Nuova C.U.M.E.T.

General Catalogue 13



Precision in *movement!*

Settore Energia
Energy's Field

Frese a sgrossare e a finire per lavorazione piede paletta
Roughing and finishing christmas tree cutters for blades





La continua ricerca di nuovi materiali difficili da lavorare e l'utilizzo di macchine CNC altamente tecnologiche, ci impone di sviluppare nuove geometrie di utensili per specifiche applicazioni.

The continuous research of new difficult machining materials with the use of highly tecnology machines, requires us to develop new tool geometries for specific applications.

In particolare, per il settore dell'energia, siamo in grado di progettare utensili speciali su richiesta del cliente o su suo specifico disegno utilizzando software 3D.

Particularly, in the energy's field, we are able to design special tools on the client's request or on his specific drawing using 3D software.

Movimento: dinamismo, efficienza, qualità e ampia scelta di utensili.
Movement: dynamism, efficiency, quality and wide selection of tools.

... sono le principali caratteristiche che ci distinguono sul panorama internazionale degli utensili da taglio in metallo duro integrale.
Siamo determinati nella realizzazione della nostra principale missione: conseguire nuove geometrie idonee a risolvere e rendere più semplice e veloce il lavoro dei nostri clienti, grazie ad un continuo miglioramento del ciclo produttivo.
La costante ricerca di nuove tecnologie ci permette di operare competitivamente in oltre 32 differenti mercati internazionali nella costruzione di utensili standard e speciali per l'industria aeronautica, stampi, automobilistica e della meccanica in generale.
La nostra aspirazione più grande è quella di essere considerati dai nostri clienti partner affidabili e insostituibili.

Die & Moud Shanghai 2013



EMO Parigi 1983

... are the main features that distinguishes us on the international scene of solid carbide cutting tools.
We are determined in the realization of our main mission: achiving new geometries such as to make it easier and faster for our clients work, thanks to a continuous improvement of production cycle.
The costant research of new technologies allowed us to operate competitively in over 32 different international markets in the production of standard and special tools for the aviation indutriy, dies, automotive, and mechanics in general.
The biggest aspiration is to be considered by our customers reliable and irreplaceable partner.

Applicazioni
Applications

Inhaltsverzeichnis - Matières - Применение - Aplikace

END MILL	CODE	Ø HEAD	SHAPE	Z no.	APPLICATIONS: STEEL HRC < 70	STEEL HRC < 60	STEEL HRC < 50	ALLOY STEEL	INOX Stainless Steel	CAST IRON	NE NON FERROUS	TI-Alloy	Cr Ni ALLOYS	Graphyte	CARBON FIBER	KEVLAR	PAGE: TABLE	CUTTING SPEED
	100	1-12		Z 1							●						66	187
	Y800	0.4-6		Z 2							●	●					10	155
	205PM	0.1-4 shank 4-6		Z 2	●				●	●			●				17	157
	200G	1-12		Z 2										●			61	186
	200S	3-20		Z 2			●			●	●						96	198
	750	6-20		Z 2							●						67	187
	700	1-25		Z 2							●						68	187
	755	3-20		Z 2							●						68	187
	210	6-20		Z 2			●				●						66	198
	201	1-6 shank 6		Z 2			●			●	●						94	198 202
	200	1-25		Z 2			●			●	●						98	198
	200D	1-20		Z 2		●				●							95	198
	Y800M	1-16	rp	Z 2							●	●					11	155
	200M	0.4-2.5 shank 3	rp	Z 2		●			●	●							16	158
	205M	0.5-6 shank 4-6	rp	Z 2	●				●	●							19	158
	Y200R	1-16	rp	Z 2	●					●							26	162 -> 165
	200GD	0.4-2.5 shank 3	rp	Z 2										●			58	186
	204GD	0.4-3 shank 4	rp	Z 2										●			59	186
	730	3-20	rp	Z 2							●						70	187
	Y703	3-20	rp	Z 2							●						69	188
	Y700R	3-16	rp	Z 2							●						69	188 189
	200T	3-12	rp	Z 2			●			●							97	198
	Y800R	0.3-16		Z 2							●	●					12	156
	200RM	0.4-2.5 shank 3		Z 2		●			●	●			●				16	159
	205RM	0.1-4 shank 4-6		Z 2	●				●	●			●				21	159
	200SR	1-20		Z 2			●			●	●						97	161
	200RB	2-12	r = 260°	Z 2		●				●	●		●				26	160
	200DRJ	1-12		Z 2	●					●							27	166
	200DJ	1-12		Z 2	●					●							28	166

Applicazioni
Applications

Inhaltsverzeichnis - Matières - Применение - Aplikace

END MILL	CODE	Ø HEAD	SHAPE	Z no.	APPLICATIONS: STEEL HRC < 70	STEEL HRC < 60	STEEL HRC < 50	ALLOY STEEL	INOX Stainless Steel	CAST IRON	NE NON FERROUS	TI-Alloy	Cr Ni ALLOYS	Graphyte	CARBON FIBER	KEVLAR	PAGE: TABLE	CUTTING SPEED
	200SRJ	1-16		Z 2		●				●							28	167
	200SRJL	2-8		Z 2		●				●							29	167
	200GRD	0.4-2.5 shank 3		Z 2										●			58	186
	204GRD	0.4-3 shank 4		Z 2										●			60	186
	200GRL	1-10		Z 2										●			62	186
	700SR	3-20		Z 2							●						70	190
	201R	1-6 shank 6		Z 2			●			●	●						94	200
	200R	1-25		Z 2			●		●	●	●						99	161 200
	Y300	2-20		Z 3			●	●		●							42	171
	453	6-20		Z 3			●			●	●						71	195
	300	1-25		Z 3			●			●							100	195-> 198
	450	3-25		Z 3			●		●	●							102	195 196
	500	3-20		Z 3			●										102	195 196
	302	3-20		Z 3					●				●				43	172
	300V	3-20		Z 3					●		●	●	●				72	187
	456	3-20		Z 3							●						71	187
	T2202	6-20		Z 3							●						76	191
	452	3-25		Z 3			●		●	●			●				77	192
	451	6-20		Z 3			●		●	●			●				76	192
	455	6-20		Z 3			●		●				●				42	192
	454	6-18		Z 3			●		●				●				43	192
	Y803M	4-16		Z 3							●	●					13	155
	Y300R	3-12		Z 3			●		●				●				30	169 170
	300GD	1-12		Z 3										●			61	186
	756	6-20		Z 3							●						72	191
	300NRJ	3-12		Z 3	●					●							30	168
	300GRD	1-12		Z 3										●			62	186
	300R	1-25		Z 3			●		●	●	●						101	161 200
	Y804	4-16		Z 4			●			●	●	●					13	155

Applicazioni
Applications

Inhaltsverzeichnis - Matières - Применение - Aplikace

END MILL	CODE	Ø HEAD	SHAPE	Z no.	APPLICATIONS: STEEL HRC < 70	STEEL HRC < 60	STEEL HRC < 50	ALLOY STEEL	INOX Stainless Steel	CAST IRON	NE NON FERROUS	TI-Alloy	Cr Ni ALLOYS	Graphyte	CARBON FIBER	KEVLAR	PAGE: TABLE	CUTTING SPEED
	406	2-20		Z 4	●				●	●							31	175 176
	410	6-20		Z 4			●		●	●			●				44	195-> 198
	401	1-6 shank 6		Z 4			●			●							94	198 202
	400	1-25		Z 4			●			●							103	197 198
	400D	2-20		Z 4			●			●							95	198
	300C	2.5-12		Z3 - Z4			●		●	●	●	●	●				106	197 198
	400SV	3-20	45°	Z 4			●	●	●	●		●	●				48	182 183
	Y400P	3-20	45°	Z 4			●	●	●								46	181
	400V	3-20	45°	Z 4			●	●	●			●					47	181
	404	3-20	45°	Z 4					●				●				45	172
	T2201	3-20	45°	Z 4			●		●	●		●	●				78	182
	T2203	3-25	45°	Z 4			●			●		●					79	192
	T2204	3-25	45°	Z 4			●		●			●					79	184
	T2000	6-25	45°	Z 4			●			●	●		●	●			77	192
	T4000	6-25	45°	Z 4			●			●	●		●	●			78	192
	T3000	6-20	45°	Z 4			●		●		●		●				44	192
	T2200	6-20	45°	Z 4			●		●		●		●				45	192
	Y401	6-20	rp	Z 4					●				●				50	172 173
	Y303	3-12	rp	Z 4	●												31	177
	Y400RS	2-12	rp	Z 4	●					●							33	174
	Y406	3-20	rp	Z 4	●	●			●		●						32	175 176
	Y400D	2-16	rp	Z 4	●			●		●							34	177
	Y400R	4-12	rp	Z 4	●			●		●		●					48	178 -> 180
	Y400	3-20	rp	Z 4			●		●			●					46	181
	Y400V	3-20	rp	Z 4			●		●			●					47	181
	500RV	3-20	rp	Z 4			●	●	●			●	●				49	182 183
	400T	3-12	rp	Z 4		●	●	●	●		●	●					104	197
	500SV	3-12	rp	Z 5			●	●	●	●		●	●				50	182 183
	400RB	3-12	r = 260°	Z 4		●				●			●				27	160

Applicazioni
Applications

Inhaltsverzeichnis - Matières - Применение - Aplikace

APPLICATIONS																		PAGE	
					STEEL														
END MILL	CODE	Ø HEAD	SHAPE	Z no.	HRC < 70	HRC < 60	HRC < 50	ALLOY STEEL	INOX Stainless Steel	CAST IRON	NE NON FERROUS	TI-Alloy	Cr Ni ALLOYS	Graphyte	CARBON FIBER	KEVLAR	TABLE	CUTTING SPEED
	400SRJ	4-12		Z 4		●			●	●							29	167
	300CR	3-16		Z3 - Z4			●		●	●	●	●	●				107	161 200
	400R	1-25		Z 4			●		●	●	●						105	161 200
	T2204R	5-20		Z 4			●		●	●							80	198
	506	3-25		Z4 - Z12		●			●	●			●				35	173 184
	Y507	3-25	rp	Z4 - Z10			●	●					●				51	173 185
	Y508	6-25	rp	Z6 - Z10	●					●							36	184
	5010	3-12		Multi Z		●								●	●		40	194
	5020	3-12		Multi Z		●								●	●		41	194
	5030	3-12	135°	Multi Z		●								●	●		41	194
	5040	3-12	45°	Multi Z										●	●		40	185
	Y5040	6-12	rp	Multi Z										●			56	185
	5040R	6-12		Multi Z										●			56	185
	6010D	3-12	45°	Multi Z										●			57	185
	6010RD	3-12		Multi Z										●			57	185
	CTK.R	Rp 0.2-12	rp	Z4 - Z6		●			●	●	●						88	193
	600	MF4-M20	60° P	Z3 - Z4			●		●	●	●	●					84	205
	620 620F	M4-M16	60° P	Z 2		●			●	●	●	●	●				85	206
	200V	0.1-12		Z 2	●				●	●	●	●	●				85	206
	CTM	1-12	45°	Z3 - Z4		●			●	●	●	●	●				89	204
	CTS	3-12		Z3 - Z6		●			●	●	●	●	●				90	201
	CTK	5.3-25		Z 3			●		●	●	●	●	●				90	193
	142	6-12		Z 3			●		●	●	●	●	●				91	193
	140	0.8-4	60° 120°	Z 2			●		●	●	●	●	●				121	203
	200K	5-12		Z 2												●	52	52
	200KF	4.7-10		Z 2												●	52	52
	170	2.4-12		Z 2												●	53	53
	122T	3-20	3xd	Z 2		●			●	●	●						110	203
	122F	3-20	3xd	Z 2		●			●	●	●						111	204

Applicazioni

Applications

Inhaltsverzeichnis - Matières - Применение - Aplikace

END MILL	CODE	Ø HEAD	SHAPE	Z no.	APPLICATIONS: STEEL HRC < 70	STEEL HRC < 60	STEEL HRC < 50	ALLOY STEEL	INOX Stainless Steel	CAST IRON	NE NON FERROUS	TI-Alloy	Cr Ni ALLOYS	Graphyte	CARBON FIBER	KEVLAR	TABLE	CUTTING SPEED
	122TL	0.5-20	5xd	Z 2		●				●	●						112	203
	122FL	1-20	5xd	Z 2		●				●	●						113	204
	122FALX	3.5-20	8xd	Z 2		●				●	●						114	204
	145	3.3-17.5	150°	Z 3	●												114	114
	120	0.4-20	3xd	Z 2							●						118	203
	130	0.4-20	5xd	Z 2							●						119	203
	190T 90°-120°	3-20	90° 120°	Z 2			●			●	●						120	-
	190T 140°	3-20	140°	Z 2			●			●	●						120	-
	910	1-16	45°	DIN 212			●			●	●	●	●				124	193
	910T	0.1-12.51	45°	Z3 - Z6			●			●		●	●				124	193
	900T	1-13	45°	Z3 - Z6			●			●	●	●	●				125	193
	Rotary Files	1-25															128 136	-
	Pneumatic Grinder																138	-
	SCF	15-200					●	●	●	●	●	●	●				142	-
	VBE	2-20															146	-
Cilindrical Rods	CGRE VCE	1-32															147	-
Rods Straight Holes	CC3FD VC3FD	4-32															148	-
Rods Twisted Holes	CG3FE VC3FE	3-20															149	-

Caratteristiche dei nostri rivestimenti

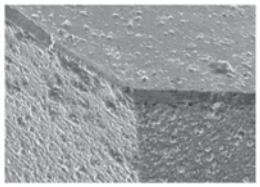
Technical instructions of our coatings

Daten Beschichtung - Propriétes des notre revetement

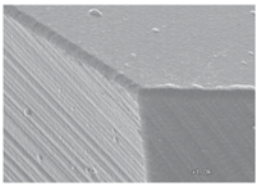
ТЕХНИЧЕСКИЕ ДАННЫЕ ПОКРЫТИЙ

AlTixN = Aluminium, Titanium, further elements, e.g., Silicon
AlTIN = Aluminium, Titanium and Nitrogen
TiB2 = Titaniumdiborite

FINISHING COATING OF COMPETITORS
ПОКРЫТИЯ ИСПОЛЬЗУЕМЫЕ КОНКУРЕНТАМИ



OUR FINISHING COATING
ИСПОЛЬЗУЕМЫЕ НАМИ ПОКРЫТИЯ



NAME	GOLD	HYPER	SILVER	ALUSPEED	DIAMOND G	DIAMOND F
COLOR	Rosso Red	Grigio Blu Grey-Blu	Nero Black	Giallo Chiaro Light Yellow	Nero Black	Nero Black
COMPOSITION	AlTixN	AltTiN	AltTiN	TiB2	Crystalline	Nano-Cristallyne
COATING STRUCTURE	Nanocomposition	Nanocomposition	Nanocomposition	Monolayer	sp3	sp3
MICRO HARDNESS HV	3800	3700	3500	400	10000	10000
MAXIMUN APPLICATION	1100°	1100°	1000°	900°	700°	700°
FRICTION COEFFICENT	0.3	0.3	0.3	-	-	low
COATING THICKNESS	-	-	3+/-1	2+/-0.7	6+2 micron	8+2 micron
APPLICATIONS	Steel < 72HRC Stainless steel Titanium Inconel	Steel < 60HRC Cast Iron Titanium	Aluminium	NE Non-ferrous Aluminium Titanium Copper	Graphyte	Carbon fiber

Micro frese per rame - Mini end mills for copper	9 - 13
Micro frese per acciaio - Mini end mills for steel	15 - 23
Frese per alta velocità e acciai duri - End mills for hight speed-hard cut	25 - 36
AEROSPACE Frese per materiali difficili da lavorare - End mills for difficult machining materials	39 - 53
Frese per grafite - End mills for graphite	55 - 62
Frese per alluminio - End mills for aluminum	65 - 72
Frese a sgrossare - Roughing end mills	75 - 81
Frese a filettare - Thread Milling end mills	83 - 85
Frese per svasatura - Countersink end mills	87 - 91
Frese convenzionali - Conventional end mills	93 - 107
Punte alto rendimento - High performance drills	109 - 115
Punte convenzionali - Conventional drills	117 - 121
Alesatori - Reamers	123 - 125
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Seghe circolari - Slitting Saws	141 - 143
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Velocità di taglio - Cutting speed	153 - 207



La musica è la rappresentazione sonora, simultanea,
del sentimento del *movimento* e del *movimento* del sentimento.

Music is the sound representation, simultaneously,
the feeling of *movement* and the *movement* of feeling.

M. Ageev

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Micro frese per rame
Mini end mills for copper

Mikrofräser für kupfer
Micro fraises pour cuivre
Мини фреза концевая для меди
Mini frézy pro obrábění mědi





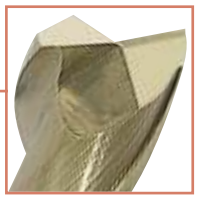




Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM-Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная для меди – Sk rohová fréza

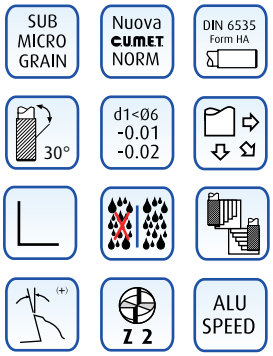


CODE	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y800.004.02540S4	**0.4**	4	0.5	2.5	40	0.35	2
Y800.004.02550S4	**0.4**	4	0.5	2.5	50	0.35	2
Y800.005.0340S4	**0.5**	4	0.6	3	40	0.45	2
Y800.005.0640S4	**0.5**	4	0.6	6	40	0.45	2
Y800.005.0350S4	**0.5**	4	0.6	3	50	0.45	2
Y800.005.0650S4	**0.5**	4	0.6	6	50	0.45	2
Y800.006.0340S4	**0.6**	4	0.7	3	40	0.55	2
Y800.006.0640S4	**0.6**	4	0.7	6	40	0.55	2
Y800.006.0350S4	**0.6**	4	0.7	3	50	0.55	2
Y800.006.0650S4	**0.6**	4	0.7	6	50	0.55	2
Y800.008.0440S4	**0.8**	4	1	4	40	0.75	2
Y800.008.0740S4	**0.8**	4	1	7	40	0.75	2
Y800.008.0450S4	**0.8**	4	1	4	50	0.75	2
Y800.008.0750S4	**0.8**	4	1	7	50	0.75	2
Y800.010.0440S4	**1**	4	2	4	40	0.95	2
Y800.010.0840S4	**1**	4	2	8	40	0.95	2
Y800.010.1040S4	**1**	4	2	10	40	0.95	2
Y800.010.1240S4	**1**	4	2	12	40	0.95	2
Y800.010.0450S4	**1**	4	2	4	50	0.95	2
Y800.010.0850S4	**1**	4	2	8	50	0.95	2
Y800.010.1050S4	**1**	4	2	10	50	0.95	2
Y800.010.1250S4	**1**	4	2	12	50	0.95	2
Y800.015.0540S4	**1.5**	4	2.5	5	40	1.45	2
Y800.015.1040S4	**1.5**	4	2.5	10	40	1.45	2
Y800.015.0550S4	**1.5**	4	2.5	5	50	1.45	2
Y800.015.1050S4	**1.5**	4	2.5	10	50	1.45	2
Y800.015.1550S4	**1.5**	4	2.5	15	50	1.45	2
Y800.020.0650S4	**2**	4	3	6	50	1.95	2
Y800.020.1250S4	**2**	4	3	12	50	1.95	2
Y800.020.1650S4	**2**	4	3	16	50	1.95	2
Y800.030.1250S4	**3**	4	5	12	50	2.90	2
Y800.030.1860S4	**3**	4	5	18	60	2.90	2
Y800.040.1660S6	**4**	6	8	16	57	3.8	2
Y800.050.1760S6	**5**	6	10	17	57	4.5	2
Y800.06.21.60	**6**	6	12	21	57	5.5	2

→ Help 155





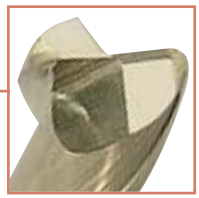


Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill

VHM-torusfräser - Fraise carbure avec rayon d'angle

Фреза концевая твердосплавная с угловым радиусом для меди - Sk fréza s rohovým rádiusem

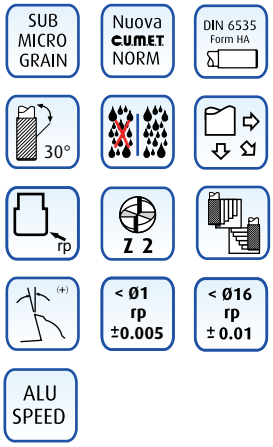


CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y800M010.0440R01	**1**	4	0.1	1.2	4	40	0.95	2
Y800M010.0840R01	**1**	4	0.1	1.2	8	40	0.95	2
Y800M010.1040R01	**1**	4	0.1	1.2	10	40	0.95	2
Y800M010.1240R01	**1**	4	0.1	1.2	12	40	0.95	2
Y800M010.0450R01	**1**	4	0.1	1.2	4	50	0.95	2
Y800M010.0850R01	**1**	4	0.1	1.2	8	50	0.95	2
Y800M010.1050R01	**1**	4	0.1	1.2	10	50	0.95	2
Y800M010.1250R01	**1**	4	0.1	1.2	12	50	0.95	2
Y800M015.0540R01	**1.5**	4	0.1	1.8	5	40	1.45	2
Y800M015.1040R01	**1.5**	4	0.1	1.8	10	40	1.45	2
Y800M015.0550R01	**1.5**	4	0.1	1.8	5	50	1.45	2
Y800M015.1050R01	**1.5**	4	0.1	1.8	10	50	1.45	2
Y800M015.1550R01	**1.5**	4	0.1	1.8	15	50	1.45	2
Y800M020.0650R01	**2**	4	0.1	2.2	6	50	1.95	2
Y800M020.1050R01	**2**	4	0.1	2.2	10	50	1.95	2
Y800M020.1250R01	**2**	4	0.1	2.2	12	50	1.95	2
Y800M020.1650R01	**2**	4	0.1	2.2	16	50	1.95	2
Y800M030.1250R02	**3**	4	0.2	7	12	50	2.90	2
Y800M030.1860R02	**3**	4	0.2	7	18	60	2.90	2
Y800M030.2560R02	**3**	4	0.2	7	25	60	2.90	2
Y800M040.1660R05	**4**	6	0.5	8	16	57	3.80	2
Y800M040.2060R05	**4**	6	0.5	8	20	57	3.80	2
Y800M050.1760R05	**5**	6	0.5	10	17	57	4.50	2
Y800M06.21.60R1	**6**	6	1	12	21	57	5.50	2
Y800M08.25.63R1	**8**	8	1	16	25	63	7.80	2
Y800M10.30.72R1	**10**	10	1	20	30	72	9.50	2
Y800M12.38.83R15	**12**	12	1.5	23	38	83	11.5	2
Y800M16.40100R15	**16**	16	1.5	26	40	100	15.5	2

→ **Help 155**

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø16 = f7

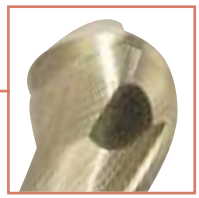




Fresa testa sferica 3D in metallo duro integrale

Solid carbide 3D ball nose end mill

VHM-3D Radiusfräser - Fraise carbure 3D à bout hémisphérique
Фреза концевая твердосплавная радиусная 3D для меди - Sk 3D kulová fréza



CODE	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y800R003.0240S4	**0.3**	4	0.4	2	40	0.25	2
Y800R003.0440S4	**0.3**	4	0.4	4	40	0.25	2
Y800R003.0250S4	**0.3**	4	0.4	2	50	0.25	2
Y800R003.0450S4	**0.3**	4	0.4	4	50	0.25	2
Y800R004.01540S4	**0.4**	4	0.4	1.5	40	0.35	2
Y800R004.01550S4	**0.4**	4	0.4	1.5	50	0.35	2
Y800R005.0240S4	**0.5**	4	0.6	2	40	0.45	2
Y800R005.0540S4	**0.5**	4	0.6	5	40	0.45	2
Y800R005.0250S4	**0.5**	4	0.6	2	50	0.45	2
Y800R005.0550S4	**0.5**	4	0.6	5	50	0.45	2
Y800R006.0240S4	**0.6**	4	0.7	2	40	0.55	2
Y800R006.0540S4	**0.6**	4	0.7	5	40	0.55	2
Y800R006.0250S4	**0.6**	4	0.7	2	50	0.55	2
Y800R006.0550S4	**0.6**	4	0.7	5	50	0.55	2
Y800R008.0440S4	**0.8**	4	0.8	4	40	0.75	2
Y800R008.0840S4	**0.8**	4	0.8	8	40	0.75	2
Y800R008.0450S4	**0.8**	4	0.8	4	50	0.75	2
Y800R008.0850S4	**0.8**	4	0.8	8	50	0.75	2
Y800R010.0440S4	**1**	4	1.2	4	40	0.95	2
Y800R010.0840S4	**1**	4	1.2	8	40	0.95	2
Y800R010.1040S4	**1**	4	1.2	10	40	0.95	2
Y800R010.1240S4	**1**	4	1.2	12	40	0.95	2
Y800R010.0450S4	**1**	4	1.2	4	50	0.95	2
Y800R010.0850S4	**1**	4	1.2	8	50	0.95	2
Y800R010.1050S4	**1**	4	1.2	10	50	0.95	2
Y800R010.1250S4	**1**	4	1.2	12	50	0.95	2
Y800R015.0540S4	**1.5**	4	1.8	5	40	1.45	2
Y800R015.1040S4	**1.5**	4	1.8	10	40	1.45	2
Y800R015.0550S4	**1.5**	4	1.8	5	50	1.45	2
Y800R015.1050S4	**1.5**	4	1.8	10	50	1.45	2
Y800R015.1550S4	**1.5**	4	1.8	15	50	1.45	2
Y800R020.0650S4	**2**	4	4	6	50	1.95	2
Y800R020.1050S4	**2**	4	4	10	50	1.95	2
Y800R020.1250S4	**2**	4	4	12	50	1.95	2
Y800R020.1650S4	**2**	4	4	16	50	1.95	2
Y800R030.1250S4	**3**	4	6	12	50	2.9	2
Y800R030.1860S4	**3**	4	6	18	60	2.9	2
Y800R040.1660S6	**4**	6	8	16	57	3.8	2
Y800R050.1760S6	**5**	6	10	17	57	4.5	2
Y800R06.21.60	**6**	6	12	21	57	5.5	2
Y800R08.25.63	**8**	8	16	25	63	7.5	2
Y800R10.30.72	**10**	10	20	30	72	9.5	2
Y800R12.38.83	**12**	12	24	38	83	11.5	2
Y800R16.40.100	**16**	16	26	40	100	15.5	2

→ Help 156

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø16 = f7



In questa sezione viene utilizzato un speciale rivestimento a basso coefficiente d'attrito ed una geometria specifica per ottimizzare la lavorazione del rame in sgrossatura e finitura.

On this section is used a special coating with low friction coefficient, specific geometry to optimize the processing of copper in roughing and finishing.

In diesem Abschnitt wird eine besondere Beschichtung mit einem niedrigen Reibungskoeffizienten und eine spezifische Geometrie, die Verarbeitung von Kupfer in Schruppen und Schlichten optimiert.

Cette section utilise un revêtement spécial pour le coefficient de frottement faible et une géométrie spécifique pour optimiser le traitement du cuivre dans l'ébauche et la finition.

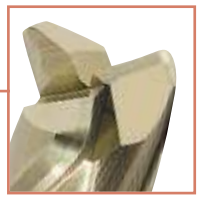
Специальное покрытие с низким коэфициентом трения, оригинальная геометрия для оптимизации черновой и чистовой операции обработки меди.

V této části je použit speciální povlak s nízkým koeficientem tření, specifická geometrie pro optimalizaci obrábění mědi v hrubování a dokončování.

Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill

VHM-torusfräser - Fraise carbure avec rayon d'angle
Фреза концевая твердосплавная с угловым радиусом для меди - Sk fréza s rohovým rádiusem

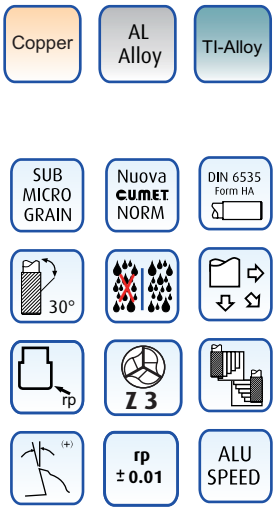


CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y803M040.2060R05	**4**	6	0.5	8	20	57	3.80	3
Y803M050.1760R05	**5**	6	0.5	10	17	57	4.50	3
Y803M06.21.60R1	**6**	6	1	12	21	57	5.50	3
Y803M08.25.63R1	**8**	8	1	16	25	63	7.80	3
Y803M10.30.72R1	**10**	10	1	20	30	72	9.50	3
Y803M12.38.83R15	**12**	12	1.5	23	38	83	11.5	3
Y803M16.40100R15	**16**	16	1.5	26	40	100	15.5	3

→ Help 155

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø16 = f7





Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM-Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная для меди - Sk rohová fréza

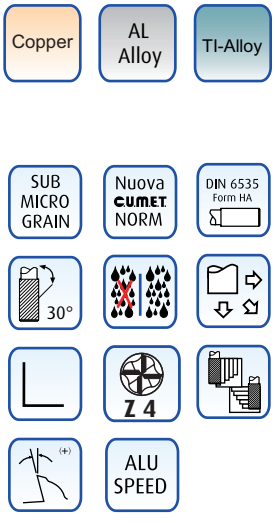


CODE	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y804.040.1660S6	**4**	6	8	16	57	3.8	4
Y804.050.1760S6	**5**	6	10	17	57	4.5	4
Y804.06.21.60	**6**	6	12	21	57	5.5	4
Y804.08.25.63	**8**	8	16	25	63	7.8	4
Y804.08.25.75	**8**	8	16	25	75	7.8	4
Y804.10.30.72	**10**	10	20	30	72	9.5	4
Y804.10.30.100	**10**	10	20	30	100	9.5	4
Y804.12.38.83	**12**	12	22	38	83	11.5	4
Y804.12.38.100	**12**	12	22	38	100	11.5	4
Y804.16.40.100	**16**	16	26	40	100	15.5	4

→ Help 155

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø16 = f7







L'innamoramento... è lo stato nascente di un *movimento* collettivo a due.

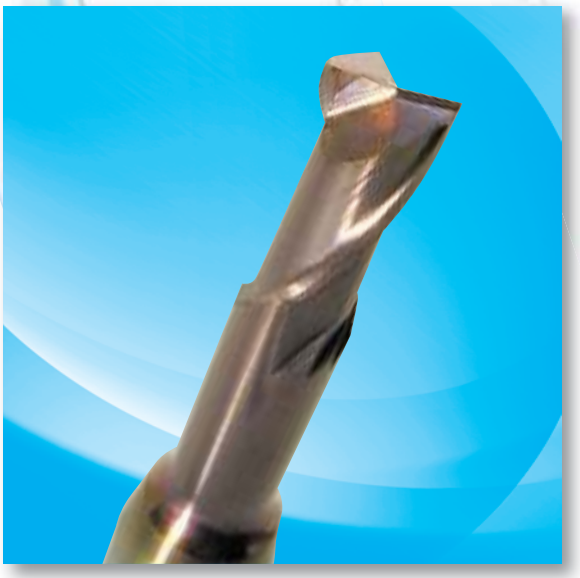
Falling in love ... is the beginning of a couple *movement*.

F. Alberoni

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Micro frese per acciaio
Mini end mills for steel

Mikrofräser für stahl
Micro fraises pour acier
Мини фреза концевая для стали
Mini fréza pro ocel

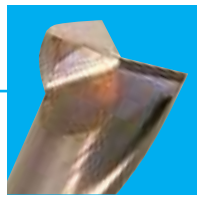






Microfresa testa torica in metallo duro integrale gambo Ø 3 mm

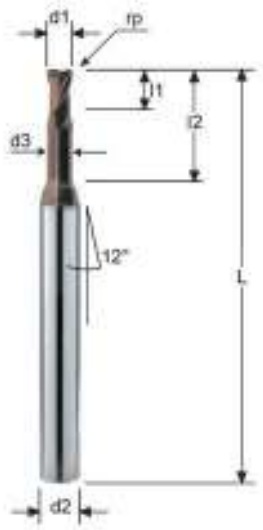
Solid carbide miniature corner radius end mill, shank Ø 3 mm

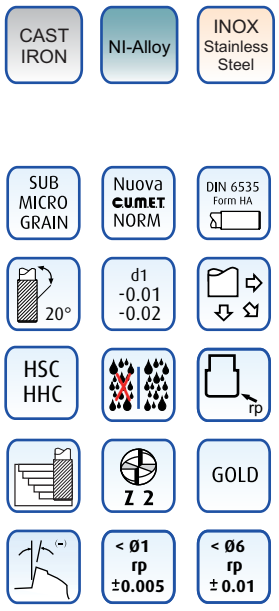


VHM - Mini Schaftfräser mit Eckenradius, Schaft Ø 3 mm - Microfraise carbure avec rayon d'angle, queue Ø 3 mm
Мини-фреза концевая твердосплавная с угловым радиусом, хвостовик Ø 3 mm
Sk miniaturní fréza s rohovým rádiusem se stopkou Ø 3 mm

CODE	d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
200M.004	**0.4**	3	-	0.6	-	50	-	2
200ML.004	**0.4**	3	-	0.6	1,5	50	0.35	2
200M.005	**0.5**	3	0.05	0.7	-	50	-	2
200ML.005	**0.5**	3	0.05	0.7	2,5	50	0.45	2
200MXL.005	**0.5**	3	0.05	0.7	4	50	0.45	2
200MSL.005	**0.5**	3	0.05	0.7	7,5	50	0.45	2
200M.006	**0.6**	3	0.05	0.9	-	50	-	2
200ML.006	**0.6**	3	0.05	0.9	5	50	0.55	2
200M.008	**0.8**	3	0.05	1.2	-	50	-	2
200ML.008	**0.8**	3	0.05	1.2	4	50	0.75	2
200MXL.008	**0.8**	3	0.05	1.2	7	50	0.75	2
200MSL.008	**0.8**	3	0.05	1.2	12	50	0.75	2
200M.010	**1.0**	3	0.10	1,5	-	50	-	2
200ML.010	**1.0**	3	0.10	1.5	5	50	0.95	2
200MXL.010	**1.0**	3	0.10	1.5	8,5	50	0.95	2
200M.012	**1.2**	3	0.10	1.8	-	50	-	2
200ML.012	**1.2**	3	0.10	1.8	6	50	1.15	2
200MXL.012	**1.2**	3	0.10	1.8	10	50	1.15	2
200M.015	**1.5**	3	0.15	2.2	-	50	-	2
200ML.015	**1.5**	3	0.15	2.2	7,5	50	1.45	2
200MXL.015	**1.5**	3	0.15	2.2	12	50	1.45	2
200M.020	**2.0**	3	0.15	2.2	-	50	-	2
200ML.020	**2.0**	3	0.15	2.2	10	50	1.95	2
200MXL.020	**2.0**	3	0.15	2.2	16	50	1.95	2
200M.025	**2.5**	3	0.15	3.0	-	50	-	2
200ML.025	**2.5**	3	0.15	3.0	15	50	2.45	2

→ Help 158





Microfresa testa sferica 3D in metallo duro integrale gambo Ø 3 mm

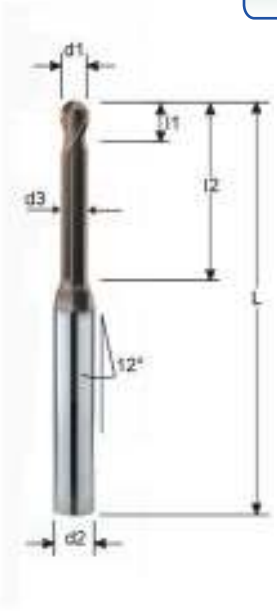
Solid carbide 3D miniature ball nose end mill, shank Ø 3 mm

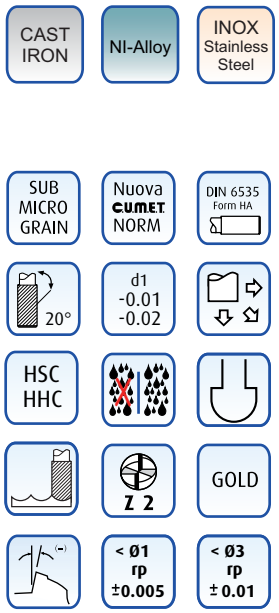


VHM - 3D Mini Radiusfräser, Schaft Ø 3 mm - Microfraise carbure mini 3D, hémisphérique, queue Ø 3 mm
Мини-фреза концевая твердосплавная полусферическая 3D, хвостовик Ø 3 mm
Sk 3D miniaturní kulová fréza se stopkou Ø 3 mm

CODE	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
200RM.004	**0.4**	3	0.4	-	50	-	2
200RML.004	**0.4**	3	0.4	1.5	50	0.35	2
200RM.005	**0.5**	3	0.5	-	50	-	2
200RML.005	**0.5**	3	0.5	2.5	50	0.45	2
200RMXL.005	**0.5**	3	0.5	4	50	0.45	2
200RMSL.005	**0.5**	3	0.5	7.5	50	0.45	2
200RM.006	**0.6**	3	0.6	-	50	-	2
200RML.006	**0.6**	3	0.6	5	50	0.55	2
200RM.008	**0.8**	3	0.8	-	50	-	2
200RML.008	**0.8**	3	0.8	4	50	0.75	2
200RMXL.008	**0.8**	3	0.8	7	50	0.75	2
200RMSL.008	**0.8**	3	0.8	12	50	0.75	2
200RM.010	**1.0**	3	1.0	-	50	-	2
200RML.010	**1.0**	3	1.0	5	50	0.95	2
200RMXL.010	**1.0**	3	1.0	8.5	50	0.95	2
200RMSL.010	**1.0**	3	1.0	15	50	0.95	2
200RM.012	**1.2**	3	1.2	-	50	-	2
200RML.012	**1.2**	3	1.2	6	50	1.15	2
200RMXL.012	**1.2**	3	1.2	10	50	1.15	2
200RM.015	**1.5**	3	1.5	-	50	-	2
200RML.015	**1.5**	3	1.5	7.5	50	1.45	2
200RMXL.015	**1.5**	3	1.5	12	50	1.45	2
200RMSL.015	**1.5**	3	1.5	20	50	1.45	2
200RM.020	**2.0**	3	2.0	-	50	-	2
200RML.020	**2.0**	3	2.0	10	50	1.95	2
200RMXL.020	**2.0**	3	2.0	16	50	1.95	2
200RM.025	**2.5**	3	2.5	-	50	-	2
200RML.025	**2.5**	3	2.5	15	50	2.45	2

→ Help 159

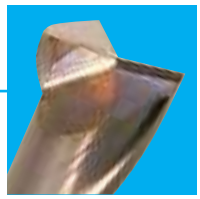




Microfresa testa piana in metallo duro integrale gambo Ø 4-6 mm

Solid carbide mini flat nose end mill shank Ø 4-6 mm

VHM – Mini gesenkfräser, shaft Ø 4-6 mm - Microfraise carbure à bout plat queue Ø 4-6 mm
Микро фреза концевая твердосплавная с плоским торцом, хвостовик Ø 4-6 mm
Sk minií rohová fréza se stopkou Ø 4-6 mm

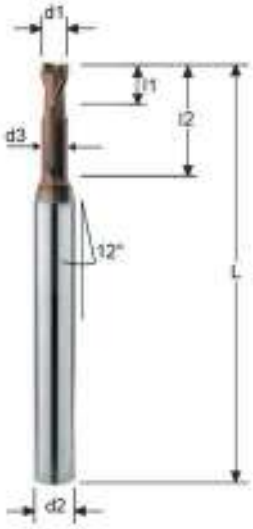


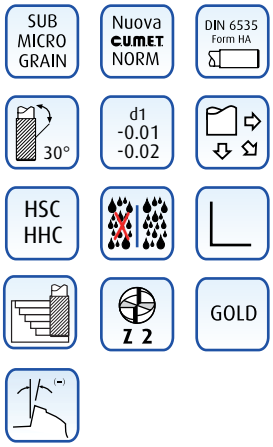
CODE	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
205PM001.002S4	**0.1**	4	0.2	-	50	-	2
205PM001.01S4	**0.1**	4	0.15	1	50	0.08	2
205PM001.02S4	**0.1**	4	0.15	2	50	0.08	2
205PM0015.002S4	**0.15**	4	0.2	-	50	-	2
205PM002.004S4	**0.2**	4	0.4	-	50	-	2
205PM002.01S4	**0.2**	4	0.3	1	50	0.15	2
205PM002.02S4	**0.2**	4	0.3	2	50	0.15	2
205PM003.01S4	**0.3**	4	0.4	1	50	0.25	2
205PM003.02S4	**0.3**	4	0.4	2	50	0.25	2
205PM003.03S4	**0.3**	4	0.4	3	50	0.25	2
205PM004.01S4	**0.4**	4	0.6	1	50	0.35	2
205PM004.02S4	**0.4**	4	0.6	2	50	0.35	2
205PM004.03S4	**0.4**	4	0.6	3	50	0.35	2
205PM004.04S4	**0.4**	4	0.6	4	50	0.35	2
205PM004.05S4	**0.4**	4	0.6	5	50	0.35	2
205PM005.02S4	**0.5**	4	0.8	2	50	0.45	2
205PM005.03S4	**0.5**	4	0.8	3	50	0.45	2
205PM005.04S4	**0.5**	4	0.8	4	50	0.45	2
205PM005.05S4	**0.5**	4	0.8	5	50	0.45	2
205PM005.06S4	**0.5**	4	0.8	6	50	0.45	2
205PM005.08S4	**0.5**	4	0.8	8	50	0.45	2
205PM005.10S4	**0.5**	4	0.8	10	50	0.45	2
205PM006.012S4	**0.6**	4	1.2	-	50	-	2
205PM006.02S4	**0.6**	4	0.9	2	50	0.55	2
205PM006.03S4	**0.6**	4	0.9	3	50	0.55	2
205PM006.04S4	**0.6**	4	0.9	4	50	0.55	2
205PM006.05S4	**0.6**	4	0.9	5	50	0.55	2
205PM006.06S4	**0.6**	4	0.9	6	50	0.55	2
205PM006.08S4	**0.6**	4	0.9	8	50	0.55	2
205PM006.10S4	**0.6**	4	0.9	10	50	0.55	2
205PM008.02S4	**0.8**	4	1.2	2	50	0.75	2
205PM008.04S4	**0.8**	4	1.2	4	50	0.75	2
205PM008.06S4	**0.8**	4	1.2	6	50	0.75	2
205PM008.08S4	**0.8**	4	1.2	8	50	0.75	2
205PM008.10S4	**0.8**	4	1.2	10	50	0.75	2
205PM010.02S4	**1.0**	4	1.5	2	50	0.95	2
205PM010.025S6	**1.0**	6	1.5	2.5	50	0.95	2
205PM010.03S4	**1.0**	4	1.5	3	50	0.95	2
205PM010.04S4	**1.0**	4	1.5	4	50	0.95	2
205PM010.06S4	**1.0**	4	1.5	6	50	0.95	2
205PM010.10S4	**1.0**	4	1.5	10	50	0.95	2
205PM010.14S4	**1.0**	4	1.5	14	50	0.95	2
205PM010.16S4	**1.0**	4	1.5	16	60	0.95	2
205PM010.18S4	**1.0**	4	1.5	18	60	0.95	2
205PM010.20S4	**1.0**	4	1.5	20	60	0.95	2
205PM012.004S4	**1.2**	4	4	-	50	-	2
205PM012.03S4	**1.2**	4	1.8	3	50	1.15	2
205PM012.04S4	**1.2**	4	1.8	4	50	1.15	2
205PM012.06S4	**1.2**	4	1.8	6	50	1.15	2
205PM012.08S4	**1.2**	4	1.8	8	50	1.15	2
205PM012.10S4	**1.2**	4	1.8	10	50	1.15	2
205PM012.12S4	**1.2**	4	1.8	12	50	1.15	2
205PM012.16S4	**1.2**	4	1.8	16	60	1.15	2

by exaustion

→ Help 157



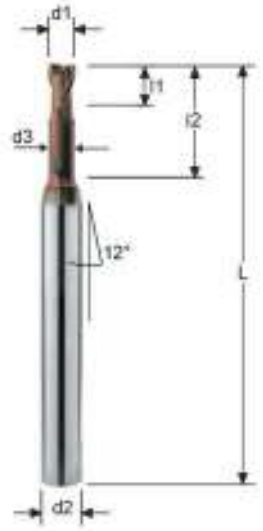


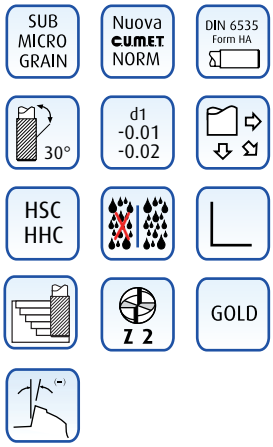


CODE	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
205PM013.04S4	**1.3**	4	4	-	50	-	2
205PM015.004S4	**1.5**	4	4	-	50	-	2
205PM015.04S6	**1.5**	6	4	-	50	1.45	2
205PM015.05S4	**1.5**	4	2.2	5	50	1.45	2
205PM015.08S4	**1.5**	4	2.2	8	50	1.45	2
205PM015.10S4	**1.5**	4	2.2	10	50	1.45	2
205PM015.12S4	**1.5**	4	2.2	12	50	1.45	2
205PM015.16S4	**1.5**	4	2.2	16	60	1.45	2
205PM015.18S4	**1.5**	4	2.2	18	60	1.45	2
205PM018.05S4	**1.8**	4	5.0	-	50	-	2
205PM020.006S4	**2.0**	4	6.0	-	50	-	2
205PM020.04S4	**2.0**	4	3.0	4	50	1.95	2
205PM020.06S4	**2.0**	4	3.0	6	50	1.95	2
205PM020.08S4	**2.0**	4	3.0	8	50	1.95	2
205PM020.10S4	**2.0**	4	3.0	10	50	1.95	2
205PM020.14S4	**2.0**	4	3.0	14	50	1.95	2
205PM020.16S4	**2.0**	4	3.0	16	60	1.95	2
205PM020.18S4	**2.0**	4	3.0	18	60	1.95	2
205PM020.20S4	**2.0**	4	3.0	20	60	1.95	2
205PM020.30S4	**2.0**	4	3.0	30	70	1.95	2
205PM025.08S4	**2.5**	4	8.0	-	50	-	2
205PM025.10S6	**2.5**	6	3.5	10	50	2.45	2
205PM025.14S6	**2.5**	6	3.5	14	57	2.45	2
205PM025.20S6	**2.5**	6	3.5	20	57	2.45	2
205PM025.25S6	**2.5**	6	3.5	25	70	2.45	2
205PM030.08S4	**3.0**	4	8.0	-	50	-	2
205PM030.06S6	**3.0**	6	4.0	6	50	2.95	2
205PM030.12S6	**3.0**	6	4.0	12	50	2.95	2
205PM030.14S6	**3.0**	6	4.0	14	57	2.95	2
205PM030.18S6	**3.0**	6	4.0	18	57	2.95	2
205PM030.20S6	**3.0**	6	4.0	20	57	2.95	2
205PM030.25S6	**3.0**	6	4.0	25	70	2.95	2
205PM030.30S6	**3.0**	6	4.0	30	70	2.95	2
205PM030.35S6	**3.0**	6	4.0	35	80	2.95	2
205PM030.40S6	**3.0**	6	4.0	40	80	2.95	2
205PM040.10S4	**4.0**	4	10.0	-	50	-	2
205PM040.08S6	**4.0**	6	6.0	8	50	3.85	2
205PM040.10S6	**4.0**	6	6.0	10	50	3.85	2
205PM040.12S6	**4.0**	6	6.0	12	50	3.85	2
205PM040.14S6	**4.0**	6	6.0	14	57	3.85	2
205PM040.16S6	**4.0**	6	6.0	16	57	3.85	2
205PM040.18S6	**4.0**	6	6.0	18	57	3.85	2
205PM040.20S6	**4.0**	6	6.0	20	57	3.85	2
205PM040.25S6	**4.0**	6	6.0	25	70	3.85	2
205PM040.30S6	**4.0**	6	6.0	30	70	3.85	2
205PM040.40S6	**4.0**	6	6.0	40	80	3.85	2
205PM040.45S6	**4.0**	6	6.0	45	90	3.85	2

→ Help 157



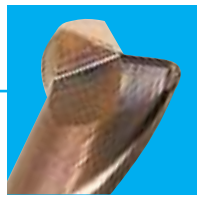




Microfresa testa torica in metallo duro integrale gambo Ø 4-6 mm

Solid carbide mini corner radius end mill shank Ø 4-6 mm

VHM – Mini torusfräser, shaft Ø 4-6 mm - Microfraise carbure avec rayon d'angle, queue Ø 4-6 mm
Микро фреза концевая твердосплавная с угловым радиусом, хвостовик Ø 4-6 mm
Sk minií fréza s rohovým rádiusem se stopkou Ø 4-6 mm

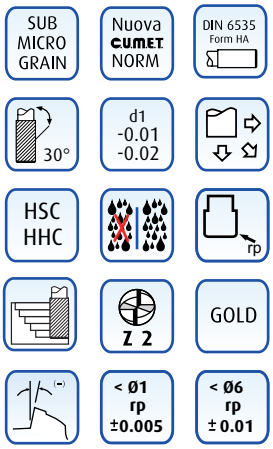


CODE	d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
205M006.01R005S4	**0.6**	4	0.05	1.0	-	50	-	2
205M009.015R005S4	**0.9**	4	0.05	1.5	-	50	-	2
205M010.025R01S4	**1.0**	4	0.1	2.5	-	50	-	2
205M010.025R02S4	**1.0**	4	0.2	2.5	-	50	-	2
205M010.025R03S4	**1.0**	4	0.3	2.5	-	50	-	2
205M010.04R01S4	**1.0**	4	0.1	1.5	4	50	0.95	2
205M010.04R02S4	**1.0**	4	0.2	1.5	4	50	0.95	2
205M010.06R03S4	**1.0**	4	0.3	1.5	6	50	0.95	2
205M010.08R01S4	**1.0**	4	0.1	1.5	8	50	0.95	2
205M010.08R02S4	**1.0**	4	0.2	1.5	8	50	0.95	2
205M010.10R01S4	**1.0**	4	0.1	1.5	10	50	0.95	2
205M010.10R02S4	**1.0**	4	0.2	1.5	10	50	0.95	2
205M010.12R01S4	**1.0**	4	0.1	1.5	12	50	0.95	2
205M010.12R02S4	**1.0**	4	0.2	1.5	12	50	0.95	2
205M010.12R03S4	**1.0**	4	0.3	1.5	12	50	0.95	2
205M015.03R01S4	**1.5**	4	0.1	3.0	-	50	-	2
205M015.03R02S4	**1.5**	4	0.2	3.0	-	50	-	2
205M015.03R03S4	**1.5**	4	0.3	3.0	-	50	-	2
205M015.03R05S4	**1.5**	4	0.5	3.0	-	50	-	2
205M015.06R01S4	**1.5**	4	0.1	2.2	6	50	1.45	2
205M015.06R02S4	**1.5**	4	0.2	2.2	6	50	1.45	2
205M015.06R03S4	**1.5**	4	0.3	2.2	6	50	1.45	2
205M015.08R02S4	**1.5**	4	0.2	2.2	8	50	1.45	2
205M015.08R03S4	**1.5**	4	0.3	2.2	8	50	1.45	2
205M015.10R02S4	**1.5**	4	0.2	2.2	10	50	1.45	2
205M015.10R03S4	**1.5**	4	0.3	2.2	10	50	1.45	2
205M015.12R02S4	**1.5**	4	0.2	2.2	12	50	1.45	2
205M015.16R02S4	**1.5**	4	0.2	2.2	16	50	1.45	2
205M020.05R01S4	**2.0**	4	0.1	5.0	-	50	-	2
205M020.05R02S4	**2.0**	4	0.2	5.0	-	50	-	2
205M020.05R05S4	**2.0**	4	0.5	5.0	-	50	-	2
205M020.06R01S4	**2.0**	4	0.1	3.0	6	50	1.95	2
205M020.06R02S4	**2.0**	4	0.2	3.0	6	50	1.95	2
205M020.06R03S4	**2.0**	4	0.3	3.0	6	50	1.95	2
205M020.06R05S4	**2.0**	4	0.5	3.0	6	50	1.95	2
205M020.08R01S4	**2.0**	4	0.1	3.0	8	50	1.95	2
205M020.08R02S4	**2.0**	4	0.2	3.0	8	50	1.95	2
205M020.08R03S4	**2.0**	4	0.3	3.0	8	50	1.95	2
205M020.08R05S4	**2.0**	4	0.5	3.0	8	50	1.95	2
205M020.10R01S4	**2.0**	4	0.1	3.0	10	50	1.95	2
205M020.10R02S4	**2.0**	4	0.2	3.0	10	50	1.95	2
205M020.10R03S4	**2.0**	4	0.3	3.0	10	50	1.95	2
205M020.10R05S4	**2.0**	4	0.5	3.0	10	50	1.95	2
205M020.12R01S4	**2.0**	4	0.1	3.0	12	50	1.95	2
205M020.12R02S4	**2.0**	4	0.2	3.0	12	50	1.95	2
205M020.12R03S4	**2.0**	4	0.3	3.0	12	50	1.95	2
205M020.12R05S4	**2.0**	4	0.5	3.0	12	50	1.95	2
205M020.16R05S4	**2.0**	4	0.5	3.0	16	60	1.95	2
205M025.06R02S6	**2.5**	6	0.2	6.0	-	50	-	2
205M025.06R03S6	**2.5**	6	0.3	6.0	-	50	-	2
205M025.06R05S6	**2.5**	6	0.5	6.0	-	50	-	2
205M030.08R02S6	**3.0**	6	0.2	8.0	-	50	-	2

→ Help 158







Microfresa testa torica in metallo duro integrale gambo Ø 4-6 mm

Solid carbide mini corner radius end mill shank Ø 4-6 mm

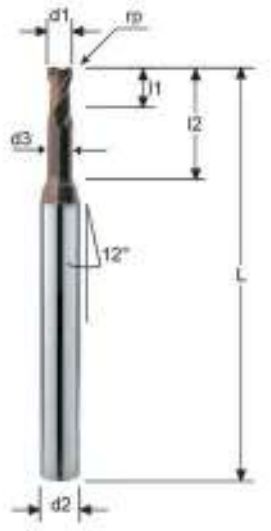
VHM – Mini torusfräser, shaft Ø 4-6 mm - Microfraise carbure avec rayon d'angle, queue Ø 4-6 mm
Микро фреза концевая твердосплавная с угловым радиусом, хвостовик Ø 4-6 mm
Sk mini fréza s rohovým rádiusem se stopkou Ø 4-6 mm



CODE	d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
205M030.08R03S6	**3.0**	6	0.3	8.0	-	50	-	2
205M030.08R05S6	**3.0**	6	0.5	8.0	-	50	-	2
205M030.08R1S6	**3.0**	6	1.0	8.0	-	50	-	2
205M030.10R01S6	**3.0**	6	0.1	4.0	10	57	2.85	2
205M030.10R02S6	**3.0**	6	0.2	4.0	10	57	2.85	2
205M030.10R03S6	**3.0**	6	0.3	4.0	10	57	2.85	2
205M030.10R05S6	**3.0**	6	0.5	4.0	10	57	2.85	2
205M030.12R01S6	**3.0**	6	0.1	4.0	12	57	2.85	2
205M030.12R02S6	**3.0**	6	0.2	4.0	12	57	2.85	2
205M030.12R05S6	**3.0**	6	0.5	4.0	12	57	2.85	2
205M030.16R01S6	**3.0**	6	0.1	4.0	16	57	2.85	2
205M030.16R02S6	**3.0**	6	0.2	4.0	16	57	2.85	2
205M030.16R03S6	**3.0**	6	0.3	4.0	16	57	2.85	2
205M030.16R05S6	**3.0**	6	0.5	4.0	16	57	2.85	2
205M030.20R02S6	**3.0**	6	0.2	4.0	20	57	2.85	2
205M030.20R03S6	**3.0**	6	0.3	4.0	20	57	2.85	2
205M030.20R05S6	**3.0**	6	0.5	4.0	20	57	2.85	2
205M040.08R01S6	**4.0**	6	0.1	8.0	-	50	-	2
205M040.08R02S6	**4.0**	6	0.2	8.0	-	50	-	2
205M040.08R03S6	**4.0**	6	0.3	8.0	-	50	-	2
205M040.08R05S6	**4.0**	6	0.5	8.0	-	50	-	2
205M040.08R1S6	**4.0**	6	1.0	8.0	-	50	-	2
205M040.12R01S6	**4.0**	6	0.1	6.0	12	50	3.85	2
205M040.12R02S6	**4.0**	6	0.2	6.0	12	50	3.85	2
205M040.12R05S6	**4.0**	6	0.5	6.0	12	50	3.85	2
205M040.16R01S6	**4.0**	6	0.1	6.0	16	57	3.85	2
205M040.16R02S6	**4.0**	6	0.2	6.0	16	57	3.85	2
205M040.16R03S6	**4.0**	6	0.3	6.0	16	57	3.85	2
205M040.16R05S6	**4.0**	6	0.5	6.0	16	57	3.85	2
205M040.20R02S6	**4.0**	6	0.2	6.0	20	57	3.85	2
205M040.20R03S6	**4.0**	6	0.3	6.0	20	57	3.85	2
205M040.20R05S6	**4.0**	6	0.5	6.0	20	57	3.85	2
205M040.25R02S6	**4.0**	6	0.2	6.0	25	70	3.85	2
205M040.25R03S6	**4.0**	6	0.3	6.0	25	70	3.85	2
205M040.25R05S6	**4.0**	6	0.5	6.0	25	70	3.85	2
205M050.10R05S6	**5.0**	6	0.5	10.0	-	57	-	2
205M060.12R01S6	**6.0**	6	0.1	12.0	-	57	-	2
205M060.12R02S6	**6.0**	6	0.2	12.0	-	57	-	2
205M060.12R03S6	**6.0**	6	0.3	12.0	-	57	-	2
205M060.12R05S6	**6.0**	6	0.5	12.0	-	57	-	2
205M060.12R1S6	**6.0**	6	1.0	12.0	-	57	-	2
205M060.12R15S6	**6.0**	6	1.5	12.0	-	57	-	2
205M060.12R2S6	**6.0**	6	2.0	12.0	-	57	-	2
205M060.16R01S6	**6.0**	6	0.1	8.0	16	57	5.85	2
205M060.16R02S6	**6.0**	6	0.2	8.0	16	57	5.85	2
205M060.16R03S6	**6.0**	6	0.3	8.0	16	57	5.85	2
205M060.16R05S6	**6.0**	6	0.5	8.0	16	57	5.85	2
205M060.16R1S6	**6.0**	6	1.0	8.0	16	57	5.85	2
205M060.16R15S6	**6.0**	6	1.5	8.0	16	57	5.85	2
205M060.20R01S6	**6.0**	6	0.1	8.0	20	57	5.85	2
205M060.20R02S6	**6.0**	6	0.2	8.0	20	57	5.85	2
205M060.20R03S6	**6.0**	6	0.3	8.0	20	57	5.85	2
205M060.20R05S6	**6.0**	6	0.5	8.0	20	57	5.85	2
205M060.20R1S6	**6.0**	6	1.0	8.0	20	57	5.85	2
205M060.20R15S6	**6.0**	6	1.5	8.0	20	57	5.85	2
205M060.25R1S6	**6.0**	6	1.0	8.0	25	70	5.85	2
205M060.25R15S6	**6.0**	6	1.5	8.0	25	70	5.85	2
205M060.30R1S6	**6.0**	6	1.0	8.0	30	70	5.85	2
205M060.30R15S6	**6.0**	6	1.5	8.0	30	70	5.85	2

→ Help 158

HRC < 70 | CAST IRON | NI-Alloy | INOX Stainless Steel



SUB MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

30° | d1 -0.01 -0.02 | HSC HHC | rp | Z 2 | GOLD | < Ø1 rp ±0.005 | < Ø6 rp ± 0.01

Microfresa testa sferica 3D in metallo duro integrale gambo Ø 4-6 mm

Solid carbide mini 3D ball nose end mill shank Ø 4-6 mm



VHM – 3D Mini Radiusfräser, shaft Ø 4-6 mm - Microfraise carbure mini 3D hémispherique, queue Ø 4-6 mm
Микро фреза концевая твердосплавная радиусная 3D, хвостовик Ø 4-6 mm
Sk mini 3D kulová se stopkou Ø 4-6 mm

CODE	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
205RM001.0012S4	**0.1**	4	0.12	-	50	-	2
205RM001.01S4	**0.1**	4	0.12	1	50	0.08	2
205RM001.02S4	**0.1**	4	0.12	2	50	0.08	2
205RM0015.0018S4	**0.15**	4	0.18	-	50	-	2
205RM003.004S4	**0.3**	4	0.4	-	50	0.25	2
205RM003.01S4	**0.3**	4	0.4	1	50	0.25	2
205RM003.02S4	**0.3**	4	0.4	2	50	0.25	2
205RM004.005S4	**0.4**	4	0.5	-	50	-	2
205RM004.02S4	**0.4**	4	0.5	2	50	0.35	2
205RM004.04S4	**0.4**	4	0.5	4	50	0.35	2
205RM004.05S4	**0.4**	4	0.5	5	50	0.35	2
205RM005.01S4	**0.5**	4	0.6	1	50	0.45	2
205RM005.02S4	**0.5**	4	0.6	2	50	0.45	2
205RM005.03S4	**0.5**	4	0.6	3	50	0.45	2
205RM005.04S4	**0.5**	4	0.6	4	50	0.45	2
205RM005.05S4	**0.5**	4	0.6	5	50	0.45	2
205RM005.06S4	**0.5**	4	0.6	6	50	0.45	2
205RM005.08S4	**0.5**	4	0.6	8	50	0.45	2
205RM006.01S4	**0.6**	4	0.7	1	50	-	2
205RM006.02S4	**0.6**	4	0.7	2	50	0.55	2
205RM006.03S4	**0.6**	4	0.7	3	50	0.55	2
205RM006.04S4	**0.6**	4	0.7	4	50	0.55	2
205RM006.05S4	**0.6**	4	0.7	5	50	0.55	2
205RM006.06S4	**0.6**	4	0.7	6	50	0.55	2
205RM006.08S4	**0.6**	4	0.7	8	50	0.55	2
205RM006.10S4	**0.6**	4	0.7	10	50	0.55	2
205RM007.03S4	**0.7**	4	0.8	3	50	0.65	2
205RM008.01S4	**0.8**	4	0.9	1	50	-	2
205RM008.02S4	**0.8**	4	0.9	2	50	0.75	2
205RM008.03S4	**0.8**	4	0.9	3	50	0.75	2
205RM008.04S4	**0.8**	4	0.9	4	50	0.75	2
205RM008.06S4	**0.8**	4	0.9	6	50	0.75	2
205RM008.08S4	**0.8**	4	0.9	8	50	0.75	2
205RM008.10S4	**0.8**	4	0.9	10	50	0.75	2
205RM010.002S4	**1.0**	4	2.0	-	50	-	2
205RM010.02S6	**1.0**	6	2.0	-	50	-	2
205RM010.02S4	**1.0**	4	1.2	2	50	0.95	2
205RM010.03S4	**1.0**	4	1.2	3	50	0.95	2
205RM010.04S4	**1.0**	4	1.2	4	50	0.95	2
205RM010.05S4	**1.0**	4	1.2	5	50	0.95	2
205RM010.06S4	**1.0**	4	1.2	6	50	0.95	2
205RM010.08S4	**1.0**	4	1.2	8	50	0.95	2

by exaustion

→ Help 159

HRC < 70 | CAST IRON | NI-Alloy | INOX Stainless Steel



SUB MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

30° | d1 -0.01 -0.02

HSC HHC

Z 2 | GOLD

< Ø1 rp ±0.005 | < Ø6 rp ± 0.01

Microfresa testa sferica 3D in metallo duro integrale gambo Ø 4-6 mm

Solid carbide mini 3D ball nose end mill shank Ø 4-6 mm

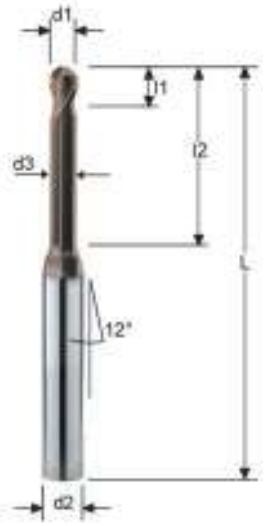


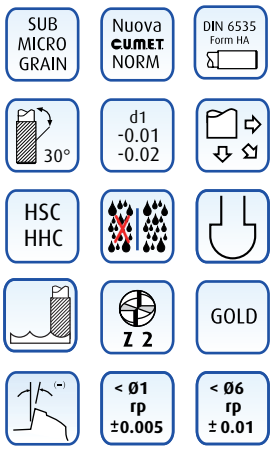
VHM – 3D Mini Radiusfräser, shaft Ø 4-6 mm - Microfraise carbure mini 3D hémispherique, queue Ø 4-6 mm
Микро фреза концевая твердосплавная радиусная 3D, хвостовик Ø 4-6 mm
Sk mini 3D kulová se stopkou Ø 4-6 mm

CODE	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
205RM010.10S4	**1.0**	4	1.2	10	50	0.95	2
205RM010.12S4	**1.0**	4	1.2	12	50	0.95	2
205RM010.16S4	**1.0**	4	1.2	16	60	0.95	2
205RM010.20S4	**1.0**	4	1.2	20	60	0.95	2
205RM012.003S4	**1.2**	4	3.0	-	50	-	2
205RM012.03S4	**1.2**	4	1.4	3	50	1.15	2
205RM014.03S4	**1.4**	4	3.0	-	50	-	2
205RM014.08S4	**1.4**	4	1.7	8	50	1.35	2
205RM015.03S4	**1.5**	4	1.8	3	50	1.45	2
205RM015.03S6	**1.5**	6	3.0	-	50	1.45	2
205RM015.06S4	**1.5**	4	1.8	6	50	1.45	2
205RM015.08S4	**1.5**	4	1.8	8	50	1.45	2
205RM015.10S4	**1.5**	4	1.8	10	50	1.45	2
205RM015.16S4	**1.5**	4	1.8	16	60	1.45	2
205RM015.20S4	**1.5**	4	1.8	20	60	1.45	2
205RM016.03S4	**1.6**	4	3.0	-	50	-	2
205RM016.10S4	**1.6**	4	1.9	10	50	1.55	2
205RM018.04S4	**1.8**	4	4.0	-	50	-	2
205RM019.04S4	**1.9**	4	4.0	-	50	-	2
205RM020.05S4	**2.0**	4	5.0	-	50	-	2
205RM020.05S6	**2.0**	6	5.0	-	50	-	2
205RM020.04S4	**2.0**	4	2.2	4	50	1.95	2
205RM020.06S4	**2.0**	4	2.2	6	50	1.95	2
205RM020.08S4	**2.0**	4	2.2	8	50	1.95	2
205RM020.10S4	**2.0**	4	2.2	10	50	1.95	2
205RM020.12S4	**2.0**	4	2.2	12	50	1.95	2
205RM020.14S4	**2.0**	4	2.2	14	50	1.95	2
205RM020.16S4	**2.0**	4	2.2	16	60	1.95	2
205RM020.18S4	**2.0**	4	2.2	18	60	1.95	2
205RM020.20S4	**2.0**	4	2.2	20	60	1.95	2
205RM020.30S4	**2.0**	4	2.2	30	70	1.95	2

→ Help 159









Microfresa testa sferica 3D in metallo duro integrale gambo Ø 4-6 mm

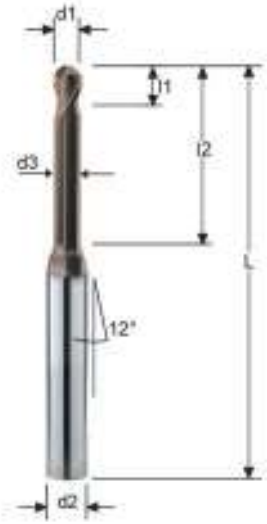
Solid carbide mini 3D ball nose end mill shank Ø 4-6 mm

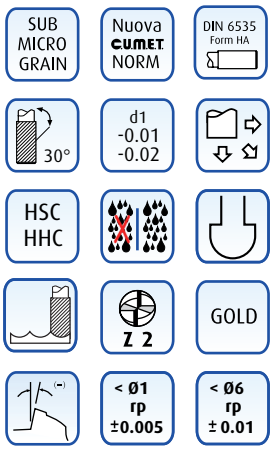
VHM – 3D Mini Radiusfräser, shaft Ø 4-6 mm - Microfraise carbure mini 3D hémispherique, queue Ø 4-6 mm
Микро фреза концевая твердосплавная радиусная 3D, хвостовик Ø 4-6 mm
Sk mini 3D kulová se stopkou Ø 4-6 mm

CODE	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
205RM025.06S4	**2.5**	4	6.0	-	50	-	2
205RM025.06S6	**2.5**	6	6.0	-	50	-	2
205RM025.10S6	**2.5**	6	3.0	10	50	2.45	2
205RM025.14S6	**2.5**	6	3.0	14	57	2.45	2
205RM025.16S6	**2.5**	6	3.0	16	57	2.45	2
205RM025.20S6	**2.5**	6	3.0	20	57	2.45	2
205RM025.25S6	**2.5**	6	3.0	25	70	2.45	2
205RM030.08S4	**3.0**	4	8.0	-	60	-	2
205RM030.008S6	**3.0**	6	8.0	-	57	-	2
205RM030.06S6	**3.0**	6	3.6	6	50	2.95	2
205RM030.08S6	**3.0**	6	3.6	8	50	2.95	2
205RM030.10S6	**3.0**	6	3.6	10	50	2.95	2
205RM030.12S6	**3.0**	6	3.6	12	50	2.95	2
205RM030.16S6	**3.0**	6	3.6	16	57	2.95	2
205RM030.18S6	**3.0**	6	3.6	18	57	2.95	2
205RM030.20S6	**3.0**	6	3.6	20	57	2.95	2
205RM030.25S6	**3.0**	6	3.6	25	70	2.95	2
205RM030.30S6	**3.0**	6	3.6	30	70	2.95	2
205RM030.40S6	**3.0**	6	3.6	40	80	2.95	2
205RM040.08S4	**4.0**	4	8.0	-	50	-	2
205RM040.008S6	**4.0**	6	8.0	-	50	-	2
205RM040.08S6	**4.0**	6	5.0	8	50	3.85	2
205RM040.10S6	**4.0**	6	5.0	10	50	3.85	2
205RM040.12S6	**4.0**	6	5.0	12	50	3.85	2
205RM040.16S6	**4.0**	6	5.0	16	57	3.85	2
205RM040.20S6	**4.0**	6	5.0	20	57	3.85	2
205RM040.25S6	**4.0**	6	5.0	25	70	3.85	2
205RM040.30S6	**4.0**	6	5.0	30	70	3.85	2
205RM040.35S6	**4.0**	6	5.0	35	80	3.85	2
205RM040.45S6	**4.0**	6	5.0	45	90	3.85	2
205RM040.50S6	**4.0**	6	5.0	50	90	3.85	2

→ Help 159-160









La nostra economia è in ***movimento*** e stiamo creando migliaia di nuovi posti di lavoro, ma dobbiamo mantenere il nostro piede sul pedale del gas.

Our economy is on the ***move*** and we are creating thousands of new jobs, but we need to keep our foot on the gas pedal.

Mitt Romney

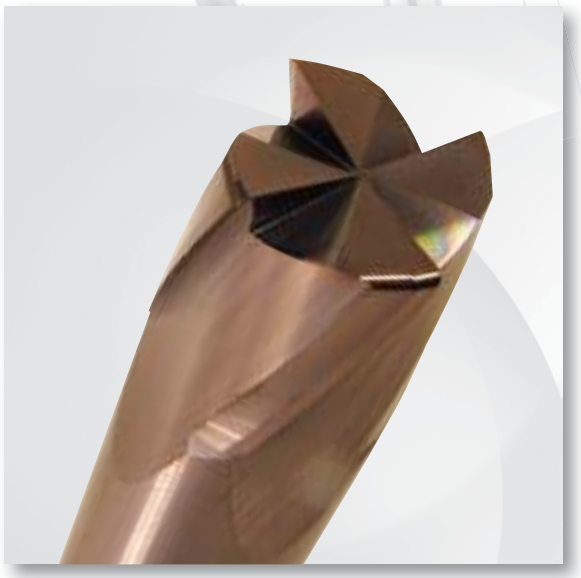
Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Frese per alta velocità e acciai duri

End mills for hight speed-hard cut

Fräser für HSC und Geartetem Stahl
Fraises pour HSC et pour aciers temperé
Фреза концевая для высокоскоростной тяжелой обработки
Vysoko rychlostní frézy pro těžký řez









Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill

VHM – Torusfräser - Fraise carbure avec rayon d'angle
Фреза концевая твердосплавная с угловым радиусом - Sk fréza s rohovým rádiusem

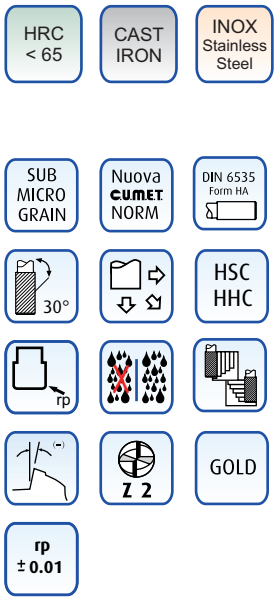


CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.	α°
Y200R.010.02	**1**	6	0.2	1.5	-	75	-	2	13°30′
Y200R.015.02	**1.5**	6	0.2	2.5	-	75	-	2	15°
Y200R.020.03	**2**	6	0.3	3.0	-	75	-	2	13°30′
Y200R.030.03	**3**	6	0.3	5.0	-	75	-	2	10°30′
Y200R.040.05	**4**	6	0.5	6.0	-	75	-	2	6°
Y200R.040.1	**4**	6	1.0	6.0	-	75	-	2	6°
Y200R.060.05	**6**	6	0.5	10.0	20	100	5.8	2	-
Y200R.060.1	**6**	6	1.0	10.0	20	100	5.8	2	-
Y200R.080.05	**8**	8	0.5	12.0	24	100	7.8	2	-
Y200R.080.1	**8**	8	1.0	12.0	24	100	7.8	2	-
Y200R.100.05	**10**	10	0.5	15.0	30	100	9.8	2	-
Y200R.100.1	**10**	10	1.0	15.0	30	100	9.8	2	-
Y200R.100.15	**10**	10	1.5	15.0	30	100	9.8	2	-
Y200R.120.1	**12**	12	1.0	18.0	36	100	11.8	2	-
Y200R.120.15	**12**	12	1.5	18.0	36	100	11.8	2	-
Y200R.120.2	**12**	12	2.0	18.0	36	100	11.8	2	-
Y200R.160.15	**16**	16	1.5	25.0	40	100	15.8	2	-
Y200R.160.2	**16**	16	2.0	25.0	40	100	15.8	2	-

→ **Help 162-163-164-165**

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø16 = f7

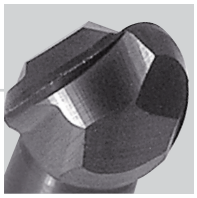




Fresa a palla 3D 260° in metallo duro integrale

Solid carbide 3D 260° ball end mill

VHM - 3D 260° Radiusfräser - Fraise carbure 3D 260° a balle
Фреза концевая твердосплавная сферическая 3D 260° - Sk 3D 260° kulová fréza

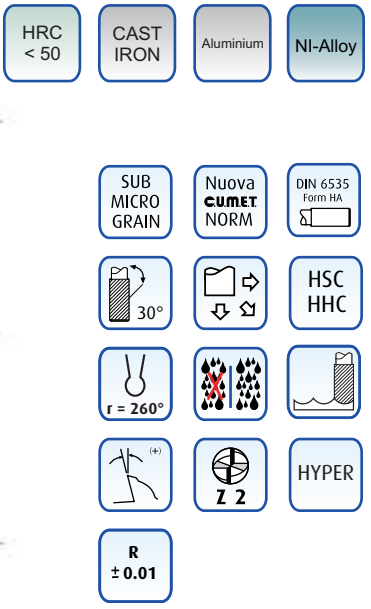


CODE	*d1 mm	d2h6 mm	l1 mm	d3 mm	l2 mm	L mm	Z no.	α°
200RB020075	**2**	4	1.7	1.0	17	75	2	6°
200RB030100	**3**	6	2.6	1.7	17	100	2	8°
200RB030150	**3**	6	2.6	1.7	30	150	2	4°25′
200RB040100	**4**	6	3.5	2.4	17	100	2	7°
200RB040150	**4**	6	3.5	2.4	30	150	2	3°50′
200RB050100	**5**	6	4	4.3	30	100	2	1°40′
200RB060100	**6**	6	5.2	4.0	30	100	2	2°10′
200RB060150	**6**	6	5.2	4.0	45	150	2	1°20′
200RB080100	**8**	8	7.0	5.0	35	100	2	3°10′
200RB080150	**8**	8	7.0	5.0	50	150	2	1°55′
200RB100100	**10**	10	8.7	6.1	40	100	2	3°40′
200RB100150	**10**	10	8.7	6.1	60	150	2	2°10′
200RB120100	**12**	12	10.5	7.5	50	100	2	3°10′
200RB120150	**12**	12	10.5	7.5	75	150	2	1°50′

→ **Help 160**

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø12 = f7





Fresa a palla 3D 260° in metallo duro integrale
Solid carbide 3D 260° ball end mill

VHM - 3D 260° Radiusfräser - Fraise carbure 3D 260° a balle
Фреза концевая твердосплавная сферическая 3D 260° - Sk 3D 260° kulová fréza

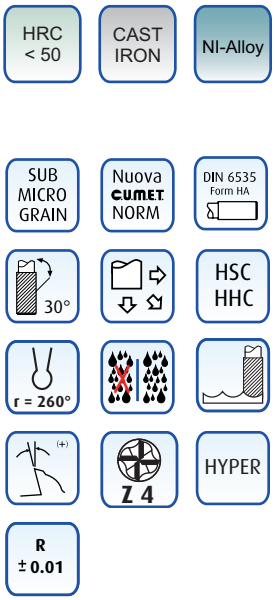


CODE	*d1 mm	d2h6 mm	l1 mm	d3 mm	l2 mm	L mm	Z no.	α°
400RB030100	**3**	6	2.6	1.7	17	100	4	8°
400RB040100	**4**	6	3.5	2.4	17	100	4	7°
400RB050100	**5**	6	4.0	4.3	30	100	4	1°40′
400RB060100	**6**	6	5.2	4.0	30	100	4	2°10′
400RB060150	**6**	6	5.2	4.0	45	150	4	1°20′
400RB080100	**8**	8	7.0	5.0	35	100	4	3°10′
400RB080150	**8**	8	7.0	5.0	50	150	4	1°55′
400RB100100	**10**	10	8.7	6.1	40	100	4	3°40′
400RB100150	**10**	10	8.7	6.1	60	150	4	2°10′
400RB120100	**12**	12	10.5	7.5	50	100	4	3°10′
400RB120150	**12**	12	10.5	7.5	75	150	4	1°50′

→ Help 160

*d1 ≤ ø12 = f7





Fresa testa sferica 3D Hard Cut in metallo duro integrale
Solid carbide 3D ball nose end mill, Hard Cut

VHM - 3D Radiusfräser, Hard Cut - Fraise carbure 3D hémisphérique, Hard Cut
Фреза концевая твердосплавная полусферическая 3D для твердых материалов
Sk kulová fréza pro těžký řez

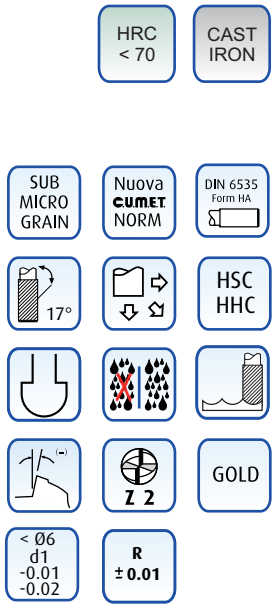


CODE	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.	α°
200DRJ.01050	**1**	6	1	3	50	0.95	2	20°
200DRJ.02050	**2**	6	3	6	50	1.95	2	10°
200DRJ.02057	**2**	6	3	6	57	1.95	2	10°
200DRJ.02075	**2**	6	2	6	75	1.95	2	10°
200DRJ.03050	**3**	6	4	9	50	2.9	2	8°
200DRJ.03057	**3**	6	4	9	57	2.9	2	8°
200DRJ.03075	**3**	6	3	9	75	2.9	2	8°
200DRJ.04050	**4**	6	5	12	50	3.9	2	6°
200DRJ.04057	**4**	6	5	12	57	3.9	2	6°
200DRJ.04075	**4**	6	4	12	75	3.9	2	6°
200DRJ.05057	**5**	6	6	16	57	4.9	2	3°
200DRJ.05075	**5**	6	6	16	75	4.9	2	3°
200DRJ.06057	**6**	6	6	20	57	5.9	2	-
200DRJ.06075	**6**	6	6	20	75	5.9	2	-
200DRJ.06100	**6**	6	6	20	100	5.9	2	-
200DRJ.06100.1	**6**	8	6	12	100	5.9	2	7°
200DRJ.08060	**8**	8	9	16	60	7.8	2	-
200DRJ.08075	**8**	8	9	29	75	7.8	2	-
200DRJ.08100	**8**	8	9	29	100	7.8	2	-
200DRJ.08100.1	**8**	10	9	29	100	7.8	2	8°
200DRJ.10070	**10**	10	10	20	70	9.8	2	-
200DRJ.10080	**10**	10	10	35	80	9.8	2	-
200DRJ.10100	**10**	10	10	35	100	9.8	2	-
200DRJ.10100.1	**10**	12	10	35	100	9.8	2	8°
200DRJ.12075	**12**	12	12	24	75	11.8	2	-
200DRJ.12100	**12**	12	12	37	100	11.8	2	-

→ Help 166

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø12 = f7





Fresa testa sferica 3D rastremata extralunga in metallo duro integrale

Solid carbide 3D ball nose end mill, extra long tapered neck



VHM-3D- Radiusfräser mit Kugelstirn, überlang - Fraise carbure 3D hémisphérique, ultra-longue
Фреза концевая твердосплавная полусферическая 3D длинная
Sk 3D kulová fréza, extra dlouhá kuželová stopka

CODE	*d1 mm	d2h6 mm	L1 mm	L2 mm	L3 mm	L mm	d3 mm	Z no.	α°
200DJ.010	**1**	6	2	5	35	100	0,95	2	4°44'
200DJ.015	**1,5**	6	3	6	35	100	1,45	2	4°56'
200DJ.020	**2**	6	3	7	35	100	1,95	2	5°
200DJ.030	**3**	6	4	10	35	100	2,9	2	5°43'
200DJ.040	**4**	6	5	13	35	100	3,8	2	6°29'
200DJ.050	**5**	6	6	16	35	100	4,8	2	7°30'
200DJ.060	**6**	8	6	18	35	100	5,8	2	3°22'
200DJ.080	**8**	10	8	24	58	109	7,8	2	1°40'
200DJ.100	**10**	12	10	30	58	109	9,8	2	2°
200DJ.120	**12**	14	12	36	58	109	11,8	2	1°

→ Help 166

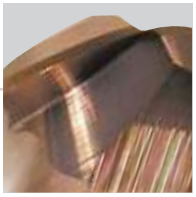
*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø12 = f7



HRC < 70 | CAST IRON | SUB MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | 0° | HSC HHC | Z 2 | GOLD | R ± 0.01

Fresa testa sferica 3D in metallo duro integrale

Solid carbide 3D ball nose end mill



VHM - 3D Radiusfräser - Fraise carbure 3D hémisphérique
Фреза концевая твердосплавная полусферическая 3D, для твердых материалов
Sk 3D kulová fréza

CODE	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	Z no.	α°
200SRJ.01050S4	**1**	4	1.5	15	50	2	6°
200SRJ.01050S6	**1**	6	1.5	15	50	2	10°52'
200SRJ.01550S4	**1.5**	4	2.5	15	50	2	4°45'
200SRJ.01550S6	**1.5**	6	2.5	15	50	2	9°49'
200SRJ.02075S4	**2**	4	3	15	75	2	5°
200SRJ.02050S6	**2**	6	3	15	50	2	10°
200SRJ.02550	**2.5**	6	3	15	50	2	9°
200SRJ.03075	**3**	6	4.5	20	75	2	5°30'
200SRJ.04075	**4**	6	6	20	75	2	4°
200SRJ.05075	**5**	6	7.5	20	75	2	2°
200SRJ.06050	**6**	6	9	-	50	2	-
200SRJ.06100	**6**	6	9	-	100	2	-
200SRJ.08100	**8**	8	12	-	100	2	-
200SRJ.10100	**10**	10	15	-	100	2	-
200SRJ.10150	**10**	10	15	-	150	2	-
200SRJ.12100	**12**	12	18	-	100	2	-
200SRJ.12150	**12**	12	18	-	150	2	-
200SRJ.16100	**16**	16	24	-	100	2	-

→ Help 167

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø20 = f7

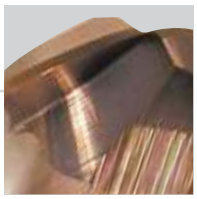


HRC < 55 | CAST IRON | MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | 30° | HSC HHC | Z 2 | GOLD | R ± 0.01

Fresa testa sferica rastremata extralunga in metallo duro integrale

Solid carbide 3D ball nose end mill, extra long tapered neck

VHM-3D- Radiusfräser mit Kugelstirn, überlang - Fraise carbure 3D hémisphérique, ultra-longue
Фреза концевая твердосплавная полусферическая 3D длинная
Sk 3D kulová fréza extra dlouhá kuželová stopka

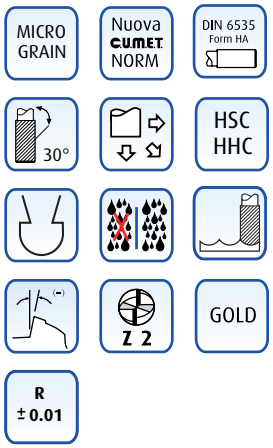


CODE	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	Z no.	α°
200SRJL.02150	**2**	6	3	60	150	2	2°
200SRJL.03150	**3**	6	4.5	60	150	2	1°30′
200SRJL.04150	**4**	6	6	60	150	2	1°
200SRJL.04150.1	**4**	8	20	80	150	2	1°56′
200SRJL.05150	**5**	6	7.5	60	150	2	0°30′
200SRJL.05150.1	**5**	6	20	80	150	2	0°30′
200SRJL.06150	**6**	8	9	80	150	2	0°45′
200SRJL.06150.1	**6**	8	20	60	150	2	1°
200SRJL.08150	**8**	10	12	60	150	2	1°

→ Help 167

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø 8 = f7





Fresa testa sferica 3D rastremata extralunga in metallo duro integrale

Solid carbide 3D ball nose end mill, extra long tapered neck

VHM-3D- Radiusfräser mit Kugelstirn, überlang - Fraise carbure 3D hémisphérique, ultra-longue
Фреза концевая твердосплавная полусферическая 3D, длинная
Sk 3D kulová fréza extra dlouhá kuželová stopka

