

Universali

Le frese Silmax della linea Universale sono un prodotto premium, soggetto ad una costante ottimizzazione dei materiali di base, delle geometrie, della qualità delle superfici di taglio e dei rivestimenti PVD.

Universal Line

Silmax end mills belonging to the Universal Line are a premium product, subject to a constant optimisation of raw materials, geometries, cutting-surface quality and PVD coatings.

Universali

Universal Line

Per maggiori informazioni
scarica la brochure digitale.

For further information
download the digital brochure.

silmax.it/unv



Ampia Gamma

- + Tipologia di utensili adatti a diverse applicazioni
- + Diverso numero di taglienti e geometrie di taglio
- + Diametri dal D. 0,1 al D. 25 mm

Wide Range

- + Typologies of tools suited to different applications
- + Different number of flutes and cutting geometries
- + Diameters from D. 0.1 to D.25 mm.

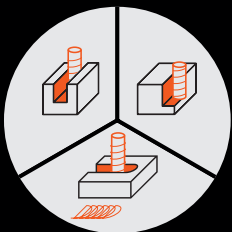


Multimateriale

Gli utensili sono stati progettati per lavorare, con parametri molto elevati, un'ampia gamma di acciai, basso e alto legati, ghise e acciai inossidabili.

Multi-material

These tools have been designed for machining a wide range of materials including steels, low-alloy and high-alloy steels, cast irons and stainless steels.

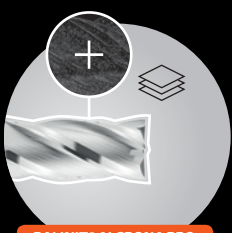


Multiapplicazione

La versatilità degli utensili proposti permette un utilizzo nelle più svariate lavorazioni, da quelle di sgrossatura e finitura, fino alle avanzate tecnologie del trocoidale.

Multi-application

The versatility of the tools proposed allows the use in different types of machining, from roughing and finishing to the advanced technologies of trochoidal milling.



BALINIT® ALCRONA PRO

Rivestimento PVD

Il rivestimento utilizzato è Balinit® Alcrona Pro, rivestimento estremamente resistente all'usura, con eccellenti livelli di durezza a caldo e stabilità agli shock termici. Alcrona Pro® garantisce ottimi risultati anche nella lavorazione a secco e ad elevate velocità di taglio.

PVD Coating

The coating used is Balinit® Alcrona Pro, an extremely wear-resistant coating, with excellent heat-hardness levels and thermal-shock stability. Alcrona Pro® grants extraordinary results also in dry machining and in high cutting speeds.

SIL SERVICE

L'esperienza Silmax dimostra che un utensile correttamente affilato ha un rendimento uguale a quello nuovo.

Silmax experience shows that a properly sharpened tool grants the same performances of a new tool.



Riaffilatura e
rigenerazione
Resharpening
and Reconditioning



Esecuzione
perfetta
Perfect
Execution



Rivestimento
PVD
PVD Coating



Trattamento
4S
4S Treatment



Consegna
rapida
Fast Delivery

107

Fresa 2 taglienti serie extra corta
2 flute end mill, extra short version
→ 34

731

Fresa 2 taglienti serie corta per sedi di chiavetta
2 flute key slot end mill, short version
→ 35

172

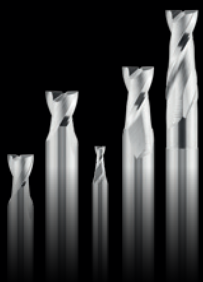
Fresa 2 taglienti serie normale con gambo rinforzato
2 flute end mill regular version with reinforced shank
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Fresa 2 taglienti serie normale
2 flute end mill regular version
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Fresa 2 taglienti serie media
2 flute micro end mill medium version
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Fresa 2 taglienti serie lunga
2 flute end mill, long version
→ 38

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Fresa 2 taglienti per lavorazioni in profondità
2 flute end mill for deep milling
→ 39

122

Fresa 2 taglienti semisferica per lavorazioni in profondità
2 flute ball nose end mill for deep milling
→ 39

737

Fresa 2 taglienti serie normale semisferica
2 flute ball nose end mill regular version
→ 40



737R

Fresa 2 taglienti serie normale semisferica con gambo rinforzato
2 flute ball nose end mill regular version with reinforced shank
→ 41

747

Fresa 2 taglienti serie media semisferica
2 flute ball nose end mill medium version
→ 41

108

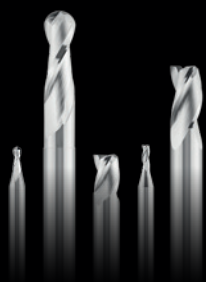
Fresa 3 taglienti serie extra corta
3 flute end mill extra short version
→ 42

114

Fresa 3 taglienti serie normale con gambo rinforzato
3 flute end mill with reinforced shank regular version
→ 42

111

Fresa 3 taglienti serie normale
3 flute end mill regular version
→ 43



109

Fresa 4 taglienti serie extra corta
4 flute end mill extra short version
→ 44

116

Fresa 4 taglienti serie normale con gambo rinforzato
4 flute end mill with reinforced shank
→ 44

113

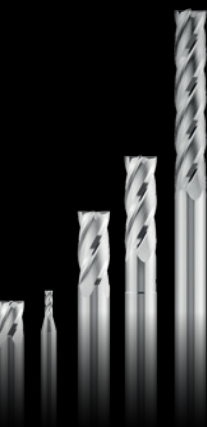
Fresa 4 taglienti serie normale
4 flute end mill regular version
→ 45

123

Fresa 4 taglienti serie media
4 flute end mill medium version
→ 46

126

Fresa 4 taglienti serie lunga
4 flute end mill long version
→ 46



131

Fresa 4 taglienti serie normale
4 flute end mill regular version
→ 47

130

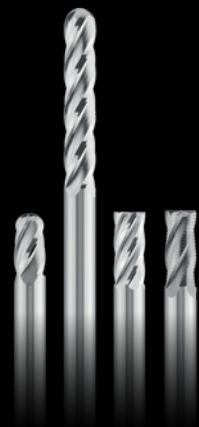
Fresa 4 taglienti serie lunga semisferica
4 flute ball nose end mill long version
→ 47

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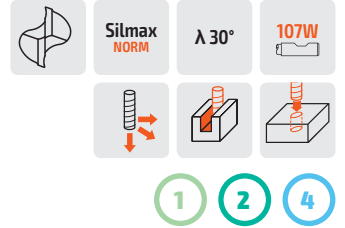
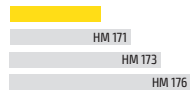
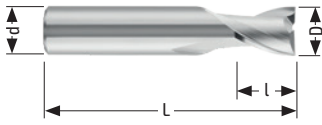
Fresa 6/8 taglienti serie normale
6/8 flute end mill, regular version
→ 48

013F

Fresa 4 taglienti a sgrossare serie normale con rompitrucolo
4 flute roughing end mill with chip breaker, regular version
→ 49



107

Fresa 2 taglienti serie extra corta
2 flute end mill, extra short version

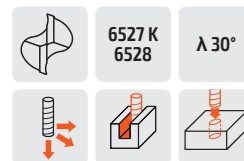
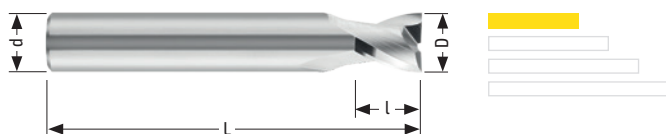
90°

D h10	d h6	L	l ap	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
2,0	6	38	3,0	2	HM0107020	HMF107020	HMG107020
2,5	6	38	3,0	2	HM0107025	HMF107025	HMG107025
3,0	6	38	4,0	2	HM0107030	HMF107030	HMG107030
3,5	6	38	4,0	2	HM0107035	HMF107035	HMG107035
4,0	6	38	5,0	2	HM0107040	HMF107040	HMG107040
4,5	6	38	5,0	2	HM0107045	HMF107045	HMG107045
5,0	6	38	6,0	2	HM0107050	HMF107050	HMG107050
6,0	6	38	7,0	2	HM0107060	HMF107060	HMG107060
7,0	8	43	9,0	2	HM0107070	HMF107070	HMG107070
8,0	8	43	9,0	2	HM0107080	HMF107080	HMG107080
9,0	10	50	11,0	2	HM0107090	HMF107090	HMG107090
10,0	10	50	11,0	2	HM0107100	HMF107100	HMG107100
12,0	12	63	12,0	2	HM0107120	HMF107120	HMG107120

Notes

731

Fresa 2 taglienti serie corta per sedi di chiave
2 flute key slot end mill, short version



