-3	440,000	290,000
12,800		MK-1	310,000	205,000	28,000		MK-3	460,000	305,000
13,000		MK-1	310,000	205,000	28,500		MK-3	460,000	305,000
13,490	17/32	MK-1	325,000	220,000	29,000		MK-3	460,000	305,000
13,500		MK-1	325,000	220,000	30,000		MK-3	460,000	305,000
14,000		MK-1	325,000	220,000					
14,200		MK-2	340,000	220,000					
14,290	9/16	MK-2	340,000	220,000					
14,500		MK-2	340,000	220,000					
15,000		MK-2	340,000	220,000					
15,500		MK-2	355,000	230,000					



Punte elicoidali in lunghezze speciali, grandezza 1



P ○ Assott. del nocc. $\geq \varnothing 7,900$ • spoglia sul cono tagliente • per fori estremamente profondi • per materiali teneri a truciolo lungo

M

K

N • materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno

S

H

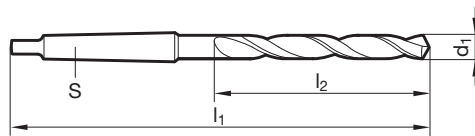
Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

GUHRING NAVIGATOR

Dati di taglio a pag. 788



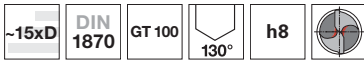
Articolo nr. **525**

d1		S	l1	l2
mm	inch		mm	mm
8,500		MK-1	265,000	165,000
8,700		MK-1	275,000	175,000
9,000		MK-1	275,000	175,000
9,500		MK-1	275,000	175,000
10,000		MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
11,000		MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
15,000		MK-2	340,000	220,000
15,500		MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
18,000		MK-2	370,000	245,000
19,500		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000

d1		S	l1	l2
mm	inch		mm	mm
23,000		MK-2	405,000	270,000
24,000		MK-3	440,000	290,000
24,300		MK-3	440,000	290,000
24,380		MK-3	440,000	290,000
24,500		MK-3	440,000	290,000
25,500		MK-3	440,000	290,000
26,500		MK-3	440,000	290,000
27,500		MK-3	460,000	305,000
28,000		MK-3	460,000	305,000
29,000		MK-3	460,000	305,000
31,000		MK-3	480,000	320,000
33,000		MK-4	505,000	320,000

Punte a cannone

Punte elicoidali in lunghezze speciali, grandezza 1

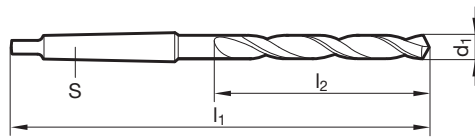


- P** • Assott. del nocc. $\geq \varnothing 9,520$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • per fori estremamente profondi • in caso di scarico truciolo insufficiente
- M** •
- K** •
- N** • acciai e ghisa acciaiata ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale
- S** •
- H** ○

Materiale tagliente	HSCO
Superficie	$\geq \frac{\varnothing}{16,0}$
Direzione di taglio	(R)

GUHRING NAVIGATOR

Dati di taglio a pag. 794



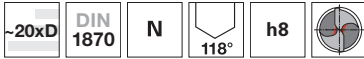
Articolo nr. **620**

Punte a cannone

Articolo nr. 620					Articolo nr. 620				
d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
9,520	3/8	MK-1	285,000	185,000	17,500		MK-2	370,000	245,000
10,000		MK-1	285,000	185,000	18,000		MK-2	370,000	245,000
10,200		MK-1	285,000	185,000	18,500		MK-2	370,000	245,000
10,320	13/32	MK-1	285,000	185,000	19,000		MK-2	370,000	245,000
10,500		MK-1	285,000	185,000	20,000		MK-2	385,000	260,000
11,000		MK-1	300,000	195,000	21,000		MK-2	385,000	260,000
11,110	7/16	MK-1	300,000	195,000	21,830		MK-2	405,000	270,000
11,500		MK-1	300,000	195,000	22,000		MK-2	405,000	270,000
11,510	29/64	MK-1	300,000	195,000	22,620		MK-2	405,000	270,000
12,000		MK-1	310,000	205,000	23,000		MK-2	405,000	270,000
12,300	31/64	MK-1	310,000	205,000	25,500		MK-3	440,000	290,000
12,500		MK-1	310,000	205,000	26,000		MK-3	440,000	290,000
12,700	1/2	MK-1	310,000	205,000	27,180		MK-3	460,000	305,000
13,000		MK-1	310,000	205,000	29,370	1 5/32	MK-3	460,000	305,000
13,500		MK-1	325,000	220,000	30,000		MK-3	460,000	305,000
14,000		MK-1	325,000	220,000					
14,290	9/16	MK-2	340,000	220,000					
14,500		MK-2	340,000	220,000					
15,000		MK-2	340,000	220,000					
15,080	19/32	MK-2	355,000	230,000					
15,500		MK-2	355,000	230,000					
16,000		MK-2	355,000	230,000					
16,500		MK-2	355,000	230,000					
17,000		MK-2	355,000	230,000					



Punte elicoidali in lunghezze speciali, grandezza 2

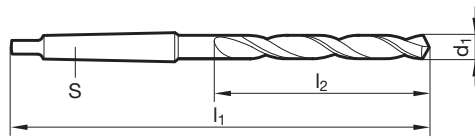


- P** • Assott. del nocc. $\geq \varnothing 7,700$ • spoglia sul cono tagliente • per fori estremamente profondi
- M**
- K** •
- N** ○ acciaio e ghisa acciaiata (legati e non legati) • ghisa grigia, ghisa malleabile, ghisa sferoidale • ferro sinterizzato, alpacca e grafite
- S**
- H**

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)

GUHRINGNAVIGATOR

Dati di taglio a pag. 788



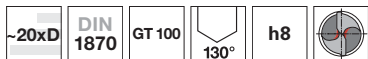
Articolo nr. **267**

d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-1	330,000	210,000
8,500		MK-1	330,000	210,000
9,000		MK-1	345,000	220,000
10,000		MK-1	360,000	235,000
10,200		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,750		MK-1	375,000	250,000
11,800		MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,490	17/32	MK-1	410,000	275,000
13,500		MK-1	410,000	275,000
14,000		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
15,480	39/64	MK-2	445,000	295,000
15,500		MK-2	445,000	295,000
16,000		MK-2	445,000	295,000
16,500		MK-2	445,000	295,000
17,000		MK-2	445,000	295,000
17,070	43/64	MK-2	465,000	310,000
17,500		MK-2	465,000	310,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
19,050	3/4	MK-2	490,000	325,000
19,500		MK-2	490,000	325,000
20,000		MK-2	490,000	325,000

d1		S	l1	l2
mm	inch		mm	mm
20,640	13/16	MK-2	490,000	325,000
21,000		MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
21,500		MK-2	515,000	345,000
21,830	55/64	MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
22,800		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
23,020	29/32	MK-2	515,000	345,000
23,750		MK-3	555,000	365,000
23,810	15/16	MK-3	555,000	365,000
24,000		MK-3	555,000	365,000
24,500		MK-3	555,000	365,000
25,000	63/64	MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
28,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000
31,000		MK-3	610,000	410,000
32,000		MK-4	635,000	410,000
34,000		MK-4	665,000	430,000
40,000		MK-4	695,000	460,000
45,000		MK-4	735,000	490,000

Punte a cannone

Punte elicoidali in lunghezze speciali, grandezza 2

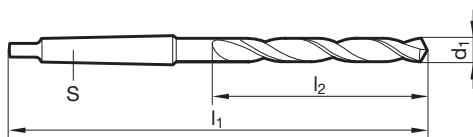


- P** • Assott. del nocc. $\geq \varnothing 7,800$ • spoglia sul cono tagliente • scanalature larghe • in caso di scarico truciolo insufficiente • per fori estremamente profondi
- M**
- K** •
- N** • ghisa grigia ed acciai con R max. 1000 N/mm² • Ad eccezione di: acciai al CrNi, al VA e materiali simili
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 790

Materiale tagliente	HSS
Superficie	$\frac{+0}{-16,0}$
Direzione di taglio	(R)



Articolo nr. **527**

Punte a cannone

d1		S	l1	l2	d1		S	l1	l2
mm	inch		mm	mm	mm	inch		mm	mm
8,000		MK-1	330,000	210,000	17,500		MK-2	465,000	310,000
8,400		MK-1	330,000	210,000	17,800		MK-2	465,000	310,000
8,500		MK-1	330,000	210,000	18,000		MK-2	465,000	310,000
9,000		MK-1	345,000	220,000	18,500		MK-2	465,000	310,000
9,500		MK-1	345,000	220,000	19,000		MK-2	465,000	310,000
10,000		MK-1	360,000	235,000	19,450	49/64	MK-2	490,000	325,000
10,500		MK-1	360,000	235,000	19,500		MK-2	490,000	325,000
11,000		MK-1	375,000	250,000	20,000		MK-2	490,000	325,000
11,110	7/16	MK-1	375,000	250,000	20,500		MK-2	490,000	325,000
11,500		MK-1	375,000	250,000	21,000		MK-2	490,000	325,000
11,510	29/64	MK-1	375,000	250,000	21,030	53/64	MK-2	490,000	325,000
11,800		MK-1	375,000	250,000	21,430	27/32	MK-2	515,000	345,000
11,910	15/32	MK-1	395,000	260,000	22,000		MK-2	515,000	345,000
12,000		MK-1	395,000	260,000	23,000		MK-2	515,000	345,000
12,500		MK-1	395,000	260,000	23,020	29/32	MK-2	515,000	345,000
12,700	1/2	MK-1	395,000	260,000	23,810	15/16	MK-3	555,000	365,000
13,000		MK-1	395,000	260,000	24,000		MK-3	555,000	365,000
13,500		MK-1	410,000	275,000	24,210	61/64	MK-3	555,000	365,000
13,700		MK-1	410,000	275,000	25,000	63/64	MK-3	555,000	365,000
13,800		MK-1	410,000	275,000	26,000		MK-3	555,000	365,000
13,890	35/64	MK-1	410,000	275,000	26,190	1 1/32	MK-3	555,000	365,000
14,000		MK-1	410,000	275,000	26,500		MK-3	555,000	365,000
14,290	9/16	MK-2	425,000	275,000	27,000		MK-3	580,000	385,000
14,500		MK-2	425,000	275,000	28,000		MK-3	580,000	385,000
15,000		MK-2	425,000	275,000	28,750		MK-3	580,000	385,000
15,500		MK-2	445,000	295,000	29,000		MK-3	580,000	385,000
16,000		MK-2	445,000	295,000	29,500		MK-3	580,000	385,000
16,500		MK-2	445,000	295,000	30,000		MK-3	580,000	385,000
17,000		MK-2	445,000	295,000					
17,070	43/64	MK-2	465,000	310,000					



Punte elicoidali in lunghezze speciali, grandezza 2



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P Assott. del nocc. $\geq \varnothing 8,000$ • spoglia sul cono tagliente • per fori estremamente profondi

M

K

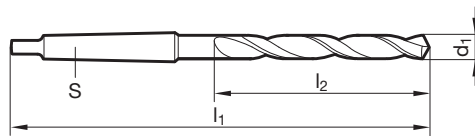
N materiali teneri a truciolo lungo con R fino a 500 N/mm² • acciai teneri automatici • alluminio, leghe di alluminio (a truciolo lungo) • zinco, rame affinato, silumin, elektron • zamak, argalium, materie sintetiche (tenere) e legno

S

H

GUHRING NAVIGATOR

Dati di taglio a pag. 788



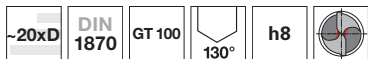
Articolo nr. **542**

d1		S	l1	l2
mm	inch		mm	mm
8,500		MK-1	330,000	210,000
8,600		MK-1	345,000	220,000
8,800		MK-1	345,000	220,000
9,000		MK-1	345,000	220,000
9,500		MK-1	345,000	220,000
10,500		MK-1	360,000	235,000
10,700		MK-1	375,000	250,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
17,000		MK-2	445,000	295,000
17,500		MK-2	465,000	310,000
20,500		MK-2	490,000	325,000

d1		S	l1	l2
mm	inch		mm	mm
21,000		MK-2	490,000	325,000
21,500		MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
24,000		MK-3	555,000	365,000
24,500		MK-3	555,000	365,000
25,500		MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
26,500		MK-3	555,000	365,000
27,500		MK-3	580,000	385,000
28,000		MK-3	580,000	385,000
29,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000
31,000		MK-3	610,000	410,000

Punte a cannone

Punte elicoidali in lunghezze speciali, grandezza 2

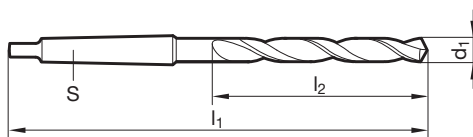


- P** • Assott. del nocc. $\geq \varnothing 9,520$ • spoglia sul cono tagliente • acciaio HSS legato al Co • scanalature larghe • massima resistenza all'usura • in caso di scarico truciolo insufficiente • per fori estremamente profondi
- M** •
- K** •
- N** • acciai e ghisa acciaiata ad alta resistenza • ghisa grigia, ghisa malleabile, ghisa sferoidale
- S** •
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 794

Materiale tagliente	HSCO
Superficie	$> \frac{\varnothing}{16,0}$
Direzione di taglio	(R)



Articolo nr. **621**

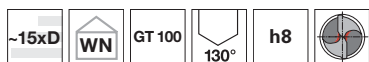
Punte a cannone

d1		S	l1	l2
mm	inch			
9,520	3/8	MK-1	360,000	235,000
10,000		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
10,720	27/64	MK-1	375,000	250,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,510	29/64	MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
12,700	1/2	MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000

d1		S	l1	l2
mm	inch			
14,000		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
16,000		MK-2	445,000	295,000
16,270		MK-2	445,000	295,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
20,000		MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
23,420	59/64	MK-3	535,000	345,000



Punte con fori di refr., lung. elica DIN 1870



Materiale tagliente **HSCO**

Superficie

Direzione di taglio

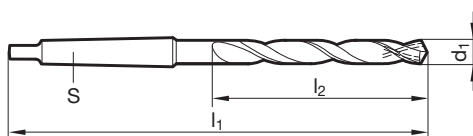
P • Assott. del nocc. $\geq \varnothing 11,000$ • spoglia sul cono tagliente • refrigerazione assiale attraverso l'attacco CM • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida

M •
K •
N • acciai ad alta resistenza • acciaio e ghisa acciaiata • acciai inossidabili e resistenti al calore • con R superiore fino a 1300 N/mm²

S •
H ○

GUHRING NAVIGATOR

Dati di taglio a pag. 794



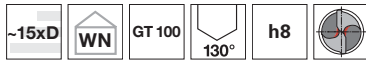
Articolo nr. **374**

d1		S	l1	l2
mm	inch		mm	mm
11,000		MK-2	312,000	195,000
12,000		MK-2	322,000	205,000
12,300	31/64	MK-2	322,000	205,000
12,500		MK-2	322,000	205,000
13,000		MK-2	322,000	205,000
14,000		MK-2	337,000	220,000
15,000		MK-2	337,000	220,000
16,000		MK-2	347,000	230,000
16,500		MK-2	347,000	230,000
17,500		MK-2	362,000	245,000
18,000		MK-2	362,000	245,000
18,500		MK-3	381,000	245,000
19,840	25/32	MK-3	396,000	260,000
20,000		MK-3	396,000	260,000
21,000		MK-3	396,000	260,000
21,430	27/32	MK-3	406,000	270,000
21,500		MK-3	406,000	270,000
24,610	31/32	MK-3	426,000	290,000

d1		S	l1	l2
mm	inch		mm	mm
28,570	1 1/8	MK-4	468,000	305,000
28,750		MK-4	468,000	305,000
29,370	1 5/32	MK-4	468,000	305,000
30,960	1 7/32	MK-4	483,000	320,000
32,250		MK-4	493,000	320,000
32,540	1 9/32	MK-4	493,000	320,000
34,000		MK-4	513,000	340,000

Punte a cannone

Punte con fori di refr., lung. elica DIN 1870

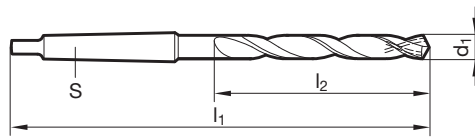


- P** • Assott. del nocc. $\geq \varnothing 11,000$ • spoglia sul cono tagliente • radial coolant supply via Guhring coolant rings • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida
- M** •
- K** •
- N** • acciai ad alta resistenza • acciaio e ghisa acciaiata • acciai inossidabili e resistenti al calore • con R superiore fino a 1300 N/mm²
- S** •
- H** ○

Materiale tagliente	HSCO
Superficie	●
Direzione di taglio	Ⓜ

GUHRING NAVIGATOR

Dati di taglio a pag. 794



Articolo nr. **375**

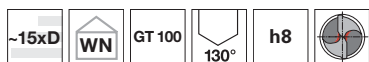
Punte a cannone

d1		S	l1	l2
mm	inch		mm	mm
11,000		MK-2	312,000	195,000
11,110	7/16	MK-2	312,000	195,000
11,510	29/64	MK-2	312,000	195,000
12,800		MK-2	322,000	205,000
13,500		MK-2	337,000	220,000
18,260	23/32	MK-3	381,000	245,000
19,000		MK-3	381,000	245,000
21,000		MK-3	396,000	260,000
21,430	27/32	MK-3	406,000	270,000
24,500		MK-3	426,000	290,000
25,000	63/64	MK-3	426,000	290,000
25,400	1	MK-3	426,000	290,000

d1		S	l1	l2
mm	inch		mm	mm
26,500		MK-3	426,000	290,000
28,570	1 1/8	MK-4	468,000	305,000
30,960	1 7/32	MK-4	483,000	320,000
32,540	1 9/32	MK-4	493,000	320,000
33,340	1 5/16	MK-4	493,000	320,000
34,000		MK-4	513,000	340,000



Punte con fori di refr., lung. elica DIN 1870



Materiale tagliente **HSCO**

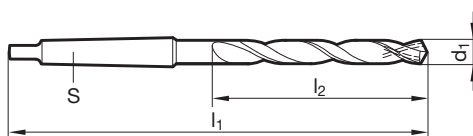
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 11,000$ • spoglia sul cono tagliente • radial coolant supply in Morse taper • acciaio HSS legato al Co • massima resistenza all'usura • per forare con bussola di guida
- M** •
- K** •
- N** • acciai ad alta resistenza • acciaio e ghisa acciaiata • acciai inossidabili e resistenti al calore • con R superiore fino a 1300 N/mm²
- S** •
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 794

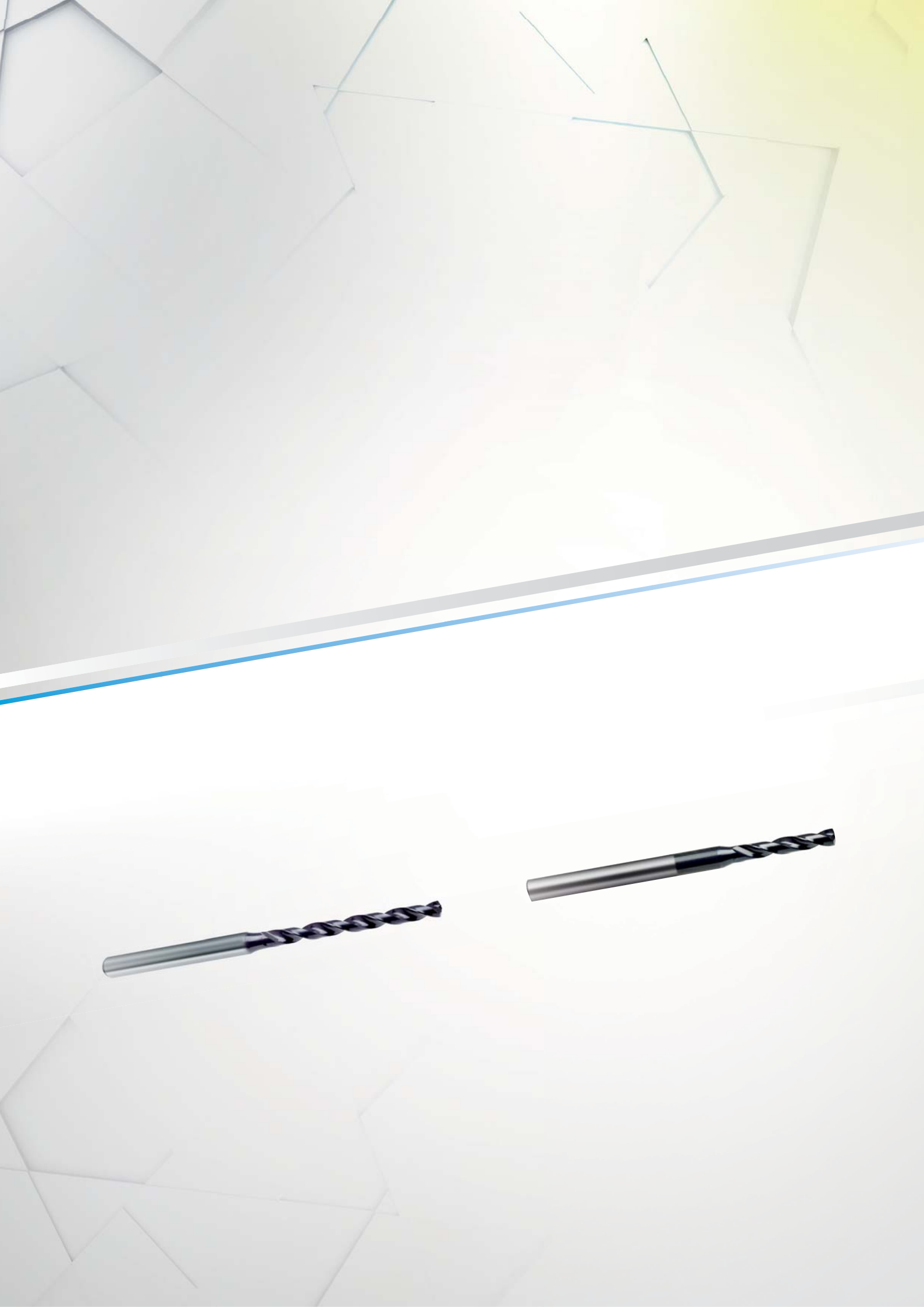


Articolo nr. **376**

d1		S	l1	l2
mm	inch		mm	mm
11,000		MK-2	312,000	195,000
13,000		MK-2	322,000	205,000
14,000		MK-2	337,000	220,000
16,500		MK-2	347,000	230,000
18,000		MK-2	362,000	245,000
19,840	25/32	MK-3	396,000	260,000

d1		S	l1	l2
mm	inch		mm	mm
21,500		MK-3	406,000	270,000
27,780	1 3/32	MK-4	468,000	305,000
29,000		MK-4	468,000	305,000

Punte a cannone



MICROPUNTE



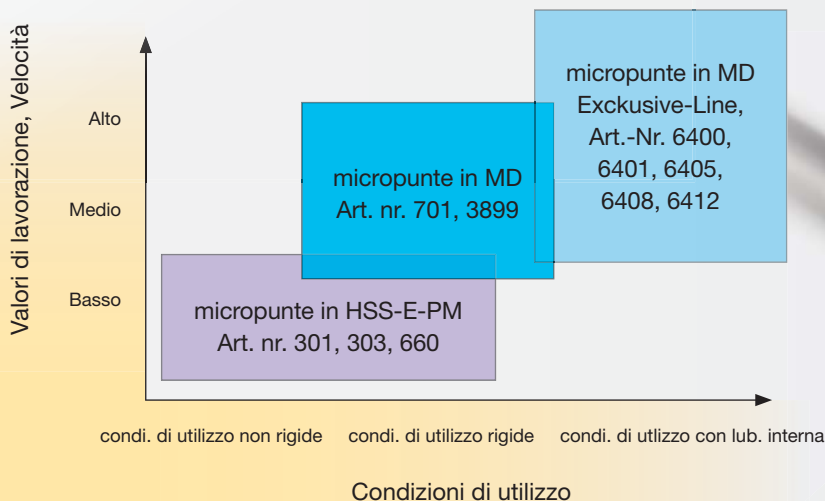


Tipi di micropunte

VANTAGGI E GAMMA DI APPLICAZIONE

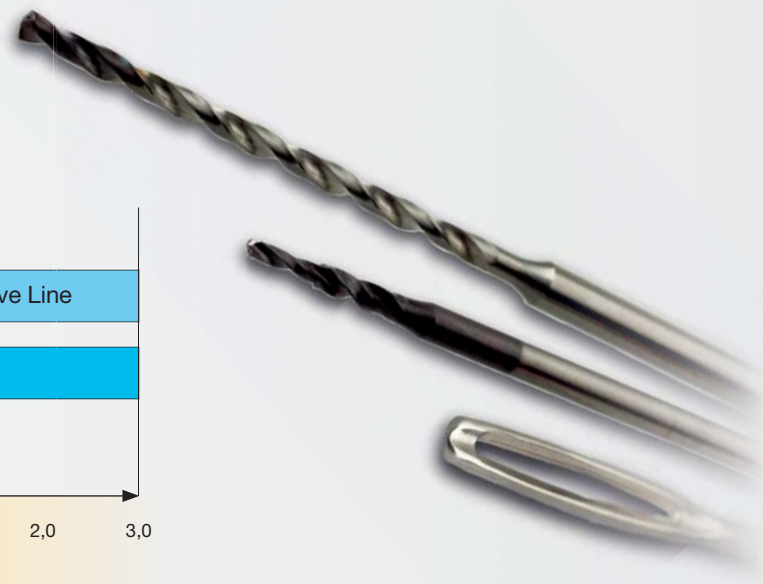
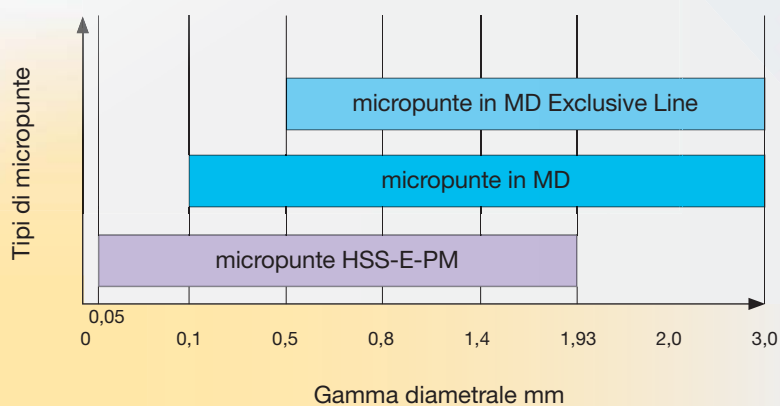
Sia per la produzione in serie di grandi lotti con condizioni della macchina con alti rendimenti e di raffreddamento interno e per compiti di lavorazione con lotti più piccoli o

con tassi di produzione limitati e in difficili condizioni di lavorazione, Guhring offre sempre la soluzione ottimale.



GAMMA DEL PROGRAMMA

Le micropunte in MD e in HSS-E-PM coprono una gamma diametrale dal Ø 0,005 mm al 3,00 mm:



Il programma di microforatura Guhring, includendo gli utensili in MD monoblocco in acciaio rapido (HSS-E-PM), è ottimale per la realizzazione di minuscoli fori in tutti i campi di applicazione.

La realizzazione di numerosi microfori richiede il massimo della qualità ed è una delle operazioni più delicate. Per queste lavorazioni, la gamma standard Guhring include micropunte perfette ed efficienti.



MICROPUNTE HSS-E-PM

Le micropunte in HSS-E-PM ad alte performance, sono caratterizzate da una elevata resistenza all'usura ed elevata tenacità e stabilità dei taglienti, che è particolarmente importante in condizioni di lavorazione poco stabili. La struttura dell'acciaio rapido è molto omogenea, fattore molto importante al fine di poter garantire costantemente alti livelli di rendimento con le micropunte.



Le micropunte in acciaio HSS-E-PM sono, per esempio, particolarmente adatte per le applicazioni sulle macchine multi-mandrino, su macchine con basse velocità o quando si tratta di raggiungere piccole serie e garantire il rispetto di „qualità / prezzo“ ottimale.

Per esigenze più elevate sulla durata degli utensili e parametri di taglio, Guhring fornisce micropunte in HSS-E-PM nella gamma standard anche con rivestimento TiN. Anche per applicazioni speciali, dove sono richiesti utensili da taglio per foratura sinistra, Guhring in grado di offrire una soluzione standard.

MICROPUNTE IN MD

Le micropunte in MD Guhring, senza raffreddamento interno, coprono una vasta gamma di diametri da 0,1 mm a 3,0 mm. Con le punte di micro-precisione in MD, è possibile ottenere parametri di taglio più elevati e vita dell'utensile più lunga quando le condizioni di lavorazione sono più stabili e le macchine sono più potenti, rispetto alle stesse in



HSS-E-PM. Il motivo è l'uso di carburo ultra-fine che presenta una elevata durezza, resistenza al calore e resistenza all'usura che rendono al massimo le performance delle micropunte.

MICROPUNTE IN MD ESCLUSIVELINE SONO ANCHE CON REFRIGERAZIONE INTERNA

Le micropunte in MD, disponibili con o senza condotti di raffreddamento, rendono possibili la lavorazione ad alte prestazioni nella maggior parte dei materiali.

Le micropunte dimostrano il loro massimo potenziale nelle applicazioni in produzione di grandi lotti con condizioni rigide, elevate prestazioni della macchina e velocità del mandrino. L'affilatura a 2 piani per ogni tagliente con lo scarico rettificato sui taglienti permette alti valori di taglio nonché un'ottimale rottura dei trucioli.

Le scanalature per i trucioli, con profilo specifico trasportano i trucioli prodotti in modo sicuro fuori dal foro. Per le profondità di foro fino a 4xD e 7xD potete scegliere micropunte integrali in MD senza fori di refrigerazione nei diametri da 0,5 fino a 3,0 mm.



Soprattutto durante la lavorazione di acciai inossidabili e leghe speciali, ma anche quando le profondità di foratura sono importanti, Microforets CW 5xD, 8xD e 15xD, dotato del lubrificazione interna, dimostrano la loro enorme fattore di capacità produttiva. Grazie alla geometria dell'utensile ottimizzata, con le micropunte integrali in MD per fori fino a 15xD, non è necessario scaricare.

Gli utensili sono concepiti in modo tale che la micropunta fino a 4xD non forata sia adatta ad essere utilizzata come punta pilota per la micropunta con fori di refrigerazione da 15xD.

Micropunte

SOLUZIONI SPECIALI A RICHIESTA

In parallelo al programma standard di microforatura, Guhring offre gli utensili speciali in HSS-E-PM e MD in base alle richieste specifiche del cliente. Queste includono:

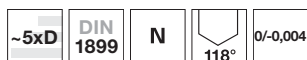


- dimensioni intermedie non previste nel programma standard
- utensili a gradino per fori interrotti o fori svasati
- lunghezze speciali fino a 30xD di profondità di foro
- differenti versioni di attacco
- rivestimenti alternativi



P	M	K	N	S	H	Descrizione degli utensili	Profondità di foro	Norma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
Micropunte HSS-E-PM senza condotto di lubrificazione																
•	•	•	•	○			~5xD	DIN 1899	N	R	HSS-E-PM	○	0,050 - 1,920	301	796	649
•	•	•	•	○			~5xD	DIN 1899	N	R	HSS-E-PM	Ⓢ	0,160 - 1,900	660	796	652
•	•	•	•	○			~5xD	DIN 1899	N	L	HSS-E-PM	○	0,130 - 1,850	303	796	654
Micropunte in MD senza condotto di lubrificazione																
•	○	○	○	○	○		~5xD	WN	N	R	VHM	○	0,200 - 1,400	701	796	656
•	•							WN	N	R	VHM	ⓐ	0,100 - 3,000	3899	796	657
Micropunte ExclusiveLine senza condotto di lubrificazione																
•	•	•	○	○			4xD	WN	N	R	VHM	ⓐ	0,500 - 3,000	6400	796	659
•	•	•	○	○			7xD	WN	N	R	VHM	ⓐ	0,500 - 3,000	6401	796	660
Micropunte ExclusiveLine con condotto di lubrificazione																
•	•	•	○	○			5xD	WN	N	R	VHM	ⓐ	1,400 - 3,000	6405	796	661
•	•	•	○	○			8xD	WN	N	R	VHM	ⓐ	1,400 - 3,000	6408	796	662
•	•	•	○	○			15xD	WN	N	R	VHM	ⓐ	1,400 - 3,000	6412	796	663

Micropunte


Micropunte HSS-E-PM senza condotto di lubrificazione

 Materiale tagliente **HSS-E-PM**

Superficie

Direzione di taglio

P • affilatura su piani • con codolo rinforzato • $\varnothing 0,15\text{ mm}$ acciaio HSS legato al Co

M •

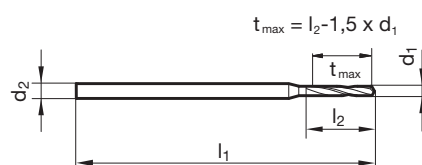
K •

N • acciai legati in alta percentuale

S ○

H
GUHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr.

301

d1	d2	l1	l2	d1	d2	l1	l2
mm	mm	mm	mm	mm	mm	mm	mm
0,050	1,000	25,000	0,400	0,275	1,000	25,000	1,900
0,060	1,000	25,000	0,400	0,280	1,000	25,000	1,900
0,070	1,000	25,000	0,500	0,285	1,000	25,000	1,900
0,075	1,000	25,000	0,500	0,290	1,000	25,000	1,900
0,080	1,000	25,000	0,500	0,295	1,000	25,000	1,900
0,090	1,000	25,000	0,500	0,300	1,000	25,000	1,900
0,100	1,000	25,000	0,500	0,305	1,000	25,000	2,400
0,105	1,000	25,000	0,500	0,310	1,000	25,000	2,400
0,110	1,000	25,000	0,500	0,315	1,000	25,000	2,400
0,115	1,000	25,000	0,500	0,320	1,000	25,000	2,400
0,120	1,000	25,000	0,500	0,325	1,000	25,000	2,400
0,121	1,000	25,000	0,800	0,330	1,000	25,000	2,400
0,125	1,000	25,000	0,800	0,335	1,000	25,000	2,400
0,128	1,000	25,000	0,800	0,340	1,000	25,000	2,400
0,130	1,000	25,000	0,800	0,345	1,000	25,000	2,400
0,140	1,000	25,000	0,800	0,350	1,000	25,000	2,400
0,143	1,000	25,000	0,800	0,355	1,000	25,000	2,400
0,145	1,000	25,000	0,800	0,360	1,000	25,000	2,400
0,147	1,000	25,000	0,800	0,365	1,000	25,000	2,400
0,150	1,000	25,000	0,800	0,370	1,000	25,000	2,400
0,155	1,000	25,000	1,100	0,375	1,000	25,000	2,400
0,160	1,000	25,000	1,100	0,380	1,000	25,000	2,400
0,170	1,000	25,000	1,100	0,385	1,000	25,000	3,000
0,175	1,000	25,000	1,100	0,390	1,000	25,000	3,000
0,180	1,000	25,000	1,100	0,400	1,000	25,000	3,000
0,190	1,000	25,000	1,100	0,405	1,000	25,000	3,000
0,195	1,000	25,000	1,500	0,410	1,000	25,000	3,000
0,200	1,000	25,000	1,500	0,415	1,000	25,000	3,000
0,205	1,000	25,000	1,500	0,420	1,000	25,000	3,000
0,210	1,000	25,000	1,500	0,425	1,000	25,000	3,000
0,215	1,000	25,000	1,500	0,430	1,000	25,000	3,000
0,220	1,000	25,000	1,500	0,432	1,000	25,000	3,000
0,225	1,000	25,000	1,500	0,435	1,000	25,000	3,000
0,230	1,000	25,000	1,500	0,440	1,000	25,000	3,000
0,235	1,000	25,000	1,500	0,445	1,000	25,000	3,000
0,240	1,000	25,000	1,500	0,450	1,000	25,000	3,000
0,245	1,000	25,000	1,900	0,455	1,000	25,000	3,000
0,250	1,000	25,000	1,900	0,460	1,000	25,000	3,000
0,255	1,000	25,000	1,900	0,470	1,000	25,000	3,000
0,260	1,000	25,000	1,900	0,475	1,000	25,000	3,000
0,265	1,000	25,000	1,900	0,480	1,000	25,000	3,000
0,270	1,000	25,000	1,900	0,485	1,000	25,000	3,400



d1	d2	l1	l2
mm	mm	mm	mm
0,490	1,000	25,000	3,400
0,495	1,000	25,000	3,400
0,500	1,000	25,000	3,400
0,505	1,000	25,000	3,400
0,510	1,000	25,000	3,400
0,515	1,000	25,000	3,400
0,520	1,000	25,000	3,400
0,525	1,000	25,000	3,400
0,530	1,000	25,000	3,400
0,535	1,000	25,000	3,900
0,540	1,000	25,000	3,900
0,545	1,000	25,000	3,900
0,550	1,000	25,000	3,900
0,560	1,000	25,000	3,900
0,570	1,000	25,000	3,900
0,580	1,000	25,000	3,900
0,585	1,000	25,000	3,900
0,590	1,000	25,000	3,900
0,595	1,000	25,000	3,900
0,600	1,000	25,000	3,900
0,605	1,000	25,000	4,200
0,610	1,000	25,000	4,200
0,615	1,000	25,000	4,200
0,620	1,000	25,000	4,200
0,625	1,000	25,000	4,200
0,630	1,000	25,000	4,200
0,632	1,000	25,000	4,200
0,640	1,000	25,000	4,200
0,650	1,000	25,000	4,200
0,655	1,000	25,000	4,200
0,660	1,000	25,000	4,200
0,665	1,000	25,000	4,200
0,670	1,000	25,000	4,200
0,675	1,000	25,000	4,800
0,680	1,000	25,000	4,800
0,690	1,000	25,000	4,800
0,695	1,000	25,000	4,800
0,700	1,000	25,000	4,800
0,705	1,000	25,000	4,800
0,710	1,000	25,000	4,800
0,720	1,000	25,000	4,800
0,725	1,000	25,000	4,800
0,730	1,000	25,000	4,800
0,740	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,760	1,000	25,000	5,300
0,770	1,000	25,000	5,300
0,780	1,000	25,000	5,300
0,790	1,000	25,000	5,300
0,795	1,500	25,000	5,300
0,800	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,820	1,500	25,000	5,300
0,825	1,500	25,000	5,300
0,830	1,500	25,000	5,300
0,840	1,500	25,000	5,300
0,845	1,500	25,000	5,300
0,850	1,500	25,000	5,300
0,860	1,500	25,000	6,000
0,870	1,500	25,000	6,000
0,880	1,500	25,000	6,000
0,890	1,500	25,000	6,000
0,900	1,500	25,000	6,000
0,910	1,500	25,000	6,000
0,920	1,500	25,000	6,000
0,925	1,500	25,000	6,000
0,930	1,500	25,000	6,000
0,940	1,500	25,000	6,000
0,950	1,500	25,000	6,000
0,960	1,500	25,000	6,800
0,970	1,500	25,000	6,800
0,980	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
0,990	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,010	1,500	25,000	6,800
1,020	1,500	25,000	6,800
1,030	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,055	1,500	25,000	6,800
1,060	1,500	25,000	6,800
1,070	1,500	25,000	7,600
1,080	1,500	25,000	7,600
1,090	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,110	1,500	25,000	7,600
1,120	1,500	25,000	7,600
1,130	1,500	25,000	7,600
1,140	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,160	1,500	25,000	7,600
1,170	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,190	1,500	25,000	8,500
1,200	1,500	25,000	8,500
1,210	1,500	25,000	8,500
1,220	1,500	25,000	8,500
1,230	1,500	25,000	8,500
1,240	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,260	1,500	25,000	8,500
1,265	1,500	25,000	8,500
1,270	1,500	25,000	8,500
1,280	1,500	25,000	8,500
1,290	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,310	1,500	25,000	8,500
1,320	1,500	25,000	8,500
1,325	1,500	25,000	9,500
1,330	1,500	25,000	9,500
1,340	1,500	25,000	9,500
1,350	1,500	25,000	9,500
1,370	1,500	25,000	9,500
1,380	1,500	25,000	9,500
1,390	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,410	1,500	25,000	9,500
1,420	1,500	25,000	9,500
1,430	1,500	25,000	9,500
1,440	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,460	2,000	30,000	9,500
1,470	2,000	30,000	9,500
1,500	2,000	30,000	9,500
1,520	2,000	30,000	10,600
1,530	2,000	30,000	10,600
1,540	2,000	30,000	10,600
1,550	2,000	30,000	10,600
1,590	2,000	30,000	10,600
1,600	2,000	30,000	10,600
1,610	2,000	30,000	10,600
1,630	2,000	30,000	10,600
1,640	2,000	30,000	10,600
1,650	2,000	30,000	10,600
1,660	2,000	30,000	10,600
1,690	2,000	30,000	10,600
1,700	2,000	30,000	10,600
1,710	2,000	30,000	11,800
1,715	2,000	30,000	11,800
1,730	2,000	30,000	11,800
1,745	2,000	30,000	11,800
1,750	2,000	30,000	11,800
1,775	2,000	30,000	11,800
1,800	2,000	30,000	11,800

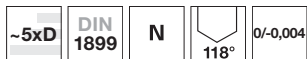


d1	d2	l1	l2
mm	mm	mm	mm
1,830	2,000	30,000	11,800
1,840	2,000	30,000	11,800
1,850	2,000	30,000	11,800
1,860	2,000	30,000	11,800
1,900	2,000	30,000	11,800
1,920	2,000	30,000	13,200

d1	d2	l1	l2
mm	mm	mm	mm



Micropunte HSS-E-PM senza condotto di lubrificazione



Materiale tagliente **HSS-E-PM**

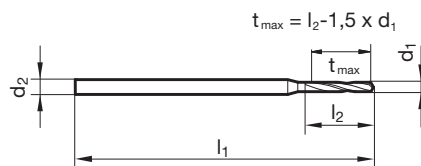
Superficie **S**

Direzione di taglio **R**

- P** • affilatura su piani • con codolo rinforzato • massima resistenza all'usura
- M** •
- K** •
- N** • acciai legati in alta percentuale
- S** ○
- H** □

GUHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr. **660**

Micropunte

d1	d2	l1	l2
mm	mm	mm	mm
0,160	1,000	25,000	1,100
0,170	1,000	25,000	1,100
0,180	1,000	25,000	1,100
0,190	1,000	25,000	1,100
0,200	1,000	25,000	1,500
0,210	1,000	25,000	1,500
0,220	1,000	25,000	1,500
0,230	1,000	25,000	1,500
0,240	1,000	25,000	1,500
0,250	1,000	25,000	1,900
0,255	1,000	25,000	1,900
0,260	1,000	25,000	1,900
0,265	1,000	25,000	1,900
0,270	1,000	25,000	1,900
0,280	1,000	25,000	1,900
0,290	1,000	25,000	1,900
0,295	1,000	25,000	1,900
0,300	1,000	25,000	1,900
0,305	1,000	25,000	2,400
0,310	1,000	25,000	2,400
0,320	1,000	25,000	2,400
0,325	1,000	25,000	2,400
0,330	1,000	25,000	2,400
0,340	1,000	25,000	2,400
0,350	1,000	25,000	2,400
0,360	1,000	25,000	2,400
0,370	1,000	25,000	2,400
0,380	1,000	25,000	2,400
0,390	1,000	25,000	3,000
0,400	1,000	25,000	3,000
0,410	1,000	25,000	3,000
0,420	1,000	25,000	3,000
0,430	1,000	25,000	3,000
0,440	1,000	25,000	3,000
0,450	1,000	25,000	3,000
0,460	1,000	25,000	3,000
0,470	1,000	25,000	3,000
0,480	1,000	25,000	3,000
0,490	1,000	25,000	3,400
0,500	1,000	25,000	3,400
0,510	1,000	25,000	3,400
0,520	1,000	25,000	3,400

d1	d2	l1	l2
mm	mm	mm	mm
0,530	1,000	25,000	3,400
0,540	1,000	25,000	3,900
0,550	1,000	25,000	3,900
0,560	1,000	25,000	3,900
0,570	1,000	25,000	3,900
0,580	1,000	25,000	3,900
0,590	1,000	25,000	3,900
0,600	1,000	25,000	3,900
0,610	1,000	25,000	4,200
0,620	1,000	25,000	4,200
0,630	1,000	25,000	4,200
0,640	1,000	25,000	4,200
0,650	1,000	25,000	4,200
0,660	1,000	25,000	4,200
0,670	1,000	25,000	4,200
0,680	1,000	25,000	4,800
0,690	1,000	25,000	4,800
0,700	1,000	25,000	4,800
0,710	1,000	25,000	4,800
0,720	1,000	25,000	4,800
0,730	1,000	25,000	4,800
0,740	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,760	1,000	25,000	5,300
0,770	1,000	25,000	5,300
0,780	1,000	25,000	5,300
0,790	1,000	25,000	5,300
0,800	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,820	1,500	25,000	5,300
0,830	1,500	25,000	5,300
0,840	1,500	25,000	5,300
0,850	1,500	25,000	5,300
0,860	1,500	25,000	6,000
0,870	1,500	25,000	6,000
0,880	1,500	25,000	6,000
0,900	1,500	25,000	6,000
0,910	1,500	25,000	6,000
0,920	1,500	25,000	6,000
0,940	1,500	25,000	6,000
0,950	1,500	25,000	6,000
0,960	1,500	25,000	6,800

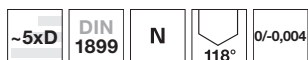


d1	d2	l1	l2
mm	mm	mm	mm
0,970	1,500	25,000	6,800
0,980	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,020	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,070	1,500	25,000	7,600
1,080	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,190	1,500	25,000	8,500

d1	d2	l1	l2
mm	mm	mm	mm
1,200	1,500	25,000	8,500
1,220	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,350	1,500	25,000	9,500
1,390	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,420	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,500	2,000	30,000	9,500
1,800	2,000	30,000	11,800
1,900	2,000	30,000	11,800



Micropunte HSS-E-PM senza condotto di lubrificazione

Materiale tagliente **HSS-E-PM**

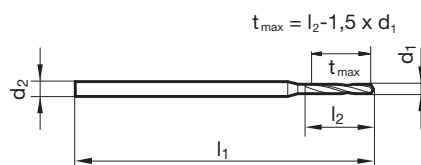
Superficie

Direzione di taglio

P	•	affilatura su piani • con codolo rinforzato • $\varnothing 0,15\text{ mm}$ acciaio HSS legato al Co
M	•	
K	•	
N	•	acciai legati in alta percentuale
S	○	
H		

GÜHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr.

303

d1	d2	l1	l2
mm	mm	mm	mm
0,130	1,000	25,000	0,800
0,140	1,000	25,000	0,800
0,150	1,000	25,000	0,800
0,155	1,000	25,000	1,100
0,160	1,000	25,000	1,100
0,170	1,000	25,000	1,100
0,175	1,000	25,000	1,100
0,180	1,000	25,000	1,100
0,185	1,000	25,000	1,100
0,190	1,000	25,000	1,100
0,195	1,000	25,000	1,500
0,200	1,000	25,000	1,500
0,210	1,000	25,000	1,500
0,215	1,000	25,000	1,500
0,220	1,000	25,000	1,500
0,225	1,000	25,000	1,500
0,230	1,000	25,000	1,500
0,235	1,000	25,000	1,500
0,240	1,000	25,000	1,500
0,245	1,000	25,000	1,900
0,250	1,000	25,000	1,900
0,255	1,000	25,000	1,900
0,260	1,000	25,000	1,900
0,265	1,000	25,000	1,900
0,270	1,000	25,000	1,900
0,275	1,000	25,000	1,900
0,280	1,000	25,000	1,900
0,290	1,000	25,000	1,900
0,295	1,000	25,000	1,900
0,300	1,000	25,000	1,900
0,310	1,000	25,000	2,400
0,315	1,000	25,000	2,400
0,330	1,000	25,000	2,400
0,340	1,000	25,000	2,400
0,345	1,000	25,000	2,400
0,350	1,000	25,000	2,400
0,355	1,000	25,000	2,400
0,360	1,000	25,000	2,400
0,370	1,000	25,000	2,400
0,380	1,000	25,000	2,400
0,390	1,000	25,000	3,000
0,400	1,000	25,000	3,000

d1	d2	l1	l2
mm	mm	mm	mm
0,410	1,000	25,000	3,000
0,415	1,000	25,000	3,000
0,420	1,000	25,000	3,000
0,430	1,000	25,000	3,000
0,435	1,000	25,000	3,000
0,440	1,000	25,000	3,000
0,450	1,000	25,000	3,000
0,460	1,000	25,000	3,000
0,465	1,000	25,000	3,000
0,470	1,000	25,000	3,000
0,480	1,000	25,000	3,000
0,485	1,000	25,000	3,400
0,490	1,000	25,000	3,400
0,495	1,000	25,000	3,400
0,500	1,000	25,000	3,400
0,510	1,000	25,000	3,400
0,520	1,000	25,000	3,400
0,525	1,000	25,000	3,400
0,540	1,000	25,000	3,900
0,545	1,000	25,000	3,900
0,550	1,000	25,000	3,900
0,555	1,000	25,000	3,900
0,565	1,000	25,000	3,900
0,570	1,000	25,000	3,900
0,580	1,000	25,000	3,900
0,590	1,000	25,000	3,900
0,600	1,000	25,000	3,900
0,615	1,000	25,000	4,200
0,620	1,000	25,000	4,200
0,630	1,000	25,000	4,200
0,640	1,000	25,000	4,200
0,650	1,000	25,000	4,200
0,660	1,000	25,000	4,200
0,670	1,000	25,000	4,200
0,675	1,000	25,000	4,800
0,680	1,000	25,000	4,800
0,685	1,000	25,000	4,800
0,690	1,000	25,000	4,800
0,695	1,000	25,000	4,800
0,700	1,000	25,000	4,800
0,710	1,000	25,000	4,800
0,720	1,000	25,000	4,800



d1	d2	l1	l2
mm	mm	mm	mm
0,740	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,760	1,000	25,000	5,300
0,770	1,000	25,000	5,300
0,780	1,000	25,000	5,300
0,790	1,000	25,000	5,300
0,800	1,500	25,000	5,300
0,805	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,820	1,500	25,000	5,300
0,830	1,500	25,000	5,300
0,840	1,500	25,000	5,300
0,850	1,500	25,000	5,300
0,855	1,500	25,000	6,000
0,860	1,500	25,000	6,000
0,870	1,500	25,000	6,000
0,880	1,500	25,000	6,000
0,885	1,500	25,000	6,000
0,890	1,500	25,000	6,000
0,900	1,500	25,000	6,000
0,910	1,500	25,000	6,000
0,915	1,500	25,000	6,000
0,920	1,500	25,000	6,000
0,925	1,500	25,000	6,000
0,935	1,500	25,000	6,000
0,940	1,500	25,000	6,000
0,950	1,500	25,000	6,000
0,960	1,500	25,000	6,800
0,970	1,500	25,000	6,800
0,975	1,500	25,000	6,800
0,980	1,500	25,000	6,800
0,985	1,500	25,000	6,800
0,990	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,005	1,500	25,000	6,800
1,020	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
1,030	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,060	1,500	25,000	6,800
1,080	1,500	25,000	7,600
1,085	1,500	25,000	7,600
1,090	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,110	1,500	25,000	7,600
1,120	1,500	25,000	7,600
1,125	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,160	1,500	25,000	7,600
1,170	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,200	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,270	1,500	25,000	8,500
1,280	1,500	25,000	8,500
1,285	1,500	25,000	8,500
1,290	1,500	25,000	8,500
1,310	1,500	25,000	8,500
1,330	1,500	25,000	9,500
1,350	1,500	25,000	9,500
1,360	1,500	25,000	9,500
1,375	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,405	1,500	25,000	9,500
1,425	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,460	2,000	30,000	9,500
1,500	2,000	30,000	9,500
1,600	2,000	30,000	10,600
1,615	2,000	30,000	10,600
1,800	2,000	30,000	11,800
1,850	2,000	30,000	11,800



Micropunte in MD senza condotto di lubrificazione

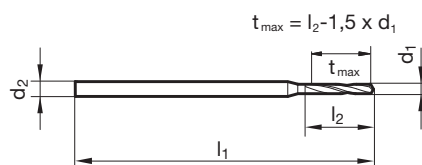
Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 0,800$ • affilatura su piani • forma del tagliente principale diritta**M** ○**K** •**N** ○ acciai da costruzione e da cementazione • ghise • bronzo/ottone**S** ○ alluminio e leghe di alluminio • magnesio e leghe di magnesio • materie sintetiche e materie sintetiche a fibre rinforzate**H** ○**GUHRING NAVIGATOR**

Dati di taglio a pag. 796

Articolo nr. **701**

d1	d2	l1	l2
mm	mm	mm	mm
0,200	1,000	25,000	1,500
0,220	1,000	25,000	1,500
0,250	1,000	25,000	1,900
0,260	1,000	25,000	1,900
0,280	1,000	25,000	1,900
0,300	1,000	25,000	1,900
0,330	1,000	25,000	2,400
0,350	1,000	25,000	2,400
0,400	1,000	25,000	3,000
0,450	1,000	25,000	3,000
0,500	1,000	25,000	3,400
0,600	1,000	25,000	3,900
0,650	1,000	25,000	4,200
0,700	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,800	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,830	1,500	25,000	5,300

d1	d2	l1	l2
mm	mm	mm	mm
0,850	1,500	25,000	5,300
0,900	1,500	25,000	6,000
1,000	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,100	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,200	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,350	1,500	25,000	9,500
1,400	1,500	25,000	9,500



Micropunte in MD senza condotto di lubrificazione



P • Assott. del nocc. ≥ Ø 0,800 • affilatura su piani

- M**
- K** •
- N**
- S**
- H**

acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • ghise

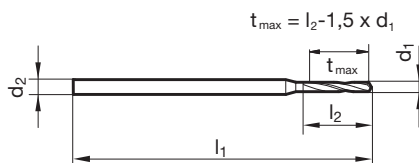
Materiale tagliente **Int. in MD**

Superficie **A**

Direzione di taglio **R**

GUHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr. **3899**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,100	3,000	38,000	1,200
0,150	3,000	38,000	2,000
0,200	3,000	38,000	2,500
0,250	3,000	38,000	3,000
0,260	3,000	38,000	3,000
0,270	3,000	38,000	3,000
0,280	3,000	38,000	3,000
0,300	3,000	38,000	5,000
0,310	3,000	38,000	5,000
0,330	3,000	38,000	5,000
0,350	3,000	38,000	6,000
0,360	3,000	38,000	6,000
0,370	3,000	38,000	6,000
0,380	3,000	38,000	6,000
0,400	3,000	38,000	7,000
0,410	3,000	38,000	7,000
0,430	3,000	38,000	7,000
0,440	3,000	38,000	7,000
0,450	3,000	38,000	7,000
0,480	3,000	38,000	7,000
0,500	3,000	38,000	7,000
0,510	3,000	38,000	7,000
0,530	3,000	38,000	7,000
0,550	3,000	38,000	7,000
0,570	3,000	38,000	7,000
0,600	3,000	38,000	7,000
0,640	3,000	38,000	7,000
0,650	3,000	38,000	7,000
0,660	3,000	38,000	7,000
0,680	3,000	38,000	7,000
0,700	3,000	38,000	8,000
0,710	3,000	38,000	8,000
0,720	3,000	38,000	8,000
0,740	3,000	38,000	8,000
0,750	3,000	38,000	8,000
0,760	3,000	38,000	8,000
0,770	3,000	38,000	8,000
0,780	3,000	38,000	8,000
0,790	3,000	38,000	8,000
0,800	3,000	38,000	10,000
0,810	3,000	38,000	10,000
0,820	3,000	38,000	10,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,830	3,000	38,000	10,000
0,840	3,000	38,000	10,000
0,850	3,000	38,000	10,000
0,860	3,000	38,000	10,000
0,870	3,000	38,000	10,000
0,880	3,000	38,000	10,000
0,890	3,000	38,000	10,000
0,900	3,000	38,000	10,000
0,910	3,000	38,000	10,000
0,920	3,000	38,000	10,000
0,930	3,000	38,000	10,000
0,940	3,000	38,000	10,000
0,950	3,000	38,000	10,000
0,960	3,000	38,000	10,000
0,970	3,000	38,000	10,000
0,980	3,000	38,000	10,000
0,990	3,000	38,000	10,000
1,000	3,000	38,000	10,000
1,010	3,000	38,000	10,000
1,020	3,000	38,000	10,000
1,050	3,000	38,000	10,000
1,060	3,000	38,000	10,000
1,070	3,000	38,000	10,000
1,090	3,000	38,000	10,000
1,100	3,000	38,000	10,000
1,110	3,000	38,000	10,000
1,150	3,000	38,000	10,000
1,170	3,000	38,000	10,000
1,190	3,000	38,000	10,000
1,200	3,000	38,000	10,000
1,210	3,000	38,000	10,000
1,220	3,000	38,000	10,000
1,230	3,000	38,000	10,000
1,240	3,000	38,000	10,000
1,260	3,000	38,000	10,000
1,270	3,000	38,000	10,000
1,280	3,000	38,000	10,000
1,300	3,000	38,000	10,000
1,370	3,000	38,000	10,000
1,400	3,000	38,000	10,000
1,420	3,000	38,000	10,000
1,450	3,000	38,000	10,000

Micropunte



d1	d2 h6	l1	l2
mm	mm	mm	mm
1,490	3,000	38,000	10,000
1,500	3,000	38,000	10,000
1,510	3,000	38,000	10,000
1,520	3,000	38,000	10,000
1,550	3,000	38,000	10,000
1,560	3,000	38,000	10,000
1,580	3,000	38,000	10,000
1,590	3,000	38,000	10,000
1,600	3,000	38,000	12,000
1,630	3,000	38,000	12,000
1,650	3,000	38,000	12,000
1,700	3,000	38,000	12,000
1,750	3,000	38,000	12,000
1,800	3,000	38,000	12,000
1,810	3,000	38,000	12,000
1,820	3,000	38,000	12,000
1,830	3,000	38,000	12,000
1,840	3,000	38,000	12,000
1,850	3,000	38,000	12,000
1,860	3,000	38,000	12,000
1,900	3,000	38,000	12,000
1,920	3,000	38,000	12,000
1,950	3,000	38,000	12,000
1,980	3,000	38,000	12,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,000	3,000	38,000	12,000
2,050	3,000	38,000	12,000
2,100	3,000	38,000	12,000
2,150	3,000	38,000	12,000
2,200	3,000	38,000	12,000
2,400	3,000	38,000	12,000
2,500	3,000	38,000	12,000
2,550	3,000	38,000	12,000
2,600	3,000	38,000	12,000
2,750	3,000	38,000	12,000
2,800	3,000	38,000	12,000
2,950	3,000	38,000	12,000
3,000	3,000	38,000	12,000


Micropunte ExclusiveLine senza condotto di lubrificazione
Materiale tagliente **Int. in MD**Superficie **A**Direzione di taglio **R**

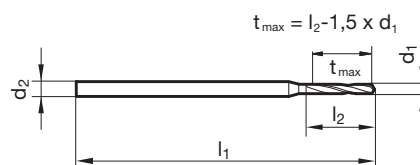
P • Assott. del nocc. $\geq \varnothing 0,500$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti

M •**K** •

N ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise

S ○**H**
GUHRING NAVIGATOR

Dati di taglio a pag. 796

Articolo nr. **6400**

d1	d2 h6	l1	l2	d1	d2 h6	l1	l2
mm	mm	mm	mm	mm	mm	mm	mm
0,500	3,000	47,000	3,000	1,950	3,000	52,000	11,700
0,550	3,000	47,000	3,300	1,980	4,000	59,000	12,000
0,600	3,000	47,000	3,600	2,000	4,000	59,000	12,000
0,650	3,000	47,000	3,900	2,050	4,000	59,000	12,300
0,700	3,000	47,000	4,200	2,100	4,000	59,000	12,600
0,750	3,000	47,000	4,500	2,150	4,000	59,000	12,900
0,800	3,000	47,000	4,800	2,200	4,000	59,000	13,200
0,850	3,000	47,000	5,100	2,250	4,000	59,000	13,500
0,900	3,000	47,000	5,400	2,300	4,000	59,000	13,800
0,950	3,000	47,000	5,700	2,350	4,000	59,000	14,100
1,000	3,000	47,000	6,000	2,380	4,000	59,000	14,400
1,050	3,000	47,000	6,300	2,400	4,000	59,000	14,400
1,100	3,000	47,000	6,600	2,450	4,000	59,000	14,700
1,150	3,000	47,000	6,900	2,500	4,000	59,000	15,000
1,200	3,000	47,000	7,200	2,550	4,000	59,000	15,300
1,250	3,000	47,000	7,500	2,600	4,000	59,000	15,600
1,300	3,000	47,000	7,800	2,650	4,000	59,000	15,900
1,350	3,000	47,000	8,100	2,700	4,000	59,000	16,200
1,400	3,000	47,000	8,400	2,750	4,000	59,000	16,500
1,450	3,000	47,000	8,700	2,780	4,000	59,000	16,800
1,500	3,000	47,000	9,000	2,800	4,000	59,000	16,800
1,550	3,000	47,000	9,300	2,850	4,000	59,000	17,100
1,590	3,000	47,000	9,600	2,900	4,000	59,000	17,400
1,600	3,000	47,000	9,600	2,950	4,000	59,000	17,700
1,650	3,000	47,000	9,900	3,000	4,000	59,000	18,000
1,700	3,000	47,000	10,200				
1,750	3,000	47,000	10,500				
1,800	3,000	52,000	10,800				
1,850	3,000	52,000	11,100				
1,900	3,000	52,000	11,400				

