

MONOd'

I portautensili integrali **MONOd'** rappresentano la soluzione ideale per attrezzare ogni tipo di macchina utensile con attacco base HSK 63 e 100, DIN 69871 e MAS-BT 40 e 50, garantendo i vantaggi di elevata qualità e alto grado di precisione, con un prezzo di mercato altamente concorrenziale.



Il programma MONOd' include portapinze ER, Weldon, Portafrese, Riduzioni Morse e Maschiatori.

Tutti i portautensili sono equilibrati di progetto, G 6,3 a 8.000 giri/min. MONOd' ER G 6,3 a 15.000 giri/min.



↗ 0.003

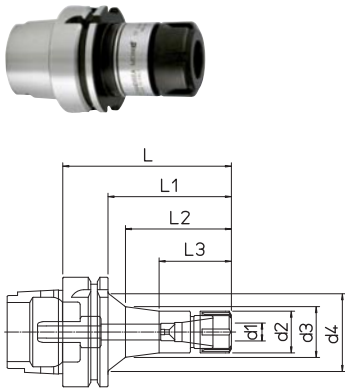
MAX. RPM 15.000

DIN 69893 HSK

DIN 69871

MAS 403 BT

DIN 69893 HSK-A PORTAPINZE - ER DIN 6499

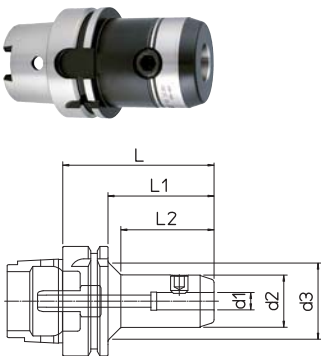


Pinze elastiche e chiavi di serraggio escluse

Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	TYPE	d1	d2	d3	d4	L	L1	L2	L3	kg
63	HSK-A63 ER16.80	71HSA063ER1608	ER 16 M	0.5 ~ 10	22	32		80	54	41		1.1
63	HSK-A63 ER16.120	71HSA063ER1612	ER 16 M	0.5 ~ 10	22	31		120	94			1.9
63	HSK-A63 ER25.80	71HSA063ER2508	ER 25	1 ~ 16	42			80	54			1.3
63	HSK-A63 ER25.140	71HSA063ER2514	ER 25	1 ~ 16	42	47.5		140	114	46		1.7
63	HSK-A63 ER32.90	71HSA063ER3209	ER 32	2 ~ 20	50			90	64			1.6
63	HSK-A63 ER32.160	71HSA063ER3216	ER 32	2 ~ 20	50			160	134			2.2
100	HSK-A100 ER16.100	71HSA100ER1610	ER 16 M	0.5 ~ 10	22	25	45	100	71	61	41.5	2.3
100	HSK-A100 ER16.160	71HSA100ER1616	ER 16 M	0.5 ~ 10	22	34.5	44	160	131	126		2.5
100	HSK-A100 ER25.100	71HSA100ER2510	ER 25	1 ~ 16	42	45.5		100	71	47		2.6
100	HSK-A100 ER25.160	71HSA100ER2516	ER 25	1 ~ 16	42	49.5		160	131	47		3.2
100	HSK-A100 ER32.120	71HSA100ER3212	ER 32	2 ~ 20	50	55		120	91	52		3.1
100	HSK-A100 ER32.160	71HSA100ER3216	ER 32	2 ~ 20	50	56.5		160	131	52		3.7
100	HSK-A100 ER40.120	71HSA100ER4012	ER 40	3 ~ 26	63	71.5		120	91	60		3.5

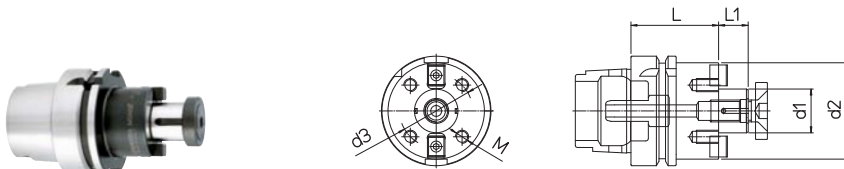
DIN 69893 HSK-A WELDON - WD DIN 1835-B



Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	d1 ^{H5}	d2	d3	L	L1	L2	kg
63	HSK-A63 WD06.60	71HSA063WD0606	6	23		60	34		0.8
63	HSK-A63 WD08.65	71HSA063WD0806	8	26		65	39		0.9
63	HSK-A63 WD10.70	71HSA063WD1007	10	30		70	44		1.1
63	HSK-A63 WD12.70	71HSA063WD1207	12	34		70	44		1.2
63	HSK-A63 WD16.80	71HSA063WD1608	16	42		80	54		1.4
63	HSK-A63 WD20.80	71HSA063WD2008	20	50		80	54		1.5
63	HSK-A63 WD25.110	71HSA063WD2511	25	63		110			2.3
63	HSK-A63 WD32.110	71HSA063WD3211	32	70		110			2.5
100	HSK-A100 WD10.90	71HSA100WD1009	10	30	45	90	61	53.5	2.3
100	HSK-A100 WD12.100	71HSA100WD1210	12	34	45	100	71	65.5	2.4
100	HSK-A100 WD16.100	71HSA100WD1610	16	42		100	71		2.6
100	HSK-A100 WD20.110	71HSA100WD2011	20	50		110	81		3.1
100	HSK-A100 WD25.120	71HSA100WD2512	25	63		120	91		3.9
100	HSK-A100 WD32.120	71HSA100WD3212	32	70		120	91		4.3
100	HSK-A100 WD40.120	71HSA100WD4012	40	80		120	91		4.8

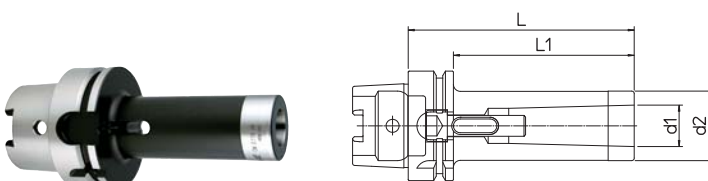
DIN 69893 HSK-A PORTAFRESE - PF



Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	d1	d2	d3	M	L	L1	kg
63	HSK-A63 PF16.50	71HSA063PF1605	16	32			50	17	1.1
63	HSK-A63 PF22.50	71HSA063PF2205	22	40			50	19	1.2
63	HSK-A63 PF27.55	71HSA063PF2705	27	50			55	21	1.4
63	HSK-A63 PF32.60	71HSA063PF3206	32	60			60	24	1.8
100	HSK-A100 PF22.65	71HSA100PF2265	22	40			65	19	2.3
100	HSK-A100 PF27.65	71HSA100PF2765	27	50			65	21	2.5
100	HSK-A100 PF32.70	71HSA100PF3270	32	60			70	24	2.9
100	HSK-A100 PF40.70	71HSA100PF4070	40	88	66.7	M12	70	27	3.3
100	HSK-A100 PF60.75	71HSA100PF6075	60	128.5	101.6	M16	75	40	4.2

DIN 69893 HSK-A MORSE - CM DIN 228 AB



HSK-A	REF.	CODE	MORSE	d1	d2	L	L1	kg
63	HSK-A63 CM2.110 A-B	71HSA063CMB211	2	17.780	32	110	84	2
63	HSK-A63 CM3.130 A-B	71HSA063CMB313	3	23.825	40	130	104	2.2
63	HSK-A63 CM4.155 A-B	71HSA063CMB415	4	31.267	48	155	129	2.6

DIN 69871 AD PORTAPINZE - ER DIN 6499

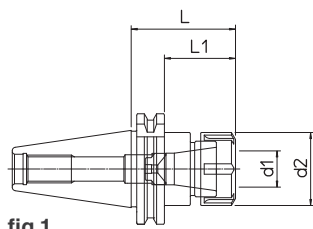


fig.1

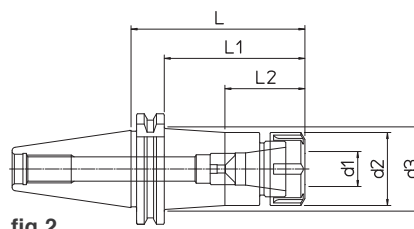


fig.2

Pinze elastiche e chiavi di serraggio escluse

DIN	REF.	CODE	TYPE	d1	d2	d3	L	L1	L2	kg	fig.
40	DIN69871-AD40 ER16.60	71DIN-A40ER1606	ER 16 M	0.5 ~ 10	22		60	41		0.9	1
40	DIN69871-AD40 ER16.100	71DIN-A40ER1610	ER 16 M	0.5 ~ 10	22	29.5	100	81	41	1	2
40	DIN69871-AD40 ER16.160	71DIN-A40ER1616	ER 16 M	0.5 ~ 10	22	38	160	141	41	2	2
40	DIN69871-AD40 ER25.60	71DIN-A40ER2506	ER 25	1 ~ 16	42		60	41		1.1	1
40	DIN69871-AD40 ER25.100	71DIN-A40ER2510	ER 25	1 ~ 16	42	47	100	81	46	1.6	2
40	DIN69871-AD40 ER25.160	71DIN-A40ER2516	ER 25	1 ~ 16	42	50	160	141	46	2.1	2
40	DIN69871-AD40 ER32.70	71DIN-A40ER3207	ER 32	2 ~ 20	50		70	51		1.2	1
40	DIN69871-AD40 ER32.110	71DIN-A40ER3211	ER 32	2 ~ 20	50		110	91		1.7	1
40	DIN69871-AD40 ER32.160	71DIN-A40ER3216	ER 32	2 ~ 20	50		160	141		2.7	1
40	DIN69871-AD40 ER40.80	71DIN-A40ER4008	ER 40	3 ~ 26	63		80	61		1.3	1
40	DIN69871-AD40 ER40.120	71DIN-A40ER4012	ER 40	3 ~ 26	63		120	101		2.3	1
50	DIN69871-AD50 ER16.100	71DIN-A50ER1610	ER 16 M	0.5 ~ 10	22	29.5	100	81	41	2.5	2
50	DIN69871-AD50 ER16.160	71DIN-A50ER1616	ER 16 M	0.5 ~ 10	22	32.5	160	141	41	3.3	2
50	DIN69871-AD50 ER25.110	71DIN-A50ER2511	ER 25	1 ~ 16	42	48	110	91	46	2.8	2
50	DIN69871-AD50 ER25.160	71DIN-A50ER2516	ER 25	1 ~ 16	42	50	160	141	46	3.6	2
50	DIN69871-AD50 ER32.70	71DIN-A50ER3207	ER 32	2 ~ 20	50		70	51		2.9	1
50	DIN69871-AD50 ER32.110	71DIN-A50ER3211	ER 32	2 ~ 20	50	55	110	91	52	3.4	2
50	DIN69871-AD50 ER32.160	71DIN-A50ER3216	ER 32	2 ~ 20	50	57.5	160	141	52	4	2
50	DIN69871-AD50 ER40.100	71DIN-A50ER4010	ER 40	3 ~ 26	63	65	100	81	55	3.8	2
50	DIN69871-AD50 ER40.160	71DIN-A50ER4016	ER 40	3 ~ 26	63	70	160	141	55	4.3	2

DIN 69871 AD PORTAFRESE - PF

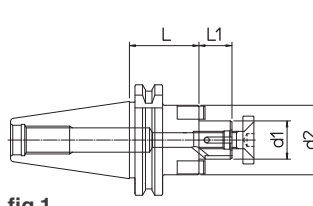


fig.1

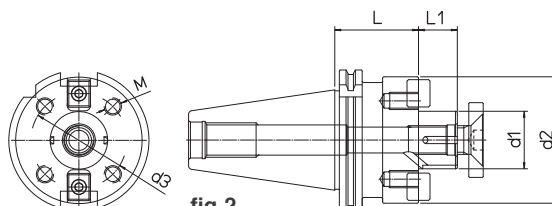


fig.2

DIN	REF.	CODE	d1	d2	d3	M	L	L1	kg	fig.
40	DIN69871-AD40 PF16.35	71DIN-A40PF1603	16	32			35	17	0.9	1
40	DIN69871-AD40 PF22.40	71DIN-A40PF2204	22	40			40	19	1	1
40	DIN69871-AD40 PF27.45	71DIN-A40PF2704	27	50			45	21	1.2	1
40	DIN69871-AD40 PF32.50	71DIN-A40PF3205	32	60			50	24	1.7	1
40	DIN69871-AD40 PF40.55	71DIN-A40PF4005	40	70			55	27	2.1	1
50	DIN69871-AD50 PF16.40	71DIN-A50PF1604	16	32			40	17	2.4	1
50	DIN69871-AD50 PF16.110	71DIN-A50PF1611	16	32			110	17	2.8	1
50	DIN69871-AD50 PF22.45	71DIN-A50PF2204	22	40			45	19	2.6	1
50	DIN69871-AD50 PF27.50	71DIN-A50PF2705	27	50			50	21	2.7	1
50	DIN69871-AD50 PF32.55	71DIN-A50PF3205	32	60			55	24	3.2	1
50	DIN69871-AD50 PF40.60	71DIN-A50PF4006	40	88	66.7	M12	60	27	4.3	2
50	DIN69871-AD50 PF60.70	71DIN-A50PF6007	60	128.5	101.6	M16	70	40	6.6	2

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DIN 69871 AD WELDON - WD DIN 1835-B

