

Nuova C.U.M.E.T.

SilverPro Rev. 01



Precision in *movement!*

Certificato

Reg. № IT-TO-012-4314-Q/23.11.2021



Il sistema di gestione

NUOVA C.U.M.E.T. SRL

Via Pomba, 29 – 10123 Torino

è valutato ed approvato nel rispetto dei requisiti di

ISO 9001:2015

Scopo della certificazione:

PROGETTAZIONE E PRODUZIONE DI UTENSILI STANDARD E SPECIALI IN
METALLO DURO INTEGRALE PER LA MECCANICA IN GENERALE

Sito lavorativo:

Via Torino, 502/BIS – 10032 Brandizzo (TO)

EA: 17

BORIS STOYANOV,

Direttore



Senza l'effettuazione degli audit di sorveglianza, questo certificato è valido fino al: 23.10.2022

Dopo l'esito positivo dell'audit di sorveglianza 1, AQ Cert emette l'Allegato 1 per espandere la validità fino al: 23.10.2023

Dopo l'esito positivo dell'audit di sorveglianza 2, AQ Cert emette l'Allegato 1 per espandere la validità fino al: 23.10.2024

La validità del certificato può essere verificata su italia.aqcert.org/check

Organismo di certificazione per i sistemi di gestione presso Alpha Quality Certification Ltd.

UIC: 200229912, Indirizzo di registrazione: Via Banat 19, 8° piano, 1407 Sofia, Bulgaria

Accreditamento di EA BAS, № 9 OCC / 07.12.2020 · +35928628357 · office@aqcert.org · www.aqcert.org

Per informazioni in Italiano, contatto autorizzato per l'Italia +393478797694



Fresa a Divisione Irregolare-Elica Variabile in metallo duro integrale

Solid carbide end mill, unequal division - Variable Helix

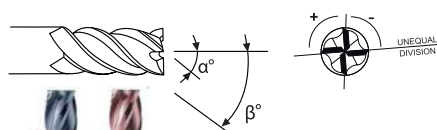
VHM-Torusfräser Ungleiche Drallwinkel-Ungleiche Teilung - Fraise end carbur avec rayon d'angle, Irrégulière Division-Hélice Variable
 Фреза концевая твердосплавная с угловым радиусом с переменным углом наклона винтовой канавки
 Sk fréza s rohovým rádiusem a nerovnoměrným úhlem šroubovice - Variabilní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



CODE	*d1 mm	d2 mm	CH mm	l1 mm	l2 mm	L mm	d3 mm	Z no.	Euro HYPER	Euro GOLD
400SVS.030	3	6	0.1x45°	9	12	57	2.8	4		
400SVS.040	4	6	0.1x45°	11	16	57	3.8	4		
400SVS.050	5	6	0.1x45°	13	20	57	4.8	4		
400SVS.060	6	6	0.3x45°	13	23	57	5.8	4		
400SVS.080	8	8	0.3x45°	22	32	63	7.8	4		
400SVS.100	10	10	0.3x45°	25	34	72	9.8	4		
400SVS.120	12	12	0.3x45°	27	42	83	11.8	4		
400SVS.140	14	14	0.3x45°	30	45	83	13.8	4		
400SVS.160	16	16	0.3x45°	34	49	92	15.8	4		
400SVS.200	20	20	0.3x45°	40	55	104	19.8	4		

→ Help 12-13

*d1 ≤ ø 6 h9
 d1 ≤ ø20 f7



Example ø6mm:
GOLD = 400SVS.060
HYPER = 400SVS.060H



GOLD
HRC <60

HYPER
HRC <50

GOLD
INOX
Stainless
Steel

GOLD
Ti- Ni
Alloy

MICRO
GRAIN

Nuova
CUMET
NORM

DIN 6535
Form HA

Variable

ANTI
VIBRA
TION

45°

Z 4

GOLD



Fresa Torica a Divisione Irregolare-Elica Variabile in metallo duro integrale

Solid carbide end mill, unequal division - Variable Helix

VHM-Torusfräser Ungleiche Drallwinkel-Ungleiche 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 mm	l1 mm	l2 mm	L mm	d3 mm	Z no.	Euro HYPER	Euro GOLD
500RVS.030R05	3	6	0.5	10	13	57	2.8	4		
500RVS.040R05	4	6	0.5	12	17	57	3.8	4		
500RVS.050R05	5	6	0.5	13	20	57	4.8	4		
500RVS.060R05	6	6	0.5	13	21	57	5.8	4		
500RVS.060R1	6	6	1.0	13	21	57	5.8	4		
500RVS.080R05	8	8	0.5	19	27	63	7.6	4		
500RVS.080R1	8	8	1.0	19	27	63	7.6	4		
500RVS08100R15	8	8	0.5	22	-	100	-	4		
500RVS08100R1	8	8	1.0	22	-	100	-	4		
500RVS08100R15	8	8	1.5	22	-	100	-	4		
500RVS08100R2	8	8	2.0	22	-	100	-	4		
500RVS.100R05	10	10	0.5	22	32	72	9.5	4		
500RVS.100R1	10	10	1.0	22	32	72	9.5	4		
500RVS10100R05	10	10	0.5	25	-	100	-	4		
500RVS10100R1	10	10	1.0	25	-	100	-	4		
500RVS10100R15	10	10	1.5	25	-	100	-	4		
500RVS10100R2	10	10	2.0	25	-	100	-	4		
500RVS.120R05	12	12	0.5	26	38	83	11.5	4		
500RVS.120R1	12	12	1.0	26	38	83	11.5	4		
500RVS12100R05	12	12	0.5	27	-	100	-	4		
500RVS12100R1	12	12	1.0	27	-	100	-	4		
500RVS12100R15	12	12	1.5	27	-	100	-	4		
500RVS12100R2	12	12	2.0	27	-	100	-	4		
500RVS.160R05	16	16	0.5	32	44	92	15.5	4		
500RVS.160R1	16	16	1.0	32	44	92	15.5	4		
500RVS.160R2	16	16	2.0	32	44	92	15.5	4		
500RVS16100R05	16	16	0.5	32	-	100	-	4		
500RVS16100R1	16	16	1.0	32	-	100	-	4		
500RVS16100R2	16	16	2.0	32	-	100	-	4		
500RVS.200R1	20	20	1.0	38	54	104	19.5	4		
500RVS.200R2	20	20	2.0	38	54	104	19.5	4		
500RVS.200R3	20	20	3.0	38	54	104	19.5	4		
500RVS.200R4	20	20	4.0	38	54	104	19.5	4		

