

Carmon

High Precision Tooling



CATALOGO | CATALOGUE

Carmon
High Precision Tooling

Carmon

Dalla tradizione creiamo innovazione Creating innovation from tradition

Carmon nasce nel 1969, specializzandosi nella produzione di utensili di precisione per la lavorazione dei metalli, forte della radicata tradizione italiana in questo particolare settore.

In pochi anni emerge per competenza ed affidabilità: espande la propria attività ai mercati internazionali, amplia la gamma dei prodotti per fornire un pacchetto completo e competitivo e rafforza il reparto utensileria speciale, attraverso una costante attività di studio su materiali e applicazioni.

L'attenzione dedicata negli anni al parco macchine ha potuto garantire la flessibilità necessaria a far crescere il brand e l'azienda in tutti i suoi settori, tanto da riuscire ad ottenere per prima tra le aziende del suo calibro, nel 1995, la certificazione ISO.

In quest'ottica Carmon si distingue per un servizio just-in-time, per cui ogni ordine viene evaso in 24 ore dal ricevimento, e un efficiente reparto post-vendita.

Nel 2018, Carmon decide di allargare ulteriormente il proprio orizzonte, grazie all'acquisizione di Ergus - storico brand nel campo della produzione di saldatrici professionali, macchine per il taglio plasma e inverters - con cui condivide non solo i mercati, ma anche i valori.

In questa amplificazione di scenari ed incontro di sinergie, i brand Carmon ed Ergus continuano ad impegnarsi per evolvere e conservare il proprio patrimonio tecnico Made in Italy.

Carmon, founded in 1969, manufactures high-precision tooling, drawing from the deeply-rooted Italian expertise in this very specialized field.

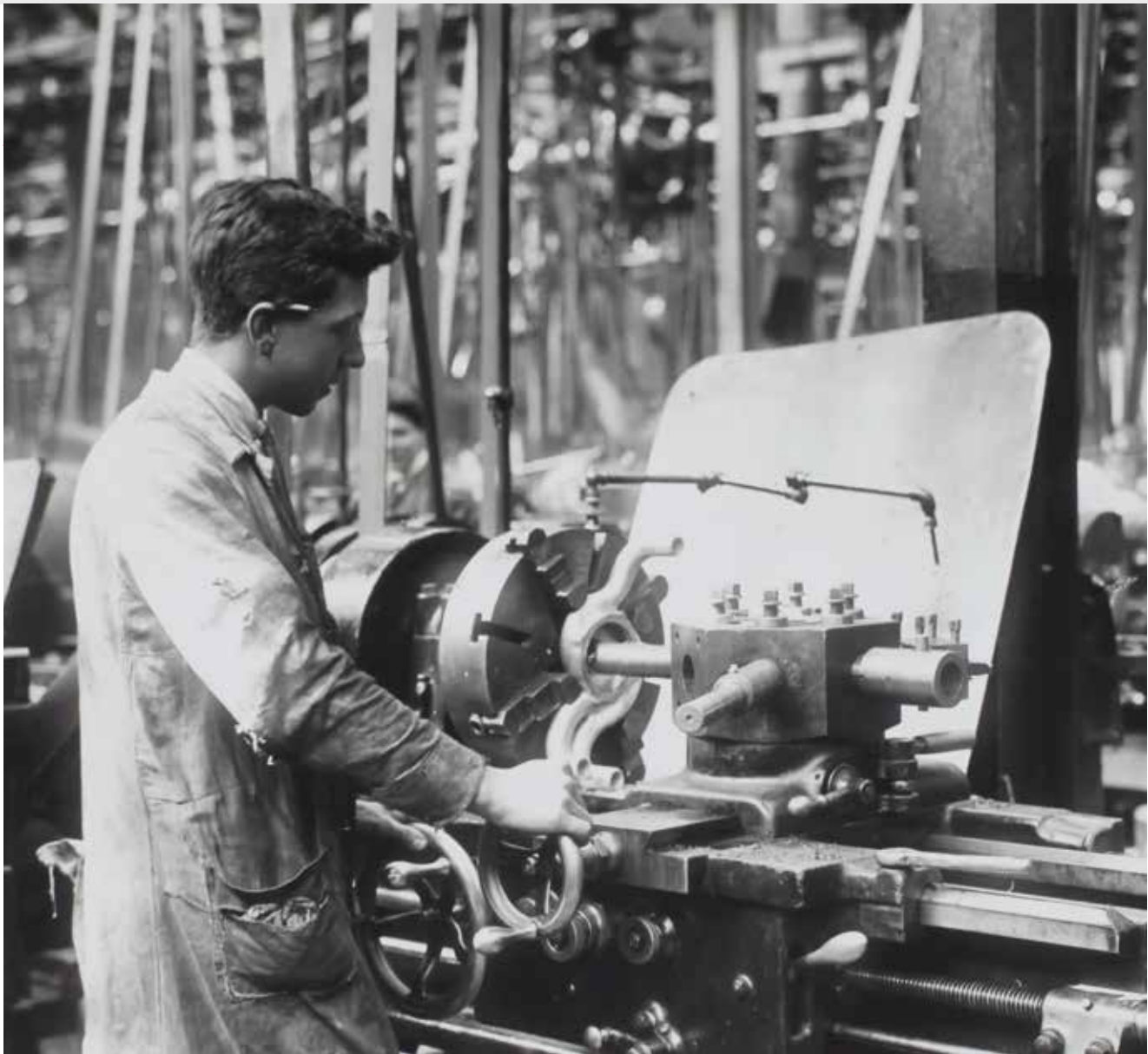
In a few years Carmon stands out for competence and reliability, beginning the expansion towards foreign markets, enlarging the range of products to provide a comprehensive and competitive offer and introducing a customized tooling department by constantly studying materials and applications.

