NT-COPY

NORMALTECH MF

PRODUZIONE E DISTRIBUZIONE UTENSILI AD ASPORTAZIONE TRUCIOLO

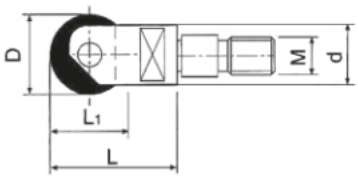
NT-COPY TIPO A FRESE PER COPIATURA	PAG. 101
NT-COPY TIPO A INSERTI	PAG. 107
NT-COPY TIPO A DATI TECNICI	PAG. 109
NT-FLAT TIPO M FRESE PER COPIATURA	PAG. 111
NT-FLAT TIPO M FRESE TOROIDALI	PAG. 112
NT-FLAT TIPO M FRESE INSERTI	PAG. 113
NT-FLAT TIPO M FRESE SFERICHE	PAG. 115
NT-FLAT TIPO M INSERTI	PAG. 117
NT-FLAT TIPO M DATI TECNICI	PAG. 118
NT-FLAT DATI TECNICI	PAG. 121
NT-FLAT BARREL MILLING	PAG. 122
NT-FLAT BA BARREL MILLING	PAG. 123
NT-FLAT BF BARREL FLAM MILLING	PAG. 124
NT-FLAT BARREL DATI TECNICI	PAG. 126
NT-FLAT FLAM DATI TECNICI	PAG. 127
NT-FINISH TIPO K FRESE PER COPIATURA	PAG. 128
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NT-BMR TIPO Z RICAMBI	PAG. 134
NT-BMR TIPO Z DATI DI TAGLIO	PAG. 135
NT-BMS TIPO S FRESE PER SGROSSATURA	PAG. 136
NT-BMS TIPO S DATI DI TAGLIO	PAG. 139

ATTACCO FILETTATO



min =60HRC

STEEL



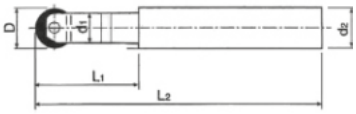
CODICE	Ø D	L	L1	Ø d	M
06HC26/6	6	26	16	9.7	6
08HC23/6	8	23	13	9.7	6
10HC23/5	10	23	23	9.7	6
12HC23/6	12	23	23	9.7	6
14HC23/8	14	23	23	12.7	8
16HC28/8	16	28	28	12.7	8
20HC28/10	20	28	28	17.7	10
25HC35/12	25	35	35	20.7	12

SERIE CORTA
ATTACCO CILINDRICO



min =60HRC

STEEL



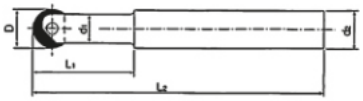
CODICE	Ø D	Ø d1	L1	Ø d2	L2
HCS06 50	6	5.0	25	10	92
HCS08 50	8	6.5	35	12	92
HCS10 50	10	8.0	35	12	92
HCS12 50	12	10.0	26	12	83
HCS14 50	14	12.0	32	16	92
HCS16 50	16	14.0	32	16	92
HCS20 50	20	17.0	38	20	104
HCS25 50	25	21.0	46	25	121
HCS32 50	32	26.0	53	32	133



SERIE LUNGA
ATTACCO CILINDRICO

min =60HRC

STEEL



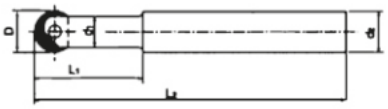
CODICE	Ø D	Ø d1	L1	Ø d2	L2
HCM08 50	8			12	110
HCM10 50	10	8.0	53	12	110
HCM12 50	12		53	12	110
HCM14 50	14	12.0	63	16	123
HCM16 50	16	14.0	63	16	123
HCM20 50	20	17.0	75	20	141
HCM25 50	25	21.0	90	25	166
HCM32 50	32		106	32	186



SERIE EXTRALUNGA
ATTACCO CILINDRICO

min =60HRC

STEEL



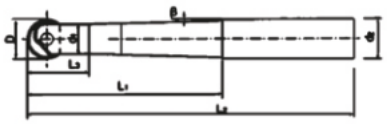
CODICE	Ø D	Ø d1	L1	Ø d2	L2
HCL12 60	12	10	45	12	145
HCL16 60	16	14	55	16	160
HCL20 60	20	17	65	20	191
HCL25 60	25	21	75	25	213



SERIE EXTRALUNGA
ATTACCO CILINDRICO
RASTREMATA

min =60HRC

STEEL



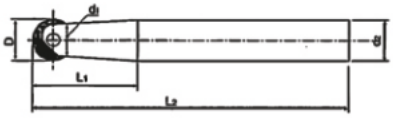
CODICE	Ø D	Ø d1	L1	L3	?	Ø d2	L2
HCL08 50	8	6.5	75	18.5	1.50	12	132
HCL10 50	10	8.0	75	21.0	1.30	12	132
HCL12 50	12	10.0	85	22.0	1.30	16	146
HCL16 50	16	14.0	100	28.0	1.30	20	166
HCL20 50	20	17.0	115	34.0	1.50	25	191
HCL26 50	25	21.0	135	41.0	1.30	32	215
HCL32 50	32	26.0	160	49.0	1.10	32	240



SERIE EXTRALUNGA
ATTACCO CILINDRICO
RASTREMATA

min =60HRC

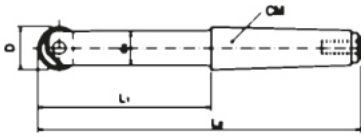
STEEL



CODICE	Ø D	Ø d1	L1	Ø d2	L2
HCL08 70	8	7.0	40	12	140
HCL10 70	10	9.0	35	12	150
HCS12 70	12	10.5	60	16	160
HCS16 70	16	14.0	67	20	175
HCS20 70	20	17.0	80	25	190

NT-COPY tipo A FRESE PER COPIATURA





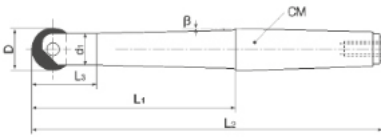
min =60HRC

STEEL

ATTACCO CONO MORSE

Ø D	Ø d1	CODICE	L1	L2	cono morse	CODICE	L1	L2	cono morse
12	10	HCS12 80	26	94	2	HCM12 80	53	121	2
14	12	HCS14 80	32	100	2	HCM14 80	63	121	2
16	14	HCS16 80	32	100	2	HCM16 80	63	131	2
20	17	HCS20 80	38	106	2	HCM20 80	75	143	2
25	21	HCS25 80	45	130	3	HCM25 80	90	175	3
32	26	HCS32 80	53	161	4	HCM32 80	106	214	4





min =60HRC

STEEL

SERIE EXTRALUNGA ATTACCO CONO MORSE RASTREMATA

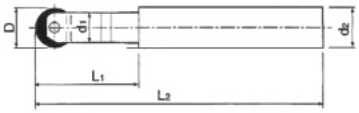
CODICE	Ø D	Ø d1	L1	L2	L3	cono morse	ß
HCL12 80	12	10	85	145	22	2	1.30
HCL16 80	16	14	100	165	28	2	1.30
HCL20 80	20	17	115	190	34	3	1.50
HCL25 80	25	21	135	215	41	4	2.10
HCL32 80	32	26	180	268	49	4	2.10



ATTACCO CILINDRICO IN METALLO DURO INTEGRALE

min =60HRC

CARBIDE



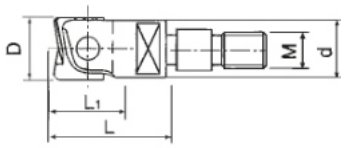
Ø D	SERIE	CODICE	Ø d1	L1	Ø d2	L2
6	CORTA	HM06HCS	5.0	25	10	92
8		HM08HCL	6.5	53	12	110
10		HM10HCL	8.0	53	12	110
12	LUNGA	HM12HCL	10.0	53	12	110
16		HM16HCL	14.0	63	18	123
20		HM20HCL	17.0	75	20	141
12		HM12HCXLN	10.0	45	12	145
16	EXTRA LUNGA NOMINALE	HM16HXLN	14.0	56	16	160
20		HM20HCXLN	17.0	65	20	191
25		HM25HCXLN	21.0	75	25	213
8		HMBHCXLR	7.0	40	12	140
10		HM10HCXLR	9.0	35	12	150
12	EXTRA LUNGA RASTREMATA	HM12HCXLR	10.5	60	16	180
16		HM16HCLRX	14.0	67	20	175
20		HM20HCXLR	17.0	80	25	190



ATTACCO FILETTATO

min =60HRC

STEEL

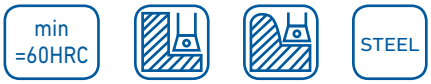


CODICE	Ø D	L	L1	Ø d	M
HC06 FB 26/6	6	26	16	9.7	6
HC08 FB 23/6	8	23	13	9.7	6
HC10 FB 23/6	10	23	23	9.7	6
HC12 FB 23/6	12	23	23	9.7	6
HC16 FB 28/8	16	28	28	12.7	8
HC20 FB 28/10	20	28	28	12.7	10
HC25 FB 35/12	25	36	35	20.7	12

NT-COPY tipo A FRESE PER COPIATURA



SERIE CORTA
ATTACCO CILINDRICO

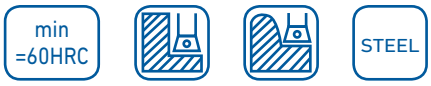




CODICE	Ø D	Ø d1	L1	Ø d2	L2
HCS0650FB	6	5.0	25	10	92
HCS0850FB	8	6.5	35	12	92
HCS01050FB	10	8.0	35	12	92
HCS01250FB	12	10.0	26	12	83
HCS01650FB	16	14.0	32	16	92
HCS02050FB	20	17.0	38	20	104
HCS02550FB	25	21.0	45	25	121



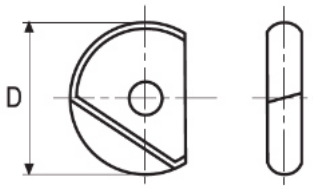
SERIE LUNGA
ATTACCO CILINDRICO





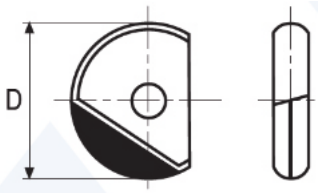
CODICE	Ø D	Ø d1	L1	Ø d2	L2
HCM0850FB	8	6.5	53	12	110
HCM01050FB	10	8.0	53	12	110
HCM01250FB	12	10.0	53	12	110
HCM01650FB	16	14.0	63	16	123
HCM02050FB	20	17.0	75	20	141
HCM02550FB	25	21.0	90	25	166

INSERTO SFERICO MD



Ø D mm	6 mm	8 mm	10 mm	12 mm	14 mm	16 mm	20 mm	25 mm	32 mm
COD.	HC06	HC08	HC10	HC12	HC14	HC16	HC20	HC25	HC32

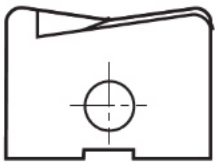
INSERTO SFERICO IN CBN O PCD (HIGHT SPEED)



Ø D mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	32 mm
Z	1	1	1	1	1	1	1
COD. CBN	HTC 08-CBK	HTC 10-CBK	HTC 12-CBK	HTC 16-CBK	HTC 20-CBK	HTC 25-CBK	HTC 32-CBK
COD. PCD	HTC 08-PKD	HTC 10-PKD	HTC 12-PKD*	HTC 16-PKD*	HTC 20-PKD*	HTC 25-PKD	HTC 32-PKD