→ Help 12-13

*d1 ≤ ø 6 h9
 d1 ≤ ø20 f7

Example ø6mm:
GOLD = 500RVS.060R05
HYPER = 500RVS.060R05H



GOLD
HRC <60

HYPER
HRC <50

GOLD
INOX
Stainless
Steel

GOLD
Ti- Ni
Alloy

MICRO
GRAIN

Nuova
CUMET
NORM

DIN 6535
Form HA

Variable

ANTI
VIBRA
TION

Z 4

GOLD

Fresa a Divisione Irregolare-Elica Variabile in metallo duro integrale

Solid carbide end mill, unequal division - Variable Helix

VHM-Torusfräser Ungleiche Drallwinkel-Ungleiche 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	R mm	l1 mm	l2 mm	L mm	d3 mm	Z no.	Euro HYPER	Euro GOLD
400RTVS.030	3	6	1.5	9	12	57	2.8	4		
400RTVS.040	4	6	2	11	16	57	3.8	4		
400RTVS.050	5	6	2.5	13	20	57	4.8	4		
400RTVS.060	6	6	3	13	23	57	5.8	4		
400RTVS.080	8	8	4	22	32	63	7.8	4		
400RTVS.100	10	10	5	25	34	72	9.8	4		
400RTVS.120	12	12	6	27	42	83	11.8	4		
400RTVS.140	14	14	7	30	45	83	13.8	4		
400RTVS.160	16	16	8	34	49	92	15.8	4		
400RTVS.200	20	20	10	40	55	104	19.8	4		

*d1 ≤ ø 6 h9
 d1 ≤ ø20 f7



→ Help 12-13

Example ø6mm:
GOLD = 400RTVS.060
HYPER = 400RTVS.060H



GOLD
HRC <60

HYPER
HRC <50

GOLD
INOX
Stainless Steel

GOLD
Ti- Ni Alloy

MICRO GRAIN

Nuova
CUMET
NORM

DIN 6535
Form HA

40°

ANTI VIBRATION

U

ANTI VIBRATION

Z 4

GOLD

Fresa rompitruciolo antivibrante in metallo duro integrale

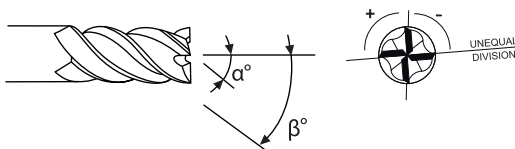
Solid carbide anti-vibration roughing end mill

VHM - Schruppfräser Schwingungsdämpfer - 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.	Euro
T2201S03050	3	6	8	50	3	
T2201S04050	4	6	12	50	3	
T2201S05050	5	6	15	50	3	
T2201S06050	6	6	16	50	4	
T2201S08060	8	8	22	60	4	
T2201S10070	10	10	25	72	4	
T2201S10100	10	10	45	100	4	
T2201S12075	12	12	27	75	4	
T2201S12100	12	12	45	100	4	
T2201S16092	16	16	30	92	4	
T2201S20100	20	20	40	104	4	

→ Help 12



HRC < 50

CAST IRON

INOX
Stainless Steel

Ti-Alloy

Ni-Alloy

MICRO GRAIN

Nuova
CUMET
NORM

DIN 6535
Form HA

Variable

ANTI VIBRATION

45°

ANTI VIBRATION

Z 3

Z 4

03 - 05

06 - 020

1mm

1,5

HYPER

Fresa rompitruciolo in metallo duro integrale

Solid carbide roughing end mill

VHM - Schrappfräser - Fraise carbure profil ébauche

Фреза концевая твердосплавная для черновой обработки - Sk hrubovací fréza



CODE	d1h11 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro
T2203S03050	3	6	8	50	3	
T2203S04050	4	6	12	50	3	
T2203S05050	5	6	15	50	3	
T2203S06050	6	6	20	50	4	
T2203S08060	8	8	22	60	4	
T2203S10070	10	10	25	72	4	
T2203S12075	12	12	27	75	4	
T2203S16092	16	16	30	92	4	
T2203S20100	20	20	40	104	4	

→ Help 17



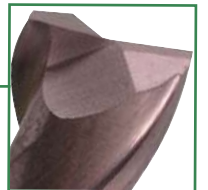
HRC < 50	CAST IRON	Ti-Alloy
N		
MICRO GRAIN	Nuova CUMET NORM	DI 6535 Form HA
20°	HSC	
45°		
(+)	Z 3 03-05	Z 4 06-020
Z 5 025	±1mm 03 - 012	±1,5 014 - 025
HYPER		

Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

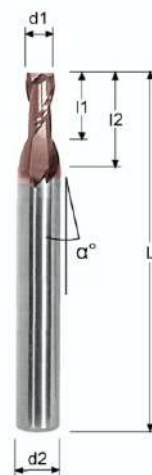
VHM - Schaftfräser - Fraise carbure à bout plat

Фреза концевая твердосплавная с прямым зубом - Sk rohová fréza



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

→ Help 18-19



GOLD HRC < 60	HYPER HRC < 50	GOLD CAST IRON
MICRO GRAIN	Nuova CUMET NORM	DI 6535 Form HA
HSC		30°
(+)	Z 2	HYPER GOLD

Example ø6mm:
GOLD = 201S.060
HYPER = 201S.060H



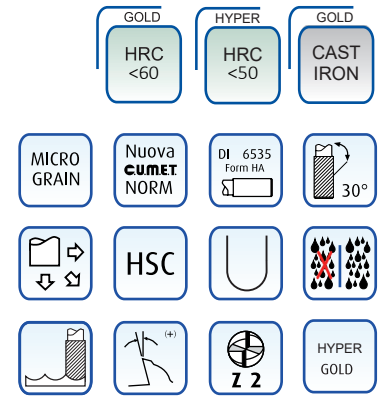
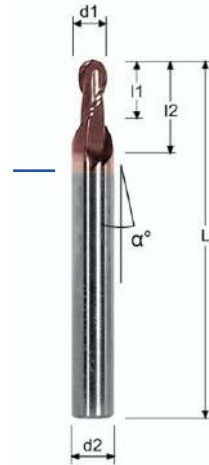
Solid carbide ball nose end mill

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.	Euro HYPER GOLD
201RS.010.4	1	4	2	50	2	
201RS.010	1	6	2.5	50	2	
201RS.015.4	1.5	4	3	50	2	
201RS.015	1.5	6	4	50	2	
201RS.020.4	2	4	4	50	2	
201RS.020	2	6	6	50	2	
201RS.025	2.5	6	6	50	2	
201RS.030.4	3	4	6	50	2	
201RS.030	3	6	7	50	2	
201RS.035	3.5	6	7	50	2	
201RS.040	4	6	8	50	2	
201RS.045	4.5	6	9	50	2	
201RS.050	5	6	10	50	2	
201RS.055	5.5	6	10	50	2	
201RS.060	6	6	12	50	2	

→ Help 20



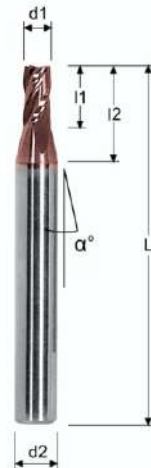
Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