A lot of attention, over the years, has been posed to the manufacturing equipment, to assure the flexibility required to make the brand growing. So much so that Carmon has been the first to be ISO certified in 1995.

Consequently, Carmon stands out for an efficient after-sales department and a just-in-time service, that allows any order to be processed within 24 hours.

In 2018 Carmon widens further its activities, by taking over Ergus - historical brand in the field of professional welding machines, plasma cutters and inverters - with whom shares not only the markets but also the values.

In this variety of scenarios and meeting of synergies Carmon and Ergus continue striving to evolve, being careful to preserve the technical Made in Italy heritage.



In un panorama che cambia costantemente vogliamo essere un punto fermo di affidabilità e non poniamo limiti alle possibilità.

Carmon è nata dalla visione dei due fondatori di creare un'azienda virtuosa, che continuasse nel tempo, preservando l'eredità tecnica e umana della loro storia imprenditoriale, ma attenta ad accogliere i cambiamenti come opportunità.

Attraverso la nostra esperienza forniamo ai nostri clienti un servizio che si distingue e un prodotto che rende l'industria più efficiente.

Lavoriamo ogni giorno per crescere, impegnandoci a costruire relazioni basate sulla trasparenza e la competenza.

We want to be a trustworthy staple in an ever-changing industrial panorama, keeping ourselves open to possibilities.

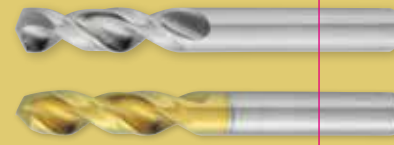
Carmon has taken shape from the vision of the founders, who wanted to create a virtuous company that could last and grow over time, safeguarding the human and technical legacy of their entrepreneurship, but welcoming change as an opportunity.

Through our expertise we provide our customers with a distinguished service, and a product that makes the industry more efficient.

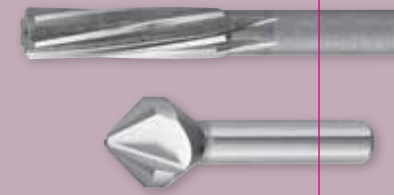
We work hard, every day, to improve and create transparent and qualified relationships.

Carmon

**PUNTE HSS
HSS DRILLS**



**ALESATORI - SVASATORI
REAMERS - COUNTERSINKS**



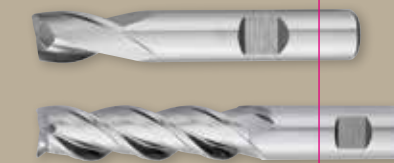
**MASCHI - FILIERE
TAPS - DIES**



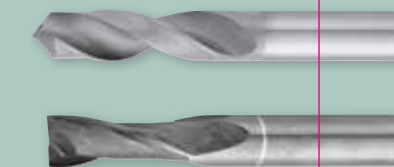
**TAMPONI - ANELLI
GAUGES - RINGS**



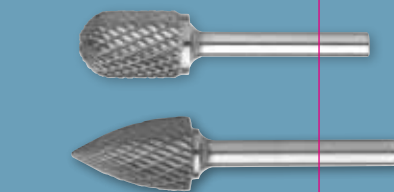
**FRESE HSS
HSS MILLING CUTTERS**



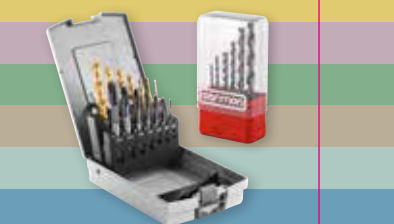
**FRESE E PUNTE HM
HM MILLING CUTTERS & DRILLS**