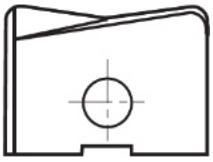
* diametri disponibili anche con Z=2 (codice finale...CBK2/PKD2 CBN)

INSERTO TOROIDALE A 90°



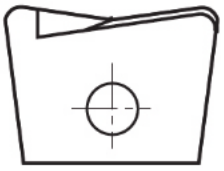
Ø D mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm
RAGGIO	0.4	0.6	0.6	1	1.3	1.6	2
COD.	HC 06 FN	HC 08 FN	HC 10 FN	HC 12 FN	HC 16 FN	HC 20 FN	HC 25 FN

INSERTO TOROIDALE CON ROMPITRUCIOLO



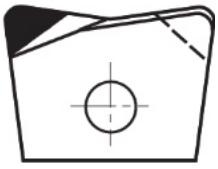
Ø D mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm
RAGGIO	0.4	0.6	0.6	1	1.3	1.6	2
COD.	HC 06 FR	HC 08 FR	HC 10 FR	HC 12 FR	HC 16 FR	HC 20 FR	HC 25 FR

INSERTO TOROIDALE RASTREMATO



Ø D mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm
RAGGIO	0.6	0.6	1	1.3	1.6	2
COD.	HC 08 FB	HC 10 FB	HC 12 FB	HC 16 FB	HC 20 FB	HC 25 FB

INSERTO IN CBN O PCD (HIGHT SPEED)



Ø D mm	8 mm	10 mm	12 mm	16 mm	20 mm
RAGGIO	0.6	0.6	1	1.3	1.6
COD.	HC 08-PKD/CBK	HC 10-PKD/CBK	HC 12-PKD/CBK	HC 16-PKD/CBK	HC 20-PKD/CBK

RICAMBI

INSERTO	Ø D	CODICE VITE	TORX
HC/HCF	6	HC6S	TX 7
HC/HCF	8	HC8S	TX 7
HC/HCF	10	HC10S	TX 8
HC/HCF	12	HC12S	TX 10
HC/HCF	14	HC14S	TX 10
HC/HCF	16	HC16S	TX 15
HC/HCF	20	HC20S	TX 20
HC/HCF	25	HC25S	TX 30
HCF	32	HC32S	TX 30

TIPOLOGIE DI METALLO DURO E RIVESTIMENTI

GRADI DI METALLO DURO	
P20TICN	Qualità rivestita per lavorazione di acciai legati in condizioni applicative sfavorevoli (profondità di passata elevata, utensile lungo ecc).
K03TICN	Qualità rivestita eccellente per lavorazioni di ghise, ghise sferoidali ed acciai legati, con velocità di taglio da medio-alte ad elevate.
K03HGH	Qualità rivestita eccellente nelle lavorazioni a secco di acciai temprati, per presso-fusione ed acciai per stampi per plastica ad elevate velocità di taglio.
CBN/PKD	Lavorazione ad alta velocità per ghise, ghise dure ed acciai temprati (CBN) o di resine, alluminio, grafite (PCD).
CERMET	Lavorazione ad alta velocità in acciaio trattato fino a 55 HRC, ghise e leghe di alluminio.

PARAMETRI DI TAGLIO

MATERIALI	RESISTENZA TRAZIONE N/mm	VELOCITÀ DI TAGLIO m/mm	AVANZAMENTO AL GIRO										AP	STEP
			FRESATURA ASSIALE					FRESATURA LATERALE						
			6	8 10	12 14	16 20	25 32	6	8 10	12 14	16 20	25 32		
RESINE		500-1000	0.3	0.3	0.3	0.4	0.5	0.3	0.6	0.8	0.9	D/3	D/3	D/3
GRAFITE		200-300	0.3	0.3	0.3	0.4	0.4	0.3	0.6	0.8	0.9	D/5	D/5	D/5
LEGHE RAME	300-450	180-220	0.2	0.2	0.3	0.4	0.5	0.3	0.5	0.7	0.8	D/10	D/10	D/10
LEGHE CU-AL-BE	500-700	120-200	0.1	0.1	0.2	0.3	0.4	0.2	0.2	0.5	0.6	D/15	D/15	D/15
GHISA GRIGIA	400-800	200-350	0.2	0.2	0.3	0.4	0.5	0.2	0.4	0.6	0.7	D/10	D/10	D/10
GHISA SFEROIDALE	800-1000	150-220	0.2	0.2	0.3	0.4	0.5	0.2	0.4	0.6	0.7	D/15	D/15	D/15
ACCIAIO PER UTENSILI	600-800	200-400	0.2	0.2	0.2	0.3	0.4	0.2	0.3	0.5	0.6	D/20	D/20	D/20
ACCIAIO PER STAMPI	1300-2050	130-400	0.15	0.15	0.2	0.3	0.3	0.2	0.3	0.4	0.5	D/20	D/20	D/20
ACCIAI TEMPRATI 48HCR	HRC48	150-300	0.15	0.15	0.2	0.3	0.3	0.2	0.3	0.4	0.5	D/20	D/20	D/20
AT FINO A 52HCR	HRC55	120-200	0.15	0.15	0.2	0.3	0.3	0.2	0.2	0.2	0.2	D/20	D/20	D/20
AT FINO A 60HCR	HRC65	50-180	0.15	0.15	0.2	0.3	0.3	0.2	0.3	0.4	0.5	D/20	D/20	D/20
ACCIAIO INOSSIDABILE	700-1800	150-350	0.15	0.15	0.2	0.3	0.3	0.2	0.2	0.2	0.2	D/20	D/20	D/20
LEGHE TITANIO	700-1110	30-120	0.2	0.2	0.3	0.3	0.4	0.2	0.4	0.8	0.7	D/20	D/20	D/20
LEGHE NICHEL	1000-1300	30-40	0.15	0.15	0.2	0.3	0.3	0.2	0.3	0.4	0.5	D/30	D/30	D/30

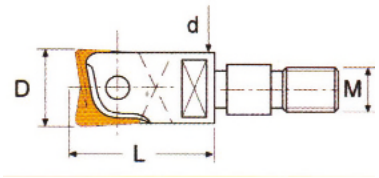
TABELLA INDICATIVA PER IL CALCOLO DEL DIAMETRO EFFETTIVO DELL'UTENSILE IN FUNZIONE DELLA PASSATA

D\AP	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7
6	3.3	4.5												
8	3.9	5.3	6.2	6.9	7.4	7.7								
10	4.4	6.0	7.1	8.0	8.7	9.2	9.5							
12	4.8	6.6	7.9	8.9	9.7	10.4	10.9	11.3	11.6	11.8				
14	5.2	7.2	8.7	9.8	10.7	11.5	12.1	12.6	13.1	13.4	13.7	13.9		
16	5.8	7.7	9.3	10.6	11.8	12.5	13.2	13.9	14.4	14.8	15.2	15.5	15.7	15.9
20	6.2	8.7	10.5	12.0	13.2	14.3	15.2	16.0	16.7	17.3	17.9	18.3	18.7	19.1
25	7.0	9.8	11.9	13.6	15.0	16.2	17.3	18.3	19.2	20.0	20.7	21.4	21.9	22.4
32	7.9	11.1	13.5	15.5	17.2	18.7	20.0	21.2	22.2	23.2	24.1	25.0	25.7	26.5

D= diametro nominale inserto
AP= profondità di passata

ATTACCO FILETTATO

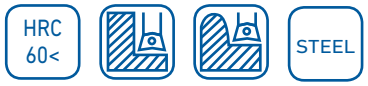




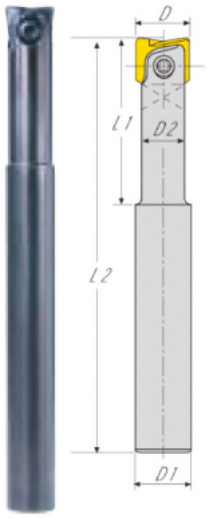


CODICE	Ø D	L	M	Ø d	TORX
10 06 25 HF	10	23	6	9.8	TX 15
12 06 27 HF	12	23	6	10.8	TX 20
16 08 31 HF	16	28	8	14.4	TX 20
20 10 36 HF	20	28	10	18.0	TX 20
25 12 44 HF	25	35	12	22.5	TX 20
32 16 52 HF		52	16	28.6	TX 30

ATTACCO CILINDRICO



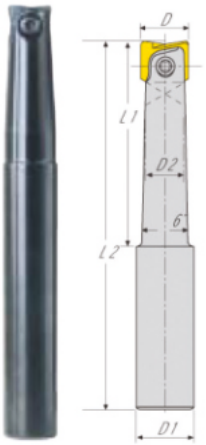
CODICE	Ø D	Ø d1	Ø d2	L1	L2	TORX
HYF0610010	06	10	5.7	19	100	T07
HYF0810010	08	10	7.5	19	100	T07
HYF1010012	10	12	9.0	25	100	T08
HYF1212512	12	12	10.8	36	125	T10
HYF1215012	12	12	10.8	46	150	T10
HYF1616016	16	16	14.4	50	160	T15
HYF2015020	20	20	18	50	150	T20
HYF2020020	20	20	18	61	200	T20
HYF2015025	25	25	22.5	50	150	T30
HYF2520025	25	25	22.5	64	200	T30
HYF3219032	32	32	28.6	57	190	T30
HYF3225032	32	32	28.6	76	250	T30



ATTACCO CILINDRICO RASTREMATA

HRC 60< | STEEL

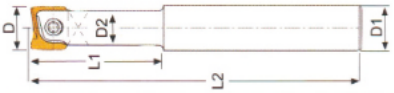
CODICE	Ø D	Ø d1	Ø d2	L1	L2	TORX
HYF0615010	06	10	5.7	25.4	150	T07
HYF0815010	08	10	7.5	25.4	150	T07
HYF1015012	10	12	9.0	35	150	T08
HYF1219016	12	12	10.8	60	190	T10
HYF1619020	16	16	14.4	57	190	T15
HYF2020025	20	20	18	80	200	T20
HYF2525032	25	25	22.5	100	250	T30
HYF2531532	25	25	22.5	100	315	T30
HYF3225040	32	32	28.6	120	250	T30





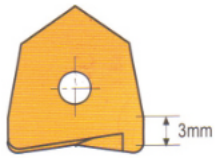
ATTACCO CILINDRICO IN METALLO DURO INTEGRALE

HRC 60< | CARBIDE



CODICE	Ø D	Ø d1	L1	Ø d2	L2
HYF1015010 HM	10	9.0	32	10	150
HYF1215012 HM	12	10.8	52	12	150
HYF1615016 HM	16	14.4	52	16	150
HYF2015020 HM	20	18.0	77	20	200
HYF2515025 HM	25	22.5	93	25	200

INSERTO TOROIDALE HDS



Ø D mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	32 mm
RAGGIO	0.4	0.6	1.0	1.0	1.3	1.6	2.0	-
COD.	HD06S	HD08S	HD10S	HD12S	HD16S	HD20S	HD25S	-
SPEC. R	-	-	-	-	1.0	1.0	1.0	-

INSERTO TOROIDALE RASTREMATO HDN



Ø D mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	32 mm
RAGGIO	-	-	0.8	1.0	1.3	1.6	2.0	2.6
COD.	HD06N	HD08N	HD10N	HD12N	HD16N	HD20N	HD25N	HD32N
SPEC. R	-	-	0.5-1	0.5-2	0.5-1-2	0.5-1-2	1.0	-

INSERTO TOROIDALE CON ROMPITRUCIOLO HBR



Ø D mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	32 mm
RAGGIO	0.4	0.4	0.8	1.0	1.3	1.6	2.0	2.6
COD.	HB06R	HB08R	HB10R	HB12R	HB16R	HB20R	HB25R	HB32R
SPEC. R	-	-	-	-	0.5	-	-	-