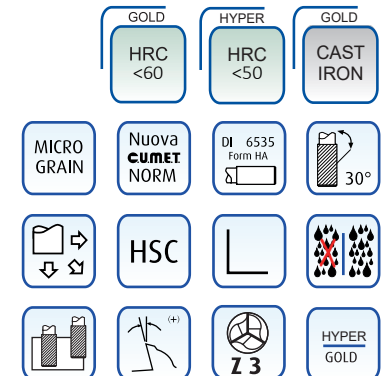
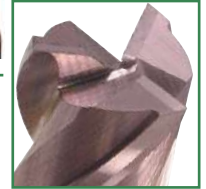
VHM - Schafffräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с прямым зубом - Sk rohoč

CODE	d1h9 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro HYPER GOLD
301S.010.4	1	4	2	50	3	
301S.010	1	6	2.5	50	3	
301S.015.4	1.5	4	3	50	3	
301S.015	1.5	6	4	50	3	
301S.020.4	2	4	5	50	3	
301S.020	2	6	6	50	3	
301S.025	2.5	6	6	50	3	
301S.030.4	3	4	7	50	3	
301S.030	3	6	7	50	3	
301S.035	3.5	6	7	50	3	
301S.040	4	6	8	50	3	
301S.045	4.5	6	9	50	3	
301S.050	5	6	10	50	3	
301S.055	5.5	6	10	50	3	
301S.060	6	6	12	50	3	

→ Help 18-19



Example ø6mm:
GOLD = 201RS.060
HYPER = 201RS.060H



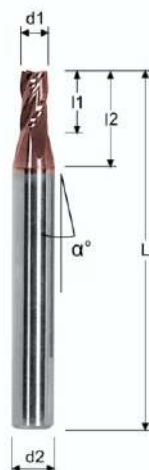
Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

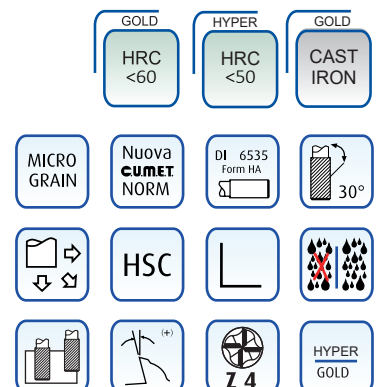
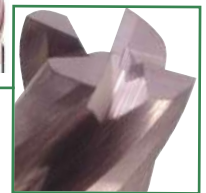
VHM - Schafffräser - Fraise carbure à bout plat
Фреза концевая твердосплавная с прямым зубом - Sk rohová fréza

CODE	d1h9 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro HYPER GOLD
401S.010.4	1	4	2	50	4	
401S.010	1	6	2.5	50	4	
401S.015.4	1.5	4	3	50	4	
401S.015	1.5	6	4	50	4	
401S.020.4	2	4	5	50	4	
401S.020	2	6	6	50	4	
401S.025	2.5	6	6	50	4	
401S.030.4	3	4	7	50	4	
401S.030	3	6	7	50	4	
401S.035	3.5	6	7	50	4	
401S.040	4	6	8	50	4	
401S.045	4.5	6	9	50	4	
401S.050	5	6	10	50	4	
401S.055	5.5	6	10	50	4	
401S.060	6	6	12	50	4	

→ Help 18-19



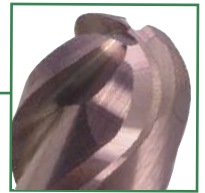
Example ø6mm:
GOLD = 401S.060
HYPER = 401S.060H



Fresa testa sferica in metallo duro integrale

Solid carbide ball nose end mill

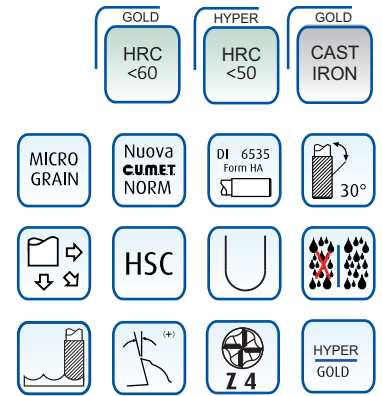
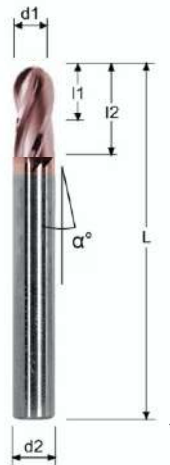
VHM - Radiusfräser - Fraise carbure à bout hémisphérique
Фреза концевая твердосплавная полусферическая - Sk kul



CODE	d1h9 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro HYPER	Euro GOLD
401RS.010	1	6	3	50	4		
401RS.015	1.5	6	4	50	4		
401RS.020	2	6	6	50	4		
401RS.025	2.5	6	6	50	4		
401RS.030	3	6	7	50	4		
401RS.035	3.5	6	7	50	4		
401RS.040	4	6	10	50	4		
401RS.045	4.5	6	10	50	4		
401RS.050	5	6	14	50	4		
401RS.055	5.5	6	14	50	4		
401RS.060	6	6	15	50	4		

d1 ≤ ø 6 h9
d1 ≤ ø20 f7

→ Help 20



Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

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

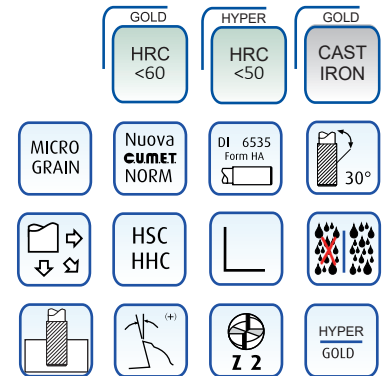
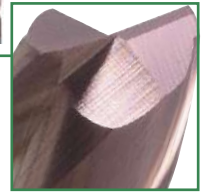
CODE	d1 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro HYPER	Euro GOLD
200TS.030	3	3	8	40	2		
200TS.040	4	4	10	50	2		
200TS.050	5	5	12	50	2		
200TS.060	6	6	12	50	2		
200TS.080	8	8	20	60	2		
200TS.100	10	10	22	72	2		
200TS.120	12	12	25	75	2		
200TS.140	14	14	30	85	2		
200TS.160	16	16	30	92	2		
200TS.200	20	20	40	100	2		

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

→ Help 18-19



Example ø6mm:
GOLD = 401RS.060
HYPER = 401RS.060H



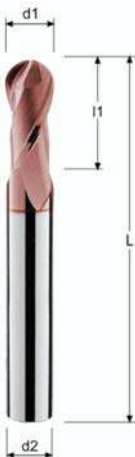
Solid carbide ball nose end mill

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

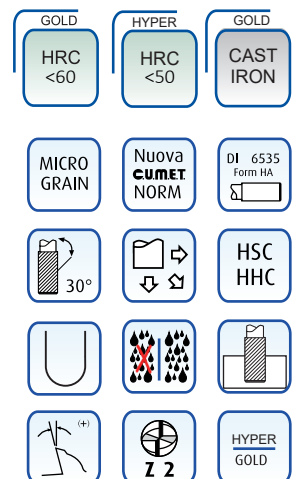
CODE	d1 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro HYPER	Euro GOLD
200RTS.030	3	3	8	40	2		
200RTS.040	4	4	10	50	2		
200RTS.050	5	5	12	50	2		
200RTS.060	6	6	12	50	2		
200RTS.080	8	8	20	60	2		
200RTS.100	10	10	22	72	2		
200RTS.120	12	12	25	75	2		
200RTS.160	16	16	30	92	2		
200RTS.200	20	20	40	100	2		