90°

D e8	d h6	L	l ap	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
2,0	6	50	3,0	2	HM0731020	HMF731020	HMG731020
2,5	6	50	3,0	2	HM0731025	HMF731025	HMG731025
3,0	6	50	4,0	2	HM0731030	HMF731030	HMG731030
3,5	6	50	4,0	2	HM0731035	HMF731035	HMG731035
4,0	6	54	5,0	2	HM0731040	HMF731040	HMG731040
4,5	6	54	5,0	2	HM0731045	HMF731045	HMG731045
5,0	6	54	6,0	2	HM0731050	HMF731050	HMG731050
5,5	6	54	6,0	2	HM0731055	HMF731055	HMG731055
6,0	6	54	7,0	2	HM0731060	HMF731060	HMG731060
7,0	8	58	9,0	2	HM0731070	HMF731070	HMG731070
8,0	8	58	9,0	2	HM0731080	HMF731080	HMG731080
9,0	10	66	11,0	2	HM0731090	HMF731090	HMG731090
10,0	10	66	11,0	2	HM0731100	HMF731100	HMG731100
11,0	12	73	12,0	2	HM0731110	HMF731110	HMG731110
12,0	12	73	12,0	2	HM0731120	HMF731120	HMG731120
13,0	14	75	14,0	2	HM0731130	HMF731130	HMG731130
14,0	14	75	14,0	2	HM0731140	HMF731140	HMG731140
15,0	16	82	16,0	2	HM0731150	HMF731150	HMG731150
16,0	16	82	16,0	2	HM0731160	HMF731160	HMG731160
17,0	18	84	18,0	2	HM0731170	HMF731170	HMG731170
18,0	18	84	18,0	2	HM0731180	HMF731180	HMG731180
19,0	20	92	20,0	2	HM0731190	HMF731190	HMG731190
20,0	20	92	20,0	2	HM0731200	HMF731200	HMG731200

1
Acciaio
Steel

2
Ghise
Cast
Iron

3
Acciai
Temprati
Hardened
Steel

4
Acciaio
Inox
Stainless
Steel

5
Titanio
Titanium

6
Leghe
Leggere
Light
Alloys

7
PH
Duplex

8
Superleghe
Superalloys

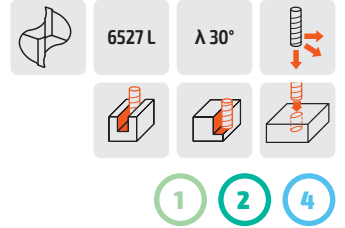
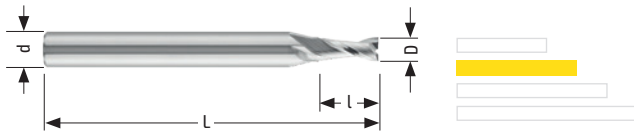
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Fresa 2 taglienti serie normale con gambo rinforzato
2 flute end mill regular version with reinforced shank



90°

D h10	d h6	L	l ap	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
1,0	6	53	3,0	2	HM0172010	HMF172010	HMG172010
1,0	6	53	4,0	2	HM0172010L	HMF172010L	HMG172010L
1,5	6	53	4,5	2	HM0172015	HMF172015	HMG172015
1,5	6	53	6,0	2	HM0172015L	HMF172015L	HMG172015L
2,0	6	53	6,0	2	HM0172020	HMF172020	HMG172020
2,0	6	53	8,0	2	HM0172020L	HMF172020L	HMG172020L
2,5	6	53	7,0	2	HM0172025	HMF172025	HMG172025
2,5	6	53	9,0	2	HM0172025L	HMF172025L	HMG172025L
3,0	6	53	7,0	2	HM0172030	HMF172030	HMG172030
3,0	6	53	12,0	2	HM0172030L	HMF172030L	HMG172030L
3,5	6	53	7,0	2	HM0172035	HMF172035	HMG172035
4,0	6	53	8,0	2	HM0172040	HMF172040	HMG172040
4,0	6	53	12,0	2	HM0172040L	HMF172040L	HMG172040L
5,0	6	57	10,0	2	HM0172050	HMF172050	HMG172050

1
Acciaio
Steel

2
Ghise
Cast
Iron

3
Acciai
Temprati
Hardened
Steel

4
Acciaio
Inox
Stainless
Steel

5
Titanio
Titanium

6
Leghe
Leggere
Light
Alloys

7
PH
Duplex

8
Superleghe
Superalloys

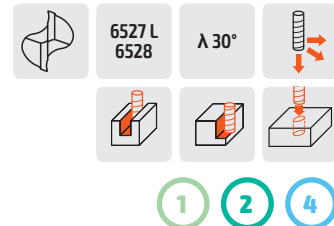
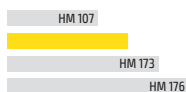
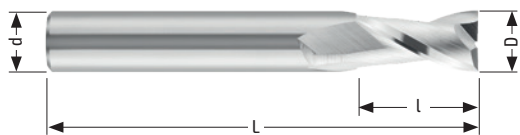
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Fresa 2 taglienti serie normale
2 flute end mill regular version



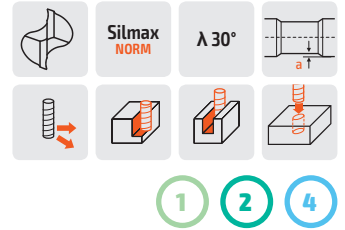
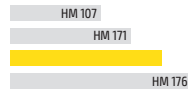
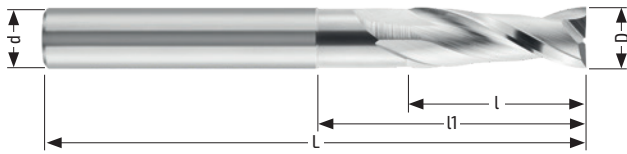
90°

D h10	d h6	L	l ap	90°	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
0,1	3	38	0,2	-	2	HM0171001	HMF171001	HMG171001
0,2	3	38	0,5	-	2	HM0171002	HMF171002	HMG171002
0,3	3	38	0,8	-	2	HM0171003	HMF171003	HMG171003
0,4	3	38	1,0	-	2	HM0171004	HMF171004	HMG171004
0,5	3	38	1,5	-	2	HM0171005	HMF171005	HMG171005
0,6	3	38	1,5	-	2	HM0171006	HMF171006	HMG171006
0,7	3	38	2,0	-	2	HM0171007	HMF171007	HMG171007
0,8	3	38	2,0	-	2	HM0171008	HMF171008	HMG171008
1,0	3	38	3,0	-	2	HM0171010	HMF171010	HMG171010
1,1	3	38	3,0	-	2	HM0171011	HMF171011	HMG171011
1,2	3	38	4,0	-	2	HM0171012	HMF171012	HMG171012
1,4	3	38	4,0	-	2	HM0171014	HMF171014	HMG171014
1,5	3	38	4,0	-	2	HM0171015	HMF171015	HMG171015
1,6	3	38	5,0	-	2	HM0171016	HMF171016	HMG171016
1,8	3	38	5,0	-	2	HM0171018	HMF171018	HMG171018
2,0	3	38	5,0	-	2	HM0171020	HMF171020	HMG171020
2,5	3	38	7,0	-	2	HM0171025	HMF171025	HMG171025
3,0	3	38	7,0	-	2	HM0171030	HMF171030	HMG171030
3,5	4	50	7,0	-	2	HM0171035	HMF171035	HMG171035
4,0	4	50	8,0	-	2	HM0171040	HMF171040	HMG171040
4,5	5	50	8,0	-	2	HM0171045	HMF171045	HMG171045
5,0	5	50	10,0	-	2	HM0171050	HMF171050	HMG171050
5,5	6	57	10,0	-	2	HM0171055	HMF171055	HMG171055
6,0	6	57	10,0	-	2	HM0171060	HMF171060	HMG171060
7,0	7	60	13,0	-	2	HM0171070	HMF171070	HMG171070
8,0	8	63	16,0	-	2	HM0171080	HMF171080	HMG171080
9,0	9	67	16,0	-	2	HM0171090	HMF171090	HMG171090
10,0	10	72	19,0	-	2	HM0171100	HMF171100	HMG171100
11,0	11	83	22,0	-	2	HM0171110	HMF171110	HMG171110
12,0	12	83	22,0	-	2	HM0171120	HMF171120	HMG171120
13,0	13	83	22,0	-	2	HM0171130	HMF171130	HMG171130
14,0	14	83	22,0	-	2	HM0171140	HMF171140	HMG171140
15,0	15	92	26,0	-	2	HM0171150	HMF171150	HMG171150
16,0	16	92	26,0	-	2	HM0171160	HMF171160	HMG171160
17,0	17	92	26,0	-	2	HM0171170	HMF171170	HMG171170
18,0	18	92	26,0	-	2	HM0171180	HMF171180	HMG171180
19,0	19	92	26,0	-	2	HM0171190	HMF171190	HMG171190
20,0	20	104	32,0	-	2	HM0171200	HMF171200	HMG171200