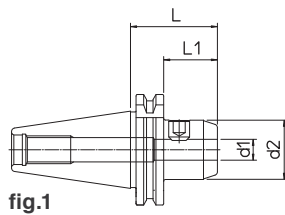


fig.1

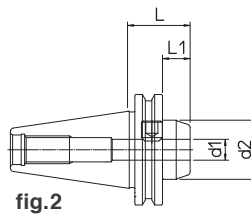


fig.2

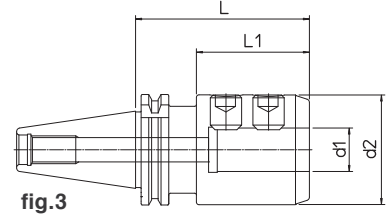
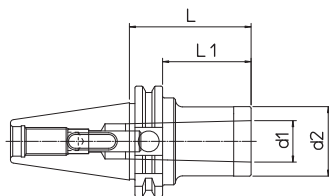


fig.3

DIN	REF.	CODICE	d1 ^{H5}	d2	L	L1	kg	fig.
40	DIN69871-AD40 WD06.50	71DIN-A40WD0605	6	23	50	31	0.8	1
40	DIN69871-AD40 WD08.50	71DIN-A40WD0805	8	26	50	31	0.9	1
40	DIN69871-AD40 WD10.50	71DIN-A40WD1005	10	30	50	31	1	1
40	DIN69871-AD40 WD12.35	71DIN-A40WD1203	12	34	35	16	1	2
40	DIN69871-AD40 WD12.110	71DIN-A40WD1211	12	34	110	91	1.4	1
40	DIN69871-AD40 WD16.35	71DIN-A40WD1603	16	42	35	16	1.1	2
40	DIN69871-AD40 WD16.110	71DIN-A40WD1611	16	42	110	91	1.7	1
40	DIN69871-AD40 WD16.160	71DIN-A40WD1616	16	42	160	141	2.2	1
40	DIN69871-AD40 WD20.35	71DIN-A40WD2003	20	44	35	16	1.2	2
40	DIN69871-AD40 WD20.110	71DIN-A40WD2011	20	50	110	91	2.1	1
40	DIN69871-AD40 WD20.160	71DIN-A40WD2016	20	50	160	141	2.6	1
40	DIN69871-AD40 WD25.35	71DIN-A40WD2503	25	44	35	16	1.3	2
40	DIN69871-AD40 WD25.100	71DIN-A40WD2510	25	63	100	65	2	3
40	DIN69871-AD40 WD25.160	71DIN-A40WD2516	25	63	160	125	3.2	3
40	DIN69871-AD40 WD32.100	71DIN-A40WD3210	32	70	100	65	2.5	3
40	DIN69871-AD40 WD32.160	71DIN-A40WD3216	32	70	160	125	3.9	3
50	DIN69871-AD50 WD10.63	71DIN-A50WD1006	10	30	63	44	2.5	1
50	DIN69871-AD50 WD10.160	71DIN-A50WD1016	10	30	160	141	2.9	1
50	DIN69871-AD50 WD12.63	71DIN-A50WD1206	12	34	63	44	2.6	1
50	DIN69871-AD50 WD12.160	71DIN-A50WD1216	12	34	160	141	3.2	1
50	DIN69871-AD50 WD16.110	71DIN-A50WD1611	16	42	110	91	3.2	1
50	DIN69871-AD50 WD16.160	71DIN-A50WD1616	16	42	160	141	3.7	1
50	DIN69871-AD50 WD20.110	71DIN-A50WD2011	20	50	110	91	3.6	1
50	DIN69871-AD50 WD20.160	71DIN-A50WD2016	20	50	160	141	4.2	1
50	DIN69871-AD50 WD25.80	71DIN-A50WD2508	25	63	80	61	3.5	1
50	DIN69871-AD50 WD25.110	71DIN-A50WD2511	25	63	110	91	4.1	2
50	DIN69871-AD50 WD25.160	71DIN-A50WD2516	25	63	160	141	5.1	2
50	DIN69871-AD50 WD32.100	71DIN-A50WD3210	32	70	100	81	4.6	2
50	DIN69871-AD50 WD32.160	71DIN-A50WD3216	32	70	160	141	6	2
50	DIN69871-AD50 WD40.100	71DIN-A50WD4010	40	80	100	81	4.8	2

DIN 69871 A MORSE - CM DIN 228 AB



DIN	REF.	-CODE	MORSE	d1	d2	L	L1	kg
40	DIN69871-A40 CM2.50 A-B	71DIN-40-CMB205	2	17.780	32	50	31	1
40	DIN69871-A40 CM3.70 A-B	71DIN-40-CMB307	3	23.825	40	70	51	1.1
50	DIN69871-A50 CM2.60 A-B	71DIN-50-CMB206	2	17.780	32	60	41	2.6
50	DIN69871-A50 CM3.60 A-B	71DIN-50-CMB306	3	23.825	40	60	41	2.7
50	DIN69871-A50 CM4.80 A-B	71DIN-50-CMB408	4	31.267	48	80	61	2.9

MAS 403 BT40 AD PORTAPINZE - ER DIN 6499

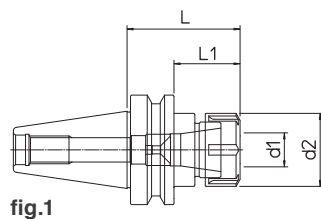


fig.1

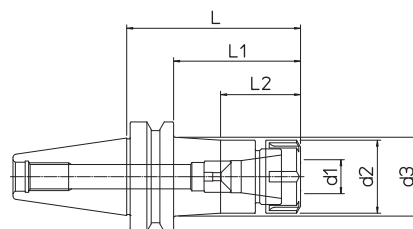


fig.2

Pinze elastiche e chiavi di serraggio escluse

BT	REF.	CODE	TYPE	d1	d2	d3	L	L1	L2	kg	fig.
40	MAS403 BT40-AD ER16.60	71MBT-A40ER1606	ER 16 M	0.5 ~ 10	22		60	33		1	1
40	MAS403 BT40-AD ER16.100	71MBT-A40ER1610	ER 16 M	0.5 ~ 10	22	28	100	73	41	1.1	2
40	MAS403 BT40-AD ER16.160	71MBT-A40ER1616	ER 16 M	0.5 ~ 10	22	36.5	160	133	41	2.1	2
40	MAS403 BT40-AD ER25.65	71MBT-A40ER2506	ER 25	1 ~ 16	42		65	38		1.2	1
40	MAS403 BT40-AD ER25.100	71MBT-A40ER2510	ER 25	1 ~ 16	42	45.5	100	73	46	1.7	2
40	MAS403 BT40-AD ER25.160	71MBT-A40ER2516	ER 25	1 ~ 16	42	49.5	160	133	46	2.2	2
40	MAS403 BT40-AD ER32.70	71MBT-A40ER3207	ER 32	2 ~ 20	50		70	43		1.3	1
40	MAS403 BT40-AD ER32.110	71MBT-A40ER3211	ER 32	2 ~ 20	50		110	83		1.8	1
40	MAS403 BT40-AD ER32.160	71MBT-A40ER3216	ER 32	2 ~ 20	50		160	133		2.8	1
40	MAS403 BT40-AD ER40.80	71MBT-A40ER4008	ER 40	3 ~ 26	63		80	53		1.4	1
40	MAS403 BT40-AD ER40.120	71MBT-A40ER4012	ER 40	3 ~ 26	63		120	93		2.4	1
50	MAS403 BT50-AD ER16.100	71MBT-A50ER1610	ER 16 M	0.5 ~ 10	22	26.5	100	62	41	3.6	2
50	MAS403 BT50-AD ER16.160	71MBT-A50ER1616	ER 16 M	0.5 ~ 10	22	31	160	122	41	4.3	2
50	MAS403 BT50-AD ER25.110	71MBT-A50ER2511	ER 25	1 ~ 16	42	45.5	110	72	46	3.8	2
50	MAS403 BT50-AD ER25.160	71MBT-A50ER2516	ER 25	1 ~ 16	42	48.5	160	122	46	4.6	2
50	MAS403 BT50-AD ER32.80	71MBT-A50ER3208	ER 32	2 ~ 20	50		80	42		3.9	1
50	MAS403 BT50-AD ER32.110	71MBT-A50ER3211	ER 32	2 ~ 20	50	52.5	110	72	52	4.4	2
50	MAS403 BT50-AD ER32.160	71MBT-A50ER3216	ER 32	2 ~ 20	50	56	160	122	52	5	2
50	MAS403 BT50-AD ER40.100	71MBT-A50ER4010	ER 40	3 ~ 26	63		100	62		4.8	1
50	MAS403 BT50-AD ER40.160	71MBT-A50ER4016	ER 40	3 ~ 26	63	68.5	160	122	55	5.3	2

MAS 403 BT40 AD PORTAFRESE - PF

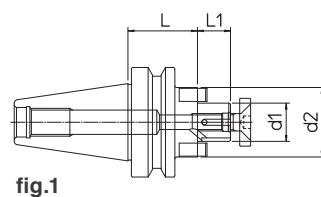


fig.1

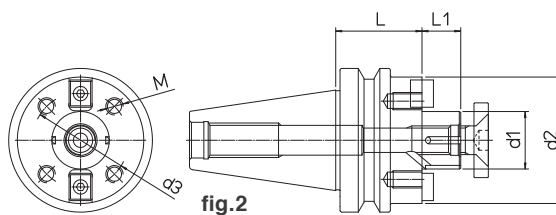
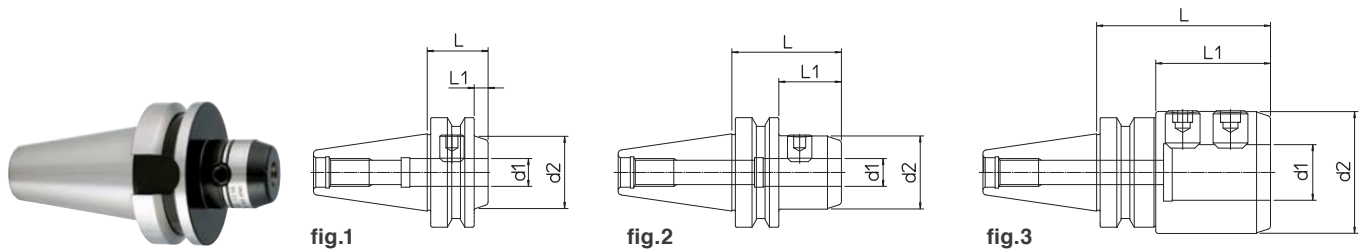


fig.2

BT	REF.	CODE	d1	d2	d3	M	L	L1	kg	fig.
40	MAS403 BT40-AD PF16.40	71MBT-A40PF1604	16	32			40	17	0.9	1
40	MAS403 BT40-AD PF22.40	71MBT-A40PF2204	22	40			40	19	1	1
40	MAS403 BT40-AD PF27.45	71MBT-A40PF2704	27	50			45	21	1.2	1
40	MAS403 BT40-AD PF32.50	71MBT-A40PF3205	32	60			50	24	1.7	1
40	MAS403 BT40-AD PF40.55	71MBT-A40PF4005	40	70			55	27	2.1	1
50	MAS403 BT50-AD PF16.50	71MBT-A50PF1605	16	32			50	17	2.4	1
50	MAS403 BT50-AD PF22.50	71MBT-A50PF2205	22	40			50	19	2.6	1
50	MAS403 BT50-AD PF27.55	71MBT-A50PF2705	27	50			55	21	2.7	1
50	MAS403 BT50-AD PF32.55	71MBT-A50PF3205	32	60			55	24	3.2	1
50	MAS403 BT50-AD PF40.60	71MBT-A50PF4006	40	88	66.7	M12	60	27	4.3	2
50	MAS403 BT50-AD PF60.80	71MBT-A50PF6008	60	128.5	101.6	M16	80	40	6.8	2

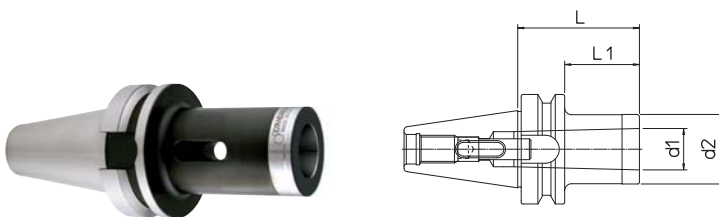
PF.. /40-60  BPS p.57

MAS 403 BT40 AD WELDON - WD DIN 1835-B



BT	REF.	CODE	d1 ^{H5}	d2	L	L1	kg	fig.
40	MAS403 BT40-AD WD06.50	71MBT-A40WD0605	6	23	50	23	0.8	1
40	MAS403 BT40-AD WD08.50	71MBT-A40WD0805	8	26	50	23	0.9	1
40	MAS403 BT40-AD WD10.56	71MBT-A40WD1005	10	30	56	29	1	1
40	MAS403 BT40-AD WD12.35	71MBT-A40WD1203	12	34	35	8	0.9	2
40	MAS403 BT40-AD WD12.110	71MBT-A40WD1211	12	34	110	83	1.4	1
40	MAS403 BT40-AD WD16.35	71MBT-A40WD1603	16	42	35	8	1	2
40	MAS403 BT40-AD WD16.110	71MBT-A40WD1611	16	42	110	83	1.7	1
40	MAS403 BT40-AD WD20.35	71MBT-A40WD2003	20	50	35	8	1.1	2
40	MAS403 BT40-AD WD20.110	71MBT-A40WD2011	20	50	110	83	2.1	1
40	MAS403 BT40-AD WD25.35	71MBT-A40WD2503	25	63	35	8	1	2
40	MAS403 BT40-AD WD25.100	71MBT-A40WD2510	25	63	100	73	2	3
40	MAS403 BT40-AD WD32.100	71MBT-A40WD3210	32	70	100	67	2.5	3
50	MAS403 BT50-AD WD10.70	71MBT-A50WD1007	10	30	70	32	3	1
50	MAS403 BT50-AD WD10.160	71MBT-A50WD1016	10	30	160	122	3.4	1
50	MAS403 BT50-AD WD12.70	71MBT-A50WD1207	12	34	70	32	3.1	1
50	MAS403 BT50-AD WD12.160	71MBT-A50WD1216	12	34	160	122	3.6	1
50	MAS403 BT50-AD WD16.80	71MBT-A50WD1608	16	42	80	42	3.3	1
50	MAS403 BT50-AD WD16.110	71MBT-A50WD1611	16	42	110	72	3.5	1
50	MAS403 BT50-AD WD20.80	71MBT-A50WD2008	20	50	80	42	3.5	1
50	MAS403 BT50-AD WD20.110	71MBT-A50WD2011	20	50	110	72	3.8	1
50	MAS403 BT50-AD WD25.100	71MBT-A50WD2510	25	63	100	62	4.5	2
50	MAS403 BT50-AD WD25.125	71MBT-A50WD2512	25	63	125	87	5	2
50	MAS403 BT50-AD WD32.100	71MBT-A50WD3210	32	70	100	62	5.6	2
50	MAS403 BT50-AD WD40.110	71MBT-A50WD4011	40	80	110	72	5.8	2

MAS 403 BT40 A MORSE - CM DIN 228 AB



BT	REF.	CODE	MORSE	d1	d2	L	L1	kg
40	MAS403 BT40-A CM2.50 A-B	71MBT-40-CMB205	2	17.780	32	50	23	1
40	MAS403 BT40-A CM3.70 A-B	71MBT-40-CMB307	3	23.825	40	70	43	1.1
50	MAS403 BT50-A CM2.60 A-B	71MBT-50-CMB206	2	17.780	32	60	22	2.6
50	MAS403 BT50-A CM3.60 A-B	71MBT-50-CMB306	3	23.825	40	60	22	2.7
50	MAS403 BT50-A CM4.80 A-B	71MBT-50-CMB408	4	31.267	48	80	42	2.9