INSERTO TOROIDALE RASTREMATO CON ROMPITRUCIOLO HDR



Ø D mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	32 mm
RAGGIO	-	-	0.8	1.0	1.3	1.6	2.0	2.6
COD.	HD06R	HD08R	HD10R	HD12R	HD16R	HD20R	HD25R	HD32R
SPEC. R	-	-	0.5-1	0.5	0.5-1	1.0	1.0	-

INSERTO TOROIDALE RASTREMATO ALU HLN



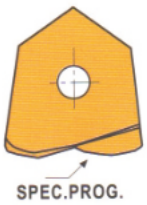
Ø D mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	30 mm	32 mm
RAGGIO	-	-	3.0	3.0	3.0	3.0	-	-
COD.	-	-	HL12N	HL16N	HL20N	HL25N	-	-

INSERTO TOROIDALE RASTREMATO HON



Ø D mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	30 mm	32 mm
RAGGIO	-	3.0	3.0	4.0	5.0	6.0	7.5	8.0
COD.	-	HO10N	HO12N	HO16N	HO20N	HO25N	HO30N	H32N

INSERTO ALTO AVANZAMENTO HFF



Ø D mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	32 mm
RAGGIO	-	-	0.698/3.0	1.0/4.0	1.295/5.0	1.498/6.0	1.9/7.0	-
COD.	-	-	HF10F	HF12F	HF16F	HF20F	HF25F	-
SPEC. PROG.	-	-	1.0	1.43	1.94	2.26	2.82	-

ATTACCO FILETTATO

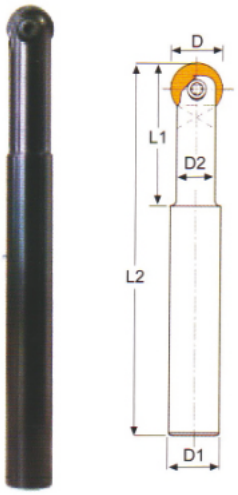




CODICE	Ø D	L	Ø d1	M	TORX
10 06 25 YS	10	30	9.8	6	T08
12 06 27 YS	12	27	10.8	6	T10
16 08 31 YS	16	31	14.4	8	T10
20 10 36 YS	20	36	18.0	10	T15
25 12 44 YS	25	44	22.5	12	T20
32 16 52 YS	32	52	28.6	16	T20

ATTACCO CILINDRICO

CODICE	Ø D	Ø d1	Ø d2	L1	L2	TORX
HYS1010012	10	12	9.0	25	100	T08
HYS1212512	12	12	10.8	36	125	T10
HYS1215012	12	12	10.8	46	150	T10
HYS1616016	16	16	14.4	50	160	T15
HYS2015020	20	20	18.0	50	150	T20
HYS2019020	20	20	18.0	61	190	T20
HYS2515025	25	25	22.5	50	150	T30
HYS2520025	25	25	22.5	64	200	T30
HYS3219032	32	32	28.6	57	190	T30
HYS3225032	32	32	28.6	76	250	T30

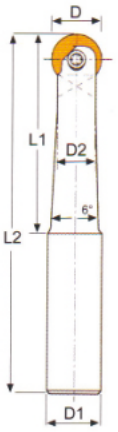


ATTACCO CILINDRICO RASTREMATA

HRC >=60 | STEEL

CODICE	Ø D	Ø d1	Ø d2	L1	L2	TORX
HYS0609512	06	12	5.7	30	95	T07
HYS0809512	08	12	7.5	32	95	T07
HYS1012512	10	12	9.0	35	125	T08
HYS1015012	10	12	9.0	35	150	T08
HYS1219016	12	16	10.8	60	190	T20
HYS1619020	16	20	14.4	57	190	T20
HYS2020025	20	25	18.0	80	200	T20
HYS2525032	25	32	22.5	100	250	T30
HYS2531532	25	32	22.5	100	315	T30
HYS3225040	32	40	27.2	120	250	T30

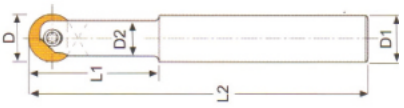




ATTACCO CILINDRICO IN METALLO DURO INTEGRALE



HRC 60< | CARBIDE



CODICE	Ø D	Ø d1	L1	Ø d2	L2
HYS0813010 HM	8	7.5	30	10	130
HYS1015010 HM	10	9.0	32	10	150
HYS1215012 HM	12	10.8	52	12	150
HYS1615016 HM	16	14.4	52	16	150
HYS2020020 HM	20	18.0	77	20	200
HYS2520020 HM	25	22.5	93	25	200

INSERTO SFERICO PER SUPERFINITURA HBSF



Ø D mm	10 mm	12 mm	16 mm	20 mm	8 mm	8 mm	8 mm
COD.	HB 10 SF	HB 12 SF	HB 16 SF	HB 20 SF	HB 25 SF	HB 30 SF	HB 32 SF

INSERTO SFERICO CON ROMPITRUCIOLO HBMB



Ø D mm	10 mm	12 mm	16 mm	20 mm	25 mm	30 mm	32 mm
COD.	HB 10 MB	HB 12 MB	HB 16 MB	HB 20 MB	HB 25 MB	HB 30 MB	HB 32 MB

INSERTO SFERICO HBBN



Ø D mm	10 mm	12 mm	16 mm	20 mm	25 mm	30 mm	32 mm
COD.	HB 10 BN	HB 12 BN	HB 16 BN	HB 20 BN	HB 25 BN	HB 30 BN	HB 32 BN

INSERTO SFERICO CON ROMPITRUCIOLO HBSN



Ø D mm	10 mm	12 mm	16 mm	20 mm	25 mm	30 mm	32 mm
COD.	HB 10 SN	HB 12 SN	HB 16 SN	HB 20 SN	HB 25 SN	HB 30 SN	HB 32 SN

SONO SISPONIBILI SU RICHIESTA INSERTI D6 E D8

VITI

CODICE	Ø D	TORX	CODICE	Ø D	TORX
HS 06 N	06	T7	HS 16 N	16	T15
HS 08 N	08	T7	HS 20 N	20	T20
HS 10 N	10	T8	HS 25 N	25	T30
HS 12 N	12	T10	HS 32 N	32	T30

PARAMETRI DI TAGLIO

MATERIALI	RESISTENZA TRAZIONE N/mm	VELOCITÀ DI TAGLIO m/mm	AVANZAMENTO AL GIRO										AP	STEP
			FRESATURA ASSIALE					FRESATURA LATERALE						
			6	8 10	12 14	16 20	25 32	6	8 10	12 14	16 20	25 32		
RESINE		500-1000	0.3	0.3	0.3	0.4	0.5	0.3	0.6	0.8	0.9	D/3	D/3	D/3
GRAFITE		200-300	0.3	0.3	0.3	0.4	0.4	0.3	0.6	0.8	0.9	D/5	D/5	D/5
LEGHE RAME	300-450	180-220	0.2	0.2	0.3	0.4	0.5	0.3	0.5	0.7	0.8	D/10	D/10	D/10
LEGHE CU-AL-BE	500-700	120-200	0.1	0.1	0.2	0.3	0.4	0.2	0.2	0.5	0.6	D/15	D/15	D/15
GHISA GRIGIA	400-800	200-350	0.2	0.2	0.3	0.4	0.5	0.2	0.4	0.6	0.7	D/10	D/10	D/10
GHISA SFEROIDALE	800-1000	150-220	0.2	0.2	0.3	0.4	0.5	0.2	0.4	0.6	0.7	D/15	D/15	D/15
ACCIAIO PER UTENSILI	600-800	200-400	0.2	0.2	0.2	0.3	0.4	0.2	0.3	0.5	0.6	D/20	D/20	D/20
ACCIAIO PER STAMPI	1300-2050	130-400	0.15	0.15	0.2	0.3	0.3	0.2	0.3	0.4	0.5	D/20	D/20	D/20
ACC. TEMPRATI 48HCR	HRC48	150-300	0.15	0.15	0.2	0.3	0.3	0.2	0.3	0.4	0.5	D/20	D/20	D/20
AT FINO A 52HCR	HRC55	120-200	0.15	0.15	0.2	0.3	0.3	0.2	0.2	0.2	0.2	D/20	D/20	D/20
AT FINO A 60HCR	HRC65	50-180	0.15	0.15	0.2	0.3	0.3	0.2	0.3	0.4	0.5	D/20	D/20	D/20
ACCIAIO INOSSIDABILE	700-1800	150-350	0.15	0.15	0.2	0.3	0.3	0.2	0.2	0.2	0.2	D/20	D/20	D/20
LEGHE TITANIO	700-1110	30-120	0.2	0.2	0.3	0.3	0.4	0.2	0.4	0.8	0.7	D/20	D/20	D/20
LEGHE NICHEL	1000-1300	30-40	0.15	0.15	0.2	0.3	0.3	0.2	0.3	0.4	0.5	D/30	D/30	D/30

TABELLA INDICATIVA PER IL CALCOLO DEL DIAMETRO EFFETTIVO DELL'UTENSILE TORICO IN FUNZIONE DELLA PASSATA

D\AP	0.5	1	2	3	4	5	6	7
10	7.3	8.5						
12	9.3	10.5	11.7	12.0				
16	11.9	13.3	14.9	15.8				
20	14.3	16.0	18.0	19.2	19.8	20.0		
25	17.8	19.6	22.0	23.4	24.3	24.9	25.0	
32	21.6	23.8	26.6	28.5	29.9	30.8	31.5	32.0

D= diametro nominale inserto
AP= profondità di passata

TABELLA INDICATIVA PER IL CALCOLO DEL DIAMETRO EFFETTIVO DELL'UTENSILE SFERICO IN FUNZIONE DELLA PASSATA

D\AP	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7
6	3.3	4.5												
8	3.9	5.3	6.2	6.9	7.4	7.7								
10	4.4	6.0	7.1	8.0	8.7	9.2	9.5							
12	4.8	6.6	7.9	8.9	9.7	10.4	10.9	11.3	11.6	11.8				
14	5.2	7.2	8.7	9.8	10.7	11.5	12.1	12.6	13.1	13.4	13.7	13.9		
16	5.8	7.7	9.3	10.6	11.8	12.5	13.2	13.9	14.4	14.8	15.2	15.5	15.7	15.9
20	6.2	8.7	10.5	12.0	13.2	14.3	15.2	16.0	16.7	17.3	17.9	18.3	18.7	19.1
25	7.0	9.8	11.9	13.6	15.0	16.2	17.3	18.3	19.2	20.0	20.7	21.4	21.9	22.4
32	7.9	11.1	13.5	15.5	17.2	18.7	20.0	21.2	22.2	23.2	24.1	25.0	25.7	26.4

D= diametro nominale inserto
AP= profondità di passata

TIPOLOGIE DI METALLO DURO E RIVESTIMENTI

GRADI DI METALLO DURO	
P20TLC	Qualità rivestita per lavorazione di acciai legati in condizioni applicative sfavorevoli (profondità di passata elevata, utensile lungo). 35HCR
K03TLC	Qualità rivestita eccellente per lavorazioni di ghise, ghise sferoidali ed acciai legati, con velocità di taglio da medio-alte ad elevate. 50HCR
K03HGH	Qualità rivestita eccellente nelle lavorazioni a secco di acciai temprati, acciai per stampi per presso-fusione ed acciai per stampi per plastica ad elevate velocità di taglio. 60HCR
CBN/PKD	Lavorazione ad alta velocità per ghise, ghise dure ed acciai temprati (CBN) o di resine, alluminio, grafite (PCD). Materiale non a stock, disponibile solo su ordinazione.