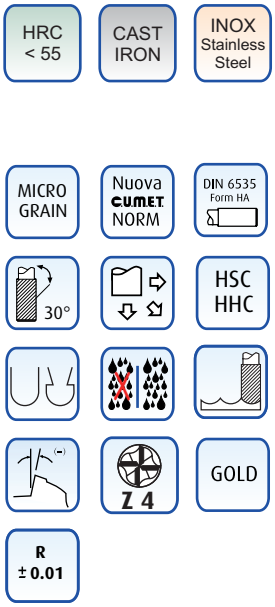


CODE	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	Z no.	α°
400SRJ.040150	**4**	6	6	60	150	4	1°
400SRJ.040150.1	**4**	8	20	60	150	4	1°30′
400SRJ.060150	**6**	8	9	80	150	4	0°45′
400SRJ.060150.1	**6**	8	20	60	150	4	1°30′
400SRJ.080150	**8**	10	12	60	150	4	1°
400SRJ.100150	**10**	10	15	-	150	4	-
400SRJ.120150	**12**	12	18	-	150	4	-

→ Help 167

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø12 = f7





Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill

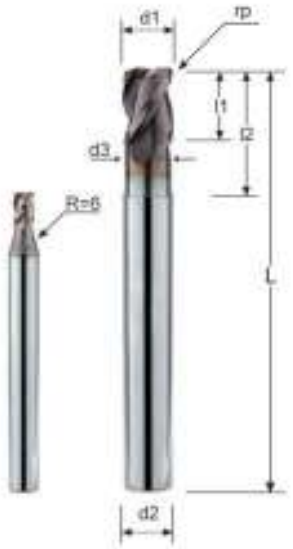
VHM - Torusfräser - Fraise carbure avec rayon d'angle
Фреза концевая твердосплавная с угловым радиусом - Sk fréza s rohovým rádiusem

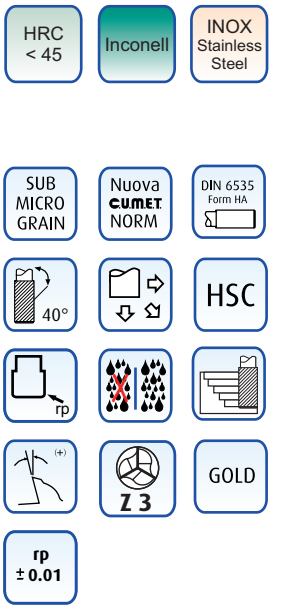


CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y300R.030.03	**3**	6	0.3	4.5	7	75	2.9	3
Y300R.040.04	**4**	6	0.4	6	9	75	3.9	3
Y300R.060.05	**6**	6	0.5	9	13	100	5.8	3
Y300R.060.1	**6**	6	1.0	9	13	100	5.8	3
Y300R.080.05	**8**	8	0.5	12	18	100	7.7	3
Y300R.080.1	**8**	8	1.0	12	18	100	7.7	3
Y300R.100.05	**10**	10	0.5	15	25	100	9.7	3
Y300R.100.1	**10**	10	1.0	15	25	100	9.7	3
Y300R.120.05	**12**	12	0.5	18	30	100	11.7	3
Y300R.120.1	**12**	12	1.0	18	30	100	11.7	3

→ Help 169-170

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø12 = f7





Fresa testa sferica 3D Hard Cut in metallo duro integrale

Solid carbide 3D ball nose end mill, Hard Cut

VHM - 3D Radiusfräser, Hard Cut - Fraise carbure 3D hémisphérique, Hard Cut
Фреза концевая твердосплавная полусферическая 3D для твердых материалов
Sk 3D kulová fréza pro těžký řez

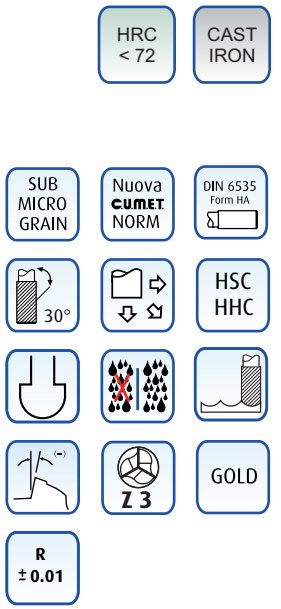


CODE	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
300NRJ.030	**3**	6	4.5	7.5	75	2.9	3
300NRJ.040	**4**	6	6	9	75	3.9	3
300NRJ.050	**5**	6	7	10	75	4.9	3
300NRJ.060	**6**	6	9	15	100	5.9	3
300NRJ.080	**8**	8	12	20	100	7.8	3
300NRJ.100	**10**	10	15	25	100	9.8	3
300NRJ.120	**12**	12	18	25	100	11.8	3

→ Help 168

*d1 < ø 6 = -0.01 / - 0.02
d1 ≤ ø12 = f7

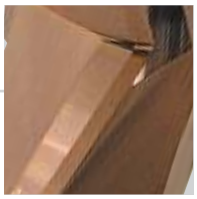




Fresa ad Alto avanzamento in metallo duro integrale

Solid carbide High speed end mill

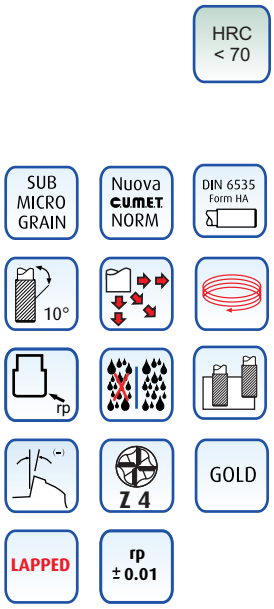
VHM - Torusfräser High feed - Fraise carbure avec rayon d'angle pour haute avancement
Фреза твердосплавная концевая для высокоскоростной обработки - Sk vysoko rychlostní fréza



CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y303.030.02	**3**	6	0.2	4	9	57	2.95	4
Y303.030.05	**3**	6	0.5	4	9	57	2.95	4
Y303.040.05	**4**	6	0.5	5	12	57	3.95	4
Y303.040.1	**4**	6	1	5	12	57	3.95	4
Y303.060.05	**6**	6	0.5	6	18	57	5.8	4
Y303.060.1	**6**	6	1	6	18	57	5.8	4
Y303.060.15	**6**	6	1.5	6	18	57	5.8	4
Y303.080.05	**8**	8	0.5	8	24	75	7.8	4
Y303.080.1	**8**	8	1	8	24	75	7.8	4
Y303.080.15	**8**	8	1.5	8	24	75	7.8	4
Y303.100.05	**10**	10	0.5	10	30	80	9.8	4
Y303.100.1	**10**	10	1	10	30	80	9.8	4
Y303.100.15	**10**	10	1.5	10	30	80	9.8	4
Y303.100.2	**10**	10	2	10	30	80	9.8	4
Y303.120.05	**12**	12	0.5	12	36	100	11.8	4
Y303.120.1	**12**	12	1	12	36	100	11.8	4
Y303.120.15	**12**	12	1.5	12	36	100	11.8	4
Y303.120.2	**12**	12	2	12	36	100	11.8	4

→ Help 177



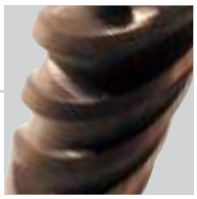


*d1 < ø 6 = h9
d1 ≤ ø12 = f7

Fresa per lavorazioni estreme in metallo duro integrale

Solid carbide extreme milling end mill

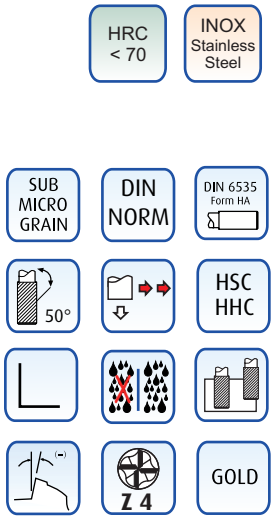
VHM-Fräser für extremerspannung - Fraise carbure pour fraisages extrême
Фреза концевая твердосплавная для тяжелого фрезерования - Sk fréza pro etrémní frézování



CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	L mm	Z no.	α°
406.02057	**2**	6	-	4	57	3	15°
406.025057	**2.5**	6	-	5	57	3	15°
406.03057	**3**	6	-	8	57	4	15°
406.035057	**3.5**	6	-	7	57	4	15°
406.04057	**4**	6	-	12	57	4	15°
406.045057	**4.5**	6	-	9	57	4	15°
406.05057	**5**	6	-	15	57	4	15°
406.06057	**6**	6	-	18	57	4	-
406.06075	**6**	6	-	18	75	4	-
406.08063	**8**	8	-	16	63	4	-
406.08075	**8**	8	-	20	75	4	-
406.08100	**8**	8	-	24	100	4	-
406.09072	**9**	10	-	18	72	4	15°
406.10080	**10**	10	-	25	80	4	-
406.10100	**10**	10	-	30	100	4	-
406.12083	**12**	12	-	24	83	4	-
406.12100	**12**	12	-	30	100	4	-
406.12120	**12**	12	-	40	120	4	-
406.16092	**16**	16	-	32	92	4	-
406.16140	**16**	16	-	48	140	4	-
406.20100	**20**	20	-	40	100	4	-
406.20150	**20**	20	-	60	150	4	-

→ Help 175-176





*d1 < ø 6 = h9
d1 ≤ ø 20 = f7

Fresa testa torica per lavorazioni estreme in metallo duro integrale

Solid carbide extreme milling corner radius end mill

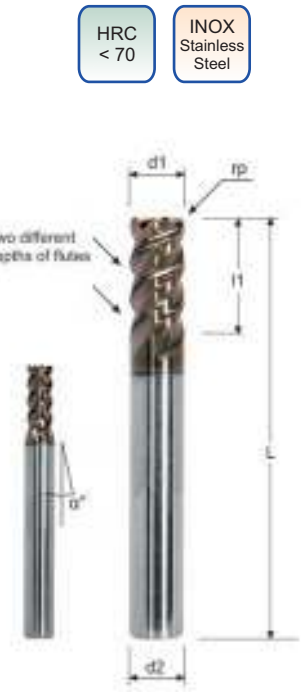
VHM-Ekenradius fraser für extremerspannung - Fraise carbure avec rayon pour fraisages extrême
Фреза концевая твердосплавная с угловым радиусом для тяжелого фрезерования
Sk fréza pro etrémní frézování

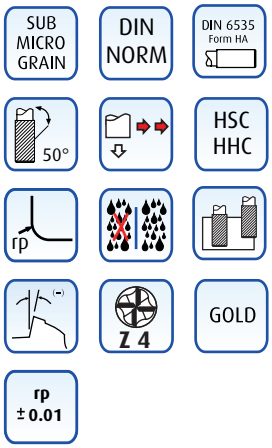


CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	L mm	Z no.	α°
Y406.03057.02	**3**	6	0.2	8	57	4	15°
Y406.04057.02	**4**	6	0.2	12	57	4	15°
Y406.05057.02	**5**	6	0.2	15	57	4	15°
Y406.06057.02	**6**	6	0.2	18	57	4	-
Y406.06057.03	**6**	6	0.3	18	57	4	-
Y406.06057.05	**6**	6	0.5	18	57	4	-
Y406.06057.1	**6**	6	1.0	18	57	4	-
Y406.06075.02	**6**	6	0.2	18	75	4	-
Y406.06075.05	**6**	6	0.5	18	75	4	-
Y406.06075.1	**6**	6	1.0	18	75	4	-
Y406.08075.02	**8**	8	0.2	20	75	4	-
Y406.08075.05	**8**	8	0.5	20	75	4	-
Y406.08075.1	**8**	8	1.0	20	75	4	-
Y406.08100.02	**8**	8	0.2	24	100	4	-
Y406.08100.05	**8**	8	0.5	24	100	4	-
Y406.08100.1	**8**	8	1.0	24	100	4	-
Y406.10072.05	**10**	10	0.5	20	72	4	-
Y406.10080.02	**10**	10	0.2	25	80	4	-
Y406.10080.05	**10**	10	0.5	25	80	4	-
Y406.10080.1	**10**	10	1	25	80	4	-
Y406.10100.02	**10**	10	0.2	30	100	4	-
Y406.10100.05	**10**	10	0.5	30	100	4	-
Y406.10100.1	**10**	10	1	30	100	4	-
Y406.12100.05	**12**	12	0.5	30	100	4	-
Y406.12100.1	**12**	12	1	30	100	4	-
Y406.16100.05	**16**	16	0.5	40	100	4	-
Y406.16100.1	**16**	16	1	40	100	4	-
Y406.16140.1	**16**	16	1	60	140	4	-
Y406.20100.05	**20**	20	0.5	40	100	4	-
Y406.20100.1	**20**	20	1	40	100	4	-
Y406.20150.1	**20**	20	1	60	150	4	-

→ Help 175-176

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Fresa testa torica in metallo duro integrale Hard Cut

Solid carbide corner rarius end mill Hard Cut

VHM-Gesenkfräser mit Eckenradius Hard Cut - Fraise carbure avec rayon d'angle Hard Cut
Фреза концевая твердосплавная с угловым радиусом для тяжелого фрезерования
Sk fréza s rohovým rádiusem pro těžký řez



CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y400RS.02057.02	**2**	6	0.2	3	6	57	1.95	4
Y400RS.02057.05	**2**	6	0.5	3	6	57	1.95	4
Y400RS.02075.02	**2**	6	0.2	3	6	75	1.95	4
Y400RS.02075.05	**2**	6	0.5	3	6	75	1.95	4
Y400RS.03057.02	**3**	6	0.2	4	9	57	2.95	4
Y400RS.03057.05	**3**	6	0.5	4	9	57	2.95	4
Y400RS.03075.03	**3**	6	0.3	4	9	75	2.95	4
Y400RS.03075.1	**3**	6	1	4	9	75	2.95	4
Y400RS.04057.02	**4**	6	0.2	5	12	57	3.9	4
Y400RS.04057.05	**4**	6	0.5	5	12	57	3.9	4
Y400RS.04075.05	**4**	6	0.5	5	12	75	3.9	4
Y400RS.04075.1	**4**	6	1	5	12	75	3.9	4
Y400RS.05057.05	**5**	6	0.5	6	16	57	4.9	4
Y400RS.05057.1	**5**	6	1	6	16	57	4.9	4
Y400RS.05075.05	**5**	6	0.5	6	16	75	4.9	4
Y400RS.05075.1	**5**	6	1	6	16	75	4.9	4
Y400RS.06057.05	**6**	6	0.5	7	20	57	5.8	4
Y400RS.06057.1	**6**	6	1	7	20	57	5.8	4
Y400RS.06057.15	**6**	6	1.5	7	20	57	5.8	4
Y400RS.06075.05	**6**	6	0.5	7	20	75	5.8	4
Y400RS.06075.1	**6**	6	1	7	20	75	5.8	4
Y400RS.06075.15	**6**	6	1.5	7	20	75	5.8	4
Y400RS.06100.05	**6**	6	0.5	7	20	100	5.8	4
Y400RS.06100.1	**6**	6	1	7	20	100	5.8	4
Y400RS.06100.15	**6**	6	1.5	7	20	100	5.8	4
Y400RS.08075.03	**8**	8	0.3	10	29	75	7.8	4
Y400RS.08075.05	**8**	8	0.5	10	29	75	7.8	4
Y400RS.08075.1	**8**	8	1	10	29	75	7.8	4
Y400RS.08075.15	**8**	8	1.5	10	29	75	7.8	4
Y400RS.08075.2	**8**	8	2	10	29	75	7.8	4
Y400RS.08100.05	**8**	8	0.5	10	29	100	7.8	4
Y400RS.08100.1	**8**	8	1	10	29	100	7.8	4
Y400RS.08100.15	**8**	8	1.5	10	29	100	7.8	4
Y400RS.08100.2	**8**	8	2	10	29	100	7.8	4
Y400RS.10080.05	**10**	10	0.5	11	35	80	9.8	4
Y400RS.10080.1	**10**	10	1	11	35	80	9.8	4
Y400RS.10080.15	**10**	10	1.5	11	35	80	9.8	4
Y400RS.10100.05	**10**	10	0.5	11	35	100	9.8	4
Y400RS.10100.1	**10**	10	1	11	35	100	9.8	4
Y400RS.10100.15	**10**	10	1.5	11	35	100	9.8	4
Y400RS.10100.2	**10**	10	2	11	35	100	9.8	4
Y400RS.12100.05	**12**	12	0.5	15	37	100	11.8	4
Y400RS.12100.1	**12**	12	1	15	37	100	11.8	4
Y400RS.12100.15	**12**	12	1.5	15	37	100	11.8	4
Y400RS.12100.2	**12**	12	2	15	37	100	11.8	4

→ Help 174

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7



Fresa testa torica per alto avanzamento in metallo duro integrale

Solid carbide milling corner radius high feed end mill

VHM-Ekenradius fräser für high feed - Fraise carbure avec rayon pour haute avancement
Фреза концевая твердосплавная с угловым радиусом для тяжелого фрезерования
Sk fréza s rohovým rádiusem pro extrémní frézování



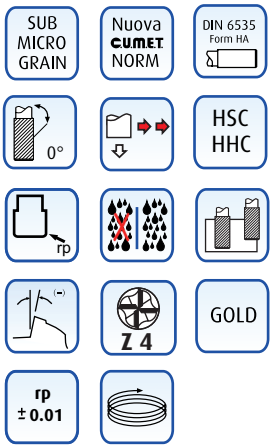
CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y400D.02060.03	**2**	6	0.3	0.8	5	57	1.8	4
Y400D.02060.05	**2**	6	0.5	0.8	5	57	1.8	4
Y400D.03060.05	**3**	6	0.5	1.2	6	57	2.7	4
Y400D.03060.075	**3**	6	0.75	1.2	6	57	2.7	4
Y400D.03060.1	**3**	6	1	1.2	6	57	2.7	4
Y400D.04075.05	**4**	6	0.5	1.6	9	75	3.6	4
Y400D.04075.1	**4**	6	1	1.6	9	75	3.6	4
Y400D.05075.05	**5**	6	0.5	2	12	75	4.6	4
Y400D.05075.1	**5**	6	1	2	12	75	4.6	4
Y400D.05075.12	**5**	6	1.2	2	12	75	4.6	4
Y400D.06100.05	**6**	6	0.5	2.5	13	100	5.4	4
Y400D.06100.1	**6**	6	1	2.5	13	100	5.4	4
Y400D.06100.15	**6**	6	1.5	2.5	13	100	5.4	4
Y400D.08100.05	**8**	8	0.5	3.5	16	100	7.2	4
Y400D.08100.1	**8**	8	1	3.5	16	100	7.2	4
Y400D.08100.15	**8**	8	1.5	3.5	16	100	7.2	4
Y400D.08100.2	**8**	8	2	3.5	16	100	7.2	4
Y400D.10100.05	**10**	10	0.5	4	20	100	9	4
Y400D.10100.1	**10**	10	1	4	20	100	9	4
Y400D.10100.15	**10**	10	1.5	4	20	100	9	4
Y400D.10100.2	**10**	10	2	4	20	100	9	4
Y400D.12100.05	**12**	12	0.5	5	25	100	11	4
Y400D.12100.1	**12**	12	1	5	25	100	11	4
Y400D.12100.15	**12**	12	1.5	5	25	100	11	4
Y400D.12100.2	**12**	12	2	5	25	100	11	4
Y400D.16100.05	**16**	16	0.5	7	32	100	15	4
Y400D.16100.1	**16**	16	1	7	32	100	15	4
Y400D.16100.15	**16**	16	1.5	7	32	100	15	4
Y400D.16100.2	**16**	16	2	7	32	100	15	4
Y400D.16100.3	**16**	16	3	7	32	100	15	4

→ Help 177

*d1 ≤ ø 6 h9
d1 ≤ ø16 f7



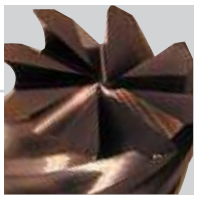




Fresa testa piana per superfinitura in metallo duro integrale

Solid carbide flat nose end mill for superfinish

VHM - Schaftfräser für superfinish - Fraise carbure pour superfinition
Фреза концевая твердосплавная для чистовой обработки - Sk rohová fréza pro super dokončování



CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
506.030	**3**	3	10	40	4
506.030.1	**3**	6	10	57	4
50603060	**3**	3	30	60	4
506.040	**4**	4	12	50	4
506.040.1	**4**	6	12	57	4
50604060	**4**	4	30	60	4
506.050	**5**	5	12	50	4
506.050.1	**5**	6	15	57	4
50605070	**5**	5	35	70	4
506.060	**6**	6	16	50	6
506.060.1	**6**	6	25	75	6
50606100	**6**	6	40	100	6
506.080	**8**	8	20	60	6
506.080.1	**8**	8	24	75	6
50608100	**8**	8	40	100	6
506.100.1	**10**	10	25	75	6
50610100.1	**10**	10	45	100	6
506.120.1	**12**	12	27	83	6
50612100.1	**12**	12	55	109	6
50616100.1	**16**	16	45	100	6
50616150.1	**16**	16	65	150	6
50620100	**20**	20	45	100	6
50620150.2	**20**	20	75	150	6

CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
506.100	**10**	10	22	70	8
50610100	**10**	10	45	100	8
506.120	**12**	12	27	75	8
50612100	**12**	12	45	100	8
506.140	**14**	14	27	85	10
50614100	**14**	14	45	100	10
506.160	**16**	16	30	85	10
50616100	**16**	16	45	100	10
50616150	**16**	16	65	150	10
506.180	**18**	18	38	100	10
506.200	**20**	20	38	100	10
50620150	**20**	20	65	150	10
50620150.1	**20**	20	75	150	10
50625150	**25**	25	75	150	12

→ Help 173-184

*d1 ≤ ø 6 h9
d1 ≤ ø25 f7

HRC < 55 | CAST IRON | INOX Stainless Steel | Cr Ni ALLOYS



SUB MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

45° | HSC HHC

GOLD

Z 4 Ø3-Ø5
Z 6 Ø6-Ø20
Z 8 Ø10-Ø12
Z 10 Ø14-Ø20
Z 12 Ø25

In questa sezione viene utilizzato esclusivamente Metallo duro Sub Micrograno al 9-12% Co, 0,5 Micron, specifico per lavorazione a secco ad alta velocità degli acciai temperati.

On this section we use only solid carbide grade with 9-12% Co, 0.5 Microns, specifically designed for high speed machining of hardened steels. Dry cutting.

Dieser Abschnitt ist ausschließlich Sub Micro Grain Hartmetall 9-12% Co, 0,5 Micron, die speziell für High-Speed-trockenen Bearbeitung von gehärteten Stählen verwendet.

Cette section utilise seulement carbure Sub Micrograin avec 9-12 % Co, 0.5 Micron, convenant sec coupe, haute vitesse des aciers trempés.

Твердый сплав 9-12% Co, 0.5 микрон, специальная разработка для высокоскоростной обработки закаленной стали. Сухая резка.

V této části budeme používat pouze slinutý karbid s 9-12% CO, 0,5 mikronů, speciálně navržen pro vysokorychlostní obrábění kalené oceli. Bez chlazení.

Fresa testa torica Hard Cut in metallo duro integrale

Solid carbide corner radius end mill, Hard Cut

VHM - Schaftfräser mit Eckenradius, Hard Cut - Fraise carbure avec rayon d'angle, Hard Cut
Фреза концевая твердосплавная с угловым радиусом для труднообрабатываемых материалов
Sk fréza s rohovým rádiusem pro těžký řez



CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y508.06057.02	**6**	6	0.2	7	20	57	5.8	6
Y508.06057.05	**6**	6	0.5	7	20	57	5.8	6
Y508.062057.05	**6**	6	0.5	20	-	57	-	6
Y508.06057.1	**6**	6	1	7	20	57	5.8	6
Y508.06075.02	**6**	6	0.2	7	20	75	5.8	6
Y508.06075.05	**6**	6	0.5	7	20	75	5.8	6
Y508.062575.05	**6**	6	0.5	25	-	75	-	6
Y508.06075.1	**6**	6	1	7	20	75	5.8	6
Y508.06100.02	**6**	6	0.2	7	20	100	5.8	6
Y508.06100.05	**6**	6	0.5	7	20	100	5.8	6
Y508.08075.02	**8**	8	0.2	9	29	75	7.8	6
Y508.08075.05	**8**	8	0.5	9	29	75	7.8	6
Y508.082575.05	**8**	8	0.5	25	-	75	-	6
Y508.08075.1	**8**	8	1	9	29	75	7.8	6
Y508.08100.02	**8**	8	0.2	8	29	100	7.8	6
Y508.08100.05	**8**	8	0.5	8	29	100	7.8	6
Y508.0840100.05	**8**	8	0.5	40	-	100	-	6
Y508.08100.1	**8**	8	1	8	29	100	7.8	6
Y508.10080.02	**10**	10	0.2	11	35	80	9.8	6
Y508.10080.05	**10**	10	0.5	11	35	80	9.8	6
Y508.103280.05	**10**	10	0.5	32	-	80	-	6
Y508.10080.1	**10**	10	1	11	35	80	9.8	6
Y508.10100.02	**10**	10	0.2	10	35	100	9.8	6
Y508.10100.05	**10**	10	0.5	10	35	100	9.8	6
Y508.1050100.05	**10**	10	0.5	50	-	100	-	6
Y508.10100.1	**10**	10	1	10	35	100	9.8	6
Y508.12100.02	**12**	12	0.2	13	37	100	11.7	6
Y508.12100.05	**12**	12	0.5	13	37	100	11.7	6
Y508.12100.1	**12**	12	1	13	37	100	11.7	6
Y508.1250109.05	**12**	12	0.5	50	-	109	-	8
Y508.1260109.05	**12**	12	0.5	60	-	109	-	8
Y508.16100.05	**16**	16	0.5	16	37	100	15.7	6
Y508.16100.1	**16**	16	1	16	37	100	15.7	6
Y508.1650100.05	**16**	16	0.5	50	-	100	-	10
Y508.1675150.05	**16**	16	0.5	75	-	150	-	10
Y508.20100.05	**20**	20	0.5	20	40	100	19.7	6
Y508.20100.1	**20**	20	1	20	40	100	19.7	6
Y508.2063109.05	**20**	20	0.5	63	-	109	-	8
Y508.20100150.05	**20**	20	0.5	100	-	150	-	8

→ Help 184

*d1 ≤ ø 6 h9
d1 ≤ ø25 f7

HRC < 72

CAST IRON



SUB MICRO GRAIN

Nuova CUMET NORM

DIN 6535 Form HA

55°

HSC HHC

rp

GOLD

Z 6 Ø6-Ø20

Z 8 Ø12

Z 10 Ø16

Z 12 Ø20

Z 15 Ø25

rp ± 0.01










LASIT



Per corrugare la fronte si mettono in *movimento* ben sessantacinque muscoli.
Per sorridere solo diciannove. Allora, almeno per economia, sorridi!

For wrinkling the forehead keep in *movement* sixty-five muscles.
To smile only nineteen. Then, at least for Economics, smile!

Anonimo

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

AEROSPACE

Materiali difficili da lavorare

Difficult machining materials

Fräser für schwierig materialen
Outils de coupe pour difficile - à - machine matériaux
Фреза концевая для труднообрабатываемых материалов
Fréza pro obtížně obrobitelné materiály









Fresa a sgrossare testa piana in metallo duro integrale rivestita in diamante

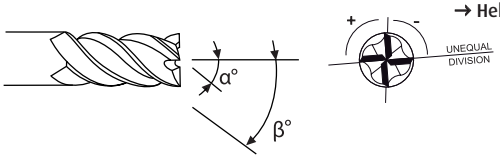
Solid carbide flat nose roughing end mill diamond coated

VHM - Schaft Schruppfräser, Diamant Beschichtet - Fraise carbure a degrossir à bout plat, revetement en diamant
Фреза концевая твердосплавная плоский торец для черновой обработки с алмазным покрытием
Sk hrubovací fréza s diamantovým povlakem



CODE	d1 mm	d2h6 mm	CH mm	l1 mm	L mm
5040.030	**3**	3	0.2	12	40
5040.040	**4**	4	0.2	16	5
5040.060	**6**	6	0.2	19	50
5040.060.1	**6**	6	0.2	40	100
5040.080	**8**	8	0.2	25	60
5040.080.1	**8**	8	0.2	40	100
5040.100	**10**	10	0.2	25	70
5040.100.1	**10**	10	0.2	40	100
5040.120	**12**	12	0.2	25	75
5040.120.1	**12**	12	0.2	40	100

→ Help 185



Graphyte
CARBON FIBER



MICRO GRAIN
Nuova CUMET NORM
DIN 6535 Form HA
variable
HSC
45°
UNCOATED
Z 2
d1 -0 -0.1

Fresa a sgrossare testa torica in metallo duro integrale rivestita in diamante

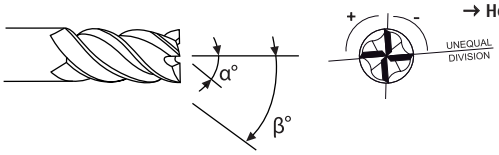
Solid carbide corner radius roughing end mill diamond coated

VHM - Torus Schruppfräser, Diamant Beschichtet - Fraise carbure a degrossir avec rayon d'angle, revetement en diamant
Фреза концевая твердосплавная с угловым радиусом с алмазным покрытием
Sk hrubovací fréza s rohovým rádiusem a diamantovým povlakem



CODE	d1 mm	d2h6 mm	rp mm	l1 mm	L mm
5040F.030	**3**	3	0.2	12	40
5040F.040	**4**	4	0.2	16	50
5040F.060	**6**	6	0.2	19	50
5040F.060.1	**6**	6	0.2	40	100
5040F.080	**8**	8	0.2	25	60
5040F.080.1	**8**	8	0.2	40	100
5040F.100	**10**	10	0.2	25	70
5040F.100.1	**10**	10	0.2	40	100
5040F.120	**12**	12	0.2	25	75
5040F.120.1	**12**	12	0.2	40	100

→ Help 185



CARBON FIBER



MICRO GRAIN
Nuova CUMET NORM
DIN 6535 Form HA
variable
HSC
45°
DIAMOND F
Z 2
d1 -0 -0.1

Fresa per contornatura e finitura in metallo duro integrale

Solid carbide end mill for profiling and finishing

VHM - Fräser Für die Profilerstellung und Veredelung - Fraise carbure pour le profilage et finition
Фреза концевая твердосплавная для профильной финишной обработки
Sk fréza pro profilování a dokončování



CODE	d1 mm	d2h6 mm	l1 mm	L mm
5010.020	**2**	3	9	40
5010.030	**3**	3	12	40
5010.040	**4**	4	16	50
5010.060	**6**	6	19	50
5010.060.1	**6**	6	40	100
5010.080	**8**	8	25	60
5010.080.1	**8**	8	40	100
5010.100	**10**	10	25	70
5010.100.1	**10**	10	40	100
5010.120	**12**	12	25	75
5010.120.1	**12**	12	40	100

→ Help 194

HRC < 60
Graphyte
CARBON FIBER
GLASS FIBER



MICRO GRAIN
Nuova CUMET NORM
DIN 6535 Form HA
30°
HSC
UNCOATED
Z 2
d1 -0 -0.1

Fresa per contornatura e finitura in metallo duro integrale

Solid carbide end mill for profiling and finishing



VHM - Fräser Für die Profilerstellung und Veredelung - Fraise carbure pour le profilage et finition
Фреза концевая твердосплавная для профильной финишной обработки
Sk fréza pro profilování a dokončování

CODE	d1 mm	d2h6 mm	l1 mm	L mm
5020.020	**2**	3	9	40
5020.030	**3**	3	12	40
5020.040	**4**	4	16	50
5020.060	**6**	6	19	50
5020.060.1	**6**	6	40	100
5020.080	**8**	8	25	60
5020.080.1	**8**	8	40	100
5020.100	**10**	10	25	70
5020.100.1	**10**	10	40	100
5020.120	**12**	12	25	75
5020.120.1	**12**	12	40	100

→ Help 194

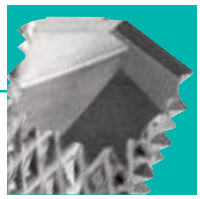
HRC < 60 | Graphyte | CARBON FIBER | GLASS FIBER



MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | 30° | HSC | UNCOATED | d1 -0 -0.1

Fresa per foratura, contornatura e finitura in metallo duro integrale

Solid carbide end mill for drilling, profiling and finishing



VHM - Schaftfraser Für bohren, profilerstellung und finishing - Fraises carbure pour le percage, profilage et finition
Sk fréza pro profilování a dokončování s možností zavrtání

CODE	d1 mm	d2h6 mm	l1 mm	L mm
5030.030	**3**	3	12	40
5030.040	**4**	4	16	50
5030.060	**6**	6	19	50
5030.060.1	**6**	6	40	100
5030.080	**8**	8	25	60
5030.080.1	**8**	8	40	100
5030.100	**10**	10	25	70
5030.100.1	**10**	10	40	100
5030.120	**12**	12	25	75
5030.120.1	**12**	12	40	100

→ Help 194

HRC < 60 | Graphyte | CARBON FIBER | GLASS FIBER



MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | 30° | HSC | 135° | Z 2 | UNCOATED | d1 -0 -0.1

Fresa Forante in metallo duro integrale alto avanzamento

Solid carbide Drilling end mill for High Feed



VHM – schaftfräser Bohrer für Hoch Vorschub - Fraise à Piercer en carbure a bout plat pour Haute avances
Фреза концевая твердосплавная с опцией сверления и высокими параметрами подачи
Sk rychloposuvová rohová fréza s možností vrtání

CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	L mm	Z no.
Y300.020	**2**	6	-	4	50	3
Y300.025	**2.5**	6	-	5	50	3
Y300.030	**3**	6	-	6	50	3
Y300.035	**3.5**	6	-	7	50	3
Y300.040	**4**	6	-	8	50	3
Y300.045	**4.5**	6	-	9	50	3
Y300.050	**5**	6	-	10	50	3
Y300.055	**5.5**	6	-	11	50	3
Y300.060	**6**	6	-	13	57	3
Y300.065	**6.5**	8	-	16	60	3
Y300.070	**7**	8	-	16	60	3
Y300.075	**7.5**	8	-	16	60	3
Y300.080	**8**	8	-	19	60	3
Y300.085	**8.5**	10	-	19	70	3
Y300.090	**9**	10	-	19	70	3
Y300.095	**9.5**	10	-	19	70	3
Y300.100	**10**	10	-	22	70	3
Y300.110	**11**	12	-	22	75	3
Y300.120	**12**	12	-	26	100	3
Y300.130	**13**	14	-	26	100	3
Y300.140	**14**	14	-	26	100	3
Y300.150	**15**	16	-	26	100	3
Y300.160	**16**	16	-	30	100	3
Y300.200	**20**	20	-	32	100	3

→ Help 171

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Fresa con fori in elica a semifinire in metallo duro integrale

Solid carbide semi-finishing end mill with coolant feed



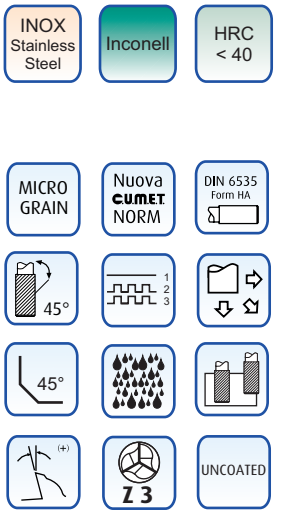
VHM - Schrupp-Schlichtfräser mit Durchgewendelten Kühlkanälen - Fraise carbure pour semifinition à trous de réfrigeration
Фреза концевая твердосплавная с подачей СОЖ для получистовой обработки
Sk středně dokončovací fréza s chlazením všech břitů

CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
455.060	**6**	6	20	50	3
455.080	**8**	8	22	60	3
455.100	**10**	10	25	70	3
455.120	**12**	12	27	75	3
455.160	**16**	16	30	85	3

→ Help 171

*d1 ≤ ø 6 h9
d1 ≤ ø16 f7





Fresa con fori in elica a sgrossare in metallo duro integrale

Solid carbide coolant feed roughing end mill

VHM - Schruppfräser mit Durchgewendelten Kühlkanälen - Fraise carbure ébauche à trous de réfrigeration
Фреза концевая твердосплавная с подачей СОЖ для черновой обработки
Sk hrubovací fréza s chlazením všech břitů

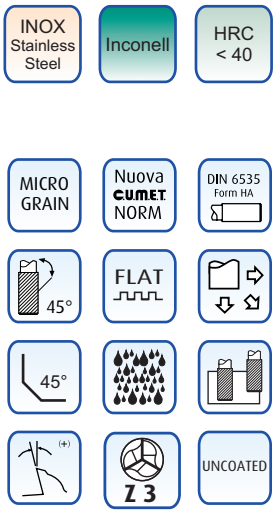


CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
454.060	**6**	6	20	50	3
454.080	**8**	8	22	60	3
454.100	**10**	10	25	70	3
454.120	**12**	12	27	75	3
454.160	**16**	16	30	85	3
454.180	**18**	18	40	100	3

→ Help 192

*d1 ≤ ø 6 h9
d1 ≤ ø18 f7





Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

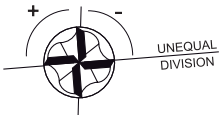
VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza

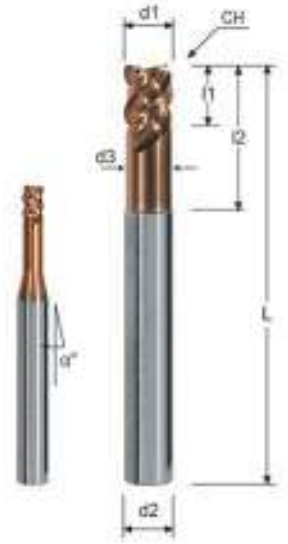


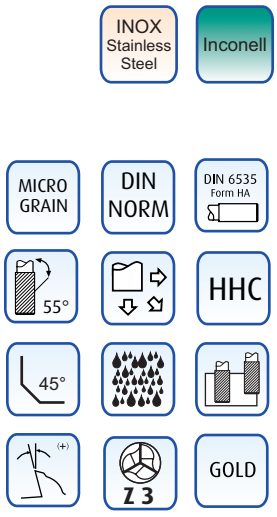
CODE	*d1 mm	d2h6 mm	CH mm	l1 mm	l2 mm	L nn	d3 nn	Z no.	α°
302.030	**3**	6	0.10	4	14	57	2.8	3	15°
302.040	**4**	6	0.10	5	16	57	3.8	3	15°
302.050	**5**	6	0.15	6	18	57	4.8	3	15°
302.060	**6**	6	0.15	7	20	57	5.5	3	-
302.080	**8**	8	0.15	9	26	63	7.5	3	-
302.100	**10**	10	0.20	11	30	72	9.2	3	-
302.120	**12**	12	0.20	13	37	83	11.2	3	-
302.160	**16**	16	0.20	17	45	92	15.2	3	-
302.200	**20**	20	0.20	22	55	100	19.2	3	-

→ Help 172

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7







Fresa con fori in elica in metallo duro integrale

Solid carbide coolant feed end mill

VHM - Schlichtfräser mit Durchgewendelten Kühlkanälen - Fraise carbure à trous de réfrigeration
Фреза концевая твердосплавная с подачей СОЖ - Sk fréza s chlazením všech břitů

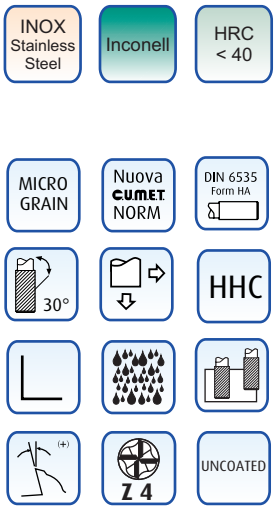


CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
410.060	**6**	6	20	50	4
410.080	**8**	8	22	60	4
410.100	**10**	10	25	70	4
410.120	**12**	12	27	75	4
410.140	**14**	14	30	85	4
410.160	**16**	16	30	85	4
410.200	**20**	20	40	100	4

→ Help 195-196-197-198

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Fresa con fori in elica a semifinire in metallo duro integrale

Solid carbide coolant feed semi-finishing end mill

VHM - Schrupp-Schlichtfräser mit Durchgewendelten Kühlkanälen - Fraise carbure pour semifinition à trous de réfrigeration
Фреза концевая твердосплавная с подачей СОЖ для получистовой обработки
Sk polodokončovací fréza s chlazením všech břitů

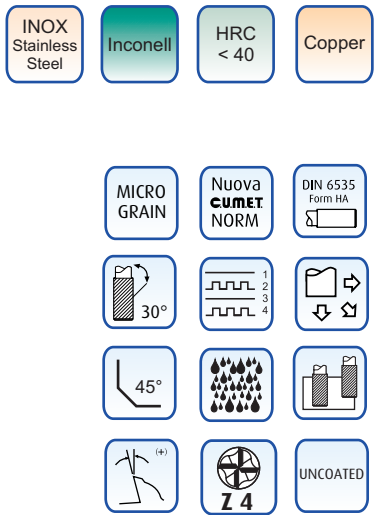


CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
T3006	**6**	6	20	50	4
T3008	**8**	8	22	60	4
T3010	**10**	10	25	70	4
T3012	**12**	12	27	75	4
T3016	**16**	16	30	85	4
T3020	**20**	20	40	100	4

→ Help 192

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Fresa con fori in elica a sgrossare in metallo duro integrale

Solid carbide coolant feed roughing end mill



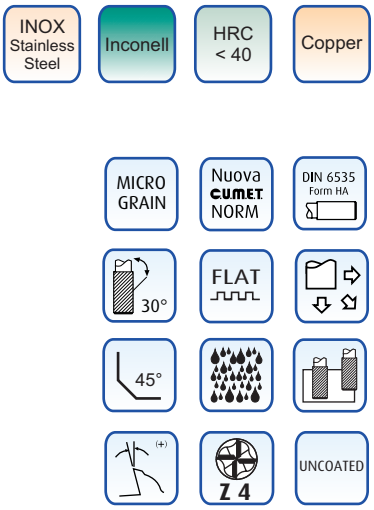
VHM - Schruppfräser mit Durchgewendelten Kühlkanälen - Fraise carbure a degrosir à trous de réfrigeration
Фреза концевая твердосплавная с подачей СОЖ для получистовой обработки
Sk hrubovací fréza s chlazením všech břitů

CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
T2206	**6**	6	20	50	4
T2208	**8**	8	22	60	4
T2210	**10**	10	25	70	4
T2212	**12**	12	27	75	4
T2216	**16**	16	30	85	4
T2220	**20**	20	40	100	4

→ Help 192

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Frese testa piana in metallo duro integrale

Solid carbide flat nose end mill

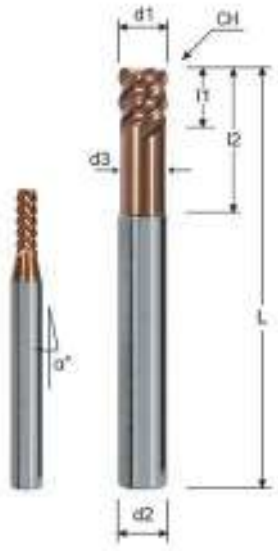


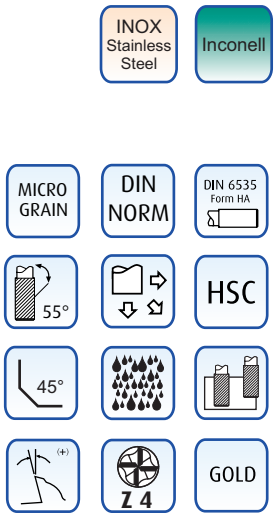
VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza

CODE	*d1 mm	d2h6 mm	CH	l1 mm	l2 mm	L mm	d3 mm	Z no.	α°
40403057	**3**	6	0.10	8	-	57	-	3	15°
40403057.1	**3**	6	0.10	4	14	57	2.8	3	15°
40404057	**4**	6	0.10	11	-	57	-	3	15°
40404057.1	**4**	6	0.10	5	16	57	3.8	3	15°
40405057	**5**	6	0.15	13	-	57	-	4	15°
40405057.1	**5**	6	0.15	6	18	57	4.8	4	15°
40406057	**6**	6	0.15	13	-	57	-	4	-
40406057.1	**6**	6	0.15	7	20	57	5.5	4	-
40408063	**8**	8	0.15	19	-	63	-	4	-
40408063.1	**8**	8	0.15	9	26	63	7.5	4	-
40410072	**10**	10	0.20	22	-	72	-	4	-
40410072.1	**10**	10	0.20	11	31	72	9.2	4	-
40412083	**12**	12	0.20	26	-	83	-	4	-
40412083.1	**12**	12	0.20	13	37	83	11.2	4	-
40416092	**16**	16	0.20	32	-	92	15.2	4	-

→ Help 172

*d1 ≤ ø 6 h9
d1 ≤ ø16 f7





Fresa ad alto avanzamento in metallo duro integrale

Solid carbide High feed end mill



VHM- Fräser für Hoch Vorschub - Fraise carbure pour Haut avences
Фреза концевая твердосплавная для обработки с высокими параметрами подачи
Sk vysokoposuvová fréza

CODE	*d1 mm	d2h6 mm	CH mm	l1 mm	L mm	Z no.
Y400P.030	**3**	6	0.05	8	60	4
Y400P.040	**4**	6	0.05	11	60	4
Y400P.050	**5**	6	0.05	13	60	4
Y400P.060	**6**	6	0.05	13	60	4
Y400P.080	**8**	8	0.10	19	75	4
Y400P.100	**10**	10	0.10	22	80	4
Y400P.120	**12**	12	0.10	25	100	4
Y400P.160	**16**	16	0.10	30	100	4
Y400P.200	**20**	20	0.10	40	100	4

→ **Help 181**

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

Ad esaurimento – by exaustion



HRC < 50 | ALLOY STEEL | INOX Stainless Steel | TI-Alloy

MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | 45°

HSC | 45°

HYPER | Z 4

Fresa testa torica alto avanzamento in metallo duro integrale

Solid carbide corner radius end mill, High Feed



VHM - Gesenkfräser mit Eckenradius High Feed - Fraise carbure avec rayon d'angle, High Feed
Фреза концевая твердосплавная с угловым радиусом - Sk vysokoposuvová fréza s rohovým rádiusem

CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	L mm	Z no.
Y400.030.02	**3**	6	0.2	8	60	4
Y400.030.05	**3**	6	0.5	8	60	4
Y400.040.02	**4**	6	0.2	11	60	4
Y400.040.05	**4**	6	0.5	11	60	4
Y400.040.1	**4**	6	1.0	11	60	4
Y400.050.02	**5**	6	0.2	13	60	4
Y400.050.05	**5**	6	0.5	13	60	4
Y400.050.1	**5**	6	1.0	13	60	4
Y400.060.03	**6**	6	0.3	13	60	4
Y400.060.05	**6**	6	0.5	13	60	4
Y400.060.1	**6**	6	1.0	13	60	4
Y400.060.15	**6**	6	1.5	13	60	4
Y400.080.03	**8**	8	0.3	19	75	4
Y400.080.05	**8**	8	0.5	19	75	4
Y400.080.1	**8**	8	1.0	19	75	4
Y400.080.15	**8**	8	1.5	19	75	4
Y400.080.2	**8**	8	2.0	19	75	4
Y400.100.03	**10**	10	0.3	22	80	4
Y400.100.05	**10**	10	0.5	22	80	4
Y400.100.1	**10**	10	1.0	22	80	4
Y400.100.15	**10**	10	1.5	22	80	4
Y400.100.2	**10**	10	2.0	22	80	4
Y400.100.3	**10**	10	3.0	22	80	4
Y400.120.05	**12**	12	0.5	25	100	4
Y400.120.1	**12**	12	1.0	25	100	4
Y400.120.15	**12**	12	1.5	25	100	4
Y400.120.2	**12**	12	2.0	25	100	4
Y400.120.3	**12**	12	3.0	25	100	4
Y400.160.05	**16**	16	0.5	30	100	4
Y400.160.1	**16**	16	1.0	30	100	4
Y400.160.15	**16**	16	1.5	30	100	4
Y400.160.2	**16**	16	2.0	30	100	4
Y400.160.3	**16**	16	3.0	30	100	4
Y400.160.5	**16**	16	5.0	30	100	4
Y400.200.1	**20**	20	1.0	40	100	4
Y400.200.15	**20**	20	1.5	40	100	4
Y400.200.2	**20**	20	2.0	40	100	4
Y400.200.3	**20**	20	3.0	40	100	4
Y400.200.5	**20**	20	5.0	40	100	4

→ **Help 181**

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

Ad esaurimento – by exaustion



HRC < 50 | ALLOY STEEL | INOX Stainless Steel | TI-Alloy

MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | 45°

HSC | rp

HYPER | Z 4

rp ± 0.01

Fresa a divisione irregolare antivibrante in metallo duro integrale

Solid carbide unequal division anti-vibration end mill

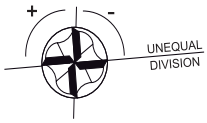


VHM-Ungleiche Drallwinkel Fräser - Fraise carbure avec division irregular
Фреза концевая твердосплавная с переменным углом наклона винтовой канавки
Sk fréza s nerovnoměrným úhlem šroubovice

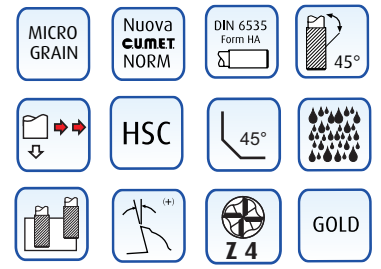
CODE	*d1 mm	d2h6 mm	CH mm	l1 mm	L mm	Z no.
400V.030	**3**	6	0.05	8	60	4
400V.040	**4**	6	0.05	11	60	4
400V.050	**5**	6	0.05	13	60	4
400V.060	**6**	6	0.05	13	60	4
400V.080	**8**	8	0.10	20	75	4
400V.100	**10**	10	0.10	22	80	4
400V.120	**12**	12	0.10	25	100	4
400V.160	**16**	16	0.10	30	100	4
400V.200	**20**	20	0.10	40	100	4

→ Help 181

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7







Fresa testa torica a divisione irregolare antivibrante in metallo duro integrale

Solid carbide anti-vibration corner radius end mill unequal division

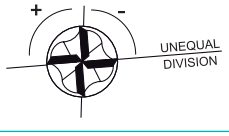


VHM-Ungleiche Drallwinkel Fräser - Fraise carbure rayon d'angle avec division irregular
Фреза концевая твердосплавная с переменным углом наклона винтовой канавки
Sk fréza s rohovým rádiusem a nerovnoměrným úhlem šroubovice

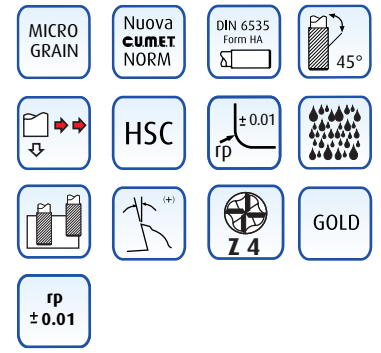
CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	L mm	Z no.
Y400V.030.02	**3**	6	0.2	8	60	4
Y400V.030.05	**3**	6	0.5	8	60	4
Y400V.040.02	**4**	6	0.2	11	60	4
Y400V.040.05	**4**	6	0.5	11	60	4
Y400V.040.1	**4**	6	1.0	11	60	4
Y400V.050.02	**5**	6	0.2	13	60	4
Y400V.050.05	**5**	6	0.5	13	60	4
Y400V.050.1	**5**	6	1.0	13	60	4
Y400V.060.03	**6**	6	0.3	13	60	4
Y400V.060.05	**6**	6	0.5	13	60	4
Y400V.060.1	**6**	6	1.0	13	60	4
Y400V.060.15	**6**	6	1.5	13	60	4
Y400V.080.03	**8**	8	0.3	20	75	4
Y400V.080.05	**8**	8	0.5	20	75	4
Y400V.080.1	**8**	8	1.0	20	75	4
Y400V.080.15	**8**	8	1.5	20	75	4
Y400V.080.2	**8**	8	2.0	20	75	4
Y400V.100.03	**10**	10	0.3	22	80	4
Y400V.100.05	**10**	10	0.5	22	80	4
Y400V.100.1	**10**	10	1.0	22	80	4
Y400V.100.15	**10**	10	1.5	22	80	4
Y400V.100.2	**10**	10	2.0	22	80	4
Y400V.100.3	**10**	10	3.0	22	80	4
Y400V.120.05	**12**	12	0.5	25	100	4
Y400V.120.1	**12**	12	1.0	25	100	4
Y400V.120.15	**12**	12	1.5	25	100	4
Y400V.120.2	**12**	12	2.0	25	100	4
Y400V.120.3	**12**	12	3.0	25	100	4
Y400V.160.05	**16**	16	0.5	30	100	4
Y400V.160.1	**16**	16	1.0	30	100	4
Y400V.160.15	**16**	16	1.5	30	100	4
Y400V.160.2	**16**	16	2.0	30	100	4
Y400V.160.3	**16**	16	3.0	30	100	4
Y400V.160.5	**16**	16	5.0	30	100	4
Y400V.200.1	**20**	20	1.0	40	100	4
Y400V.200.15	**20**	20	1.5	40	100	4
Y400V.200.2	**20**	20	2.0	40	100	4
Y400V.200.3	**20**	20	3.0	40	100	4
Y400V.200.5	**20**	20	5.0	40	100	4

→ Help 181

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7







Fresa a Divisione Irregolare-Elica Variabile in metallo duro integrale

Solid carbide end mill, unequal division - Variable Helix

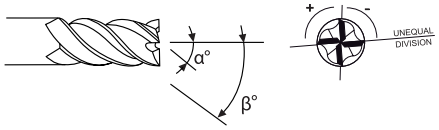


VHM-Torusfräser Ungleiche Drallwinkel-Ungleike Teilung - Fraise end carbur avec rayon d'angle, Irrégulière Division-Hélice Variable
Фреза концевая твердосплавная с угловым радиусом с переменным углом наклона винтовой канавки
Sk fréza s rohovým rádiusem a nerovnoměrným úhlem šroubovice - Variabilní helix

CODE	*d1 mm	d2 mm	CH mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
400SV.030	**3**	6	0.1x45°	9	12	57	2.8	4
400SV.040	**4**	6	0.1x45°	11	16	57	3.8	4
400SV.050	**5**	6	0.1x45°	15	20	57	4.8	4
400SV.060	**6**	6	0.3x45°	13	23	57	5.8	4
400SV.080	**8**	8	0.3x45°	22	29	63	7.8	4
400SV.100	**10**	10	0.3x45°	25	34	70	9.8	4
400SV.120	**12**	12	0.3x45°	27	42	83	11.8	4
400SV.140	**14**	14	0.3x45°	30	45	83	13.8	4
400SV.160	**16**	16	0.3x45°	34	49	92	15.8	4
400SV.200	**20**	20	0.3x45°	40	55	104	19.8	4

→ Help 182

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7



HRC < 55 | Inconell | ALLOY STEEL | INOX Stainless Steel | TI-Alloy



MICRO GRAIN | Nuova cumet NORM | DIN 6535 Form HA | 35°-38° | ANTI VIBRATION | 45° | Z 4 | GOLD

Fresa testa torica antivibrante ad alto avanzamento in metallo duro integrale

Solid carbide anti-vibrating corner radius end mill, High Feed

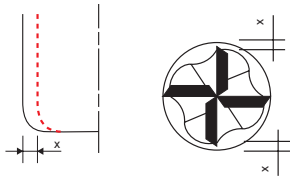


VHM - Gesenkfräser mit Eckenradius High Feed - Fraise carbure avec rayon d'angle, High Feed
Фреза концевая твердосплавная с угловым радиусом
Sk rychloposuvová fréza s rohovým rádiusem

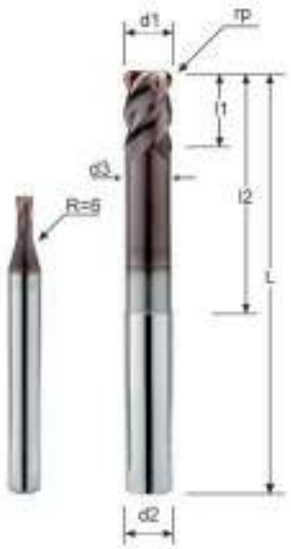
CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y400R.040	**4**	6	1	8	12	75	3.95	4
Y400R.050	**5**	6	1.2	10	15	75	-	4
Y400R.060	**6**	6	1.5	12	-	100	-	4
Y400R.060.1	**6**	6	1.5	9	30	75	5.85	4
Y400R.080	**8**	8	2	16	-	100	-	4
Y400R.080.1	**8**	8	2	12	40	100	7.8	4
Y400R.100	**10**	10	2	20	-	100	-	4
Y400R.100.1	**10**	10	2	15	50	100	9.75	4
Y400R.120	**12**	12	2	24	-	100	-	4
Y400R.120.1	**12**	12	2	18	50	100	11.75	4

→ Help 178-179-180

*d1 ≤ ø 6 h9
d1 ≤ ø12 f7



TI-Alloy | HRC < 70 | ALLOY STEEL | CARBON STEEL



SUB MICRO GRAIN | Nuova cumet NORM | DIN 6535 Form HA | 45° | HSC HHC | rp | Z 4 | GOLD | rp ± 0.01

Fresa testa torica a Divisione Irregolare-Elica Variabile in metallo duro integrale

Solid carbide corner radius end mill, unequal division - Variable Helix

VHM-Torusfräser Ungleiche Drallwinkel-Ungleike Teilung - Fraise end carbur avec rayon d'angle, Irrégulière Division-Hélice Variable
Фреза концевая твердосплавная с угловым радиусом с переменным углом наклона винтовой канавки
Sk fréza s rohovým rádiusem a nerovnoměrným úhlem šroubovice - Variabilní helix



CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	L mm	Z no.
500RV03.050R03	**3**	6	0.3	10	50	4
500RV03.050R05	**3**	6	0.5	10	50	4
500RV04.050R05	**4**	6	0.5	12	50	4
500RV05.050R05	**5**	6	0.5	14	50	4
500RV06.050R05	**6**	6	0.5	20	50	4
500RV06.100R05	**6**	6	0.5	40	100	4
500RV06.050R1	**6**	6	1	20	50	4
500RV06.075R1	**6**	6	1	20	75	4
500RV06.075R15	**6**	6	1.5	20	75	4
500RV08.060R05	**8**	8	0.5	22	60	4
500RV08.100R05	**8**	8	0.5	40	100	4
500RV08.060R1	**8**	8	1	22	60	4
500RV08.100R1	**8**	8	1	22	100	4
500RV08.100R15	**8**	8	1.5	22	100	4
500RV08.100R2	**8**	8	2	22	100	4
500RV08.100R25	**8**	8	2.5	22	100	4
500RV10.070R05	**10**	10	0.5	25	70	4
500RV10.100R05	**10**	10	0.5	45	100	4
500RV10.070R1	**10**	10	1	25	70	4
500RV10.100R1	**10**	10	1	25	100	4
500RV10.100R15	**10**	10	1.5	25	100	4
500RV10.100R2	**10**	10	2	25	100	4
500RV10.100R25	**10**	10	2.5	25	100	4
500RV10.100R3	**10**	10	3	25	100	4
500RV12.075R05	**12**	12	0.5	27	75	4
500RV12.100R05	**12**	12	0.5	45	100	4
500RV12.075R1	**12**	12	1	27	75	4
500RV12.100R1	**12**	12	1	27	100	4
500RV12.100R15	**12**	12	1.5	27	100	4
500RV12.100R2	**12**	12	2	27	100	4
500RV12.100R25	**12**	12	2.5	27	100	4
500RV12.100R3	**12**	12	3	27	100	4
500RV14.085R05	**14**	14	0.5	30	85	4
500RV14.100R05	**14**	14	0.5	45	100	4
500RV16.085R05	**16**	16	0.5	30	85	4
500RV16.100R05	**16**	16	0.5	45	100	4
500RV16.150R05	**16**	16	0.5	65	150	4
500RV16.085R1	**16**	16	1	30	85	4
500RV16.100R1	**16**	16	1	30	100	4
500RV16.100R15	**16**	16	1.5	30	100	4
500RV16.100R2	**16**	16	2	30	100	4
500RV16.100R3	**16**	16	3	30	100	4
500RV16.100R5	**16**	16	5	30	100	4
500RV20.100R05	**20**	20	0.5	40	100	4
500RV20.150R05	**20**	20	0.5	65	150	4
500RV20.100R1	**20**	20	1	40	100	4
500RV20.100R15	**20**	20	1.5	40	100	4
500RV20.100R2	**20**	20	2	40	100	4
500RV20.100R3	**20**	20	3	40	100	4
500RV20.100R5	**20**	20	5	40	100	4

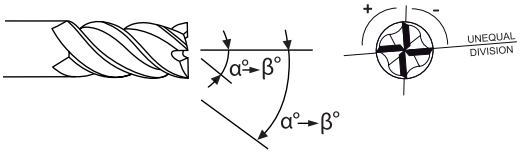
→ Help 182-183

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

HRC < 55 | Inconell | ALLOY STEEL | INOX Stainless Steel | TI-Alloy



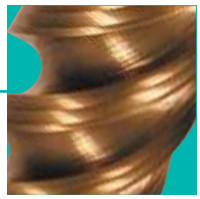
MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | variable | ANTI VIBRATION | rp | GOLD | Z 4 | rp ± 0.01



Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill

VHM - Stirn Radiusfräser - Fraise carbure avec rayon d'angle
Фреза концевая твердосплавная с угловым радиусом - Sk fréza s rohovým rádiusem

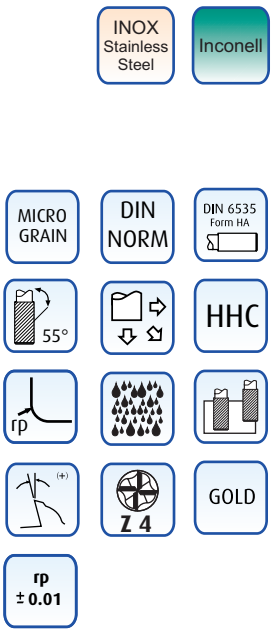


CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	L mm	Z no.
Y401.060.05	**6**	6	0.5	13	57	4
Y401.060.1	**6**	6	1	13	57	4
Y401.080.05	**8**	8	0.5	19	63	4
Y401.080.1	**8**	8	1	19	63	4
Y401.100.05	**10**	10	0.5	22	72	4
Y401.100.1	**10**	10	1	22	72	4
Y401.100.15	**10**	10	1.5	22	72	4
Y401.120.05	**12**	12	0.5	26	83	4
Y401.120.1	**12**	12	1	26	83	4
Y401.120.15	**12**	12	1.5	26	83	4
Y401.160.05	**16**	16	0.5	32	92	4
Y401.160.1	**16**	16	1	32	92	4
Y401.160.15	**16**	16	1.5	32	92	4
Y401.200.05	**20**	20	0.5	40	100	4
Y401.200.1	**20**	20	1	40	100	4
Y401.200.15	**20**	20	1.5	40	100	4

→ Help 172-173

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Fresa testa torica a Divisione Irregolare-Elica Variabile in metallo duro integrale

Solid carbide corner radius end mill, unequal division - Variable Helix

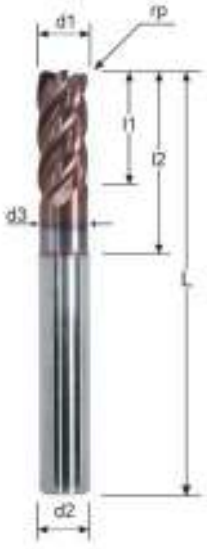
VHM-Torusfräser Ungleiche Drallwinkel-Ungleike Teilung - Fraise end carbur avec rayon d'angle, Irrégulière Division-Hélice Variable
Фреза концевая твердосплавная с угловым радиусом с переменным углом наклона винтовой канавки
Sk fréza s rohovým rádiusem a nerovnoměrným úhlem šroubovice - Variabilní helix

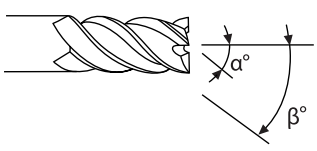


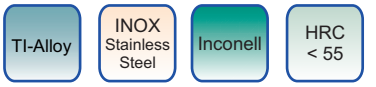
CODE	*d1 mm	d2 mm	rp-CH mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
500SV.060	**6**	6	0.1x45°	13	23	57	5.8	5
500SV.060R05	**6**	6	0,5	13	23	57	5.8	5
500SV.060R1	**6**	6	1	13	23	57	5.8	5
500SV.080	**8**	8	0.2x45°	22	32	63	7.5	5
500SV.080R05	**8**	8	0,5	22	32	63	7.5	5
500SV.080R1	**8**	8	1	22	32	63	7.5	5
500SV.080R2	**8**	8	2	22	32	63	7.5	5
500SV.100	**10**	10	0.2x45°	25	35	72	9.5	5
500SV.100R05	**10**	10	0,5	25	35	72	9.5	5
500SV.100R1	**10**	10	1	25	35	72	9.5	5
500SV.100R2	**10**	10	2	25	35	72	9.5	5
500SV.120	**12**	12	0.3x45°	27	42	83	11.5	5
500SV.120R05	**12**	12	0.5	27	42	83	11.5	5
500SV.120R1	**12**	12	1	27	42	83	11.5	5
500SV.120R2	**12**	12	2	27	42	83	11.5	5
500SV.160	**16**	16	0.3x45°	32	47	92	15.5	5
500SV.160R1	**16**	16	1	32	47	92	15.5	5
500SV.160R2	**16**	16	2	32	47	92	15.5	5
500SV.160R3	**16**	16	3	32	47	92	15.5	5
500SV.200	**20**	20	0.3x45°	40	55	104	19.5	5
500SV.200R1	**20**	20	1	40	55	104	19.5	5
500SV.160R2	**20**	20	2	40	55	104	19.5	5
500SV.160R3	**20**	20	3	40	55	104	19.5	5
500SV.160R4	**20**	20	4	40	55	104	19.5	5

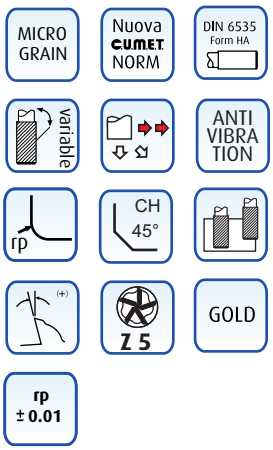
→ 182

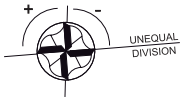
*d1 ≤ ø 6 h9
d1 ≤ ø20 f7







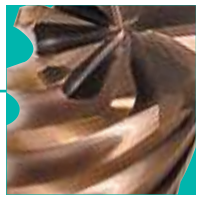




Fresa testa torica per lavorazione pale in metallo duro integrale

Solid carbide corner radius end mill for turbine blades

VHM - Fräser mit eckenradius für Turbinenschaufeln - Fraise carbure avec rayon d'angle pour aubes de turbine
Sk vysoce výkonná fréza s rohovým rádiusem

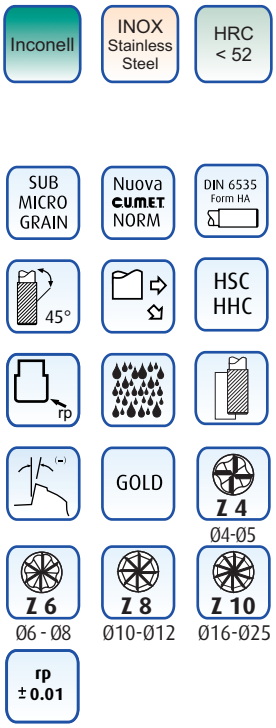


CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y507.030.03	**3**	6	0.3	8	12	75	2.9	4
Y507.030.05	**3**	6	0.5	8	12	75	2.9	4
Y507.040.03	**4**	6	0.3	10	15	75	3.9	4
Y507.040.05	**4**	6	0.5	10	15	75	3.9	4
Y507.050.03	**5**	6	0.3	12	18	75	4.9	4
Y507.050.05	**5**	6	0.5	12	18	75	4.9	4
Y507.060.05	**6**	6	0.5	13	21	75	5.9	6
Y507.060.1	**6**	6	1.0	13	21	75	5.9	6
Y507.060.1.5	**6**	6	1.5	13	21	75	5.9	6
Y507.080.05	**8**	8	0.5	20	28	100	7.8	6
Y507.080.1	**8**	8	1.0	20	28	100	7.8	6
Y507.080.15	**8**	8	1.5	20	28	100	7.8	6
Y507.080.2	**8**	8	2.0	20	28	100	7.8	6
Y507.080.25	**8**	8	2.5	20	28	100	7.8	6
Y507.100.05	**10**	10	0.5	22	35	100	9.8	8
Y507.100.1	**10**	10	1.0	22	35	100	9.8	8
Y507.100.15	**10**	10	1.5	22	35	100	9.8	8
Y507.100.2	**10**	10	2.0	22	35	100	9.8	8
Y507.120.05	**12**	12	0.5	25	40	100	11.7	8
Y507.120.1	**12**	12	1.0	25	40	100	11.7	8
Y507.120.15	**12**	12	1.5	25	40	100	11.7	8
Y507.120.2	**12**	12	2.0	25	40	100	11.7	8
Y507.120.3	**12**	12	3.0	25	40	100	11.7	8
Y507.160.05	**16**	16	0.5	30	45	100	15.7	10
Y507.160.1	**16**	16	1.0	30	45	100	15.7	10
Y507.160.15	**16**	16	1.5	30	45	100	15.7	10
Y507.160.2	**16**	16	2.0	30	45	100	15.7	10
Y507.160.3	**16**	16	3.0	30	45	100	15.7	10
Y507.160.5	**16**	16	5.0	30	45	100	15.7	10
Y507.200.05	**20**	20	0.5	40	50	100	19.7	10
Y507.200.1	**20**	20	1.0	40	50	100	19.7	10
Y507.200.15	**20**	20	1.5	40	50	100	19.7	10
Y507.200.2	**20**	20	2.0	40	50	100	19.7	10
Y507.200.3	**20**	20	3.0	40	50	100	19.7	10
Y507.200.5	**20**	20	5.0	40	50	100	19.7	10
Y507.250.1	**25**	25	1	40	50	100	24.8	10
Y507.250.15	**25**	25	1.5	40	50	100	24.8	10
Y507.250.2	**25**	25	2	40	50	100	24.8	10
Y507.250.3	**25**	25	3	40	50	100	24.8	10
Y507.250.5	**25**	25	5	40	50	100	24.8	10

→ Help 173-185

*d1 ≤ ø 6 h9
d1 ≤ ø25 f7





Fresa per kevlar in metallo duro integrale

Solid carbide kevlar end mill

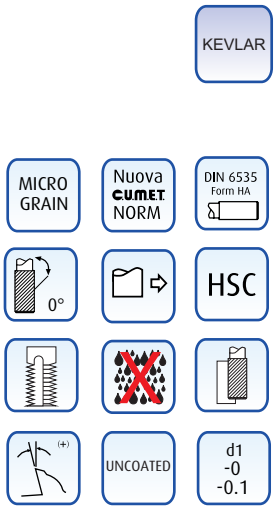
VHM - Fräser für Kevlar - Fraise carbure pour kevlar
Фреза концевая твердосплавная для кевлара - Sk fréza pro obrábění kevlaru



CODE	d1h10 mm	d2h6 mm	l1 mm	L mm	Z no.
200K.050	**5.0**	5.0	20	60	2
200K.060	**6.0**	6.0	25	75	2
200K.063	**6.35**	6.35	25	75	2
200K.080	**8.0**	8.0	25	75	2
200K.100	**10.0**	10.0	25	75	2
200K.120	**12.0**	12.0	25	75	2

Vc =250~450m/min
Fz =0.4~2.0mm





Fresa a forare e fresare per kevlar in metallo duro integrale

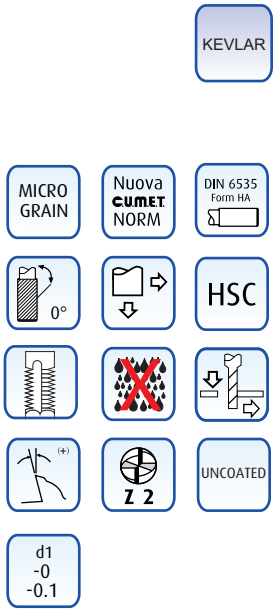
Solid carbide end mill-drill for kevlar

VHM - Fräser - Bohren für Kevlar - Fraise carbure a forer pour kevlar
Сверло–фреза для кевлара - Sk fréza pro obbrábění kevlaru s možností vrtání



CODE	d1h6 mm	d2h6 mm	l1 mm	l2 mm	L mm	Z no.
200KF.047	**4.7**	4.7	2.0	20	60	2
200KF.050	**5.0**	5.0	2.0	20	60	2
200KF.060	**6.0**	6.0	2.0	25	75	2
200KF.063	**6.35**	6.35	2.0	25	75	2
200KF.080	**8.0**	8.0	2.0	25	75	2
200KF.100	**10.0**	10.0	2.5	25	75	2





Punta per kevlar in metallo duro integrale

Solid carbide kevlar drill

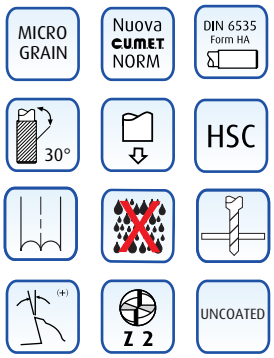
VHM - Spiralböhrer für Kevlar - Foret carbure pour kevlar
Сверло спиральное твердосплавное для кевлара - Sk vrták pro vrtání kevlaru



CODE	d1h6 mm	d2h6 mm	l1 mm	L mm	Z no.
170.024	**2.4**	2.4	14	45	2
170.027	**2.7**	2.7	16	45	2
170.030	**3.0**	3.0	16	45	2
170.031	**3.1**	3.1	18	49	2
170.0317	**3.17**	3.17	18	49	2
170.032	**3.2**	3.2	18	49	2
170.035	**3.5**	3.5	20	53	2
170.036	**3.6**	3.6	20	53	2
170.037	**3.7**	3.7	20	53	2
170.038	**3.8**	3.8	22	53	2
170.040	**4.0**	4.0	22	53	2
170.041	**4.1**	4.1	22	53	2
170.044	**4.4**	4.4	24	58	2
170.045	**4.5**	4.5	24	58	2
170.0476	**4.76**	4.76	24	58	2
170.048	**4.8**	4.8	26	60	2
170.050	**5.0**	5.0	26	60	2
170.055	**5.5**	5.5	28	66	2
170.0555	**5.55**	5.55	28	66	2
170.056	**5.6**	5.6	28	66	2
170.060	**6.0**	6.0	28	66	2
170.061	**6.1**	6.1	31	70	2
170.062	**6.2**	6.2	31	70	2
170.0635	**6.35**	6.35	31	70	2
170.065	**6.5**	6.5	31	70	2
170.070	**7.0**	7.0	34	74	2
170.0793	**7.93**	7.93	37	79	2
170.080	**8.0**	8.0	37	79	2
170.085	**8.5**	8.5	37	79	2
170.090	**9.0**	9.0	40	84	2
170.0952	**9.52**	9.52	40	84	2
170.100	**10.0**	10.0	43	89	2
170.120	**12.0**	12.0	51	100	2

V_c = 120~160m/min
F_z = 0.04~0.16mm





Il metallo duro integrale utilizzato in questa sezione ha un basso contenuto di cobalto e alta resistenza all'abrasione.

The solid carbide used for this section has a low percentage of cobalt content with high resistance to the abrasion.

Das Carbid in diesem Abschnitt verwendet wird, hat einen niedrigen Gehalt an Kobalt und mit hoher Abriebfestigkeit.

Le carbure utilisé est au moins cobalt contenu à haute résistance à l'abrasion.

Твердый сплав с небольшим содержанием кобальта для высокой резистенности к абразивным материалам.

Pevný karbid v této sekci má nízké procento kobaltu s vysokou odolností proti oděru.



Chiedete a un selvaggio che cosa fa ***muovere*** il vostro orologio, vi risponderà:
"Uno spirito". Chiedete ai nostri savi che cosa fa muovere l'universo,
vi risponderanno: "Uno spirito".

Ask a savage how your clock ***moves***, he answers: "One spirit".
Ask our elders what propels the universe,
they will answer: "One spirit".

Paul-Henri Thiry d'Holbach

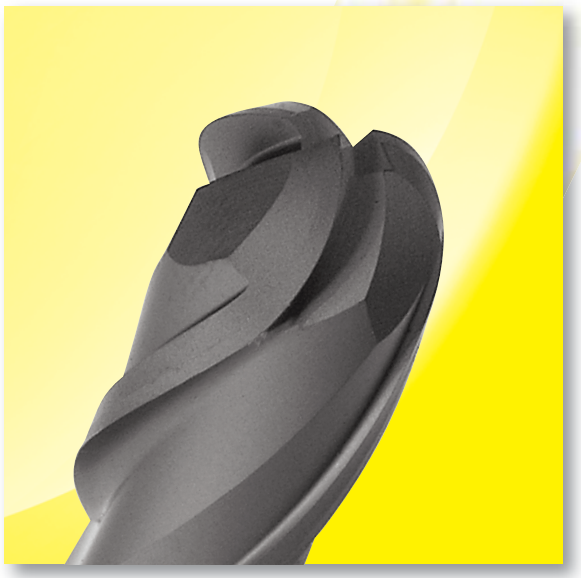
Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Frese per grafite

End mills for graphite

Fräser für Nichtmetallische Werkstoffe
Outils pour les matériaux non métalliques
Фреза концевая для неметаллических материалов
Fréza pro neželezné materiály









Fresa a sgrossare testa piana in metallo duro integrale rivestita in diamante

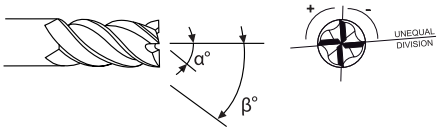
Solid carbide flat nose roughing end mill diamond coated

VHM - Schaft Schruppfräser, Diamant Beschichtet - Fraise carbure a degrossir à bout plat, revetement en diamant
Фреза концевая твердосплавная плоский торец для черновой обработки с алмазным покрытием
Sk hrubovací fréza s diamantovým povlakem



Code	d1 mm	d2h6 mm	CH mm	l1 mm	L mm
5040G.030	**3**	3	0.2	12	40
5040G.040	**4**	4	0.2	16	50
5040G.060	**6**	6	0.2	19	50
5040G.060.1	**6**	6	0.2	40	100
5040G.080	**8**	8	0.2	25	60
5040G.080.1	**8**	8	0.2	40	100
5040G.100	**10**	10	0.2	25	70
5040G.100.1	**10**	10	0.2	40	100
5040G.120	**12**	12	0.2	25	75
5040G.120.1	**12**	12	0.2	40	100

→ Help 185



Graphyte



MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | variable | HSC | 45° | DIAMOND G | Z 2 | d1 -0 -0.1

Fresa a sgrossare testa torica in metallo duro integrale rivestita in diamante

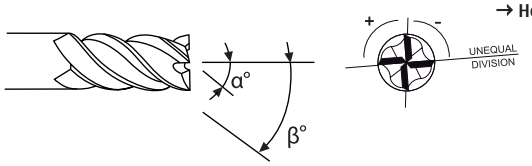
Solid carbide corner radius roughing end mill diamond coated

VHM - Torus Schruppfräser, Diamant Beschichtet - Fraise carbure a degrossir avec rayon d'angle, revetement en diamant
Фреза концевая твердосплавная с угловым радиусом с алмазным покрытием
Sk hrubovací fréza s rohovým rádiusem a diamantovým povlakem



Code	d1 mm	d2h6 mm	rp mm	l1 mm	L mm
Y5040.060.05	**6**	6	0.5	20	50
Y5040.060.05L	**6**	6	0.5	32	75
Y5040.080.05	**8**	8	0.5	25	60
Y5040.080.05L	**8**	8	0.5	40	100
Y5040.100.05	**10**	10	0.5	25	70
Y5040.100.05L	**10**	10	0.5	40	100
Y5040.120.05	**12**	12	0.5	25	75
Y5040.120.05L	**12**	12	0.5	40	100

→ Help 185



Graphyte



MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | variable | HSC | rp | DIAMOND G | Z 2 | d1 -0 -0.1

Fresa a sgrossare testa raggiata in metallo duro integrale rivestita in diamante

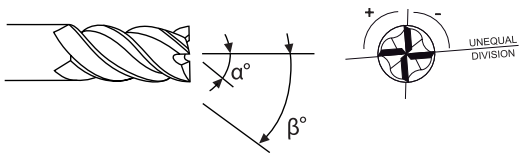
Solid carbide ball nose roughing end mill diamond coated

VHM - Radius Schruppfräser, Diamant Beschichtet - Fraise carbure a degrossir hémisphérique, revetement en diamant
Фреза концевая твердосплавная радиусная для черновой обработки с алмазным покрытием
Sk kulová hrubovací fréza s diamantovým povlakem



Code	d1 mm	d2h6 mm	l1 mm	L mm
5040R.060	**6**	6	20	50
5040R.060.1	**6**	6	32	75
5040R.080	**8**	8	25	60
5040R.080.1	**8**	8	40	75
5040R.100	**10**	10	25	70
5040R.100.1	**10**	10	40	100
5040R.120	**12**	12	25	75
5040R.120.1	**12**	12	40	100

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Graphyte



MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | variable | HSC | DIAMOND G | Z 2 | d1 -0 -0.1

Fresa a semi-finire testa piana rivestita in diamante in metallo duro integrale

Solid carbide flat nose semi-finishing diamond coated end mill

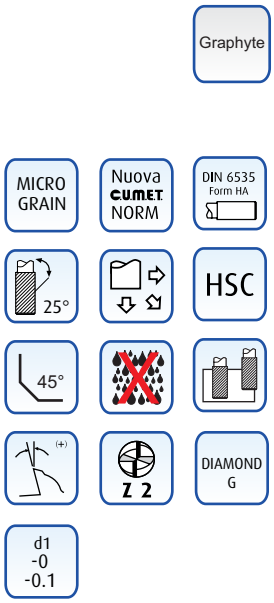


VHM - Schaft Vorschlichtenfräser, Diamant Beschichtet - Fraise carbure semi-finition à bout plat, avec revetement en diamont
Фреза концевая твердосплавная плоский торец для получистовой обработки с алмазным покрытием
Sk polodokončovací fréza s diamantovým povlakem

Code	d1 mm	d2h6 mm	CH mm	l1 mm	l2 mm	L mm	d3 mm
6010D.030	**3**	3	0.2	12	-	50	-
6010D.040	**4**	4	0.2	16	-	50	-
6010D.060	**6**	6	0.2	19	-	50	-
6010D.060.1	**6**	6	0.2	19	45	100	5.7
6010D.080	**8**	8	0.2	25	-	60	-
6010D.080.1	**8**	8	0.2	25	55	100	7.7
6010D.100	**10**	10	0.2	25	-	70	-
6010D.100.1	**10**	10	0.2	25	60	100	9.7
6010D.120	**12**	12	0.2	25	-	75	-
6010D.120.1	**12**	12	0.2	30	60	100	11.7

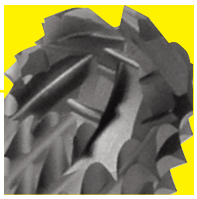
→ Help 185





Fresa a semi-finire testa raggiata rivestita in diamante in metallo duro integrale

Solid carbide ball nose semi-finishing diamond coated end mill

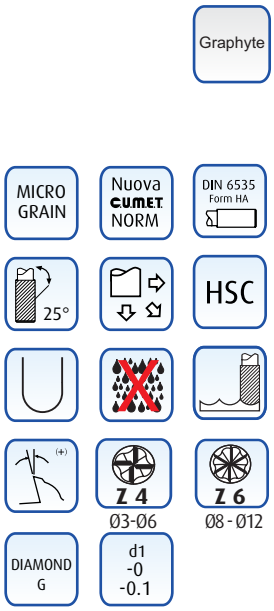


VHM - Radius Vorschlichtenfräser, Diamant Beschichtet - Fraise carbure semi-finition à bout hémisphérique, revetement en diamont
Фреза концевая твердосплавная радиусная для получистовой обработки с алмазным покрытием
Sk kulová polodokončovací fréza s diamantovým povlakem

Code	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm
6010RD.030	**3**	3	12	-	50	-
6010RD.040	**4**	4	16	-	50	-
6010RD.060	**6**	6	19	-	50	-
6010RD.060.1	**6**	6	19	45	100	5.7
6010RD.080	**8**	8	25	-	60	-
6010RD.080.1	**8**	8	25	55	100	7.7
6010RD.100	**10**	10	25	-	70	-
6010RD.100.1	**10**	10	25	60	100	9.7
6010RD.120	**12**	12	25	-	75	-
6010RD.120.1	**12**	12	30	60	100	11.7

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Microfresa testa torica in metallo duro integrale gambo Ø 3 mm

Solid carbide miniature corner radius end mill, shank Ø 3 mm



VHM - Mini Schaftfräser mit Eckenradius, Schaft Ø 3 mm - Microfraise carbure avec rayon d'angle, queue Ø 3 mm
Мини-фреза концевая твердосплавная 3 с угловым радиусом, хвостовик Ø 3 mm
Sk miniaturní fréza s rohovým rádiusem se stopkou Ø 3 mm

Code	d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
200GD.004	**0.4**	3	-	0.6	-	50	-	2
200GDL.004	**0.4**	3	-	0.6	1.5	50	0.35	2
200GD.005	**0.5**	3	0.05	0.7	2.5	50	0.45	2
200GDL.005	**0.5**	3	0.05	0.7	4.0	50	0.45	2
200GDXL.005	**0.5**	3	0.05	0.7	7.5	50	0.45	2
200GD.006	**0.6**	3	0.05	0.9	5.0	50	0.55	2
200GDL.006	**0.6**	3	0.05	0.9	9.0	50	0.55	2
200GD.008	**0.8**	3	0.05	1.2	4.0	50	0.75	2
200GDL.008	**0.8**	3	0.05	1.2	7.0	50	0.75	2
200GDXL.008	**0.8**	3	0.05	1.2	12.0	50	0.75	2
200GD.010	**1.0**	3	0.10	1.5	5.0	50	0.95	2
200GDL.010	**1.0**	3	0.10	1.5	8.5	50	0.95	2
200GD.012	**1.2**	3	0.10	1.8	7.5	50	1.15	2
200GDL.012	**1.2**	3	0.10	1.8	12.0	50	1.15	2
200GD.015	**1.5**	3	0.15	2.2	7.5	50	1.45	2
200GDL.015	**1.5**	3	0.15	2.2	12.0	50	1.45	2
200GD.020	**2.0**	3	0.15	2.2	10.0	50	1.95	2
200GDL.020	**2.0**	3	0.15	2.2	16.0	50	1.95	2
200GD.025	**2.5**	3	0.15	3.5	-	50	-	2
200GDL.025	**2.5**	3	0.15	3.5	15.0	50	2.45	2

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Graphyte

MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

20° | HSC

rp

DIAMOND G

Z 2

d1 -0.01 -0.02 | < Ø1 rp ±0.005 | < Ø3 rp ± 0.01

Microfresa testa sferica 3D in metallo duro integrale gambo Ø 3 mm

Solid carbide miniature ball nose end mill, shank Ø 3 mm



VHM - 3D Mini Radiusfräser, Schaft Ø 3 mm - Microfraise carbure mini 3D hémisphérique, queue Ø 3 mm
Мини-фреза концевая твердосплавная полусферическая 3D, хвостовик Ø 3 mm
Sk miniaturní kulová fréza se stopkou Ø 3 mm

CODE	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
200GRD.004	**0.4**	3	0.4	-	50	-	2
200GRDL.004	**0.4**	3	0.4	1.5	50	0.35	2
200GRD.005	**0.5**	3	0.5	2.5	50	0.45	2
200GRDL.005	**0.5**	3	0.5	4.0	50	0.45	2
200GRDXL.005	**0.5**	3	0.5	7.5	50	0.45	2
200GRD.006	**0.6**	3	0.6	5.0	50	0.55	2
200GRDL.006	**0.6**	3	0.6	9.0	50	0.55	2
200GRD.008	**0.8**	3	0.8	4.0	50	0.75	2
200GRDL.008	**0.8**	3	0.8	7.0	50	0.75	2
200GRDXL.008	**0.8**	3	0.8	12.0	50	0.75	2
200GRD.010	**1.0**	3	1.0	8.5	50	0.95	2
200GRDL.010	**1.0**	3	1.0	15.0	50	0.95	2
200GRD.012	**1.2**	3	1.2	6.0	50	1.15	2
200GRDL.012	**1.2**	3	1.2	10.0	50	1.15	2
200GRD.015	**1.5**	3	1.5	12.0	50	1.45	2
200GRDL.015	**1.5**	3	1.5	20.0	50	1.45	2
200GRD.020	**2.0**	3	2.0	10.0	50	1.95	2
200GRDL.020	**2.0**	3	2.0	16.0	50	1.95	2
200GRD.025	**2.5**	3	2.5	15.0	50	2.45	2

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Graphyte

MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

20° | HSC

DIAMOND G

Z 2

d1 -0.01 -0.02 | < Ø1 rp ±0.005 | < Ø3 rp ± 0.01

Microfresa testa torica in metallo duro integrale gambo Ø 4 mm

Solid carbide miniature corner radius end mill, shank Ø 4 mm

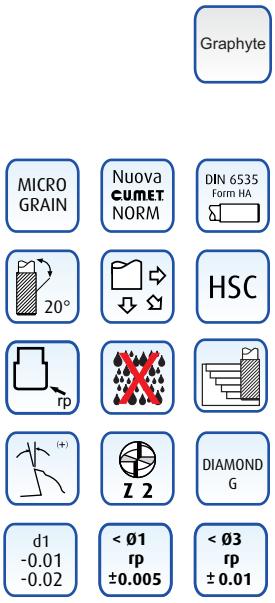


VHM - Mini Schaftfräser mit Eckenradius, Schaft Ø 4 mm - Microfraise carbure avec rayon d'angle, queue Ø 4 mm
Мини-фреза концевая твердосплавная 3 с угловым радиусом, хвостовик Ø 4 mm
Sk miniaturní fréza s rohovým rádiusem se stopkou Ø 4 mm

CODE	d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
204GD.004	**0.4**	4	0.05	0.6	2.5	50	0.37	2
204GD.004.1	**0.4**	4	0.05	0.6	5	50	0.37	2
204GD.005	**0.5**	4	0.05	0.8	-	50	-	2
204GD.005.1	**0.5**	4	0.05	0.8	3.5	50	0.45	2
204GD.005.2	**0.5**	4	0.05	0.8	5	50	0.45	2
204GD.005.3	**0.5**	4	0.05	0.8	7	50	0.45	2
204GD.005.4	**0.5**	4	0.05	0.8	10	50	0.45	2
204GD.006	**0.6**	4	0.05	0.9	3.5	50	0.55	2
204GD.006.1	**0.6**	4	0.05	0.9	7	50	0.55	2
204GD.008	**0.8**	4	0.05	1.2	5	50	0.75	2
204GD.008.1	**0.8**	4	0.05	1.2	10	50	0.75	2
204GD.010	**1.0**	4	-	1.0	-	50	-	2
204GD.010.1	**1.0**	4	0.05	1.5	5	50	0.95	2
204GD.010.2	**1.0**	4	0.1	1.5	5	50	0.95	2
204GD.010.3	**1.0**	4	0.05	1.5	10	50	0.95	2
204GD.010.4	**1.0**	4	0.1	1.5	10	50	0.95	2
204GD.010.5	**1.0**	4	0.2	1.5	10	50	0.95	2
204GD.010.6	**1.0**	4	0.1	1.5	15	50	0.95	2
204GD.010.7	**1.0**	4	0.2	1.5	15	50	0.95	2
204GD.010.8	**1.0**	4	0.1	1.5	20	75	0.95	2
204GD.015	**1.5**	4	0.15	2.3	-	50	-	2
204GD.015.1	**1.5**	4	0.15	2.3	10	50	1.40	2
204GD.015.2	**1.5**	4	0.2	2.3	10	50	1.40	2
204GD.015.3	**1.5**	4	0.15	2.3	15	50	1.40	2
204GD.015.4	**1.5**	4	0.2	2.3	15	50	1.40	2
204GD.015.5	**1.5**	4	0.2	2.3	25	75	1.40	2
204GD.020	**2.0**	4	0.2	3.0	-	50	-	2
204GD.020.1	**2.0**	4	0.2	3.0	5	50	1.90	2
204GD.020.2	**2.0**	4	0.1	3.0	10	50	1.90	2
204GD.020.3	**2.0**	4	0.2	3.0	10	50	1.90	2
204GD.020.4	**2.0**	4	0.3	3.0	10	50	1.90	2
204GD.020.5	**2.0**	4	0.3	3.0	15	50	1.90	2
204GD.020.6	**2.0**	4	0.2	3.0	20	75	1.90	2
204GD.020.7	**2.0**	4	0.3	3.0	20	75	1.90	2
204GD.020.8	**2.0**	4	0.2	3.0	25	75	1.90	2
204GD.030	**3.0**	4	0.2	4.5	15	75	2.90	2

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In questa sezione il rivestimento in diamante 2 nano cristallino multi-layer è specifico per la lavorazione della fibra di carbonio. Lo spessore di rivestimento è di 8+2 Micron. L'esecuzione lucida del rivestimento consente di limitare gli attriti durante la lavorazione. L'innovantiva geometria anti vibrante da noi ideata è particolarmente indicata per le lavorazioni dal pieno.