Micropunte



Micropunte ExclusiveLine senza condotto di lubrificazione

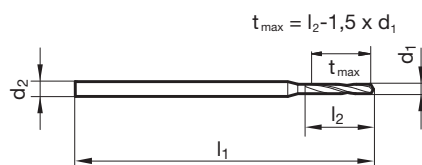


P	•	Assott. del nocc. $\geq \varnothing 0,500$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti
M	•	
K	•	
N	○	acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm ² • acciai inossidabili • ghise
S	○	
H		

Materiale tagliente **Int. in MD**Superficie **A**Direzione di taglio **R**

GÜHRING NAVIGATOR

Dati di taglio a pag. 796

Articolo nr. **6401**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,500	3,000	47,000	4,000
0,550	3,000	47,000	4,400
0,600	3,000	47,000	4,800
0,650	3,000	47,000	5,200
0,700	3,000	47,000	5,600
0,750	3,000	47,000	6,000
0,800	3,000	47,000	6,400
0,850	3,000	47,000	6,800
0,900	3,000	47,000	7,200
0,950	3,000	47,000	7,600
1,000	3,000	47,000	8,000
1,050	3,000	47,000	8,400
1,100	3,000	47,000	8,800
1,150	3,000	47,000	9,200
1,200	3,000	52,000	10,800
1,250	3,000	52,000	11,300
1,300	3,000	52,000	11,700
1,350	3,000	52,000	12,200
1,400	3,000	52,000	12,600
1,450	3,000	52,000	13,100
1,500	3,000	52,000	13,500
1,550	3,000	52,000	14,000
1,590	3,000	52,000	14,400
1,600	3,000	52,000	14,400
1,650	3,000	52,000	14,900
1,700	3,000	52,000	15,300
1,750	3,000	52,000	15,800
1,800	3,000	52,000	16,200
1,850	3,000	52,000	16,700
1,900	3,000	52,000	17,100

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,950	3,000	52,000	17,600
1,980	4,000	63,000	18,000
2,000	4,000	63,000	18,000
2,050	4,000	63,000	18,500
2,100	4,000	63,000	18,900
2,150	4,000	63,000	19,400
2,200	4,000	63,000	19,800
2,250	4,000	63,000	20,300
2,300	4,000	63,000	20,700
2,350	4,000	63,000	21,200
2,380	4,000	63,000	21,600
2,400	4,000	63,000	21,600
2,450	4,000	63,000	22,100
2,500	4,000	63,000	22,500
2,550	4,000	63,000	23,000
2,600	4,000	67,000	23,400
2,650	4,000	67,000	23,900
2,700	4,000	67,000	24,300
2,750	4,000	67,000	24,800
2,780	4,000	67,000	25,200
2,800	4,000	67,000	25,200
2,850	4,000	67,000	25,700
2,900	4,000	67,000	26,100
2,950	4,000	67,000	26,600
3,000	4,000	67,000	27,000



Micropunte ExclusiveLine con condotto di lubrificazione



- P** • Assott. del nocc. $\geq \varnothing 1,400$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H**

Materiale tagliente **Int. in MD**

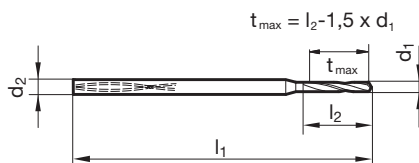
Superficie **A**

Direzione di taglio **R**



GUHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr. **6405**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	11,000
1,450	4,000	52,000	12,000
1,500	4,000	52,000	12,000
1,550	4,000	52,000	12,000
1,590	4,000	52,000	13,000
1,600	4,000	52,000	13,000
1,650	4,000	52,000	13,000
1,700	4,000	56,000	14,000
1,750	4,000	56,000	14,000
1,800	4,000	56,000	14,000
1,850	4,000	56,000	15,000
1,900	4,000	56,000	15,000
1,950	4,000	56,000	16,000
1,980	4,000	56,000	16,000
2,000	4,000	56,000	16,000
2,050	4,000	56,000	16,000
2,100	4,000	62,000	17,000
2,150	4,000	62,000	17,000
2,200	4,000	62,000	18,000
2,250	4,000	62,000	18,000
2,300	4,000	62,000	18,000
2,350	4,000	62,000	19,000
2,380	4,000	62,000	19,000
2,400	4,000	62,000	19,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,450	4,000	62,000	20,000
2,500	4,000	62,000	20,000
2,550	4,000	62,000	20,000
2,600	4,000	66,000	21,000
2,650	4,000	66,000	21,000
2,700	4,000	66,000	22,000
2,750	4,000	66,000	22,000
2,780	4,000	66,000	22,000
2,800	4,000	66,000	22,000
2,850	4,000	66,000	23,000
2,900	4,000	66,000	23,000
2,950	4,000	66,000	24,000
3,000	4,000	66,000	24,000

Micropunte

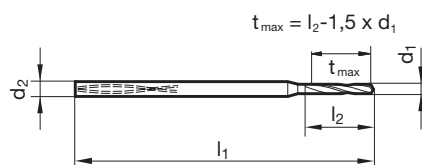


Micropunte ExclusiveLine con condotto di lubrificazione

Materiale tagliente **Int. in MD**Superficie **A**Direzione di taglio **R****P** • Assott. del nocc. $\geq \varnothing 1,400$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti**M** •**K** •**N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise**S** ○**H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 796

Articolo nr. **6408**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	15,000
1,450	4,000	52,000	16,000
1,500	4,000	52,000	17,000
1,550	4,000	52,000	17,000
1,590	4,000	52,000	18,000
1,600	4,000	52,000	18,000
1,650	4,000	52,000	18,000
1,700	4,000	56,000	19,000
1,750	4,000	56,000	19,000
1,800	4,000	56,000	20,000
1,850	4,000	56,000	20,000
1,900	4,000	56,000	21,000
1,950	4,000	56,000	21,000
1,980	4,000	56,000	22,000
2,000	4,000	56,000	22,000
2,050	4,000	56,000	23,000
2,100	4,000	62,000	23,000
2,150	4,000	62,000	24,000
2,200	4,000	62,000	24,000
2,250	4,000	62,000	25,000
2,300	4,000	62,000	25,000
2,320	4,000	62,000	26,000
2,350	4,000	62,000	26,000
2,380	4,000	62,000	26,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,400	4,000	62,000	26,000
2,450	4,000	62,000	27,000
2,500	4,000	62,000	28,000
2,550	4,000	62,000	28,000
2,600	4,000	66,000	29,000
2,650	4,000	66,000	29,000
2,700	4,000	66,000	30,000
2,750	4,000	66,000	30,000
2,780	4,000	66,000	31,000
2,800	4,000	66,000	31,000
2,850	4,000	66,000	31,000
2,900	4,000	66,000	32,000
2,950	4,000	66,000	32,000
3,000	4,000	66,000	33,000



Micropunte ExclusiveLine con condotto di lubrificazione



- P** • Assott. del nocc. $\geq \varnothing 1,400$ • affilatura su piani • forma del tagliente principale diritta • fresatura dei taglienti ridotti
- M** •
- K** •
- N** ○ acciai da costruzione e da cementazione • acciai automatici, acciai da bonifica • acciai legati e non legati con R fino a 1200 N/mm² • acciai inossidabili • ghise
- S** ○
- H**

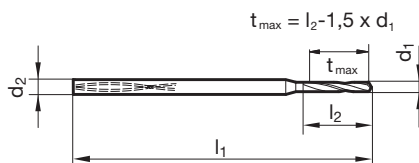
Materiale tagliente **Int. in MD**

Superficie **A**

Direzione di taglio **R**

GUHRING NAVIGATOR

Dati di taglio a pag. 796



Articolo nr. **6412**

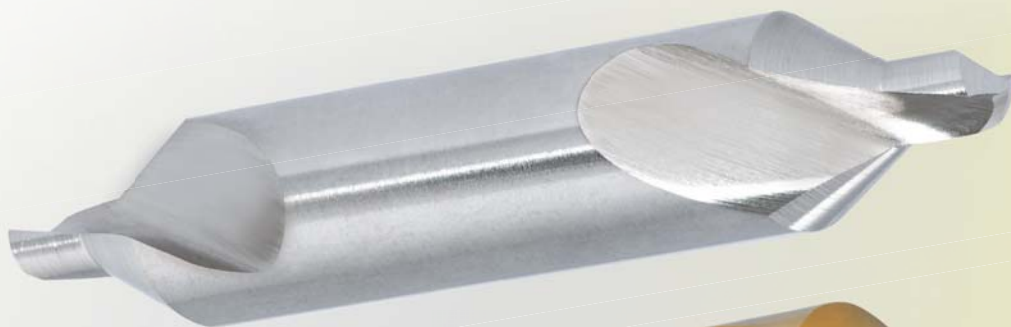
d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	62,000	25,000
1,500	4,000	62,000	27,000
1,590	4,000	62,000	29,000
1,600	4,000	62,000	29,000
1,600	4,000	62,000	29,000
1,600	4,000	62,000	29,000
1,700	4,000	70,000	31,000
1,800	4,000	70,000	32,000
1,900	4,000	70,000	34,000
1,980	4,000	70,000	36,000
2,000	4,000	70,000	36,000
2,100	4,000	78,000	38,000
2,200	4,000	78,000	40,000
2,300	4,000	78,000	42,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,380	4,000	78,000	44,000
2,400	4,000	78,000	44,000
2,500	4,000	78,000	45,000
2,600	4,000	87,000	47,000
2,700	4,000	87,000	48,000
2,780	4,000	87,000	50,000
2,800	4,000	87,000	50,000
2,900	4,000	87,000	52,000
3,000	4,000	87,000	54,000

Micropunte



PUNTE A CENTRARE E PUNTE CILINDRICHE PER CENTRI CN



Punte a centrare
e punte cilindriche
per centri CN



P	M	K	N	S	H	Descrizione degli utensili	Forma del gambo	Norma	Forma	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte a centrare senza piano

•	○	•	•	○			Cyl	DIN 333	A	R	HSS	○	0,500 - 12,500	581	802	668
•	○	•	•	○			Cyl	DIN 333	A	R	HSS	Ⓢ	0,500 - 8,000	613	802	669
•	○	•	•	○			Cyl	DIN 333	A	L	HSS	○	0,500 - 12,500	582		670
•	○	•	•	○			Cyl	DIN 333	A	R	HSS	○	1,000 - 12,500	590		671
•	○	•	•	○			Cyl	DIN 333	R	R	HSS	○	0,500 - 12,500	583	802	672
•	○	•	•	○			Cyl	DIN 333	R	R	HSS	Ⓢ	0,800 - 8,000	614	802	673
•	○	•	•	○			Cyl	DIN 333	R	L	HSS	○	0,800 - 5,000	584		674
•	○	•	•	○			Cyl	DIN 333	B	R	HSS	○	1,000 - 10,000	585	802	675
•	○	•	•	○			Cyl	DIN 333	B	L	HSS	○	1,000 - 10,000	586		676
•	○	•	•	○			Cyl	DIN 333	B	R	HSS	○	1,000 - 6,300	591		677
•	○	•	•	○			Cyl	ASME B94.11 M	A	R	HSS	○	1,190 - 7,940	594		678
•	○	•	•	○			Cyl	ASME B94.11 M	B	R	HSS	○	1,190 - 6,350	595		679
•	○	•	•	○			Cyl	BS 328	A	R	HSS	○	1,190 - 7,940	292	802	680
•	○	•	•	○			Cyl	BS 328	A	L	HSS	○	1,190 - 7,940	294		681
•	•	•	•	○			Cyl	DIN 333	A	R	HSCO	○	1,000 - 4,000	381	802	682
○	○	○	○	○	○		Cyl	WN	A	R	VHM	○	0,500 - 6,300	736		683
•	○	•	•	○			Cyl	WN	A	R	HSS	○	0,500 - 10,000	281		684
•	○	•	•	○			Cyl	WN	A	L	HSS	○	0,800 - 5,000	282		685
•	○	•	•	○			Cyl	WN	R	R	HSS	○	0,500 - 10,000	283		686
•	○	•	•	○			Cyl	WN	R	L	HSS	○	1,600 - 4,000	284		687
•	○	•	•	○			Cyl	WN	B	R	HSS	○	1,000 - 6,300	285		688
•	○	•	•	○			Cyl	WN	A	R	HSS	○	1,000 - 3,150	280	802	689

Punte a centrare con piano

•	○	•	•	○			Cyl	DIN 333	A	R	HSS	○	1,600 - 10,000	587	802	690
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Punte a centrare e punte cilindriche per centri CN



P	M	K	N	S	H	Descrizione degli utensili	Forma del gambo	Norma	Forma	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
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Punte a centrare con piano

•	○	•	•	○			Cyl	DIN 333	R		HSS	○	1,000 - 10,000	588	802	691
•	○	•	•	○			Cyl	DIN 333	B		HSS	○	1,600 - 8,000	589		692
•	○	•	•	○			Cyl	DIN 333	A		HSS	○	1,600 - 10,000	287		693
•	○	•	•	○			Cyl	DIN 333	R		HSS	○	2,000 - 8,000	288		694
•	○	•	•	○			Cyl	WN	B		HSS	○	1,600 - 5,000	289		695

Punte cilindriche per centri CN 90°

•	○	•	•	○			Cyl	WN			HSS	○	3,000 - 25,400	557	798	696
•	○	•	•	○			Cyl	WN			HSS		3,000 - 25,400	568	798	697
•	•	•	•	○			B	WN			HSCO	○	3,000 - 20,000	1136	798	698
•	•	•	•	○			B	WN			HSCO		3,000 - 20,000	1133	798	699
•	○	•	•	○			Cyl	WN			HSS	○	6,350 - 25,400	559	798	700
○	○	○	○	○	○		Cyl	WN			VHM	○	4,000 - 20,000	723		701

Punte cilindriche per centri CN 120°

•	○	•	•	○			Cyl	WN			HSS	○	3,000 - 25,400	556	798	702
•	○	•	•	○			Cyl	WN			HSS		3,000 - 25,000	567	798	703
•	•	•	•	○			B	WN			HSCO	○	3,000 - 20,000	1134	798	704
•	•	•	•	○			B	WN			HSCO		3,000 - 20,000	1135	798	705
○	○	○	○	○	○		HA	WN			VHM	○	5,000 - 20,000	724		706

Punte cilindriche per centri CN 142°

○	○	○	○	○	○		HB	WN			VHM	○	4,000 - 20,000	546		707
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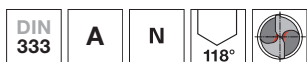
Punte doppie per carrozzeria

•	○	•	•	○			Cyl	WN			HSS		1,500 - 10,000	554		708
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Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano

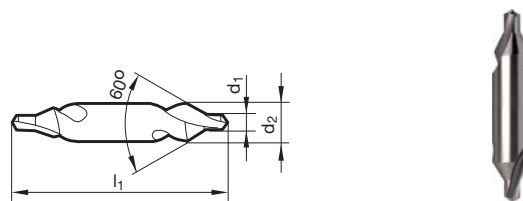


Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ

- P** ● Assott. del nocc. ≥ Ø 2,000 • spoglia sul cono tagliente • senza smusso di protezione • per fori a centrare secondo DIN 332, foglio 1, forma A
- M** ○ • d1 ≤ 0,8 mm: 1 solo lato tagliente
- K** ●
- N** ●
- S** ○
- H** ●

GÜHRING NAVIGATOR

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Articolo nr. **581**

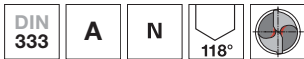
d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

d1	d2	l1
mm	mm	mm
10,000	25,000	100,000
12,500	31,500	125,000

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano



Materiale tagliente **HSS**

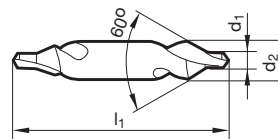
Superficie **S**

Direzione di taglio **R**

- P** • Assott. del nocch. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • senza smusso di protezione • per fori a centrare secondo DIN 332, foglio 1, forma A
- M** ○ • $d1 \leq 0,8$ mm: 1 solo lato tagliente • massima resistenza all'usura
- K** •
- N** •
- S** ○
- H** □

GUHRING NAVIGATOR

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Articolo nr. **613**

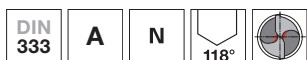
d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000

d1	d2	l1
mm	mm	mm
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

Punte a centrare
e punte cilindriche
per centri CN

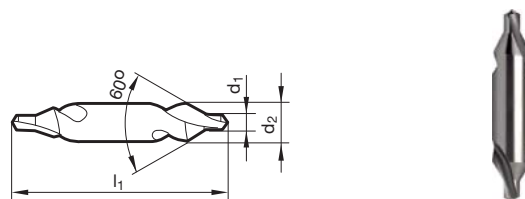


Punte a centrare senza piano



Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓛ

- P** ● Assott. del nocc. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • senza smusso di protezione • per fori a centrare secondo DIN 332, foglio 1, forma A
- M** ○ • $d1 \leq 0,8$ mm: 1 solo lato tagliente
- K** ●
- N** ●
- S** ○
- H** ●



Articolo nr. **582**

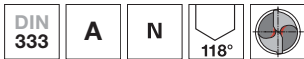
d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

d1	d2	l1
mm	mm	mm
10,000	25,000	100,000
12,500	31,500	125,000

Punte a centrare e punte cilindriche per centri CN

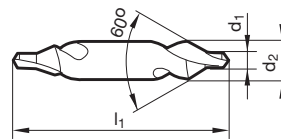


Punte a centrare senza piano



P	•	Assott. del nocc. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • maggiore resistenza alla rottura grazie al rigonfiamento • senza smusso di protezione • la cavità tra la svasatura e il foro serve da contenitore aggiuntivo di lubrificante • per fori a centrare secondo DIN 332, foglio 1, forma A
M	○	
K	•	
N	•	
S	○	
H		

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	R



Articolo nr. **590**

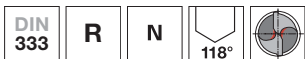
d1	d2	l1
mm	mm	mm
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000

d1	d2	l1
mm	mm	mm
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000
10,000	25,000	100,000
12,500	31,500	125,000

Punte a centrare
e punte cilindriche
per centri CN



Punte a centrare senza piano

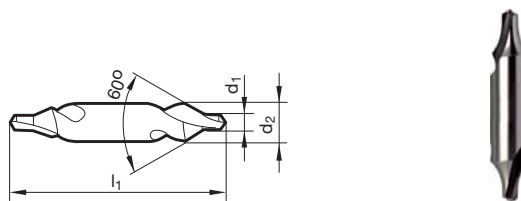


Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ

- P** ● Assott. del nocch. ≥ Ø 2,000 • spoglia sul cono tagliente • corretto posizionamento fra le contropunte • per fori a centrare a DIN 332 parte 1, forma R • d1 ≤ 0,8 mm: 1 solo lato tagliente
- M** ○
- K** ●
- N** ●
- S** ○
- H** ●

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Articolo nr. **583**

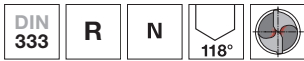
d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

d1	d2	l1
mm	mm	mm
10,000	25,000	100,000
12,500	31,500	125,000

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano

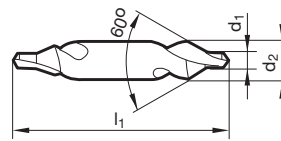


- P** • Assott. del nocch. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • massima resistenza all'usura • corretto posizionamento fra le contropunte • per fori a centrare a DIN 332 parte 1, forma R • $d1 \leq 0,8$ mm: 1 solo lato tagliente
- M** ○
- K** •
- N** •
- S** ○
- H** ○

Materiale tagliente	HSS
Superficie	S
Direzione di taglio	R

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Articolo nr. **614**

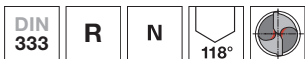
d1	d2	l1
mm	mm	mm
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000

d1	d2	l1
mm	mm	mm
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

Punte a centrare
e punte cilindriche
per centri CN

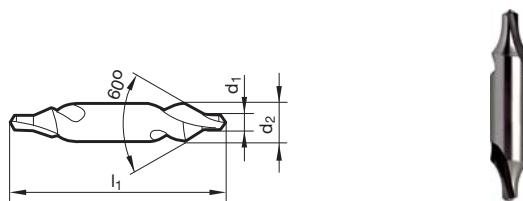


Punte a centrare senza piano



Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓛ

- P** ● Assott. del nocc. ≥ Ø 2,000 • spoglia sul cono tagliente • corretto posizionamento fra le contropunte • per fori a centrare a DIN 332 parte 1, forma R • d1 ≤ 0,8 mm: 1 solo lato tagliente
- M** ○
- K** ●
- N** ●
- S** ○
- H** ●



Articolo nr. **584**

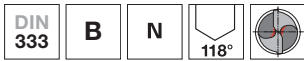
d1	d2	l1
mm	mm	mm
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000

d1	d2	l1
mm	mm	mm
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano



Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • per fori a centrare secondo DIN 332, foglio 1, forma B • con smusso di protezione 120°

M ○

K •

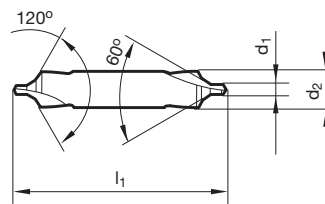
N •

S ○

H

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Articolo nr. **585**

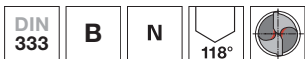
d1	d2	l1
mm	mm	mm
1,000	4,000	35,500
1,250	5,000	40,000
1,600	6,300	45,000
2,000	8,000	50,000
2,500	10,000	56,000
3,150	11,200	60,000

d1	d2	l1
mm	mm	mm
4,000	14,000	67,000
5,000	18,000	75,000
6,300	20,000	80,000
8,000	25,000	100,000
10,000	31,500	125,000

Punte a centrare
e punte cilindriche
per centri CN

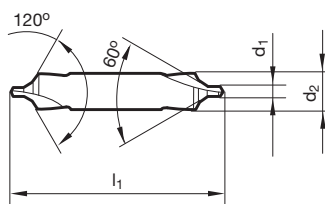


Punte a centrare senza piano



Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓛ

- P** ● Assott. del nocc. $\geq \varnothing 2,000$ ● spoglia sul cono tagliente ● per fori a centrare secondo DIN 332, foglio 1, forma B ● con smusso di protezione 120°
- M** ○
- K** ●
- N** ●
- S** ○
- H** ●



Articolo nr. **586**

d1	d2	l1
mm	mm	mm
1,000	4,000	35,500
1,250	5,000	40,000
1,600	6,300	45,000
2,000	8,000	50,000
2,500	10,000	56,000
3,150	11,200	60,000

d1	d2	l1
mm	mm	mm
4,000	14,000	67,000
5,000	18,000	75,000
6,300	20,000	80,000
8,000	25,000	100,000
10,000	31,500	125,000

Punte a centrare e punte cilindriche per centri CN

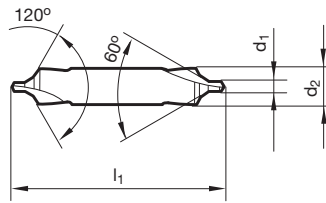


Punte a centrare senza piano



- P** ● Assott. del nocc. $\geq \varnothing 2,000$ ● spoglia sul cono tagliente ● maggiore resistenza alla rottura grazie al rigonfiamento ● la cavità tra la svasatura e il foro serve da contenitore addizionale di lubrificante ● per fori a centrare secondo DIN 332, foglio 1, forma B ● con smusso di protezione 120°
- M** ○
- K** ●
- N** ●
- S** ○
- H** ○

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ



Articolo nr. **591**

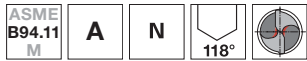
d1	d2	l1
mm	mm	mm
1,000	4,000	35,500
1,600	6,300	45,000
2,000	8,000	50,000
2,500	10,000	56,000
3,150	11,200	60,000
4,000	14,000	67,000

d1	d2	l1
mm	mm	mm
5,000	18,000	75,000
6,300	20,000	80,000

Punte a centrare e punte cilindriche per centri CN

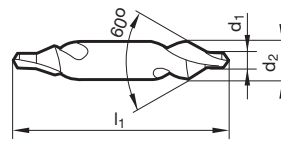


Punte a centrare senza piano



Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ

- P** ● Assott. del nocc. ≥ Ø 1,980 • spoglia sul cono tagliente • forma A a norma americana
- M** ○
- K** ●
- N** ●
- S** ○
- H** ○



Articolo nr. **594**

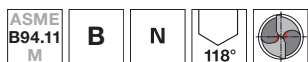
Grandezza	d1		d2	l1	Codice
	mm	inch			
1	1,190	3/64	3,170	32,000	1,190
2	1,980	5/64	4,760	48,000	1,980
3	2,780	7/64	6,350	51,000	2,780
4	3,170	1/8	7,940	54,000	3,170
5	4,760	3/16	11,110	70,000	4,760
6	5,560	7/32	12,700	76,000	5,560

Grandezza	d1		d2	l1	Codice
	mm	inch			
7	6,350	1/4	15,870	83,000	6,350
8	7,940	5/16	19,050	89,000	7,940

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano



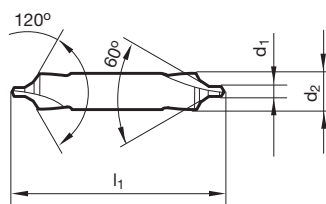
Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

P ● Assott. del nocc. $\geq \varnothing 2,380$ • spoglia sul cono tagliente • forma B a norma americana

- M** ○
- K** ●
- N** ●
- S** ○
- H** ○



Articolo nr. **595**

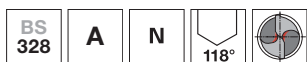
Grandezza	d1		d2	l1	Codice
	mm	inch			
11	1,190	3/64	3,170	32,000	1,190
12	1,590	1/16	4,760	48,000	1,590
13	2,380	3/32	6,350	51,000	2,380
14	2,780	7/64	7,940	54,000	2,780
15	3,970	5/32	11,110	70,000	3,970
16	4,760	3/16	12,700	76,000	4,760

Grandezza	d1		d2	l1	Codice
	mm	inch			
17	5,560	7/32	15,870	83,000	5,560
18	6,350	1/4	19,050	89,000	6,350

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano



Materiale tagliente **HSS**

Superficie ○

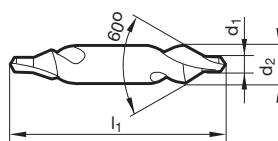
Direzione di taglio (R)

P ● Assott. del nocc. $\geq \varnothing 1,190$ ● spoglia sul cono tagliente ● forma A a norma inglese

- M** ○
- K** ●
- N** ●
- S** ○
- H** ○

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Articolo nr. **292**

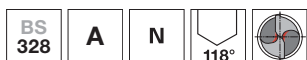
Grandezza	d1		d2	l1	Codice
	mm	inch			
1	1,190	3/64	3,170	38,000	1,190
2	1,590	1/16	4,760	44,000	1,590
3	2,380	3/32	6,350	51,000	2,380
4	3,170	1/8	7,940	57,000	3,170
5	4,760	3/16	11,110	63,000	4,760
6	6,350	1/4	15,870	76,000	6,350

Grandezza	d1		d2	l1	Codice
	mm	inch			
7	7,940	5/16	19,050	89,000	7,940

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano



Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (L)

P ● Assott. del nocch. $\geq \varnothing 1,190$ ● spoglia sul cono tagliente ● forma A a norma inglese

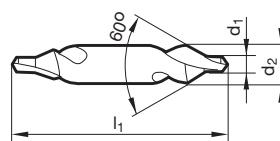
M ○

K ●

N ●

S ○

H ○



Articolo nr. **294**

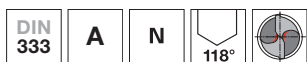
Grandezza	d1		d2	l1	Codice
	mm	inch			
1	1,190	3/64	3,170	38,000	1,190
2	1,590	1/16	4,760	44,000	1,590
3	2,380	3/32	6,350	51,000	2,380
4	3,170	1/8	7,940	57,000	3,170
5	4,760	3/16	11,110	63,000	4,760
6	6,350	1/4	15,870	76,000	6,350

Grandezza	d1		d2	l1	Codice
	mm	inch			
7	7,940	5/16	19,050	89,000	7,940

Punte a centrare
e punte cilindriche
per centri CN



Punte a centrare senza piano



Materiale tagliente **HSCO**

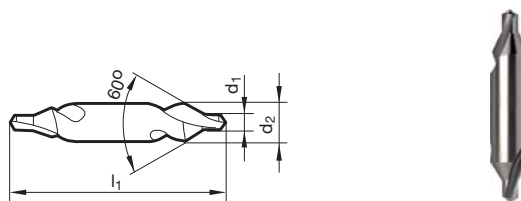
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • senza smusso di protezione • massima resistenza all'usura • per fori a centrare secondo DIN 332, foglio 1, forma A
- M** •
- K** •
- N** • materiali con R superiore a 800 N/mm^2 • acciai al CrNi inossidabili e resistenti al calore
- S** ○
- H**

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Articolo nr. **381**

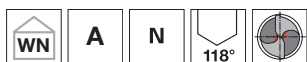
d1	d2	l1
mm	mm	mm
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000

d1	d2	l1
mm	mm	mm
4,000	10,000	56,000

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano



Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

P Assott. del nocch. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • senza smusso di protezione • per fori a centrare secondo DIN 332, foglio 1, forma A

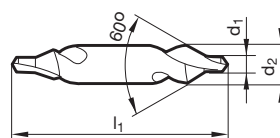
M • $d1 \leq 0,8$ mm: 1 solo lato tagliente

K

N l' idoneità del materiale universale

S

H



Articolo nr. **736**

d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000

d1	d2	l1
mm	mm	mm
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000

Punte a centrare
e punte cilindriche
per centri CN



Punte a centrare senza piano



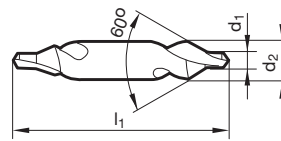
Materiale tagliente **HSS**

Superficie ○

Direzione di taglio **(R)**

P ● Assott. del nocc. ≥ Ø 2,000 • spoglia sul cono tagliente • senza smusso di protezione • per fori a centrare secondo DIN 332 foglio 1, (riportato all'edizione 09.1960x) Forma A • d1 ≤ 0,8 mm: 1 solo lato tagliente

- M** ○
- K** ●
- N** ●
- S** ○
- H** ○



Articolo nr. **281**

d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
1,000	3,150	31,500
1,250	4,000	35,500
1,600	5,000	40,000
2,000	6,300	45,000
2,500	8,000	50,000

d1	d2	l1
mm	mm	mm
3,150	10,000	56,000
4,000	12,500	63,000
5,000	16,000	71,000
6,300	20,000	80,000
8,000	25,000	100,000
10,000	31,500	125,000

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano



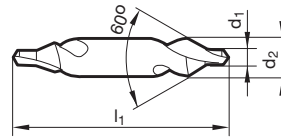
Materiale tagliente **HSS**

Superficie ○

Direzione di taglio

P ● Assott. del nocch. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • senza smusso di protezione • per fori a centrare secondo DIN 332 foglio 1, (riportato all'edizione 09.1960x) Forma A • $d1 \leq 0,8$ mm: 1 solo lato tagliente

- M** ○
- K** ●
- N** ●
- S** ○
- H** ○



Articolo nr. **282**

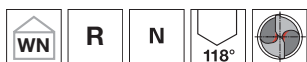
d1	d2	l1
mm	mm	mm
0,800	3,150	25,000
1,250	4,000	35,500
1,600	5,000	40,000
2,000	6,300	45,000
2,500	8,000	50,000
3,150	10,000	56,000

d1	d2	l1
mm	mm	mm
4,000	12,500	63,000
5,000	16,000	71,000

Punte a centrare
e punte cilindriche
per centri CN



Punte a centrare senza piano



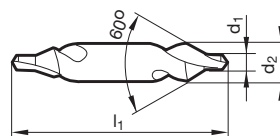
Materiale tagliente **HSS**

Superficie ○

Direzione di taglio

P ● Assott. del nocch. $\geq \varnothing 2,000$ ● spoglia sul cono tagliente ● corretto posizionamento fra le contropunte ● per fori a centrare secondo DIN 332, foglio 1, forma R ● $d1 \leq 0,8$ mm: 1 solo lato tagliente

- M** ○
- K** ●
- N** ●
- S** ○
- H** ○



Articolo nr. **283**

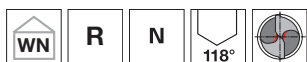
d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	4,000	35,500
1,600	5,000	40,000
2,000	6,300	45,000
2,500	8,000	50,000
3,150	10,000	56,000
4,000	12,500	63,000
5,000	16,000	71,000
6,300	20,000	80,000
8,000	25,000	100,000

d1	d2	l1
mm	mm	mm
10,000	31,500	125,000

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano



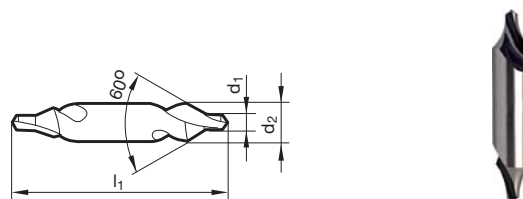
Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocch. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • corretto posizionamento fra le contropunte • per fori a centrare secondo DIN 332, foglio 1, forma R

- M** ○
- K** •
- N** •
- S** ○
- H** ○



Articolo nr. **284**

d1	d2	l1
mm	mm	mm
1,600	5,000	40,000
2,000	6,300	45,000
2,500	8,000	50,000
3,150	10,000	56,000
4,000	12,500	63,000

d1	d2	l1
mm	mm	mm

Punte a centrare
e punte cilindriche
per centri CN



Punte a centrare senza piano

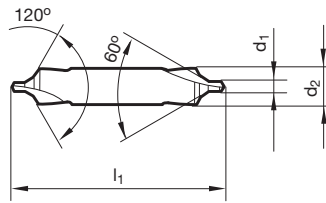


Materiale tagliente **HSS**

Superficie

Direzione di taglio

- P** • Assott. del nocch. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • per fori a centrare secondo DIN 332 foglio 1, (riportato all'edizione 09.1960x)
- M** ○ Forma B • con smusso di protezione 120°
- K** •
- N** •
- S** ○
- H** ■



Articolo nr. **285**

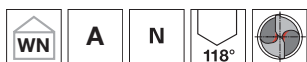
d1	d2	l1
mm	mm	mm
1,000	6,300	40,000
1,600	8,000	50,000
2,000	10,000	56,000
2,500	11,200	63,000
3,150	14,000	71,000
4,000	16,000	80,000

d1	d2	l1
mm	mm	mm
5,000	20,000	90,000
6,300	25,000	100,000

Punte a centrare e punte cilindriche per centri CN



Punte a centrare senza piano



Materiale tagliente **HSS**

Superficie ○

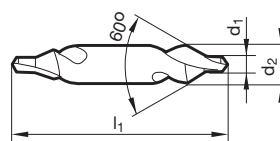
Direzione di taglio **(R)**

P ● Assott. del nocch. ≥ Ø 2,000 • spoglia sul cono tagliente • punte da centro extra lunghe • senza smusso di protezione • per fori a centrare simili a
M ○ DIN 332 foglio 1, forma A • per centrature molto profonde

- K** ●
- N** ●
- S** ○
- H** ○

GUHRING NAVIGATOR

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Articolo nr. **280**

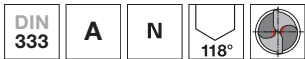
d1	d2	l1
mm	mm	mm
1,000	4,000	120,000
1,600	5,000	120,000
2,000	6,000	120,000
2,500	8,000	120,000
3,150	10,000	120,000

d1	d2	l1
mm	mm	mm

Punte a centrare e punte cilindriche per centri CN



Punte a centrare con piano

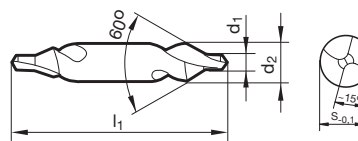


- P** ● Assott. del nocc. $\geq \varnothing 2,000$ ● spoglia sul cono tagliente ● per fori a centrare secondo DIN 332, foglio 1, forma A ● senza smusso di protezione
- M** ○
- K** ●
- N** ●
- S** ○
- H** ○

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	(R)

GÜHRING NAVIGATOR

Dati di taglio a pag. 802



Articolo nr. **587**

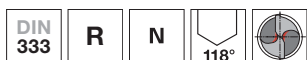
d1	d2	l1	S
mm	mm	mm	mm
1,600	4,000	35,500	3,250
2,000	5,000	40,000	4,200
2,500	6,300	45,000	5,350
3,150	8,000	50,000	6,950
4,000	10,000	56,000	8,400
5,000	12,500	63,000	10,950

d1	d2	l1	S
mm	mm	mm	mm
6,300	16,000	71,000	14,000
8,000	20,000	80,000	17,900
10,000	25,000	100,000	22,500

Punte a centrare e punte cilindriche per centri CN



Punte a centrare con piano



Materiale tagliente **HSS**

Superficie

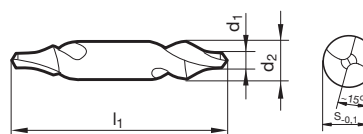
Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • corretto posizionamento fra le contropunte • per fori a centrare a DIN 332 parte 1, forma R

- M** ○
- K** •
- N** •
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 802



Articolo nr. **588**

d1	d2	l1	S
mm	mm	mm	mm
1,000	3,150	31,500	2,350
2,000	5,000	40,000	4,200
2,500	6,300	45,000	5,350
3,150	8,000	50,000	6,950
4,000	10,000	56,000	8,400
5,000	12,500	63,000	10,950

d1	d2	l1	S
mm	mm	mm	mm
6,300	16,000	71,000	14,000
8,000	20,000	80,000	17,900
10,000	25,000	100,000	22,500

Punte a centrare
e punte cilindriche
per centri CN

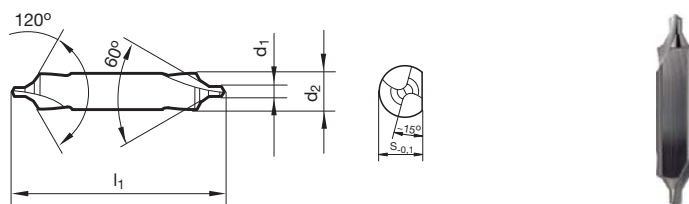


Punte a centrare con piano



Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ

- P** ● Assott. del nocc. ≥ Ø 2,000 ● spoglia sul cono tagliente ● per fori a centrare secondo DIN 332, foglio 1, forma B ● con smusso di protezione 120°
- M** ○
- K** ●
- N** ●
- S** ○
- H** ●



Articolo nr. **589**

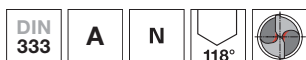
d1	d2	l1	S
mm	mm	mm	mm
1,600	6,300	45,000	5,350
2,000	8,000	50,000	6,950
2,500	10,000	56,000	8,400
3,150	11,200	60,000	10,000
4,000	14,000	67,000	12,650
5,000	18,000	75,000	16,400

d1	d2	l1	S
mm	mm	mm	mm
6,300	20,000	80,000	17,900
8,000	25,000	100,000	22,500

Punte a centrare e punte cilindriche per centri CN



Punte a centrare con piano



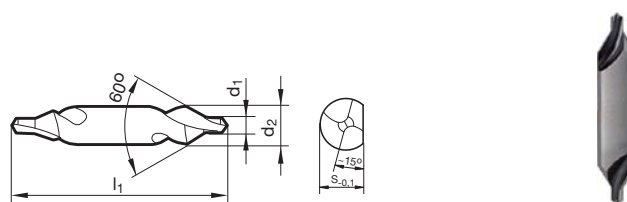
Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • senza smusso di protezione • per fori a centrare secondo DIN 332 foglio 1, (riportato all'edizione 09.1960x) Forma A

- M** ○
- K** •
- N** •
- S** ○
- H** ○



Articolo nr. **287**

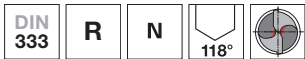
d1	d2	l1	S
mm	mm	mm	mm
1,600	5,000	40,000	4,200
2,000	6,300	45,000	5,350
2,500	8,000	50,000	6,850
3,150	10,000	56,000	8,400
4,000	12,500	63,000	10,650
5,000	16,000	71,000	13,650

d1	d2	l1	S
mm	mm	mm	mm
6,300	20,000	80,000	17,400
8,000	25,000	100,000	21,900
10,000	31,500	125,000	27,100

Punte a centrare
e punte cilindriche
per centri CN



Punte a centrare con piano



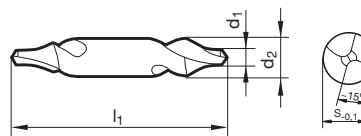
Materiale tagliente **HSS**

Superficie

Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 2,000$ • spoglia sul cono tagliente • corretto posizionamento fra le contropunte • per fori a centrare secondo DIN 332, foglio 1, forma R

- M** ○
- K** •
- N** •
- S** ○
- H** ○



Articolo nr. **288**

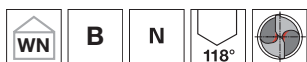
d1	d2	l1	S
mm	mm	mm	mm
2,000	6,300	45,000	5,350
2,500	8,000	50,000	6,850
3,150	10,000	56,000	8,400
4,000	12,500	63,000	10,650
5,000	16,000	71,000	13,650
6,300	20,000	80,000	17,400

d1	d2	l1	S
mm	mm	mm	mm
8,000	25,000	100,000	21,900

Punte a centrare e punte cilindriche per centri CN



Punte a centrare con piano



Materiale tagliente **HSS**

Superficie ○

Direzione di taglio

P ● Assott. del nocc. $\geq \varnothing 2,000$ ● spoglia sul cono tagliente ● per fori a centrare secondo DIN 332 foglio 1, (riportato all'edizione 09.1960x)

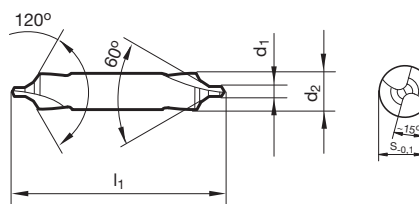
M ○ Forma B ● con smusso di protezione 120°

K ●

N ●

S ○

H ●



Articolo nr. **289**

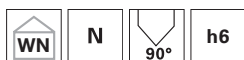
d1	d2	l1	S
mm	mm	mm	mm
1,600	8,000	50,000	6,500
2,000	10,000	56,000	7,950
2,500	11,200	63,000	9,500
3,150	14,000	71,000	12,000
4,000	16,000	80,000	14,400
5,000	20,000	90,000	18,400

d1	d2	l1	S
mm	mm	mm	mm

Punte a centrare
e punte cilindriche
per centri CN



Punte cilindriche per centri CN 90°



Materiale tagliente **HSS**

Superficie ○

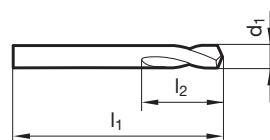
Direzione di taglio (R)

P ● spoglia sul cono tagliente ● adatte solo per centrare

- M** ○
- K** ●
- N** ●
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 798



Articolo nr. **557**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,000		84,000	22,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
12,000		102,000	30,000
12,700	1/2	102,000	30,000
13,000		102,000	30,000

d1		l1	l2
mm	inch	mm	mm
14,000		107,000	33,500
15,870	5/8	115,000	37,500
16,000		115,000	37,500
19,050	3/4	131,000	45,000
20,000		131,000	45,000
25,000	63/64	151,000	53,000
25,400	1	156,000	53,000

Punte a centrare e punte cilindriche per centri CN



Punte cilindriche per centri CN 90°



Materiale tagliente **HSS**

Superficie **S**

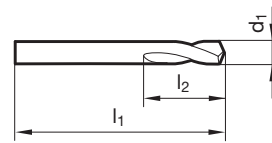
Direzione di taglio **R**

P ● spoglia sul cono tagliente ● adatte solo per centrare

- M** ○
- K** ●
- N** ●
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 798



Articolo nr. **568**

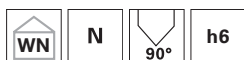
d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
12,000		102,000	30,000
12,700	1/2	102,000	30,000
15,870	5/8	115,000	37,500
16,000		115,000	37,500

d1		l1	l2
mm	inch	mm	mm
19,050	3/4	131,000	45,000
20,000		131,000	45,000
25,000	63/64	151,000	53,000
25,400	1	156,000	53,000

Punte a centrare
e punte cilindriche
per centri CN



Punte cilindriche per centri CN 90°



Materiale tagliente **HSCO**

Superficie

Direzione di taglio



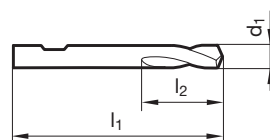
P • spoglia sul cono tagliente • adatte solo per centrare • $\geq \varnothing 6.0$ mm con superficie di trascinamento a DIN 1835-B • acciaio HSS legato al Co

M • • massima resistenza all'usura

- K** •
- N** •
- S** ○
- H**

GUHRING NAVIGATOR

Dati di taglio a pag. 798



Articolo nr. **1136**

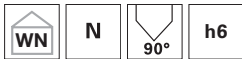
d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000

d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
16,000		115,000	37,500
20,000		131,000	45,000

Punte a centrare e punte cilindriche per centri CN



Punte cilindriche per centri CN 90°



- P** • spoglia sul cono tagliente • adatte solo per centrare • $\geq \varnothing 6.0$ mm con superficie di trascinamento a DIN 1835-B • acciaio HSS legato al Co
- M** • • massima resistenza all'usura
- K** •
- N** •
- S** ○
- H**

Materiale tagliente **HSCO**

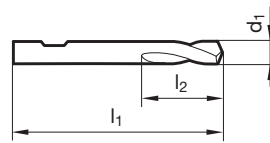
Superficie **F**

Direzione di taglio **R**



GUHRING NAVIGATOR

Dati di taglio a pag. 798



Articolo nr. **1133**

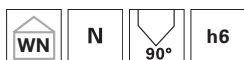
d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000

d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
16,000		115,000	37,500
20,000		131,000	45,000

Punte a centrare
e punte cilindriche
per centri CN



Punte cilindriche per centri CN 90°



Materiale tagliente **HSS**

Superficie ○

Direzione di taglio (R)

P ● spoglia sul cono tagliente ● adatte solo per centrare

M ○

K ●

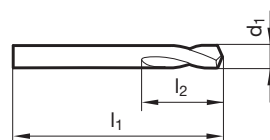
N ●

S ○

H

GUHRING NAVIGATOR

Dati di taglio a pag. 798



Articolo nr. **559**

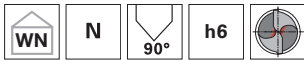
d1		l1	l2
mm	inch		
6,350	1/4	105,000	17,000
8,000		118,000	21,000
9,520	3/8	132,000	25,000
12,700	1/2	159,000	30,000
15,870	5/8	186,000	37,500
19,050	3/4	213,000	45,000

d1		l1	l2
mm	inch		
25,400	1	216,000	53,000

Punte a centrare e punte cilindriche per centri CN



Punte cilindriche per centri CN 90°

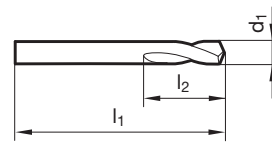


Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

- P** Assott. del nocc. $\geq \varnothing 6,000$ • affilatura su piani • adatte solo per centrare
- M**
- K**
- N** l' idoneità del materiale universale
- S**
- H**



Articolo nr. **723**

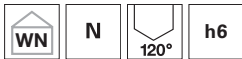
d1		l1	l2
mm	inch	mm	mm
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
12,000		102,000	30,000
12,700	1/2	102,000	30,000
15,870	5/8	115,000	37,500
16,000		115,000	37,500
19,050	3/4	131,000	45,000

d1		l1	l2
mm	inch	mm	mm
20,000		131,000	45,000

Punte a centrare e punte cilindriche per centri CN



Punte cilindriche per centri CN 120°



Materiale tagliente **HSS**

Superficie ○

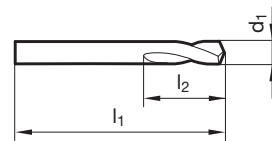
Direzione di taglio (R)

P ● spoglia sul cono tagliente ● adatte solo per centrare

- M** ○
- K** ●
- N** ●
- S** ○
- H** ○

GUHRING NAVIGATOR

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Articolo nr. **556**

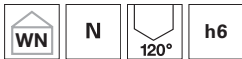
d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
5,600		66,000	16,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
6,500		70,000	17,000
7,000		74,000	19,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
11,550		95,000	28,000

d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
12,700	1/2	102,000	30,000
14,000		107,000	33,500
15,000		111,000	33,500
15,870	5/8	115,000	37,500
16,000		115,000	37,500
19,000		127,000	40,000
19,050	3/4	131,000	45,000
20,000		131,000	45,000
25,000	63/64	151,000	53,000
25,400	1	156,000	53,000

Punte a centrare e punte cilindriche per centri CN



Punte cilindriche per centri CN 120°



Materiale tagliente **HSS**

Superficie **S**

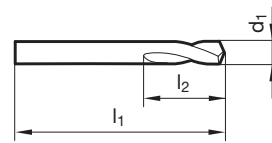
Direzione di taglio **R**

P ● spoglia sul cono tagliente ● adatte solo per centrare

- M** ○
- K** ●
- N** ●
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 798



Articolo nr. **567**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
12,000		102,000	30,000
12,700	1/2	102,000	30,000
15,870	5/8	115,000	37,500
16,000		115,000	37,500

d1		l1	l2
mm	inch	mm	mm
19,050	3/4	131,000	45,000
20,000		131,000	45,000
25,000	63/64	151,000	53,000

Punte a centrare
e punte cilindriche
per centri CN



Punte cilindriche per centri CN 120°



- P** • spoglia sul cono tagliente • adatte solo per centrare • $\geq \varnothing 6.0$ mm con superficie di trascinamento a DIN 1835-B • acciaio HSS legato al Co
- M** • • massima resistenza all'usura
- K** •
- N** •
- S** ○
- H**

Materiale tagliente **HSCO**

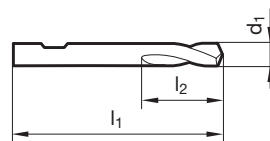
Superficie ○

Direzione di taglio



GUHRING NAVIGATOR

Dati di taglio a pag. 798



Articolo nr. **1134**

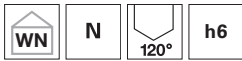
d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000

d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
16,000		115,000	37,500
20,000		131,000	45,000

Punte a centrare e punte cilindriche per centri CN



Punte cilindriche per centri CN 120°



- P** • spoglia sul cono tagliente • adatte solo per centrare • $\geq \varnothing 6.0$ mm con superficie di trascinamento a DIN 1835-B • acciaio HSS legato al Co
- M** • • massima resistenza all'usura
- K** •
- N** •
- S** ○
- H**

Materiale tagliente **HSCO**

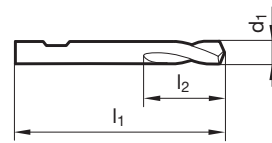
Superficie **F**

Direzione di taglio **R**



GUHRING NAVIGATOR

Dati di taglio a pag. 798



Articolo nr. **1135**

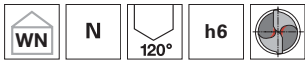
d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000

d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
16,000		115,000	37,500
20,000		131,000	45,000

Punte a centrare
e punte cilindriche
per centri CN

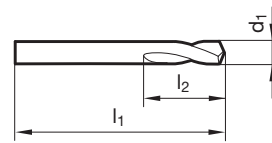


Punte cilindriche per centri CN 120°



- P** ○ Assott. del nocc. $\geq \varnothing 13,500$ • affilatura su piani • adatte solo per centrare
- M** ○
- K** ○
- N** ○ idoneità del materiale universale
- S** ○
- H** ○

Materiale tagliente	Int. in MD
Superficie	○
Direzione di taglio	Ⓜ



Articolo nr. **724**

d1		l1	l2
mm	inch		
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000

d1		l1	l2
mm	inch		
12,000		102,000	30,000
12,700	1/2	102,000	30,000
15,870	5/8	115,000	37,500
16,000		115,000	37,500
19,050	3/4	131,000	45,000
20,000		131,000	45,000

Punte a centrare e punte cilindriche per centri CN



Punte cilindriche per centri CN 142°



Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

P affilatura su piani • adatte solo per centrare • $\geq \varnothing 6,0$ mm con superficie di serraggio, forma gambo HB

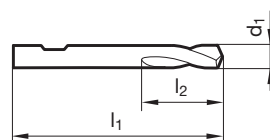
M

K

N l' idoneità del materiale universale

S

H



Articolo nr. **546**

d1		l1	l2
mm	inch	mm	mm
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000
12,000		102,000	30,000

d1		l1	l2
mm	inch	mm	mm
16,000		115,000	37,500
20,000		131,000	45,000

Punte a centrare
e punte cilindriche
per centri CN

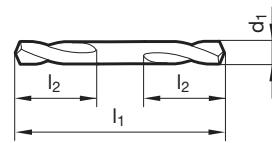


Punte doppie per carrozzeria



- P** ● Assott. del nocc. $\geq \varnothing 1,450$ • spoglia sul cono tagliente • per impiego su entrambi i lati • per trapani a mano per carrozzeria
- M** ○
- K** ●
- N** ● materiale a spessore sottile
- S** ○
- H** ○

Materiale tagliente	HSS
Superficie	$\geq \varnothing_{2,36}$
Direzione di taglio	



Articolo nr. **554**

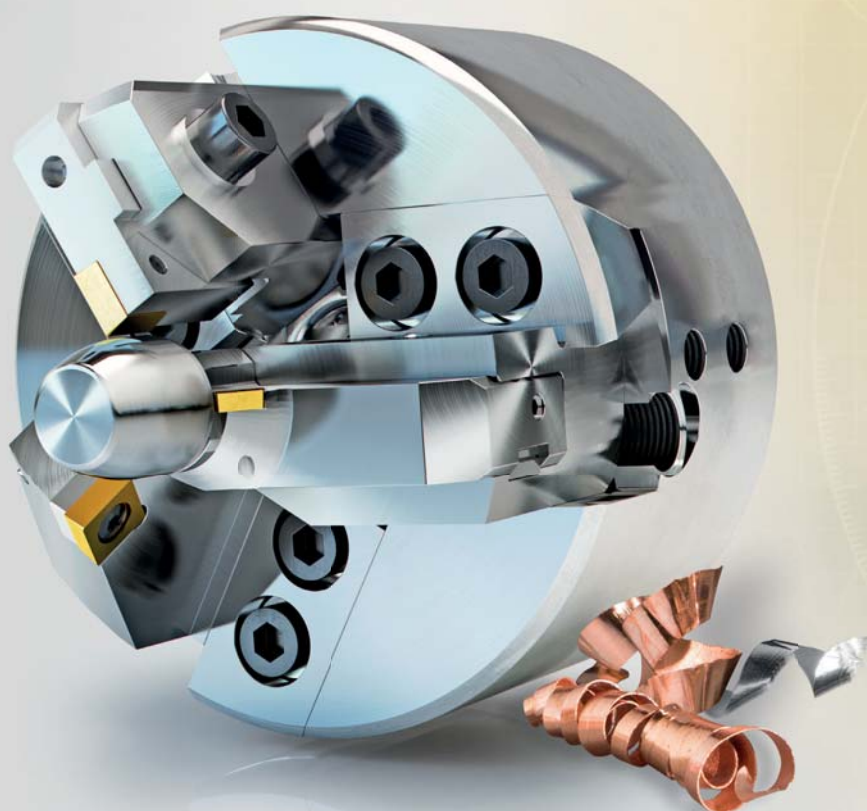
d1	l1	l2
mm	mm	mm
1,500	32,000	6,000
1,900	36,000	7,100
2,000	38,000	7,500
2,100	38,000	7,500
2,200	40,000	8,500
2,300	40,000	8,500
2,400	43,000	9,500
2,450	43,000	9,500
2,500	43,000	9,500
2,600	43,000	9,500
2,700	46,000	10,600
2,780	46,000	10,600
2,800	46,000	10,600
2,900	46,000	10,600
3,000	46,000	10,600
3,050	49,000	11,200
3,100	49,000	11,200
3,170	49,000	11,200
3,200	49,000	11,200
3,260	49,000	11,200
3,300	49,000	11,200
3,500	52,000	12,500
3,570	52,000	12,500
3,600	52,000	12,500
3,650	52,000	12,500
3,700	52,000	12,500
3,800	55,000	14,000
3,970	55,000	14,000
4,000	55,000	14,000
4,100	55,000	14,000
4,200	55,000	14,000
4,300	58,000	15,500
4,500	58,000	15,500
4,600	58,000	15,500
4,760	62,000	17,000
4,800	62,000	17,000

d1	l1	l2
mm	mm	mm
4,900	62,000	17,000
5,000	62,000	17,000
5,100	62,000	17,000
5,200	62,000	17,000
5,300	62,000	17,000
5,400	66,000	19,000
5,500	66,000	19,000
5,560	66,000	19,000
5,600	66,000	19,000
5,800	66,000	19,000
5,900	66,000	19,000
5,950	66,000	19,000
6,000	66,000	19,000
6,100	70,000	21,200
6,350	70,000	21,200
6,500	70,000	21,200
6,800	74,000	23,600
7,000	74,000	23,600
7,100	74,000	23,600
7,500	74,000	23,600
7,940	79,000	25,000
8,000	79,000	25,000
8,500	79,000	25,000
8,600	84,000	25,000
9,000	84,000	25,000
9,500	84,000	25,000
9,520	89,000	25,000
10,000	89,000	25,000

Punte a centrare e punte cilindriche per centri CN

GE 100

Sistema di utensili multifunzionale
per la lavorazione finale
Combina fino a 5 fasi operative
con un solo utensile.



Da due a quattro supporti di fissaggio,
regolabili in combinazione con una
punta da centro o a gradino, riducono
la lavorazione totale ad una manciata di
secondi.



Ulteriori informazioni le trovate nel nostro catalogo GE 100.