Cr

D h10	d h6	L	l ap	Cr	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
3,0	3	38	7,0	0,30	2	HM0171030CR03	HMF171030CR03	HMG171030CR03
4,0	4	50	8,0	0,50	2	HM0171040CR05	HMF171040CR05	HMG171040CR05
5,0	5	50	10,0	0,50	2	HM0171050CR05	HMF171050CR05	HMG171050CR05
6,0	6	57	10,0	0,50	2	HM0171060CR05	HMF171060CR05	HMG171060CR05
8,0	8	63	16,0	0,80	2	HM0171080CR08	HMF171080CR08	HMG171080CR08
10,0	10	72	19,0	1,00	2	HM0171100CR10	HMF171100CR10	HMG171100CR10
12,0	12	83	22,0	1,50	2	HM0171120CR15	HMF171120CR15	HMG171120CR15
14,0	14	83	22,0	1,50	2	HM0171140CR15	HMF171140CR15	HMG171140CR15
16,0	16	92	26,0	1,50	2	HM0171160CR15	HMF171160CR15	HMG171160CR15
18,0	18	92	26,0	1,50	2	HM0171180CR15	HMF171180CR15	HMG171180CR15
20,0	20	104	32,0	2,00	2	HM0171200CR20	HMF171200CR20	HMG171200CR20

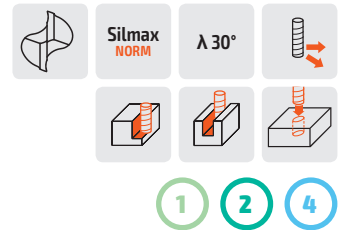
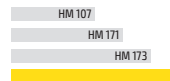
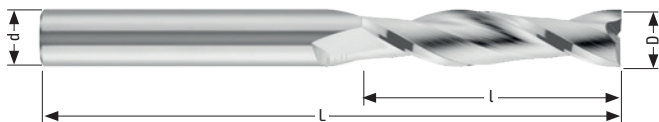
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Fresa 2 taglienti serie media
2 flute micro end mill medium version

90°

D h10	d h6	L	l ap	l1	a	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
3,0	3	62	14,0	-	-	2	HM0173030	HMF173030	HMG173030
4,0	4	62	16,0	-	-	2	HM0173040	HMF173040	HMG173040
5,0	5	62	20,0	-	-	2	HM0173050	HMF173050	HMG173050
6,0	6	78	20,0	30,0	0,15	2	HM0173060	HMF173060	HMG173060
7,0	7	78	24,0	34,0	0,15	2	HM0173070	HMF173070	HMG173070
8,0	8	78	25,0	35,0	0,15	2	HM0173080	HMF173080	HMG173080
9,0	9	78	25,0	35,0	0,15	2	HM0173090	HMF173090	HMG173090
10,0	10	105	28,0	48,0	0,15	2	HM0173100	HMF173100	HMG173100
11,0	11	105	28,0	48,0	0,15	2	HM0173110	HMF173110	HMG173110
12,0	12	105	32,0	52,0	0,20	2	HM0173120	HMF173120	HMG173120
13,0	13	105	32,0	52,0	0,20	2	HM0173130	HMF173130	HMG173130
14,0	14	105	32,0	52,0	0,20	2	HM0173140	HMF173140	HMG173140
15,0	15	130	40,0	60,0	0,20	2	HM0173150	HMF173150	HMG173150
16,0	16	130	40,0	60,0	0,20	2	HM0173160	HMF173160	HMG173160

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Fresa 2 taglienti serie lunga
2 flute end mill, long version

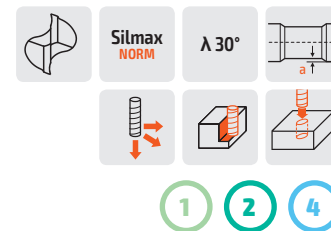
90°

D h10	d h6	L	l ap	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
4,0	4	80	32,0	2	HM0176040	HMF176040	HMG176040
6,0	6	105	42,0	2	HM0176060	HMF176060	HMG176060
8,0	8	105	50,0	2	HM0176080	HMF176080	HMG176080
10,0	10	120	50,0	2	HM0176100	HMF176100	HMG176100
12,0	12	160	65,0	2	HM0176120	HMF176120	HMG176120
14,0	14	160	70,0	2	HM0176140	HMF176140	HMG176140
16,0	16	160	70,0	2	HM0176160	HMF176160	HMG176160

1
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Steel2
Ghise
Cast
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Fresa 2 taglienti per lavorazioni in profondità
2 flute end mill for deep milling

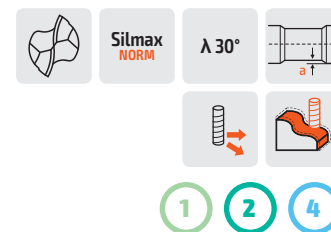
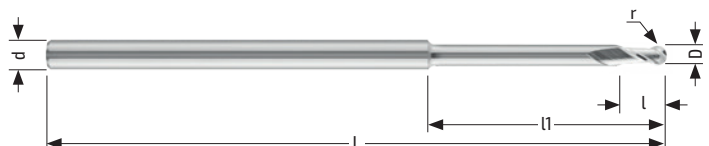


90°

D +0/-0,02	d h6	L	l ap	l1	a	Z	Non rivestito Uncoated	Balinit® Alcrona
0,5	3	39	0,55	2,0	0,02	2	HMO1210205	HMG1210205
0,5	3	39	0,55	4,0	0,02	2	HMO1210405	HMG1210405
0,5	3	60	0,55	6,0	0,02	2	HMO1210605	HMG1210605
0,8	3	39	1,00	4,0	0,02	2	HMO1210408	HMG1210408
0,8	3	39	1,00	6,0	0,02	2	HMO1210608	HMG1210608
0,8	3	60	1,00	9,0	0,02	2	HMO1210908	HMG1210908
1,0	3	39	1,50	6,0	0,03	2	HMO1210610	HMG1210610
1,0	3	39	1,50	9,0	0,03	2	HMO1210910	HMG1210910
1,0	3	60	1,50	12,0	0,03	2	HMO1211210	HMG1211210
1,5	3	39	2,25	6,0	0,03	2	HMO1210615	HMG1210615
1,5	3	39	2,25	9,0	0,03	2	HMO1210915	HMG1210915
1,5	3	60	2,25	12,0	0,03	2	HMO1211215	HMG1211215
2,0	3	39	3,00	9,0	0,05	2	HMO1210920	HMG1210920
2,0	3	39	3,00	12,0	0,05	2	HMO1211220	HMG1211220
2,0	3	60	3,00	15,0	0,05	2	HMO1211520	HMG1211520
2,5	4	50	3,70	12,0	0,05	2	HMO1211225	HMG1211225
2,5	4	80	3,70	25,0	0,05	2	HMO1212525	HMG1212525
3,0	4	50	4,50	15,0	0,05	2	HMO1211530	HMG1211530
3,0	4	80	4,50	30,0	0,05	2	HMO1213030	HMG1213030

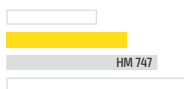
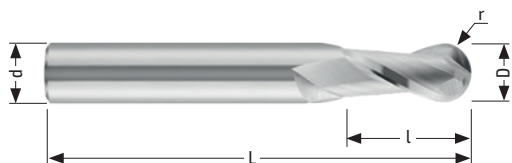
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Fresa 2 taglienti semisferica per lavorazioni in profondità
2 flute ball nose end mill for deep milling



D	d h6	L	l ap	l1	a	r ±0,01	Z	Non rivestito Uncoated	Balinit® Alcrona
0,5	3	39	0,55	2,0	0,02	0,25	2	HMO1220205	HMG1220205
0,5	3	39	0,55	4,0	0,02	0,25	2	HMO1220405	HMG1220405
0,5	3	60	0,55	6,0	0,02	0,25	2	HMO1220605	HMG1220605
0,8	3	39	1,00	4,0	0,02	0,40	2	HMO1220408	HMG1220408
0,8	3	39	1,00	6,0	0,02	0,40	2	HMO1220608	HMG1220608
0,8	3	60	1,00	9,0	0,02	0,40	2	HMO1220908	HMG1220908
1,0	3	39	1,50	6,0	0,03	0,50	2	HMO1220610	HMG1220610
1,0	3	39	1,50	9,0	0,03	0,50	2	HMO1220910	HMG1220910
1,0	3	60	1,50	12,0	0,03	0,50	2	HMO1221210	HMG1221210
1,5	3	39	2,25	6,0	0,03	0,75	2	HMO1220615	HMG1220615
1,5	3	39	2,25	9,0	0,03	0,75	2	HMO1220915	HMG1220915
1,5	3	60	2,25	12,0	0,03	0,75	2	HMO1221215	HMG1221215
2,0	3	39	3,00	9,0	0,05	1,00	2	HMO1220920	HMG1220920
2,0	3	39	3,00	12,0	0,05	1,00	2	HMO1221220	HMG1221220
2,0	3	60	3,00	15,0	0,05	1,00	2	HMO1221520	HMG1221520
2,5	4	50	3,70	12,0	0,05	1,25	2	HMO1221225	HMG1221225
2,5	4	80	3,70	25,0	0,05	1,25	2	HMO1222525	HMG1222525
3,0	4	50	4,50	15,0	0,05	1,50	2	HMO1221530	HMG1221530
3,0	4	80	4,50	30,0	0,05	1,50	2	HMO1223030	HMG1223030