Nano-crystalline diamond coating 2 multi-layer specific to the processing of carbon fiber. Coating thickness 8 + 2 microns. Shiny execution of the coating to reduce friction during the processing. The innovantive anti vibrating geometry designed by us is particularly suitable for machining full diameter.

In diesem Abschnitt wird die nanokristalline Diamantschicht 2 mehrschichtigen spezifisch ist für die Bearbeitung der Kohlenstofffaser. Die Schichtdicke beträgt 8 +2 Micron. Die Ausführung der glänzenden Beschichtung hilft Limit Reibung während der Verarbeitung. L'innovantiva Geometrie anti Vibrieren von uns entwickelt ist besonders geeignet für die Bearbeitung aus dem Vollen

Dans cette section le multicouche de revêtement nano diamant 2 cristallin est spécifique pour le freisage de la fibre de carbone. L'épaisseur du revêtement est 8 + 2 microns. La surface lisse de revêtement permet de limiter la friction pendant le traitement. La géométrie innovante antivibration que nous avons conçu convient particulièrement pour le fraisage.

Нано-кристаллическое алмазное многослойное покрытие предназначенное для обработки карбонной фибры. Толщина покрытия 8 + 2 микрон. Полированная поверхность для уменьшения трения при обработке. Инновационная антивибрационная геометрия для обработки общим диаметром фрезы.

Nano-krystalická diamantová 2 vícevrstvá-vrstva specifická pro zpracování uhlíkových vláken. Tloušťka vrstvy 8 + 2 mikronů. Lesklé provedení povrchové úpravy pro snížení tření při obrábění.Innovativní protivibrační geometrie, je vhodný zejména pro obrábění plným průměrem.

Microfresa testa sferica 3D in metallo duro integrale gambo Ø 4 mm

Solid carbide miniature ball nose end mills, shank Ø 4 mm

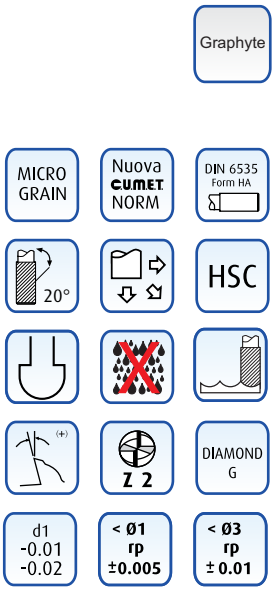


VHM - 3D Mini Radiusfräser, Schaft Ø 4 mm - Microfraise carbure mini 3D hémisphérique, queue Ø 4 mm
Мини-фреза концевая твердосплавная полусферическая, хвостовик Ø 4 mm
Sk miniaturní kulová fréza se stopkou Ø 4 mm

CODE	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
204GRD.004	**0.4**	4	0.6	2.5	50	0.37	2
204GRD.004.1	**0.4**	4	0.6	5	50	0.37	2
204GRD.005	**0.5**	4	0.8	-	50	-	2
204GRD.005.1	**0.5**	4	0.8	3.5	50	0.45	2
204GRD.005.2	**0.5**	4	0.8	5	50	0.45	2
204GRD.005.3	**0.5**	4	0.8	7	50	0.45	2
204GRD.005.4	**0.5**	4	0.8	10	50	0.45	2
204GRD.006	**0.6**	4	0.9	3.5	50	0.55	2
204GRD.006.1	**0.6**	4	0.9	7	50	0.55	2
204GRD.008	**0.8**	4	1.2	5	50	0.75	2
204GRD.008.1	**0.8**	4	1.2	10	50	0.75	2
204GRD.010	**1.0**	4	1.5	-	50	-	2
204GRD.010.1	**1.0**	4	1.5	5	50	0.95	2
204GRD.010.2	**1.0**	4	1.5	10	50	0.95	2
204GRD.010.3	**1.0**	4	1.5	15	50	0.95	2
204GRD.010.4	**1.0**	4	1.5	20	50	0.95	2
204GRD.015	**1.5**	4	2.3	-	50	-	2
204GRD.015.1	**1.5**	4	2.3	10	50	1.40	2
204GRD.015.2	**1.5**	4	2.3	25	75	1.40	2
204GRD.020	**2.0**	4	3.0	-	50	-	2
204GRD.020.1	**2.0**	4	3.0	5	50	1.90	2
204GRD.020.2	**2.0**	4	3.0	10	50	1.90	2
204GRD.020.3	**2.0**	4	3.0	15	50	1.90	2
204GRD.020.4	**2.0**	4	3.0	20	75	1.90	2
204GRD.020.5	**2.0**	4	3.0	25	75	1.90	2
204GRD.030	**3.0**	4	4.5	5	50	2.90	2
204GRD.030.1	**3.0**	4	4.5	10	50	2.90	2
204GRD.030.2	**3.0**	4	4.5	15	50	2.90	2
204GRD.030.3	**3.0**	4	4.5	20	75	2.90	2
204GRD.030.4	**3.0**	4	4.5	25	75	2.90	2
204GRD.030.5	**3.0**	4	4.5	30	100	2.90	2

→ Help 186

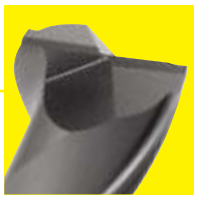




Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

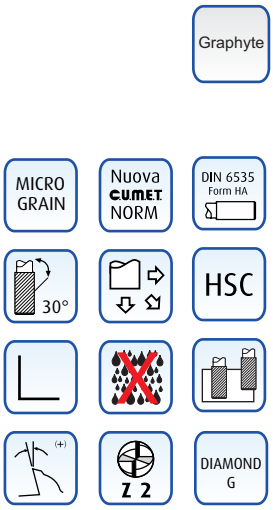
VHM - Schaftfräser - Fraise carbure a bout plat
Фреза концевая твердосплавная плоский торец - Sk rohová fréza



CODE	d1f7 mm	d2h6 mm	l1 mm	L mm	Z no.
200G.010	**1**	3	3	40	2
200G.010.1	**1**	3	10	50	2
200G.020	**2**	3	9	40	2
200G.030	**3**	3	12	40	2
200G.040	**4**	4	14	50	2
200G.050	**5**	5	14	50	2
200G.060	**6**	6	20	64	2
200G.080	**8**	8	20	60	2
200G.080.1	**8**	8	40	100	2
200G.100	**10**	10	25	70	2
200G.100.1	**10**	10	45	100	2
200G.120	**12**	12	25	75	2
200G.120.1	**12**	12	50	100	2

→ Help 186





Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill

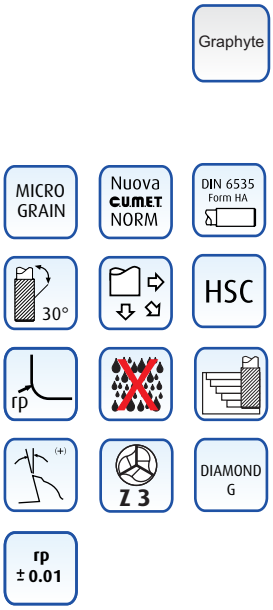
VHM - Gesenkfräser mit Eckenradius - Fraise carbure de matrice avec rayon d'angle
Фреза концевая твердосплавная с угловым радиусом 3D длинная - Sk fréza s rohovým rádiusem



CODE	d1f7 mm	d2h6 mm	rp mm	l1 mm	L mm	Z no.
300GD.01060.02	**1**	2	0.2	5	60	3
300GD.02100.02	**2**	2	0.2	10	100	3
300GD.03050.02	**3**	3	0.2	12	50	3
300GD.03100.02	**3**	3	0.2	15	100	3
300GD.03150.02	**3**	3	0.2	20	150	3
300GD.04050.05	**4**	4	0.5	16	50	3
300GD.04100.05	**4**	4	0.5	20	100	3
300GD.04150.05	**4**	4	0.5	20	150	3
300GD.05050.05	**5**	5	0.5	20	50	3
300GD.05100.05	**5**	5	0.5	20	100	3
300GD.05150.05	**5**	5	0.5	20	150	3
300GD.06050.05	**6**	6	0.5	20	50	3
300GD.06100.05	**6**	6	0.5	20	100	3
300GD.06150.05	**6**	6	0.5	30	150	3
300GD.08060.05	**8**	8	0.5	22	60	3
300GD.08100.05	**8**	8	0.5	30	100	3
300GD.08150.05	**8**	8	0.5	30	150	3
300GD.10070.05	**10**	10	0.5	22	70	3
300GD.10100.05	**10**	10	0.5	30	100	3
300GD.10150.05	**10**	10	0.5	40	150	3
300GD.12075.05	**12**	12	0.5	27	75	3
300GD.12100.05	**12**	12	0.5	30	100	3
300GD.12150.05	**12**	12	0.5	40	150	3

→ Help 186





Fresa testa sferica 3D in metallo duro integrale

Solid carbide 3D ball nose end mill

VHM - 3D Radiusfräser - Fraise carbure 3D hémisphérique
Фреза концевая твердосплавная полусферическая 3D - Sk 3D kulová fréza



CODE	d1f7 mm	d2h6 mm	l1 mm	L mm	Z no.
300GRD.01050	**1**	2	6	50	3
300GRD.02060	**2**	2	8	60	3
300GRD.02100.1	**2**	2	12	100	3
300GRD.02100	**2**	2	20	100	3
300GRD.03040	**3**	3	12	40	3
300GRD.03100	**3**	3	15	100	3
300GRD.03150	**3**	3	20	150	3
300GRD.04050	**4**	4	16	50	3
300GRD.04100	**4**	4	20	100	3
300GRD.04150	**4**	4	20	150	3
300GRD.05050	**5**	5	20	50	3
300GRD.05100	**5**	5	20	100	3
300GRD.05150	**5**	5	20	150	3
300GRD.06050	**6**	6	20	50	3
300GRD.06100	**6**	6	35	100	3
300GRD.06150	**6**	6	35	150	3
300GRD.08060	**8**	8	22	60	3
300GRD.08100	**8**	8	35	100	3
300GRD.08150	**8**	8	40	150	3
300GRD.10070	**10**	10	20	70	3
300GRD.10100	**10**	10	35	100	3
300GRD.10150	**10**	10	40	150	3
300GRD.12075	**12**	12	27	75	3
300GRD.12100	**12**	12	35	100	3
300GRD.12150	**12**	12	45	150	3

→ Help 186



Graphyte

MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

30° | HSC

DIAMOND G

Z 3

R ± 0.01

Fresa testa sferica 3D rastremata extralunga in metallo duro integrale

Solid carbide 3D ball nose end mill, extra long tapered neck

VHM-3D- Radiusfräser mit Kugelstirn, überlang - Fraise carbure 3D hémisphérique, ultra-longue
Фреза концевая твердосплавная полусферическая 3D длинная
Sk 3D kulová fréza s extra dlouhým zužením stopky



CODE	d1f7 mm	d2h6 mm	l1 mm	l2 mm	L mm	Z no.
200GRL.010	**1**	3	2	30	100	2
200GRL.015	**1.5**	3	3	30	100	2
200GRL.020	**2**	3	4	30	100	2
200GRL.020.1	**2**	4	4	70	150	2
200GRL.030	**3**	5	6	70	150	2
200GRL.040	**4**	6	8	70	150	2
200GRL.050	**5**	6	10	50	150	2
200GRL.060	**6**	8	10	70	150	2
200GRL.080	**8**	10	10	70	150	2
200GRL.100	**10**	12	10	70	150	2

→ Help 186



Graphyte

MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

30° | HSC

Z 2 Ø1-Ø6 | Z 3 Ø8-Ø10

DIAMOND G

R ± 0.01




AVSILO




ROLLOMATIC
shapesmart
np5



La danza è una poesia in cui ogni parola è un ***movimento***.

The dance is a poem of which each ***movement*** is a word.

Mata Hari

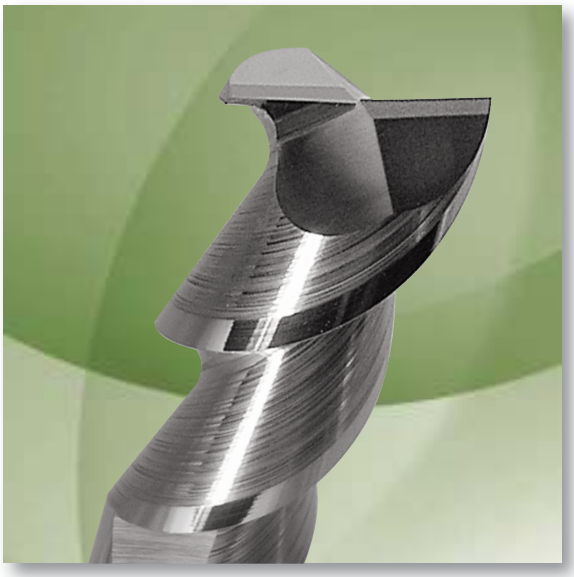
Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Frese per alluminio
End mills for aluminum

Fräser für Aluminium
Fraises pour Aluminium
Фрезы концевые для алюминия
Dokončovací fréza pro Obrábění Hliníku





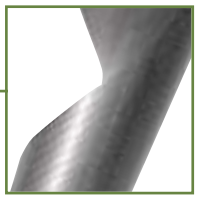




Fresa monotagliente in metallo duro integrale

Solid carbide one-tooth end mill

VHM - Einzahn-Schaftfräser - Fraise carbure, 1 lèvre
Фреза концевая твердосплавная с одним зубом - Sk jednozubé frézy

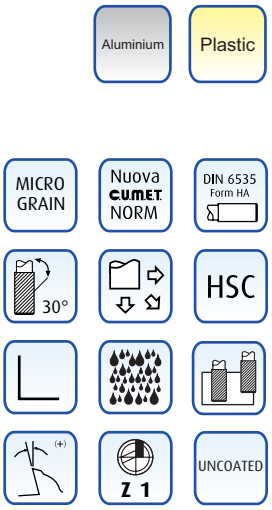


CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
100.010	**1**	2	5	40	1
100.010.1	**1**	3	5	40	1
100.015	**1.5**	3	6	40	1
100.020	**2**	2	10	40	1
100.020.1	**2**	3	10	40	1
100.030	**3**	3	10	40	1
100.030.1	**3**	6	12	50	1
100.040	**4**	4	15	50	1
100.040.1	**4**	6	15	50	1
100.050	**5**	5	15	50	1
100.060	**6**	6	20	50	1
100.080	**8**	8	22	60	1
100.100	**10**	10	25	70	1
100.120	**12**	12	35	75	1

→ Help 187

*d1 ≤ ø 6 h9
d1 ≤ ø12 f7

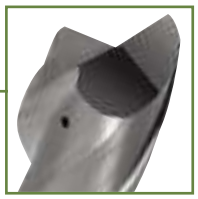




Fresa con fori in elica testa piana in metallo duro integrale

Solid carbide coolant feed flat nose end mill

VHM - Gesenkfräser mit Durchgewendelten Kühlkanälen - Fraise carbure à trous de refrigeration à bout plat
Фреза концевая твердосплавная с подачей СОЖ - Sk rohová fréza s chlazením vších zubů

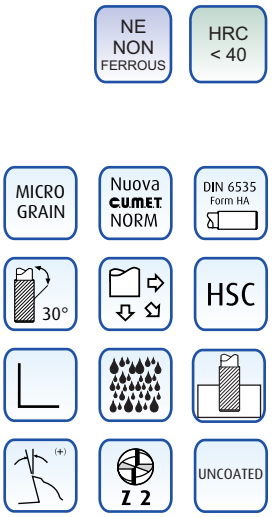


CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
210.060	**6**	6	20	50	2
210.080	**8**	8	22	60	2
210.100	**10**	10	25	70	2
210.120	**12**	12	27	75	2
210.160	**16**	16	30	85	2
210.200	**20**	20	40	100	2

→ Help 198

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Fresa con fori in elica testa piana in metallo duro integrale

Solid carbide coolant feed flat nose end mill

VHM - Gesenkfräser mit Durchgewendelten Kühlkanälen - Fraise carbure à trous de refrigeration à bout plat
Фреза концевая твердосплавная с подачей СОЖ - Sk rohová fréza s chlazením všch zubů

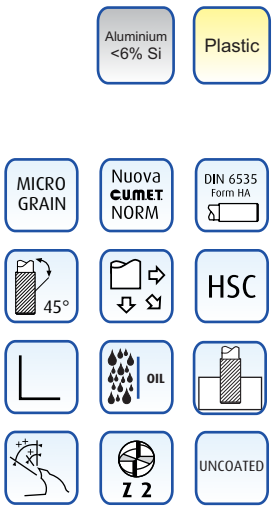


CODE	d1h7 mm	d2h6 mm	l1 mm	L mm	Z no.
750.060	**6**	6	20	50	2
750.080	**8**	8	25	60	2
75008100	**8**	8	40	100	2
75008100.1	**8**	8	60	100	2
750.100	**10**	10	25	70	2
75010100	**10**	10	50	100	2
75010150	**10**	10	75	150	2
750.120	**12**	12	30	75	2
75012100	**12**	12	50	100	2
75012150	**12**	12	75	150	2
75014150	**14**	14	75	150	2
75014160	**14**	14	100	160	2
750.160	**16**	16	30	85	2
75016100	**16**	16	50	100	2
75018150	**18**	18	65	150	2
75018150.1	**18**	18	75	150	2
750.200	**20**	20	40	100	2
75020150	**20**	20	65	150	2

→ **Help 187**

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7



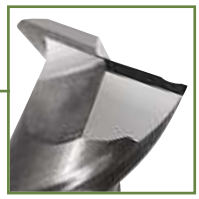


Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM - Gesenkfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza

LOW SPEED

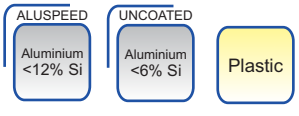


Code UNCOATED	Code ALUSPEED	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
700.010	700T.010	**1**	4	2	50	2
700.020	700T.020	**2**	6	6	50	2
700.030	700T.030	**3**	6	10	50	2
700.040	700T.040	**4**	6	15	50	2
70004060	700T04060	**4**	6	25	60	2
700.050	700T.050	**5**	6	20	50	2
70005060	700T05060	**5**	6	30	60	2
700.060	700T.060	**6**	6	20	50	2
70006100	700T06100	**6**	6	40	100	2
700.080	700T.080	**8**	8	25	60	2
70008100	700T08100	**8**	8	40	100	2
70008100.1	700T08100.1	**8**	8	60	100	2
700.100	700T.100	**10**	10	25	70	2
70010100	700T10100	**10**	10	50	100	2
70010150	700T10150	**10**	10	75	150	2
700.120	700T.120	**12**	12	30	75	2
70012100	700T12100	**12**	12	50	100	2
70012150	700T12150	**12**	12	75	150	2
700.140	700T.140	**14**	14	30	85	2
70014100	700T14100	**14**	14	50	100	2
70014150	700T14150	**14**	14	75	150	2
70014160	700T14160	**14**	14	100	160	2
700.160	700T.160	**16**	16	30	85	2
70016100	700T16100	**16**	16	50	100	2
70016150	700T16150	**16**	16	75	150	2
70016160	700T16160	**16**	16	100	160	2
700.180	700T.180	**18**	18	40	100	2
70018150	700T18150	**18**	18	65	150	2
70018150.1	700T18150.1	**18**	18	75	150	2
70018160	700T18160	**18**	18	100	160	2
700.200	700T.200	**20**	20	40	100	2
70020150	700T20150	**20**	20	65	150	2
70020150.1	700T20150.1	**20**	20	75	150	2
70020160	700T20160	**20**	20	100	160	2
700.250	700T.250	**25**	25	40	100	2
70025150	700T25150	**25**	25	65	150	2
70025150.1	700T25150.1	**25**	25	75	150	2
70025160	700T25160	**25**	25	100	160	2

→ Help 187

*d1 ≤ ø 6 h9
d1 ≤ ø25 h7



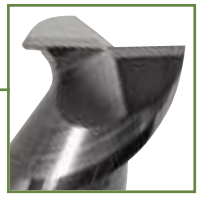


Fresa Alufast ad alto avanzamento testa piana in metallo duro itegrale

Alufast solid carbide high feed flat nose end mill

VHM-Alufast Gesenkfraser - Fraise carbure Alufast à bout plat
Sk rohová fréza alufast

HIGH FEED

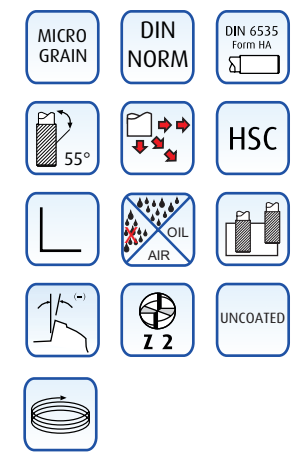


CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
755.030	**3**	6	9	57	2
755.040	**4**	6	12	57	2
755.050	**5**	6	15	57	2
755.060	**6**	6	18	57	2
755.080	**8**	8	20	63	2
755.100	**10**	10	25	70	2
755.120	**12**	12	25	75	2
755.160	**16**	16	32	85	2
755.200	**20**	20	40	100	2

→ Help 187

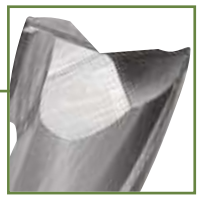
*d1 ≤ ø 6 h9
d1 ≤ ø20 h7





Fresa testa torcia antivibrante ad alto avanzamento in metallo duro integrale

Solid carbide corner radius end mill high feed

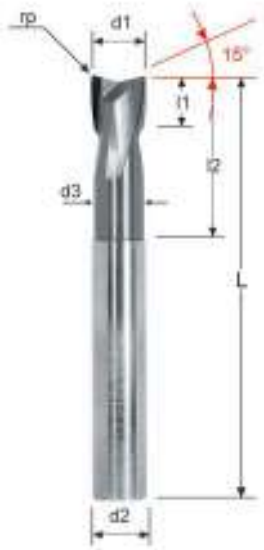


VHM- Stirn RadiusFräser High feed - Fraise carbure avec rayon d'angle à Haute avancement
Sk vysokorychlostní fréza s rohovým rádiusem

CODE	*d1 mm	d2h6 mm	rp-CH mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y703.030	**3**	6	0.05x45°	3	10	60	5.8	2
Y703.030.03	**3**	6	0.3	3	10	60	2.9	2
Y703.040	**4**	6	0.05x45°	3	10	60	2.9	2
Y703.040.05	**4**	6	0.5	3	10	60	2.9	2
Y703.050.05	**5**	6	0.5	3	10	60	2.9	2
Y703.060	**6**	6	0.05x45°	6	18	60	5.8	2
Y703.060.05	**6**	6	0.5	6	18	60	5.8	2
Y703.060.1	**6**	6	1	6	18	60	5.8	2
Y703.060.15	**6**	6	1.5	6	18	60	5.8	2
Y703.080	**8**	8	0.05x45°	8	24	75	7.8	2
Y703.080.05	**8**	8	0.5	8	24	75	7.8	2
Y703.080.1	**8**	8	1	8	24	75	7.8	2
Y703.080.15	**8**	8	1.5	8	24	75	7.8	2
Y703.080.2	**8**	8	2	8	24	75	7.8	2
Y703.100	**10**	10	0.05x45°	10	30	80	9.7	2
Y703.100.05	**10**	10	0.5	10	30	80	9.7	2
Y703.100.1	**10**	10	1	10	30	80	9.7	2
Y703.100.15	**10**	10	1.5	10	30	80	9.7	2
Y703.100.2	**10**	10	2	10	30	80	9.7	2
Y703.120	**12**	12	0.05x45°	12	36	100	11.7	2
Y703.120.05	**12**	12	0.5	12	36	100	11.7	2
Y703.120.1	**12**	12	1	12	36	100	11.7	2
Y703.120.15	**12**	12	1.5	12	36	100	11.7	2
Y703.120.2	**12**	12	2	12	36	100	11.7	2
Y703.120.3	**12**	12	3	12	36	100	11.7	2
Y703.160	**16**	16	0.05x45°	16	50	100	15.5	2
Y703.160.05	**16**	16	0.5	16	50	100	15.5	2
Y703.160.1	**16**	16	1	16	50	100	15.5	2
Y703.160.15	**16**	16	1.5	16	50	100	15.5	2
Y703.160.2	**16**	16	2	16	50	100	15.5	2
Y703.160.3	**16**	16	4	16	50	100	15.5	2
Y703.200	**20**	20	0.05x45°	20	60	109	19.5	2
Y703.200.1	**20**	20	1	20	60	109	19.5	2
Y703.200.2	**20**	20	2	20	60	109	19.5	2

→ Help 188

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7



AL Alloy

MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

10° | | HSC

rp | 45° |

(+) | Z 2 | UNCOATED

LAPPED

Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill



VHM - Gesenkfräser mit Eckenradius - Fraise carbure avec rayon d'angle
Фреза концевая твердосплавная с угловым радиусом - Sk fréza s rohovým rádiusem

CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
Y700R.030.05	**3**	6	0.5	4	10	75	2.95	2
Y700R.040.1	**4**	6	1.0	5	13	75	3.95	2
Y700R.050.15	**5**	6	1.5	6	14	75	4.8	2
Y700R.060.15	**6**	6	1.5	8	30	100	5.8	2
Y700R.080.2	**8**	8	2.0	10	30	100	7.8	2
Y700R.100.25	**10**	10	2.5	12	35	100	9.7	2
Y700R.120.3	**12**	12	3.0	12	40	100	11.7	2
Y700R.160.4	**16**	16	4.0	16	50	100	15.5	2

Ad esaurimento - by exaustion

→ Help 188-189

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7



AL Alloy | Plastic

SUB MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

30° | | HSC

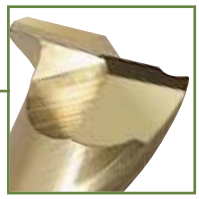
rp | |

(+) | Z 2 | SILVER

Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill

VHM - Gesenkfräser mit Eckenradius - Fraise carbure avec rayon d'angle
Фреза концевая твердосплавная с угловым радиусом - Sk fréza s rohovým rádiusem

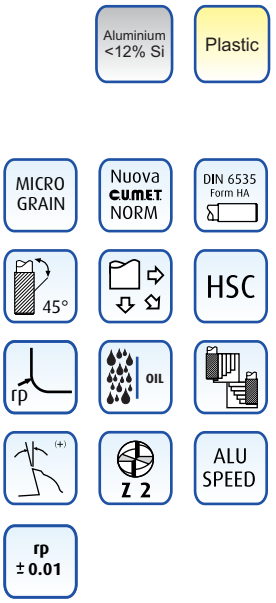


CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	L mm	Z no.
730.030	**3**	6	0.2	10	50	2
730.040	**4**	6	0.2	15	50	2
730.050	**5**	6	0.2	20	50	2
730.060	**6**	6	0.2	20	50	2
730.080	**8**	8	0.3	25	60	2
730.100	**10**	10	0.3	25	70	2
730.120	**12**	12	0.3	30	75	2
730.140	**14**	14	0.5	30	85	2
730.160	**16**	16	0.5	30	85	2
730.200	**20**	20	0.5	40	100	2

→ Help 187

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

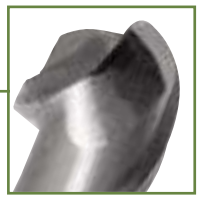




Fresa testa sferica 3D in metallo duro integrale

Solid carbide 3D ball nose end mill

VHM - 3D Radiusfräser - Fraise carbure 3D hémisphérique
Фреза концевая твердосплавная полусферическая 3D - Sk 3D kulová fréza

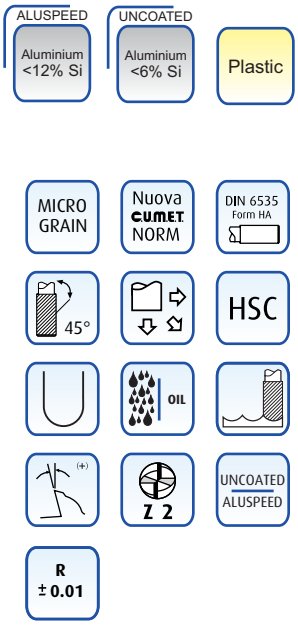


Code UNCOATED	Code ALUSPEED	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
700SR.030	700SRT.030	**3**	6	10	75	2
700SR.040	700SRT.040	**4**	6	10	75	2
700SR.060	700SRT.060	**6**	6	15	100	2
700SR.080	700SRT.080	**8**	8	20	100	2
700SR.100	700SRT.100	**10**	10	25	100	2
700SR.120	700SRT.120	**12**	12	25	100	2
700SR.160	700SRT.160	**16**	16	30	100	2
700SR.200	700SRT.200	**20**	20	30	100	2

→ Help 190

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

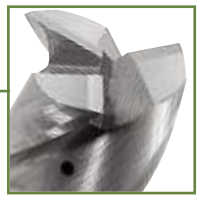




Fresa con fori in elica in metallo duro integrale

Solid carbide coolant feed end mill

VHM - Schlichtfräser mit Durchgewendelten Kühlkanälen - Fraise carbure à trous de réfrigeration
Фреза концевая твердосплавная с подачей СОЖ - Sk fréza s chlazením všech zubů

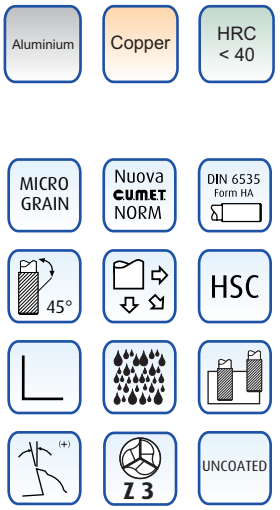


CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
453.060	**6**	6	20	50	3
453.080	**8**	8	22	60	3
453.100	**10**	10	25	70	3
45310100	**10**	10	45	100	3
453.120	**12**	12	27	75	3
45312100	**12**	12	45	100	3
453.160	**16**	16	30	85	3
45316100	**16**	16	45	100	3
453.180	**18**	18	40	100	3
453.200	**20**	20	40	100	3
45320150	**20**	20	65	150	3

→ Help 195

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM - Gesenkfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza

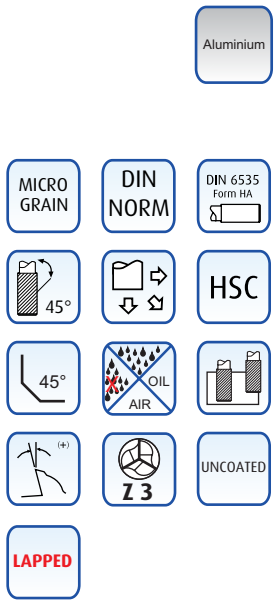


CODE	*d1 mm	d2h6 mm	CH mm	l1 mm	L mm	Z no.
456.030	**3**	6	0.05	10	57	3
456.040	**4**	6	0.05	15	57	3
456.050	**5**	6	0.05	18	57	3
456.060	**6**	6	0.05	20	57	3
456.080	**8**	8	0.05	25	63	3
456.100	**10**	10	0.05	25	70	3
456.120	**12**	12	0.05	30	83	3
456.160	**16**	16	0.05	32	92	3
456.200	**20**	20	0.05	38	100	3

→ Help 187

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

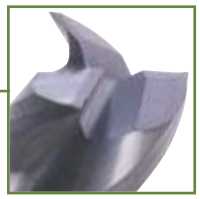




Fresa antivibrante a elica differenziata in metallo duro integrale

Solid carbide flat end mill differenciated helix anti-vibration

VHM-Schat fräser ungleike drallwinkel - Fraise carbure à bout plat pour haut performance
Фреза концевая твердосплавная с прямым зубом - Sk rohová fréza



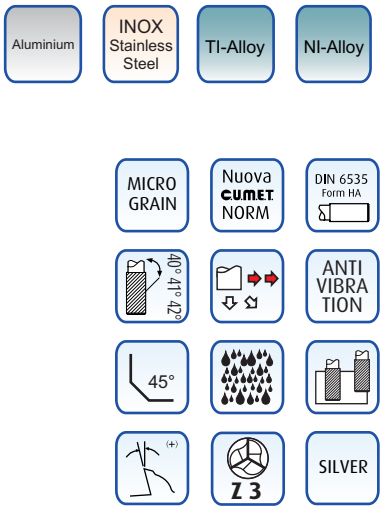
CODE	*d1 mm	d2 mm	CH mm	l1 mm	L mm	Z no.
300V.030	**3**	6	0.2x45°	8	57	3
300V.040	**4**	6	0.2x45°	11	57	3
300V.050	**5**	6	0.2x45°	13	57	3
300V.060	**6**	6	0.2x45°	13	57	3
300V.080	**8**	8	0.3x45°	16	60	3
300V.100	**10**	10	0.3x45°	20	70	3
300V.120	**12**	12	0.3x45°	26	83	3
300V.160	**16**	16	0.3x45°	32	92	3
300V.200	**20**	20	0.3x45°	38	104	3

→ 187

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7



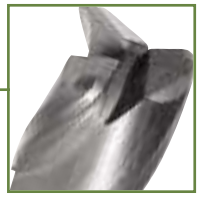




Fresa testa torica per alta velocità in metallo duro integrale

Solid carbide corner radius end mill for high speed

VHM-stirn radius fräser für High Speed - Fraise carbure avec rayon angle pour haut vitesse
Фреза твердосплавная концевая с угловым радиусом для высокоскоростной обработки
Sk vysokorychlostní fréza s rohovým rádiusem

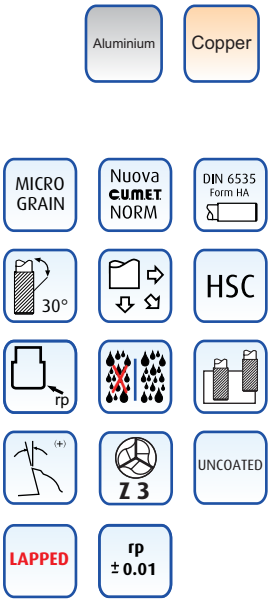


CODE	*d1 mm	d2h6 mm	rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
756.060.1	**6**	6	1	7	20	75	5.5	3
756.080.1	**8**	8	1	9	26	75	7.5	3
756.100.15	**10**	10	1.5	11	31	80	9.5	3
756.100.25	**10**	10	2.5	11	31	80	9.5	3
756.120.15	**12**	12	1.5	13	37	100	11.5	3
756.120.25	**12**	12	2.5	13	37	100	11.5	3
756.160.2	**16**	16	2	17	43	100	15.5	3
756.160.25	**16**	16	2.5	17	43	100	15.5	3
756.200.2	**20**	20	2	21	53	100	19.5	3
756.200.25	**20**	20	2.5	21	53	100	19.5	3

→ Help 191

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7



















Il mare non è altro che il veicolo di un'esistenza soprannaturale e prodigiosa;
non è che ***movimento*** e amore, è l'infinito vivente, come ha detto uno dei vostri poeti.

La mer n'est que le véhicule d'une surnaturelle et prodigieuse existence;
elle n'est que ***mouvement*** et amour. c'est l'infini vivant,
comme l'a dit un de vos poètes.

Jules Verne

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Frese a sgrossare
Roughing end mills

Schruppfräser
Fraises d'ébauche
Фрезы концевые для черновой обработки
Hrubovací fréza









Fresa a semifinire in metallo duro integrale

Solid carbide semi-finishing end mill

VHM - Schrupp Schlichtfräser - Fraise carbure pour semifinition
Фреза концевая твердосплавная для получистовой обработки - Sk polodokončovací fréza

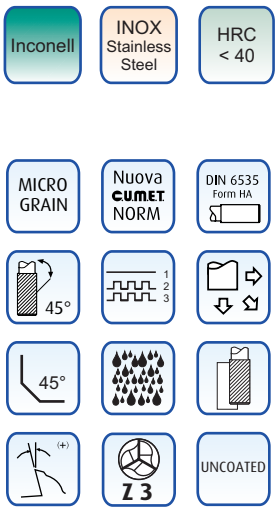


CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
451.060	**6**	6	16	50	3
451.080	**8**	8	20	60	3
45108100	**8**	8	40	100	3
451.100	**10**	10	22	70	3
45110100	**10**	10	45	100	3
451.120	**12**	12	27	75	3
45112100	**12**	12	45	100	3
451.140	**14**	14	27	85	3
451.150	**15**	15	30	85	3
451.160	**16**	16	30	85	3
45116100	**16**	16	45	100	3
45116150	**16**	16	65	150	3
451.180	**18**	18	38	100	3
451.200	**20**	20	38	100	3
45120150	**20**	20	65	150	3

→ Help 192

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Frese rompitruciolo in metallo duro itegrale

Solid carbide roughing end mill

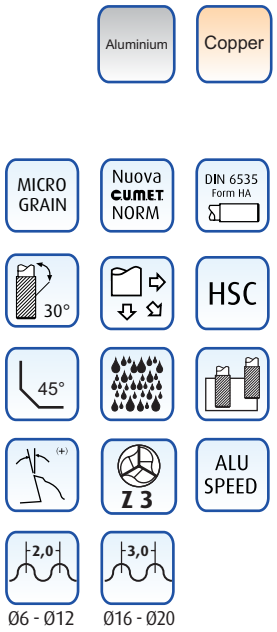
VHM-Schruppfräser - Fraise carbure à degrossir
Фреза твердосплавная концевая черновая - Sk hrubovací fréza



CODE	d1h11 mm	d2h6 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
T220206057	**6**	6	13	-	57	-	3
T220208063	**8**	8	19	-	63	-	3
T220208075	**8**	8	19	35	75	7.4	3
T220208075.1	**8**	8	28	-	75	-	3
T220210072	**10**	10	22	-	72	-	3
T220210080	**10**	10	22	43	80	9.5	3
T220210080.1	**10**	10	34	-	80	-	3
T220212083	**12**	12	26	-	83	-	3
T220212100	**12**	12	26	50	100	11.5	3
T220212100.1	**12**	12	40	-	100	-	3
T220216092	**16**	16	32	-	92	-	3
T220216109	**16**	16	32	60	109	15.5	3
T220216100	**16**	16	45	-	100	-	3
T220220100	**20**	20	40	-	100	-	3
T220220120	**20**	20	40	70	120	19.5	3
T220220150	**20**	20	65	-	150	-	3

→ Help 191





Fresa a sgrossare in metallo duro integrale

Solid carbide roughing end mill

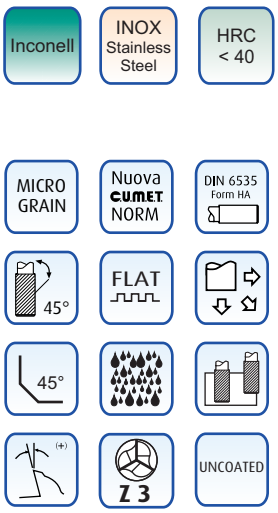
VHM - Schruppfräser - Fraise carbure à dégrossir
Фреза концевая твердосплавная для черновой обработки - Sk hrubovací fréza



CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
452.030	**3**	3	10	40	3
452.035	**3.5**	3.5	10	40	3
452.040	**4**	4	12	50	3
452.045	**4.5**	4.5	12	50	3
452.050	**5**	5	12	50	3
452.060	**6**	6	16	50	3
452.080	**8**	8	20	60	3
452.090	**9**	9	20	70	3
452.100	**10**	10	22	70	3
452.110	**11**	11	22	70	3
452.120	**12**	12	27	75	3
452.140	**14**	14	27	85	3
452.150	**15**	15	30	85	3
452.160	**16**	16	30	85	3
452.180	**18**	18	38	100	3
452.200	**20**	20	38	100	3

→ Help 192





*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

Fresa a sgrossare in metallo duro integrale

Solid carbide roughing end mill

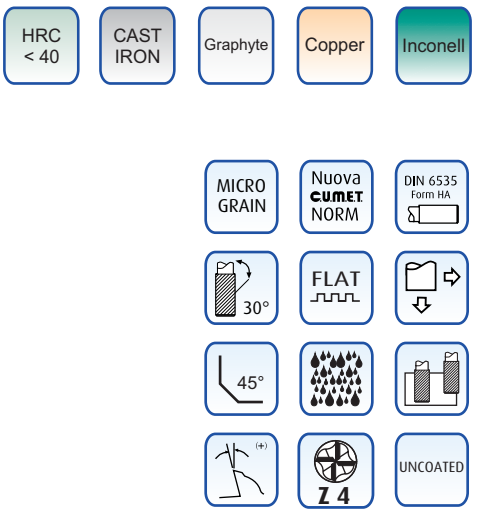
VHM - Schruppfräser - Fraise carbure à dégrossir
Фреза концевая твердосплавная для черновой обработки - Sk hrubovací fréza



CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
T2006	**6**	6	20	50	4
T2006L	**6**	6	40	100	4
T2008	**8**	8	22	60	4
T2008L	**8**	8	40	100	4
T2010	**10**	10	25	70	4
T2010L	**10**	10	45	100	4
T2012	**12**	12	27	75	4
T2012L	**12**	12	45	100	4
T2012L.1	**12**	12	75	150	4
T2014	**14**	14	27	85	4
T2014L	**14**	14	45	100	4
T2014L.1	**14**	14	65	150	4
T2016	**16**	16	30	85	4
T2016L	**16**	16	45	100	4
T2016L.1	**16**	16	75	150	4
T2018	**18**	18	40	100	4
T2018L	**18**	18	65	150	4
T2018L.1	**18**	18	75	150	4
T2020	**20**	20	40	100	4
T2020L	**20**	20	55	150	4
T2020L.1	**20**	20	65	150	4
T2020L.2	**20**	20	75	150	4
T2025	**25**	25	40	100	4
T2025L	**25**	25	65	150	4
T2025L.1	**25**	25	75	150	4

→ Help 192





*d1 ≤ ø 6 h9
d1 ≤ ø25 f7

Fresa a semifinire in metallo duro integrale

Solid carbide semi-finishing end mill

VHM - Schrupp Schlichtfräser - Fraise carbure pour semifinition
Фреза концевая твердосплавная для получистовой обработки - Sk polodokončovací fréza



CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
T4006	**6**	6	20	50	4
T4006L	**6**	6	40	100	4
T4008	**8**	8	22	60	4
T4008L	**8**	8	40	100	4
T4010	**10**	10	25	70	4
T4010L	**10**	10	45	100	4
T4012	**12**	12	27	75	4
T4012L	**12**	12	45	100	4
T4012L.1	**12**	12	75	150	4
T4014	**14**	14	27	85	4
T4014L	**14**	14	45	100	4
T4014L.1	**14**	14	65	150	4
T4016	**16**	16	30	85	4
T4016L	**16**	16	45	100	4
T4016L.1	**16**	16	75	150	4
T4018	**18**	18	40	100	4
T4018L	**18**	18	65	150	4
T4018L.1	**18**	18	75	150	4
T4020	**20**	20	40	100	4
T4020L	**20**	20	55	150	4
T4020L.1	**20**	20	65	150	4
T4020L.2	**20**	20	75	150	4
T4025	**25**	25	40	100	4
T4025L	**25**	25	65	150	4
T4025L.1	**25**	25	75	150	4

→ Help 192

*d1 ≤ ø 6 h9
d1 ≤ ø25 f7



HRC < 40 | CAST IRON | Graphyte | Copper | Inconell

MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

30° | 1 2 3 4 | 45° | Z 4 | UNCOATED

Fresa rompitruciolo antivibrante in metallo duro integrale

Solid carbide anti-vibration roughing end mill

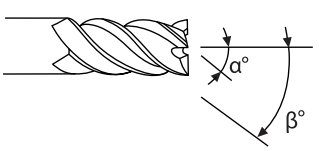
VHM - Schruppfräser Schwingungsdampfer - Fraise carbure à dégrossir à Haute Performance
Фреза концевая твердосплавная для черновой обработки высокопроизводительная
Sk hrubovací vysoce výkonná fréza

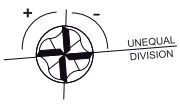


CODE	d1h11 mm	d2h6 mm	l1 mm	L mm	Z no.
T220103050	**3**	6	8	50	3
T220104050	**4**	6	12	50	3
T220105050	**5**	6	15	50	3
T220106050	**6**	6	16	50	4
T220108060	**8**	8	22	60	4
T220110070	**10**	10	25	70	4
T220112075	**12**	12	27	75	4
T220116085	**16**	16	30	85	4
T220116100	**16**	16	45	100	4
T220116150	**16**	16	65	150	4
T220120100	**20**	20	40	100	4
T220120150	**20**	20	65	150	4

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HRC < 50 | CAST IRON | INOX Stainless Steel | TI-Alloy | NI-Alloy

MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

variable | ANTI VIBRATION | 45° | Z 3 Ø3-Ø5 | Z 4 Ø6-Ø20 | 1mm Ø3 - Ø12 | 1,5 Ø16 - Ø20 | HYPER

Fresa rompitruciolo in metallo duro integrale

Solid carbide roughing end mill

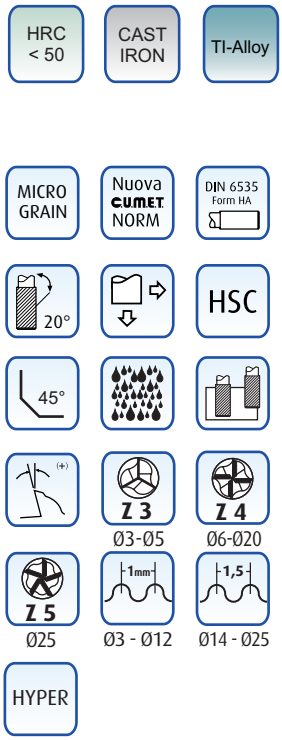
VHM - Schruppfräser - Fraise carbure profil ébauche
Фреза концевая твердосплавная для черновой обработки - Sk hrubovací fréza



CODE	d1h11 mm	d2h6 mm	l1 mm	L mm	Z no.	α°
T220303050	**3**	6	8	50	3	13°
T220304050	**4**	6	12	50	3	14°
T220305050	**5**	6	15	50	3	4° 1/2
T220306050	**6**	6	20	50	4	-
T220306100	**6**	6	40	100	4	-
T220308060	**8**	8	22	60	4	-
T220308100	**8**	8	40	100	4	-
T220310070	**10**	10	25	70	4	-
T220310100	**10**	10	45	100	4	-
T220312075	**12**	12	27	75	4	-
T220312100	**12**	12	45	100	4	-
T220314085	**14**	14	27	85	4	-
T220314100	**14**	14	45	100	4	-
T220314150	**14**	14	65	150	4	-
T220316085	**16**	16	30	85	4	-
T220316100	**16**	16	45	100	4	-
T220316150	**16**	16	75	150	4	-
T220318100	**18**	18	40	100	4	-
T220318150	**18**	18	65	150	4	-
T220318150.1	**18**	18	75	150	4	-
T220320100	**20**	20	40	100	4	-
T220320150	**20**	20	65	150	4	-
T220320150.1	**20**	20	75	150	4	-
T220325100	**25**	25	40	100	5	-
T220325150	**25**	25	65	150	5	-
T220325150.1	**25**	25	75	150	5	-

→ Help 192





Fresa rompitruciolo in metallo duro integrale

Solid carbide roughing end mill

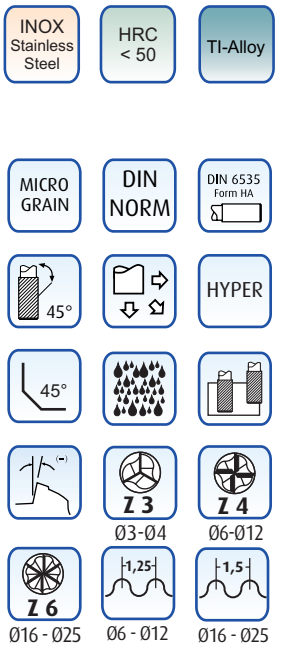
VHM - Schruppfräser - Fraise carbure profil ébauche
Фреза концевая твердосплавная для черновой обработки - Sk hrubovací fréza



CODE	d1h11 mm	d2h6 mm	l1 mm	L mm	Z no.	α°
T22040308057	**3**	6	8	57	3	13°
T22040412057	**4**	6	12	57	3	14°
T22040613057	**6**	6	13	57	4	4°1/2
T22040816063	**8**	8	16	63	4	-
T22041022070	**10**	10	22	70	4	-
T22041226075	**12**	12	26	75	4	-
T22041632092	**16**	16	32	92	6	-
T22042038104	**20**	20	38	104	6	-
T22042545121	**25**	25	45	121	6	-

→ Help 184





Fresa rompitruciolo testa raggiata in metallo duro integrale

Solid carbide ball nose roughing end mill

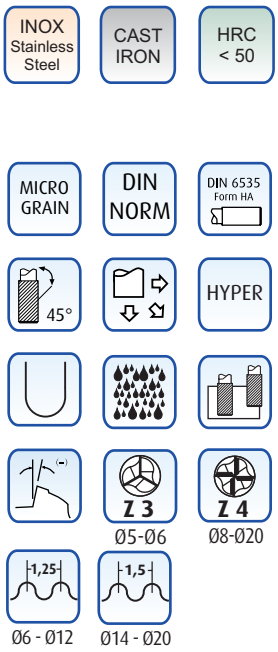
VHM - Radius Schruppfräser - Fraise carbure hémisphérique a profil ébauche
Фреза концевая твердосплавная для черновой обработки - Sk kulová hrubovací fréza



CODE	d1h11 mm	d2h6 mm	l1 mm	L mm	Z no.
T2204R.050	**5**	6	13	57	3
T2204R.060	**6**	6	13	57	3
T2204R.080	**8**	8	16	63	4
T2204R.100	**10**	10	22	70	4
T2204R.120	**12**	12	26	75	4
T2204R.140	**14**	14	26	85	4
T2204R.160	**16**	16	32	92	4
T2204R.180	**18**	18	32	92	4
T2204R.200	**20**	20	38	100	4

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ntus





Lo spirito commerciale è lo spirito del mondo. È senz'altro lo spirito grandioso.
Esso mette tutto in *movimento* e collega tutto.

Commercial spirit is the spirit of the world. Certainly the spirit is great.
It puts everything in *motion* and connects everything.

Novalis

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Frese a filettare
Thread Milling end mills

Gewinderfräser
Fraises à fileter
Фрезы резьбонарезные
Frézy pro frézování závitů







Fresa a filettare in metallo duro integrale

Solid carbide thread end mill

VHM - Gewinderfräser - Fraise carbure à fileter
Фреза резьбонарезная твердосплавная - Sk frézy pro frézování závitů



HYPER HRC < 50 | UNCOATED HRC < 35 | CAST IRON | INOX Stainless Steel | TITANIUM < 1.100 N/mm | Aluminium

CODE UNCOATED	CODE HYPER	DIN mm	P mm	d hole mm	d1e9 mm	d2h6 mm	l1 mm	L mm	Z no.
600.04.050	600T.04.050	MF4	0.5	3.5	**3.0**	6	16	57	3
600.04.070	600T.04.070	M4	0.7	3.3	**3.0**	6	11	57	3
600.05.050	600T.05.050	MF5	0.5	4.5	**3.8**	6	20	57	3
600.05.080	600T.05.080	M5	0.8	4.2	**3.8**	6	12	57	3
600.06.075	600T.06.075	MF6	0.75	5.2	**4.8**	6	12	57	3
600.06.100	600T.06.100	M6	1.0	5.0	**4.8**	6	12	57	3
600.08.100	600T.08.100	MF8	1.0	7.0	**6.0**	6	15	57	3
600.08.125	600T.08.125	M8	1.25	6.8	**6.0**	6	15	57	3
600.10.100	600T.10.100	MF10	1.0	9.0	**8.0**	8	20	60	3
600.10.150	600T.10.150	M10	1.5	8.5	**8.0**	8	20	60	3
600.12.100	600T.12.100	MF12	1.0	11.0	**8.0**	8	20	60	3
600.12.150	600T.12.150	MF12	1.5	10.5	**8.0**	8	20	60	3
600.12.175	600T.12.175	M12	1.75	10.2	**8.0**	8	20	60	3
600.14.150	600T.14.150	MF14	1.5	12.5	**10.0**	10	25	70	4
600.14.200	600T.14.200	M14	2.0	12.0	**10.0**	10	25	70	4
600.16.150	600T.16.150	MF16	1.5	14.5	**12.0**	12	25	75	4
600.16.200	600T.16.200	M16	2.0	14.0	**12.0**	12	25	75	4
600.20.100	600T.20.100	MF20	1.0	19.0	**16.0**	16	40	100	4
600.20.150	600T.20.150	MF20	1.5	18.5	**16.0**	16	40	100	4
600.20.200	600T.20.200	M20	2.0	18.0	**16.0**	16	40	100	4
600.20.250	600T.20.250	M20	2.5	17.5	**16.0**	16	40	100	4

→ Help 206

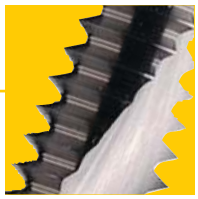


SUB MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | 7° | 60° P | | | M-MF | (+) | Z 3 Ø3-Ø8 | Z 4 Ø10-Ø16 | UNCOATED HYPER

Fresa fora, filetta e Smussa in metallo duro integrale senza fori di refrigerazione

Solid carbide threading, drilling, chamfering end mill without coolant holes

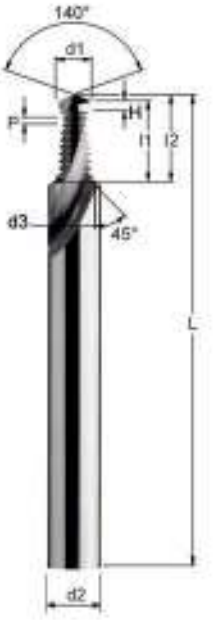
Fraise a fileter, forer et chanfreiner en carbure sans trous de réfrigération
Комбинированные твердосплавные инструменты для сверления, обработки фасок и нарезания резьбы без внутреннего подвода СОЖ or – Dokončovací fréza se sraženým rohem bez vnitřního chlazení



HRC < 50 | CAST IRON | INOX Stainless Steel | Inconell | TITANIUM < 1.100 N/mm | Aluminium

CODE UNCOATED	CODE HYPER	Filetto Thread	P mm	d1h7 mm	d2h6 mm	d3 mm	H mm	l1 mm	l2 mm	L mm	Z mm
620.04.070	620T.04.070	M4	0.7	3.3	6	4.3	0.7	8.9	9.4	57	2
620.05.080	620T.05.080	M5	0.8	4.2	6	5.3	0.8	11	11.7	57	2
620.06.100	620T.06.100	M6	1	5	8	6.3	1	13.7	14.5	63	2
620.08.125	620T.08.125	M8	1.25	6.75	10	8.3	1.3	17.1	18.2	72	2
620.10.150	620T.10.150	M10	1.5	8.5	12	10.3	1.5	22.1	23.4	83	2
620.12.175	620T.12.175	M12	1.75	10.25	14	12.3	1.5	25.5	27.1	85	2
620.14.200	620T.14.200	M14	2	12	16	14.3	1.5	30.9	32.8	92	2
620.16.200	620T.16.200	M16	2	14	18	16.3	1.5	35	37.1	100	2

→ Help 206



SUB MICRO GRAIN | M | DIN 6535 Form HA | 30° | 60° P | | | 140° | Z 2 | UNCOATED HYPER | 2xd

Frese fora, filetta e Smussa in metallo duro integrale con fori di refrigerazione

Solid carbide threading, drilling, chamfering end mill with coolant holes

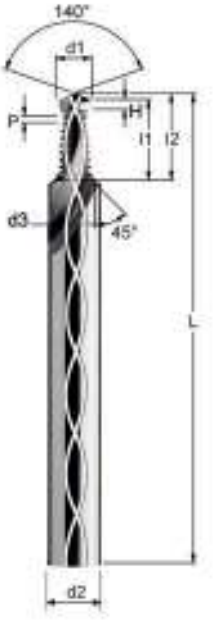
Fraise a fileter, forer et chanfreiner en carbure avec trous de réfrigération
Комбинированные твердосплавные инструменты для сверления, обработки фасок и нарезания резьбы со внутренним подводом СОЖ or – Dokončovací fréza se sraženým rohem bez vnitřního chlazení



HRC < 50 | CAST IRON | INOX Stainless Steel | Inconell | TITANIUM < 1.100 N/mm | Aluminium

CODE UNCOATED	CODE HYPER	Filetto Thread	P mm	d1h7 mm	d2h6 mm	d3 mm	H mm	l1 mm	l2 mm	L mm	Z mm
620F.04.070	620FT.04.070	M4	0.7	3.3	6	4.3	0.7	8.9	9.4	57	2
620F.05.080	620FT.05.080	M5	0.8	4.2	6	5.3	0.8	11	11.7	57	2
620F.06.100	620FT.06.100	M6	1	5	8	6.3	1	13.7	14.5	63	2
620F.08.125	620FT.08.125	M8	1.25	6.75	10	8.3	1.3	17.1	18.2	75	2
620F.10.150	620FT.10.150	M10	1.5	8.5	12	10.3	1.5	22.1	23.4	80	2
620F.12.175	620FT.12.175	M12	1.75	10.25	14	12.3	1.5	25.5	27.1	100	2
620F.14.200	620FT.14.200	M14	2	12	16	14.3	1.5	30.9	32.8	100	2
620F.16.200	620FT.16.200	M16	2	14	18	16.3	1.5	35	37.1	100	2

→ Help 206



SUB MICRO GRAIN | M | DIN 6535 Form HA | 30° | 60° P | | | 140° | Z 2 | UNCOATED HYPER | 2xd



Più alto vola il gabbiano, e più vede lontano.

Higher flies the Sea-gull more sees far.

Richard Bach

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Frese per svasatura
Countersink end mills

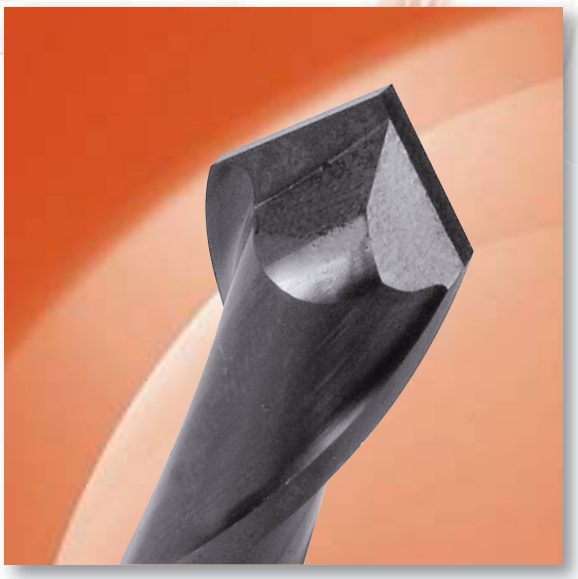
Kegelsenker fräser
Fraises à ébavurer
Зенкеры
Záhlubníky, srážeče



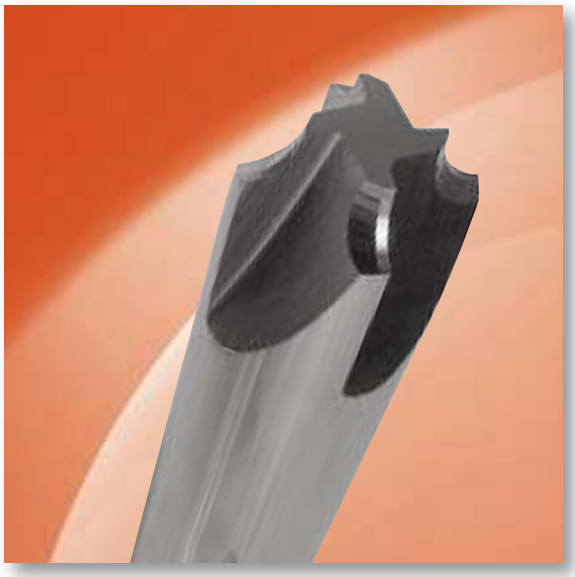








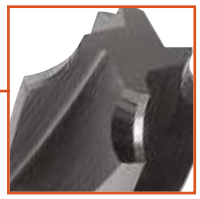




Fresa per esecuzione raggi in metallo duro integrale

Solid carbide concave radius end mill

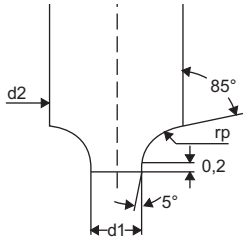
VHM- Viertelkreisentgrater - Fraise en carbure a rayon concave
Фреза твердосплавная концевая с радиусом - Fréza pro zaoblení hran

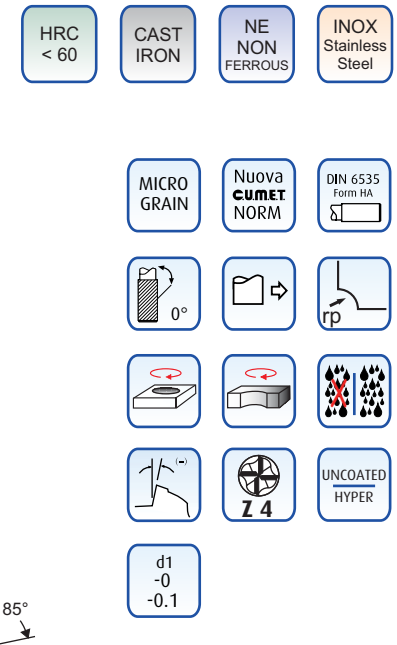


CODE UNCOATED	CODE HYPER	d1 mm	d2h6 mm	rp mm	L mm	Z no.
CTK.R0020	CTK.RT0020	**5.4**	6	0.2	50	4
CTK.R0025	CTK.RT0025	**5.3**	6	0.25	50	4
CTK.R0030	CTK.RT0030	**5.2**	6	0.3	50	4
CTK.R0040	CTK.RT0040	**5**	6	0.4	50	4
CTK.R0050	CTK.RT0050	**6.8**	8	0.5	50	4
CTK.R0060	CTK.RT0060	**6.6**	8	0.6	50	4
CTK.R0075	CTK.RT0075	**6.3**	8	0.75	50	4
CTK.R0080	CTK.RT0080	**6.2**	8	0.8	50	4
CTK.R0100	CTK.RT0100	**5.8**	8	1	50	4
CTK.R0125	CTK.RT0125	**5.3**	8	1.25	50	4
CTK.R0150	CTK.RT0150	**6.8**	10	1.5	50	4
CTK.R0175	CTK.RT0175	**6.3**	10	1.75	50	4
CTK.R0200	CTK.RT0200	7.8	12	2	50	4
CTK.R0225	CTK.RT0225	**7.3**	12	2.25	50	4
CTK.R0250	CTK.RT0250	**6.8**	12	2.5	50	4
CTK.R0275	CTK.RT0275	**6.3**	12	2.75	50	4
CTK.R0300	CTK.RT0300	**5.8**	12	3	63	4
CTK.R0351	CTK.RT0351	**8.6**	16	3.5	80	4
CTK.R0401	CTK.RT0401	**7.6**	16	4	80	4
CTK.R0451	CTK.RT0451	**6.6**	16	4.5	80	4
CTK.R0501	CTK.RT0501	**9.6**	20	5	80	4
CTK.R0601	CTK.RT0601	**7.6**	20	6	80	4

→ Help 193



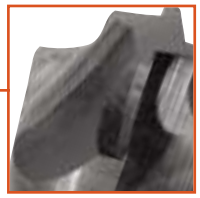




Fresa per esecuzione raggi gambo in HSS

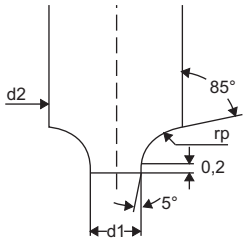
Concave radius end mill with Steel Shank

Viertelkreisentgrater mit stal Schaft - Fraise a rayon concave avec queue en acier
Фреза твердосплавная концевая с радиусом со стальным хвостовиком
Fréza pro zaoblení hran s ocelovou stopkou

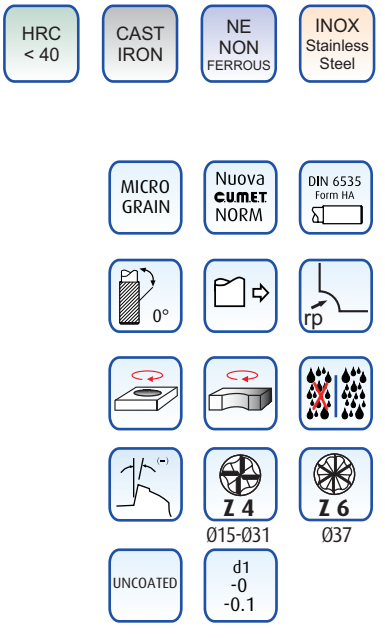


CODE	d1 mm	d2 mm	d3h7 mm	rp mm	L mm	Z no.
CTK.R0350	**7.6**	15	12	3.5	82	4
CTK.R0400	**6.6**	15	12	4	82	4
CTK.R0450	**7.6**	17	12	4.5	85	4
CTK.R0500	**8.6**	19	12	5	85	4
CTK.R0600	**7.6**	20	12	6	85	4
CTK.R0800	**7.6**	24	20	8	93	4
CTK.R1000	**10.6**	31	20	10	98	4
CTK.R1200	**12.6**	37	20	12	100	6

→ Help 193



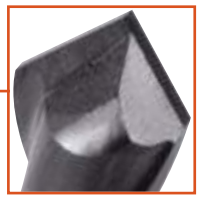




Fresa multifunzione a 90°

Solid carbide multimill 90°

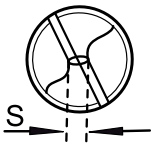
VHM- Multimill 90° - Fraise en carbure multifunction 90° - Sk fréza pro zaoblení hran

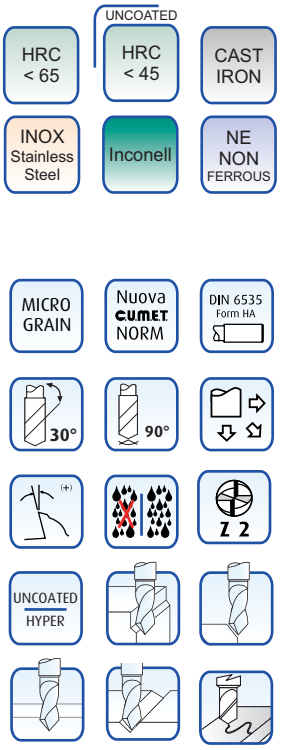


CODE UNCOATED	CODE HYPER	d1h7 mm	d2h6 mm	l1 mm	L mm	S mm	Z no.
200V.001	200VT.001	**0.1**	3	0.2	40	0.01	2
200V.002	200VT.002	**0.2**	3	0.4	40	0.02	2
200V.003	200VT.003	**0.3**	3	0.6	40	0.03	2
200V.004	200VT.004	**0.4**	3	0.8	40	0.04	2
200V.005	200VT.005	**0.5**	3	1	40	0.05	2
200V.006	200VT.006	**0.6**	3	1.2	40	0.06	2
200V.007	200VT.007	**0.7**	3	1.4	40	0.07	2
200V.008	200VT.008	**0.8**	3	1.6	40	0.08	2
200V.009	200VT.009	**0.9**	3	1.8	40	0.09	2
200V.010	200VT.010	**1**	3	2	40	0.10	2
200V.011	200VT.011	**1.1**	3	2.2	40	0.11	2
200V.012	200VT.012	**1.2**	3	2.4	40	0.12	2
200V.013	200VT.013	**1.3**	3	2.6	40	0.13	2
200V.014	200VT.014	**1.4**	3	2.8	40	0.14	2
200V.015	200VT.015	**1.5**	3	3	40	0.15	2
200V,016	200VT.016	**1.6**	3	3.2	40	0.16	2
200V.017	200VT.017	**1.7**	3	3.4	40	0.17	2
200V.018	200VT.018	**1.8**	3	3.6	40	0.18	2
200V.019	200VT.019	**1.9**	3	3.8	40	0.19	2
200V.020	200VT.020	**2**	3	4	40	0.20	2
200V.025	200VT.025	**2.5**	3	5	40	0.25	2
200V.030	200VT.030	**3**	4	6	50	0.30	2
200V.040	200VT.040	**4**	5	8	50	0.40	2
200V.050	200VT.050	**5**	6	10	50	0.50	2
200V.060	200VT.060	**6**	8	12	60	0.60	2
200V.080	200VT.080	**8**	10	16	70	0.80	2
200V.100	200VT.100	**10**	12	18	75	1.00	2
200V.120	200VT.120	**12**	12	20	75	1.20	2
200V.160	200VT.160	**16**	16	26	85	1.60	2
200V.200	200VT.200	**20**	20	32	100	2.00	2

→ Help 199







Sbavatore a spingere e a tirare in metallo duro integrale

Solid carbide forward and backward burr remuver end mill

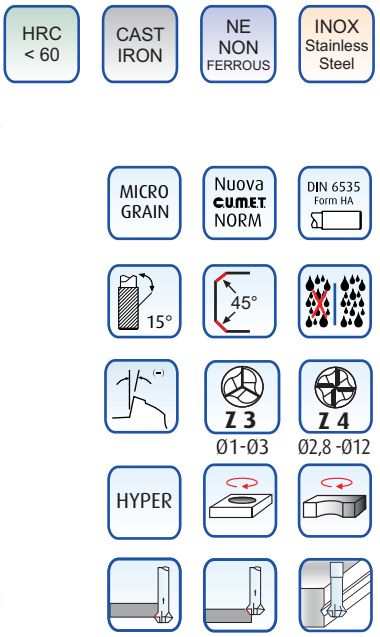
VHM-Vorwarts und Ruckwartsentgrater - Fraise en carbure de retoucher bavure en deux direction
Фреза твердосплавная концевая с поступательным движением - Sk fréza pro čelní a zpětné sražení hran



CODE	d1 mm	d2h6 mm	S MAX mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
CTM.010060	**1**	3	0.3	0.5	5.5	60	0.7	3
CTM.015060	**1.5**	3	0.45	0.7	6.7	60	1.1	3
CTM.018060	**1.8**	3	0.6	0.75	8.7	60	1.5	3
CTM.020060	**2**	3	0.6	0.95	9	60	1.5	3
CTM.028060	**2.8**	3	0.9	1.3	10	60	2.1	3
CTM.028100	**2.8**	6	1.2	1.1	11	100	2.2	4
CTM.030060	**3**	3	0.9	1.5	11.5	60	2.1	3
CTM.030100	**3**	6	1.2	1.3	10	100	2.2	4
CTM.038100	**3.8**	6	1.6	1.55	14	100	2.9	4
CTM.040100	**4**	6	1.6	1.75	14	100	2.9	4
CTM.048100	**4.8**	6	2	2.1	17	100	3.4	4
CTM.050100	**5**	6	2	2.3	17	100	3.4	4
CTM.058100	**5.8**	6	2.4	2.7	20	100	3.8	4
CTM.060100	**6**	6	2.4	2.9	21	100	3.8	4
CTM.078100	**7.8**	6	4.9	2.8	37	100	4.9	4
CTM.080100	**8**	6	4.9	3.1	37	100	4.9	4
CTM.098100	**9.8**	6	5.9	3.8	38	100	5.9	4
CTM.100100	**10**	6	5.9	4.1	38	100	5.9	4
CTM.118100	**11.8**	6	5.9	5.8	40	100	5.9	4
CTM.120100	**12**	6	5.9	6.1	40	100	5.9	4

→ Help 204

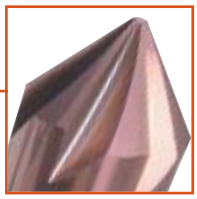




Fresa a 60°-90° in metallo duro integrale

Solid carbide 60°-90° end mill

VHM-Entgrater 60°-90° - Fraise en carbure a Chanfrein 60°-90°
Фреза твердосплавная концевая, угол наклона винтовой канавки 60°- 90°- Sk fréza 60°-90°

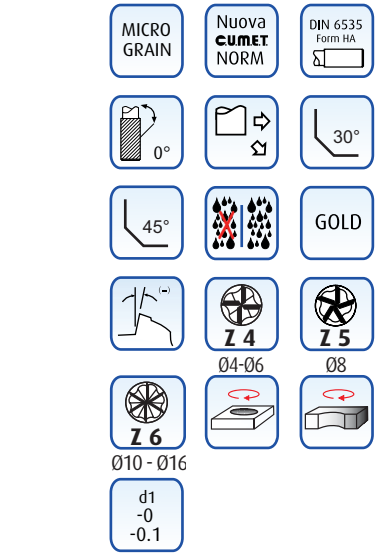


CODE 60°	d1 mm	d2h6 mm	l1 mm	L mm	Z no.
CTS60.030	**0.3**	3	2.6	50	3
CTS60.040	**0.4**	4	3.4	50	4
CTS60.060	**0.6**	6	5.2	57	4
CTS60.080	**0.8**	8	6.9	60	5
CTS60.100	**1.0**	10	8.7	70	6
CTS60.120	**1.2**	12	10.4	75	6

CODE 90°	d1 mm	d2h6 mm	l1 mm	L mm	Z no.
CTS90.030	**0.3**	3	1.5	50	3
CTS90.040	**0.4**	4	2	50	4
CTS90.060	**0.6**	6	3	57	4
CTS90.080	**0.8**	8	4	60	5
CTS90.100	**1.0**	10	5	70	6
CTS90.120	**1.2**	12	6	75	6

→ Help 193

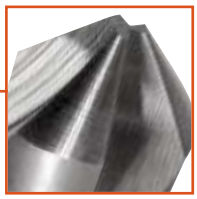




Svasatore a 60°-90°

Countersink 60°-90°

Kegelsenker 60°-90° - Chanfrein 60°-90° - Záhlubníky, srážeče 60°-90°

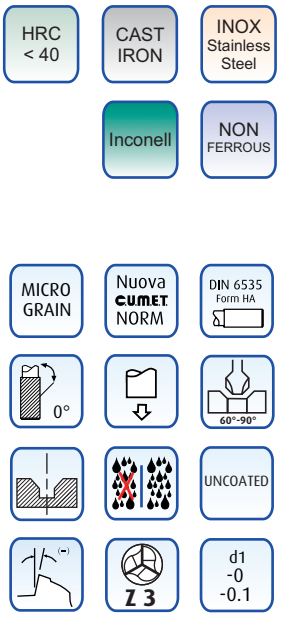


CODE 60°	CODE 90°	d1 mm	d3 mm	d2 mm	L mm	Z no.	DIN
CTK60053/3	CTK90053/3	**5.3**	1.5	6	50	3	M2.6
CTK60058/3	CTK90058/3	**5.8**	1.5	6	50	3	M3.0
CTK60063/3	CTK90063/3	**6.3**	1.5	6	50	3	M3.5
CTK60073/3	CTK90073/3	**7.3**	1.8	6	50	3	M4.0
CTK60083/3	CTK90083/3	**8.3**	2.0	6	50	3	-
CTK60094/3	CTK90094/3	**9.4**	2.2	6	50	3	M5.0
CTK60104/3	CTK90104/3	**10.4**	2.5	6	54	3	M6.0
CTK60124/3	CTK90124/3	**12.4**	2.8	6	54	3	-
CTK60165/3	CTK90165/3	**16.5**	3.2	6	60	3	-
CTK60165/3.1	CTK90165/3.1	**16.5**	3.2	10	60	3	-
CTK60205/3	CTK90205/3	**20.5**	3.5	10	63	3	-
CTK60250/3	CTK90250/3	**25.0**	3.8	10	66	3	M12

→ Help 193

Dal Ø 7,3 mm gambo in acciaio
From Ø 7,3 mm Steel Shank
Von Ø 7,3 mm Stahl Shaft

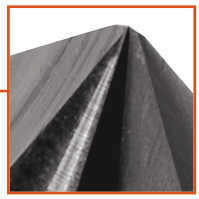




Punta a forare e svasare in metallo duro integrale

Solid carbide chanfer and spot drill

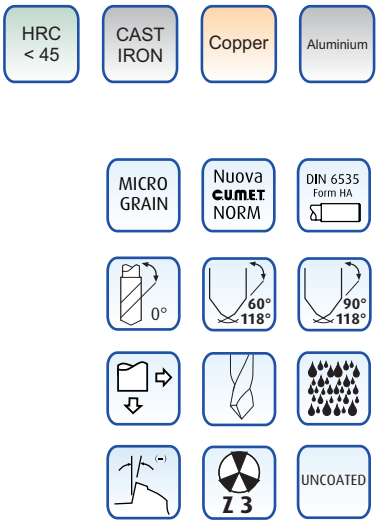
VHM - Anböhrer - Fraise carbure
Сверло твердосплавное - Sk srážeče a navrtáváky



CODE	d2h6 mm	l1 mm	l2 mm	L mm	Z no.
142.060	**6**	2.5	4.5	50	3
142.080	**8**	3.5	6.0	60	3
142.100	**10**	4.5	8.0	70	3
142.120	**12**	5.5	9.5	75	3

→ Help 193







L'amore, come il fuoco, non può sussistere senza un continuo *movimento*: esso si spegne non appena finisce di sperare e di temere.

L'amour, aussi bien que le feu, ne peut subsister sans un *mouvement* continuel, et il cesse de vivre dès qu'il cesse d'espérer ou de craindre.