ISO 7388/2 A - DIN 69872

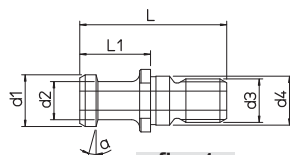


fig. 1

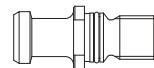


fig. 2

REF.	CODE	ISO	d1	d2	d3	d4	L	L1	a	fig.
ISO 7388/2 A DIN 69872	201430250401	40	19	14	M16	17	54	26	15°	1
ISO 7388/2 A DIN 69872	201430250451	45	23	17	M20	21	65	30	15°	1
ISO 7388/2 A DIN 69872	201430250501	50	28	21	M24	25	74	34	15°	1
ISO 7388/2 A DIN 69872	201430250400	40	19	14	M16	17	54	26	15°	2
ISO 7388/2 A DIN 69872	201430250500	50	28	21	M24	25	74	34	15°	2
ISO 7388/2 A DIN 69872	201430250600	60	40	30	M30	32	90	40	15°	2

ISO 7388/2 B - ANSI B.5 50

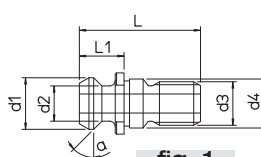


fig. 1

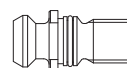
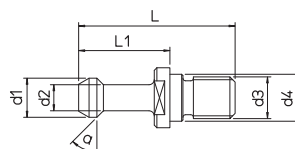


fig. 2

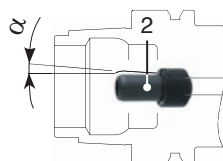
REF.	CODE	ISO	d1	d2	d3	d4	L	L1	a	fig.
ISO 7388/2 B ANSI B.5 50	201430251401	40	18.95	12.95	M16	17	44.50	16.40	45°	1
ISO 7388/2 B ANSI B.5 50	201430251451	45	24.05	16.30	M20	21	56	20.95	45°	1
ISO 7388/2 B ANSI B.5 50	201430251501	50	29.10	19.60	M24	25	65.50	25.55	45°	1
ISO 7388/2 B ANSI B.5 50	201430251400	40	18.95	12.95	M16	17	44.50	16.40	45°	2
ISO 7388/2 B ANSI B.5 50	201430251500	50	29.10	19.60	M24	25	65.50	25.55	45°	2

MAS 403 BT - 30° - 45°



REF.	CODE	ISO	d1	d2	d3	d4	L	L1	a
MAS 403 BT 30°	201430252301	30	11	7	M12	12.5	43	23	30°
MAS 403 BT 30°	201430252401	40	15	10	M16	17	60	35	30°
MAS 403 BT 30°	201430252451	45	19	14	M20	21	70	40	30°
MAS 403 BT 30°	201430252501	50	23	17	M24	25	85	45	30°
MAS 403 BT 30°	201430252601	60	32	24	M30	31	115	65	30°
MAS 403 BT 45°	201430252302	30	11	7	M12	12.5	43	23	45°
MAS 403 BT 45°	201430252402	40	15	10	M16	17	60	35	45°
MAS 403 BT 45°	201430252452	45	19	14	M20	21	70	40	45°
MAS 403 BT 45°	201430252502	50	23	17	M24	25	85	45	45°
MAS 403 BT 45°	201430252602	60	32	24	M30	31	115	65	45°

HSK



REF.	CODE 1	CODE 2	α
HSK-A40	101501101000	382019008001	± 1°
HSK-A50	101501101400	382019010001	± 1°
HSK-A63	101501101600	382019012001	± 1°
HSK-A80	101501101800	382019014001	± 1°
HSK-A100	101501102200	382019016001	± 1°
HSK-A125	101501102800	382019018000	± 1°

ET-1- ER PINZE DI MASCHIATURA CON COMPENSAZIONE ASSIALE



REF.	CODE	d	D1	L	E	
ET-1-ER25 (M2-M12)	496086125280	2.8	26	34	8	100451012500
ET-1-ER25 (M2-M12)	496086125350	3.5	26	34	8	100451012500
ET-1-ER25 (M2-M12)	496086125450	4.5	26	34	8	100451012500
ET-1-ER25 (M2-M12)	496086125600	6	26	34	8	100451012500
ET-1-ER25 (M2-M12)	496086125700	7	26	34	8	100451012500
ET-1-ER25 (M2-M12)	496086125900	9	26	34	8	100451012500
ET-1-ER32 (M4-M16)	496086132450	4.5	33	43	10	100451033200
ET-1-ER32 (M4-M16)	496086132600	6	33	43	10	100451033200
ET-1-ER32 (M4-M16)	496086132700	7	33	43	10	100451033200
ET-1-ER32 (M4-M16)	496086132900	9	33	43	10	100451033200
ET-1-ER32 (M4-M16)	496086132110	11	33	43	10	100451033200
ET-1-ER32 (M4-M16)	496086132120	12	33	43	10	100451033200
ET-1-ER40 (M8-M20)	496086140600	6	41	54	13	100451034000
ET-1-ER40 (M8-M20)	496086140700	7	41	54	13	100451034000
ET-1-ER40 (M8-M20)	496086140900	9	41	54	13	100451034000
ET-1-ER40 (M8-M20)	496086140110	11	41	54	13	100451034000
ET-1-ER40 (M8-M20)	496086140120	12	41	54	13	100451034000
ET-1-ER40 (M8-M20)	496086140140	14	41	54	13	100451034000
ET-1-ER40 (M8-M20)	496086140160	16	41	54	13	100451034000

Fornibili su richiesta

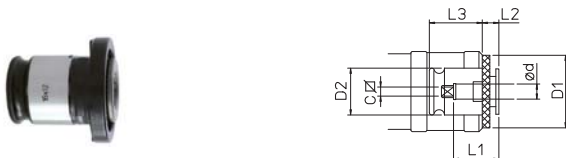
ER - GB PINZE PER MASCHIATURA RIGIDA



REF.	CODE	(dxc)	DIN 371	DIN 374-376	D1	L	
ER 16-GB (M4-M10)	496085116045	4.5 x 3.4	M4	M6	16	27.5	100451011600
ER 16-GB (M4-M10)	496085116055	5.5 x 4.3		M7	16	27.5	100451011600
ER 16-GB (M4-M10)	496085116060	6 x 4.9	M5	M8	16	27.5	100451011600
ER 16-GB (M4-M10)	496085116060	6 x 4.9	M6	M8	16	27.5	100451011600
ER 16-GB (M4-M10)	496085116070	7 x 5.5	M6	M10	16	27.5	100451011600
ER 25-GB (M4-M16)	496085125045	4.5 x 3.4	M4	M6	25	34	100451012500
ER 25-GB (M4-M16)	496085125055	5.5 x 4.3		M7	25	34	100451012500
ER 25-GB (M4-M16)	496085125060	6 x 4.9	M5	M8	25	34	100451012500
ER 25-GB (M4-M16)	496085125060	6 x 4.9	M6	M8	25	34	100451012500
ER 25-GB (M4-M16)	496085125070	7 x 5.5		M10	25	34	100451012500
ER 25-GB (M4-M16)	496085125090	9 x 7		M12	25	34	100451012500
ER 25-GB (M4-M16)	496085125110	11 x 9		M14	25	34	100451012500
ER 25-GB (M4-M16)	496085125120	12 x 9		M16	25	34	100451012500
ER 32-GB (M4-M20)	496085132045	4.5 x 3.4	M4	M6	32	40	100451033200
ER 32-GB (M4-M20)	496085132055	5.5 x 4.3		M7	32	40	100451033200
ER 32-GB (M4-M20)	496085132060	6 x 4.9	M5	M8	32	40	100451033200
ER 32-GB (M4-M20)	496085132060	6 x 4.9	M6	M8	32	40	100451033200
ER 32-GB (M4-M20)	496085132070	7 x 5.5		M10	32	40	100451033200
ER 32-GB (M4-M20)	496085132090	9 x 7		M12	32	40	100451033200
ER 32-GB (M4-M20)	496085132110	11 x 9		M14	32	40	100451033200
ER 32-GB (M4-M20)	496085132120	12 x 9		M16	32	40	100451033200
ER 32-GB (M4-M20)	496085132140	14 x 11		M18	32	40	100451033200
ER 32-GB (M4-M20)	496085132160	16 x 12		M20	32	40	100451033200
ER 40-GB (M10-M27)	496085140070	7 x 5.5		M10	40	46	100451034000
ER 40-GB (M10-M27)	496085140090	9 x 7		M12	40	46	100451034000
ER 40-GB (M10-M27)	496085140110	11 x 9		M14	40	46	100451034000
ER 40-GB (M10-M27)	496085140120	12 x 9		M16	40	46	100451034000
ER 40-GB (M10-M27)	496085140140	14 x 11		M18	40	46	100451034000
ER 40-GB (M10-M27)	496085140160	16 x 12		M20	40	46	100451034000
ER 40-GB (M10-M27)	496085140180	18 x 14.5		M22	40	46	100451034000
ER 40-GB (M10-M27)	496085140180	18 x 14.5		M24	40	46	100451034000
ER 40-GB (M10-M27)	496085140200	20 x 16		M27	40	46	100451034000

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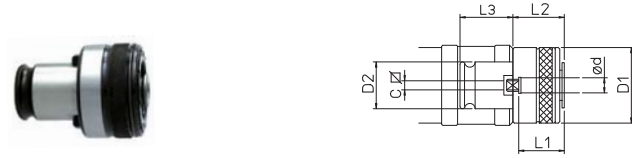
BFC BUSSOLE A CAMBIO RAPIDO SENZA LIMITAZIONE DI COPPIA



REF.	CODE	(dxc)	DIN 371	DIN 374	DIN 376	D1	D2	L1	L2	L3
BFC1 (M3 - 12)	495061035027	3.5 x 2.7	M3	M5	M5	30	19	17	7	21.5
BFC1 (M3 - 12)	495061045034	4.5 x 3.4	M4	M6	M6	30	19	17	7	21.5
BFC1 (M3 - 12)	495061055043	5.5 x 4.3		M7	M7	30	19	17	7	21.5
BFC1 (M3 - 12)	495061060049	6 x 4.9	M5	M8	M8	30	19	17	7	21.5
BFC1 (M3 - 12)	495061060049	6 x 4.9	M6	M8	M8	30	19	17	7	21.5
BFC1 (M3 - 12)	495061070055	7 x 5.5		M10	M10	30	19	17	7	21.5
BFC1 (M3 - 12)	495061090070	9 x 7		M12	M12	30	19	17	7	21.5
BFC2 (M6 - 20)	495062060049	6 x 4.9	M5	M8	M8	48	31	30	11	35
BFC2 (M6 - 20)	495062060049	6 x 4.9	M6	M8	M8	48	31	30	11	35
BFC2 (M6 - 20)	495062070055	7 x 5.5		M10	M10	48	31	30	11	35
BFC2 (M6 - 20)	495062090070	9 x 7		M12	M12	48	31	30	11	35
BFC2 (M6 - 20)	495062110090	11 x 9		M14	M14	48	31	30	11	35
BFC2 (M6 - 20)	495062120090	12 x 9		M16	M16	48	31	30	11	35
BFC2 (M6 - 20)	495062140110	14 x 11		M18	M18	48	31	30	11	35
BFC2 (M6 - 20)	495062160120	16 x 12		M20	M20	48	31	30	11	35
BFC3 (M14 - 33)	495063110090	11 x 9		M14	M14	70	48	44	14	55.5
BFC3 (M14 - 33)	495063120090	12 x 9		M16	M16	70	48	44	14	55.5
BFC3 (M14 - 33)	495063140110	14 x 11		M18	M18	70	48	44	14	55.5
BFC3 (M14 - 33)	495063160120	16 x 12		M20	M20	70	48	44	14	55.5
BFC3 (M14 - 33)	495063180145	18 x 14.5		M22	M22	70	48	44	14	55.5
BFC3 (M14 - 33)	495063180145	18 x 14.5		M24	M24	70	48	44	14	55.5
BFC3 (M14 - 33)	495063200160	20 x 16		M27	M27	70	48	44	14	55.5
BFC3 (M14 - 33)	495063220180	22 x 18		M30	M30	70	48	44	14	55.5
BFC3 (M14 - 33)	495063250200	25 x 20		M33	M33	70	48	44	14	55.5

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BFS BUSSOLE A CAMBIO RAPIDO CON LIMITAZIONE DI COPPIA

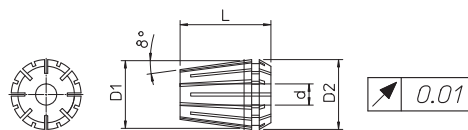


REF.	CODE	(dxc)	DIN 371	DIN 374	DIN 376	D1	D2	L1	L2	L3
BFS1 (M3 - 12)	495071035027	3.5 x 2.7	M3	M5	M5	32	19	17	25	21.5
BFS1 (M3 - 12)	495071040030	4 x 3	M3.5			32	19	17	25	21.5
BFS1 (M3 - 12)	495071045034	4.5 x 3.4	M4	M6	M6	32	19	17	25	21.5
BFS1 (M3 - 12)	495071055043	5.5 x 4.3		M7	M7	32	19	17	25	21.5
BFS1 (M3 - 12)	495071060049	6 x 4.9	M5	M8	M8	32	19	17	25	21.5
BFS1 (M3 - 12)	495071060049	6 x 4.9	M6	M8	M8	32	19	17	25	21.5
BFS1 (M3 - 12)	495071070055	7 x 5.5		M10	M10	32	19	17	25	21.5
BFS1 (M3 - 12)	495071080062	8 x 6.2	M8			32	19	17	25	21.5
BFS1 (M3 - 12)	495071090070	9 x 7		M12	M12	32	19	17	25	21.5
BFS1 (M3 - 12)	495071100080	10 x 8	M10			32	19	17	25	21.5
BFS2 (M6 - 20)	495072060049	6 x 4.9	M5	M8	M8	50	31	30	34	35
BFS2 (M6 - 20)	495072060049	6 x 4.9	M6	M8	M8	50	31	30	34	35
BFS2 (M6 - 20)	495072070055	7 x 5.5		M10	M10	50	31	30	34	35
BFS2 (M6 - 20)	495072080062	8 x 6.2	M8			50	31	30	34	35
BFS2 (M6 - 20)	495072090070	9 x 7		M12	M12	50	31	30	34	35
BFS2 (M6 - 20)	495072100080	10 x 8	M10			50	31	30	34	35
BFS2 (M6 - 20)	495072110090	11 x 9		M14	M14	50	31	30	34	35
BFS2 (M6 - 20)	495072120090	12 x 9		M16	M16	50	31	30	34	35
BFS2 (M6 - 20)	495072140110	14 x 11		M18	M18	50	31	30	34	35
BFS2 (M6 - 20)	495072160120	16 x 12		M20	M20	50	31	30	34	35
BFS3 (M14 - 33)	495073110090	11 x 9		M14	M14	72	48	44	45	55.5
BFS3 (M14 - 33)	495073120090	12 x 9		M16	M16	72	48	44	45	55.5
BFS3 (M14 - 33)	495073140110	14 x 11		M18	M18	72	48	44	45	55.5
BFS3 (M14 - 33)	495073160120	16 x 12		M20	M20	72	48	44	45	55.5
BFS3 (M14 - 33)	495073180145	18 x 14.5		M22	M22	72	48	44	45	55.5
BFS3 (M14 - 33)	495073180145	18 x 14.5		M24	M24	72	48	44	45	55.5
BFS3 (M14 - 33)	495073200160	20 x 16		M27	M27	72	48	44	45	55.5
BFS3 (M14 - 33)	495073220180	22 x 18		M30	M30	72	48	44	45	55.5
BFS3 (M14 - 33)	495073250200	25 x 20		M33	M33	72	48	44	45	55.5