PUNTE A GRADINO ED ALLARGATORI





P	M	K	N	S	H	Descrizione degli utensili	Norma	Forma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
Punte a gradino per fori centraggio a DIN 332																
●	○	●	●	○			WN	D	N	R	HSS	○	8,000 - 40,000	274	804	714
●	○	●	●	○			WN	DR	N	R	HSS	○	8,000 - 40,000	574	804	715
●	○	●	●	○			WN	D	N	R	HSS	○	8,000 - 20,000	575	804	716
●	○	●	●	○			WN	D	N	R	HSS	○	14,000 - 40,000	576	804	717
Punte a gradino corte, cil.																
●	○	●	●	○			WN		N	R	HSS	○	6,000 - 19,000	378	804	718
●	○	●	●	○			WN		N	R	HSS	○	6,600 - 21,500	1147	804	719
●	○	●	●	○			WN		N	R	HSS	○	6,000 - 18,000	379	804	720
●	○	●	●	○			WN		N	R	HSS	○	3,400 - 13,500	380	804	721
Punte a gradino ad eliche indipendenti, cil.																
●	○	●	○				DIN 8374	A	N	R	HSS	○	6,000 - 15,000	536	806	722
●	○	●	○				DIN 8374	B	N	R	HSS	○	7,500 - 19,000	569	806	723
●	○	●	○				WN		N	R	HSS	○	6,600 - 17,200	636	806	724
●	○	●	○				WN		N	R	HSS	○	6,000 - 8,000	638	806	725
●	○	●	○				DIN 8376		N	R	HSS	○	6,000 - 18,000	538	806	726
○	○	○	○	○	○		WN		N	R	VHM	○	6,000 - 15,000	738		727
●	○	●	○				WN		N	R	HSS	○	5,900 - 17,500	514	806	728
●	○	●	○				DIN 8378		N	R	HSS	○	3,400 - 13,500	540	806	729
○	○	○	○	○	○		WN		N	R	VHM	○	4,500 - 11,000	739		730
Punte a gradino ad eliche indipendenti, CM																
●	○	●	○				WN		N	R	HSS	○	11,500 - 23,000	637	806	731
●	○	●	○				WN		N	R	HSS	○	11,000 - 29,000	537	806	732
●	○	●	○				WN		N	R	HSS	○	18,000 - 26,000	639	806	733
●	○	●	○				DIN 8377		N	R	HSS	○	10,000 - 33,000	539	806	734
●	○	●	○				WN		N	R	HSS	○	9,400 - 33,000	520	806	735

Punte a gradino ed allargatori



P	M	K	N	S	H	Descrizione degli utensili	Norma	Forma	Tipo	Direzione di taglio	Materiale tagliente	Superficie	d1/mm	Numero-art.	Dati di taglio pagina	Pagina
Punte a gradino ad eliche indipendenti, CM																
●	○	●	○				DIN 8379	N	R	HSS	●	9,000 - 22,000	541	806	736	
Allargatori cilindrici																
●	○	●	○				DIN 344	N	R	HSS	●	3,800 - 20,000	533	800	737	
○	○	○	○	○	○		WN	N	R	HM	○	3,800 - 15,000	750		739	
Allargatori con attacco cono morse																
●	○	●	○				DIN 343	N	R	HSS	●	7,800 - 50,000	534	800	740	
●	○	●	○				DIN 343	N	R	HSCO	●	8,500 - 26,000	634	800	742	
●	○	●	○				DIN 1864	N	R	HSS	●	5,000 - 30,000	555	800	743	
●	○	●	○				DIN 1864	N	R	HSCO	●	8,000 - 15,000	635	800	744	
○	○	○	○	○	○		WN	N	R	HM	○	28,700 - 39,600	729		745	
Punte per fori conici																
●	○	●	○				DIN 1898	N	R	HSS	●	$2,000 - 12,000$	531		746	
●	○	●	○				DIN 1898	N	R	HSS	●	5,000 - 25,000	532		747	

Punte a gradino ed allargatori



Punte a gradino per fori centraggio a DIN 332



Materiale tagliente **HSS**

Superficie

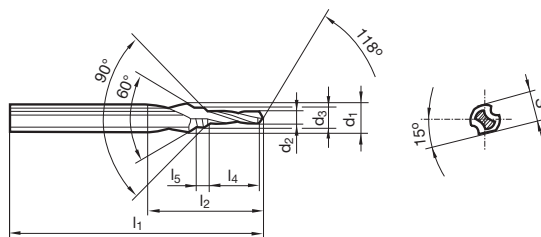
Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 8,000$ • assottigliamento riferito al \varnothing nominale d_1 • spoglia sul cono tagliente • con pianetto sul codolo • angolo di svasatura 60° • per fori filettati secondo DIN 332, foglio 2, forma D • uso con macchine automatiche

- M** ○
- K** •
- N** •
- S** ○
- H** ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 804



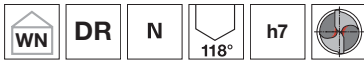
Articolo nr. **274**

d1 h7	d2 h8	d3	l1	l2	l4	l5	S	per filettatura
mm	mm	mm	mm	mm	mm	mm	mm	
8,000	3,300	4,300	63,000	23,000	11,000	1,600	6,750	M 4
10,000	4,200	5,300	67,000	27,000	13,000	2,150	8,450	M 5
12,500	5,000	6,400	71,000	33,000	16,000	2,900	10,450	M 6
14,000	6,800	8,400	88,000	41,000	19,500	3,500	12,500	M 8
16,000	8,500	10,500	94,000	47,000	23,000	4,700	14,850	M10
20,000	10,200	13,000	105,000	59,000	28,000	6,500	18,450	M12
25,000	14,000	17,000	132,000	67,000	33,000	8,300	23,400	M16
31,500	17,500	21,000	145,000	76,500	38,000	10,350	29,350	M20
40,000	21,000	25,000	160,000	90,000	45,000	12,000	36,500	M24

Punte a gradino ed allargatori



Punte a gradino per fori centraggio a DIN 332

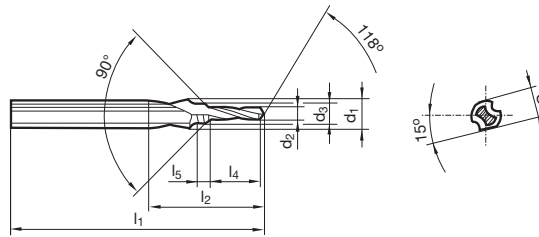


P	•	Assott. del nocc. $\geq \varnothing 8,000$ • assottigliamento riferito al \varnothing nominale d1 • spoglia sul cono tagliente • con pianetto sul codolo • angolo di svasatura 60° • per fori filettati secondo DIN 332, foglio 2, forma DR • uso con macchine automatiche
M	○	
K	•	
N	•	
S	○	
H		

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ

GUHRING NAVIGATOR

Dati di taglio a pag. 804

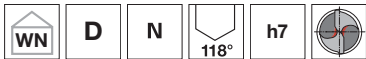


Articolo nr. **574**

d1 h7	d2 h8	d3	l1	l2	l4	l5	S	per filettatura
mm	mm	mm	mm	mm	mm	mm	mm	
8,000	3,300	4,300	63,000	23,000	11,000	1,600	6,750	M 4
10,000	4,200	5,300	67,000	27,000	13,000	2,150	8,450	M 5
12,500	5,000	6,400	71,000	33,000	16,000	2,900	10,450	M 6
14,000	6,800	8,400	88,000	41,000	19,500	3,500	12,500	M 8
16,000	8,500	10,500	94,000	47,000	23,000	4,700	14,850	M10
20,000	10,200	13,000	105,000	59,000	28,000	6,500	18,450	M12
25,000	14,000	17,000	132,000	67,000	33,000	8,300	23,400	M16
31,500	17,500	21,000	145,000	76,500	38,000	10,350	29,350	M20
40,000	21,000	25,000	160,000	90,000	45,000	12,000	36,500	M24



Punte a gradino per fori centraggio a DIN 332



P	•	Assott. del nocc. $\geq \varnothing 8,000$ • assottigliamento riferito al \varnothing nominale d_1
M	○	• spoglia sul cono tagliente • angolo di svasatura 60° • per fori filettati secondo DIN 332, foglio 2, forma D
K	•	
N	•	
S	○	
H		

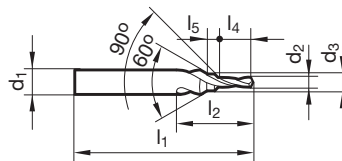
Materiale tagliente **HSS**

Superficie

Direzione di taglio

GÜHRING NAVIGATOR

Dati di taglio a pag. 804

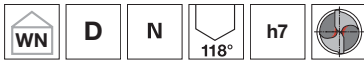


Articolo nr. **575**

d1 h7	d2 h8	d3	l1	l2	l4	l5	per filettatura
mm	mm	mm	mm	mm	mm	mm	
8,000	3,300	4,300	63,000	23,000	11,000	1,600	M 4
10,000	4,200	5,300	67,000	27,000	13,000	2,150	M 5
12,500	5,000	6,400	71,000	33,000	16,000	2,900	M 6
14,000	6,800	8,400	88,000	41,000	19,500	3,500	M 8
16,000	8,500	10,500	94,000	47,000	23,000	4,700	M10
20,000	10,200	13,000	105,000	59,000	28,000	6,500	M12



Punte a gradino per fori centraggio a DIN 332



Materiale tagliente **HSS**

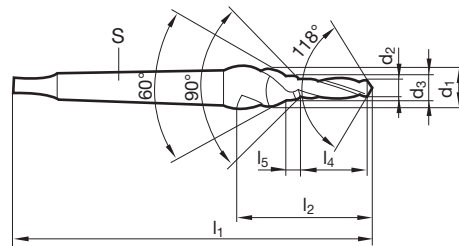
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 14,000$ • assottigliamento riferito al \varnothing nominale d_1
- M** ○ • spoglia sul cono tagliente • angolo di svasatura 60° • per fori filettati secondo DIN 332, foglio 2, forma D
- K** •
- N** •
- S** ○
- H** ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 804

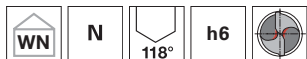


Articolo nr. **576**

d1 h7	d2 h8	d3	l1	l2	l4	l5	per filettatura
mm	mm	mm	mm	mm	mm	mm	
14,000	6,800	8,400	110,000	41,000	19,500	3,500	M 8
16,000	8,500	10,500	131,000	47,000	23,000	4,700	M10
20,000	10,200	13,000	145,000	59,000	28,000	6,500	M12
25,000	14,000	17,000	172,000	67,000	33,000	8,300	M16
31,500	17,500	21,000	184,000	76,500	38,000	10,350	M20
40,000	21,000	25,000	222,000	90,000	45,000	12,000	M24



Punte a gradino corte, cil.

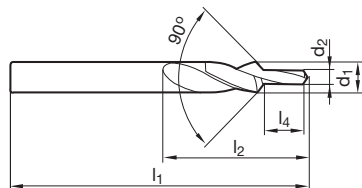


- P** • Assott. del nocc. $\geq \varnothing 6,000$ • assottigliamento riferito al \varnothing nominale d_1
- spoglia sul cono tagliente • grande stabilità alla torsione • per machine
- M** ○ CNC e CN • per fori passanti a DIN EN 20273, serie fine • per svasature
- per teste di viti 90° a DIN 74, forma A • l'avanz. si basa sul diametro
- K** • inferiore • Vc si basa sul diametro maggiore
- N** •
- S** ○
- H**

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ

GUHRINGNAVIGATOR

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Articolo nr. **378**

d1	d2 h6	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
6,000	3,200	66,000	28,000	9,000	M 3
8,000	4,300	79,000	37,000	11,000	M 4
10,000	5,300	89,000	43,000	13,000	M 5
11,500	6,400	95,000	47,000	15,000	M 6
15,000	8,400	111,000	56,000	19,000	M 8
19,000	10,500	127,000	64,000	23,000	M 10

Punte a gradino ed allargatori



Punte a gradino corte, cil.



Materiale tagliente **HSS**

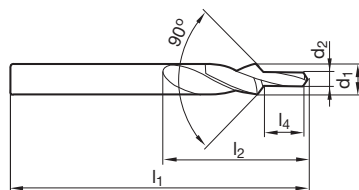
Superficie ○

Direzione di taglio (R)

- P** ● Assott. del nocc. $\geq \varnothing 6,600$ • assottigliamento riferito al \varnothing nominale d_1 • spoglia sul cono tagliente • grande stabilità alla torsione • per machine CNC e CN • per fori passanti a DIN EN 20273, serie media • per svasature per teste di viti 90° a DIN 74, forma A • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
- M** ○
- K** ●
- N** ●
- S** ○
- H** ●

GUHRING NAVIGATOR

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Articolo nr. **1147**

d1	d2 h6	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
6,600	3,400	70,000	31,000	9,000	M 3
9,000	4,500	84,000	40,000	11,000	M 4
11,000	5,500	95,000	47,000	13,000	M 5
13,000	6,600	102,000	51,000	15,000	M 6
17,200	9,000	123,000	62,000	19,000	M 8
21,500	11,000	141,000	70,000	23,000	M 10



Punte a gradino corte, cil.



- P** • Assott. del nocc. $\geq \varnothing 6,000$ • assottigliamento riferito al \varnothing nominale d_1 • spoglia sul cono tagliente • grande stabilità alla torsione • per machine CNC e CN • per fori passanti a DIN EN 20273, serie media
- M** ○ per svasature per teste di viti 180° secondo DIN 974-1, serie 1 • per viti secondo DIN 6912, 7984, 34821, DIN EN ISO 1207, 4762, 14579, 14580 • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
- K** •
- N** •
- S** ○
- H** □

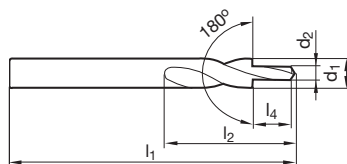
Materiale tagliente **HSS**

Superficie ○

Direzione di taglio

GUHRING NAVIGATOR

Dati di taglio a pag. 804



Articolo nr. **379**

d1	d2 h6	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
6,000	3,400	66,000	28,000	9,000	M 3
8,000	4,500	79,000	37,000	11,000	M 4
10,000	5,500	89,000	43,000	13,000	M 5
11,000	6,600	95,000	47,000	15,000	M 6
15,000	9,000	111,000	56,000	19,000	M 8
18,000	11,000	123,000	62,000	23,000	M 10



Punte a gradino corte, cil.

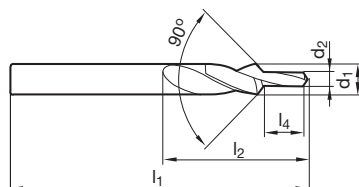


- P** • Assott. del nocc. $\geq \varnothing 3,400$ • assottigliamento riferito al \varnothing nominale d_1 • spoglia sul cono tagliente • grande stabilità alla torsione • per machine CNC e CN • per fori filettati secondo DIN 336 • per svasature a 90° corrispondenti a fori passanti secondo DIN EN 20273, serie media • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
- M** ○
- K** •
- N** •
- S** ○
- H** ○

Materiale tagliente	HSS
Superficie	○
Direzione di taglio	Ⓜ

GUHRING NAVIGATOR

Dati di taglio a pag. 804

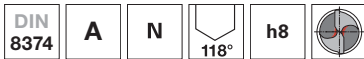


Articolo nr. **380**

d1	d2 h6	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
3,400	2,500	52,000	20,000	8,800	M 3
4,500	3,300	58,000	24,000	11,400	M 4
5,500	4,200	66,000	28,000	13,600	M 5
6,600	5,000	70,000	31,000	16,500	M 6
9,000	6,800	84,000	40,000	21,000	M 8
11,000	8,500	95,000	47,000	25,500	M 10
13,500	10,200	107,000	54,000	30,000	M 12



Punte a gradino ad eliche indipendenti, cil.

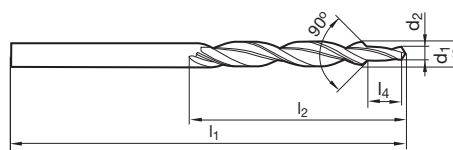


- P** • Assott. del nocc. $\geq \varnothing 6,000$ • assottigliamento riferito al \varnothing nominale d1
- M** ○ spoglia sul cono tagliente • per fori passanti a DIN EN 20273, serie fine
- K** • per svasature per teste di viti 90° • l'avanz. si basa sul diametro inferiore
- N** ○ Vc si basa sul diametro maggiore
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 806

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ

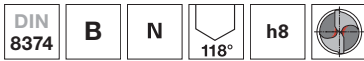


Articolo nr. **536**

d1 h8	d2 h9	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
6,000	3,200	93,000	57,000	9,000	M 3
8,000	4,300	117,000	75,000	11,000	M 4
10,000	5,300	133,000	87,000	13,000	M 5
11,500	6,400	142,000	94,000	15,000	M 6
15,000	8,400	169,000	114,000	19,000	M 8



Punte a gradino ad eliche indipendenti, cil.



Materiale tagliente **HSS**

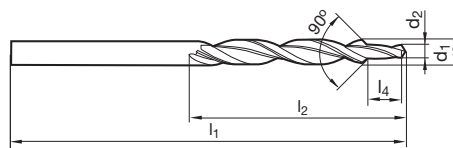
Superficie

Direzione di taglio

- P** ● Assott. del nocc. $\geq \varnothing 7,500$ ● assottigliamento riferito al \varnothing nominale d1
- M** ○ ● spoglia sul cono tagliente ● per fori passanti a DIN EN 20273, serie media ● per svasature per teste di viti 90° a DIN 74, forma A e F ● l'avanz. si basa sul diametro inferiore ● Vc si basa sul diametro maggiore
- K** ●
- N** ○
- S** ○
- H** ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 806



Articolo nr. **569**

d1 h8	d2 h9	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
7,500	3,400	109,000	69,000	9,000	M 3
9,700	4,500	133,000	87,000	11,000	M 4
12,000	5,500	151,000	101,000	13,000	M 5
14,500	6,600	169,000	114,000	15,000	M 6
19,000	9,000	198,000	135,000	19,000	M 8



Punte a gradino ad eliche indipendenti, cil.



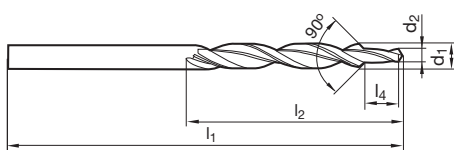
P • Assott. del nocc. $\geq \varnothing 6,600$ • assottigliamento riferito al \varnothing nominale d1
M ○ media • spoglia sul cono tagliente • per fori passanti a DIN EN 20273, serie
K • per svasature per teste di viti 90° secondo DIN 74 parte 1 (ediz.
 12.1980), forma A e B, esecuzione media • l'avanz. si basa sul diametro
 inferiore • Vc si basa sul diametro maggiore

N ○
S
H

GUHRING NAVIGATOR

Dati di taglio a pag. 806

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ



Articolo nr. **636**

d1 h8	d2 h9	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
6,600	3,400	101,000	63,000	9,000	M 3
9,000	4,500	125,000	81,000	11,000	M 4
11,000	5,500	142,000	94,000	13,000	M 5
13,000	6,600	151,000	101,000	15,000	M 6
17,200	9,000	191,000	130,000	19,000	M 8

Punte a gradino ed allargatori



Punte a gradino ad eliche indipendenti, cil.



P	•	Assott. del nocc. $\geq \varnothing 6,000$ • assottigliamento riferito al \varnothing nominale d1
M	○	• spoglia sul cono tagliente • per fori passanti a DIN EN 20273, serie fine
K	•	• per svasature per teste di viti 180° secondo DIN 974-1, serie 1 • per viti secondo DIN 6912, 7513, 7984 • l'avanz. si basa sul diametro inferiore
N	○	• Vc si basa sul diametro maggiore
S		
H		

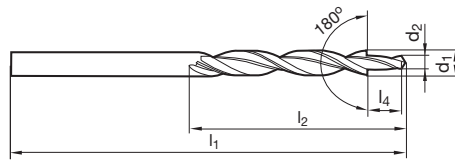
Materiale tagliente **HSS**

Superficie

Direzione di taglio

GUHRING NAVIGATOR

Dati di taglio a pag. 806



Articolo nr. **638**

d1 h8	d2 h9	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
6,000	3,200	93,000	57,000	9,000	M 3
8,000	4,300	117,000	75,000	11,000	M 4



Punte a gradino ad eliche indipendenti, cil.

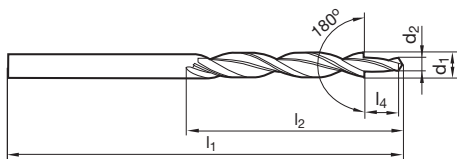


- P** • Assott. del nocc. $\geq \varnothing 6,000$ • assottigliamento riferito al \varnothing nominale d1
- M** ○ spoglia sul cono tagliente • per fori passanti a DIN EN 20273, serie media • per svasature per teste di viti 180° secondo DIN 974-1, serie 1 • per viti secondo DIN 6912, 7984, 34821, DIN EN ISO 1207, 4762, 14579, 14580 e DIN 7513, 7516, 7500-1 • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
- K** •
- N** ○
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 806

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ



Articolo nr. **538**

d1 h8	d2 h9	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
6,000	3,400	93,000	57,000	9,000	M 3
8,000	4,500	117,000	75,000	11,000	M 4
10,000	5,500	133,000	87,000	13,000	M 5
11,000	6,600	142,000	94,000	15,000	M 6
15,000	9,000	169,000	114,000	19,000	M 8
18,000	11,000	191,000	130,000	23,000	M 10

Punte a gradino ed allargatori



Punte a gradino ad eliche indipendenti, cil.

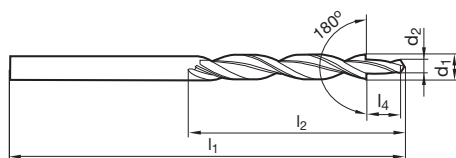


Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

- P** Assott. del nocc. $\geq \varnothing 6,000$ • spoglia sul cono tagliente • per fori passanti a DIN EN 20273, serie media • per svasature per teste di viti
- M** 180° secondo DIN 974-1, serie 1 • per viti secondo DIN 6912, 7513, 7984 • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
- K**
- N**
- S** l'idoneità del materiale universale
- H**



Articolo nr. **738**

d1 h8	d2 h9	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
6,000	3,400	93,000	57,000	9,000	M 3
8,000	4,500	117,000	75,000	11,000	M 4
10,000	5,500	133,000	87,000	13,000	M 5
11,000	6,600	142,000	94,000	15,000	M 6
15,000	9,000	169,000	114,000	19,000	M 8



Punte a gradino ad eliche indipendenti, cil.

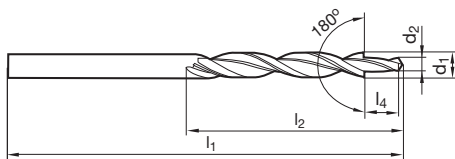


- P** • Assott. del nocc. $\geq \varnothing 5,900$ • assottigliamento riferito al \varnothing nominale d_1 • spoglia sul cono tagliente • per foratura passante con vecchie
- M** ○ svasature forma H, J, K secondo DIN 75 Parte 2 (ediz. 04.1968), esecuzione media e fine • per viti a DIN 84, 912, 6712 • l'avanz. si basa sul diametro inferiore • V_c si basa sul diametro maggiore
- K** •
- N** ○
- S** ○
- H** ○

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ

GÜHRING NAVIGATOR

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Articolo nr. **514**

d1 h8	d2 h9	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
5,900	3,200	93,000	57,000	11,000	M 3
7,400	4,300	109,000	69,000	13,000	M 4
8,000	4,800	117,000	75,000	13,000	M 4
9,400	5,300	125,000	81,000	16,000	M 5
10,000	5,800	133,000	87,000	16,000	M 5
10,400	6,400	133,000	87,000	19,000	M 6
11,000	7,000	142,000	94,000	19,000	M 6
13,500	8,400	160,000	108,000	22,000	M 8
16,500	10,500	184,000	125,000	25,000	M 10
17,500	11,500	191,000	130,000	25,000	M 10

Punte a gradino ed allargatori



Punte a gradino ad eliche indipendenti, cil.



Materiale tagliente **HSS**

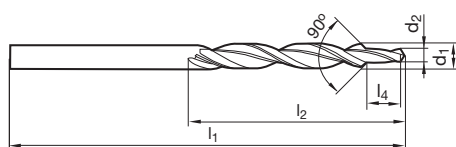
Superficie

Direzione di taglio

- P** ● Assott. del nocc. $\geq \varnothing 3,400$ ● assottigliamento riferito al \varnothing nominale d1
- M** ○ ● spoglia sul cono tagliente ● per fori filettati secondo DIN 336 ● per
- K** ● ● svasature a 90° corrispondenti a fori passanti secondo DIN EN 20273, serie media ● l'avanz. si basa sul diametro inferiore ● Vc si basa sul diametro maggiore
- N** ○
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 806



Articolo nr. **540**

d1 h8	d2 h9	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
3,400	2,500	70,000	39,000	8,800	M 3
4,500	3,300	80,000	47,000	11,400	M 4
5,500	4,200	93,000	57,000	13,600	M 5
6,600	5,000	101,000	63,000	16,500	M 6
9,000	6,800	125,000	81,000	21,000	M 8
11,000	8,500	142,000	94,000	25,500	M 10
13,500	10,200	160,000	108,000	30,000	M 12



Punte a gradino ad eliche indipendenti, cil.

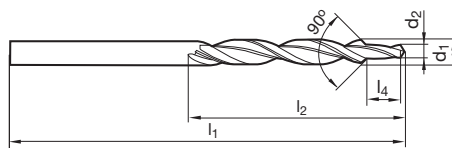


Materiale tagliente **Int. in MD**

Superficie

Direzione di taglio

- P** Assott. del nocch. $\geq \varnothing 4,500$ • spoglia sul cono tagliente • per fori filettati secondo DIN 336 • per svasature a 90° corrispondenti a fori passanti
- M** secondo DIN EN 20273, serie media • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
- K**
- N**
- S** l'idoneità del materiale universale
- H**



Articolo nr. **739**

d1 h8	d2 h9	l1	l2	l4	per filettatura
mm	mm	mm	mm	mm	
4,500	3,300	80,000	47,000	11,400	M 4
5,500	4,200	93,000	57,000	13,600	M 5
6,600	5,000	101,000	63,000	16,500	M 6
9,000	6,800	125,000	81,000	21,000	M 8
11,000	8,500	142,000	94,000	25,500	M 10

Punte a gradino ed allargatori



Punte a gradino ad eliche indipendenti, CM



Materiale tagliente **HSS**

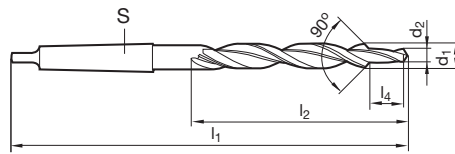
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 11,500$ • assottigliamento riferito al \varnothing nominale d_1 • spoglia sul cono tagliente • per fori passanti a DIN EN 20273,
- M** ○ serie fine • per svasature per teste di viti 90° secondo DIN 74 parte 1 (ediz. 12.1980), forma A, esecuzione fine • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
- K** •
- N** ○
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 806



Articolo nr. **637**

d1 h8	d2 h9	S	l1	l2	l4	per filettatura
mm	mm		mm	mm	mm	
11,500	6,400	MK-1	175,000	94,000	15,000	M 6
15,000	8,400	MK-2	212,000	114,000	19,000	M 8
19,000	10,500	MK-2	233,000	135,000	23,000	M 10
23,000	13,000	MK-2	253,000	155,000	27,000	M 12



Punte a gradino ad eliche indipendenti, CM



Materiale tagliente **HSS**

Superficie

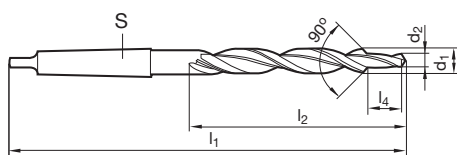
Direzione di taglio

P • Assott. del nocc. $\geq \varnothing 11,000$ • assottigliamento riferito al \varnothing nominale
M ○ $d1$ • spoglia sul cono tagliente • per fori passanti a DIN EN 20273, serie
 media • per svasature per teste di viti 90° secondo DIN 74 parte 1 (ediz.
 12.1980), forma A e B, esecuzione media • l'avanz. si basa sul diametro
K • inferiore • Vc si basa sul diametro maggiore

- N** ○
- S**
- H**

GÜHRING NAVIGATOR

Dati di taglio a pag. 806



Articolo nr. **537**

d1 h8	d2 h9	S	l1	l2	l4	per filettatura
mm	mm		mm	mm	mm	
11,000	5,500	MK-1	175,000	94,000	13,000	M 5
17,200	9,000	MK-2	228,000	130,000	19,000	M 8
21,500	11,000	MK-2	248,000	150,000	23,000	M 10
26,000	14,000	MK-3	286,000	165,000	27,000	M 12
29,000	16,000	MK-3	296,000	175,000	31,000	M 14

Punte a gradino ed allargatori



Punte a gradino ad eliche indipendenti, CM



Materiale tagliente **HSS**

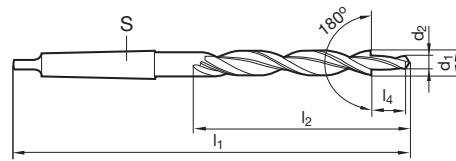
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 10,000$ • assottigliamento riferito al \varnothing nominale d1
- M** ○ spoglia sul cono tagliente • per fori passanti a DIN EN 20273, serie fine
- K** • per svasature per teste di viti 180° secondo DIN 974-1, serie 1 • per viti secondo DIN 6912, 7984, 34821, DIN EN ISO 1207, 4762, 14579, 14580 • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
- N** ○
- S** ○
- H** ○

GUHRING NAVIGATOR

Dati di taglio a pag. 806



Articolo nr. **639**

d1 h8	d2 h9	S	l1	l2	l4	per filettatura
mm	mm		mm	mm	mm	
18,000	10,500	MK-2	228,000	130,000	23,000	M 10
20,000	13,000	MK-2	238,000	140,000	27,000	M 12
26,000	17,000	MK-3	286,000	165,000	35,000	M 16



Punte a gradino ad eliche indipendenti, CM



Materiale tagliente **HSS**

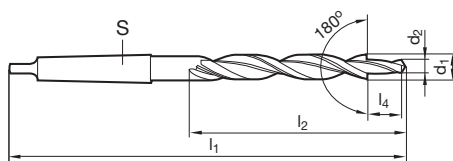
Superficie

Direzione di taglio

- P** • Assott. del nocc. $\geq \varnothing 10,000$ • assottigliamento riferito al \varnothing nominale
- M** ○ d1 • spoglia sul cono tagliente • per fori passanti a DIN EN 20273, serie
- K** • media • per svasature per teste di viti 180° secondo DIN 974-1, serie
- N** ○ 1 • per viti secondo DIN 6912, 7984, 34821, DIN EN ISO 1207, 4762,
- S** • 14579, 14580 e DIN 7513, 7516, 7500-1 • l'avanz. si basa sul diametro
- H** ○ inferiore • Vc si basa sul diametro maggiore

GÜHRING NAVIGATOR

Dati di taglio a pag. 806



Articolo nr. **539**

d1 h8	d2 h9	S	l1	l2	l4	per filettatura
mm	mm		mm	mm	mm	
10,000	5,500	MK-1	168,000	87,000	13,000	M 5
11,000	6,600	MK-1	175,000	94,000	15,000	M 6
15,000	9,000	MK-2	212,000	114,000	19,000	M 8
18,000	11,000	MK-2	228,000	130,000	23,000	M 10
20,000	13,500	MK-2	238,000	140,000	27,000	M 12
26,000	17,500	MK-3	286,000	165,000	35,000	M 16
30,000	20,000	MK-3	296,000	175,000	39,000	M 18
33,000	22,000	MK-4	334,000	185,000	43,000	M 20

Punte a gradino ed allargatori



Punte a gradino ad eliche indipendenti, CM



P	•	Assott. del nocc. $\geq \varnothing 9,400$ • assottigliamento riferito al \varnothing nominale d1
M	○	• spoglia sul cono tagliente • con svasatura a vecchia norma, forma H,J,K • per viti a DIN 84, 912, 6712 • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
K	•	
N	○	
S		
H		

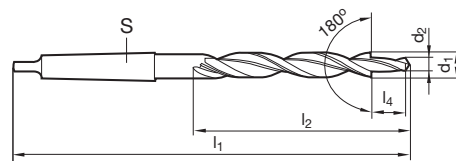
Materiale tagliente **HSS**

Superficie

Direzione di taglio

GUHRING NAVIGATOR

Dati di taglio a pag. 806



Articolo nr. **520**

d1 h8	d2 h9	S	l1	l2	l4	per filettatura
mm	mm		mm	mm	mm	
9,400	5,300	MK-1	162,000	81,000	16,000	M 5
10,000	5,800	MK-1	168,000	87,000	16,000	M 5
11,000	7,000	MK-1	175,000	94,000	19,000	M 6
13,500	8,400	MK-1	189,000	108,000	22,000	M 8
16,500	10,500	MK-2	223,000	125,000	25,000	M 10
17,500	11,500	MK-2	228,000	130,000	25,000	M 10
19,000	13,000	MK-2	233,000	135,000	28,000	M 12
20,000	14,000	MK-2	238,000	140,000	28,000	M 12
23,000	15,000	MK-2	253,000	155,000	30,000	M 14
24,000	16,000	MK-3	281,000	160,000	30,000	M 14
25,000	17,000	MK-3	281,000	160,000	33,000	M 16
26,000	18,000	MK-3	286,000	165,000	33,000	M 16
28,000	19,000	MK-3	291,000	170,000	36,000	M 18
29,000	20,000	MK-3	296,000	175,000	36,000	M 18
31,000	21,000	MK-3	301,000	180,000	39,000	M 20
33,000	23,000	MK-4	334,000	185,000	39,000	M 20

Punte a gradino ed allargatori



Punte a gradino ad eliche indipendenti, CM

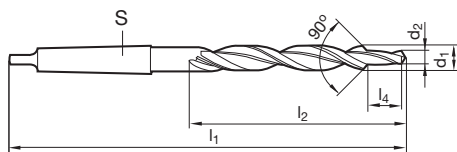


- P** • Assott. del nocc. $\geq \varnothing 9,000$ • assottigliamento riferito al \varnothing nominale d1
- M** ○ spoglia sul cono tagliente • per fori filettati secondo DIN 336 • per svasature a 90° corrispondenti a fori passanti secondo DIN EN 20273, serie media • l'avanz. si basa sul diametro inferiore • Vc si basa sul diametro maggiore
- K** •
- N** ○
- S** ○
- H** ○

GÜHRING NAVIGATOR

Dati di taglio a pag. 806

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ



Articolo nr. **541**

d1 h8	d2 h9	S	l1	l2	l4	per filettatura
mm	mm		mm	mm	mm	
9,000	6,800	MK-1	162,000	81,000	21,000	M 8
11,000	8,500	MK-1	175,000	94,000	25,500	M 10
13,500	10,200	MK-1	189,000	108,000	30,000	M 12
15,500	12,000	MK-2	218,000	120,000	34,500	M 14
17,500	14,000	MK-2	228,000	130,000	38,500	M 16
20,000	15,500	MK-2	238,000	140,000	43,500	M 18
22,000	17,500	MK-2	248,000	150,000	47,500	M 20

Punte a gradino ed allargatori



Allargatori cilindrici

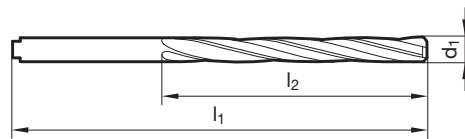
DIN 344	N	120°	h8
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- P** ● spoglia sul cono tagliente • stabilità elevata • per fori prefusi, precolati, preforati • con dente di trascinamento secondo DIN 1809 • corregge la precisione di allineamento • corregge la mancanza di rotondità
- M** ○
- K** ● • finitura di superf. del foro migliorata • ø imbocco < al foro da praticare
- N** ○ • considerare la quota "d0" come misura più piccola del foro pilota
- S** ○ • dopo l'allargatura, finire con alesatura
- H** ○

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	Ⓜ

GUHRING NAVIGATOR

Dati di taglio a pag. 800



Articolo nr. **533**

d1	l1	l2	d0 ≥	d1	l1	l2	d0 ≥
mm	mm	mm	mm	mm	mm	mm	mm
3,800	96,000	64,000	2,80	8,200	142,000	100,000	5,60
4,000	96,000	64,000	2,80	8,250	142,000	100,000	5,60
4,100	96,000	64,000	2,80	8,300	142,000	100,000	5,60
4,400	102,000	69,000	3,20	8,400	142,000	100,000	5,60
4,500	102,000	69,000	3,20	8,500	142,000	100,000	5,60
4,600	102,000	69,000	3,20	8,600	151,000	107,000	6,30
4,750	102,000	69,000	3,20	8,700	151,000	107,000	6,30
4,800	108,000	74,000	3,50	8,800	151,000	107,000	6,30
4,900	108,000	74,000	3,50	8,850	151,000	107,000	6,30
5,000	108,000	74,000	3,50	9,000	151,000	107,000	6,30
5,050	108,000	74,000	3,50	9,100	151,000	107,000	6,30
5,100	108,000	74,000	3,50	9,200	151,000	107,000	6,30
5,300	108,000	74,000	3,50	9,300	151,000	107,000	6,30
5,400	116,000	80,000	4,20	9,400	151,000	107,000	6,30
5,500	116,000	80,000	4,20	9,500	151,000	107,000	6,30
5,550	116,000	80,000	4,20	9,650	162,000	116,000	7,00
5,750	116,000	80,000	4,20	9,800	162,000	116,000	7,00
5,800	116,000	80,000	4,20	10,000	162,000	116,000	7,00
5,850	116,000	80,000	4,20	10,100	162,000	116,000	7,00
5,900	116,000	80,000	4,20	10,200	162,000	116,000	7,00
6,000	116,000	80,000	4,20	10,300	162,000	116,000	7,00
6,100	124,000	86,000	4,20	10,500	162,000	116,000	7,00
6,200	124,000	86,000	4,20	10,600	162,000	116,000	7,00
6,250	124,000	86,000	4,20	10,700	173,000	125,000	7,70
6,300	124,000	86,000	4,20	10,750	173,000	125,000	7,70
6,400	124,000	86,000	4,20	11,000	173,000	125,000	7,70
6,500	124,000	86,000	4,20	11,250	173,000	125,000	7,70
6,700	124,000	86,000	4,20	11,300	173,000	125,000	7,70
6,800	133,000	93,000	4,90	11,750	184,000	134,000	8,40
7,000	133,000	93,000	4,90	11,800	184,000	134,000	8,40
7,150	133,000	93,000	4,90	12,000	184,000	134,000	8,40
7,200	133,000	93,000	4,90	12,200	184,000	134,000	8,40
7,250	133,000	93,000	4,90	12,500	184,000	134,000	8,40
7,500	133,000	93,000	4,90	12,750	184,000	134,000	9,10
7,600	142,000	100,000	5,60	13,000	184,000	134,000	9,10
7,700	142,000	100,000	5,60	13,500	194,000	142,000	9,80
7,750	142,000	100,000	5,60	13,750	194,000	142,000	9,80
7,800	142,000	100,000	5,60	14,000	194,000	142,000	9,80
7,950	142,000	100,000	5,60	15,000	202,000	147,000	10,50
8,000	142,000	100,000	5,60	15,750	211,000	153,000	11,20
8,050	142,000	100,000	5,60	16,000	211,000	153,000	11,20
8,100	142,000	100,000	5,60	17,000	218,000	159,000	11,90

Punte a gradino ed allargatori



d1	l1	l2	d0 ≥
mm	mm	mm	mm
18,000	226,000	165,000	12,60
20,000	242,000	177,000	14,00

d1	l1	l2	d0 ≥
mm	mm	mm	mm

Punte a gradino
ed allargatori



Allargatori cilindrici

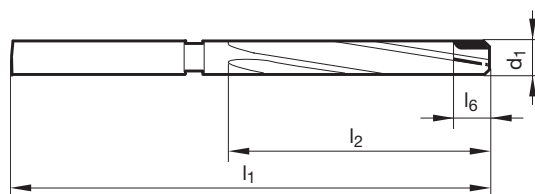


Materiale tagliente **Metallo duro**

Superficie ○

Direzione di taglio (R)

- P** ○ spoglia sul cono tagliente • con riporti in MD • per fori prefusi, precolati, preforati • corregge la precisione di allineamento • corregge la mancanza di rotondità • finitura di superf. del foro migliorata • ø imbocco < al foro da praticare • considerare la quota "d0" come misura più piccola del foro pilota
- M** ○
- K** ○
- N** ○
- S** ○ l' idoneità del materiale universale
- H** ○



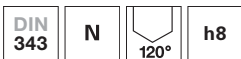
Articolo nr. **750**

d1	l1	l2	l6	d0 ≥
mm	mm	mm	mm	mm
3,800	96,000	64,000		2,800
4,800	108,000	74,000		3,500
5,000	108,000	74,000		3,500
5,800	116,000	80,000		4,200
6,000	116,000	80,000		4,200
7,000	133,000	93,000		4,900

d1	l1	l2	l6	d0 ≥
mm	mm	mm	mm	mm
7,800	142,000	100,000		5,600
8,000	142,000	100,000		5,600
14,000	194,000	142,000	19,000	9,800
15,000	202,000	147,000	19,000	10,500



Allargatori con attacco cono morse

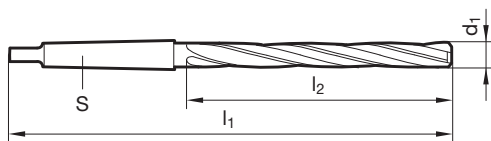


- P** ● spoglia sul cono tagliente • stabilità elevata • per fori prefusi, precolati, preforati • corregge la precisione di allineamento • corregge la mancanza di rotondità • finitura di superf. del foro migliorata • ø imbocco < al foro da praticare • considerare la quota "d0" come misura più piccola del foro pilota • dopo l'allargatura, finire con alesatura
- M** ○
- K** ●
- N** ○
- S** ○
- H** ○

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)

GUHRING NAVIGATOR

Dati di taglio a pag. 800



Articolo nr. **534**

d1	S	l1	l2	d0 ≥	d1	S	l1	l2	d0 ≥
mm		mm	mm	mm	mm		mm	mm	mm
7,800	MK-1	156,000	75,000	5,60	16,200	MK-2	223,000	125,000	11,90
8,000	MK-1	156,000	75,000	5,60	16,250	MK-2	223,000	125,000	11,90
8,100	MK-1	156,000	75,000	5,60	16,500	MK-2	223,000	125,000	11,90
8,800	MK-1	162,000	81,000	6,30	16,750	MK-2	223,000	125,000	11,90
9,000	MK-1	162,000	81,000	6,30	17,000	MK-2	223,000	125,000	11,90
9,200	MK-1	162,000	81,000	6,30	17,500	MK-2	228,000	130,000	12,60
9,700	MK-1	168,000	87,000	7,00	17,750	MK-2	228,000	130,000	12,60
9,800	MK-1	168,000	87,000	7,00	18,000	MK-2	228,000	130,000	12,60
9,900	MK-1	168,000	87,000	7,00	18,100	MK-2	233,000	135,000	13,30
10,000	MK-1	168,000	87,000	7,00	18,250	MK-2	233,000	135,000	13,30
10,100	MK-1	168,000	87,000	7,00	18,500	MK-2	233,000	135,000	13,30
10,200	MK-1	168,000	87,000	7,00	18,700	MK-2	233,000	135,000	13,30
10,750	MK-1	175,000	94,000	7,70	18,750	MK-2	233,000	135,000	13,30
11,000	MK-1	175,000	94,000	7,70	18,800	MK-2	233,000	135,000	13,30
11,100	MK-1	175,000	94,000	7,70	18,800	MK-2	233,000	135,000	13,30
11,250	MK-1	175,000	94,000	7,70	19,000	MK-2	233,000	135,000	13,30
11,500	MK-1	175,000	94,000	7,70	19,250	MK-2	238,000	140,000	14,00
11,750	MK-1	182,000	101,000	8,40	19,500	MK-2	238,000	140,000	14,00
11,800	MK-1	182,000	101,000	8,40	19,700	MK-2	238,000	140,000	14,00
12,000	MK-1	182,000	101,000	8,40	19,750	MK-2	238,000	140,000	14,00
12,200	MK-1	182,000	101,000	8,40	19,750	MK-2	238,000	140,000	14,00
12,300	MK-1	182,000	101,000	8,40	20,000	MK-2	238,000	140,000	14,00
12,500	MK-1	182,000	101,000	8,40	20,200	MK-2	243,000	145,000	14,60
12,700	MK-1	182,000	101,000	9,10	20,250	MK-2	243,000	145,000	14,60
12,750	MK-1	182,000	101,000	9,10	20,500	MK-2	243,000	145,000	14,60
13,000	MK-1	182,000	101,000	9,10	20,700	MK-2	243,000	145,000	14,60
13,250	MK-1	189,000	108,000	9,80	20,700	MK-2	243,000	145,000	14,60
13,500	MK-1	189,000	108,000	9,80	21,000	MK-2	243,000	145,000	14,60
13,750	MK-1	189,000	108,000	9,80	21,500	MK-2	248,000	150,000	15,30
13,800	MK-1	189,000	108,000	9,80	21,700	MK-2	248,000	150,000	15,30
14,000	MK-1	189,000	108,000	9,80	21,700	MK-2	248,000	150,000	15,30
14,100	MK-2	212,000	114,000	10,50	21,750	MK-2	248,000	150,000	15,30
14,200	MK-2	212,000	114,000	10,50	22,000	MK-2	248,000	150,000	15,30
14,450	MK-2	212,000	114,000	10,50	22,250	MK-2	248,000	150,000	15,30
14,500	MK-2	212,000	114,000	10,50	22,400	MK-2	248,000	150,000	15,30
14,750	MK-2	212,000	114,000	10,50	22,500	MK-2	253,000	155,000	16,00
15,000	MK-2	212,000	114,000	10,50	22,700	MK-2	253,000	155,000	16,00
15,250	MK-2	218,000	120,000	11,20	23,000	MK-2	253,000	155,000	16,00
15,500	MK-2	218,000	120,000	11,20	23,500	MK-2	253,000	155,000	16,00
15,750	MK-2	218,000	120,000	11,20	23,700	MK-3	281,000	160,000	16,60
16,000	MK-2	218,000	120,000	11,20	24,000	MK-3	281,000	160,000	16,60
16,150	MK-2	223,000	125,000	11,90	24,200	MK-3	281,000	160,000	16,60
					24,500	MK-3	281,000	160,000	17,30
					24,700	MK-3	281,000	160,000	17,30
					24,750	MK-3	281,000	160,000	17,30
					25,000	MK-3	281,000	160,000	17,30

Punte a gradino ed allargatori



d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
25,250	MK-3	286,000	165,000	18,00
25,500	MK-3	286,000	165,000	18,00
25,600	MK-3	286,000	165,000	18,00
25,700	MK-3	286,000	165,000	18,00
26,000	MK-3	286,000	165,000	18,00
26,500	MK-3	286,000	165,000	18,00
26,700	MK-3	291,000	170,000	18,60
27,000	MK-3	291,000	170,000	18,60
27,500	MK-3	291,000	170,000	18,60
27,700	MK-3	291,000	170,000	19,30
28,000	MK-3	291,000	170,000	19,30
28,700	MK-3	296,000	175,000	20,00
29,000	MK-3	296,000	175,000	20,00
29,500	MK-3	296,000	175,000	20,50
29,700	MK-3	296,000	175,000	20,50
29,750	MK-3	296,000	175,000	20,50
30,000	MK-3	296,000	175,000	20,50
30,500	MK-3	301,000	180,000	21,00
30,600	MK-3	301,000	180,000	21,00
31,000	MK-3	301,000	180,000	21,00
31,600	MK-4	334,000	185,000	22,00
32,000	MK-4	334,000	185,000	22,00
32,600	MK-4	334,000	185,000	23,00
33,000	MK-4	334,000	185,000	23,00

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
33,600	MK-4	339,000	190,000	24,00
34,000	MK-4	339,000	190,000	24,00
34,600	MK-4	339,000	190,000	25,00
35,000	MK-4	339,000	190,000	25,00
35,600	MK-4	344,000	195,000	25,50
36,000	MK-4	344,000	195,000	25,50
36,600	MK-4	344,000	195,000	26,00
37,600	MK-4	349,000	200,000	26,50
38,000	MK-4	349,000	200,000	26,50
39,000	MK-4	349,000	200,000	27,00
39,600	MK-4	349,000	200,000	28,00
40,000	MK-4	349,000	200,000	28,00
44,000	MK-4	359,000	210,000	30,50
44,600	MK-4	359,000	210,000	31,00
45,000	MK-4	359,000	210,000	31,00
50,000	MK-4	369,000	220,000	34,50



Allargatori con attacco con morse

DIN 343	N	120°	h8
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- P** ● spoglia sul cono tagliente • stabilità elevata • per fori prefusi, precolati, preforati • corregge la precisione di allineamento • corregge la mancanza di rotondità • finitura di superf. del foro migliorata • ø imbocco < al foro da praticare • considerare la quota "d0" come misura più piccola del foro pilota • dopo l'allargatura, finire con alesatura
- M** ○
- K** ●
- N** ●
- S** ○
- H** ○

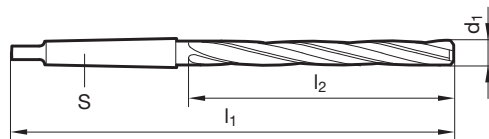
Materiale tagliente **HSCO**

Superficie ○

Direzione di taglio

GUHRING NAVIGATOR

Dati di taglio a pag. 800



Articolo nr. **634**

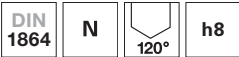
d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
8,500	MK-1	156,000	75,000	5,60
9,000	MK-1	162,000	81,000	6,30
9,800	MK-1	168,000	87,000	7,00
10,750	MK-1	175,000	94,000	7,70
11,750	MK-1	182,000	101,000	8,40
12,000	MK-1	182,000	101,000	8,40
12,500	MK-1	182,000	101,000	8,40
12,750	MK-1	182,000	101,000	9,10
13,000	MK-1	182,000	101,000	9,10
14,000	MK-1	189,000	108,000	9,80
14,750	MK-2	212,000	114,000	10,50
15,750	MK-2	218,000	120,000	11,20

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
16,000	MK-2	218,000	120,000	11,20
16,500	MK-2	223,000	125,000	11,90
17,000	MK-2	223,000	125,000	11,90
18,000	MK-2	228,000	130,000	12,60
19,700	MK-2	238,000	140,000	14,00
20,000	MK-2	238,000	140,000	14,00
21,000	MK-2	243,000	145,000	14,60
22,000	MK-2	248,000	150,000	15,30
23,000	MK-2	253,000	155,000	16,00
24,000	MK-3	281,000	160,000	16,60
25,000	MK-3	281,000	160,000	17,30
26,000	MK-3	286,000	165,000	18,00

Punte a gradino ed allargatori



Allargatori con attacco con morse

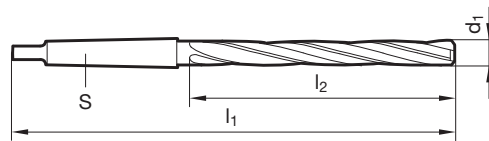


- P** ● spoglia sul cono tagliente • stabilità elevata • per fori prefusi, precolati, preforati • corregge la precisione di allineamento • corregge la mancanza di rotondità • finitura di superf. del foro migliorata • ø imbocco < al foro da praticare • considerare la quota "d0" come misura più piccola del foro pilota • dopo l'allargatura, finire con alesatura
- M** ○
- K** ●
- N** ○
- S** ○
- H** ○

Materiale tagliente	HSS
Superficie	●
Direzione di taglio	(R)

GUHRING NAVIGATOR

Dati di taglio a pag. 800



Articolo nr. **555**

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
5,000	MK-1	155,000	74,000	3,50
8,000	MK-1	181,000	100,000	5,60
8,800	MK-1	188,000	107,000	6,30
9,000	MK-1	188,000	107,000	6,30
9,700	MK-1	197,000	116,000	7,00
9,800	MK-1	197,000	116,000	7,00
10,000	MK-1	197,000	116,000	7,00
10,100	MK-1	197,000	116,000	7,00
10,500	MK-1	197,000	116,000	7,00
11,100	MK-1	206,000	125,000	7,70
11,750	MK-1	215,000	134,000	8,40
12,000	MK-1	215,000	134,000	8,40
12,750	MK-1	215,000	134,000	9,10
13,000	MK-1	215,000	134,000	9,10
13,750	MK-1	223,000	142,000	9,80
14,000	MK-1	223,000	142,000	9,80
15,000	MK-2	245,000	147,000	10,50
15,750	MK-2	251,000	153,000	11,20

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
16,000	MK-2	251,000	153,000	11,20
17,750	MK-2	263,000	165,000	12,60
19,000	MK-2	269,000	171,000	13,30
19,700	MK-2	275,000	177,000	14,00
20,000	MK-2	275,000	177,000	14,00
20,700	MK-2	282,000	184,000	14,60
21,000	MK-2	282,000	184,000	14,60
21,700	MK-2	289,000	191,000	15,30
22,000	MK-2	289,000	191,000	15,30
22,700	MK-2	296,000	198,000	16,00
23,000	MK-2	296,000	198,000	16,00
24,000	MK-3	327,000	206,000	16,60
25,000	MK-3	327,000	206,000	17,30
25,700	MK-3	335,000	214,000	18,00
30,000	MK-3	351,000	230,000	20,50

Punte a gradino ed allargatori



Allargatori con attacco cono morse

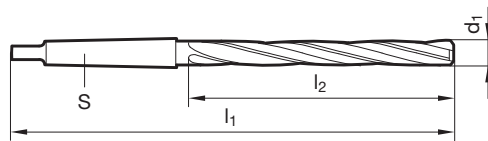
DIN 1864	N	120°	h8
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- P** ● spoglia sul cono tagliente ● stabilità elevata ● per fori prefusi, precolati, preforati ● corregge la precisione di allineamento ● corregge la mancanza di rotondità ● finitura di superf. del foro migliorata ● ø imbocco < al foro da praticare ● considerare la quota "d0" come misura più piccola del foro pilota ● dopo l'allargatura, finire con alesatura
- M** ○
- K** ●
- N** ●
- S** ○
- H** ○

Materiale tagliente	HSCO
Superficie	●
Direzione di taglio	Ⓜ

GÜHRING NAVIGATOR

Dati di taglio a pag. 800



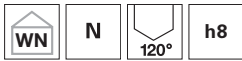
Articolo nr. **635**

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
8,000	MK-1	181,000	100,000	5,60
10,000	MK-1	197,000	116,000	7,00
14,000	MK-1	223,000	142,000	9,80
15,000	MK-2	245,000	147,000	10,50

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm



Allargatori con attacco con morse



- P** ◦ spoglia sul cono tagliente • con riporti in MD • per fori prefusi, precolati, preforati • corregge la precisione di allineamento • corregge la mancanza di rotondità • finitura di superf. del foro migliorata • ø imbocco < al foro da praticare • considerare la quota "d0" come misura più piccola del foro pilota
- M** ◦
- K** ◦
- N** ◦
- S** ◦ l'idoneità del materiale universale
- H** ◦

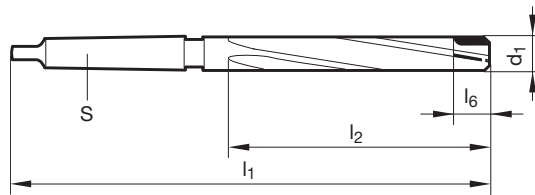
Materiale tagliente **Metallo duro**

Superficie ○

Direzione di taglio (R)

GUHRING NAVIGATOR

Dati di taglio a pag. 800



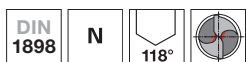
Articolo nr. **729**

d1	S	l1	l2	l6	d0 ≥
mm		mm	mm	mm	mm
28,700	MK-3	296,000	175,000	25,000	21,0
29,700	MK-3	296,000	175,000	25,000	22,0
30,600	MK-3	301,000	180,000	25,000	23,0
31,600	MK-4	334,000	185,000	25,000	24,0
33,000	MK-4	334,000	185,000	25,000	25,0
33,600	MK-4	339,000	190,000	25,000	26,0

d1	S	l1	l2	l6	d0 ≥
mm		mm	mm	mm	mm
34,000	MK-4	339,000	190,000	25,000	26,0
36,000	MK-4	344,000	195,000	25,000	28,0
37,600	MK-4	349,000	200,000	25,000	30,0
38,600	MK-4	349,000	200,000	25,000	31,0
39,000	MK-4	349,000	200,000	25,000	31,0
39,600	MK-4	349,000	200,000	25,000	32,0



Punte per fori conici



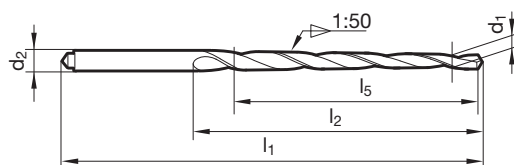
Materiale tagliente **HSS**

Superficie $\text{Ra} > 0,2,36$

Direzione di taglio

P ● Assott. del nocc. $\geq \varnothing 1,000$ • spoglia sul cono tagliente • per fori conici
 • con dente di trascinamento

- M** ○
- K** ●
- N** ○
- S** ○
- H** ○



Articolo nr. **531**

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
2,000	3,150	86,000	52,000	48,000
2,500	3,150	86,000	52,000	48,000
3,000	4,000	100,000	63,000	58,000
3,500	5,000	112,000	74,000	68,000
4,000	5,000	112,000	74,000	68,000
4,500	6,300	122,000	81,000	73,000

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
5,000	6,300	122,000	81,000	73,000
5,500	8,000	160,000	114,000	105,000
6,000	8,000	160,000	114,000	105,000
8,000	10,000	207,000	157,000	145,000
10,000	12,500	245,000	190,000	175,000
12,000	16,000	290,000	228,000	210,000



Punte per fori conici



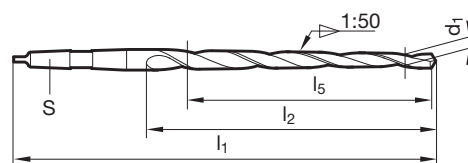
Materiale tagliente **HSS**

Superficie

Direzione di taglio

P ● Assott. del nocch. $\geq \varnothing 5,000$ • spoglia sul cono tagliente • per fori sferici su attacchi di perni sferici secondo DIN 1 (nuovo: DIN EN 22339), DIN 7978 (nuovo: DIN EN 28736), DIN 7977 (nuovo: DIN EN 28737) e DIN 258

- M** ○
- K** ●
- N** ○
- S** ○
- H** ○



Articolo nr. **532**

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
5,000		155,000	81,000	73,000
6,000		187,000	108,000	105,000
8,000		227,000	149,000	145,000
10,000		257,000	180,000	175,000
12,000		315,000	219,000	210,000
13,000		325,000	229,000	220,000

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
14,000		325,000	229,000	220,000
16,000		335,000	239,000	230,000
20,000		377,000	263,000	250,000
25,000		427,000	311,000	300,000

GUERRA

NAWMIC

BRING

GÜHRING NAVIGATOR

GATOR



GÜHRING NAVIGATOR

I numeri in grassetto della colonna avanzamento indicano gli utensili da preferire.
 Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

- Articolo nr.
- Norma/DIN
- Materiale tagliato
- Tipo di metallo duro
- Tipo
- Tratt. di superficie
- Refrigerazione
- Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

- Refrigerante:
- Aria
 - Olio
 - Emulsione

- Direzione di taglio:
- Ⓜ destre
 - Ⓛ sinistre

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm ²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○ ○
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○ ○
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○ ○ ○
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○ ○
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		● ●
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		○ ●
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○ ○
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Acciai temprati	-		≤48 HRC ≤66 HRC	● ●
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		● ●
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		●
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○ ○
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○ ○
Ghisa in conchiglia	-		≤350 HB	○
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○ ○
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○ ○
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl6Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		● ●
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronzi a truciolo corto	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○
	2.0790 CuNi18Zn19Pb	≤850		○
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○ ○
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○



≤3xD Profondità di foro

1171 6538K MD P RT 80 U S assiale 55	1660 6537K Int. in MD K/P RT 100 F S assiale 53	1180 6537K Int. in MD K/P RT 100 F S assiale 54	1181 6537K Int. in MD K/P RT 100 U S assiale 43	2468 6537K Int. in MD K/P RT 100 F F assiale 52	2477 6537K Int. in MD K/P RT 100 U F assiale 39	2469 6537K Int. in MD K/P RT 100 U F assiale 41	8510 6537K Int. in MD K/P RT 100 VA a assiale 48	8610 6537K Int. in MD K/P RT 100 VA a assiale 50	8520 6537K Int. in MD K/P RT 100 HF Y assiale 44	8620 6537K Int. in MD K/P RT 100 HF Y assiale 46
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Vc m/min	Num. colonna avanzamento	Vc m/min	Num. colonna avanzamento			Vc m/min	Num. colonna avanzamento			Vc m/min	Num. colonna avanzamento			Vc m/min	Num. colonna avanzamento		
95	6	110	6	6	6	145	7	7	7				145	7	7		
80	5	90	5	5	5	120	6	6	6				120	6	6		
95	7	130	7	7	7	170	8	8	8				170	8	8		
75	6	110	7	7	7	145	8	8	8				145	8	8		
80	6	100	7	7	7	130	8	8	8				130	8	8		
75	6	95	6	6	6	125	7	7	7				125	7	7		
70	6	90	6	6	6	120	7	7	7				120	7	7		
75	6	90	6	6	6	120	7	7	7				120	7	7		
60	5	80	6	6	6	105	7	7	7				105	7	7		
90	7	110	7	7	7	145	8	8	8				145	8	8		
75	6	90	6	6	6	120	7	7	7				120	7	7		
60	5	65	4	4	4	85	5	5	5				85	5	5		
75	6	85	6	6	6	110	7	7	7				110	7	7		
60	5	80	4	4	5	105	5	5	5				105	5	5		
45	5	60	5	5	5	80	6	6	6				80	6	6		
35	5	50	4	4	4	65	5	5	5				65	5	5		
40	4	45	3	3	3	60	4	4	4				60	4	4		
		45	2	2	2	60	3	3	3				60	3	3		
		40	2	2	2	55	3	3	3				55	3	3		
		20	1	1	1	35	2	2	2				35	2	2		
40	2	45	4	4	4	60	5	5	5	80	5	5					
35	2	40	2	2	2	55	2	2	2	60	2-3	2-3					
35	2	35	4	4	4	45	5	5	5	80	5	5					
150	7	160	8	8	8	210	9	9	9								
110	7	120	8	8	8	160	9	9	9								
110	7	100	8	8	8	140	9	9	9								
90	6	95	7	7	7	130	8	8	8								
		30	2	2	2	40	3	3	3								
		25	3	3	3	35	4	4	4	30	4	4	35	4	4		
		35	3	3	3	45	4	4	4	45	4	4	45	4	4		
		30	2	2	2	40	3	3	3	40	3	3	40	3	3		
200	8	240	8	8	8	310	9	9	9								
200	8	240	8	8	8	310	9	9	9								
170	8	200	8	8	8	260	9	9	9								
140	7	170	8	8	8	220	9	9	9								
		230	7	7	7	280	8	8	8								
		95	6	6	6	125	7	7	7								
		250	7	7	7	325	8	8	8								
		170	6	6	6	220	7	7	7								
		95	6	6	6	125	7	7	7								
		80	5	5	5	105	6	6	6								
		70	5	5	5	90	6	6	6								
		60	5	5	5	80	6	6	6								