François de La Rochefoucauld

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Frese convenzionali
Conventional end mills

Universal Fräser
Fraises universelle
Фрезы концевые стандартные
Konvenční frézy







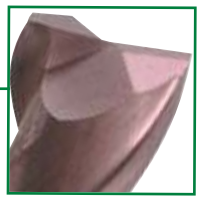




Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

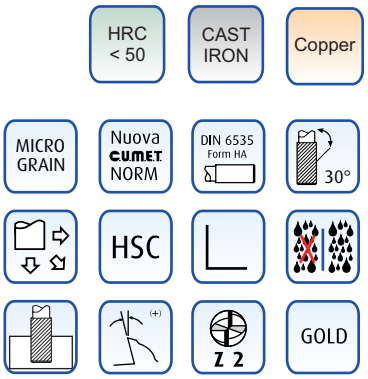
VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с прямым зубом - Sk rohová fréza



CODE	d1h9 mm	d2h6 mm	l1 mm	L mm	Z no.	α°
201.010.4	**1**	4	2	50	2	15°
201.010	**1**	6	2.5	50	2	15°
201.015.4	**1.5**	4	3	50	2	15°
201.015	**1.5**	6	4	50	2	15°
201.020.4	**2**	4	4	50	2	15°
201.020	**2**	6	6	50	2	15°
201.025	**2.5**	6	6	50	2	15°
201.030.4	**3**	4	6	50	2	15°
201.030	**3**	6	7	50	2	15°
201.035	**3.5**	6	7	50	2	15°
201.040	**4**	6	8	50	2	10°
201.045	**4.5**	6	9	50	2	10°
201.050	**5**	6	10	50	2	5°
201.055	**5.5**	6	10	50	2	5°
201.060	**6**	6	12	50	2	-

→ Help 198-202





Fresa testa raggiata in metallo duro integrale

Solid carbide ball nose end mill

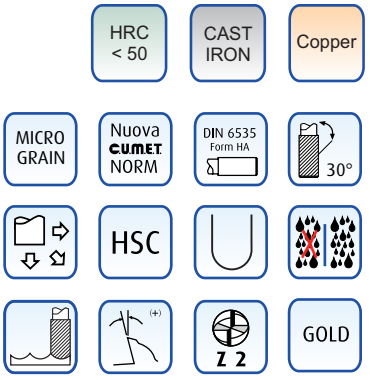
VHM - Radiusfräser - Fraise carbure à bout hémisphérique
Фреза концевая твердосплавная полусферическая - Sk kulová fréza



CODE	d1h9 mm	d2h6 mm	l1 mm	L mm	Z no.	α°
201R.010.4	**1**	4	2	50	2	15°
201R.010	**1**	6	2.5	50	2	15°
201R.015.4	**1.5**	4	3	50	2	15°
201R.015	**1.5**	6	4	50	2	15°
201R.020.4	**2**	4	4	50	2	15°
201R.020	**2**	6	6	50	2	15°
201R.025	**2.5**	6	6	50	2	15°
201R.030.4	**3**	4	6	50	2	15°
201R.030	**3**	6	7	50	2	15°
201R.035	**3.5**	6	7	50	2	15°
201R.040	**4**	6	8	50	2	10°
201R.045	**4.5**	6	9	50	2	10°
201R.050	**5**	6	10	50	2	5°
201R.055	**5.5**	6	10	50	2	5°
201R.060	**6**	6	12	50	2	-

→ Help 200





Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

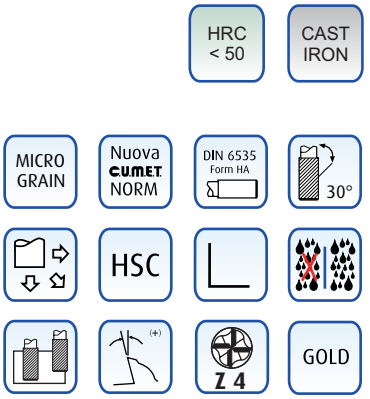
VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с прямым зубом - Sk rohová fréza



CODE	d1h9 mm	d2h6 mm	l1 mm	L mm	Z no.	α°
401.010.4	**1**	4	2	50	2	15°
401.010	**1**	6	2.5	50	4	15°
401.015.4	**1.5**	4	3	50	2	15°
401.015	**1.5**	6	4	50	4	15°
401.020.4	**2**	4	5	50	4	15°
401.020	**2**	6	6	50	4	15°
401.025	**2.5**	6	6	50	4	15°
401.030.4	**3**	4	7	50	2	15°
401.030	**3**	6	7	50	4	15°
401.035	**3.5**	6	7	50	4	15°
401.040	**4**	6	8	50	4	10°
401.045	**4.5**	6	9	50	4	10°
401.050	**5**	6	10	50	4	5°
401.055	**5.5**	6	10	50	4	5°
401.060	**6**	6	12	50	4	-

→ Help 198-202

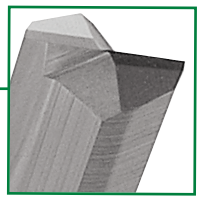




Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с прямым зубом - Sk rohová fréza

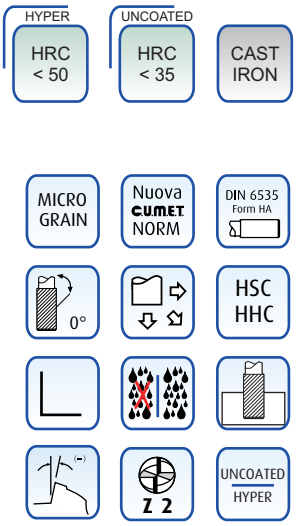


CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
200D.010	200DT.010	**1**	3	2.5	40	2
200D.015	200DT.015	**1.5**	3	4	40	2
200D.020	200DT.020	**2**	3	6	40	2
200D.025	200DT.025	**2.5**	3	6	40	2
200D.030	200DT.030	**3**	3	8	40	2
200D.035	200DT.035	**3.5**	3.5	10	40	2
200D.040	200DT.040	**4**	4	10	50	2
200D.045	200DT.045	**4.5**	4.5	10	50	2
200D.050	200DT.050	**5**	5	12	50	2
200D.060	200DT.060	**6**	6	12	50	2
200D.070	200DT.070	**7**	7	16	60	2
200D.080	200DT.080	**8**	8	20	60	2
200D.090	200DT.090	**9**	9	20	70	2
200D.100	200DT.100	**10**	10	22	70	2
200D.120	200DT.120	**12**	12	25	75	2
200D.140	200DT.140	**14**	14	30	85	2
200D.160	200DT.160	**16**	16	30	85	2
200D.200	200DT.200	**20**	20	40	100	2

→ Help 198

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

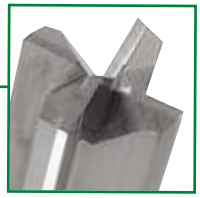




Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с прямым зубом - Sk rohová fréza

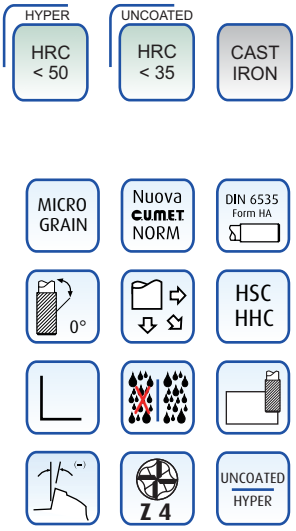


CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
400D.020	400DT.020	**2**	3	5	40	4
400D.030	400DT.030	**3**	3	12	40	4
400D.040	400DT.040	**4**	4	16	50	4
400D.060	400DT.060	**6**	6	20	50	4
400D.080	400DT.080	**8**	8	22	60	4
400D.100	400DT.100	**10**	10	25	70	4
400D.120	400DT.120	**12**	12	27	75	4
400D.160	400DT.160	**16**	16	30	85	4
400D.200	400DT.200	**20**	20	40	100	4

→ Help 198

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

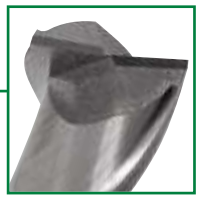




Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

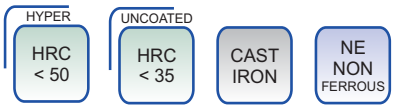
VHM - Gesenkfräser im Formenbau - Fraises a matrice en carbure à bout plat
Фреза концевая твердосплавная с плоским торцом удлиненная - Sk rohová fréza



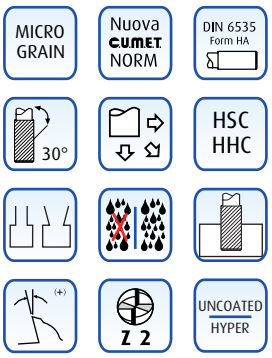
CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	Z no.	α°
200S01075	200ST01075	**1**	6	1.5	15	75	2	11°
200S01575	200ST01575	**1.5**	6	2	15	75	2	11′
200S02075	200ST02075	**2**	6	3	15	75	2	9°30′
200S03075	200ST03075	**3**	6	6	15	75	2	9°
200S03075.1	200ST03075.1	**3**	6	10	20	75	2	8°30′
200S03575	200ST03575	**3.5**	6	10	20	75	2	6°30′
200S04075	200ST04075	**4**	6	10	20	75	2	6°30′
200S04075.1	200ST04075.1	**4**	6	15	25	75	2	6°
200S04575	200ST04575	**4.5**	6	10	25	75	2	2°51′
200S05075	200ST05075	**5**	6	12	25	75	2	2°10′
200S05075.1	200ST05075.1	**5**	6	18	25	75	2	4°
200S06100	200ST06100	**6**	6	15	-	100	2	-
200S06100.1	200ST06100.1	**6**	6	25	-	100	2	-
200S06150	200ST06150	**6**	6	20	-	150	2	-
200S06200.1	200ST06200.1	**6**	6	20	-	200	2	-
200S06200	200ST06200	**6**	8	20	80	200	2	50′
200S08100	200ST08100	**8**	8	20	-	100	2	-
200S08150	200ST08150	**8**	8	20	-	150	2	-
200S08200	200ST08200	**8**	8	20	-	200	2	-
200508200.1	200ST08200.1	**8**	8	25	-	200	2	-
200S10100	200ST10100	**10**	10	25	-	100	2	-
200S10150	200ST10150	**10**	10	25	-	150	2	-
200S10200	200ST10200	**10**	10	25	-	200	2	-
200S12100	200ST12100	**12**	12	25	-	100	2	-
200S12150	200ST12150	**12**	12	25	-	150	2	-
200S12200	200ST12200	**12**	12	25	-	200	2	-
200S14100	200ST14100	**14**	14	30	-	100	2	-
200S14150	200ST14150	**14**	14	30	-	150	2	-
200S14200	200ST14200	**14**	14	30	-	200	2	-
200S16100	200ST16100	**16**	16	30	-	100	2	-
200S16150	200ST16150	**16**	16	30	-	150	2	-
200S16200	200ST16200	**16**	16	30	-	200	2	-
200S18200	200ST18200	**18**	18	30	-	200	2	-
200S20100	200ST20100	**20**	20	30	-	100	2	-
200S20150	200ST20150	**20**	20	30	-	150	2	-
200S20200	200ST20200	**20**	20	30	-	200	2	-

→ Help 198

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7







Tutte le nostre frese standard vengono costruite con lo stesso procedimento delle frese ad alto rendimento: tolleranza del diametro di taglio h8, ottime finiture dei taglienti, controllo costante delle geometrie con sistemi ottici automatici.

All of our standard end mills are manufactured with the same process of our high performance cutters: cutting diameter tolerance h8, high flutes finishing, constant control of geometries with automatic optical systems.

Häckselgutdurchmesser h8, sehr gute Qualität von scharfen, ständige Kontrolle der Geometrie mit automatisierten optischen Systemen: Alle unsere Standard-Bohrer werden mit dem gleichen System Hochleistungsfräsen gebaut

Tous nos outils standards sont fabriqués avec le même système de coupe de nos fraises a haute performance : coupe diamètre tolérance h8, excellent finoition de coupe, un suivi constant de géométries avec des systèmes optiques automatiques.

Наш стандартный инструмент производится с использованием системы высокопроизводительной резки: точность по диаметру h8, высокая точность зубьев, постоянный контроль геометрии с использованием автоматических оптических систем.

Všechny naše standardní frézy jsou vyrobeny stejným systémem našich vysoce výkonných fréz: řezný průměr v toleranci h8, vysoká kvalita úpravy zubů, stálou kontrolu nad geometrií s automatickým optickým kontrolním systémem.

Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill

VHM – Torusfräser - Fraise carbure avec rayon d'angle
Фреза концевая твердосплавная с угловым радиусом - Sk fréza s rohovým rádiusem



CODE	*d1 mm	d2 mm	rp mm	l1 mm	L mm	Z no.
200T03100R03	**3**	3	0.3	10	100	2
200T04100R05	**4**	4	0.5	12	100	2
200T05100R05	**5**	5	0.5	15	100	2
200T06100R05	**6**	6	0.5	20	100	2
200T06100R1	**6**	6	1	20	100	2
200T06150R05	**6**	6	0.5	30	150	2
200T06150R1	**6**	6	1	30	150	2
200T08100R05	**8**	8	0.5	40	100	2
200T08100R1	**8**	8	1	40	100	2
200T08150R05	**8**	8	0.5	50	150	2
200T08150R1	**8**	8	1	50	150	2
200T10100R05	**10**	10	0.5	45	100	2
200T10100R1	**10**	10	1	45	100	2
200T10150R05	**10**	10	0.5	60	150	2
200T10150R1	**10**	10	1	60	150	2
200T12100R05	**12**	12	0.5	45	100	2
200T12100R1	**12**	12	1	45	100	2
200T12150R05	**12**	12	0.5	65	150	2
200T12150R1	**12**	12	1	65	150	2

→ 198

*d1 < ø 6 h9
d1 ≤ ø12 = f7



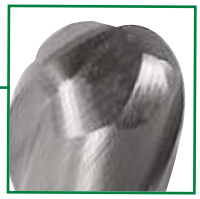
HRC < 55 | CAST IRON

SUB MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | HSC HHC | 30° | rp | GOLD | Z 2 | rp ± 0.01

Fresa testa sferica in metallo duro integrale

Solid carbide ball nose end mill

VHM - Radiusfräser im Formenbau - Fraises a matrice en carbure à bout hémisphérique
Фреза концевая твердосплавная полусферическая длинная для штампов - Sk kulová fréza



CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	Z no.	α°
200SR01075	200SRT01075	**1**	6	1.5	15	75	2	11°
200SR01575	200SRT01575	**1.5**	6	2	15	75	2	11
200SR02075	200SRT02075	**2**	6	3	15	75	2	9°30′
200SR03075	200SRT03075	**3**	6	6	15	75	2	9°
200SR03075.1	200SRT03075.1	**3**	6	10	20	75	2	8°30′
200SR04075	200SRT04075	**4**	6	10	20	75	2	6°30′
200SR04075.1	200SRT04075.1	**4**	6	15	25	75	2	6°
200SR04575	200SRT04575	**4.5**	6	10	25	75	2	2°51′
200SR05075	200SRT05075	**5**	6	12	25	75	2	2°10′
200SR05075.1	200SRT05075.1	**5**	6	18	25	75	2	4°
200SR06100	200SRT06100	**6**	6	15	-	100	2	-
200SR06100.1	200SRT06100.1	**6**	6	25	-	100	2	-
200SR06150	200SRT06150	**6**	6	20	-	150	2	-
200SR06200.1	200SRT06200.1	**6**	6	20	-	200	2	-
200SR06200	200SRT06200	**6**	8	20	80	200	2	50′
200SR08100	200SRT08100	**8**	8	20	-	100	2	-
200SR08150	200SRT08150	**8**	8	20	-	150	2	-
200SR08200	200SRT08200	**8**	8	20	-	200	2	-
200SR08200.1	200SRT08200.1	**8**	10	20	80	200	2	43′
200SR10100	200SRT10100	**10**	10	25	-	100	2	-
200SR10150	200SRT10150	**10**	10	25	-	150	2	-
200SR10200	200SRT10200	**10**	10	25	-	200	2	-
200SR12100	200SRT12100	**12**	12	25	-	100	2	-
200SR12150	200SRT12150	**12**	12	25	-	150	2	-
200SR12200	200SRT12200	**12**	12	25	-	200	2	-
200SR14100	200SRT14100	**14**	14	30	-	100	2	-
200SR14150	200SRT14150	**14**	14	30	-	150	2	-
200SR14200	200SRT14200	**14**	14	30	-	200	2	-
200SR14200.1	200SRT14200.1	**14**	16	30	80	200	2	43′
200SR16100	200SRT16100	**16**	16	30	-	100	2	-
200SR16150	200SRT16150	**16**	16	30	-	150	2	-
200SR16200	200SRT16200	**16**	16	30	-	200	2	-
200SR20100	200SRT20100	**20**	20	30	-	100	2	-
200SR20150	200SRT20150	**20**	20	30	-	150	2	-
200SR20200	200SRT20200	**20**	20	30	-	200	2	-

→ Help 161

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

HYPER: HRC < 50 | UNCOATED: HRC < 35 | CAST IRON | NON FERROUS

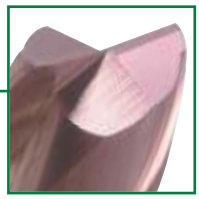


MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA | HSC HHC | 30° | UNCOATED HYPER | Z 2

Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

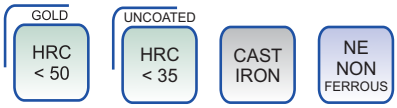
VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza



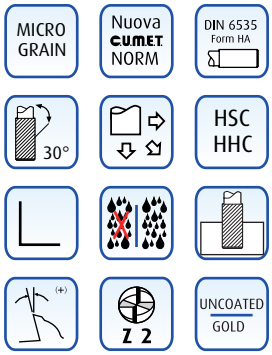
CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
200.010G1	200T.010G1	**1**	1	5	40	2
200.010	200T.010	**1**	3	2.5	40	2
200.015G15	200T.015G15	**1.5**	1.5	5	40	2
200.015	200T.015	**1.5**	3	4	40	2
200.020G2	200T.020G2	**2**	2	8	40	2
200.020	200T.020	**2**	3	6	40	2
200.025G25	200T.025G25	**2.5**	2.5	8	40	2
200.025	200T.025	**2.5**	3	6	40	2
200.030	200T.030	**3**	3	8	40	2
20003060	200T03060	**3**	3	30	60	2
20003075	200T03075	**3**	3	30	75	2
200.035	200T.035	**3.5**	3.5	10	40	2
200.040	200T.040	**4**	4	10	50	2
20004060	200T04060	**4**	4	30	60	2
20004075	200T04075	**4**	4	30	75	2
200.045	200T.045	**4.5**	4.5	10	50	2
200.050	200T.050	**5**	5	12	50	2
20005070	200T05070	**5**	5	35	70	2
20005100	200T05100	**5**	5	40	100	2
200.055	200T.055	**5.5**	5.5	12	50	2
200.060	200T.060	**6**	6	12	50	2
20006100	200T06100	**6**	6	40	100	2
20006150	200T06150	**6**	6	50	150	2
200.070	200T.070	**7**	7	16	60	2
200.080	200T.080	**8**	8	20	60	2
20008100	200T08100	**8**	8	40	100	2
20008150	200T08150	**8**	8	50	150	2
200.090	200T.090	**9**	9	20	70	2
200.100	200T.100	**10**	10	22	70	2
20010100	200T10100	**10**	10	45	100	2
20010150	200T10150	**10**	10	60	150	2
200.110	200T.110	**11**	11	22	75	2
200.120	200T.120	**12**	12	25	75	2
20012100	200T12100	**12**	12	45	100	2
20012150	200T12150	**12**	12	75	150	2
200.130	200T.130	**13**	13	25	75	2
200.140	200T.140	**14**	14	30	85	2
20014100	200T14100	**14**	14	45	100	2
20014150	200T14150	**14**	14	65	150	2
20014150.1	200T14150.1	**14**	14	75	150	2
200.150	200T.150	**15**	15	30	85	2
20015100	200T15100	**15**	15	45	100	2
200.160	200T.160	**16**	16	30	85	2
20016100	200T16100	**16**	16	45	100	2
20016150	200T16150	**16**	16	65	150	2
20016150.1	200T16150.1	**16**	16	75	150	2
200.180	200T.180	**18**	18	38	100	2
20018150	200T18150	**18**	18	50	150	2
20018150.1	200T18150.1	**18**	18	65	150	2
20018150.2	200T18150.2	**18**	18	75	150	2
200.200	200T.200	**20**	20	40	100	2
20020150	200T20150	**20**	20	55	150	2
20020150.1	200T20150.1	**20**	20	65	150	2
20020150.2	200T20150.2	**20**	20	75	150	2
200.250	200T.250	**25**	25	40	100	2
20025150	200T25150	**25**	25	65	150	2
20025150.1	200T25150.1	**25**	25	75	150	2

→ Help 198

*d1 ≤ ø 6 h9
d1 ≤ ø25 f7



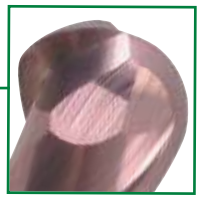




Fresa testa sferica in metallo duro integrale

Solid carbide ball nose end mill

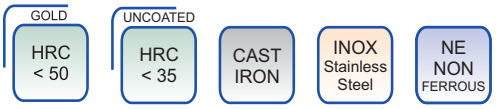
VHM - Radiusfräser - Fraise carbure à bout hémisphérique
Фреза концевая твердосплавная полусферическая - Sk kulová fréza



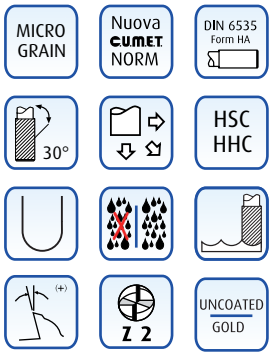
CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
200R.010G1	200RT.010G1	**1**	1	5	38	2
200R.010	200RT.010	**1**	3	2.5	40	2
200R.015G15	200RT.015G15	**1.5**	1.5	5	38	2
200R.015	200RT.015	**1.5**	3	4	40	2
200R.020G2	200RT.020G2	**2**	2	8	38	2
200R.020	200RT.020	**2**	3	6	40	2
200R.025G25	200RT.025G25	**2.5**	2.5	8	38	2
200R.025	200RT.025	**2.5**	3	6	40	2
200R.030	200RT.030	**3**	3	8	40	2
200RL.030	200RLT.030	**3**	3	30	60	2
200RL.030.1	200RLT.030.1	**3**	3	30	75	2
200R.035	200RT.035	**3.5**	3.5	10	40	2
200R.040	200RT.040	**4**	4	10	50	2
200RL.040	200RLT.040	**4**	4	30	60	2
200RL.040.1	200RLT.040.1	**4**	4	30	75	2
200R.045	200RT.045	**4.5**	4.5	10	50	2
200R.050	200RT.050	**5**	5	12	50	2
200RL.050	200RLT.050	**5**	5	35	70	2
200RL.050.1	200RLT.050.1	**5**	5	40	100	2
200R.055	200RT.055	**5.5**	5.5	12	50	2
200R.060	200RT.060	**6**	6	12	50	2
200RL.060	200RLT.060	**6**	6	40	100	2
200RL.060.1	200RLT.060.1	**6**	6	50	150	2
200R.070	200RT.070	**7**	7	16	60	2
200R.080	200RT.080	**8**	8	20	60	2
200RL.080	200RLT.080	**8**	8	40	100	2
200RL.080.1	200RLT.080.1	**8**	8	50	150	2
200R.090	200RT.090	**9**	9	20	70	2
200R.100	200RT.100	**10**	10	22	70	2
200RL.100	200RLT.100	**10**	10	45	100	2
200RL.100.1	200RLT.100.1	**10**	10	60	150	2
200R.110	200RT.110	**11**	11	22	75	2
200R.120	200RT.120	**12**	12	25	75	2
200RL.120	200RLT.120	**12**	12	45	100	2
200RL.120.1	200RLT.120.1	**12**	12	75	150	2
200R.130	200RT.130	**13**	13	25	75	2
200R.140	200RT.140	**14**	14	30	85	2
200RL.140	200RLT.140	**14**	14	45	100	2
200RL.140.1	200RLT.140.1	**14**	14	65	150	2
200RL.140.2	200RLT.140.2	**14**	14	75	150	2
200R.150	200RT.150	**15**	15	30	85	2
200RL.150	200RLT.150	**15**	15	45	100	2
200R.160	200RT.160	**16**	16	30	85	2
200RL.160	200RLT.160	**16**	16	45	100	2
200RL.160.1	200RLT.160.1	**16**	16	65	150	2
200RL.160.2	200RLT.160.2	**16**	16	75	150	2
200R.180	200RT.180	**18**	18	38	100	2
200RL.180	200RLT.180	**18**	18	50	150	2
200RL.180.1	200RLT.180.1	**18**	18	65	150	2
200RL.180.2	200RLT.180.2	**18**	18	75	150	2
200R.200	200RT.200	**20**	20	40	100	2
200RL.200	200RLT.200	**20**	20	55	150	2
200RL.200.1	200RLT.200.1	**20**	20	65	150	2
200RL.200.2	200RLT.200.2	**20**	20	75	150	2
200R.250	200RT.250	**25**	25	40	100	2
200RL.250	200RLT.250	**25**	25	65	150	2
200RL.250.1	200RLT.250.1	**25**	25	75	150	2

→ Help 161-200

*d1 ≤ ø 6 h9
d1 ≤ ø25 f7







Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

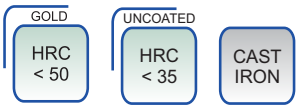
VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza



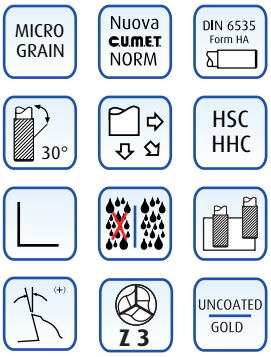
CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
300.010	300T.010	**1**	3	2.5	40	3
300.015	300T.015	**1.5**	3	4	40	3
300.020	300T.020	**2**	3	5	40	3
300.025	300T.025	**2.5**	3	7	40	3
300.030	300T.030	**3**	3	12	40	3
30003060	300T03060	**3**	3	30	60	3
30003075	300T03075	**3**	3	30	75	3
300.035	300T.035	**3.5**	3.5	12	40	3
300.040	300T.040	**4**	4	16	50	3
30004060	300T04060	**4**	4	30	60	3
30004075	300T04075	**4**	4	30	75	3
300.045	300T.045	**4.5**	4.5	16	50	3
300.050	300T.050	**5**	5	20	50	3
30005070	300T05070	**5**	5	35	70	3
30005100	300T05100	**5**	5	40	100	3
300.055	300T.055	**5.5**	5.5	20	50	3
300.060	300T.060	**6**	6	20	50	3
30006100	300T06100	**6**	6	40	100	3
30006150	300T06150	**6**	6	50	150	3
300.070	300T.070	**7**	7	22	60	3
300.080	300T.080	**8**	8	22	60	3
30008100	300T08100	**8**	8	40	100	3
30008150	300T08150	**8**	8	50	150	3
300.090	300T.090	**9**	9	22	70	3
300.100	300T.100	**10**	10	25	70	3
30010100	300T10100	**10**	10	45	100	3
30010150	300T10150	**10**	10	60	150	3
300.110	300T.110	**11**	11	27	75	3
300.120	300T.120	**12**	12	27	75	3
30012100	300T12100	**12**	12	45	100	3
30012150	300T12150	**12**	12	75	150	3
300.130	300T.130	**13**	13	27	75	3
300.140	300T.140	**14**	14	30	85	3
30014100	300T14100	**14**	14	45	100	3
30014150	300T14150	**14**	14	65	150	3
30014150.1	300T14150.1	**14**	14	75	150	3
300.150	300T.150	**15**	15	30	85	3
30015100	300T15100	**15**	15	45	100	3
300.160	300T.160	**16**	16	30	85	3
30016100	300T16100	**16**	16	45	100	3
30016150	300T16150	**16**	16	65	150	3
30016150.1	300T16150.1	**16**	16	75	150	3
300.180	300T.180	**18**	18	40	100	3
30018150	300T18150	**18**	18	50	150	3
30018150.1	300T18150.1	**18**	18	65	150	3
30018150.2	300T18150.2	**18**	18	75	150	3
300.200	300T.200	**20**	20	40	100	3
30020150	300T20150	**20**	20	55	150	3
30020150.1	300T20150.1	**20**	20	65	150	3
30020150.2	300T20150.2	**20**	20	75	150	3
300.220	300T.220	**22**	22	40	100	3
300.250	300T.250	**25**	25	40	100	3
30025150	300T25150	**25**	25	65	150	3
30025150.1	300T25150.1	**25**	25	75	150	3

→ Help 195-196-198

*d1 ≤ ø 6 h9
d1 ≤ ø25 f7







Fresa testa sferica in metallo duro integrale

Solid carbide ball nose end mill

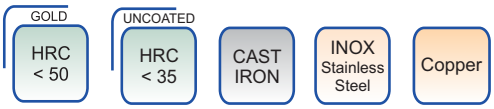
VHM - Radiusfräser - Fraise carbure à bout hémisphérique
Фреза концевая твердосплавная полусферическая - Sk kulová fréza



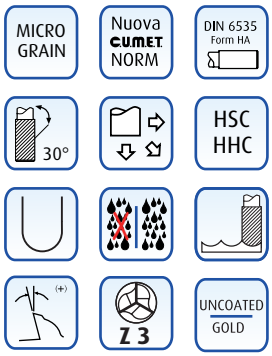
CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
300R.010	300RT.010	**1**	3	2.5	40	3
300R.015	300RT.015	**1.5**	3	4	40	3
300R.020	300RT.020	**2**	3	5	40	3
300R.025	300RT.025	**2.5**	3	7	40	3
300R.030	300RT.030	**3**	3	12	40	3
300RL.030	300RLT.030	**3**	3	30	60	3
300RL.030.1	300RLT.030.1	**3**	3	30	75	3
300R.035	300RT.035	**3.5**	3.5	12	40	3
300R.040	300RT.040	**4**	4	16	50	3
300RL.040	300RLT.040	**4**	4	30	60	3
300RL.040.1	300RLT.040.1	**4**	4	30	75	3
300R.045	300RT.045	**4.5**	4.5	16	50	3
300R.050	300RT.050	**5**	5	20	50	3
300RL.050	300RLT.050	**5**	5	35	70	3
300RL.050.1	300RLT.050.1	**5**	5	40	100	3
300R.055	300RT.055	**5.5**	5.5	20	50	3
300R.060	300RT.060	**6**	6	20	50	3
300RL.060	300RLT.060	**6**	6	40	100	3
300RL.060.1	300RLT.060.1	**6**	6	50	150	3
300R.070	300RT.070	**7**	7	22	60	3
300R.080	300RT.080	**8**	8	22	60	3
300RL.080	300RLT.080	**8**	8	40	100	3
300RL.080.1	300RLT.080.1	**8**	8	50	150	3
300R.090	300RT.090	**9**	9	22	70	3
300R.100	300RT.100	**10**	10	25	70	3
300RL.100	300RLT.100	**10**	10	45	100	3
300RL.100.1	300RLT.100.1	**10**	10	60	150	3
300R.110	300RT.110	**11**	11	27	75	3
300R.120	300RT.120	**12**	12	27	75	3
300RL.120	300RLT.120	**12**	12	45	100	3
300RL.120.1	300RLT.120.1	**12**	12	75	150	3
300R.130	300RT.130	**13**	13	27	75	3
300R.140	300RT.140	**14**	14	30	85	3
300RL.140	300RLT.140	**14**	14	45	100	3
300RL.140.1	300RLT.140.1	**14**	14	65	150	3
300RL.140.2	300RLT.140.2	**14**	14	75	150	3
300R.150	300RT.150	**15**	15	30	85	3
300RL.150	300RLT.150	**15**	15	45	100	3
300R.160	300RT.160	**16**	16	30	85	3
300RL.160	300RLT.160	**16**	16	45	100	3
300RL.160.1	300RLT.160.1	**16**	16	65	150	3
300RL.160.2	300RLT.160.2	**16**	16	75	150	3
300R.180	300RT.180	**18**	18	40	100	3
300RL.180	300RLT.180	**18**	18	50	150	3
300RL.180.1	300RLT.180.1	**18**	18	65	150	3
300RL.180.2	300RLT.180.2	**18**	18	75	150	3
300R.200	300RT.200	**20**	20	40	100	3
300RL.200	300RLT.200	**20**	20	55	150	3
300RL.200.1	300RLT.200.1	**20**	20	65	150	3
300RL.200.2	300RLT.200.2	**20**	20	75	150	3
300R.250	300RT.250	**25**	25	40	100	3
300RL.250	300RLT.250	**25**	25	55	150	3
300RL.250.1	300RLT.250.1	**25**	25	75	150	3

→ Help 161-200

*d1 ≤ ø 6 h9
d1 ≤ ø25 f7



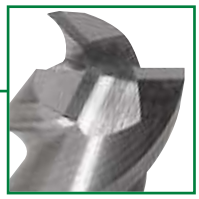




Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza

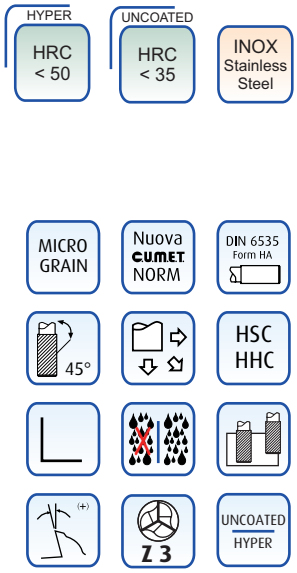


CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
450.030	450T.030	**3**	3	10	40	3
45003060	450T03060	**3**	3	30	60	3
450.035	450T.035	**3.5**	3.5	10	40	3
450.040	450T.040	**4**	4	12	50	3
45004060	450T04060	**4**	4	30	60	3
450.045	450T.045	**4.5**	4.5	12	50	3
450.050	450T.050	**5**	5	12	50	3
45005070	450T05070	**5**	5	35	70	3
450.060	450T.060	**6**	6	16	50	3
45006100	450T06100	**6**	6	40	100	3
450.070	450T.070	**7**	7	16	60	3
450.080	450T.080	**8**	8	20	60	3
45008100	450T08100	**8**	8	40	100	3
450.090	450T.090	**9**	9	20	70	3
450.100	450T.100	**10**	10	22	70	3
45010100	450T10100	**10**	10	45	100	3
450.110	450T.110	**11**	11	22	70	3
45011100	450T11100	**11**	11	45	100	3
450.120	450T.120	**12**	12	27	75	3
45012100	450T12100	**12**	12	45	100	3
450.140	450T.140	**14**	14	27	85	3
45014100	450T14100	**14**	14	45	100	3
450.150	450T.150	**15**	15	30	85	3
450.160	450T.160	**16**	16	32	85	3
45016100	450T16100	**16**	16	45	100	3
45016150	450T16150	**16**	16	65	150	3
450.180	450T.180	**18**	18	38	100	3
450.200	450T.200	**20**	20	38	100	3
45020150	450T20150	**20**	20	65	150	3
45020150.1	450T20150.1	**20**	20	75	150	3

→ Help 195-196

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

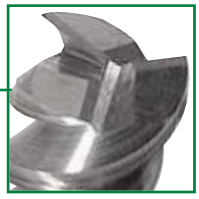




Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza

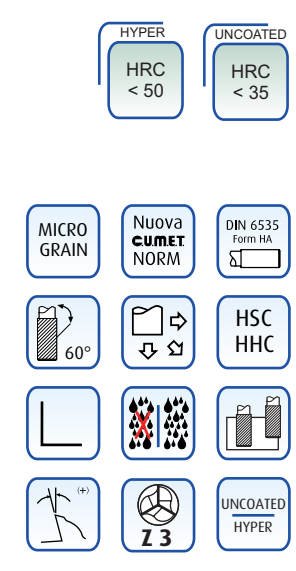


CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
500.030	500T.030	**3**	3	10	40	3
500.040	500T.040	**4**	4	12	50	3
50004060	500T04060	**4**	4	30	60	3
500.050	500T.050	**5**	5	12	50	3
500.060	500T.060	**6**	6	16	50	3
50006100	500T06100	**6**	6	40	100	3
500.080	500T.080	**8**	8	20	60	3
50008100	500T08100	**8**	8	40	100	3
500.100	500T.100	**10**	10	22	70	3
50010100	500T10100	**10**	10	45	100	3
500.120	500T.120	**12**	12	27	75	3
50012100	500T12100	**12**	12	45	100	3
500.150	500T.150	**15**	15	30	85	3
500.160	500T.160	**16**	16	30	85	3
50016100	500T16100	**16**	16	45	100	3
50016150	500T16150	**16**	16	65	150	3
500.180	500T.180	**18**	18	38	100	3
500.200	500T.200	**20**	20	38	100	3

→ Help 195-196

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7





Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

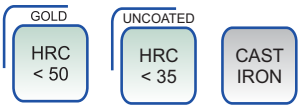
VHM - Schaftfräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza



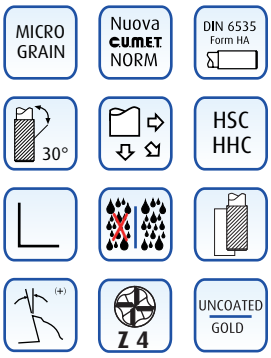
CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
400.010G1	400T.010G1	**1**	1	5	38	4
400.010	400T.010	**1**	3	2.5	40	4
400.015G15	400T.015G15	**1.5**	1.5	5	38	4
400.015	400T.015	**1.5**	3	4	40	4
400.020G2	400T.020G2	**2**	2	8	38	4
400.020	400T.020	**2**	3	5	40	4
400.025G25	400T.025G25	**2.5**	2.5	8	38	4
400.025	400T.025	**2.5**	3	7	40	4
400.030	400T.030	**3**	3	12	40	4
40003060	400T03060	**3**	3	30	60	4
40003075	400T03075	**3**	3	30	75	4
400.035	400T.035	**3.5**	3.5	12	40	4
400.040	400T.040	**4**	4	16	50	4
40004060	400T04060	**4**	4	30	60	4
40004075	400T04075	**4**	4	30	75	4
400.045	400T.045	**4.5**	4.5	16	50	4
400.050	400T.050	**5**	5	20	50	4
40005070	400T05070	**5**	5	35	70	4
40005100	400T05100	**5**	5	40	100	4
400.055	400T.055	**5.5**	5.5	20	50	4
400.060	400T.060	**6**	6	20	50	4
40006100	400T06100	**6**	6	40	100	4
40006150	400T06150	**6**	6	50	150	4
400.070	400T.070	**7**	7	22	60	4
400.080	400T.080	**8**	8	22	60	4
40008100	400T08100	**8**	8	40	100	4
40008150	400T08150	**8**	8	50	150	4
400.090	400T.090	**9**	9	22	70	4
400.100	400T.100	**10**	10	25	70	4
40010100	400T10100	**10**	10	45	100	4
40010150	400T10150	**10**	10	60	150	4
400.110	400T.110	**11**	11	27	75	4
400.120	400T.120	**12**	12	27	75	4
40012100	400T12100	**12**	12	45	100	4
40012150	400T12150	**12**	12	75	150	4
400.130	400T.130	**13**	13	27	75	4
400.140	400T.140	**14**	14	30	85	4
40014100	400T14100	**14**	14	45	100	4
40014150	400T14150	**14**	14	65	150	4
40014150.1	400T14150.1	**14**	14	75	150	4
400.150	400T.150	**15**	15	30	85	4
40015100	400T15100	**15**	15	45	100	4
400.160	400T.160	**16**	16	30	85	4
40016100	400T16100	**16**	16	45	100	4
40016150	400T16150	**16**	16	65	150	4
40016150.1	400T16150.1	**16**	16	75	150	4
400.180	400T.180	**18**	18	40	100	4
40018150	400T18150	**18**	18	50	150	4
40018150.1	400T18150.1	**18**	18	65	150	4
40018150.2	400T18150.2	**18**	18	75	150	4
400.200	400T.200	**20**	20	40	100	4
40020150	400T20150	**20**	20	55	150	4
40020150.1	400T20150.1	**20**	20	65	150	4
40020150.2	400T20150.2	**20**	20	75	150	4
400.220	400T.220	**22**	22	40	100	4
400.250	400T.250	**25**	25	40	100	4
40025150	400T25150	**25**	25	55	150	4
40025150.1	400T25150.1	**25**	25	75	150	4

→ Help 197-198

*d1 ≤ ø 6 h9
d1 ≤ ø32 f7







Fresa testa torica in metallo duro integrale

Solid carbide corner radius end mill

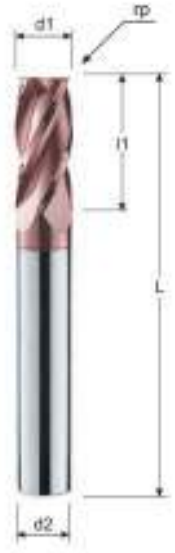
VHM - Schaftfräser - Fraise carbure avec rayond'angle
Фреза концевая твердосплавная с угловым радиусом для тяжелого фрезерования
Sk fréza s rohovým rádiusem pro težky řez

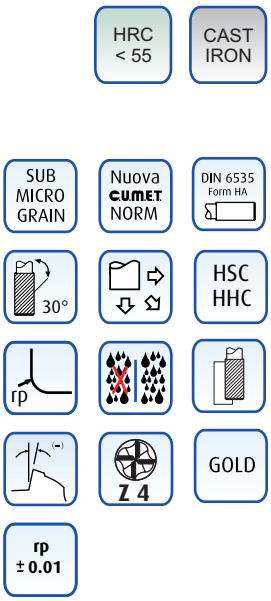


CODE	d1 mm	d2 mm	rp mm	l1 mm	L mm
400T03100R03	**3**	3	0.3	12	100
400T04100R05	**4**	4	0.5	16	100
400T05100R05	**5**	5	0.5	20	100
400T06100R05	**6**	6	0.5	20	100
400T06100R1	**6**	6	1	20	100
400T06150R05	**6**	6	0.5	30	150
400T06150R1	**6**	6	1	30	150
400T08100R05	**8**	8	0.5	40	100
400T08100R1	**8**	8	1	40	100
400T08150R05	**8**	8	0.5	50	150
400T08150R1	**8**	8	1	50	150
400T10100R05	**10**	10	0.5	45	100
400T10100R1	**10**	10	1	45	100
400T10150R05	**10**	10	0.5	60	150
400T10150R1	**10**	10	1	60	150
400T12100R05	**12**	12	0.5	45	100
400T12100R1	**12**	12	1	45	100
400T15150R05	**12**	12	0.5	65	150
400T15150R1	**12**	12	1	65	150

→ 197

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

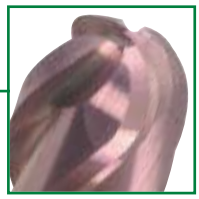




Fresa testa sferica in metallo duro integrale

Solid carbide ball nose end mill

VHM - Radiusfräser - Fraise carbure à bout hémisphérique
Фреза концевая твердосплавная полусферическая - Sk kulová fréza



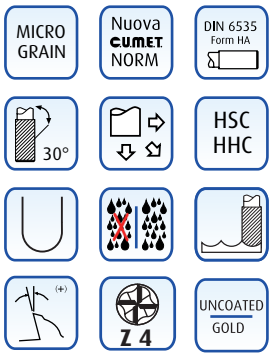
CODE UNCOATED	CODE HYPER	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.
400R.010G1	400RT.010G1	**1**	1	5	38	4
400R.010	400RT.010	**1**	3	2.5	40	4
400R.015G15	400RT.015G15	**1.5**	1.5	5	38	4
400R.015	400RT.015	**1.5**	3	4	40	4
400R.020G2	400RT.020G2	**2**	2	8	38	4
400R.020	400RT.020	**2**	3	5	40	4
400R.025G25	400RT.025G25	**2.5**	2.5	8	38	4
400R.025	400RT.025	**2.5**	3	7	40	4
400R.030	400RT.030	**3**	3	12	40	4
400RL.030	400RLT.030	**3**	3	30	60	4
400RL.030.1	400RLT.030.1	**3**	3	30	75	4
400R.040	400RT.040	**4**	4	16	50	4
400RL.040	400RLT.040	**4**	4	30	60	4
400RL.040.1	400RLT.040.1	**4**	4	30	75	4
400R.045	400RT.045	**4.5**	4.5	16	50	4
400R.050	400RT.050	**5**	5	20	50	4
400RL.050	400RLT.050	**5**	5	35	70	4
400RL.050.1	400RLT.050.1	**5**	5	40	100	4
400R.055	400RT.055	**5.5**	5.5	20	50	4
400R.060	400RT.060	**6**	6	20	50	4
400RL.060	400RLT.060	**6**	6	40	100	4
400RL.060.1	400RLT.060.1	**6**	6	50	150	4
400R.070	400RT.070	**7**	7	22	60	4
400R.080	400RT.080	**8**	8	22	60	4
400RL.080	400RLT.080	**8**	8	40	100	4
400RL.080.1	400RLT.080.1	**8**	8	50	150	4
400R.090	400RT.090	**9**	9	22	70	4
400R.100	400RT.100	**10**	10	25	70	4
400RL.100	400RLT.100	**10**	10	45	100	4
400RL.100.1	400RLT.100.1	**10**	10	60	150	4
400R.110	400RT.110	**11**	11	27	75	4
400R.120	400RT.120	**12**	12	27	75	4
400RL.120	400RLT.120	**12**	12	45	100	4
400RL.120.1	400RLT.120.1	**12**	12	75	150	4
400R.130	400RT.130	**13**	13	27	75	4
400R.140	400RT.140	**14**	14	30	85	4
400RL.140	400RLT.140	**14**	14	45	100	4
400RL.140.1	400RLT.140.1	**14**	14	65	150	4
400RL.140.2	400RLT.140.2	**14**	14	75	150	4
400R.150	400RT.150	**15**	15	30	85	4
400RL.150	400RLT.150	**15**	15	45	100	4
400R.160	400RT.160	**16**	16	30	85	4
400RL.160	400RLT.160	**16**	16	45	100	4
400RL.160.1	400RLT.160.1	**16**	16	65	150	4
400RL.160.2	400RLT.160.2	**16**	16	75	150	4
400R.180	400RT.180	**18**	18	40	100	4
400RL.180	400RLT.180	**18**	18	50	150	4
400RL.180.1	400RLT.180.1	**18**	18	65	150	4
400RL.180.2	400RLT.180.2	**18**	18	75	150	4
400R.200	400RT.200	**20**	20	40	100	4
400RL.200	400RLT.200	**20**	20	55	150	4
400RL.200.1	400RLT.200.1	**20**	20	65	150	4
400RL.200.2	400RLT.200.2	**20**	20	75	150	4
400R.250	400RT.250	**25**	25	40	100	4
400RL.250	400RLT.250	**25**	25	55	150	4
400RL.250.1	400RLT.250.1	**25**	25	75	150	4

→ Help 161-200

*d1 ≤ ø 6 h9
d1 ≤ ø25 f7







Fresa conica testa piana in metallo duro integrale

Solid carbide flat nose die tapered end mill

VHM - Schaftfräser Konisch - Fraise carbure conique à bout plat
Фреза концевая твердосплавная коническая - Sk rohová fréza se zuženou stopkou



CODE	d1h8 mm	d2h6 mm	l1 mm	L mm	Z no.	α°
300C.025.05	**2.5**	4	20	60	3	
300C.030.05	**3**	4	20	60	3	
300C.040.05	**4**	5	20	60	3	
300C.060.05	**6**	8	30	75	4	1/2°
300C.080.05	**8**	10	30	70	4	
300C.100.05	**10**	12	30	75	4	
300C.120.05	**12**	14	30	85	4	
300C.120.05.1	**12**	14	50	100	4	
300C.025.1	**2.5**	4	20	60	3	
300C.030.1	**3**	4	20	60	3	
300C.040.1	**4**	5	20	60	3	
300C.050.1	**5**	6	30	75	3	
300C.060.1	**6**	8	30	75	3	
300C.060.1L	**6**	8	57	120	3	1°
300C.080.1	**8**	10	30	70	4	
300C.080.1L	**8**	10	57	120	4	
300C.100.1	**10**	12	30	75	4	
300C.120.1	**12**	14	50	100	4	
300C.025.15	**2.5**	4	20	60	3	
300C.030.15	**3**	4	20	60	3	
300C.040.15	**4**	5	20	60	3	
300C.050.15	**5**	8	30	75	3	1-1/2°
300C.060.15	**6**	8	30	75	3	
300C.080.15	**8**	10	30	70	4	
300C.100.15	**10**	12	30	75	4	
300C.120.15	**12**	16	50	100	4	
300C.025.2	**2.5**	4	20	60	3	
300C.060.2	**6**	10	57	120	3	
300C.060.2L	**6**	12	85	150	3	
300C.070.2	**7**	10	40	100	3	2°
300C.080.2	**8**	10	28	100	3	
300C.080.2L	**8**	12	57	150	4	
300C.080.2L1	**8**	14	85	200	4	
300C.100.2	**10**	14	57	200	4	
300C.025.3	**2.5**	6	20	60	3	
300C.030.3	**3**	6	25	60	3	
300C.030.3L	**3**	8	40	75	3	
300C.040.3	**4**	8	30	75	3	
300C.060.3	**6**	10	30	70	3	
300C.060.3L	**6**	12	50	100	3	3°
300C.060.3L1	**6**	12	57	150	4	
300C.080.3	**8**	12	30	75	4	
300C.100.3L	**10**	16	50	100	4	
300C.025.5	**2.5**	6	20	60	3	
300C.030.5	**3**	10	30	70	3	
300C.030.5L	**3**	10	40	100	3	
300C.035.5	**3.5**	12	50	100	3	
300C.040.5	**4**	8	22	60	3	
300C.040.5L	**4**	10	30	70	3	
300C.050.5	**5**	12	40	100	3	
300C.060.5	**6**	12	30	75	3	5°
300C.060.5L	**6**	16	50	100	3	
300C.060.5L1	**6**	16	57	200	4	
300C.080.5	**8**	18	50	100	4	
300C.100.5	**10**	16	30	100	4	
300C.100.5L	**10**	20	50	100	4	
300C.120.5	**12**	18	30	100	4	

→ Help 197-198

HRC < 50 | CAST IRON | NI-Alloy | TI-Alloy | INOX Stainless Steel | Copper



MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

30° | HSC HHC

Z 3 | Z 4

GOLD

Fresa conica testa sferica in metallo duro integrale

Solid carbide ball nose die tapered end mill

VHM - Radiusfräser Konisch - Fraise carbure conique à bout hémisphérique
Фреза концевая твердосплавная полусферическая коническая - Sk kulová fréza se zuženou stopkou



CODE	d1h8 mm	d2h6 mm	l1 mm	L mm	Z no.	α°
300CR.030.05	**3**	4	20	60	3	
300CR.040.05	**4**	5	20	60	3	
300CR.050.05	**5**	6	30	75	3	
300CR.060.05	**6**	8	30	75	4	1/2°
300CR.080.05	**8**	10	30	70	4	
300CR.100.05	**10**	12	30	75	4	
300CR.120.05.1	**12**	14	50	100	4	
300CR.030.1	**3**	4	20	60	3	
300CR.040.1	**4**	5	20	60	3	
300CR.050.1	**5**	6	30	75	3	
300CR.060.1	**6**	8	30	75	3	
300CR.060.1L	**6**	8	57	120	3	1°
300CR.080.1	**8**	10	30	70	4	
300CR.080.1L	**8**	10	57	120	4	
300CR.100.1	**10**	12	30	75	4	
300CR.120.1	**12**	14	50	100	4	
300CR.160.1	**16**	18	55	100	4	
300CR.025.15	**2.5**	4	20	60	3	
300CR.030.15	**3**	4	20	60	3	
300CR.040.15	**4**	5	20	60	3	
300CR.050.15	**5**	8	30	75	3	1-1/2°
300CR.060.15	**6**	8	30	75	3	
300CR.080.15	**8**	10	30	70	4	
300CR.100.15	**10**	12	30	75	4	
300CR.120.15	**12**	16	50	100	4	
300CR.060.2	**6**	10	57	120	3	
300CR.060.2L	**6**	12	85	150	3	
300CR.070.2	**7**	10	40	100	3	
300CR.080.2	**8**	10	28	100	4	2°
300CR.080.2L	**8**	12	57	150	4	
300CR.080.2L1	**8**	14	85	200	4	
300CR.100.2	**10**	14	57	200	4	
300CR.025.3	**2.5**	6	20	65	3	
300CR.030.3	**3**	6	25	65	3	
300CR.030.3L	**3**	8	40	75	3	
300CR.040.3	**4**	8	30	75	3	
300CR.050.3	**5**	10	40	70	3	
300CR.060.3	**6**	10	30	70	3	
300CR.060.3L	**6**	12	50	100	3	
300CR.060.3L1	**6**	12	57	150	4	3°
300CR.080.3	**8**	12	30	75	4	
300CR.080.3L	**8**	14	50	100	4	
300CR.080.3L1	**8**	14	57	200	4	
300CR.100.3	**10**	14	30	85	4	
300CR.100.3L	**10**	16	50	100	4	
300CR.100.3L1	**10**	16	57	200	4	
300CR.120.3	**12**	18	50	100	4	
300CR.025.5	**2.5**	6	20	60	3	
300CR.030.5	**3**	10	30	70	3	
300CR.030.5L	**3**	10	40	100	3	
300CR.035.5	**3.5**	12	50	100	3	
300CR.040.5	**4**	8	22	60	3	
300CR.040.5L	**4**	10	30	70	3	
300CR.050.5	**5**	12	40	100	3	5°
300CR.060.5	**6**	12	30	75	3	
300CR.080.5	**8**	18	50	100	4	
300CR.100.5	**10**	16	30	100	4	
300CR.100.5L	**10**	20	50	100	4	
300CR.120.5	**12**	20	40	100	4	

→ Help 161-200

HRC < 50 | CAST IRON | NI-Alloy | TI-Alloy | INOX Stainless Steel | Copper



MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA

30° | HSC HHC

Z 3 | Z 4

GOLD



La vita è come andare in bicicletta. Per mantenere l'equilibrio devi ***muoverti***.

Das Leben ist wie ein Fahrrad. Man muß sich vorwärts ***bewegen***,
um das Gleichgewicht nicht zu verlieren.

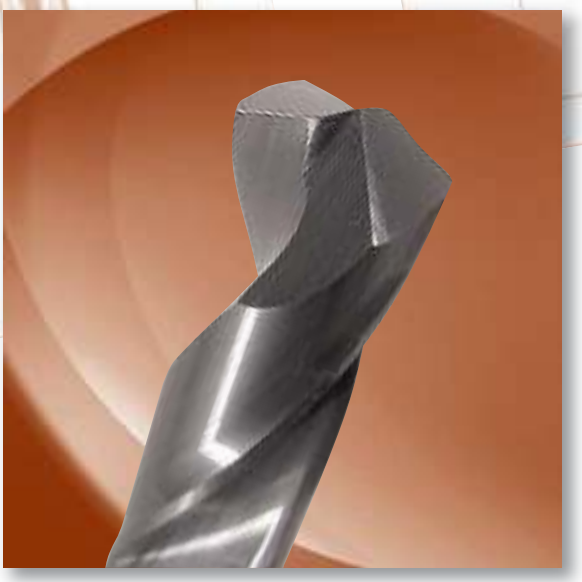
Albert Einstein

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Punte alto rendimento
High performance drills

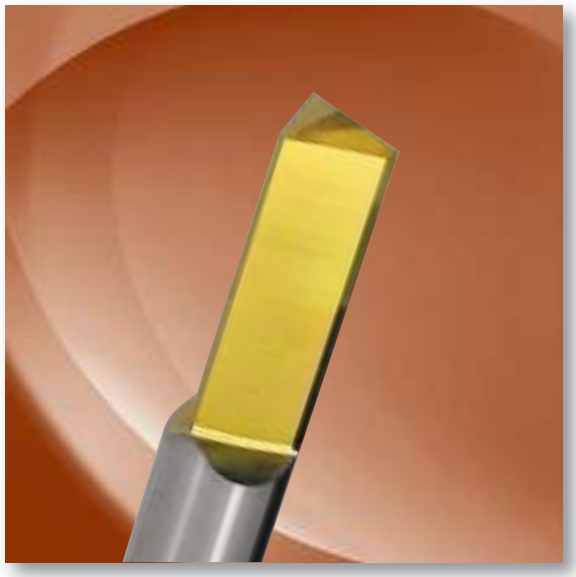
Hochleistungsböhrer
Forets à haut performance
Сверла высокопроизводительные
Vysoce výkonné vrtáky







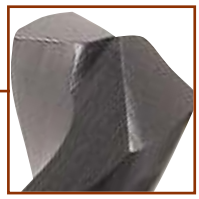




Punta ad alte prestazioni in metallo duro integrale

Solid carbide high performance twist drill

VHM - Hochleistungsböhrer - Foret carbure à haut performance
Сверло спиральное твердосплавное высокопроизводительное - Sk vysoce výkonný vrták



CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122T.030	**3.0**	6	20	60
122T.031	**3.1**			
122T.032	**3.2**			
122T.033	**3.3**			
122T.034	**3.4**			
122T.035	**3.5**			
122T.036	**3.6**			
122T.037	**3.7**			
122T.038	**3.8**	6	24	66
122T.039	**3.9**			
122T.040	**4.0**			
122T.041	**4.1**			
122T.042	**4.2**			
122T.043	**4.3**			
122T.044	**4.4**			
122T.045	**4.5**			
122T.046	**4.6**			
122T.047	**4.7**			
122T.048	**4.8**	6	28	66
122T.049	**4.9**			
122T.050	**5.0**			
122T.051	**5.1**			
122T.052	**5.2**			
122T.053	**5.3**			
122T.054	**5.4**			
122T.055	**5.5**			
122T.056	**5.6**			
122T.057	**5.7**			
122T.058	**5.8**			
122T.059	**5.9**			
122T.060	**6.0**			
122T.061	**6.1**	8	34	79
122T.062	**6.2**			
122T.063	**6.3**			
122T.064	**6.4**			
122T.065	**6.5**			
122T.066	**6.6**			
122T.067	**6.7**			
122T.068	**6.8**			
122T.069	**6.9**			
122T.070	**7.0**			
122T.071	**7.1**	8	41	79
122T.072	**7.2**			
122T.073	**7.3**			
122T.074	**7.4**			
122T.075	**7.5**	8	41	79
122T.076	**7.6**			
122T.077	**7.7**			
122T.078	**7.8**			
122T.079	**7.9**			
122T.080	**8.0**			
122T.081	**8.1**	10	45	89
122T.082	**8.2**			
122T.083	**8.3**			
122T.084	**8.4**			
122T.085	**8.5**			

CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122T.086	**8.6**	10	45	89
122T.087	**8.7**			
122T.088	**8.8**			
122T.089	**8.9**			
122T.090	**9.0**			
122T.091	**9.1**			
122T.092	**9.2**			
122T.093	**9.3**			
122T.094	**9.4**			
122T.095	**9.5**			
122T.096	**9.6**			
122T.097	**9.7**			
122T.098	**9.8**			
122T.099	**9.9**			
122T.100	**10.0**			
122T.101	**10.1**	12	55	102
122T.102	**10.2**			
122T.103	**10.3**			
122T.104	**10.4**			
122T.105	**10.5**			
122T.106	**10.6**			
122T.107	**10.7**			
122T.108	**10.8**			
122T.109	**10.9**			
122T.110	**11.0**			
122T.111	**11.1**			
122T.112	**11.2**			
122T.113	**11.3**			
122T.114	**11.4**			
122T.115	**11.5**			
122T.116	**11.6**			
122T.117	**11.7**			
122T.118	**11.8**			
122T.119	**11.9**			
122T.120	**12.0**			
122T.122	**12.2**	14	60	107
122T.123	**12.3**			
122T.125	**12.5**			
122T.128	**12.8**			
122T.130	**13.0**			
122T.135	**13.5**			
122T.138	**13.8**			
122T.140	**14.0**			
122T.145	**14.5**	16	65	115
122T.150	**15.0**			
122T.155	**15.5**			
122T.160	**16.0**			
122T.165	**16.5**	18	73	123
122T.170	**17.0**			
122T.175	**17.5**			
122T.180	**18.0**			
122T.185	**18.5**	20	79	131
122T.190	**19.0**			
122T.195	**19.5**			
122T.200	**20.0**			

→ Help 203



Punta ad alte prestazioni in metallo duro integrale

Solid carbide high performance twist drill

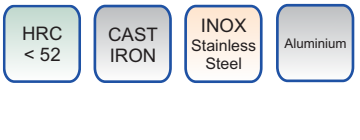
VHM - Hochleistungsbohrer - Foret carbure helicoidal avec canaux de réfrigération
Сверло спиральное твердосплавное с подачей СОЖ - Sk vysoce výkonný vrták



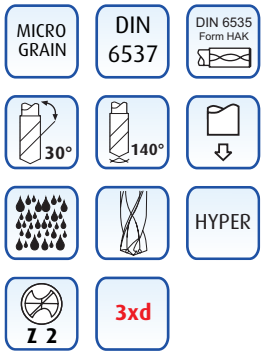
CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122F.030	**3.0**	6	20	60
122F.031	**3.1**			
122F.032	**3.2**			
122F.033	**3.3**			
122F.034	**3.4**			
122F.035	**3.5**			
122F.036	**3.6**			
122F.037	**3.7**			
122F.038	**3.8**	6	24	66
122F.039	**3.9**			
122F.040	**4.0**			
122F.041	**4.1**			
122F.042	**4.2**			
122F.043	**4.3**			
122F.044	**4.4**			
122F.045	**4.5**			
122F.046	**4.6**			
122F.047	**4.7**			
122F.048	**4.8**	6	28	66
122F.049	**4.9**			
122F.050	**5.0**			
122F.051	**5.1**			
122F.052	**5.2**			
122F.053	**5.3**			
122F.054	**5.4**			
122F.055	**5.5**			
122F.056	**5.6**			
122F.057	**5.7**			
122F.058	**5.8**			
122F.059	**5.9**			
122F.060	**6.0**			
122F.061	**6.1**	8	34	75
122F.062	**6.2**			
122F.063	**6.3**			
122F.064	**6.4**			
122F.065	**6.5**			
122F.066	**6.6**			
122F.067	**6.7**			
122F.068	**6.8**			
122F.069	**6.9**			
122F.070	**7.0**			
122F.071	**7.1**	8	41	79
122F.072	**7.2**			
122F.073	**7.3**			
122F.074	**7.4**			
122F.075	**7.5**			
122F.076	**7.6**			
122F.077	**7.7**			
122F.078	**7.8**			
122F.079	**7.9**			
122F.080	**8.0**			

CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122F.081	**8.1**	10	45	89
122F.082	**8.2**			
122F.083	**8.3**			
122F.084	**8.4**			
122F.085	**8.5**			
122F.086	**8.6**			
122F.087	**8.7**			
122F.088	**8.8**			
122F.089	**8.9**			
122F.090	**9.0**			
122F.091	**9.1**			
122F.092	**9.2**			
122F.093	**9.3**			
122F.094	**9.4**			
122F.095	**9.5**			
122F.096	**9.6**			
122F.097	**9.7**			
122F.098	**9.8**			
122F.100	**10.0**			
122F.101	**10.1**	12	55	102
122F.102	**10.2**			
122F.103	**10.3**			
122F.104	**10.4**			
122F.105	**10.5**			
122F.106	**10.6**			
122F.107	**10.7**			
122F.108	**10.8**			
122F.109	**10.9**			
122F.110	**11.0**			
122F.111	**11.1**			
122F.112	**11.2**			
122F.113	**11.3**			
122F.114	**11.4**			
122F.115	**11.5**			
122F.116	**11.6**			
122F.117	**11.7**			
122F.118	**11.8**			
122F.120	**12.0**			
122F.122	**12.2**	14	60	107
122F.123	**12.3**			
122F.125	**12.5**			
122F.128	**12.8**			
122F.130	**13.0**			
122F.135	**13.5**			
122F.138	**13.8**			
122F.140	**14.0**			
122F.145	**14.5**	16	65	115
122F.150	**15.0**			
122F.155	**15.5**			
122F.160	**16.0**			
122F.165	**16.5**	18	73	123
122F.170	**17.0**			
122F.175	**17.5**			
122F.180	**18.0**			
122F.185	**18.5**	20	79	131
122F.190	**19.0**			
122F.195	**19.5**			
122F.200	**20.0**			

→ Help 204



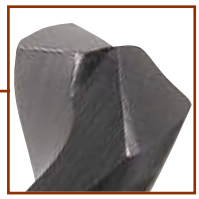




Punta ad alte prestazioni in metallo duro integrale

Solid carbide high performance twist drill

VHM - Hochleistungsböhrer - Foret carbure à haut performance
Сверло спиральное твердосплавное высокопроизводительное - Sk vysoce výkonný vrták



CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122TL.005	**0.5**	3	10	50
122TL.006	**0.6**			
122TL.007	**0.7**			
122TL.008	**0.8**			
122TL.009	**0.9**			
122TL.010	**1.0**	3	12	55
122TL.011	**1.1**			
122TL.012	**1.2**			
122TL.013	**1.3**			
122TL.014	**1.4**			
122TL.015	**1.5**			
122TL.016	**1.6**	3	16	55
122TL.017	**1.7**			
122TL.018	**1.8**			
122TL.019	**1.9**			
122TL.020	**2.0**			
122TL.021	**2.1**	3	21	57
122TL.022	**2.2**			
122TL.023	**2.3**			
122TL.024	**2.4**			
122TL.025	**2.5**			
122TL.026	**2.6**			
122TL.027	**2.7**			
122TL.028	**2.8**			
122TL.029	**2.9**			
122TL.030	**3.0**	6	28	66
122TL.031	**3.1**			
122TL.032	**3.2**			
122TL.033	**3.3**			
122TL.034	**3.4**			
122TL.035	**3.5**			
122TL.036	**3.6**			
122TL.037	**3.7**			
122TL.038	**3.8**	6	36	74
122TL.039	**3.9**			
122TL.040	**4.0**			
122TL.041	**4.1**			
122TL.042	**4.2**			
122TL.043	**4.3**			
122TL.044	**4.4**			
122TL.045	**4.5**			
122TL.046	**4.6**			
122TL.047	**4.7**			
122TL.048	**4.8**	6	44	82
122TL.049	**4.9**			
122TL.050	**5.0**			
122TL.051	**5.1**			
122TL.052	**5.2**			
122TL.053	**5.3**			
122TL.054	**5.4**			
122TL.055	**5.5**			
122TL.056	**5.6**			
122TL.057	**5.7**			
122TL.058	**5.8**			
122TL.059	**5.9**			
122TL.060	**6.0**			
122TL.061	**6.1**	8	53	91
122TL.062	**6.2**			
122TL.063	**6.3**			
122TL.064	**6.4**			
122TL.065	**6.5**			
122TL.066	**6.6**			
122TL.067	**6.7**			
122TL.068	**6.8**			
122TL.069	**6.9**			
122TL.070	**7.0**			

CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122TL.071	**7.1**	8	53	91
122TL.072	**7.2**			
122TL.073	**7.3**			
122TL.074	**7.4**			
122TL.075	**7.5**			
122TL.076	**7.6**			
122TL.077	**7.7**			
122TL.078	**7.8**			
122TL.079	**7.9**			
122TL.080	**8.0**			
122TL.081	**8.1**	10	61	103
122TL.082	**8.2**			
122TL.083	**8.3**			
122TL.084	**8.4**			
122TL.085	**8.5**			
122TL.086	**8.6**			
122TL.087	**8.7**			
122TL.088	**8.8**			
122TL.089	**8.9**			
122TL.090	**9.0**			
122TL.091	**9.1**			
122TL.092	**9.2**			
122TL.093	**9.3**			
122TL.094	**9.4**			
122TL.095	**9.5**			
122TL.096	**9.6**			
122TL.097	**9.7**			
122TL.098	**9.8**			
122TL.099	**9.9**			
122TL.100	**10.0**			
122TL.101	**10.1**	12	71	11
122TL.102	**10.2**			
122TL.103	**10.3**			
122TL.104	**10.4**			
122TL.105	**10.5**			
122TL.106	**10.6**			
122TL.107	**10.7**			
122TL.108	**10.8**			
122TL.109	**10.9**			
122TL.110	**11.0**			
122TL.111	**11.1**			
122TL.112	**11.2**			
122TL.113	**11.3**			
122TL.114	**11.4**			
122TL.115	**11.5**			
122TL.116	**11.6**			
122TL.117	**11.7**			
122TL.118	**11.8**			
122TL.119	**11.9**			
122TL.120	**12.0**			
122TL.122	**12.2**	14	77	124
122TL.123	**12.3**			
122TL.125	**12.5**			
122TL.128	**12.8**			
122TL.130	**13.0**			
122TL.135	**13.5**			
122TL.140	**14.0**			
122TL.145	**14.5**	16	83	133
122TL.150	**15.0**			
122TL.155	**15.5**			
122TL.160	**16.0**			
122TL.165	**16.5**	18	93	143
122TL.170	**17.0**			
122TL,175	**17.5**			
122TL.180	**18.0**			
122TL.200	**20.0**	20	101	153

→ Help 203

HRC < 52 | CAST IRON | INOX Stainless Steel | Aluminium



MICRO GRAIN | DIN 6537 | DIN 6535 Form HA | 30° | 140° | HYPER | Z 2 | 5xd

Punta ad alte prestazioni in metallo duro integrale

Solid carbide high performance twist drill

VHM - Hochleistungsböhrer - Foret carbure à haut performance
Сверло спиральное твердосплавное высокопроизводительное - Sk vysoce výkonný vrták



CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122FL.010	**1.0**	3	10	55
122FL.011	**1.1**	3	12	55
122FL.012	**1.2**			
122FL.013	**1.3**			
122FL.014	**1.4**			
122FL.015	**1.5**			
122FL.016	**1.6**	3	16	55
122FL.017	**1.7**			
122FL.018	**1.8**			
122FL.019	**1.9**			
122FL.020	**2.0**			
122FL.021	**2.1**	3	21	57
122FL.022	**2.2**			
122FL.023	**2.3**			
122FL.024	**2.4**			
122FL.025	**2.5**			
122FL.026	**2.6**			
122FL.027	**2.7**			
122FL.028	**2.8**			
122FL.029	**2.9**			
122FL.030	**3.0**	6	28	66
122FL.031	**3.1**			
122FL.032	**3.2**			
122FL.033	**3.3**			
122FL.034	**3.4**			
122FL.035	**3.5**			
122FL.036	**3.6**			
122FL.037	**3.7**			
122FL.038	**3.8**	6	36	74
122FL.039	**3.9**			
122FL.040	**4.0**			
122FL.041	**4.1**			
122FL.042	**4.2**			
122FL.043	**4.3**			
122FL.044	**4.4**			
122FL.045	**4.5**			
122FL.046	**4.6**			
122FL.047	**4.7**			
122FL.048	**4.8**	6	44	81
122FL.049	**4.9**			
122FL.050	**5.0**			
122FL.051	**5.1**			
122FL.052	**5.2**			
122FL.053	**5.3**			
122FL.054	**5.4**			
122FL.055	**5.5**			
122FL.056	**5.6**			
122FL.057	**5.7**			
122FL.058	**5.8**			
122FL.059	**5.9**			
122FL.060	**6.0**			
122FL.061	**6.1**	8	53	91
122FL.062	**6.2**			
122FL.063	**6.3**			
122FL.064	**6.4**			
122FL.065	**6.5**			
122FL.066	**6.6**			
122FL.067	**6.7**			
122FL.068	**6.8**			
122FL.069	**6.9**			
122FL.070	**7.0**	8	53	91
122FL.071	**7.1**			
122FL.072	**7.2**			
122FL.073	**7.3**			

CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122FL.074	**7.4**	8	53	91
122FL.075	**7.5**			
122FL.076	**7.6**			
122FL.077	**7.7**			
122FL.078	**7.8**			
122FL.079	**7.9**			
122FL.080	**8.0**			
122FL.081	**8.1**	10	60	103
122FL.082	**8.2**			
122FL.083	**8.3**			
122FL.084	**8.4**			
122FL.085	**8.5**			
122FL.086	**8.6**			
122FL.087	**8.7**			
122FL.088	**8.8**			
122FL.089	**8.9**			
122FL.090	**9.0**			
122FL.091	**9.1**			
122FL.092	**9.2**			
122FL.093	**9.3**			
122FL.094	**9.4**			
122FL.095	**9.5**			
122FL.096	**9.6**			
122FL.087	**9.7**			
122FL.098	**9.8**			
122FL.099	**9.9**			
122FL.100	**10.0**			
122FL.101	**10.1**	12	70	118
122FL.102	**10.2**			
122FL.103	**10.3**			
122FL.104	**10.4**			
122FL.105	**10.5**			
122FL.106	**10.6**			
122FL.107	**10.7**			
122FL.108	**10.8**			
122FL.109	**10.9**			
122FL.110	**11.0**			
122FL.111	**11.1**			
122FL.112	**11.2**			
122FL.113	**11.3**			
122FL.114	**11.4**			
122FL.115	**11.5**			
122FL.116	**11.6**			
122FL.117	**11.7**			
122FL.118	**11.8**			
122FL.119	**11.9**			
122FL.120	**12.0**			
122FL.122	**12.2**	14	77	124
122FL.123	**12.3**			
122FL.125	**12.5**			
122FL.128	**12.8**			
122FL.130	**13.0**			
122FL.135	**13.5**			
122FL.138	**13.8**			
122FL.140	**14.0**			
122FL.145	**14.5**	16	83	133
122FL.148	**14.8**			
122FL.150	**15.0**			
122FL.155	**15.5**			
122FL.158	**15.8**			
122FL.160	**16.0**			
122FL.165	**16.5**	18	93	143
122FL.168	**16.8**			
122FL.170	**17.0**			
122FL.175	**17.5**			
122FL.180	**18.0**			
122FL.200	**20**	20	101	153

→ Help 204

HRC < 52 | CAST IRON | INOX Stainless Steel | Aluminium

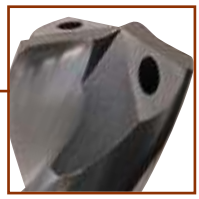


MICRO GRAIN | DIN 6537 | DIN 6535 Form HAK | 30° | 140° | HYPER | Z 2 | 5xd

Punta ad alte prestazioni in metallo duro integrale

Solid carbide high performance twist drill

VHM - Hochleistungsböhrer - Foret carbure à haut performance
Сверло спиральное твердосплавное высокопроизводительное - Sk vysoce výkonný vrták



CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122FALX.035	**3.5**	6	34	72
122FALX.037	**3.7**			
122FALX.038	**3.8**	6	43	81
122FALX.040	**4.0**			
122FALX.042	**4.2**			
122FALX.045	**4.5**			
122FALX.048	**4.8**	6	57	95
122FALX.050	**5.0**			
122FALX.051	**5.1**			
122FALX.052	**5.2**			
122FALX.055	**5.5**			
122FALX.058	**5.8**			
122FALX.060	**6.0**			
122FALX.061	**6.1**	8	76	114
122FALX.062	**6.2**			
122FALX.063	**6.3**			
122FALX.065	**6.5**			
122FALX.067	**6.7**			
122FALX.068	**6.8**			
122FALX.070	**7.0**			
122FALX.075	**7.5**			
122FALX.078	**7.8**			
122FALX.080	**8.0**			
122FALX.085	**8.5**	10	95	142
122FALX.088	**8.8**			
122FALX.090	**9.0**			

CODE	d1h7 mm	d2h6 mm	l1 mm	L mm
122FALX.092	**9.2**	10	95	142
122FALX.095	**9.5**			
122FALX.098	**9.8**			
122FALX.100	**10.0**			
122FALX.102	**10.2**	12	114	160
122FALX.103	**10.3**			
122FALX.105	**10.5**			
122FALX.107	**10.7**			
122FALX.108	**10.8**			
122FALX.110	**11.0**			
122FALX.115	**11.5**			
122FALX.118	**11.8**			
122FALX.120	**12.0**			
122FALX.122	**12.2**	14	130	175
122FALX.123	**12.3**			
122FALX.125	**12.5**			
122FALX.128	**12.8**			
122FALX.130	**13.0**			
122FALX.135	**13.5**			
122FALX.140	**14.0**			
122FALX.145	**14.5**	16	150	200
122FALX.150	**15.0**			
122FALX.155	**15.5**			
122FALX.160	**16.0**			
122FALX.180	**18.0**	18	170	220
122FALX.200	**20.0**	20	190	240

→ Help 204

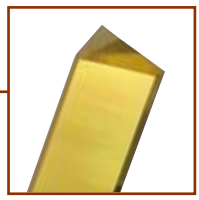


HRC < 52 | STEEL | CAST IRON
INOX Stainless Steel | Aluminium
MICRO GRAIN | DIN 6537 | DIN 6535 Form HAK
30° | 140°
HYPER
Z 2 | 8xd

Fresa rompimaschio in metallo duro integrale

Solid carbide tap destroying end mill

VHM Gewindeausbohrwerkzeug - Fraise carbure pour briser les tarauds
Фреза концевая твердосплавная для фрезерования резьбовых проемов
Sk fréza pro obrábění zalomených závitníků



CODE	THREAD	d1e9 mm	d2 mm	l1 mm	L mm	Z no.
145.033	**M4**	**3.3**	6	15	50	3
145.042	**M5**	**4.2**	6	15	50	3
145.050	**M6**	**5.0**	6	15	50	3
145.068	**M8**	**6.8**	8	20	60	3
145.085	**M10**	**8.5**	10	25	70	3
145.102	**M12**	**10.2**	12	30	75	3
145.120	**M14**	**12.0**	12	30	75	3
145.140	**M16**	**14.0**	14	40	100	3
145.155	**M18**	**15.5**	16	40	100	3
145.175	**M20**	**17.5**	18	50	100	3

VC = 40 m/min
Fz = 0.01mm/Revolution

Set frese rompimaschio - Destroyng set end mills

CODE	COMPOSTO DA COMPOSED OF	Q.TY
145/SET	Ø3.3/4.2/5/6.8/8.5/10.2/12	1 EACH

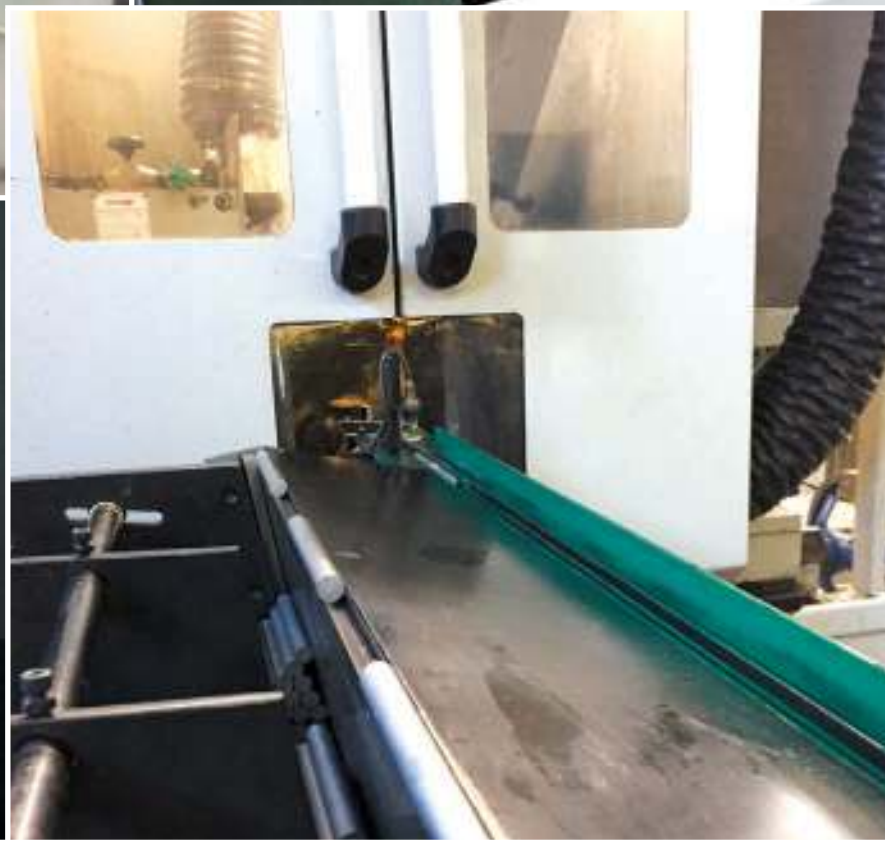


HRC < 70
SUB MICRO GRAIN | Nuova CUMET NORM | DIN 6535 Form HA
0° | 150°
Z 3
TIN | LAPPED


WALTER








LAVORAZIONI
406.12100
LAVORAZIONI
55,00



Noi non siamo altro che fasci o collezioni di differenti percezioni che si susseguono con una inconcepibile rapidità, in un perpetuo flusso e *movimento.*

The mind is nothing but a bundle or collection of different perceptions, which succeed each other with an inconceivable rapidity, and are in a perpetual flux and *movement*.