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ER DIN 6499-B



REF.	d	D1	D2	L
ER 11	0.5 ~ 7	11	11.5	18
ER 16	0.5 ~ 10	16	17	27.5
ER 20	1 ~ 13	20	21	31.5
ER 25	1 ~ 16	25	26	34
ER 32	2 ~ 20	32	33	40
ER 40	3 ~ 26	40	41	46

RANGE	CODE ER11	CODE ER16	CODE ER20	CODE ER25	CODE ER32	CODE ER40
1 - 0.5	496080111010	496080116010				
1.5 - 1	496080111015	496080116015				
2 - 1			496080120020			
2 - 1.5	496080111020	496080116021		496080125021		
2.5 - 2	496080111025	496080116025				
3 - 2		496080116030	496080120030	496080125030	496080132030	
3 - 2.5	496080111030					
3.5 - 3	496080111035					
4 - 3		496080116040	496080120040	496080125040	496080132040	496080140040
4 - 3.5	496080111040					
4.5 - 4	496080111045					
5 - 4		496080116050	496080120050	496080125050	496080132050	496080140050
5 - 4.5	496080111050					
5.5 - 5	496080111055					
6 - 5		496080116060	496080120060	496080125060	496080132060	496080140060
6 - 5.5	496080111060					
6.5 - 6	496080111065					
7 - 6		496080116070	496080120070	496080125070	496080132070	496080140070
7 - 6.5	496080111070					
8 - 7		496080116080	496080120080	496080125080	496080132080	496080140080
9 - 8		496080116090	496080120090	496080125090	496080132090	496080140090
10 - 9		496080116100	496080120100	496080125100	496080132100	496080140100
11 - 10			496080120110	496080125110	496080132110	496080140110
12 - 11			496080120120	496080125120	496080132120	496080140120
13 - 12			496080120130	496080125130	496080132130	496080140130
14 - 13				496080125140	496080132140	496080140140
15 - 14				496080125150	496080132150	496080140150
16 - 15				496080125160	496080132160	496080140160
17 - 16					496080132170	496080140170
18 - 17					496080132180	496080140180
19 - 18					496080132190	496080140190
20 - 19					496080132200	496080140200
21 - 20						496080140210
22 - 21						496080140220
23 - 22						496080140230
24 - 23						496080140240
25 - 24						496080140250
26 - 25						496080140260

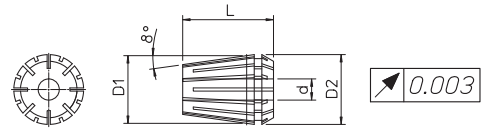
Fornibili su richiesta pinze ER a TENUTA

SET ER



REF.	Ø	CODE
SET ER11/13	0.5 ~ 7	496080111000
SET ER16/10	0.5 ~ 10	496080116000
SET ER20/12	1 ~ 13	496080120000
SET ER25/15	1 ~ 16	496080125000
SET ER32/18	2 ~ 20	496080132000
SET ER40/23	3 ~ 26	496080140000

ER DIN 6499-B



REF.	d	D1	D2	L
ER 16	0.5 ~ 10	16	17	27.5
ER 25	1 ~ 16	25	26	34
ER 32	2 ~ 20	32	33	40
ER 40	3 ~ 26	40	41	46

RANGE	CODE ER16	CODE ER25	CODE ER32	CODE ER40
1 - 0.5	496080016010			
1.5 - 1 •	496080016015			
2 - 1.5	496080016020	496080025020		
2.5 - 2 •	496080016025	496080025025	496080032025	
3 - 2.5	496080016030	496080025030	496080032030	
3.5 - 3 •	496080016035	496080025035	496080032035	
4 - 3.5	496080016040	496080025040	496080032040	496080040040
4.5 - 4 •	496080016045	496080025045	496080032045	496080040045
5 - 4.5	496080016050	496080025050	496080032050	496080040050
5.5 - 5 •	496080016055	496080025055	496080032055	496080040055
6 - 5.5	496080016060	496080025060	496080032060	496080040060
6.5 - 6 •	496080016065	496080025065	496080032065	496080040065
7 - 6.5	496080016070	496080025070	496080032070	496080040070
7.5 - 7 •	496080016075	496080025075	496080032075	496080040075
8 - 7.5	496080016080	496080025080	496080032080	496080040080
8.5 - 8 •	496080016085	496080025085	496080032085	496080040085
9 - 8.5	496080016090	496080025090	496080032090	496080040090
9.5 - 9 •	496080016095	496080025095	496080032095	496080040095
10 - 9.5	496080016100	496080025100	496080032100	496080040100
10.5 - 10 •		496080025105	496080032105	496080040105
11 - 10.5		496080025110	496080032110	496080040110
11.5 - 11 •		496080025115	496080032115	496080040115
12 - 11.5		496080025120	496080032120	496080040120
12.5 - 12 •		496080025125	496080032125	496080040125
13 - 12.5		496080025130	496080032130	496080040130
13.5 - 13 •		496080025135	496080032135	496080040135
14 - 13.5		496080025140	496080032140	496080040140
14.5 - 14 •		496080025145	496080032145	496080040145
15 - 14.5		496080025150	496080032150	496080040150
15.5 - 15 •		496080025155	496080032155	496080040155
16 - 15.5		496080025160	496080032160	496080040160
16.5 - 16 •			496080032165	496080040165
17 - 16.5			496080032170	496080040170
17.5 - 17 •			496080032175	496080040175
18 - 17.5			496080032180	496080040180
18.5 - 18 •			496080032185	496080040185
19 - 18.5			496080032190	496080040190
19.5 - 19 •			496080032195	496080040195
20 - 19.5			496080032200	496080040200
20.5 - 20 •				496080040205
21 - 20.5				496080040210
21.5 - 21 •				496080040215
22 - 21.5				496080040220
22.5 - 22 •				496080040225
23 - 22.5				496080040230
23.5 - 23 •				496080040235
24 - 23.5				496080040240
24.5 - 24 •				496080040245
25 - 24.5				496080040250
25.5 - 25 •				496080040255
26 - 25.5				496080040260

• Fornibili su richiesta

Fornibili su richiesta pinze ER a TENUTA



SYSTEM MHD'

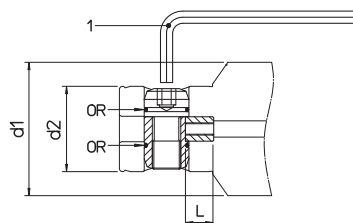


fig. 1

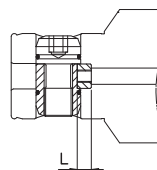


fig. 2

REF.	CODE	d1	d2	CODE 1	CODE OR	L	fig.
MHD' 14	381725001161	14	10	101500100250		2	2
MHD' 16	381725001161	16	10	101500100250		2	2
MHD' 20	381725001201	20	13	101500100300		2.5	2
MHD' 25	381725001251	25	16	101500100300		3	2
MHD' 32	381725001321	32	20	101500100400	101254007510	3.55	2
MHD' 40	381725001401	40	25	101500100500	101254010010	4	2
MHD' 50 RD 50 / .. TRD - TRM - TRC - TR-E	381725001501	50	32	101500100600	101254013010	4.2	2
MHD' 50	381725001001	50	32	101500100600	101254013010	12.2	1
MHD' 63-80	381725001002	63-80	42	101500100800	101251002075	13.85	1
MHD' 110 - 140	381725001003	110-140	76	101500101400	101251003112	10	1

TS

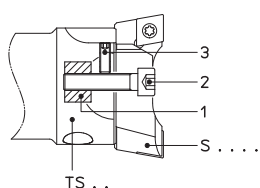


fig. 1

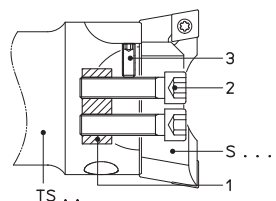
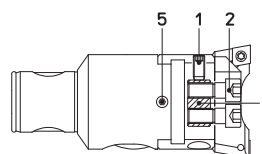
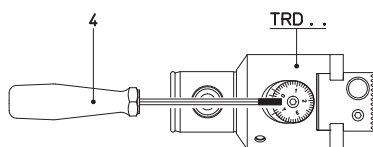


fig. 2

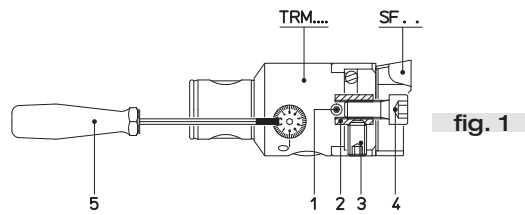
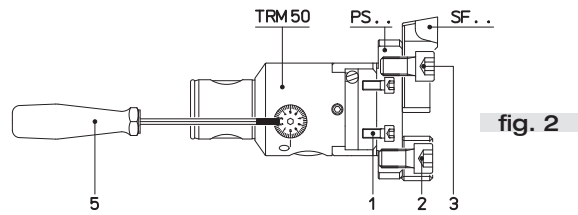
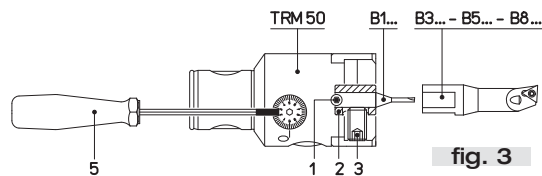
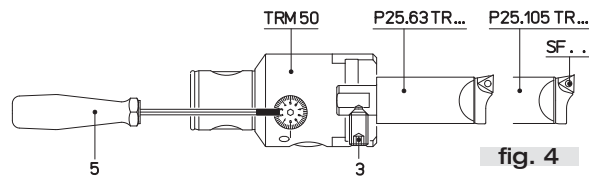
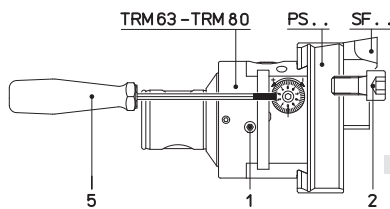
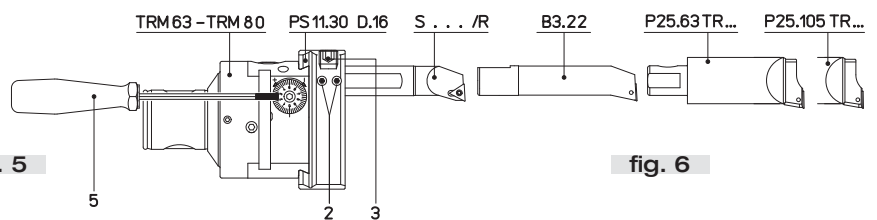
REF.	CODE 1	CODE 2	CODE 3	fig.
TS 16/16	201430110008	100051030014	100231030004	1
TS 20/20	201430110009	100051040015	100231030005	1
TS 25/25	201430110010	100051040020	100231030008	1
TS 32/32	201430110011	100051050025	100231040012	1
TS 40/40	201430110012	100051060030	100231050014	1
TS 50/50	201430110013	100051080035	100231050012	2
TS 50/63	201430110014	100051100040	100231060016	2
TS 63/63	201430110014	100051100040	100231060016	2
TS 80/80	201430110015	100051120045	100231080025	2

TRD



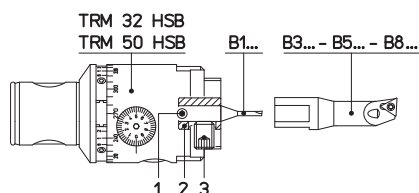
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
TRD 25	100231040008	200100150411	201430110024	101500800200	100271040004
TRD 32	100231050010	200100150512	201430110023	101500800250	100271050006
TRD 40	100231060012	200100150616	201430170001	101500800300	100271060006
TRD 50	100231060014	200100150820	201430110021	101500800300	100271060008
TRD 63	100231060016	200100151026	201430110026	101500800300	100271060008
TRD 80	100231060020	200100151230	201430110022	101500800300	100271060012

TRM


fig. 1

fig. 2

fig. 3

fig. 4

fig. 5

fig. 6

REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5	fig.
TRM 16	200100190301			100051030006	101500800150	1
TRM 20	200100190301			100051040008	101500800150	1
TRM 25	100271040004			100051050010	101500800200	1
TRM 32	100231040006			100051060012	101500800200	1
TRM 40	100271050006			100051080014	101500800250	1
TRM 50	100271050008	201041015002	100231100016	100051100025	101500800250	1
TRM 50	200100150501	100051100020	100051100025		101500800250	2
TRM 50	100271050008	200560116082	100231100016		101500800250	3-4
TRM 63	100251060010	100051100018			101500800300	5
TRM 80	100251060014	100051100018			101500800300	5
TRM 125	100251060020	100051100025			101500800300	5
TRM 63	100251060010	100231050006	100231100010		101500800300	6
TRM 80	100251060014	100231050006	100231100010		101500800300	6

TRM 32 - 50 HSB



REF.	CODE 1	CODE 2	CODE 3
TRM 32 HSB	100271040005		100231050008 - 100231050012
TRM 50 HSB	100271050008	200560116082	100231100010