≤3xD Profondità di foro

1702	1184	1242
6539	6537K	6539
Int. in MD	Int. in MD	Int. in MD
K/P	K/P	K/P
RT 100 F	RT 100 U	RT 100 U
S	S	S
28	21	23

2475	2480	2472	2473
6537K	6537K	6537K	6539
Int. in MD	Int. in MD	Int. in MD	Int. in MD
K/P	K/P	K/P	K/P
RT 100 F	RT 100 U	RT 100 U	RT 100 U
F	F	F	F
27	16	18	20

8524
6537K
Int. in MD
K/P
RT 100 HF
Y
25

≤4xD

768	6068
WN	WN
Int. in MD	Int. in MD
K	K
RT 150 GG	RT 150 GG
○	○
assiale	assiale
56	58
Al	G



Vc m/min	Num. colonna avanzamento		
100	6	6	6
85	5	5	5
110	7	7	7
85	6	6	6
90	6	6	6
85	6	6	6
80	6	6	6
80	6	6	6
75	5	5	5
100	7	7	7
90	6	6	6
65	4	4	4
75	5	5	5
70	4	4	4
50	5	5	5
40	4	4	4
40	3		
35	2	2	2
35	1	1	1
20	1	1	1
40	2	2	2
15	2	1	1
35	2	2	2
160	7	7	7
120	7	7	7
120	7	6	6
95	7	6	6
25	2	2	2
20	3	3	3
15	1	1	1
15	1	1	1
200	8	8	8
200	8	8	8
170	8	8	8
140	7	7	7
200	7	7	7
80	6	6	6
210	7	7	7
140	6	6	6
80	5	5	5
65	5	5	5
60	4	4	4
45	4	4	4

Vc m/min	Num. colonna avanzamento			
130	7	7	7	7
110	6	6	6	6
145	8	8	8	8
110	7	7	7	7
120	7	7	7	7
110	7	7	7	7
105	7	7	7	7
105	7	7	7	7
100	6	6	6	6
130	8	8	8	8
120	7	7	7	7
85	5	5	5	5
100	6	6	6	6
90	5	5	5	5
65	6	6	6	6
55	5	5	5	5
55	4			
45	3	3	3	3
40	1	1	1	1
20	1	1	1	1
40	2	2	2	2
15	1	1	1	1
35	2	2	2	2
210	8	8	8	8
155	8	8	8	8
155	8	7	7	7
125	8	7	7	7
35	3	3	3	3
25	4	4	4	4
15	1	1	1	1
15	1	1	1	1
260	9	9	9	9
260	9	9	9	9
220	9	8	8	8
180	8	8	8	8
260	8	8	8	8
105	7	7	7	7
270	8	8	8	8
180	7	7	7	7
105	6	6	6	6
85	6	6	6	6
80	5	5	5	5
60	5	5	5	5

Vc m/min	Num. col. avanzam.
130	7
110	6
145	8
110	7
120	7
110	7
105	7
105	7
100	6
130	8
120	7
85	5
100	6
90	5
65	6
55	5
55	4
45	3
40	1
20	1
40	2
15	1
35	2
25	4
15	1
15	1

Vc m/min	Num. colonna avanzamento	
120	7	7
100	7	7
90	7	7
80	7	7
40	2	2
410	9	7
410	9	7
380	9	7
330	9	7
280	9	9
110	6	6
80	5	5



≤5xD Profondità di foro

1172	6501	1662	1182	1663	1183	2478	2470	2479	2471	5759
6538M	6537L	6537L	6537L	6537L	6537L	6537L	6537L	6537L	6537L	6537L
MD	Int. in MD	Int. in MD	Int. in MD	Int. in MD	Int. in MD	Int. in MD	Int. in MD	Int. in MD	Int. in MD	Int. in MD
P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P
RT 80 U	RT 100 R	RT 100 F	RT 100 F	RT 100 U	RT 100 U	RT 100 F	RT 100 F	RT 100 U	RT 100 U	RT 100 S
S	F	S	S	S	S	F	F	F	F	F
assiale	assiale	assiale	assiale	assiale	assiale	assiale	assiale	assiale	assiale	assiale
84	82	78	80	65	66	76	77	61	63	59



Vc m/min	Num. col. avanzam.	Vc m/min	Num. col. avanzam.	Vc m/min	Num. colonna avanzamento				Vc m/min	Num. colonna avanzamento				Vc m/min	Num. col. avanzam.
95	5			110	6	6	6	6	145	7	7	7	7	145-230	8
80	4			90	5	5	5	5	120	6	6	6	6	120-220	7
95	6			130	7	7	7	7	170	8	8	8	8	170-260	8
75	5			110	7	7	7	7	145	8	8	8	8	145-230	8
80	5			100	7	7	7	7	130	8	8	8	8	130-220	8
75	5			95	6	6	6	6	125	7	7	7	7	125-210	7
75	5			90	6	6	6	6	120	7	7	7	7	120-200	7
75	5			90	6	6	6	6	120	7	7	7	7	120-210	7
55	4			80	6	6	6	6	105	7	7	7	7	105-200	7
90	6			110	7	7	7	7	145	8	8	8	8	145-230	8
75	5			90	6	6	6	6	120	7	7	7	7	120-210	7
55	4			65	4	4	4	4	85	5	5	5	5	105-200	6
70	5			85	6	6	6	6	105	7	7	7	7	110-150	7
55	4			80	4	4	5	5	100	5	5	5	5	100-150	5
40	4			60	5	5	5	5	70	6	6	6	6	70-120	6
35	4			50	4	4	4	4	55	5	5	5	5	55-100	5
40	3			45	3	3	4	4	60	4	4	5	5	60-100	5
				45	2	2	2	2	60	3	3	3	3	60-100	5
				40	2	2	2	2	55	3	3	3	3		
				25	1	1	1	1	35	2	2	2	2		
40	2			45	4	4	4	4	60	5	5	5	5		
35	2			40	2	2	2	2	55	2	2	2	2		
35	2			35	4	4	4	4	50	5	5	5	5		
150	6	210	9	160	8	8	8	8	195	9	9	9	9		
110	6	160	9	120	8	8	8	8	160	9	9	9	9		
110	6	160	9	100	8	8	8	8	140	9	9	9	9		
90	5	130	8	95	7	7	7	7	130	8	8	8	8		
				30	2	2	2	2	40	3	3	3	3		
		130	8												
		100	8												
		80	8												
		60	8												
				25	3	3	3	3	35	4	4	4	4		
				35	3	3	3	3	45	4	4	4	4		
				30	2	2	2	2	40	3	3	3	3		
200	7			240	8	8	8	8	310	9	9	9	9		
200	7			240	8	8	8	8	310	9	9	9	9		
170	7			200	8	8	8	8	260	9	9	9	9		
140	6			170	8	8	8	8	220	9	9	9	9		
				230	7	7	7	7	280	8	8	8	8		
				95	6	6	6	6	125	7	7	7	7		
				250	7	7	7	7	325	8	8	8	8		
				170	6	6	6	6	220	7	7	7	7		
				95	6	6	6	6	125	7	7	7	7		
				80	5	5	5	5	105	6	6	6	6		
				70	5	5	5	5	90	6	6	6	6		
				60	5	5	5	5	80	6	6	6	6		

GÜHRING NAVIGATOR

I numeri in grassetto della colonna avanzamento indicano gli utensili da preferire.
 Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

Articolo nr.
Norma/DIN
Materiale tagliente
Tipo di metallo duro
Tipo
Tratt. di superficie
Refrigerazione
Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante:
 ○ Aria
 ● Olio
 ● Emulsione

Direzione di taglio:
 Ⓜ destre
 Ⓟ sinistre

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○ ○
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○ ○
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○ ○ ○
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○ ○
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		● ●
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		● ●
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○ ○
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Acciai temprati	-		≤48 HRC ≤66 HRC	● ●
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		● ●
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		●
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○ ○
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○ ○
Ghisa in conchiglia	-		≤350 HB	○
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○ ○
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○ ○
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		● ●
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronzi a truciolo corto	2.1090 CuSn7Zn19Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○ ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		● ●
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○



≤5xD Profondità di foro

8511	8611
6537L	6537L
Int. in MD	Int. in MD
K/P	K/P
RT 100 VA	RT 100 VA
a	a
assiale	assiale
72	74

8521	8621
6537L	6537L
Int. in MD	Int. in MD
K/P	K/P
RT 100 HF	RT 100 HF
Y	Y
assiale	assiale
68	70

1243	2717
WN	6537L
Int. in MD	Int. in MD
K/P	K/P
RT 100 U	RT 100 U
S	S
36	35

2712	2474	2996	2719
6537L	WN	6537L	6537L
Int. in MD	Int. in MD	Int. in MD	Int. in MD
K/P	K/P	K/P	K/P
RT 100 F	RT 100 U	RT 100 U	RT 100 U
F	F	F	F
38	34	30	32



V _c m/min	Num. colonna avanzamento		V _c m/min	Num. colonna avanzamento		V _c m/min	Num. colonna avanzamento						
			145	7	7	100	6	6	130	7	7	7	7
			120	6	6	85	5	5	110	6	6	6	6
			170	8	8	110	7	7	145	8	8	8	8
			145	8	8	85	6	6	110	7	7	7	7
			130	8	8	90	6	6	120	7	7	7	7
			125	7	7	85	6	6	110	7	7	7	7
			120	7	7	80	6	6	105	7	7	7	7
			120	7	7	80	6	6	105	7	7	7	7
			105	7	7	75	5	5	100	6	6	6	6
			145	8	8	100	7	7	130	8	8	8	8
			120	7	7	90	6	6	120	7	7	7	7
			85	5	5	65	4	4	85	5	5	5	5
			110	7	7	75	5	5	100	6	6	6	6
			105	5	5	70	4	4	90	5	5	5	5
			80	6	6	50	5	5	65	6	6	6	6
			65	5	5	40	4	4	55	5	5	5	5
			60	4	4				55	4			
			60	3	3	35	2	2	45	3	3	3	3
			55	3	3	35	1	1	35	1	1	1	1
			35	2	2	20	1	1	20	1	1	1	1
80	5	5				40	2	2	45	2	2	2	2
60	2-3	2-3				15	1	1	15	1	1	1	1
80	5	5				35	2	2	35	2	1	2	2
						160	7	7	210	8	8	8	8
						120	7	7	155	8	8	8	8
						120	6	6	145	8	7	7	7
						95	6	6	125	8	7	7	7
						25	2	2	35	3	3	3	3
30	4	4	35	4	4	20	3	3	25	4	4	4	4
45	4	4	45	4	4	15	1	1	15	1	1	1	1
40	3	3	40	3	3	15	1	1	15	1	1	1	1
						200	8	8	260	9	9	9	9
						200	8	8	260	9	9	9	9
						170	8	8	235	9	9	9	9
						140	7	7	170	8	8	8	8
						200	7	7	260	8	8	8	8
						80	6	6	105	7	7	7	7
						210	7	7	270	8	8	8	8
						140	6	6	180	7	7	7	7
						80	5	5	105	6	6	6	6
						65	5	5	85	6	6	6	6
						60	4	4	80	5	5	5	5
						45	4	4	60	5	5	5	5



≤7xD Profondità di foro

≤8xD

≤10xD

≤12xD

1173
6538L
MD
P
RT80U
S
assiale
95

769	6069
WN	WN
Int. in MD	
K	K
RT 150 GG	
○	○
assiale	
93	94
Al	G

2711
WN
Int. in MD
K/P
RT100U
S
assiale
89

4044	4045
WN	WN
Int. in MD	
K/P	K/P
RT 100 U	
F	F
assiale	
85	87

6502
WN
Int. in MD
K/P
RT100R
F
assiale
91

8522
WN
Int. in MD
K/P
RT100HF
Y
assiale
90

5760
WN
Int. in MD
K/P
RT100S
F
assiale
96

770	6070
WN	WN
Int. in MD	
K	K
RT 150 GG	
○	○
assiale	
98	99
Al	G

5525
WN
Int. in MD
K/P
RT100U
F
assiale
100



V _c m/min	N. col. avanz.	V _c m/min	Num. col. avanzam.	V _c m/min	N. col. avanz.	V _c m/min	Num. col. avanzam.	V _c m/min	N. col. avanz.	V _c m/min	N. col. avanz.	V _c m/min	Num. col. avanzam.	V _c m/min	N. col. avanz.
95	4			110	5	145	6 6			145	6	145-230	7		
75	3			90	4	120	5 5			120	5	120-220	6		
90	5			130	6	170	7 7			170	7	170-260	7		
75	4			110	6	145	7 7			145	7	145-230	7		
80	4			100	6	130	7 7			130	7	130-220	7		
75	4			95	5	125	6 6			125	6	125-210	6		
60	4			90	5	120	6 6			120	6	120-200	6		
75	4			90	5	120	6 6			120	6	120-210	6		
60	3			80	5	105	6 6			105	6	105-200	6		
90	5			110	6	145	7 7			145	7	145-230	7		
75	4			90	5	120	6 6			120	6	120-210	6		
55	3			65	3	85	4 4			85	4	105-200	5		
75	4			80	5	110	6 6			110	6	110-150	6		
55	3			75	4	105	4 4			105	4	100-150	4		
40	3			55	4	80	5 5			80	5	70-120	5		
35	3			40	3	65	4 4			65	4	65-100	4		
40	2			45	2	60	4 4			60	3	60-100	4		
				45	1	60	2 2			60	2	60-100	4		
				40	1	55	2 2			55	2				
				25	1	35	1 1			35	1				
35	1			45	3	60	4 4							60	4
33	1			40	2	55	2 2							55	2
25	1			35	3	45	4 4							45	4
150	5	120	6 7	150	7	195	8 8	210	8				120	6 6	120 8
110	5	100	6 7	120	7	160	8 8	160	8				100	6 6	120 8
110	5	90	6 7	100	7	140	8 8	160	8				90	6 6	100 8
90	4	80	6 7	95	6	130	7 7	130	7				80	6 6	90 7
		40	2 2	30	1	40	2 2						40	1 2	
								130	7						
								100	7						
								80	7						
								60	7						
				25	2	35	3 3			35	3				
				35	1	40	3 3			45	3				
				30	1	40	2 2			40	4				
180	6	410	8 7	240	7	310	8 8						410	8 6	150 8
180	6	410	8 7	240	7	310	8 8						410	8 6	150 8
160	6	380	8 8	200	7	260	8 8						380	8 6	150 8
130	5	330	8 8	170	7	220	8 8						330	8 6	120 8
				230	6	280	7 7								150 7
				95	6	125	6 6								80 6
				250	7	325	7 7						280	7 7	120 7
				170	6	220	6 6								120 6
		110	6 6	95	6	125	6 6						110	6 6	40 6
		80	5 5	80	5	105	5 5						80	5 5	
				70	5	90	5 5								
				60	5	80	5 5								40 5

Navigator



≤15xD

773
WN
Int. in MD
K
RT 150 GN
○
assiale
103

≤15xD

6509
WN
Int. in MD
K/P
RT 100 T
ⓐ
40 bar MQL
102

≤20xD

6511
WN
Int. in MD
K/P
RT 100 T
ⓐ
40 bar MQL
104

≤25xD

6512
WN
Int. in MD
K/P
RT 100 T
ⓐ
40 bar MQL
105

≤30xD

6513
WN
Int. in MD
K/P
RT 100 T
ⓐ
40 bar MQL
106

≤40xD

6514
WN
Int. in MD
K/P
RT 100 T
ⓐ
40 bar
107



V _c m/min	N. col. avanz.	V _c m/min	N. col. avanz.	V _c m/min	N. col. avanz.	V _c m/min	N. col. avanz.	V _c m/min	N. col. avanz.	V _c m/min	N. col. avanz.	V _c m/min	N. col. avanz.	V _c m/min	N. col. avanz.
		110	8			110	8			100	8			80	7
		110	8			110	8			100	8			80	7
		120	8			120	8			120	8			100	8
		120	8			120	8			100	8			100	8
		110	6			110	6			110	6			110	6
		110	8			110	8			100	8			80	7
		100	7			100	7			100	7			80	7
		110	7	80	7	110	7	80	7	100	7	70	7	80	6-7
		110	6	80	7	110	6	80	7	100	6	70	7	80	6
		110	8			110	8			100	8			80	7
		110	7	80	6-7	110	7	80	6-7	100	7	70	6-7	80	6
		110	6	80	6-7	110	6	80	6-7	100	6	70	6-7	80	6
		100	5			100	5			80	5			80	5
		80	5			80	5			60	5			60	5
		100	6-7			100	6			90	6			80	6-7
		80	5			80	5			70	4			70	4
		50	5			50	5			50	4			50	4
		50	5			50	5			50	4			50	4
		50	4			50	4			50	4			50	4
		100	5			100	5			100	5			80	5
		70	2-3			60	3			60	3			70	2-3
		100	5			100	5			100	5			80	5
120	5	140	8			140	8			130	8			120	8
100	5	100	8			100	8			90	8			80	8
90	5	140	8			140	8			130	8			120	8
80	5	100	8			100	8			90	8			80	8
40	1														
		100	6			100	6			90	6			80	6
		100	6			100	6			90	6			80	6
		90	8	90	8	90	8	90	8	80	8	80	8	70	8
		30	2			30	2			30	2			30	2
410	6														
410	6														
380	7														
330	7														
		120	1			120	1			120	1			120	1
280	6	120	8			120	8			110	8			100	8
110	5														
80	4														



≤3xD

745
6539
Int. in MD
K10/K20
GS 200 G
○
116

≤5xD Profondità di foro

1025	2713	731
6539	6537L	6539
Int. in MD	Int. in MD	Int. in MD
K	K	K
GS 200 G	FT 200 G	GS 200 U
○	○	○
117	113	115

1027	611
6539	6539
Int. in MD	Int. in MD
K10/K20	K/P
GS 200 F	GS 200 U
Ⓢ	Ⓢ
119	114



V _c m/min	Num. colonna avanzamento
90	6
75	5
100	6
80	6
80	6
70	6
180	7
160	7
150	7
120	6
180	6
180	6

V _c m/min	Num. colonna avanzamento		
90	6	6	6
75	5	5	5
100	6	6	6
80	6	6	6
80	6	6	6
70	6	6	6
180	7	7	7
160	7	7	7
150	7	7	7
120	6	6	6
180	6	6	6
180	6	6	6

V _c m/min	Num. colonna avanzamento	
100	5	5
85	4	4
110	6	6
95	5	5
90	5	5
85	5	5
80	5	5
80	5	5
70	4	4
100	6	6
80	5	5
70	4	4
75	4	4
70	4	4
50	4	4
40	4	4
35	3	3
140	6	6
100	6	6
100	6	6
90	6	6
200	7	7
180	7	7
170	7	7
140	6	6
200	6	6
210	6	6



HT 800 WP $\leq 1,5 \times D$

$\leq 3 \times D$

4112
WN
Int. in MD
K/P
1,5xD
F
acciaio
139

4115
WN
Int. in MD
K/P
1,5xD
a
acciai inoss.
145

4113
WN
Int. in MD
K/P
1,5xD
F
ghisa
142

4114
WN
Int. in MD
K/P
1,5xD
○
Al e leghe
148

4112
WN
Int. in MD
K/P
3xD
F
acciaio
139

4115
WN
Int. in MD
K/P
3xD
a
acciai inoss.
145

4113
WN
Int. in MD
K/P
3xD
F
ghisa
142

4114
WN
Int. in MD
K/P
3xD
○
Al e leghe
148



V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.
130	6					130	6								
110	5					110	5								
130	7					130	7								
110	6					110	6								
130	6					130	6								
125	6					125	6								
110	5					110	5								
110	6					110	6								
90	5					90	5								
130	7					130	7								
110	6					110	6								
70	4					70	4								
105	5					105	5								
70	4					70	4								
60	5					60	5								
55	4					55	4								
55	3					55	3								
50	2					50	2								
		25	2					25	2						
		55	3					55	3						
		40	3					40	3						
		35	3					35	3						
				100	6					100	6				
				90	6					90	6				
				120	7					120	7				
				100	6					100	6				
		90	6					90	6						
				80	5					80	5				
				80	5					80	5				
				80	5					80	5				
				80	5					80	5				
		25	2					25	2						
		40	3					40	3						
		35	2					35	2						
						200	7					200	7		
						180	7					180	7		
						150	7					150	7		
						120	7					120	7		
						180	7					180	7		
						70	6					70	6		
						180	7					180	7		
						120	6					120	6		
						70	6					70	6		
						50	6					50	6		
						45	6					45	6		
						35	5					35	5		



GÜHRING NAVIGATOR

Alle Angaben sind Richtwerte. Die tatsächlich erreichbaren Schnittgeschwindigkeiten und Vorschübe hängen von den jeweiligen Bearbeitungsbedingungen ab. Wir empfehlen entsprechende Bohrversuche.

Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

- Articolo nr.
- Norma/DIN
- Materiale tagliente
- Tipo di metallo duro
- Profondità di foro
- Tratt. di superficie
- Campo di impiego
- Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

- Refrigerante:
- Aria
 - Olio
 - ⊙ Emulsione

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		●
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		●
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Acciai temprati	-		≤48 HRC ≤66 HRC	●
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		●
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		●
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Ghisa in conchiglia	-		≤350 HB	○
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		●
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronzi a truciolo corto	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○
	2.0790 CuNi18Zn19Pb	≤850		○
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○



HT 800 WP ≤5xD

4112
WN
Int. in MD
K/P
5xD
F
acciaio
139

4115
WN
Int. in MD
K/P
5xD
a
acciai inoss.
145

4113
WN
Int. in MD
K/P
5xD
F
ghisa
142

4114
WN
Int. in MD
K/P
5xD
○
Al e leghe
148

≤7xD

4112
WN
Int. in MD
K/P
7xD
F
acciaio
139

4115
WN
Int. in MD
K/P
7xD
a
acciai inoss.
145

4113
WN
Int. in MD
K/P
7xD
F
ghisa
142

4114
WN
Int. in MD
K/P
7xD
○
Al e leghe
148



V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.	V _c m/min	Num. col. avanz.
125	6					120	5								
105	5					105	4								
125	7					120	6								
105	6					105	5								
125	6					120	5								
120	6					110	5								
105	5					100	4								
105	6					100	5								
85	5					85	4								
125	7					120	6								
105	6					100	5								
70	4					70	4								
105	5					105	4								
70	4					70	3								
55	5					55	4								
50	4					50	3								
55	3					55	2								
50	2					50	2								
		25	2							25	1				
		55	3							55	2				
		40	3							40	2				
		35	3							35	2				
				100	6							80	6		
				90	6							70	6		
				120	7							100	7		
				100	6							80	6		
		90	6							70	6				
				80	5							60	5		
				80	5							60	5		
				80	5							60	5		
				80	5							60	5		
		25	2							25	1				
		40	3							40	2				
		35	2							35	1				
						180	7							180	6
						180	7							180	6
						140	7							140	6
						110	7							110	6
						180	7							180	6
						70	6							70	5
						180	7							180	6
						120	6							120	5
						70	6							70	5
						50	6							50	5
						45	6							45	5
						35	5							35	4



GÜHRING NAVIGATOR

Alle Angaben sind Richtwerte. Die tatsächlich erreichbaren Schnittgeschwindigkeiten und Vorschübe hängen von den jeweiligen Bearbeitungsbedingungen ab. Wir empfehlen entsprechende Bohrversuche.

Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

- Articolo nr.
- Norma/DIN
- Materiale tagliente
- Tipo di metallo duro
- Profondità di foro
- Tratt. di superficie
- Campo di impiego
- Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

- Refrigerante:
- Aria
 - Olio
 - ⊙ Emulsione

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		●
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		●
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Acciai temprati	-		≤48 HRC ≤66 HRC	●
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		●
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		●
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Ghisa in conchiglia	-		≤350 HB	○
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		●
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronzi a truciolo corto	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○
	2.0790 CuNi18Zn19Pb	≤850		○
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○



HT 800 WP ≤10xD

4112
WN
Int. in MD
K/P
10xD
F
acciaio
139

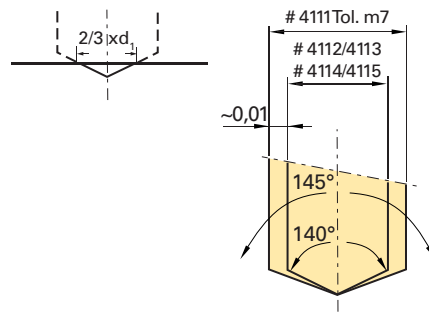
4115
WN
Int. in MD
K/P
10xD
a
acciai inoss.
145

4113
WN
Int. in MD
K/P
10xD
F
ghisa
142

4114
WN
Int. in MD
K/P
10xD
○
Al e leghe
148

4111
WN
Int. in MD
K/P
1xD
a
pil./svas.
151

≤1xD foro pilota/svasatura



- per fori passanti bisogna controllare che le fasi di guida restino in presa. Inoltre l'avanzamento va ridotto prima di effettuare il foro passante.
- In generale, per profondità di foro da 5xD, consigliamo il supporto art. 4105 ed inserto per foro pilota Art. 4111, per centrare ed effettuare foro pilota. In alternativa, a seconda del materiale da lavorare, si possono impiegare punte Ratio tipo RT 100 U o RT 100 VA.
- Nel forare senza pilota, consigliamo di ridurre l'avanzamento nella centratura.
- Non utilizzare la punta in tagli interrotti (scanalature, fori trasversali) senza prove preliminari. Con taglio interrotto (max.0,2 x D) consigliamo, se possibile, di ridurre l'avanzamento.
- Contrariamente alle classiche punte ad inserto, la HT800 è adatta anche per la foratura di pacchi di lamierini.
- Su torni (utensile fisso) fare attenzione a che l'utensile sia esattamente nel centro
- Presupposto per una truciatura ottimale è una buona refrigerazione con emulsione od olio.
- L'utensile è adatto per lavorazione a secco o con nebulizzazione solo a ben determinate condizioni. Con nebulizzazione suggeriamo l'impiego di codoli conici per nebulizzazione, nonché di mandrini Gühring per nebulizzazione. Chiedete ai nostri tecnici che Vi consiglieranno.



Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.
100	5							130	6
95	4							110	5
100	6							130	7
95	5							110	6
100	5							130	6
95	5							125	6
90	4							110	5
90	5							110	6
85	4							90	5
100	6							130	7
90	5							110	6
70	4							70	4
95	4							105	5
70	3							70	4
55	4							60	5
50	3							55	4
55	2							55	3
50	2							50	2
		25	1					25	2
		55	2					55	3
		40	2					40	3
		35	2					35	3
				80	6			100	6
				70	6			90	6
				100	7			120	7
				80	6			100	6
		70	6					90	6
				60	5			80	5
				60	5			80	5
				60	5			80	5
				60	5			80	5
		25	1					25	2
		40	2					40	3
		35	1					35	2
						150	6	200	7
						150	6	180	7
						130	6	150	7
						105	6	120	7
						150	6	180	7
						70	5	70	6
						150	6	180	7
						110	5	120	6
						70	5	70	6
						50	5	50	6
						45	5	45	6
						35	4	35	5



GÜHRING NAVIGATOR

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- Articolo nr.
- Norma/DIN
- Materiale tagliente
- Tipo di metallo duro
- Profondità di foro
- Tratt. di superficie
- Campo di impiego
- Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

- Refrigerante:
- Aria
 - Olio
 - ⊙ Emulsione

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		●
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		●
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Acciai temprati	-		≤48 HRC ≤66 HRC	●
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		●
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		●
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Ghisa in conchiglia	-		≤350 HB	○
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		●
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronzi a truciolo corto	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600 ≤850		○
	2.0790 CuNi18Zn19Pb			○
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○



RT 800 WP ≤3xD

≤5xD

≤7xD

2747
WN
Int. in MD
K
3xD
ghisa
166

1047
WN
Int. in MD
K/P
3xD
acciaio
162

2485
WN
Int. in MD
K/P
3xD
acciaio
164

2747
WN
Int. in MD
K
5xD
ghisa
166

1047
WN
Int. in MD
K/P
5xD
acciaio
162

2485
WN
Int. in MD
K/P
5xD
acciaio
164

2747
WN
Int. in MD
K
7xD
ghisa
166

1047
WN
Int. in MD
K/P
7xD
acciaio
162

2485
WN
Int. in MD
K/P
7xD
acciaio
164

Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.
		100	6	130	6			95	6	125	6			90	5
		85	5	110	5			80	5	105	5			80	4
		100	7	130	7			95	7	125	7			90	6
		85	6	110	6			80	6	105	6			80	5
		100	6	130	6			95	6	125	6			90	5
		95	6	125	6			90	6	120	6			85	5
		85	5	110	5			80	5	105	5			75	4
		85	6	110	6			80	6	105	6			75	5
		70	5	90	5			65	5	85	5			65	4
		100	7	130	7			95	7	125	7			90	6
		85	6	110	6			80	6	105	6			75	5
		55	4	70	4			55	4	70	4			55	4
		80	5	105	5			80	5	105	5			80	4
		55	4	70	4			55	4	70	4			55	3
		40	5	55	5			40	5	55	5			40	4
		35	4	50	4			35	4	50	4			35	3
		40	3	55	3			40	3	55	3			40	2
		35	2	50	2			35	2	50	2			35	2
		20	2	25	2			20	2	25	2			20	1
		40	3	55	3			40	3	55	3			40	2
		30	3	40	3			30	3	40	3			30	2
		25	3	35	3			25	3	35	3			25	2
100	7	160	7	210	7	90	7	150	7	195	7	90	6	150	6
80	7	80	7	155	7	70	7	110	7	145	7	70	6	110	6
80	7	120	7	155	7	70	7	110	7	145	7	70	6	110	6
70	6	100	6	130	6	60	6	90	6	120	6	60	5	90	5
10	2	25	2	35	2	10	2	25	2	35	2	10	2	25	2
		20	2	25	2			20	2	25	2			20	1
		30	3	40	3			30	3	40	3			30	2
		25	2	35	2			25	2	35	2			25	1
200	7	220	7	290	7	180	7	200	7	260	7	180	6	200	6
180	7	200	7	260	7	180	7	200	7	260	7	180	6	200	6
150	7	180	7	235	7	140	7	170	7	220	7	140	6	170	6
120	7	150	7	195	7	110	7	140	7	180	7	110	6	140	6
180	7	200	7	260	7	180	7	200	7	260	7	180	6	200	6
70	6	80	6	105	6	70	6	80	6	105	6	70	5	80	5
180	7	210	7	270	7	180	7	210	7	270	7	180	6	210	6
120	6	140	6	180	6	120	6	140	6	180	6	120	5	140	5
70	6	80	6	105	6	70	6	80	6	105	6	70	5	80	5
50	6	65	6	85	6	50	6	65	6	85	6	50	5	65	5
45	6	50	6	65	6	45	6	50	6	65	6	45	5	50	5
35	5	40	5	55	5	35	5	40	5	55	5	35	4	40	4
50	5	80	5	105	5	50	5	80	5	105	5	50	4	80	4
50	5	80	5	105	5	50	5	80	5	105	5	50	4	80	4
50	5	80	5	105	5	50	5	80	5	105	5	50	4	80	4
50	5	80	5	105	5	50	5	80	5	105	5	50	4	80	4

Navigator



≤3xD Profondità di foro

223	224	225	552
226	227	228	553
1897	1897	1897	1897
HSS	HSS	HSS	HSS
N	H	W	GT 80
192/200	204/206	208/210	212/215

653
672
1897
HSS
N
196/203

2460
1897
HSS
N
199

329	363	1261	129	1259
330			136	
1897	WN	1897	WN	1897
HSCO	HSCO	HSCO	HSCO	M42
GV 120	GV 120	VA	N	N
218/225	448	230	414/415	235

128
WN
HSCO
N
413



V _c m/min	Num. colonna avanzamento				V _c m/min	Num. av.	V _c m/min	Num. av.	V _c m/min	Num. colonna avanzamento				V _c m/min	Num. av.
27	6			6	30	6	32	7	35	5	5	5	5		
22	5			5	24	5	26	6	30	5	5	5	5		
30	6			6	33	6	36	7	40	5	5	5	5		
30	5			5	33	5	36	6	40	5	5	5	5	5	5
25	5			5	28	5	31	6	40	5	5	5	5		
25	5			5	28	5	31	6	40	5	5	5	5		
					25	4	28	5	35	4	4		4	4	
					22	4	24	5	20	4	4		4	4	
									16	3	3		3	3	
30	6			6	33	6	36	7	36	6	6	6	6		
					20	4	22	5	20	4	4		4	3	
									15	3	3		3	3	
					14	4	16	5	16	4	4		4	4	
									12	3	3		3	3	
16	4			4	18	4	20	5	12	3	3		3	3	
									15	4	4		4	3	
									12	3	3		3	3	
									15	3	3		3	3	
									8	2	2		2	2	
									4	1	1		1	1	
									18	1	1	4	4	3	
									14	3	3	3	3	3	
									16	3	3	3	3	3	
30	6			6	33	6	36	7	35	6	6		6	5	
30	6			6	33	6	36	7	30	6	6		6	5	
25	6			6	28	6	31	7	30	6	6		6	5	
20	6			6	22	6	24	7	25	6	6		6	5	
									10	3	3		3	3	
70				7				8	8	90			7		7
70				7				8	8	90			7		7
50	7			7				8	8	80			7		7
50	6			6				7	7	70			6		6
70	6			6				6	6	70			6		6
60	5			5				6	6	40			5		5
70				6				6	6	60			5		5
40	5			5				6	6	40			5		5
30	4			4				5	5	35	4	4	4	4	4
25	4			4				5	5	30	4	4	4	4	4
15	4			4				5	5	20	4	4	4	4	4
								5	5	15	4	4	4	4	4
								5	5	20	4	4	4	4	4
18	4			4				5	5	30	4	4	4	4	4
28	5			5				6	6				4	4	

Navigator



GÜHRING NAVIGATOR

I numeri in grassetto della colonna avanzamento indicano gli utensili da preferire.
 Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

- Articolo nr.
- Norma/DIN
- Materiale tagliente
- Tratt. di superficie
- Tipo
- Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

- Refrigerante:
- Aria
 - Olio
 - Emulsione

- Direzione di taglio:
- Ⓜ destre
 - Ⓛ sinistre

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm ²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		●
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		●
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Acciai temprati	-		≤48 HRC ≤66 HRC	●
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		●
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		●
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Ghisa in conchiglia	-		≤350 HB	○
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		●
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronzi a truciolo corto	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○
	2.0790 CuNi18Zn19Pb	≤850		○
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○



≤3xD Profondità di foro

572	2048	1228	2498	659	663	2461	512	515
1897	1897	1897	1897	1897	WN	1897	WN	1897
HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSS-E-PM
VA	P2000	GT 80	GT 80	GV 120	GV 120	GV 120	GU 500	GT 500
231	233	227	229	222	449	224	384	237



Vc m/min	Num. av.		Num. av.	Vc m/min	Num. av.	Vc m/min	Num. av.	Vc m/min	Num. colonna avanzamento	Vc m/min	Num. av.	Vc m/min	Num. av.	Vc m/min	Num. av.	
38	6	35	6	38	6	42	6	38	5	5	42	6	45	6	42	6
33	5	30	5	33	5	36	5	33	4	4	36	5	35	5	37	5
44	6	40	6	44	6	48	7	44	5	5	48	6	50	6	47	7
42	5	40	5	38	5	42	6	38	5	5	42	6	40	6	44	6
44	5	40	5	44	6	48	6	44	5	5	48	6	44	6	47	6
44	5	40	5	44	5	48	6	44	5	5	48	6	44	6	47	6
		35	4	38	4	42	5	38	4	4	42	5	40	5	44	5
		25	4	27	4	30	5	27	4	4	30	5	27	4	30	4
		20	3	22	3	24	4	22	3	3	24	4	22	3	25	3
40	6	40	6	44	4	48	4	44	4	4	48	5	44	6	47	4
		20	4	22	4	24	5	22	4	4	24	5	22	4	25	5
		15	3	18	3	20	4	18	3	3	20	4	18	3	20	4
		20	4	22	4	24	5	22	4	4	24	5	22	4	25	5
		15	3	18	3	20	4	18	3	3	20	4	16	3	18	4
		18	4	19	4	21	5	19	4	4	21	5	20	4	22	5
		12	3	14	3	16	4	14	3	3	16	4	15	3	17	4
		12	3	14	3	17	4	14	3	3	17	4	13	3	17	4
		8	2	9	2	11	3	9	2	2	11	3	9	2	12	2
								4	1	1	5	2				
20	4	14	4	15	4	17	4	20	4	4	22	5	20	4	22	4
15	3	10	3	10	3	12	3	15	3	3	17	4	16	4	18	3
18	3	12	3	12	3	14	3	18	3	3	20	4	18	4	20	3
30	6	38	6	45	6	50	7	40	6	6	45	7	45	6	50	7
30	6	30	6	40	6	45	7	35	6	6	40	7	40	6	44	7
		30	6	33	6	36	7	33	6	6	36	7	40	6	45	7
		25	6	27	6	29	7	27	6	6	29	7	30	6	33	7
		10	3	8	3	10	4	12	3	3	14	4			16	4
8	1	5	2					6	2	2	7	2			6	2
12	2							11	2	2	12	3				
8	2							7	2	2	8	3				
90	7	90	7										70	7		
90	7	90	7										70	7		
80	7	80	7										85	7		
70	6	70	6										70	6		
70	6	85	6										80	6		
70	5	80	5	88	5	96	6						80	5	80	5
60	5	70	5	77	5	84	6						77	5		
40	5	40	5	44	5	48	6						44	5	60	5
35	4	40	4	45	5	50	5	45	5	5	50	6	50	4	50	5
33	4	30	4	40	4	45	5	40	4	4	45	5	40	4	44	5
20	4	25	4	22	4	25	5	23	4	4	26	5	32	4	33	5
15	4	15	4	17	4	20	5	17	4	4	20	5	28	4	28	5
		20	4	22	4	24	5						25	4	25	5
30	4	25	5	27	5	30	5						27	4		

Navigator



GÜHRING NAVIGATOR

I numeri in grassetto della colonna avanzamento indicano gli utensili da preferire.
 Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

Artikel-Nr.
Norma/DIN
Materiale tagliato
Tipo di metallo duro
Tratt. di superficie
Tipo
Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante:
 ○ Aria
 ● Olio
 ● Emulsione

Direzione di taglio:
 Ⓜ destre
 Ⓛ sinistre

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm ²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○ ○
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○ ○
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○ ○ ○
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○ ○
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		○ ○
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		○ ○
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○ ○
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		○
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	○
Acciai temprati	-		≤48 HRC ≤66 HRC	○ ○
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		○ ○
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		○
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○ ○
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○ ○
Ghisa in conchiglia	-		≤350 HB	○
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○ ○
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○ ○
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		○
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		○ ○
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronzi a truciolo corto	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○
	2.0790 CuNi18Zn19Pb	≤850		○
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○ ○
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○



≤3xD Profondità di foro

730	702	1149	710	703	705	704	707
6539	WN	WN	WN	8037	8041	8038	WN
Int. in MD	Int. in MD	Int. in MD	MD	MD	MD	MD	MD
K10/K20							
○	○	○	○	○	○	○	○
N	N	N	Duro 150	N	N	N	H
239	243	431	323	429	512	430	432

2463
6539
Int. in MD
K/P
F
N
241

1946
6537K
Int. in MD
K/P
A
H
389



Vc m/min	Num. colonna avanzamento						Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.
80	4						104	5		
70	4						91	5		
80	5		4	4	4		104	6		
70	4		3	3	3		91	5		
80	4						104	5		
70	4						91	5		
60	4						78	5		
60	4						78	5		
80	5						104	6	80	6
60	4						78	5		
50	4						65	5	65	4
50	3						65	4	80	4
25	2		2	2	2	2	32	3		
20	2		3	3	3		26	4	40	2
10			2	2	2				30	1
25	2						32	2		
15	1						20	1		
25	2						32	2		
90	4		4	4	4		117	5	90	8
80	4		4	4	4		104	5	80	8
80	4		4	4	4		91	5	80	8
70	4		4	4	4		104	5	70	7
10			1	1	1	1			30	2
15	2						20	2		
15	1						15	1		
15	1						15	1		
200	7						260	8		
200	7						260	8		
150	6						195	7		
120	6						156	7		
180	6						234	6		
80	5						104	6		
180	5		5	5	5		234	6		
180	5		5	5	5		234	6		
120	5						156	6		
120	5						156	6		
70	4						91	5		
50	3						65	4		
50	4	4					65	5		
40	3	3				3	52	4		
150			1							
80	3	3				2	104	4		



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I numeri in grassetto della colonna avanzamento indicano gli utensili da preferire. Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

- Articolo nr. (R)
Articolo nr. (D)
Norma/DIN
Materiale tagliente
Tratt. di superficie
Tipo
Prezzi/misure pag.

Table with 10 columns: Ø utensile mm and Num. colonna avanzamento (1-9). Sub-headers for 1-9 and f (mm/ giro) are provided.

- Refrigerante:
Aria (circle with dot)
Olio (solid circle)
Emulsione (circle with horizontal lines)
Direzione di taglio:
destra (R in circle)
sinistra (L in circle)

Main table with columns: Materiali, Esempi di materiale, Numeri in grassetto = nr. materiale a DIN EN 10 027, Resistenza N/mm², Durezza, Refrigerazione.



≤5xD Profondità di foro

560	205	240	268	229	245	592	251	206	246	207	247	549	558
	208			248				209		210		550	
338	338	338	WN	345	345	345	346	338	345	338	345	338	345
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
N	N	N	N	N	N	N	N	H	H	W	W	GT 100	GT 100
256	244/258	257	412	458/457	450	454	471	263/266	459	269/272	460	274/281	461



Vc m/min	Num. colonna avanzamento												
27	6	6	6	6	6	6	6	6				6	6
22	5	5	5	5	5	5	5	5				5	5
30	6	6	6	6	6	6	6	6				6	6
30	5	5	5	5	5	5	5	5				5	5
25	5	5	5	5	5	5	5	5				5	5
25	5	5	5	5	5	5	5	5				5	5
30	6	6	6	6	6	6	6	6				6	6
16		4	4	4	4	4	4	4				4	4
30	6	6	6	6	6	6	6	6				6	6
30	6	6	6	6	6	6	6	6				6	6
25	6	6	6	6	6	6	6	6				6	6
25	6	6	6	6	6	6	6	6				6	6
80											7	7	
80											7	7	
70	7	7	7	7	7	7	7	7			7	7	7
70	6	6	6	6	6	6	6	6				6	6
50	6	6	6	6	6	6	6	6	6	6		6	6
50	5	5	5	5	5	5	5	5			5	5	5
70									6	6			
40	5	5	5	5	5	5	5	5				5	5
30	4	4	4	4	4	4	4	4	4	4			
25	4	4	4	4	4	4	4	4					
15	4	4	4	4	4	4	4	4				4	4
18	4	4	4	4	4	4	4	4	4	4		4	4
28	5	5	5	5	5	5	5	5	5	5	5	5	










Navigator



≤5xD Profondità di foro

651	654	652	606
664		665	
338	345	338	345
HSS	HSS	HSS	HSS
S	S	S	S
N	N	GT 100	GT 100
250/261	455	277/283	462

2456	2457
338	338
HSS	HSS
F	F
N	GT 100
254	280

305	345	351	622	645	605	1260	1262	1146
308					608			
338	345	346	338	345	338	338	345	338
HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	M42
								
N	N	N	GT 100	GT 100	Ti	VA	VA	N
284/289	463	472	291	466	301/308	309	470	315



Vc m/min	Num. colonna avanzamento			
30	6	6	6	6
24	5	5	5	5
33	6	6	6	6
33	5	5	5	5
28	5	5	5	5
28	5	5	5	5
25	4	4	4	4
22	4	4	4	4
33	6	6	6	6
20	4	4	4	4
14	4	4	4	4
18	4	4	4	4
33	6	6	6	6
33	6	6	6	6
28	6	6	6	6
22	6	6	6	6
80	6	6		
65	5	5	5	5
75	5	5	5	5
45	5	5	5	5
33	4	4		
27	4	4		
16	4	4	4	4
15	4	4	4	4
22	4	4	4	4
36	5	5		

Vc m/min	Num. colonna avanzamento	
32	7	7
26	6	6
36	7	7
36	6	6
31	6	6
31	6	6
28	5	5
24	5	5
36	7	7
22	5	5
16	5	5
20	5	5
36	7	7
36	7	7
31	7	7
24	7	7
85	8	8
85	8	8
60	8	8
60	8	7
90	7	7
70	6	6
80	6	6
50	6	6
36	5	5
33	5	5
18	5	5
18	5	5
29	5	5

Vc m/min	Num. colonna avanzamento								
35	5	5	5	5	5		5	5	5
30	5	5	5	5	5		5	5	5
40	5	5	5	5	5		5	5	5
40	5	5	5	5	5		5	5	5
40	5	5	5	5	5		5	5	5
40	5	5	5	5	5		5	5	5
35	4	4	4	4	4				5
20	4	4	4	4	4				4
16	3	3	3	3	3	3			3
36	6	6	6	6	6	6	6	6	6
20	4	4	4	4	4	4			3
15	3	3	3	3	3	3	3		3
16	4	4	4	4	4	4			3
12	3	3	3	3	3	3	3		3
15	4	4	4	4	4	4			3
12	3	3	3	3	3	3	3		3
15	3	3	3	3	3	3	3		3
8	2	2	2	2	2	2			2
4									1
18	4	4	4	4	4	4	4	4	3
14	3	3	3	2	2	3	3	3	3
16	3	3	3	3	3	3	3	3	3
35	6	6	6	6	6	6	6	6	5
30	6	6	6	6	6	6	6	6	5
30	6	6	6	6	6	6	6	6	5
28	6	6	6	6	6	6	6	6	5
10	3	3	3	3	3	3	3		3
8									1
10							2	2	2
6							2	2	2
90							7	7	7
90							7	7	7
80				7	7		7	7	7
70				6	6		6	6	6
70							6	6	6
40	5	5	5	5	5		5	5	5
60							5	5	5
40	5	5	5	4	4		5	5	5
35	4	4	4				4	4	4
33	4	4	4				4	4	4
20	4	4	4	4	4		4	4	4
15	4	4	4	4	4		1	1	4
20	4	4	4	4	4				

Navigator



≤5xD Profondità di foro

2997	661	658	662	657
338	345	338	345	338
HSCO	HSCO	HSCO	HSCO	HSCO
S	S	S	S	S
N	N	GT 100	GT 100	Ti
288	465	294	467	304

2459	2458
338	338
HSCO	HSCO
F	F
GT 100	Ti
296	306

1223	1224	1221	1222
338	345	338	345
HSCO	HSCO	HSCO	HSCO
A	A	C	C
GT 100	GT 100	GT 100	GT 100
299	469	298	468



Vc m/min	Num. colonna avanzamento				
38	6	6	6	6	
33	5	5	5	5	
44	5	5	5	5	
38	5	5	5	5	
44	5	5	5	5	
38	4	4	4	4	
27	4	4	4	4	
22	3	3	3	3	3
44	4	4	4	4	
22	4	4	4	4	
18	3	3	3	3	
22	4	4	4	4	
18	3	3	3	3	
19	4	4	4	4	
14	3	3	3	3	
14	3	3	3	3	3
9	2	2			2
20	4	4	4	4	4
15	3	3			3
18			3	3	3
40	6	6	6	6	
35	6	6	6	6	
33	6	6	6	6	
27	6	6	6	6	
12					3
6					2
11					2
7					2
88	5	5	5	5	
40	4	4			
22	4	4	4	4	
17	4	4	4	4	4
22	4	4	4	4	

Vc m/min	Num. colonna avanzamento	
42	6	
36	5	
48	6	
42	6	
48	6	
42	5	
30	5	
34	4	4
48	6	
24	5	
20	4	
24	5	
20	4	
21	5	
16	4	
17	4	4
11	3	2
6	1	
22	5	5
17	4	3
20	4	4
45	7	
40	7	
36	7	
29	7	
14	4	3
7		2
12		2
8		2
85	8	
72	7	
96	6	
40		
25	5	
20	5	4
24	5	

Vc m/min	Num. colonna avanzamento			
42			6	6
36			6	6
48			6	6
42	5	5	6	6
42			5	5
30			5	5
34			4	4
48			7	7
24			5	5
20			4	4
20			5	5
15			4	4
21			5	5
16			4	4
17			4	4
11			3	3
22			5	5
18			4	4
45	7	7		
40	7	7		
36	7	7		
29	7	7		
85	7	7		
96	6	6		
25	5	5		
20	5	5		
24	5	5		

Navigator



GÜHRING NAVIGATOR

I numeri in grassetto della colonna avanzamento indicano gli utensili da preferire. Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

- Artikel-Nr.
Norma/DIN
Materiale tagliente
Tratt. di superficie
Tipo
Refrigerazione
Prezzi/misure pag.

Table with 10 columns: Ø utensile mm and Num. colonna avanzamento (1-9). Sub-headers include 'f (mm/giro)' and various feed rate values for different drill diameters.

- Refrigerante:
O Aria
Olio
Emulsione
Direzione di taglio:
destre
sinistre

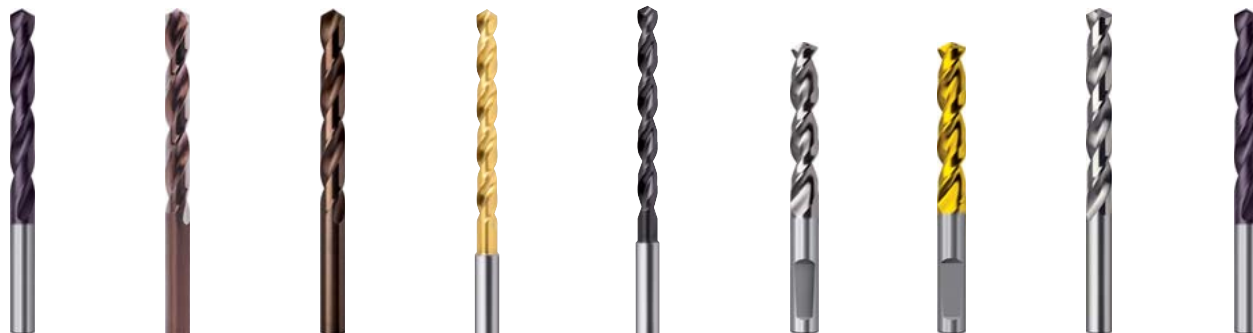
Main materials table with columns: Materiali, Esempi di materiale, Numeri in grassetto = nr. materiale a DIN EN 10 027, Resistenza N/mm², Durezza, and Refrigerazione. Includes categories like Acciai da costruzione, Acciai da bonifica, etc.

Navigator



≤5xD Profondità di foro

1199	1018	2047	511	513	1131	1132	732	2464
338	338	338	WN	WN	WN	WN	WN	WN
M42	M42	HSCO	HSCO	HSS-E-PM	HSCO	HSCO	Int. in MD	Int. in MD
F nano			S	F		S		F
N	AeroX	P2000	GU 500	GT 500	GT 80 IK	GT 80 IK	N	N
senza	senza	senza	senza	senza	con	con	senza	senza
317	313	311	386	388	395	396	319	321



Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.
42	6	35	6	35	6	45	6	42	6	48	7	60	7	80	4	100	5
36	5	30	5	30	5	35	5	37	5	38	6	48	6	70	4	90	5
48	6	40	6	40	6	50	6	47	6	48	7	60	7	80	5	100	6
42	5	40	5	40	5	40	6	44	6	38	6	48	6	70	4	90	4
44	6	40	5	40	5	44	6	47	6	48	6	60	6	80	4	100	5
44	5	40	5	40	5	44	6	47	6	48	6	60	6	70	4	90	5
42	5	35	4	35	4	40	5	44	5	38	5	50	5	60	4	80	5
30	4	20	4	25	4	27	4	30	4	28	5	33	5	60	4	80	5
25	3	16	3	20	3	22	3	25	3	26	4	31	4				
40	6	36	6	40	6	44	6	47	3	43	7	55	7	80	5	100	6
25	3	20	3	20	4	22	4	25	4	25	5	31	5	60	4	80	5
20	3	15	3	15	3	18	3	20	3	24	4	31	4				
20	3	16	4	20	4	22	4	25	4	25	5	30	5	50	4	65	5
18	3	12	3	15	3	16	3	18	4	20	4	24	4				
21	4	15	3	18	4	20	4	22	5	24	5	30	5	50	3	65	3
16	3	12	3	12	3	15	3	17	4	16	4	20	4				
17	3	15	3	12	3	13	3	14	4	14	4	18	4				
11	2	8	2	8	2	9	2	12	2	12	3	15	3	25	2	30	3
6	1	4	1							4	3	5	3	20	2	20	2
20	4	18	3	14	4	20	4	22	4	20	5	25	5	25	2	30	2
15	3	14	3	10	3	16	4	18	3	14	4	18	4	15	1	20	1
18	3	16	3	12	3	18	4	20	3	16	4	20	4	25	2	30	2
45	6	35	6	38	6	45	6	50	7	48	7	60	7	90	4	115	5
40	6	30	6	30	6	40	6	40	7	38	7	48	7	80	4	100	5
36	6	30	6	30	6	40	6	44	7	42	7	52	7	70	4	90	5
29	6	28	6	25	6	30	6	33	7	32	7	40	7	80	4	80	5
14	3	10	3	10	3			16	4	12	4	15	4				
9	1	8	1	5	2			6	2	10	2	12	2	15	2	20	3
12	2	10	2							14	3	18	3	15	1	15	1
8	2	6	2							10	3	12	3	15	1	15	1
		90	7	90	7	70	7							200	7	260	8
		90	7	90	7	70	7							200	7	260	8
80	7	80	7	80	7	85	7			95	7	120	7	150	6	195	7
70	6	70	6	70	6	70	6			75	8	95	8	120	6	155	7
80	6	70	6	85	6	80	6							180	5	235	6
70	5	70	5	80	5	80	5	50	5	90	6	100	6	80	5	100	6
60	5	60	5	70	5	77	5							180	5	235	6
40	5	40	5	40	5	44	5	60	5	45	6	55	6	180	5	235	6
35	4	35	4	40	4	50	4	50	5					120	5	155	6
33	4	33	4	30	4	40	4	44	5	48	5	60	5	120	5	155	6
20	4	20	4	25	4	32	4	33	5	45	5	55	5	70	4	90	5
15	4	15	4	15	4	28	4	28	5	38	5	45	5	50	3	65	4
		20	4	20	4	25	4	25	4					50	4	50	5
		30	5	25	5	27	4			38	6	48	6	40	3	65	4
														80	3	100	4

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Articolo nr. (R)

Articolo nr. (L)

Norma/DIN

Materiale tagliente

Tratt. di superficie

Tipo

Refrigerazione

Prezzi/misure pag.

Table with 10 columns: Ø utensile mm, 1-9 (Num. colonna avanzamento), and f (mm/giro). Rows include diameters from 0,50 to 80,00 mm.

Refrigerante:

- Aria
● Olio
● Emulsione

Direzione di taglio:

- (R) destre
(L) sinistre

Main table with 5 columns: Materiali, Esempi di materiale (Numeri in grassetto = nr. materiale a DIN EN 10 027), Resistenza N/mm², Durezza, and Refrigerazione. Rows include Acciai da costruzione, Acciai automatici, Acciai da bonifica non legati, etc.



≤10xD Profondità di foro

561	211	204	217	257	523
			220		
339	339	340	340	341	WN
HSS	HSS	HSS	HSS	HSS	HSS
N	N	N	N	N	N
senza	senza	senza	senza	senza	senza
327	325	338	331/336	473	482

218	219	501	505	535	551
221				506	
340	340	340	341	340	341
HSS	HSS	HSS	HSS	HSS	HSS
H	W	GT50	GT50	GT100	GT100
senza	senza	senza	senza	senza	senza
339/341	342	351	479	344/350	476

666	667	655	668	656
339	340	341	340	341
HSS	HSS	HSS	HSS	HSS
N	N	N	GT100	GT100
senza	senza	senza	senza	senza
328	334	475	347	478

2462
340
HSS
GT100
senza
349



Vc m/min	Num. colonna avanzamento					
24	6	6	6	6	6	6
20	5	5	5	5	5	5
27	6	6	6	6	6	6
27	5	5	5	5	5	5
22	5	5	5	5	5	5
22	5	5	5	5	5	5
27	6	6	6	6	6	6
14	4	4	4	4	4	4
27	6	6	6	6	6	6
27	6	6	6	6	6	6
22	6	6	6	6	6	6
18	6	6	6	6	6	6
45	7	7	7	7	7	7
45	6	6	6	6	6	6
63	6	6	6	6	6	6
54	5	5	5	5	5	5
36	5	5	5	5	5	5
28	4	4	4	4	4	4
22	4	4	4	4	4	4
22	4	4	4	4	4	4
14	4	4	4	4	4	4
22	5	5	5	5	5	5

Vc m/min	Num. colonna avanzamento					
24				6	6	
20				5	5	
27				6	6	
27				5	5	
22				5	5	
22				5	5	
27				6	6	
14				4	4	
27				6	6	
27				6	6	
22				6	6	
18				6	6	
65	7	7	7			
65	7	7	7			
45	7			7	7	
45				6	6	
63	6		6	6		
54		5		5	5	
63	6					
36				5	5	
28	4					
22				4	4	
22				4	4	
14	4			4	4	
22	5	5	5	5		

Vc m/min	Num. colonna avanzamento						Vc m/min	Num. av.
28	6	6	6	6	6	6	30	7
22	5	5	5	5	5	5	24	6
30	6	6	6	6	6	6	33	7
30	5	5	5	5	5	5	33	6
25	5	5	5	5	5	5	28	6
25	5	5	5	5	5	5	28	6
22	4	4	4	4	4	4	24	5
18	4	4	4	4	4	4	23	5
30	6	6	6	6	6	6	33	7
14	4	4	4	4	4	4	18	5
12	4	4	4	4	4	4	15	5
16	4	4	4	4	4	4	19	5
10	3	3	3	3	3	3	13	4
30	6	6	6	6	6	6	33	7
30	6	6	6	6	6	6	33	7
24	6	6	6	6	6	6	26	7
20	6	6	6	6	6	6	22	7
50	7	7	7	7	7	7	55	8
50	6	6	6	6	6	6	55	7
70	6	6	6	6	6	6	70	
60	5	5	5	5	5	5	65	6
40	5	5	5	5	5	5	44	6
30	4	4	4	4	4	4	30	
25	4	4	4	4	4	4	25	
14	4	4	4	4	4	4	16	5
12	4	4	4	4	4	4	14	5
18	4	4	4	4	4	4	23	5
32	5	5	5	5	5	5	32	

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Artikel-Nr.
Norma/DIN
Materiale tagliante
Tratt. di superficie
Tipo
Refrigerazione
Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante:
○ Aria
● Olio
◐ Emulsione
Direzione di taglio:
Ⓝ destre
Ⓜ sinistre

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm ²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		● ●
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		● ●
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		● ● ●
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		● ●
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		●
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		● ●
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		● ●
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		● ●
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Acciai temprati	-		≤48 HRC ≤66 HRC	● ●
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		● ●
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		●
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	● ● ●
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	● ●
Ghisa in conchiglia	-		≤350 HB	●
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	● ● ●
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		● ●
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		● ●
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		●
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		●
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		● ●
> 10 % Si				●
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		●
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn1Pb	≤500		●
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		●
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		●
Bronzi a truciolo corto	2.1090 CuSn7Zn1Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 ≤850		● ●
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		● ●
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○



≤10xD Profondità di foro

390	254	255	269	270	271	272	1101
WN	WN	WN	WN	WN	WN	WN	WN
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
○	●	●	●	●	●	●	●
N	N	N	N	N	N	N	N
con	con	con	con	con	con	con	con
394	499	500	498	502	503	504	501

>10xD Profondità di foro

235	236	237	266	267	524	528	529	525	542
1869 R1	1869 R2	1869 R3	1870 R1	1870 R2	1869 R1	1869 R2	1869 R3	1870 R1	1870 R2
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
○	●	●	●	●	○	○	○	○	○
N	N	N	N	N	GT 50	GT 50	GT 50	GT 50	GT 50
senza	senza	senza	senza	senza	senza	senza	senza	senza	senza
363	371	377	483	487	368	375	379	485	489



Vc m/min	Num. colonna avanzamento						
26	6	6	6	6	6	6	6
22	5	5	5	5	5	5	5
30	6	6	6	6	6	6	6
30	5	5	5	5	5	5	5
24	5	5	5	5	5	5	5
24	5	5	5	5	5	5	5
22	4	4	4	4	4	4	4
20	4	4	4	4	4	4	4
14	3	3	3	3	3	3	3
30	6	6	6	6	6	6	6
17	4	4	4	4	4	4	4
12	3	3	3	3	3	3	3
14	4	4	4	4	4	4	4
10	3	3	3	3	3	3	3
15	4	4	4	4	4	4	4
10	3	3	3	3	3	3	3
10	3	3	3	3	3	3	3
7	2	2	2	2	2	2	2

	Num. colonna avanzamento				
22	5	5	5	5	5
18	4	4	4	4	4
20	5	5	5	5	5
20	4	4	4	4	4
25	4	4	4	4	4
25	4	4	4	4	4
12	3	3	3	3	3
22	5	5	5	5	5
10	3	3	3	3	3
8	3	3	3	3	3
12	3	3	3	3	3
6	2	2	2	2	2
6	2	2	2	2	2

30	6	6	6	6	6	6	6
30	6	6	6	6	6	6	6
24	6	6	6	6	6	6	6
20	6	6	6	6	6	6	6
7	3	3	3	3	3	3	3
80	6						
50	7	7	7	7	7	7	7
50	6	6	6	6	6	6	6
60	5	5	5	5	5	5	5
40	5	5	5	5	5	5	5
24	4	4	4	4	4	4	4
24	4	4	4	4	4	4	4
22	4	4	4	4	4	4	4
24	5	5	5	5	5	5	5

22	5	5	5	5	5			
18	5	5	5	5	5			
20	5	5	5	5	5			
14	5	5	5	5	5			
55				6	6	6	6	6
55				6	6	6	6	6
45	6	6	6	6	6			
36	5	5	5	5	5			
55	5	5	5	5	5	5	5	5
22	4	4	4	4	4			
45	4	4	4	4	4			
28	4	4	4	4	4			
22	3	3	3	3	3			
20	3	3	3	3	3			
18	3	3	3	3	3			
12	3	3	3	3	3			
18	4	4	4	4	4	4	4	4

Navigator



>10xD Profondità di foro

502	503	504	242	243	244	526	527	563	564	565	566	293	298	299
1869 R1	1869 R2	1869 R3	WN	WN	WN	1870 R1	1870 R2	WN	WN	WN	WN	WN	WN	WN
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100
365	372	378	381	382	383	484	488	491	492	493	494	495	496	497

670	671
1869 R1	1869 R2
HSS	HSS
GT 100	GT 100
367	374



Vc m/min	Num. colonna avanzamento														
22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
12	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
20	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
14	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
28	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
20	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
12	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Vc m/min	Num. colonna avanzamento	
28	5	5
22	4	4
28	5	5
22	4	4
28	4	4
22	4	4
16	3	3
28	5	5
12	3	3
8	2	2
28	5	5
22	5	5
25	5	5
18	5	5
6	1	1
70	6	6
70	6	6
55	6	6
45	5	5
70	5	5
28	4	4
36	4	4
28	3	3
25	3	3
22	3	3
18	3	3
15	3	3
22	4	4

Navigator



GÜHRING NAVIGATOR

I numeri in grassetto della colonna avanzamento indicano gli utensili da preferire.
Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

Artikel-Nr.
Norma/DIN
Materiale tagliato
Tipo di metallo duro
Tratt. di superficie
Tipo
Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante:

- Aria
- Olio
- ◐ Emulsione

Direzione di taglio:

- Ⓡ destre
- Ⓛ sinistre

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm ²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		●
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		●
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Acciai temprati	-		≤48 HRC ≤66 HRC	●
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		●
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		●
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Ghisa in conchiglia	-		≤350 HB	○
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		●
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronzi a truciolo corto	2.1090 CuSn7Zn1Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○
	2.0790 CuNi18Zn19Pb	≤850		○
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○

Navigator



≤10xD Profondità di foro

311	317	357	336	623	617
339	340	341	340	341	340
HSCO	HSCO	HSCO	HSCO	HSCO	HSCO

N	N	N	GT 100	GT 100	Ti
330	353	480	355	481	358

669
340
HSCO

Ti
360

396
340
HSCO

GT 100
357

706
WN
Int. in MD
K10/K20

N
362



Vc m/min	Num. colonna avanzamento						Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.
33	5	5	5	5	5	5			36	5		
27	5	5	5	5	5	5			30	4		
36	5	5	5	5	5	5			40	5		
32	5	5	5	5	5	5			36	5		
36	5	5	5	5	5	5			40	5		
36	5	5	5	5	5	5			40	5		
22	4	4	4	4	4	4			26	4		
18	4	4	4	4	4	4			18	4		
14	3	3	3	3	3	3	15	3	15	3		
32	5	5	5	5	5	5			32	5		
18	4	4	4	4	4	4			20	4		
13	3	3	3	3	3	3	13	3	18	3		
14	4	4	4	4	4	4			18	4		
10	3	3	3	3	3	3	10	3	12	3		
13	4	4	4	4	4	4			15	4		
10	3	3	3	3	3	3	10	3	12	3		
12	3	3	3	3	3	3	10	3	14	3		
6	2	2	2	2	2	2	8	2	9	3		
4				1	1	1			5	1		
12	4	4	4	4	4	4	15	4	14	4		
8	3	3	3	2	2	3	10	3	10	3		
10	3	3	3	3	3	3	13	3	12	3		
32	6	6	6	6	6	6			35	6		
27	6	6	6	6	6	6			30	6		
26	6	6	6	6	6	6			30	6		
24	6	6	6	6	6	6			26	6		
6	3	3	3	3	3	3	6	3	12	3		
5	1	1	1			1	6	1				
8						2	10	2				
5						2	6	2				
70				7	7				77	7		
60				6	6				66	6		
60						5						
36	5	5	5	5	5				40	6		
54				5	5							
36	5	5	5	5	5				40	6		
30	4	4	4	5	5							
24	4	4	4	5	5							
18	4	4	4	4	4				21	5		
13	4	4	4	4	4	4	25	4	15	5		
16	4	4	4	4	4				30	5	50	4
26						4					40	3
											80	3





GÜHRING NAVIGATOR

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- Artikel-Nr.
- Norma/DIN
- Materiale tagliente
- Tratt. di superficie
- Tipo
- Refrigerazione
- Prezzi/misure pag.