David Hume

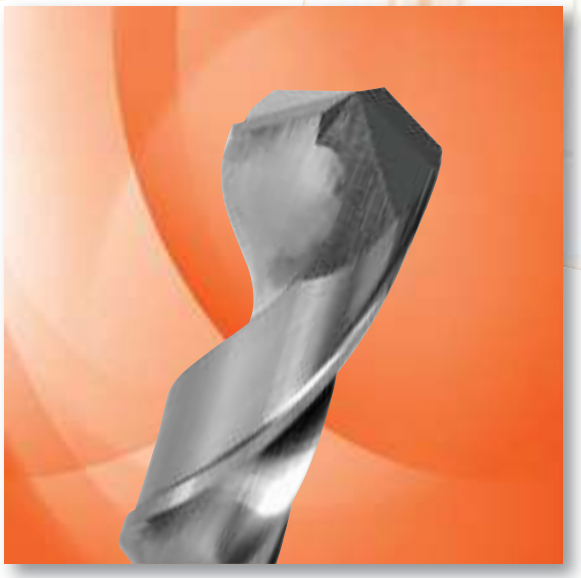
Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

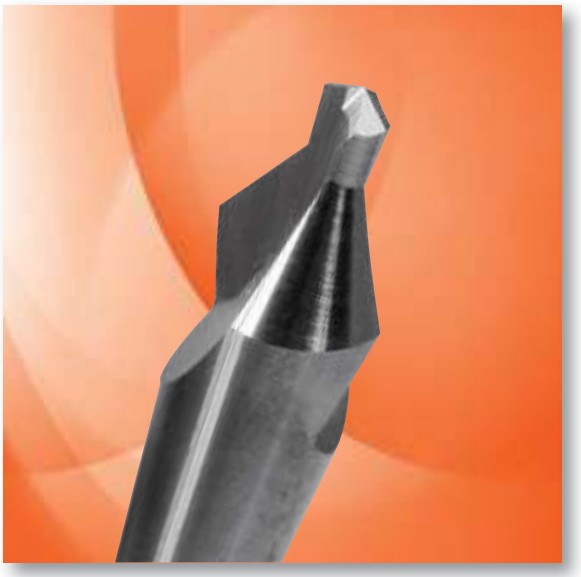
Punte convenzionali
Conventional drills

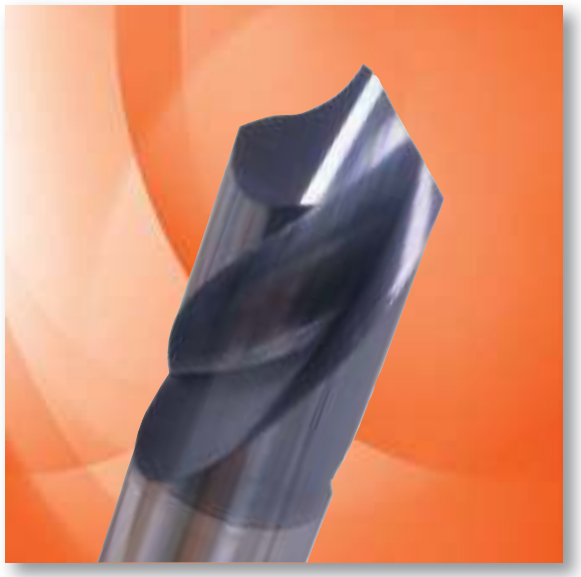
Universal Spiralböhrer
Foret universel
Сверла стандартные
Konvenčí vrtáky











Punta elicoidale autocentrante in metallo duro integrale

Solid carbide autocentering twist drill

VHM - Spiralbohrer Selbstzentrierend - Foret carbure hélicoidale autocentrage
Сверло спиральное твердосплавное автоцентрирующееся - Sk centrovací vrták



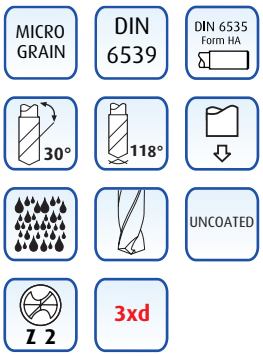
CODE	d1h6 mm	d2h6 mm	l1 mm	L mm
120.004	**0.4**	0.4	6	26
120.005	**0.5**	0.5	6	26
120.006	**0.6**	0.6	6	26
120.007	**0.7**	0.7	6	26
120.008	**0.8**	0.8	6	26
120.009	**0.9**	0.9	6	26
120.010	**1.0**	1.0	6	26
120.011	**1.1**	1.1	7	28
120.012	**1.2**	1.2	8	30
120.013	**1.3**	1.3	8	30
120.014	**1.4**	1.4	9	32
120.015	**1.5**	1.5	9	32
120.016	**1.6**	1.6	10	34
120.017	**1.7**	1.7	10	34
120.018	**1.8**	1.8	11	36
120.019	**1.9**	1.9	11	36
120.020	**2.0**	2.0	12	38
120.021	**2.1**	2.1	12	38
120.022	**2.2**	2.2	13	40
120.023	**2.3**	2.3	13	40
120.024	**2.4**	2.4	14	43
120.025	**2.5**	2.5	14	43
120.026	**2.6**	2.6	14	43
120.027	**2.7**	2.7	16	46
120.028	**2.8**	2.8	16	46
120.029	**2.9**	2.9	16	46
120.030	**3.0**	3.0	16	46
120.031	**3.1**	3.1	18	49
120.032	**3.2**	3.2	18	49
120.033	**3.3**	3.3	18	49
120.034	**3.4**	3.4	20	52
120.035	**3.5**	3.5	20	52
120.036	**3.6**	3.6	20	52
120.037	**3.7**	3.7	20	52
120.038	**3.8**	3.8	22	55
120.039	**3.9**	3.9	22	55
120.040	**4.0**	4.0	22	55
120.041	**4.1**	4.1	22	55
120.042	**4.2**	4.2	22	55
120.043	**4.3**	4.3	24	58
120.044	**4.4**	4.4	24	58
120.045	**4.5**	4.5	24	58
120.046	**4.6**	4.6	24	58
120.047	**4.7**	4.7	24	58
120.048	**4.8**	4.8	26	62
120.049	**4.9**	4.9	26	62
120.050	**5.0**	5.0	26	62
120.051	**5.1**	5.1	26	62
120.052	**5.2**	5.2	26	62
120.053	**5.3**	5.3	26	62
120.054	**5.4**	5.4	28	66
120.055	**5.5**	5.5	28	66
120.056	**5.6**	5.6	28	66
120.057	**5.7**	5.7	28	66
120.058	**5.8**	5.8	28	66
120.059	**5.9**	5.9	28	66
120.060	**6.0**	6.0	28	66
120.061	**6.1**	6.1	31	70
120.062	**6.2**	6.2	31	70
120.063	**6.3**	6.3	31	70
120.064	**6.4**	6.4	31	70
120.065	**6.5**	6.5	31	70

CODE	d1h6 mm	d2h6 mm	l1 mm	L mm
120.066	**6.6**	6.6	31	70
120.067	**6.7**	6.7	31	70
120.068	**6.8**	6.8	34	74
120.069	**6.9**	6.9	34	74
120.070	**7.0**	7.0	34	74
120.071	**7.1**	7.1	34	74
120.072	**7.2**	7.2	34	74
120.073	**7.3**	7.3	34	74
120.074	**7.4**	7.4	34	74
120.075	**7.5**	7.5	34	74
120.076	**7.6**	7.6	37	79
120.077	**7.7**	7.7	37	79
120.078	**7.8**	7.8	37	79
120.079	**7.9**	7.9	37	79
120.080	**8.0**	8.0	37	79
120.081	**8.1**	8.1	37	79
120.082	**8.2**	8.2	37	79
120.083	**8.3**	8.3	37	79
120.084	**8.4**	8.4	37	79
120.085	**8.5**	8.5	37	79
120.086	**8.6**	8.6	40	84
120.087	**8.7**	8.7	40	84
120.088	**8.8**	8.8	40	84
120.089	**8.9**	8.9	40	84
120.090	**9.0**	9.0	40	84
120.091	**9.1**	9.1	40	84
120.092	**9.2**	9.2	40	84
120.093	**9.3**	9.3	40	84
120.094	**9.4**	9.4	40	84
120.095	**9.5**	9.5	40	84
120.096	**9.6**	9.6	43	89
120.097	**9.7**	9.7	43	89
120.098	**9.8**	9.8	43	89
120.099	**9.9**	9.9	43	89
120.100	**10.0**	10.0	43	89
120.102	**10.2**	10.2	43	89
120.105	**10.5**	10.5	43	89
120.107	**10.7**	10.7	43	89
120.108	**10.8**	10.8	47	95
120.110	**11.0**	11.0	47	95
120.112	**11.2**	11.2	47	95
120.114	**11.4**	11.4	47	95
120.115	**11.5**	11.5	47	95
120.117	**11.7**	11.7	47	95
120.118	**11.8**	11.8	47	95
120.120	**12.0**	12.0	51	102
120.125	**12.5**	12.5	51	102
120.130	**13.0**	13.0	51	107
120.135	**13.5**	13.5	54	107
120.140	**14.0**	14.0	54	107
120.145	**14.5**	14.5	56	111
120.150	**15.0**	15.0	56	111
120.155	**15.5**	15.5	58	115
120.160	**16.0**	16.0	58	115
120.165	**16.5**	16.5	60	119
120.170	**17.0**	17.0	60	119
120.180	**18.0**	18.0	62	123
120.185	**18.5**	18.5	64	127
120.190	**19.0**	19.0	64	127
120.195	**19.5**	19.5	66	131
120.200	**20.0**	20.0	66	131

→ Help 203







Punta elicoidale autocentrante in metallo duro integrale

Solid carbide autocentering twist drill

VHM - Spiralbohrer Selbstzentrierend - Foret carbure hélicoidale autocentrage
Сверло спиральное твердосплавное автоцентрирующееся - Sk centrovací vrták



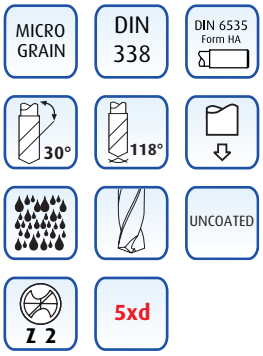
CODE	d1h6 mm	d2h6 mm	l1 mm	L mm
130.004	**0.4**	0.4	6	26
130.005	**0.5**	0.5	6	26
130.006	**0.6**	0.6	6	26
130.007	**0.7**	0.7	9	28
130.008	**0.8**	0.8	10	30
130.009	**0.9**	0.9	11	32
130.010	**1.0**	1.0	12	34
130.011	**1.1**	1.1	14	36
130.012	**1.2**	1.2	16	38
130.013	**1.3**	1.3	16	38
130.014	**1.4**	1.4	18	40
130.015	**1.5**	1.5	18	40
130.016	**1.6**	1.6	20	43
130.017	**1.7**	1.7	20	43
130.018	**1.8**	1.8	22	46
130.019	**1.9**	1.9	22	46
130.020	**2.0**	2.0	24	49
130.021	**2.1**	2.1	24	49
130.022	**2.2**	2.2	27	53
130.023	**2.3**	2.3	27	53
130.024	**2.4**	2.4	30	57
130.025	**2.5**	2.5	30	57
130.026	**2.6**	2.6	30	57
130.027	**2.7**	2.7	33	61
130.028	**2.8**	2.8	33	61
130.029	**2.9**	2.9	33	61
130.030	**3.0**	3.0	33	61
130.031	**3.1**	3.1	36	65
130.032	**3.2**	3.2	36	65
130.033	**3.3**	3.3	36	65
130.034	**3.4**	3.4	39	70
130.035	**3.5**	3.5	39	70
130.036	**3.6**	3.6	39	70
130.037	**3.7**	3.7	39	70
130.038	**3.8**	3.8	43	75
130.039	**3.9**	3.9	43	75
130.040	**4.0**	4.0	43	75
130.041	**4.1**	4.1	43	75
130.042	**4.2**	4.2	43	75
130.043	**4.3**	4.3	47	80
130.044	**4.4**	4.4	47	80
130.045	**4.5**	4.5	47	80
130.046	**4.6**	4.6	47	80
130.047	**4.7**	4.7	47	80
130.048	**4.8**	4.8	52	86
130.049	**4.9**	4.9	52	86
130.050	**5.0**	5.0	52	86
130.051	**5.1**	5.1	52	86
130.052	**5.2**	5.2	52	86
130.053	**5.3**	5.3	52	86
130.054	**5.4**	5.4	57	93
130.055	**5.5**	5.5	57	93
130.056	**5.6**	5.6	57	93
130.057	**5.7**	5.7	57	93
130.058	**5.8**	5.8	57	93
130.059	**5.9**	5.9	57	93
130.060	**6.0**	6.0	57	93
130.061	**6.1**	6.1	63	101
130.062	**6.2**	6.2	63	101
130.063	**6.3**	6.3	63	101
130.064	**6.4**	6.4	63	101

CODE	d1h6 mm	d2h6 mm	l1 mm	L mm
130.065	**6.5**	6.5	63	101
130.066	**6.6**	6.6	63	101
130.067	**6.7**	6.7	63	101
130.068	**6.8**	6.8	69	109
130.069	**6.9**	6.9	69	109
130.070	**7.0**	7.0	69	109
130.071	**7.1**	7.1	69	109
130.072	**7.2**	7.2	69	109
130.073	**7.3**	7.3	69	109
130.074	**7.4**	7.4	69	109
130.075	**7.5**	7.5	69	109
130.076	**7.6**	7.6	75	117
130.077	**7.7**	7.7	75	117
130.078	**7.8**	7.8	75	117
130.079	**7.9**	7.9	75	117
130.080	**8.0**	8.0	75	117
130.081	**8.1**	8.1	75	117
130.082	**8.2**	8.2	75	117
130.083	**8.3**	8.3	75	117
130.084	**8.4**	8.4	75	117
130.085	**8.5**	8.5	75	117
130.086	**8.6**	8.6	81	125
130.087	**8.7**	8.7	81	125
130.088	**8.8**	8.8	81	125
130.089	**8.9**	8.9	81	125
130.090	**9.0**	9.0	81	125
130.091	**9.1**	9.1	81	125
130.092	**9.2**	9.2	81	125
130.093	**9.3**	9.3	81	125
130.094	**9.4**	9.4	81	125
130.095	**9.5**	9.5	81	125
130.096	**9.6**	9.6	87	133
130.097	**9.7**	9.7	87	133
130.098	**9.8**	9.8	87	133
130.099	**9.9**	9.9	87	133
130.100	**10.0**	10.0	87	133
130.102	**10.2**	10.2	87	133
130.105	**10.5**	10.5	87	133
130.107	**10.7**	10.7	94	142
130.108	**10.8**	10.8	94	142
130.109	**10.9**	10.9	94	142
130.110	**11.0**	11.0	94	142
130.112	**11.2**	11.2	94	142
130.115	**11.5**	11.5	94	142
130.120	**12.0**	12.0	101	151
130.121	**12.1**	12.1	101	151
130.122	**12.2**	12.2	101	151
130.125	**12.5**	12.5	101	151
130.129	**12.9**	12.9	101	151
130.130	**13.0**	13.0	101	151
130.131	**13.1**	13.1	101	151
130.135	**13.5**	13.5	108	160
130.140	**14.0**	14.0	108	160
130.142	**14.2**	14.2	114	169
130.145	**14.5**	14.5	114	169
130.150	**15.0**	15.0	114	169
130.155	**15.5**	15.5	120	178
130.160	**16.0**	16.0	120	178
130.180	**18.0**	18.0	130	191
130.200	**20.0**	20.0	140	205

→ Help 203







Punta a centrare 90° per C.N. in metallo duro integrale

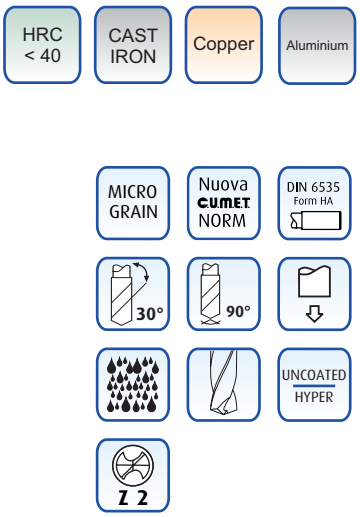
Solid carbide N.C. center drill 90°

VHM - N.C. Anböhrer - Foret carbure à centrer N.C.
Сверло центровочное твердосплавное - Sk nc centrovací vrták



CODE UNCOATED	CODE HYPER	d1h6 mm	d2h6 mm	l1 mm	L2 mm	L MM	Z no.
190.030	190T.030	**3**	3	10	-	40	2
190.040	190T.040	**4**	4	12	-	50	2
-	190T.040L	**4**	6	10	12	121	2
190.050	190T.050	**5**	5	15	-	50	2
-	190T.050L	**5**	6	13	15	130	2
190.060	190T.060	**6**	6	15	-	50	2
-	190T.080L	**6**	6	15	-	139	2
190.080	190T.080	**8**	8	20	-	60	2
-	190T.180L	**8**	8	17	-	164	2
190.100	190T.100	**10**	10	25	-	70	2
-	190T.100L	**10**	10	20	-	183	2
190.120	190T.120	**12**	12	25	-	75	2
-	190T.120L	**12**	12	25	-	204	2
190.140	190T.140	**14**	14	25	-	75	2
190.160	190T.160	**16**	16	30	-	75	2
-	190T.160L	**16**	16	25	-	228	2
190.200	190T.200	**20**	20	30	-	100	2

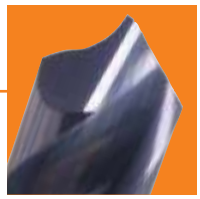




Punta a centrare 140° per C.N. in metallo duro integrale

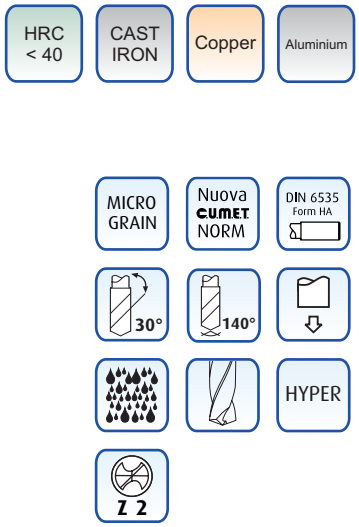
Solid carbide N.C. center drill 140°

VHM - N.C. Anböhrer - Foret carbure à centrer N.C.
Сверло центровочное твердосплавное - Sk nc centrovací vrták



CODE	d1 mm	d2h6 mm	l1 mm	l2 mm	L mm	Z no.
190T.041	**4**	6	10	12	121	2
190T.051	**5**	6	13	15	130	2
190T.061	**6**	6	15	-	139	2
190T.081	**8**	8	20	-	164	2
190T.101	**10**	10	25	-	183	2
190T.121	**12**	12	25	-	204	2
190T.161	**16**	16	30	-	230	2

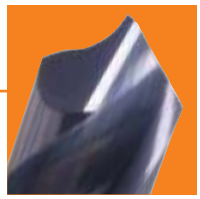




Punta a centrare 120° per C.N. in metallo duro integrale

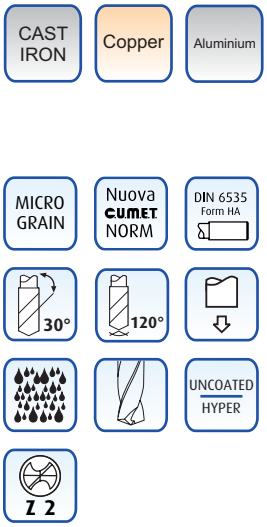
Solid carbide N.C. center drill 120°

VHM - N.C. Anböhrer - Foret carbure à centrer N.C.
Сверло центровочное твердосплавное - Sk nc centrovací vrták



CODE UNCOATED	CODE HYPER	d1h6 mm	d2h6 mm	l1 mm	L mm	Z no.
190.030.1	190T.030.1	**3.0**	3.0	10	40	2
190.040.1	190T.040.1	**4.0**	4.0	12	50	2
190.050.1	190T.050.1	**5.0**	5.0	15	50	2
190.060.1	190T.060.1	**6.0**	6.0	15	50	2
190.080.1	190T.080.1	**8.0**	8.0	20	60	2
190.100.1	190T.100.1	**10.0**	10.0	25	70	2
190.120.1	190T.120.1	**12.0**	12.0	25	75	2
190.140.1	190T.140.1	**14.0**	14.0	25	75	2
190.160.1	190T.160.1	**16.0**	16.0	30	75	2
190.200.1	190T.200.1	**20.0**	20.0	30	100	2





Punta a centrare in metallo duro integrale

Solid carbide center drill

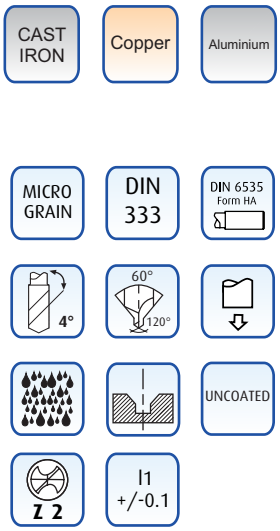
VHM - Zentrierbohrer - Foret carbure à centrer
Сверло центровочное твердосплавное - Sk nc centrovací vrták



CODE	d1h12 mm	d2h6 mm	l1* mm	L mm	Z no.
140.008	**0.8**	3.15	1.10	40	2
140.010	**1.0**	3.15	1.45	40	2
140.010.1	**1.0**	4.0	1.45	40	2
140.0125	**1.25**	3.15	1.75	40	2
140.015	**1.5**	5.0	2.10	40	2
140.016	**1.6**	4.0	2.10	40	2
140.016.1	**1.6**	5.0	2.10	40	2
140.020	**2.0**	5.0	2.70	40	2
140.020.1	**2.0**	6.0	2.70	45	2
140.020.2	**2.0**	6.3	2.70	45	2
140.025	**2.5**	6.3	3.35	45	2
140.025.1	**2.5**	8.0	3.35	50	2
140.030	**3.0**	8.0	4.15	50	2
140.030.1	**3.0**	10.0	4.15	56	2
140.0315	**3.15**	8.0	4.15	50	2
140.0315.1	**3.15**	10.0	4.15	56	2
140.040	**4.0**	10.0	5.30	56	2

→ Help 203







Al vento puoi rubare leggerezza e *movimento* per affidare ancora memoria e desideri.

To the wind you can steal lightness and *movement* to entrust memory and wishes.

Kruger Agostinelli

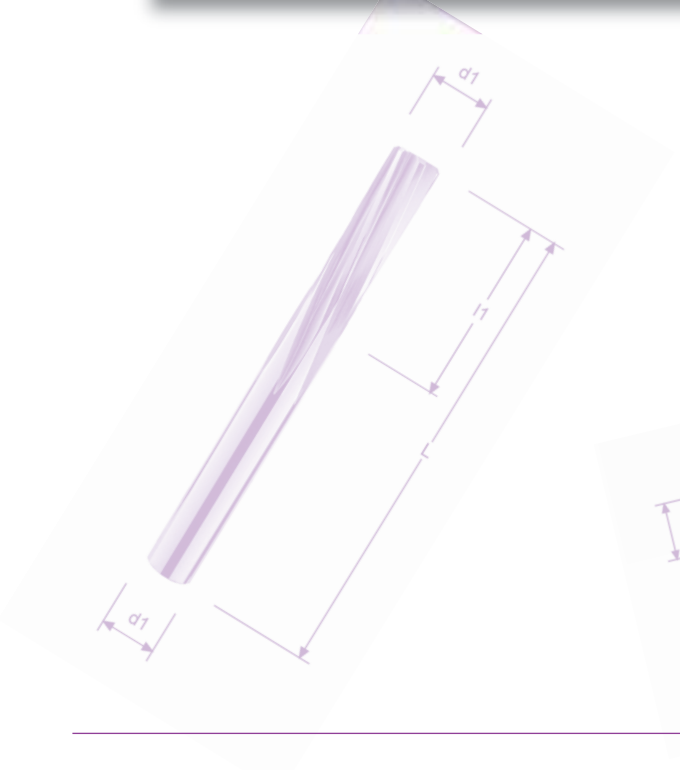
Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

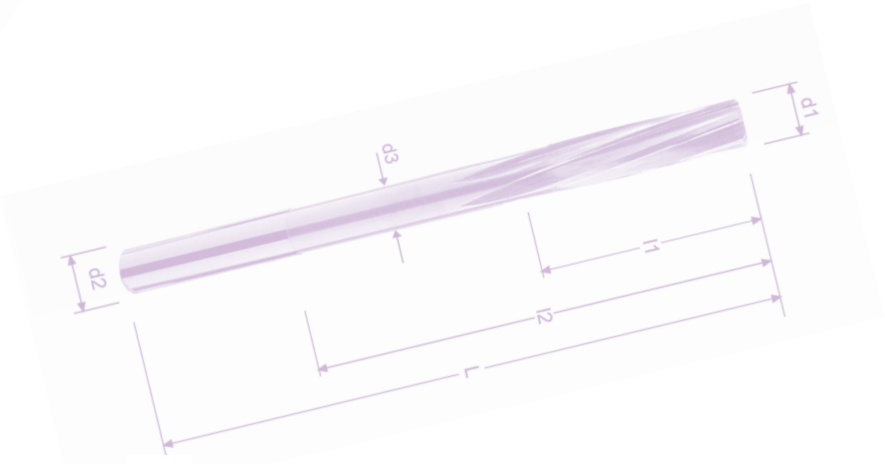
Alesatori
Reamers

Reibahlen
Alesoir
Развертки
Výstružníky









Alesatore a divisione irregolare in metallo duro integrale

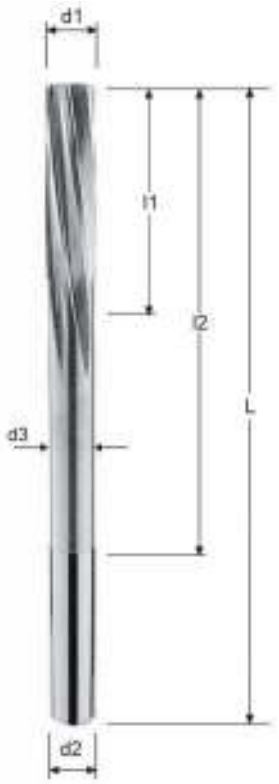
Solid carbide reamer with unequal division

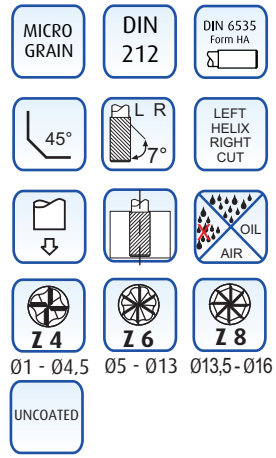
VHM - Reibähle ungleiche teilung - Alesoir à division irréguliére en carbure
Развертка твердосплавная - Sk výstružník s nerovnoměrnou šroubovicí



CODE	d1H7 mm	d2H7 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.
910.010	**1.0**	1.0	5	-	40	-	4
910.015	**1.5**	1.5	11	-	40	-	4
910.020	**2.0**	2.0	11	31	50	1.9	4
910.025	**2.5**	2.5	14	37	57	2.4	4
910.030	**3.0**	3.0	15	41	60	2.9	4
910.035	**3.5**	3.5	18	48	70	3.4	4
910.040	**4.0**	4.0	19	53	75	3.9	4
910.045	**4.5**	4.5	21	58	80	4.4	4
910.050	**5.0**	5.0	23	61	93	4.9	6
910.055	**5.5**	5.5	26	63	93	5.4	6
910.060	**6.0**	6.0	26	63	93	5.9	6
910.065	**6.5**	6.5	28	65	100	6.4	6
910.070	**7.0**	7.0	31	74	109	6.9	6
910.075	**7.5**	7.5	31	74	109	7.4	6
910.080	**8.0**	8.0	33	82	117	7.9	6
910.085	**8.5**	8.5	33	82	117	8.4	6
910.090	**9.0**	9.0	36	85	125	8.9	6
910.095	**9.5**	9.5	36	85	125	9.4	6
910.100	**10.0**	10.0	38	87	135	9.9	6
910.105	**10.5**	10.5	38	93	135	10.4	6
910.110	**11.0**	11.0	41	102	140	10.9	6
910.115	**11.5**	11.5	41	102	140	11.4	6
910.120	**12.0**	12.0	44	106	150	11.9	6
910.125	**12.5**	12.5	44	106	150	12.4	6
910.130	**13.0**	13.0	44	106	150	12.9	6
910.135	**13.5**	13.5	47	115	160	13.4	8
910.140	**14.0**	14.0	47	115	160	13.9	8
910.145	**14.5**	14.5	50	117	160	14.4	8
910.150	**15.0**	15.0	50	117	160	14.9	8
910.155	**15.5**	15.5	50	120	160	15.4	8
910.160	**16.0**	16.0	50	120	160	15.9	8

→ Help 193

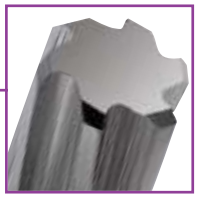




Alesatore a divisione irregolare in metallo duro integrale

Solid carbide reamer with unequal division

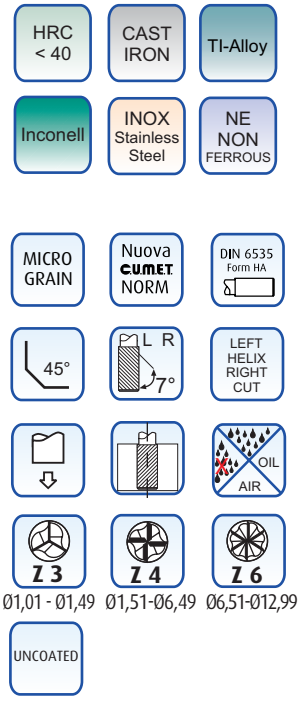
VHM - Reibähle ungleiche teilung - Alesoir à division irréguliére en carbure
Развертка твердосплавная - Sk výstružník s nerovnoměrnou šroubovicí



CODE	FROM d1H7 mm	TO d1H7 mm	l1 mm	L mm	Z no.
	1.01	1.29	9	40	3
	1.30	1.49	10	40	3
	1.51	1.99	13	40	4
	2.01	2.49	13	40	4
	2.51	2.99	16	60	4
	3.01	3.49	19	60	4
	3.51	3.99	19	60	4
	4.01	4.49	19	60	4
	4.51	4.99	22	70	4
	5.01	5.49	22	70	4
	5.51	5.99	25	75	4
	6.01	6.49	25	75	4
910T...	**6.51**	6.99	25	75	6
	7.01	7.49	25	75	6
	7.51	7.99	28	75	6
	8.01	8.49	28	75	6
	8.51	8.99	35	100	6
	9.01	9.49	35	100	6
	9.51	9.99	35	100	6
	10.01	10.49	35	100	6
	10.51	10.99	35	100	6
	11.01	11.49	35	100	6
	11.51	11.99	35	100	6
	12.01	12.49	35	100	6
	12.51	12.99	35	100	6

→ Help 193

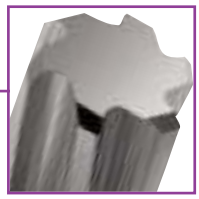




Alesatore a divisione irregolare in metallo duro integrale

Solid carbide reamer with unequal division

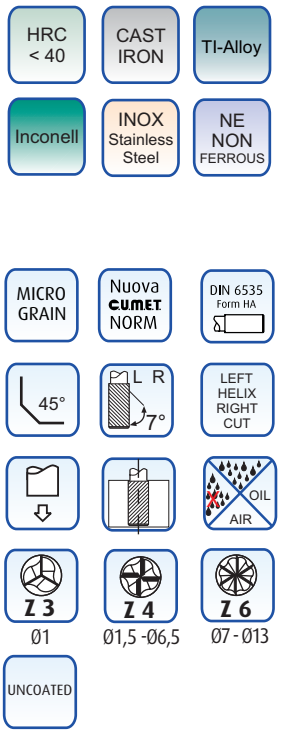
VHM - Reibähle ungleiche teilung - Alesoir à division irréguliére en carbure
Развертка твердосплавная - Sk výstružník s nerovnoměrnou šroubovicí



CODE	d1H7 mm	d2H7 mm	l1 mm	L mm	Z no.
900T.010	**1.0**	1.0	9	40	3
900T.015	**1.5**	1.5	10	40	4
900T.020	**2.0**	2.0	13	50	4
900T.025	**2.5**	2.5	13	50	4
900T.030	**3.0**	3.0	16	60	4
900T.035	**3.5**	3.5	19	60	4
900T.040	**4.0**	4.0	19	60	4
900T.045	**4.5**	4.5	22	70	4
900T.050	**5.0**	5.0	25	70	4
900T.055	**5.5**	5.5	25	75	4
900T.060	**6.0**	6.0	25	75	4
900T.065	**6.5**	6.5	25	75	4
900T.070	**7.0**	7.0	25	75	6
900T.075	**7.5**	7.5	25	75	6
900T.080	**8.0**	8.0	28	75	6
900T.085	**8.5**	8.5	28	75	6
900T.090	**9.0**	9.0	35	100	6
900T.095	**9.5**	9.5	35	100	6
900T.100	**10.0**	10.0	35	100	6
900T.105	**10.5**	10.5	35	100	6
900T.110	**11.0**	11.0	35	100	6
900T.115	**11.5**	11.5	35	100	6
900T.120	**12.0**	12.0	35	100	6
900T.125	**12.5**	12.5	35	100	6
900T.130	**13.0**	13.0	35	100	6

→ Help 193







V'infastidiscono il rumore, il *movimento*? La nostra epoca vi fa star male?
Provate a diventare rumore, *movimento*, e tutto, attorno a voi, apparirà calmo.

You annoy the noise, the *movement*? Our age makes you feel bad?
Try to become noise, *movement*,
and everything around you appears calm.

Paul Morand

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Lime rotative
Rotary files

Rotierfräser
Fraises limes rotatives
Бор-фрезы
Technické rotační frézy



Scelta della dentatura

Choice of the cut

Verzahnungen - Choise de la denture
Тип резк



01



Dentatura speciale per leghe leggere: RAME - ALLUMINIO - BRONZO

Special toothing for light alloy: COPPER - BRONZE - ALUMINIUM

Spezielle Verzahnung für Leichtmetallgierungen: KUPFER - BRONZE - ALUMINIUM

Denture spéciale pour alliages légers: CUIVRE - BRONZE - ALUMINIUM

Для легких сплавов: меди, бронзы, алюминия

Speciální ostří pro měkké slitiny: MĚĎ, BRONZ, HLINÍK

03



Dentatura standard per una buona finitura su: ACCIAIO FUSO - ACCIAIO TEMPERATO - GHISA

Standard toothing, giving a good finishing on: STAINLESS STEEL - HARDNED STEEL - CAST IRON

Standardverzahnung fur eine gute Oberfläche bei Gubstahl - Gubeisen Gehärteten Stahl und Allgemeinen Einsatz

Denture normale qui donne un bon finissage sur:ACIER FONDU - ACIER TEMPRE' - FONTE

Стандартная заточка: для нержавеющей стали, закаленной стали, чугуна

Standartní ostří pro dobré dokončení na: NEREZ, KALENÁ OCEL, LITINA

04



Dentatura diamante per elevato rendimento sia in sgrossatura che in finitura su: ACCIAI MOLTO DURI, CORDONI DI SALDATURA - GHISA. Inoltre questo particolare taglio, polverizza il truciolo, evitando danni all'operatore

Diamond cut giving an extra effeiciency both in roughing and in finishing, on very hard stell,weld sems and cast iron. More over this particularly cut crumbles the chips, thus avoiding damages to the operator

Diamantverzahnung für eine gesteigerte Zerspanung aus dem vollen und zur Nacharbeit unter anderem für Sohweissnähte, gehärteten und verguteten Stahl und Guss

Denture diamant qui donne un très bon rendement soit en dégroissage soit en fissage sur: ACIERS TRES DUR-CORDONS SOUDURES - MOULAGE DE FONTE. En outre, ce type particulier de taille donne des copeaux très court, en évitant des dommages à l'operateur

Алмазная заточка эффективна при черновой и чистовой обработке высокопрочных сталей, сварочных швов и чугуна. Алмазная заточка образует порошкообразную стружку и обеспечивает безопасность работы оператора

Diamantové ostří uvádí větší účinnost v hrubování i dokončovacích operacích pro velmi tvrdé materiály, návary a litinu. Tento utvařeč dělí materiál na velmi jemné špony, čímž se zabrání ucpání v řezu

05



Dentatura rompitruciolo per Acciai non temperati, colati, acciai dolci, saldature

Chip breaker cutting for: Unhardened stell, cast steel, weld seams

Spanbrecherverzahnung für ungehärtete Stähle und Stahlguss Schweissnähte

Denture brise-copeaux pour aciers non temprés, améliorés et coulés, cordons de soudures

Заточка для обработки незакаленной стали, сталей, сварных швов

Utvařeč pro: nekalené oceli, ocelolitiny a sváry

06



Dentatura universale alternata per materiali duri e teneri

Alternate, universal cutting, soft and hard material

Universelle Wechselzahnung, für weiche und harte Materialien

Denture alternée, universelle, pour matériaux durs et tendres

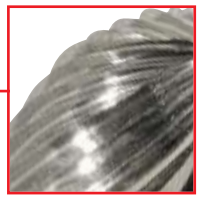
Двойная универсальная заточка для твердых и мягких материалов

Universální alternativa pro měkké i tvrdé materiály

Lima rotativa “micro” in metallo duro integrale, gambo Ø 3 mm

Solid carbide “micro” rotary file, shank Ø 3 mm

VHM - “Micro” Rotierfräser, Schaft Ø 3 mm - Limes carbure “micro”, queue Ø 3 mm
Мини бор-фрезы твердосплавные хвостовик Ø 3 mm
Sk mikro rotační technická fréza se stopkou Ø 3 mm



CODE	d1 mm	l1 mm	L mm
AM010003	1.0	4	38
AM015003	1.5	4	38
AM020003	2.0	4	38



CODE	d1 mm	l1 mm	L mm
CM010003	1.0	4	38
CM015003	1.5	4	38
CM020003	2.0	4	38



CODE	d1 mm	l1 mm	L mm
DM010003	1.0	1.0	38
DM015003	1.5	1.5	38
DM020003	2.0	2.0	38



CODE	d1 mm	l1 mm	L mm
EM015003	1.5	4	38



CODE	d1 mm	l1 mm	L mm
FM015003	1.5	4	38

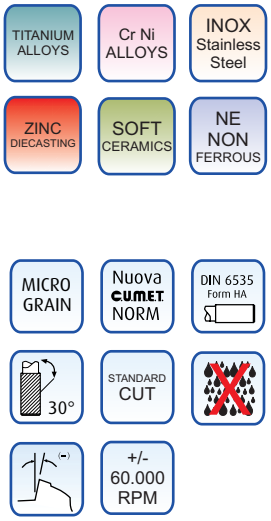


CODE	d1 mm	l1 mm	L mm
GM015003	1.5	4	38



CODE	d1 mm	l1 mm	L mm
MM015003	1.5	4	38

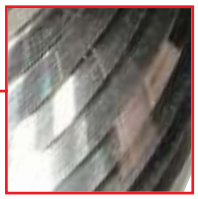


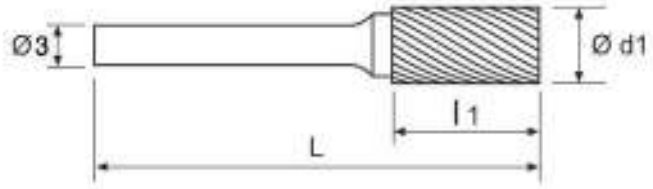


Lima rotativa in miniatura in metallo duro integrale gambo 3 mm

Solid carbide miniature rotary file shank Ø 3 mm

VHM - mini Rotierfräser Schaft Ø 3 mm - Limes rotatives en miniature en carbure monobloc queue Ø 3 mm
Мини бор-фрезы твердосплавные хвостовик Ø 3 mm
Sk mini rotační technická fréza se stopkou Ø 3 mm





SHAPE	CODE	USA STYLE	d1 mm	l1 mm	L mm
	A0150	SA-41M	**1.5**	6	38
	A0200 A0250	SA-42M -	**2.0** **2.5**	12 12	38 38
	A0300	SA-43M	**3.0**	14	38
	B0150	SB-41M	**1.5**	6	38
	B0200 B0250	- SB-42M	**2.0** **2.5**	12 12	38 38
	B0300	SB-43M	**3.0**	14	38
	C0200 C0250	- SC-41M	**2.0** **2.5**	12 12	38 38
	C0300	SC-42M	**3.0**	14	38
	D0150	-	**1.5**	1.3	38
	D0200	-	**2.0**	1.7	38
	D0250 D0300	SD-41M SD-42M	**2.5** **3.0**	2.3 2.6	38 38

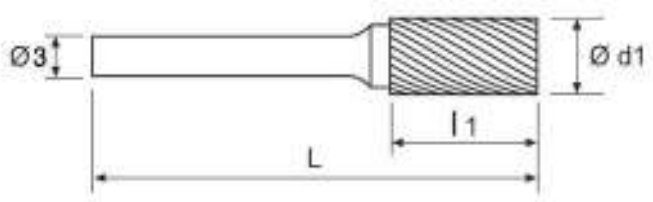
SHAPE	CODE	USA STYLE	d1 mm	l1 mm	L mm
	E0300	SE-41M	**3**	6	38
	F0300	SF-42M	**3**	14	38
	G0300	SG-44M	**3**	12.7	38
	H0300	SH-41M	**3**	6,3	38
	L0300	SL-42M	**3**	12.7	38
	M0310	SM-42M	**3**	10	38
	M0315	SM-43M	**3**	15	38
	M0318	-	**3**	18	38
	N0300	SN-42M	**3**	3	38
	J0300	SJ-42M	**3**	60°	38
	K0300	SK-42M	**3**	90°	38

Lima rotativa in metallo duro integrale gambo in acciaio Ø 3 mm

Solid carbide rotary file steel shank Ø 3 mm

VHM - Rotierfräser Stahl shaft Ø 3 mm - Limes rotatives en carbure monobloc queue en acier Ø 3 mm
Бор-фрезы твердосплавные хвостовик Ø 3 mm
sk rotační technická fréza s ocelovou stopkou Ø 3 mm



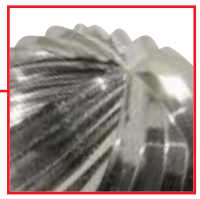


SHAPE	CODE	USA STYLE	d1 mm	l1 mm	L mm
	AS1040	SA-52M	**4**	12.0	50
	AS1050	SA-53M	**5**	12.0	50
	AS1060	SA-51M	**6**	12.7	50
	BS2040	-	**4**	12.0	50
	BS2050	-	**5**	12.0	50
	BS2060	-	**6**	12.7	50
	CS3040	SC-52M	**4**	12.0	50
	CS3050	SC-53M	**5**	12.0	50
	CS3060	SC-51M	**6**	12.0	50
	DS4040	SD-52M	**4**	3.4	50
	DS4050	SD-53M	**5**	4.7	50
	DS4060	SD-51M	**6**	5.0	44
	ES5050	SE-53M	**5**	7.1	50
	ES5060	SE-51M	**6**	9.5	47
	FS6050	SF-53M	**5**	12.0	50
	FS6060	SF-51M	**6**	12.0	50
	GS7050	SG-53M	**5**	12.0	50
	GS7060	SG-51M	**6**	12.0	50
	LS9050	SL-53M	**5**	12.0	50
	LS9060	-	**6**	15.0	47
	MS8050	SM-53M	**5**	12.0	50
	MS8060	SM-51M	**6**	12.0	54
	NS1150	SN-53M	**5**	6.3	50
	NS1160	SN-51M	**6**	6.0	44

Lima rotativa in metallo duro integrale gambo Ø 6 mm

Solid carbide rotary file shank Ø 6 mm

VHM - Rotierfräser Schaft Ø 6 mm - Limes rotatives en carbure monobloc queue Ø 6 mm
Бор-фрезы твердосплавные хвостовик Ø 6 mm - Sk rotační technická fréza stopka Ø 6 mm



Forma cilindrica - Cylinder shape - Zylinder Form - Forme cylindrique
Цилиндрическая форма - Válcový tvar

CODE	USA STYLE	d1 mm	l1 mm	L mm
A0312	SA-12M	**3**	12.7	50
A0412	SA-13M	**4**	16	50
A0516	SA-14M	**5**	16	50
A0616	SA-1M	**6**	16	50
A0612L	SA-1ML6	**6**	16	162
A0820	SA-2M	**8**	20	64
A1020	SA-3M	**10**	20	64
A1020L	SA-3ML6	**10**	20	169
A1125	SA-4M	**11**	25	70
A1225	SA-5M	**12**	25	70
A1225L	SA-5ML6	**12**	25	175
A1625	SA-6M	**16**	25	70
A2025	SA-7M	**20**	25	70
A2525	SA-9M	**25**	25	70



Forma cilindrica con taglio in testa - Cylinder shape end cut - Zylinder Form - Forme cylindrique
Цилиндрическая форма - Válcový tvar konce

CODE	USA STYLE	d1 mm	l1 mm	L mm
B0312	SB-12M	**3**	12.7	50
B0412	SB-13M	**4**	16	50
B0516	SB-14M	**5**	16	50
B0616	SB-1M	**6**	16	50
B0616L	SB-1ML6	**6**	16	162
B0820	SB-2M	**8**	20	64
B1020	SB-3M	**10**	20	64
B1125	SB-4M	**11**	25	70
B1225	SB-5M	**12**	25	70
B1625	SB-6M	**16**	25	70
B2025	SB-7M	**20**	25	70
B2525	SB-9M	**25**	25	70



Cilindro sferica - Cylinder with radius end - Kugelzylinder - Forme cylindrique bout arrondi
Цилиндрическаяформасрадиуснымторцом - Válcový tvar s rádiusovým zakončením

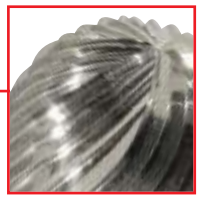
CODE	USA STYLE	d1 mm	l1 mm	L mm
C0312	SC-12M	**3**	16	50
C0412	SC-13M	**4**	16	50
C0516	SC-14M	**5**	16	50
C0616	SC-1M	**6**	16	50
C0612L	SC-1ML6	**6**	16	162
C0820	SC-2M	**8**	20	64
C1020	SC-3M	**10**	20	64
C1020L	SC-3ML6	**10**	20	169
C1125	SC-4M	**11**	25	70
C1225	SC-5M	**12**	25	70
C1225L	SC-5ML6	**12**	25	175
C1625	SC-6M	**16**	25	70
C2025	SC-7M	**20**	25	70
C2525	SC-9M	**25**	25	70



Lima rotativa in metallo duro integrale gambo Ø 6 mm

Solid carbide rotary file shank Ø 6 mm

VHM - Rotierfräser Schaft Ø 6 mm - Limes rotatives en carbure monobloc queue Ø 6 mm
Бор-фрезы твердосплавные хвостовик Ø 6 mm- Sk rotační technická fréza se stopkou Ø 6 mm



Forma sferica - Ball shape - Kugel Form - Forme ronde
Сферическая форма - Kulový tvar

CODE	USA STYLE	d1 mm	l1 mm	L mm
D0303	SD-11M	**3**	2.5	50
D0404	-	**4**	3.4	50
D0505	SD-14M	**5**	4.0	50
D0606	SD-1M	**6**	5.0	50
D0606L	SD-1ML6	**6**	5.0	155
D0808	SD- 2M	**8**	7.0	51
D1010	SD-3M	**10**	8.0	53
D1010L	SD-3ML6	**10**	8.0	158
D1111	SD-4M	**11**	9.5	54
D1212	SD-5M	**12**	11.0	56
D1212L	SD-5ML6	**12**	11.0	161
D1616	SD-6M	**16**	14.0	60
D2020	SD-7M	**20**	16.0	60
D2525	SD-9M	**25**	21.0	66



Forma ovale - Oval shape - Tropfen Form - Forme ovale
Овальная форма - Oválný tvar

CODE	USA STYLE	d1 mm	l1 mm	L mm
E0610	SE-1M	**6**	10	50
E0610L	SE-1ML 6	**6**	10	160
E0813	-	**8**	13	58
E1016	SE-3M	**10**	16	60
E1016L	SE-3ML6	**10**	16	166
E1222	SE-5M	**12**	22	66
E1222L	SE-5ML6	**12**	22	172
E1625	SE-6M	**16**	25	70
E2025	SE-7M	**20**	25	70



Forma ogiva punta arrotondata - Tree shape radius end - Rundkegelform - Forme ogive bout arrondi
Конусная форма с полусферическим торцом - Konstrukční rádiusový tvar

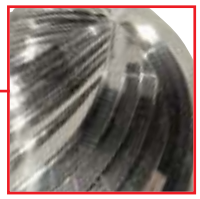
CODE	USA STYLE	d1 mm	l1 mm	L mm
F0312	SF-11M	**3**	12	56
F0616	SF-1M	**6**	16	50
F0616L	SF-1ML6	**6**	16	163
F0820	-	**8**	20	65
F1020	SF-3M	**10**	20	65
F1020L	SF-3ML6	**10**	20	169
F1125	SF-4M	**11**	25	70
F1225	SF-5M	**12**	25	70
F1225L	SF-5ML6	**12**	25	175
F1625	SF-6M	**16**	25	70
F2025	SF-7M	**20**	25	70



Lima rotativa in metallo duro integrale gambo Ø 6 mm

Solid carbide rotary file shank Ø 6 mm

VHM - Rotierfräser Schaft Ø 6 mm - Limes rotatives en carbure monobloc queue Ø 6 mm
Бор-фрезы твердосплавные хвостовик Ø 6 mm - Sk rotační technická frézy se stopkou Ø 6 mm



Forma ogiva a punta - Tree shape pointed end - Spitzbogen - Forme ogive bout pointed
Конусная форма с острым торцом - Špičatý tvar

CODE	USA STYLE	d1 mm	l1 mm	L mm
G0616	SG-1M	**6**	16	50
G0616L	SG-1ML6	**6**	16	163
G0820	SG-2M	**8**	20	65
G1020	SG-3M	**10**	20	65
G1020L	SG-3ML6	**10**	20	163
G1219	SG-13M	**12**	19	65
G1225	SG-5M	**12**	25	70
G1225L	SG-5ML6	**12**	25	175
G1625	SG-6M	**16**	25	70
G2025	SG-7M	**20**	25	70



Forma a fiamma - Flame shape - Flammen Form - Forme flamme
Свечеобразная форма - Oválný tvar plamen

CODE	USA STYLE	d1 mm	l1 mm	L mm
H0820	SH-2M	**8**	19	63
H0820L	SH-2ML6	**8**	19	169
H1232	SH-5M	**12**	32	77
H1232L	SH-5ML6	**12**	32	182
H1632	SH-6M	**16**	36	80
H2041	SH-7M	**20**	41	85
H06120		**6**	12	50



Forma conica 90° - 90° cone shape - 90° spitzkegel Form - Forme conique 90°
Коническая форма с углом90° - Kuželový tvar 90°

CODE	USA STYLE	d1 mm	l1 mm	L mm
K0603	SK-1M	**6**	3	50
K0804	-	**8**	4	51
K1005	SK-3M	**10**	5	52
K1206	SK-5M	**12**	6	53
K1608	SK-6M	**16**	8	57
K2010	SK-7M	**20**	10	58
K2513	SK-9M	**25**	13	60



Lima rotativa in metallo duro integrale gambo Ø 6 mm

Solid carbide rotary file shank Ø 6 mm



VHM - Rotierfräser Schaft Ø 6 mm - Limes rotatives en carbure monobloc queue Ø 6 mm
Бор-фрезы твердосплавные хвостовик Ø 6 mm - Sk rotační technická fréza se stopkou Ø 6 mm

Forma conica 60° - 60° cone shape - 60° spitzkegel Form - Forme conique 60°
Коническая форма с углом 60° - Kuželový tvar 60°

CODE	USA STYLE	d1 mm	l1 mm	L mm
J0605	SJ-1M	**6**	5	50
J1006	SJ-3M	**10**	9	55
J1211	SJ-5M	**12**	11	58
J1612	SJ-6M	**16**	14.5	61
J2016	SJ-7M	**20**	16	65
J2519	SJ-9M	**25**	24.5	68



Forma conica con punta arrotondata (14°) - 14° taper radius end - 14° rundkegel Form - Forme conique bout arrondi (14°)
Коническая форма с радиусом 14° - Kuželový tvar s rádiusem na konci 14°

CODE	USA STYLE	d1 mm	l1 mm	L mm
L0616	SL-1M	**6**	16	50
L0616L	SL-1ML6	**6**	16	166
L0822	SL-2M	**8**	22	67
L1027	SL-3M	**10**	27	72
L1027L	SL-3ML6	**10**	27	177
L1230	SL-4M	**12**	30	73
L1230L	SL-4ML6	**12**	30	178
L1633	SL-5M	**16**	33	75
L2040	SL-7M	**20**	40	83



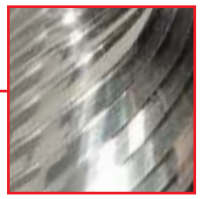
Forma conica - Cone shape - Spitzkegel Form - Forme conique
Коническая форма - Kuželový tvar

CODE	USA STYLE	d1 mm	l1 mm	L mm
M0612	SM-1M	**6**	12	50
M0615	-	**6**	15	50
M0619	SM-2M	**6**	19	50
M0625	SM-3M	**6**	25	50
M1016	SM-4M	**10**	16	61
M1225	SM-5M	**12**	25	67
M1625	SM-6M	**16**	25	70



Lima rotativa in metallo duro integrale gambo Ø 6 mm

Solid carbide rotary file shank Ø 6 mm



VHM - Rotierfräser Schaft Ø 6 mm - Limes rotatives en carbure monobloc queue Ø 6 mm
Бор-фрезы твердосплавные хвостовик Ø 6 mm - Sk rotační technická fréza se stopkou Ø 6 mm

Forma cono rovescio - Inverted cone shape - Winkel Form - Forme conique renversee
Развернутая конусная форма - Tvar opačného kužele

CODE	USA STYLE	d1 mm	l1 mm	L mm
N0606	SN-1M	**6**	8	50
N1010	SN-2M	**10**	10	53
N1212	SN-4M	**12**	12	57
N1616	SN-6M	**16**	19	63
N2020	SN-7M	**20**	16	60



Assortimento di n° 20 lime rotative gambo ø 3 mm

Set of n° 20 rotary files shank ø 3 mm



Ausstellregale mit n° 20 Rotierfräser Shaft Ø 3 mm - Jeux avec n° 20 limes rotatives queue Ø 3 mm
Набор бор-фрез в количестве 20 шт., хвостовик Ø 3 mm - Sada 20ks technických fréz stopka Ø 3 mm

CODE Standard cut 03

XMD203-3

CODE Double cut 06

XMD203-6

CODE Diamond cut 04

XMD203-4



Set completo di n°6 lime rotative gambo Ø 6 mm

Set of n°6 rotary files shank Ø 6 mm

Set mit n°6 Rotierfräser Shaft ø 6 mm - Set avec 6 limes rotatives queue Ø 6 mm
Набор бор-фрез в количестве 6 шт., хвостовик Ø 6 mm - Sada 6ks technických fréz stopka Ø 6 mm



CODE
XMD206.3 CUT 3 - Standard cut 03
XMD206.4 CUT 4 - Diamond cut 04
XMD206.6 CUT 6 - Double cut 06



Composto da
Composed of

B10200	C10200	D10100
E10160	F10200	G10200

Smerigliatrice pneumatica 58.000 giri

Pneumatic grinder machine 58.000 rpm

Pneumatik Schleifmaschine 58.000 rpm - Pneumatique machine à roder 58.000 tours
ПНЕВМАТИЧЕСКАЯ ШЛИФОВАЛЬНАЯ МАШИНКА 58.000 об/мин - Vzduchová bruska 58000 otáček/min

CODE

PV10-54



Pinza sostituibile - Chuck is replaceable - Со сменной державкой

Smerigliatrice pneumatica 60.000 giri

Pneumatic grinder machine 60.000 rpm

Pneumatik Schleifmaschine 60.000 rpm - Pneumatique machine à roder 60.000 tours
ПНЕВМАТИЧЕСКАЯ ШЛИФОВАЛЬНАЯ МАШИНКА 60.000 об/мин - Vzduchová bruska 60000 otáček/min

CODE

GP-260



Pinza fissa - Chuck is fixed - С фиксированной державкой

Smerigliatrice pneumatica 80.000 giri

Pneumatic grinder machine 80.000 rpm

Pneumatik Schleifmaschine 80.000 rpm - Pneumatique machine à roder 80.000 tours
ПНЕВМАТИЧЕСКАЯ ШЛИФОВАЛЬНАЯ МАШИНКА 80.000 об/мин - Vzduchová bruska 80000 otáček/min

CODE

GP-380

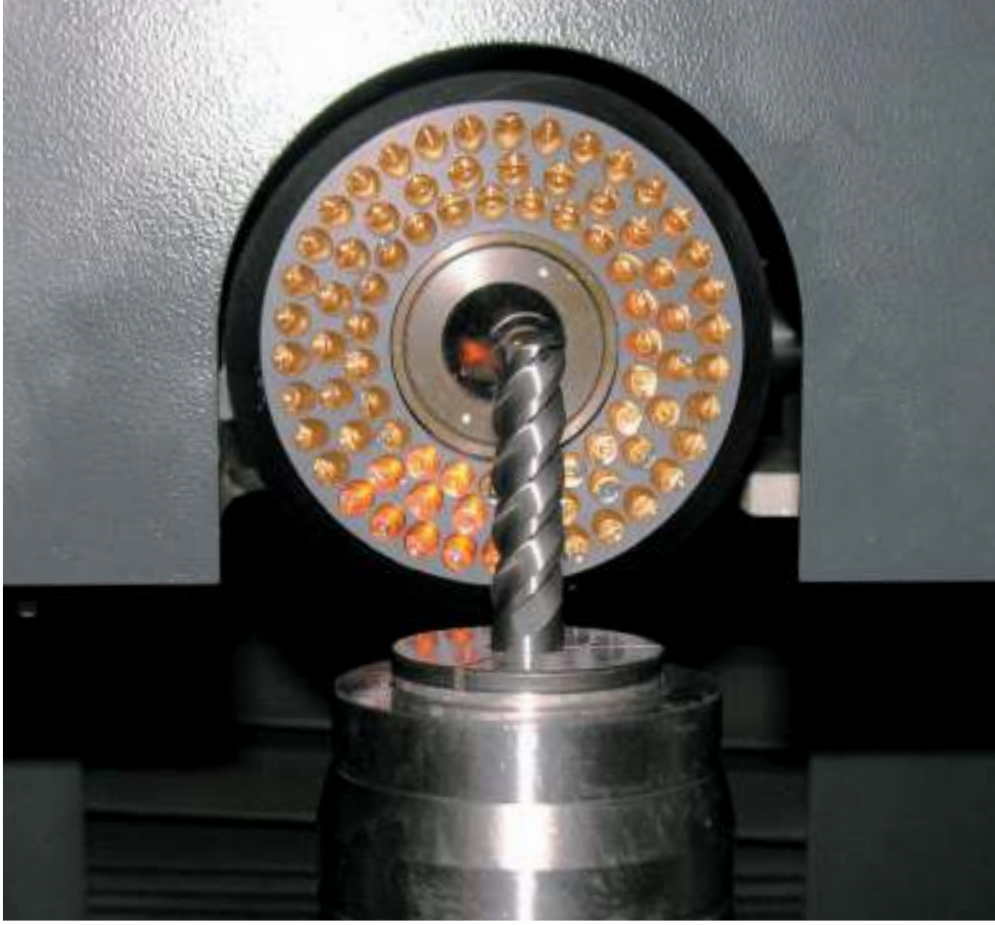


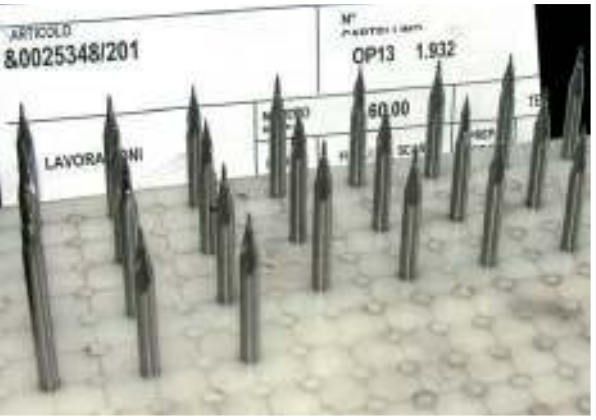
Pinza sostituibile - Chuck is replaceable - Со сменной державкой - Vyměnitelné sklíčidlo

Dati tecnici - Specification - Specifikace

CODE	Free speed 90 Psi (rpm)	Air consumption	Air pressure recommend	Ø Hose (ID) (mm)	Dimensions Ø D x L (mm)	Weight (g)	Chuck Ø (mm)
PV10-54	58.000	170LT/1′	6.2 BAR	6.35	16.0X137	140	2.35 - 3.0
GP-260	60.000	170LT/1′	6.2 BAR	6.35	17.5X142	160	3.0
GP-380	80.000	170LT/1′	6.2 BAR	6.35	17.5X142	180	2.35 - 3 - 3.17






ARTICOLO
&0025348/201
OP13 1.932
60.00


HELITRONIC


ZOLLER





Se un pesce è la personificazione, l'essenza stessa del *movimento* dell'acqua, allora il gatto è diagramma e modello della leggerezza dell'aria.

If a fish is the *movement* of water embodied, given shape,
then cat is a diagram and pattern of subtle air.

Doris Lessing

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Seghe circolari
Slitting Saws

Kreissagen
Scies circulaires
Фрезы отрезные
Prořezávací pilky





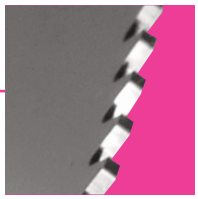


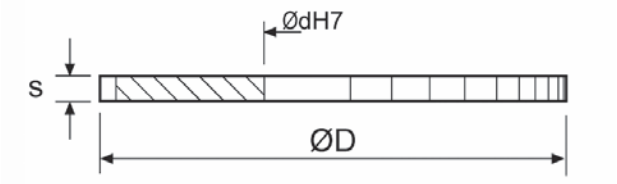


Sega circolare in metallo duro integrale

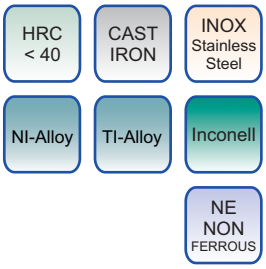
Solid carbide slitting saw

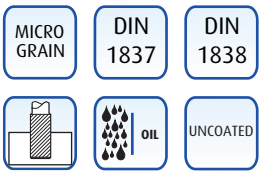
VHM - Kreissägeblätter - Fraise carbure scie
Фрезы отрезные твердосплавные- Sk prořezávací pilky





CODE	Dxd						
SC-SCF S+0,01mm	15x5 Z no.	20x5 Z no.	25x8 Z no.	30x8 Z no.	40x10 Z no.	50x13 Z no.	63x16 Z no.
0.10	-/64	-/80	-/80	-/100	-/128	-/-	-
0.15	-/64	-/80	-/80	-/100	-/128	-/-	-
0.20	20/64	20/80	20/80	30/100	40/128	-/128	-/160
0.25	20/64	20/64	20/80	30/100	40/100	-/128	-/128
0.30	20/64	20/64	20/80	30/80	40/100	-/128	-/128
0.35	-/64	-/64	-/64	-/80	-/100	-/100	-/128
0.40	20/64	20/64	20/64	30/80	40/100	48/100	64/128
0.50	20/48	20/48	20/64	30/80	40/80	48/100	64/128
0.60	20/48	20/48	20/64	30/64	40/80	48/100	48/100
0.70	20/48	20/48	20/48	30/64	40/80	40/80	48/100
0.80	20/40	20/40	20/48	24/64	32/80	40/80	48/100
0.90	20/40	20/40	20/48	24/64	32/64	40/80	48/100
1.00	20/40	20/40	20/48	24/64	32/64	40/80	48/100
1.10	-/40	-/40	-/48	-/48	-/64	-/80	-/80
1.20	20/40	20/40	20/48	24/48	32/64	40/80	40/80
1.30	-/40	-/40	-/40	-/48	-/64	-/64	-/80
1.40	-/40	-/40	-/40	-/48	-/64	-/64	-/80
1.50	20/40	20/40	20/40	24/48	32/64	32/64	40/80
1.60	20/40	20/40	20/40	24/48	32/64	32/64	40/80
1.70	-/40	-/32	-/40	-/48	-/48	-/64	-/80
1.80	20/40	20/32	20/40	24/48	24/64	32/64	40/80
1.90	-/40	-/32	-/40	-/48	-/48	-/64	-/80
2.00	20/40	20/32	20/40	24/48	24/48	32/64	40/80
2.50	20/40	20/32	20/40	24/40	24/48	32/64	32/64
3.00	20/40	20/32	20/32	24/40	24/48	24/48	32/64
3.50	-/24	-/24	-/32	-/40	-/40	-/48	-/64
4.00	20/24	20/24	20/32	24/40	20/40	24/48	32/64
5.00	20/24	20/24	20/32	24/32	20/40	24/48	24/48
6.00	20/24	20/24	20/24	24/32	20/40	20/40	24/48





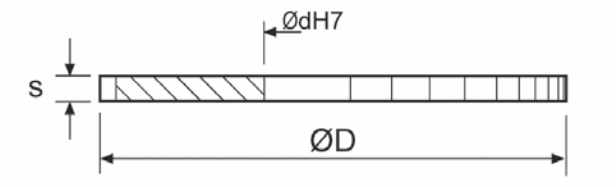
SC = DIN 1838 taglio grosso / coarse cut
SCF = DIN 1837 taglio fine / fine cut

Sega circolare in metallo duro integrale

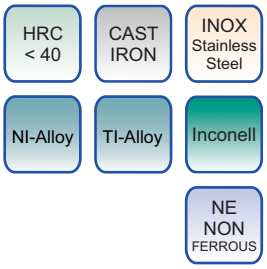
Solid carbide slitting saw

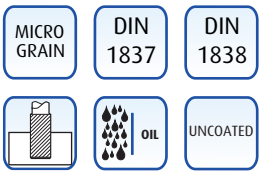
VHM - Kreissägeblätter - Fraise carbure scie
Фрезы отрезные твердосплавные - Sk prořezávací pilky





CODE	Dxd			
SC - SCF S+0,01mm	80x22 Z no.	100x22 Z no.	125x22 Z no.	160x32 Z no.
0.10	-	-	-	-
0.15	-	-	-	-
0.20	-	-	-	-
0.25	-	-	-	-
0.30	-/160	-	-	-
0.35	-/160	-	-	-
0.40	-/160	-	-	-
0.50	-/128	-/160	-	-
0.60	64/128	80/160	-/160	-
0.70	64/128	64/128	-/160	-
0.80	64/128	64/128	80/160	-
0.90	48/100	64/128	80/160	-
1.00	48/100	64/128	80/160	80/160
1.10	-/100	-/128	-/128	-
1.20	48/100	64/128	64/128	80/160
1.30	-/100	-/100	-/128	-
1.40	-/100	-/100	-/128	-
1.50	48/100	48/100	64/128	80/160
1.60	48/100	48/100	64/128	-/160
1.70	-/80	-/100	-/128	-
1.80	40/80	48/100	64/128	-/128
1.90	-/80	-/100	-/128	-
2.00	40/80	48/100	64/128	80/128
2.50	40/80	48/100	48/100	80/128
3.00	40/80	40/80	48/100	64/128
3.50	-/64	-/80	-/100	-
4.00	32/64	40/80	48/100	-/100
5.00	32/64	40/80	40/100	-
6.00	32/64	32/64	40/100	-





SC = DIN 1838 taglio grosso / coarse cut
SCF = DIN 1837 taglio fine / fine cut



L'ansia è come una sedia a dondolo:
Sei sempre in *movimento*, ma non avanzi di un passo.

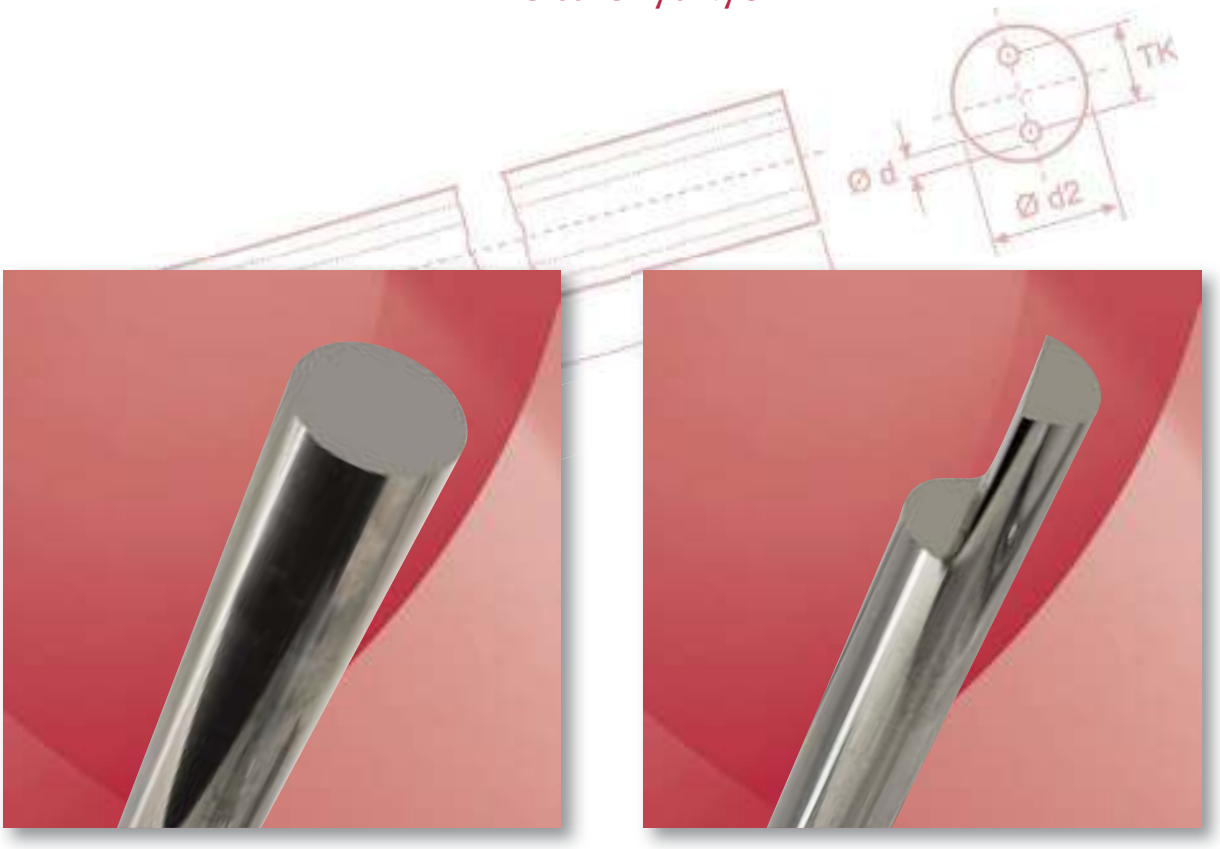
Anxiety's like a rocking chair.
It gives you something to do, but it doesn't get you very far.

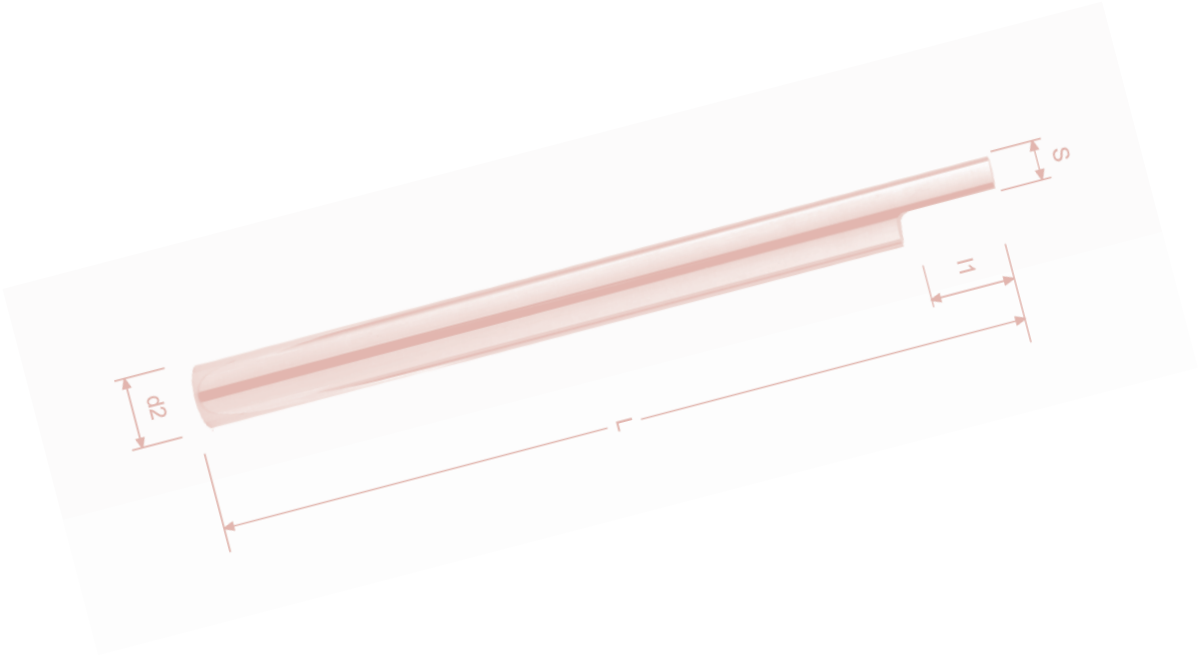
Jodi Picoult

Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

Cilindretti e bulini
Cylindrical rods-engriving tools

Rundstässe - Gravierstichel
Bareaux / Rond - Fraises à graver
Стержни твердосплавные, гравировальный инструмент
Válcová rycí tyč

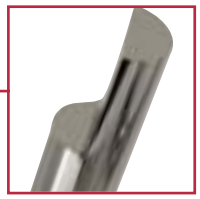




Bulino in metallo duro integrale

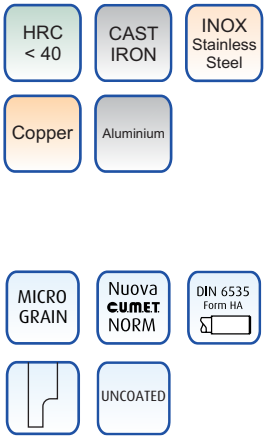
Solid carbide engriving tool

VHM - Gravierstichel - Fraise carbure à graver
Гравировальный инструмент твердосплавный - Sk polotovar roubík



CODE	d2h6 mm	l1 mm	L mm	$S^{+0}_{+0,5}$ mm
VBE020040	**2**	3.0	40	1
VBE020100	**2**	3.0	100	1
VBE030050	**3**	4.5	50	1.5
VBE030100	**3**	4.5	100	1.5
VBE040060	**4**	6.0	60	2
VBE040100	**4**	6.0	100	2
VBE050060	**5**	7.5	60	2.5
VBE050100	**5**	7.5	100	2.5
VBE060070	**6**	9.0	70	3
VBE060100	**6**	9.0	100	3
VBE060150	**6**	9.0	150	3
VBE080100	**8**	12.0	100	4
VBE080150	**8**	12.0	150	4
VBE100080	**10**	15.0	80	5
VBE100100	**10**	15.0	100	5
VBE100150	**10**	15.0	150	5
VBE120100	**12**	18.0	100	6
VBE120150	**12**	18.0	150	6
VBE140085	**14**	21.0	85	7
VBE140100	**14**	21.0	100	7
VBE140150	**14**	21.0	150	7
VBE140200	**14**	21.0	200	7
VBE160100	**16**	24.0	100	8
VBE160150	**16**	24.0	150	8
VBE160200	**16**	24.0	200	8
VBE180100	**18**	27.0	100	9
VBE180150	**18**	27.0	150	9
VBE180200	**18**	27.0	200	9
VBE200100	**20**	30.0	100	10
VBE200150	**20**	30.0	150	10
VBE200200	**20**	30.0	200	10

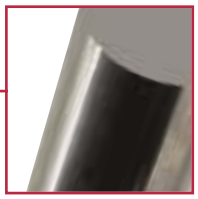


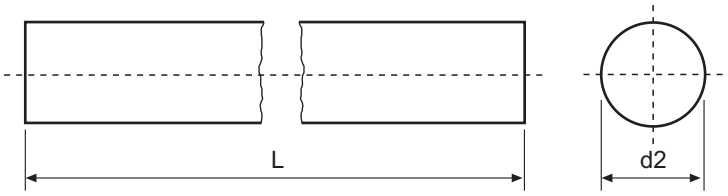


Cilindretto in metallo duro integrale

Solid carbide cylindrical rod

VHM - Rundstäbe - Barreaux carbure
Стержень твердосплавный цилиндрический - Sk válcová tyč





CODE UNGROUND (+0.3mm)	CODE GROUND (h6)	d2 mm	L mm
CGRE010x100	VCE010100	**1**	100
CGRE020x100	VCE020100	**2**	100
CGRE030x100	VCE030100	**3**	100
CGRE040x100	VCE040100	**4**	100
CGRE050x100	VCE050100	**5**	100
CGRE060x100	VCE060100	**6**	100
CGRE070x100	VCE070100	**7**	100
CGRE080x100	VCE080100	**8**	100
CGRE090x100	VCE090100	**9**	100
CGRE100x100	VCE100100	**10**	100
CGRE110x100	VCE110100	**11**	100
CGRE120x100	VCE120100	**12**	100
CGRE130x100	VCE130100	**13**	100
CGRE140x100	VCE140100	**14**	100
CGRE150x100	VCE150100	**15**	100
CGRE160x100	VCE160100	**16**	100
CGRE170x100	VCE170100	**17**	100
CGRE180x100	VCE180100	**18**	100
CGRE190x100	VCE190100	**19**	100
CGRE200x100	VCE200100	**20**	100
CGRE220x100	VCE220100	**22**	100
CGRE240x100	VCE240100	**24**	100
CGRE250x100	VCE250100	**25**	100
CGRE260x100	VCE260100	**26**	100
CGRE280x100	VCE280100	**28**	100
CGRE300x100	VCE300100	**30**	100
CGRE320x100	VCE320100	**32**	100

CODE UNGROUND (+0.3mm)	CODE GROUND (h6)	d2 mm	L mm
CGRE010x310	VCE010310	**1.0**	310
CGRE015x310	VCE015310	**1.5**	310
CGRE020x310	VCE020310	**2.0**	310
CGRE025x310	VCE025310	**2.5**	310
CGRE030x310	VCE030310	**3.0**	310
CGRE035x310	VCE035310	**3.5**	310
CGRE040x310	VCE040310	**4.0**	310
CGRE045x310	VCE045310	**4.5**	310
CGRE050x310	VCE050310	**5.0**	310
CGRE055x310	VCE055310	**5.5**	310
CGRE060x310	VCE060310	**6.0**	310
CGRE065x310	VCE065310	**6.5**	310
CGRE070x310	VCE070310	**7.0**	310
CGRE075x310	VCE075310	**7.5**	310
CGRE080x310	VCE080310	**8.0**	310
CGRE085x310	VCE085310	**8.5**	310
CGRE090x310	VCE090310	**9.0**	310
CGRE100x310	VCE100310	**10.0**	310
CGRE105x310	VCE105310	**10.5**	310
CGRE110x310	VCE110310	**11.0**	310
CGRE115x310	VCE115310	**11.5**	310
CGRE120x310	VCE120310	**12.0**	310
CGRE125x310	VCE125310	**12.5**	310
CGRE130x310	VCE130310	**13.0**	310
CGRE135x310	VCE135310	**13.5**	310
CGRE140x310	VCE140310	**14.0**	310
CGRE145x310	VCE145310	**14.5**	310
CGRE150x310	VCE150310	**15.0**	310
CGRE155x310	VCE155310	**15.5**	310
CGRE160x310	VCE160310	**16.0**	310
CGRE165x310	VCE165310	**16.5**	310
CGRE170x310	VCE170310	**17.0**	310
CGRE175x310	VCE175310	**17.5**	310
CGRE180x310	VCE180310	**18.0**	310
CGRE185x310	VCE185310	**18.5**	310
CGRE190x310	VCE190310	**19.0**	310
CGRE200x310	VCE200310	**20.0**	310
CGRE220x310	VCE220310	**22.0**	310
CGRE240x310	VCE240310	**24.0**	310
CGRE250x310	VCE250310	**25.0**	310
CGRE260x310	VCE260310	**26.0**	310
CGRE280x310	VCE280310	**28.0**	310
CGRE300x310	VCE300310	**30.0**	310
CGRE320x310	VCE320310	**32.0**	310

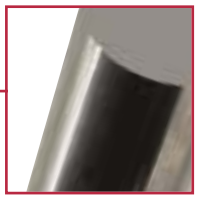
MICRO GRAIN | 6% CO | 10% CO

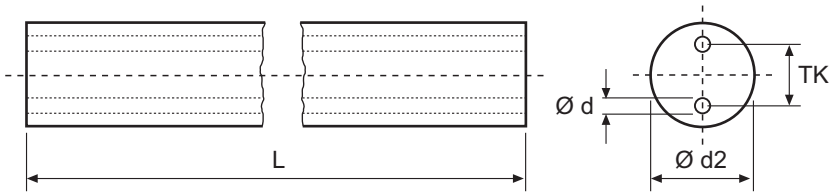
Nuova CUMET NORM

Cilindretto in metallo duro integrale con due fori paralleli

Solid carbide cylindrical rod with 2 parallel holes

VHM - Rundstäbe mit 2 Geraden Kühlkanälen - Barreaux carbure avec 2 trous d'huile droits
Стержень твердосплавный цилиндрический с подачей СОЖ - Sk válcová tyč se 2 paralelními otvory





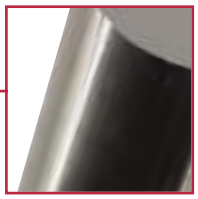
Nuova CUMET NORM | MICRO GRAIN | 6% CO

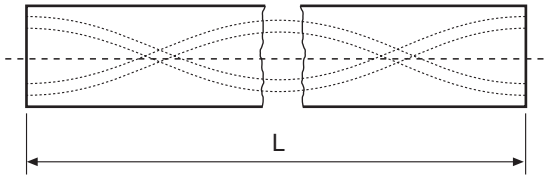
CODE UNGROUND (+0.3mm)	CODE GROUND (h6)	d2 mm	L mm	TK mm	d mm
CG3FD2050330I2.0	VC3FD2050330I2.0	**5**	330	2.0	0.9
CG3FD2060330I1.1	VC3FD2060330I1.1	**6**	330	1.1	0.5
CG3FD2060330I1.7	VC3FD2060330I1.7	**6**	330	1.7	0.8
CG3FD2060330I2.0	VC3FD2060330I2.0	**6**	330	2.0	0.9
CG3FD2060330I2.3	VC3FD2060330I2.3	**6**	330	2.3	0.9
CG3FD2060330I2.4	VC3FD2060330I2.4	**6**	330	2.4	1.2
CG3FD2060330I3.0	VC3FD2060330I3.0	**6**	330	3.0	0.9
CG3FD2080330I1.7	VC3FD2080330I1.7	**8**	330	1.7	0.8
CG3FD2080330I2.0	VC3FD2080330I2.0	**8**	330	2.0	0.9
CG3FD2080330I2.6	VC3FD2080330I2.6	**8**	330	2.6	1.2
CG3FD2080330I3.0	VC3FD2080330I3.0	**8**	330	3.0	1.2
CG3FD2080330I3.5	VC3FD2080330I3.5	**8**	330	3.5	1.5
CG3FD2080330I4.0	VC3FD2080330I4.0	**8**	330	4.0	0.9
CG3FD2100330I2.6	VC3FD2100330I2.6	**10**	330	2.6	1.2
CG3FD2100330I3.5	VC3FD2100330I3.5	**10**	330	3.5	1.5
CG3FD2100330I4.0	VC3FD2100330I4.0	**10**	330	4.0	1.5
CG3FD2100330I5.0	VC3FD2100330I5.0	**10**	330	5.0	1.2
CG3FD2110330I3.5	VC3FD2110330I3.5	**11**	330	3.5	1.5
CG3FD2120330I3.5	VC3FD2120330I3.5	**12**	330	3.5	1.5
CG3FD2120330I4.0	VC3FD2120330I4.0	**12**	330	4.0	1.5
CG3FD2120330I5.0	VC3FD2120330I5.0	**12**	330	5.0	2.0
CG3FD2120330I6.2	VC3FD2120330I6.2	**12**	330	6.2	1.5
CG3FD2140330I2.6	VC3FD2140330I2.6	**14**	330	2.6	0.9
CG3FD2140330I3.5	VC3FD2140330I3.5	**14**	330	3.5	1.5
CG3FD2140330I5.0	VC3FD2140330I5.0	**14**	330	5.0	2.0
CG3FD2140330I7.0	VC3FD2140330I7.0	**14**	330	7.0	1.5
CG3FD2160330I3.5	VC3FD2160330I3.5	**16**	330	3.5	1.5
CG3FD2160330I5.0	VC3FD2160330I5.0	**16**	330	5.0	2.0
CG3FD2160330I6.2	VC3FD2160330I6.2	**16**	330	6.2	2.0
CG3FD2160330I8.0	VC3FD2160330I8.0	**16**	330	8.0	2.0
CG3FD2180330I5.0	VC3FD2180330I5.0	**18**	330	5.0	2.0
CG3FD2180330I6.2	VC3FD2180330I6.2	**18**	330	6.2	2.0
CG3FD2180330I7.0	VC3FD2180330I7.0	**18**	330	7.0	2.5
CG3FD2180330I9.0	VC3FD2180330I9.0	**18**	330	9.0	2.0
CG3FD2200330I3.5	VC3FD2200330I3.5	**20**	330	3.5	1.5
CG3FD2200330I6.2	VC3FD2200330I6.2	**20**	330	6.2	2.0
CG3FD2200330I7.0	VC3FD2200330I7.0	**20**	330	7.0	2.5
CG3FD2200330I100	VC3FD2200330I100	**20**	330	10.0	2.5
CG3FD2220330I7.0	VC3FD2220330I7.0	**22**	330	7.0	2.0
CG3FD2200330I110	VC3FD2220330I110	**22**	330	11.0	2.5
CG3FD2240330I6.2	VC3FD2240330I6.2	**24**	330	6.2	2.0
CG3FD2240330I7.0	VC3FD2240330I7.0	**24**	330	7.0	2.5
CG3FD2240330I120	VC3FD2240330I120	**24**	330	12.0	3.0
CG3FD2250330I8.0	VC3FD2250330I8.0	**25**	330	8.0	2.5
CG3FD2250330I120	VC3FD2250330I120	**25**	330	12.0	3.0
CG3FD2260330I120	VC3FD2260330I120	**26**	330	12.0	3.0
CG3FD2260330I130	VC3FD2260330I130	**26**	330	13.0	3.0
CG3FD2280330I100	VC3FD2280330I100	**28**	330	10.0	2.0
CG3FD2280330I130	VC3FD2280330I130	**28**	330	13.0	3.0
CG3FD2300330I130	VC3FD2300330I130	**30**	330	13.0	3.0
CG3FD2320330I130	VC3FD2320330I130	**32**	330	13.0	3.0

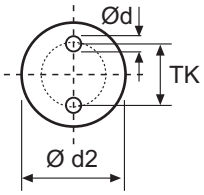
Cilindretto in metallo duro integrale con due fori elicoidali

Solid carbide rod with 2 twisted coolant holes

VHM - Rundstäbe mit 2 Verdrallten Kühlkanälen - Barreaux carbure avec 2 trous hélicoidaux
Стержень твердосплавный цилиндрический с подачей СОЖ - Sk válcová tyč se 2 chladícími otvory ve spirále







CODE UNGROUND (+0.3mm)	CODE GROUND (h6)	d2 mm	L mm	TK mm	d mm	α°
CG3FE2030330I1.5	VC3FE2030330I1.5	**3**	330	1.5	0.4	30°
CG3FE2060330I1.9	VC3FE2060330I1.9	**6**	330	1.9	0.6	30°
CG3FE2060330I2.2	VC3FE2060330I2.2	**6**	330	2.2	0.8	30°
CG3FE2060330I2.6	VC3FE2060330I2.6	**6**	330	2.6	0.7	30°
CG3FE2080330I2.7	VC3FE2080330I2.7	**8**	330	2,7	0,7	30°
CG3FE2080330I3.5	VC3FE2080330I3.5	**8**	330	3,5	0,9	30°
CG3FE2080330I4.0	VC3FE2080330I4.0	**8**	330	4,0	1,0	30°
CG3FE2100330I2.7	VC3FE2100330I2.7	**10**	330	2,7	0,8	30°
CG3FE2100330I3.5	VC3FE2100330I3.5	**10**	330	3,5	0,8	30°
CG3FE2100330I4.8	VC3FE2100330I4.8	**10**	330	4.8	1.4	30°
CG3FE2120330I4.2	VC3FE2120330I4.2	**12**	330	4,2	0,9	30°
CG3FE2120330I5.4	VC3FE2120330I5.4	**12**	330	5.4	1.5	30°
CG3FE2120330I5.9	VC3FE2120330I5.9	**12**	330	5.9	1.7	30°
CG3FE2130330I6.5	VC3FE2130330I6.5	**13**	330	6.5	1.8	30°
CG3FE2140330I4.7	VC3FE2140330I4.7	**14**	330	4,7	1,0	30°
CG3FE2140330I7.1	VC3FE2140330I7.1	**14**	330	7.1	1.75	30°
CG3FE2140330I7.2	VC3FE2140330I7.2	**14**	330	7.1	2,0	30°
CG3FE2150330I7.7	VC3FE2150330I7.7	**15**	330	7.7	1.75	30°
CG3FE2160330I5.5	VC3FE2160330I5.5	**16**	330	5,5	1,2	30°
CG3FE2160330I8.3	VC3FE2160330I8.3	**16**	330	8.3	1.75	30°
CG3FE2160330I8.6	VC3FE2160330I8.6	**16**	330	8.6	2.5	30°
CG3FE2180330I9.5	VC3FE2180330I9.5	**18**	330	9.5	2,0	30°
CG3FE2180330I9.7	VC3FE2180330I9.7	**18**	330	9.7	2.8	30°
CG3FE2190330I101	VC3FE2190330I101	**19**	330	10.1	2.5	30°
CG3FE2200330I7.1	VC3FE2200330I7.1	**20**	330	7,1	1,5	30°
CG3FE2200330I104	VC3FE2200330I104	**20**	330	10.4	2.8	30°
CG3FE2200330I107	VC3FE2200330I107	**20**	330	10.7	3.2	30°

Nuova CUMET NORM | MICRO GRAIN | 10% CO

NOTE

NOTE



Servizio di rettifica su CNC di alta precisione ad elevata produttività

Grinding service execution with high precision CNC machines high productivity





L'uomo fa dei *movimenti* inutili.
Per questo è superiore alla macchina.