TRC

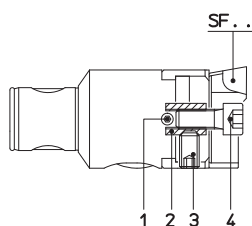
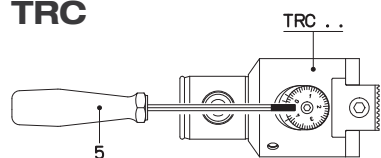


fig. 1

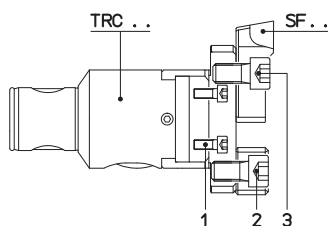


fig. 2

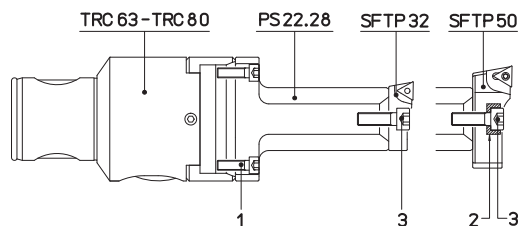


fig. 3

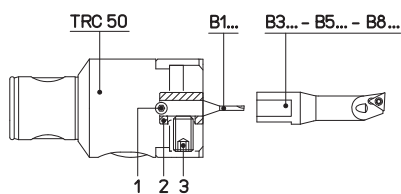


fig. 4

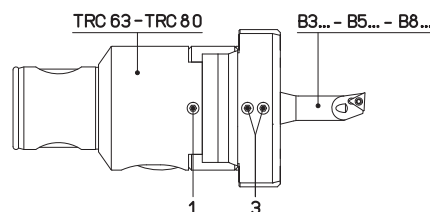


fig. 4

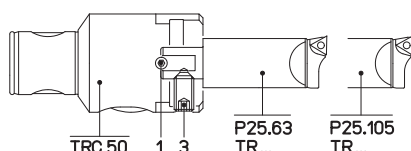
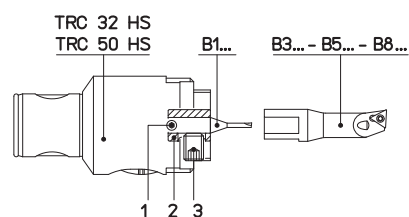


fig. 4

REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5	fig.
TRC 14	200100190302			100051030006	101500800150	1
TRC 16	200100190301			100051030006	101500800150	1
TRC 20	200100190301			100051040008	101500800150	1
TRC 25	100271040004			100051050010	101500800150	1
TRC 32	100271050005			100051060012	101500800250	1
TRC 40	100271060006			100051080014	101500800300	1
TRC 50	100271060008	201041015002	100231100016	100051100025	101500800300	1
TRC 63	100271060008			100051100020	101500800300	1
TRC 80	100271060012			100051100025	101500800300	1
TRC 50	200100150501	100051100020	100051100025			2
TRC 63	100051050025	100051100020	100051100025			2
TRC 80	100051050025	100051100020	100051100025			2
TRC 63	100051050016	201040607001	100051006020			3
TRC 80	100051050016	201040607001	100051006020			3
TRC 50	100271060008	200560116082	100231100010			4
TRC 63	100271060008		100231060006			4
TRC 80	100271060012		100231060006			4

TRC 32 - 50 HS



REF.	CODE 1	CODE 2	CODE 3
TRC 32 HS	100271050006		100231050008 - 100231050012
TRC 50 HS	100271060008	200560116082	100231100010

TRE

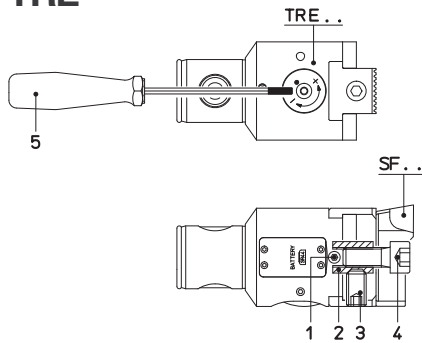


fig. 1

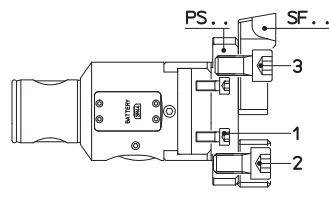


fig. 2

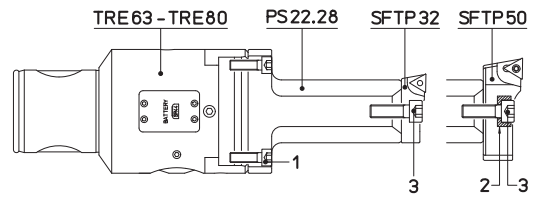


fig. 3

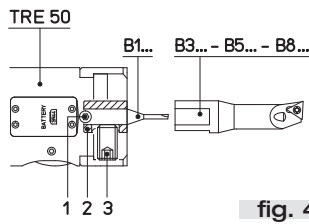


fig. 4

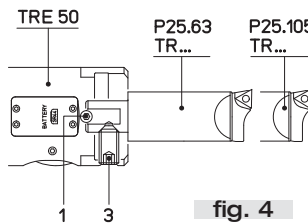
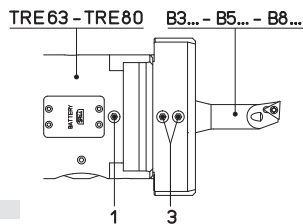
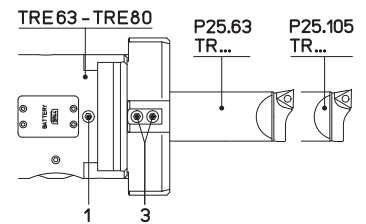
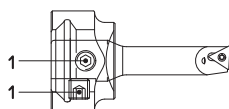


fig. 4



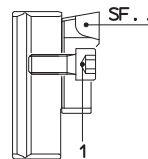
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5	fig.
TRE 32	100238050007			100051060012	101500800250	1
TRE 40	100238050007			100051080014	101500800300	1
TRE 50	100238060010	201041015002	100231100016	100051100025	101500800250	1
TRE 63	100238060010			100051100020	101500800250	1
TRE 80	200100150614			100051100025	101500800250	1
TRE 50	200100150501	100051100020	100051100025			2
TRE 63	100051050025	100051100020	100051100025			2
TRE 80	100051050025	100051100020	100051100025			2
TRE 63	100051050016	201040607001	100051006020			3
TRE 80	100051050016	201040607001	100051006020			3
TRE 50	100238060010	200560116082	100231100016			4
TRE 63	100238060010		100231060006			4
TRE 80	200100150614		100231060006			4

P 20.30



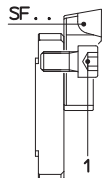
REF.	CODE 1
P20.30	100251080008

PS



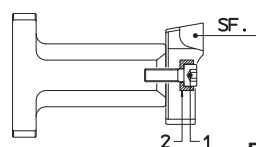
REF.	CODE 1
PS 11.30	100051100018
PS 12.30	100051100018
PS 13.30	100051100018
PS 11.40	100051100025
PS 12.40	100051100025
PS 13.40	100051100025
PS 14.40	100051100025

PS



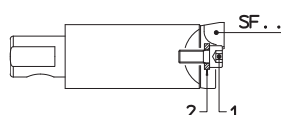
REF.	CODE 1
PS31.24	100051100020
PS31.28	100051100025
PS32.28	100051100025
PS33.28	100051100025

P 22.28



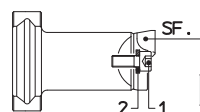
REF.	CODE 1	CODE 2
P22.28	100051060020	201040607001

P 25



REF.	CODE 1	CODE 2
P25.63	100051050012	100800100530
P25.105	100051050012	100800100530

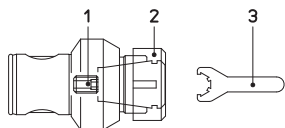
P



REF.	CODE 1	CODE 2
P 02.30	100051050012	100800100530
P 03.30	100051050012	100800100530
P 04.30	100051050012	100800100530
P 02.40	100051060018	100800100640
P 03.40	100051060018	100800100640
P 04.40	100051060018	100800100640

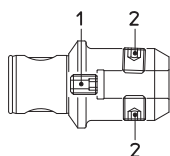


PF ER DIN 6499



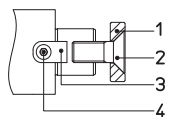
REF.	CODE 1	CODE 2	CODE 3
PE 16 / ER11M	200100190403	100451011100	101501001100
PE 20 / ER16M	200100190403	100451011600	101501001600
PE 25 / ER20M	200100190506	100451012000	101501002000
PE 32 / ER25M	200100190608	100451012500	101501002500
PE 40 / ER25	200100190808	100451032500	101501002501
PE 50 / ER25	200100190808	100451032500	101501002501
PE 50 / ER32	200100190808	100451033200	101501003201
PE 63 / ER32	200100191014	100451033200	101501003201
PE 63 / ER40	200100191214	100451034000	101501004001

AW DIN 1835 B-E



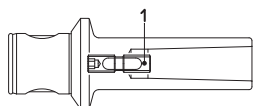
REF.	CODE 1	CODE 2
AW 50/6	200100190808	200100190610
AW 50/8	200100190808	200100190810
AW 50/10	200100190809	200100191012
AW 50/12	200100190809	200100191216
AW 50/14	200100190809	200100191216
AW 50/16	200100191215	200100191416
AW 50/20	200100191215	200100191616
AW 50/25	200100191615	200100191820
AW 63/16	200100191215	200100191416
AW 63/20	200100191215	200100191616
AW 63/25	200100191615	200100191820
AW 63/32	200100191615	200100192020
AW 80/40	200100192019	200100192020

PF



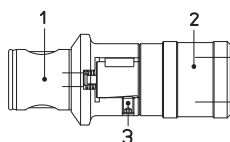
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
PF 50/16 PF 40/16	201010085010	201101800801	101001040014	100101080025	100051030008
PF 50/22 PF 40/22	201010105030	201101801002	101001060016	100101100025	100051040010
PF 50/27	201010125030	201101801202	101001070018	100101120030	100051050012
PF 50/32	201010165020	201101801402	101001080020	100101160035	100051060016
PF 63/22	201010105030	201101801002	101001060016	100101100025	100051040010
PF 63/27	201010125030	201101801202	101001070018	100101120030	100051050012
PF 63/32	201010165020	201101801402	101001080020	100101160035	100051060016
PF 80/32	201010165020	201101801402	101001080020	100101160035	100051060016
PF 80/40	201010210010	201101801603	101001100025	100101200045	100051060018
PF 80/50	201010260330	201101801802	101001120028	100101240050	100051060020
PF 80/60		201101802510	101001140036		100051120025
PF 110/40	201010210010	201101801603	101001100025	100101200045	100051060018
PF 110/60		201101802510	101001140036		100051120025
PF 140/40	201010210010	201101801603	101001100025	100101200045	100051060018
PF 140/60		201101802510			100051120025

CM DIN 228 A



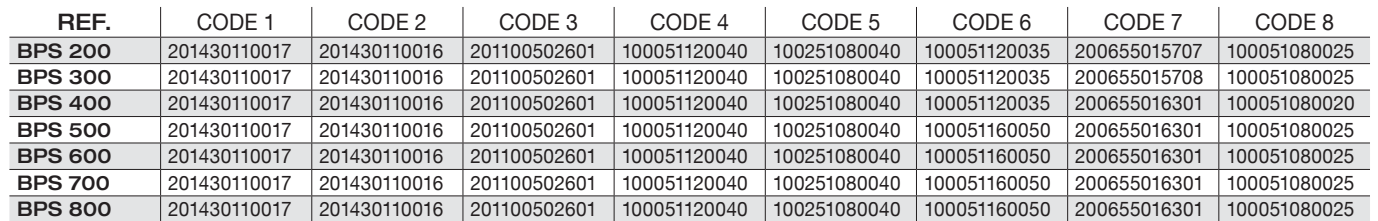
REF.	CODE 1
CM 50/1	201081506003
CM 50/2	201081510002
CM 50/3	201081512004
CM 63/3	201081512004
CM 63/4	201081516001

AM

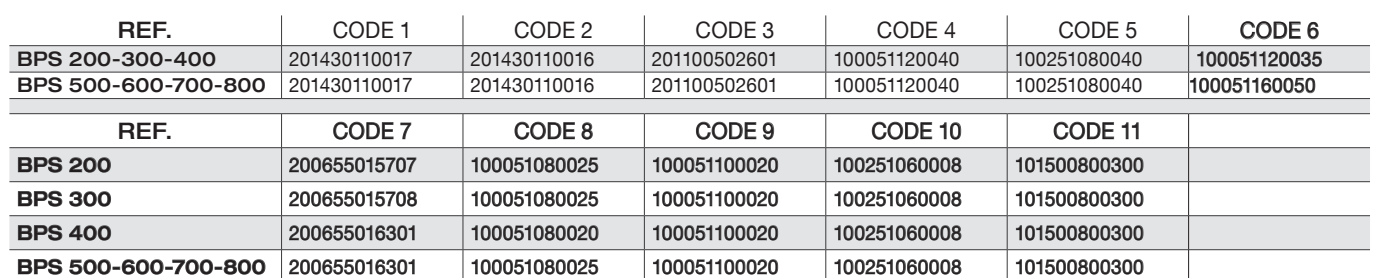


REF.	REF. 1	CODE 1	REF. 2	CODE 2	CODE 3
AM 50/M3-12	RAM 50/M3-12	456505000100	WFLK 115B/A 308	495090010312	100231060008
AM 50/M8-20	RAM 50/M8-20	456505000200	WFLK 225B/A 308	495090020820	100231080012
AM 63/M3-12	RAM 63/M3-12	456506300100	WFLK 115B/A 308	495090010312	100231060008
AM 63/M8-20	RAM 63/M8-20	456506300200	WFLK 225B/A 308	495090020820	100231080012

SGROSSATURA



FINITURA



REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5	CODE 6
SSCN 95	491111190600	492031190600	100655095112	101501301408	494311190600	101500100400
SSSN 95	491111190600	492035190600	100655095112	101501301408	494311190600	101500100400



FORCE GH - VT DISPOSITIVI A TENUTA PER REFRIGERANTE AD ALTA PRESSIONE

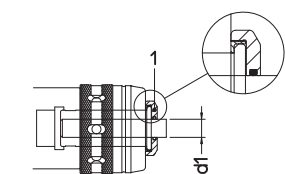


fig. 1

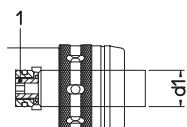


fig. 2

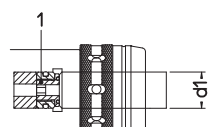
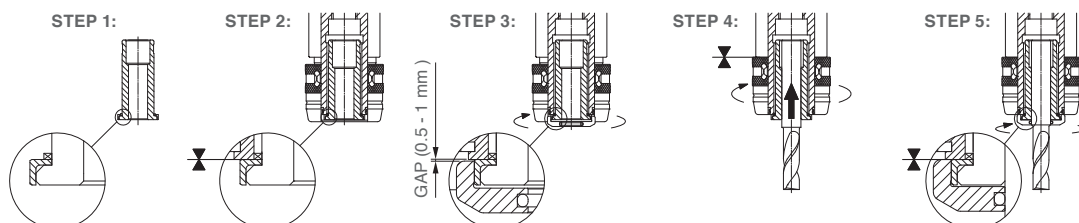


fig. 3

fig.	REF.	CODE 1	d1
1	GH 20 MONOforce 20 HSK63 MHD'50 / DIN/BT-40-50 PSC 63 - 80	382042020061	6
		382042020081	8
		382042020101	10
		382042020121	12
		382042020141	14
		382042020161	16
2	VT 20.20 MONOforce 20 DIN/BT-40-50 HSK63-100 PSC 63-80	382042020201	20
1	GH 32 MONOforce 32 DIN/BT-40-50 / HSK63-100 MHD'63 PSC 63-80	382042032061	6
		382042032081	8
		382042032101	10
		382042032121	12
		382042032141	14
		382042032161	16
		382042032181	18
		382042032201	20
		382042032251	25
2	VT 32.32 MONOforce 32 DIN/BT-40 HSK63-100 PSC 63-80	382042032321	32
3	VT 32.32.100 MONOforce 32 DIN/BT-50	382042032322	32