APPLICAZIONI

CODICE INSERTO TORICO	DESCRIZIONE	CODICE INSERTO SFERICO
HF...F	Tipologia adatta alla sgrossatura e finitura di acciai legati, acciai temprati >DI 60 HRC, ghise nodulari e grigie.	HB...BN
HD...S HD...N		HB...SN
HO...N		
HD...S	Tipologia adatta alla semifinitura e finitura di acciai da costruzione, acciai legati, acciai temprati >DI 60 HRC, ghise nodulari e grigie.	HB...SF
HD...R		HB...BN
HB...R		
HL...N	Tipologia adatta alla lavorazione delle leghe leggere. Particolarmente indicato per rame, bronzo, alluminio ecc.	HB...MB
HB...R		HB...SF
HD...R		

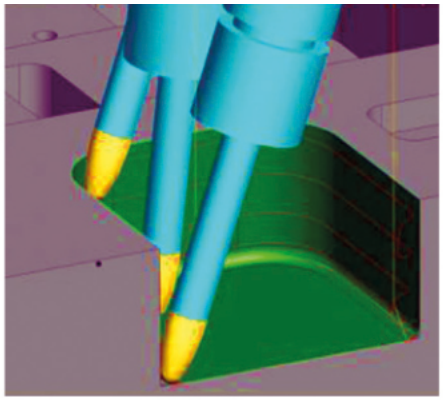
MATERIALI		SEMIFINITURA								FINITURA							
		D06		D08		D10		D12		D16		D20		D25		D32	
ACCIAIO NON LEGATO (<30HRC)	n (min-1)	8.490	16.450	6.370	16.450	8.490	11.940	4.240	7.960	3.190	5.970	2.550	4.780	2.040	3.820	1.590	2.990
	Vc (m/min)	160	310	160	300	160	300	160	300	160	300	160	300	160	300	160	300
	Vf (mm/min)	1.700	2.300	2.550	3.580	2.040	2.870	1.700	2.390	1.600	2.390	1.280	1.910	1.020	1.530	800	1.200
	fz (mm/t)	00.01	0.07	0.2	0.15	0.2	0.15	0.2	0.15	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
	ap (mm)	00.01	0.05	0.2	0.1	0.25	0.1	0.3	0.1	0.8	0.2	1	0.2	1.25	0.2	1.6	0.2
	ae (mm)	00.06	0.2	0.8	0.2	1	0.2	1.2	0.2	1.6	0.2	2	0.2	2.5	0.2	3.2	0.2
ACCIAIO A BASSO LEGANTE (30-45 HRC)	n (min-1)	6.370	14.850	4.770	11.150	3.820	8.920	3.180	7.430	2.390	5.570	1.910	4.460	1.530	3.570	1.190	2.790
	Vc (m/min)	120	280	120	280	120	280	120	280	120	280	120	280	120	280	120	280
	Vf (mm/min)	1.270	2.080	1.910	3.350	1.530	2.680	1.270	2.230	1.200	2.230	960	1.780	760	1.430	600	
	fz (mm/t)	00.01	0.07	0.2	0.15	0.2	0.15	0.2	0.15	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
	ap (mm)	00.01	0.05	0.2	0.1	0.25	0.1	0.3	0.1	0.8	0.2	1	0.2	1.25	0.2	1.6	0.2
	ae (mm)	00.06	0.2	0.8	0.2	1	0.2	1.2	0.2	1.6	0.2	2	0.2	2.5	0.2	3.2	0.2
ACCIAIO AD ALTO LEGANTE (45-55 HRC)	n (min-1)	5.310	14.850	3.980	11.150	3.180	8.920	2.650	7.430	1.990	5.570	1.590	4.460	1.270	3.570	1.000	2.790
	Vc (m/min)	100	280	100	280	100	280	100	280	100	280	100	280	100	280	100	280
	Vf (mm/min)	850	1.190	800	1.120	640	890	530	740	480	670	380	530	310	430	240	330
	fz (mm/t)	00.08	0.04	0.1	0.05	0.1	0.05	0.1	0.05	0.12	0.06	0.12	0.06	0.12	0.06	0.12	0.06
	ap (mm)	00.01	0.05	0.2	0.1	0.25	0.1	0.3	0.1	0.8	0.2	1	0.2	1.25	0.2	1.6	0.2
	ae (mm)	00.06	0.2	0.8	0.2	1	0.2	1.2	0.2	1.6	0.2	2	0.2	2.5	0.2	3.2	0.2
ACCIAIO TEMPRATO (50-60 HRC)	n (min-1)	4.240	11.670	3.180	8.760	2.550	7.000	2.120	5.840	1.590	4.380	1.270	3.500	1.020	2.800	800	2.190
	Vc (m/min)	80	220	80	220	80	220	80	220	80	220	80	220	80	220	80	220
	Vf (mm/min)	680	930	640	880	510	700	420	580	380	530	300	420	240	340	190	260
	fz (mm/t)	00.08	0.04	0.1	0.05	0.1	0.05	0.1	0.05	0.12	0.06	0.12	0.06	0.12	0.06	0.12	0.06
	ap (mm)	00.01	0.05	0.2	0.1	0.25	0.1	0.3	0.1	0.8	0.2	1	0.2	1.25	0.2	1.6	0.2
	ae (mm)	00.06	0.2	0.8	0.2	1	0.2	1.2	0.2	1.6	0.2	2	0.2	2.5	0.2	3.2	0.2
GHISA GRIGIA	n (min-1)	8.490	20.160	6.370	15.120	5.090	12.100	4.240	10.080	3.190	7.560	2.550	6.050	2.040	4.840	1.590	3.780
	Vc (m/min)	160	380	160	380	160	380	160	380	160	380	160	380	160	380	160	380
	Vf (mm/min)	2.550	4.030	3.820	6.050	3.050	4.840	2.550	4.030	2.240	4.540	1.790	3.630	1.430	2.900	1.110	2.270
	fz (mm/t)	00.15	0.1	0.3	0.2	0.3	0.2	0.3	0.2	0.35	0.3	0.35	0.3	0.35	0.3	0.35	0.3
	ap (mm)	00.01	0.05	0.2	0.1	0.25	0.1	0.3	0.1	0.8	0.2	1	0.2	1.25	0.2	1.6	0.2
	ae (mm)	00.06	0.2	0.8	0.2	1	0.2	1.2	0.2	1.6	0.2	2	0.2	2.5	0.2	3.2	0.2
ACCIAIO INOSSIDABILE	n (min-1)	15.920	26.530	11.940	19.900	9.550	15.920	7.960	13.270	5.970	9.950	4.780	7.960	3.830	6.370	3.190	5.310
	Vc (m/min)	300	500	300	500	300	500	300	500	300	500	300	500	300	500	300	500
	Vf (mm/min)	3.180	5.310	4.780	7.960	3.820	6.370	3.190	5.310	2.990	4.980	2.790	2.390	3.980	1.920	1.110	2.270
	fz (mm/t)	00.01	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	ap (mm)	00.03	0.15	0.4	0.2	0.5	0.2	0.6	0.2	0.8	0.2	1	0.2	1.25	0.2	1.6	0.2
	ae (mm)	00.06	0.2	0.8	0.25	1	0.25	1.2	0.3	1.6	0.3	2	0.4	2.5	0.4	3.2	0.4

PARAMETRI IN FUNZIONE DELLA LUNGHEZZA

	vc(m/min)	vf(m/min)
3Dc	100%	100
3Dc-5Dc	70%	70%
5Dc-6Dc	60%	60%
6Dc-7Dc	50%	50%
7Dc	45%	45%

CONCETTO BARREL MILLING

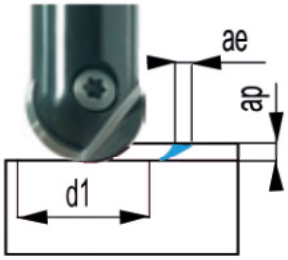
Per materiali duri utilizziamo di norma le frese sferiche o toriche per la lavorazione a 5 assi di geometrie complesse. Tuttavia, soltanto una piccola parte del tagliente dell'utensile è a contatto con il materiale. Un'elevata qualità di fresatura si può ottenere soltanto con una minima distanza del percorso (ae).



BARREL MILLING è un inserto profilato noto anche con profili a botte o paraboliche. Grazie al grande raggio della superficie laterale, nella fresa con profili a botte un'ampia parte del tagliente è a contatto con il materiale. La distanza del percorso può quindi essere essenzialmente maggiore della fresa sferica o torica da 3 a 7 volte maggiore lasciando la qualità di fresatura invariata.

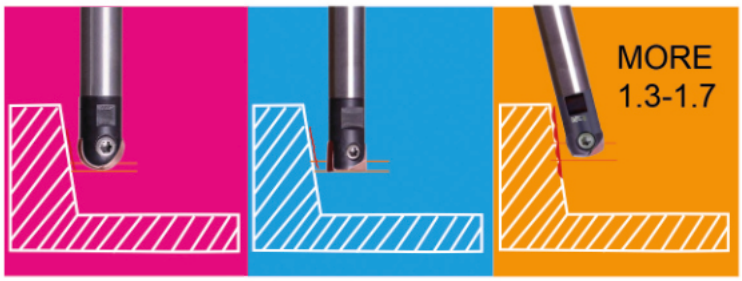


ae = convenzionale



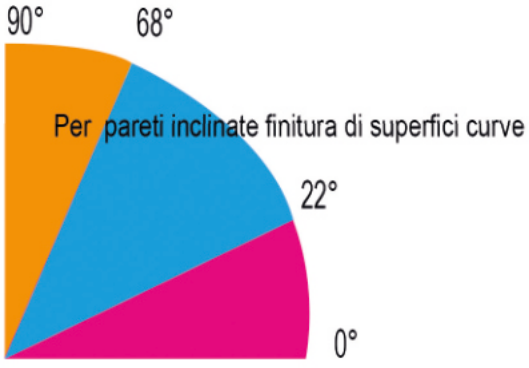


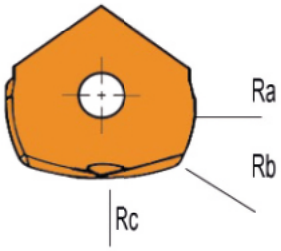
ae = BARREL MILLING



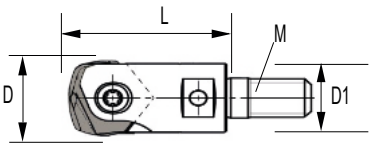








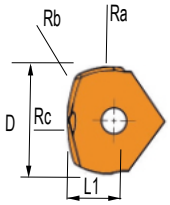
ATTACCO FILETTATO





CODICE	Ø D	M	Ø D1	L1	INSERTO	VITE	TORX
16 08 31 HBA	16	8	14.4	31	HD 16 BA	16MS	TX20
20 10 36 HBA	20	10	18.0	36	HD 20 BA	20MS	TX20
25 12 44 HBA	25	12	22.5	44	HD 25 BA	25MS	TX20
32 16 52 HBA	32	16	28.6	52	HD 32 BA	32MS	TX30

BARREL MILLING





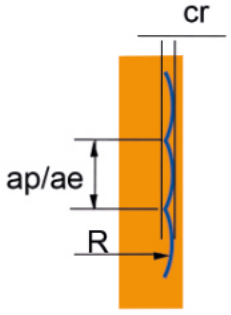
CODICE	Ø D	Ra	Rb	Rc	L1	VITE	TORX
HD 16 BA	16	16	1.5	16	10.1	16MS	TX20
HD 20 BA	20	20	1.9	20	11.8	20MS	TX20
HD 25 BA	25	25	2.38	25	15.8	25MS	TX20
HD 32 BA	32	32	2.85	32	20.6	32MS	TX30