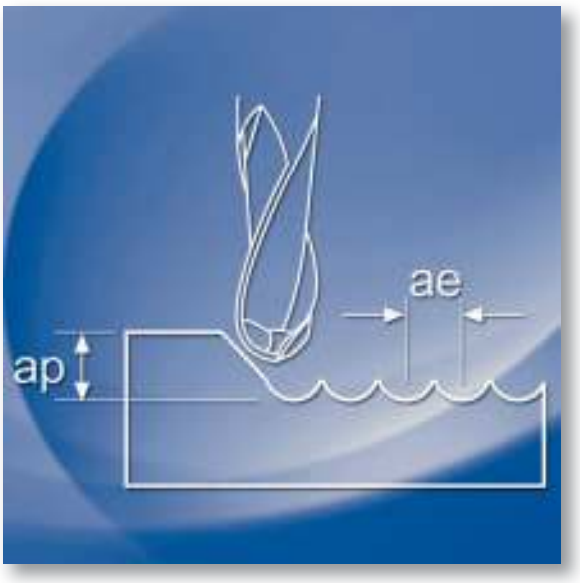
Man makes unnecessary *movements*.
For this is superior than the machine

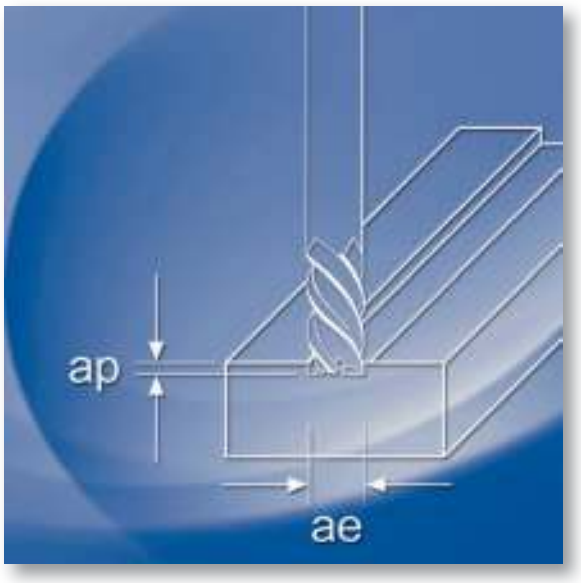
Marcello Marchesi

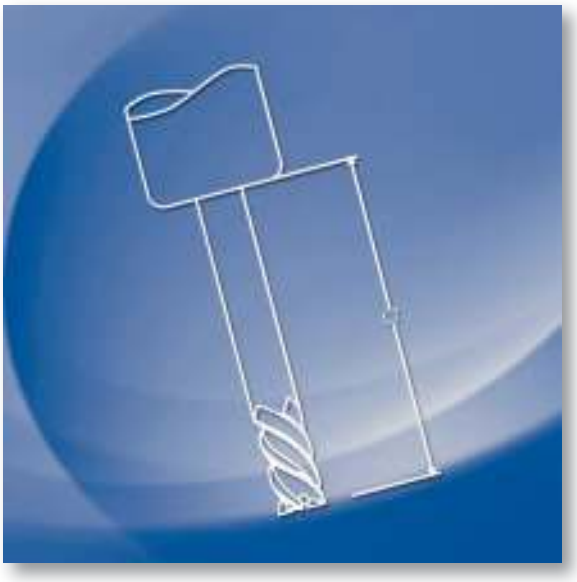
Testo non originale; la traduzione è arbitraria.
No-Original text; the translation is arbitrary

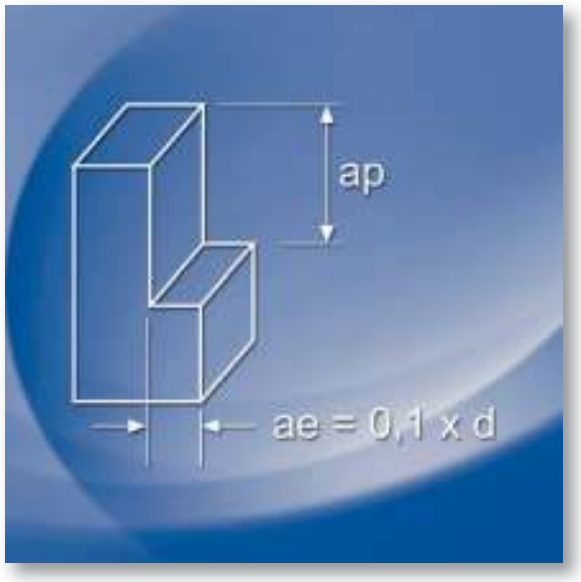
Velocità di taglio
Cutting speed

Richtwerte
Paramétres
Режимы обработки
Řezná rychlost









Fz (mm) = Avanzamento per Dente
Feed per tooth
Vorschub pro Zain
Avance par dent
Подача на зуб
Posuv na zub

N (1/min) = Velocità di rotazione
Rotation number
Drehzahl
Frequence de rotation
Частота вращения шпинделя
Otáčky

Vc (m/min) = Velocità di taglio
Cutting speed
Schnittgeschwindigkeit
Vitesse de coupe
Скорость резания
Řezná rychlost

Vf (mm/min) = Velocità di avanzamento
Feed Speed
Vorschubgeschwindigkeit
Vitesse d'avance
Скорость подачи
Rychlost posuvu

Q (cm3/min) = Volume truciolo asportato
Quantity of removed chip
Swarf Volumen
Coupeau volume
Количество снимаемой стружки
Množství odebraného materiálu

$$Fz = \frac{Vf}{Z \times N} \text{ mm}$$

$$N = \frac{Vc \times 1000}{\pi \times Ø} \text{ 1/min.}$$

$$Vf = Z \times N \times fz \text{ mm/min.}$$

$$Vc = \frac{\pi \times Ø \times N}{1000} \text{ m/min.}$$

$$Q = \frac{a\,e \times a\,p \times V\,f}{1000} \text{ cm3/min.}$$

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y800 - Y804 - Y800M - Y803M Slot Milling

Material		AL Si<6% - АЛЮМИНИЙ				Copper - МЕДЬ				Plastic - АЛЮМИНИЙ			
Ø	l2	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
0.5	2	90-600	0.009-0.012	1 x d	0.300 x d	60-400	0.007-0.009	1 x d	0.300 x d	60-600	0.009-0.017	1 x d	0.300 x d
	4	80-600	0.008-0.011	1 x d	0.180 x d	55-400	0.006-0.008	1 x d	0.180 x d	55-600	0.008-0.015	1 x d	0.180 x d
	6	70-600	0.007-0.010	1 x d	0.120 x d	50-400	0.004-0.007	1 x d	0.120 x d	50-600	0.008-0.013	1 x d	0.120 x d
0.6	2	90-600	0.014-0.016	1 x d	0.300 x d	70-400	0.014-0.016	1 x d	0.300 x d	70-600	0.018-0.024	1 x d	0.300 x d
	4	90-600	0.013-0.015	1 x d	0.180 x d	60-400	0.013-0.015	1 x d	0.180 x d	60-600	0.016-0.022	1 x d	0.180 x d
	6	90-600	0.013-0.015	1 x d	0.100 x d	60-400	0.013-0.015	1 x d	0.100 x d	60-600	0.016-0.022	1 x d	0.100 x d
0.8	4	90-600	0.014-0.016	1 x d	0.300 x d	70-400	0.014-0.016	1 x d	0.300 x d	90-600	0.018-0.024	1 x d	0.300 x d
	6	90-600	0.013-0.015	1 x d	0.175 x d	60-400	0.013-0.015	1 x d	0.175 x d	90-600	0.016-0.022	1 x d	0.175 x d
	8	90-600	0.013-0.015	1 x d	0.110 x d	60-400	0.013-0.015	1 x d	0.110 x d	90-600	0.016-0.022	1 x d	0.110 x d
1.0	6	150-600	0.018-0.024	1 x d	0.300 x d	100-400	0.018-0.024	1 x d	0.300 x d	100-600	0.020-0.035	1 x d	0.300 x d
	8	140-600	0.016-0.022	1 x d	0.170 x d	90-400	0.016-0.022	1 x d	0.170 x d	90-600	0.018-0.032	1 x d	0.170 x d
	12	130-600	0.016-0.020	1 x d	0.110 x d	80-400	0.014-0.018	1 x d	0.110 x d	80-600	0.018-0.028	1 x d	0.110 x d
1.5	6	190-600	0.018-0.025	1 x d	0.300 x d	120-400	0.018-0.024	1 x d	0.300 x d	120-600	0.020-0.035	1 x d	0.300 x d
	8	180-600	0.017-0.023	1 x d	0.170 x d	120-400	0.017-0.022	1 x d	0.170 x d	110-600	0.018-0.032	1 x d	0.170 x d
	10	170-600	0.017-0.023	1 x d	0.160 x d	110-400	0.016-0.020	1 x d	0.160 x d	100-600	0.018-0.028	1 x d	0.160 x d
2.0	6	190-600	0.025-0.035	1 x d	0.300 x d	120-400	0.020-0.030	1 x d	0.300 x d	120-600	0.020-0.035	1 x d	0.300 x d
	10	180-600	0.025-0.035	1 x d	0.200 x d	110-400	0.018-0.028	1 x d	0.200 x d	110-600	0.020-0.032	1 x d	0.200 x d
3.0	9	200-600	0.020-0.030	1 x d	0.300 x d	100-400	0.020-0.030	1 x d	0.300 x d	150-600	0.020-0.028	1 x d	0.300 x d
4.0	12	200-600	0.030-0.040	1 x d	0.300 x d	100-400	0.020-0.030	1 x d	0.300 x d	150-600	0.030-0.040	1 x d	0.300 x d
5.0	15	200-600	0.040-0.050	1 x d	0.500 x d	100-400	0.030-0.040	1 x d	0.500 x d	150-600	0.040-0.050	1 x d	0.500 x d
6.0	21	200-600	0.050-0.060	1 x d	0.500 x d	100-400	0.040-0.050	1 x d	0.500 x d	150-600	0.050-0.060	1 x d	0.500 x d
8.0	26	200-600	0.060-0.070	1 x d	0.500 x d	100-400	0.050-0.060	1 x d	0.500 x d	150-600	0.060-0.080	1 x d	0.500 x d
10.0	31	200-600	0.070-0.080	1 x d	0.500 x d	100-400	0.070-0.080	1 x d	0.500 x d	150-600	0.080-0.100	1 x d	0.500 x d
12.0	38	200-600	0.090-0.100	1 x d	0.500 x d	100-400	0.080-0.090	1 x d	0.500 x d	150-600	0.100-0.120	1 x d	0.500 x d
16.0	66	200-600	0.120-0.140	1 x d	0.500 x d	100-400	0.100-0.120	1 x d	0.500 x d	150-600	0.120-0.160	1 x d	0.500 x d
20.0	78	200-600	0.150-0.170	1 x d	0.500 x d	100-400	0.130-0.150	1 x d	0.500 x d	150-600	0.160-0.200	1 x d	0.500 x d

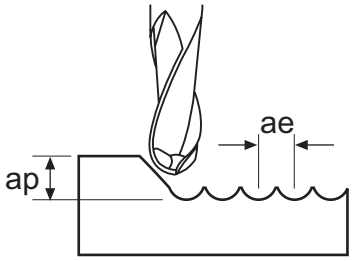
CODE: Y800 - Y804 - Y800M - Y803M Side Milling

Material		AL Si<6% - АЛЮМИНИЙ				Copper - МЕДЬ				Plastic - АЛЮМИНИЙ			
Ø	l2	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
0.5	2	90-700	0.012-0.016	0.2-0.5 x d	1 x d	60-250	0.009-0.012	0.2-0.5 x d	1 x d	60-250	0.009-0.017	0.2-0.5 x d	1 x d
	4	80-700	0.011-0.015	0.2-0.5 x d	1 x d	55-250	0.008-0.011	0.2-0.5 x d	1 x d	55-250	0.008-0.015	0.2-0.5 x d	1 x d
	6	70-700	0.009-0.013	0.2-0.5 x d	1 x d	50-250	0.005-0.009	0.2-0.5 x d	1 x d	50-250	0.008-0.013	0.2-0.5 x d	1 x d
0.6	2	90-700	0.019-0.021	0.2-0.5 x d	1 x d	70-250	0.018-0.020	0.2-0.5 x d	1 x d	70-250	0.018-0.024	0.2-0.5 x d	1 x d
	4	90-700	0.017-0.020	0.2-0.5 x d	1 x d	60-250	0.016-0.019	0.2-0.5 x d	1 x d	60-250	0.016-0.022	0.2-0.5 x d	1 x d
	6	90-700	0.017-0.020	0.2-0.5 x d	1 x d	60-250	0.016-0.019	0.2-0.5 x d	1 x d	60-250	0.016-0.022	0.2-0.5 x d	1 x d
0.8	4	90-700	0.019-0.021	0.2-0.5 x d	1 x d	70-250	0.018-0.020	0.2-0.5 x d	1 x d	70-250	0.018-0.024	0.2-0.5 x d	1 x d
	6	90-700	0.017-0.020	0.2-0.5 x d	1 x d	60-250	0.016-0.019	0.2-0.5 x d	1 x d	60-250	0.016-0.022	0.2-0.5 x d	1 x d
	8	90-700	0.017-0.020	0.2-0.5 x d	1 x d	60-250	0.016-0.019	0.2-0.5 x d	1 x d	60-250	0.016-0.022	0.2-0.5 x d	1 x d
1.0	6	150-700	0.024-0.032	0.2-0.5 x d	1 x d	100-250	0.023-0.030	0.2-0.5 x d	1 x d	100-250	0.020-0.035	0.2-0.5 x d	1 x d
	8	140-700	0.021-0.029	0.2-0.5 x d	1 x d	90-250	0.020-0.028	0.2-0.5 x d	1 x d	90-250	0.018-0.032	0.2-0.5 x d	1 x d
	12	130-700	0.021-0.027	0.2-0.5 x d	1 x d	80-250	0.018-0.023	0.2-0.5 x d	1 x d	80-250	0.018-0.028	0.2-0.5 x d	1 x d
1.5	6	190-700	0.024-0.033	0.2-0.5 x d	1 x d	120-250	0.023-0.030	0.2-0.5 x d	1 x d	120-250	0.020-0.035	0.2-0.5 x d	1 x d
	8	180-700	0.023-0.031	0.2-0.5 x d	1 x d	120-250	0.021-0.028	0.2-0.5 x d	1 x d	120-250	0.018-0.032	0.2-0.5 x d	1 x d
	10	170-700	0.023-0.031	0.2-0.5 x d	1 x d	110-250	0.020-0.025	0.2-0.5 x d	1 x d	110-250	0.018-0.028	0.2-0.5 x d	1 x d
2.0	6	190-700	0.033-0.047	0.2-0.5 x d	1 x d	120-250	0.025-0.038	0.2-0.5 x d	1 x d	120-250	0.020-0.035	0.2-0.5 x d	1 x d
	10	180-700	0.033-0.048	0.2-0.5 x d	1 x d	110-250	0.023-0.035	0.2-0.5 x d	1 x d	110-250	0.020-0.032	0.2-0.5 x d	1 x d
3.0	9	200-700	0.027-0.030	0.2-0.5 x d	1 x d	100-250	0.025-0.038	0.2-0.5 x d	1 x d	100-250	0.020-0.030	0.2-0.5 x d	1 x d
4.0	12	200-700	0.040-0.053	0.2-0.5 x d	1 x d	100-250	0.025-0.038	0.2-0.5 x d	1 x d	100-250	0.030-0.040	0.2-0.5 x d	1 x d
5.0	15	200-700	0.053-0.067	0.2-0.5 x d	1 x d	100-250	0.038-0.050	0.2-0.5 x d	1 x d	100-250	0.040-0.050	0.2-0.5 x d	1 x d
6.0	21	200-700	0.067-0.080	0.2-0.5 x d	1 x d	100-250	0.050-0.063	0.2-0.5 x d	1 x d	100-250	0.050-0.060	0.2-0.5 x d	1 x d
8.0	26	200-700	0.080-0.093	0.2-0.5 x d	1 x d	100-250	0.063-0.075	0.2-0.5 x d	1 x d	100-250	0.060-0.080	0.2-0.5 x d	1 x d
10.0	31	200-700	0.093-0.107	0.2-0.5 x d	1 x d	100-250	0.088-0.100	0.2-0.5 x d	1 x d	100-250	0.080-0.100	0.2-0.5 x d	1 x d
12.0	37	200-700	0.120-0.133	0.2-0.5 x d	1 x d	100-250	0.100-0.113	0.2-0.5 x d	1 x d	100-250	0.100-0.120	0.2-0.5 x d	1 x d
16.0	43	200-700	0.012-0.140	0.2-0.5 x d	1 x d	100-250	0.125-0.150	0.2-0.5 x d	1 x d	100-250	0.120-0.160	0.2-0.5 x d	1 x d
20.0	78	200-700	0.150-0.170	0.2-0.5 x d	1 x d	100-250	0.163-0.188	0.2-0.5 x d	1 x d	100-250	0.160-0.200	0.2-0.5 x d	1 x d

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - **Режимы обработки** - Řezná rychlost



CODE: Y800R High Speed Cutting

Material		AL Si<6% - АЛЮМИНИЙ				Copper - МЕДЬ				Plastic - АЛЮМИНИЙ			
Ø	l2	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
0.5	2	80-600	0.009-0.011	0.150-1.0 x d	0.200 x d	60-400	0.009-0.011	0.10-1.0 x d	0.200 x d	60-600	0.009-0.017	0.10-1.0 x d	0.200 x d
	4	80-600	0.008-0.010	0.150-1.0 x d	0.120 x d	55-400	0.008-0.010	0.10-1.0 x d	0.120 x d	55-600	0.008-0.015	0.10-1.0 x d	0.120 x d
	6	80-600	0.008-0.010	0.150-1.0 x d	0.060 x d	50-400	0.008-0.010	0.10-1.0 x d	0.060 x d	50-600	0.008-0.013	0.10-1.0 x d	0.060 x d
0.6	2	90-600	0.014-0.016	0.150-1.0 x d	0.200 x d	70-400	0.014-0.016	0.10-1.0 x d	0.200 x d	70-600	0.018-0.024	0.10-1.0 x d	0.200 x d
	4	90-600	0.013-0.015	0.150-1.0 x d	0.120 x d	60-400	0.013-0.015	0.10-1.0 x d	0.120 x d	60-600	0.016-0.022	0.10-1.0 x d	0.120 x d
	6	90-600	0.013-0.015	0.150-1.0 x d	0.060 x d	60-400	0.013-0.015	0.10-1.0 x d	0.060 x d	60-600	0.016-0.022	0.10-1.0 x d	0.060 x d
0.8	4	120-600	0.016-0.019	0.150-1.0 x d	0.200 x d	70-400	0.016-0.019	0.10-1.0 x d	0.200 x d	90-600	0.018-0.024	0.10-1.0 x d	0.200 x d
	6	120-600	0.015-0.017	0.150-1.0 x d	0.120 x d	60-400	0.015-0.017	0.10-1.0 x d	0.120 x d	90-600	0.016-0.022	0.10-1.0 x d	0.120 x d
	8	120-600	0.015-0.017	0.150-1.0 x d	0.060 x d	60-400	0.015-0.017	0.10-1.0 x d	0.060 x d	90-600	0.016-0.022	0.10-1.0 x d	0.060 x d
1.0	6	150-600	0.022-0.026	0.150-1.0 x d	0.200 x d	100-400	0.022-0.026	0.10-1.0 x d	0.200 x d	100-600	0.028-0.035	0.10-1.0 x d	0.200 x d
	8	150-600	0.020-0.024	0.150-1.0 x d	0.120 x d	90-400	0.020-0.024	0.10-1.0 x d	0.120 x d	90-600	0.026-0.032	0.10-1.0 x d	0.120 x d
	12	150-600	0.018-0.022	0.150-1.0 x d	0.060 x d	80-400	0.018-0.022	0.10-1.0 x d	0.060 x d	80-600	0.022-0.028	0.10-1.0 x d	0.060 x d
1.5	6	190-600	0.028-0.035	0.150-1.0 x d	0.200 x d	120-400	0.028-0.035	0.10-1.0 x d	0.200 x d	120-600	0.028-0.035	0.10-1.0 x d	0.200 x d
	8	190-600	0.026-0.032	0.150-1.0 x d	0.120 x d	120-400	0.026-0.032	0.10-1.0 x d	0.120 x d	110-600	0.026-0.032	0.10-1.0 x d	0.120 x d
	10	190-600	0.025-0.030	0.150-1.0 x d	0.060 x d	110-400	0.025-0.030	0.10-1.0 x d	0.060 x d	100-600	0.022-0.028	0.10-1.0 x d	0.060 x d
2.0	6	190-600	0.042-0.048	0.150-1.0 x d	0.200 x d	120-400	0.042-0.048	0.10-1.0 x d	0.200 x d	120-600	0.042-0.047	0.10-1.0 x d	0.200 x d
	10	190-600	0.032-0.038	0.150-1.0 x d	0.120 x d	110-400	0.032-0.038	0.10-1.0 x d	0.120 x d	110-600	0.038-0.043	0.10-1.0 x d	0.120 x d
3.0	9	200-600	0.030-0.070	0.150-1.0 x d	0.200 x d	100-400	0.040-0.080	0.10-1.0 x d	0.200 x d	150-600	0.040-0.060	0.10-1.0 x d	0.200 x d
4.0	12	200-600	0.050-0.100	0.150-1.0 x d	0.200 x d	100-400	0.050-0.100	0.10-1.0 x d	0.200 x d	150-600	0.050-0.100	0.10-1.0 x d	0.200 x d
6.0	21	200-600	0.050-0.100	0.150-1.0 x d	0.200 x d	100-400	0.080-0.120	0.10-1.0 x d	0.200 x d	150-600	0.080-0.120	0.10-1.0 x d	0.200 x d
8.0	26	200-600	0.060-0.120	0.150-1.0 x d	0.200 x d	100-400	0.100-0.120	0.10-1.0 x d	0.200 x d	150-600	0.100-0.120	0.10-1.0 x d	0.200 x d
10.0	31	200-600	0.070-0.130	0.150-1.0 x d	0.200 x d	100-400	0.100-0.140	0.10-1.0 x d	0.200 x d	150-600	0.100-0.140	0.10-1.0 x d	0.200 x d
12.0	37	200-600	0.070-0.140	0.150-1.0 x d	0.200 x d	100-400	0.100-0.150	0.10-1.0 x d	0.200 x d	150-600	0.100-0.150	0.10-1.0 x d	0.200 x d
16.0	66	200-600	0.090-0.160	0.150-1.0 x d	0.200 x d	100-400	0.120-0.160	0.10-1.0 x d	0.200 x d	150-600	0.120-0.160	0.10-1.0 x d	0.200 x d
20.0	78	200-600	0.160-0.200	0.150-1.0 x d	0.200 x d	100-400	0160-0.200	0.10-1.0 x d	0.200 x d	150-600	0.160-0.200	0.10-1.0 x d	0.200 x d

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - **Режимы обработки** - Řezná rychlost

205PM	Ø mm	l2 mm	ap mm	Steel HRC<25 СТАЛЬ		Stainless Steel HRC<25-35 НЕРЖАВЕЮЩАЯ СТАЛЬ		Heat Resistant Steel HRC<35-50 ЛЕГИРОВАННАЯ СТАЛЬ		Tempered Steel HRC<50-65 СТАЛЬ	
				Vc	Fz	Vc	Fz	Vc	Fz	Vc	Fz
205PM001..	**0.1**	-1	0.02-0.07 x d	16	0.0050	16	0.0048	15	0.0036	13	0.0030
		2	0.02-0.07 x d	16	0.0046	15	0.0045	14	0.0036	12	0.0030
205PM0015..	**0.15**	-	0.02-0.07 x d	24	0.0050	24	0.0475	23	0.0036	20	0.0030
205PM002..	**0.2**	-1	0.02-0.07 x d	28	0.0071	25	0.0071	24	0.0053	21	0.0045
		2	0.02-0.07 x d	25	0.0065	23	0.0065	22	0.0053	19	0.0045
205PM003..	**0.3**	-1	0.02-0.07 x d	38	0.0071	34	0.0071	32	0.0053	28	0.0045
		2-3	0.02-0.07 x d	34	0.0065	31	0.0065	29	0.0053	25	0.0045
205PM004..	**0.4**	-1	0.02-0.07 x d	40	0.0110	36	0.0110	34	0.0082	30	0.0069
		2	0.02-0.07 x d	40	0.0110	36	0.0110	34	0.0074	30	0.0062
		3-4	0.02-0.07 x d	36	0.0101	33	0.0101	31	0.0074	27	0.0062
		5	0.02-0.07 x d	32	0.0088	29	0.0088	27	0.0060	24	0.0060
205PM005..	**0.5**	-2	0.02-0.07 x d	50	0.0110	45	0.0110	43	0.0820	38	0.0690
		3-4-5	0.02-0.07 x d	45	0.0101	41	0.0101	38	0.0082	34	0.0069
		6	0.02-0.07 x d	40	0.0088	36	0.0113	34	0.0060	30	0.0060
		8	0.02-0.07 x d	40	0.0076	36	0.0088	34	0.0057	30	0.0051
		10	0.02-0.07 x d	35	0.0060	32	0.0060	30	0.0052	26	0.0040
205PM006..	**0.6**	-2	0.02-0.07 x d	60	0.0158	54	0.0157	51	0.0117	45	0.0099
		3-4-5-6	0.02-0.07 x d	54	0.0144	49	0.0144	46	0.0117	41	0.0099
		8-10	0.02-0.07 x d	48	0.0126	43	0.0126	41	0.0085	36	0.0085
205PM007..	**0.7**	-2	0.02-0.07 x d	70	0.0158	63	0.0157	60	0.0117	53	0.0099
		4-6	0.02-0.07 x d	63	0.0144	57	0.0144	54	0.0117	42	0.0099
		8-10	0.02-0.07 x d	56	0.0126	51	0.0126	48	0.0085	42	0.0085
205PM008..	**0.8**	2-4	0.02-0.07 x d	80	0.0158	72	0.0157	68	0.0117	60	0.0099
		6-8	0.02-0.07 x d	72	0.0144	65	0.0144	61	0.0117	54	0.0099
		10	0.02-0.07 x d	64	0.0126	58	0.0126	55	0.0085	48	0.0085
205PM009..	**0.9**	-3-5-8	0.02-0.07 x d	81	0.0144	73	0.0144	69	0.0117	61	0.0099
		10	0.02-0.07 x d	72	0.0126	65	0.0126	61	0.0085	54	0.0085
205PM010..	**1.0**	2-3-4	0.02-0.07 x d	90	0.0235	81	0.0236	77	0.0191	68	0.0162
		5-6-8-10	0.02-0.07 x d	81	0.0216	73	0.0216	69	0.0175	61	0.0148
		12-14	0.02-0.07 x d	72	0.0189	65	0.0189	61	0.0128	54	0.0128
		16-18	0.02-0.07 x d	72	0.0162	65	0.0162	61	0.0122	54	0.0108
		20	0.02-0.07 x d	63	0.0131	57	0.0129	54	0.0096	48	0.0086
205PM011.025S4	**1.1**	-	0.02-0.07 x d	99	0.0235	90	0.0236	85	0.0191	75	0.0162
205PM012..	**1.2**	-3-4-5-6	0.02-0.07 x d	96	0.0236	87	0.0236	82	0.0176	72	0.0148
		8-10-12	0.02-0.07 x d	87	0.0216	78	0.0216	74	0.0175	65	0.0148
		14-16	0.02-0.07 x d	77	0.0216	69	0.0216	66	0.0175	58	0.0148
205PM013.04S4	**1.3**	-	0.02-0.07 x d	91	0.0236	82	0.0236	78	0.0175	69	0.0149
205PM014..	**1.4**	-4-5-6	0.02-0.07 x d	98	0.0236	89	0.0236	84	0.0175	74	0.0149
		8-10-12	0.02-0.07 x d	89	0.0216	80	0.0216	75	0.0175	66	0.0165
205PM015..	**1.5**	4-5-6	0.02-0.07 x d	106	0.0236	95	0.0236	90	0.0175	79	0.0149
		8-10-12-14	0.02-0.07 x d	95	0.0216	85	0.0216	81	0.0175	71	0.0148
		16-18-20	0.02-0.07 x d	84	0.0189	76	0.0189	72	0.0128	63	0.0128
205PM016..	**1.6**	-4-5-6-8	0.02-0.07 x d	104	0.0263	94	0.0263	89	0.0195	78	0.0165
		10-12-14-16	0.02-0.07 x d	94	0.0240	85	0.0240	80	0.0195	71	0.0165
		18-20	0.02-0.07 x d	84	0.0210	75	0.0210	71	0.0142	63	0.0143
205PM017.05S4	**1.7**	-	0.02-0.07 x d	111	0.0263	100	0.0263	94	0.0195	83	0.0165
205PM018.05S4	**1.8**	-	0.02-0.07 x d	118	0.0263	106	0.0263	100	0.0195	88	0.0165
205PM019.05S4	**1.9**	-	0.02-0.07 x d	100	0.0315	90	0.0315	85	0.0234	75	0.0198
205PM020..	**2.0**	4-6-8-10	0.02-0.07 x d	106	0.0315	95	0.0315	90	0.0234	79	0.0198
		12-14-16-18-20	0.02-0.07 x d	95	0.0288	85	0.0288	81	0.0234	71	0.0198
		22-25-30	0.02-0.07 x d	84	0.0252	76	0.0252	72	0.0171	63	0.0171
205PM025..	**2.5**	-10-12	0.02-0.07 x d	113	0.0394	102	0.0394	96	0.0292	85	0.0248
		14-16-20	0.02-0.07 x d	102	0.0360	92	0.0360	86	0.0292	76	0.0247
		25	0.02-0.07 x d	89	0.0286	81	0.0287	76	0.0232	67	0.0197
205PM030..	**3.0**	-6-8-10-12	0.02-0.07 x d	121	0.0394	109	0.0394	102	0.0292	90	0.0247
		14-16-18-20-25-30	0.02-0.07 x d	109	0.0360	98	0.0360	92	0.0293	81	0.0248
		35-40	0.02-0.07 x d	96	0.0360	87	0.0360	82	0.0292	72	0.0247
205PM040..	**4.0**	-8-10-12-14-16	0.02-0.07 x d	118	0.1000	106	0.0900	100	0.0850	89	0.0640
		18-20-25-30	0.02-0.07 x d	106	0.0900	96	0.0810	90	0.0765	80	0.0640
		35-40	0.02-0.07 x d	96	0.0900	86	0.0810	81	0.0765	72	0.0640
		45-50	0.02-0.07 x d	84	0.0716	76	0.0644	70	0.0619	63	0.0509

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 200M - 205M

200M 205M	ø mm	l2 mm	rp mm	ap	Steel HRC<25 СТАЛЬ		Stainless Steel HRC<25-35 НЕРЖАВЕЮЩАЯ СТАЛЬ		Heat Resistant Steel HRC<35-50 ЛЕГИРОВАННАЯ СТАЛЬ		Tempered Steel HRC<50-70 СТАЛЬ	
					Vc	Fz	Vc	Fz	Vc	Fz	Vc	Fz
205M005.03R005S4	**0.5**	-	0.05	0.02-0.07 x d	79	0.0090	79	0.0076	63	0.0058	47	0.0063
205M006.01R005S4	**0.6**	-	0.05	0.02-0.07 x d	94	0.0100	80	0.0088	64	0.0074	49	0.0075
205M007.012R005S4	**0.7**	-	0.05	0.02-0.07 x d	106	0.0104	79	0.0104	62	0.0093	44	0.0080
205M008.014R005S4	**0.8**	-	0.05	0.02-0.07 x d	113	0.0111	90	0.0104	70	0.0093	50	0.0080
205M009.015R005S4	**0.9**	-	0.05	0.02-0.07 x d	127	0.0111	102	0.0104	79	0.0093	57	0.0080
205M010..	**1.0**	-4	0.1-0.2-0.3	0.02-0.07 x d	102	0.0210	92	0.0210	86	0.0189	76	0.0168
		6	0.1-0.2-0.3	0.02-0.07 x d	82	0.0189	74	0.0189	70	0.0189	62	0.0168
		8	0.1-0.2	0.02-0.07 x d	73	0.0189	66	0.0189	62	0.0189	55	0.0168
		10	0.1-0.2-0.3	0.02-0.07 x d	64	0.0189	58	0.0189	54	0.0189	48	0.0168
		12	0.1	0.02-0.07 x d	57	0.0189	51	0.0189	48	0.0189	43	0.0168
		12	0.2-0.3	0.02-0.07 x d	57	0.0168	51	0.0168	48	0.0147	43	0.0147
205M015..	**1.5**	-	0.1-0.2 -0.3-0.5	0.02-0.07 x d	117	0.0227	106	0.0226	99	0.0207	88	0.0181
		6-8	0.1-0.2-0.3	0.02-0.07 x d	107	0.0226	96	0.0226	91	0.0226	80	0.0201
		10-12	0.1-0.2-0.3	0.02-0.07 x d	85	0.0227	77	0.0227	73	0.0226	64	0.0201
205M020..	**2.0**	-6	0.1-0.2 -0.3-0.5	0.02-0.07 x d	131	0.0393	118	0.0393	111	0.0393	98	0.0315
		8-10	0.1-0.2 -0.3-0.5	0.02-0.07 x d	119	0.0393	107	0.0393	101	0.0393	89	0.0315
205M025	**2.5**	12	0.1-0.2 -0.3-0.5	0.02-0.07 x d	96	0.0354	87	0.0354	82	0.0354	72	0.0314
		16	0.5	0.02-0.07 x d	85	0.0354	77	0.0354	73	0.0354	64	0.0315
		-	0.2-0.3-0.5	0.02-0.07 x d	136	0.0392	122	0.0391	116	0.0391	102	0.0313
205M030..	**3.0**	-10	0.1-0.2 -0.3-0.5-1	0.02-0.07 x d	136	0.0491	122	0.0492	115	0.0491	102	0.0393
		12-16	0.1-0.2 -0.3-0.5	0.02-0.07 x d	122	0.0491	110	0.0491	104	0.0491	92	0.0393
		20	0.2-0.3-0.5	0.02-0.07 x d	110	0.0491	99	0.0492	93	0.0491	82	0.0393
205M040..	**4.0**	-10-12 -16	0.1-0.2- 0.3-0.5-1	0.02-0.07 x d	131	0.0668	117	0.0677	111	0.0636	98	0.0561
		20	0.2-0.3-0.5	0.02-0.07 x d	110	0.0668	99	0.0677	93	0.0636	92	0.0561
		25	0.3-0.5	0.02-0.07 x d	100	0.0668	90	0.0677	85	0.0636	82	0.0561
205M05.10R1S6	**5.0**	-	0.5	0.02-0.07 x d	127	0.0676	115	0.0675	108	0.0638	96	0.0561
205M060..	**6.0**	-16-20 -25-30	0.1-0.2-0.3 -0.5-1-1.5-2	0.02-0.07 x d	136	0.0674	122	0.0673	115	0.0639	102	0.0565

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 200RM - 205RM

200RM 205RM	Ø mm	l2 mm	ap mm	Steel HRC<25 СТАЛЬ		Stainless Steel HRC<25-35 НЕРЖАВЕЮЩАЯ СТАЛЬ		Heat Resistant Steel HRC<35-50 ЛЕГИРОВАННАЯ СТАЛЬ		Tempered Steel HRC<50-70 СТАЛЬ	
				Vc	Fz	Vc	Fz	Vc	Fz	Vc	Fz
205RM001..	**0.1**	-	0.02-0.08 x d	13-16	0.002-0.0025	12-16	0.0018-0.0025	10-16	0.0015-0.0023	8-16	0.0010-0.0020
		1	0.02-0.08 x d	13-16	0.0014-0.0018	12-16	0.0013-0.0018	10-16	0.0010-0.0016	8-16	0.0007-0.0014
		2	0.02-0.08 x d	13-16	0.0009-0.0011	12-16	0.0008-0.0011	10-16	0.0006-0.0009	8-16	0.0004-0.0008
205RM015..	**0.15**	-	0.02-0.08 x d	19-24	0.0020-0.0025	17-24	0.0018-0.0025	15-24	0.0015-0.0023	12-24	0.0010-0.0020
205RM002..	**0.2**	-1	0.02-0.08 x d	25-31	0.0028-0.0035	22-31	0.0025-0.0035	20-31	0.0021-0.0033	15-29	0.0016-0.0030
		2	0.02-0.08 x d	25-31	0.0026-0.0032	22-31	0.0022-0.0031	19-21	0.0019-0.0029	13-25	0.0014-0.0027
205RM003..	**0.3**	-1	0.02-0.08 x d	38-47	0.0040-0.0050	34-47	0.0036-0.0050	30-47	0.0029-0.0045	22-42	0.0022-0.0043
		2-3	0.02-0.08 x d	38-47	0.0036-0.0045	33-46	0.0032-0.0045	28-43	0.0026-0.0041	20-38	0.0020-0.0038
205RM004..	**0.4**	-1-2	0.02-0.08 x d	48-60	0.0048-0.0060	39-54	0.0043-0.0060	33-51	0.0035-0.0055	23-45	0.0026-0.0050
		3-4	0.02-0.08 x d	43-54	0.0043-0.0054	35-49	0.0039-0.0054	29-46	0.0032-0.0050	21-41	0.0023-0.0045
		5	0.02-0.08 x d	38-48	0.0041-0.0051	31-43	0.0037-0.0051	26-41	0.0030-0.0047	19-36	0.0022-0.0043
205RM005..	**0.5**	1-2	0.02-0.08 x d	50-63	0.0080-0.0100	41-57	0.0072-0.0100	34-53	0.0058-0.0090	24-47	0.0047-0.0090
		3-4-5	0.02-0.08 x d	46-57	0.0072-0.0090	37-51	0.0065-0.0090	31-48	0.0052-0.0081	22-42	0.0042-0.0081
		6-8	0.02-0.08 x d	40-50	0.0068-0.0085	32-45	0.0061-0.0085	28-43	0.0049-0.0076	20-38	0.0040-0.0076
		10	0.02-0.08 x d	35-44	0.0059-0.0074	29-40	0.0055-0.0077	24-37	0.0042-0.0066	17-33	0.0033-0.0064
205RM006..	**0.6**	-2-3	0.02-0.08 x d	60-75	0.0120-0.0150	49-68	0.0108-0.0150	41-64	0.0083-0.0130	30-57	0.0062-0.0120
		4	0.02-0.08 x d	54-68	0.0114-0.0143	44-61	0.0102-0.0142	37-58	0.0079-0.0124	27-51	0.0059-0.0114
		5-6	0.02-0.08 x d	54-68	0.0108-0.0135	44-61	0.0097-0.0135	37-58	0.0075-0.0117	27-51	0.0056-0.0108
		8	0.02-0.08 x d	48-60	0.0102-0.0128	39-54	0.0091-0.0127	33-51	0.0070-0.0110	23-45	0.0053-0.0102
		10	0.02-0.08 x d	42-53	0.0102-0.0128	34-47	0.0092-0.0128	29-45	0.0071-0.0111	21-40	0.0053-0.0102
205RM007..	**0.7**	-2-3	0.02-0.08 x d	70-88	0.0120-0.0150	57-79	0.0108-0.0150	48-75	0.0083-0.0130	34-66	0.0062-0.0120
		4	0.02-0.08 x d	63-79	0.0114-0.0143	51-71	0.0102-0.0142	43-67	0.0079-0.0124	31-59	0.0059-0.0114
		5-6	0.02-0.08 x d	63-79	0.0108-0.0135	51-71	0.0097-0.0135	43-67	0.0075-0.0117	31-59	0.0056-0.0108
		8	0.02-0.08 x d	56-70	0.0102-0.0128	45-63	0.0091-0.0127	38-60	0.0070-0.0110	28-53	0.0053-0.0102
		10	0.02-0.08 x d	50-62	0.0102-0.0128	40-55	0.0092-0.0128	33-52	0.0071-0.0111	24-46	0.0053-0.0102
205RM008..	**0.8**	-2-3-4	0.02-0.08 x d	80-100	0.0144-0.0180	65-90	0.0130-0.0180	54-85	0.0102-0.0160	39-75	0.0078-0.0150
		5-6	0.02-0.08 x d	72-90	0.0130-0.0162	58-81	0.0117-0.0162	49-77	0.0092-0.0144	35-68	0.0070-0.0135
		8	0.02-0.08 x d	64-80	0.0130-0.0162	52-72	0.0117-0.0162	44-68	0.0092-0.0144	31-60	0.0070-0.0135
		10	0.02-0.08 x d	64-80	0.0122-0.0153	52-72	0.0110-0.0153	44-68	0.0087-0.0136	31-60	0.0067-0.0128
205RM009..	**0.9**	-3-4	0.02-0.08 x d	90-113	0.0144-0.0180	73-102	0.0130-0.0180	61-96	0.0102-0.0160	44-85	0.0078-0.0150
		5-6	0.02-0.08 x d	82-102	0.0130-0.0162	66-92	0.0117-0.0162	55-86	0.0092-0.0144	40-76	0.0070-0.0135
		8	0.02-0.08 x d	72-90	0.0130-0.0162	58-81	0.0117-0.0162	49-77	0.0092-0.0144	35-68	0.0070-0.0135
		10	0.02-0.08 x d	72-90	0.0122-0.0153	58-81	0.0110-0.0153	49-77	0.0087-0.0136	35-68	0.0067-0.0128
205RM010..	**1.0**	-2-3-4-5	0.02-0.08 x d	90-113	0.0200-0.0250	73-102	0.0180-0.0250	61-96	0.0144-0.0225	44-85	0.0109-0.0210
		6-8-10	0.02-0.08 x d	82-102	0.0180-0.0225	66-92	0.0162-0.0225	55-86	0.0129-0.0202	40-76	0.0098-0.0189
		12-14-16	0.02-0.08 x d	72-90	0.0170-0.0213	58-81	0.0153-0.0213	49-77	0.0122-0.0191	35-68	0.0093-0.0178
		18	0.02-0.08 x d	63-79	0.0160-0.0200	51-71	0.0144-0.0200	43-67	0.0115-0.0180	31-59	0.0087-0.0168
		20	0.02-0.08 x d	54-68	0.0160-0.0200	44-61	0.0144-0.0200	37-58	0.0115-0.0180	27-51	0.0087-0.0168
205RM011..	**1.1**	-	0.02-0.08 x d	99-124	0.0200-0.0250	81-112	0.0180-0.0250	68-106	0.0144-0.0225	48-93	0.0109-0.0210
205RM012..	**1.2**	-3-4-5	0.02-0.08 x d	98-122	0.0228-0.0285	79-110	0.0205-0.0285	67-104	0.0163-0.0254	48-92	0.0128-0.0247
		6-8-10	0.02-0.08 x d	87-109	0.0208-0.0260	71-98	0.0187-0.0260	59-92	0.0160-0.0250	42-81	0.0114-0.0220
		12-14-16	0.02-0.08 x d	87-109	0.0187-0.0234	71-98	0.0168-0.0234	59-92	0.0144-0.0225	42-81	0.0103-0.0198
205RM013..	**1.3**	-	0.02-0.08 x d	106-132	0.0228-0.0285	86-119	0.0205-0.0285	72-112	0.0163-0.0254	51-99	0.0128-0.0247
		-4-5	0.02-0.08 x d	102-127	0.0240-0.0300	80-111	0.0216-0.0300	68-106	0.0173-0.0270	46-88	0.0135-0.0260
		6-8	0.02-0.08 x d	89-111	0.0240-0.0300	72-100	0.0216-0.0300	60-94	0.0173-0.0270	43-83	0.0135-0.0260
		10-12	0.02-0.08 x d	89-111	0.0216-0.0270	72-100	0.0194-0.0270	60-94	0.0156-0.0243	43-83	0.0122-0.0234
205RM015..	**1.5**	-4-5-6	0.02-0.08 x d	106-132	0.0264-0.0330	86-119	0.0238-0.0330	72-112	0.0192-0.0300	51-99	0.0140-0.0270
		8-10-12	0.02-0.08 x d	95-119	0.0238-0.0297	77-107	0.0214-0.0297	65-101	0.0173-0.0270	46-89	0.0126-0.0243
		14-16-18-20	0.02-0.08 x d	85-106	0.0225-0.0281	68-95	0.0202-0.0281	58-90	0.0163-0.0255	41-79	0.0119-0.0229
205RM016..	**1.6**	-4-5-6-8	0.02-0.08 x d	105-131	0.0280-0.0350	85-118	0.0252-0.0350	71-111	0.0198-0.0310	51-98	0.0156-0.0300
		10-12-14-16	0.02-0.08 x d	94-118	0.0252-0.0315	76-106	0.0227-0.0315	64-100	0.0179-0.0279	46-88	0.0140-0.0270
		18-20	0.02-0.08 x d	83-104	0.0238-0.0298	68-94	0.0215-0.0298	57-89	0.0169-0.0264	41-78	0.0133-0.0255
205RM017..	**1.7**	-	0.02-0.08 x d	111-139	0.0320-0.0400	90-125	0.0288-0.0400	76-118	0.0224-0.0350	54-104	0.0172-0.0330
205RM018..	**1.8**	-	0.02-0.08 x d	118-147	0.0320-0.0400	95-132	0.0288-0.0400	80-125	0.0224-0.0350	57-110	0.0172-0.0330
205RM019..	**1.9**	-	0.02-0.08 x d	124-155	0.0320-0.0400	101-140	0.0288-0.0400	84-132	0.0224-0.0350	60-116	0.0172-0.0330
205RM020..	**2.0**	-4	0.02-0.08 x d	106-132	0.0400-0.0500	86-119	0.0360-0.0500	72-112	0.0288-0.0450	51-99	0.0224-0.0430
		6-8	0.02-0.08 x d	106-132	0.0360-0.0450	86-119	0.0324-0.0450	72-112	0.0256-0.0400	51-99	0.0198-0.0380
		10-12-14	0.02-0.08 x d	106-132	0.0320-0.0400	86-119	0.0288-0.0400	72-112	0.0207-0.0324	51-99	0.0177-0.0340
		16-18-20	0.02-0.08 x d	95-119	0.0288-0.0360	77-107	0.0259-0.0360	65-101	0.0207-0.0324	46-89	0.0159-0.0306
		22	0.02-0.08 x d	90-112	0.0272-0.0340	73-101	0.0245-0.0340	61-95	0.0196-0.0306	44-84	0.0150-0.0289
		25-30	0.02-0.08 x d	85-106	0.0272-0.0340	68-95	0.0245-0.0340	58-90	0.0196-0.0306	41-79	0.0150-0.0289
205RM022..	**2.2**	-	0.02-0.08 x d	116-145	0.0400-0.0500	94-131	0.0360-0.0500	79-123	0.0288-0.0450	57-109	0.0224-0.0430
205RM025..	**2.5**	-10	0.02-0.08 x d	121-151	0.0465-0.0581	98-136	0.0418-0.0581	80-125	0.0344-0.0537	57-110	0.0238-0.0457
		12-14-16	0.02-0.08 x d	106-133	0.0525-0.0656	86-120	0.0472-0.0656	70-110	0.0388-0.0606	50-97	0.0268-0.0516
		20-25	0.02-0.08 x d	101-126	0.0453-0.0566	81-113	0.0408-0.0566	67-104	0.0355-0.0523	47-91	0.0230-0.0442

Parametri di taglio

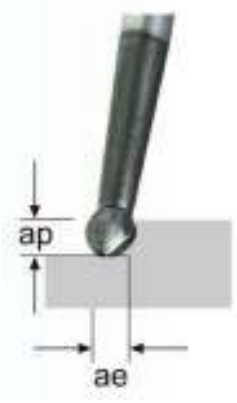
Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

200RM 205RM	Ø mm	l2 mm	ap mm	Steel HRC<25 СТАЛЬ		Stainless Steel HRC<25-35 НЕРЖАВЕЮЩАЯ СТАЛЬ		Heat Resistant Steel HRC<35-50 ЛЕГИРОВАННАЯ СТАЛЬ		Tempered Steel HRC<50-70 СТАЛЬ	
				Vc	Fz	Vc	Fz	Vc	Fz	Vc	Fz
205RM030..	3.0	-6-8-10-12	0.02-0.08 x d	121-151	0.0600-0.0750	98-136	0.0540-0.0750	82-128	0.0429-0.0670	59-113	0.0328-0.0630
		14-16	0.02-0.08 x d	121-151	0.0540-0.0675	98-136	0.0486-0.0675	82-128	0.0386-0.0603	59-113	0.0295-0.0567
		18-20-25-30	0.02-0.08 x d	109-136	0.0540-0.0675	88-122	0.0486-0.0675	74-115	0.0386-0.0603	53-102	0.0295-0.0567
		35	0.02-0.08 x d	97-121	0.0510-0.0638	78-109	0.0459-0.0638	65-102	0.0364-0.0569	47-90	0.0278-0.0535
		40	0.02-0.08 x d	89-111	0.0486-0.0607	71-99	0.0434-0.0603	54-85	0.0338-0.0528	37-72	0.0256-0.0493
205RM040..	4.0	-	0.02-0.08 x d	115-144	0.08000-0.1000	94-130	0.0720-0.1000	79-123	0.0576-0.0900	56-108	0.0442-0.0850
		8-10-12-14 -16-18-20	0.02-0.08 x d	115-144	0.0800-0.1000	94-130	0.0720-0.1000	79-123	0.0576-0.0900	56-108	0.0442-0.0850
		25-30-35-40	0.02-0.08 x d	104-130	0.0720-0.0900	84-117	0.0648-0.0900	71-111	0.0518-0.0810	51-98	0.0398-0.0765
		45-50	0.02-0.08 x d	93-116	0.0680-0.0850	75-104	0.0612-0.0850	63-98	0.0490-0.0765	45-87	0.0375-0.0722

CODE: 200RB STANDARD CUTTING SPEED

MATERIAL	Aluminium Cast Iron Non Alloy Steels АЛЮМИНИЙ-ЧУГУН ЛЕГИРОВАНАЯ СТАЛЬ		Alloy Steels Heat Resistant Steel ЛЕГИРОВАННАЯ СТАЛЬ			
HARDNESS	< 170 HB		HRC 30 - HRC 40		< HRC 65	
Ø	n	Vf	n	Vf	n	Vf
2 - 3	34000	2700	32000	2500	11500	900
4	25000	2200	24000	2100	8000	700
6	16800	1800	15800	1700	6000	600
8	13000	1700	11900	1500	4000	500
10	10000	1400	9800	1300	3600	500
12	8800	1300	7900	1200	2900	400



ae = 0,05 x d
ap = 0,02 x d

CODE: 400RB STANDARD CUTTING SPEED

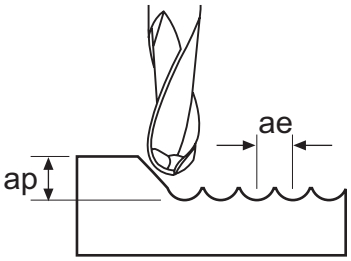
MATERIAL	Aluminium Cast Iron Non Alloy Steels АЛЮМИНИЙ-ЧУГУН ЛЕГИРОВАНАЯ СТАЛЬ		Alloy Steels Heat Resistant Steel ЛЕГИРОВАННАЯ СТАЛЬ			
HARDNESS	< 170 HB		HRC 30 - HRC 40		< HRC 65	
Ø	n	Vf	n	Vf	n	Vf
-	-	-	-	-	-	-
-	-	-	-	-	-	-
6	16800	3800	15900	3400	5800	1200
8	13000	3600	11800	2900	4400	1000
10	10000	2900	10000	2400	3300	900
12	8900	2700	7900	2400	3000	900

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - **Режимы обработки** - Řezná rychlost

For finishing:
ae < 0,02 - 0,03 x d
ap < 0,8 x d
Vc = 1,2 x Vc (Parameter List)
Fz = 0,7 x Vc (Parameter List)



CODE: 200SR - 200SRT - 200R - 200RT - 200RLT - 300CR - 300R - 300RT - 300RLT - 400R - 400RT - 400RLT
ROUGHING - STANDARD CUTTING SPEED

MATERIAL	Steel											
HARDNESS	< 170 HB - СТАЛЬ				< 50 HRC - СТАЛЬ				< 60 HRC - СТАЛЬ			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	140	0.016	0.03 x d	0.03 x d	120	0.016	0.03 x d	0.03 x d	70	0.014	0.03 x d	0.03 x d
4	140	0.032	0.03 x d	0.03 x d	120	0.032	0.03 x d	0.03 x d	70	0.028	0.03 x d	0.03 x d
6	140	0.132	0.03 x d	0.03 x d	120	0.032	0.03 x d	0.03 x d	70	0.028	0.03 x d	0.03 x d
8	140	0.064	0.03 x d	0.03 x d	120	0.064	0.03 x d	0.03 x d	70	0.056	0.03 x d	0.03 x d
10	140	0.064	0.03 x d	0.03 x d	120	0.064	0.03 x d	0.03 x d	70	0.056	0.03 x d	0.03 x d
12 - 18	140	0.096	0.03 x d	0.03 x d	120	0.096	0.03 x d	0.03 x d	70	0.084	0.03 x d	0.03 x d
20 - 25	140	0.160	0.03 x d	0.03 x d	120	0.160	0.03 x d	0.03 x d	70	0.140	0.03 x d	0.03 x d

CODE: 200SR - 200SRT - 200R - 200RT - 200RL - 200RLT - 300CR - 300R - 300RT - 300RLT - 400R - 400RT - 400RLT

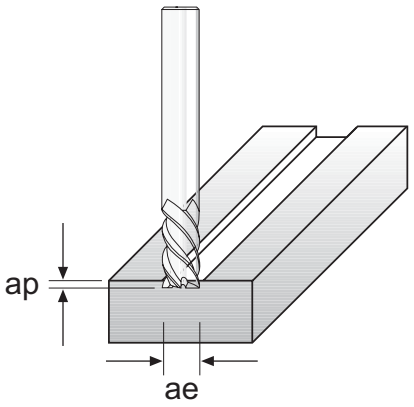
MATERIAL	Copper - МЕДЬ				Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ			
HARDNESS												
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	350	0.020	0.03 x d	0.03 x d	90	0.014	0.03 x d	0.03 x d	80	0.015	0.03 x d	0.03 x d
4	350	0.040	0.03 x d	0.03 x d	90	0.028	0.03 x d	0.03 x d	80	0.030	0.03 x d	0.03 x d
6	350	0.040	0.03 x d	0.03 x d	90	0.028	0.03 x d	0.03 x d	80	0.030	0.03 x d	0.03 x d
8	350	0.080	0.03 x d	0.03 x d	90	0.057	0.03 x d	0.03 x d	80	0.060	0.03 x d	0.03 x d
10	350	0.080	0.03 x d	0.03 x d	90	0.057	0.03 x d	0.03 x d	80	0.060	0.03 x d	0.03 x d
12 - 18	350	0.120	0.03 x d	0.03 x d	90	0.085	0.03 x d	0.03 x d	80	0.090	0.03 x d	0.03 x d
20 - 25	350	0.200	0.03 x d	0.03 x d	90	0.142	0.03 x d	0.03 x d	80	0.150	0.03 x d	0.03 x d

CODE: 200SR - 200SRT - 200R - 200RT - 200RL - 200RLT - 300CR - 300R - 300RT - 300RLT - 400R - 400RT - 400RLT

MATERIAL	Super Alloy - СУПЕР СПЛАВ				Cast Iron - ЧУГУН							
HARDNESS					Lamellair - ЛАМЕЛАР				Nodulaire - ЧУГУН			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	40	0.015	0.03 x d	0.03 x d	130	0.019	0.03 x d	0.03 x d	120	0.015	0.03 x d	0.03 x d
4	40	0.030	0.03 x d	0.03 x d	130	0.038	0.03 x d	0.03 x d	120	0.030	0.03 x d	0.03 x d
6	40	0.030	0.03 x d	0.03 x d	130	0.038	0.03 x d	0.03 x d	120	0.030	0.03 x d	0.03 x d
8	40	0.060	0.03 x d	0.03 x d	130	0.076	0.03 x d	0.03 x d	120	0.060	0.03 x d	0.03 x d
10	40	0.060	0.03 x d	0.03 x d	130	0.076	0.03 x d	0.03 x d	120	0.060	0.03 x d	0.03 x d
12 - 18	40	0.090	0.03 x d	0.03 x d	130	0.114	0.03 x d	0.03 x d	120	0.090	0.03 x d	0.03 x d
20 - 25	40	0.150	0.03 x d	0.03 x d	130	0.190	0.03 x d	0.03 x d	120	0.150	0.03 x d	0.03 x d

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



Code: Y200R ROUGHING - HIGH SPEED CUTTING

MATERIAL	Steel - СТАЛЬ							
HARDNESS	< 170 HB				< HRC 50			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	180	0.015	1 x d	0.096 x d	165	0.014	1 x d	0.046 x d
4	180	0.029	1 x d	0.096 x d	165	0.027	1 x d	0.046 x d
5	180	0.029	1 x d	0.096 x d	165	0.025	1 x d	0.046 x d
6	180	0.029	1 x d	0.096 x d	165	0.055	1 x d	0.046 x d
8	180	0.060	1 x d	0.096 x d	165	0.055	1 x d	0.046 x d
10	180	0.060	1 x d	0.096 x d	165	0.083	1 x d	0.046 x d
12 - 16	180	0.092	1 x d	0.096 x d	165	0.083	1 x d	0.046 x d

MATERIAL	Steel - СТАЛЬ							
HARDNESS	HRC 48-56				< HRC 65			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	160	0.014	1 x d	0.044 x d	75	0.010	1 x d	0.028 x d
4	160	0.027	1 x d	0.044 x d	75	0.020	1 x d	0.028 x d
5	160	0.027	1 x d	0.044 x d	75	0.020	1 x d	0.028 x d
6	160	0.027	1 x d	0.044 x d	75	0.020	1 x d	0.028 x d
8	160	0.055	1 x d	0.044 x d	75	0.043	1 x d	0.028 x d
10	160	0.055	1 x d	0.044 x d	75	0.043	1 x d	0.028 x d
12 - 16	160	0.083	1 x d	0.044 x d	75	0.065	1 x d	0.028 x d

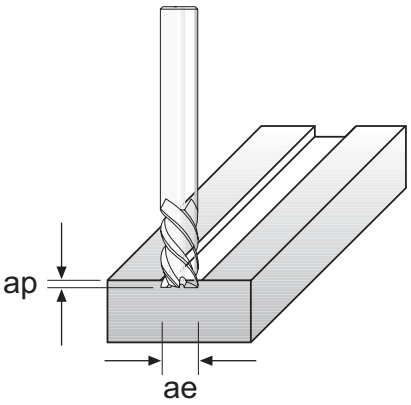
MATERIAL	Cast Iron - ЧУГУН				Titanium - ТИТАН			
HARDNESS								
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	150	0.014	1 x d	0.042 x d	85	0.010	1 x d	0.030 x d
4	150	0.028	1 x d	0.042 x d	85	0.021	1 x d	0.030 x d
5	150	0.028	1 x d	0.042 x d	85	0.021	1 x d	0.030 x d
6	150	0.028	1 x d	0.042 x d	85	0.021	1 x d	0.030 x d
8	150	0.058	1 x d	0.042 x d	85	0.042	1 x d	0.030 x d
10	150	0.058	1 x d	0.042 x d	85	0.042	1 x d	0.030 x d
12 - 16	150	0.084	1 x d	0.042 x d	85	0.063	1 x d	0.030 x d

MATERIAL	Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
HARDNESS								
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	85	0.011	1 x d	0.040 x d	25	0.009	1 x d	0.030 x d
4	85	0.022	1 x d	0.040 x d	25	0.018	1 x d	0.030 x d
5	85	0.022	1 x d	0.040 x d	25	0.018	1 x d	0.030 x d
6	85	0.022	1 x d	0.040 x d	25	0.018	1 x d	0.030 x d
8	85	0.044	1 x d	0.040 x d	25	0.034	1 x d	0.030 x d
10	85	0.044	1 x d	0.040 x d	25	0.034	1 x d	0.030 x d
12 - 16	85	0.065	1 x d	0.040 x d	25	0.054	1 x d	0.030 x d

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y200R FINISHING - HIGH SPEED CUTTING



MATERIAL	Steel - СТАЛЬ							
HARDNESS	< 170 HB				< HRC 50			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	270	0.016	1 x d	0.032 x d	210	0.015	1 x d	0.020 x d
4	270	0.032	1 x d	0.032 x d	210	0.032	1 x d	0.020 x d
5	270	0.032	1 x d	0.032 x d	210	0.032	1 x d	0.020 x d
6	270	0.032	1 x d	0.032 x d	210	0.032	1 x d	0.020 x d
8	270	0.065	1 x d	0.032 x d	210	0.065	1 x d	0.020 x d
10	270	0.065	1 x d	0.032 x d	210	0.065	1 x d	0.020 x d
12 - 16	270	0.095	1 x d	0.032 x d	210	0.097	1 x d	0.020 x d

MATERIAL	Steel - СТАЛЬ							
HARDNESS	HRC 48-56				< HRC 65			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	160	0.014	1 x d	0.044 x d	85	0.012	1 x d	0.010 x d
4	160	0.014	1 x d	0.044 x d	85	0.012	1 x d	0.010 x d
5	160	0.027	1 x d	0.044 x d	85	0.023	1 x d	0.010 x d
6	160	0.027	1 x d	0.044 x d	85	0.023	1 x d	0.010 x d
8	160	0.027	1 x d	0.044 x d	85	0.049	1 x d	0.010 x d
10	160	0.055	1 x d	0.044 x d	85	0.049	1 x d	0.010 x d
12 - 16	160	0.055	1 x d	0.044 x d	85	0.075	1 x d	0.010 x d

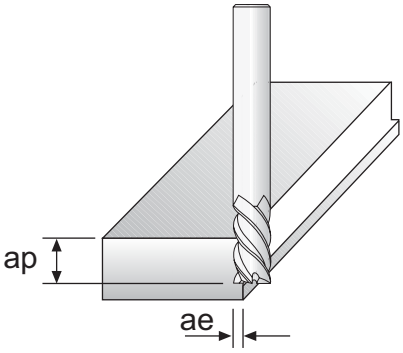
MATERIAL	Cast Iron - ЧУГУН				Titanium - ТИТАН			
HARDNESS								
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	175	0.015	1 x d	0.020 x d	95	0.012	1 x d	0.010 x d
4	175	0.015	1 x d	0.020 x d	95	0.024	1 x d	0.010 x d
5	175	0.031	1 x d	0.020 x d	95	0.024	1 x d	0.010 x d
6	175	0.031	1 x d	0.020 x d	95	0.024	1 x d	0.010 x d
8	175	0.031	1 x d	0.020 x d	95	0.048	1 x d	0.010 x d
10	175	0.062	1 x d	0.020 x d	95	0.048	1 x d	0.010 x d
12 - 16	175	0.062	1 x d	0.020 x d	95	0.072	1 x d	0.010 x d

MATERIAL	Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
HARDNESS								
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	110	0.013	1 x d	0.010 x d	30	0.011	1 x d	0.010 x d
4	110	0.025	1 x d	0.010 x d	30	0.021	1 x d	0.010 x d
5	110	0.025	1 x d	0.010 x d	30	0.021	1 x d	0.010 x d
6	110	0.025	1 x d	0.010 x d	30	0.021	1 x d	0.010 x d
8	110	0.051	1 x d	0.010 x d	30	0.039	1 x d	0.010 x d
10	110	0.051	1 x d	0.010 x d	30	0.039	1 x d	0.010 x d
12 - 16	110	0.075	1 x d	0.010 x d	30	0.063	1 x d	0.010 x d

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y200R ROUGHING - HIGH SPEED CUTTING



MATERIAL	Steel - СТАЛЬ							
HARDNESS	< 170 HB				< HRC 50			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	310	0.024	0.046 x d	1.120 x d	285	0.022	0.035 x d	0.820 x d
4	310	0.048	0.046 x d	1.120 x d	285	0.044	0.035 x d	0.820 x d
5	310	0.048	0.046 x d	1.120 x d	285	0.044	0.035 x d	0.820 x d
6	310	0.048	0.046 x d	1.120 x d	285	0.044	0.035 x d	0.820 x d
8	310	0.097	0.046 x d	1.120 x d	285	0.089	0.035 x d	0.820 x d
10	310	0.097	0.046 x d	1.120 x d	285	0.089	0.035 x d	0.820 x d
12 - 16	310	0.145	0.046 x d	1.120 x d	285	0.134	0.035 x d	0.820 x d

MATERIAL	Steel - СТАЛЬ							
HARDNESS	HRC 48-56				< HRC 65			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	275	0.021	0.033 x d	0.820 x d	125	0.015	0.028 x d	0.750 x d
4	275	0.042	0.033 x d	0.820 x d	125	0.030	0.028 x d	0.750 x d
5	275	0.042	0.033 x d	0.820 x d	125	0.030	0.028 x d	0.750 x d
6	275	0.042	0.033 x d	0.820 x d	125	0.030	0.028 x d	0.750 x d
8	275	0.085	0.033 x d	0.820 x d	125	0.065	0.028 x d	0.750 x d
10	275	0.085	0.033 x d	0.820 x d	125	0.065	0.028 x d	0.750 x d
12 - 16	275	0.128	0.033 x d	0.820 x d	125	0.100	0.028 x d	0.750 x d

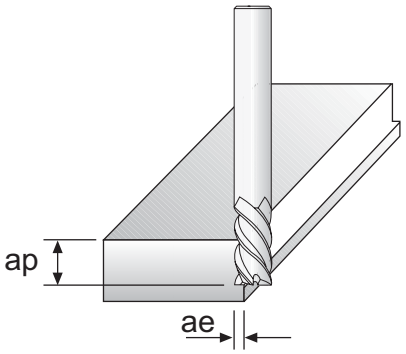
MATERIAL	Cast Iron - ЧУГУН				Titanium - ТИТАН			
HARDNESS								
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	250	0.021	0.021 x d	0.850 x d	140	0.017	0.020 x d	0.750 x d
4	250	0.043	0.021 x d	0.850 x d	140	0.035	0.020 x d	0.750 x d
5	250	0.043	0.021 x d	0.850 x d	140	0.035	0.020 x d	0.750 x d
6	250	0.043	0.021 x d	0.850 x d	140	0.035	0.020 x d	0.750 x d
8	250	0.088	0.021 x d	0.850 x d	140	0.070	0.020 x d	0.750 x d
10	250	0.088	0.021 x d	0.850 x d	140	0.070	0.020 x d	0.750 x d
12 - 16	250	0.129	0.021 x d	0.850 x d	140	0.104	0.020 x d	0.750 x d

MATERIAL	Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
HARDNESS								
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	140	0.018	0.020 x d	0.830 x d	40	0.015	0.020 x d	0.520 x d
4	140	0.036	0.020 x d	0.830 x d	40	0.030	0.020 x d	0.520 x d
5	140	0.036	0.020 x d	0.830 x d	40	0.030	0.020 x d	0.520 x d
6	140	0.036	0.020 x d	0.830 x d	40	0.030	0.020 x d	0.520 x d
8	140	0.073	0.020 x d	0.830 x d	40	0.056	0.020 x d	0.520 x d
10	140	0.073	0.020 x d	0.830 x d	40	0.056	0.020 x d	0.520 x d
12 - 16	140	0.108	0.020 x d	0.830 x d	40	0.090	0.020 x d	0.520 x d

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y200R FINISHING - HIGH SPEED CUTTING



MATERIAL	Steel - СТАЛЬ							
HARDNESS	< 170 HB				< HRC 50			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	415	0.025	0.030 x d	0.850 x d	355	0.024	0.020 x d	0.650 x d
4	415	0.050	0.030 x d	0.850 x d	355	0.050	0.020 x d	0.650 x d
5	415	0.050	0.030 x d	0.850 x d	355	0.050	0.020 x d	0.650 x d
6	415	0.050	0.030 x d	0.850 x d	355	0.050	0.020 x d	0.650 x d
8	415	0.100	0.030 x d	0.850 x d	355	0.099	0.020 x d	0.650 x d
10	415	0.100	0.030 x d	0.850 x d	355	0.099	0.020 x d	0.650 x d
12 - 16	415	0.150	0.030 x d	0.850 x d	355	0.149	0.020 x d	0.650 x d

MATERIAL	Steel - СТАЛЬ							
HARDNESS	HRC 48-56				< HRC 65			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	340	0.022	0.020 x d	0.650 x d	140	0.018	0.010 x d	0.450 x d
4	340	0.045	0.020 x d	0.650 x d	140	0.035	0.010 x d	0.450 x d
5	340	0.045	0.020 x d	0.650 x d	140	0.035	0.010 x d	0.450 x d
6	340	0.045	0.020 x d	0.650 x d	140	0.035	0.010 x d	0.450 x d
8	340	0.090	0.020 x d	0.650 x d	140	0.075	0.010 x d	0.450 x d
10	340	0.090	0.020 x d	0.650 x d	140	0.075	0.010 x d	0.450 x d
12 - 16	340	0.135	0.020 x d	0.650 x d	140	0.115	0.010 x d	0.450 x d

MATERIAL	Cast Iron - ЧУГУН				Titanium - ТИТАН			
HARDNESS								
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	285	0.023	0.010 x d	0.640 x d	160	0.020	0.010 x d	0.430 x d
4	285	0.047	0.010 x d	0.640 x d	160	0.040	0.010 x d	0.430 x d
5	285	0.047	0.010 x d	0.640 x d	160	0.040	0.010 x d	0.430 x d
6	285	0.047	0.010 x d	0.640 x d	160	0.040	0.010 x d	0.430 x d
8	285	0.095	0.010 x d	0.640 x d	160	0.080	0.010 x d	0.430 x d
10	285	0.095	0.010 x d	0.640 x d	160	0.080	0.010 x d	0.430 x d
12 - 16	285	0.140	0.010 x d	0.640 x d	160	0.120	0.010 x d	0.430 x d

MATERIAL	Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
HARDNESS								
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	180	0.021	0.010 x d	0.580 x d	60	0.018	0.010 x d	0.350 x d
4	180	0.042	0.010 x d	0.580 x d	60	0.035	0.010 x d	0.350 x d
5	180	0.042	0.010 x d	0.580 x d	60	0.035	0.010 x d	0.350 x d
6	180	0.042	0.010 x d	0.580 x d	60	0.035	0.010 x d	0.350 x d
8	180	0.085	0.010 x d	0.580 x d	60	0.065	0.010 x d	0.350 x d
10	180	0.085	0.010 x d	0.580 x d	60	0.065	0.010 x d	0.350 x d
12 - 16	180	0.125	0.010 x d	0.580 x d	60	0.105	0.010 x d	0.350 x d

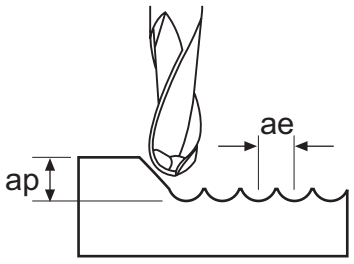
Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 200DRJ - 200DJ ROUGHING

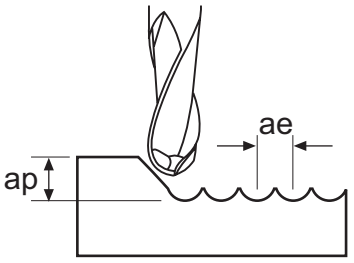
MATERIAL	Steel - СТАЛЬ							
HARDNESS	< HRC 48				< HRC 55			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1	150-250	0.02-0.04	0.100 x d	0.100 x d	100-180	0.02-0.03	0.100 x d	0.100 x d
2 - 3	150-250	0.04-0.07	0.100 x d	0.100 x d	100-180	0.03-0.06	0.100 x d	0.100 x d
4 - 6	150-250	0.08-0.11	0.100 x d	0.100 x d	100-180	0.07-0.10	0.100 x d	0.100 x d
8 - 10	150-250	0.11-0.14	0.100 x d	0.100 x d	100-180	0.10-0.13	0.100 x d	0.100 x d
12	150-250	0.12-0.15	0.100 x d	0.100 x d	100-180	0.12-0.14	0.100 x d	0.100 x d
16	150-250	0.14-0.16	0.100 x d	0.100 x d	100-180	0.14-0.16	0.100 x d	0.100 x d
20	150-250	0.17-0.20	0.100 x d	0.100 x d	100-180	0.16-0.18	0.100 x d	0.100 x d



MATERIAL	Steel - СТАЛЬ								Cast Iron - ЧУГУНn			
HARDNESS	< HRC 60				< HRC 65							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
1	80-120	0.02-0.03	0.060 x d	0.060 x d	70-100	0.02-0.03	0.060 x d	0.060 x d	150-300	0.02-0.04	0.200 x d	0.200 x d
2 - 3	80-120	0.03-0.05	0.060 x d	0.060 x d	70-100	0.03-0.05	0.060 x d	0.060 x d	150-300	0.04-0.07	0.200 x d	0.200 x d
4 - 6	80-120	0.07-0.08	0.060 x d	0.060 x d	70-100	0.07-0.08	0.060 x d	0.060 x d	150-300	0.08-0.11	0.200 x d	0.200 x d
8 - 10	80-120	0.09-0.11	0.060 x d	0.060 x d	70-100	0.09-0.11	0.060 x d	0.060 x d	150-300	0.11-0.14	0.200 x d	0.200 x d
12	80-120	0.09-0.11	0.060 x d	0.060 x d	70-100	0.09-0.11	0.060 x d	0.060 x d	150-300	0.12-0.15	0.200 x d	0.200 x d
15	80-120	0.10-0.13	0.060 x d	0.060 x d	70-100	0.10-0.13	0.060 x d	0.060 x d	150-300	0.14-0.16	0.200 x d	0.200 x d
20	80-120	0.12-0.15	0.060 x d	0.060 x d	70-100	0.12-0.15	0.060 x d	0.060 x d	150-300	0.17-0.20	0.200 x d	0.200 x d

CODE: 200DRJ - 200DJ FINISHING

MATERIAL	Steel - СТАЛЬ							
HARDNESS	< HRC 48				< HRC 55			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1	200-300	0.02-0.03	0.03-0.05	0.03-0.05	150-200	0.02-0.03	0.03-0.05	0.03-0.05
2 - 3	200-300	0.02-0.03	0.07-0.10	0.07-0.10	150-200	0.02-0.03	0.07-0.10	0.07-0.10
4 - 6	200-300	0.05-0.06	0.10-0.15	0.10-0.15	150-200	0.05-0.06	0.10-0.15	0.10-0.15
8 - 10	200-300	0.06-0.07	0.15-0.20	0.15-0.20	150-200	0.06-0.07	0.15-0.20	0.15-0.20
12	200-300	0.07-0.08	0.20-0.24	0.20-0.24	150-200	0.07-0.08	0.20-02.4	0.20-0.24
16	200-300	0.08-0.10	0.24-0.28	0.24-0.28	150-200	0.08-0.09	0.24-0.28	0.24-0.28
20	200-300	0.10-0.12	0.28-0.32	0.28-032	150-200	0.09-0.10	0.28-0.32	0.28-0.32



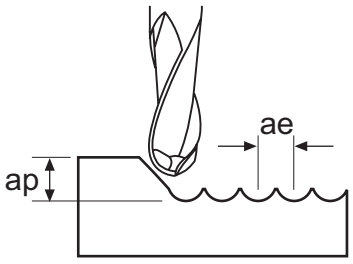
MATERIAL	Steel - СТАЛЬ								Cast Iron - ЧУГУНn			
HARDNESS	< HRC 60				< HRC 65							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
1	100-130	0.01-0.02	0.03-0.05	0.03-0.05	80-120	0.01-0.02	0.03-0.05	0.03-0.05	200-300	0.02-0.03	0.100 x d	0.100 x d
2 - 3	100-130	0.01-0.03	0.07-0.10	0.07-0.10	80-120	0.01-0.03	0.07-0.10	0.07-0.10	200-300	0.02-0.03	0.100 x d	0.100 x d
4 - 6	100-130	0.03-0.05	0.10-0.15	0.10-0.15	80-120	0.03-0.05	0.10-0.15	0.10-0.15	200-300	0.05-0.06	0.100 x d	0.100 x d
8 - 10	100-130	0.05-0.07	0.15-0.20	0.15-0.20	80-120	0.05-0.07	0.15-0.20	0.15-0.20	200-300	0.06-0.07	0.100 x d	0.100 x d
12	100-130	0.06-0.07	0.20-0.24	0.20-0.24	80-120	0.06-0.07	0.20-0.24	0.20-0.24	200-300	0.07-0.08	0.100 x d	0.100 x d
15	100-130	0.07-0.08	0.24-0.28	0.24-0.28	80-120	0.07-0.08	0.24-0.28	0.24-0.28	200-300	0.08-0.10	0.100 x d	0.100 x d
20	100-130	0.08-0.10	0.28-0.32	0.28-0.32	80-120	0.08-0.10	0.28-0.32	0.28-0.32	200-300	0.10-0.12	0.100 x d	0.100 x d

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 200SRJ - 200SRJL - 400SRJ ROUGHING - HIGH SPEED CUTTING

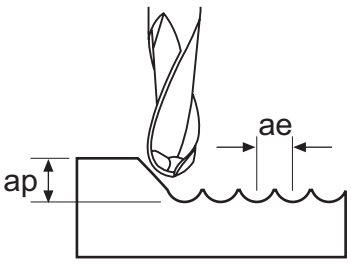
MATERIAL	Steel - СТАЛЬ							
HARDNESS	< 170 HB				< HRC 50			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	240	0.045	0.400 x d	0.100 x d	225	0.040	0.300 x d	0.080 x d
4 - 6	240	0.080	0.400 x d	0.100 x d	225	0.070	0.300 x d	0.080 x d
8 - 10	240	0.160	0.400 x d	0.100 x d	225	0.130	0.300 x d	0.080 x d
12 - 16	240	0.220	0.400 x d	0.100 x d	225	0.200	0.300 x d	0.080 x d
20	240	0.300	0.400 x d	0.100 x d	225	0.260	0.300 x d	0.080 x d



MATERIAL	Steel - СТАЛЬ				Cast Iron - ЧУГУНn				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ			
HARDNESS	< HRC 48 - 60											
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	215	0.035	0.250 x d	0.060 x d	200	0.035	0.300 x d	0.080 x d	110	0.019	0.150 x d	0.080 x d
4 - 6	215	0.060	0.250 x d	0.060 x d	200	0.060	0.300 x d	0.080 x d	110	0.039	0.150 x d	0.080 x d
8 - 10	215	0.120	0.250 x d	0.060 x d	200	0.120	0.300 x d	0.080 x d	110	0.077	0.150 x d	0.080 x d
12 - 16	215	0.170	0.250 x d	0.060 x d	200	0.170	0.300 x d	0.080 x d	110	0.114	0.150 x d	0.080 x d
20	215	0.220	0.250 x d	0.060 x d	200	0.220	0.300 x d	0.080 x d	110	0.192	0.150 x d	0.080 x d

CODE: 200SRJ - 400SRJ FINISHING - HIGH SPEED CUTTING

MATERIAL	Steel - СТАЛЬ							
HARDNESS	< 170 HB				< HRC 50			
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	500	0.028	0.010 x d	0.020 x d	390	0.026	0.020 x d	0.010 x d
4 - 6	500	0.055	0.010 x d	0.020 x d	390	0.055	0.020 x d	0.010 x d
8 - 10	500	0.110	0.010 x d	0.020 x d	390	0.109	0.020 x d	0.010 x d
12 - 16	500	0.165	0.010 x d	0.020 x d	390	0.164	0.020 x d	0.010 x d
20	500	0.220	0.010 x d	0.020 x d	390	0.218	0.020 x d	0.010 x d



MATERIAL	Steel - СТАЛЬ				Cast Iron - ЧУГУНn				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ			
HARDNESS	< HRC 48 - 60											
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
1 - 3	375	0.024	0.010 x d	0.020 x d	325	0.025	0.020 x d	0.020 x d	215	0.022	0.010 x d	0.020 x d
4 - 6	375	0.050	0.010 x d	0.020 x d	325	0.025	0.020 x d	0.020 x d	215	0.045	0.010 x d	0.020 x d
8 - 10	375	0.099	0.010 x d	0.020 x d	325	0.105	0.020 x d	0.020 x d	215	0.090	0.010 x d	0.020 x d
12 - 16	375	0.149	0.010 x d	0.020 x d	325	0.154	0.020 x d	0.020 x d	215	0.133	0.010 x d	0.020 x d
20	375	0.198	0.010 x d	0.020 x d	325	0.209	0.020 x d	0.020 x d	215	0.223	0.010 x d	0.020 x d

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 300NRJ MINIMUM CONDITION

Ø	< 20 HRC		20 - 30 HRC		30 - 40 HRC	
	VC m/min	200	VC m/min	200	VC m/min	200
	RPM (min.-1)	vf (m/min.)	RPM (min.-1)	vf (m/min.)	RPM (min.-1)	vf (m/min.)
3	21.000	3.80	21.000	3.10	21.000	3.10
4	16.000	3.70	16.000	3.50	16.000	3.50
5	13.000	4.00	13.000	3.80	13.000	3.80
6	11.000	4.10	11.000	4.00	11.000	4.00
8	8.000	4.00	8.000	3.90	8.000	3.90
10	6.400	3.80	6.400	3.80	6.400	3.80
12	5.300	3.70	5.300	3.60	5.300	3.60

Ø	40 - 50 HRC		50 - 60 HRC		< 72 HRC	
	VC m/min	200	VC m/min	200	VC m/min	200
	RPM (min.-1)	vf (m/min.)	RPM (min.-1)	vf (m/min.)	RPM (min.-1)	vf (m/min.)
3	21.000	3.00	21.000	2.30	21.000	1.50
4	16.000	3.40	16.000	2.60	16.000	1.72
5	13.000	3.70	13.000	2.75	13.000	1.83
6	11.000	3.80	11.000	2.90	11.000	1.91
8	8.000	3.70	8.000	2.80	8.000	1.86
10	6.400	3.70	6.400	2.80	6.400	1.86
12	5.300	3.40	5.300	2.60	5.300	1.72

Cutting depth: d x 0.05

CODE: 300NRJ MAXIMUM CONDITION

Ø	< 20 HRC		20 - 30 HRC		30 - 40 HRC	
	VC m/min	300	VC m/min	300	VC m/min	300
	RPM (min.-1)	vf (m/min.)	RPM (min.-1)	vf (m/min.)	RPM (min.-1)	vf (m/min.)
3	32.000	4.90	32.000	4.70	32.000	4.70
4	24.000	5.50	24.000	5.30	24.000	5.30
5	19.000	5.50	19.000	5.70	19.000	5.70
6	16.000	6.20	16.000	5.90	16.000	5.90
8	12.000	6.00	12.000	5.80	12.000	5.80
10	9.500	5.90	9.500	5.70	9.500	5.70
12	8.000	5.50	8.000	5.30	8.000	5.30

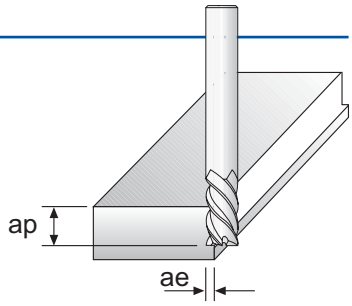
Ø	40 - 50 HRC		50 - 60 HRC		< 72 HRC	
	VC m/min	300	VC m/min	300	VC m/min	300
	RPM (min.-1)	vf (m/min.)	RPM (min.-1)	vf (m/min.)	RPM (min.-1)	vf (m/min.)
3	32.000	4.50	32.000	3.40	32.000	2.10
4	24.000	5.10	24.000	3.80	24.000	2.40
5	19.000	5.50	19.000	4.10	19.000	2.60
6	16.000	5.70	16.000	4.30	16.000	2.70
8	12.000	5.50	12.000	4.10	12.000	2.60
10	9.500	5.50	9.500	4.10	9.500	2.60
12	8.000	5.10	8.000	3.80	8.000	2.45

Cutting depth: d x 0.05

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



CODE: Y300R ROUGHING - HIGH SPEED CUTTING

MATERIAL	Steel - СТАЛЬ								Cast Iron - ЧУГУНn			
HARDNESS	< 170 HB				< HRC 45							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
3	310	0.024	0.046 x d	1.120 x d	285	0.022	0.035 x d	0.820 x d	250	0.021	0.021 x d	0.850 x d
4	310	0.048	0.046 x d	1.120 x d	285	0.044	0.035 x d	0.820 x d	250	0.043	0.021 x d	0.850 x d
6	310	0.048	0.046 x d	1.120 x d	285	0.044	0.035 x d	0.820 x d	250	0.043	0.021 x d	0.850 x d
8	310	0.097	0.046 x d	1.120 x d	285	0.089	0.035 x d	0.820 x d	250	0.088	0.021 x d	0.850 x d
10	310	0.097	0.046 x d	1.120 x d	285	0.089	0.035 x d	0.820 x d	250	0.088	0.021 x d	0.850 x d
12	310	0.145	0.046 x d	1.120 x d	285	0.134	0.035 x d	0.820 x d	250	0.129	0.021 x d	0.850 x d

MATERIAL	Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
HARDNESS												
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
3	140	0.017	0.020 x d	0.750 x d	140	0.018	0.020 x d	0.830 x d	40	0.015	0.020 x d	0.520 x d
4	140	0.035	0.020 x d	0.750 x d	140	0.036	0.020 x d	0.830 x d	40	0.030	0.020 x d	0.520 x d
6	140	0.035	0.020 x d	0.750 x d	140	0.036	0.020 x d	0.830 x d	40	0.030	0.020 x d	0.520 x d
8	140	0.070	0.020 x d	0.750 x d	140	0.073	0.020 x d	0.830 x d	40	0.056	0.020 x d	0.520 x d
10	140	0.070	0.020 x d	0.750 x d	140	0.073	0.020 x d	0.830 x d	40	0.056	0.020 x d	0.520 x d
12	140	0.104	0.020 x d	0.750 x d	140	0.108	0.020 x d	0.830 x d	40	0.090	0.020 x d	0.520 x d

CODE: Y300R FINISHING - HIGH SPEED CUTTING

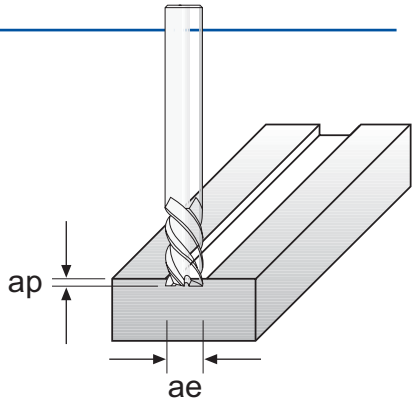
MATERIAL	Steel - СТАЛЬ								Cast Iron - ЧУГУНn			
HARDNESS	< 170 HB				< HRC 45							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
3	415	0.025	0.030 x d	0.850 x d	355	0.024	0.020 x d	0.650 x d	285	0.023	0.010 x d	0.640 x d
4	415	0.050	0.030 x d	0.850 x d	355	0.050	0.020 x d	0.650 x d	285	0.047	0.010 x d	0.640 x d
6	415	0.050	0.030 x d	0.850 x d	355	0.050	0.020 x d	0.650 x d	285	0.047	0.010 x d	0.640 x d
8	415	0.100	0.030 x d	0.850 x d	355	0.099	0.020 x d	0.650 x d	285	0.095	0.010 x d	0.640 x d
10	415	0.100	0.030 x d	0.850 x d	355	0.099	0.020 x d	0.650 x d	285	0.095	0.010 x d	0.640 x d
12	415	0.150	0.030 x d	0.850 x d	355	0.149	0.020 x d	0.650 x d	285	0.140	0.010 x d	0.640 x d

MATERIAL	Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
HARDNESS												
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
3	160	0.020	0.010 x d	0.430 x d	180	0.021	0.010 x d	0.580 x d	60	0.018	0.010 x d	0.350 x d
4	160	0.040	0.010 x d	0.430 x d	180	0.042	0.010 x d	0.580 x d	60	0.035	0.010 x d	0.350 x d
6	160	0.040	0.010 x d	0.430 x d	180	0.042	0.010 x d	0.580 x d	60	0.035	0.010 x d	0.350 x d
8	160	0.080	0.010 x d	0.430 x d	180	0.085	0.010 x d	0.580 x d	60	0.065	0.010 x d	0.350 x d
10	160	0.080	0.010 x d	0.430 x d	180	0.085	0.010 x d	0.580 x d	60	0.065	0.010 x d	0.350 x d
12	160	0.120	0.010 x d	0.430 x d	180	0.125	0.010 x d	0.580 x d	60	0.105	0.010 x d	0.350 x d

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



CODE: Y300R ROUGHING - HIGH SPEED CUTTING

MATERIAL	Steel - СТАЛЬ								Cast Iron - ЧУГУНn			
HARDNESS	< 170 HB				< HRC 45							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
3	180	0.015	1 x d	0.096 x d	165	0.014	1 x d	0.046 x d	150	0.014	1 x d	0.042 x d
4	180	0.029	1 x d	0.096 x d	165	0.027	1 x d	0.046 x d	150	0.028	1 x d	0.042 x d
6	180	0.029	1 x d	0.096 x d	165	0.055	1 x d	0.046 x d	150	0.028	1 x d	0.042 x d
8	180	0.060	1 x d	0.096 x d	165	0.055	1 x d	0.046 x d	150	0.058	1 x d	0.042 x d
10	180	0.060	1 x d	0.096 x d	165	0.083	1 x d	0.046 x d	150	0.058	1 x d	0.042 x d
12	180	0.092	1 x d	0.096 x d	165	0.083	1 x d	0.046 x d	150	0.084	1 x d	0.042 x d

MATERIAL	Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
HARDNESS												
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
3	85	0.010	1 x d	0.030 x d	85	0.011	1 x d	0.040 x d	25	0.009	1 x d	0.030 x d
4	85	0.021	1 x d	0.030 x d	85	0.022	1 x d	0.040 x d	25	0.018	1 x d	0.030 x d
6	85	0.021	1 x d	0.030 x d	85	0.022	1 x d	0.040 x d	25	0.018	1 x d	0.030 x d
8	85	0.042	1 x d	0.030 x d	85	0.044	1 x d	0.040 x d	25	0.034	1 x d	0.030 x d
10	85	0.042	1 x d	0.030 x d	85	0.044	1 x d	0.040 x d	25	0.034	1 x d	0.030 x d
12	85	0.063	1 x d	0.030 x d	85	0.065	1 x d	0.040 x d	25	0.054	1 x d	0.030 x d

CODE: Y300R FINISHING - HIGH SPEED CUTTING

MATERIAL	Steel - СТАЛЬ								Cast Iron - ЧУГУНn			
HARDNESS	< 170 HB				< HRC 45							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
3	270	0.016	1 x d	0.032 x d	210	0.015	1 x d	0.020 x d	175	0.015	1 x d	0.020 x d
4	270	0.032	1 x d	0.032 x d	210	0.032	1 x d	0.020 x d	175	0.031	1 x d	0.020 x d
6	270	0.032	1 x d	0.032 x d	210	0.032	1 x d	0.020 x d	175	0.031	1 x d	0.020 x d
8	270	0.065	1 x d	0.032 x d	210	0.065	1 x d	0.020 x d	175	0.062	1 x d	0.020 x d
10	270	0.065	1 x d	0.032 x d	210	0.065	1 x d	0.020 x d	175	0.062	1 x d	0.020 x d
12	270	0.095	1 x d	0.032 x d	210	0.097	1 x d	0.020 x d	175	0.091	1 x d	0.020 x d

MATERIAL	Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
HARDNESS												
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
3	95	0.012	1 x d	0.010 x d	110	0.013	1 x d	0.010 x d	30	0.011	1 x d	0.010 x d
4	95	0.024	1 x d	0.010 x d	110	0.025	1 x d	0.010 x d	30	0.021	1 x d	0.010 x d
6	95	0.024	1 x d	0.010 x d	110	0.025	1 x d	0.010 x d	30	0.021	1 x d	0.010 x d
8	95	0.048	1 x d	0.010 x d	110	0.051	1 x d	0.010 x d	30	0.039	1 x d	0.010 x d
10	95	0.048	1 x d	0.010 x d	110	0.051	1 x d	0.010 x d	30	0.039	1 x d	0.010 x d
12	95	0.072	1 x d	0.010 x d	110	0.075	1 x d	0.010 x d	30	0.063	1 x d	0.010 x d

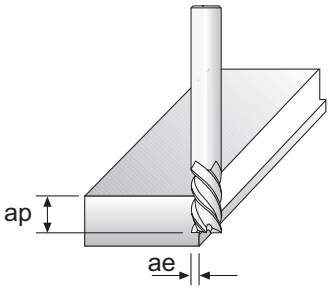
Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

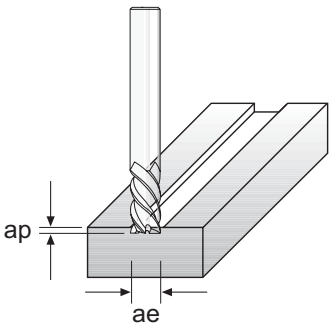
CODE: Y300 SIDE MILLING

MATERIAL	Carbon Steel-Cast Iron ЧУГУНn		Alloy Steel-Tool Steel ЛЕГИРОВАННАЯ СТАЛЬ		Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ	
HARDNESS	< 30 HRC		< 45 HRC			
Ø	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min
	ae<0.1 x d (d<3mm) ap<1.5 x d ae>0.2 x d (d>3mm) ap<1.5 x d					
2	11000	600	7200	310	6000	210
3	8500	770	5300	380	4400	220
4	7200	850	4400	480	3700	250
6	5300	940	3200	490	2700	270
8	4000	1000	2400	560	2000	280
10	3200	1000	1900	480	1600	300
12	2700	950	1600	440	1300	300
16	2000	720	1200	350	1000	260
20	1600	600	1000	290	800	240