Ø utensile mm	Num. colonna avanzamento								
	1	2	3	4	5	6	7	8	9
	f (mm/giro)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

- Refrigerante:
- Aria
 - Olio
 - Emulsione

- Direzione di taglio:
- Ⓡ destre
 - Ⓛ sinistre

Materiali	Esempi di materiale Numeri in grassetto = nr. materiale a DIN EN 10 027	Resistenza N/mm ²	Durezza	Refrigerazione
Acciai da costruzione	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 ≤1000		○ ○
Acciai automatici	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 ≤1000		○ ○
Acciai da bonifica non legati	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 ≤850 ≤1000		○ ○ ○
Acciai da bonifica legati	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400		○ ○
Acciai da cementazione non legati	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		○
Acciai da cementazione legati	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		● ●
Acciai nitrurati	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400		○ ●
Acciai utensili	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≤1400		○ ○
Acciai super rapidi	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		●
Acciai per molle	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	●
Acciai temprati	-		≤48 HRC ≤66 HRC	● ●
Acciai inossidabili, allo zolfo austenitici	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤900 ≤1100		● ●
martensitici	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		●
Ghise	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20) 0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○ ○
Ghise sferoidali, ghise temperate	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35) 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○ ○
Ghisa in conchiglia	-		≤350 HB	○
Nuove ghise GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤220 HB ≤300 HB	○ ○
Nuove ghise ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400		○ ○
Leghe speciali	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio e leghe di titanio	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		● ●
Alluminio e leghe di alu	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		○
Leghe di alu per lav. plastiche	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		○
Leghe di alu-ghisa ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		○
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		○
Leghe di magnesio	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		○
Rame legato in bassa %	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		○
Ottone, a truciolo corto	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		○
a truciolo lungo	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		○
Bronzi a truciolo corto	2.1090 CuSn7Zn1Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		○
	2.0790 CuNi18Zn19Pb	≤850		○
Bronzi a truciolo lungo	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000		○ ○
Mat. plastiche termoidurenti	Resina epossidica, Resopal, Pertinax, Moltopren	≤150		○
Materie termoplastiche	Plexiglas, Hostalen, Novodur, Makralon	≤100		○
Mat. plast. a fibre aramidiche	Kevlar	≤1000		○
a fibre di vetro/C rinforzate	GFK/CFK	≤1000		○



>10xD Profondità di foro

618	619	620	621
1869 R1	1869 R2	1870 R1	1870 R2
HSCO	HSCO	HSCO	HSCO
GT 100	GT 100	GT 100	GT 100
senza	senza	senza	senza
370	376	486	490

571
1869 R3
HSCO
GT 100
senza
380

370	371	372
WN	WN	WN
HSCO	HSCO	HSCO
GT 100	GT 100	GT 100
con	con	con
505	506	507

374	375	376
WN	WN	WN
HSCO	HSCO	HSCO
GT 100	GT 100	GT 100
con	con	con
508	509	510



Vc m/min	Num. colonna avanzamento			
30	4	4	4	4
25	4	4	4	4
33	4	4	4	4
30	4	4	4	4
33	4	4	4	4
33	4	4	4	4
20	3	3	3	3
14	3	3	3	3
10	2	2	2	2
29	4	4	4	4
14	3	3	3	3
10	2	2	2	2
10	3	3	3	3
8	2	2	2	2
11	3	3	3	3
8	2	2	2	2
8	2	2	2	2
5	1	1	1	1
3	1	1	1	1
10	3	3	3	3
8	2	2	2	2
10	2	2	2	2
20	5	5	5	5
16	5	5	5	5
5	2	2	2	2
5	1	1	1	1
6	1	1	1	1
5	1	1	1	1
50	6	6	6	6
40	5	5	5	5
30	4	4	4	4
45	4	4	4	4
30	4	4	4	4
25	4	4	4	4
20	4	4	4	4
16	3	3	3	3
10	3	3	3	3
14	3	3	3	3
20	3	3	3	3

Vc m/min	Num. col. avanz.
30	4
25	4
33	4
30	4
33	4
33	4
20	3
14	3
10	2
29	4
14	3
10	2
10	3
8	2
11	3
8	2
8	2
5	1
3	1
10	3
8	2
10	2
20	5
16	5
5	2
5	1
6	1
5	1
50	6
40	5
30	4
45	4
30	4
25	4
20	4
16	3
10	3
14	3
20	3

Vc m/min	Num. colonna avanzamento		
35	6	6	6
30	5	5	5
30	6	6	6
30	5	5	5
35	5	5	5
29	5	5	5
22	4	4	4
18	4	4	4
14	3	3	3
35	6	6	6
18	4	4	4
14	3	3	3
14	4	4	4
12	3	3	3
15	4	4	4
11	3	3	3
11	3	3	3
8	2	2	2
4	2	2	2
14	4	4	4
10	3	3	3
12	3	3	3
30	6	6	6
24	6	6	6
24	6	6	6
20	6	6	6
8	3	3	3
8	1	1	1
10	2	2	2
8	2	2	2
60	7	7	7
50	6	6	6
38	5	5	5
55	5	5	5
36	5	5	5
24	4	4	4
20	4	4	4
14	4	4	4
25	5	5	5

Vc m/min	Num. colonna avanzamento		
30	5	5	5
25	4	4	4
30	5	5	5
25	4	4	4
30	4	4	4
25	4	4	4
18	3	3	3
16	3	3	3
12	2	2	2
30	5	5	5
16	3	3	3
12	2	2	2
12	3	3	3
10	2	2	2
13	3	3	3
9	2	2	2
9	2	2	2
6	2	2	2
4	1	1	1
12	3	3	3
8	2	2	2
12	2	2	2
28	5	5	5
22	5	5	5
22	5	5	5
18	5	5	5
6	2	2	2
6	1	1	1
8	2	2	2
6	2	2	2
55	6	6	6
44	5	5	5
35	4	4	4
50	4	4	4
33	4	4	4
22	4	4	4
18	4	4	4
12	4	4	4
25	4	4	4

Navigator



GÜHRING NAVIGATOR

I numeri in grassetto della colonna avanzamento indicano gli utensili da preferire. Per la scelta dell'utensile ottimale e dei valori di taglio consigliati per il vostro lavoro sotto www.guehring.de è a disposizione anche la versione elettronica del Navigatore Guehring.

- Articolo nr. (R)
Articolo nr. (L)
Norma/DIN
Materiale tagliente
Tipo di metallo duro
Tratt. di superficie
Tipo
Refrigerazione
Prezzi/misure pag.

Table with columns: Ø utensile mm, Num. colonna avanzamento (1-9), f (mm/giro). Rows include values for diameters 0,10 to 2,00.

Table with columns: Ø utensile mm, Num. colonna avanzamento art. nr. 6400/6401/6408/6412 (56-68), f (mm/giro). Rows include values for diameters 0,50 to 3,00.

- Refrigerante:
○ Aria
● Olio
● Emulsione
Direzione di taglio:
(R) destre
(L) sinistre

Main table with columns: Materiali, Esempi di materiale (Numeri in grassetto = nr. materiale a DIN EN 10 027), Resistenza N/mm², Durezza, Refrigerazione. Lists various materials like Acciai da costruzione, Ghise, Leghe speciali, etc.

Navigator



301 303 1899 HSS-E-PM	660 1899 HSS-E-PM	701 WN Int. in MD K10/K20	3899 WN Int. in MD K/P	≤4xD ≤7xD 6400 6401 WN WN Int. in MD Int. in MD K/P K/P	≤5xD ≤8xD ≤15xD 6405 6408 6412 WN WN WN Int. in MD Int. in MD Int. in MD K/P K/P K/P
○ N sin 649/654	⊙ N sin 652	○ N sin 656	⊙ N sin 657	⊙ N sin 108/659 109/660	⊙ N con 110/661 111/662 112/663



Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. col. avanz.	Vc m/min	Num. colonna avanzamento	Vc m/min	Num. colonna avanzamento
21	106	27	106	50	105	100	62	100	64 62	105	62 58 58
18	105	23	105	35	104	100	62	100	64 62	100	62 58 58
18	106	23	106	50	105	100	62	100	64 62	105	62 59 59
16	105	21	105	45	104	90	61	90	63 61	90	61 59 59
20	105	26	105	45	104	90	62	90	64 62	95	62 58 58
18	105	23	105	35	104	90	62	90	64 62	95	62 58 58
14	104	18	104	30	103	90	61	90	63 61	90	61 58 58
14	104	18	104	30	103	90	61	90	63 61	90	61 58 58
12	103	16	103	70	60	70	60	70	62 60	70	60 58 58
18	106	23	106	50	103	100	61	100	63 61	100	61 57 57
14	104	18	104	40	103	85	61	85	63 61	85	61 58 58
12	103	16	103	70	60	70	60	70	62 60	70	60 58 58
14	104	18	104	25	103	70	60	70	62 60	70	60 57 57
12	103	16	103	60	60	60	60	60	62 60	60	60 57 57
16	104	20	104	25	103	50	60	50	62 60	50	60 58 58
14	103	18	103	60	60	60	60	60	62 60	50	60 58 58
14	103	18	103					60	57 57	50	57 57 57
8	102	10	102	20	102			60	57 57	50	57 57 57
				15	104						
18	104	20	104	25	103			30	57 57	70	57 57 57
14	103	16	103	25	102			15	56 56	60	56 56 56
16	103	18	103	25	102			30	57 57	70	57 57 57
26	106	33	106	80	105	130	66	130	68 66	150	60 60 60
22	106	28	106	60	105	130	66	130	68 66	140	60 60 60
18	106	23	106	60	105	130	66	130	68 66	140	60 60 60
22	106	28	106	50	105	120	65	120	67 65	130	60 60 60
				15	103			10	56 56	25	56 56 56
				45	104			15	56 56	35	56 56 56
				25	104			15	56 56	35	56 56 56
				160	107			70	68 68	70	68 68 68
				150	106			70	68 68	70	68 68 68
26	107			100	106			135	59 59	135	59 59 59
18	106			60	106			135	59 59	135	59 59 59
75	106	80	106	150	105						
42	105	53	105	50	105						
				67	106						
22	105	28	105	44	104						
22	104	28	104	68	103						
18	104	23	104	49	103						
13	104	16	104	53	103						
		14	104	36	103						
16	104	20	104	50	103						
18	104	23	104	36	103						
				60	104						

Navigator



557	556	559
WN		
HSS		
○	○	○
N	N	N
90	120	90
696	702	700

568	567
WN	
HSS	
Ⓢ	Ⓢ
N	N
90	120
697	703

1136	1134
WN	
HSCO	
○	○
N	N
90	120
698	704

1133	1135
WN	
HSCO	
Ⓢ	Ⓢ
N	N
90	120
699	705



V _c m/min	Num. colonna avanzamento		
30	6	6	6
25	5	5	5
32	6	6	6
30	5	5	5
25	5	5	5
25	5	5	5
20	4	4	4
15	4	4	4
12	3	3	3
30	6	6	6
15	4	4	4
8	3	3	3
16	4	4	4
10	3	3	3
6	3	3	3
8	3	3	3
30	6	6	6
30	6	6	6
25	6	6	6
20	6	6	6
70	7	7	7
70	7	7	7
50	7	7	7
50	6	6	6
70	6	6	6
60	5	5	5
60	5	5	5
40	5	5	5
30	4	4	4
25	4	4	4
15	4	4	4
12	4	4	4
18	4	4	4
28	5	5	5

V _c m/min	Num. colonna avanzamento	
32	6	6
26	5	5
35	6	6
33	5	5
28	5	5
28	5	5
25	4	4
22	4	4
17	3	3
33	6	6
20	4	4
12	3	3
14	4	4
18	4	4
12	3	3
8	3	3
10	3	3
8	3	3
10	3	3
33	6	6
33	6	6
28	6	6
22	6	6
60	6	6
80	6	6
65	5	5
70	5	5
45	5	5
33	4	4
27	4	4
16	4	4
15	4	4
22	4	4
36	5	5

V _c m/min	Num. colonna avanzamento	
35	6	6
30	5	5
40	5	5
40	5	5
35	5	5
35	5	5
30	4	4
22	4	4
17	3	3
33	6	6
20	4	4
15	3	3
14	4	4
12	3	3
18	4	4
12	3	3
8	3	3
8	2	2
12	3	3
10	3	3
10	3	3
33	6	6
33	6	6
30	6	6
25	6	6
6	1	1
8	2	2
6	2	2
80	7	7
80	7	7
60	7	7
60	6	6
70	6	6
65	5	5
70	5	5
45	5	5
35	4	4
33	4	4
20	4	4
15	4	4
22	4	4
36	5	5

V _c m/min	Num. colonna avanzamento	
42	6	6
36	5	5
48	6	6
42	6	6
44	6	6
44	6	6
40	5	5
27	4	4
22	3	3
37	6	6
22	4	4
18	3	3
19	4	4
15	3	3
21	4	4
16	3	3
12	3	3
10	2	2
18	3	3
15	3	3
12	3	3
38	6	6
35	6	6
33	6	6
28	6	6
7	1	1
10	2	2
8	2	2
85	7	7
65	7	7
65	6	6
80	6	6
70	5	5
75	5	5
50	5	5
45	5	5
40	4	4
25	4	4
20	4	4
25	4	4
40	4	4

Navigator



533	534	555
DIN 344	DIN 343	DIN 1864
HSS		
N	N	N
737	740	743

634	635
DIN 343	DIN 1864
HSCO	
N	N
742	744



Vc m/min	Num. colonna avanzamento		
27	4	4	4
20	4	4	4
28	4	4	4
25	4	4	4
22	4	4	4
20	4	4	4
18	3	3	3
15	4	4	4
8	3	3	3
23	5	5	5
15	4	4	4
8	3	3	3
10	4	4	4
8	3	3	3
10	3	3	3
6	3	3	3
6	3	3	3
5	2	2	2
8	2	2	2
6	2	2	2
5	2	2	2
20	6	6	6
20	5	5	5
18	6	6	6
16	5	5	5
3	1	1	1
5	2	2	2
4	2	2	2
60	7	7	7
60	7	7	7
36	6	6	6
36	6	6	6
40	6	6	6
50	5	5	5
50	5	5	5
30	5	5	5
30	4	4	4
25	4	4	4
15	4	4	4
15	4	4	4
15	4	4	4
25	5	5	5

Vc m/min	Num. colonna avanzamento	
30	4	4
25	4	4
32	4	4
30	4	4
25	4	4
22	4	4
20	3	3
17	4	4
10	3	3
25	5	5
17	4	4
10	3	3
13	4	4
10	3	3
13	3	3
8	3	3
8	3	3
6	2	2
10	2	2
8	2	2
6	2	2
25	6	6
25	5	5
20	6	6
18	5	5
4	1	1
6	2	2
5	2	2
70	7	7
70	7	7
40	6	6
40	6	6
50	6	6
55	5	5
55	5	5
35	5	5
35	4	4
30	4	4
20	4	4
18	4	4
20	4	4
30	5	5

Navigator



581	583	585	280	292	587	588
DIN 333			WN	BS 328	DIN 333	
HSS						
○	○	○	○	○	○	○
A	R	B	B	A	A	R
668	672	675	689	680	690	691

613	614
DIN 333	
HSS	
Ⓢ	Ⓢ
A	R
669	673

381
DIN 333
HSCO
○
A
682



Vc m/min	Num. colonna avanzamento						
30	4	4	4	4	4	4	4
25	4	4	4	4	4	4	4
30	4	4	4	4	4	4	4
30	4	4	4	4	4	4	4
25	4	4	4	4	4	4	4
20	4	4	4	4	4	4	4
20	3	3	3	3	3	3	3
15	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3
25	5	5	5	5	5	5	5
15	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3
10	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3
10	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3
5	2	2	2	2	2	2	2
10	3	3	3	3	3	3	3
8	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3
20	6	6	6	6	6	6	6
20	5	5	5	5	5	5	5
25	6	6	6	6	6	6	6
20	5	5	5	5	5	5	5
3	1	1	1	1	1	1	1
5	2	2	2	2	2	2	2
4	2	2	2	2	2	2	2
70	7	7	7	7	7	7	7
70	7	7	7	7	7	7	7
40	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6
60	6	6	6	6	6	6	6
50	5	5	5	5	5	5	5
60	5	5	5	5	5	5	5
40	5	5	5	5	5	5	5
30	4	4	4	4	4	4	4
25	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4
25	5	5	5	5	5	5	5

Vc m/min	Num. colonna avanzamento		Vc m/min	Num. colonna avanzamento	
35	4	4	35	4	4
30	4	4	30	4	4
35	4	4	35	4	4
35	4	4	35	4	4
30	4	4	30	4	4
25	4	4	25	4	4
22	3	3	22	3	3
17	4	4	17	4	4
10	3	3	10	3	3
30	5	5	30	5	5
18	4	4	18	4	4
10	3	3	10	3	3
13	4	4	13	4	4
10	3	3	10	3	3
13	3	3	13	3	3
8	3	3	8	3	3
8	3	3	8	3	3
8	2	2	8	2	2
15	3	3	15	3	3
10	3	3	10	3	3
8	3	3	8	3	3
25	6	6	25	6	6
25	5	5	25	5	5
30	6	6	30	6	6
25	5	5	25	5	5
6	1	1	6	1	1
6	2	2	6	2	2
5	2	2	5	2	2
50	6	6	50	6	6
70	6	6	70	6	6
60	5	5	60	5	5
70	5	5	70	5	5
45	5	5	45	5	5
35	4	4	35	4	4
30	4	4	30	4	4
20	4	4	20	4	4
18	4	4	18	4	4
20	4	4	20	4	4
30	5	5	30	5	5

Navigator



274	574	575	576
WN			
HSS			
●	●	●	●
N	N	N	N
714	715	716	717

378	1147	379	380
WN			
HSS			
○	○	○	○
N	N	N	N
718	719	720	721



V _c m/min	Num. colonna avanzamento			
30	4	4	4	4
25	4	4	4	4
30	4	4	4	4
30	4	4	4	4
25	4	4	4	4
20	4	4	4	4
20	3	3	3	3
15	4	4	4	4
8	3	3	3	3
25	5	5	5	5
15	4	4	4	4
8	3	3	3	3
10	4	4	4	4
8	3	3	3	3
10	3	3	3	3
6	3	3	3	3
6	3	3	3	3
5	2	2	2	2
8	2	2	2	2
6	2	2	2	2
5	2	2	2	2
20	6	6	6	6
20	5	5	5	5
25	6	6	6	6
20	5	5	5	5
3	1	1	1	1
5	2	2	2	2
4	2	2	2	2
60	7	7	7	7
60	7	7	7	7
40	6	6	6	6
40	6	6	6	6
40	6	6	6	6
50	5	5	5	5
60	5	5	5	5
40	5	5	5	5
30	4	4	4	4
25	4	4	4	4
15	4	4	4	4
15	4	4	4	4
15	4	4	4	4
25	5	5	5	5

V _c m/min	Num. colonna avanzamento			
30	4	4	4	4
25	4	4	4	4
30	4	4	4	4
30	4	4	4	4
25	4	4	4	4
20	4	4	4	4
20	3	3	3	3
15	4	4	4	4
8	3	3	3	3
25	5	5	5	5
15	4	4	4	4
8	3	3	3	3
10	4	4	4	4
8	3	3	3	3
10	3	3	3	3
6	3	3	3	3
6	3	3	3	3
5	2	2	2	2
8	2	2	2	2
6	2	2	2	2
5	2	2	2	2
20	6	6	6	6
20	5	5	5	5
25	6	6	6	6
20	5	5	5	5
3	1	1	1	1
5	2	2	2	2
4	2	2	2	2
60	7	7	7	7
60	7	7	7	7
40	6	6	6	6
40	6	6	6	6
40	6	6	6	6
50	5	5	5	5
60	5	5	5	5
40	5	5	5	5
30	4	4	4	4
25	4	4	4	4
15	4	4	4	4
15	4	4	4	4
15	4	4	4	4
25	5	5	5	5



536	569	636	638	538	514	540	637	537	639	539	520	541	
DIN 8374		WN		DIN 8376		WN	DIN 8378		WN	DIN 8377		WN	DIN 8379
HSS													
●	●	●	●	●	●	●	●	●	●	●	●	●	
N	N	N	N	N	N	N	N	N	N	N	N	N	
722	723	724	725	726	728	729	731	732	733	734	735	736	



Vc m/min	Num. colonna avanzamento												
30	4	4	4	4	4	4	4	4	4	4	4	4	4
25	4	4	4	4	4	4	4	4	4	4	4	4	4
30	4	4	4	4	4	4	4	4	4	4	4	4	4
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20	4	4	4	4	4	4	4	4	4	4	4	4	4
20	3	3	3	3	3	3	3	3	3	3	3	3	3
15	4	4	4	4	4	4	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3	3	3	3	3	3	3
25	5	5	5	5	5	5	5	5	5	5	5	5	5
15	4	4	4	4	4	4	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3	3	3	3	3	3	3
10	4	4	4	4	4	4	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3	3	3	3	3	3	3
10	3	3	3	3	3	3	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3	3	3	3	3	3	3
5	2	2	2	2	2	2	2	2	2	2	2	2	2
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5	2	2	2	2	2	2	2	2	2	2	2	2	2
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15	4	4	4	4	4	4	4	4	4	4	4	4	4
25	5	5	5	5	5	5	5	5	5	5	5	5	5



Table with 9 columns: Ø punte mm, and 8 columns for advance rates (11-18) in mm/rev. Rows list various drill bit diameters from 1.50 to 40.00 mm.

* I valori di avanzamento di basano sempre su utensili con la ricopertura consigliata. In alcuni casi la funzionalità degli utensili non può essere garantita senza ricopertura.



Tutte le punte a cannone devono essere guidate da un foro pilota. Le punte a cannone non devono essere mai mosse libere al massimo dei giri nello spazio macchina.

Suggerimenti e trucchi

- Con profondità di foro superiore a 40 x D, consigliamo l'impiego di due o più punte a cannone, p. es. Ø 10 x 400 mm e Ø 9,95 x 800 mm.
- Punta a cannone per profondità di foro superiore a 40 x D dovrebbero essere guidate nel foro pilota con rotazione sinistrorsa.
- Nel cambio di utensili da 40 x D, gli stessi possono essere smorzati con l'accensione di refrigerazione interna ad alta pressione per ca. 1 secondo.
- Per la lavorazione di materiali a truciolo lungo, consigliamo di ordinare punte a cannone con scanalature lucidate.
- In generale consigliamo di impiegare emulsione con almeno il 10% di grasso.
- Punta a cannone ad un tagliente per alluminio a truciolo lungo dovrebbero essere ordinate con angolo di affilatura a 180° e spazio per vano olio.
- Nell'entrare in alluminio con meno dell'1% di Si, cioè con velocità di taglio consigliate vc > 160 m/min, consigliamo di raggiungere il numero di giri finale in più passaggi. Inoltre si dovrebbe avere un foro pilota di ca. 3 x D.

Come lavorare con punte a cannone

- Produzione del foro pilota (L = 1,5 x D, tolleranza G9)
• Entrata con nr. giri limitato, ca. 200 giri/min, avanzamento ca. 500 mm/min.
• Regolazione di pressione del refrigerante e del numero di giri
• Foratura in continuo sull'intera lunghezza, senza scaricare.
Impegnando punte a cannone con un grosso rapporto lunghezza-diametro, consigliamo di lavorare fino ad una profondità di foro di ca. 25 mm con parametri di taglio ridotti (ca. 75% della velocità di taglio ottimale).
• Spegnimento dell'adduzione refrigerante al raggiungimento della profondità di foro voluta
• Corsa di ritorno rapido con mandrino fermo.

Refrigerante specifico per materiali da lavorare:

- emulsione
● olio
● aria

EB100

Punte a cannone ad 1 tagliente

MD

0,9 ... 12,0



≤35xD

>35xD

Main table with 5 columns: Materiali, Esempi di materiale, Resist. N/mm², Durezza, Refri-geracion, ricopert. consigl., Vc m/min, Nr. col. avanzamento, Vc m/min, Nr. col. avanzamento. Rows list various materials like Acciai da costruzione, Acciai da bonifica, Acciai da cementazione, Acciai nitruati, Acciai utensili, Acciai super rapidi, Acciai per molle, Acciai temprati, Acciai inossidabili, Ghise, Leghe speciali, Titanio, Alluminio, Ottone, Bronzi, Mat. plastiche, etc.



Modalità di procedimento

- Per ottenere i migliori risultati di lavorazione nella produzione di fori profondi specialmente nella centratura su raggi o su strutture superficiali non in piano, consigliamo di seguire i seguenti passi:
1. Fresatura di un piano, per es. con fresa Ratio Gühring RF 100 U con taglio al centro. Il piano deve essere eseguito ad angolo retto rispetto all'angolo di entrata della foratura.
 2. Produzione di un foro pilota cilindrico (tolleranza G9) con una profondità di almeno 1xD. Consigliamo l'uso di una punta Ratio RT 100 U o RT 100 F che è la più adatta allo scopo per il suo angolo di affilatura a 140° e la sua tolleranza m7 sul diametro.
 3. Inserimento nel foro pilota con un numero di giri di circa 300 giri/min ad un avanzamento di circa 500 mm/min.
 4. Regolazione della pressione refrigerante e del numero di giri.
 5. Forare in continuo l'intera profondità senza ciclo di scarico.
 6. Per fori passanti con uscita a 90° ridurre la velocità di avanzamento al 50% a circa un mm prima dell'uscita.
 7. Per fori passanti con uscita trasversale ridurre la velocità di avanzamento al 40% a circa un mm prima dell'uscita.
 8. Al raggiungimento della profondità voluta spegnete giri e refrigerante, uscire in corsa rapida.



Frese Ratio RF 100 Articolo Nr. 3736

La fresa Ratio RF 100 U Gühring rivestita FIRE offre grazie al suo passo differenziato i più alti avanzamenti e durata per lavorazioni di finitura e sgrossatura in acciaio e materiali di ghisa così come leghe di titanio e nichel.



Frese Ratio RT 100 U Art. Nr. 2477

Frese Ratio RT 100 F Art. Nr. 1660

Le Frese Ratio Gühring si mostrano valide grazie a speciali geometrie di taglio e mediante un autocentraggio molto buono ed una foratura precisa, il tipo U specialmente nella lavorazione degli acciai e leghe di alluminio-silicio, il tipo F per acciai altamente legati e abrasivi, alluminio e leghe di alluminio, manganese e leghe di manganese come anche titanio e leghe di titanio.

EB80

Punte a cannone ad 1 tagliente

Testa in MD

2,0 ... 40,0



ZB80

Punte a cannone a 2 taglienti

Testa in MD

6,0 ... 27,0



EB800

Punte a cannone ad 1 tagliente

con inserti intercambiabili

12,0 ... 40,0



ricopert. consigl.	≤35xD		>35xD		ricopert. consigl.	≤35xD		>35xD		ricopert. consigl.	≤35xD		>35xD	
	V _c m/min	Nr. col. avanzamento	V _c m/min	Nr. col. avanzamento		V _c m/min	Nr. col. avanzamento	V _c m/min	Nr. col. avanzamento		V _c m/min	Nr. col. avanzamento	V _c m/min	Nr. col. avanzamento
T	100	14	95	13						T	90	15	85	15
T	85	14	80	13						T	80	15	75	15
T	90	14	85	13						T	85	16	80	16
T	80	14	75	13						T	75	16	70	16
T	90	13	85	12						T	85	15	80	15
T	80	13	75	12						T	80	15	75	15
T	75	13	70	12						T	75	15	70	15
T	75	13	70	12						T	75	15	70	15
T	65	13	60	12						T	65	15	60	15
T	80	14	75	13						T	80	15	75	15
T	75	13	70	12						T	75	15	70	15
T	65	13	60	12						T	70	15	65	15
C	75	13	70	12						T	70	15	65	15
C	65	13	60	12						T	60	15	55	15
C	75	12	70	11						T	65	14	60	14
C	65	12	60	11						T	60	14	55	14
C	55	11	50	11						T	55	14	50	14
C	65	12	60	12						T	65	15	60	15
C	30	12	25	11						T	30	13	25	13
C	25	11	20	11						T	25	12	20	12
C	55	13	50	12						T	50	14	45	14
C	45	13	40	12						F	45	14	40	14
C	35	13	35	12						F	40	14	35	14
C	85	15	80	14		85	18	80	17	F	85	16	80	16
C	80	15	75	14		80	18	75	17	F	80	16	75	16
C	80	14	75	13		75	17	70	16	F	75	16	70	16
C	70	14	65	13		70	17	65	16	T	70	16	65	16
C	55	13	50	12		65	16	60	15	F	55	15	50	15
C										F				
C										F				
C										F				
C	20	11	20	11						F	25	13	20	13
C	35	11	30	11						F	35	13	30	13
C	30	11	25	11						F	30	12	25	12
C	150	16	140	15		120	18	115	17	F	140	16	135	16
C	120	15	115	14		110	18	105	17	F	125	16	120	16
C	150	16	140	15		135	18	130	17	F	170	17	165	17
C	130	16	120	15		120	17	115	16	F	140	17	135	17
C	110	16	100	15						F	115	16	110	16
C	75	14	70	13						F	75	15	70	15
C	120	17	115	16						F	120	17	115	17
C	90	17	85	16		130	18	125	17	F	90	17	85	17
C	95	16	90	15		120	18	115	17	F	95	17	90	17
C	75	16	70	15		110	17	105	16	F	75	17	70	17
C	70	16	65	15		110	17	105	16	F	70	17	65	17
C	60	16	55	15		95	17	90	16	F	60	17	55	17
C	75	14	70	13		95	17	90	16	F	75	16	70	16
C	70	14	65	13						F	70	16	65	16
C	60	13	55	12						F	60	15	55	15
C	50	13	45	12						F	50	15	45	15





13

TECHNICAL SECTION





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RT 100 TRIGON®

Innovative Design for more efficient cooling

In stainless steels the high chrome and nickel content ensures a high corrosion resistance and high tensile strength. Consequently, however, the machinability of the material decreases, process temperatures

increase. Nevertheless, RT 100 TRIGON® ensures high cutting speeds and feed rates – made possible by the innovative coolant duct geometry.

Flute form

A specially developed flute form with the highest surface finish as well as the 4-facet point geometry ensures optimal chip generation and cutting characteristics.



Corner preparation

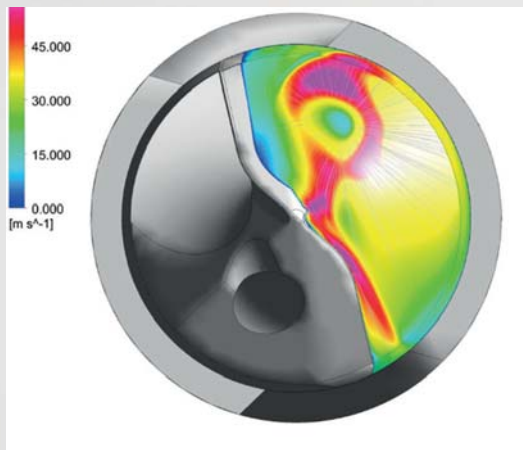
The TiAlN based coating and special corner preparation reduces the extreme stresses on the cutting edge during machining and provides high wear resistance.



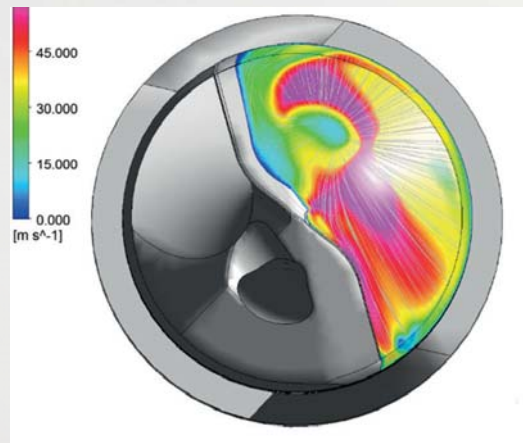
The new form of coolant duct optimises the coolant volume, the flow rate and the flow direction, extreme process temperatures are optimally dissipated. In comparison to

conventional round coolant ducts the cooling medium is specifically guided to the most stressed areas, the major cutting edge and the cutting edge corners of the drill.

Conventional coolant duct



Trigon coolant duct design



Flow characteristics in comparison



RT 100 C

The Ratio drill for the machining of long chipping steels

Cutting edge geometry

Major cutting edges with a concave form ensure perfect penetration and cutting characteristics when machining long-chipping steels. Cutting forces and temperatures are considerably reduced.

Flute form

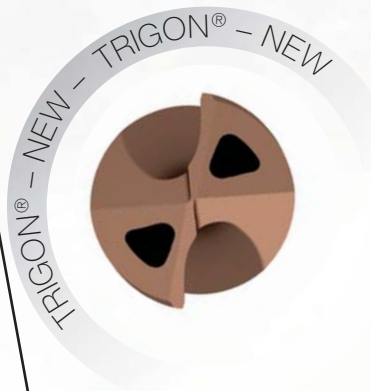
The flute form with narrow geometry, especially designed for long-chipping steels, ensures optimal chip generation characteristics even at low cutting speeds.

A high surface quality and a excellent coating ensure optimal chip evacuation. High process temperatures are dissipated safely.

- special solution
- Ø 3-20 mm
- up to 7xD drilling depth
- from Ø 6.0 mm with new TRIGON® coolant duct design

New coolant duct design

The new form of coolant duct optimises the coolant volume, the flow rate and the flow direction, extreme process temperatures are optimally dissipated. In comparison to conventional round coolant ducts the cooling medium is specifically guided to the most stressed areas, the major cutting edge and the cutting edge corners of the drill.



Cutting edge preparation

RT 100 type C impresses with its special cutting edge preparation that is complemented with its edge geometry and excellent surface quality. The tool life is increased considerably and in addition the formation of micro cracks and built-up edges is avoided.



RT 100 AL

Guhring's new solid carbide drill for the machining of aluminium materials

For aluminium drilling chip formation with chip evacuation are both of vital importance.

With RT 100 AL optimal chip formation is achieved at the cutting edge in the entire material range – from tough aluminium wrought alloys to aluminium cast alloys with high silicon content.

Extremely high surface finish quality of web thinning, front face and clearance rake areas

- reduction in process temperatures
- prevents formation of built-up edges

Open point geometry and cutting edge form:

- optimal chip formation behaviour

Sharp, micro-treated cutting edges

- perfect cutting behaviour, also in heat-treated AlSi-alloys
- short chip fracture also in aluminium wrought alloys

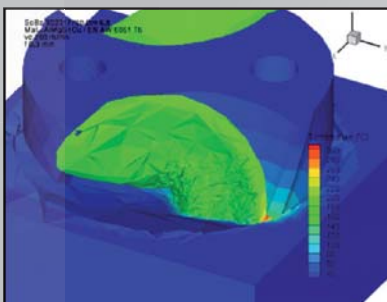
Flute geometry

- polished flutes for optimal chip evacuation
- minimising friction
- prevention of material adhesion

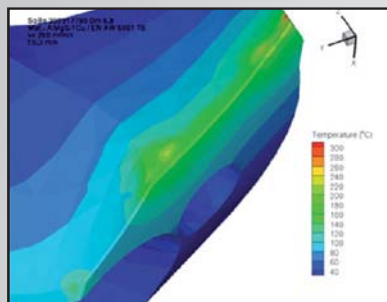


RT 100 AL distinguishes itself thanks to an ideal geometry with high surface finish qualities in the web thinning, front face and clearance rake areas. Micro-treated cutting edges and corners complement the point geometry and ensure perfect cutting behaviour, low process temperatures prevent the formation of built-up edges when machining aluminium.

Chip formation



Temperature distribution at cutting edge



The tools are designed with a bright finish, for heavily abrasive aluminium materials an additional head coating for further tool life improvement is possible. Special dimensions as well as single- or multi-step tools are available on request



Fibre composite plastics (FCP's)

Modern fibre composite plastics (FCP's) are making an entry into a broad range of industrial applications for reasons of efficiency, weight reduction, strength and dynamics. With their specific properties they extend the group of conventional metal lightweight construction materials such as aluminium- and titanium-alloys. FCP's or multi-material systems, ie. a mixture of FCP and metallic materials, are therefore no longer exclusively retained for the aerospace industry, motorsport and other high-end applications.

It is especially worth high-lighting the great growth in the vehicle and commercial vehicle technology, the wind energy sector as well as general mechanical engineering. FCP's are applied where high specific strength and low weight as well as high dynamic or energy efficient processes can be found.

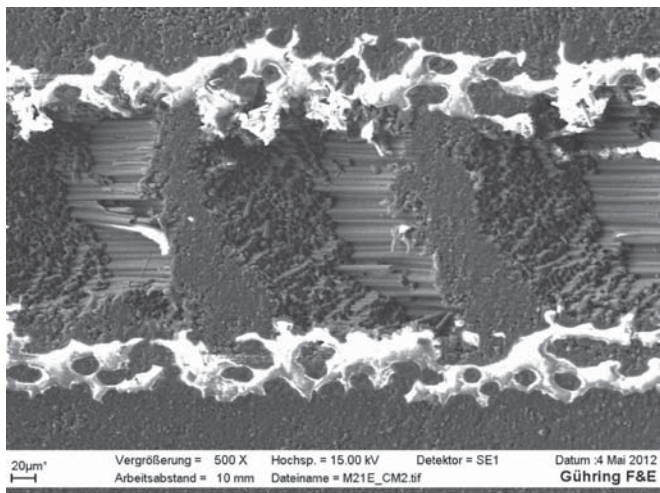
Since the mid 1980's Guhring has provided tooling solutions in the standard and special sector for the machining of FCP's. This long-term experience resulted in the development of a wide variety of specialised high-performance tools, adapted to different conditions and application cases such as manual drilling, drilling with drill feed units, machining with robots or machining in conventional machining centres.

Guhring tools for the machining of FCP meet the general requirements for the machining of modern lightweight construction materials.

- Components without fibre projections
- Delamination-free component surface
- No component damage through "peel-up" or "push-out"
- Prevention of split fibres "pull-outs" on component
 - Minimising burr development
 - Prevention of thermal damage

For the machining of FCP materials without component damage, cutting edge quality and wear resistance of the tool material are of absolute importance. Pre-requisite for a process reliable separation of the heavily abrasive fibres, especially

materials with a fibre volume ratio of more than 55 percent, is a sharp cutting edge.



CFRP cutting area with 500-fold magnification

The scanning electron microscope shows how the materials fibre structure and fibre direction is retained after machining. Fibres are neither pressed into the matrix, nor torn out of the composite.



GFRP / CFRP

Glass fibre reinforced plastics (GFRP) are industrially applied in large volume for wind energy applications as well as in the transportation and construction sector. GFRP is generally only applied for moderately load bearing components, mostly large area shell components. The lesser load bearing GFRP components are in many cases preferred to the lighter carbon fibre reinforced plastics (CFRP) as they can be produced considerably more cost-efficient and are easier to machine.

Carbon reinforced plastics (CFRP) by comparison have considerably higher strength. Depending on the manufacturing process and fibre diameter, pure carbon fibres achieve a higher tensile strength weight ratio compared with steel materials. For this reason CFRP is extensively used for high load bearing structural components.

To protect the fibres in CFRP and GFRP from applied forces they are bedded into a matrix. The ratio of fibre to matrix determines the so-called fibre volume ratio and in heavily stressed CFRP components it can be up to 65 percent. For finish machining the type of fibre and fibre direction of the components must be observed. The fibre direction with CFRP is the deciding factor for the tendency for the material to delaminate and fibre splitting. Therefore, unidirectional layers especially at the hole exit tend to delaminate heavily. The tendency to delaminate must be counteracted with the tool geometry.



The machining of CFRP and GFRP materials require specific tooling solutions especially designed to suit the heavily abrasive fibres. To prevent typical FCP component damage, Guhring provides application specific high-performance tools.

This prevents the material from delaminating due to targeted control of the cutting forces.

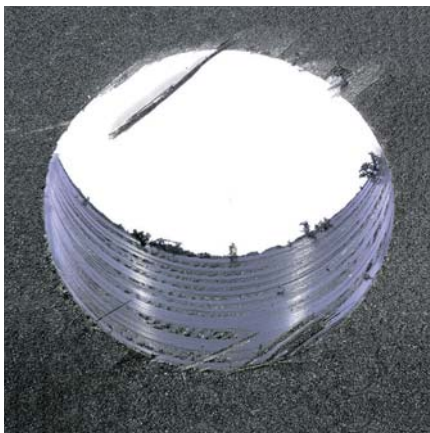




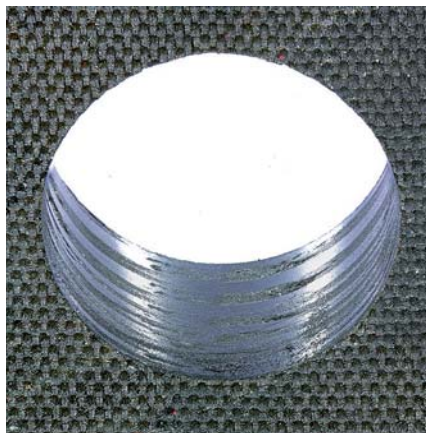
FCP drilling operations

For drilling operations, specific drilling tools with different point geometries are applied. Thanks to specifically designed tools, the fibres can be reliably separated in unidirectional fibre layers as well as in fabric layers. Delamination on the component

surface on tool entry and exit (“peel up” / “push out”) as well as in the component can be prevented.



Hole D = 6.35 mm
With fibre projection on cover coating and delamination



Hole D = 6.35 mm
CFRP with fabric layer, optimal machining quality



Hole D = 6.35 mm
Unidirectional CFRP with optimal machining quality

Stack materials

The combination of at least two different materials with differing properties is described as a stack material or just stack. Often applied material pairings for lightweight construction applications are CFRP/titanium as well as CFRP/aluminium. But also other combinations of the materials CFRP, titanium, stainless steel and aluminium in different combinations are possible. To insert the connection elements, the different materials must be machined together in a process. The challenge for cutting tools during the machining process results from the very different material properties and the machining strategies of the combined materials. When machining CFRP/titanium stacks CFRP is heavily abrasive and quickly leads to a rounding of the cutting edges of the tool. Titanium in contrast is very tough and causes high machining temperatures due to its low thermal conductivity. The CFRP is very quickly damaged when machining due to high machining forces and temperatures. Despite the different materials a secure accurate machining process must be ensured over a long tool life.

Guhring also provides special solid carbide, coated carbide and PCD tooling solutions for this material group. They are specially adapted to the respective material structure and ensure chip evacuation as well as uniform hole diameters across all materials.





Laser structured clearance

Tool life optimisation thanks to cooling lubrication guided to the target location

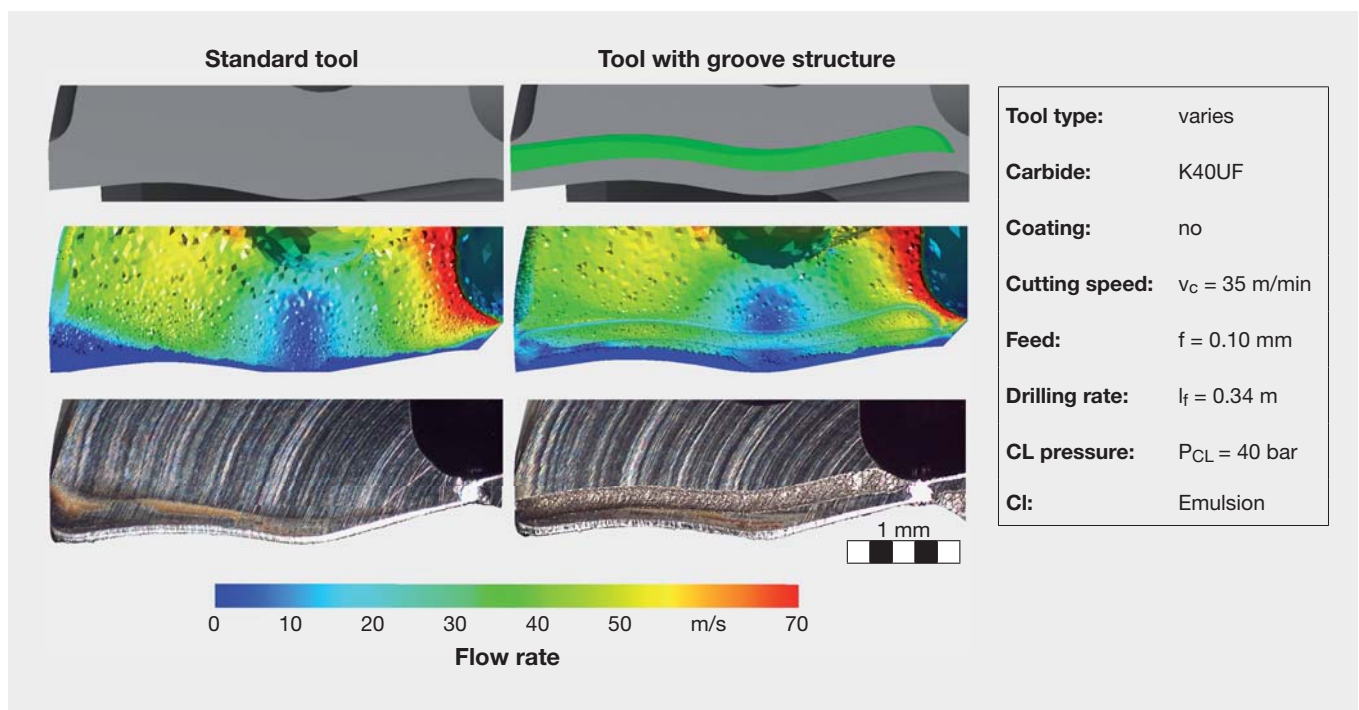
With drilling operations a high quantity of cooling lubrication (CL) does not always lead to the desired result as it must be supplied to the target location. For this laser machining of drilling tools offers innovative design possibilities. The cross-section of the coolant ducts and their position within the clearance constitute important factors for influencing the cooling lubrication during the drilling operation. Furthermore, structures within the clearance as well as adjacent surface areas can influence the flow behaviour of the cooling lubrication. These structures are generated by laser machining. The aim is to

guide and aim the CL at the most stressed areas, especially those subject to high thermal stresses. They include the cutting lip and the outer corners for example. The reduced thermal stress slows wear development and increases tool life. Applications are all drilling operations where tools are subject to high thermal stresses. The hole quality is improved thanks to the improved cooling lubrication and accompanied by reduced temperatures.

Simulation with Computational Fluid Dynamics (CFD)

The influence of the coolant duct diameter as well as of the generated structures on CL flow can be analysed in more detail by the application of CFD simulation. Initial examinations were carried out on a simple groove structure that follows the cutting edge at a constant distance of approximately 150 μm . The groove had a depth of approximately 50 μm . CFD simulations carried out confirm the positive influence on the cooling lubrication flow and an improved cooling of thermally high-stressed areas. Larger areas near the outer corner that beforehand were virtually not reached by the CL due to the small volume between the drill clearance and the base of the hole now receives increased cooling lubrication by guiding the flow and the increased space.

The brownish deposits on the clearance of the tools applied for the machining of nickel base alloy Inconel 718 confirm the increased cooling performance in these areas. The spatial expansion as well as the intensity of deposits consisting of burnt CL limits the machined groove to the area between outer corner and laser structure. Reducing the thermal stress increases the achievable tool life and improves the achievable hole quality when machining Inconel 718.

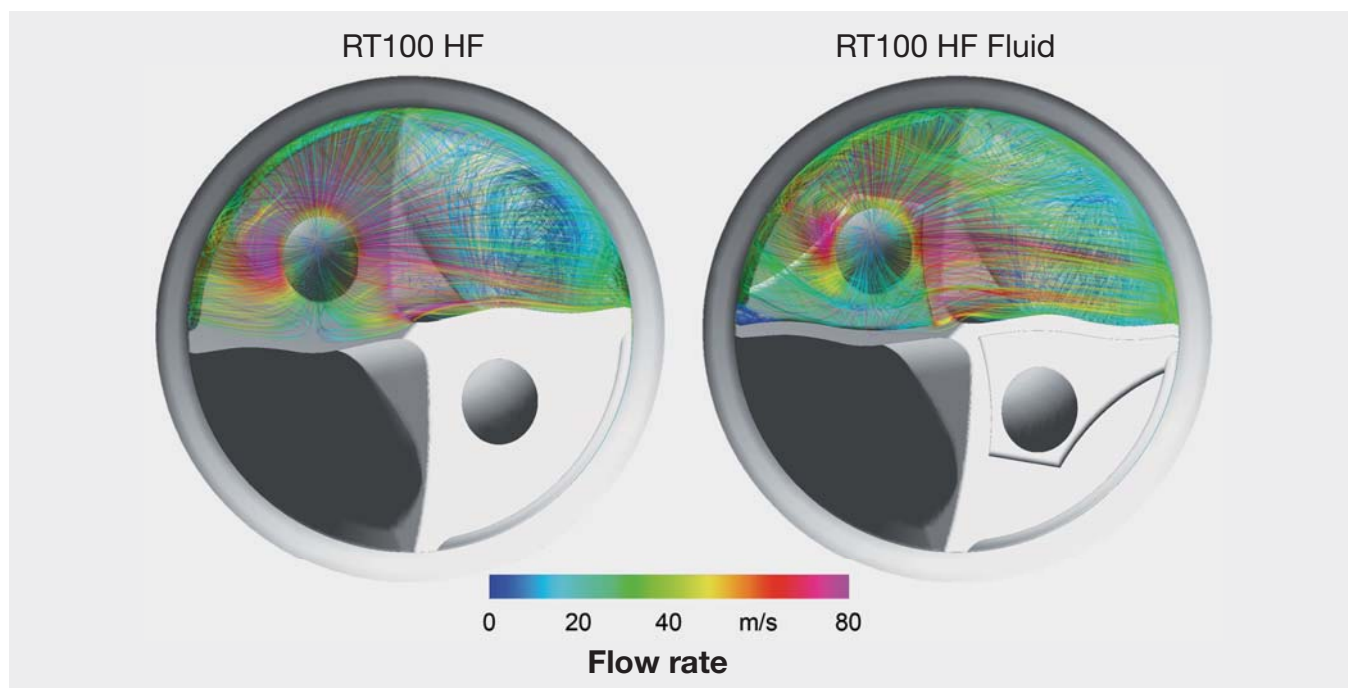




Viewing complex structures

Based on the results of simple structures, further development led to more complex forms in order to further improve the CL guidance. As the laser machining of tools provides a high degree of design freedom, significantly more elaborate forms have been realised that cannot be produced by any other machining processes. The laser structure adaptations include the form, the position and the degree of erosion in order to ensure an optimal cooling lubrication. CFD simulation was also applied here in order to analyse the influence of the different forms on the flow behaviour of the CL, how the swirl development in the outer corner further increases the cooling effect of the CL in detail.

With the further developed structure to guide the CL to the target location – called FLUID – further significant improvements based on the simple structure were possible regarding the wear behaviour of the drilling tool. In parallel to the development of the structure examinations were carried out to laser machining itself to prevent edge zone damage as well as too high peak-to-valley heights that could have a negative influence on the flow. Current laser machining achieves surface qualities of $R_z < 5 \mu\text{m}$ independent of the carbide surface qualities to be machined without evoking performance limiting edge zone damage. In addition, the clearance structure has no relevant influence on the adhesion of possible tool coatings.



Application fields

Such modified tools are to be applied especially in materials under high thermal stresses when machined. This is the case in stainless steels, titanium-alloys as well as nickel based alloys. Current developments are therefore driven by the machining of Inconel 718. Its properties cause extreme thermo-mechanical stresses and therefore considerably limit tool life as well as

productivity. A targeted manipulation of the cooling lubrication flow offers considerable potential benefits for optimising such machining operations.



Process optimisation when machining with added movement

The machining of new materials with fibre reinforced materials to very tough materials such as titanium- or copper-alloys as well as very brittle ceramic materials poses a challenge for conventional machining because of the extreme wear and chip formation behaviour. New approaches for process optimisation

by added motion in feed direction open new opportunities for improved chip formation, reduced process forces and higher quality of the produced surfaces as well as maximising the achievable tool life.

Basic considerations

When adding axial movements via a continuous feed movement, different frequency ranges from a few Hertz up to several thousand Hertz are applied depending on the application case. In addition, a defined modification of effective direction angle and an increase in tool cutting edge speed is made. Dependent on the application and tool type, various effects are achieved by vibration supported machining.

Machining with added movement is currently applied for the machining of difficult-to-machine materials such as super-alloys, fibre-reinforced plastics and stack-materials as well as long-chipping alloys, for example, lead-free copper-alloys. With added vibration, one differentiates between low-frequency and high-frequency vibrations.

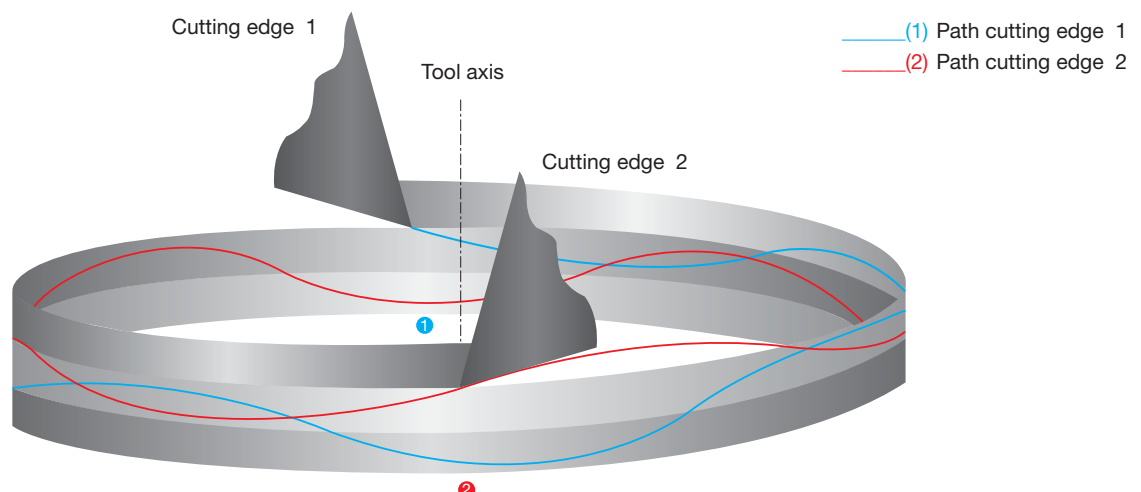
- more favourable chip formation/improved chip fracture
- improved chip evacuation
- production of predetermined breaking point in chip
- reduced built up edge
- prolonging tool life
- reduced machining forces
- reduced temperatures

1.) Low-frequency impulse

With low-frequency impulse frequencies to 1 kHz and amplitudes up to 0.5 mm are used. This category also includes programmed pecking by lifting the tool or an interrupted feed movement by dwelling cycles. On conventional machining centres, this discontinuous feed movement cannot be increased unrestrictedly due to the limited dynamics of axial movement. To achieve added movement with frequencies matching multiple spindle machines, special mechanical transmissions are applied.

These transmissions can be directly integrated in the machine or designed as gear heads attached to the spindle. The stroke is mechanically produced by the gear ratio in the feed axis or by moving over a corresponding cam disc.

Deviating from a spiral-shaped cutting path with a constant chip thickness when drilling with a constant feed rate, the addition of axial movement results in varying chip thickness.