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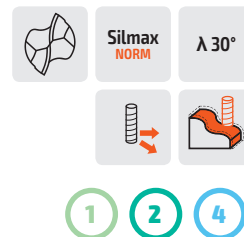
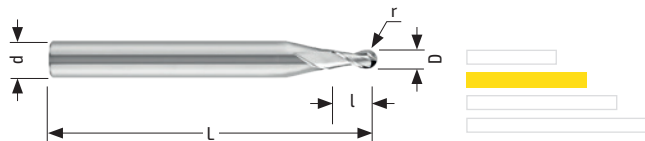
Fresa 2 taglienti serie normale semisferica
2 flute ball nose end mill regular version

D h10	d h6	L	l ap	r	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
0,1	3	38	0,2	0,05	2	HM0737001	HMF737001	HMG737001
0,2	3	38	0,5	0,10	2	HM0737002	HMF737002	HMG737002
0,3	3	38	0,8	0,15	2	HM0737003	HMF737003	HMG737003
0,4	3	38	1,0	0,20	2	HM0737004	HMF737004	HMG737004
0,5	3	38	1,5	0,25	2	HM0737005	HMF737005	HMG737005
0,6	3	38	1,5	0,30	2	HM0737006	HMF737006	HMG737006
0,7	3	38	2,0	0,35	2	HM0737007	HMF737007	HMG737007
0,8	3	38	2,0	0,40	2	HM0737008	HMF737008	HMG737008
1,0	3	38	3,0	0,50	2	HM0737010	HMF737010	HMG737010
1,1	3	38	3,0	0,55	2	HM0737011	HMF737011	HMG737011
1,2	3	38	4,0	0,60	2	HM0737012	HMF737012	HMG737012
1,4	3	38	4,0	0,70	2	HM0737014	HMF737014	HMG737014
1,5	3	38	4,0	0,75	2	HM0737015	HMF737015	HMG737015
1,6	3	38	4,0	0,80	2	HM0737016	HMF737016	HMG737016
1,8	3	38	5,0	0,90	2	HM0737018	HMF737018	HMG737018
2,0	3	38	5,0	1,00	2	HM0737020	HMF737020	HMG737020
2,5	3	38	7,0	1,25	2	HM0737025	HMF737025	HMG737025
3,0	3	38	7,0	1,50	2	HM0737030	HMF737030	HMG737030
3,5	4	50	7,0	1,75	2	HM0737035	HMF737035	HMG737035
4,0	4	50	8,0	2,00	2	HM0737040	HMF737040	HMG737040
5,0	5	50	10,0	2,50	2	HM0737050	HMF737050	HMG737050
6,0	6	57	10,0	3,00	2	HM0737060	HMF737060	HMG737060
7,0	7	60	13,0	3,50	2	HM0737070	HMF737070	HMG737070
8,0	8	63	16,0	4,00	2	HM0737080	HMF737080	HMG737080
9,0	9	67	16,0	4,50	2	HM0737090	HMF737090	HMG737090
10,0	10	72	19,0	5,00	2	HM0737100	HMF737100	HMG737100
11,0	11	83	22,0	5,50	2	HM0737110	HMF737110	HMG737110
12,0	12	83	22,0	6,00	2	HM0737120	HMF737120	HMG737120
13,0	13	83	22,0	6,50	2	HM0737130	HMF737130	HMG737130
14,0	14	83	22,0	7,00	2	HM0737140	HMF737140	HMG737140
15,0	15	92	26,0	7,50	2	HM0737150	HMF737150	HMG737150
16,0	16	92	26,0	8,00	2	HM0737160	HMF737160	HMG737160
18,0	18	92	26,0	9,00	2	HM0737180	HMF737180	HMG737180
20,0	20	104	32,0	10,00	2	HM0737200	HMF737200	HMG737200

Notes

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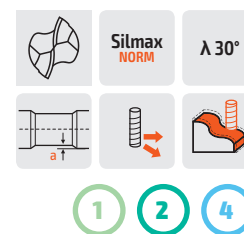
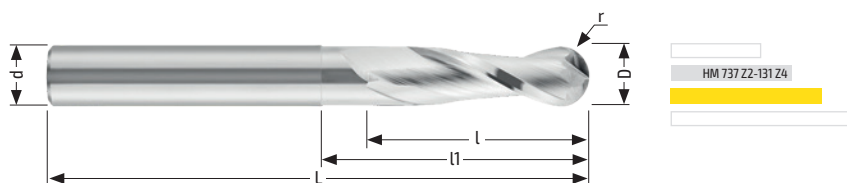
Fresa 2 taglienti serie normale semisferica con gambo rinforzato
2 flute ball nose end mill regular version with reinforced shank



D h10	d h6	L	l ap	r	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
1,0	6	53	3,0	0,50	2	HM0737010R	HMF737010R	HMG737010R
1,5	6	53	4,0	0,75	2	HM0737015R	HMF737015R	HMG737015R
2,0	6	53	5,0	1,00	2	HM0737020R	HMF737020R	HMG737020R
2,5	6	53	7,0	1,25	2	HM0737025R	HMF737025R	HMG737025R
3,0	6	53	7,0	1,50	2	HM0737030R	HMF737030R	HMG737030R

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Fresa 2 taglienti serie media semisferica
2 flute ball nose end mill medium version



D h10	d h6	L	l ap	l1	a	r	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
4,0	4	62	16,0	-	-	2,00	2	HM0747040	HMF747040	HMG747040
5,0	5	62	20,0	-	-	2,50	2	HM0747050	HMF747050	HMG747050
6,0	6	78	20,0	30,0	0,15	3,00	2	HM0747060	HMF747060	HMG747060
8,0	8	78	25,0	35,0	0,15	4,00	2	HM0747080	HMF747080	HMG747080
10,0	10	105	28,0	48,0	0,15	5,00	2	HM0747100	HMF747100	HMG747100
12,0	12	105	32,0	52,0	0,20	6,00	2	HM0747120	HMF747120	HMG747120
16,0	16	130	40,0	60,0	0,20	8,00	2	HM0747160	HMF747160	HMG747160

1
Acciaio
Steel

2
Ghise
Cast
Iron

3
Acciai
Temprati
Hardened
Steel

4
Acciaio
Inox
Stainless
Steel

5
Titanio
Titanium

6
Leghe
Leggere
Light
Alloys

7
PH
Duplex

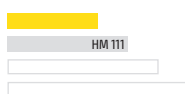
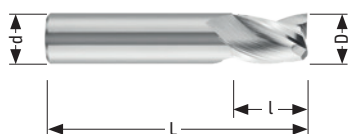
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Fresa 3 taglienti serie extra corta
3 flute end mill extra short version

90°

D h10	d h6	L	l ap	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
2,0	6	38	4,0	3	HM0108020	HMF108020	HMG108020
2,5	6	38	4,0	3	HM0108025	HMF108025	HMG108025
3,0	6	38	5,0	3	HM0108030	HMF108030	HMG108030
3,5	6	38	6,0	3	HM0108035	HMF108035	HMG108035
4,0	6	38	7,0	3	HM0108040	HMF108040	HMG108040
4,5	6	38	8,0	3	HM0108045	HMF108045	HMG108045
5,0	6	38	8,0	3	HM0108050	HMF108050	HMG108050
6,0	6	38	8,0	3	HM0108060	HMF108060	HMG108060
7,0	8	43	11,0	3	HM0108070	HMF108070	HMG108070
8,0	8	43	11,0	3	HM0108080	HMF108080	HMG108080
9,0	10	50	13,0	3	HM0108090	HMF108090	HMG108090
10,0	10	50	13,0	3	HM0108100	HMF108100	HMG108100
12,0	12	63	14,0	3	HM0108120	HMF108120	HMG108120

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Fresa 3 taglienti serie normale con gambo rinforzato
3 flute end mill with reinforced shank regular version