FORCE VCR VITE REGOLAZIONE CON PASSAGGIO REFRIGERANTE

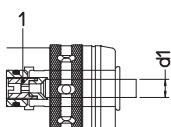


fig. 1

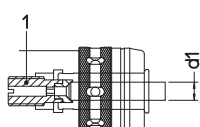
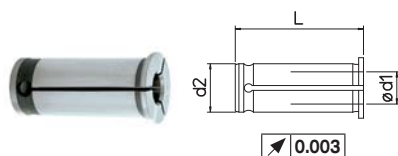


fig. 2

fig.	REF.	CODE 1	d1
1	VCR 20 MONOforce 20 HSK63-100 MHD'50 PSC 63-80	382041020032	3 ~ 5
		382041020062	6 ~ 12
		382041020142	14 ~ 20
1	VCR 32 MONOforce 32 HSK63-100 MHD'63 PSC 63-80	382041032033	3 ~ 5
		382041032063	6 ~ 12
		382041032143	14 ~ 20
		382041032253	25 ~ 32
2	VCR 20 MONOforce 20 DIN/BT-40-50	382041020031	3 ~ 5
		382041020061	6 ~ 12
		382041020141	14 ~ 20
2	VCR 32 MONOforce 32 DIN/BT-40	382041032031	3 ~ 5
		382041032061	6 ~ 12
		382041032141	14 ~ 20
		382041032251	25 ~ 32
		382041032032	3 ~ 5
		382041032062	6 ~ 12
		382041032142	14 ~ 20
		382041032252	25 ~ 32

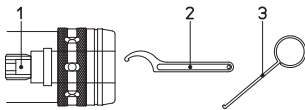
RC BUSSOLE MANDRINO A FORTE SERRAGGIO



FORCE (d2)	REF.	CODE	d1	L
12	RC 12.03	497080012030	3	44
12	RC 12.04	497080012040	4	44
12	RC 12.06	497080012060	6	44
12	RC 12.08	497080012080	8	44
12	RC 12.10	497080012100	10	44
20	RC 20.03	497080020030	3	50
20	RC 20.04	497080020040	4	50
20	RC 20.05	497080020050	5	50
20	RC 20.06	497080020060	6	50
20	RC 20.08	497080020080	8	50
20	RC 20.10	497080020100	10	50
20	RC 20.12	497080020120	12	50
20	RC 20.14	497080020140	14	50
20	RC 20.16	497080020160	16	50
32	RC 32.03	497080032030	3	63
32	RC 32.04	497080032040	4	63
32	RC 32.05	497080032050	5	63
32	RC 32.06	497080032060	6	63
32	RC 32.08	497080032080	8	63
32	RC 32.10	497080032100	10	63
32	RC 32.12	497080032120	12	63
32	RC 32.14	497080032140	14	63
32	RC 32.16	497080032160	16	63
32	RC 32.18	497080032180	18	63
32	RC 32.20	497080032200	20	63
32	RC 32.25	497080032250	25	63

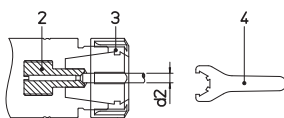
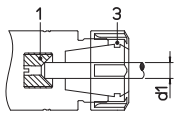
Fornibili su richiesta bussole RC a TENUTA

FORCE



REF	CODE 1	CODE 2	CODE 3
FORCE 12	200100191014	101500400028	201271600400
FORCE 20	200100191615	101500400050	201271600400
FORCE 32	200100191615	101500400075	201271600400

MONOd'



REF.	CODE 1	d1	CODE 2	d2	CODE 3	CODE 4
ER 16 M	201082010001	5 ~ 10	201082010002	1 ~ 4	100451011600	101501001600
ER 25	201082018001	8 ~ 16	201082018002	2 ~ 7	100451032500	101501002501
ER 32	201082022001	8 ~ 20	201082022002	3 ~ 7	100451033200	101501003201
ER 40	201082028001	9 ~ 26	201082028002	4 ~ 8	100451034000	101501004001

MONOd' - WD

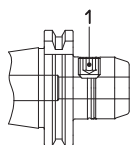


fig. 1

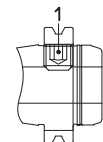
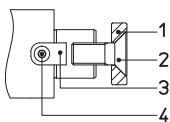


fig. 2

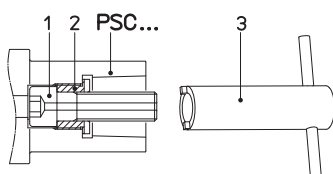
fig.	REF.	CODE 1
1	WD 06	200100190610
1	WD 08	200100190810
1	WD 10	200100191010
1	WD 12	200100191212
1	WD 14	200100191212
1	WD 16	200100191414
1	WD 18	200100191414
1	WD 20	200100191616
2	WD 20	200100191613
1	WD 25	200100191820
2	WD 25	200100191821
1	WD 32	200100192020
1	WD 40	200100192020

MONOd' - PSC PF



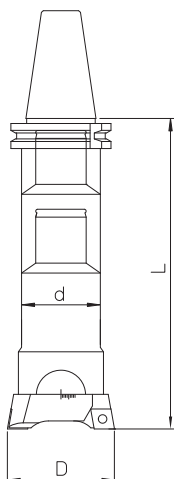
REF.	CODE 1	CODE 2	CODE 3	CODE 4
PF 16	201010085010	100101080025	201101800801	100051030008
PF 22	201010105030	100101100025	201101801002	100051040010
PF 27	201010125030	100101120030	201101801202	100051050012
PF 32	201010165020	100101160035	201101801402	100051060016
PF 40	201010210010	100101200045	201101801603	100051060018
PF 60			201101802510	100051120025

PSC



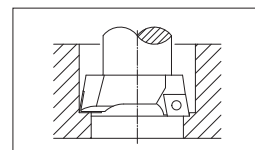
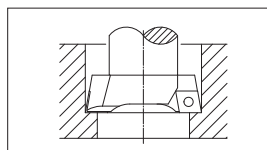
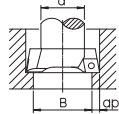
PSC	CODE 1	CODE 2	CODE 3
32	200101151240	201031815001	101501401800
40	200101151448	201032215005	101501402101
50	200101151658	201032515005	101501402401
63	200101152071	201033015021	101501403001
80	200101152071	201033015021	101501403001

DATI DI TAGLIO CONSIGLIATI PER SGROSSATURA DI FORI CON TESTINE BITAGLIENTI TS



materiale	dimensioni barena	condizioni di lavoro	velocità di taglio Vc = m/min. diametro			avanzamento f = mm/giro (due taglienti) raggio inserto		
			D < 38	D = 38-120	D > 120	R = 0.2	R = 0.4	R = 0.8
acciaio al carbonio HB ≤ 200	L / d = 2.5	buona	120 - 180	140 - 200	160 - 250		0.2 - 0.4	0.3 - 0.5
	L / d = 4	normale	100 - 160	120 - 180	140 - 200		0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficile	70 - 100	70 - 100	70 - 100	0.15 - 0.3	0.2 - 0.4	
acciaio al carbonio HB > 200	L / d = 2.5	buona	100 - 160	120 - 180	140 - 200		0.2 - 0.4	0.3 - 0.5
	L / d = 4	normale	80 - 140	100 - 160	120 - 180		0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficile	60 - 90	70 - 100	70 - 100	0.15 - 0.3	0.2 - 0.4	
acciaio inox AISI 304 - 316	L / d = 2.5	buona	80 - 110	90 - 120	100 - 140		0.2 - 0.4	0.3 - 0.5
	L / d = 4	normale	70 - 100	80 - 110	90 - 120		0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficile	60 - 90	60 - 90	60 - 90	0.15 - 0.3	0.2 - 0.4	
ghisa	L / d = 2.5	buona	90 - 120	100 - 140	120 - 160		0.2 - 0.4	0.3 - 0.5
	L / d = 4	normale	70 - 100	90 - 120	100 - 140		0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficile	60 - 90	60 - 90	60 - 90	0.15 - 0.3	0.2 - 0.4	
alluminio	L / d = 2.5	buona	160 - 250	200 - 300	250 - 350		0.3 - 0.5	0.4 - 0.6
	L / d = 4	normale	140 - 200	160 - 250	200 - 300		0.3 - 0.5	0.4 - 0.6
	L / d = 6.3	difficile	100 - 150	100 - 150	100 - 150	0.2 - 0.4	0.3 - 0.5	

profondità di passata ap = mm	campo di lavoro Ø = mm	max. profondità di passata acciaio ghisa, alluminio	
	18 - 28	1.5 - 2	2 - 2.5
	28 - 50	2 - 3	2.5 - 3.5
	50 - 68	3 - 4	3.5 - 5
	68 - 200	4 - 5	5 - 7
	200 - 500	5 - 6	6 - 8

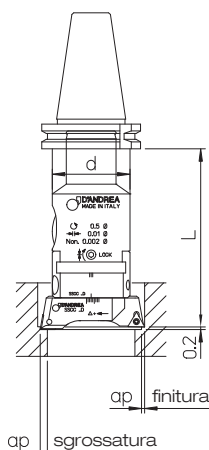


Due taglienti sullo stesso diametro Due taglienti su diametri diversi

È consigliabile che il preforo B sia ≥ al diametro del barena d.

ATTENZIONE: Per lavorare con un solo tagliente o con differenti diametri di taglio, dimezzare l'avanzamento indicato in tabella.

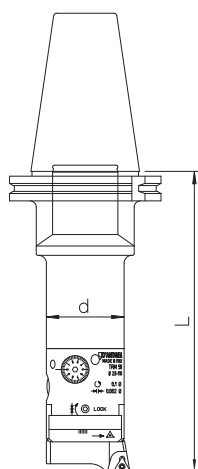
DATI DI TAGLIO CONSIGLIATI PER ALESATURA CON TESTAROSSA BITAGLIANTE TRD



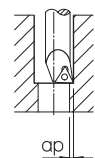
materiale	dimensioni barena	condizioni di lavoro	velocità di taglio Vc = m/min.	avanzamento fn = mm/giro raggio inserto		qualità inserto		profondità di passata		
				R = 0.2	R = 0.4	sgrossatura	finitura	ap finitura	ap sgrossatura ø28 ø46	ap sgrossatura ø75 ø160
acciaio al carbonio HB ≤ 200	L / d = 2.5	buona	160 - 250	0.1 - 0.2	0.1 - 0.2					
	L / d = 4	normale	120 - 180	0.1 - 0.2	0.1 - 0.2	DC100 DP300	DP300 DP100R	0.15 - 0.3	1.5	2
	L / d = 6.3	difficile	70 - 100	*0.1 - 0.15	0.1 - 0.2					2.5
acciaio al carbonio HB > 200	L / d = 2.5	buona	140 - 200	0.1 - 0.2	0.1 - 0.2					
	L / d = 4	normale	100 - 160	0.1 - 0.2	0.1 - 0.2	DC100	DP300 DP100R	0.15 - 0.3	1.5	2
	L / d = 6.3	difficile	70 - 100	*0.1 - 0.15	0.1 - 0.2					2.5
acciaio inox AISI 304-316	L / d = 2.5	buona	100 - 140	0.1 - 0.2	0.1 - 0.2					
	L / d = 4	normale	80 - 110	0.1 - 0.2	0.1 - 0.2	DP300	DP300	0.15 - 0.3	1.5	2
	L / d = 6.3	difficile	60 - 90	*0.1 - 0.15	0.1 - 0.2					2.5
ghisa	L / d = 2.5	buona	120 - 160	0.1 - 0.2	0.1 - 0.2					
	L / d = 4	normale	90 - 120	0.1 - 0.2	0.1 - 0.2	DK100 DC300	DP100R	0.15 - 0.3	2	2.5
	L / d = 6.3	difficile	60 - 90	*0.1 - 0.15	0.1 - 0.2					3
alluminio	L / d = 2.5	buona	250 - 350	0.1 - 0.2	0.1 - 0.2					
	L / d = 4	normale	160 - 250	0.1 - 0.2	0.1 - 0.2	DK100	DK100	0.15 - 0.3	2	2.5
	L / d = 6.3	difficile	100 - 150	*0.1 - 0.15	0.1 - 0.2					3

* Solo per inserti di finitura

DATI DI TAGLIO CONSIGLIATI PER L'ALESATURA CON TESTAROSSA TRM / TRC / TR-E



materiale	dimensioni barena	condizioni di lavoro	velocità di taglio Vc = m/min.	avanzamento fn = mm/giro raggio inserto			qualità inserto	profondità di passata
				R = 0.0	R = 0.2	R = 0.4		
acciaio al carbonio HB ≤ 200	L / d = 2.5	buona	200 - 300		0.05 - 0.08	0.07 - 0.1	DC100 DP300	
	L / d = 4	normale	160 - 250		0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficile	70 - 100	0.05 - 0.08	0.05 - 0.08	0.05 - 0.08		
acciaio al carbonio HB > 200	L / d = 2.5	buona	160 - 250		0.05 - 0.08	0.07 - 0.1	DC100	
	L / d = 4	normale	150 - 200		0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficile	70 - 100	0.05 - 0.08	0.05 - 0.08	0.05 - 0.08		
acciaio inox AISI 304 - 316	L / d = 2.5	buona	120 - 160		0.05 - 0.08	0.07 - 0.1	DP300	
	L / d = 4	normale	100 - 140		0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficile	70 - 100	0.05 - 0.08	0.05 - 0.08	0.05 - 0.08		
ghisa	L / d = 2.5	buona	120 - 160		0.05 - 0.08	0.07 - 0.1	DK100 DC100	
	L / d = 4	normale	100 - 140		0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficile	70 - 100	0.05 - 0.08	0.05 - 0.08	0.05 - 0.08		
alluminio	L / d = 2.5	buona	300 - 400		0.05 - 0.08	0.07 - 0.1	DK100	
	L / d = 4	normale	250 - 350		0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficile	100 - 150	0.05 - 0.08	0.05 - 0.08	0.05 - 0.08		
acciaio HB > 200	L / d = 2.5	buona	80 - 100		0.04 - 0.06	0.05 - 0.07	D20CBN	
	L / d = 4	normale	80 - 100		0.04 - 0.06	0.05 - 0.07		



0.1 - 0.25 mm

FORMULA DI CALCOLO PER ALESATURA

Vc velocità di taglio (m/min.)