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

→ Help 20



Example ø6mm:
GOLD = 200RTS.060
HYPER = 200RTS.060H



Example ø6mm:
GOLD = 200RTS.060
HYPER = 200RTS.060H



Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM - Schafffräser - Fraise carbure à bout plat

Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza



CODE	d1 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro HYPER	Euro GOLD
300TS.030	3	3	12	40	3		
300TS.040	4	4	16	50	3		
300TS.050	5	5	20	50	3		
300TS.060	6	6	20	50	3		
300TS.080	8	8	22	60	3		
300TS.100	10	10	25	72	3		
300TS.120	12	12	27	75	3		
300TS.160	16	16	30	92	3		
300TS.200	20	20	40	100	3		

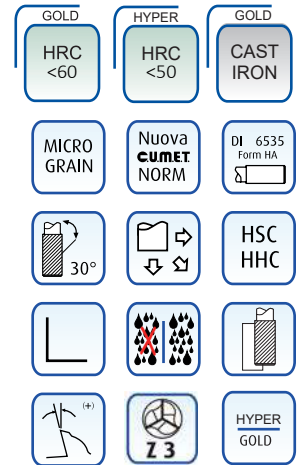
*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

→ Help 18-19

Example ø6mm:
GOLD = 300TS.060
HYPER = 300TS.060H



3

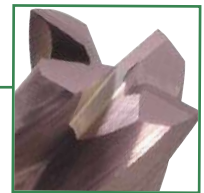


Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM - Schafffräser - Fraise carbure à bout plat

Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza

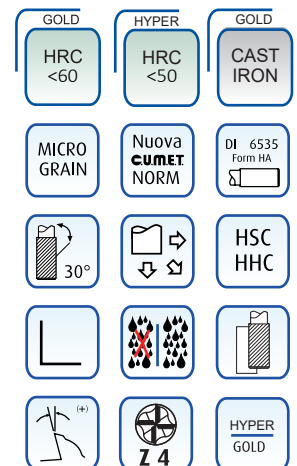


CODE	d1 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro HYPER	Euro GOLD
400TS.030	3	3	12	40	4		
400TS.040	4	4	16	50	4		
400TS.050	5	5	20	50	4		
400TS.060	6	6	20	50	4		
400TS.080	8	8	22	60	4		
400TS.100	10	10	25	72	4		
400TS.120	12	12	27	75	4		
400TS.140	14	14	30	85	4		
400TS.160	16	16	30	92	4		
400TS.200	20	20	40	100	4		

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

→ Help 18-19

Example ø6mm:
GOLD = 400TS.060
HYPER = 400TS.060H

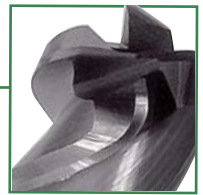


Fresa Torica in metallo duro integrale

Solid carbide corner radius end mill

VHM-torusfräser - Fraise carbure pour cuivre avec rayon d'angle

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



CODE	*d1 mm	d2 mm	Rp mm	l1 mm	l2 mm	L mm	d3 mm	Z no.	Euro HYPER GOLD
400RPS.030R05	3	4	0.5	9	-	50	-	4	
400RPS.040R05	4	4	0.5	12	-	50	-	4	
400RPS.050R05	5	6	0.5	15	-	50	-	4	
400RPS.060R05	6	6	0.5	18	-	50	-	4	
400RPS.060R1	6	6	1.0	18	-	50	-	4	
400RPS.080R05	8	8	0.5	22	-	60	-	4	
400RPS.080R1	8	8	1.0	22	-	60	-	4	
400RPS.100R05	10	10	0.5	25	-	72	-	4	
400RPS.100R1	10	10	1.0	25	-	72	-	4	
400RPS.120R05	12	12	0.5	27	-	75	-	4	
400RPS.120R1	12	12	1.0	27	-	75	-	4	
400RPS.120R2	12	12	2.0	27	-	75	-	4	
400RPS.160R1	16	16	1.0	32	-	92	-	4	
400RPS.160R2	16	16	2.0	32	-	92	-	4	
400RPS.200R1	20	20	1.0	40	-	100	-	4	
400RPS.200R2	20	20	2.0	40	-	100	-	4	

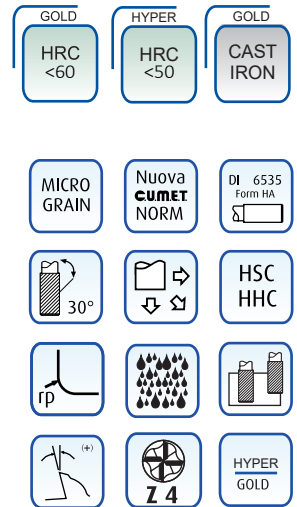
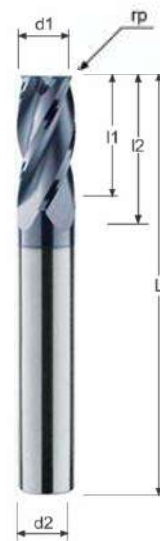
*d1=h9

→ Help18-19

Example ø6mm:

GOLD = 400RPS.060R05

HYPER = 400RPS.060R05H



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	d1 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro HYPER	Euro GOLD
400RTS.030	3	3	12	50	4		
400RTS.040	4	4	16	50	4		
400RTS.050	5	5	20	50	4		
400RTS.060	6	6	20	50	4		
400RTS.080	8	8	22	60	4		
400RTS.100	10	10	25	72	4		
400RTS.120	12	12	27	75	4		
400RTS.160	16	16	30	92	4		
400RTS.200	20	20	40	100	4		

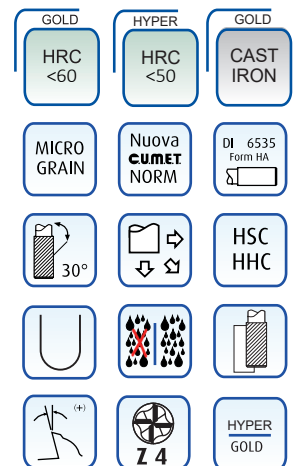
→ Help20

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

Example ø6mm:

GOLD = 400RTS.060

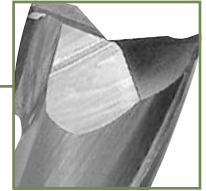
HYPER = 400RTS.060H



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.	Euro
Y703S.030	3	6	0.05x45°	3	10	60	5.8	2	
Y703S.030.03	3	6	0.3	3	10	60	5.8	2	
Y703S.040	4	6	0.05x45°	3	10	60	5.8	2	
Y703S.040.05	4	6	0.5	3	10	60	5.8	2	
Y703S.050.05	5	6	0.5	3	10	60	5.8	2	
Y703S.060	6	6	0.05x45°	6	18	60	5.8	2	
Y703S.060.05	6	6	0.5	6	18	60	5.8	2	
Y703S.080	8	8	0.05x45°	8	24	75	7.8	2	
Y703S.080.05	8	8	0.5	8	24	75	7.8	2	
Y703S.100	10	10	0.05x45°	10	30	80	9.7	2	
Y703S.100.05	10	10	0.5	10	30	80	9.7	2	
Y703S.120	12	12	0.05x45°	12	36	100	11.7	2	
Y703S.120.05	12	12	0.5	12	36	100	11.7	2	
Y703S.160	16	16	0.05x45°	16	50	100	15.5	2	
Y703S.160.05	16	16	0.5	16	50	100	15.5	2	
Y703S.200	20	20	0.05x45°	20	60	100	19.5	2	
Y703S.200.1	20	20	1.0	20	60	100	19.5	2	

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

→ Help 16



AL Alloy

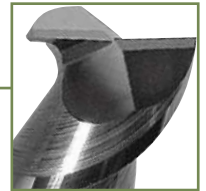
- MICRO GRAIN
- Nuova CUMET NORM
- DIN 6535 Form HA
- 10°
- HSC
- 45°
- UNCOATED
- LAPPED

Fresa Alufast ad alto avanzamento testa piana in metallo duro itegrale

Alufast solid carbide high feed flat nose end mill

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

HIGH FEED



CODE	*d1 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro
755S.030	3	6	9	57	2	
755S.040	4	6	12	57	2	
755S.050	5	6	15	57	2	
755S.060	6	6	18	57	2	
755S.080	8	8	20	63	2	
755S.100	10	10	25	70	2	
755S.120	12	12	25	75	2	
755S.160	16	16	32	92	2	
755S.200	20	20	40	100	2	

*d1 ≤ ø 6 h9
d1 ≤ ø20 h7

→ Help 15



Aluminium

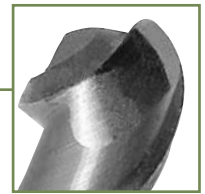
- MICRO GRAIN
- DIN NORM
- DIN 6535 Form HA
- 55°
- HSC
- OIL AIR
- UNCOATED
- LAPPED

Fresa testa sferica 3D in metallo duro integrale

Solid carbide 3D ball nose end mill

VHM - 3D Radiusfräser - Fraise carbure 3D hémisphérique

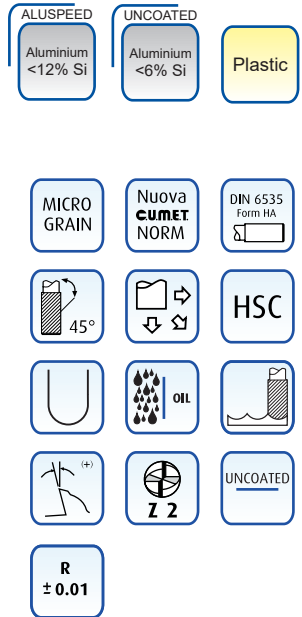
Фреза концевая твердосплавная полусферическая 3D - Sk 3D kulová fréza



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

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

→ Help 20

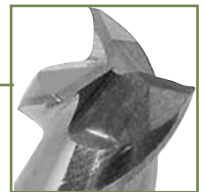


Fresa testa piana in metallo duro integrale

Solid carbide flat nose end mill

VHM - Gesenkfräser - Fraise carbure à bout plat

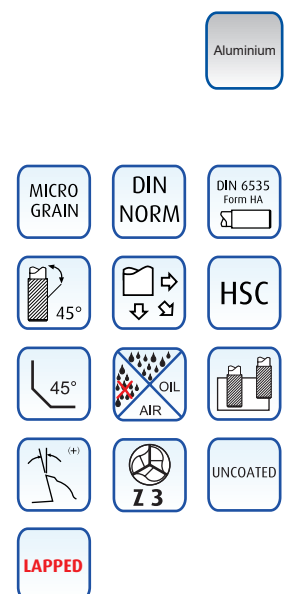
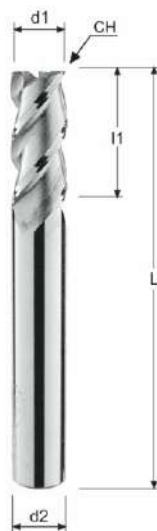
Фреза концевая твердосплавная с плоским торцом - Sk rohová fréza



CODE	*d1 mm	d2h6 mm	CH mm	l1 mm	L mm	Z no.	Euro
456S.030	3	6	0.05	10	57	3	
456S.040	4	6	0.05	15	57	3	
456S.050	5	6	0.05	18	57	3	
456S.060	6	6	0.05	20	57	3	
456S.080	8	8	0.05	25	63	3	
456S.100	10	10	0.05	25	72	3	
456S.120	12	12	0.05	30	83	3	
456S.160	16	16	0.05	32	92	3	
456S.200	20	20	0.05	38	100	3	

*d1 ≤ ø 6 h9
d1 ≤ ø20 f7

→ Help 17

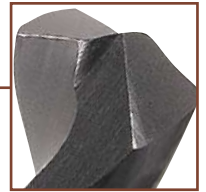


Punta ad alte prestazioni in metallo duro integrale

Solid carbide high performance twist drill

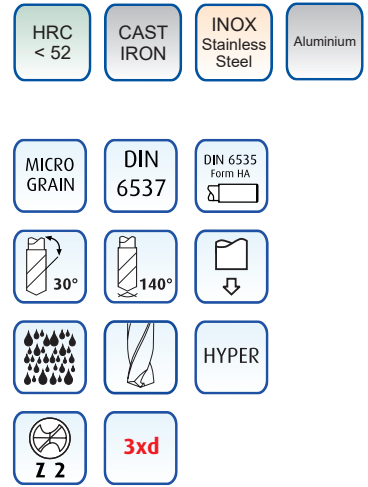
VHM - Hochleistungsböhler - Foret carbure à haut performance

Сверло спиральное твердосплавное высокопроизводительное - Sk vysoce výkonný vrták



CODE	d1m7 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro
122TS...	3.0-3.7	6	20	60	2	
122TS...	3.8-4.7	6	24	66	2	
122TS...	4.8-6.0	6	28	66	2	
122TS...	6.1-7.0	8	34	79	2	
122TS...	7.1-8.0	8	41	79	2	
122TS...	8.1-10	10	45	89	2	
122TS...	10.1-12	12	55	102	2	
122TS...	12.2-14	14	60	107	2	
122TS...	14.5-16	16	65	115	2	
122TS...	16.5-18	18	73	123	2	
122TS...	18.5-20	20	79	131	2	