Low-frequency added axial movement enables the production of controllable chips, even with ductile materials. The amplitude of the added axial movement controls the chip thickness. The amplitude setting can be changed to control the chip as a

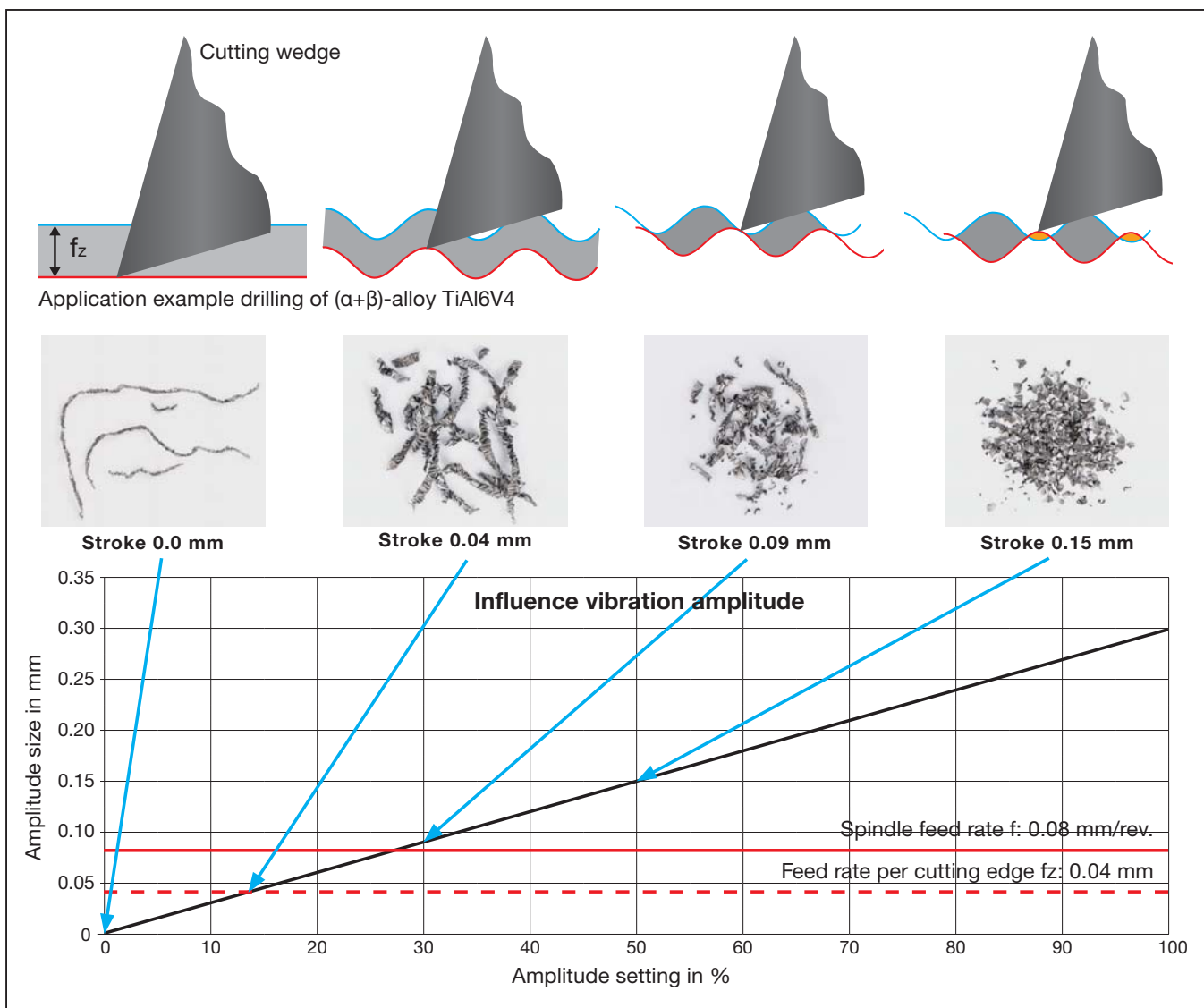
peck and therefore an interruption of the chip formation. With rotational speed linked frequency, the number of pecks can be determined.

Influence of vibration on chip formation

In a test, holes were produced in a standard titanium-alloy (TiAl6V4), where the levels of vibration were varied. All tests were carried out completely dry with identical drilling tools of diameter $d = 6.35$ mm. The cutting rates were $v_c = 30$ m/min and $f = 0.08$ mm/rev.

An observation of the produced chips clearly shows the influence of amplitude on the chip formation. Already an amplitude in the height of the chip thickness clearly reduces the chip length. To produce very short chips, without exception in ductile materials, the amplitude must be selected considerably higher than the feed rate of the cutting edges. Therefore, the

cutting edge completely lifts-off the workpiece surface and the chip formation process is specifically interrupted. Machining with applied vibration is already well established for the machining of hybrid material combinations, so-called sandwich or stack materials. Here, leaching in fibre composite layers can be prevented and machining temperatures reduced in total thanks to securing the chip break.

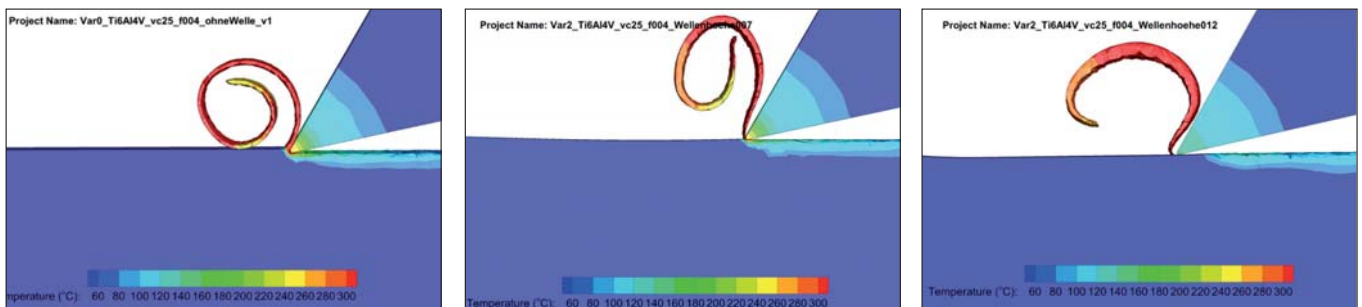




Influence of applied vibration on the process temperature

With the assistance of the Finite-Element-Method (FEM) the chip formation at the cutting edge is simulated for different application conditions. The following images show a the chip in a FEM simulation. The results of the simulation show the increasing chip thickness and shortening of the chip with the

amplitude of the vibration. Furthermore, it shows with a continuous cut a higher temperature level is achieved at the cutting edge

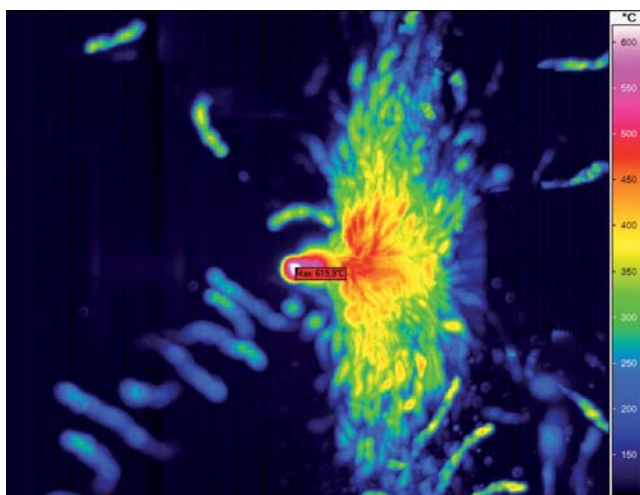


This becomes especially clear when comparing the machining temperatures when machining CFRP/titanium material combinations. Identical drilling tools with diameter $d = 6.35$ mm were applied dry for the test. The cutting rates were $vc = 30$ m/min and $f = 0.08$ mm/rev.

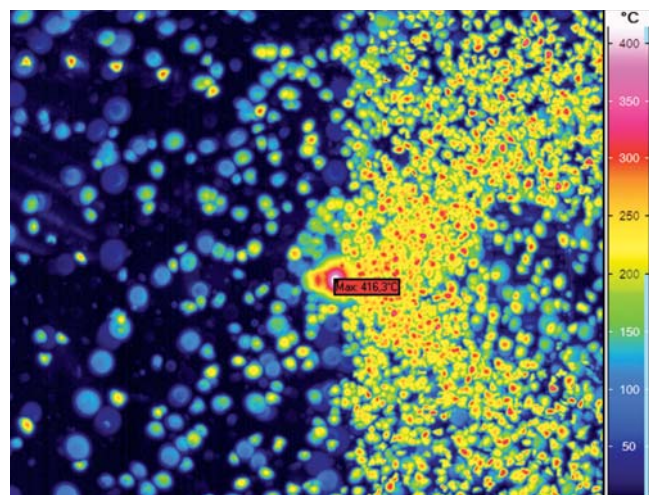
The heat created during the machining of a CFRP/titanium stack material is recorded in real time with a thermography camera. The test panel had a total thickness of 20 mm, 6 mm CFRP and 14 mm titanium (TiAl6V4). It was drilled so that the remaining residual wall was 1.5 mm to the panel face. A comparison of the temperature at the cutting edge on exit of the material and chip temperature was measured to show the dif-

ference between conventional machining and machining with vibration. Without vibration, a maximum temperature of 600°C was measured at the cutting edge. With vibration the maximum temperature under identical conditions was reduced by approximately a third to under 450°C . Furthermore, a considerably improved hole quality and increased tool life was achieved thanks to an improved chip break.

Recording stack machining CFRP / ($\alpha+\beta$)-alloy TiAl6V4



Conventional dry
 ϑ_{max} : 619°C



Vibration supported dry
 ϑ_{max} : 416°C

Technical section



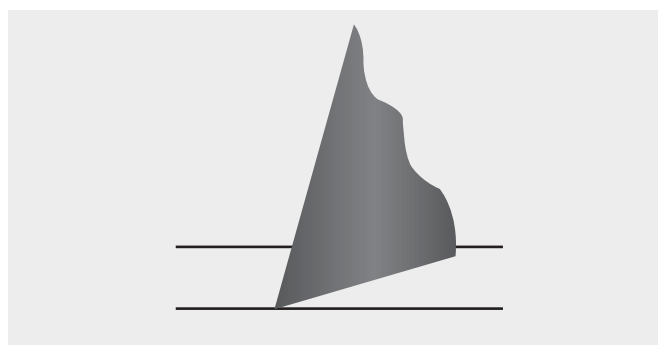
2.) High-frequency impulse (ultra-sound supported)

With high-frequency impulse metal-cutting manufacturing processes – also called ultra-sound supported – an overlaying of the conventional process kinematics with an oscillating tool movement in axial direction takes place exhibiting a considerably higher frequency of > 16.55 kHz in contrast to a low-frequency impulse. The maximum achievable amplitude at the tool point, mostly between $2...30$ μm , is heavily dependent on the combination of tool, impulse system and power applied, as the oscillation results from the impulse of the tool with its resonance frequency.

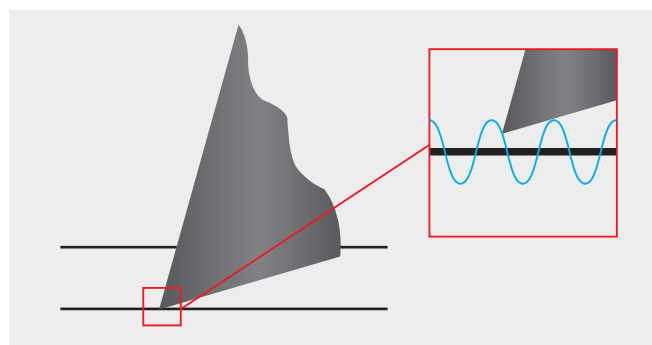
The impulse takes place via actuator, consisting of a generator, converter, booster and the combination of tool and holder, the so-called sonotrode. The generator converts electrical energy into high-frequency sine oscillation that is transferred to the converter. The booster transforms from the converter received vibration amplitude and transfers it enlarged to the sonotrode in which the electrical energy is converted into mechanical energy by piezo actuators.

The combination of feed movement and an oscillating linear movement also enables a more economical machining of high-tensile materials such as ceramic composite materials. Previously, ultra-sound supported machining was predominantly applied for the machining of so-called advance materials such as glass, ceramics and carbide using tools with geometrically undefined cutting edges. High-frequency impulse machining is increasingly applied also in the machining with a defined cutting edge thanks to the drilling and milling of composite materials such as fibre reinforced plastics, sandwich structures and foam. When machining with a defined cutting edge a micro-break-up supports the machining of the material partly visible affecting the surface quality and resulting in a reduction of the process forces.

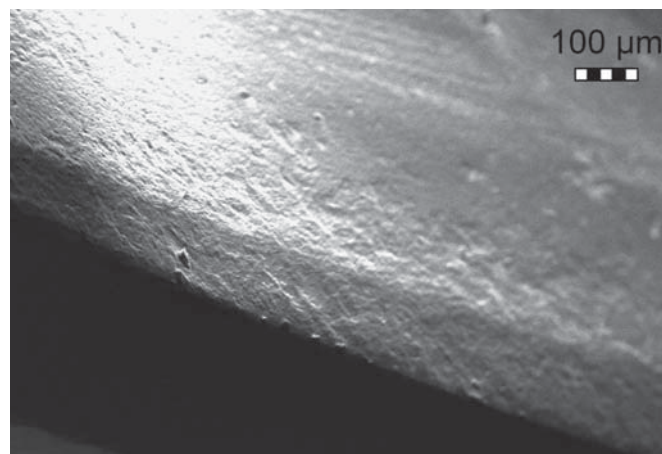
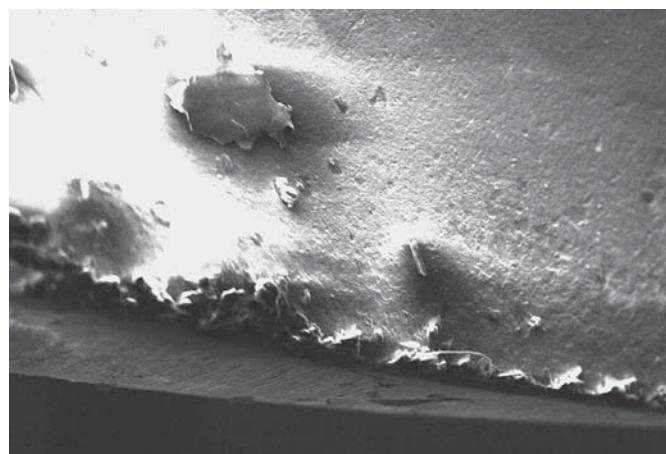
Alongside positively influencing the wear behaviour when machining steel materials, a reduction in edge build-up can be identified when drilling nickel based alloys.



Without ultra-sound support



With ultra-sound support

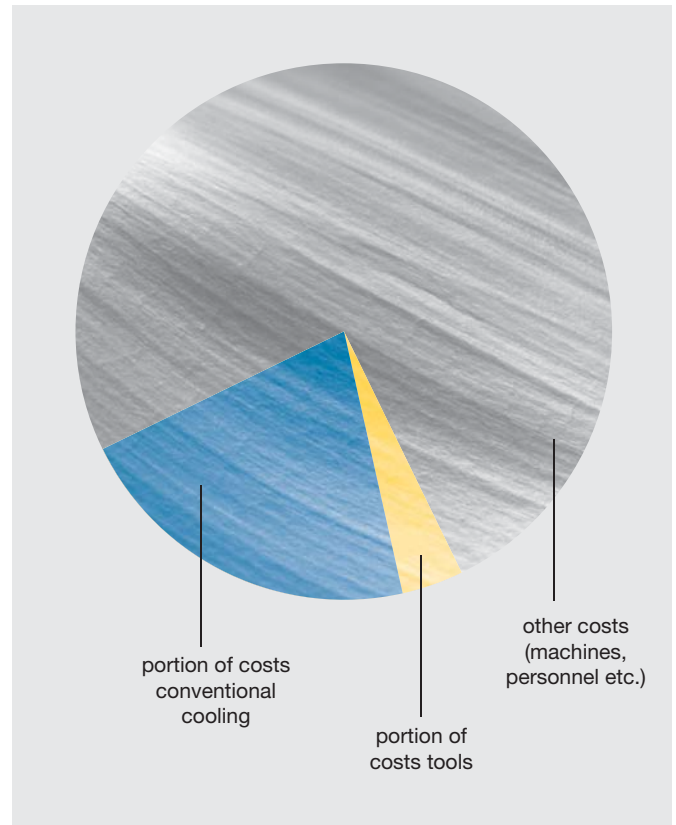


MQL technology

Basics

Alongside the machine and tooling the costs for coolant are a considerable portion of the overall cost of the machining process. Therefore, a reduction in the cooling lubrication requirements offers a potential for cost savings.

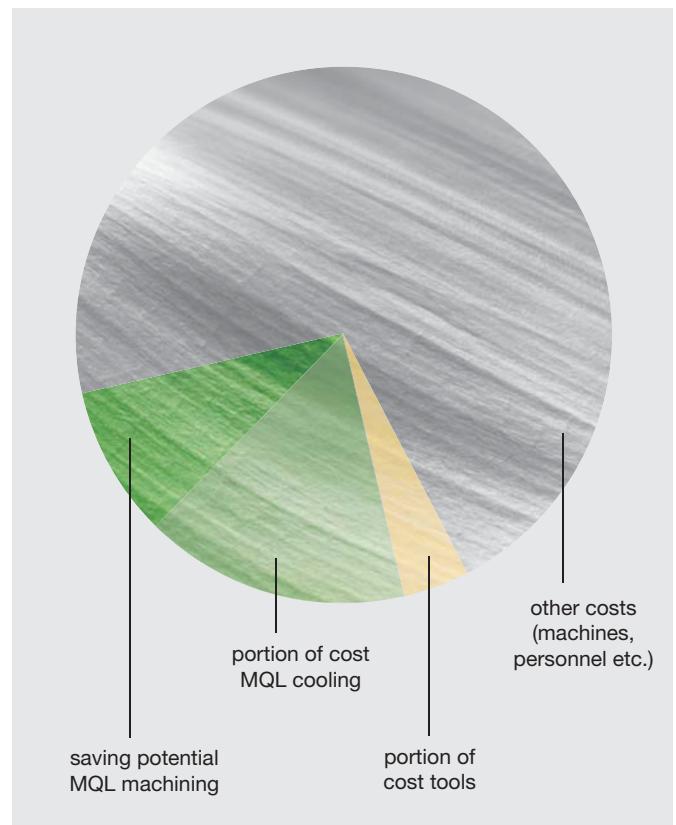
The reduction of cooling lubricants is not only cost saving but is also of benefit to the environment and health protection. Guhring is one of the pioneers in the research and development of MQL that began in the mid 1990's.



The aim of MQL machining

The acquisition of a new MQL cooling lubricant system is significantly less expensive than conventional cooling!

- reduction of thermal stresses at the tool point
- less tool wear
- effective chip evacuation from deep holes
- reduction of cooling lubricant requirement
- high cooling and lubrication effect especially in deep holes
- lowering the resulting costs such as:
 - component cleaning costs
 - cooling lubricant disposal costs
 - swarf disposal costs
- environment and health protection



Technical section



The development of present-day MQL systems

Thanks to the research in MQL machining Guhring created the pre-condition for a practical MQL technology. From the clamping set to the tool's cutting edge all the components were integrated in the development – the result was the first MQL delivery system.

Features:

- modular constructed and standardised system
- MQL and conventional clamping set are freely interchangeable thanks to an identical spindle contour
- hydraulic, shrink fit and synchro chucks are all designed for the MQL clamping set



Guhring's current MQL system

By incorporating the MQL length adjustment screw to Guhring's first MQL delivery system in 2007, the original drawback was eliminated. There is, therefore, currently a MQL delivery system available to the customer that optimally meets the requirements of the present-day production process.

Features of the first Guhring MQL delivery system:

- no lubricant delays
- special MQL coolant delivery unit
- MQL suitable tool shank end
- tapered length setting screw

The user, therefore, benefits from a standardised system and a clearly reduced stock keeping thanks to compatible components.

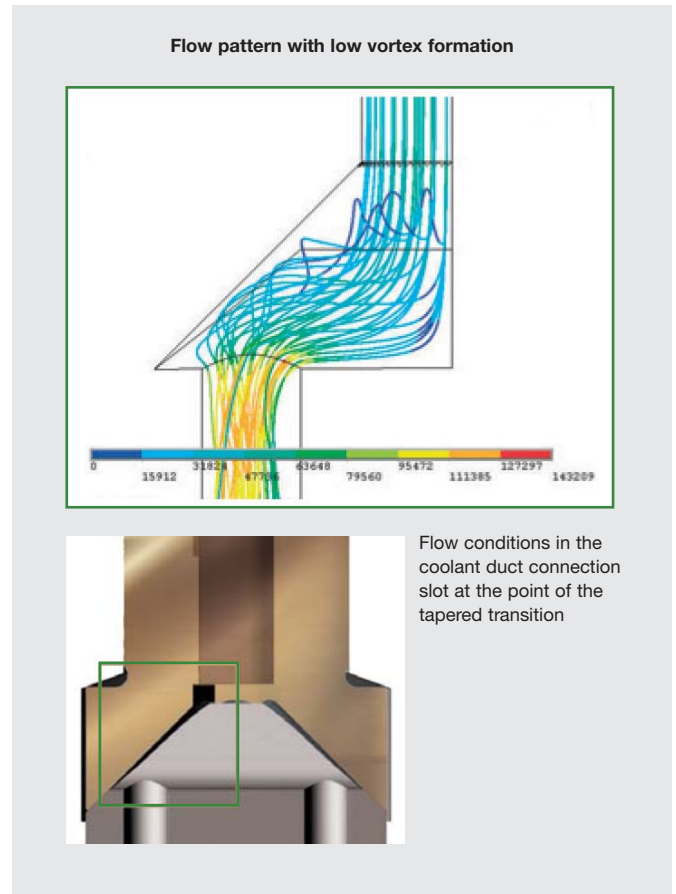


**Optimally formed shank end!
For a secure MQL delivery**

The delivery of these extremely low coolant quantities directly to the effective area is of utmost importance. Hereby, the geometric design of the shank end plays a significant role! The Guhring developed conical shank end optimally satisfies the relevant MQL conditions.

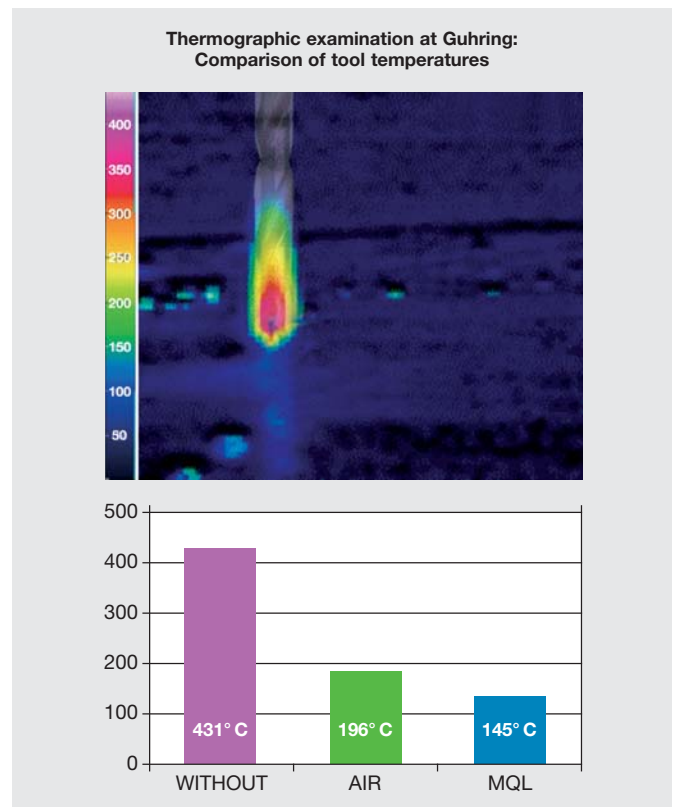
Advantages of the tapered shank end:

- no lubricant delays
- minimal dead area
- simple operation
- cost-efficient production



Keeping a cool point

With MQL the process temperature can be considerably reduced in comparison to dry machining resulting in longer tool life and an increased process reliability.





The best form for MQL!

Optimal MQL machining results thanks to the optimised tool geometry of RT 100 T!



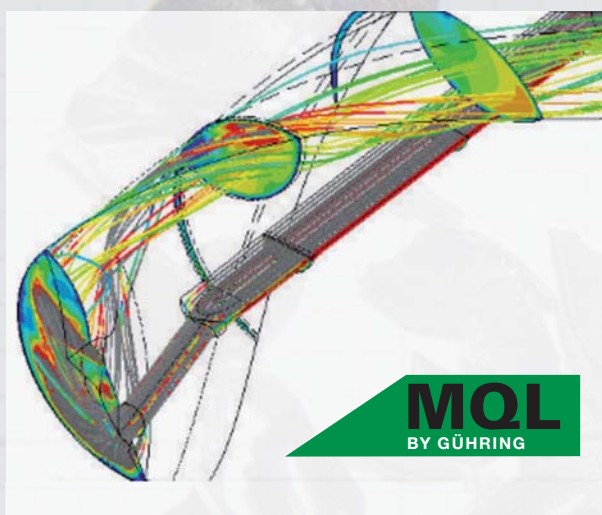
1. Flute cross section:

The flute geometry of Guhring MQL tools ensures short chips that are optimally evacuated from deep holes.

2. Maximum coolant duct cross-section:

The cooling lubricant supply as well as the chip evacuation have been optimised through the tool' maximum coolant duct cross-section.

Flow speed comparison



The flow speed

in the flute with MQL is 30.4 m/s.

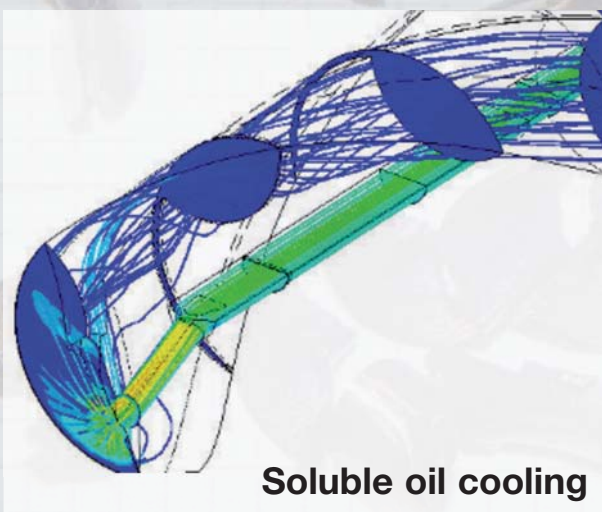
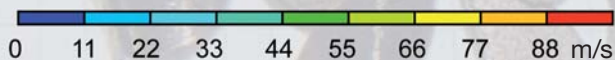
The volume with MQL

is 6.960 l/h (std.litres air/h).

Tool Ø = 11.7 mm

Pressure at pump = 6 bar

Pressure at tool = 4 bar



The flow speed

In the flute with soluble oil is 3.5 m/s.

The volume with soluble oil

is 600 l/h (std.litres air/h).

Tool Ø = 11.7 mm

Pressure at pump = 60 bar

Pressure at tool = 31 bar

MQL system types

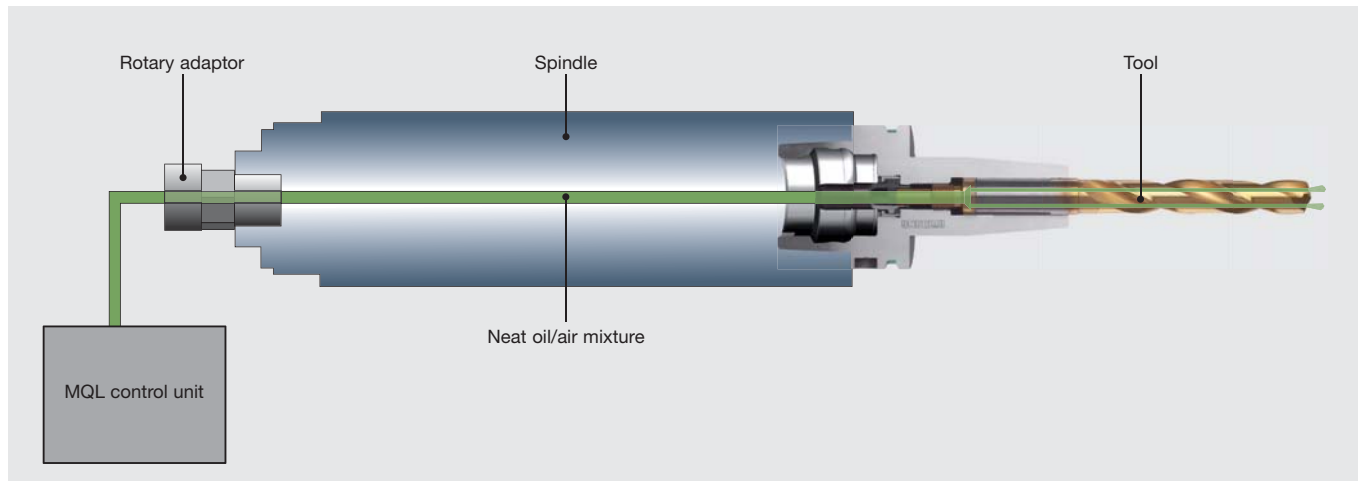
The provision of the MQL medium to the tool can be achieved in two ways: the aerosol mixture can be prepared outside the machine and conveyed to the machining location (1-channel system) or compressed air and MQL medium are conveyed separately to the mixing chamber where they are then mixed together (2-channel system). The aerosol feed to the

machining location is achieved via a suitable minimal quantity lubrication rotary adaptor (preferably with axial flowthrough), the spindle, the clamping system and finally the cutting tool. Unavoidable cross-section modifications should be as streamlined as possible.

1-channel MQL system

With a 1-channel MQL system, a lubricating aerosol is created in a separate MQL unit attached to the machine tool. Special nozzle systems inside a pressurised container create a lubricating aerosol via a regulated compressed air feed,

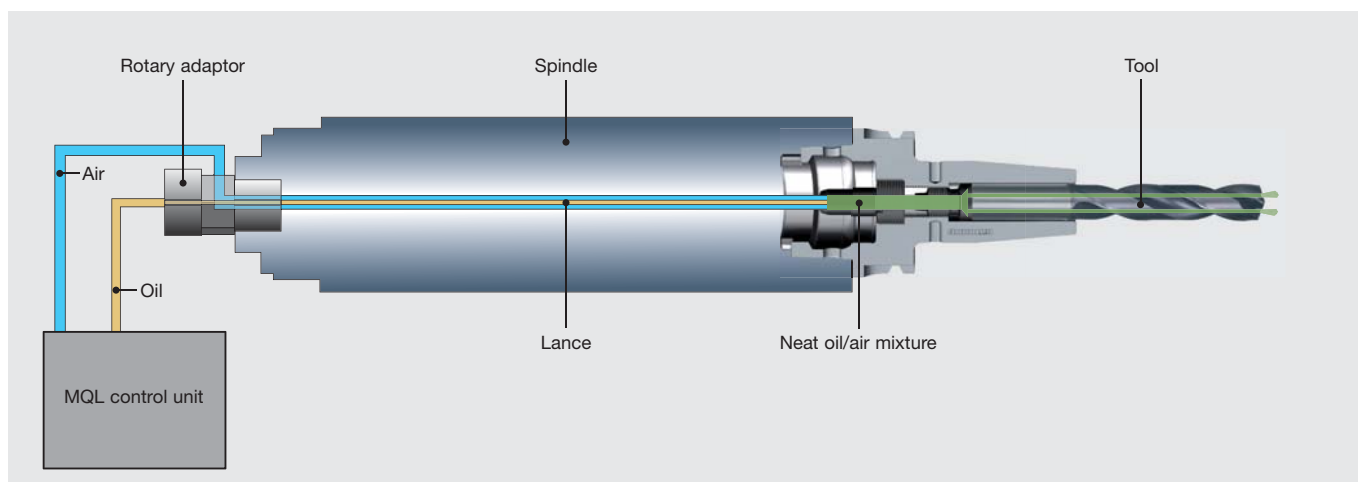
its neat oil content adjustable and then maintained within the physical limits by the MQL control.



The 2-channel MQL system

With a 2-channel system the neat oil reaches the rotary adaptor from the unit via a ring line and a as short as possible stub line. In it is incorporated a quick valve that regulates minute quantities of neat oil. The neat oil is transported into the tool holder via a lance attached in the spindle. The second channel of the rotary adaptor is used for the air supply to the tool holder. Only at this point the air is mixed with the neat oil.

To achieve this, the tool holder possesses a pressed-in pipe nozzle in which the mixing chamber is located. Neat oil and air can be mixed with this system in more or less any quantities. The route from the mixing chamber to the point of destination is only minimal resulting in a rapid response time and allowing a very quick alteration of the volume of neat oil.



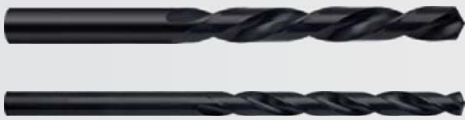
Technical section

Bright finish



Especially for the machining of wrought and cast aluminium alloys with a high silicon content, un-coated drills offer a very good machining performance. In order to counter adhesive (formation of built-up edges), these tools are optimally suited to this field of application thanks to a special geometry combined with a high surface quality in the point thinning, flute and clearance areas.

Steam tempered/nitrided surface finish



A steam tempered surface finish provides an improved corrosion protection as well as an improved tribological behaviour of the tools thanks to the oxidation of the surface area (approx. 3 to 10 μm). Nitriding the land is recommended for abrasive applications, it increases the hardness of the surface on the land and therefore improves wear resistance of the tool. However, using hard material / soft material coatings often provide better results, this type of surface treatment is becoming increasingly less important.

TiN-coating



Max. application temperature: <math><600^\circ\text{C}</math>
 Colour: Golden yellow
 Structure: Single-layer
 Hardness: 2300 HV0.05

Introduced by Gühring at the beginning of the 1980's, TiN-coating is applied to HSS and carbide for drilling operations as a cost-efficient general purpose coating.

FIRE/nanoFIRE-coating



Max. application temperature: <math><800^\circ\text{C}</math>
 Colour: Violet
 Structure: Multi-layer
 Hardness: 3300 HV0.05

FIRE and nanoFIRE coatings contain aluminium, titanium and nitrogen. These coatings were introduced towards the end of the 1990's and are a further development of the TiN-coating. They excel thanks to increased hardness and good thermochemical resistance, they are suitable for HSS and carbide.



Raptor-coating



Max. application temperature: < 800°C
 Colour: Pale golden
 Structure: Multi-layer
 Hardness: 3300 HV0.05

The TiN/ TiAlN-multi-layer structure of Raptor is the key component for the good performance when machining steel. Thanks to the additional friction reducing top layer coating, based on zircon, the performance could now be further extended for steels that tend to adhere during machining (i.e. ferritic, austenitic and Duplex steels).

TiAlN-coating



Max. application temperature: <800° C
 Colour: Violet
 Structure: Single-layer
 Hardness: 3300 HV0.05

The TiAlN-coating displays similar characteristics to FIRE and nanoFire and with its single-layer structure is mostly applied in the field of micro-precision drills.

nanoA-coating



Max. application temperature: <900° C
 Colour: Blue violet
 Structure: Multi-layer, nano-structured
 Hardness: 3300 HV0.05

TiAlN based nanoA has proven itself in the machining of stainless steels and is suitable for drilling cast iron, nickel based alloys and cobalt chrome alloys. Thanks to its nano-layered structure the fracture growth is delayed. Furthermore, thanks to its adapted composition it possesses a higher thermo-chemical resistance than for example TiAlN.

Sirius-coating



Max. application temperature: < 900°C
 Colour: Pale golden
 Structure: Multi-layer, nano-structured
 Hardness: 3400 HV0.05

Sirius, essentially based on AlTiN is especially suitable for the machining of stainless steels. Thanks to the nano-structured design it displays good hardness and toughness. The zircon containing top layer coating is to largely eliminate chemical reactions with the material and therefore encourage chip evacuation.

Signum-coating



Max. application temperature: <math><800^{\circ}\text{C}</math>
 Colour: Bronze
 Structure: Multi-layered nano-composite
 Hardness: 5500 HV0.05

The Signum-coating belongs to the group of Nano-composites. The micro-structure features extremely fine TiAlN nano-crystals bedded into a glass-like, high temperature resistant silicon nitride matrix. This results in a high hardness especially making the Signum-coating the first choice for hardened steels and cast materials.

Endurum-coating



Max. application temperature: <math><800^{\circ}\text{C}</math>
 Colour: Copper
 Structure: Multi-layered nano-composite
 Hardness: 4000 HV0.05

Endurum-coating, another coating of the Nano-composite family, this was specifically designed for the machining of carbon, free-cutting and manganese alloyed steels.

Zenit-coating



Max. application temperature: <math><700^{\circ}\text{C}</math>
 Colour: Pale gold
 Structure: Multi-layer, nano-structured
 Hardness: 2500 HV0.05

The nano-structured Zenit-coating was specifically optimised for the machining of titanium-alloys. The special structure as well as the composition contribute to a significant reduction of tribochemical wear and therefore make it a true specialist. In parallel it also achieves good results when drilling aluminium cast alloys with moderate silicon content.

Ice-coating



Max. application temperature: <math><1000^{\circ}\text{C}</math>
 Colour: Metallic grey
 Structure: Multi-layer
 Hardness: 3500 HV0.05

The titanium, aluminium and chrome based Ice-coating specialises in the machining of non-ferrous metals such as, copper alloys, bronze and brass.



Carbo-coating

Max. application temperature: <math><500^{\circ}\text{C}</math>
Colour: Grey black
Structure: Single-layer
Hardness: 5000 HV0.05



The Carbo-coating is part of the DLC-coating group (DLC – diamond-like-carbon). These carbon coatings possess diamond-like characteristics. The Carbo-coating displays a very high hardness due to its composition of 100% carbon and structure (ta-C). It explains the outstanding performance when drilling non-ferrous metals such as, wrought and cast aluminium alloys (<math><12\% \text{ Si}</math>), copper, brass and bronze. In addition, it is suitable for plastics and wood.

Cristall-coating

Max. application temperature: <math><600^{\circ}\text{C}</math>
Colour: Grey black
Structure: Single-layer
Hardness: 8000 HV0.05



Cristall-coating is a pure crystalline diamond coating that does not lag behind natural diamond in anything. With many interesting physical properties it impresses with its extreme hardness. Therefore, the micro-crystalline Cristall-coating is exceptionally suited for the machining of highly abrasive materials such as, fibre-reinforced plastics, ceramic, graphite and cast aluminium alloys with a high silicon content (> 12%). This coating can only be applied on special carbide grades for technical process reasons.



	Drilling		
	Carbide		HSS
	conventional	MQL	
C-steels, Free-cutting steels, Mn-steels	Endurum	Endurum	Fire
	Raptor	Raptor	-
	Fire	Fire	-
Steel, low-alloyed	Fire	Fire	Fire
	Endurum	Endurum	TiN
	Raptor	Raptor	
Steel, alloyed	Fire	Fire	Fire
	Signum	Signum	TiN
	nanoA	nanoA	
Steel, hardened <55 HRC	Signum	Signum	-
	Fire	Fire	-
	TiAlN	TiAlN	-
Steel, hardened 55-65 HRC	Signum	Signum	-
	Fire	Fire	-
	TiAlN	TiAlN	-
Steel, stainless and acid resistant	nanoA	nanoA	Sirius
	Sirius	Sirius	Fire
	Endurum	Endurum	TiN
Cast iron	Signum	Signum	Fire
	Fire	Fire	-
	nanoA	nanoA	-
Aluminium wrought alloys	bright	bright	bright
	Carbo	Carbo	Carbo
	Cristall	Cristall	-
Aluminium cast alloys (< 12% silicon)	bright	bright	bright
	Zenit	Zenit	Zenit
	Carbo	Carbo	Carbo
Aluminium cast alloys (≥ 12% silicon)	Cristall	Cristall	-
	-	-	-
	-	-	-
Nickel based alloys (i.e. Inconel)	nanoA	nanoA	Fire
	Signum	Signum	-
	Fire	Fire	-
Titanium / titanium alloys	Zenit	Zenit	Fire
	nanoA	nanoA	-
Copper / bronze / brass	ICE	ICE	TiN
	Carbo	Carbo	-
Cobalt chrome alloys	nanoA	nanoA	-
	Signum	Signum	-
	Fire	Fire	-
Precious metals	nanoA	nanoA	-
Ceramic	Cristall	Cristall	-
Plastics, non-reinforced	Carbo	-	-
Plastics, fibre-reinforced	Cristall	Cristall	-
	Signum	Signum	-

Note:

The overview shows the general application recommendations for Gühring coatings. Prioritisation is from top to bottom.



Centring and pilot drilling

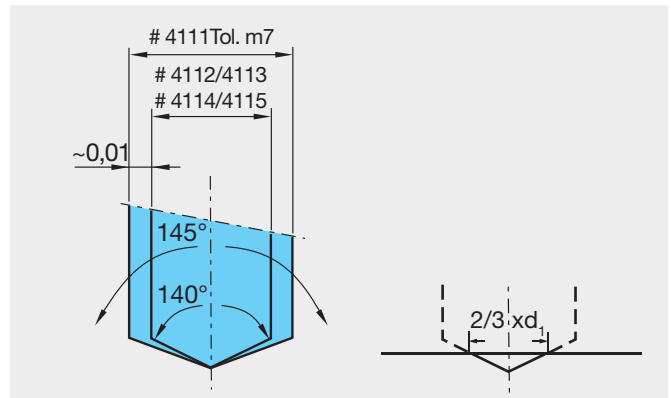
Centring and pilot drilling for HT 800

Generally we recommend centring/pilot drilling for HT 800 with drilling depths above 5xD.

When centring, the drilling diameter should be approximately 2/3 of the hole diameter to be produced.

With pilot drilling we recommend a drilling depth of 1xD. In addition, the point angle as well as the diameter of the pilot drill should be larger than the point angle and the diameter of the following drill.

To ensure this, we recommend the application of the adapted pilot drilling inserts art. no 4111 with 145° point angle and m7 diameter tolerance in an extra short, rigid holder art. no. 4105.



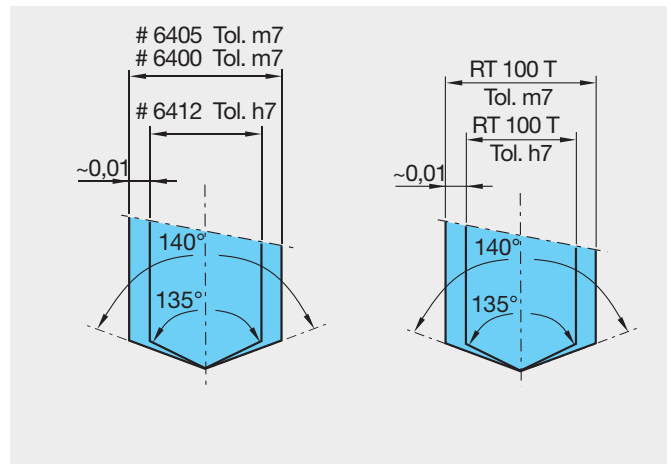
Centring and pilot drilling for solid carbide

When applying solid carbide drills for drilling depths 7xD to 12xD we recommend centring or the production of a pilot hole with a depth of 1xD to 2xD.

With drilling depths larger than 12xD a pilot hole with a depth of 1xD to 2xD is imperative.

With pilot drilling for the Exclusive Line micro-precision drill with 15xD (art. no. 6412) we recommend the application of Exclusive Line micro-precision drill 4xD without internal cooling (art. no. 6400) or 5xD with internal cooling (art. no. 6405), as they are optimally adapted regarding point angle and diameter tolerance.

When pilot drilling for deep hole drills eg. type RT100T, a Ratio drill type RT100U with internal cooling, 3xD (e.g. art. no. 2477) can be applied, as it is optimally suited regarding point angle and diameter tolerance.



Centring and pilot drilling for HSS

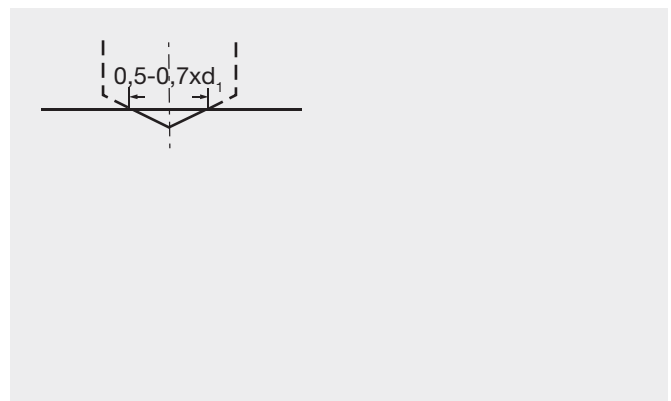
Centring with drill lengths to DIN 340

When using long series drills (DIN340) in HSS/HSCO, we recommend spot drilling with a spotting diameter of 0.5 to 0.7xD (D = drill diameter). HSS NC spotting drills are optimally suited for this process. Detailed information regarding NC spotting drills can be found in the NC spot drilling section.

Pilot drilling with drill lengths to DIN 1869

When applying extra length HSS/HSCO drills to DIN 1869 we recommend the production of a pilot hole with a depth of 1xD to 2xD.

Stub drills type GV 120 to DIN 1897 are optimally suited.





NC spotting drills

NC spotting drills

When producing accurately positioned holes, holes with close diameter tolerances, deep holes or generally with unfavourably shaped workpieces (round, rough, etc.) it's recommended to use a NC spotting drill. This ensures the following drill, drills accurately and prevents the drill from running off.

NC spotting drills can also be used to produce chamfers or countersinks (when using a spot drill with a larger diameter than the actual hole) and centring in one operation.

NC spotting drills are designed with a very short flute length and without body clearance to ensure a very rigid design and therefore accurately positioned spotting. Due to the design, NC spot drills are only suitable for spotting, drilling depths must not exceed the length of the point geometry.

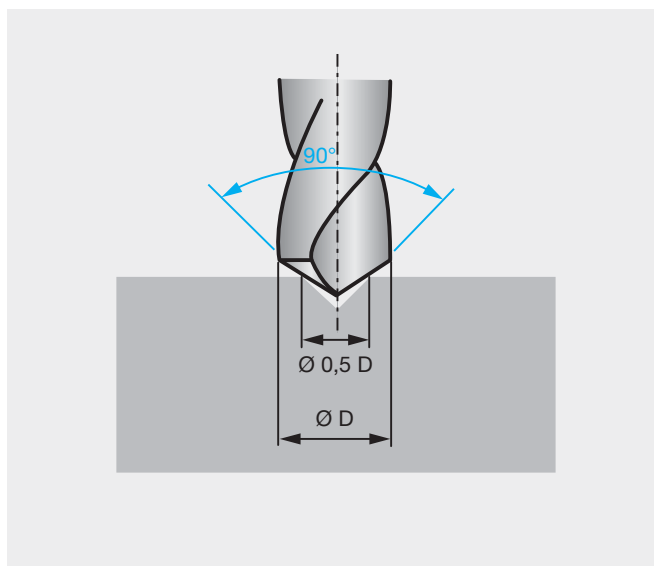
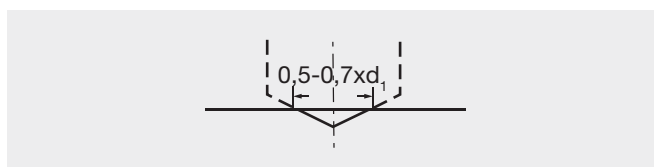
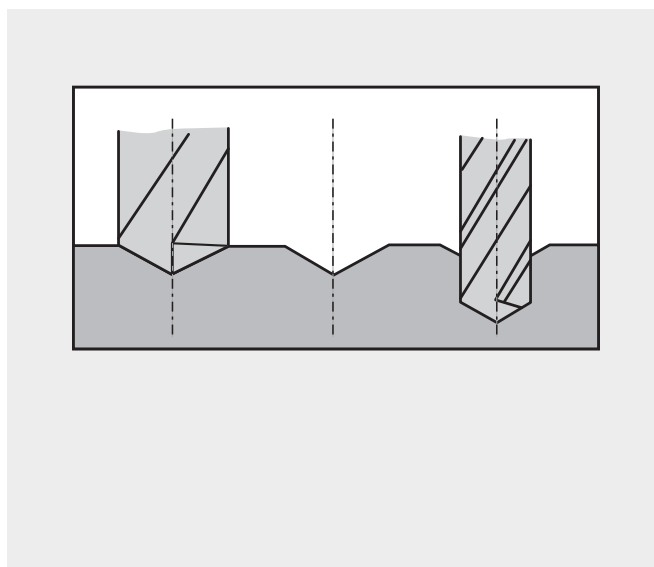
Selecting an NC spotting drill

Ideally, the spotting diameter should be chosen between 0.5 to $0.7 \times D$.

90° NC spotting drills

NC spotting drills with a 90° point angle are ideally suited for spotting if the following HSS/HSCO drills have a relatively large chisel edge. This ensures that the following HSS/HSCO drill drills with the cutting lip first and is guided by the most stable points of the cutting edge.

In addition, NC spotting drills with a 90° point angle are used to produce a 90° countersink and centre in one operation if the spotting diameter is larger than the actual hole diameter.

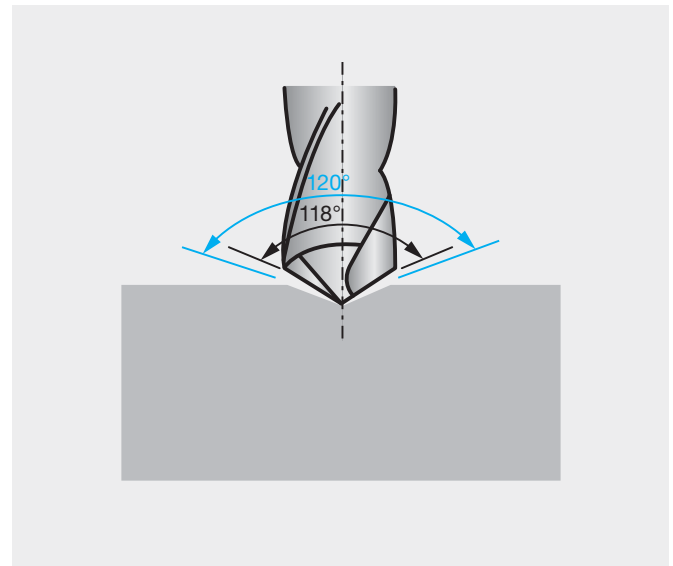




NC spotting drills

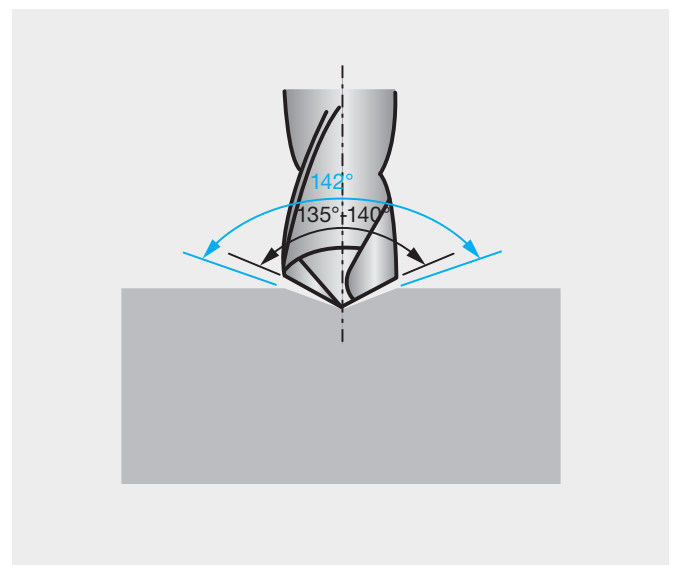
120° NC-spotting drills

NC-spotting drills with a 120° point angle are specially suited for spotting operations if the actual hole is subsequently produced with HSS/HSCO drills with a 118° point angle. This ensures the following HSS/HSCO drill spots with the point first and is well guided.






142° NC-spotting drills

NC-spotting drills with 142° point angle are specially suited for spotting operations if the actual hole is subsequently produced with carbide drills with a 135° - 140° point angle. This ensures the following carbide drill spots with the point first, centers and is well guided. If the cutting corners of the carbide drill meet the material to be machined before the point, there is the risk of corner crumbling with carbide drills.



NC spotting drills

90°	120°	142°
		



Coolant pressure and volumes Ratio drills

The illustrated optimum, good and minimum required coolant volume apply only to spiral-fluted Ratio drills type RT 100. In contrast to the pressure, which is a feature of the machine tool; the cooling system fitted to it and also the possibility of leakage, volume does not depend on the machine (fig. 1). The pressure figures given are therefore recommendations which serve only as guidelines. Ratio drills type RT 80 with central coolant duct are subject to different standards (fig. 2). The diagrams shown are for Ratio drills in their most important application, machining of steel. But they are also guidelines for the machining of other materials, primarily because the highest coolant pressures are constantly required for the machining of steel. The effects of cooling using straight-fluted Ratio drills type RT 150 is particularly sensitive and is clearly demonstrated in the examples for particular workpiece materials. For example, the loss in tool life through low pressures when machining grey cast iron is considerably higher than when machining AISi

alloys. But this is only the case when the AISi alloy is short-chipping! The absolute necessary minimum pressure or good pressure should, when machining cast iron, be generally a little higher than for AISi machining (figures 3 and 4).

The recommended values are to be used only for drilling depths of up to approx. 5 x D. Deeper holes should be produced with tools having internal coolant ducts, as for example RT 150 GN, otherwise the production of deeper holes (depending on the material) becomes uneconomical.

Required coolant pressures
█ optimum pressure
█ good pressure
█ minimum pressure

Required coolant volumes
█ optimum volume
█ good volume
█ minimum volume

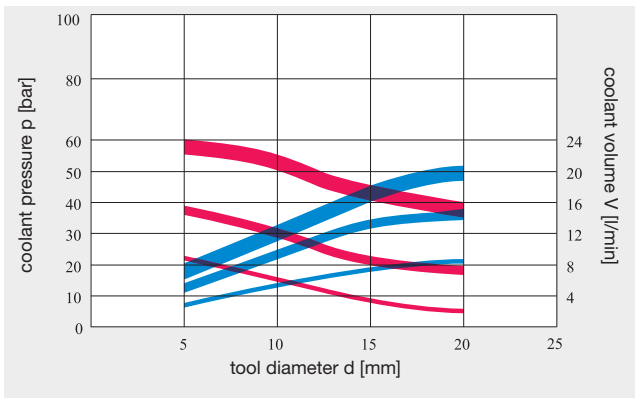


fig. 1: Required coolant pressures and volumes for RT 100 Ratio drills with internal spiral coolant ducts.

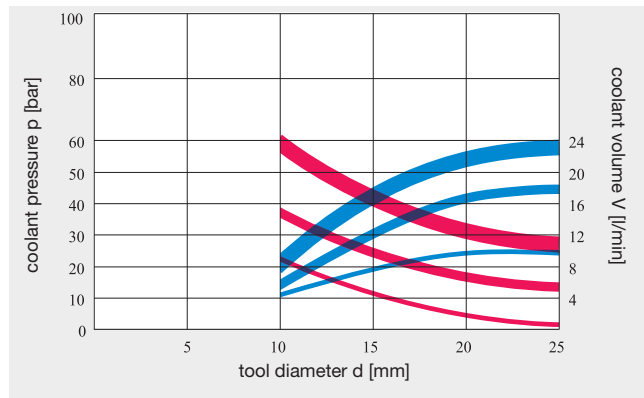


fig. 2: Required coolant pressures and volumes for RT 80 Ratio drills with central internal coolant duct.

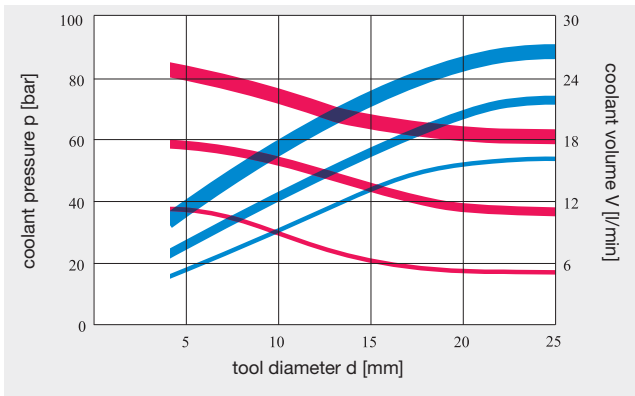


fig. 3: Required coolant pressures and volumes for straight-fluted Ratio drill type 150 GG when machining cast iron.

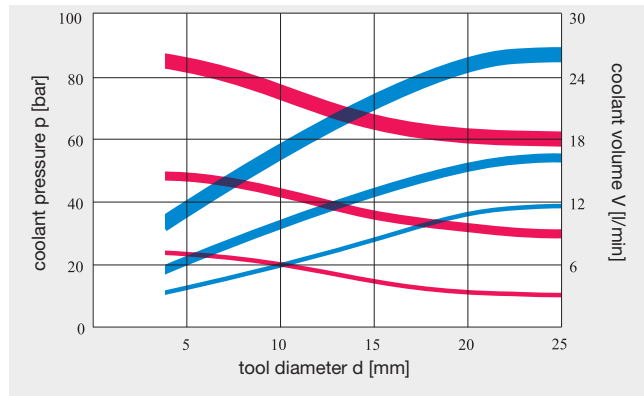


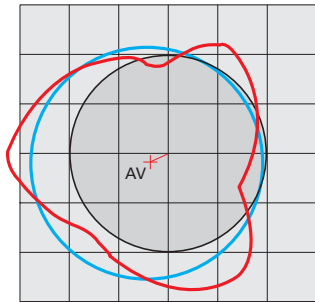
fig. 4: Required coolant pressures and volumes for straight-fluted Ratio drill type 150 GG when machining AISi7.

Typical hole quality characteristics

1. in 42CrMo4V, Ø 14.5 mm

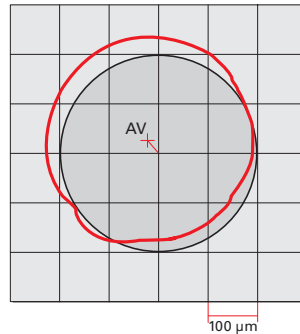
HSS drills, type N Gühring no. 651

vc = 25 m/min
f = 0.25 mm/rev.
+Rmax = 131.8 µm
-Rmax = -49.1 µm
actual D = 14.566 mm
dRmax = 103.5 µm
AV = 49.2 µm
Ra = 2.6 µm, Rz = 6.8 µm **IT12**



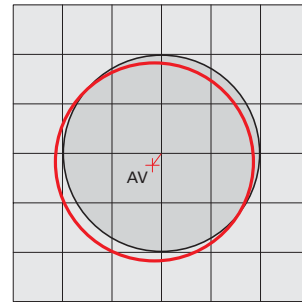
Ratio drills, type RT 80 Gühring no. 1171

vc = 70 m/min
f = 0.25 mm/rev.
+Rmax = 42.7 µm
-Rmax = -29.6 µm
actual D = 14.515 mm
dRmax = 12.9 µm
AV = 35.3 µm
Ra = 1.4 µm, Rz = 4.31 µm **IT9**



Ratio drills, type RT 100 Gühring no. 1181

vc = 70 m/min
f = 0.25 mm/rev.
+Rmax = 26.7 µm
-Rmax = -17.2 µm
actual D = 14.509 mm
dRmax = 5.2 µm
AV = 22.8 µm
Ra = 1.04 µm, Rz = 3.2 µm **IT8**



The overall total of the maximum positive and negative deviations is the sum of the total run-out in relation to the black circle as measured on standard instruments (dRmax). The red lines at the hole centres indicate the direction and amplitude of the displacements AV (Axis Shifting) of the produced hole from the true centre point. The parameter showing the largest deviation is decisive for the IT quality class of the hole in relation to the tool diameter.

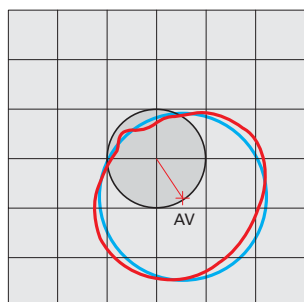
The black circle in the diagram represents the nominal hole diameter which the tool should ideally produce. The red circle indicates the form actually produced.

The mean value of the radius of the red circle, i.e. the average diameter, is shown by the blue circle. (with our Ratio drills the average diameter is practically identical to the actual diameter produced).