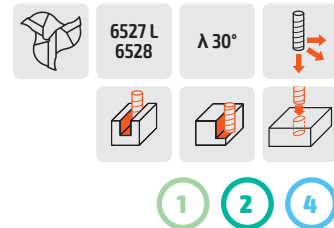
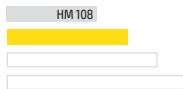
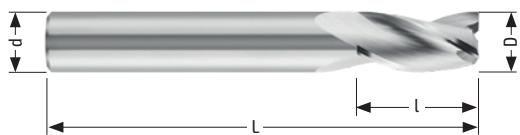
90°

D h10	d h6	L	l ap	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
1,0	6	53	3,0	3	HM0114010	HMF114010	HMG114010
1,5	6	53	4,5	3	HM0114015	HMF114015	HMG114015
1,5	6	53	6,0	3	HM0114015L	HMF114015L	HMG114015L
2,0	6	53	6,0	3	HM0114020	HMF114020	HMG114020
2,0	6	53	8,0	3	HM0114020L	HMF114020L	HMG114020L
2,5	6	53	7,0	3	HM0114025	HMF114025	HMG114025
2,5	6	53	10,0	3	HM0114025L	HMF114025L	HMG114025L
3,0	6	53	7,0	3	HM0114030	HMF114030	HMG114030
3,0	6	53	12,0	3	HM0114030L	HMF114030L	HMG114030L
3,5	6	53	7,0	3	HM0114035	HMF114035	HMG114035
4,0	6	53	8,0	3	HM0114040	HMF114040	HMG114040
4,0	6	53	12,0	3	HM0114040L	HMF114040L	HMG114040L
5,0	6	57	10,0	3	HM0114050	HMF114050	HMG114050

1
Acciaio
Steel2
Ghise
Cast
Iron3
Acciai
Temprati
Hardened
Steel4
Acciaio
Inox
Stainless
Steel5
Titanio
Titanium6
Leghe
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Fresa 3 taglienti serie normale
3 flute end mill regular version



90°

D h10	d h6	L	l ap	90°	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
0,6	3	38	1,5	-	3	HM0111006	HMF111006	HMG111006
0,8	3	38	2,0	-	3	HM0111008	HMF111008	HMG111008
1,0	3	38	3,0	-	3	HM0111010	HMF111010	HMG111010
1,2	3	38	4,0	-	3	HM0111012	HMF111012	HMG111012
1,5	3	38	4,0	-	3	HM0111015	HMF111015	HMG111015
1,8	3	38	5,0	-	3	HM0111018	HMF111018	HMG111018
2,0	3	38	5,0	-	3	HM0111020	HMF111020	HMG111020
2,5	3	38	7,0	-	3	HM0111025	HMF111025	HMG111025
3,0	3	38	7,0	-	3	HM0111030	HMF111030	HMG111030
4,0	4	50	8,0	-	3	HM0111040	HMF111040	HMG111040
5,0	5	50	10,0	-	3	HM0111050	HMF111050	HMG111050
6,0	6	57	10,0	-	3	HM0111060	HMF111060	HMG111060
7,0	7	60	13,0	-	3	HM0111070	HMF111070	HMG111070
8,0	8	63	16,0	-	3	HM0111080	HMF111080	HMG111080
9,0	9	67	16,0	-	3	HM0111090	HMF111090	HMG111090
10,0	10	72	19,0	-	3	HM0111100	HMF111100	HMG111100
11,0	11	83	22,0	-	3	HM0111110	HMF111110	HMG111110
12,0	12	83	22,0	-	3	HM0111120	HMF111120	HMG111120
13,0	13	83	22,0	-	3	HM0111130	HMF111130	HMG111130
14,0	14	83	22,0	-	3	HM0111140	HMF111140	HMG111140
15,0	15	92	26,0	-	3	HM0111150	HMF111150	HMG111150
16,0	16	92	26,0	-	3	HM0111160	HMF111160	HMG111160
18,0	18	92	26,0	-	3	HM0111180	HMF111180	HMG111180
20,0	20	104	32,0	-	3	HM0111200	HMF111200	HMG111200

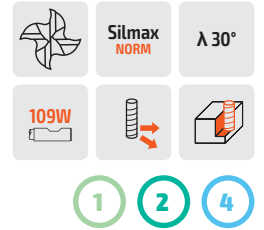
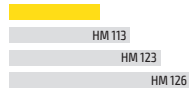
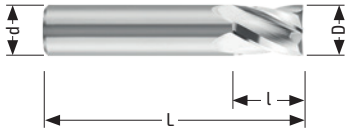
Cr

D h10	d h6	L	l ap	Cr	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
2	3	38	5,0	0,30	3	HM0111020CR03	HMF111020CR03	HMG111020CR03
3	3	38	7,0	0,30	3	HM0111030CR03	HMF111030CR03	HMG111030CR03
4	4	50	8,0	0,30	3	HM0111040CR03	HMF111040CR03	HMG111040CR03
4	4	50	8,0	0,50	3	HM0111040CR05	HMF111040CR05	HMG111040CR05
5	5	50	10,0	0,50	3	HM0111050CR05	HMF111050CR05	HMG111050CR05
6	6	57	10,0	0,20	3	HM0111060CR02	HMF111060CR02	HMG111060CR02
6	6	57	10,0	0,50	3	HM0111060CR05	HMF111060CR05	HMG111060CR05
6	6	57	10,0	0,80	3	HM0111060CR08	HMF111060CR08	HMG111060CR08
8	8	63	16,0	0,50	3	HM0111080CR05	HMF111080CR05	HMG111080CR05
8	8	63	16,0	0,80	3	HM0111080CR08	HMF111080CR08	HMG111080CR08
10	10	72	19,0	0,50	3	HM0111100CR05	HMF111100CR05	HMG111100CR05
10	10	72	19,0	1,00	3	HM0111100CR10	HMF111100CR10	HMG111100CR10
12	12	83	22,0	1,00	3	HM0111120CR10	HMF111120CR10	HMG111120CR10
12	12	83	22,0	1,50	3	HM0111120CR15	HMF111120CR15	HMG111120CR15
14	14	83	22,0	1,50	3	HM0111140CR15	HMF111140CR15	HMG111140CR15
16	16	92	26,0	1,00	3	HM0111160CR10	HMF111160CR10	HMG111160CR10
16	16	92	26,0	1,50	3	HM0111160CR15	HMF111160CR15	HMG111160CR15
18	18	92	26,0	1,50	3	HM0111180CR15	HMF111180CR15	HMG111180CR15
20	20	104	32,0	2,00	3	HM0111200CR20	HMF111200CR20	HMG111200CR20

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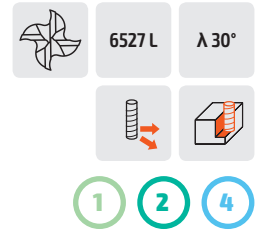
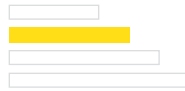
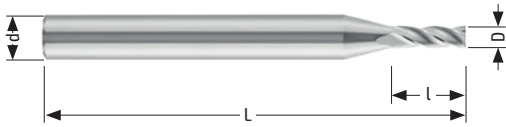
Fresa 4 taglienti serie extra corta
4 flute end mill extra short version



D h10	d h6	L	l ap	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
2,0	6	38	4,0	4	HM0109020	HMF109020	HMG109020
3,0	6	38	5,0	4	HM0109030	HMF109030	HMG109030
4,0	6	38	7,0	4	HM0109040	HMF109040	HMG109040
5,0	6	38	8,0	4	HM0109050	HMF109050	HMG109050
6,0	6	38	8,0	4	HM0109060	HMF109060	HMG109060
8,0	8	43	11,0	4	HM0109080	HMF109080	HMG109080
10,0	10	50	13,0	4	HM0109100	HMF109100	HMG109100
12,0	12	63	14,0	4	HM0109120	HMF109120	HMG109120

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Fresa 4 taglienti serie normale con gambo rinforzato
4 flute end mill with reinforced shank

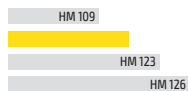
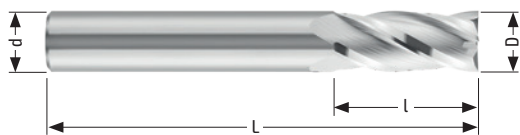


D h10	d h6	L	l ap	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
2,0	6	53	7,0	4	HM0116020	HMF116020	HMG116020
2,5	6	53	8,0	4	HM0116025	HMF116025	HMG116025
3,0	6	53	8,0	4	HM0116030	HMF116030	HMG116030
3,5	6	53	10,0	4	HM0116035	HMF116035	HMG116035
4,0	6	53	11,0	4	HM0116040	HMF116040	HMG116040
5,0	6	57	13,0	4	HM0116050	HMF116050	HMG116050

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Fresa 4 taglienti serie normale
4 flute end mill regular version