FORMULA PER IL CALCOLO AP/AE DESIDERATO IN FUNZIONE DELL'ALTEZZA DELLA CRESTA DESIDERATA (cr):

$$ap/ae = 2\sqrt{\left(R\ tools^2 - (R\ tools - cr)^2\right)}$$

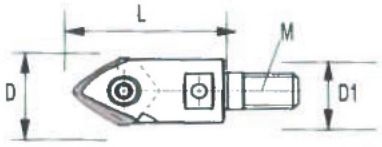
TABELLA CON SVILUPPO DELLA CRESTA (cr) DESIDERATA

CODICE	R	cr 0.001	cr 0.002	cr 0.003	cr 0.004	cr 0.005	cr 0.01
HD 16 BA	16	0.36	0.51	0.62	0.72	0.8	1.13
HD 20 BA	20	0.4	0.57	0.69	0.8	0.89	1.26
HD 25 BA	25	0.45	0.63	0.77	0.89	1	1.41
HD 32 BA	32	0.49	0.69	0.85	0.98	1.1	1.55



NT-FLAT BF BARREL FLAM MILLING

NOVITÀ

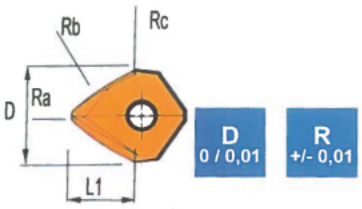




ATTACCO FILETTATO

CODICE	Ø D	M	Ø D1	L	INSERTO	VITE	TORX
12 06 27 HBF	12	6	10.8	27	HD 12 BF	12MS	TX20
16 08 31 HBF	16	8	14.4	31	HD 16 BF	16MS	TX20
20 10 36 HBF	20	10	18.0	36	HD 20 BF	20MS	TX20
25 12 44 HBF	25	12	22.5	44	HD 25 BF	25MS	TX20
36 16 52 HBF	32	16	28.6	52	HD 32 BF	32MS	TX30

NOVITÀ





BARREL MILLING

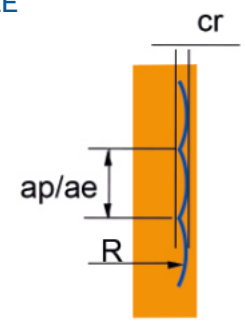
CODICE	Ø D	Ra	Rb	Rc	L1	VITE	TORX
HD 12 BF	12	1.2	30	0.98		12MS	TX20
HD 16 BF	16	1.6	40	1.3		16MS	TX20
HD 20 BF	20	2	50	1.63		20MS	TX20
HD 25 BF	25	2.5	62.5	2.04		25MS	TX20
HD 32 BF	32	3	75	2.45		32MS	TX30

FORMULA PER IL CALCOLO AP/AE DESIDERATO IN FUNZIONE DELL'ALTEZZA DELLA CRESTA DESIDERATA (cr):

$$ap/ae = 2\sqrt{\left(R\ tools^2 - (R\ tools - cr)^2\right)}$$

TABELLA CON SVILUPPO DELLA CRESTA (cr) DESIDERATA IN LAVORAZIONE LATERALE

CODICE	R	cr 0.0005	cr 0.001	cr 0.002	cr 0.003	cr 0.004	cr 0.005	cr 0.01
HD 12 BF	30	0.35	0.49	0.69	0.85	0.98	1.1	1.55
HD 16 BF	40	0.4	0.57	0.80	0.98	1.13	1.26	1.79
HD 20 BF	50	0.45	0.63	0.89	1.10	1.26	1.41	2
HD 25 BF	62.5	0.5	0.71	1	1.22	1.41	1.58	2.24
HD 32 BF	75	0.55	0.77	1.1	1.34	1.55	1.73	2.45

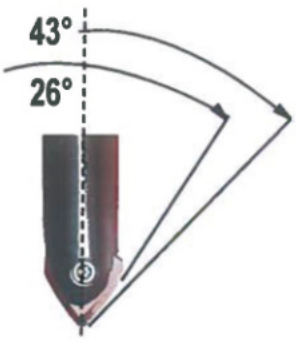


FORMULA PER IL CALCOLO AP/AE DESIDERATO IN FUNZIONE DELL'ALTEZZA DELLA CRESTA DESIDERATA (cr):

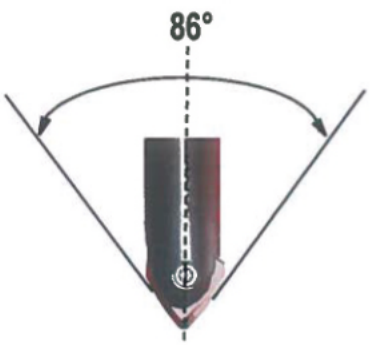
$$ap/ae = 2\sqrt{\left(R\ tools^2 - (R\ tools - cr)^2\right)}$$

TABELLA CON SVILUPPO DELLA CRESTA (cr) DESIDERATA IN LAVORAZIONE DI TESTA

CODICE	R	cr 0.0005	cr 0.001	cr 0.002	cr 0.003	cr 0.004	cr 0.005	cr 0.01
HD 12 BF	1.2	0.07	0.1	0.14	0.17	0.2	0.22	0.31
HD 16 BF	1.6	0.08	0.11	0.16	0.2	0.23	0.25	0.36
HD 20 BF	2	0.09	0.13	0.18	0.22	0.25	0.28	0.4
HD 25 BF	2.5	0.1	0.14	0.2	0.24	0.28	0.32	0.45
HD 32 BF	3	0.11	0.15	0.22	0.27	0.31	0.35	0.49



Angoli di lavoro per superfici curve Flam



Angolo di lavoro per essere usata come una fresa sferica



NT-FLAT BARREL DATI TECNICI

MATERIALI		LAVORAZIONE DI TESTA				LAVORAZIONE LATERALE			
		D16	D20	D25	D32	D16	D20	D25	D32
ACCIAIO NON LEGATO (<30HRC)	n (min-1)	14.340	11.470	9.180	7.650	11.950	9.560	7.650	6.370
	vc (m/min)	720	720	720	720	600	600	600	600
	vf (mm/min)	7.170	5.740	4.590	3.830	4.780	3.830	3.060	2.550
	fz (mm/t)	0.25	0.25	0.25	0.25	0.2	0.2	0.2	0.2
	ap (mm)	0.1	0.1	0.1	0.1	fare riferimento alla tabella seguente			
	ae (mm)	fare riferimento alla tabella seguente				0.1	0.1	0.1	0.1
ACCIAIO A BASSO LEGANTE (30-45 HRC)	n (min-1)	10.360	8.290	6.630	5.530	7.970	6.370	5.100	4.250
	vc (m/min)	520	520	520	520	400	400	400	400
	vf (mm/min)	5.180	4.150	3.320	2.770	3.190	2.550	2.040	1.700
	fz (mm/t)	0.25	0.25	0.25	0.25	0.2	0.2	0.2	0.2
	ap (mm)	0.1	0.1	0.1	0.1	fare riferimento alla tabella seguente			
	ae (mm)	fare riferimento alla tabella seguente				0.1	0.1	0.1	0.1
ACCIAIO AD ALTO LEGANTE (45-55 HRC)	n (min-1)	6.370	5.100	4.080	3.400	4.980	3.990	3.190	2.660
	vc (m/min)	320	320	320	320	250	250	250	250
	vf (mm/min)	2.550	2.040	1.640	1.360	1.500	1.200	960	800
	fz (mm/t)	0.20	0.20	0.20	0.20	0.15	0.15	0.15	0.15
	ap (mm)	0.08	0.08	0.08	0.08	fare riferimento alla tabella seguente			
	ae (mm)	fare riferimento alla tabella seguente				0.08	0.08	0.08	0.08
ACCIAIO TEMPRATO (50-60 HRC)	n (min-1)	5.580	4.460	3.570	2.980	4.380	3.510	2.810	2.340
	vc (m/min)	280	280	280	280	220	220	220	220
	vf (mm/min)	2.240	1.790	1.430	1.200	1.320	1.060	850	710
	fz (mm/t)	0.20	0.20	0.20	0.20	0.15	0.15	0.15	0.15
	ap (mm)	0.05	0.05	0.05	0.05	fare riferimento alla tabella seguente			
	ae (mm)	fare riferimento alla tabella seguente				0.05	0.05	0.05	0.05
GHISA GRIGIA	n (min-1)	14.340	11.470	9.180	7.650	11.950	9.560	7.650	6.370
	vc (m/min)	720	720	720	720	600	600	600	600
	vf (mm/min)	11.480	9.180	7.350	6.120	5.980	4.780	3.830	3.190
	fz (mm/t)	0.4	0.4	0.4	0.4	0.25	0.25	0.25	0.25
	ap (mm)	0.1	0.1	0.1	0.1	fare riferimento alla tabella seguente			
	ae (mm)	fare riferimento alla tabella seguente				0.1	0.1	0.1	0.1
ACCIAIO INOSSIDABILE	n (min-1)	12.940	10.360	8.290	6.910	9.960	7.970	6.370	5.310
	vc (m/min)	650	650	650	650	500	500	500	500
	vf (mm/min)	6.470	5.180	4.150	3.460	3.990	3.190	2.550	2.130
	fz (mm/t)	0.25	0.25	0.25	0.25	0.2	0.2	0.2	0.2
	ap (mm)	0.1	0.1	0.1	0.1	fare riferimento alla tabella seguente			
	ae (mm)	fare riferimento alla tabella seguente				0.1	0.1	0.1	0.1

ALTEZZA CUSPIDE CR

CODICE	R	0.001	0.002	0.003	0.004	0.005	0.01
HD 16 BA	16	0.36	0.51	0.62	0.72	0.8	1.13
HD 20 BA	20	0.4	0.57	0.69	0.8	0.89	1.26
HD 25 BA	25	0.45	0.63	0.77	0.89	1	1.41
HD 32 BA	32	0.49	0.69	0.85	0.98	1.1	1.55

Quando la lunghezza di sporgenza è 3Dc o superiore, regolare i valori mostrati nella tabella seguente

$$ap/ae = 2\sqrt{(R\ tools^2 - (R\ tools - cr)^2)}$$

Formula per il calcolo ap/ae desiderato in funzione dell'altezza della cresta desiderata (cr)

PARAMETRI IN FUNZIONE DELLA LUNGHEZZA

	vc(m/min)	vf(m/min)
3Dc	100%	100
3Dc-5Dc	70%	70%
5Dc-6Dc	60%	60%
6Dc-7Dc	50%	50%
7Dc	45%	45%