Order Example:
Ø6.3=122TS.063



Punta ad alte prestazioni in metallo duro integrale

Solid carbide high performance twist drill

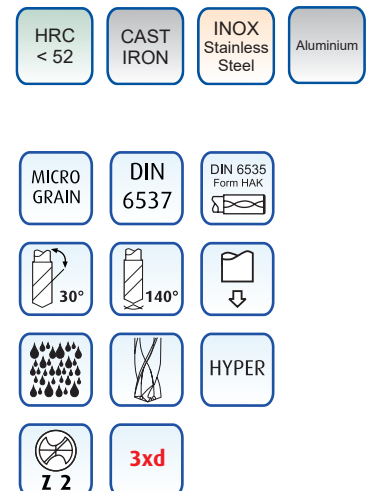
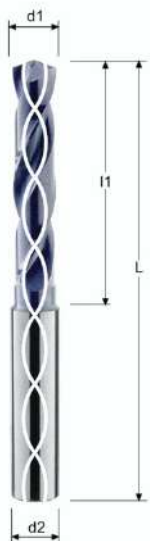
VHM - Hochleistungsböhler - Foret carbure à haut performance

Сверло спиральное твердосплавное высокопроизводительное - Sk vysoce výkonný vrták



CODE	d1m7 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro
122FS...	3.0-3.7	6	20	60	2	
122FS...	3.8-4.7	6	24	66	2	
122FS...	4.8-6.0	6	28	66	2	
122FS...	6.1-7.0	8	34	79	2	
122FS...	7.1-8.0	8	41	79	2	
122FS...	8.1-10	10	45	89	2	
122FS...	10.1-12	12	55	102	2	
122FS...	12.2-14	14	60	107	2	
122FS...	14.5-16	16	65	115	2	
122FS...	16.5-18	18	73	123	2	
122FS...	18.5-20	20	79	131	2	

Order Example:
Ø6.3=122FS.063



Punta ad alte prestazioni in metallo duro integrale

Solid carbide high performance twist drill

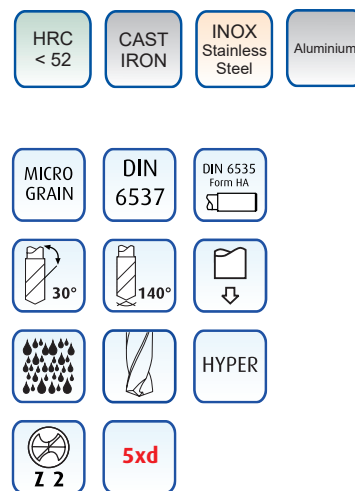
VHM - Hochleistungsbohrer - Foret carbure à haut performance

Сверло спиральное твердосплавное высокопроизводительное - Sk vysoce výkonný vrták



CODE	d1m7 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro
122TLS...	0.5-0.9	3	10	50	2	
122TLS...	1.0-1.5	3	12	55	2	
122TLS...	1.6-2.0	3	16	55	2	
122TLS...	2.1-2.9	3	21	57	2	
122TLS...	3.0-3.7	6	28	66	2	
122TLS...	3.8-4.7	6	36	74	2	
122TLS...	4.8-6.0	6	44	82	2	
122TLS...	6.1-8.0	8	53	91	2	
122TLS...	8.1-10	10	61	103	2	
122TLS...	10.1-12	12	71	118	2	
122TLS...	12.2-14	14	77	124	2	
122TLS...	14.5-16	16	83	133	2	
122TLS...	16.5-18	18	93	143	2	
122TLS...	18.5-20	20	101	153	2	

Order Example:
Ø6.3=122TLS.063



Punta ad alte prestazioni in metallo duro integrale

Solid carbide high performance twist drill

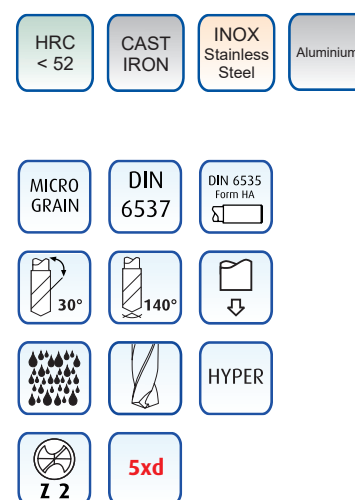
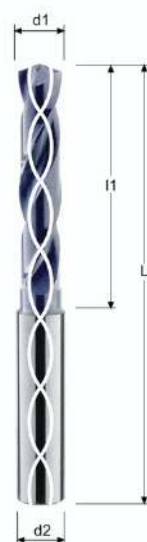
VHM - Hochleistungsbohrer - Foret carbure à haut performance

Сверло спиральное твердосплавное высокопроизводительное - Sk vysoce výkonný vrták



CODE	d1m7 mm	d2h6 mm	l1 mm	L mm	Z no.	Euro
122FLS...	1.0-1.5	3	12	50	2	
122FLS...	1.6-2.0	3	16	55	2	
122FLS...	2.1-2.9	3	21	55	2	
122FLS...	3.0-3.7	6	28	57	2	
122FLS...	3.8-4.7	6	36	66	2	
122FLS...	4.8-6.0	6	44	74	2	
122FLS...	6.1-8.0	8	53	82	2	
122FLS...	8.1-10	10	61	91	2	
122FLS...	10.1-12	12	71	103	2	
122FLS...	12.2-14	14	77	118	2	
122FLS...	14.5-16	16	83	124	2	
122FLS...	16.5-18	18	93	133	2	
122FLS...	18.5-20	20	101	143	2	

Order Example:
Ø6.3=122FL.063



Sets

400SVS PAGE 1

SET400SVS.681012
6mm | 8mm | 10mm | 12mm

500RVS PAGE 1

SET500RVS.681012R05
SET500RVS.681012R1
6mm | 8mm | 10mm | 12mm

T2201S PAGE 2

SETT2203S.681012
6mm | 8mm | 10mm | 12mm

T2203S PAGE 2

SETT2203S.681012
6mm | 8mm | 10mm | 12mm

201S PAGE 3

SET201S.123456S4
1mm SHANK 4 | 2mm SHANK 4 | 3mm SHANK 4 | 4mm | 5mm |
6mm SET201S.123456S6
1mm SHANK 6 | 2mm SHANK 6 | 3mm SHANK 6 | 4mm | 5mm | 6mm

201RS PAGE 3

SET201RS.123456S4
1mm SHANK 4 | 2mm SHANK 4 | 3mm SHANK 4 | 4mm | 5mm | 6mm
SET201RS.123456S6
1mm SHANK 6 | 2mm SHANK 6 | 3mm SHANK 6 | 4mm | 5mm | 6mm