**LIME ROTATIVE HM
HM ROTARY BURRS**



**KIT
TOOLS SET**



TECH INFO

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MF 510	120
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KIT FRESE HM RIVESTITE COATED HM MILLS SET



















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KIT LIME ROTATIVE ROTARY BURRS SETS





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Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
PUNTE CODOLO CILINDRICO STRAIGHT SHANK TWIST DRILLS								
PUNTE EXTRA CORTE TWIST DRILLS, STUB LENGHT								
 CL 100	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 1897	1,00 - 13,00	24
 CL 101	W	Acciai tenaci Hardened steel	130°	HSS-8%Co	White	DIN 1897	1,00 - 31,00	24
 CL 101	W	Acciai tenaci Hardened steel	130°	HSS-8%Co	Quartz	DIN 1897	1,00 - 31,00	24
 CL 101	W	Acciai tenaci Hardened steel	130°	HSS-8%Co	Titanite	DIN 1897	1,00 - 31,00	24
 CL 118	S	Acciai inox Stainless steel	135°	HSS+5%CO	White	DIN 1897	2,00 - 16,00	28
 CL 118	S	Acciai inox Stainless steel	135°	HSS+5%CO	Quartz	DIN 1897	2,00 - 16,00	28
 CL 118	S	Acciai inox Stainless steel	135°	HSS+5%CO	Titanite	DIN 1897	2,00 - 16,00	28
PUNTE CORTE TWIST DRILLS JOBBER LENGHT								
 CL 104	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 338	0,30 - 20,00	31
 CL 104R	N	Acciai comuni Standard steel	130°	HSS	Quartz	DIN 338	1,00 - 20,00	31
 CL 107	H	Ottone-Bronzo- Rame-Brass- Bronze-Copper	118°	HSS	White	DIN 338	1,50 - 13,00	31
 CL 108	W	Alluminio Aluminum	130°	HSS	White	DIN 338	1,50 - 13,00	31
 CL 104CR	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 338	13,50 - 20,00	37
 CL 106	W	Acciai tenaci Hardened steel	130°	HSS+5%CO	White	DIN 338	0,30 - 13,00	38
 CL 106	W	Acciai tenaci Hardened steel	130°	HSS+5%CO	Quartz	DIN 338	0,30 - 13,00	38
 CL 106	W	Acciai tenaci Hardened steel	130°	HSS+5%CO	Titanite	DIN 338	0,30 - 13,00	38
 CL 105	W	Acciai tenaci Hardened steel	130°	HSS+8%CO	White	DIN 338	2,00 - 20,00	38
 CL 105	W	Acciai tenaci Hardened steel	130°	HSS+8%CO	Quartz	DIN 338	2,00 - 20,00	38
 CL 105	W	Acciai tenaci Hardened steel	130°	HSS+8%CO	Titanite	DIN 338	2,00 - 20,00	38

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
PUNTE LUNGHE TWIST DRILLS, LONG SERIES								
 CL 109	S	Acciai comuni Standard steel	130°	HSS+5%CO	White	DIN 338	2,00 - 13,00	42
 CL 109	S	Acciai comuni Standard steel	130°	HSS+5%CO	Quartz	DIN 338	2,00 - 13,00	42
 CL 109	S	Acciai comuni Standard steel	130°	HSS+5%CO	Titanite	DIN 338	2,00 - 13,00	42
 CL 119	S	Acciai inox Stainless steel	135°	HSS+5%CO	White	DIN 338	2,00 - 16,00	44
 CL 119	S	Acciai inox Stainless steel	135°	HSS+5%CO	Quartz	DIN 338	2,00 - 16,00	44
 CL 119	S	Acciai inox Stainless steel	135°	HSS+5%CO	Titanite	DIN 338	2,00 - 16,00	44
 CL 200 FORI PROFONDI DEEP HOLE	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 340	0,50 - 20,00	47
 CL 230 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	White	DIN 340	2,00 - 13,00	47
 CL 230 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Quartz	DIN 340	2,00 - 13,00	47
 CL 230 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Titanite	DIN 340	2,00 - 13,00	47
PUNTE EXTRA LUNGHE TWIST DRILLS, EXTRA LONG SERIES								
 CL 111-1 FORI PROFONDI DEEP HOLE	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 1869/1	2,00 - 13,00	51
 CL 110-1 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	White	DIN 1869/1	2,00 - 13,00	51
 CL 110-1 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Quartz	DIN 1869/1	2,00 - 13,00	51
 CL 110-1 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Titanite	DIN 1869/1	2,00 - 13,00	51
 CL 111-2 FORI PROFONDI DEEP HOLE	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 1869/2	3,00 - 13,00	52
 CL 110-2 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	White	DIN 1869/2	3,00 - 13,00	52
 CL 110-2 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Quartz	DIN 1869/2	3,00 - 13,00	52
 CL 110-2 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Titanite	DIN 1869/2	3,00 - 13,00	52