D diametro del pezzo da lavorare (mm)

n numero di giri al minuto (giri/min.)

Vf velocità avanzamento (mm/min.)

fn avanzamento al giro (mm/giro)

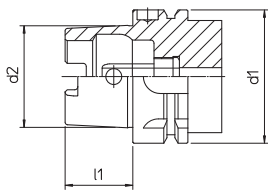
π 3.14

$$Vc = \frac{\pi \cdot D \cdot n}{1000}$$

$$n = \frac{Vc \cdot 1000}{\pi \cdot D}$$

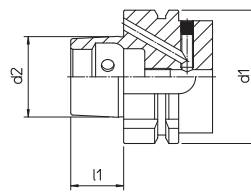
$$Vf = n \cdot fn$$

HSK-A



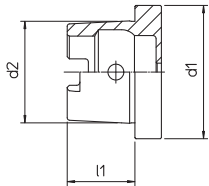
HSK-A	d1	d2	l1
32	32	24	16
40	40	30	20
50	50	38	25
63	63	48	32
80	80	60	40
100	100	75	50

HSK-B



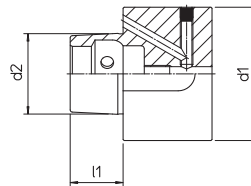
HSK-B	d1	d2	l1
-	-	-	-
40	40	24	16
50	50	30	20
63	63	38	25
80	80	48	32
100	100	60	40

HSK-C



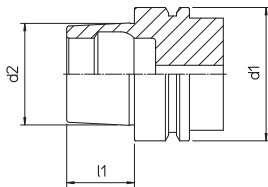
HSK-C	d1	d2	l1
32	32	24	16
40	40	30	20
50	50	38	25
63	63	48	32
80	80	60	40
100	100	75	50

HSK-D



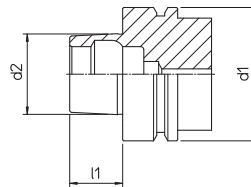
HSK-D	d1	d2	l1
-	-	-	-
40	40	24	16
50	50	30	20
63	63	38	25
80	80	48	32
100	100	60	40

HSK-E



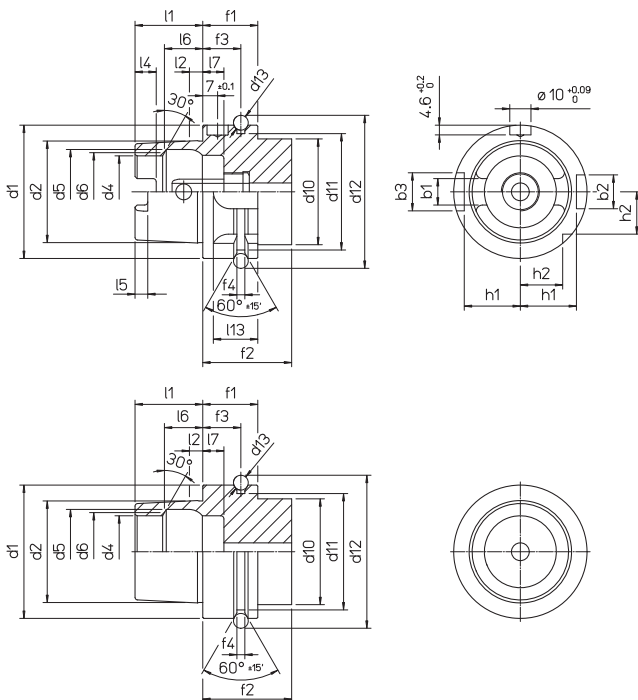
HSK-E	d1	d2	l1
32	32	24	16
40	40	30	20
50	50	38	25
63	63	48	32
-	-	-	-

HSK-F

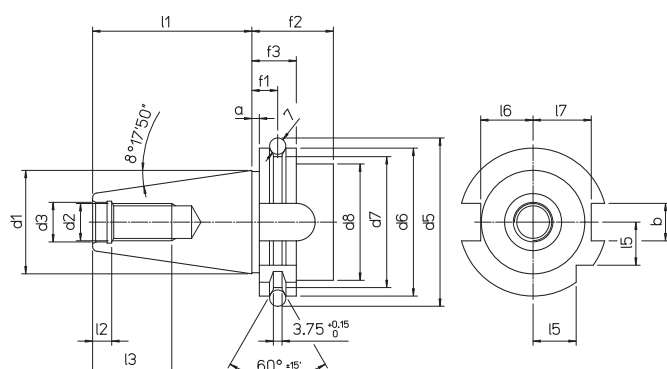


HSK-F	d1	d2	l1
-	-	-	-
-	-	-	-
50	50	30	20
63	63	38	25
80	80	48	32

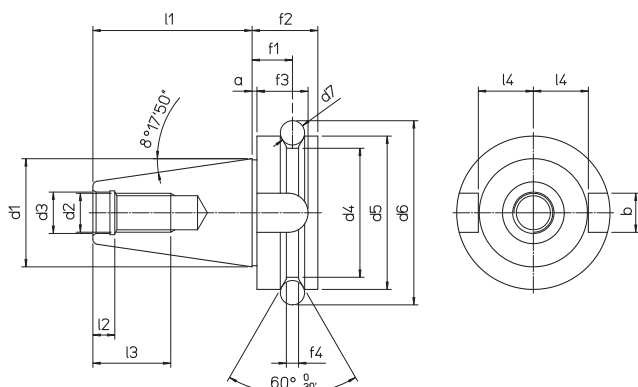
HSK-A HSK-E



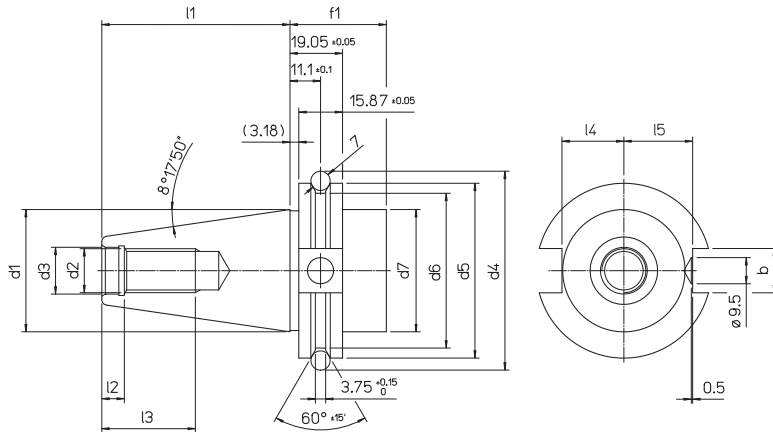
HSK	32	40	50	63	80	100
b1 ± 0.04	7.05	8.05	10.54	12.54	16.04	20.02
b2 H10	7	9	12	16	18	20
b3 H10	9	11	14	18	20	22
d1 h10	32	40	50	63	80	100
d2	24.007	30.007	38.009	48.010	60.012	75.013
d4 H10	17	21	26	34	42	53
d5 H11	20.5	25.5	32	40	50	63
d6	19	23	29	37	46	58
d10 max.	26	34	42	53	68	88
d11 -0.1	26.5	34.8	43	55	70	92
d12 -0.1	37	45	59.3	72.3	88.8	109.75
d13	4			7		
f1 -0.1	20			26		29
f2 min.	35			42		45
f3 ± 0.1	16			18		20
f4 $+0.15$	2			3.75		
h1 -0.2	13	17	21	26.5	34	44
h2 -0.3	9.5	12	15.5	20	25	31.5
l1 -0.2	16	20	25	32	40	50
l2	3.2	4	5	6.3	8	10
l4 $+0.2$	5	6	7.5	10	12	15
l5 $+0.2$	3	3.5	4.5	6	8	10
l6 JS10	8.92	11.42	14.13	18.13	22.85	28.56
l7 -0.1	8		10	10	12.5	12.5
l13	12		19	21	22	24

**DIN 69871 A
(ISO 7388-1)**


ISO	30	40	45	50	60
a ±0.1	3.2				
b $+0.5/-0$	16.1		19.3	25.7	
d1	31.75	44.45	57.15	69.85	107.95
d2 6H	M12	M16	M20	M24	M30
d3 H7	13	17	21	25	32
d5 ±0.05	59.3	72.3	91.35	107.25	164.75
d6 $+0/-0.1$	50	63.55	82.55	97.50	155
d7 $+0/-0.5$	44.3	56.25	75.25	91.25	147.70
d8 max.	45	50	63	80	130
f1 ±0.1	11.1				
f2 min.	35				38
f3 $+0/-0.1$	19.1				
l1 $+0/-0.3$	47.8	68.4	82.7	101.75	161.90
l2 $+0.5/-0$	5.5	8.2	10	11.5	14
l3 min.	24	32	40	47	59
l5 $+0/-0.3$	15	18.5	24	30	49
l6 $+0/-0.3$	16.4	22.8	29.1	35.5	54.5
l7 $+0/-0.3$	19	25	31.3	37.7	59.3

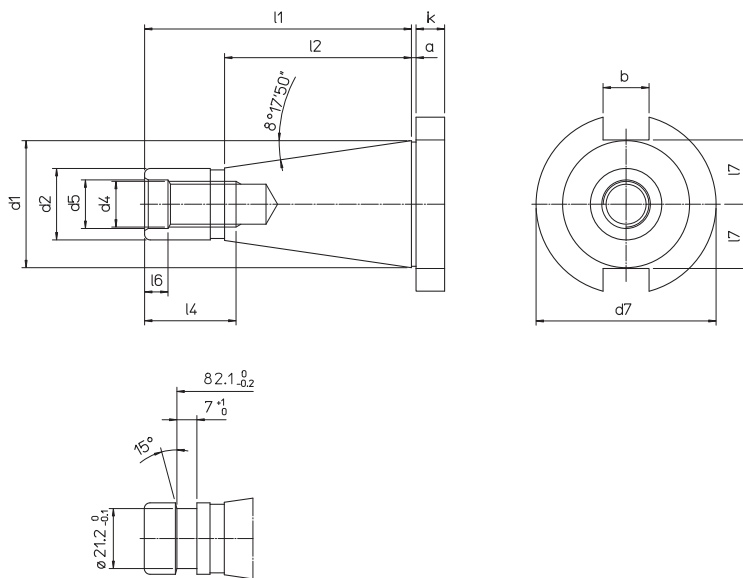
MAS 403 BT A


ISO	30	35	40	45	50	60
a ±0.4	2			3		
b $+0.2/-0$	16.1			19.3	25.7	25.7
d1	31.75	38.10	44.45	57.15	69.85	107.95
d2 6H	M 12		M 16	M 20	M 24	M30
d3 H8	12.5		17	21	25	31
d4 $+0/-0.5$	38	43	53	73	85	135
d5 h8	46	53	63	85	100	155
d6 ±0.05	56.03	65.68	75.56	100.09	118.89	180.22
d7	8	10		12	15	20
f1 ±0.1	13.6	14.6	16.6	21.2	23.2	28.2
f2	22	24	27	33	38	48
f3 min.	17	20	21	26	31	34
f4	4	5		6	7	11
l1 ±0.2	48.4	56.4	65.4	82.8	101.8	161.8
l2 $+0.5/-0$	7		9	11	13	16
l3 min.	24		30	36	45	56
l4 $+0/-0.3$	16.3	19.6	22.6	29.1	35.4	60.1



ISO	40	45	50
$b^{+0.2}_{-0}$	16.1	19.3	25.7
d_1 6H	44.45	57.15	69.85
d_2	M 16	M 20	M 24
d_3 H7	17	21	25
d_4 ± 0.05	72.3	91.35	108.25
d_5 $^{0}_{-0.1}$	63.55	82.55	98.5
d_6 $^{0}_{-0.5}$	56.25	75.25	91.25
d_7 ± 0.15	44.45	57.15	69.95
f_1 min	35		38
l_1 $^{0}_{-0.3}$	68.4	82.7	101.75
l_2 $^{+0.5}_{-0}$	8.2	10	11.5
l_3 min.	32	40	47
l_4 $^{0}_{-0.3}$	22.8	29.10	35.50
l_5 $^{0}_{-0.3}$	25	31.3	37.7

DIN 2080



ISO 40 OTT

ISO	30	40	45	50
a ± 0.2	1.6		3.2	
b H12	16.1		19.3	25.7
d_1	31.75	44.45	57.15	69.85
d_2 a10	17.4	25.3	32.4	39.6
d_4 ± 0.05	M 12	M 16	M 20	M 24
d_5	13	17	21	26
d_7 $^{0}_{-0.4}$	50	63	80	97.5
k ± 0.15	8	10	12	12
l_1	68.4	93.4	106.8	126.8
l_2	48.4	65.4	82.8	101.8
l_4	24	32	40	47
l_6 $^{+0.5}_{-0}$	5.5	8.2	10	11.5
l_7 max.	16.2	22.5	29	35.3

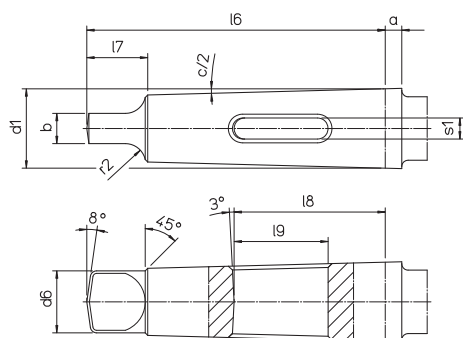


INFO

UNI
HSK DIN
MAS-BT

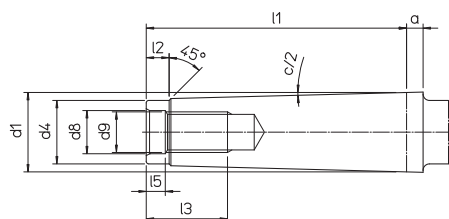
DATI TECNICI NORME ATTACCHI BASE

DIN 228/B DIN 1806



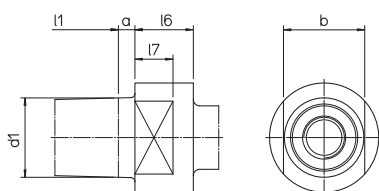
MORSE	4	5
a	6.5	
b H13	11.9	15.9
c/2	1°29'15"	1°30'26"
d1	31.267	44.399
d6 max.	24.5	35.7
l6 $\begin{smallmatrix} 0 \\ -1 \end{smallmatrix}$	117.5	149.5
l7 max.	24	29
l8	59.5	64
l9	37	42
r2	8	10
s1	8.3	12.4