6527 L
6528

λ 30°



90°

D h10	d h6	L	l ap	90°	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
2,0	3	38	7,0	-	4	HM0113020	HMF113020	HMG113020
2,5	3	38	8,0	-	4	HM0113025	HMF113025	HMG113025
3,0	3	38	8,0	-	4	HM0113030	HMF113030	HMG113030
3,5	4	50	10,0	-	4	HM0113035	HMF113035	HMG113035
4,0	4	50	11,0	-	4	HM0113040	HMF113040	HMG113040
4,5	5	50	11,0	-	4	HM0113045	HMF113045	HMG113045
5,0	5	50	13,0	-	4	HM0113050	HMF113050	HMG113050
5,5	6	57	13,0	-	4	HM0113055	HMF113055	HMG113055
6,0	6	57	13,0	-	4	HM0113060	HMF113060	HMG113060
6,5	7	60	16,0	-	4	HM0113065	HMF113065	HMG113065
7,0	7	60	16,0	-	4	HM0113070	HMF113070	HMG113070
7,5	8	63	19,0	-	4	HM0113075	HMF113075	HMG113075
8,0	8	63	19,0	-	4	HM0113080	HMF113080	HMG113080
8,5	9	67	19,0	-	4	HM0113085	HMF113085	HMG113085
9,0	9	67	19,0	-	4	HM0113090	HMF113090	HMG113090
9,5	10	72	22,0	-	4	HM0113095	HMF113095	HMG113095
10,0	10	72	22,0	-	4	HM0113100	HMF113100	HMG113100
11,0	11	83	26,0	-	4	HM0113110	HMF113110	HMG113110
12,0	12	83	26,0	-	4	HM0113120	HMF113120	HMG113120
13,0	13	83	26,0	-	4	HM0113130	HMF113130	HMG113130
14,0	14	83	26,0	-	4	HM0113140	HMF113140	HMG113140
15,0	15	92	32,0	-	4	HM0113150	HMF113150	HMG113150
16,0	16	92	32,0	-	4	HM0113160	HMF113160	HMG113160
18,0	18	92	32,0	-	4	HM0113180	HMF113180	HMG113180
20,0	20	104	38,0	-	4	HM0113200	HMF113200	HMG113200
25,0	25	121	45,0	-	4	HM0113250	HMF113250	HMG113250

Cr

D h10	d h6	L	l ap	Cr	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
3,0	3	38	8,0	0,30	4	HM0113030CR03	HMF113030CR03	HMG113030CR03
4,0	4	50	11,0	0,30	4	HM0113040CR03	HMF113040CR03	HMG113040CR03
4,0	4	50	11,0	0,50	4	HM0113040CR05	HMF113040CR05	HMG113040CR05
5,0	5	50	13,0	0,50	4	HM0113050CR05	HMF113050CR05	HMG113050CR05
6,0	6	57	13,0	0,50	4	HM0113060CR05	HMF113060CR05	HMG113060CR05
6,0	6	57	13,0	0,80	4	HM0113060CR08	HMF113060CR08	HMG113060CR08
6,0	6	57	13,0	1,00	4	HM0113060CR10	HMF113060CR10	HMG113060CR10
8,0	8	63	19,0	0,50	4	HM0113080CR05	HMF113080CR05	HMG113080CR05
8,0	8	63	19,0	0,80	4	HM0113080CR08	HMF113080CR08	HMG113080CR08
10,0	10	72	22,0	0,50	4	HM0113100CR05	HMF113100CR05	HMG113100CR05
10,0	10	72	22,0	1,00	4	HM0113100CR10	HMF113100CR10	HMG113100CR10
12,0	12	83	26,0	1,00	4	HM0113120CR10	HMF113120CR10	HMG113120CR10
12,0	12	83	26,0	1,50	4	HM0113120CR15	HMF113120CR15	HMG113120CR15
14,0	14	83	26,0	1,50	4	HM0113140CR15	HMF113140CR15	HMG113140CR15
16,0	16	92	32,0	1,50	4	HM0113160CR15	HMF113160CR15	HMG113160CR15
18,0	18	92	32,0	1,50	4	HM0113180CR15	HMF113180CR15	HMG113180CR15
20,0	20	104	38,0	2,00	4	HM0113200CR20	HMF113200CR20	HMG113200CR20
25,0	25	121	45,0	2,00	4	HM0113250CR20	HMF113250CR20	HMG113250CR20

1
Acciaio
Steel

2
Ghise
Cast
Iron

3
Acciai
Temprati
Hardened
Steel

4
Acciaio
Inox
Stainless
Steel

5
Titanio
Titanium

6
Leghe
Leggere
Light
Alloys

7
PH
Duplex

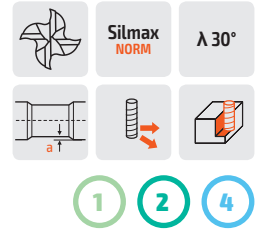
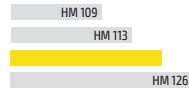
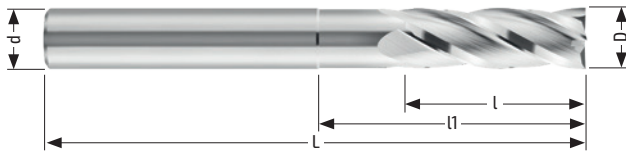
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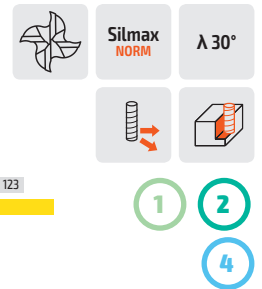
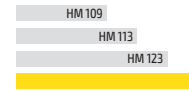
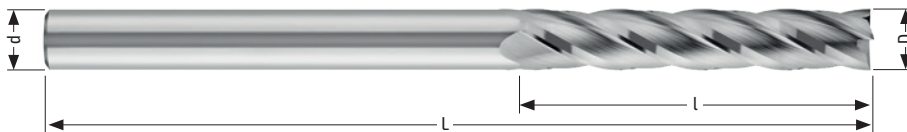
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Fresa 4 taglienti serie media
4 flute end mill medium version

90°

D h10	d h6	L	l ap	l1	a	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
3,0	3	62	14,0	-	-	4	HM0123030	HMF123030	HMG123030
4,0	4	62	16,0	-	-	4	HM0123040	HMF123040	HMG123040
5,0	5	62	20,0	-	-	4	HM0123050	HMF123050	HMG123050
6,0	6	78	20,0	30,0	0,15	4	HM0123060	HMF123060	HMG123060
8,0	8	78	25,0	35,0	0,15	4	HM0123080	HMF123080	HMG123080
10,0	10	105	28,0	48,0	0,15	4	HM0123100	HMF123100	HMG123100
12,0	12	105	32,0	52,0	0,20	4	HM0123120	HMF123120	HMG123120
14,0	14	105	32,0	52,0	0,20	4	HM0123140	HMF123140	HMG123140
16,0	16	130	40,0	60,0	0,20	4	HM0123160	HMF123160	HMG123160

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Fresa 4 taglienti serie lunga
4 flute end mill long version

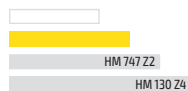
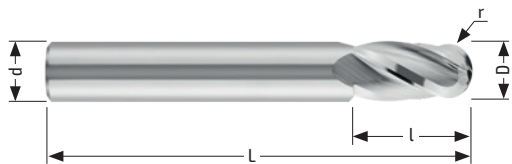
90°

D h10	d h6	L	l ap	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
4,0	4	80	32,0	4	HM0126040	HMF126040	HMG126040
6,0	6	105	42,0	4	HM0126060	HMF126060	HMG126060
8,0	8	105	50,0	4	HM0126080	HMF126080	HMG126080
10,0	10	120	50,0	4	HM0126100	HMF126100	HMG126100
12,0	12	160	65,0	4	HM0126120	HMF126120	HMG126120
14,0	14	160	70,0	4	HM0126140	HMF126140	HMG126140
16,0	16	160	70,0	4	HM0126160	HMF126160	HMG126160

Notes

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Fresa 4 taglienti serie normale
4 flute end mill regular version



Silmax
NORM

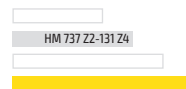
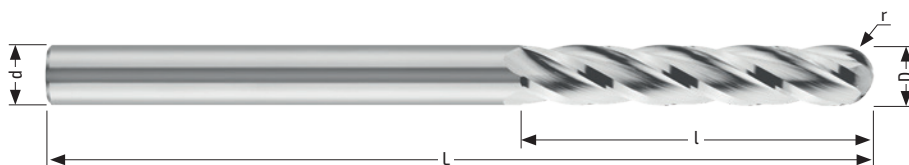
λ 30°