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
 CL 111-3 FORI PROFONDI DEEP HOLE	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 1869/3	3,50 - 13,00	53
 CL 110-3 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	White	DIN 1869/3	3,50 - 13,00	53
 CL 110-3 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Quartz	DIN 1869/3	3,50 - 13,00	53
 CL 110-3 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Titanite	DIN 1869/3	3,50 - 13,00	53
PUNTE EXTRA CORTE DOPPIE DOUBLE TWIST DRILLS STUB LENGTH								
 CL 150	N	Acciai comuni Standard steel	118°	HSS	Black	CARMON NORM	2,20 - 6,00	54
PUNTE PER CENTRI NC NC-SPOTTING DRILLS								
 CL 102	N	Acciai comuni Standard steel	120°	HSS+8%CO	White	CARMON NORM	6,00 - 20,00	55
 CL 102	N	Acciai comuni Standard steel	120°	HSS+8%CO	Quartz	CARMON NORM	6,00 - 20,00	55
 CL 102	N	Acciai comuni Standard steel	120°	HSS+8%CO	Titanite	CARMON NORM	6,00 - 20,00	55
 CL 103	N	Acciai comuni Standard steel	90°	HSS+8%CO	White	CARMON NORM	6,00 - 20,00	55
 CL 103	N	Acciai comuni Standard steel	90°	HSS+8%CO	Quartz	CARMON NORM	6,00 - 20,00	55
 CL 103	N	Acciai comuni Standard steel	90°	HSS+8%CO	Titanite	CARMON NORM	6,00 - 20,00	55
PUNTE DA CENTRO CENTER DRILLS								
 CL 910		Acciai comuni Standard steel	118°	HSS	White	DIN 333/A	1,00 - 6,3	56
 CL 910		Acciai comuni Standard steel	118°	HSS	Quartz	DIN 333/A	1,00 - 6,3	56
 CL 920		Acciai comuni Standard steel	118°	HSS	White	DIN 333/R	1,00 - 6,3	56
 CL 920		Acciai comuni Standard steel	118°	HSS	Quartz	DIN 333/R	1,00 - 6,3	56
 CL 930		Acciai comuni Standard steel	118°	HSS	White	DIN 333/B	1,00 - 6,3	57
 CL 930		Acciai comuni Standard steel	118°	HSS	Quartz	DIN 333/B	1,00 - 6,3	57

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
PUNTE A GRADINO CON ELICHE INDIPENDENTI SUBLAND DRILLS WITH INDIPENDENT SPIRAL								
 CL270	N	Acciai comuni Standard steel	118°	HSS	White	DIN 8376	M3 - M10	58
 CL271	N	Acciai comuni Standard steel	118°	HSS	White	DIN 8374	M3 - M8	58
 CL272	N	Acciai comuni Standard steel	118°	HSS	White	DIN 8378	M3 - M12	59
PUNTE CODOLO CONICO TAPER SHANK TWIST DRILLS								
PUNTE STANDARD STANDARD TWIST DRILL								
 CM 300	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 345	3,00 - 100,00	60
 CM 303	N	Acciai tenaci Hardened steel	118°	HSS+5%CO	White	DIN 345	5,00 - 50,00	60
 CM 303	N	Acciai tenaci Hardened steel	118°	HSS+5%CO	Quartz	DIN 345	5,00 - 24,00	60
 CM 303	N	Acciai tenaci Hardened steel	118°	HSS+5%CO	Titanite	DIN 345	5,00 - 24,00	60
PUNTE LUNGHE TWIST DRILL LONG SERIES								
 CM 301 FORI PROFONDI DEEP HOLE	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 341	8,00 - 30,00	66
 CM 302 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	White	DIN 341	8,00 - 30,00	66
 CM 302 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Quartz	DIN 341	8,00 - 24,00	66
 CM 302 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Titanite	DIN 341	8,00 - 24,00	66
PUNTE EXTRA LUNGHE TWIST DRILLS EXTRA LONG SERIES								
 CM 304 FORI PROFONDI DEEP HOLE	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 1870/ 1	8,00 - 50,00	68
 CM 306 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	White	DIN 1870/ 1	8,00 - 31,00	68
 CM 306 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Quartz	DIN 1870/ 1	8,00 - 17,00	68
 CM 306 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	Titanite	DIN 1870/ 1	8,00 - 17,00	68
 CM 305 FORI PROFONDI DEEP HOLE	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 1870/ 2	8,00 - 50,00	70