2. in GGG40, Ø 10.0 mm

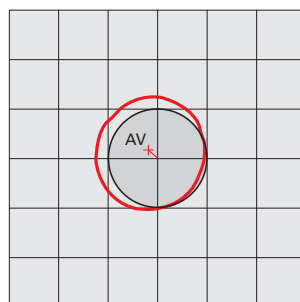
HSS drills, type N Gühring no. 651

vc = 30 m/min
f = 0.2 mm/rev.
actual D = 10.077 mm
+Rmax = 106 µm
-Rmax = -28 µm
dRmax = 42 µm
AV = 68.5 µm
Ra = 3.7 µm, Rz = 17.2 µm **IT12**



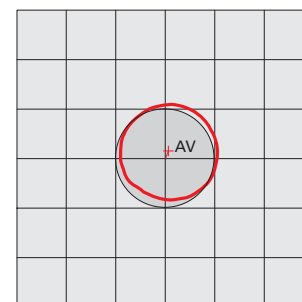
Ratio drills, type RT 100 Gühring no. 1181

vc = 90 m/min
f = 0.3 mm/rev.
actual D = 10.027 mm
+Rmax = 34 µm
-Rmax = -9.2 µm
dRmax = 6.5 µm
AV = 22.5 µm
Ra = 2.2 µm, Rz = 11.5 µm **IT9**



Ratio drills, type RT 150 GG Gühring no. 768

vc = 130 m/min
f = 0.2 mm/rev.
actual D = 9.994 mm
+Rmax = 11.5 µm
-Rmax = -18 µm
dRmax = 5 µm
AV = 14 µm
Ra = 1.99 µm, Rz = 11.2 µm **IT8**





A brief introduction to the subject of deep hole gun drilling

In the machining world, drilling depths of $10xD$ and deeper are regarded as deep hole drilling operations, whereby smaller drilling depths can naturally also be produced with gun drills. Advantage is taken of the positive side effects, as for example good surface quality, low deviation from concentricity and optimised alignment accuracy..

High pressure cooling - has become a matter of course.

In recent years, internal cooling has established itself for all drilling tools. Coolants are now living up to their name and being supplied via coolant ducts to where they are urgently required. Considerable improvements in tool life and less breakages have been achieved by this measure for twist drills, taps etc.

Every conventional machine tool currently on the market can be supplied with high pressure internal cooling and is therefore also suitable for deep hole drilling.

The share of gun drills on machining centres, lathes etc. is forever gaining more importance. The process is therefore increasing in popularity in the machining world.

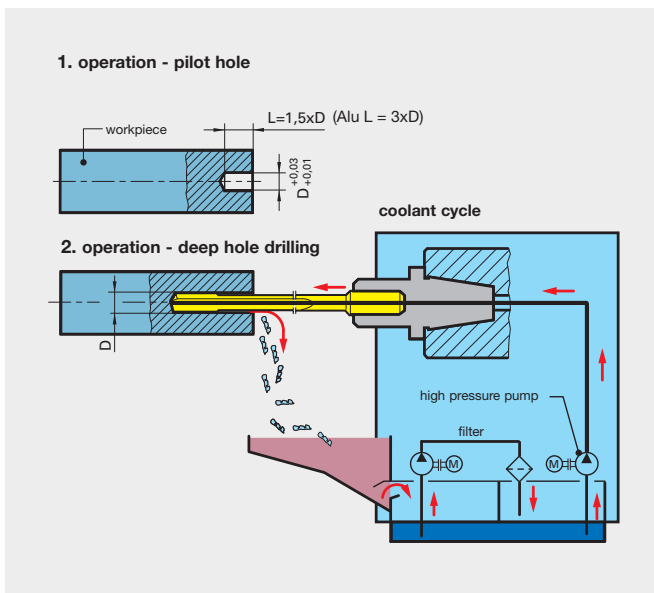


All gun drills must have support for the pilot hole.
Gun drills must never operate at full speed without support in the machine shop.

Attention!

Gun drills with steel shanks are predominantly NOT suitable for shrink fitting! (exception T16 see next page)

Deep hole drilling on conventional machine tools



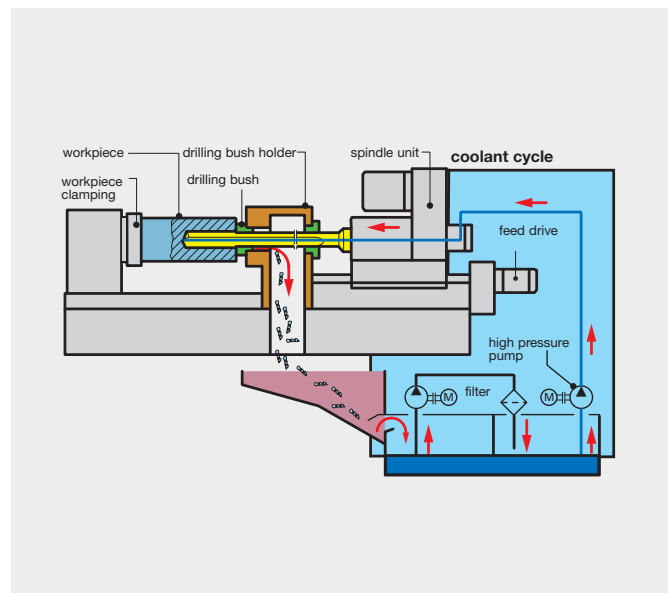
Typical procedure with all gun drills on conventional machine tools

- production of pilot hole ($L \approx 3xD$, tolerance H8)
- enter at low revolutions, approx. 200 rev./min, feed rate approx. 500 mm/min. With tools for drilling depths in excess than $40xD$ enter the pilot hole revolving in left hand direction.
- setting of coolant pressure and revolutions
- uninterrupted drilling to required drilling depth without wood pecking. When applying gun drills with increased length-diameter-ratio, we recommend machining with reduced cutting parameters (approx. 75% of the optimal cutting speed) up to a drilling depth of approx. 25 mm.
- switching off coolant supply after reaching the required hole depth
- withdrawal in top gear (max. 10 m/min) with stationary spindle

Application advice

- For drilling depths in excess than $40xD$ we recommend the use of two or more gun drills, e. g. $\varnothing 10 \times 400$ mm and $\varnothing 9.95 \times 800$ mm.
- Gun drills for drilling depths of more than $40xD$ should enter the pilot hole revolving in the left hand direction.
- When changing tools for drilling depths of more than $40xD$, the tool can be damped by switching on coolant supply for just one second.
- Generally we recommend the use of soluble oil with a minimum oil content of 10 %.
- Single-fluted gun drills for long-chipping aluminium should be supplied with point grind 180° and coolant chamber.
- For optimized bore straightness an additional cylindrical guide part can be used (optional).

Deep hole drilling machines

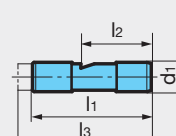


The range of drivers introduced below is available ex stock. However, it only represents a small selection of drivers from our complete range. We naturally also produce individual drivers of

the highest precision to customer drawings. Attention! EB 100 requires drivers with positioning lugs. Further information on request.

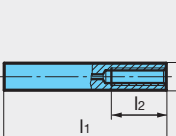
Drivers for deep drilling machines

1



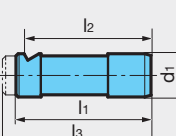
code no.	d ₁	l ₁	l ₂	l ₃
1.1	10	40	24	-
1.2	10	40	24	45
1.3	10	40	24	55
1.4	16	45	31,2	-
1.5	25	70	34	-
1.6	25	70	34	78

5



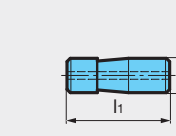
code no.	d ₁	l ₁	l ₂
5.1	10	60	20
5.2	16	80	28
5.3	25	100	50
5.4	10	100	-
5.5	10	110	-

2



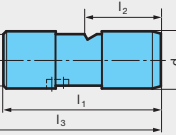
code no.	d ₁	l ₁	l ₂	l ₃
2.1	16	50	47	-
2.2	16	50	47	55
2.3	16	50	47	70

6



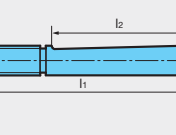
code no.	d ₁	l ₁
6.1	12,7	38
6.2	19,05	70
6.3	38,1	70

3



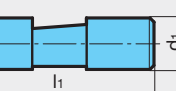
code no.	d ₁	l ₁	l ₂	l ₃
3.1	25	70	34	100

7



code no.	d ₁	l ₁	l ₂
7.1	16	112	73
7.2	20	126	82

4

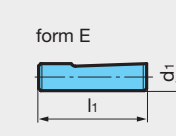


code no.	d ₁	l ₁
4.1	19,05	70
4.2	12,70	70
4.3	25,40	70
4.4	31,75	-
4.5	36,10	70

Drivers to DIN 1835

form E

9

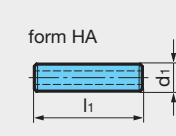


code no.	d ₁	l ₁
9.1	8	36
9.2	10	40
9.3	12	45
9.4	16	48
9.5	20	50
9.6	25	56
9.7	32	60
9.8	31,75	70
9.9	38,1	70
9.10	40	70

Drivers to DIN 6535

form HA

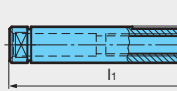
10



code no.	d ₁	l ₁
10.1	8	36
10.2	10	40
10.3	12	45
10.4	16	48
10.5	20	50
10.6	25	56
10.7	32	60
10.8	25	70
10.9	40	70

Drivers to VDI-draft

12

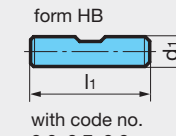


code no.	d ₁	l ₁
12.1	10	68
12.2	16	90
12.3	25	112

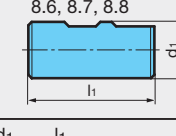
Drivers to DIN 6535

form HB

8



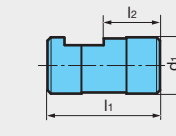
with code no. 8.6, 8.7, 8.8



code no.	d ₁	l ₁
8.1	8	36
8.2	10	40
8.3	12	45
8.4	16	48
8.5	20	50
8.6	25	56
8.7	32	60
8.8	40	70

Drivers to Speed-Bit-System

13

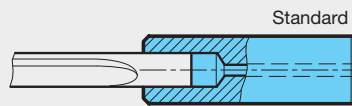


code no.	d ₁	l ₁	l ₂
13.1	16	40	16
13.2	25	50	25
13.2	35,6	60	-

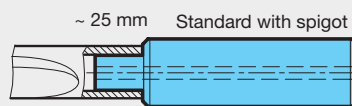
also used for deep hole drilling machines

Driver variations to suit gun drill tubes

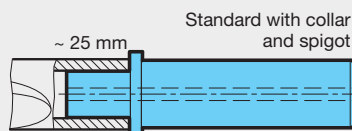
Solution for nom.-Ø < driver-Ø
(difference must be appr. 6 mm):
tube shank installed in driver



Solution for nom.-Ø ≠ driver-Ø
(close to parallel):
tube shank installed over spigot



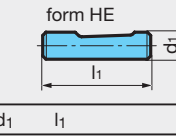
Solution for nom.-Ø > driver-Ø:
tube shank installed over spigot,
inside-Ø of tube shank > driver-Ø,
tube shank fits against collar shoulder.



Drivers to DIN 6535

form HE

11

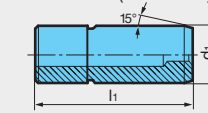


code no.	d ₁	l ₁
11.1	8	36
11.2	10	40
11.3	12	45
11.4	16	48
11.5	20	50
11.6	25,4	70
11.7	25	56
11.8	32	60
11.9	40	70

Drivers to DIN 6535

similar form HA (shrinkable)

16

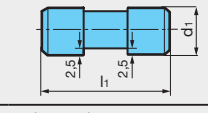


code no.	d ₁	l ₁
16.1	10	50
16.2	16	64
16.3	20	70
16.4	25	81
16.5	32	92

Drivers to DIN 6535

similar form HE

17



code no.	d ₁	l ₁
17.1	19,05	70
17.2	25,40	70
17.3	31,75	70
17.4	38,1	70

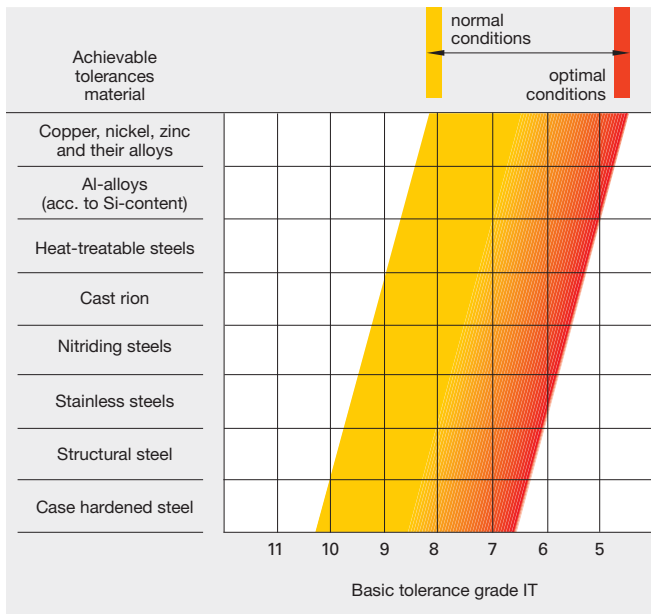
also used for deep hole drilling machines



Single fluted gun drill accuracy

Basic tolerances*

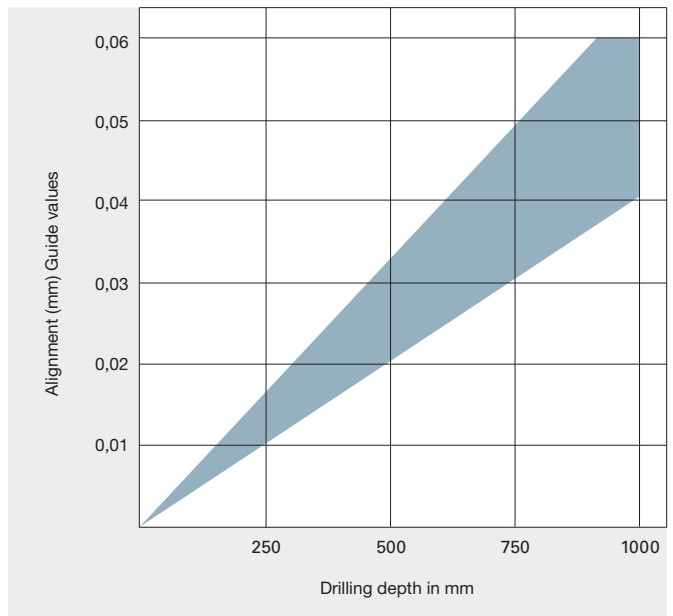
The application of single-fluted gun drills can achieve a lower basic tolerance, as the cutting forces at the cutting edge are absorbed by the supporting strips, unlike twist drills where the slightest deviation of the two cutting edges causes a larger hole.



Alignment accuracy*

Because brazed single-fluted gun drills always have the precision carbide head brazed on to a flexible tube, the tool achieves very accurate aligned holes remaining unaffected by possible concentricity errors.

However, extreme material fluctuations and other influencing factors can impair the alignment accuracy.

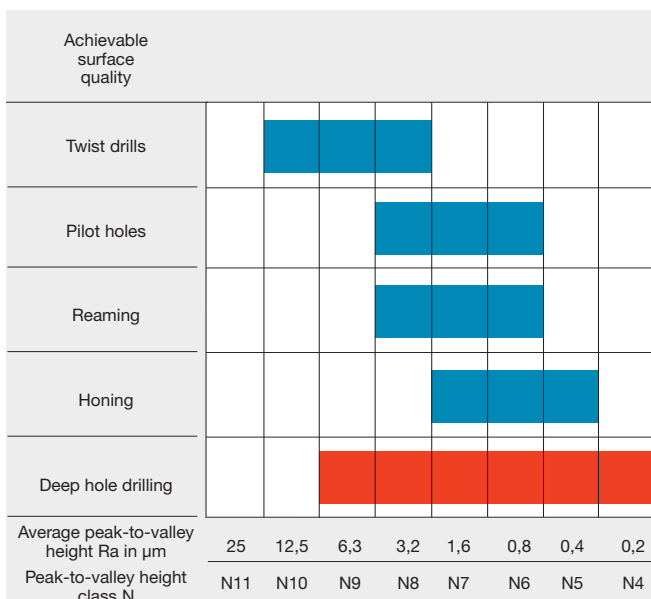


Surface quality*

The forces at the cutting edge are absorbed by the support bushes, which in return burnishes the surface.

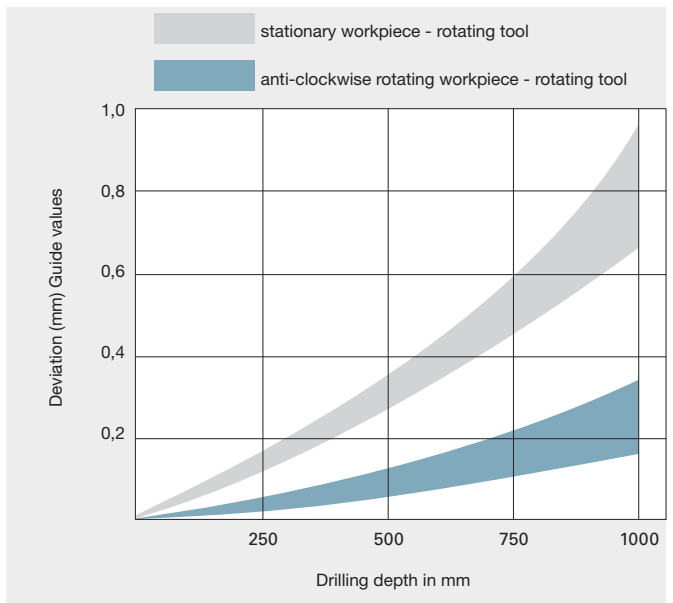
Lubrication between the supporting strips and hole surface is therefore very important.

The better the lubricant, the better the surface quality.



Deviation from concentricity*

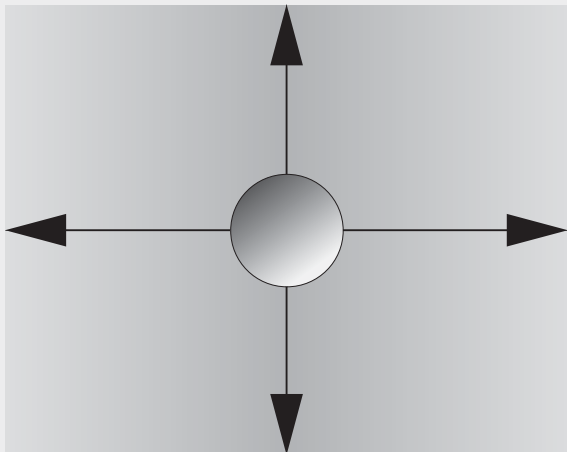
When a hole is produced with, for example, a commercial twist drill, the quality of the point grind affects the concentricity of the hole. An imbalance of forces is created at the cutting edges. With gun drills, these cutting forces are absorbed by the supporting strips, resulting in excellent concentricity.



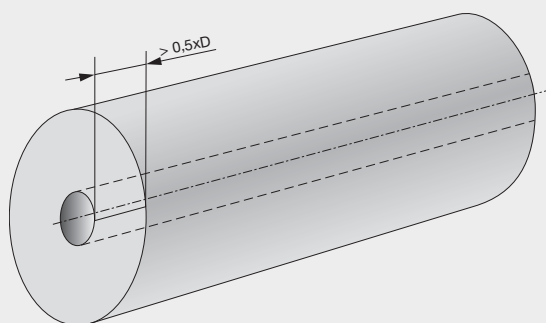
* gun drills with two cutting edges – straight-fluted as well as spiral-fluted – achieve approx. twice of the values stated



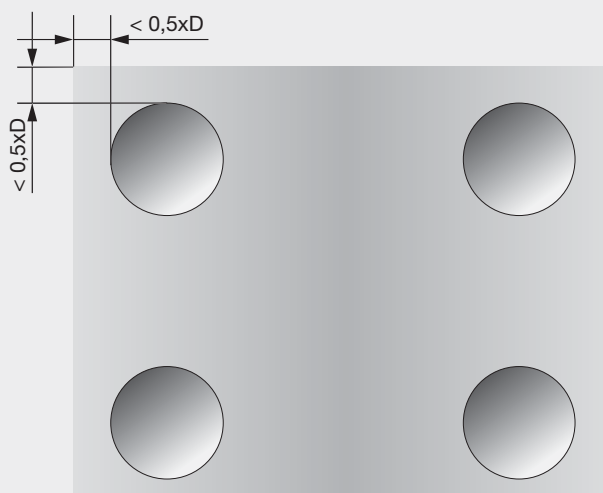
Hole straightness/deviation



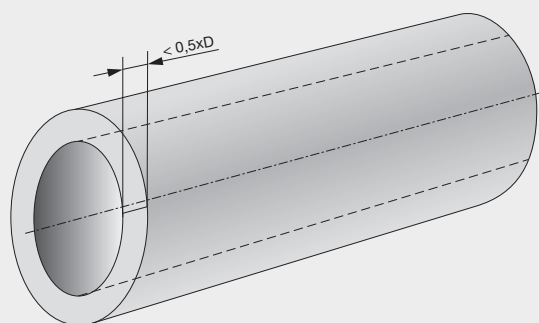
Hole distance to edge $> 0.5xD$



sufficient wall distance
($> 0.5xD$) $>$ optimal



Hole distance to edge $< 0.5xD$



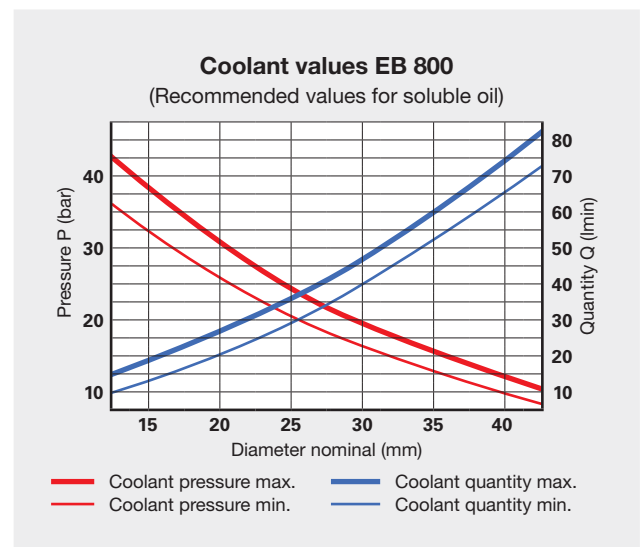
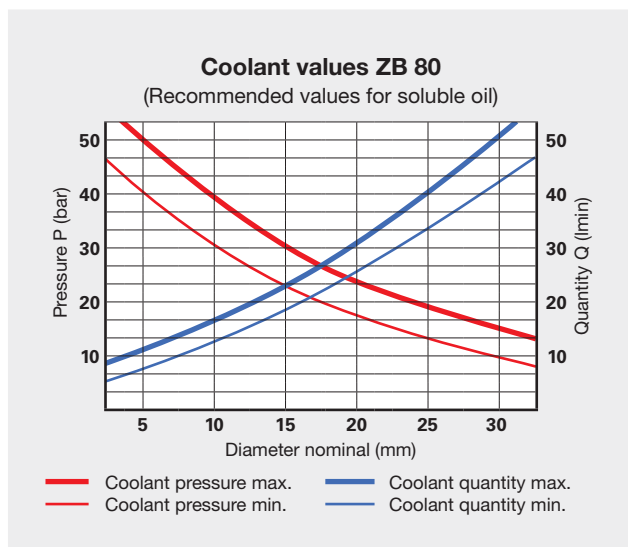
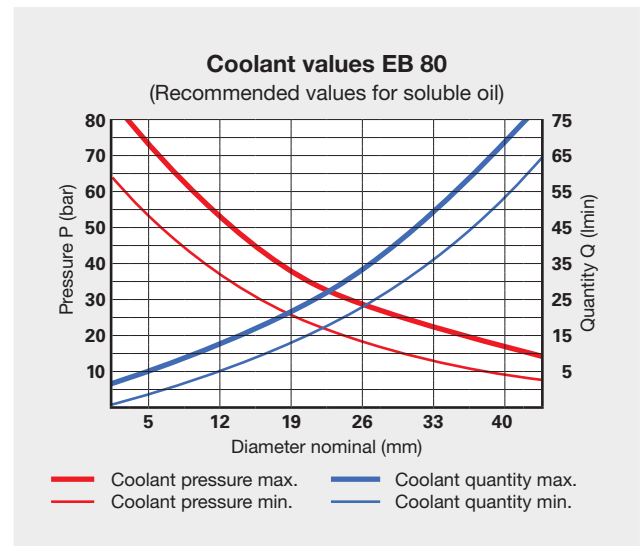
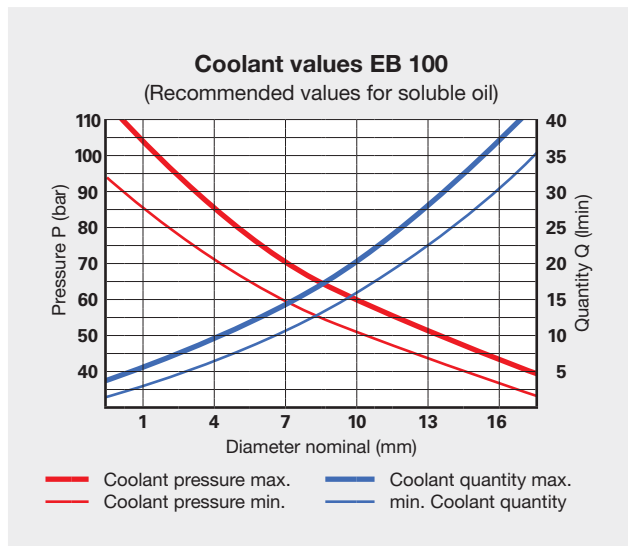
Minimum distance ($0.5xD$)
falling short \rightarrow can lead to losses
in hole straightnes



Coolant values

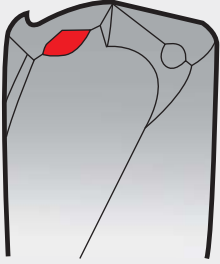
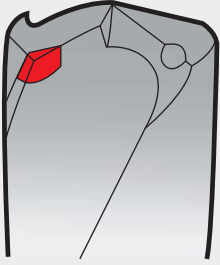
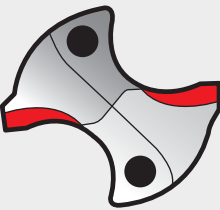
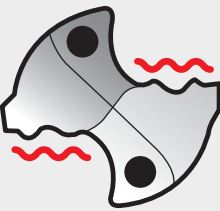
Please note:

- All gun drills must be applied with internal cooling, either air, water or oil. Without internal cooling the chips cannot be evacuated.
- All gun drills can be applied with oil as the medium for internal cooling. However, in this case a 30% higher pressure is required in order to achieve the same coolant volume.
- When MQL is applied with gun drills an increase in pressure may be necessary for smaller nominal diameters dependent on the pressure of the MQL system.
- If the cooling lubricant data is insufficient the cutting parameters may be reduced. Pressure boosting systems are also possible.
- With increased gun drill length a pressure increase has to be expected to transport the required coolant volume through the coolant ducts.



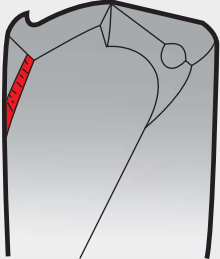
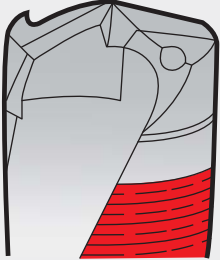
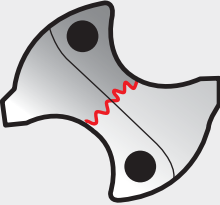
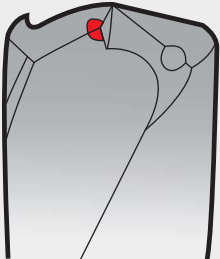


Application/Troubleshooting

Problem	Cause	Remedy
1. Cutting edge build up 	<ul style="list-style-type: none"> ■ low cutting speed ■ excessive honing of cutting lip ■ bright finish cutting lip 	<ul style="list-style-type: none"> ■ increase cutting speed ■ reduce cutting lip honing ■ have tool coated
2. Crumbling of outer corners 	<ul style="list-style-type: none"> ■ non rigid conditions, insufficient workpiece clamping ■ deviation from concentricity too large ■ interrupted cut 	<ul style="list-style-type: none"> ■ rigid clamping of workpiece ■ check and correct concentricity if possible ■ reduce feed
3. Heavy wear at flank 	<ul style="list-style-type: none"> ■ cutting speed too high ■ feed too low ■ clearance angle too small 	<ul style="list-style-type: none"> ■ reduce cutting speed ■ increase feed ■ increase clearance angle
4. Crumbling on cutting lips 	<ul style="list-style-type: none"> ■ non rigid conditions, insufficient workpiece clamping ■ interrupted cut ■ max. wear values exceeded ■ incorrect tool type 	<ul style="list-style-type: none"> ■ rigid clamping of workpiece ■ reduce feed ■ reduce tool change intervals ■ apply suitable tool)

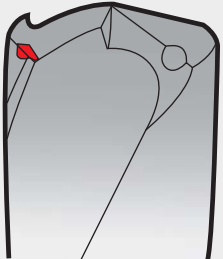
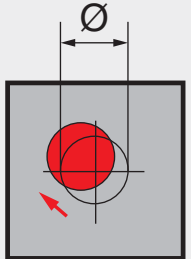
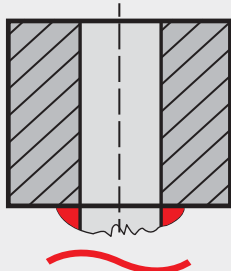
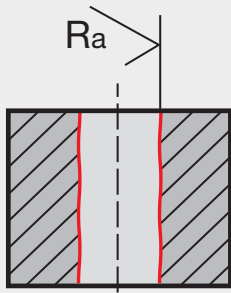


Application/Troubleshooting

Problem	Cause	Remedy
5. Land wear 	<ul style="list-style-type: none"> ■ non rigid conditions, insufficient workpiece clamping ■ deviation from concentricity too large ■ back taper too small ■ incorrect coolant (oil), coolant too weak 	<ul style="list-style-type: none"> ■ rigid clamping of workpiece ■ check and correct concentricity if possible ■ reduce tool change intervals ■ increase strength of coolant or use neat oil
6. Scoring on tool body 	<ul style="list-style-type: none"> ■ non rigid conditions, insufficient workpiece clamping ■ deviation from concentricity too large ■ interrupted cut ■ abrasive workpiece material 	<ul style="list-style-type: none"> ■ rigid clamping of workpiece ■ check and correct concentricity if possible ■ increase back taper ■ increase strength of coolant or use neat oil
7. Heavy chisel edge wear 	<ul style="list-style-type: none"> ■ cutting speed too low ■ feed too high ■ excessive honing of cutting lip 	<ul style="list-style-type: none"> ■ increase cutting speed ■ reduce feed ■ reduce cutting lip honing
8. Crumbling at intersection, web thinning and cutting lip 	<ul style="list-style-type: none"> ■ clearance angle too small ■ excessive honing of cutting lip ■ incorrect tool type 	<ul style="list-style-type: none"> ■ increase clearance angle ■ reduce cutting lip honing ■ apply suitable tool



Application/Troubleshooting

Problem	Cause	Remedy
9. Plastic deformation of outer corner 	<ul style="list-style-type: none"> ■ cutting speed too high ■ insufficient coolant volume ■ incorrect or no honing at corner 	<ul style="list-style-type: none"> ■ reduce cutting speed ■ increase volume/pressure ■ correct honing
10. Misalignment 	<ul style="list-style-type: none"> ■ non rigid conditions, insufficient workpiece clamping ■ deviation from concentricity too large ■ spotting area transverse ■ chisel edge too large 	<ul style="list-style-type: none"> ■ rigid clamping of workpiece ■ check and correct concentricity if possible ■ use milling cutter (2-fluted) for spotting ■ reduce chisel edge
11. Heavy burring on breakthrough 	<ul style="list-style-type: none"> ■ feed too high ■ max. wear values exceeded ■ excessive honing of cutting lip 	<ul style="list-style-type: none"> ■ reduce feed ■ reduce tool change intervals ■ reduce cutting lip honing
12. Unsatisfactory surface quality 	<ul style="list-style-type: none"> ■ non rigid conditions, insufficient workpiece clamping ■ deviation from concentricity too large ■ insufficient coolant volume 	<ul style="list-style-type: none"> ■ rigid clamping of workpiece ■ check and correct concentricity if possible ■ increase volume/pressure



High speed steels

We only produce tools in the highest quality, carefully selected high speed grades. Depending on the alloying component, the tools have specific properties suited to the application case:

Tungsten, molybdenum: Increases the temper resistance and the wear resistance.

Vanadium: Increases the wear resistance.

Cobalt: Increases the wear resistance, increases the thermal hardness.

Gühring description	Type	Field of application, properties
HSS	Conventional high speed steel	Standard tool material for universal applications
HSCO / HSS-E	Cobalt-alloyed high speed steel	Tool material with high thermal hardness for increased demands, especially suitable for higher machining temperatures or unfavourable cooling.
M42	8% cobalt-alloyed high speed steel	Tool material with increased thermal resistance and hardness, suitable for machining difficult-to-machine materials.
HSS-E		
HSS-E-PM	Powder metallurgically produced cobalt-alloyed high speed steel	Tool material with a very dense and uniform structure. High hardness and thermal resistance, high wear resistance and cutting edge stability.



The most important carbide grades for Guhring tools

The following table lists the most important carbides that are available from Guhring ex-stock for general applications. Further carbide grades are available on request and detailed information can be found at www.guehring-carbide.de

In more than 80% of applications known to Guhring, the results of DK460UF carbide grade tools together with a specially adapted coating could not be surpassed by any other carbide grades, including coated tools. This and the availability of the material ex-stock simplify tool selection immensely. For further information regarding the application of other carbide grades please contact our technical engineers.

Grade	Co-content [M-%]	Tungsten carbide grain size [µm]	Hardness [HV]	ISO classification [ISO 513]	Characteristics
DK460UF K40UF	10	0,6	1620	K20-K40	A carbide grade with wide range of application possibilities. It is applied, mostly coated, for the machining of steel, soft Al alloys, cast iron as well as "super alloys" such as Inconel 718. This grade is the backbone of our carbide production.
DK500UF K44UF	12	0,5	1690	K20-K30	The grade has been especially developed for hard machining. It possesses a higher hardness and deformation tolerance in comparison to DK460UF. Due to the high Co-content, a coated application is strongly recommended.
DK255F	8	0,7	1720	K20	The grade is recommended for hard machining, the machining of high tensile grey cast iron and hard AlSi-alloys. Dry machining is possible. A coated application is preferable.
DK120	6	1,3	1620	K15-K20	The grade is especially suitable for the application with diamond coating.
DK120UF	7	0,7	1850	K05-K10	Ultra fine grain type offering extreme wear resistance, suitable for absolutely rigid machines, preferred for reamers.
K55SF	9	0,2-0,4	1920	K05-K10	For application with high wear resistant materials, stainless steels, composite materials such as Kevlar and GRP, high speed machining and dry machining.
DK400N	10	0,7	1580	K20-K40	An extremely tough grade for the machining of high heat resistant metals.
DK256EH	10	0,6	1750	K20	The grade is especially suitable for the machining of nickel-based alloys.
K6UF	6	0,6	1870	K05-K10	Ultra fine grain type offering extreme wear resistance. Especially suitable for application with high wear resistant materials, composite materials, GRP and Kevlar.
K5UF	5	0,5	2010	K05-K10	Newly developed extremely hard grade for drilling and reaming. Especially suitable for application with composite materials and GRP.



Superhard tool materials

It is not only the extreme hardness of superhard tool materials but also their high heat-resistance which enables highest cutting rates and increased productivity. PCD (Poly-Crystalline Diamond) stands for maximum wear resistance. PCD's main field of application is the machining of aluminium and fibre

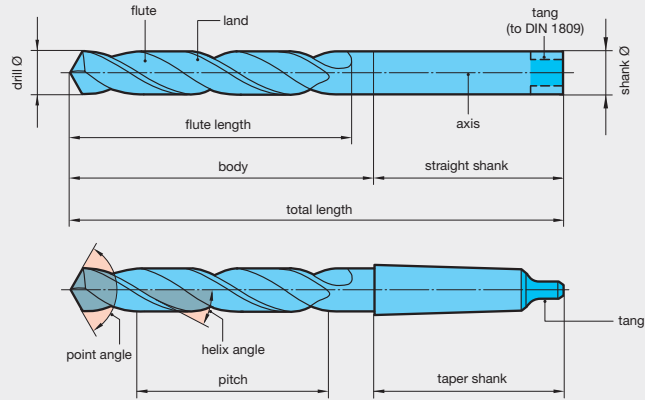
composites. PcBN (Polycrystalline cubic Boron Nitride) finds application in ferrous materials. To unfold the full potential of these tool materials, the application on the most rigid of machine tools is recommended

Guhring description	Classification	Range of application	Average grain size	Diamond content
PCD	Fine grain	Aluminium and AlSi-alloys <10%Si, magnesium alloys, brass, copper, bronze, excellent cutting edge quality, high abrasion resistance, excellent surface qualities.	2-4 µm	> 90% PCD
	Medium grain	Universal grade (general finishing applications) AlSi-alloys <14%Si, copper alloys, graphite and graphite composite materials, fibre composite plastics, unsintered ceramic and carbide (<15% binding metal content) excellent resistance, good surface qualities.	5-10 µm	approx. 92% PCD
	Coarse grain	Roughing applications AlSi-alloys >14%Si and other abrasive machining applications, MMC, sintered ceramic and carbide (<15% binding metal content, extreme abrasion resistance, high shock resistance, long tool life with acceptable surface quality.	>25 µm	approx. 94% PCD
	Mixed grain	Abrasive machining applications (i.e.: >14% AlSi-alloys, MMC, fibre composite plastics) highest wear resistance, excellent shock resistance, extreme abrasion resistance with good edge roughness, long tool life with good surface quality.	4 µm+ 25 µm	approx. 95% PCD
PcBN 10..	Low CBN-content with carbide base	For finish machining of case hardened, hardened heat-treatable and tool steels, suitable for continuous and medium to heavily interrupted cutting with ap smaller 0.3 mm. High wear resistance, resistance to impact, temperature resistance, toughness.	<1-4 µm	40-65% CBN
PcBN 20..	High CBN-content with carbide base	For the machining of perlitic grey cast iron (> 45 HRC), PM-steels, chilled cast iron. Application in continuous and interrupted cutting with ap of 0.5-1.5 mm. High wear resistance, resistance to impact.	2-3 µm	70-90% CBN
PcBN 30..	High CBN-content without carbide base	Massive PcBN tool material suitable for roughing operations. Perlitic grey cast iron, hard casting, hardened steels. For application in clamping holders, drilling and boring tools, milling heads with jaw clamping. High wear resistance, resistance to impact.	2-20 µm	70-87% CBN

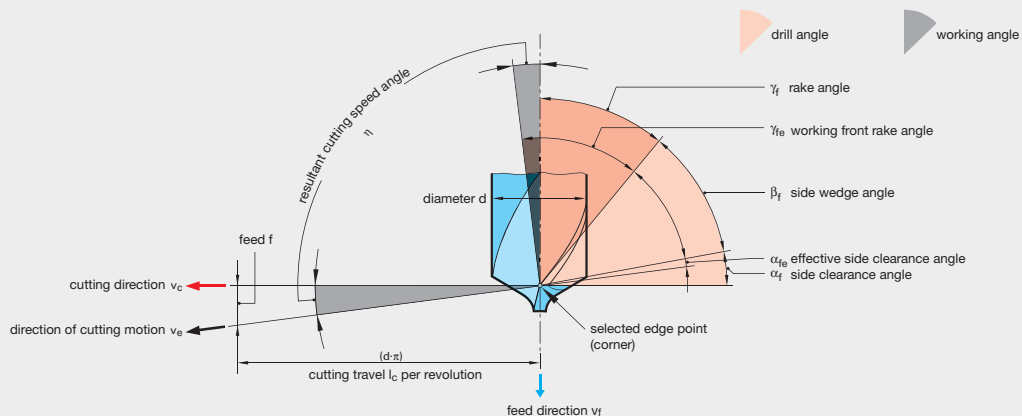
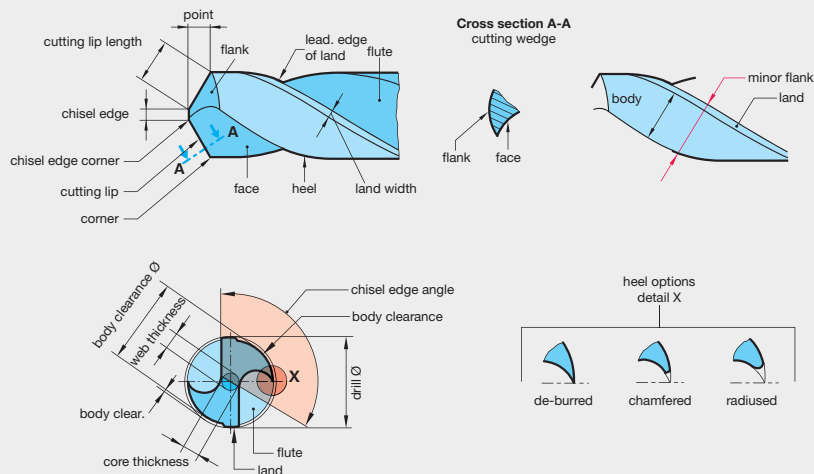


Definitions, dimensions and angles DIN ISO 5419 (extract; edition 06/98)

Twist drills with straight/Morse taper shank



Cutting portion

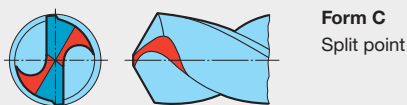
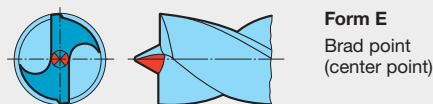
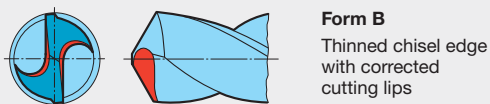
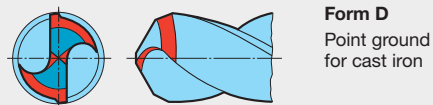
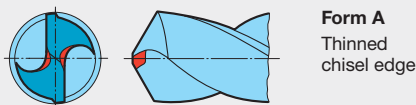


Technical section



Special point geometry and manufacturing tolerances

Special point geometry to DIN 1412 (extract; edition 03/01)



Twist drill manufacturing tolerances to DIN ISO 286, part 2

diameter (nominal size) up to and incl. mm	tolerance range µm	
	h8	h7
0.38 ... 0.60	10	7
0.95	12	8
3.00	14	10
6.00	18	12
10.00	22	15
18.00	27	18
30.00	33	21
50.00	39	25
80.00	46	30
120.00	54	35

* If you need tolerances other than ISO h8 please let us know. Additional charges for closer diameter tolerance see additional charges at the end of chapter Drilling Tools.

Reference to other relevant standards

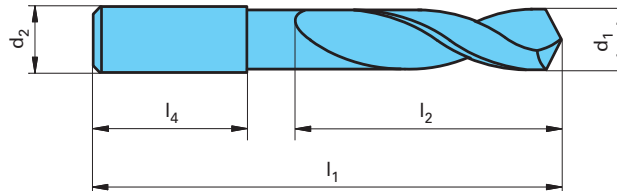
- DIN 228 Part 1 machine tapers; Morse tapers and metric tapers, taper shank
- DIN 1414-1 Directions for design and use for high speed steel twist drills
- DIN 6580 Definitions of the metal-cutting industry; motions and geometry of the cutting process
- DIN 6581 Definitions of the metal-cutting industry; Cutting portion reference systems and angles

The standard descriptions above are given with the permission from the German Standards Institute (Deutsches Institut für Normung). The most recent editions of the standard sheets apply and are available in DIN A 4 format from Beuth-Verlag GmbH, D-10787 Berlin.

Carbide twist drills (Ratio drills)

Carbide twist drills (Ratio drills) DIN 6537

Applies to solid carbide twist drills with 2 or 3 cutting edges and straight shank to DIN 6535

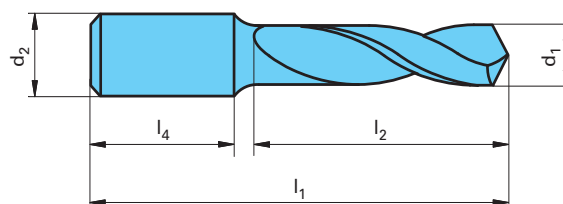


Dimensions in mm

nom. Ø-range up to d1m7	shank Ø d2h6	Ratio drills for 3 x D		Ratio drills for 5 x D		shank length l4
		overall length l1	max. flute length l2	overall length l1	max. flute length l2	
2.9...3.75	6	62	20	66	28	36
4.75	6	66	24	74	36	36
6.00	6	66	28	82	44	36
7.00	8	79	34	91	53	36
8.00	8	79	41	91	53	36
10.00	10	89	47	103	61	40
12.00	12	102	55	118	71	45
14.00	14	107	60	124	77	45
16.00	16	115	65	133	83	48
18.00	18	123	73	143	93	48
20.00	20	131	79	153	101	50

Carbide twist drills (Ratio drills) DIN 6538

Applies to twist drills with brazed carbide tip or head with reinforced straight shank (steel) to DIN 6535. The brazed head can be a part or the complete cutting portion.



Dimensions in mm

nom. Ø-range up to d1h7	shank Ø d2h6	Ratio drills for 3 x D		Ratio drills for 5 x D		Ratio drills for 7 x D		shank length l4
		overall length l1	max. flute length l2	overall length l1	max. flute length l2	overall length l1	max. flute length l2	
9.5...12.0	16	103	51	127	75	151	99	48
14.0	16	111	59	139	87	167	115	48
16.0	20	122	68	154	100	186	132	50
18.0	20	130	76	166	112	202	148	50
20.0	25	144	84	184	124	224	164	56
22.0	25	153	93	197	137	241	181	56
24.0	25	161	101	209	149	257	197	56
26.0	32	174	110	226	162	278	214	60
28.0	32	182	118	238	174	294	230	60
30.0	32	190	126	250	186	310	246	60

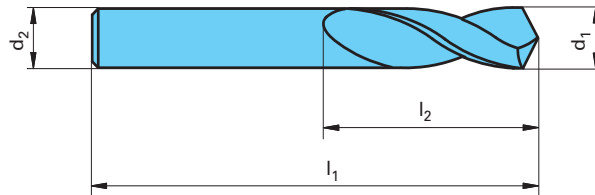
Technical section



Carbide twist drills (Ratio drills)

Carbide twist drills (Ratio drills) DIN 6539

Applies to solid carbide twist drills with parallel shank, i.e. equal nom. drill and shank diameter.



Dimensions in mm

nom. Ø-range up to (= shank Ø d2) d1	overall length		flute length	
	l1		l2	
1.90...2.12	38	12		
2.36	40	13		
2.65	43	14		
3.00	46	16		
3.35	49	18		
3.75	52	20		
4.25	55	22		
4.75	58	24		
5.30	62	26		
6.00	66	28		
6.70	70	31		
7.50	74	34		
8.00	79	37		
8.50	79	37		
9.50	84	40		

nom. Ø-range up to (= shank Ø d2) d1	overall length		flute length	
	l1		l2	
10.00	89	43		
10.60	89	43		
11.80	95	47		
12.00	102	51		
13.20	102	51		
14.00	107	54		
15.00	111	56		
16.00	115	58		
17.00	119	60		
18.00	123	62		
19.00	127	64		
20.00	131	66		

Straight shank twist drills

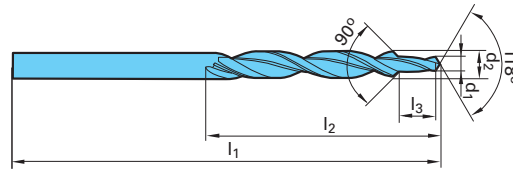
dia. to (incl.) mm	DIN 338		DIN 339		DIN 340		DIN 1897		DIN 1869 Extra length twist drills					
	total length mm	flute length mm	total length mm	flute length mm	total length mm	flute length mm	total length mm	flute length mm	series 1		series 2		series 3	
									total length mm	flute length mm	total length mm	flute length mm	total length mm	flute length mm
≤ 0.24	19	2.5					19	1.5						
0.30	19	3					19	1.5						
0.38	19	4					19	2						
0.48	20	5			30*	10*	19	2.5						
0.53	22	6			32*	12*	20	3						
0.60	24	7	32*	15*	35*	15*	21	3.5						
0.67	26	8	36*	18*	38*	18*	22	4						
0.75	28	9	39*	20*	42*	21*	23	4.5						
0.85	30	10	42*	22*	46*	25*	24	5						
0.95	32	11	45*	24*	51*	29*	25	5.5						
1.06	34	12	48	26	56	33	26	6						
1.18	36	14	50	28	60	37	28	7						
1.32	38	16	52	30	65	41	30	8						
1.50	40	18	55	33	70	45	32	9						
1.70	43	20	58	35	76	50	34	10	115*	75*				
1.90	46	22	62	38	80	53	36	11	120*	80*				
2.12	49	24	66	41	85	56	38	12	125	85	160*	110*	205*	135*
2.36	53	27	70	44	90	59	40	13	135	90	170*	115*	215*	145*
2.65	57	30	74	47	95	62	43	14	140	95	180*	120*	225*	150*
3.00	61	33	79	51	100	66	46	16	150	100	190	130	240*	160*
3.35	65	36	84	55	106	69	49	18	155	105	200	135	250*	170*
3.75	70	39	91	60	112	73	52	20	165	115	210	145	265	180
4.25	75	43	96	64	119	78	55	22	175	120	220	150	280	190
4.75	80	47	102	69	126	82	58	24	185	125	235	160	295	200
5.30	86	52	108	74	132	87	62	26	195	135	245	170	315	210
6.00	93	57	116	80	139	91	66	28	205	140	260	180	330	225
6.70	101	63	124	86	148	97	70	31	215	150	275	190	350	235
7.50	109	69	133	93	156	102	74	34	225	155	290	200	370	250
8.50	117	75	142	100	165	109	79	37	240	165	305	210	390	265
9.50	125	81	151	107	175	115	84	40	250	175	320	220	410	280
10.60	133	87	162	116	184	121	89	43	265	185	340	235	430	295
11.80	142	94	173	125	195	128	95	47	280*	195*	365*	250*	455*	310*
13.20	151	101	184	134	205	134	102	51	295*	205*	375*	260*	480*	330*
14.00	160	108	194	142	214	140	107	54						
15.00	169	114	202	147	220	144	111	56						
16.00	178	120	211	153	227	149	115	58						
17.00	184	125	218	159	235	154	119	60						
18.00	191	130	226	165	241	158	123	62						
19.00	198	135	234	171	247	162	127	64						
20.00	205	140	242	177	254	166	131	66						
21.20					261	171	136	68						
22.40					268	176	141	70						
23.60					275	180	146	72						
25.00					282	185	151	75						
26.50					290	190	156	78						
28.00					298	195	162	81						
30.00					307	201	168	84						
31.50					316	207	174	87						
33.50							180	90						
35.50							186	93						
37.50							193	96						
40.00							200	100						
42.50							207	104						
45.00							214	108						
47.50							221	112						
50.00							228	116						

Guhring delivers twist drills to Guhring standard up to total length of 1000 mm
Guhring no. 242, 243, 244

* Guhring std.



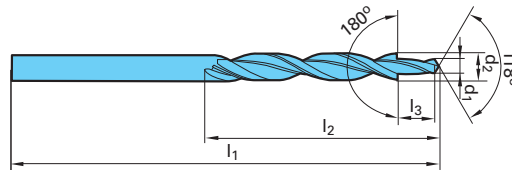
Straight shank subland drills, 90° step angle



body Ø d2 h8 mm	step Ø d1 h9 mm	overall length l1 mm	step length l2 mm	step length l3 mm	for thread	range of application
			HSS DIN 8378/	Carbide	Guhring std.	
3.4	2.5	70	39	8.8	M 3	For tapping size holes to DIN 336 and countersinks in accordance with clearance holes to DIN-ISO 273 (old) and DIN EN 20273 »medial tolerance«.
4.5	3.3	80	47	11.4	M 4	
5.5	4.2	93	57	13.6	M 5	
6.6	5.0	101	63	16.5	M 6	
9.0	6.8	125	81	21.0	M 8	
11.0	8.5	142	94	25.5	M10	
13.5	10.2	160	108	30.0	M12	
DIN 8374 for countersinks, fine tolerance						
6.0	3.2	93	57	9.0	M 3	For clearance holes to DIN-ISO 273 (old). DIN EN 20273 »fine tolerance« and screwhead countersinks form A and B to DIN 74 part 1 (old) »fine tolerance« and screwhead countersinks to DIN 74 form F. For screws to DIN 963 (old) and DIN 964 (old).
8.0	4.3	117	75	11.0	M 4	
10.0	5.3	133	87	13.0	M 5	
11.5	6.4	142	94	15.0	M 6	
15.0	8.4	169	114	19.0	M 8	
19.0	10.5	198	135	23.0	M10	
Guhring std. for countersinks, medial tolerance						
6.6	3.4	101	63	9.0	M 3	For clearance holes to DIN-ISO 273 (old) and screwhead countersinks form A and B to DIN 74 part 1 (old) »medial tolerance«. For screws to DIN 963 (old) and DIN 964 (old).
9.0	4.5	125	81	11.0	M 4	
11.0	5.5	142	94	13.0	M 5	
13.0	6.6	151	101	15.0	M 6	
17.2	9.0	191	130	19.0	M 8	
DIN 8374 for countersinks, medial tolerance						
7.5	3.4	109	69	9.0	M 3	For clearance holes to DIN-ISO 273 (old) and screwhead countersinks form A and B to DIN 74 part 1 (old) »medial tolerance«. For screws to DIN 963 (old) and DIN 964 (old).
9.7	4.5	133	87	11.0	M 4	
12.0	5.5	151	101	13.0	M 5	
14.5	6.6	169	114	15.0	M 6	
19.9	9.0	198	135	19.0	M 8	



Straight shank subland drills, 180° step angle

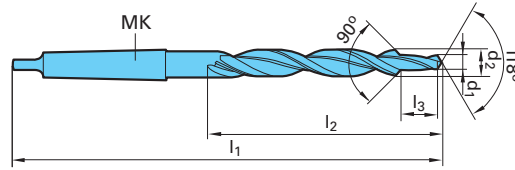


body Ø d2 h8 mm	step Ø d1 h9 mm	overall length l1 mm	flute length l2 mm	step length l3 mm	for thread	range of application
			HSS DIN 8376/	Carbide	Guhring std.	
6.0**	3.4	93**	57**	9.0	M 3	For clearance holes to DIN-ISO 273 (old), DIN EN 20273 »medial tolerance«, screwhead countersinks to DIN 974-1 and screwhead countersinks form H, J and K to DIN 74 part 2 (old): »medial tolerance«. For screws to DIN 84 (old), 912 (old), 6912, 7513 and DIN 7984.
6.5	3.4	101	63	9.0	M 3	
8.0	4.5	117	75	11.0	M 4	
10.0	5.5	133	87	13.0	M 5	
11.0	6.6	142	94	15.0	M 6	
15.0	9.0	169	114	19.0	M 8	
18.0	11.0	191	130	23.0	M10	
Guhring std.						
6.0	3.2	93	57	9.0	M 3	For clearance holes to DIN-ISO 273 (old) and screwhead countersinks form H, J and K to DIN 74 part 2 (old): »fine tolerance«. For screws to DIN 84 (old), 912 (old), 6912, 7513 and DIN 7984.
8.0	4.3	117	75	11.0	M 4	
Guhring std. for countersinks, fine tolerance (old*)						
5.9	3.2	93	57	11.0	M 3	For screws to DIN 84 (old), DIN 912 (old) and DIN 6912. For old type screwhead countersinks form H, J and K to DIN 75 part 2: »fine tolerance«.
7.4	4.3	109	69	13.0	M 4	
9.4	5.3	125	81	16.0	M 5	
10.4	6.4	133	87	19.0	M 6	
13.5	8.4	160	108	22.0	M 8	
16.5	10.5	184	125	25.0	M10	
Guhring std. for countersinks, medial tolerance (old*)						
8.0	4.8	117	75	13.0	M 3	For screws to DIN 84 (old), DIN 912 (old) and DIN 6912. For old type screwhead countersinks form H, J and K to DIN 75 part 2: »medial tolerance«.
10.0	5.8	133	87	16.0	M 4	
11.0	7.0	142	94	19.0	M 5	
14.5	9.5	169	114	22.0	M 6	
17.5	11.5	191	130	25.0	M 8	

* DIN 75, part 2; ** Guhring std



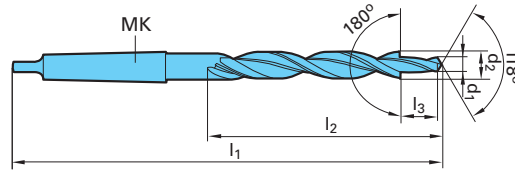
Morse taper subland drills, 90° step angle



body Ø d2 h8 mm	step Ø d1 h9 mm	overall length l1 mm	flute length l2 mm	Morse taper MK	step length l3 mm	for thread	range of application
Guhring std.							
11.0	5.5	175	94	1	13.0	M 5	For clearance holes to DIN-ISO 273 (old), DIN EN 20273 »medial tolerance«, screwhead countersinks to DIN 74 form F and screwhead countersinks form A and B to DIN 74 part 1 (old) »medial tolerance«. For screws to DIN 963 (old) and DIN 964 (old).
13.0	6.6	182	101	1	15.0	M 6	
17.2	9.0	228	130	2	19.0	M 8	
21.5	11.0	248	150	2	23.0	M10	
26.0	14.0	286	165	3	27.0	M12	
29.0	16.0	296	175	3	31.0	M14	
DIN 8375							
12.0	5.5	182	101	1	13.0	M 5	For clearance holes to DIN-ISO 273 (old), DIN EN 20273 »medial tolerance«, screwhead countersinks to DIN 74 form F and screwhead countersinks form A and B to DIN 74 part 1 (old) »medial tolerance«. For screws to DIN 963 (old) and DIN 964 (old).
14.5	6.6	---	108	1	15.0	M 6	
19.0	9.0	253	135	2	19.0	M 8	
23.0	11.0	248	155	2	23.0	M10	
Guhring std.							
11.5	6.4	175	94	1	15.0	M 6	For clearance holes to DIN-ISO 273 (old) and screwhead countersinks form A and B to DIN 74 part 1 (old) »fine tolerance«. For screws to DIN 963 (old) and DIN 964 (old).
15.0	8.4	212	114	2	19.0	M 8	
19.0	10.5	233	135	2	23.0	M10	
23.0	13.0	253	155	2	27.0	M12	
26.0	15.0	286	165	3	31.0	M14	
30.0	17.0	296	175	3	35.0	M16	
DIN 8379							
9.0	6.8	162	81	1	21.0	M 8	For tapping size holes to DIN 336, DIN EN 20273 »medial tolerance« and countersinks in accordance with clearance holes to DIN-ISO 273 (old).
11.0	8.5	175	94	1	25.5	M10	
13.5	10.2	189	108	1	30.0	M12	
15.5	12.0	218	120	2	34.5	M14	
17.5	14.0	228	130	2	38.5	M16	
20.0	15.5	238	140	2	43.5	M18	
22.0	17.5	248	150	2	47.5	M20	



Morse taper subland drills, 180° step angle



body Ø d2 h8 mm	step Ø d1 h9 mm	overall length l1 mm	flute length l2 mm	Morse taper MK	step length l3 mm	for thread	range of application					
HSS DIN 8377/ Carbide Guhring std.												
10,0	5,5	168	87	1	13,0	M 5	For clearance holes to DIN-ISO 273 (old), DIN EN 20273 »medial tolerance«, screwhead countersinks to DIN 974-1 and screwhead countersinks form H, J and K to DIN 74 part 2 (old): »medial tolerance«. For screws to DIN 84 (old), 912 (old), 6912, 7513 and DIN 7984.					
11,0	6,6	175	94	1	15,0	M 6						
15,0	9,0	212	114	2	19,0	M 8						
18,0	11,0	228	130	2	23,0	M10						
20,0	13,5	238	140	2	27,0	M12						
24,0	15,5	281	160	3	31,0	M14						
26,0	17,5	286	165	3	35,0	M16						
30,0	20,0	296	175	3	39,0	M18						
33,0	22,0	334	185	4	43,0	M20						
Guhring std.												
10,0	5,3	168	87	1	13,0	M 5	For clearance holes to DIN-ISO 273 (old) and screwhead countersinks form H, J and K to DIN 74 part 2 (old): »fine tolerance«. For screws to DIN 84 (old), 912 (old), 6912, 7513 and DIN 7984.					
11,0	6,4	175	94	1	15,0	M 6						
15,0	8,4	212	114	2	19,0	M 8						
18,0	10,5	228	130	2	23,0	M10						
20,0	13,0	238	140	2	27,0	M12						
24,0	15,0	281	160	3	31,0	M14						
26,0	17,0	286	165	3	35,0	M16						
Werknorm für Senkungen, Ausführung fein (alt*)												
9,4	5,3	162	81	1	16,0	M 5	For screws DIN 84 (old), DIN 912 (old) and DIN 6912. For old countersinks form H, J and K to DIN 75 part 2: »fine tolerance«.					
10,4	6,4	168	87	1	19,0	M 6						
13,5	8,4	189	108	1	22,0	M 8						
16,5	10,5	223	125	2	25,0	M10						
19,0	13,0	233	135	2	28,0	M12						
23,0	15,0	253	155	2	30,0	M14						
25,0	17,0	281	160	3	33,0	M16						
28,0	19,0	291	170	3	36,0	M18						
31,0	21,0	301	180	3	39,0	M 20						
Werknorm für Senkungen, Ausführung mittel (alt*)												
10,0	5,8	168	87	1	16,0	M 5	For screws DIN 84 (old), DIN 6912. For old countersinks form H, J and K to DIN 75 part 2: »medial tolerance«.					
11,0	7,0	175	94	1	19,0	M 6						
14,5	9,5	212	114	2	22,0	M 8						
17,5	11,5	228	130	2	25,0	M10						
20,0	14,0	238	140	2	28,0	M12						
24,0	16,0	281	160	3	30,0	M14						
26,0	18,0	286	165	3	33,0	M16						
29,0	20,0	296	175	3	36,0	M18						
33,0	23,0	334	185	4	39,0	M20						
inches	mm	inches	mm	inches	mm	inches	mm	MK	inches	mm	for thread	range of application
British Standard												
19/32	15.08	25/64	9.92	8 5/8	219	4 3/4	121	2	3/4	19.05	3/8 inch	For British Standard caphead screws.
21/32	16.67	29/64	11.51	8 3/4	222	4 7/8	124	2	7/8	22.22	7/16 inch	
25/32	19.84	33/64	13.10	9 3/8	238	5 1/2	140	2	1	25.40	1/2 inch	

* DIN 75, part 2

Straight shank core drills

Shell-core drills

diameter up to incl. mm	DIN 344					DIN 222		
	overall length mm	flute length mm	diameter up to incl. mm	overall length mm	flute length mm	nom. Ø up to incl. mm	overall length mm	nom. Ø of hole mm
4.25	96*	64*	11.70	173	125	35.5	45	13
4.75	102*	69*	13.20	184	134	45.0	50	16
5.30	108	74	14.00	194	142	53.0	56	19
6.00	116	80	15.00	202	147	63.0	63	22
6.70	124	86	16.00	211	153	75.0	71	27
7.50	133	93	17.00	218	159	90.0	80	32
8.50	142	100	18.00	226	165	101.6	90	40
9.50	151	107	19.00	234	171			
10.60	162	116	20.00	242	177			

Taper shank core drills

diameter up to incl. mm	DIN 343			DIN 1864		
	overall length mm	flute length mm	Morse taper	overall length mm	flute length mm	Morse taper
7.50	150*	69*	1*	174*	93*	1*
8.50	156*	75*	1*	181*	100*	1*
9.50	162	81	1	188	107	1
10.60	168	87	1	197	116	1
11.70	175	94	1	206	125	1
13.20	182	101	1	215	134	1
14.00	189	108	1	223	142	1
15.00	212	114	2	245	147	2
16.00	218	120	2	251	153	2
17.00	223	125	2	257	159	2
18.00	228	130	2	263	165	2
19.00	233	135	2	269	171	2
20.00	238	140	2	275	177	2
21.20	243	145	2	282	184	2
22.40	248	150	2	289	191	2
23.60	253	155	2	296	198	2
25.00	281	160	3	327	206	3
26.50	286	165	3	335	214	3
28.00	291	170	3	343	222	3
30.00	296	175	3	351	230	3
31.50	301	180	3	360	239	3
33.50	334	185	4			
35.50	339	190	4			
37.50	344	195	4			
40.00	349	200	4			
42.50	354	205	4			
45.00	359	210	4			
47.50	364	215	4			
50.00	369	220	4			

*Gühring std.