		LAVORAZIONE DI TESTA					LAVORAZIONE LATERALE				
MATERIALI		D12	D16	D20	D25	D32	D12	D16	D20	D25	D32
ACCIAIO NON LEGATO (<30HRC)	n (min-1)	19.910	14.930	11.950	9.560	7.970	19.110	14.340	11.470	9.180	7.650
	vc (m/min)	750	750	750	750	750	720	720	720	720	720
	vf (mm/min)	1.600	1.500	1.440	1.340	1.280	5.740	4.310	3.450	2.760	2.300
	fz (mm/t)	0.04	0.05	0.06	0.07	0.08	0.15	0.15	0.15	0.15	0.15
	ap (mm)	0.1	0.1	0.1	0.1	0.1	fare riferimento alla tabella seguente				
	ae (mm)	fare riferimento alla tabella seguente					0.1	0.1	0.1	0.1	0.1
ACCIAIO A BASSO LEGANTE (30-45 HRC)	n (min-1)	18.580	13.940	11.150	8.920	7.440	13.810	10.360	8.290	6.630	5.530
	vc (m/min)	700	700	700	700	700	520	520	520	520	520
	vf (mm/min)	1.490	1.400	1.340	1.250	1.200	4.150	3.110	2.490	1.990	1.660
	fz (mm/t)	0.04	0.05	0.06	0.07	0.08	0.15	0.15	0.15	0.15	0.15
	ap (mm)	0.1	0.1	0.1	0.1	0.1	fare riferimento alla tabella seguente				
	ae (mm)	fare riferimento alla tabella seguente					0.1	0.1	0.1	0.1	0.1
ACCIAIO AD ALTO LEGANTE (45-55 HRC)	n (min-1)	13.270	9.960	7.970	6.370	5.310	8.500	6.370	5.100	4.080	3.400
	vc (m/min)	500	500	500	500	500	320	320	320	320	320
	vf (mm/min)	1.070	1.000	960	900	850	1.700	1.280	1.020	820	680
	fz (mm/t)	0.04	0.05	0.06	0.07	0.08	0.1	0.1	0.21	0.1	0.1
	ap (mm)	0.08	0.08	0.08	0.08	0.08	fare riferimento alla tabella seguente				
	ae (mm)	fare riferimento alla tabella seguente					0.08	0.08	0.08	0.08	0.08
ACCIAIO TEMPRATO (50-60 HRC)	n (min-1)	11.950	8.960	7.170	5.740	4.780	7.440	5.580	4.460	3.570	2.980
	vc (m/min)	450	450	450	450	450	280	280	280	280	280
	vf (mm/min)	960	900	870	810	770	1.490	1.120	900	720	600
	fz (mm/t)	0.04	0.05	0.06	0.07	0.08	0.1	0.1	0.1	0.1	0.1
	ap (mm)	0.05	0.05	0.05	0.05	0.05	fare riferimento alla tabella seguente				
	ae (mm)	fare riferimento alla tabella seguente					0.5	0.5	0.5	0.5	0.5
GHISA GRIGIA	n (min-1)	19.910	14.930	11.950	9.560	7.970	19.110	14.340	11.470	9.180	7.650
	vc (m/min)	750	750	750	750	750	720	720	720	720	720
	vf (mm/min)	1.600	1.500	1.440	1.340	1.280	7.650	5.740	4.590	3.680	3.060
	fz (mm/t)	0.04	0.05	0.06	0.07	0.08	0.2	0.2	0.2	0.2	0.2
	ap (mm)	0.1	0.1	0.1	0.1	0.1	fare riferimento alla tabella seguente				
	ae (mm)	fare riferimento alla tabella seguente					0.1	0.1	0.1	0.1	0.1
ACCIAIO INOSSIDABILE	n (min-1)	19.910	14.930	11.950	9.560	7.970	17.260	12.940	10.360	8.290	6.910
	vc (m/min)	750	750	750	750	750	650	650	650	650	650
	vf (mm/min)	1.600	1.500	1.440	1.340	1.280	5.180	3.890	3.110	2.490	2.080
	fz (mm/t)	0.04	0.05	0.06	0.07	0.08	0.15	0.15	0.15	0.15	0.15
	ap (mm)	0.01	0.01	0.01	0.01	0.01	fare riferimento alla tabella seguente				
	ae (mm)	fare riferimento alla tabella seguente					0.01	0.01	0.01	0.01	0.01

ALTEZZA CUSPIDE CR

CODICE	R	0.001	0.002	0.003	0.004	0.005	0.01
HD 16 BA	16	0.36	0.51	0.62	0.72	0.8	1.13
HD 20 BA	20	0.4	0.57	0.69	0.8	0.89	1.26
HD 25 BA	25	0.45	0.63	0.77	0.89	1	1.41
HD 32 BA	32	0.49	0.69	0.85	0.98	1.1	1.55

Quando la lunghezza di sporgenza è 3Dc o superiore, regolare i valori mostrati nella tabella seguente

$$ap/ae = 2\sqrt{(R\ tools^2 - (R\ tools - cr)^2)}$$

Formula per il calcolo ap/ae desiderato in funzione dell'altezza della cresta desiderata (cr)

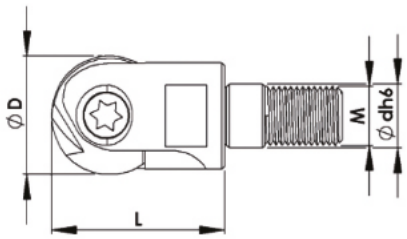
PARAMETRI IN FUNZIONE DELLA LUNGHEZZA

	vc(m/min)	vf(m/min)
3Dc	100%	100
3Dc-5Dc	70%	70%
5Dc-6Dc	60%	60%
6Dc-7Dc	50%	50%
7Dc	45%	45%

NT-FINISH tipo K FRESE PER COPIATURA

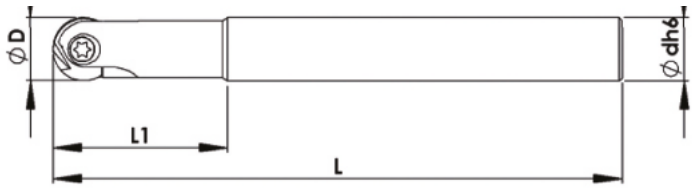
ATTACCO FILETTATO





CODICE	Ø D	L	M	Ø dh6	R	INSERTO	VITE	TORX
VK0012M06Z1R	12	20	6	6.5	6	WPR12..	KTS12	T15
VK0016M08Z1R	16	25	8	8.5	8	WPR16..	KTS16	T20
VK0020M10Z1R	20	30	10	10.5	10	WPR20..	KTS20	T20
VK0025M12Z1R	25	35	12	12.5	12.5	WPR25..	KST25	T25
VK0032M16Z1R	32	45	16	17	16	WPR32	KTS32	T30

ATTACCO CILINDRICO

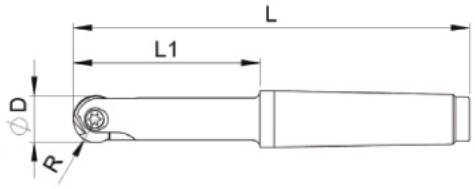




CODICE	Ø D	L1	L	Ø dh6	R	INSERTO	VITE	TORX
VK00SF0610CZ1R	6	25	90	10	3	WPR06..	KTS06	T06
VK00SF0808CZ1R	8	40	120	8	4	WPR08..	KTS08	T08
VK00SF0810CZ1R	8	30	120	10	4	WPR08..	KTS08	T08
VK00SF1010CZ1R	10	40	150	10	5	WPR10..	KST10	T15
VK00SF1012CZ1R	10	35	150	12	5	WPR10..	KTS10	T15
VK00SF1212CZ1R	12	50	160	12	6	WPR12..	KTS12	T20
VK00SF1616CZ1R	16	53	175	16	8	WPR16..	KTS16	T20
VK00SF2020CZ1R	20	61	190	20	10	WPR20..	KST20	T20
VK00SF2525CZ1R	25	70	190	25	12.5	WPR25..	KTS25	T25
VK00SF3232CZ1R	32	80	210	32	16	WPR32..	KST32	T30

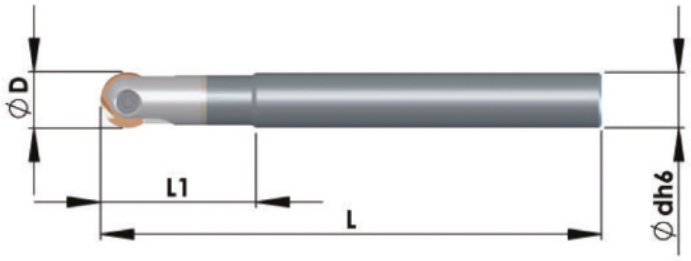
ATTACCO CONICO





CODICE	Ø D	L1	L	R	CONO MORSE	INSERTO	VITE	TORX
VK00M016R55CM2	16	55	125	8	CM2	WPR16..	KTS16	T20
VK00M020R70CM2	20	70	140	10	CM2	WPR20..	KTS20	T20
VK00M025R70CM3	25	70	170	12.5	CM3	WPR25..	KTS25	T25
VK00M032R80CM4	32	80	190	16	CM4	WPR32..	KST32	T30
VK00M032R95CM4	32	95	205	16	CM4	WPR32..	KTS32	T30

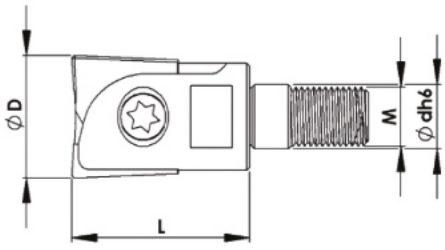
ATTACCO CILINDRICO IN METALLO DURO INTEGRALE



CODICE	Ø D	L1	L	Ø dh6	R	INSERTO	VITE	TORX
VKR0808CZ1R	8	25	100	8	4	WPR08..	KTS08	T08
VKR1010CZ1R	10	35	120	10	5	WPR10..	KTS10	T15
VKR1212CZ1R	12	50	160	12	6	WPR12..	KTS12	T20
VKR1616CZ1R	16	55	175	16	8	WPR16..	KST16	T20
VKR2020CZ1R	20	75	190	20	10	WPR20..	KTS20	T20

ATTACCO FILETTATO

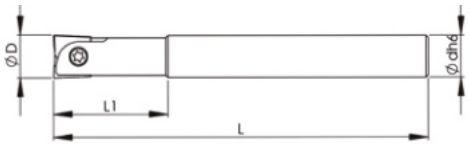




CODICE	Ø D	L	M	Ø dh6	INSERTO	VITE	TORX
VK9012M06Z1R	12	20	6	6.5	WPV-WPB12..	KTS12	T15
VK9016M08Z1R	16	25	8	8.5	WPV-WPB16..	KTS16	T20
VK9020M10Z1R	20	30	10	10.5	WPV-WPB20..	KTS20	T20
VK9025M12Z1R	25	35	12	12.5	WPV-WPB25	KST25	T25
VK9032M16Z1R	32	45	16	17	WPV-WPB32..	KTS32	T30

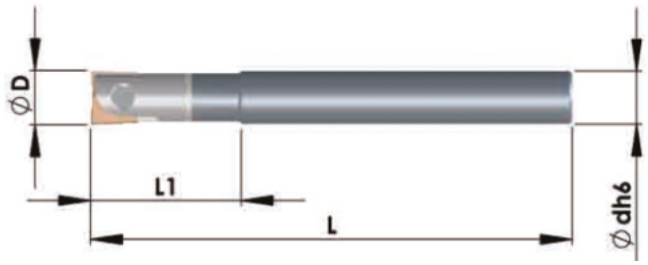
ATTACCO CILINDRICO





CODICE	Ø D	L	L1	Ø dh6	INSERTO	VITE	TORX
VK90SF0808CZ1R	8	120	40	8	WPV-WPB08..	KTS08	T08
VK90SF0810CZ1R	8	120	30	10	WPV-WPB08..	KTS08	T08
VK90SF1010CZ1R	10	120	40	10	WPV-WPB08..	KTS10	T15
VK90SF1012CZ1R	10	150	35	12	WPV-WPB10..	KST10	T15
VK90SF121CZ1R	12	160	50	12	WPV-WPB12..	KTS12	T20
VK90SF1616CZ1R	16	175	53	16	WPV-WPB16..	KTS16	T20
VK90SF2020CZ1R	20	190	61	20	WPV-WPB20..	KTS20	T20
VK90SF2525CZ1R	25	190	70	25	WPV-WPB25..	KST25	T30
VK90SF3232CZ1R	32	210	80	32	WPV-WPB32..	KTS32	T30