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
 CM 307 FORI PROFONDI DEEP HOLE	S	Acciai tenaci Hardened steel	135°	HSS+5%CO	White	DIN 1870/ 2	8,00 - 30,00	70
PUNTE A GRADINO CON ELICHE INDIPENDENTI STUBLAND DRILLS WITH INDIPENDENT SPIRAL								
 CM 370	N	Acciai comuni Standard steel	118°	HSS	White	DIN 8377	M5 - M20	72
 CM 371	N	Acciai comuni Standard steel	118°	HSS	White	DIN 8375	M5 - M10	72
 CM 372	N	Acciai comuni Standard steel	118°	HSS	White	DIN 8379	M8 - M20	73





rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$



mm/min
 $= \text{mm/rev} \times \text{rpm}$



= mt/min



= mm/rev
 (vedi tabella - see table page pag. 23)

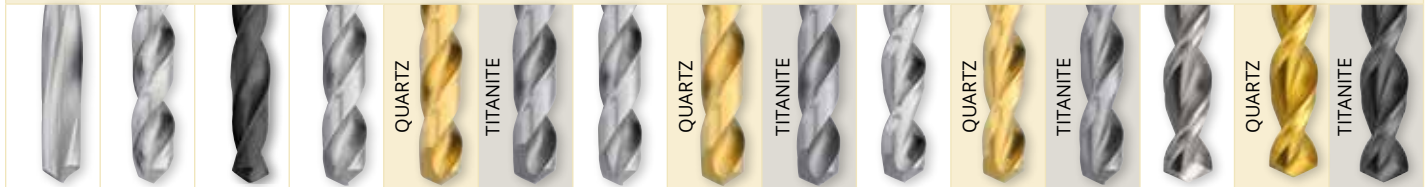
PUNTE EXTRA CORTE TWIST DRILLS, STUB LENGHT

PUNTE CORTE TWIST DRILLS, JOBBER LENGHT

CL100	CL101			CL118			CL104	CL104R
HSS		HSS+8%Co		HSS+5%Co		HSS		

Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	30 b	42 d	55 c	60 c	38 c	50 c	57 c	30 b	37 c
	Acciai da costruzione Structural steel	2	700	219	22 c	35 c	45 b	55 b	30 c	40 b	50 b	22 c	30 b
	Acciai da tempra Hardening steel	3	900	280	13 c		35 b	40 b		30 b	38 b	13 c	20 b
	Acciaio automatico Automatic steel	4	1200	373									
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	17 b	26 c	32 b	36 b	22 b	28 b	34 b	17 b	22 b
	Austenitico Austenitic	3	850	265	8 c	18 d	18 c	22 c	12 c	15 c	20 c	8 c	12 c
	Ferritico+austenitico Ferritic austenitic	4	1000	311	10 b		22 c	26 c	15 b	18 c	24 c	10 b	15 b
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	157	30 d	38 d	45 c	48 d	36 d	42 c	45 d	30 d	37 d
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	219	20 b	28 c	32 c	35 d	26 b	30 c	32 d	20 b	25 b
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	22 b	33 d	36 d	40 d	28 c	31 c	38 d	22 b	26 b
	Leghe di titanio Titanium alloys	5	900	280	10 a	24 d	27 d	30 d	18 c	21 c	28 d	10 a	14 a
RAME COPPER	Rame Copper	9	350	110	30 c	42 d			40 c			30 c	40 c
	Ottone Brass	9	700	219	33 c	45 d	55 c		43 b	50 c		33 c	43 b
	Bronzo Bronze	9	700	219	15 c	24 d	50 c		22 b	45 c		15 c	23 b
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	10 b	18 c	22 c	26 d	16 c	20 c	24 d	10 b	16 c
	Leghe di nichel Nichel alloys	6	900	280	5 a	15 c	12 c	16 d	12 b	10 c	14 d	5 a	11 b
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	35 d	40 d	70 d		38 d	60 d		35 d	39 d
	Alluminio con leghe Alloyed aluminium	7	400	125	30 d	35 d	60 d		33 d	55 d		30 d	34 d
	Alluminio con leghe Alloyed aluminium	7	500	157	25 c	30 c	45 c		28 c	40 c		25 c	29 c