401S PAGE 4

SET401S.123456S4
1mm SHANK 4 | 2mm SHANK 4 | 3mm SHANK 4 | 4mm | 5mm |
6mm SET401S.123456S6
1mm SHANK 6 | 2mm SHANK 6 | 3mm SHANK 6 | 4mm | 5mm | 6mm

755S PAGE 7

SET755S.681012
6mm | 8mm | 10mm | 12mm

456S PAGE 8

SET456S.681012
6mm | 8mm | 10mm | 12mm

Y703S PAGE 7

SETY703S.681012CH0.05
SETY703S.681012R05
6mm | 8mm | 10mm | 12mm

400RPS PAGE 6

SET400RPS.681012R05
SET400RPS.681012R1
6mm | 8mm | 10mm | 12mm

XMD SET LIME ROTATIVE - ROTARY FILES SET

XMD203-3 N°20PCS 3mm STANDARD CUT 03
XMD203-4 N°20PCS 3mm DIAMOND CUT 04
XMD203-6 N°20PCS 3mm DOUBLE CUT 06

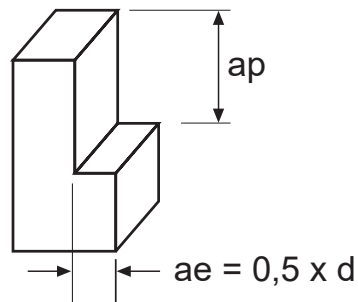


Tutti i set sono preparati a ricevimento ordine / All Sets are made to order / Alle Sätze werden auf Bestellung angefertigt

Parametri di taglio

Cutting speed

Richtwerte - Paramètres - Режимы обработки - Řežná rychlost



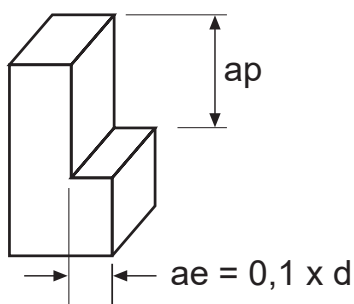
CODE: 400SVS - 500RVS - 400RTVS - T2201S ROUGHING

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

Parametri di taglio

Cutting speed

Richtwerte - Paramètres - Режимы обработки - Řežná rychlost



CODE: 400SVS - 500RVS - 400RTVS FINISHING

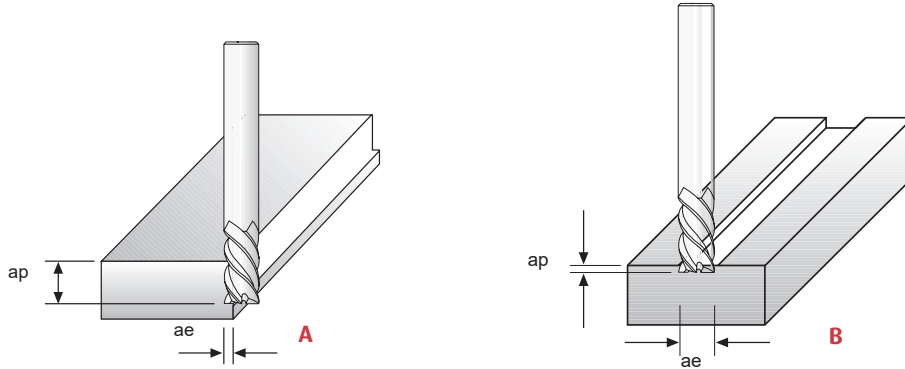
MATERIAL	APPLICATION	VC m/min	FINISHING								
			FZ mm/tooth								
			Ø 3	Ø 4	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 20
Construction steel 500 N/mm ²	$a_p=1x d$	210-250	0.01	0.015	0.025	0.032	0.039	0.048	0.053	0.058	0.073
	$a_p=2x d$	140-170	0.01	0.015	0.025	0.032	0.039	0.048	0.053	0.058	0.073
Construction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

Режимы обработки - Řežná rychlost



CODE: 755S

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: 456S

MATERIAL	Side Milling A						Slot Milling B					
	Aluminium Alloy - АЛЮМИНИЙ						Aluminium Alloy - АЛЮМИНИЙ					
	HARDNESS											
Ø	Vc	Fz	n	Vf	ae	ap	Vc	Fz	n	Vf	ae	ap
	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

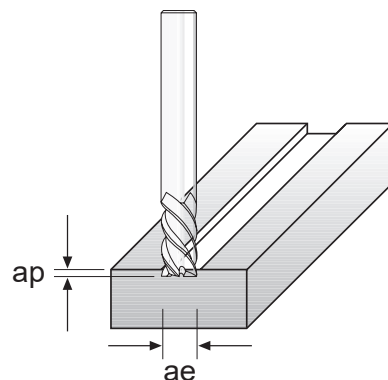
Parametri di taglio

Cutting speed

Richtwerte - Paramètres - Режимы обработки - Řežná rychlost

CODE: Y703S 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: Y703S 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

CODE: Y703S 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

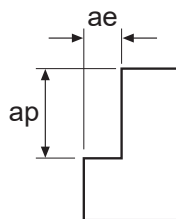
CODE: Y703S FINISHING HIGH SPEED CUTTING

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

Parametri di taglio

Cutting speed

Richtwerte - Paramètres - Режимы обработки - Řežná rychlost



$$ae = 0,5 \times d$$

$$ap = 1 \times d$$

CODE: T2203S

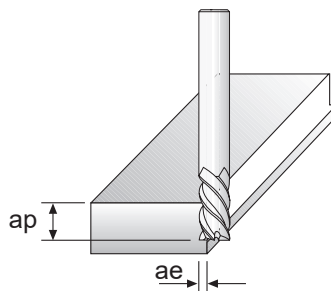
MATERIAL	HARDNESS	Ø									
		Ø 3.0		Ø 4.0		Ø 5.0		Ø 6.0		Ø 8.0	
		Vc	Fz	Vc	Fz	Vc	Fz	Vc	Fz	Vc	Fz
Non Alloy Steel	< 500 N/mm	80-140	0.023	80-140	0.023	80-140	0.033	80-140	0.033	80-140	0.045
	< 700 N/mm	70-120	0.023	120	0.023	120	0.033	120	0.033	120	0.045
	< 800 N/mm	70-120	0.023	70-120	0.023	70-120	0.033	70-120	0.033	70-120	0.045
Alloy 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
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

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 Steel	< 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 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
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 - Paramètres
Режимы обработки - Řežná rychlost



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

CODE: 200TS-201TS-301TS-400TS-400RPS

MATERIAL	Steel - СТАЛЬ											
	< 170 HRC				< 50 HRC				HRC 48 - 56			
HARDNESS	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
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