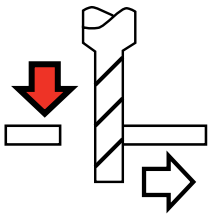
CODE: Y300 SLOT MILLING

MATERIAL	Carbon Steel-Cast Iron ЧУГУНn		Alloy Steel-Tool Steel ЛЕГИРОВАННАЯ СТАЛЬ		Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ	
HARDNESS	< 30 HRC		< 45 HRC			
Ø	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min
	ae=1 x d ap<1 x d		ae=1 x d ap<1 x d		ae=1 x d ap<0.5 x d	
2	11000	500	7200	260	6000	130
3	8500	650	5300	320	4200	130
4	7200	650	4400	370	3400	140
6	5300	720	3200	380	2200	140
8	4000	780	2400	430	1600	140
10	3200	770	1900	370	1300	150
12	2700	730	1600	340	1100	150
16	2000	600	1200	290	800	130
20	1600	500	1000	240	640	120



CODE: Y300 DRILLING & MILLING

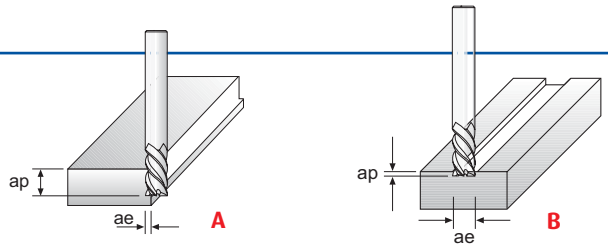
MATERIAL	Carbon Steel-Cast Iron ЧУГУНn		Alloy Steel-Tool Steel ЛЕГИРОВАННАЯ СТАЛЬ		Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ	
HARDNESS	< 30 HRC		< 45 HRC			
Ø	RPM	Feed mm/min	RPM	Feed mm/min	RPM	Feed mm/min
	ap<1 x d		ap<1 x d		ap<0.5 x d	
2	11000	200	7200	140	6000	30
3	8500	250	5300	180	4400	50
4	7200	300	4400	210	3700	60
6	5300	300	3200	210	2700	70
8	4000	320	2400	220	2000	80
10	3200	340	1900	240	1600	70
12	2700	320	1600	220	1300	70
16	2000	250	1200	180	1000	55
20	1600	200	1000	140	800	55



Parametri di taglio

Cutting speed

Richtwerte - Paramétres
Режимы обработки - Řezná rychlost



CODE: 302 - 404 SIDE MILLING (A)

MATERIAL	Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Super Alloy СУПЕР СПЛАВ						Inconel 718 ИНКОНЕЛЬ					
HARDNESS	Cr-Ni						Cr-Ni-Mo																	
Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
3	80	0.015	8490	380	1.2	3	40	0.015	4250	190	1.2	3	25	0.015	2650	120	1.2	3	15	0.015	1600	70	1.2	3
4	80	0.020	6365	380	1.6	4	40	0.020	3200	190	1.6	4	25	0.020	2000	120	1.6	4	15	0.020	1200	70	1.6	4
5	80	0.025	5095	380	2	5	40	0.025	2560	190	2	5	25	0.025	1600	120	2	5	15	0.025	960	70	2	5
6	80	0.030	4245	380	2.4	6	40	0.030	2120	190	2.4	6	25	0.030	1330	120	2.4	6	15	0.030	800	70	2.4	6
8	80	0.040	3185	380	3.2	8	40	0.040	1600	190	3.2	8	25	0.035	1000	105	3.2	8	15	0.035	600	60	3.2	8
10	80	0.055	2545	420	4	10	40	0.055	1280	210	4	10	25	0.045	800	105	4	10	15	0.045	480	65	4	10
12	80	0.065	2120	415	4.8	12	40	0.065	1050	205	4.8	12	25	0.050	670	100	4.8	12	15	0.050	410	60	4.8	12
16	80	0.085	1590	405	6.4	16	40	0.085	800	205	6.4	16	25	0.060	500	90	6.4	16	15	0.060	305	55	6.4	16

CODE: 302 - 404 SLOT MILLING (B)

MATERIAL	Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Super Alloy СУПЕР СПЛАВ						Inconel 718 ИНКОНЕЛЬ					
HARDNESS	Cr-Ni						Cr-Ni-Mo																	
Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
3	60	0.015	6370	285	3.00	1.5	30	0.015	3190	145	3	1.5	20	0.015	2120	95	3	1.5	10	0.015	1060	50	3	1.5
4	60	0.020	4780	285	4.00	2	30	0.020	2390	145	4	2	20	0.020	1600	95	4	2	10	0.020	800	50	4	2
5	60	0.025	3800	285	5.00	2.5	30	0.025	1900	145	5	2.5	20	0.025	1280	95	5	2.5	10	0.025	640	50	5	2.5
6	60	0.030	3200	285	6.00	3	30	0.030	1600	145	6	3	20	0.030	1080	95	6	3	10	0.030	530	50	6	3
8	60	0.040	3390	285	8.00	4	30	0.040	1200	145	8	4	20	0.035	800	95	8	4	10	0.035	401	40	8	4
10	60	0.055	1900	315	10.00	5	30	0.055	960	160	10	5	20	0.045	640	95	10	5	10	0.045	320	45	10	5
12	60	0.065	1600	310	12.00	6	30	0.065	800	155	12	6	20	0.050	540	95	12	6	10	0.050	270	40	12	6
16	60	0.085	1200	305	16.00	8	30	0.085	600	150	16	8	20	0.060	400	95	16	8	10	0.060	200	35	16	8

CODE: Y401 SIDE MILLING (A)

MATERIAL	Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Super Alloy СУПЕР СПЛАВ						Inconel 718 ИНКОНЕЛЬ					
HARDNESS	Cr-Ni						Cr-Ni-Mo																	
Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
3	80	0.015	8500	510	1.20	4.5	40	0.015	4250	260	1.20	4.5	25	0.010	2660	105	1.2	4.5	15	0.01	1600	65	1.2	4.5
4	80	0.020	6370	510	1.60	6	40	0.020	3190	260	1.60	6	25	0.015	2000	120	1.6	6	15	0.015	1200	70	1.6	6
5	80	0.025	5100	510	2.00	7.5	40	0.025	2550	260	2.00	7.5	25	0.020	1600	125	2	7.5	15	0.02	1000	75	2	7.5
6	80	0.025	4250	425	2.40	9	40	0.025	2120	210	2.40	9	25	0.020	1325	105	2.4	9	15	0.02	800	65	2.4	9
8	80	0.035	3190	445	3.20	12	40	0.035	1600	230	3.20	12	25	0.030	1000	120	3.2	12	15	0.03	600	70	3.2	12
10	80	0.045	2550	460	4.00	15	40	0.045	1280	230	4.00	15	25	0.035	800	110	4	15	15	0.035	480	65	4	15
12	80	0.050	2120	425	4.80	18	40	0.050	1060	210	4.80	18	25	0.040	665	105	4.8	18	15	0.04	400	65	4.8	18
16	80	0.075	1600	475	6.4	24	40	0.075	800	240	6.4	24	25	0.060	500	120	6.4	24	15	0.06	300	70	6.4	24

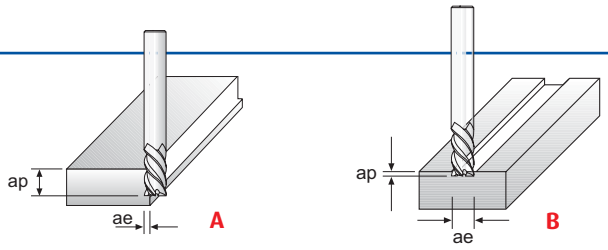
CODE: Y401 SLOT MILLING (B)

MATERIAL	Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Super Alloy СУПЕР СПЛАВ						Inconel 718 ИНКОНЕЛЬ					
HARDNESS	Cr-Ni						Cr-Ni-Mo																	
Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
3	60	0.015	6400	380	3	1.5	30	0.015	3185	190	3	1.5	20	0.015	2120	125	3	1.5	10	0.015	1060	65	3	1.5
4	60	0.020	4780	380	4	2	30	0.020	2385	190	4	2	20	0.020	1600	125	4	2	10	0.020	800	65	4	2
5	60	0.025	3820	380	5	2.5	30	0.025	1910	190	5	2.5	20	0.025	1280	130	5	2.5	10	0.025	640	65	5	2.5
6	60	0.030	3200	380	6	3	30	0.030	1590	190	6	3	20	0.025	1060	105	6	3	10	0.025	530	65	6	3
8	60	0.040	2390	380	8	4	30	0.040	1200	190	8	4	20	0.035	800	110	8	4	10	0.035	400	65	8	4
10	60	0.055	1910	420	10	5	30	0.055	960	190	10	5	20	0.045	640	115	10	5	10	0.045	320	65	10	5
12	60	0.055	1600	350	12	6	30	0.055	800	190	12	6	20	0.050	530	115	12	6	10	0.050	265	65	12	6
16	60	0.085	1200	410	16	8	30	0.085	600	190	16	8	20	0.075	400	120	16	8	10	0.075	200	65	16	8

Parametri di taglio

Cutting speed

Richtwerte - Paramétres
Режимы обработки - Řezná rychlost



CODE: Y401 SIDE MILLING (A)

MATERIAL	Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Super Alloy СУПЕР СПЛАВ						Inconel 718 ИНКОНЕЛЬ					
HARDNESS	Cr-Ni						Cr-Ni-Mo																	
Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
6	80	0.025	4250	425	2.4	9	40	0.025	2120	210	2.40	9	25	0.020	1330	105	2.4	9	15	0.020	800	65	2.4	9
8	80	0.035	3200	445	3.2	12	40	0.035	1600	225	3.20	12	25	0.030	1000	120	3.2	12	15	0.030	600	70	3.2	12
10	80	0.045	2550	460	4.0	15	40	0.045	1300	230	4.00	15	25	0.035	800	110	4	15	15	0.035	480	65	4	15
12	80	0.050	2120	425	4.8	18	40	0.050	1060	210	4.80	18	25	0.040	670	105	4.8	18	15	0.040	400	65	4.8	18
16	80	0.075	1600	475	3.2	24	40	0.075	800	240	6.40	24	25	0.060	500	120	6.4	24	15	0.060	300	70	6.4	24

CODE: Y401 SLOT MILLING (B)

MATERIAL	Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Super Alloy СУПЕР СПЛАВ						Inconel 718 ИНКОНЕЛЬ					
HARDNESS	Cr-Ni						Cr-Ni-Mo																	
Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
6	60	0.030	3200	380	6	3	30	0.030	1600	190	6	3	20	0.025	1060	105	6	3	30	0.025	530	55	6	3
8	60	0.040	2390	380	8	4	30	0.040	1200	190	8	4	20	0.035	800	110	8	4	30	0.035	400	55	8	4
10	60	0.055	1910	420	10	5	30	0.055	960	210	10	5	20	0.045	640	115	10	5	30	0.045	320	60	10	5
12	60	0.055	1600	350	12	6	30	0.055	800	175	12	6	20	0.050	530	105	12	6	30	0.050	265	55	12	6
16	60	0.085	1200	405	16	8	30	0.085	600	200	16	8	20	0.075	400	120	16	8	30	0.075	200	60	16	8

CODE: 506 - Y507 SIDE MILLING (A)

MATERIAL	Steel - СТАЛЬ																		Cast Iron -ЧУГУНn					
HARDNESS	< 850						< HRC 52						< HRC56											
Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
1	170	0.010	19100	764	0.10	1	110	0.010	35000	1400	0.05	1.5	90	0.010	28660	1146	0.1	1.5	130	0.010	41400	1656	0.1	1
2	170	0.010	19100	764	0.15	2	110	0.010	35000	1400	0.05	3	90	0.010	14330	573	0.1	3	130	0.010	20700	828	0.1	2
3	170	0.010	18046	721	0.15	3	110	0.015	11670	700	0.05	4.5	90	0.010	9550	380	0.1	4.5	130	0.010	13795	550	0.2	3
4	170	0.010	13535	541	0.20	4	110	0.020	8755	700	0.1	6	90	0.015	7160	430	0.1	6	130	0.010	10345	415	0.2	4
5	170	0.015	10828	650	0.25	5	110	0.025	7000	875	0.1	7.5	90	0.020	5730	575	0.1	7.5	130	0.015	8275	495	0.3	5
6	170	0.015	9020	810	0.30	9	110	0.030	5835	1050	0.1	9	90	0.025	4775	715	0.1	9	130	0.015	6895	620	0.3	9
8	170	0.025	6765	1015	0.40	12	110	0.040	4375	1050	0.1	12	90	0.030	3580	645	0.1	12	130	0.025	5175	775	0.4	12
10	170	0.030	5410	975	0.50	15	110	0.050	3500	1050	0.1	15	90	0.040	2865	690	0.1	15	130	0.030	4140	745	0.5	15
12	170	0.035	4510	945	0.60	18	110	0.060	2920	1050	0.1	18	90	0.050	2385	715	0.1	18	130	0.035	3450	725	0.6	18
16	170	0.045	3380	912	0.80	24	110	0.080	2190	1050	0.1	24	90	0.065	1790	700	0.1	24	130	0.045	2585	930	0.8	24
20	170	0.055	2705	892	1.0	30	110	0.100	1750	1050	0.1	30	90	0.080	1430	687	0.1	30	130	0.055	2070	683	1.00	30
25	170	0.070	2165	1818	1.25	37	110	0.120	1410	2030	0.1	37	90	0.100	1146	1375	0.1	37	130	0.060	1656	1192	1.25	37

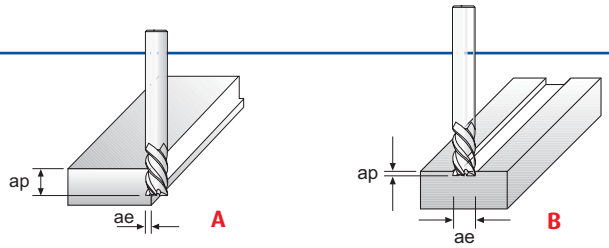
CODE: 506 - Y507 SIDE MILLING (A)

MATERIAL	Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ						Super Alloy СУПЕР СПЛАВ					
HARDNESS												
Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
1	90	0.010	28662	1720	0.50	1	130	0.010	41401	2484	0.05	1.5
2	90	0.010	14331	860	1.00	2	130	0.010	20701	1242	0.05	3
3	90	0.015	9554	860	1.50	3	130	0.020	13800	1656	0.05	4.5
4	90	0.020	7166	860	2.00	4	130	0.025	10350	1553	0.1	6
5	90	0.025	5732	860	2.50	5	130	0.030	8280	1490	0.1	7.5
6	90	0.030	4777	860	3.00	6	130	0.040	6900	1656	0.1	8
8	90	0.040	3583	860	4.00	8	130	0.055	5175	1708	0.1	12
10	90	0.055	2866	946	5.00	10	130	0.065	4140	1615	0.1	15
12	90	0.055	2389	788	6.00	12	130	0.070	3450	1449	0.12	18
16	90	0.085	1791	914	8.00	16	130	0.080	2588	1242	0.16	24
20	90	0.100	1433	860	10.0	20	130	0.100	2070	1242	0.20	30
25	90	0.120	1146	1651	12.00	25	130	0.120	1656	2384	0.25	37

Parametri di taglio

Cutting speed

Richtwerte - Paramétres
Режимы обработки - Řezná rychlost



CODE: Y400RS ROUGHING - HIGH SPEED (B)

MATERIAL	Steel - СТАЛЬ								Cast Iron -ЧУГУНn			
HARDNESS	HRC 48-60				<HRC 70							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
2	160	0.014	1 x d	0.044 x d	75	0.010	1 x d	0.028 x d	150	0.014	1 x d	0.042 x d
3	160	0.014	1 x d	0.044 x d	75	0.010	1 x d	0.028 x d	150	0.014	1 x d	0.042 x d
4	160	0.027	1 x d	0.044 x d	75	0.020	1 x d	0.028 x d	150	0.028	1 x d	0.042 x d
5	160	0.027	1 x d	0.044 x d	75	0.020	1 x d	0.028 x d	150	0.028	1 x d	0.042 x d
6	160	0.027	1 x d	0.044 x d	75	0.020	1 x d	0.028 x d	150	0.028	1 x d	0.042 x d
8	160	0.055	1 x d	0.044 x d	75	0.043	1 x d	0.028 x d	150	0.058	1 x d	0.042 x d
10	160	0.055	1 x d	0.044 x d	75	0.043	1 x d	0.028 x d	150	0.058	1 x d	0.042 x d
12	160	0.083	1 x d	0.044 x d	75	0.065	1 x d	0.028 x d	150	0.084	1 x d	0.042 x d

CODE: Y400RS FINISHING (B)

MATERIAL	Steel - СТАЛЬ								Cast Iron -ЧУГУНn			
HARDNESS	HRC 48-60				<HRC 70							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
2	200	0.014	1 x d	0.020 x d	85	0.012	1 x d	0.010 x d	175	0.015	1 x d	0.020 x d
3	200	0.014	1 x d	0.020 x d	85	0.012	1 x d	0.010 x d	175	0.015	1 x d	0.020 x d
4	200	0.029	1 x d	0.020 x d	85	0.023	1 x d	0.010 x d	175	0.031	1 x d	0.020 x d
5	200	0.029	1 x d	0.020 x d	85	0.023	1 x d	0.010 x d	175	0.031	1 x d	0.020 x d
6	200	0.029	1 x d	0.020 x d	85	0.049	1 x d	0.010 x d	175	0.031	1 x d	0.020 x d
8	200	0.059	1 x d	0.020 x d	85	0.049	1 x d	0.010 x d	175	0.062	1 x d	0.020 x d
10	200	0.059	1 x d	0.020 x d	85	0.075	1 x d	0.010 x d	175	0.062	1 x d	0.020 x d
12	200	0.088	1 x d	0.020 x d	85	0.075	1 x d	0.010 x d	175	0.091	1 x d	0.020 x d

CODE: Y400RS ROUGHING (A)

MATERIAL	Steel - СТАЛЬ								Cast Iron -ЧУГУНn			
HARDNESS	HRC 48-60				<HRC 70							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
2	275	0.021	0.033 x d	0.820 x d	125	0.015	0.028 x d	0.750 x d	250	0.021	0.021 x d	0.850 x d
3	275	0.021	0.033 x d	0.820 x d	125	0.015	0.028 x d	0.750 x d	250	0.021	0.021 x d	0.850 x d
4	275	0.042	0.033 x d	0.820 x d	125	0.030	0.028 x d	0.750 x d	250	0.043	0.021 x d	0.850 x d
5	275	0.042	0.033 x d	0.820 x d	125	0.030	0.028 x d	0.750 x d	250	0.043	0.021 x d	0.850 x d
6	275	0.042	0.033 x d	0.820 x d	125	0.030	0.028 x d	0.750 x d	250	0.043	0.021 x d	0.850 x d
8	275	0.085	0.033 x d	0.820 x d	125	0.065	0.028 x d	0.750 x d	250	0.088	0.021 x d	0.850 x d
10	275	0.085	0.033 x d	0.820 x d	125	0.065	0.028 x d	0.750 x d	250	0.088	0.021 x d	0.850 x d
12	275	0.128	0.033 x d	0.820 x d	125	0.100	0.028 x d	0.750 x d	250	0.129	0.021 x d	0.850 x d

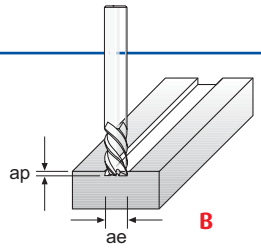
CODE: Y400RS FINISHING (A)

MATERIAL	Steel - СТАЛЬ								Cast Iron -ЧУГУНn			
HARDNESS	HRC 48-60				<HRC 70							
Ø	VC	FZ	ae	ap	VC	FZ	ae	ap	VC	FZ	ae	ap
2	340	0.022	0.020 x d	0.650 x d	140	0.018	0.010 x d	0.450 x d	285	0.023	0.010 x d	0.640 x d
3	340	0.022	0.020 x d	0.650 x d	140	0.018	0.010 x d	0.450 x d	285	0.023	0.010 x d	0.640 x d
4	340	0.045	0.020 x d	0.650 x d	140	0.035	0.010 x d	0.450 x d	285	0.047	0.010 x d	0.640 x d
5	340	0.045	0.020 x d	0.650 x d	140	0.035	0.010 x d	0.450 x d	285	0.047	0.010 x d	0.640 x d
6	340	0.045	0.020 x d	0.650 x d	140	0.035	0.010 x d	0.450 x d	285	0.047	0.010 x d	0.640 x d
8	340	0.090	0.020 x d	0.650 x d	140	0.075	0.010 x d	0.450 x d	285	0.095	0.010 x d	0.640 x d
10	340	0.090	0.020 x d	0.650 x d	140	0.075	0.010 x d	0.450 x d	285	0.095	0.010 x d	0.640 x d
12	340	0.135	0.020 x d	0.650 x d	140	0.115	0.010 x d	0.450 x d	285	0.140	0.010 x d	0.640 x d

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



CODE: 406 - Y406 ROUGHING

MATERIAL	Free Machining Steel ЛЕГКООБРАБАТЫВАЕМАЯ СТАЛЬ			Normal tool Steel ИНСТРУМЕНТАЛЬНАЯ СТАЛЬ			Tool Steel & Steel Castings ИНСТРУМЕНТАЛЬНАЯ СТАЛЬ И ЛИТЬЕВАЯ ФОРМА			Steel СТАЛЬ		
HARDNESS										< 50 HRC		
Ø	VC	FZ	ap	VC	FZ	ap	VC	FZ	ap	VC	FZ	ap
2	150 - 250	0.02 - 0.04	1.0 - 1.5	150 - 220	0.02 - 0.04	1.0 - 1.5	120 - 170	0.02 - 0.04	1.0 - 1.5	150 - 190	0.02 - 0.04	0.04 - 0.1
3 - 4	150 - 250	0.03 - 0.06	1.5 - 2.0	150 - 220	0.03 - 0.06	1.5 - 2.0	120 - 170	0.03 - 0.06	1.5 - 2.0	150 - 190	0.03 - 0.06	0.08 - 0.2
5 - 6	150 - 250	0.05 - 0.08	2.5 - 3.0	150 - 220	0.05 - 0.08	2.5 - 3.0	120 - 170	0.05 - 0.08	2.5 - 3.0	150 - 190	0.05 - 0.08	0.1 - 0.3
8	150 - 250	0.05 - 0.08	3.5 - 4.0	150 - 220	0.05 - 0.08	3.5 - 4.0	120 - 170	0.05 - 0.08	3.5 - 4.0	150 - 190	0.05 - 0.08	0.15 - 0.4
10	150 - 250	0.06 - 0.10	4.5 - 5.0	150 - 220	0.06 - 0.10	4.5 - 5.0	120 - 170	0.06 - 0.10	4.5 - 5.0	150 - 190	0.06 - 0.10	0.2 - 0.5
12	150 - 250	0.07 - 0.12	5.0 - 6.0	150 - 220	0.07 - 0.12	5.0 - 6.0	120 - 170	0.07 - 0.12	5.0 - 0.6	150 - 190	0.07 - 0.12	0.2 - 0.6
16	150 - 250	0.08 - 0.12	6.0 - 8.0	150 - 220	0.08 - 0.12	6.0 - 8.0	120 - 170	0.08 - 0.12	6.0 - 8.0	150 - 190	0.08 - 0.12	0.2 - 0.8
20	150 - 250	0.08 - 0.12	6.0 - 8.0	150 - 220	0.08 - 0.12	6.0 - 8.0	120 - 170	0.08 - 0.12	6.0 - 8.0	150 - 190	0.08 - 0.12	0.2 - 0.8

MATERIAL	Cast Iron ЧУГУНn									Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ		
HARDNESS	Grey - СЕРЫЙ			Spheroidal - СФЕРОИД			Tempered Casting - ТЕРМО ФОРМОВКА					
Ø	VC	FZ	ap	VC	FZ	ap	VC	FZ	ap	VC	FZ	ap
2	250 - 300	0.02 - 0.04	1.0 - 1.5	150 - 220	0.02 - 0.04	1.0 - 1.5	100 - 160	0.02 - 0.04	1.0 - 1.5	70 - 110	0.02 - 0.04	0.3 - 0.7
3 - 4	250 - 300	0.03 - 0.06	1.5 - 2.0	150 - 220	0.03 - 0.06	1.5 - 2.0	100 - 160	0.03 - 0.06	1.5 - 2.0	70 - 110	0.03 - 0.06	0.7 - 1.2
5 - 6	250 - 300	0.05 - 0.08	2.5 - 3.0	150 - 220	0.05 - 0.08	2.5 - 3.0	100 - 160	0.05 - 0.08	2.5 - 3.0	70 - 110	0.05 - 0.08	1.5 - 1.8
8	250 - 300	0.05 - 0.08	3.5 - 4.0	150 - 220	0.05 - 0.08	3.5 - 4.0	100 - 160	0.05 - 0.08	3.5 - 4.0	70 - 110	0.05 - 0.08	2.0 - 2.5
10	250 - 300	0.06 - 0.10	4.5 - 5.0	150 - 220	0.06 - 0.10	4.5 - 5.0	100 - 160	0.06 - 0.10	4.5 - 5.0	70 - 110	0.06 - 0.10	2.5 - 3.0
12	250 - 300	0.07 - 0.12	5.0 - 6.0	150 - 220	0.07 - 0.12	5.0 - 6.0	100 - 160	0.07 - 0.12	5.0 - 6.0	70 - 110	0.07 - 0.12	3.0 - 3.5
16	250 - 300	0.08 - 0.12	6.0 - 8.0	150 - 220	0.08 - 0.12	6.0 - 8.0	100 - 160	0.08 - 0.12	6.0 - 8.0	70 - 110	0.08 - 0.12	4.0 - 4.5
20	250 - 300	0.08 - 0.12	6.0 - 8.0	150 - 220	0.08 - 0.12	6.0 - 8.0	100 - 160	0.08 - 0.12	6.0 - 8.0	70 - 110	0.08 - 0.12	4.0 - 4.5

CODE: 406 - Y406 FINISHING

MATERIAL	Free Machining Steel ЛЕГКООБРАБАТЫВАЕМАЯ СТАЛЬ			Normal tool Steel ИНСТРУМЕНТАЛЬНАЯ СТАЛЬ			Tool Steel & Steel Castings ИНСТРУМЕНТАЛЬНАЯ СТАЛЬ И ЛИТЬЕВАЯ ФОРМА			Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ		
HARDNESS												
Ø	VC	FZ	ap	VC	FZ	ap	VC	FZ	ap	VC	FZ	ap
2	250 - 300	0.02 - 0.04	1.0 - 1.5	220-300	0.02 - 0.04	1.0 - 1.5	170-250	0.02 - 0.04	1.0 - 1.5	110-150	0.02 - 0.04	0.3 - 0.7
3 - 4	250 - 300	0.03 - 0.06	1.5 - 2.0	220-300	0.03 - 0.06	1.5 - 2.0	170-250	0.03 - 0.06	1.5 - 2.0	110-150	0.03 - 0.06	0.7 - 1.2
5 - 6	250 - 300	0.05 - 0.08	2.5 - 3.0	220-300	0.05 - 0.08	2.5 - 3.0	170-250	0.05 - 0.08	2.5 - 3.0	110-150	0.05 - 0.08	1.5 - 1.8
8	250 - 300	0.05 - 0.08	3.5 - 4.0	220-300	0.05 - 0.08	3.5 - 4.0	170-250	0.05 - 0.08	3.5 - 4.0	110-150	0.05 - 0.08	2.0 - 2.5
10	250 - 300	0.06 - 0.10	4.5 - 5.0	220-300	0.06 - 0.10	4.5 - 5.0	170-250	0.06 - 0.10	4.5 - 5.0	110-150	0.06 - 0.10	2.5 - 3.0
12	250 - 300	0.07 - 0.12	5.0 - 6.0	220-300	0.07 - 0.12	5.0 - 6.0	170-250	0.07 - 0.12	5.0 - 6.0	110-150	0.07 - 0.12	3.0 - 3.5
16	250 - 300	0.08 - 0.12	6.0 - 8.0	220-300	0.08 - 0.12	6.0 - 8.0	170-250	0.08 - 0.12	6.0 - 8.0	110-150	0.08 - 0.12	4.0 - 4.5
20	250 - 300	0.08 - 0.12	6.0 - 8.0	220-300	0.08 - 0.12	6.0 - 8.0	170-250	0.08 - 0.12	6.0 - 8.0	110-150	0.08 - 0.12	4.0 - 4.5

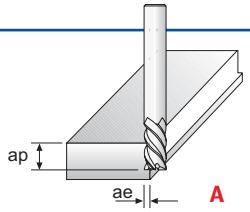
MATERIAL	Steel - СТАЛЬ								
HARDNESS	< 50 HRC			< 60 HRC			< 70 HRC		
Ø	VC	FZ	ap	VC	FZ	ap	VC	FZ	ap
2	190 - 250	0.02 - 0.04	0.04 - 0.1	120 - 250	0.02 - 0.04	0.04 - 0.1	80 - 120	0.02 - 0.04	0.04 - 0.1
3 - 4	190 - 250	0.03 - 0.06	0.08 - 0.2	120 - 250	0.03 - 0.06	0.08 - 0.2	80 - 120	0.03 - 0.06	0.08 - 0.2
5 - 6	190 - 250	0.05 - 0.08	0.1 - 0.3	120 - 250	0.05 - 0.08	0.1 - 0.3	80 - 120	0.05 - 0.08	0.1 - 0.3
8	190 - 250	0.05 - 0.08	0.15 - 0.4	120 - 250	0.05 - 0.08	0.15 - 0.4	80 - 120	0.05 - 0.08	0.15 - 0.35
10	190 - 250	0.06 - 0.10	0.2 - 0.5	120 - 250	0.06 - 0.10	0.2 - 0.5	80 - 120	0.06 - 0.10	0.2 - 0.45
12	190 - 250	0.07 - 0.12	0.2 - 0.6	120 - 250	0.07 - 0.12	0.2 - 0.6	80 - 120	0.07 - 0.12	0.2 - 0.5
16	190 - 250	0.08 - 0.12	0.2 - 0.8	120 - 250	0.08 - 0.12	0.2 - 0.8	80 - 120	0.08 - 0.12	0.2 - 0.6
20	190 - 250	0.08 - 0.12	0.2 - 0.8	120 - 250	0.08 - 0.12	0.2 - 0.8	80 - 120	0.08 - 0.12	0.2 - 0.6

MATERIAL	Cast Iron -ЧУГУНn								
HARDNESS	Grey - СЕРЫЙ			Spheroidal - СФЕРОИД			Tempered Casting - ТЕРМО ФОРМОВКА		
Ø	VC	FZ	ap	VC	FZ	ap	VC	FZ	ap
2	300 - 400	0.02 - 0.04	1.0 - 1.5	200 - 250	0.02 - 0.04	1.0 - 1.5	160 - 200	0.02 - 0.04	1.0 - 1.5
3 - 4	300 - 400	0.03 - 0.06	1.5 - 2.0	200 - 250	0.03 - 0.06	1.5 - 2.0	160 - 200	0.03 - 0.06	1.5 - 2.0
5 - 6	300 - 400	0.05 - 0.08	2.5 - 3.0	200 - 250	0.05 - 0.08	2.5 - 3.0	160 - 200	0.05 - 0.08	2.5 - 3.0
8	300 - 400	0.05 - 0.08	3.5 - 4.0	200 - 250	0.05 - 0.08	3.5 - 4.0	160 - 200	0.05 - 0.08	3.5 - 4.0
10	300 - 400	0.06 - 0.10	4.5 - 5.0	200 - 250	0.06 - 0.10	4.5 - 5.0	160 - 200	0.06 - 0.10	4.5 - 5.0
12	300 - 400	0.07 - 0.12	5.0 - 6.0	200 - 250	0.07 - 0.12	5.0 - 6.0	160 - 200	0.07 - 0.12	5.0 - 6.0
16	300 - 400	0.08 - 0.12	6.0 - 8.0	200 - 250	0.08 - 0.12	6.0 - 8.0	160 - 200	0.08 - 0.12	6.0 - 8.0
20	300 - 400	0.08 - 0.12	6.0 - 8.0	200 - 250	0.08 - 0.12	6.0 - 8.0	160 - 200	0.08 - 0.12	6.0 - 8.0

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



CODE: 406 - Y406 ROUGHING

MATERIAL	Free Machining Steel ЛЕГКООБРАБАТЫВАЕМАЯ СТАЛЬ		Normal tool Steel ИНСТРУМЕНТАЛЬНАЯ СТАЛЬ		Tool Steel & Steel Castings ИНСТРУМЕНТАЛЬНАЯ СТАЛЬ И ЛИТЬЕВАЯ ФОРМА		Steel СТАЛЬ	
HARDNESS							< 50 HRC	
Ø	VC	FZ	VC	FZ	VC	FZ	VC	FZ
2	150 - 250	0.05 - 0.09	150 - 220	0.05 - 0.09	120 - 170	0.05 - 0.09	100 - 160	0.03 - 0.06
3 - 4	150 - 250	0.09 - 0.12	150 - 220	0.09 - 0.12	120 - 170	0.09 - 0.12	100 - 160	0.07 - 0.10
5 - 6	150 - 250	0.12 - 0.18	150 - 220	0.12 - 0.18	120 - 170	0.12 - 0.18	100 - 160	0.10 - 0.15
8	150 - 250	0.12 - 0.18	150 - 220	0.12 - 0.18	120 - 170	0.12 - 0.18	100 - 160	0.10 - 0.15
10	150 - 250	0.15 - 0.20	150 - 220	0.15 - 0.20	120 - 170	0.15 - 0.20	100 - 160	0.12 - 0.17
12	150 - 250	0.15 - 0.20	150 - 220	0.15 - 0.20	120 - 170	0.15 - 0.20	100 - 160	0.12 - 0.17
16	150 - 250	0.20 - 0.25	150 - 220	0.20 - 0.25	120 - 170	0.20 - 0.25	100 - 160	0.17 - 0.22
20	150 - 250	0.20 - 0.25	150 - 220	0.20 - 0.25	120 - 170	0.20 - 0.25	100 - 160	0.20 - 0.25

MATERIAL	Cast Iron -ЧУГУНn						Stainless Steel	
HARDNESS	Grey - СЕРЫЙ		Spheroidal - СФЕРОИД		Tempered Casting - ТЕРМО ФОРМОВКА			
Ø	VC	FZ	VC	FZ	VC	FZ	VC	FZ
2	250 - 300	0.05 - 0.09	150 - 200	0.05 - 0.09	100 - 160	0.05 - 0.09	70 - 110	0.05 - 0.09
3 - 4	250 - 300	0.05 - 0.09	150 - 200	0.09 - 0.12	100 - 160	0.09 - 0.12	70 - 110	0.09 - 0.12
5 - 6	250 - 300	0.09 - 0.12	150 - 200	0.12 - 0.18	100 - 160	0.12 - 0.18	70 - 110	0.12 - 0.18
8	250 - 300	0.12 - 0.18	150 - 200	0.12 - 0.18	100 - 160	0.12 - 0.18	70 - 110	0.12 - 0.18
10	250 - 300	0.12 - 0.18	150 - 200	0.15 - 0.20	100 - 160	0.15 - 0.20	70 - 110	0.15 - 0.20
12	250 - 300	0.15 - 0.20	150 - 200	0.15 - 0.20	100 - 160	0.15 - 0.20	70 - 110	0.15 - 0.20
16	250 - 300	0.15 - 0.20	150 - 200	0.20 - 0.25	100 - 160	0.20 - 0.25	70 - 110	0.15 - 0.20
20	250 - 300	0.20 - 0.25	150 - 200	0.25 - 0.30	100 - 160	0.25 - 0.30	70 - 110	0.20 - 0.25

CODE: 406 - Y406 FINISHING

MATERIAL	Free Machining Steel ЛЕГКООБРАБАТЫВАЕМАЯ СТАЛЬ		Normal tool Steel ИНСТРУМЕНТАЛЬНАЯ СТАЛЬ		Tool Steel & Steel Castings ИНСТРУМЕНТАЛЬНАЯ СТАЛЬ И ЛИТЬЕВАЯ ФОРМА		Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ	
HARDNESS								
Ø	VC	FZ	VC	FZ	VC	FZ	VC	FZ
2	250 - 350	0.05 - 0.09	220 - 300	0.05 - 0.09	170 - 250	0.05 - 0.09	110 - 150	0.05 - 0.09
3 - 4	250 - 350	0.09 - 0.12	220 - 300	0.09 - 0.12	170 - 250	0.09 - 0.12	110 - 150	0.09 - 0.12
5 - 6	250 - 350	0.12 - 0.18	220 - 300	0.12 - 0.18	170 - 250	0.12 - 0.18	110 - 150	0.12 - 0.18
8	250 - 350	0.12 - 0.18	220 - 300	0.12 - 0.18	170 - 250	0.12 - 0.18	110 - 150	0.12 - 0.18
10	250 - 350	0.15 - 0.20	220 - 300	0.15 - 0.20	170 - 250	0.15 - 0.20	110 - 150	0.15 - 0.20
12	250 - 350	0.15 - 0.20	220 - 300	0.15 - 0.20	170 - 250	0.15 - 0.20	110 - 150	0.15 - 0.20
16	250 - 350	0.20 - 0.25	220 - 300	0.20 - 0.25	170 - 250	0.20 - 0.25	110 - 150	0.20 - 0.25
20	250 - 350	0.20 - 0.25	220 - 300	0.20 - 0.25	170 - 250	0.20 - 0.25	110 - 150	0.20 - 0.25

MATERIAL	Steel - СТАЛЬ					
HARDNESS	< 50 HRC		< 60 HRC		< 70 HRC	
Ø	VC	FZ	VC	FZ	VC	FZ
2	190 - 250	0.03 - 0.06	120 - 250	0.03 - 0.06	80 - 120	0.03 - 0.06
3 - 4	190 - 250	0.07 - 0.10	120 - 250	0.07 - 0.10	80 - 120	0.07 - 0.10
5 - 6	190 - 250	0.10 - 0.15	120 - 250	0.10 - 0.15	80 - 120	0.10 - 0.15
8	190 - 250	0.10 - 0.15	120 - 250	0.10 - 0.15	80 - 120	0.10 - 0.15
10	190 - 250	0.12 - 0.17	120 - 250	0.12 - 0.17	80 - 120	0.12 - 0.17
12	190 - 250	0.12 - 0.17	120 - 250	0.12 - 0.17	80 - 120	0.12 - 0.17
16	190 - 250	0.17 - 0.22	120 - 250	0.17 - 0.22	80 - 120	0.17 - 0.22
20	190 - 250	0.20 - 0.25	120 - 250	0.20 - 0.25	80 - 120	0.20 - 0.25

MATERIAL	Cast Iron -ЧУГУНn					
HARDNESS	Grey - СЕРЫЙ		Spheroidal - СФЕРОИД		Tempered Casting - ТЕРМО ФОРМОВКА	
Ø	VC	FZ	VC	FZ	VC	FZ
2	300 - 400	0.05 - 0.09	200 - 250	0.05 - 0.09	160 - 200	0.05 - 0.09
3 - 4	300 - 400	0.05 - 0.09	200 - 250	0.09 - 0.12	160 - 200	0.09 - 0.12
5 - 6	300 - 400	0.09 - 0.12	200 - 250	0.12 - 0.18	160 - 200	0.12 - 0.18
8	300 - 400	0.12 - 0.18	200 - 250	0.12 - 0.18	160 - 200	0.12 - 0.18
10	300 - 400	0.12 - 0.18	200 - 250	0.15 - 0.20	160 - 200	0.15 - 0.20
12	300 - 400	0.15 - 0.20	200 - 250	0.15 - 0.20	160 - 200	0.15 - 0.20
16	300 - 400	0.15 - 0.20	200 - 250	0.20 - 0.25	160 - 200	0.20 - 0.25
20	300 - 400	0.20 - 0.25	200 - 250	0.25 - 0.30	160 - 200	0.25 - 0.30

ap = up to 100%
of Cutting Lenght

ae = up to 20%
of the diameter
for non-hardened materials

ae = up to 5%
of the diameter
for hardened materials

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y303 - Y400D LOW SPEED, HIGH FEED

MATERIAL	Carbon Steel-Cast Iron			Alloy Steel-Tool Steel - ЛЕГИРОВАННАЯ СТАЛЬ			Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ		
HARDNESS	750 N/mm2			<30 HRC			<45 HRC		
Ø	RPM	Vf	Fz	RPM	Vf	Fz	RPM	Vf	Fz
	R<2 ap=0.2XR ae=0.5xD 2<R ap=0.4mm ae=0.5xD								
2	15200	4990	0.08	15200	4510	0.07	10450	3180	0.07
3	9970	5940	0.14	9970	5320	0.13	7080	3705	0.13
4	7550	6270	0.20	7550	5700	0.19	5270	3990	0.19
5	6030	6650	0.28	6030	6030	0.25	4230	4230	0.25
6	5030	6650	0.33	5030	6030	0.30	3510	4230	0.30
8	3800	6650	0.43	3800	6030	0.39	2660	4230	0.40
10	3040	6650	0.54	3040	6030	0.49	2140	4230	0.50
12	2520	6650	0.66	2520	6030	0.59	1760	4230	0.60

MATERIAL	Carbon Steel-Cast Iron			Heat Resistant Steel-Ti Alloy - ЛЕГИРОВАННАЯ СТАЛЬ			Steel - СТАЛЬ		
HARDNESS	<40HRC			<55 HRC			<65 HRC		
Ø	RPM	Vf	Fz	RPM	Vf	Fz	RPM	Vf	Fz
	R<2 ap=0.2XR ae=0.5xD 2<R ap=0.4mm ae=0.5xD						R<2 ap=0.1XR ae=0.5xD 2<R ap=0.2mm ae=0.5xD		
2	11870	3610	0.07	7550	2040	0.06	4510	820	0.04
3	8070	4270	0.13	5030	2470	0.12	3040	940	0.08
4	6030	4560	0.19	3800	2610	0.17	2280	1000	0.11
5	4840	4840	0.25	3040	2710	0.22	1800	1090	0.15
6	4040	4840	0.30	2530	2710	0.26	1520	1090	0.18
8	3040	4840	0.40	1900	2710	0.36	1140	1090	0.23
10	2420	4840	0.50	1520	2710	0.44	910	1090	0.30
12	2000	4840	0.60	1280	2710	0.53	750	1090	0.36

The cutting speeds are referred to milling by interpolation. In case to milling without interpolation, reduce the parameters 50%60% (ONLY FOR Y400D).
Y303: +30%

CODE: Y303 - Y400D HIGH SPEED

MATERIAL	Carbon Steel-Cast Iron			Alloy Steel-Tool Steel - ЛЕГИРОВАННАЯ СТАЛЬ			Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ		
HARDNESS	750 N/mm2			<30 HRC			<45 HRC		
Ø	RPM	Vf	Fz	RPM	Vf	Fz	RPM	Vf	Fz
	ap=0.1xR ae=0.3xD								
2	30250	9970	0.08	30400	9070	0.07	22800	6800	0.07
3	19950	11870	0.14	19950	11400	0.14	15200	7980	0.13
4	15200	12350	0.20	15200	11400	0.18	11400	8550	0.18
5	11870	13300	0.28	11870	11870	0.25	9070	9070	0.25
6	10070	13300	0.33	10070	12060	0.30	7550	9070	0.30
8	7550	13300	0.44	7550	12060	0.40	5650	9070	0.40
10	6030	13300	0.55	6030	12060	0.50	4510	9070	0.50
12	5030	13300	0.66	5030	12060	0.60	3800	9070	0.60

MATERIAL	Carbon Steel-Cast Iron			Heat Resistant Steel-Ti Alloy - ЛЕГИРОВАННАЯ СТАЛЬ			Steel - СТАЛЬ		
HARDNESS	<40HRC			<55 HRC			<60 HRC		
Ø	RPM	Vf	Fz	RPM	Vf	Fz	RPM	Vf	Fz
ap	ap=0.1xR ae=0.3xD			R<2 ap=0.1xR ae=0.3xD 2<R ap=0.2mm ae=0.3xD			R<2 ap=0.05xR ae=0.3xD 2<R ap=0.1mm ae=0.3xD		
2	30400	9070	0.07	22800	6130	0.06	15200	2710	0.04
3	19950	11400	0.14	15200	7450	0.12	9980	3130	0.07
4	15200	11400	0.18	11400	7790	0.17	7550	3370	0.11
5	11870	11870	0.25	9070	8170	0.22	6030	3610	0.15
6	10070	12060	0.30	7550	8170	0.27	5030	3610	0.18
8	7550	12060	0.40	5650	8170	0.36	3800	3610	0.23
10	6030	12060	0.50	4510	8170	0.45	3040	3610	0.30
12	5030	12060	0.60	3800	8170	0.53	2520	3610	0.36

The cutting speeds are referred to milling by interpolatin. In case to milling without interpolation, reduce the parameters 50%60% (ONLY FOR Y400D).
Y303: +30%

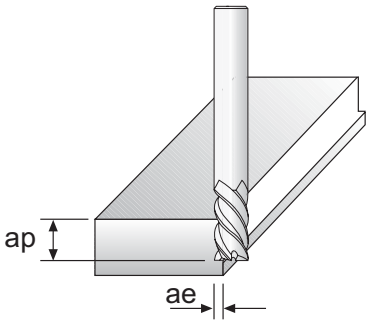
Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y400R HIGH SPEED CONDITION - HIGH REVOLUTION, HIGH FEED

MATERIAL	Cast Iron -ЧУГУНn			Steel - СТАЛЬ		
HARDNESS	HB 150-250			HRC 25-35		
Ø	n	FZ	VF	n	FZ	VF
4.0	9.900	0.270	10.530	8.800	0.240	8.560
5.0	8.000	0.330	10.640	7.000	0.300	8.510
6.0	6.600	0.420	11.090	5.800	0.380	8.910
8.0	5.000	0.560	11.200	4.400	0.510	9.010
10.0	4.000	0.700	11.200	3.500	0.640	8.960
12.0	3.300	0.800	10.530	2.900	0.730	8.460

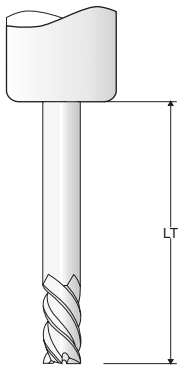


CODE: Y400R HIGH SPEED CONDITION - HIGH REVOLUTION, HIGH FEED

MATERIAL	Steel - СТАЛЬ								
HARDNESS	HRC 35-45			HRC 45-55			<HRC 72		
Ø	n	FZ	VF	n	FZ	VF	n	FZ	VF
4.0	8.000	0.190	6.080	6.400	0.190	4.860	5.600	0.080	1.700
5.0	6.400	0.240	6.080	5.100	0.240	4.850	4.500	0.100	1.710
6.0	5.300	0.300	6.360	4.200	0.300	5.040	3.700	0.120	1.780
8.0	4.000	0.400	6.400	3.200	0.400	5.120	2.800	0.160	1.790
10.0	3.200	0.500	6.400	2.500	0.500	5.000	2.200	0.200	1.760
12.0	2.700	0.570	6.160	2.100	0.570	4.790	1.900	0.230	1.730

Ø dxL ap = deep of cut

MATERIAL		Cast Iron -ЧУГУНn		Steel - СТАЛЬ							
HARDNESS		HB 150-250		HRC 25-35		HRC 35-45		HRC 45-55		<HRC 72	
Ø	LT	ap	ae	ap	ae	ap	ae	ap	ae	ap	ae
4.0	5 x d	0.240	1	0.240	1	0.210	1	0.180	1	0.120	1
	8 x d	0.184	1	0.184	1	0.161	1	0.138	1	0.092	1
5.0	5 x d	0.288	1.3	0.288	1.3	0.252	1.3	0.216	1.3	0.144	1.3
	8 x d	0.221	1.3	0.221	1.3	0.193	1.3	0.166	1.3	0.110	1.3
6.0	5 x d	0.360	1.5	0.360	1.5	0.315	1.5	0.270	1.5	0.180	1.5
	8 x d	0.276	1.5	0.276	1.5	0.242	1.5	0.207	1.5	0.138	1.5
8.0	5 x d	0.480	2	0.480	2	0.420	2	0.360	2	0.240	2
	8 x d	0.368	2	0.368	2	0.322	2	0.276	2	0.184	2
10.0	5 x d	0.480	3	0.480	3	0.420	3	0.360	3	0.240	3
	8 x d	0.368	3	0.368	3	0.322	3	0.276	3	0.184	3
12.0	5 x d	0.480	4	0.480	4	0.420	4	0.360	4	0.240	4
	8 x d	0.368	4	0.368	4	0.322	4	0.276	4	0.184	4



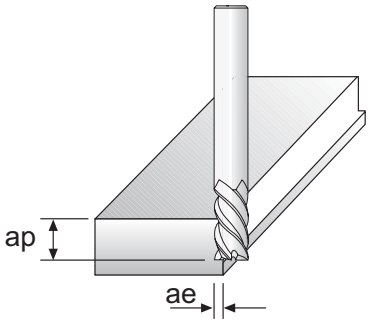
Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y400R LOW REVOLUTION, HIGH FEED

MATERIAL	Cast Iron -ЧУГУНn			Steel - СТАЛЬ		
HARDNESS	HB 150-250			HRC 25-35		
Ø	n	FZ	VF	n	FZ	VF
4.0	6.000	0.270	6.380	5.600	0.240	5.450
5.0	4.800	0.330	6.380	4.500	0.300	5.470
6.0	4.000	0.420	6.720	3.700	0.380	6.680
8.0	3.000	0.560	6.720	2.800	0.510	5.730
10.0	2.400	0.700	6.720	2.200	0.640	5.630
12.0	2.000	0.800	6.380	1.900	0.730	5.540

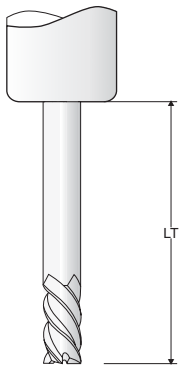


CODE: Y400R LOW REVOLUTION, HIGH FEED

MATERIAL	Steel - СТАЛЬ								
HARDNESS	HRC 35-45			HRC 45-55			<HRC 72		
Ø	n	FZ	VF	n	FZ	VF	n	FZ	VF
4.0	5.200	0.190	3.950	4.000	0.190	3.040	4.000	0.080	1.220
5.0	4.100	0.240	3.900	3.200	0.240	3.040	3.200	0.100	1.220
6.0	3.400	0.300	4.080	2.700	0.300	3.240	2.700	0.120	1.300
8.0	2,600	0.400	4.160	2.000	0.400	3.200	2.000	0.160	1.280
10.0	2.100	0.500	4.200	1.600	0.500	3.200	1.600	0.200	1.280
12.0	1.700	0.570	3.880	1.300	0.570	2.960	1.300	0.230	1.190

Ø dxL ap = deep of cut

MATERIAL		Cast Iron -ЧУГУНn		Steel - СТАЛЬ							
HARDNESS		HB 150-250		HRC 25-35		HRC 35-45		HRC 45-55		<HRC 72	
Ø	LT	ap	ae	ap	ae	ap	ae	ap	ae	ap	ae
4.0	5 x d	0.300	1	0.300	1	0.300	1	0.210	1	0.150	1
	8 x d	0.230	1	0.230	1	0.230	1	0.161	1	0.115	1
5.0	5 x d	0.360	1.3	0.360	1.3	0.360	1.3	0.252	1.3	0.180	1.3
	8 x d	0.276	1.3	0.276	1.3	0.276	1.3	0.193	1.3	0.138	1.3
6.0	5 x d	0.450	1.5	0.450	1.5	0.450	1.5	0.315	1.5	0.300	1.5
	8 x d	0.345	1.5	0.345	1.5	0.345	1.5	0.242	1.5	0.230	1.5
8.0	5 x d	0.600	2	0.600	2	0.600	2	0.420	2	0.300	2
	8 x d	0.460	2	0.460	2	0.460	2	0.322	2	0.230	2
10.0	5 x d	0.600	3	0.600	3	0.600	3	0.420	3	0.300	3
	8 x d	0.460	3	0.460	3	0.460	3	0.322	3	0.230	3
12.0	5 x d	0.600	4	0.600	4	0.600	4	0.420	4	0.300	4
	8 x d	0.460	4	0.460	4	0.460	4	0.322	4	0.230	4



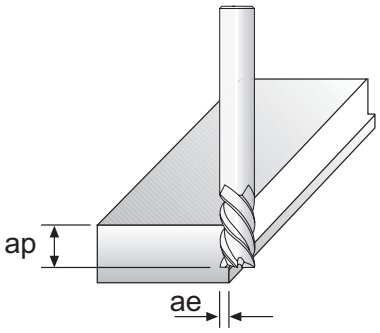
Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y400R LOW REVOLUTION, HIGH DEPTH OF CUT

MATERIAL	Cast Iron -ЧУГУНn			Steel - СТАЛЬ		
HARDNESS	HB 150-250			HRC 25-35		
Ø	Vc	Fz	RPM	Vc	Fz	RPM
4.0	6.000	0.120	2.920	5.600	0.110	2.550
5.0	4.800	0.150	2.920	4.500	0.140	2.570
6.0	4.000	0.190	3.070	3.700	0.180	2.660
8.0	3.000	0.260	3.070	2.800	0.240	2.690
10.0	2.400	0.320	3.070	2.200	0.300	2.640
12.0	2.000	0.360	2.920	1.900	0.340	2.600

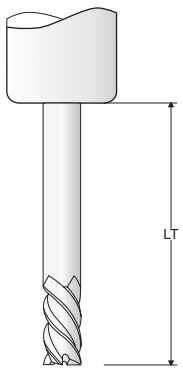


CODE: Y400R LOW REVOLUTION, HIGH DEPTH OF CUT

MATERIAL	Steel - СТАЛЬ								
HARDNESS	HRC 35-45			HRC 45-55			<HRC 72		
Ø	n	FZ	VF	n	FZ	VF	n	FZ	VF
4	5.200	0.100	1.980	4.000	0.100	1.520	4.000	0.050	730
5	4.100	0.120	1.950	3.200	0.120	1.520	3.200	0.060	730
6	3.400	0.150	2.040	2.700	0.150	1.620	2.700	0.070	780
8	2.600	0.200	2.080	2.000	0.200	1.600	2.000	0.100	770
10	2.100	0.250	2.100	1.600	0.250	1.600	1.600	0.120	770
12	1.700	0.290	1.940	1.300	0.290	1.480	1.300	0.140	710

Ø dxL ap = depth of cut

MATERIAL		Cast Iron -ЧУГУНn		Steel - СТАЛЬ							
HARDNESS		HB 150-250		HRC 25-35		HRC 35-45		HRC 45-55		<HRC 72	
Ø	LT	ap	ae	ap	ae	ap	ae	ap	ae	ap	ae
4	5 x d	0.600	1	0.540	1	0.480	1	0.360	1	0.210	1
	8 x d	0.460	1	0.414	1	0.368	1	0.276	1	0.161	1
5	5 x d	0.720	1.3	0.648	1.3	0.576	1.3	0.432	1.3	0.252	1.3
	8 x d	0.552	1.3	0.497	1.3	0.442	1.3	0.331	1.3	0.193	1.3
6	5 x d	0.900	1.5	0.810	1.5	0.720	1.5	0.540	1.5	0.315	1.5
	8 x d	0.690	1.5	0.621	1.5	0.552	1.5	0.414	1.5	0.242	1.5
8	5 x d	1.200	2	1.080	2	0.960	2	0.720	2	0.420	2
	8 x d	0.920	2	0.828	2	0.736	2	0.552	2	0.322	2
10	5 x d	1.200	3	1.080	3	0.960	3	0.720	3	0.420	3
	8 x d	0.920	3	0.828	3	0.736	3	0.552	3	0.322	3
12	5 x d	1.200	4	1.080	4	0.960	4	0.720	4	0.420	4
	8 x d	0.920	4	0.828	4	0.736	4	0.552	4	0.322	4



Parametri di taglio

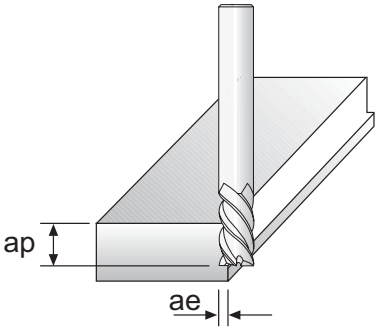
Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y400-Y400P-400V-Y400V SIDE MILLING

MATERIAL	Carbon Steel - Cast Iron			Aloy Steel - Tool Steel - СУПЕР СПЛАВ			Steel - СТАЛЬ		
HARDNESS	750/mm2			<30HRC			<40HRC		
Ø	Vc	Fz	RPM	Vc	Fz	RPM	Vc	Fz	RPM
	ae=0.2xd ap=1.5xd			ae=0.2xd ap=1.5xd			ae=0.2xd ap=1.5xd		
3	100	0.02	10600	78	0.02	8280	65	0.02	6900
4	100	0.03	7960	78	0.03	6210	65	0.03	5175
5	100	0.03	6370	78	0.03	4968	65	0.03	4140
6	100	0.06	5300	78	0.06	4140	65	0.06	3450
8	100	0.08	3980	78	0.08	3105	65	0.08	2587
10	100	0.09	3185	78	0.09	2480	65	0.09	2070
12	100	0.10	2650	78	0.10	2070	65	0.10	1720
16	100	0.12	1990	78	0.12	1550	65	0.12	1293
20	100	0.12	1592	78	0.12	1242	65	0.12	1035

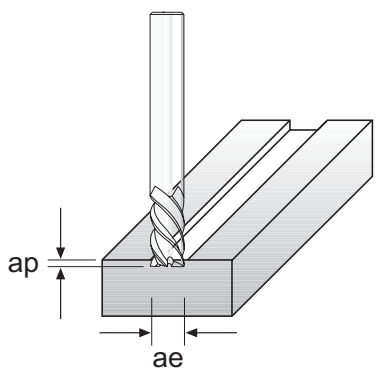
MATERIAL	Steel - СТАЛЬ					
HARDNESS	<45HRC			<50HRC		
Ø	Vc	Fz	RPM	Vc	Fz	RPM
	ae=0.1xd ap=1.5xd			ae=0.05xd ap=1xd		
3	62	0.02	6580	60	0.02	6370
4	62	0.03	4936	60	0.03	4780
5	62	0.04	3950	60	0.04	3820
6	62	0.04	3290	60	0.04	3184
8	62	0.06	2468	60	0.06	2388
10	62	0.07	1974	60	0.07	1910
12	62	0.08	1645	60	0.07	1592
16	62	0.09	1234	60	0.08	1194
20	62	0.10	990	60	0.08	955



CODE: Y400-Y400P-400V-Y400V SLOT MILLING

MATERIAL	Carbon Steel - Cast Iron			Aloy Steel - Tool Steel - СУПЕР СПЛАВ			Steel - СТАЛЬ		
HARDNESS	750/mm2			<30HRC			<40HRC		
Ø	Vc	Fz	RPM	Vc	Fz	RPM	Vc	Fz	RPM
	ap=0.5xd								
3	100	0.02	8500	78	0.03	6350	65	0.02	5850
4	100	0.03	6350	78	0.03	4750	65	0.03	4400
5	100	0.03	5100	78	0.04	3800	65	0.03	3500
6	100	0.04	4250	78	0.04	3200	65	0.06	2900
8	100	0.05	3200	78	0.05	2400	65	0.08	2200
10	100	0.06	2550	78	0.07	1900	65	0.09	1750
12	100	0.07	2100	78	0.07	1600	65	0.10	1450
16	100	0.09	1600	78	0.09	1200	65	0.12	1100
20	100	0.10	1250	78	0.10	955	65	0.12	875

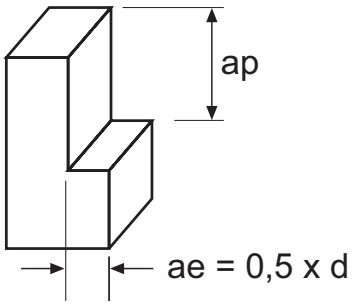
MATERIAL	Steel - СТАЛЬ					
HARDNESS	<45HRC			<50HRC		
Ø	Vc	Fz	RPM	Vc	Fz	RPM
	ap=0.5xd			ap=0.5xd		
3	62	0.02	5500	60	0.02	4450
4	62	0.03	4150	60	0.03	3350
5	62	0.03	3300	60	0.04	2650
6	62	0.04	2750	60	0.05	2250
8	62	0.06	2050	60	0.06	1650
10	62	0.07	1650	60	0.07	1350
12	62	0.08	1400	60	0.09	1100
16	62	0.09	1050	60	0.09	835
20	62	0.10	830	60	0.10	670



Y400V: +30%

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



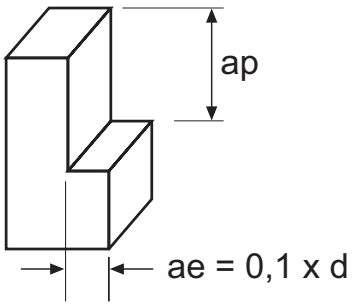
CODE: 400SV - 500RV - 500SV - T2201 ROUGHING

MATERIAL	APPLICATION	ROUGHING									
			FZ mm/tooth								
		VC m/min	Ø 3	Ø 4	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20
Construction steel 500 N/mm2	ap=1xd ap=2xd (ae=0.25xd)	170-200 110-130	0.024 0.016	0.028 0.021	0.041 0.027	0.058 0.035	0.073 0.044	0.09 0.052	0.1 0.058	0.11 0.063	0.13 0.08
Construction steel 510-800 N/mm2	ap=1xd ap=2xd	160-188 100-125	0.022 0.015	0.026 0.02	0.036 0.031	0.052 0.042	0.066 0.05	0.085 0.058	0.093 0.065	0.1 0.071	0.12 0.09
Tooling steel 850-1000 N/mm2	ap=1xd ap=2xd (ae=0.25xd)	70-90 80-100	0.016 0.01	0.021 0.015	0.029 0.025	0.042 0.032	0.053 0.039	0.063 0.048	0.071 0.053	0.079 0.058	0.097 0.073
Stainless steel 850 N/mm2	ap=1xd	95-115	0.019	0.024	0.039	0.053	0.065	0.079	0.087	0.095	0.11
Tooling steel <60 HRC	ap=1xd	45-55	0.015	0.02	0.031	0.042	0.05	0.059	0.065	0.071	0.09
Super Alloy 850-1000 N/mm2	ap=1xd ap=2xd (ae=0.25xd)	150-185 95-120	0.019 0.01	0.024 0.015	0.039 0.027	0.053 0.035	0.065 0.044	0.079 0.052	0.087 0.058	0.095 0.063	0.11 0.08
Super Alloy 1000-1200 N/mm2	ap=1xd ap=2xd (ae=0.25xd)	125-150 80-100	0.013 0.01	0.02 0.015	0.033 0.025	0.047 0.032	0.059 0.039	0.072 0.048	0.08 0.052	0.088 0.058	0.1 0.073
Inconell 1200 N/mm2	ap=1xd	56-70	0.013	0.02	0.033	0.047	0.059	0.072	0.08	0.088	0.1
Cast iron 240 HB	ap=1xd ap=2xd (ae=0.25xd)	220-270 140-170	0.022 0.015	0.026 0.02	0.036 0.031	0.052 0.042	0.066 0.05	0.085 0.058	0.093 0.065	0.1 0.071	0.12 0.09
Cast iron <300 HB	ap=1xd ap=2xd (ae=0.25xd)	115-140 130-160	0.019 0.01	0.024 0.016	0.039 0.027	0.053 0.064	0.065 0.044	0.079 0.052	0.087 0.058	0.095 0.063	0.011 0.08
Titanium <850 N/mm2	ap=1xd ap=2xd (ae=0.25xd)	90-110 60-70	0.013 0.01	0.02 0.015	0.033 0.025	0.047 0.032	0.059 0.039	0.072 0.048	0.08 0.053	0.088 0.058	0.01 0.073
Titanium 850-1200 N/mm2	ap=1xd ap=2xd (ae=0.25xd)	75-90 50-60	0.016 0.01	0.021 0.015	0.029 0.024	0.042 0.032	0.053 0.038	0.063 0.046	0.071 0.05	0.079 0.054	0.097 0.066
Aluminium	ap=1xd ap=2xd (ae=0.25xd)	500-650	0.016	0.021	0.029	0.042	0.053	0.063	0.071	0.079	0.097
Copper	ap=1xd ap=2xd (ae=0.25xd)	210-260 140-171	0.022 0.015	0.026 0.02	0.036 0.031	0.052 0.042	0.066 0.05	0.085 0.059	0.093 0.065	0.1 0.071	0.12 0.09

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



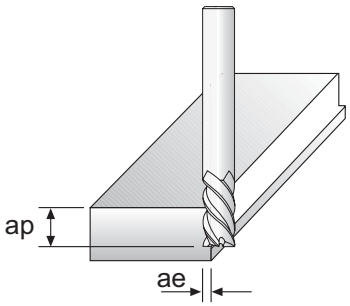
CODE: 400SV - 500SV - 500RV FINISHING

MATERIAL	APPLICATION	FINISHING									
			FZ mm/tooth								
		VC m/min	Ø 3	Ø 4	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20
Construction steel 500 N/mm2	ap=1xd ap=2xd	210-250 140-170	0.01 0.01	0.015 0.015	0.025 0.025	0.032 0.032	0.039 0.039	0.048 0.048	0.053 0.053	0.058 0.058	0.073 0.073
Construction steel 510-800 N/mm2	ap=1xd ap=2xd	190-230 125-155	0.013 0.01	0.039 0.015	0.033 0.024	0.047 0.032	0.059 0.038	0.072 0.046	0.08 0.05	0.088 0.054	0.1 0.066
Tooling steel 850-1000 N/mm2	ap=1xd ap=2xd	160-200 100-125	0.015 0.004	0.02 0.007	0.031 0.013	0.042 0.019	0.05 0.025	0.059 0.03	0.065 0.034	0.071 0.038	0.09 0.045
Stainless steel 850 N/mm2	ap=1xd	70-90	0.016	0.021	0.029	0.042	0.053	0.063	0.071	0.079	0.097
Tempered steel <60 HRC	ap=1xd	60-75	0.007	0.016	0.017	0.024	0.03	0.036	0.041	0.045	0.057
Super Alloy 850-1000 N/mm2	ap=1xd ap=2xd	180-230 120-140	0.016 0.007	0.021 0.016	0.029 0.017	0.042 0.024	0.053 0.03	0.063 0.036	0.071 0.041	0.079 0.045	0.097 0.057
Super Alloy 1000-1200 N/mm2	ap=1xd ap=2xd	155-190 100-125	0.015 0.004	0.02 0.007	0.031 0.013	0.042 0.019	0.05 0.025	0.059 0.03	0.065 0.034	0.071 0.038	0.09 0.045
Inconell	ap=1xd	70-90	0.015	0.02	0.031	0.042	0.05	0.059	0.065	0.071	0.09
Cast iron 240 HB	ap=1xd ap=2xd	255-313 180-220	0.013 0.01	0.02 0.015	0.033 0.024	0.047 0.032	0.059 0.038	0.072 0.046	0.08 0.05	0.088 0.054	0.1 0.065
Cast iron <300 HB	ap=1xd ap=2xd	250-313 160-200	0.016 0.007	0.021 0.011	0.029 0.017	0.042 0.024	0.053 0.03	0.063 0.036	0.071 0.041	0.079 0.045	0.097 0.057
Titanium <850 N/mm2	ap=1xd ap=2xd	120-145 80-95	0.015 0.004	0.02 0.007	0.031 0.013	0.042 0.019	0.05 0.025	0.059 0.03	0.065 0.034	0.071 0.038	0.09 0.045
Titanium Alloy	ap=1xd ap=2xd	100-120 60-75	0.01 0.003	0.015 0.006	0.027 0.011	0.035 0.016	0.044 0.021	0.052 0.026	0.058 0.029	0.0.63 0.032	0.08 0.038
Aluminium	ap=2xd	600-740	0.015	0.02	0.031	0.042	0.05	0.059	0.065	0.071	0.09
Copper	ap=2xd	180-220	0.01	0.015	0.027	0.035	0.044	0.052	0.058	0.063	0.08

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



CODE: 506 - Y508 ROUGHING - HIGH SPEED CUTTING

MATERIAL	Steel - СТАЛЬ							
HARDNESS	< HRC 48-60				< HRC 72			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
6	275	0.042	0.033 x d	0.820 x d	125	0.030	0.028 x d	0.750 x d
8	275	0.085	0.033 x d	0.820 x d	125	0.065	0.028 x d	0.750 x d
10	275	0.085	0.033 x d	0.820 x d	125	0.065	0.028 x d	0.750 x d
12	275	0.128	0.033 x d	0.820 x d	125	0.100	0.028 x d	0.750 x d
16	275	0.128	0.033 x d	0.820 x d	125	0.100	0.028 x d	0.750 x d
20	275	0.170	0.033 x d	0.820 x d	125	0.144	0.028 x d	0.750 x d

CODE: 506 - Y508 FINISHING - HIGH SPEED CUTTING

MATERIAL	Steel - СТАЛЬ							
HARDNESS	< HRC 48-60				< HRC 72			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
6	340	0.045	0.020 x d	0.650 x d	140	0.030	0.010 x d	0.450 x d
8	340	0.090	0.020 x d	0.650 x d	140	0.075	0.010 x d	0.450 x d
10	340	0.090	0.020 x d	0.650 x d	140	0.075	0.010 x d	0.450 x d
12	340	0.135	0.020 x d	0.650 x d	140	0.115	0.010 x d	0.450 x d
16	340	0.135	0.020 x d	0.650 x d	140	0.115	0.010 x d	0.450 x d
20	340	0.180	0.020 x d	0.650 x d	140	0.165	0.010 x d	0.450 x d

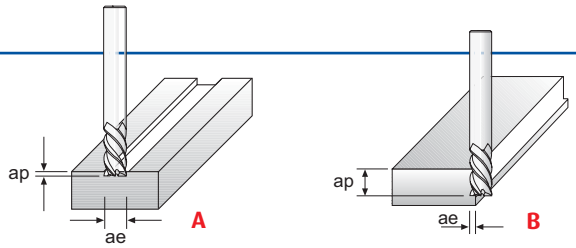
CODE: T2204

MATERIAL	Hardness	Applications			Vc	Fz(mm/Tooth)						
		Side Milling	Slot Milling	Slot Milling								
	HRC	ap	ae	ap	m/min	Ø 6	Ø 8	Ø 10	Ø 12	Ø 16	Ø 20	Ø 25
Steels СТАЛЬ	35-45	1.5 x d	0.40 x d	0.50 x d	150	0.020	0.025	0.030	0.040	0.050	0.065	0.070
	45-55	1.5 x d	0.33 x d	0.50 x d	110	0.015	0.020	0.025	0.030	0.040	0.050	0.055
	55-60	1.5 x d	0.25 x d	0.30 x d	90	0.010	0.015	0.020	0.025	0.030	0.040	0.045
Titanium ТИТАН	<40	1.5 x d	0.33 x d	0.50 x d	70	0.030	0.035	0.040	0.050	0.070	0.080	0.085
	>40	1.5 x d	0.25 x d	0.30 x d	60	0.025	0.030	0.035	0.045	0.060	0.075	0.080
Cast Iron ЧУГУН	-	1.5 x d	0.20 x d	0.25 x d	30	0.015	0.020	0.025	0.030	0.040	0.050	0.055
Inox	<900N	1.5 x d	0.20 x d	0.30 x d	25	0.014	0.020	0.032	0.044	0.053	0.059	0.065
	>900N	1.5 x d	0.20 x d	0.30 x d	20	0.014	0.020	0.032	0.044	0.053	0.059	0.065

Parametri di taglio

Cutting speed

Richtwerte - Paramétres
Режимы обработки - Řezná rychlost



CODE: 5040 - Y5040 - 5040R (A)

MATERIAL	ROUGHING																					
	Fine Grain Graphite					Mean Grain Graphite					Coarse Grain Graphite					Carbon Fibre					
Hardned	Vc	n	Vf	ae	ap	Vc	n	Vf	ae	ap	Vc	n	Vf	ae	ap	Vc	Fz	n	Vf	ae	ap
Ø	m/min	min/'	mm/min	mm	mm	m/min	min/'	mm/min	mm	mm	m/min	min/'	mm/min	mm	mm	m/min	mm	min/'	mm/min	mm	mm
3	520	55202	3900-6500	3	10	780	24841	3900-6500	3	10	1040	33121	3900-6500	3	10	150	0.010	15924	955	3	1.5
4	520	41401	4550-7150	4	10	780	24841	4550-7150	4	10	1040	33121	4550-7150	4	10	150	0.015	11943	1075	4	2.5
5	520	33121	4875-8125	5	10	780	24841	4875-8125	5	10	1040	33121	4875-8125	5	10	150	0.020	9554	1146	5	3.1
6	520	27601	5200-9100	6	20	780	12420	5200-9100	6	20	1040	16561	5200-9100	6	20	150	0.020	7962	955	6	3.7
8	520	20701	5850-10400	8	20	780	12420	5850-10400	8	20	1040	16561	5850-10400	8	20	150	0.025	5971	1200	8	5
10	520	16561	6500-11050	10	25	780	9936	6500-11050	10	25	1040	13248	6500-11050	10	25	150	0.040	4777	1529	10	6.2
12	520	13800	7800-11700	12	30	780	8280	7800-11700	12	30	1040	11040	7800-11700	12	30	150	0.050	3981	1990	12	7.5

CODE: 6010D - 6010RD (A)

MATERIAL	ROUGHING														
	Fine Grain Graphite					Mean Grain Graphite					Coarse Grain Graphite				
Hardned	Vc	n	Vf	ae	ap	Vc	n	Vf	ae	ap	Vc	n	Vf	ae	ap
Ø	m/min	min/'	mm/min	mm	mm	m/min	min/'	mm/min	mm	mm	m/min	min/'	mm/min	mm	mm
3	400	42463	3000-5000	3	10	600	19108	3000-5000	3	10	800	25478	3000-5000	3	10
4	400	31847	3500-5500	4	10	600	19108	3500-5500	4	10	800	25478	3500-5500	4	10
5	400	25478	3750-6250	5	10	600	19108	3750-6250	5	10	800	25478	3750-6250	5	10
6	400	21231	4000-7000	6	20	600	9554	4000-7000	6	20	800	12739	4000-7000	6	20
8	400	15924	4500-8000	8	20	600	9554	4500-8000	8	20	800	12739	4500-8000	8	20
10	400	12739	5000-8500	10	25	600	7643	5000-8500	10	25	800	10191	5000-8500	10	25
12	400	10616	6000-9000	12	30	600	6369	6000-9000	12	30	800	8493	6000-9000	12	30

CODE: Y507 (B)

MATERIAL	SIDE MILLING																					
	Stainless Steel Cr-Ni НЕРЖАВЕЮЩАЯ СТАЛЬ						Stainless Steel Cr-Ni-Mo НЕРЖАВЕЮЩАЯ СТАЛЬ						Super Alloy СУПЕР СПЛАВ						Inconel 718 ИНКОНЕЛЬ					
Hardned	Vc	FZ	n	Vf	ae	ap	Vc	Fz	n	Vf	ae	ap	Vc	Fz	n	Vf	ae	ap	Vc	Fz	n	Vf	ae	ap
Ø	m/min	mm	min/'	mm/min	mm	mm	m/min	mm	min/'	mm/min	mm	mm	m/min	mm	min/'	mm/min	mm	mm	m/min	mm	min/'	mm/min	mm	mm
3	80	0.010	8493	340	1.2	3	40	0.010	4246	170	2.40	3	25	0.010	2654	106	2.4	9	30	0.010	1592	64	2.4	3
4	80	0.015	6369	382	1.6	4	40	0.015	3185	191	2.40	4	25	0.015	1990	119	3.2	12	30	0.015	1194	72	2.4	4
6	80	0.020	4246	510	2.4	6	40	0.020	2123	255	2.40	6	25	0.020	1327	159	2.4	12	30	0.020	796	96	2.4	6
8	80	0.030	3185	573	3.2	8	40	0.030	1592	287	3.20	8	25	0.030	995	179	3.2	12	30	0.030	597	107	3.2	8
10	80	0.035	2548	713	4.0	10	40	0.035	1274	357	4.00	10	25	0.035	796	223	4.0	15	30	0.035	478	134	4.0	10
12	80	0.040	2123	679	4.8	12	40	0.040	1062	340	4.80	12	25	0.040	663	212	4.8	18	30	0.040	398	127	4.8	12
16	80	0.065	1592	828	3.2	16	40	0.065	796	518	6.40	16	25	0.065	498	323	6.4	24	30	0.065	299	194	6.4	16
20	80	0.070	1274	713	3.2	20	40	0.070	637	446	6.40	20	25	0.070	398	279	6.4	24	30	0.070	239	167	6.4	20
25	80	0.080	1019	652	3.2	25	40	0.080	510	408	6.40	25	25	0.080	318	255	6.4	24	30	0.080	191	153	6.4	25

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 200G - 200GD - 200GRD - 300GD - 300GRD - 200GRL ROUGHING

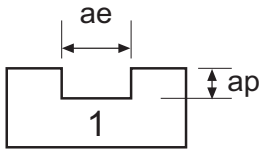
Ø	FZ mm/tooth		N = RPM											
			8000		15000		24000		30000		36000		45000	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2
0.4	0.004	0.005	-	-	-	-	-	-	240	300	288	360	360	450
0.5	0.005	0.007	-	-	-	-	240	316	300	420	360	504	450	630
0.6	0.006	0.008	-	-	-	-	288	384	360	480	432	576	540	720
0.8	0.008	0.010	-	-	240	300	384	480	480	600	576	720	720	900
1.0	0.010	0.012	-	-	300	360	480	576	600	720	720	864	900	1.080
1.2	0.012	0.015	-	-	360	450	576	720	720	900	864	1.080	1.080	1.350
1.5	0.014	0.018	224	288	420	540	672	864	840	1.080	1.080	1.296	1.260	1.620
2.0	0.016	0.020	256	320	480	600	768	960	960	1.200	1.152	1.440	1.440	1.800
3.0	0.024	0.025	384	400	720	750	1.152	1.200	1.440	1.500	1.728	1.800	2.160	2.250
4.0	0.032	0.040	512	640	960	960	1.536	1.920	1.920	2.400	2.300	2.880	2.880	3.600
5.0	0.040	0.050	640	800	1.200	1.500	1.920	2.400	2.400	3.000	2.880	3.600	3.600	4.500
6.0	0.048	0.065	768	1.040	1.440	1.950	2.304	3.120	2.880	3.900	2.456	4.680	4.320	5.850
8.0	0.064	0.080	1.024	1.280	1.920	2.400	3.072	3.840	3.840	4.800	4.608	5.760	5.760	7.200
10.0	0.080	0.100	1.280	1.600	2.400	3.000	3.840	4.800	4.800	6.000	5.760	7.200	7.200	-
12.0	0.100	0.120	1.600	1.920	3.000	3.600	4.800	5.760	6.000	7.200	7.200	-	-	-

CODE: 200G - 200GD - 200GRD - 300GD - 300GRD - 200GRL FINISHING

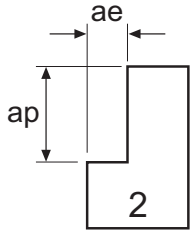
Ø	FZ mm/tooth	N = RPM					
		8000	15000	24000	30000	36000	45000
		VF	VF	VF	VF	VF	VF
0.4	0.006	-	-	-	360	432	540
0.5	0.008	-	-	384	480	576	720
0.6	0.010	-	-	480	600	720	900
0.8	0.012	-	360	576	720	864	1.080
1.0	0.015	-	450	720	900	1.080	1.350
1.2	0.018	-	540	864	1.080	1.296	1.620
1.5	0.020	320	600	960	1.200	1.440	1.800
2.0	0.025	400	750	1.200	1.500	1.800	2.250
3.0	0.035	560	1.050	1.680	2.100	2.520	3.150
4.0	0.050	800	1.500	2.400	3.000	3.600	4.500
5.0	0.060	960	1.800	2.880	3.600	4.320	5.400
6.0	0.070	1.120	2.100	3.360	4.200	5.040	6.300
8.0	0.085	1.360	2.550	4.080	5.100	6.120	7.650
10.0	0.110	1.760	3.300	5.280	6.600	-	-
12.0	0.130	2.080	3.900	6.240	7.800	-	-

CODE: 204GD - 204GRD

MATERIAL / HARDNESS	Graphyte - ГРАФИТ		
Ø	VC	FZ	ap
0.4 - 0.8	300-500	0.01-0.03	0.01-0.30
1 - 2	300-500	0.02-0.08	0.10-0.50
3 - 4	300-500	0.04-0.10	0.15-1.00
5 - 6	300-500	0.06-0.15	0.20-1.50



ae = 1 x d
ap = d x 0,5

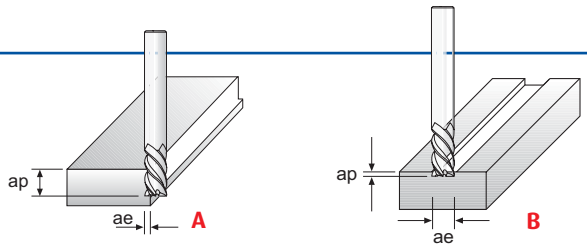


ap = 0,5 x d
ap = 0,5 x d

Parametri di taglio

Cutting speed

Richtwerte - Paramétres
Режимы обработки - Řezná rychlost



CODE: 100 - 700 - 730 - 750

	Side Milling A						Slot Milling B					
MATERIAL	**Aluminium Alloy** - АЛЮМИНИЙ						**Aluminium Alloy** - АЛЮМИНИЙ					
HARDNESS												
	Vc	**Fz**	**n**	**Vf**	**ae**	**ap**	**Vc**	**Fz**	**n**	**Vf**	**ae**	**ap**
Ø	**m/min**	**mm**	**min/'**	**mm/min**	**mm**	**mm**	**m/min**	**mm**	**min/'**	**mm/min**	**mm**	**mm**
3	250	0.030	26539	1592	0.80	4.5	150	0.020	15924	637	3	2
4	250	0.040	19904	1592	1.00	6.0	150	0.030	11943	717	4	2
5	250	0.050	15924	1592	1.30	7.5	150	0.035	9554	669	5	3
6	250	0.060	13270	1592	1.50	9.0	150	0.045	7962	717	6	3
8	250	0.080	9952	1592	2.00	12.0	150	0.055	5971	657	8	4
10	250	0.100	7962	1592	2.50	15.0	150	0.070	4777	669	10	5
12	250	0.120	6635	1592	3.00	18.0	150	0.085	3981	677	12	6
16	250	0.130	4976	1294	4.00	24.0	150	0.115	2986	687	16	8
20	250	0.150	3981	1194	5.00	30.0	150	0.145	2389	693	20	10

CODE: 755

	Slot Milling B						
MATERIAL	**Aluminium Alloy** - АЛЮМИНИЙ						
HARDNESS							
	Vc	**Fz**	**n**	**Vf Min.**	**Vf Max**	**ae**	**ap**
Ø	**m/min**	**mm**	**min/'**	**mm/min**	**mm/min**	**mm**	**mm**
3	200	0.024	21231	1000	1200	3.0	3.0
4	250	0.025	19904	1000	1200	4.0	4.0
5	300	0.026	19108	1000	1200	5.0	5.0
6	400	0.066	21231	2800	4000	6.0	6.0
8	400	0.094	15924	3000	4000	8.0	8.0
10	400	0.141	12739	3600	4500	10.0	10.0
12	400	0.170	10616	3600	4500	12.0	12.0
16	450	0.201	8957	3600	4500	16.0	16.0
20	450	0.223	7166	3200	4300	20.0	20.0

CODE: 300V - 456

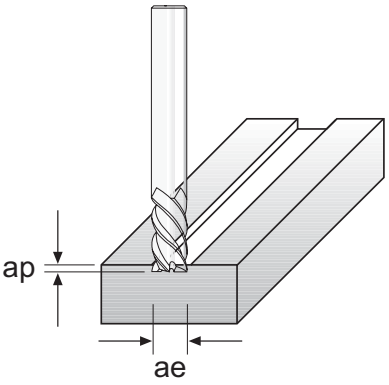
	Side Milling A						Slot Milling B					
MATERIAL	**Aluminium Alloy** - АЛЮМИНИЙ						**Aluminium Alloy** - АЛЮМИНИЙ					
HARDNESS												
	Vc	**Fz**	**n**	**Vf**	**ae**	**ap**	**Vc**	**Fz**	**n**	**Vf**	**ae**	**ap**
Ø	**m/min**	**mm**	**min/'**	**mm/min**	**mm**	**mm**	**m/min**	**mm**	**min/'**	**mm/min**	**mm**	**mm**
3	550	0.045	58400	7880	1.20	3.6	450	0.030	47800	4300	3	1
4	550	0.060	43770	7880	1.60	4.8	450	0.040	35900	4300	4	2
5	550	0.075	35015	7880	2.00	6.0	450	0.055	28700	4725	5	2
6	550	0.100	29200	8760	2.40	7.2	450	0.070	23900	5015	6	2
8	550	0.120	21900	7890	3.20	9.6	450	0.085	17900	4656	8	3
10	550	0.150	17510	7890	4.00	12.0	450	0.105	14300	4510	10	4
12	550	0.180	14600	7890	4.80	14.4	450	0.125	11940	4475	12	5
16	550	0.190	10950	6235	6.40	19.2	450	0.135	9000	3625	16	6
20	550	0.225	8760	5900	8.00	24.0	450	0.160	7160	3435	20	8

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y700R - Y703 ROUGHING HIGH SPEED CUTTING

MATERIAL	Aluminium - АЛЮМИНИЙ				Copper - МЕДЬ			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	500	0.021	1 x d	0.5 x d	300	0.015	1 x d	0.5 x d
4	500	0.028	1 x d	0.5 x d	300	0.016	1 x d	0.5 x d
5	500	0.035	1 x d	0.5 x d	300	0.020	1 x d	0.5 x d
6	500	0.045	1 x d	0.5 x d	300	0.024	1 x d	0.5 x d
8	500	0.056	1 x d	0.5 x d	300	0.032	1 x d	0.5 x d
10	500	0.070	1 x d	0.5 x d	300	0.040	1 x d	0.5 x d
12	500	0.084	1 x d	0.5 x d	300	0.048	1 x d	0.5 x d
16	500	0.112	1 x d	0.5 x d	300	0.064	1 x d	0.5 x d



CODE: Y700R - Y703 ROUGHING HIGH SPEED CUTTING

MATERIAL	Thermo Plastic - ТЕРМО ПЛАСТИК							
HARDNESS	Soft				Harder			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	500	0.021	1 x d	0.5 x d	300	0.013	1 x d	0.5 x d
4	500	0.028	1 x d	0.5 x d	300	0.020	1 x d	0.5 x d
5	500	0.033	1 x d	0.5 x d	300	0.026	1 x d	0.5 x d
6	500	0.042	1 x d	0.5 x d	300	0.030	1 x d	0.5 x d
8	500	0.056	1 x d	0.5 x d	300	0.040	1 x d	0.5 x d
10	500	0.060	1 x d	0.5 x d	300	0.051	1 x d	0.5 x d
12	500	0.084	1 x d	0.5 x d	300	0.060	1 x d	0.5 x d
16	500	0.112	1 x d	0.5 x d	300	0.075	1 x d	0.5 x d