Micro-precision drills (total length 25 mm)

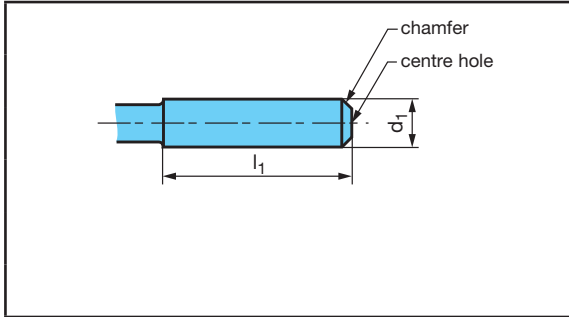
DIN 1899					
diameter up to incl. mm	shank Ø mm	flute length mm	diameter up to incl. mm	shank Ø mm	flute length mm
from 0.1 . . . 0.12	1.0	0.5	0.67	1.0	4.2
0.15	1.0	0.8	0.75	1.0	4.8
0.19	1.0	1.1	0.79	1.0	5.3
0.24	1.0	1.5	0.85	1.5	5.3
0.30	1.0	1.9	0.95	1.5	6.0
0.38	1.0	2.4	1.06	1.5	6.8
0.48	1.0	3.0	1.18	1.5	7.6
0.53	1.0	3.4	1.32	1.5	8.5
0.60	1.0	3.9	1.45	1.5	9.5



High speed steel straight shanks, DIN 1835-1 (extract)

Form A, plain

Dimensions in mm



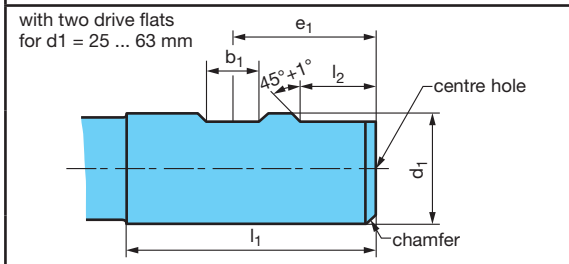
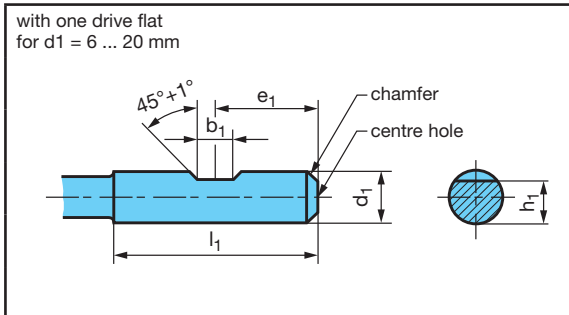
d ₁	l ₁
h8	+2 0
3	28
4	28
5	28
6	36
8	36
10	40

d ₁	l ₁
h8	+2 0
12	45
16	48
20	50
25	56
32	60
40	70

d ₁	l ₁
h8	+2 0
50	80
63	90

Form B, with drive flat

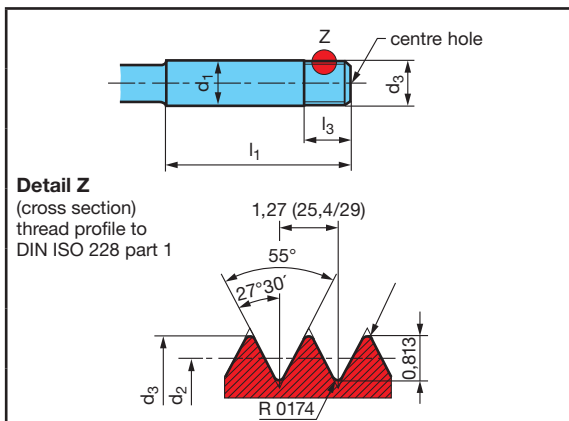
Dimensions in mm



d ₁	b ₁	e ₁	h ₁	l ₁	l ₂	centre hole form R DIN 332 sect. 1
h6	+0.05 0	0 -1	h13	+2 0	+1 0	
6	4.2	18	4.8	36	-	1.6x2.5
8	5.5	18	6.6	36	-	1.6x3.35
10	7	20	8.4	40	-	1.6x3.35
12	8	22.5	10.4	45	-	1.6x3.35
16	10	24	14.2	48	-	2.0x4.25
20	11	25	18.2	50	-	2.5x5.3
25	12	32	23	56	17	2.5x5.3
32	14	36	30	60	19	3.15x6.7
40	14	40	38	70	19	3.15x6.7
50	18	45	47.8	80	23	3.15x6.7
63	18	50	60.8	90	23	3.15x6.7

Form D, screwed shank

Dimensions in mm



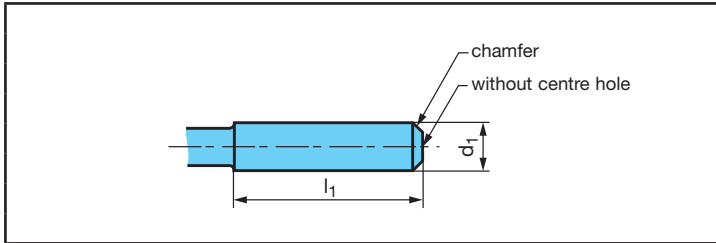
d ₁	d ₃	tol. zone	d ₂	tol. zone	l ₁	l ₃	centre hole form R DIN 332 sect. 1
h8					+2 0	+2 0	
6	5.9	0 -0.1	5.087	0 -0.1	36	10	1.6 x 2.5
10	9.9	0 -0.1	9.087	0 -0.1	40	10	1.6 x 3.35
12	11.9	0 -0.1	11.087	0 -0.1	45	10	1.6 x 3.35
16	15.9	0 -0.1	15.087	0 -0.1	48	10	2.0 x 4.25
20	19.9	0 -0.15	19.087	0 -0.15	50	15	2.5 x 5.3
25	24.9	0 -0.15	24.087	0 -0.15	56	15	2.5 x 5.3
32	31.9	0 -0.15	31.087	0 -0.15	60	15	3.15 x 6.7

Technical section

Carbide straight shanks DIN 6535 for twist drills and end mills

Form HA, plain

Dimensions in mm

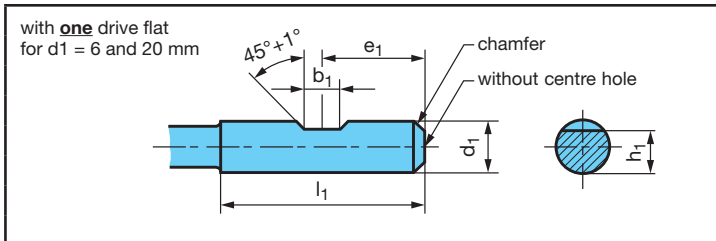


d ₁	l ₁ +2 0
h6	0
2	28
3	28
4	28
5	28
6	36
8	36
10	40
12	45

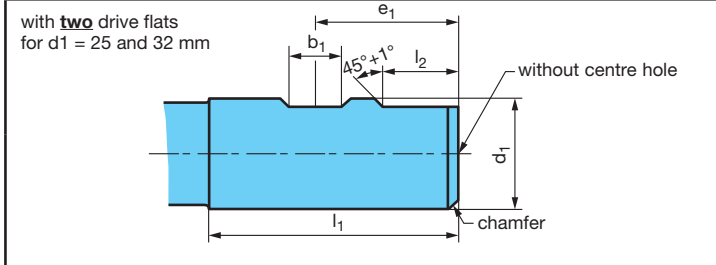
d ₁	l ₁ +2 0
h6	0
14	45
16	48
18	48
20	50
25	56
32	60

Form HB, with drive flat

Dimensions in mm



d ₁	b ₁ +0,05 0	e ₁ 0 -1	h ₁	l ₁ +2 0	l ₂ +1 0
h6	0	-1	h11	0	0
6	4.2	18	5.1	36	-
8	5.5	18	6.9	36	-
10	7	20	8.5	40	-
12	8	22.5	10.4	45	-
14	8	22.5	12.7	45	-
16	10	24	14.2	48	-
18	10	24	16.2	48	-
20	11	25	18.2	50	-

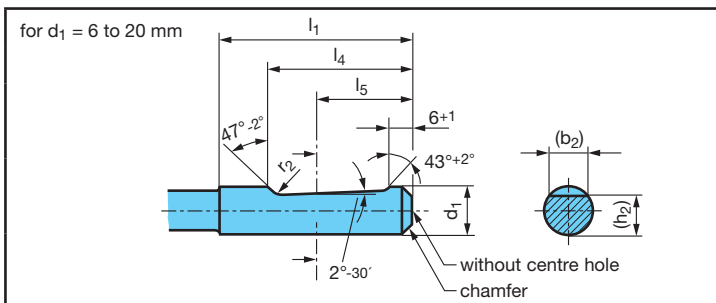


25	12	32	23	56	17
32	14	36	30	60	19

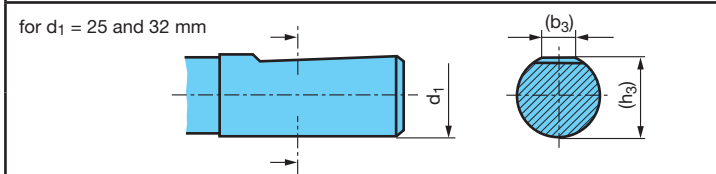
Form HE, with whistle notch flat without coolant ducts*

* Design: Straight shanks to DIN 6335 are available with or without oil feed holes. Applications for various tools, dimensions and position of oil feed holes are fully described within the standard range sections.

Dimensions in mm



d ₁	(b ₂)	(b ₃)	h ₂	(h ₃)	l ₁ +2 0	l ₄ 0 -1	l ₅ Dim. nom.	r ₂ min.
h6	≈	(b ₃)	h11	(h ₃)	0	-1		
6	4,3	-	5,1	-	36	25	18	1,2
8	5,5	-	6,9	-	36	25	18	1,2
10	7,1	-	8,5	-	40	28	20	1,2
12	8,2	-	10,4	-	45	33	22,5	1,2
14	8,1	-	12,7	-	45	33	22,5	1,2
16	10,1	-	14,2	-	48	36	24	1,6
18	10,8	-	16,2	-	48	36	24	1,6
20	11,4	-	18,2	-	50	38	25	1,6



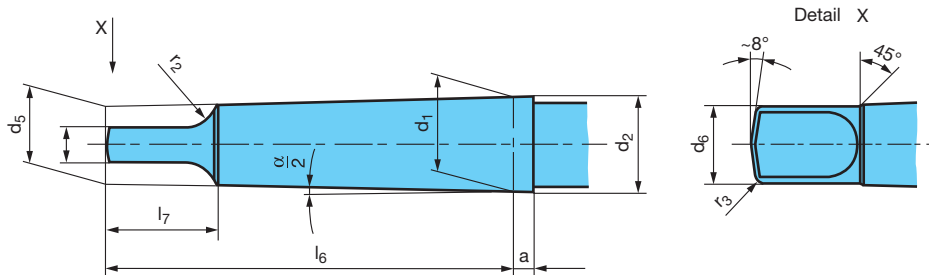
25	13,6	9,3	23,0	24,1	56	44	32	1,6
32	15,5	9,9	30,0	31,2	60	48	35	1,6

Technical section



Morse taper shanks DIN 228 part 1 (extract)

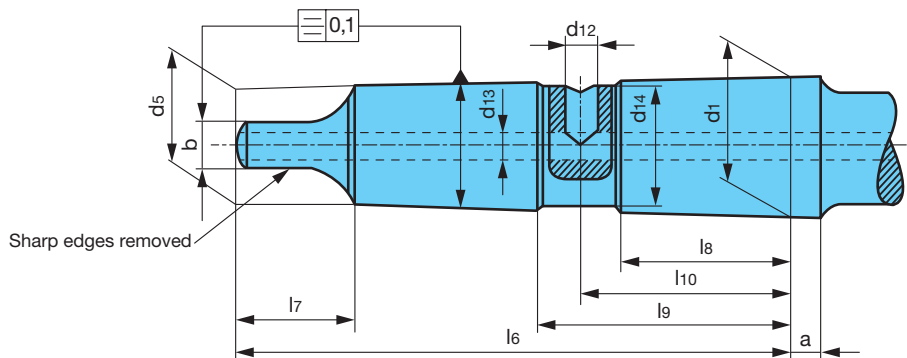
Form B, Morse taper with tang



Dimensions in mm

Shank to DIN 228 form B Size	a	Limiting dimensions	b	d ₁	d ₂ ≈	d ₅ ≈	d ₆ max.	l ₆ 0 -1	l ₇ max.	r ₂ max.	r ₃ ≈	$\frac{\alpha}{2}$
MK 1	3.5	+1.4 0	5.2	12.065	12.2	9.0	8.7	62	13.5	5	1.2	1°25'43"
MK 2	5.0	+1.4 0	6.3	17.780	18.0	14.0	13.5	75	16	6	1.6	1°25'50"
MK 3	5.0	+1.7 0	7.9	23.825	24.1	19.1	18.5	94	20	7	2	1°26'16"
MK 4	6.5	+1.9 0	11.9	31.267	31.6	25.2	24.5	117.5	24	8	2.5	1°29'15"
MK 5	6.5	+1.9 0	15.9	44.399	44.7	36.5	35.7	149.5	29	10	3	1°30'26"

Form BK, Morse taper with tang and coolant lubricant delivery



Dimensions in mm

Shank to DIN 228 form BK Size	a ±0.1	Limiting dimensions	b h13	d ₁	d ₅ ≈	d ₁₂	d ₁₃	d ₁₄ 0 -0.01	l ₆ 0 -1	l ₇ max.	l ₈	l ₉	l ₁₀
MK 1	3.5	+1.4 0	5.2	12.065	9.0	-	-	-	62	13.5	-	-	-
MK 2	5	+1.4 0	6.3	17.780	14.0	4.2	4.2	15.0	75	16	20	34	27
MK 3	5	+1.7 0	7.9	23.825	19.1	5.0	5.0	21.0	94	20	29	43	36
MK 4	6.5	+1.9 0	11.9	31.267	25.2	6.8	6.8	28.0	117.5	24	39	55	47
MK 5	6.5	+1.9 0	15.9	44.399	36.5	8.5	8.5	40.0	149.5	29	51	69	60

Tolerances core drills

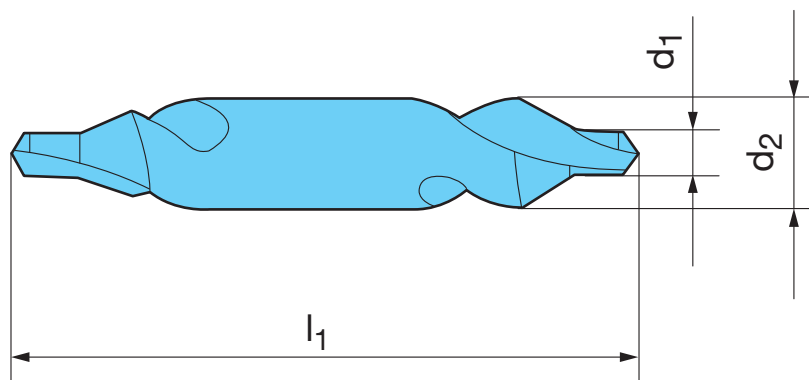
DIN 333	
Ø-range d1 mm	tolerance zones from d1 mm
0,50 – 2,50	0 +0,14
3,15 – 5,00	0 +0,18
6,30 – 10,00	0 +0,22
12,50	0 +0,27

for Guhring nos. 285/286	
Ø-range d1 mm	tolerance zones from d1 mm
1,00 – 1,25	0 +0,10
1,60 – 3,15	0 +0,15
3,15 – 10,00	0 +0,20

to B.S. 328	
Ø-range d1 mm	tolerance zones from d1 mm
1,19 – 1,59	0 ±0,05
2,38 – 3,17	0 ±0,07
4,76	0 ±0,07
6,35 – 7,94	0 ±0,12

to B.S. 328	
Ø-range d1 mm	tolerance zones from d1 mm
3,17 – 4,76	-0,020
6,35	-0,025
7,94 – 11,11	-0,050
15,87 – 19,05	-0,050

to ASA	
Ø-range d1 mm	tolerance zones from d1 mm
all	0 + 0,07 mm



INDICE NUMERO ARTICOLI

BRINCE
GÜH



Articolo nr.	Pagina	Profondità di foro	Norma	Descrizione	Materiale tagliente	Tipo	Forma
11	428		Norma di fab.	Serie di punte			
16	420	~5xD	DIN 338	Serie di punte	HSCO	N	
17	419	~5xD	DIN 338	Serie di punte	HSS	N	
18	421	~5xD	DIN 338	Serie di punte	HSCO	Ti	
36	426		Norma di fab.	Serie di punte			
73	427		Norma di fab.	Serie di punte			
128	413		Norma di fab.	Punte corte, con codolo cil. Ø 16,0 mm	HSCO	V72	
129	414		Norma di fab.	Punte corte, con codolo cil. Ø 25,4 mm	HSCO	V72	
136	415		Norma di fab.	Punte corte, con codolo cil. Ø 25,4 mm	HSCO	V72	
195	422	~5xD	DIN 338	Serie di punte	HSCO	VA	
200	418	~5xD	DIN 338	Set di punte elicoidali sciolte	HSS	N	
201	417	~5xD	DIN 338	Serie di punte	HSS	N	
204	338, 587	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	N	
205	244	~5xD	DIN 338	Punte elicoidali, corte	HSS	N	
206	263	~5xD	DIN 338	Punte elicoidali, corte	HSS	H	
207	269	~5xD	DIN 338	Punte elicoidali, corte	HSS	W	
208	258	~5xD	DIN 338	Punte elicoidali, corte	HSS	N	
209	266	~5xD	DIN 338	Punte elicoidali, corte	HSS	H	
210	272	~5xD	DIN 338	Punte elicoidali, corte	HSS	W	
211	325	~10xD	DIN 339	Punte per foratura con bussola di guida	HSS	N	
217	331, 580	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	N	
218	339, 588	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	H	
219	342, 591	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	W	
220	336, 585	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	N	
221	341, 590	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	H	
223	192	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	N	
224	204	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	H	
225	208	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	W	
226	200	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	N	
227	206	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	H	
228	210	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	W	
229	458	~5xD	DIN 345	Punte elicoidali	HSS	N	
235	363, 612	~15xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 1	HSS	N	
236	371, 620	~20xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 2	HSS	N	
237	377, 626	~25xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 3	HSS	N	
240	257	~5xD	DIN 338	Punte elicoidali, corte	HSS	N	
242	381, 630	>25xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
243	382, 631	>25xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
244	383, 632	>25xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
245	450	~5xD	DIN 345	Punte elicoidali	HSS	N	
246	459	~5xD	DIN 345	Punte elicoidali	HSS	H	
247	460	~5xD	DIN 345	Punte elicoidali	HSS	W	
248	457	~5xD	DIN 345	Punte elicoidali	HSS	N	
251	471	~5xD	DIN 346	Punte elicoidali	HSS	N	
254	499		Norma di fab.	Punte con fori di refr., lung. elica a norma di fab.	HSS	N	
255	500		Norma di fab.	Punte con fori di refr., lung. elica a norma di fab.	HSS	N	
257	473	~10xD	DIN 341	Punte per foratura con bussola di guida	HSS	N	
266	483, 633	~15xD	DIN 1870	Punte elicoidali in lunghezze speciali, grandezza 1	HSS	N	
267	487, 637	~20xD	DIN 1870	Punte elicoidali in lunghezze speciali, grandezza 2	HSS	N	
268	412		Norma di fab.	Punte corte, con codolo cil. Ø 12,7 mm	HSS	N	
269	498	~7xD	Norma di fab.	Punte con fori di refrigerazione, corte	HSS	N	
270	502	~10xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 341	HSS	N	
271	503	~10xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 341	HSS	N	
272	504	~10xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 341	HSS	N	
274	714		Norma di fab.	Punte a gradino per fori centraggio a DIN 332	HSS	N	D
280	689		Norma di fab.	Punte a centrare senza piano	HSS	N	A
281	684		Norma di fab.	Punte a centrare senza piano	HSS	N	A
282	685		Norma di fab.	Punte a centrare senza piano	HSS	N	A
283	686		Norma di fab.	Punte a centrare senza piano	HSS	N	R
284	687		Norma di fab.	Punte a centrare senza piano	HSS	N	R
285	688		Norma di fab.	Punte a centrare senza piano	HSS	N	B
287	693		DIN 333	Punte a centrare con piano	HSS	N	A
288	694		DIN 333	Punte a centrare con piano	HSS	N	R
289	695		Norma di fab.	Punte a centrare con piano	HSS	N	B
292	680		BS 328	Punte a centrare senza piano	HSS	N	A
293	495	>20xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
294	681		BS 328	Punte a centrare senza piano	HSS	N	A
298	496	>20xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
299	497	>20xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
301	397, 649	~5xD	DIN 1899	Micropunte HSS-E-PM senza condotto di lubrificazione	HSS-E-PM	N	
303	402, 654	~5xD	DIN 1899	Micropunte HSS-E-PM senza condotto di lubrificazione	HSS-E-PM	N	
305	284	~5xD	DIN 338	Punte elicoidali, corte	HSCO	N	



Articolo nr.	Pagina	Profondità di foro	Norma	Descrizione	Materiale tagliente	Tipo	Forma
308	289	~5xD	DIN 338	Punte elicoidali, corte	HSCO	N	
311	330	~10xD	DIN 339	Punte per foratura con bussola di guida	HSCO	N	
317	353, 602	~10xD	DIN 340	Punte elicoidali, lunghe	HSCO	N	
329	218	~3xD	DIN 1897	Punte elicoidali, extra corte	HSCO	GV 120	
330	225	~3xD	DIN 1897	Punte elicoidali, extra corte	HSCO	GV 120	
336	355, 604	~10xD	DIN 340	Punte elicoidali, lunghe	HSCO	GT 100	
345	463	~5xD	DIN 345	Punte elicoidali	HSCO	N	
351	472	~5xD	DIN 346	Punte elicoidali	HSCO	N	
357	480	~10xD	DIN 341	Punte per foratura con bussola di guida	HSCO	N	
363	448	~3xD	Norma di fab.	Punte elicoidali, corte	HSCO	GV 120	
370	505	~10xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 341	HSCO	GT 100	
371	506	~10xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 341	HSCO	GT 100	
372	507	~10xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 341	HSCO	GT 100	
374	508, 641	~15xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 1870	HSCO	GT 100	
375	509, 642	~15xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 1870	HSCO	GT 100	
376	510, 643	~15xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 1870	HSCO	GT 100	
378	718		Norma di fab.	Punte a gradino corte, cil.	HSS	N	
379	720		Norma di fab.	Punte a gradino corte, cil.	HSS	N	
380	721		Norma di fab.	Punte a gradino corte, cil.	HSS	N	
381	682		DIN 333	Punte a centrare senza piano	HSCO	N	A
390	394	~10xD	Norma di fab.	Punte con fori di refrigerazione	HSS	N	
396	357, 606	~10xD	DIN 340	Punte elicoidali, lunghe	HSCO	GT 100	
501	351, 600	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	GT 50	
502	365, 614	~15xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 1	HSS	GT 100	
503	372, 621	~20xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 2	HSS	GT 100	
504	378, 627	~25xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 3	HSS	GT 100	
505	479	~10xD	DIN 341	Punte per foratura con bussola di guida	HSS	GT 50	
506	350, 599	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	GT 100	
511	386	~5xD	Norma di fab.	Punte con codolo rinforzato	HSCO	GU 500	
512	384	~3xD	Norma di fab.	Punte con codolo rinforzato	HSCO	GU 500	
513	388	~5xD	Norma di fab.	Punte con codolo rinforzato	HSS-E-PM	GT 500	
514	728		Norma di fab.	Punte a gradino ad eliche indipendenti, cil.	HSS	N	
515	237	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS-E-PM	GT 500	
520	735		Norma di fab.	Punte a gradino ad eliche indipendenti, CM	HSS	N	
523	482	~10xD	Norma di fab.	Punte per foratura con bussola di guida	HSS	N	
524	368, 617	~15xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 1	HSS	GT 50	
525	485, 635	~15xD	DIN 1870	Punte elicoidali in lunghezze speciali, grandezza 1	HSS	GT 50	
526	484, 634	~15xD	DIN 1870	Punte elicoidali in lunghezze speciali, grandezza 1	HSS	GT 100	
527	488, 638	~20xD	DIN 1870	Punte elicoidali in lunghezze speciali, grandezza 2	HSS	GT 100	
528	375, 624	~20xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 2	HSS	GT 50	
529	379, 628	~25xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 3	HSS	GT 50	
531	416, 746		DIN 1898	Punte per fori conici	HSS	N	
532	511, 747		DIN 1898	Punte per fori conici	HSS	N	
533	737		DIN 344	Allargatori cilindrici	HSS	N	
534	740		DIN 343	Allargatori con attacco cono morse	HSS	N	
535	344, 593	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	GT 100	
536	722		DIN 8374	Punte a gradino ad eliche indipendenti, cil.	HSS	N	A
537	732		Norma di fab.	Punte a gradino ad eliche indipendenti, CM	HSS	N	
538	726		DIN 8376	Punte a gradino ad eliche indipendenti, cil.	HSS	N	
539	734		DIN 8377	Punte a gradino ad eliche indipendenti, CM	HSS	N	
540	729		DIN 8378	Punte a gradino ad eliche indipendenti, cil.	HSS	N	
541	736		DIN 8379	Punte a gradino ad eliche indipendenti, CM	HSS	N	
542	489, 639	~20xD	DIN 1870	Punte elicoidali in lunghezze speciali, grandezza 2	HSS	GT 50	
546	707		Norma di fab.	Punte cilindriche per centri CN 142°	Int. in MD	N	
549	274	~5xD	DIN 338	Punte elicoidali, corte	HSS	GT 100	
550	281	~5xD	DIN 338	Punte elicoidali, corte	HSS	GT 100	
551	476	~10xD	DIN 341	Punte per foratura con bussola di guida	HSS	GT 100	
552	212	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	GT 80	
553	215	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	GT 80	
554	708		Norma di fab.	Punte doppie per carrozzeria	HSS	DK 77	
555	743		DIN 1864	Allargatori con attacco cono morse	HSS	N	
556	702		Norma di fab.	Punte cilindriche per centri CN 120°	HSS	N	
557	696		Norma di fab.	Punte cilindriche per centri CN 90°	HSS	N	
558	461	~5xD	DIN 345	Punte elicoidali	HSS	GT 100	
559	700		Norma di fab.	Punte cilindriche per centri CN 90°	HSS	N	
560	256	~5xD	DIN 338	Punte elicoidali, corte	HSS	N	
561	327	~10xD	DIN 339	Punte per foratura con bussola di guida	HSS	N	
563	491	>20xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
564	492	>20xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
565	493	>20xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
566	494	>20xD	Norma di fab.	Punte elicoidali, extra lunghe	HSS	GT 100	
567	703		Norma di fab.	Punte cilindriche per centri CN 120°	HSS	N	



Articolo nr.	Pagina	Profondità di foro	Norma	Descrizione	Materiale tagliente	Tipo	Forma
568	697		Norma di fab.	Punte cilindriche per centri CN 90°	HSS	N	
569	723		DIN 8374	Punte a gradino ad eliche indipendenti, cil.	HSS	N	B
571	380, 629	~25xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 3	HSCO	GT 100	
572	231	~3xD	DIN 1897	Punte elicoidali, extra corte	HSCO	VA	
574	715		Norma di fab.	Punte a gradino per fori centraggio a DIN 332	HSS	N	DR
575	716		Norma di fab.	Punte a gradino per fori centraggio a DIN 332	HSS	N	D
576	717		Norma di fab.	Punte a gradino per fori centraggio a DIN 332	HSS	N	D
577	390		NAS 907	Punte ad asta cilindriche 6 pollici	HSS	N	
578	392		NAS 907	Punte ad asta cilindriche 12 pollici	HSS	N	
579	391		NAS 907	Punte ad asta cilindriche 6 pollici	HSS	N	
580	393		NAS 907	Punte ad asta cilindriche 12 pollici	HSS	N	
581	668		DIN 333	Punte a centrare senza piano	HSS	N	A
582	670		DIN 333	Punte a centrare senza piano	HSS	N	A
583	672		DIN 333	Punte a centrare senza piano	HSS	N	R
584	674		DIN 333	Punte a centrare senza piano	HSS	N	R
585	675		DIN 333	Punte a centrare senza piano	HSS	N	B
586	676		DIN 333	Punte a centrare senza piano	HSS	N	B
587	690		DIN 333	Punte a centrare con piano	HSS	N	A
588	691		DIN 333	Punte a centrare con piano	HSS	N	R
589	692		DIN 333	Punte a centrare con piano	HSS	N	B
590	671		DIN 333	Punte a centrare senza piano	HSS	N	A
591	677		DIN 333	Punte a centrare senza piano	HSS	N	B
592	454	~5xD	DIN 345	Punte elicoidali	HSS	N	
594	678		ASME B94.11 M	Punte a centrare senza piano	HSS	N	A
595	679		ASME B94.11 M	Punte a centrare senza piano	HSS	N	B
605	301	~5xD	DIN 338	Punte elicoidali, corte	HSCO	Ti	
606	462	~5xD	DIN 345	Punte elicoidali	HSS	GT 100	
608	308	~5xD	DIN 338	Punte elicoidali, corte	HSCO	Ti	
611	114	5xD	DIN 6539	Punte Ratio, a 3 taglianti	Int. in MD	GS 200 U	
613	669		DIN 333	Punte a centrare senza piano	HSS	N	A
614	673		DIN 333	Punte a centrare senza piano	HSS	N	R
617	358, 607	~10xD	DIN 340	Punte elicoidali, lunghe	HSCO	Ti	
618	370, 619	~15xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 1	HSCO	GT 100	
619	376, 625	~20xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 2	HSCO	GT 100	
620	486, 636	~15xD	DIN 1870	Punte elicoidali in lunghezze speciali, grandezza 1	HSCO	GT 100	
621	490, 640	~20xD	DIN 1870	Punte elicoidali in lunghezze speciali, grandezza 2	HSCO	GT 100	
622	291	~5xD	DIN 338	Punte elicoidali, corte	HSCO	GT 100	
623	481	~10xD	DIN 341	Punte per foratura con bussola di guida	HSCO	GT 100	
634	742		DIN 343	Allargatori con attacco cono morse	HSCO	N	
635	744		DIN 1864	Allargatori con attacco cono morse	HSCO	N	
636	724		Norma di fab.	Punte a gradino ad eliche indipendenti, cil.	HSS	N	
637	731		Norma di fab.	Punte a gradino ad eliche indipendenti, CM	HSS	N	
638	725		Norma di fab.	Punte a gradino ad eliche indipendenti, cil.	HSS	N	
639	733		Norma di fab.	Punte a gradino ad eliche indipendenti, CM	HSS	N	
645	466	~5xD	DIN 345	Punte elicoidali	HSCO	GT 100	
651	250	~5xD	DIN 338	Punte elicoidali, corte	HSS	N	
652	277	~5xD	DIN 338	Punte elicoidali, corte	HSS	GT 100	
653	196	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	N	
654	455	~5xD	DIN 345	Punte elicoidali	HSS	N	
655	475	~10xD	DIN 341	Punte elicoidali, corte	HSS	N	
656	478	~10xD	DIN 341	Punte per foratura con bussola di guida	HSS	GT 100	
657	304	~5xD	DIN 338	Punte elicoidali, corte	HSCO	Ti	
658	294	~5xD	DIN 338	Punte elicoidali, corte	HSCO	GT 100	
659	222	~3xD	DIN 1897	Punte elicoidali, extra corte	HSCO	GV 120	
660	400, 652	~5xD	DIN 1899	Micropunte HSS-E-PM senza condotto di lubrificazione	HSS-E-PM	N	
661	465	~5xD	DIN 345	Punte elicoidali	HSCO	N	
662	467	~5xD	DIN 345	Punte elicoidali	HSCO	GT 100	
663	449	~3xD	Norma di fab.	Punte elicoidali, corte	HSCO	GV 120	
664	261	~5xD	DIN 338	Punte elicoidali, corte	HSS	N	
665	283	~5xD	DIN 338	Punte elicoidali, corte	HSS	GT 100	
666	328	~10xD	DIN 339	Punte per foratura con bussola di guida	HSS	N	
667	334, 583	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	N	
668	347, 596	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	GT 100	
669	360, 609	~10xD	DIN 340	Punte elicoidali, lunghe	HSCO	Ti	
670	367, 616	~15xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 1	HSS	GT 100	
671	374, 623	~20xD	DIN 1869	Punte elicoidali in lunghezze speciali, grandezza 2	HSS	GT 100	
672	203	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	N	
701	404, 656	~5xD	Norma di fab.	Micropunte in MD senza condotto di lubrificazione	Int. in MD	N	
702	243	~3xD	Norma di fab.	Punte elicoidali, extra corte	Int. in MD	N	
703	429		DIN 8037	Punte speciali, con taglianti in MD	Metallo duro	N	
704	430		DIN 8038	Punte speciali, con taglianti in MD	Metallo duro	N	
705	512		DIN 8041	Punte speciali, con taglianti in MD	Metallo duro	N	



Articolo nr.	Pagina	Profondità di foro	Norma	Descrizione	Materiale tagliente Tipo		Forma
706	362, 611	~10xD	Norma di fab.	Punte elicoidali, lunghe	Int. in MD	N	
707	432		Norma di fab.	Punte a lancia	Metallo duro	H	
710	323	~5xD	Norma di fab.	Punte elicoidali, corte	Metallo duro	Duro 150	
716	433		Norma di fab.	Punte per muro	Metallo duro	N	
723	701		Norma di fab.	Punte cilindriche per centri CN 90°	Int. in MD	N	
724	706		Norma di fab.	Punte cilindriche per centri CN 120°	Int. in MD	N	
729	745		Norma di fab.	Allargatori con attacco cono morse	Metallo duro	N	
730	239	3xD	DIN 6539	Punte elicoidali, extra corte	Int. in MD	N	
731	115	5xD	DIN 6539	Punte Ratio, a 3 taglienti	Int. in MD	GS 200 U	
732	319	~5xD	Norma di fab.	Punte elicoidali, corte	Int. in MD	N	
736	683		Norma di fab.	Punte a centrare senza piano	Int. in MD	N	A
738	727		Norma di fab.	Punte a gradino ad eliche indipendenti, cil.	Int. in MD	N	
739	730		Norma di fab.	Punte a gradino ad eliche indipendenti, cil.	Int. in MD	N	
745	116	5xD	DIN 6539	Punte Ratio, a 3 taglienti	Int. in MD	GS 200 G	
750	739		Norma di fab.	Allargatori cilindrici	Metallo duro	N	
768	56	4xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 150 GG	
769	93	7xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 150 GG	
770	98	10xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 150 GG	
773	103	15xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 150 GN	
1018	313	~5xD	DIN 338	Punte elicoidali Aerox affilatura a croce	M42	AeroX	
1025	117	5xD	DIN 6539	Punte Ratio, a 3 taglienti	Int. in MD	GS 200 G	
1027	119	5xD	DIN 6539	Punte Ratio, a 3 taglienti	Int. in MD	GS 200 F	
1032	120	3xD	Norma di fab.	Punte Ratio a gradino a 3 taglienti	Int. in MD	GS 200 G	
1047	162		Norma di fab.	Inseriti intercambiabili per RT 800	Int. in MD	RT 800 WP	
1071	168		Norma di fab.	Viti di serraggio RT 800			
1083	425	~5xD	DIN 338	Set di punte elicoidali Aerox affilatura a croce	M42	AeroX	
1101	501	~10xD	Norma di fab.	Punte con fori di refr., lung. elica DIN 341	HSS	N	
1131	395	~5xD	Norma di fab.	Punte con fori di refrigerazione	HSCO	GT 80 IK	
1132	396	~5xD	Norma di fab.	Punte con fori di refrigerazione	HSCO	GT 80 IK	
1133	699		Norma di fab.	Punte cilindriche per centri CN 90°	HSCO	N	
1134	704		Norma di fab.	Punte cilindriche per centri CN 120°	HSCO	N	
1135	705		Norma di fab.	Punte cilindriche per centri CN 120°	HSCO	N	
1136	698		Norma di fab.	Punte cilindriche per centri CN 90°	HSCO	N	
1146	315	~5xD	DIN 338	Punte elicoidali, corte	M42	N	
1147	719		Norma di fab.	Punte a gradino corte, cil.	HSS	N	
1149	431		Norma di fab.	Punte FK per kevlar	Int. in MD	FK	
1171	55	3xD	DIN 6538K	Punte Ratio, con fori di refrigerazione	Metallo duro	RT 80 U	
1172	84	5xD	DIN 6538M	Punte Ratio, con fori di refrigerazione	Metallo duro	RT 80 U	
1173	95	7xD	DIN 6538L	Punte Ratio, con fori di refrigerazione	Metallo duro	RT 80 U	
1180	54	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 F	
1181	43	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
1182	80	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 F	
1183	66	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
1184	21	3xD	DIN 6537K	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
1199	317	~5xD	DIN 338	Punte elicoidali, corte	M42	N	
1221	298	~5xD	DIN 338	Punte elicoidali, corte	HSCO	GT 100	
1222	468	~5xD	DIN 345	Punte elicoidali	HSCO	GT 100	
1223	299	~5xD	DIN 338	Punte elicoidali, corte	HSCO	GT 100	
1224	469	~5xD	DIN 345	Punte elicoidali	HSCO	GT 100	
1228	227	~3xD	DIN 1897	Punte elicoidali, extra corte	HSCO	GT 80	
1242	23	3xD	DIN 6539	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
1243	36	5xD	Norma di fab.	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
1259	235	~3xD	DIN 1897	Punte elicoidali, extra corte	M42	N	
1260	309	~5xD	DIN 338	Punte elicoidali, corte	HSCO	VA	
1261	230	~3xD	DIN 1897	Punte elicoidali, extra corte	HSCO	VA	
1262	470	~5xD	DIN 345	Punte elicoidali	HSCO	VA	
1612	171, 558		Norma di fab.	Giravite Torx			
1660	53	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 F	
1662	78	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 F	
1663	65	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
1702	28	3xD	DIN 6539	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 F	
1946	389	~3xD	DIN 6537K	Punte con codolo rinforzato	Int. in MD	H	
2047	311	~5xD	DIN 338	Punte elicoidali, corte	HSCO	P2000	
2048	233	~3xD	DIN 1897	Punte elicoidali, extra corte	HSCO	P2000	
2049	423	~5xD	DIN 338	Serie di punte	HSCO	P2000	
2050	424	~3xD	DIN 1897	Serie di punte	HSCO	P2000	
2456	254	~5xD	DIN 338	Punte elicoidali, corte	HSS	N	
2457	280	~5xD	DIN 338	Punte elicoidali, corte	HSS	GT 100	
2458	306	~5xD	DIN 338	Punte elicoidali, corte	HSCO	Ti	
2459	296	~5xD	DIN 338	Punte elicoidali, corte	HSCO	GT 100	
2460	199	~3xD	DIN 1897	Punte elicoidali, extra corte	HSS	N	
2461	224	~3xD	DIN 1897	Punte elicoidali, extra corte	HSCO	GV 120	

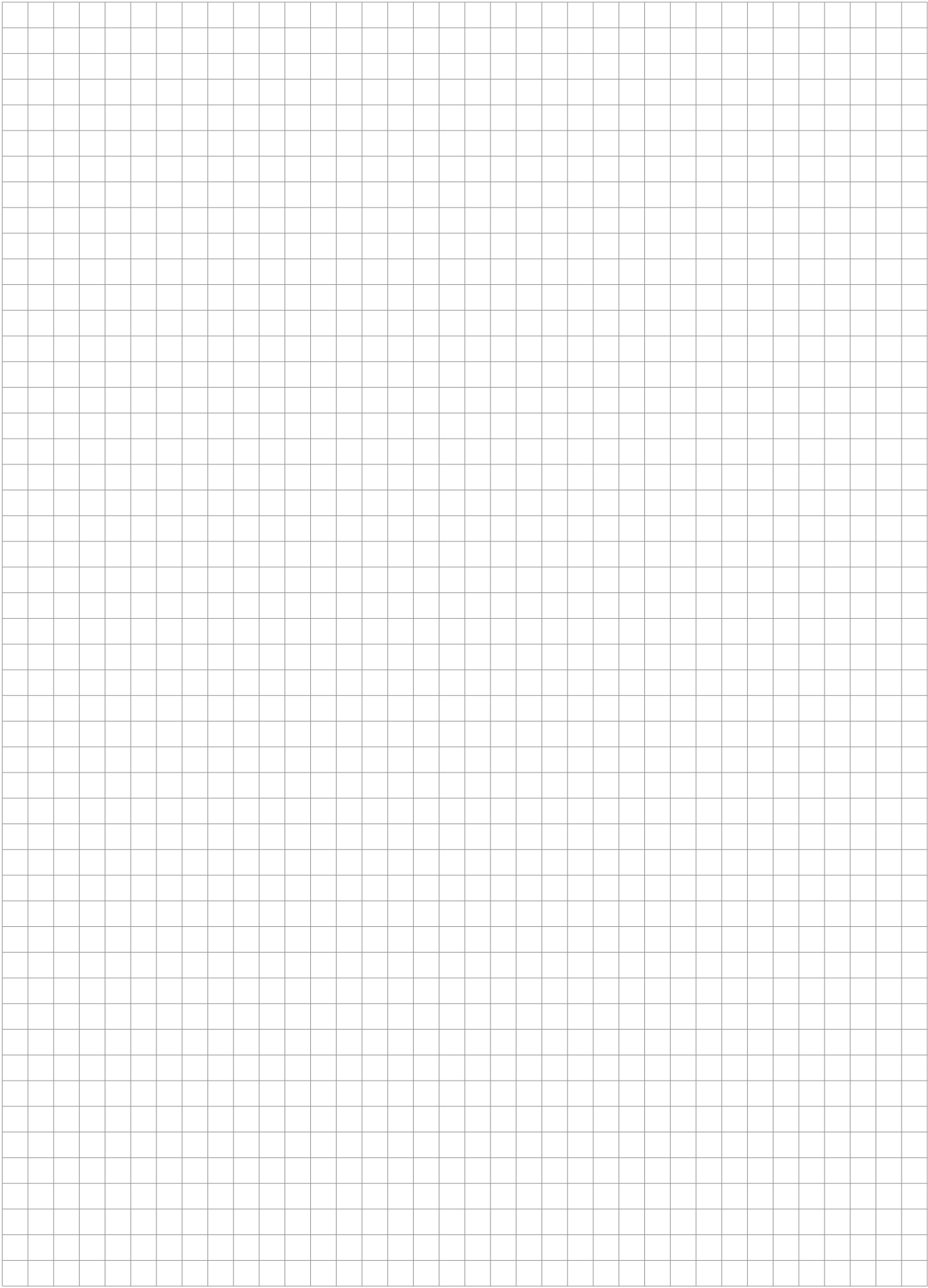


Articolo nr.	Pagina	Profondità di foro	Norma	Descrizione	Materiale tagliente	Tipo	Forma
2462	349, 598	~10xD	DIN 340	Punte elicoidali, lunghe	HSS	GT 100	
2463	241	~3xD	DIN 6539	Punte elicoidali, extra corte	Int. in MD	N	
2464	321	~5xD	Norma di fab.	Punte elicoidali, corte	Int. in MD	N	
2468	52	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 F	
2469	41	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
2470	77	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 F	
2471	63	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
2472	18	3xD	DIN 6537K	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
2473	20	3xD	DIN 6539	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
2474	34	5xD	Norma di fab.	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
2475	27	3xD	DIN 6537K	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 F	
2477	39	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
2478	76	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 F	
2479	61	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
2480	16	3xD	DIN 6537K	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
2485	164		Norma di fab.	Inseri intercambiabili per RT 800	Int. in MD	RT 800 WP	
2498	229	~3xD	DIN 1897	Punte elicoidali, extra corte	HSCO	GT 80	
2711	89	7xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
2712	38	5xD	DIN 6537L	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 F	
2713	113	5xD	DIN 6537L	Punte Ratio, a 3 taglienti	Int. in MD	FT 200 G	
2717	35	5xD	DIN 6537L	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
2719	32	5xD	DIN 6537L	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
2747	166		Norma di fab.	Inseri intercambiabili per RT 800	Int. in MD	RT 800 WP	
2996	30	5xD	DIN 6537L	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 U	
2997	288	~5xD	DIN 338	Punte elicoidali, corte	HSCO	N	
3899	405, 657		Norma di fab.	Micropunte in MD senza condotto di lubrificazione	Int. in MD	N	
4044	85	7xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
4045	87	7xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
4071	158, 561		Norma di fab.	Viti di serraggio			
4105	138	1xD	Norma di fab.	Supporti cilindrici HT 800		HT 800 WP	
4106	128	1,5xD	Norma di fab.	Supporti cilindrici HT 800		HT 800 WP	
4107	130	3xD	Norma di fab.	Supporti cilindrici HT 800		HT 800 WP	
4108	132	5xD	Norma di fab.	Supporti cilindrici HT 800		HT 800 WP	
4109	134	7xD	Norma di fab.	Supporti cilindrici HT 800		HT 800 WP	
4110	136	10xD	Norma di fab.	Supporti cilindrici HT 800		HT 800 WP	
4111	151		Norma di fab.	Inseri intercambiabili per HT 800	Int. in MD	HT 800 WP	
4112	139		Norma di fab.	Inseri intercambiabili per HT 800	Int. in MD	HT 800 WP	
4113	142		Norma di fab.	Inseri intercambiabili per HT 800	Int. in MD	HT 800 WP	
4114	148		Norma di fab.	Inseri intercambiabili per HT 800	Int. in MD	HT 800 WP	
4115	145		Norma di fab.	Inseri intercambiabili per HT 800	Int. in MD	HT 800 WP	
4915	169, 559		Norma di fab.	Chiavi dinamometriche			
4917	170, 560		Norma di fab.	Spine Torx			
5018	540	20xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5019	551	30xD	Norma di fab.	Punte a cannone a 2 taglienti ZB 80	Metallo duro	ZB 80	
5020	534	80.000	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5021	538	160.000	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5022	545	40xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5023	548	80xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5024	532	45.000	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5026	536	120.000	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5164	550	1100.000	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5242	159	3xD	Norma di fab.	Supporti cilindrici RT 800		RT 800 WP	
5243	160	5xD	Norma di fab.	Supporti cilindrici RT 800		RT 800 WP	
5248	161	7xD	Norma di fab.	Supporti cilindrici RT 800		RT 800 WP	
5460	542	30xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5525	100	12xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 U	
5632	533	45.000	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5633	535	80.000	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5637	537	120.000	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5638	539	160.000	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5639	541	20xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5640	543	30xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5641	546	40xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5642	549	80xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5643	552	30xD	Norma di fab.	Punte a cannone a 2 taglienti ZB 80	Metallo duro	ZB 80	
5644	555	30xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 800	Metallo duro	EB 800	
5646	529	25xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5647	530	50xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5648	531	75xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Int. in MD	EB 100	
5689	544	40xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5690	547	80xD	Norma di fab.	Punte a cannone ad 1 tagliente EB 100	Metallo duro	EB 80	
5747	566		Norma di fab.	Bussole di foratura	HSS		

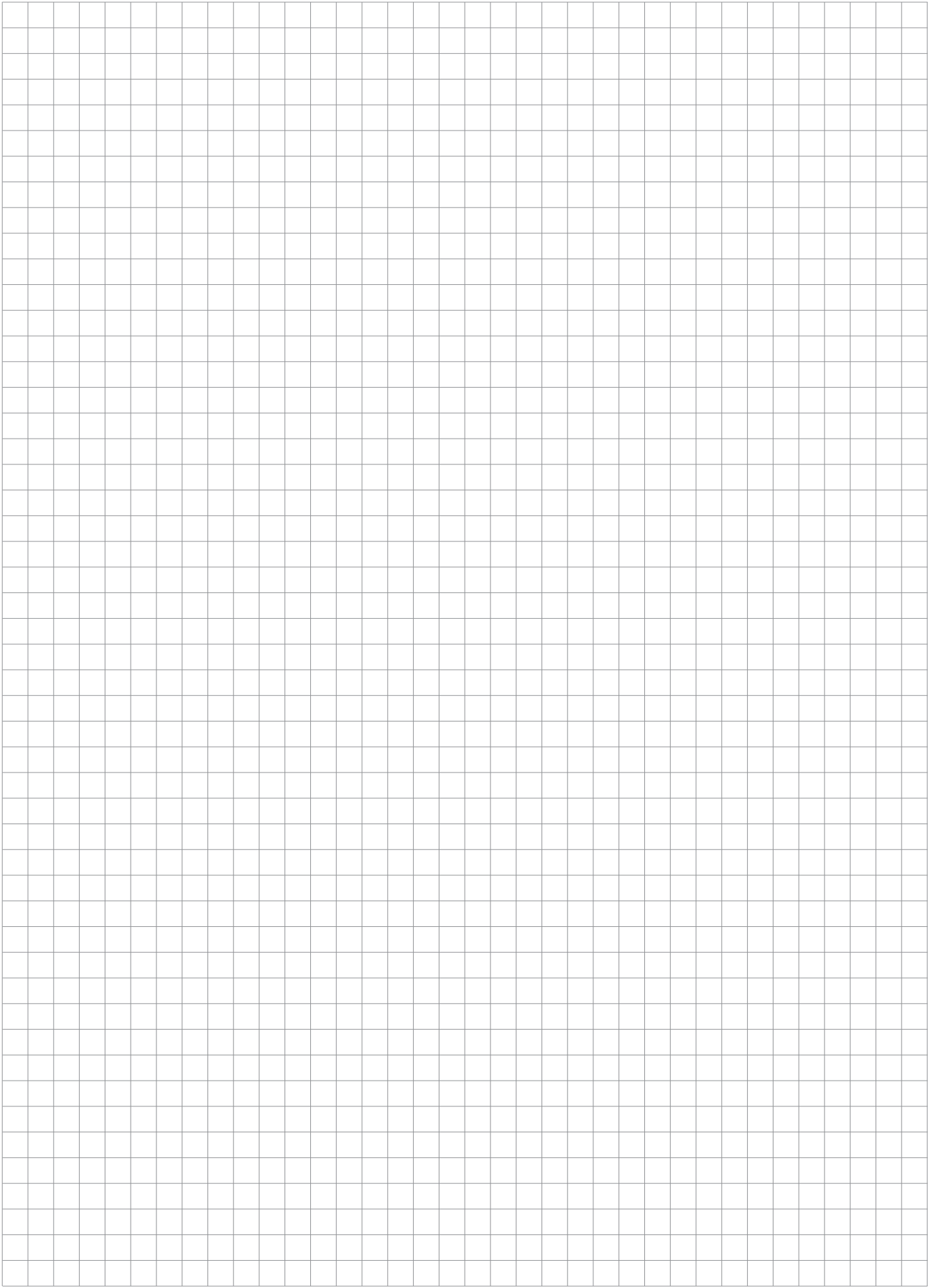


Articolo nr.	Pagina	Profondità di foro	Norma	Descrizione	Materiale tagliente	Tipo	Forma
5748	565		Norma di fab.	Bussole di foratura	Int. in MD		
5749	573		Norma di fab.	Bussole lunetta per punte a cannone ad 1 e 2 taglienti			
5750	571		Norma di fab.	Bussole a lunetta per punte a cannone ad 1 tagliente			
5751	576		Norma di fab.	Bussole a lunetta per punte a cannone a 2 taglienti			
5752	569		Norma di fab.	Dischi a tenuta stagna per punte a cannone ad 1 tagliente			
5753	575		Norma di fab.	Dischi a tenuta stagna per punte a cannone a 2 taglienti			
5754	577		Norma di fab.	Viti di regolazione			
5755	578		Norma di fab.	Viti di regolazione			
5759	59	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 S	
5760	96	8xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 S	
6068	58	4xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 150 GG	
6069	94	7xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 150 GG	
6070	99	10xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 150 GG	
6128	157		Norma di fab.	Viti di serraggio			
6400	108, 407, 659	4xD	Norma di fab.	Micropunte ExclusiveLine senza condotto di lubrificazione	Int. in MD	N	
6401	109, 408, 660	7xD	Norma di fab.	Micropunte ExclusiveLine senza condotto di lubrificazione	Int. in MD	N	
6405	110, 409, 661	5xD	Norma di fab.	Micropunte ExclusiveLine con condotto di lubrificazione	Int. in MD	N	
6408	111, 410, 662	8xD	Norma di fab.	Micropunte ExclusiveLine con condotto di lubrificazione	Int. in MD	N	
6412	112, 411, 663	15xD	Norma di fab.	Micropunte ExclusiveLine con condotto di lubrificazione	Int. in MD	N	
6501	82	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 R	
6502	91	7xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 R	
6509	102, 523	15xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 T	
6511	104, 524	20xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 T	
6512	105, 525	25xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 T	
6513	106, 526	30xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 T	
6514	107, 527	40xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 T	
7632	155		Norma di fab.	Inseri a svasare HT 800	Int. in MD		
7635	156		Norma di fab.	Inseri a svasare HT 800	Int. in MD		
7645	154		Norma di fab.	Inseri a svasare HT 800	Int. in MD		
8510	48	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 VA	
8511	72	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 VA	
8520	44	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 HF	
8521	68	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 HF	
8522	90	7xD	Norma di fab.	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 HF	
8524	25	3xD	DIN 6537K	Punte Ratio, senza fori di refrigerazione	Int. in MD	RT 100 HF	
8610	50	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 VA	
8611	74	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 VA	
8620	46	3xD	DIN 6537K	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 HF	
8621	70	5xD	DIN 6537L	Punte Ratio, con fori di refrigerazione	Int. in MD	RT 100 HF	

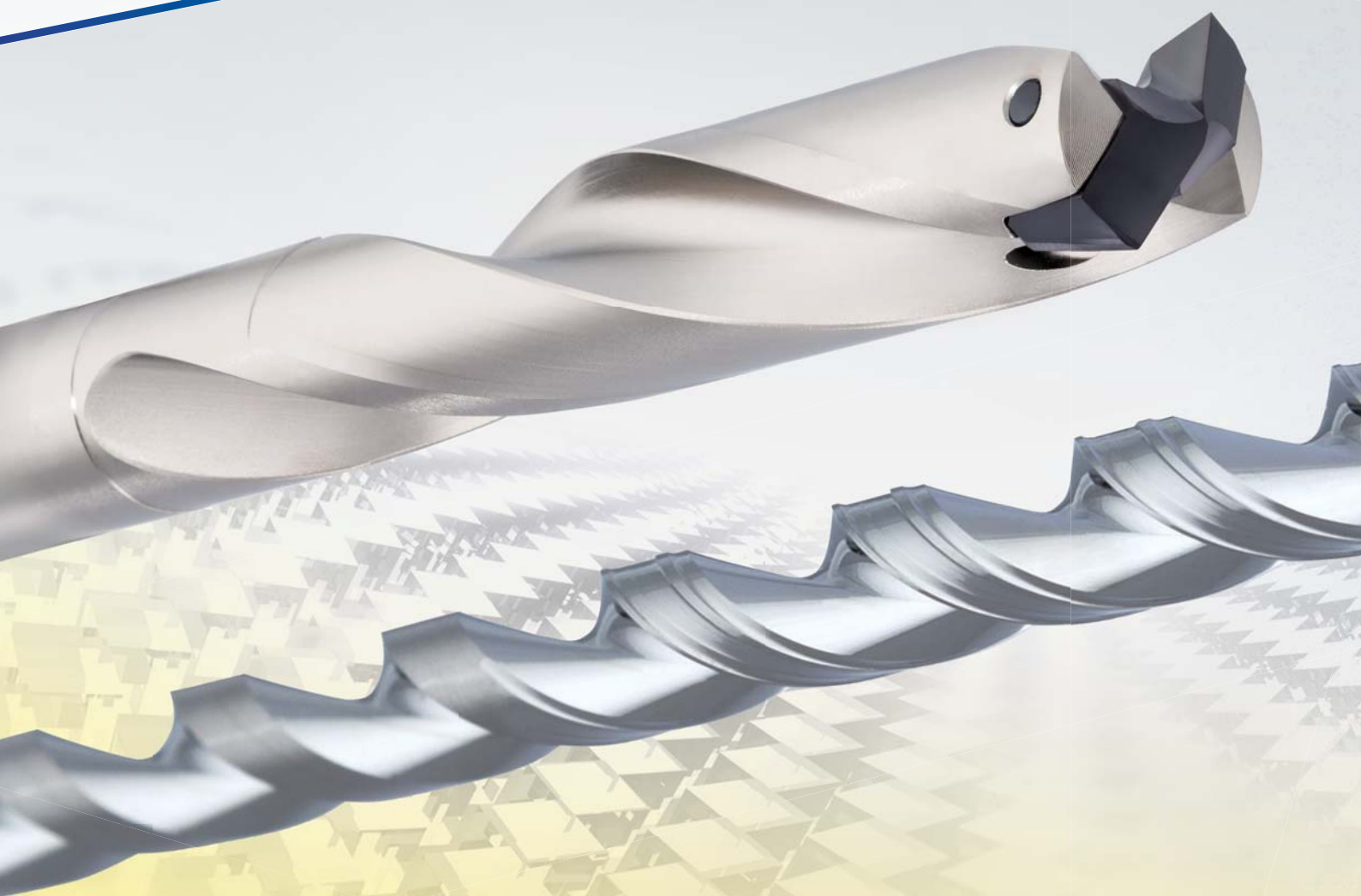








La perfezione nelle operazioni di foratura



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