DIN 228/A

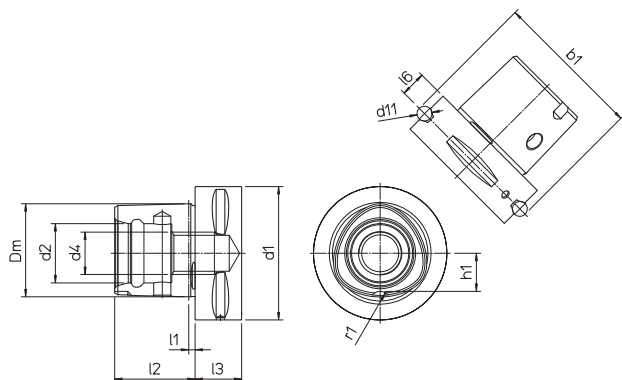


MORSE	4	4 SIP
a	6.5	
b d9	32	
c/2	1°29'15"	
d1	31.267	
d4 max.	25	
d8	17	
d9	M 16	M 14
l1 max.	102.5	
l2	9	
l3	32	
l5 $\begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$	8.2	
l6	15	
l7	23	

DIN 2207

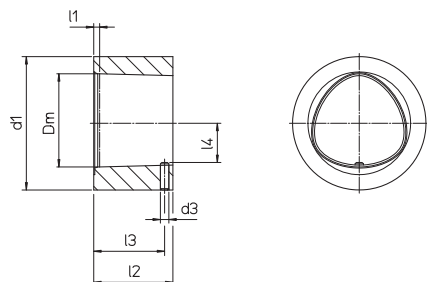


ISO 26623-1



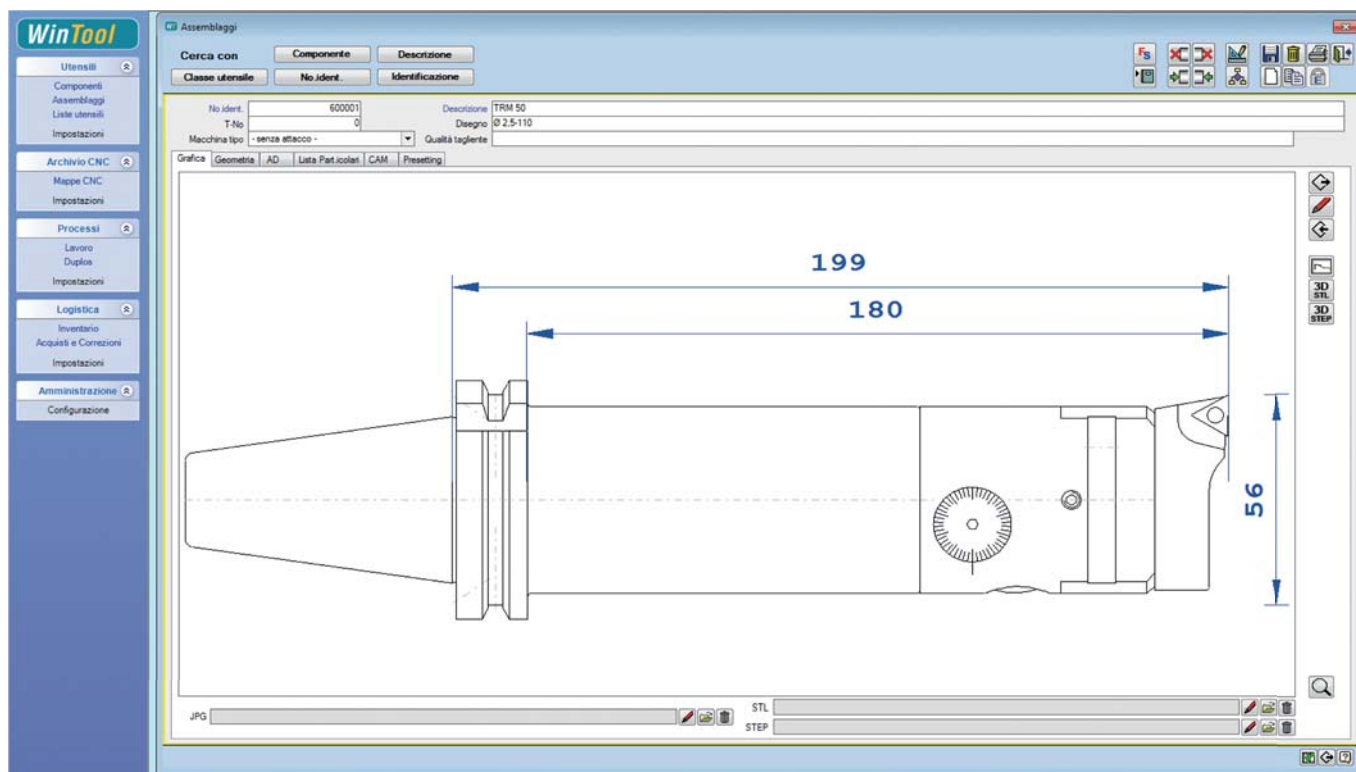
PSC	32	40	50	63	80	100
b1 ±0.1	39	46	59.3	70.7	86	110
Dm	22	28	35	44	55	72
d1 ±0.1	32	40	50	63	80	100
d2 ^{+0.1} _{-0.05}	15	18	21	28	32	43
d4	M12x1.5	M14x1.5	M16x1.5	M20x2		M24x2
d11	5		7			10
l1	2.5		3			
l2 ±0.1	19	24	30	38	48	60
l3 min	15	20		22	30	36
l6 ±0.15	6	8	10	12		16
h1 ±0.1	9	11	14	18	22.2	29
r1 ±0.3	4	4	5	6	7	8

ISO 26623-2



PSC	32	40	50	63	80	100
Dm	22	28	35	44	55	72
d1 min	32	40	50	63	80	100
d3	2	2.5	3	4	5	6
l1	2.3	2.3	2.8	2.8	2.8	2.8
l2 ±0.1	18.4	23.4	29.4	37.4	47.4	59.4
l3 ±0.2	16.5	21	26	33.5	43	52.5
l4	9.4±0.1	11.5±0.2	14.5±0.2	18.5±0.2	22.8±0.2	29.6

Generatore grafico che permette di comporre in breve tempo utensili completi con elementi del MODULHARD'ANDREA, indicando le dimensioni, il peso e la lista dei componenti.



Scheda Utensile		
TRM 50 Ø 2,5-110	600001	Diametro parte pezzo 56,00
Descrizione / Tipo	Design / Item No. / Product Code / Storage Location	Peso
1 DIN69871-AD+B40 FC MHD50.120	MHD 50	1,70
1 TRM 50	41.6.50.01.040.28F Ø 2,5-110	1,00
1 SFTP 50	TPGX 1103...L 47.050.05.50.001	0,08
1 TPGX 110300L-10	DC 100T TPGX 110300L C10T	0,00
		2,780

TESTE ALESATURA - SFACCIATURA

U-TRONIC pag.100

SLITTA SINGOLA

UT 3-360 S
Ø max 800

UT 5-500 S
Ø max 1000

UT 5-630 S
Ø max 1250

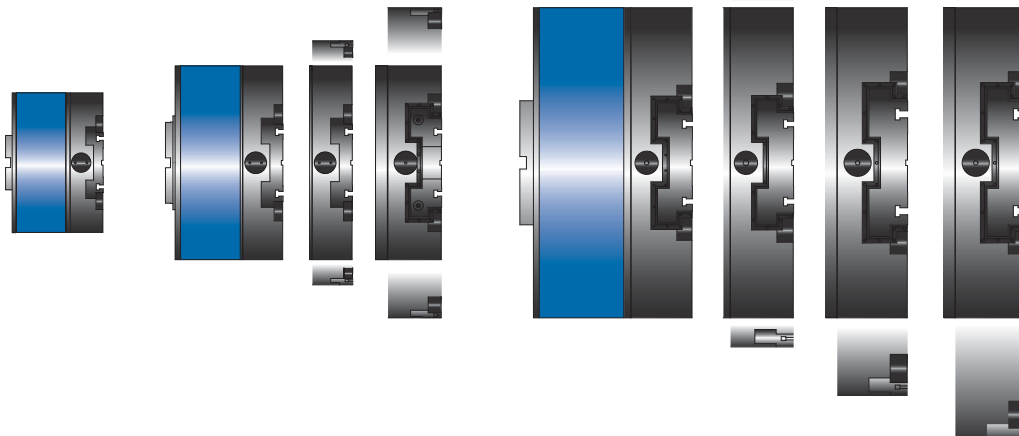
UT 5-800 S
Ø max 1400

UT 8-800 S
Ø max 1600

UT 8-1000 S
Ø max 2000

UT 8-1250 S
Ø max 2700

UT 8-1600 S
Ø max 3200

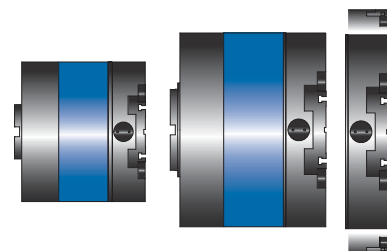


RIDUTTORE

UT 3-360 S+R
Ø max 800

UT 5-500 S+R
Ø max 1000

UT 5-630 S+R
Ø max 1250



UT-Speciali

U-TRONIC teste a CN di medie e grandi dimensioni, applicabili su alesatrici, centri di lavoro e macchine speciali. Lo spostamento della slitta è gestito da un servomotore integrato e direttamente collegato al CN e l'applicazione prevede una flangia di interfaccia che può essere realizzata in versione manuale, automatica, prolungata ed angolare. Oltre alla gamma standard, è disponibile la versione con riduttore integrato e, a richiesta le versioni speciali con foro, fino a Ø 1600 mm, a due slitte, con contrappesi per l'autobilanciamento e Synchro.®



Prolungate

TA-CENTER pag.110

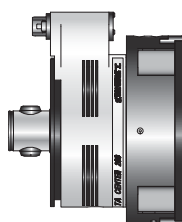
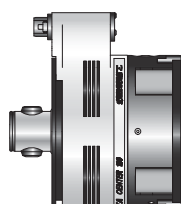
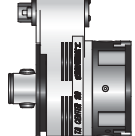
TA-C 80
Ø max 160

TA-C 100
Ø max 200

TA-C 160
Ø max 320

TA-C 125
Ø max 250

TA-C 200
Ø max 400



TA-CENTER teste dedicate a macchine con cambio utensile automatico e applicabili su ogni centro di lavoro. Lo spostamento della slitta portautensile è gestito da un gruppo di motorizzazione U-DRIVE esterno e fissato al mandrino macchina.

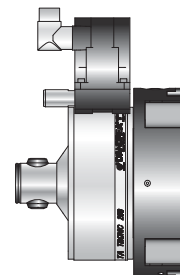
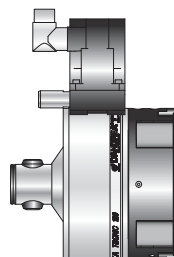
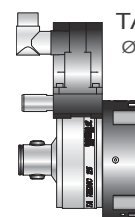
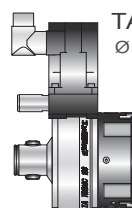
TA-TRONIC pag.118

TA-T 100
Ø max 200

TA-T 160
Ø max 320

TA-T 125
Ø max 250

TA-T 200
Ø max 400



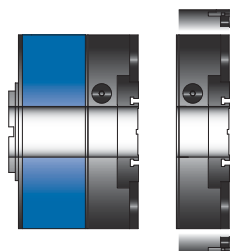
TA-TRONIC Teste progettate per essere applicate manualmente su piccole alesatrici, centri di lavoro e macchine speciali. Il motore integrato si collega al CN e gestisce lo spostamento della slitta portautensile. Il corpo fisso viene sostenuto da una flangia o, per operazioni poco gravose, da un semplice perno antirotazione.

- RAGGIATURA - FILETTATURA

HOLE

UT 5-500 HOLE
Ø max 1000

UT 5-630 HOLE
Ø max 1200

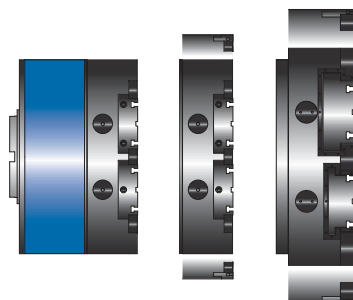


DOPPIA SLITTA

UT 5-500 D
Ø max 1000

UT 5-630 D
Ø max 1200

UT 5-800 D
Ø max 1400



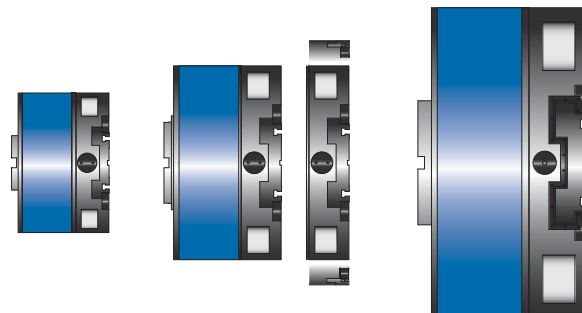
ALTA VELOCITA'

UT 3-360BH
Ø max 600

UT 5-500 BH
Ø max 900

UT 5-630 BH
Ø max 1100

UT 8-800 BH
Ø max 1400



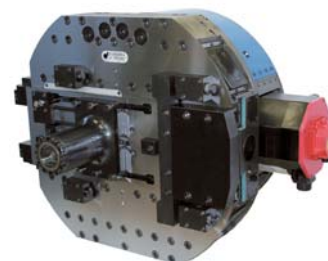
Angolari



Alta Velocità



Doppia Slitta



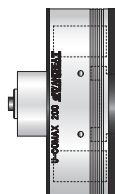
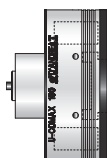
Synchro[®]

U-COMAX pag.124

CMX 125
Ø max 200

CMX 160
Ø max 250

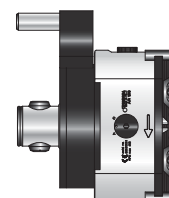
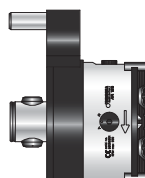
CMX 200
Ø max 320



AUTORADIAL pag.130

AR 125
Ø max 320

AR 160
Ø max 400



U-COMAX teste a comando assiale destinate all'impiego su macchine transfer o unità speciali. Lo spostamento della slitta è gestito da un gruppo di motorizzazione U-DRIVE montato posteriormente all'unità mandrino e gestito dal CN. Disponibile l'opzione **Synchro[®]**.

AUTORADIAL teste automatiche a sfacciare, applicabili su centri di lavoro e macchine a CN senza bisogno di alcuna interfaccia elettronica od asservimento. Eseguono automaticamente un ciclo di lavoro senza mai arrestare la rotazione del mandrino. Particolarmente indicate per l'esecuzione di sedi per anelli elastici e spirali fonografiche.