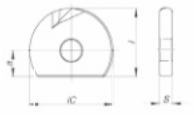
ATTACCO CILINDRICO IN METALLO DURO INTEGRALE



CODICE	Ø D	L1	L	Ø dh6	INSERTO	VITE	TORX
VKT0808CZ1R	8	25	100	8	WPV-WPB08..	KTS08	T08
VKT1010CZ1R	10	35	120	10	WPV-WPB10..	KTS10	T15
VKT1212CZ1R	12	50	160	12	WPV-WPB12..	KTS12	T20
VKT1616CZ1R	16	55	175	16	WPV-WPB16..	KST16	T20
VKT2020CZ1R	20	75	190	20	WPV-WPB20..	KTS20	T20



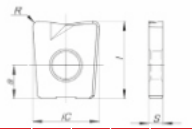
INSERTO WPR



	P							M			K									N		S		H						
CODICE ISO	VHP103	VHP910	VHP920	VHP930	VHP740	VHP125	VHP135	VHP920	VHP930	VHP740	VHP910	VHP920	VHP930	VHP740	VHP705	VHP325	VHC705	VHC740	VHX910	VHPCD	VHX910	VHP920	VHP740	VHP103	VHCBN	iC	S	/	R	a
WPR SN 08			•									•														8	2	9.5	-	4
WPR SN 10			•									•														10	2.5	9.5	-	5
WPR SN 12			•									•												o		12	2.5	11.9	-	6
WPR SN 16			•									•												o		16	3	13.9	-	6
WPR SN 20			•									•												o		20	3	15.9	-	6
WPR SN 25			•									•												o		25	4	21.5	-	9
WPR SN 32			•									•												o		32	5	25.9	-	10



INSERTO WPB



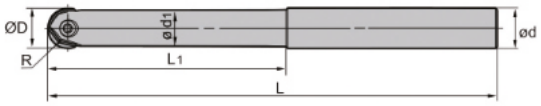
	P							M			K									N		S		H						
CODICE ISO	VHP103	VHP910	VHP920	VHP930	VHP740	VHP125	VHP135	VHP920	VHP930	VHP740	VHP910	VHP920	VHP930	VHP740	VHP705	VHP325	VHC705	VHC740	VHX910	VHPCD	VHX910	VHP920	VHP740	VHP103	VHCBN	iC	S	/	R	a
WPB SN-S 0805			•									•														8	2	9.5	0.5	4
WPB SN-S 0810			•									•														8	2	9.5	1.0	4
WPB SN-S 1008			o									o														10	2.5	11.5	0.8	5
WPB SN-S 1010			•									•														10	2.5	11.5	1.0	5
WPB SN-S 1210			•									•														12	2.5	13.9	1.0	6
WPB SF 1210																					•					16	3	15.9	1.0	6
WPB SN-S 1610			•									•														12	2.5	13.9	1.0	6
WPB SF 1610			•									•									•					16	3	15.9	1.0	6
WPB SN-S 1613			•									•														16	3	15.9	1.3	6
WPB SN-S 2010			•									•														20	3	17.9	1.0	6
WPB SN-S 2016			•									•														20	3	17.9	1.6	6
WPB SN-S 2520			•									•														25	4	23.5	2.0	9

• IN MAGAZZINO o SU RICHIESTA

P M K

ATTACCO CILINDRICO



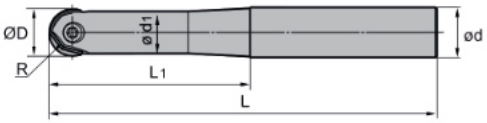


CODICE	Ø D	Ø d	Ø d1	L1	L	MAGAZZINO
NT-BMR04-012-G12-M	12	12	11	35	125	•
NT-BMR04-012-G12-L	12	12	11	45	150	•
NT-BMR04-016-G16-M	16	16	14	40	150	•
NT-BMR04-016-G16-L	16	16	14	55	180	•
NT-BMR04-020-G20-M	20	20	18	65	180	•
NT-BMR04-020-G20-L	20	20	18	100	250	•
NT-BMR04-025-G25-M	25	25	23	70	200	•
NT-BMR04-025-G25-L	25	25	23	100	250	•
NT-BMR04-030-G32-M	30	33	27	80	250	•
NT-BMR04-030-G32-L	30	32	27	110	300	•
NT-BMR04-032-G32-M	32	32	29	80	250	•
NT-BMR04-032-G32-L	32	32	29	110	300	•

P M K

ATTACCO CILINDRICO RASTREMATA





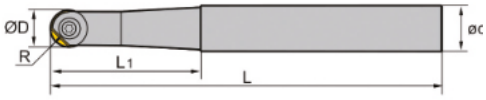
CODICE	Ø D	Ø d	Ø d1	L1	L	MAGAZZINO
NT-BMR04-012-G16-M	12	16	11	50	125	•
NT-BMR04-012-G16-L	12	16	11	70	150	•
NT-BMR04-016-G20-M	16	20	14	60	150	•
NT-BMR04-016-G20-L	16	20	14	80	180	•
NT-BMR04-020-G25-M	20	25	18	75	180	•
NT-BMR04-020-G25-L	20	25	18	95	200	•
NT-BMR04-025-G32-M	25	32	23	90	200	•
NT-BMR04-025-G32-L	25	32	23	110	250	•
NT-BMR04-030-G40-M	30	40	27	110	250	•
NT-BMR04-030-G40-L	30	40	27	125	300	•
NT-BMR04-032-G40-M	32	40	29	110	250	•
NT-BMR04-032-G40-L	32	40	29	125	300	•

• IN MAGAZZINO ○ SU RICHIESTA

P M K

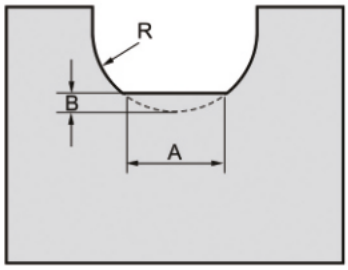
ATTACCO CILINDRICO RASTREMATA





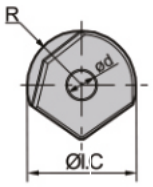
CODICE	Ø D	Ø d	Ø L	L1	MAGAZZINO
NT-BMR02-012-G16-S	12	16	110	40	•
NT-BMR02-012-G16-M	12	16	130	50	•
NT-BMR02-012-G16-L	12	16	160	50	•
NT-BMR02-016-G20-S	16	20	140	45	•
NT-BMR02-016-G20-M	16	20	170	65	•
NT-BMR02-016-G20-L	16	20	200	65	•
NT-BMR02-020-G25-S	20	25	160	60	•
NT-BMR02-020-G25-M	20	25	200	80	•
NT-BMR02-020-G25-L	20	25	240	80	•

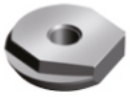
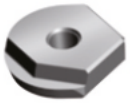
FESSURA DOPO LA LAVORAZIONE

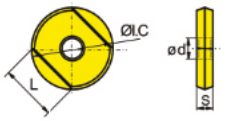


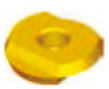
R	A	B
08	1.7	0.09
10	2.2	0.12
12.5	3.0	0.18
15	3.9	0.20
16	3.5	0.22
20	3.6	0.24
25	3.8	0.26

NT-BMR tipo Z RICAMBI



INSERTO	CODICE	YBC301	YBC302	YBC401	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YBG302	YBG125	YBG252	YNG151	YNG151C	YC30S	YD101	YD201	iC	S	d	R	Inserti
	ZOHX1203-GF														•						12	3	4	6	12
	ZOHX1604-GF														•						16	4	5	8	16
	ZOHX2005-GF														•						20	5	5	10	20
	ZOHX2506-GF														◦						25	6	6	12.5	25
	ZOHX3007-GF														•						30	7	8	15	30
	ZOHX3207-GF														•						32	7	8	16	32
	ZOHX1203-GM														•						12	3	4	6	12
	ZOHX1604-GM														•						16	4	5	8	16
	ZOHX2005-GM														•						20	5	5	10	20
	ZOHX2506-GM														◦						25	6	6	12.5	25
	ZOHX3007-GM														•						30	7	8	15	30
	ZOHX3207-GM														•						32	7	8	16	32
	P	●	●	✕	●	●	✕		●		●	●	✕		★	★	★	✕							
	M	●	●	✕	●	●	✕				●	●	✕		★	★	★	✕							
	K							●	✕	●				●	★					✕					
	N																		●	✕					
	S					✕	✕				★	●	●												



INSERTO	CODICE	YBC301	YBC302	YBC401	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YBG302	YBG125	YBG252	YNG151	YNG151C	YC30S	YD101	YD201	iC	S	d	L
	ROHX1203						◦			◦	•				•						12	3	4	8.5
	ROHX1604						◦				•				•						16	4	5	11.3
	ROHX2005						•				•				•						20	5	5	14.1
	P	●	●	✕	●	●	✕		●		●	●	✕		★	★	★	✕						
	M	●		✕	●	●	✕				●	●	✕		★	★	★	✕						
	K							●	✕	●				●	★					✕				
	N																		●	✕				
	S					✕	✕				★	●	●											

★ Buone condizioni di lavorazione ● Condizioni di lavorazioni normali ✕ Condizioni di lavorazioni sfavorevoli

Materiale		HB	GRADO	TAGLIO	Ø 12	Ø 16	Ø 20
P	Acciaio al carbonio legato	HB≤180	YBG202 YBG252	V(m/min)	100~200	100~200	100~200
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3
				apmax(mm)	0.8	1	1.25
				aemax(mm)	0.8	1	1.25
	Acciaio legato	HB 180~280		V(m/min)	80~180	80~180	80~180
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3
				apmax(mm)	0.8	1	1.25
				aemax(mm)	0.8	1	1.25
	Acciaio temprato	HB 55~65		V(m/min)	60~100	60~100	60~100
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3
				apmax(mm)	0.4	0.5	0.6
				aemax(mm)	0.4	0.5	0.6
M	Acciaio inox	HB≤270		V(m/min)	70~150	70~150	70~150
				fz(mm/z)	0.1~0.2	0.1~0.25	0.1~0.25
				apmax(mm)	0.6	0.8	1
				aemax(mm)	0.6	0.8	1
K	Ghisa	HB 180~250		V(m/min)	160~300	160~300	160~300
				fz(mm/z)	0.2~0.3	0.25~0.35	0.25~0.35
				apmax(mm)	1	1.5	1.8
				aemax(mm)	1	1.5	1.8

PARTI DI RICAMBIO

Ø D	VITE	TORX	
Ø 12	I90M4x09TT	WT15P	-
Ø 16	I90M5x11TT	WT20P	-
Ø 20	I9M5x13.5TT	WT20P	-
Ø 25	I70M6x20TT	WT20P	-
Ø 30	I70M8x25TT	-	WT30IT
Ø 32	I70M8x25TT	-	WT30IT

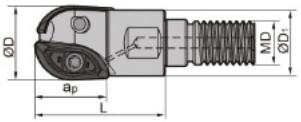


● IN MAGAZZINO ○ SU RICHIESTA

P M K

ATTACCO FILATTATO





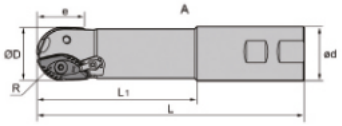
CODICE	Ø D	Ø d1	L	ap	MD	INSERTO	Z	KG
NT-QCH-16-XPHT16-M10	16	17	28	16	08	XPHT16R0803-GM	2	0.036
NT-QCH-20-XPHT20-M12	20	19	30	20	10	XPHT20R10T3-GM	2	0.051
NT-QCH-25-XPHT25-M12	25	24	35	25	12	XPHT25R1204-GM	2	0.071
NT-QCH-30-XPHT30-M16	30	29	45	30	16	XPHT30R1506-GM	2	0.140
NT-QCH-32-XPHT32-M16	32	30	45	32	16	XPHT32R1606-GM	2	0.162