PUNTE CORTE TWIST DRILLS, JOBBER LENGTH



CL107 CL108 CL104CR CL106 CL105 CL109 CL119



HSS HSS+5%Co HSS+8%Co HSS+5%Co



HSS		HSS+5%Co				HSS+8%Co				HSS+5%Co				
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
mt/rmin	mm/rev	mt/rmin	mm/rev	mt/rmin	mm/rev	mt/rmin	mm/rev	mt/rmin	mm/rev	mt/rmin	mm/rev	mt/rmin	mm/rev	
		30 b	35 c	50 c	57 c	42 d	55 c	60 c	38 c	50 c	57 c	38 c	50 c	57 c
		22 c	28 b	40 b	50 b	35 c	45 b	55 b	30 c	40 b	50 b	30 c	40 b	50 b
		13 c	18 b	30 b	38 b		35 b	40 b		30 b	38 b		30 b	38 b
		17 b	20 b	28 b	34 b	26 c	32 b	36 b	22 b	28 b	34 b	22 b	28 b	34 b
		8 c	10 c	15 c	20 c	18 d	18 c	22 c	12 c	15 c	20 c	12 c	15 c	20 c
		10 b	13 b	18 c	24 c		22 c	26 c	15 b	18 c	24 c	15 b	18 c	24 c
		30 d	35 d	42 c	45 d	38 d	45 c	48 d	36 d	42 c	45 d	36 d	42 c	45 d
		20 b	23 b	30 c	32 d	28 c	32 c	35 d	26 b	30 c	32 d	26 b	30 c	32 d
		22 b	24 b	31 c	38 d	33 d	36 d	40 d	28 c	31 c	38 d	28 c	31 c	38 d
		10 a	12 a	21 c	28 d	24 d	27 d	30 d	18 c	21 c	28 d	18 c	21 c	28 d
	30 c	30 c	38 c			42 d			40 c			40 c		
33 c		33 c	41 b	50 c		45 d	55 c		43 b	50 c		43 b	50 c	
15 c		15 c	20 b	45 c		24 d	50 c		22 b	45 c		22 b	45 c	
		10 b	14 c	20 c	24 d	18 c	22 c	26 d	16 c	20 c	24 d	16 c	20 c	24 d
		5 a	9 b	10 c	14 d	15 c	12 c	16 d	12 b	10 c	14 d	12 b	10 c	14 d
	35 d	35 d	37 d	60 d		40 d	70 d		38 d	60 d		38 d	60 d	
	30 d	30 d	32 d	55 d		35 d	60 d		33 d	55 d		33 d	55 d	
	25 c	25 c	27 c	40 c		30 c	45 c		28 c	40 c		28 c	40 c	



$$\text{rpm} = (\text{mt/min} \times 1000) / (D \times 3,14)$$



$$\text{mm/min} = \text{mm/rev} \times \text{rpm}$$



$$= \text{mt/min}$$



$$= \text{mm/rev}$$

(vedi tabella - see table page pag. 23)

PUNTE LUNGHE TWIST DRILLS, LONG SERIES				PUNTE EXTRA LUNGHE TWIST DRILLS, EXTRA LONG SERIES					
CL200	CL230			CL111/1	CL110/1			CL111/2	
DIN 340				DIN 1869/1					DIN 1869/2
HSS		HSS+5%Co		HSS		HSS+5%Co		HSS	

Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	30 b	38 c	50 c	57 c	30 b	38 c	50 c	57 c	30 b
	Acciai da costruzione Structural steel	2	700	219	22 c	30 c	40 b	50 b	22 c	30 c	40 b	50 b	22 c
	Acciai da tempra Hardening steel	3	900	280	13 c		30 b	38 b	13 c		30 b	38 b	13 c
	Acciaio automatico Automatic steel	4	1200	373									
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	17 b	22 b	28 b	34 b	17 b	22 b	28 b	34 b	17 b
	Austenitico Austenitic	3	850	265	8 c	12 c	15 c	20 c	8 c	12 c	15 c	20 c	8 c
	Ferritico+austenitico Ferritic austenitic	4	1000	311	10 b	15 b	18 c	24 c	10 b	15 b	18 c	24 c	10 b
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	157	30 d	36 d	42 c	45 d	30 d	36 d	42 c	45 d	30 d
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	219	20 b	26 b	30 c	32 d	20 b	26 b	30 c	32 d	20 b
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	22 b	28 c	31 c	38 d	22 b	28 c	31 c	38 d	22 b
	Leghe di titanio Titanium alloys	5	900	280	10 a	18 c	21 c	28 d	10 a	18 c	21 c	28 d	10 a
RAME COPPER	Rame Copper	9	350	110	30 c	40 c			30 c	40 c			30 c
	Ottone Brass	9	700	219	33 c	43 b	50 c		33 c	43 b	50 c		33 c
	Bronzo Bronze	9	700	219	15 c	22 b	45 c		15 c	22 b	45 c		15 c
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	10 b	16 c	20 c	24 d	10 b	16 c	20 c	24 d	10 b
	Leghe di nichel Nichel alloys	6	900	280	5 a	12 b	10 c	14 d	5 a	12 b	10 c	14 d	5 a
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	35 d	38 d	60 d		35 d	38 d	60 d		35 d
	Alluminio con leghe Alloyed aluminium	7	400	125	30 d	33 d	55 d		30 d	33 d	55 d		30 d
	Alluminio con leghe Alloyed aluminium	7	500	157	25 c	28 c	40 c		25 c	28 c	40 c		25 c