D h10	d h6	L	l ap	r	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
1,0	3	38	3,0	0,50	4	HM0131010	HMF131010	HMG131010
1,5	3	38	4,0	0,75	4	HM0131015	HMF131015	HMG131015
2,0	3	38	5,0	1,00	4	HM0131020	HMF131020	HMG131020
2,5	3	38	7,0	1,25	4	HM0131025	HMF131025	HMG131025
3,0	3	38	7,0	1,50	4	HM0131030	HMF131030	HMG131030
4,0	4	50	8,0	2,00	4	HM0131040	HMF131040	HMG131040
5,0	5	50	10,0	2,50	4	HM0131050	HMF131050	HMG131050
6,0	6	57	10,0	3,00	4	HM0131060	HMF131060	HMG131060
7,0	7	60	13,0	3,50	4	HM0131070	HMF131070	HMG131070
8,0	8	63	16,0	4,00	4	HM0131080	HMF131080	HMG131080
9,0	9	67	16,0	4,50	4	HM0131090	HMF131090	HMG131090
10,0	10	72	19,0	5,00	4	HM0131100	HMF131100	HMG131100
11,0	11	83	22,0	5,50	4	HM0131110	HMF131110	HMG131110
12,0	12	83	22,0	6,00	4	HM0131120	HMF131120	HMG131120
13,0	13	83	22,0	6,50	4	HM0131130	HMF131130	HMG131130
14,0	14	83	22,0	7,00	4	HM0131140	HMF131140	HMG131140
15,0	15	92	26,0	7,50	4	HM0131150	HMF131150	HMG131150
16,0	16	92	26,0	8,00	4	HM0131160	HMF131160	HMG131160
18,0	18	92	26,0	9,00	4	HM0131180	HMF131180	HMG131180
20,0	20	104	32,0	10,00	4	HM0131200	HMF131200	HMG131200

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Fresa 4 taglienti serie lunga semisferica
4 flute ball nose end mill long version



Silmax
NORM

λ 30°



D h10	d h6	L	l ap	r	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
6,0	6	105	42,0	3,00	4	HM0130060	HMF130060	HMG130060
8,0	8	105	50,0	4,00	4	HM0130080	HMF130080	HMG130080
10,0	10	120	50,0	5,00	4	HM0130100	HMF130100	HMG130100
12,0	12	160	65,0	6,00	4	HM0130120	HMF130120	HMG130120
14,0	14	160	70,0	7,00	4	HM0130140	HMF130140	HMG130140
16,0	16	160	70,0	8,00	4	HM0130160	HMF130160	HMG130160
18,0	18	160	70,0	9,00	4	HM0130180	HMF130180	HMG130180
20,0	20	160	70,0	10,00	4	HM0130200	HMF130200	HMG130200

1 Acciaio
Steel

2 Ghise
Cast Iron

3 Acciai
Temprati
Hardened Steel

4 Acciaio
Inox
Stainless Steel

5 Titanio
Titanium

6 Leghe
Leggere
Light Alloys

7 PH
Duplex

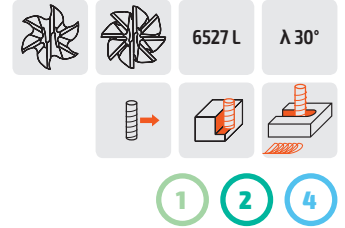
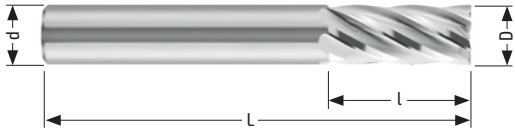
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Fresa 6/8 taglienti serie normale
6/8 flute end mill, regular version

1 2 4

90°

D h10	d h6	L	l ap	90°	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
6,0	6	57	13,0	-	6	HM0106060	HMF106060	HMG106060
8,0	8	63	19,0	-	6	HM0106080	HMF106080	HMG106080
10,0	10	72	22,0	-	6	HM0106100	HMF106100	HMG106100
12,0	12	83	26,0	-	6	HM0106120	HMF106120	HMG106120
14,0	14	83	26,0	-	6	HM0106140	HMF106140	HMG106140
16,0	16	92	32,0	-	6	HM0106160	HMF106160	HMG106160
18,0	18	92	32,0	-	8	HM0106180	HMF106180	HMG106180
20,0	20	104	38,0	-	8	HM0106200	HMF106200	HMG106200
25,0	25	121	45,0	-	8	HM0106250	HMF106250	HMG106250

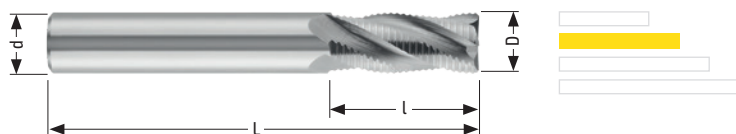
Cr

D h10	d h6	L	l ap	Cr	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
6	6	57	13,0	0,50	6	HM0106060CR05	HMF106060CR05	HMG106060CR05
8	8	63	19,0	0,80	6	HM0106080CR08	HMF106080CR08	HMG106080CR08
10	10	72	22,0	1,00	6	HM0106100CR10	HMF106100CR10	HMG106100CR10
12	12	83	26,0	1,50	6	HM0106120CR15	HMF106120CR15	HMG106120CR15
14	14	83	26,0	1,50	6	HM0106140CR15	HMF106140CR15	HMG106140CR15
16	16	92	32,0	1,50	6	HM0106106CR15	HMF106160CR15	HMG106160CR15
18	18	92	32,0	1,50	8	HM0106180CR15	HMF106180CR15	HMG106180CR15
20	20	104	38,0	2,00	8	HM0106200CR20	HMF106200CR20	HMG106200CR20
25	25	121	45,0	2,00	8	HM0106250CR20	HMF106250CR20	HMG106250CR20

Notes

013F

Fresa 4 taglienti a sgrossare serie normale con rompitruciolo
4 flute roughing end mill with chip breaker, regular version



6527 L

λ 30°



1 2

45°

D h11	d h6	L	l ap	45° +/-0,3	Z	Non rivestito Uncoated	Balinit® Futura	Balinit® Alcrona
4,0	6	57	13,0	0,4	4	HM0013F04	HMF013F04	HMG013F04
4,5	6	57	13,0	0,4	4	HM0013F045	HMF013F045	HMG013F045
5,0	6	57	13,0	0,5	4	HM0013F05	HMF013F05	HMG013F05
5,5	6	57	13,0	0,5	4	HM0013F055	HMF013F055	HMG013F055
6,0	6	57	13,0	0,5	4	HM0013F06	HMF013F06	HMG013F06
7,0	7	60	16,0	0,5	4	HM0013F07	HMF013F07	HMG013F07
8,0	8	63	19,0	0,5	4	HM0013F08	HMF013F08	HMG013F08
9,0	9	67	19,0	0,5	4	HM0013F09	HMF013F09	HMG013F09
10,0	10	72	22,0	0,5	4	HM0013F10	HMF013F10	HMG013F10
11,0	11	83	26,0	0,5	4	HM0013F11	HMF013F11	HMG013F11
12,0	12	83	26,0	0,6	4	HM0013F12	HMF013F12	HMG013F12
13,0	13	83	26,0	0,6	4	HM0013F13	HMF013F13	HMG013F13
14,0	14	83	26,0	0,6	4	HM0013F14	HMF013F14	HMG013F14
15,0	15	92	32,0	0,6	4	HM0013F15	HMF013F15	HMG013F15
16,0	16	92	32,0	0,6	4	HM0013F16	HMF013F16	HMG013F16
18,0	18	92	32,0	0,6	4	HM0013F18	HMF013F18	HMG013F18
20,0	20	104	38,0	0,7	4	HM0013F20	HMF013F20	HMG013F20

1
Acciaio
Steel

2
Ghise
Cast
Iron

3
Acciai
Temprati
Hardened
Steel

4
Acciaio
Inox
Stainless
Steel

5
Titanio
Titanium

6
Leghe
Leggere
Light
Alloys

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Parametri di lavoro / Working Parameters