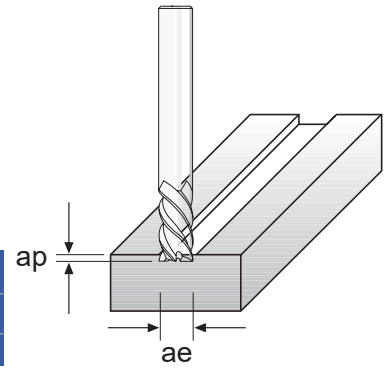
MATERIAL	Cast Iron - ЧУГУН								Copper - МЕДЬ			
	Nodulaire - ЧУГУН				Lamellaire - ЛАМЕЛАР							
HARDNESS	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1 - 3	110	0.013	0.1 x d	1 x d	120	0.017	0.2 x d	1 x d	200	0.009	1 x d	0.3 x d
4	110	0.026	0.1 x d	1 x d	120	0.034	0.2 x d	1 x d	200	0.018	1 x d	0.3 x d
5	110	0.026	0.1 x d	1 x d	120	0.034	0.2 x d	1 x d	200	0.018	1 x d	0.3 x d
6	110	0.026	0.1 x d	1 x d	120	0.034	0.2 x d	1 x d	200	0.018	1 x d	0.3 x d
8	110	0.052	0.1 x d	1 x d	120	0.068	0.2 x d	1 x d	200	0.036	1 x d	0.3 x d
10	110	0.052	0.1 x d	1 x d	120	0.068	0.2 x d	1 x d	200	0.036	1 x d	0.3 x d
12	110	0.078	0.1 x d	1 x d	120	0.102	0.2 x d	1 x d	200	0.054	1 x d	0.3 x d
14 - 18	110	0.078	0.1 x d	1 x d	120	0.102	0.2 x d	1 x d	200	0.054	1 x d	0.3 x d
20 - 25	110	0.130	0.1 x d	1 x d	120	0.170	0.2 x d	1 x d	200	0.090	1 x d	0.3 x d

MATERIAL	Titanium - ТИТАН				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ				Super Alloy - СУПЕР СПЛАВ			
	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
HARDNESS	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
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 - Paramètres - Режимы обработки - Řežná rychlost



CODE: 200TS-201TS-301TS-400TS-400RPS

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)

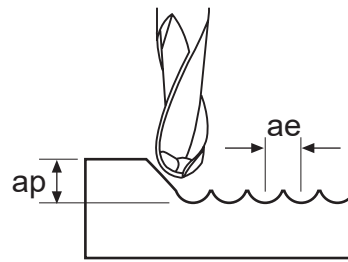
MATERIAL	Steel - СТАЛЬ				Cast Iron							
HARDNESS	HRC 48 - 56				Nodulaire - ЧУГУН				Lamellaire - ЛАМЕЛАР			
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
1-3	40	0.006	1 x d	0.05 x d	90	0.006	1 x d	0.1 x d	100	0.009	1 x d	0.2 x d
4	40	0.008	1 x d	0.05 x d	90	0.013	1 x d	0.1 x d	100	0.018	1 x d	0.2 x d
5	40	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

MATERIAL	Titanium - ТИТАН				Copper - МЕДЬ				Stainless Steel - НЕРЖАВЕЮЩАЯ СТАЛЬ			
HARDNESS												
Ø	Vc	Fz	ae	ap	Vc	Fz	ae	ap	Vc	Fz	ae	ap
3	60	0.006	1 x d	0.1 x d	200	0.009	1 x d	0.3 x d	50	0.006	1 x d	0.1 x d
4	60	0.013	1 x d	0.1 x d	200	0.018	1 x d	0.3 x d	50	0.013	1 x d	0.1 x d
5	60	0.013	1 x d	0.1 x d	200	0.018	1 x d	0.3 x d	50	0.013	1 x d	0.1 x d
6	60	0.013	1 x d	0.1 x d	200	0.018	1 x d	0.3 x d	50	0.013	1 x d	0.1 x d
8	60	0.026	1 x d	0.1 x d	200	0.036	1 x d	0.3 x d	50	0.026	1 x d	0.1 x d
10	60	0.026	1 x d	0.1 x d	200	0.036	1 x d	0.3 x d	50	0.026	1 x d	0.1 x d
12	60	0.038	1 x d	0.1 x d	200	0.054	1 x d	0.3 x d	50	0.038	1 x d	0.1 x d
14 - 18	60	0.038	1 x d	0.1 x d	200	0.054	1 x d	0.3 x d	50	0.038	1 x d	0.1 x d
20 - 25	60	0.064	1 x d	0.1 x d	200	0.090	1 x d	0.3 x d	50	0.064	1 x d	0.1 x d

Parametri di taglio

Cutting speed

Richtwerte - Paramètres - Режимы обработки - Řežná rychlost



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

CODE: 700SR - 200RT - 201R - 400RT

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

MATERIAL	Aluminium - 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

MATERIAL	Super Alloy - СУПЕР СПЛАВ				Cast Iron - ЧУГУН							
HARDNESS					Lamellaire - 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

CODE: 122TS - 122TLS

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	GS 38	30 - 60	0.05 - 0.15	0.05 - 0.20	0.10 - 0.22	0.10 - 0.25	0.10 - 0.25
	< 700 N/mm	GS 52	25 - 50	0.04 - 0.10	0.05 - 0.15	0.05 - 0.18	0.08 - 0.20	0.10 - 0.20
	> 700 N/mm	GS 62	20 - 45	0.04 - 0.10	0.05 - 0.15	0.10 - 0.18	0.08 - 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	80 - 200	0.10 - 0.25	0.15 - 0.35	0.25 - 0.45	0.30 - 0.50	0.35 - 0.55
		> 10% Si	70 - 200	0.10 - 0.25	0.15 - 0.35	0.25 - 0.45	0.30 - 0.50	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 - Paramètres - Режимы обработки - Řežná rychlost

CODE: 122FS - 122FLS

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/mm ²		70 - 90	0.001	0.012	0.015	0.020	0.025
	< 800 N/mm ²		50 - 80	0.010	0.012	0.015	0.020	0.025
	< 1000 N/mm ²		45 - 60	0.010	0.012	0.013	0.017	0.020
	< 1300 N/mm ²		40 - 55	0.010	0.012	0.013	0.017	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	GS 38	40 - 70	0.05 - 0.15	0.05 - 0.20	0.10 - 0.22	0.10 - 0.25	0.10 - 0.25
	< 700 N/mm	GS 52	30 - 50	0.04 - 0.10	0.05 - 0.15	0.05 - 0.18	0.08 - 0.20	0.10 - 0.20
	> 700 N/mm	GS 62	25 - 55	0.04 - 0.10	0.05 - 0.15	0.10 - 0.18	0.08 - 0.20	0.10 - 0.20
Cast Iron ЧГУН	< 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		90 - 300	0.10 - 0.25	0.15 - 0.35	0.25 - 0.45	0.30 - 0.50	0.35 - 0.55
	< 10 % Si		100 - 400	0.10 - 0.25	0.15 - 0.35	0.25 - 0.45	0.30 - 0.50	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



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