P M K

SERIE CORTA
ATTACCO CILINDRICO

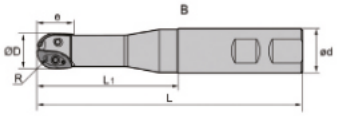
A (Ø30-Ø50)





B (Ø16-Ø25)





CODICE	Ø D	Ø d	L	L1	e	Z	TIPO	STAFFA	MAGAZZINO
NT-BMR03-016-XP20-M	16	20	111	60	16	2	B		•
NT-BMR03-020-XP25-M	20	25	127	70	20	2	B		•
NT-BMR03-020-XP25-L	20	25	150	80	20	2	B		•
NT-BMR03-025-XP25-M	25	25	137	80	25	2	B		•
NT-BMR03-025-XP25-L	25	25	200	100	25	2	B		•
NT-BMR03-030-XP32-M	30	32	161	100	30	2	A		•
NT-BMR03-030-XP32-L	30	32	250	150	30	2	A	WD-208	•
NT-BMR03-032-XP32-M	32	32	161	100	32	2	A		•
NT-BMR03-032-XP32-L	32	32	250	120	32	2	A		◦
NT-BMR03-040-XP40-M	40	40	175	100	40	2	A		◦
NT-BMR03-040-XP40-L	40	40	250	120	40	2	A		◦
NT-BMR03-050-XP50-M	50	50	200	100	50	2	A	CBH5R1	•
NT-BMR03-050-XP50-L	50	50	250	150	50	2	A		◦

P M K

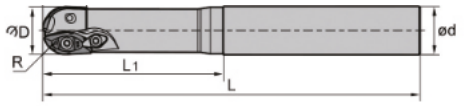
SERIE LUNGA
ATTACCO CILINDRICO

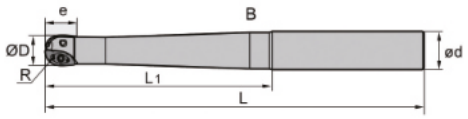
A (Ø30-Ø40)



B (Ø16-Ø25)







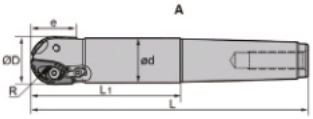
CODICE	Ø D	Ø d	L	L1	e	Z	TIPO	STAFFA	MAGAZZINO
NT-BMS03-016-G20-S	16	20	150	70	16	2	B		•
NT-BMS03-016-G20-M	16	20	180	80	16	2	B		•
NT-BMS03-020-G25-S	20	25	180	80	20	2	B		•
NT-BMS03-020-G25-M	20	25	200	100	20	2	B		•
NT-BMS03-020-G25-L	20	25	250	150	20	2	B		•
NT-BMS03-020-G25-XL	20	25	300	110	20	2	B		○
NT-BMS03-025-G25-S	25	25	180	80	25	2	B		•
NT-BMS03-025-G25-M	25	25	200	100	25	2	B		•
NT-BMS03-025-G25-M	25	25	250	110	25	2	B		○
NT-BMS03-025-G25-L	25	25	300	120	25	2	B		○
NT-BMS03-030-G32-S	30	32	200	120	30	2	A		○
NT-BMS03-030-G32-M	30	32	250	150	30	2	A		•
NT-BMS03-030-G32-L	30	32	300	200	30	2	A		○
NT-BMS03-030-G32-XL	30	32	350	200	30	2	A	WD-208	○
NT-BMS03-032-G32-S	32	32	200	120	32	2	A		•
NT-BMS03-032-G32-M	32	32	250	150	32	2	A		•
NT-BMS03-032-G32-L	32	32	300	200	32	2	A		•
NT-BMS03-032-G32-XL	32	32	350	200	32	2	A		○
NT-BMS03-040-G40-S	40	40	200	120	40	2	A		○
NT-BMS03-040-G40-M	40	40	250	150	40	2	A	CBH5R1	○
NT-BMS03-040-G40-L	40	40	300	200	40	2	A		•
NT-BMS03-040-G40-XL	40	40	350	200	40	2	A		○

• IN MAGAZZINO ○ SU RICHIESTA

NT-BMS tipo S FRESE PER SGROSSATURA

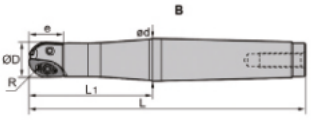
A (Ø30-Ø50)





B (Ø20-Ø25)





P M K

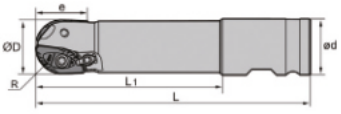
ATTACCO CILINDRICO

CODICE	Ø D	Ø d	L	L1	e	Z	TIPO	STAFFA	MAGAZZINO
NT-BMR03-020-MT3-M	20	18.7	156	70	20	2	B		◦
NT-BMR03-020-MT3-L	20	18.7	186	100	20	2	B		◦
NT-BMR03-025-MT3-M	25	23.5	156	70	25	2	B		◦
NT-BMR03-025-MT3-L	25	23.5	186	100	25	2	B		◦
NT-BMR03-030-MT4-M	30	28.2	189	70	30	2	A		◦
NT-BMR03-030-MT4-L	30	28.2	229	120	30	2	A	WD-208	◦
NT-BMR03-032-MT4-M	32	29.2	179	70	32	2	A		◦
NT-BMR03-032-MT4-L	32	29.2	209	100	32	2	A		•
NT-BMR03-040-MT4-M	40	36.9	199	100	40	2	A		◦
NT-BMR03-040-MT5-L	40	36.9	226	90	40	2	A		◦
NT-BMR03-040-MT5-XL	40	36.9	256	120	40	2	A	CBH5R1	◦
NT-BMR03-050-MT5-M	50	46.8	236	100	50	2	A		•
NT-BMR03-050-MT5-L	50	46.8	286	150	50	2	A		◦

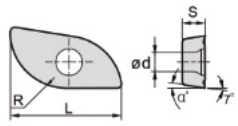
SERIE LUNGA
ATTACCO WELDON

P M K





CODICE	Ø D	Ø d	L	L1	e	Z	STAFFA	MAGAZZINO
NT-BMR03-040-XPX-M	40	50.8	250	170	40	2		◦
NT-BMR03-040-XPX-L	40	50.8	300	220	40	2		◦
NT-BMR03-045-XPX-XL	40	50.8	350	270	40	2		◦
NT-BMR03-050-XPX-M	50	50.8	250	170	50	2	CBH5R1	◦
NT-BMR03-050-XPX-L	50	50.8	300	200	50	2		◦
NT-BMR03-050-XPX-XL	50	50.8	350	270	50	2		◦



		CVD RIVESTITO								PVD RIVESTITO								CERMET		CARB. CEM. NON RIVES.							
INSERTO	CODICE	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG102	YB9320	YBG205	YBG202	YBG212	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD101	YD201	a°	S	d	R	L	Utensile
	XPHT16R0803-GM														•								9	3.18	3.1	8	16	Ø16
	XPHT20R10T3-GM														•								9	3.97	4.0	10	20	Ø20
	XPHT25R1204-GM														•								9	4.76	4.7	12.5	25	Ø25
	XPHT30R1506-GM														•								11	6.35	5.8	15	30	Ø30
	XPHT32R1606-GM														•								9	6.35	5.8	16	32	Ø32
	XPHT40R2007-GM														•								9	7.94	6.8	20	40	Ø40
	XPHT50R2507-GM														•								9	7.94	9.2	25	50	Ø50
	P	●	●	✕	●	●	✕		●		●	●	●	✕	✕		★	★	★	✕								
	M		●	✕	●	●	✕				●	●	●	✕	✕		★	★	★	✕								
	K							●	✕	●						●	★					✕						
	N																				●	✕						
	S					✕	✕			●	●	●	●															

★ Buone condizioni di lavorazione ● Condizioni di lavorazioni normali ✕ Condizioni di lavorazioni sfavorevoli

PARTI DI RICAMBIO

Ø D	STAFFA	VITE	TORX	
	-	I60M2.5X6.5		WT07P
Ø 20	-	I60M3.5X08TT	-	WT10IP
Ø 25	-	I60M4X10		WT15S
Ø 30	WD-208	I60M5X13	WT20IT	
Ø 32	WD-208	I60M5X13		
Ø 40	CBH5R1	I43M6X16	WT25IT	-
Ø 50	CBH5R1	I43M8X21 I43M6X16	WT25IT WT30IT	



• IN MAGAZZINO ○ SU RICHIESTA

NT-BMS tipo S DATI DI TAGLIO

ØD		Ø 12		Ø 16		Ø 20		Ø 25		Ø 30		Ø 32	
Profondità di taglio		0.2	0.5	0.2	0.5	0.5	1	0.5	1	0.5	1.5	0.5	1.5
Angolo d'inclinazione	15°	1.00	1.00	1.00	1.00	1.00	1.02	1.00	1.01	1.00	1.00	1.00	1.00
	30°	1.04	1.01	1.05	1.01	1.02	1.04	1.03	1.04	1.04	1.01	1.04	1.00
	45°	1.16	1.07	1.18	1.10	1.12	1.06	1.14	1.08	1.16	1.06	1.16	1.06
	60°	1.42	1.24	1.47	1.30	1.34	1.21	1.38	1.25	1.42	1.21	1.43	1.22
	75°	2.02	1.60	2.14	1.73	1.83	1.53	1.93	1.62	2.01	1.53	2.04	1.55
	90°	3.92	2.50	4.48	2.87	3.20	2.29	3.57	2.55	3.9	2.29	4.03	2.37

Materiale		HB	GRADO	TAGLIO	Ø 12	Ø 16	Ø 20	Ø 25	Ø 30	Ø 32
P	Acciaio al carbonio legato	HB≤180	YBG252	V(m/min)	100~200	100~200	100~200	100~200	100~200	100~200
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	0.25~0.35	0.25~0.35	0.25~0.35
				apmax(mm)	0.8	1	1.25	1.5	2	2
				aemax(mm)	0.8	1	1.25	1.5	2	2
	Acciaio legato	HB 180~280		V(m/min)	80~180	80~180	80~180	80~180	80~180	80~180
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	0.25~0.35	0.25~0.35	0.25~0.35
				apmax(mm)	0.8	1	1.25	1.5	2	2
				aemax(mm)	0.8	1	1.25	1.5	2	2
	Acciaio temprato	HB 55~65		V(m/min)	60~100	60~100	60~100	60~100	60~100	60~100
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	0.25~0.35	0.25~0.35	0.25~0.35
				apmax(mm)	0.4	0.5	0.6	0.8	1	1
				aemax(mm)	0.4	0.5	0.6	0.8	1	1
M	Acciaio inox	HB≤270		V(m/min)	70~150	70~150	70~150	70~150	70~150	70~150
				fz(mm/z)	0.1~0.2	0.1~0.25	0.1~0.25	0.2~0.3	0.2~0.3	0.2~0.3
				apmax(mm)	0.6	0.8	1	1.25	1.5	1.5
				aemax(mm)	0.6	0.8	1	1.25	1.5	1.5
K	Ghisa	HB 180~250		V(m/min)	160~300	160~300	160~300	160~300	160~300	160~300
				fz(mm/z)	0.2~0.3	0.25~0.35	0.25~0.35	0.3~0.4	0.3~0.4	0.3~0.4
				apmax(mm)	1	1.5	1.8	2	2.5	2.5
				aemax(mm)	1	1.5	1.8	2	2.5	2.5