Materiale Material	Diametro Diameter																		
		1,00 D	0,20 D	1,00 D	0,20 D	1,00 D	0,20 D	1,00 D	0,20 D	1,00 D	0,20 D	1,00 D	0,20 D	1,00 D	0,20 D	1,00 D	0,20 D	1,00 D	0,20 D
Acciaio <800 N/mm ² Steel <800 N/mm ²	m/min	HMG Z = 2						HMG Z = 3						HMG Z = 4			HMG Z = 6		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2,0	0,002	76	19108	0,004	168	21019	0,003	161	17834	0,004	235	19618	0,004	448	28025	-	-	-
	4,0	0,006	106	9554	0,011	221	10510	0,006	161	8917	0,008	235	9809	0,014	777	14013	-	-	-
	6,0	0,010	122	6369	0,016	219	7006	0,016	278	5945	0,016	306	6539	0,024	897	9342	0,024	1345	9342
	8,0	0,015	147	4777	0,023	240	5255	0,023	305	4459	0,023	335	4904	0,031	874	7006	0,031	1311	7006
	10,0	0,020	151	3822	0,028	239	4204	0,028	304	3567	0,028	334	3924	0,037	824	5605	0,037	1237	5605
	12,0	0,023	149	3185	0,033	231	3503	0,033	294	2972	0,033	323	3270	0,041	772	4671	0,041	1158	4671
	16,0	0,029	140	2389	0,040	211	2627	0,040	268	2229	0,040	295	2452	0,049	680	3503	0,049	1020	3503
20,0	0,034	129	1911	0,046	192	2102	0,046	245	1783	0,046	269	1962	0,054	606	2803	0,054	1213	2803	
Acciaio <1000 N/mm ² - Ghisa Steel <1000 N/mm ² - Cast Iron	m/min	HMG Z = 2						HMG Z = 3						HMG Z = 4			HMG Z = 6		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2,0	0,002	62	15525	0,004	137	17078	0,002	87	14490	0,004	191	15939	0,004	364	22771	-	-	-
	4,0	0,004	58	7763	0,009	158	8539	0,005	109	7245	0,008	191	7970	0,012	540	11385	-	-	-
	6,0	0,009	91	5175	0,014	163	5693	0,014	207	4830	0,014	228	5313	0,022	668	7590	0,022	1002	7590
	8,0	0,016	124	3881	0,021	184	4270	0,021	234	3623	0,021	257	3985	0,029	665	5693	0,029	997	5693
	10,0	0,022	134	3105	0,027	185	3416	0,027	235	2898	0,027	259	3188	0,035	633	4554	0,035	950	4554
	12,0	0,026	135	2588	0,032	180	2846	0,032	229	2415	0,032	252	2657	0,039	597	3795	0,039	896	3795
	16,0	0,033	129	1941	0,039	166	2135	0,039	211	1811	0,039	232	1992	0,047	530	2846	0,047	794	2846
20,0	0,039	121	1553	0,044	152	1708	0,044	193	1449	0,044	212	1594	0,052	475	2277	0,052	949	2277	
Acciaio <1300 N/mm ² Steel <1300 N/mm ²	m/min	HMG Z = 2						HMG Z = 3						HMG Z = 4			HMG Z = 6		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2,0	0,002	48	11943	0,004	105	13137	0,002	67	11146	0,004	147	12261	0,003	210	17516	-	-	-
	4,0	0,004	48	5971	0,008	104	6568	0,005	84	5573	0,008	147	6131	0,010	346	8758	-	-	-
	6,0	0,008	64	3981	0,013	114	4379	0,013	145	3715	0,013	159	4087	0,020	467	5839	0,020	701	5839
	8,0	0,015	91	2986	0,020	133	3284	0,020	169	2787	0,020	186	3065	0,027	476	4379	0,027	714	4379
	10,0	0,021	99	2389	0,026	135	2627	0,026	172	2229	0,026	190	2452	0,033	459	3503	0,033	689	3503
	12,0	0,025	101	1990	0,030	133	2189	0,030	169	1858	0,030	186	2044	0,037	436	2919	0,037	654	2919
	16,0	0,033	97	1493	0,038	123	1642	0,038	157	1393	0,038	173	1533	0,045	390	2189	0,045	585	2189
20,0	0,038	91	1194	0,043	113	1314	0,043	144	1115	0,043	159	1226	0,050	351	1752	0,050	702	1752	
Acciaio da stampi Mold Steel	m/min	HMG Z = 2						HMG Z = 3						HMG Z = 4			HMG Z = 6		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2,0	0,001	18	5971	0,004	53	6568	0,002	33	5573	0,003	55	6131	0,003	105	8758	-	-	-
	4,0	0,003	18	2986	0,005	42	2787	0,005	42	2787	0,007	64	3065	0,010	173	4379	-	-	-
	6,0	0,008	32	1990	0,013	57	2189	0,013	72	1858	0,013	80	2044	0,020	234	2919	0,020	350	2919
	8,0	0,015	45	1493	0,020	66	1642	0,020	84	1393	0,020	93	1533	0,027	238	2189	0,027	357	2189
	10,0	0,021	50	1194	0,026	68	1314	0,026	86	1115	0,026	95	1226	0,033	230	1752	0,033	344	1752
	12,0	0,025	50	995	0,030	66	1095	0,030	85	929	0,030	93	1022	0,037	218	1460	0,037	327	1460
	16,0	0,033	49	746	0,038	62	821	0,038	78	697	0,038	86	766	0,045	195	1095	0,045	292	1095
20,0	0,038	46	597	0,043	57	657	0,043	72	557	0,043	79	613	0,050	176	876	0,050	351	876	

+10%	HM107	HM108	HM108	HM109	-	-
=	HM171	HM171	HM111	HM111	HM113	HM106
-15%	-	HM173 / HM176	-	HM123 / HM126	-	-

Correzione dell'avanzamento (F) / Feed (F) correction

Notes

Parametri di lavoro / Working Parameters

Materiale Material	Diametro Diameter	0,25 D			0,060 D			0,060 D		
		HMG 013F			HMG 737			HMG 131		
Acciaio <800 N/mm ² Steel <800 N/mm ²	m/min	HMG 013F			HMG 737			HMG 131		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2,0	-	-	-	0,032	3721	57325	0,020	4690	57325
	4,0	0,022	987	11220	0,159	9109	28662	0,135	15467	28662
	6,0	0,030	897	7473	0,240	9172	19108	0,216	16510	19108
	8,0	0,042	931	5605	0,298	8528	14331	0,274	15680	14331
	10,0	0,050	905	4484	0,342	7846	11465	0,318	14591	11465
	12,0	0,058	863	3737	0,379	7235	9554	0,355	13553	9554
	16,0	0,069	776	2803	0,436	6251	7166	0,412	11814	7166
20,0	0,078	701	2242	0,481	5512	5732	0,457	10474	5732	
Acciaio <1000 N/mm ² - Ghisa Steel <1000 N/mm ² - Cast Iron	m/min	HMG 013F			HMG 737			HMG 131		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2,0	-	-	-	0,022	2092	46576	0,015	2765	46576
	4,0	0,018	653	9072	0,139	6470	23288	0,117	10890	23288
	6,0	0,028	668	6072	0,220	6831	15525	0,198	12296	15525
	8,0	0,039	711	4554	0,278	6463	11644	0,256	11902	11644
	10,0	0,048	699	3643	0,322	6002	9315	0,300	11184	9315
	12,0	0,055	671	3036	0,359	5568	7763	0,337	10453	7763
	16,0	0,067	608	2277	0,416	4846	5822	0,394	9179	5822
20,0	0,076	551	1822	0,461	4292	4658	0,439	8175	4658	
Acciaio <1300 N/mm ² Steel <1300 N/mm ²	m/min	HMG 013F			HMG 737			HMG 131		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2,0	-	-	-	0,015	1099	35828	0,012	1772	35828
	4,0	0,015	420	7000	0,119	4260	1794	0,099	7087	17914
	6,0	0,025	467	4671	0,200	4777	11943	0,180	8599	11943
	8,0	0,037	512	3503	0,258	4614	8957	0,238	8510	8957
	10,0	0,045	509	2803	0,302	4330	7166	0,282	8088	7166
	12,0	0,053	493	2335	0,339	4044	5971	0,319	7611	5971
	16,0	0,064	450	1752	0,396	3548	4479	0,376	6739	4479
20,0	0,073	410	1401	0,441	3159	3583	0,421	6030	3583	
Acciaio da stampi Mold Steel	m/min	HMG 013F			HMG 737			HMG 131		
	D mm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm	fz mm/z	F mm/min	n rpm
	2,0	-	-	-	0,015	550	17914	0,012	886	17914
	4,0	0,015	210	3500	0,119	2130	8957	0,099	3544	8957
	6,0	0,025	234	2335	0,200	2389	5971	0,180	4299	5971
	8,0	0,037	256	1752	0,258	2307	4479	0,238	4255	4479
	10,0	0,045	255	1401	0,302	2165	3583	0,282	4044	3583
	12,0	0,053	246	1168	0,339	2022	2986	0,319	3805	2986
	16,0	0,064	225	876	0,396	1774	2239	0,376	3369	2239
20,0	0,073	205	701	0,441	1579	1791	0,421	3015	1791	

+10%	-	-	-
=	HM013F	HM737	HM131
-15%	-	HM747	HM130

Correzione dell'avanzamento (F) / Feed (F) correction

Notes

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HPC

Alto Rendimento
High Performance

75

HRC

Stampi
Molds

113

TIS

Titanox e Superleghe
Titanium & Superalloys

137

ALU

Leghe Leggere
Light Alloys

155

CMP

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Composite Materials

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