Y703: +30%

CODE: Y700R - Y703 FINISHING HIGH SPEED CUTTING

MATERIAL	Aluminium - АЛЮМИНИЙ				Copper - МЕДЬ			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	500	0.021	1 x d	0.050 x d	300	0.015	1 x d	0.030 x d
4	500	0.028	1 x d	0.050 x d	300	0.016	1 x d	0.030 x d
5	500	0.035	1 x d	0.050 x d	300	0.020	1 x d	0.030 x d
6	500	0.045	1 x d	0.050 x d	300	0.024	1 x d	0.030 x d
8	500	0.056	1 x d	0.050 x d	300	0.032	1 x d	0.030 x d
10	500	0.070	1 x d	0.050 x d	300	0.040	1 x d	0.030 x d
12	500	0.084	1 x d	0.050 x d	300	0.048	1 x d	0.030 x d
16	500	0.112	1 x d	0.050 x d	300	0.064	1 x d	0.030 x d

CODE: Y700R - Y703 FINISHING HIGH SPEED CUTTING

MATERIAL	Thermo Plastic - ТЕРМО ПЛАСТИК							
HARDNESS	Soft				Harder			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	500	0.021	1 x d	0.030 x d	300	0.013	1 x d	0.020 x d
4	500	0.028	1 x d	0.030 x d	300	0.016	1 x d	0.020 x d
5	500	0.035	1 x d	0.030 x d	300	0.020	1 x d	0.020 x d
6	500	0.045	1 x d	0.030 x d	300	0.024	1 x d	0.020 x d
8	500	0.056	1 x d	0.030 x d	300	0.032	1 x d	0.020 x d
10	500	0.070	1 x d	0.030 x d	300	0.040	1 x d	0.020 x d
12	500	0.084	1 x d	0.030 x d	300	0.048	1 x d	0.020 x d
16	500	0.128	1 x d	0.030 x d	300	0.064	1 x d	0.020 x d

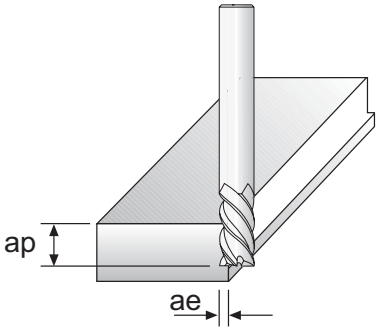
Y703: +30%

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: Y700R ROUGHING HIGH SPEED CUTTING

MATERIAL	Aluminium - АЛЮМИНИЙ				Copper - МЕДЬ			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	500	0.045	0.250 x d	1 x d	300	0.030	0.150 x d	1 x d
4	500	0.057	0.250 x d	1 x d	300	0.038	0.150 x d	1 x d
5	500	0.075	0.250 x d	1 x d	300	0.050	0.150 x d	1 x d
6	500	0.109	0.250 x d	1 x d	300	0.060	0.150 x d	1 x d
8	500	0.120	0.250 x d	1 x d	300	0.076	0.150 x d	1 x d
10	500	0.150	0.250 x d	1 x d	300	0.100	0.150 x d	1 x d
12	500	0.160	0.250 x d	1 x d	300	0.120	0.150 x d	1 x d
16	500	0.240	0.250 x d	1 x d	300	0.140	0.150 x d	1 x d



CODE: Y700R ROUGHING HIGH SPEED CUTTING

MATERIAL	Thermo Plastic - ТЕРМО ПЛАСТИК							
HARDNESS					Harder			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	500	0.045	0.080 x d	1 x d	300	0.036	0.020 x d	1 x d
4	500	0.060	0.080 x d	1 x d	300	0.048	0.020 x d	1 x d
5	500	0.075	0.080 x d	1 x d	300	0.060	0.020 x d	1 x d
6	500	0.090	0.080 x d	1 x d	300	0.072	0.020 x d	1 x d
8	500	0.120	0.080 x d	1 x d	300	0.096	0.020 x d	1 x d
10	500	0.150	0.080 x d	1 x d	300	0.120	0.020 x d	1 x d
12	500	0.180	0.080 x d	1 x d	300	0.144	0.020 x d	1 x d
16	500	0.200	0.080 x d	1 x d	300	0.168	0.020 x d	1 x d

CODE: Y700R FINISHING HIGH SPEED CUTTING

MATERIAL	Aluminium - АЛЮМИНИЙ				Copper - МЕДЬ			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	500	0.045	0.050 x d	0.820 x d	300	0.030	0.040 x d	1.750 x d
4	500	0.060	0.050 x d	0.820 x d	300	0.040	0.040 x d	1.750 x d
5	500	0.075	0.050 x d	0.820 x d	300	0.050	0.040 x d	1.750 x d
6	500	0.109	0.050 x d	0.820 x d	300	0.060	0.040 x d	1.750 x d
8	500	0.120	0.050 x d	0.820 x d	300	0.080	0.040 x d	1.750 x d
10	500	0.150	0.050 x d	0.820 x d	300	0.100	0.040 x d	1.750 x d
12	500	0.160	0.050 x d	0.820 x d	300	0.120	0.040 x d	1.750 x d
16	500	0.240	0.050 x d	0.820 x d	300	0.140	0.040 x d	1.750 x d

CODE: Y700R FINISHING HIGH SPEED CUTTING

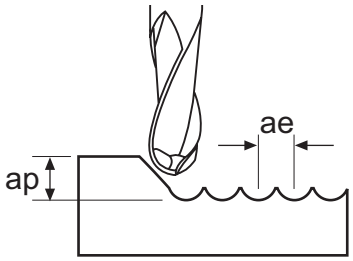
MATERIAL	Thermo Plastic - ТЕРМО ПЛАСТИК							
HARDNESS	Soft				Harder			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	500	0.045	0.040 x d	0.630 x d	300	0.030	0.010 x d	0.320 x d
4	500	0.060	0.040 x d	0.630 x d	300	0.038	0.010 x d	0.320 x d
5	500	0.075	0.040 x d	0.630 x d	300	0.050	0.010 x d	0.320 x d
6	500	0.109	0.040 x d	0.630 x d	300	0.060	0.010 x d	0.320 x d
8	500	0.120	0.040 x d	0.630 x d	300	0.075	0.010 x d	0.320 x d
10	500	0.150	0.040 x d	0.630 x d	300	0.100	0.010 x d	0.320 x d
12	500	0.160	0.040 x d	0.630 x d	300	0.110	0.010 x d	0.320 x d
16	500	0.240	0.040 x d	0.630 x d	300	0.140	0.010 x d	0.320 x d

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 700SR ROUGHING STANDARD CUTTING SPEED

MATERIAL	Steel - СТАЛЬ				Aluminium - АЛЮМИНИЙ			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	140	0.016	0.03 x d	0.03 x d	Max	0.021	0.30 x d	0.03 x d
4	140	0.032	0.03 x d	0.03 x d	Max	0.042	0.30 x d	0.03 x d
6	140	0.032	0.03 x d	0.03 x d	Max	0.042	0.30 x d	0.03 x d
8	140	0.064	0.03 x d	0.03 x d	Max	0.084	0.30 x d	0.03 x d
10	140	0.064	0.03 x d	0.03 x d	Max	0.084	0.30 x d	0.03 x d
12 - 18	140	0.096	0.03 x d	0.03 x d	Max	0.126	0.30 x d	0.03 x d
20 - 25	140	0.160	0.03 x d	0.03 x d	Max	0.210	0.30 x d	0.03 x d



CODE: 700SR

MATERIAL	Copper - МЕДЬ				Titanium - ТИТАН			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	350	0.020	0.03 x d	0.03 x d	90	0.014	0.30 x d	0.03 x d
4	350	0.040	0.03 x d	0.03 x d	90	0.028	0.30 x d	0.03 x d
6	350	0.040	0.03 x d	0.03 x d	90	0.028	0.30 x d	0.03 x d
8	350	0.080	0.03 x d	0.03 x d	90	0.057	0.30 x d	0.03 x d
10	350	0.080	0.03 x d	0.03 x d	90	0.057	0.30 x d	0.03 x d
12 - 18	350	0.120	0.03 x d	0.03 x d	90	0.085	0.30 x d	0.03 x d
20 - 25	350	0.200	0.03 x d	0.03 x d	90	0.142	0.30 x d	0.03 x d

For finishing:
ae < 0,02 - 0,03 x d
ap < 0,8 x d
Vc = 1,2 x Vc (Parameter List)
Fz = 0,7 x Vc (Parameter List)

CODE: 700SR

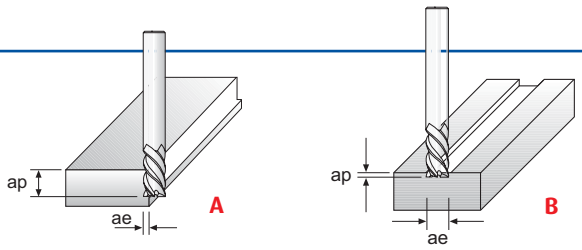
MATERIAL	Super Alloy - СУПЕР СПЛАВ								Thermo Plastic - ТЕРМО ПЛАСТИК			
HARDNESS									Harder			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	40	0.015	0.03 x d	0.03 x d	350	0.020	0.03 x d	0.03 x d	170	0.008	0.03 x d	0.03 x d
4	40	0.030	0.03 x d	0.03 x d	350	0.040	0.03 x d	0.03 x d	170	0.016	0.03 x d	0.03 x d
6	40	0.030	0.03 x d	0.03 x d	350	0.040	0.03 x d	0.03 x d	170	0.016	0.03 x d	0.03 x d
8	40	0.060	0.03 x d	0.03 x d	350	0.080	0.03 x d	0.03 x d	170	0.031	0.03 x d	0.03 x d
10	40	0.060	0.03 x d	0.03 x d	350	0.080	0.03 x d	0.03 x d	170	0.031	0.03 x d	0.03 x d
12 - 18	40	0.090	0.03 x d	0.03 x d	350	0.120	0.03 x d	0.03 x d	170	0.047	0.03 x d	0.03 x d
20 - 25	40	0.150	0.03 x d	0.03 x d	350	0.200	0.03 x d	0.03 x d	170	0.078	0.03 x d	0.03 x d

HSC = Standard Cutting Speed X 1,4

Parametri di taglio

Cutting speed

Richtwerte - Paramétres
Режимы обработки - Řezná rychlost



CODE: 756

MATERIAL	Side Milling A						Slot Milling B					
	Aluminium Alloy - АЛЮМИНИЙ						Aluminium Alloy - АЛЮМИНИЙ					
HARDNESS Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
6	400	0.095	21231	6051	1.50	3.6	500	0.110	26539	8758	0.35	0.35
8	400	0.130	15924	6210	2.00	4.8	500	0.145	19904	8658	0.40	0.40
10	400	0.160	12739	6115	2.50	6.0	500	0.180	15924	8599	0.45	0.45
12	400	0.175	10616	5573	3.00	7.2	500	0.240	13270	9554	0.50	0.50
16	400	0.195	7962	4658	4.00	9.6	500	0.320	9952	9554	0.60	0.60
20	400	0.230	6369	4395	5.00	12.0	500	0.400	7962	9554	0.75	0.75

CODE: T2202

MATERIAL	Side Milling A											
	Aluminium Alloy - АЛЮМИНИЙ						Copper - МЕДЬ					
HARDNESS Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
6	600	0.070	31847	6688	2.4	9.0	400	0.070	21231	4459	2.4	9.0
8	600	0.090	23885	6449	3.2	12.0	400	0.090	15924	4299	3.2	12.0
10	600	0.110	19108	6306	4.0	15.0	400	0.110	12739	4299	4.0	15.0
12	600	0.135	15924	6449	4.8	18.0	400	0.135	10616	4299	4.8	18.0
16	600	0.180	11943	6449	6.4	24.0	400	0.180	7962	4299	6.4	24.0
20	600	0.220	9554	6306	8.0	30.0	400	0.220	6369	4299	8.0	30.0

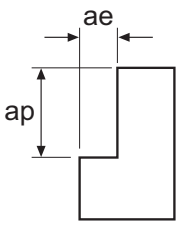
CODE: T2202

MATERIAL	Slot Milling B											
	Aluminium Alloy - АЛЮМИНИЙ						Copper - МЕДЬ					
HARDNESS Ø	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm	Vc m/min	Fz mm	n min/'	Vf mm/min	ae mm	ap mm
6	500	0.060	26539	4777	6	4.8	270	0.060	14331	2580	6	4.8
8	500	0.080	19904	4777	8	6.4	270	0.080	10748	2580	8	6.4
10	500	0.100	15924	4777	10	8.0	270	0.100	8599	2580	10	8.0
12	500	0.120	13270	4777	12	9.6	270	0.120	7166	2580	12	9.6
16	500	0.160	9952	4777	16	12.8	270	0.160	5374	2580	16	12.8
20	500	0.200	7962	4777	20	16.0	270	0.200	4299	2580	20	16.0

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



ae = 0,5 x d
ap = 1 x d

CODE: T2000 - T2200 - T2203 - T3000 - T4000 - 451 - 452 - 454 - 455

MATERIAL	HARDNESS	Ø									
		Ø 3.0		Ø 4.0		Ø 5.0		Ø 6.0		Ø 8.0	
		Vc	Fz	Vc	Fz	Vc	Fz	Vc	Fz	Vc	Fz
Non Alloy Stee	< 500 N/mm	80-140	0.023	80-140	0.023	80-140	0.033	80-140	0.033	80-140	0.045
	< 700 N/mm	70-120	0.023	120	0.023	120	0.033	120	0.033	120	0.045
	< 800 N/mm	70-120	0.023	70-120	0.023	70-120	0.033	70-120	0.033	70-120	0.045
Alloy Stee	< 1000 N/mm	50-85	0.014	50-85	0.014	80-85	0.022	50-85	0.022	50-85	0.280
	< 1200 N/mm	40-70	0.013	40-70	0.013	40-70	0.020	40-70	0.020	40-70	0.025
High Alloy Steel	< 1000 N/mm	50-85	0.014	50-85	0.014	80-85	0.022	50-85	0.022	50-85	0.280
	< 1200 N/mm	40-70	0.013	40-70	0.013	40-70	0.020	40-70	0.020	40-70	0.025
Steel	< 50 HRC	35-45	0.013	35-45	0.013	35-45	0.015	35-45	0.015	35-45	0.015
	< 65 HRC	30-40	0.010	30-40	0.010	30-40	0.012	30-40	0.012	30-40	0.012
Stainless Steel	< 700 HRC	55-90	0.015	55-90	0.015	55-90	0.025	55-90	0.025	55-90	0.030
	< 850 HRC	45-85	0.012	45-85	0.012	45-85	0.017	45-85	0.017	45-85	0.025
Cast Iron	< 180 HB	70-130	0.010	70-130	0.020	70-130	0.030	70-130	0.030	70-130	0.040
	< 180 HB	60-100	0.010	60-100	0.020	60-100	0.030	60-100	0.030	60-100	0.040
Titanium		55-75	0.008	55-75	0.016	55-75	0.024	55-75	0.024	55-75	0.032
Inconel		50-70	0.090	50-70	0.090	50-70	0.015	50-70	0.015	50-70	0.015
Graphyte		100-200	0.014	100-200	0.014	100-200	0.014	100-200	0.028	100-200	0.056

CODE: T2000 - T2200 - T2203 - T3000 - T4000 - 451 - 452 - 454 - 455

MATERIAL	HARDNESS	Ø							
		Ø 10.0		Ø 12.0		Ø 14 - 16		Ø 18 - 20	
		Vc	Fz	Vc	Fz	Vc	Fz	Vc	Fz
Non Alloy Stee	< 500 N/mm	80-140	0.060	80-140	0.080	80-140	0.100	80-140	0.120
	< 700 N/mm	120	0.060	120	0.080	120	0.100	120	0.120
	< 850 N/mm	70-120	0.060	70-120	0.080	70-120	0.100	70-120	0.120
Alloy Stee	< 1000 N/mm	50-85	0.035	50-85	0.045	50-85	0.060	50-85	0.080
	< 1200 N/mm	40-70	0.030	40-70	0.040	40-70	0.055	40-70	0.065
High Alloy Steel	< 1000 N/mm	50-85	0.035	50-85	0.045	50-85	0.060	50-85	0.080
	< 1200 N/mm	40-70	0.030	40-70	0.040	40-70	0.055	40-70	0.065
Steel	< 50 HRC	35-45	0.030	35-45	0.030	35-45	0.040	35-45	0.065
	< 65 HRC	30-40	0.020	30-40	0.020	30-40	0.030	30-40	0.050
Stainless Steel	< 700 HRC	55-90	0.040	55-90	0.050	55-90	0.055	55-90	0.090
	< 850 HRC	45-85	0.032	45-85	0.045	45-85	0.060	45-85	0.075
Cast Iron	< 180 HB	70-130	0.050	70-130	0.060	70-130	0.080	70-130	0.100
	< 180 HB	60-100	0.050	60-100	0.060	60-100	0.080	60-100	0.100
Titanium		55-75	0.040	55-75	0.050	55-75	0.060	55-75	0.070
Inconel		50-70	0.030	50-70	0.030	50-70	0.050	50-70	0.060
Graphyte		100-200	0.056	100-200	0.084	100-200	0.084	100-200	0.140

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 900T - 910 - 910T

MATERIAL	CUTTING SPEED Vc = m/mm	FEED fz = mm per tooth				
		Ø 1 ÷ 4	Ø 4 ÷ 8	Ø 8 ÷ 12	Ø 12 ÷ 16	Ø 16 ÷ 20
Non alloy steel	15 ÷ 22 10 ÷ 18 8 ÷ 15	0.12 0.10 0.10	0.16 0.13 0.15	0.25 0.20 0.16	0.30 0.25 0.20	0.35 0.30 0.25
Alloy steel	6 ÷ 12 5 ÷ 10	0.07 0.05	0.10 0.08	0.13 0.10	0.15 0.13	0.25 0.15
Heat resistant steels	5 ÷ 10	0.03	0.05	0.08	0.10	0.12
Stainless steel	8 ÷ 12	0.04	0.06	0.08	0.10	0.12
Cast Iron	8 ÷ 12 10 ÷ 14	0.20 0.20	0.25 0.25	0.30 0.30	0.35 0.30	0.40 0.35
Aluminium and other non-ferrous materials	18 ÷ 30	0.20	0.30	0.35	0.40	0.50

CODE: CTK - CTK.R

MATERIAL	VC	FZ				
		Ø 3-4	Ø 5-8	Ø 10-12	Ø 13-25	Ø 26-40
Steel <500 N/mm	40 - 80	0.012	0.015	0.020	0.020	0.020
Steel <800 N/mm	40 - 80	0.012	0.015	0.020	0.020	0.020
Steel >800 N/mm	30 - 50	0.012	0.013	0.017	0.017	0.017
Stainless steel	30 - 50	0.010	0.010	0.015	0.015	0.015
Inconell	25 - 40	0.010	0.010	0.015	0.015	0.015
Titanium	20 - 40	0.010	0.010	0.015	0.015	0.015
Cast Iron	20 - 50	0.012	0.013	0.012	0.012	0.016
Steel	20 - 50	0.012	0.013	0.013	0.013	0.015
Alluminium	70 - 150	0.012	0.015	0.020	0.020	0.025
Brass, Bronze, Copper, Plastic	60 - 100	0.012	0.015	0.060	0.120	0.160

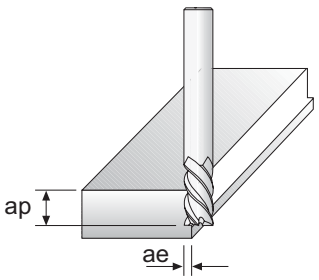
Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 5010 - 5020 - 5030 ROUGHING HIGH SPEED CUTTING

MATERIAL	Construction Steel - КОНСТРУКЦИОННАЯ СТАЛЬ							
HARDNESS	< 500 N/mm2				< 850 N/mm2			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	100	0.032	0.1 x d	1.5 x d	90	0.032	0.1 x d	1.5 x d
	190	0.032	0.1 x d	1.5 x d	170	0.032	0.1 x d	1.5 x d
4	100	0.032	0.1 x d	1.5 x d	90	0.032	0.1 x d	1.5 x d
	190	0.032	0.1 x d	1.5 x d	170	0.032	0.1 x d	1.5 x d
5	100	0.054	0.1 x d	1.5 x d	90	0.054	0.1 x d	1.5 x d
	190	0.054	0.1 x d	1.5 x d	170	0.054	0.1 x d	1.5 x d
6	100	0.054	0.1 x d	1.5 x d	90	0.054	0.1 x d	1.5 x d
	190	0.054	0.1 x d	1.5 x d	170	0.054	0.1 x d	1.5 x d
8	100	0.063	0.1 x d	1.5 x d	90	0.063	0.1 x d	1.5 x d
	190	0.063	0.1 x d	1.5 x d	170	0.063	0.1 x d	1.5 x d
10	100	0.072	0.1 x d	1.5 x d	90	0.072	0.1 x d	1.5 x d
	190	0.072	0.1 x d	1.5 x d	170	0.072	0.1 x d	1.5 x d
12	100	0.080	0.1 x d	1.5 x d	90	0.080	0.1 x d	1.5 x d
	190	0.080	0.1 x d	1.5 x d	170	0.080	0.1 x d	1.5 x d



CODE: 5010 - 5020 - 5030

MATERIAL	Tooling Steel - ИНСТРУМЕНТАЛЬНАЯ СТАЛЬ				Steel - СТАЛЬ			
HARDNESS	1100-1400 N/mm2				HRC 48-45			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	45	0.020	0.1 x d	1.5 x d	25	0.020	0.1 x d	1.5 x d
	85	0.020	0.1 x d	1.5 x d	65	0.020	0.1 x d	1.5 x d
4	45	0.020	0.1 x d	1.5 x d	25	0.020	0.1 x d	1.5 x d
	85	0.020	0.1 x d	1.5 x d	65	0.020	0.1 x d	1.5 x d
5	45	0.030	0.1 x d	1.5 x d	25	0.030	0.1 x d	1.5 x d
	85	0.030	0.1 x d	1.5 x d	65	0.030	0.1 x d	1.5 x d
6	45	0.030	0.1 x d	1.5 x d	25	0.030	0.1 x d	1.5 x d
	85	0.030	0.1 x d	1.5 x d	65	0.030	0.1 x d	1.5 x d
8	45	0.040	0.1 x d	1.5 x d	25	0.040	0.1 x d	1.5 x d
	85	0.040	0.1 x d	1.5 x d	65	0.040	0.1 x d	1.5 x d
10	45	0.050	0.1 x d	1.5 x d	25	0.050	0.1 x d	1.5 x d
	85	0.050	0.1 x d	1.5 x d	65	0.050	0.1 x d	1.5 x d
12	45	0.060	0.1 x d	1.5 x d	25	0.060	0.1 x d	1.5 x d
	85	0.060	0.1 x d	1.5 x d	65	0.060	0.1 x d	1.5 x d

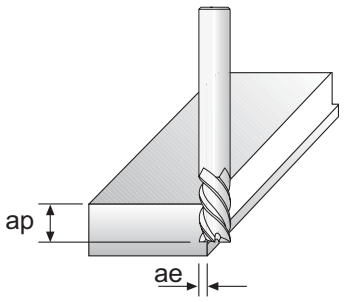
MATERIAL	Steel - СТАЛЬ								Graphite/Carbon Fibre/Glass Fibre			
HARDNESS	HRC 55-60				HRC 60-70							
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	50	0.016	0.1 x d	1.5 x d	30	0.012	0.1 x d	1.5 x d	90	0.020	0.1 x d	1.5 x d
									150	0.020	0.1 x d	1.5 x d
4	50	0.016	0.1 x d	1.5 x d	30	0.012	0.1 x d	1.5 x d	90	0.020	0.1 x d	1.5 x d
									150	0.020	0.1 x d	1.5 x d
5	50	0.023	0.1 x d	1.5 x d	30	0.018	0.1 x d	1.5 x d	90	0.027	0.1 x d	1.5 x d
									150	0.027	0.1 x d	1.5 x d
6	50	0.023	0.1 x d	1.5 x d	30	0.018	0.1 x d	1.5 x d	90	0.027	0.1 x d	1.5 x d
									150	0.027	0.1 x d	1.5 x d
8	50	0.030	0.1 x d	1.5 x d	30	0.025	0.1 x d	1.5 x d	90	0.054	0.1 x d	1.5 x d
									150	0.054	0.1 x d	1.5 x d
10	50	0.038	0.1 x d	1.5 x d	30	0.030	0.1 x d	1.5 x d	90	0.072	0.1 x d	1.5 x d
									150	0.072	0.1 x d	1.5 x d
12	50	0.045	0.1 x d	1.5 x d	30	0.038	0.1 x d	1.5 x d	90	0.089	0.1 x d	1.5 x d
									150	0.089	0.1 x d	1.5 x d

Cutting speed

Richtwerte - Paramétres - **Режимы обработки** - Řezná rychlost

CODE: 300 - 300T - 450 - 450T - 453 - 500 - 500T

MATERIAL	Aluminium - АЛЮМИНИЙ				Copper - МЕДЬ			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	Max	0.018	0.4 x d	1 x d	300	0.016	0.3 x d	1 x d
4	Max	0.036	0.4 x d	1 x d	300	0.032	0.3 x d	1 x d
5	Max	0.036	0.4 x d	1 x d	300	0.032	0.3 x d	1 x d
6	Max	0.036	0.4 x d	1 x d	300	0.032	0.3 x d	1 x d
8	Max	0.072	0.4 x d	1 x d	300	0.064	0.3 x d	1 x d
10	Max	0.072	0.4 x d	1 x d	300	0.064	0.3 x d	1 x d
12	Max	0.108	0.4 x d	1 x d	300	0.096	0.3 x d	1 x d
14 - 18	Max	0.108	0.4 x d	1 x d	300	0.096	0.3 x d	1 x d
20 - 25	Max	0.180	0.4 x d	1 x d	300	0.160	0.3 x d	1 x d



CODE: 410 - 450 - 450T - 453 - 500 - 500T

MATERIAL	Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	80	0.011	0.1 x d	1 x d	70	0.012	0.1 x d	1 x d
4	80	0.023	0.1 x d	1 x d	70	0.024	0.1 x d	1 x d
5	80	0.023	0.1 x d	1 x d	70	0.024	0.1 x d	1 x d
6	80	0.023	0.1 x d	1 x d	70	0.024	0.1 x d	1 x d
8	80	0.046	0.1 x d	1 x d	70	0.047	0.1 x d	1 x d
10	80	0.046	0.1 x d	1 x d	70	0.047	0.1 x d	1 x d
12	80	0.068	0.1 x d	1 x d	70	0.071	0.1 x d	1 x d
14 - 18	80	0.068	0.1 x d	1 x d	70	0.071	0.1 x d	1 x d
20 - 25	80	0.114	0.1 x d	1 x d	70	0.118	0.1 x d	1 x d

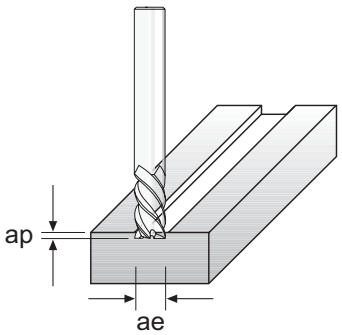
CODE: 450 - 450T - 453 - 500 - 500T

MATERIAL	Super Alloy - СУПЕР СПЛАВ				Steel - СТАЛЬ							
HARDNESS					< 35 HRC				< 50 HRC			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	30	0.012	0.08 x d	1 x d	130	0.012	0.2 x d	1 x d	110	0.013	0.1 x d	1 x d
4	30	0.024	0.08 x d	1 x d	130	0.024	0.2 x d	1 x d	110	0.026	0.1 x d	1 x d
5	30	0.024	0.08 x d	1 x d	130	0.024	0.2 x d	1 x d	110	0.026	0.1 x d	1 x d
6	30	0.024	0.08 x d	1 x d	130	0.024	0.2 x d	1 x d	110	0.026	0.1 x d	1 x d
8	30	0.048	0.08 x d	1 x d	130	0.048	0.2 x d	1 x d	110	0.052	0.1 x d	1 x d
10	30	0.048	0.08 x d	1 x d	130	0.048	0.2 x d	1 x d	110	0.052	0.1 x d	1 x d
12	30	0.072	0.08 x d	1 x d	130	0.072	0.2 x d	1 x d	110	0.078	0.1 x d	1 x d
14 - 18	30	0.072	0.08 x d	1 x d	130	0.072	0.2 x d	1 x d	110	0.078	0.1 x d	1 x d
20 - 25	30	0.120	0.08 x d	1 x d	130	0.120	0.2 x d	1 x d	11 0	0.130	0.1 x d	1 x d

Parametri di taglio

Cutting speed

Richtwerte - Paramétres
Режимы обработки - Řezná rychlost



CODE: 300 - 300T - 450 - 450T - 453 - 500 - 500T

MATERIAL	Aluminium - АЛЮМИНИЙ				Copper - МЕДЬ			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	Max	0.010	1 x d	0.4 x d	200	0.009	1 x d	0.3 x d
4	Max	0.020	1 x d	0.4 x d	200	0.018	1 x d	0.3 x d
5	Max	0.020	1 x d	0.4 x d	200	0.018	1 x d	0.3 x d
6	Max	0.020	1 x d	0.4 x d	200	0.018	1 x d	0.3 x d
8	Max	0.040	1 x d	0.4 x d	200	0.036	1 x d	0.3 x d
10	Max	0.040	1 x d	0.4 x d	200	0.036	1 x d	0.3 x d
12	Max	0.060	1 x d	0.4 x d	200	0.054	1 x d	0.3 x d
14 - 18	Max	0.060	1 x d	0.4 x d	200	0.054	1 x d	0.3 x d
20 - 25	Max	0.100	1 x d	0.4 x d	200	0.090	1 x d	0.3 x d

CODE: 300 - 300T - 410 - 450 - 450T - 453 - 500 - 500T

MATERIAL	Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ			
HARDNESS								
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	60	0.006	1 x d	0.1 x d	50	0.006	1 x d	0.1 x d
4	60	0.013	1 x d	0.1 x d	50	0.013	1 x d	0.1 x d
5	60	0.013	1 x d	0.1 x d	50	0.013	1 x d	0.1 x d
6	60	0.013	1 x d	0.1 x d	50	0.013	1 x d	0.1 x d
8	60	0.026	1 x d	0.1 x d	50	0.026	1 x d	0.1 x d
10	60	0.026	1 x d	0.1 x d	50	0.026	1 x d	0.1 x d
12	60	0.038	1 x d	0.1 x d	50	0.038	1 x d	0.1 x d
14 - 18	60	0.038	1 x d	0.1 x d	50	0.038	1 x d	0.1 x d
20 - 25	60	0.064	1 x d	0.1 x d	50	0.064	1 x d	0.1 x d

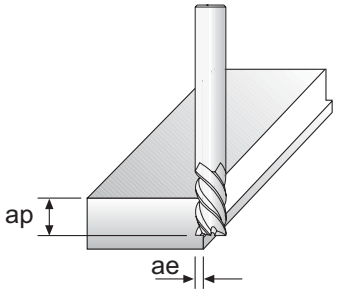
CODE: 450 - 450T - 453 - 500 - 500T

MATERIAL	Super Alloy - СУПЕР СПЛАВ				Steel - СТАЛЬ							
HARDNESS					< 40 HRC				< 50 HRC			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	20	0.006	1 x d	0.08 x d	110	0.008	1 x d	0.1 x d	90	0.007	1 x d	0.1 x d
4	20	0.012	1 x d	0.08 x d	110	0.016	1 x d	0.1 x d	90	0.012	1 x d	0.1 x d
5	20	0.012	1 x d	0.08 x d	110	0.016	1 x d	0.1 x d	90	0.012	1 x d	0.1 x d
6	20	0.012	1 x d	0.08 x d	110	0.016	1 x d	0.1 x d	90	0.012	1 x d	0.1 x d
8	20	0.025	1 x d	0.08 x d	110	0.032	1 x d	0.1 x d	90	0.024	1 x d	0.1 x d
10	20	0.025	1 x d	0.08 x d	110	0.032	1 x d	0.1 x d	90	0.024	1 x d	0.1 x d
12	20	0.037	1 x d	0.08 x d	110	0.048	1 x d	0.1 x d	90	0.036	1 x d	0.1 x d
14 - 18	20	0.037	1 x d	0.08 x d	110	0.048	1 x d	0.1 x d	90	0.036	1 x d	0.1 x d
20 - 25	20	0.062	1 x d	0.08 x d	110	0.080	1 x d	0.1 x d	90	0.060	1 x d	0.1 x d

Parametri di taglio

Cutting speed

Richtwerte - Paramétres
Режимы обработки - Řezná rychlost



For finishing:
ae < 0,02 - 0,03 x d
ap < 0,8 x d
Vc = 1,2 x Vc (Parameter List)
Fz = 0,7 x Vc (Parameter List)

CODE: 300C - 400 - 400T - 410

MATERIAL	Steel - СТАЛЬ											
HARDNESS	< 170 HRC				< 50 HRC				HRC 48 - 56			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	130	0.012	0.2 x d	1 x d	110	0.013	0.1 x d	1 x d	60	0.010	0.05 x d	0.010 x d
4	130	0.024	0.2 x d	1 x d	110	0.026	0.1 x d	1 x d	60	0.020	0.05 x d	0.010 x d
5	130	0.024	0.2 x d	1 x d	110	0.026	0.1 x d	1 x d	60	0.020	0.05 x d	0.010 x d
6	130	0.024	0.2 x d	1 x d	110	0.026	0.1 x d	1 x d	60	0.020	0.05 x d	0.010 x d
8	130	0.048	0.2 x d	1 x d	110	0.052	0.1 x d	1 x d	60	0.040	0.05 x d	0.010 x d
10	130	0.048	0.2 x d	1 x d	110	0.052	0.1 x d	1 x d	60	0.040	0.05 x d	0.010 x d
12	130	0.072	0.2 x d	1 x d	110	0.078	0.1 x d	1 x d	60	0.060	0.05 x d	0.010 x d
14 - 18	130	0.072	0.2 x d	1 x d	110	0.078	0.1 x d	1 x d	60	0.060	0.05 x d	0.010 x d
20 - 25	130	0.120	0.2 x d	1 x d	110	0.130	0.1 x d	1 x d	60	0.100	0.05 x d	0.010 x d

CODE: 300C - 400 - 400T - 410

MATERIAL	Cast Iron - ЧУГУН								Copper - МЕДЬ			
HARDNESS	Nodulaire - ЧУГУН				Lamellaire - ЛАМЕЛАР							
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	110	0.013	0.1 x d	1 x d	120	0.017	0.2 x d	1 x d	300	0.016	0.3 x d	1 x d
4	110	0.026	0.1 x d	1 x d	120	0.034	0.2 x d	1 x d	300	0.032	0.3 x d	1 x d
5	110	0.026	0.1 x d	1 x d	120	0.034	0.2 x d	1 x d	300	0.032	0.3 x d	1 x d
6	110	0.026	0.1 x d	1 x d	120	0.034	0.2 x d	1 x d	300	0.032	0.3 x d	1 x d
8	110	0.052	0.1 x d	1 x d	120	0.068	0.2 x d	1 x d	300	0.064	0.3 x d	1 x d
10	110	0.052	0.1 x d	1 x d	120	0.068	0.2 x d	1 x d	300	0.064	0.3 x d	1 x d
12	110	0.078	0.1 x d	1 x d	120	0.102	0.2 x d	1 x d	300	0.096	0.3 x d	1 x d
14 - 18	110	0.078	0.1 x d	1 x d	120	0.102	0.2 x d	1 x d	300	0.096	0.3 x d	1 x d
20 - 25	110	0.130	0.1 x d	1 x d	120	0.170	0.2 x d	1 x d	300	0.160	0.3 x d	1 x d

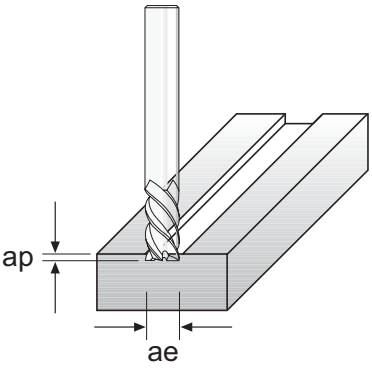
CODE: 300C - 400 - 400T - 410

MATERIAL	Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
HARDNESS												
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	80	0.011	0.1 x d	1 x d	70	0.012	0.1 x d	1 x d	30	0.012	0.08 x d	1 x d
4	80	0.023	0.1 x d	1 x d	70	0.024	0.1 x d	1 x d	30	0.024	0.08 x d	1 x d
5	80	0.023	0.1 x d	1 x d	70	0.024	0.1 x d	1 x d	30	0.024	0.08 x d	1 x d
6	80	0.023	0.1 x d	1 x d	70	0.024	0.1 x d	1 x d	30	0.024	0.08 x d	1 x d
8	80	0.046	0.1 x d	1 x d	70	0.047	0.1 x d	1 x d	30	0.048	0.08 x d	1 x d
10	80	0.046	0.1 x d	1 x d	70	0.047	0.1 x d	1 x d	30	0.048	0.08 x d	1 x d
12	80	0.068	0.1 x d	1 x d	70	0.071	0.1 x d	1 x d	30	0.072	0.08 x d	1 x d
14 - 18	80	0.068	0.1 x d	1 x d	70	0.071	0.1 x d	1 x d	30	0.072	0.08 x d	1 x d
20 - 25	80	0.114	0.1 x d	1 x d	70	0.118	0.1 x d	1 x d	30	0.120	0.08 x d	1 x d

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



CODE: 200 - 200T - 200D - 200DT - 200S - 200ST - 201 - 210
300 - 300T - 300C - 400 - 400T - 400D - 400DT - 401 - 410

MATERIAL	Steel - СТАЛЬ							
HARDNESS	< 170 HB				< 50HRC			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	110	0.008	1 x d	0.1 x d	90	0.007	1 x d	0.1 x d
4	110	0.016	1 x d	0.1 x d	90	0.012	1 x d	0.1 x d
5	110	0.016	1 x d	0.1 x d	90	0.012	1 x d	0.1 x d
6	110	0.016	1 x d	0.1 x d	90	0.012	1 x d	0.1 x d
8	110	0.032	1 x d	0.1 x d	90	0.024	1 x d	0.1 x d
10	110	0.032	1 x d	0.1 x d	90	0.024	1 x d	0.1 x d
12	110	0.048	1 x d	0.1 x d	90	0.036	1 x d	0.1 x d
14 - 18	110	0.048	1 x d	0.1 x d	90	0.036	1 x d	0.1 x d
20 - 25	110	0.080	1 x d	0.1 x d	90	0.060	1 x d	0.1 x d

For finishing:
ae < 0,02 - 0,03 x d
ap < 0,8 x d
Vc = 1,2 x Vc (Parameter List)
Fz = 0,7 x Vc (Parameter List)

HSC = Standard Cutting Speed X 2

MATERIAL	Steel - СТАЛЬ				Cast Iron							
HARDNESS	HRC 48 - 56				Nodulaire - ЧУГУН				Lamellaire - ЛАМЕЛАР			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1-3	40	0.006	1 x d	0.05 x d	90	0.006	1 x d	0.1 x d	100	0.009	1 x d	0.2 x d
4	40	0.008	1 x d	0.05 x d	90	0.013	1 x d	0.1 x d	100	0.018	1 x d	0.2 x d
5	40	0.008	1 x d	0.05 x d	90	0.013	1 x d	0.1 x d	100	0.018	1 x d	0.2 x d
6	40	0.008	1 x d	0.05 x d	90	0.013	1 x d	0.1 x d	100	0.018	1 x d	0.2 x d
8	40	0.016	1 x d	0.05 x d	90	0.026	1 x d	0.1 x d	100	0.036	1 x d	0.2 x d
10	40	0.016	1 x d	0.05 x d	90	0.026	1 x d	0.1 x d	100	0.036	1 x d	0.2 x d
12	40	0.024	1 x d	0.05 x d	90	0.038	1 x d	0.1 x d	100	0.054	1 x d	0.2 x d
14 - 18	40	0.024	1 x d	0.05 x d	90	0.038	1 x d	0.1 x d	100	0.054	1 x d	0.2 x d
20 - 25	40	0.040	1 x d	0.05 x d	90	0.064	1 x d	0.1 x d	100	0.090	1 x d	0.2 x d

CODE: T2204R SIDE MILLING

MATERIAL	Aluminum		Cast Aluminum		Steel - СТАЛЬ								Inox		Cast Iron - ЧУГУН	
HARDNESS			>10%Si		<500N		<750N		<900N		<1100N		<900N			
Ø	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC	FZ
5	350	0.023	250	0.023	160	0.023	140	0.023	130	0.023	80	0.023	90	0.023	120	0.023
6	350	0.033	250	0.033	160	0.033	140	0.033	130	0.033	80	0.033	90	0.033	120	0.033
8	350	0.045	250	0.045	160	0.045	140	0.045	130	0.045	80	0.045	90	0.045	120	0.045
10	350	0.060	250	0.060	160	0.060	140	0.060	130	0.060	80	0.060	90	0.060	120	0.060
12	350	0.080	250	0.080	160	0.080	140	0.080	130	0.080	80	0.080	90	0.080	120	0.080
14	350	0.080	250	0.080	160	0.080	140	0.080	130	0.080	80	0.080	90	0.080	120	0.080
16	350	0.100	250	0.100	160	0.100	140	0.100	130	0.100	80	0.100	90	0.100	120	0.100
18	350	0.100	250	0.100	160	0.100	140	0.100	130	0.100	80	0.100	90	0.100	120	0.100
20	350	0.120	250	0.120	160	0.120	140	0.120	130	0.120	80	0.120	90	0.120	120	0.120

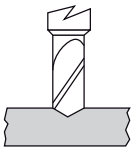
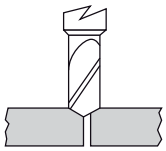
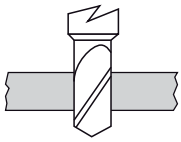
CODE: T2204R SLOT MILLING

MATERIAL	Aluminum		Cast Aluminum		Steel - СТАЛЬ								Inox		Cast Iron - ЧУГУН	
HARDNESS			>10%Si		<500N		<750N		<900N		<1100N		<900N			
Ø	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm	VC m/'	FZ mm
5	350	0.025	250	0.025	160	0.025	140	0.025	130	0.025	80	0.025	90	0.025	120	0.025
6	350	0.037	250	0.037	160	0.037	140	0.037	130	0.037	80	0.037	90	0.037	120	0.037
8	350	0.051	250	0.051	160	0.051	140	0.051	130	0.051	80	0.051	90	0.051	120	0.051
10	350	0.068	250	0.068	160	0.068	140	0.068	130	0.068	80	0.068	90	0.068	120	0.068
12	350	0.090	250	0.090	160	0.090	140	0.090	130	0.090	80	0.090	90	0.090	120	0.090
14	350	0.090	250	0.090	160	0.090	140	0.090	130	0.090	80	0.090	90	0.090	120	0.090
16	350	0.113	250	0.113	160	0.113	140	0.113	130	0.113	80	0.113	90	0.113	120	0.113
18	350	0.113	250	0.113	160	0.113	140	0.113	130	0.113	80	0.113	90	0.113	120	0.113
20	350	0.135	250	0.135	160	0.135	140	0.135	130	0.135	80	0.135	90	0.135	120	0.135

Parametri di taglio

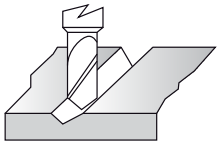
Cutting speed

Richtwerte - Paramétres
Режимы обработки - Řezná rychlost

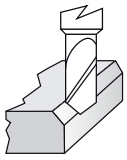
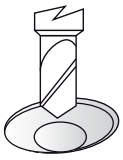
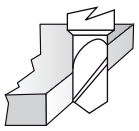
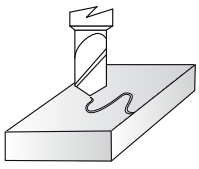




CODE: 200V

MATERIAL	HARDNESS	Vc	Ø																	
			Ø3 - Ø4			Ø5 - Ø6			Ø8 - Ø10			Ø12			Ø16			Ø20		
			n	Vf	Fz	n	Vf	Fz	n	Vf	Fz	n	Vf	Fz	n	Vf	Fz	n	Vf	Fz
Steel	< 500 N/mm2	70-75	6400	320	0.050	4000	320	0.080	2500	350	0.140	1900	361	0.190	1500	360	0.240	1300	364	0.280
Steel	< 800 N/mm2	40-60	4000	200	0.050	2600	208	0.080	1600	224	0.140	1200	240	0.20	900	225	0.250	850	238	0.280
Steel	< 1000 N/mm2	35-40	3200	144	0.045	2200	154	0.070	1400	168	0.120	1000	180	0.180	850	187	0.220	680	190	0.280
Cast Iron	< 180 HB																			
Stainless Steel-Steel	< 1300 N/mm2	30-35	2800	126	0.045	1800	126	0.070	1100	132	0.120	800	136	0.170	650	143	0.220	550	143	0.260
Cast Iron	> 180 HB																			
Stainless Steel-Steel		25-30	2200	88	0.040	1600	96	0.060	900	99	0.110	660	105	0.160	500	110	0.220	480	120	0.250
Inconel		20	1800	72	0.040	1100	66	0.060	700	77	0.110	500	80	0.160	400	80	0.200	320	80	0.250
Titanium																				
Copper-Bronze-Brass		50-120	5000	500	0.100	3500	525	0.150	2200	550	0.250	1900	570	0.30	1700	595	0.350	1400	630	0.450
Aluminoium		150	10000	500	0.050	6300	567	0.090	4000	600	0.150	3200	640	0.20	2500	625	0.270	2000	700	0.350



MATERIAL	HARDNESS	Vc	Ø																	
			Ø3 - Ø4			Ø5 - Ø6			Ø8 - Ø10			Ø12			Ø16			Ø20		
			n	Vf	Fz	n	Vf	Fz	n	Vf	Fz	n	Vf	Fz	n	Vf	Fz	n	Vf	Fz
Steel	< 500 N/mm2	70-75	6800	65	0.005	4300	65	0.008	2650	70	0.014	2000	75	0.019	1500	75	0.025	1200	75	0.030
Steel	< 800 N/mm2	40-60	5400	55	0.005	3500	55	0.008	2100	58	0.014	1600	60	0.019	1200	60	0.025	1000	60	0.030
Steel	< 1000 N/mm2	35-40	3600	28	0.004	2300	28	0.006	1400	34	0.012	1000	35	0.017	800	35	0.020	630	35	0.027
Cast Iron	< 180 HB																			
Stainless Steel-Steel	< 1300 N/mm2	30-35	3000	25	0.004	2000	25	0.006	1200	30	0.012	900	30	0.016	700	30	0.020	550	30	0.027
Cast Iron	> 180 HB																			
Stainless Steel-Steel		25-30	2200	17	0.004	1600	20	0.006	1000	20	0.010	760	20	0.013	600	22	0.018	400	22	0.027
Inconel		20	1800	11	0.003	1100	12	0.005	700	14	0.010	500	14	0.013	400	15	0.018	320	16	0.025
Titanium																				
Copper-Bronze-Brass		50-120	7000	112	0.008	6000	120	0.010	3500	120	0.017	3200	128	0.020	2200	132	0.030	1750	140	0.040
Aluminoium		150	13000	200	0.008	8600	220	0.013	5300	240	0.023	4000	240	0.030	3000	250	0.040	2400	250	0.050

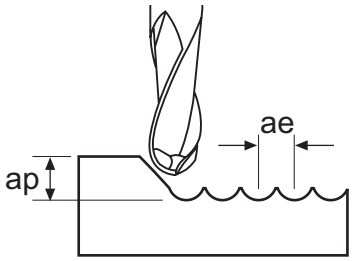





MATERIAL	HARDNESS	Vc	Ø																	
			Ø3 - Ø4			Ø5 - Ø6			Ø8 - Ø10			Ø12			Ø16			Ø20		
			n	Vf	Fz	n	Vf	Fz	n	Vf	Fz	n	Vf	Fz	n	Vf	Fz	n	Vf	Fz
Steel	< 500 N/mm2	70-75	6800	110	0.008	4300	120	0.014	2650	130	0.025	2000	150	0.040	1500	156	0.052	1200	156	0.065
Steel	< 800 N/mm2	40-60	5400	85	0.008	3500	90	0.013	2100	105	0.025	1600	120	0.040	1200	125	0.052	1000	125	0.062
Steel	< 1000 N/mm2	35-40	3600	58	0.008	2300	60	0.013	1400	70	0.025	1000	80	0.040	800	80	0.050	630	80	0.062
Cast Iron	< 180 HB																			
Stainless Steel-Steel	< 1300 N/mm2	30-35	3000	45	0.008	2000	50	0.013	1200	60	0.025	900	65	0.036	700	65	0.050	550	65	0.060
Cast Iron	> 180 HB																			
Stainless Steel-Steel		25-30	2200	35	0.008	1600	40	0.013	1000	50	0.025	760	55	0.036	600	55	0.045	400	55	0.070
Inconel		20	1800	25	0.007	1100	25	0.011	700	35	0.025	500	35	0.035	400	40	0.050	320	40	0.060
Titanium																				
Copper-Bronze-Brass		50-120	7000	200	0.010	6000	210	0.015	3500	216	0.030	3200	225	0.045	2200	230	0.050	1750	234	0.065
Aluminoium		150	13000	210	0.008	8600	225	0.013	5300	320	0.030	4000	360	0.045	3000	300	0.050	2400	310	0.065

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



For finishing:
ae < 0,02 - 0,03 x d
ap < 0,8 x d
Vc = 1,2 x Vc (Parameter List)
Fz = 0,7 x Vc (Parameter List)

CODE: 200R - 200RT - 200RL - 200RLT - 201R - 300CR - 300R - 300RT - 300RLT - 400R - 400RT - 400RLT - 401
ROUGHING - STANDARD CUTTING SPEED

MATERIAL	Steel - СТАЛЬ											
HARDNESS	< 170 HB				< 50 HRC				< 60 HRC			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	140	0.016	0.03 x d	0.03 x d	120	0.016	0.03 x d	0.03 x d	70	0.014	0.03 x d	0.03 x d
4	140	0.032	0.03 x d	0.03 x d	120	0.032	0.03 x d	0.03 x d	70	0.028	0.03 x d	0.03 x d
6	140	0.032	0.03 x d	0.03 x d	120	0.032	0.03 x d	0.03 x d	70	0.028	0.03 x d	0.03 x d
8	140	0.064	0.03 x d	0.03 x d	120	0.064	0.03 x d	0.03 x d	70	0.056	0.03 x d	0.03 x d
10	140	0.064	0.03 x d	0.03 x d	120	0.064	0.03 x d	0.03 x d	70	0.056	0.03 x d	0.03 x d
12 - 18	140	0.096	0.03 x d	0.03 x d	120	0.096	0.03 x d	0.03 x d	70	0.084	0.03 x d	0.03 x d
20 - 25	140	0.160	0.03 x d	0.03 x d	120	0.160	0.03 x d	0.03 x d	70	0.140	0.03 x d	0.03 x d

CODE: 200R - 200RT - 200RL - 200RLT - 201R - 300CR - 300R - 300RT - 300RLT - 400R - 400RT - 400RLT - 401

MATERIAL	Copper - МЕДЬ				Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ			
HARDNESS	< 170 HB				< 50 HRC				< 60 HRC			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	350	0.020	0.03 x d	0.03 x d	90	0.014	0.03 x d	0.03 x d	80	0.015	0.03 x d	0.03 x d
4	350	0.040	0.03 x d	0.03 x d	90	0.028	0.03 x d	0.03 x d	80	0.030	0.03 x d	0.03 x d
6	350	0.040	0.03 x d	0.03 x d	90	0.028	0.03 x d	0.03 x d	80	0.030	0.03 x d	0.03 x d
8	350	0.080	0.03 x d	0.03 x d	90	0.057	0.03 x d	0.03 x d	80	0.060	0.03 x d	0.03 x d
10	350	0.080	0.03 x d	0.03 x d	90	0.057	0.03 x d	0.03 x d	80	0.060	0.03 x d	0.03 x d
12 - 18	350	0.120	0.03 x d	0.03 x d	90	0.085	0.03 x d	0.03 x d	80	0.090	0.03 x d	0.03 x d
20 - 25	350	0.200	0.03 x d	0.03 x d	90	0.142	0.03 x d	0.03 x d	80	0.150	0.03 x d	0.03 x d

CODE: 200R - 200RT - 200RL - 200RLT - 201R - 300CR - 300R - 300RT - 300RLT - 400R - 400RT - 400RLT - 401

MATERIAL	Super Alloy - СУПЕР СПЛАВ				Cast Iron - ЧУГУН							
HARDNESS					Lamellair - ЛАМЕЛАР				Nodulaire - ЧУГУН			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	40	0.015	0.03 x d	0.03 x d	130	0.019	0.03 x d	0.03 x d	120	0.015	0.03 x d	0.03 x d
4	40	0.030	0.03 x d	0.03 x d	130	0.038	0.03 x d	0.03 x d	120	0.030	0.03 x d	0.03 x d
6	40	0.030	0.03 x d	0.03 x d	130	0.038	0.03 x d	0.03 x d	120	0.030	0.03 x d	0.03 x d
8	40	0.060	0.03 x d	0.03 x d	130	0.076	0.03 x d	0.03 x d	120	0.060	0.03 x d	0.03 x d
10	40	0.060	0.03 x d	0.03 x d	130	0.076	0.03 x d	0.03 x d	120	0.060	0.03 x d	0.03 x d
12 - 18	40	0.090	0.03 x d	0.03 x d	130	0.114	0.03 x d	0.03 x d	120	0.090	0.03 x d	0.03 x d
20 - 25	40	0.150	0.03 x d	0.03 x d	130	0.190	0.03 x d	0.03 x d	120	0.150	0.03 x d	0.03 x d

HSC = Standard Cutting Speed X 1,4

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

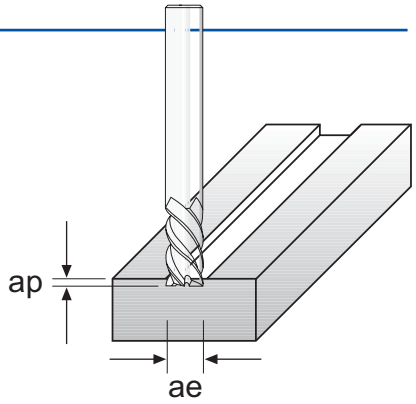
CODE: CTS60 - CTS90 - 142

MATERIAL	VC	FZ				
		Ø 3-4	Ø 6	Ø 8	Ø 10	Ø 12
Steel <500 N/mm	180	0.03	0.05	0.07	0.08	0.10
Steel <800 N/mm	150	0.01	0.03	0.05	0.06	0.08
Steel >800 N/mm	140	0.03	0.05	0.07	0.08	0.10
Stainless steel	70	0.01	0.03	0.04	0.05	0.07
Inconell	25 - 40	0.01	0.01	0.01	0.015	0.015
Titanium	20 - 40	0.01	0.01	0.01	0.015	0.015
Cast Iron	140	0.02	0.04	0.06	0.07	0.09
Tool Steel	85	0.01	0.03	0.05	0.06	0.08
Alluminium	500	0.02	0.05	0.08	0.10	0.12
Brass, Bronze, Copper, Plastic	280	0.02	0.05	0.08	0.10	0.12

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost



CODE: 201-401 SLOT MILLING

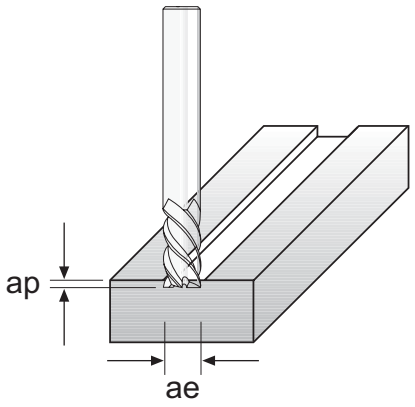
Material	Steel - СТАЛЬ																					
Hardned	<450N/mm2						450<700N/mm2						700<1200N/mm						HRC<52					
Ø	Vc (media)	Fz	n	Vf	ae	ap	Vc (media)	Fz	n	Vf	ae	ap	Vc (media)	Fz	n	Vf	ae	ap	Vc (media)	Fz	n	Vf	ae	ap
1	130	0.005	41380	415	1	1	120	0.005	38200	380	1	1	100	0.004	31830	255	1	1	50	0.002	15920	65	1	0.2
2	130	0.010	20690	415	2	2	120	0.010	19100	380	2	2	100	0.008	15920	255	2	2	50	0.004	7960	65	2	0.4
3	130	0.015	13790	415	3	3	120	0.015	12730	380	3	3	100	0.012	10610	255	3	3	50	0.006	8310	65	3	0.6
4	130	0.020	10350	415	4	4	120	0.020	9550	380	4	4	100	0.016	7960	255	4	4	50	0.008	3980	65	4	0.8
5	130	0.025	8280	415	5	5	120	0.025	7640	380	5	5	100	0.020	6370	255	5	5	50	0.010	3180	65	5	1
6	130	0.030	6900	415	6	6	120	0.030	6370	380	6	6	100	0.024	5310	255	6	6	50	0.012	2650	65	6	1.2
8	130	0.040	5170	415	8	8	120	0.040	4770	380	8	8	100	0.032	3980	255	8	8	50	0.016	1990	65	8	1.6
10	130	0.050	4140	415	10	10	120	0.050	3820	380	10	10	100	0.040	3180	255	10	10	50	0.020	1590	65	10	2
12	130	0.060	3450	415	12	12	120	0.060	3180	380	12	12	100	0.048	2650	255	12	12	50	0.024	1330	65	12	2.4
16	130	0.080	2590	415	16	16	120	0.080	2390	380	16	16	100	0.064	1990	255	16	16	50	0.032	990	65	16	3.2
20	130	0.100	2070	415	20	20	120	0.100	1910	380	20	20	100	0.080	1590	255	20	20	50	0.040	800	65	20	4

CODE: 201-401 SLOT MILLING

Material	Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ												Cast Iron - ЧУГУН						Steel - СТАЛЬ					
Hardned	Hard						Soft																	
Ø	Vc (media)	Fz	n	Vf	ae	ap	Vc (media)	Fz	n	Vf	ae	ap	Vc (media)	Fz	n	Vf	ae	ap	Vc (media)	Fz	n	Vf	ae	ap
1	80	0.005	24460	255	1	0.8	50	0.005	15920	160	1	0.6	130	0.005	41380	415	1	0.8	400	0.006	127320	1530	1	0.4
2	80	0.010	12730	255	2	1.6	50	0.010	7960	160	2	1.2	130	0.010	20690	415	2	1.6	400	0.012	63660	1530	2	0.8
3	80	0.015	8490	255	3	2.4	50	0.015	5310	160	3	1.8	130	0.015	13790	415	3	2.4	400	0.018	42440	1530	3	1.2
4	80	0.020	6370	255	4	3.2	50	0.020	3980	160	4	2.4	130	0.020	10350	415	4	3.2	400	0.024	31830	1530	4	1.6
5	80	0.025	5090	255	5	4.0	50	0.025	3180	160	5	3.0	130	0.025	8280	415	5	4.0	400	0.030	24460	1530	5	2.0
6	80	0.030	4240	255	6	4.8	50	0.030	2650	160	6	3.6	130	0.030	6900	415	6	4.8	400	0.036	21220	1530	6	2.4
8	80	0.040	3180	255	8	6.4	50	0.040	1990	160	8	4.8	130	0.040	5170	415	8	6.4	400	0.048	15920	1530	8	3.2
10	80	0.050	2550	255	10	8.0	50	0.050	1590	160	10	6.0	130	0.050	4140	415	10	8.0	400	0.060	12730	1530	10	4.0
12	80	0.060	2120	255	12	9.6	50	0.060	1330	160	12	7.2	130	0.060	3450	415	12	9.6	400	0.072	10610	1530	12	4.8
16	80	0.080	1590	255	16	12.8	50	0.080	990	160	16	9.6	130	0.080	2590	415	16	12.8	400	0.096	7960	1530	16	6.4
20	80	0.100	1270	255	20	16.0	50	0.100	800	160	20	12.0	130	0.100	2070	415	20	16.0	400	0.120	6370	1530	20	8.0

CODE: 201-401 SLOT MILLING

Material	Titanium - ТИТАН						Aluminum-Plastic					
Hardned	Hard						Soft					
Ø	Vc (media)	Fz	n	Vf	ae	ap	Vc (media)	Fz	n	Vf	ae	ap
1	70	0.004	22280	180	1	0.6	400	0.006	127320	1530	1	0.4
2	70	0.008	11140	180	2	1.2	400	0.012	63660	1530	2	0.8
3	70	0.012	7430	180	3	1.8	400	0.018	42440	1530	3	1.2
4	70	0.016	5570	180	4	2.4	400	0.024	31830	1530	4	1.6
5	70	0.020	4460	180	5	3.0	400	0.030	25460	1530	5	2
6	70	0.024	3710	180	6	3.6	400	0.036	21220	1530	6	2.4
8	70	0.032	2790	180	8	4.8	400	0.048	15920	1530	8	3.2
10	70	0.040	2230	180	10	6.0	400	0.060	12730	1530	10	4
12	70	0.048	1860	180	12	7.2	400	0.072	10610	1530	12	4.8
16	70	0.064	1390	180	16	9.6	400	0.069	7960	1530	16	6.4
20	70	0.080	1110	180	20	12.0	400	0.120	6370	1530	20	8



Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 120 - 122T - 122TL - 130 - 140 - 190

MATERIAL	HARDNESS	Type	VC	Ø				
				Ø 3-5	Ø 5.1-8	Ø 8.1-12	Ø 12.1-16	Ø 16.1-20
				FZ	FZ	FZ	FZ	FZ
Stainless Steel ЛИТАЯ СТАЛЬ			20 ÷ 30	0.04 ÷ 0.10	0.05 ÷ 0.15	0.05 ÷ 0.18	0.08 ÷ 0.20	0.10 ÷ 0.20
Cast steel	< 600 N/mm < 700 N/mm > 700 N/mm	GS 38 GS 52 GS 62	30 - 60 25 - 50 20 - 45	0.05 - 0.15 0.04 - 0.10 0.04 - 0.10	0.05 - 0.20 0.05 - 0.15 0.05 - 0.15	0.10 - 0.22 0.05 - 0.18 0.10 - 0.18	0.10 - 0.25 0.08 - 0.20 0.08 - 0.20	0.10 - 0.25 0.10 - 0.20 0.10 - 0.20
Cast Iron ЧУГУН	< 200 N/mm	GG 20 GGG 40 GTS 45	70 - 110	0.10 - 0.25	0.15 - 0.30	0.20 - 0.40	0.25 - 0.45	0.30 - 0.50
	< 250 N/mm	GG 30 GGG 50 GTS 40	60 - 95	0.10 - 0.20	0.12 - 0.25	0.15 - 0.35	0.20 - 0.40	0.25 - 0.45
	> 250 N/mm	GG 40 GGG 70 GTS 70	50 - 80	0.10 - 0.20	0.12 - 0.25	0.15 - 0.35	0.20 - 0.40	0.25 - 0.45
	350 HB 450 HB		20 - 55	0.04 - 0.10	0.06 - 0.12	0.08 - 0.15	0.08 - 0.15	0.10 - 0.18
Copper - Bronze - Brass МЕДЬ - БРОНЗА - ЛАТУНЬ			60 - 220	0.07 - 0.18	0.12 - 0.25	0.20 - 0.35	0.25 - 0.45	0.30 - 0.50
Aluminium АЛЮМИНИЙ		< 10% Si > 10% Si	80 - 200 70 - 200	0.10 - 0.25 0.10 - 0.25	0.15 - 0.35 0.15 - 0.35	0.25 - 0.45 0.25 - 0.45	0.30 - 0.50 0.30 - 0.50	0.35 - 0.55 0.35 - 0.55
Titanium Титан			15 - 40	0.02 - 0.07	0.04 - 0.10	0.06 - 0.12	0.08 - 0.15	0.08 - 0.15
Inconel ИНКОНЕЛЬ			10 - 30	0.02 - 0.07	0.04 - 0.10	0.06 - 0.12	0.08 - 0.15	0.08 - 0.15

CORRECTION FACTORS - УТОЧНЯЮЩИЕ ДАННЫЕ

5 x d = x 0,8

8 x d = x 0,7

Code 120 = x 0,7

Code 130 = x 0,7

Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 122F - 122FL - 122FALX

MATERIAL	HARDNESS	Type	VC	Ø				
				Ø 3 - 5	Ø 5 - 8	Ø 8.1 - 12	Ø 12.1 - 16	Ø 16.1 - 20
				FZ	FZ	FZ	FZ	FZ
Steel СТАЛЬ	< 500 N/mm2 < 800 N/mm2 < 1000 N/mm2 < 1300 N/mm2		70 - 90 50 - 80 45 - 60 40 - 55	0.001 0.010 0.010 0.010	0.012 0.012 0.012 0.012	0.015 0.015 0.013 0.013	0.020 0.020 0.017 0.017	0.025 0.025 0.020 0.020
Stainless Steel НЕРЖАВЕЮЩАЯ СТАЛЬ			25 ÷ 55	0.04 ÷ 0.10	0.05 ÷ 0.15	0.05 ÷ 0.18	0.08 ÷ 0.20	0.10 ÷ 0.20
Cast steel ЛИТАЯ СТАЛЬ	< 600 N/mm < 700 N/mm > 700 N/mm	GS 38 GS 52 GS 62	40 - 70 30 - 50 25 - 55	0.05 - 0.15 0.04 - 0.10 0.04 - 0.10	0.05 - 0.20 0.05 - 0.15 0.05 - 0.15	0.10 - 0.22 0.05 - 0.18 0.10 - 0.18	0.10 - 0.25 0.08 - 0.20 0.08 - 0.20	0.10 - 0.25 0.10 - 0.20 0.10 - 0.20
Cast Iron ЧУГУН	< 200 N/mm	GG 20 GGG 40 GTS 45	80 - 130	0.10 - 0.25	0.15 - 0.30	0.20 - 0.40	0.25 - 0.45	0.30 - 0.50
	< 250 N/mm	GG 30 GGG 50 GTS 40	70 - 115	0.10 - 0.20	0.12 - 0.25	0.15 - 0.35	0.20 - 0.40	0.25 - 0.45
	> 250 N/mm	GG 40 GGG 70 GTS 70	60 - 100	0.10 - 0.20	0.12 - 0.25	0.15 - 0.35	0.20 - 0.40	0.25 - 0.45
	350 HB 450 HB		25 - 65	0.04 - 0.10	0.06 - 0.12	0.08 - 0.15	0.08 - 0.15	0.10 - 0.18
Copper - Bronze - Brass МЕДЬ – БРОНЗА – ЛАТУНЬ			70 - 300	0.07 - 0.18	0.12 - 0.25	0.20 - 0.35	0.25 - 0.45	0.30 - 0.50
Aluminium АЛЮМИНИЙ		> 10 % Si < 10 % Si	90 - 300 100 - 400	0.10 - 0.25 0.10 - 0.25	0.15 - 0.35 0.15 - 0.35	0.25 - 0.45 0.25 - 0.45	0.30 - 0.50 0.30 - 0.50	0.35 - 0.55 0.35 - 0.55
Titanium ТИТАН			15 - 45	0.02 - 0.07	0.04 - 0.10	0.06 - 0.12	0.08 - 0.15	0.08 - 0.15
Inconel ИНКОНЕЛЬ		Inconel	15 - 35	0.02 - 0.07	0.04 - 0.10	0.06 - 0.12	0.08 - 0.15	0.08 - 0.15

CORRECTION FACTORS - УТОЧНЯЮЩИЕ ДАННЫЕ

5 x d = x 0,8

8 x d = x 0,7

CODE: CTM

MATERIAL	HARDNESS	VC	Ø			
			Ø 1 - 2	Ø 3-4	Ø 6 - 8	Ø 10 - 12
			FZ	FZ	FZ	FZ
Steel СТАЛЬ	< 500 N/mm2 < 800 N/mm2 < 1000 N/mm2 < 1300 N/mm2	70 - 90 50 - 80 45 - 60 40 - 50	0.001 0.01 0.01 0.01	0.012 0.012 0.012 0.012	0.015 0.015 0.013 0.013	0.02 0.02 0.017 0.017
Stainless Steel-Steel НЕРЖАВЕЮЩАЯ СТАЛЬ	< 1300 N/mm2	35 - 50	0.07	0.01	0.01	0.015
Cast Iron ЧУГУНn	< 180 HB	45-60	0,01	0,012	0,013	0,017
Cast Iron ЧУГУНn	< 180 HB	40-55	0,01	0,012	0,013	0,017
Inconel - Titanium ИНКОНЕЛЬ – ТИТАН		25-40	0,007	0,01	0,01	0,015
Copper - Bronze - Brass МЕДЬ - БРОНЗА - ЛАТУНЬ		60-100	0,012	0,012	0,015	0,02
Aluminium АЛЮМИНИЙ	<6% Si >6% Si	80-120 110-180	0,012 0,012	0,012 0,012	0,015 0,015	0,02 0,02

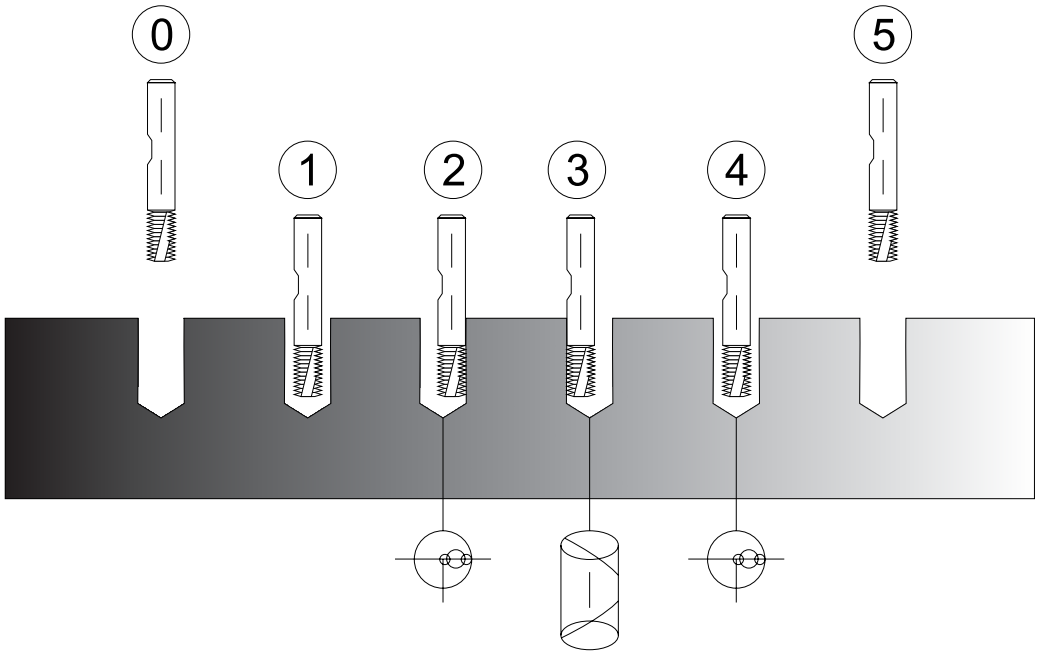
Parametri di taglio

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 600 - 600T

MATERIAL	HARDNESS	Vc	Ø 4-6 Fz	Ø 8.0 Fz	Ø 10.0 Fz	Ø 12.0 Fz	Ø 14.0 Fz	Ø 16.0 Fz	Ø 18.0 Fz	Ø 20.0 Fz
Steel	<700 N/mm <700-900 N/mm 900-1200 N/mm >1200 N/mm	90-200 80-160 60-120 40-100	0.035-0.100 0.030-0.090 0.025-0.080 0.020-0.070	0.040-0.120 0.035-0.100 0.030-0.090 0.025-0.080	0.045-0.150 0.040-0.130 0.035-0.110 0.030-0.100	0.050-0.180 0.045-0.150 0.040-0.130 0.035-0.120	0.060-0.021 0.050-0.180 0.045-0.160 0.040-0.150	0.070-0.250 0.060-0.210 0.050-0.190 0.045-0.180	0.080-0.280 0.070-0.250 0.055-0.220 0.050-0.210	0.090-0.350 0.080-0.300 0.060-0.250 0.055-0.230
Stainless Steel		25-80	0.025-0.080	0.030-0.080	0.035-0.110	0.040-0.130	0.045-0.160	0.050-0.190	0.055-0.220	0.060-0.250
Stainless Steel Hard		20-65	0.020-0.070	0.025-0.070	0.030-0.100	0.035-0.120	0.040-0.150	0.045-0.180	0.050-0.210	0.055-0.230
Cast Iron		80-180	0.035-0.100	0.040-0.120	0.045-0.150	0.050-0.180	0.060-0.210	0.070-0.250	0.080-0.280	0.090-0.350
Cast Iron		65-150	0.030-0.090	0.035-0.100	0.040-0.130	0.045-0.150	0.050-0.180	0.060-0.210	0.070-0.250	0.080-0.300
Nodular Cast Iron High Hardness		50-120	0.025-0.080	0.030-0.090	0.035-0.110	0.040-0.130	0.045-0.160	0.050-0.190	0.055-0.220	0.060-0.250
Nodular Cast Hard Workability		40-100	0.020-0.070	0.025-0.080	0.030-0.100	0.035-0.120	0.040-0.150	0.045-0.180	0.050-0.210	0.055-0.210
Aluminium <15%		100-350	0.050-0.200	0.070-0.240	0.090-0.280	0.110-0.300	0.130-0.350	0.140-0.400	0.150-0.450	0.160-0.500
Aluminium >15%		80-250	0.040-0.100	0.060-0.140	0.080-0.180	0.100-0.200	0.120-0.250	0.130-0.300	0.140-0.350	0.150-0.400
Brass		80-180	0.030-0.090	0.035-0.100	0.040-0.130	0.045-0.150	0.050-0.180	0.060-0.210	0.070-0.250	0.080-0.300
Bronze		70-200	0.030-0.090	0.035-0.100	0.040-0.130	0.045-0.150	0.050-0.180	0.060-0.210	0.070-0.250	0.080-0.300
Titanium		20-60	0.020-0.070	0.025-0.080	0.030-0.100	0.035-0.120	0.040-0.150	0.045-0.180	0.050-0.210	0.055-0.230



ESEMPIO DI PROGRAMMA CNC
CNC program example

M8X1.25 H hole 16.8mm CAST IRON

N0 G54 G90 G00 X0 Y0 Z2 S4244 T01 M03
Posizionamento dell'utensile sul foro
Tool positioning on the hole

N1 G91 Z-19.1125
Inserimento dell'utensile nel foro
Inserting the tool in the hole

N2 G01 Y0.625 F509
Allontanamento dell'utensile dal centro
Tool removal from the center

N3 G41 G01 X3.375 Y0
Scostamento dell'utensile verso il punto di partenza
Deviating tool toward the starting point

N4 G03 X-3.375 Y3.375 Z0.3125 I-3.375 J0
Avvicinamento in entrata
Approcing on the enter

N5 G03 X0 Y0 Z1.25 I0 J-4
Fresatura a filettare
Thread milling

N6 G03 X-3.375 Y-3-375 Z0.3125 I0 J-3-375
Uscita dal filetto
Gone out to the thread

N7 G00 G40 X3.375 Y-0.625
Scostamento dell'utensile verso il centro
Tool deviation to the center

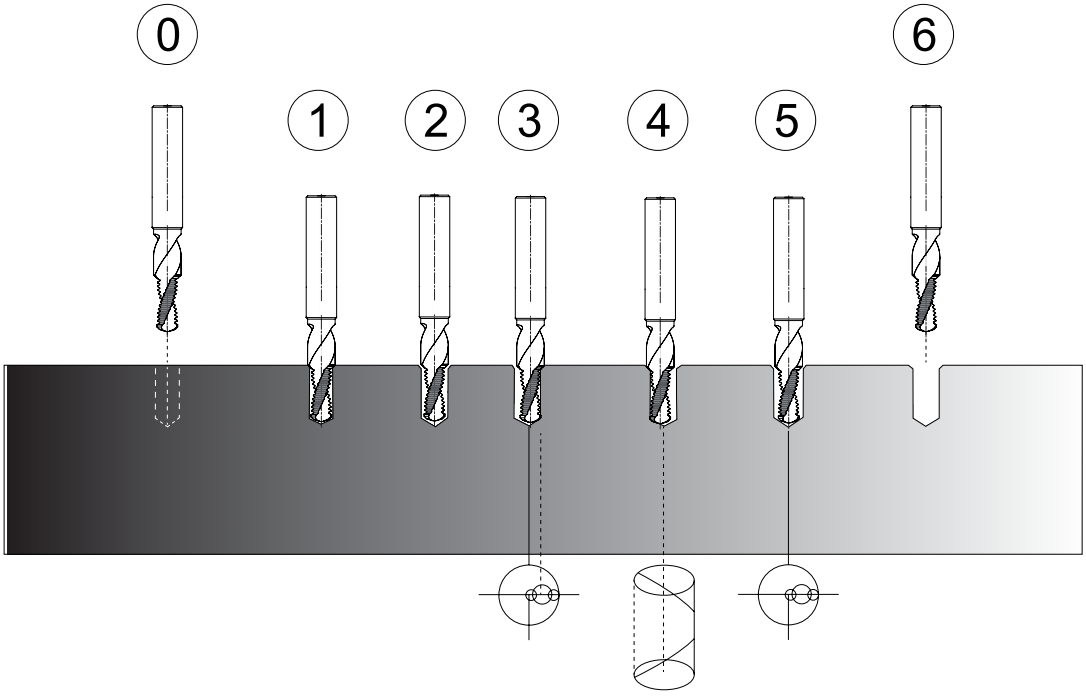
N8 G90 Z2
Uscita dell'utensile dal foro
Tool exit from the hole

Cutting speed

Richtwerte - Paramétres - Режимы обработки - Řezná rychlost

CODE: 620FT
CODE: 620-620T-620F= -20%

MATERIAL	HARDNESS		Vc	Fb (Drilling Feed) mm/rev		Fz (Milling Feed) mm/tooth	
	N/mm2	HB	m/min	≤ Ø 6	≤ Ø 16	≤ Ø 6	≤ Ø 16
Grey Cast Iron	<500	<150	100-200	0.10-0.15	0.15-0.22	0.02-0.05	0.05-0.10
Grey Cast Iron, heat treated	>500<1000	>150<300	100-200	0.10-0.15	0.15-0.22	0.02-0.05	0.05-0.10
Vermicular cast iron	400-500	200-250	80-100	0.10-0.15	0.15-0.22	0.02-0.05	0.05-0.10
Spheroidal graphite cast iron	<700	<200	80-120	0.10-0.15	0.15-0.22	0.02-0.05	0.05-0.10
Short chip brass, bronze, red brass	<700	<200	100-200	0.10-0.30	0.15-0.10	0.03-0.06	0.06-0.10
Cu, Al, Fe alloy	<500	<470	80-160	0.10-0.15	0.15-0.22	0.02-0.05	0.05-0.10
Al, Mg non alloy	<350	<100	100-400	0.10-0.25	0.25-0.30	0.03-0.06	0.06-0.10
Cast Aluminium Alloy <5% Si	<600	<180	100-350	0.10-0.25	0.25-0.30	0.03-0.06	0.06-0.10
Cast Aluminium Alloy >5% <10% Si	<600	<180	100-350	0.10-0.25	0.25-0.30	0.03-0.06	0.06-0.10
Cast Aluminium Alloy >10% Si	<600	<180	100-300	0.10-0.25	0.25-0.30	0.03-0.06	0.06-0.10
Thermoplastics			60-120	0.10-0.25	0.25-0.30	0.03-0.06	0.06-0.10
Thermosetting Plastics			60-100	0.10-0.25	0.25-0.30	0.03-0.06	0.06-0.10
Fiber reinforced plastics			60-80	0.10-0.15	0.15-0.22	0.02-0.05	0.05-0.10



ESEMPIO DI PROGRAMMA CNC
CNC program example

M8X1.25 H hole 18.39mm CAST IRON

N0 G54 G90 G00 X0 Z2 S4897 T01 M03
Posizionamento dell'utensile sul foro
Tool positioning on the hole

N1 G91 G01 Z-20.39 F490
Esecuzione del foro
Hole execution

N2 G01 Z0.417
Ritiro dell'utensile dal foro
Tool retraction from the hole

N3 G41 G01 X0 Y-3.25 F392
Scostamento dell'utensile verso
il punto di partenza
Tool deviation from the starting point

N4 G03 X0 Y7.25 Z0.625 10 J3.625
Avvicinamento in entrata
Approcing on the enter

N5 G03 X0 Y0 Z0.125 10 J-4
Fresatura a filettare
Thread milling

N6 G03 X0 Y-7.25 Z0.625 10 J-3.625
Uscita dal filetto
Gone out thread

N7 G00 G40 X0 Y3.25
Scostamento dell'utensile verso il centro
Tool deviation to the center

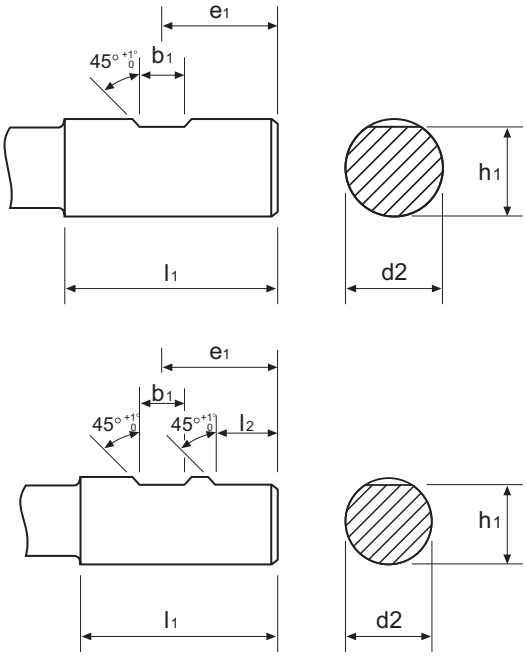
N8 G90 Z2
Uscita dell'utensile dal foro
Tool exit from the hole

Dimensioni gambi weldon DIN 6535 HB a richiesta

Weldon shank dimentions DIN 6535 HB on request

Dimension Weldon DIN 6535 HB auf Anfrage - Dimensions queue weldon DIN 6535 HB sur demande
Хвостовик типа Weldon DIN 6535 HB

d2 mm	b1 mm	e1 mm	h1 mm	l1 mm	l2 mm
6	4.2	18.0	5.1	36	-
8	5.5	18.0	6.9	36	-
10	7.0	20.0	8.5	40	-
12	8.0	22.5	10.4	45	-
14	8.0	22.5	12.7	45	-
16	10.0	24.0	14.2	48	-
18	10.0	24.0	16.2	48	-
20	11.0	25.0	18.2	50	-
25	12.0	32.0	23.0	56	17
32	14.0	36.0	30.0	60	19

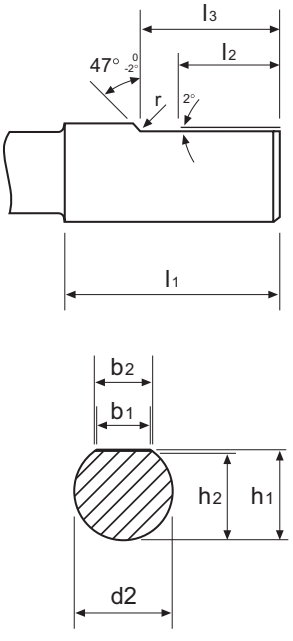


Dimensioni gambi flat DIN 6535 HE a richiesta

Whistle notch shank dimentions DIN 6535 HE on request

Dimension spannflache DIN 6535 HE auf anfrage - Dimensions queue flat DIN 6535 HE sur demande
ХвостовиктипаHEWeldon DIN 6535

d2 mm	b1 mm	b2 mm	h2 mm	h1 mm	l1 mm	l3 mm	l2 mm	r mm
6	3.5	4.8	5.4	4.8	36	25	18	1.2
8	4.7	6.1	7.2	6.6	36	25	18	1.2
10	5.7	7.3	9.1	8.4	40	28	20	1.2
12	6.0	8.2	11.2	10.4	45	33	22.5	1.2
16	7.6	10.1	15.0	14.2	48	36	24	1.6
20	8.4	11.5	19.1	18.2	50	38	25	1.6
25	9.3	13.6	24.1	23.0	56	44	32	1.6
32	9.4	15.5	31.2	30.0	60	48	35	1.6



NOTE

CONDIZIONI GENERALI DI VENDITA

GENERAL SALES CONDITIONS

ОСНОВНЫЕ УСЛОВИЯ ПОСТАВКИ

- Importo minimo fatturabile € 110,00 al netto di sconto ed IVA: per forniture di importo inferiore, la spedizione sarà effettuata in contrassegno o con pagamento anticipato ad avviso di merce pronta senza concessioni di sconto di cassa. Detta condizione non sussiste per i clienti che hanno come normale pagamento la rimessa diretta.
- I prezzi si intendono franco nostro magazzino, non sono impegnativi e possono essere variati anche senza preavviso
- I pagamenti devono essere effettuati nei termini stabiliti. Non sono riconosciuti validi i pagamenti fatti a persone non munite di nostra regolare delega. Non si accettano sconti o arrotondamenti se non preventivamente concordati.
- La merce viaggia a rischio e pericolo del committente anche se venduto franco destino. Non indicando sull'ordine il mezzo di spedizione, la merce sarà spedita col mezzo da noi ritenuto migliore senza però assumerne alcuna responsabilità.
- Gli ordini vengono evasi secondo le disponibilità di magazzino: i termini di consegna indicati non sono impegnativi, ma solo approssimativi.
- Non si accettano resi di merce se non autorizzati. La merce resa, qualunque ne sia il motivo, deve essere resa in porto franco al nostro magazzino di Brandizzo, Via Torino 502. In caso contrario non verrà ritirata
- Con garanzia ci impegniamo alla sostituzione o all'accredito (a nostra scelta) degli articoli eventualmente riscontrati difettosi dai nostri tecnici senza però assumere a nostro carico alcun addebito per danni o spese di qualsiasi genere e causa.
- Non si accettano reclami se non fatti entro otto giorni dal ricevimento del materiale, con lettera raccomandata con ricevuta di ritorno.
- Per ogni controversia si intende competente il foro di Torino

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- The shipping terms are ext-work. All shipping charges are to the account of the buyer.
- The prices would be changed without notice.
- All banking charges are to the account of the buyer.
- REJECT: absolutely no returns will be accepted without prior factory approval. Contact before Nuova CUMET Srl sales dept. for the authorization and shipping instructions. Goods returned for credit is subject to a re-stocking charge.
- The place of settlement for delivery and payment is the office in Brandizzo, Italy. The jurisdiction for both sides is in Turin, Italy.

- Условия поставки EX–WORK. Все транспортные расходы за счет покупателя.
- Цены могут быть изменены без предупреждения.
- Все банковские расходы за счет покупателя.
- ВОЗВРАТ: не может быть произведен без предварительного согласования с производителем. По всем вопросам касающимся отгрузки просим связываться с отделом продаж компании Nuova C.U.M.E.T, S.r.l. Возврат ранее оплаченного товара подлежит замене со склада готовой продукции.
- Рекламации принимаются в течение 8 дней от даты получения груза.
- Размещение заказа и оплата производится в офис Брандиццо, Италия. Юрисдикция по вопросам касающимся обеих сторон рассматривается в Турине, Италия.



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