PUNTE EXTRA LUNGHE TWIST DRILLS, EXTRA LONG SERIES							PUNTE DOPPIE DOUBLE TWIST DRILLS	PUNTE PER CENTRI NC NC-SPOTTING DRILLS									
QUARTZ			TITANITE			QUARTZ			TITANITE			QUARTZ			TITANITE		
CL110/2			CL111/3			CL110/3			CL150			CL102			CL103		
DIN 1869/2			DIN 1869/3			CARMON NORM.			CARMON NORM.								
HSS+5%Co			HSS			HSS+5%Co			HSS			HSS+8% Co					
[Symbol]			[Symbol]			[Symbol]			[Symbol]			[Symbol]					
nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	nt/min mm/rev	
38 c	50 c	57 c	30 b	38 c	50 c	57 c		35 c	50 c	57 c	35 c	50 c	57 c				
30 c	40 b	50 b	22 c	30 c	40 b	50 b		28 b	40 b	50 b	28 b	40 b	50 b				
	30 b	38 b	13 c		30 b	38 b		18 b	30 b	38 b	18 b	30 b	38 b				
22 b	28 b	34 b	17 b	22 b	28 b	34 b		20 b	28 b	34 b	20 b	28 b	34 b				
12 c	15 c	20 c	8 c	12 c	15 c	20 c		10 c	15 c	20 c	10 c	15 c	20 c				
15 b	18 c	24 c	10 b	15 b	18 c	24 c		13 b	18 c	24 c	13 b	18 c	24 c				
36 d	42 c	45 d	30 d	36 d	42 c	45 d		35 d	42 c	45 d	35 d	42 c	45 d				
26 b	30 c	32 d	20 b	26 b	30 c	32 d		23 b	30 c	32 d	23 b	30 c	32 d				
28 c	31 c	38 d	22 b	28 c	31 c	38 d		24 b	31 c	38 d	24 b	31 c	38 d				
18 c	21 c	28 d	10 a	18 c	21 c	28 d		12 a	21 c	28 d	12 a	21 c	28 d				
40 c			30 c	40 c				38 c			38 c						
43 b	50 c		33 c	43 b	50 c			41 b	50 c		41 b	50 c					
22 b	45 c		15 c	22 b	45 c			20 b	45 c		20 b	45 c					
16 c	20 c	24 d	10 b	16 c	20 c	24 d		14 c	20 c	24 d	14 c	20 c	24 d				
12 b	10 c	14 d	5 a	12 b	10 c	14 d		9 b	10 c	14 d	9 b	10 c	14 d				
38 d	60 d		35 d	38 d	60 d			37 d	60 d		37 d	60 d					
33 d	55 d		30 d	33 d	55 d			32 d	55 d		32 d	55 d					
28 c	40 c		25 c	28 c	40 c			27 c	40 c		27 c	40 c					



rpm
 $= (\text{mm/min} \times 1000) / (D \times 3,14)$



mm/min
 $= \text{mm/rev} \times \text{rpm}$






















= mt/min



= mm/rev
 (vedi tabella - see table page pag. 23)

PUNTE DA CENTRO CENTER DRILLS									PUNTE A GRADINO CON ELICHE INDIPENDENTI SUBLAND DRILLS WITH INDEPENDENT SPIRAL					
CL910		CL920		CL930		CL270	CL271	CL272						
DIN 333/A		DIN 333/R		DIN 333/B		DIN 8376	DIN 8374	DIN 8378						
HSS						HSS								

Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min		mm/rev		mt/min		mm/rev		mt/min		mm/rev		mt/min		mm/rev	
				b	c	b	c	b	c	b	c	b	c	b	c	b	c		
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	30	37	30	37	30	37	30	37	30	30	30	30	30	30	30
	Acciai da costruzione Structural steel	2	700	219	22	30	22	30	22	30	22	30	22	22	22	22	22	22	22
	Acciai da tempra Hardening steel	3	900	280	13	20	13	20	13	20	13	20	13	13	13	13	13	13	13
	Acciaio automatico Automatic steel	4	1200	373															
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	17	22	17	22	17	22	17	22	17	17	17	17	17	17	17
	Austenitico Austenitic	3	850	265	8	12	8	12	8	12	8	12	8	8	8	8	8	8	8
	Ferritico+austenitico Ferritic austenitic	4	1000	311	10	15	10	15	10	15	10	15	10	10	10	10	10	10	10
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	157	30	37	30	37	30	37	30	37	30	30	30	30	30	30	30
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	219	20	25	20	25	20	25	20	25	20	20	20	20	20	20	20
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	22	26	22	26	22	26	22	26	22	22	22	22	22	22	22
	Leghe di titanio Titanium alloys	5	900	280	10	14	10	14	10	14	10	14	10	10	10	10	10	10	10
RAME COPPER	Rame Copper	9	350	110	30	40	30	40	30	40	30	40	30	30	30	30	30	30	30
	Ottone Brass	9	700	219	33	43	33	43	33	43	33	43	33	33	33	33	33	33	33
	Bronzo Bronze	9	700	219	15	23	15	23	15	23	15	23	15	15	15	15	15	15	15
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	10	16	10	16	10	16	10	16	10	10	10	10	10	10	10
	Leghe di nichel Nichel alloys	6	900	280	5	11	5	11	5	11	5	11	5	5	5	5	5	5	5
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	35	39	35	39	35	39	35	39	35	35	35	35	35	35	35
	Alluminio con leghe Alloyed aluminium	7	400	125	30	34	30	34	30	34	30	34	30	30	30	30	30	30	30
	Alluminio con leghe Alloyed aluminium	7	500	157	25	29	25	29	25	29	25	29	25	25	25	25	25	25	25

PUNTE CODOLO CONICO TAPER SHANK TWIST DRILLS				PUNTE LUNGHE CODOLO CONICO TAPER SHANK DRILLS, LONG SERIES				PUNTE EXTRA LUNGHE CODOLO CONICO TWIST DRILLS TAPER SHANK EXTRALONG					
													
CM300	CM303			CM301	CM302			CM304	CM306			CM305	CM307
DIN 345				DIN 341				DIN 1870/1				DIN 1870/2	DIN 1870/2
HSS	HSS+5% Co			HSS	HSS+5% Co			HSS	HSS+5% Co			HSS	HSS +5% Co
													
mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev
30 c	35 c	50 c	57 c	30 c	38 c	50 c	57 c	30 c	38 c	50 c	57 c	30 c	38 c
22 b	28 b	40 b	50 b	22 b	30 c	40 b	50 b	22 b	30 c	40 b	50 b	22 b	30 c
13 b	18 b	30 b	38 b	13 b		30 b	38 b	13 b		30 b	38 b	13 b	
17 b	20 b	28 b	34 b	17 b	22 b	28 b	34 b	17 b	22 b	28 b	34 b	17 b	22 b
8 c	10 c	15 c	20 c	8 c	12 c	15 c	20 c	8 c	12 c	15 c	20 c	8 c	12 c
10 b	13 b	18 c	24 c	10 b	15 b	18 c	24 c	10 b	15 b	18 c	24 c	10 b	15 b
30 d	35 d	42 c	45 d	30 d	36 d	42 c	45 d	30 d	36 d	42 c	45 d	30 d	36 d
20 b	23 b	30 c	32 d	20 b	26 b	30 c	32 d	20 b	26 b	30 c	32 d	20 b	26 b
22 b	24 b	31 c	38 d	22 b	28 c	31 c	38 d	22 b	28 c	31 c	38 d	22 b	28 c
10 a	12 a	21 c	28 d	10 a	18 c	21 c	28 d	10 a	18 c	21 c	28 d	10 a	18 c
18 c	30 c	40 c		18 c	38 c	40 c		18 c	38 c	40 c		18 c	38 c
20 c	33 c	43 b	50 c	20 c	41 b	43 b	50 c	20 c	41 b	43 b	50 c	20 c	41 b
12 c	15 c	22 b	45 c	12 c	20 b	22 b	45 c	12 c	20 b	22 b	45 c	12 c	20 b
10 b	14 c	20 c	24 d	10 b	16 c	20 c	24 d	10 b	16 c	20 c	24 d	10 b	16 c
5 a	9 b	10 c	14 d	5 a	12 b	10 c	14 d	5 a	12 b	10 c	14 d	5 a	12 b
35 d	37 d	60 d		35 d	38 d	60 d		35 d	38 d	60 d		35 d	38 d
30 d	32 d	55 d		30 d	33 d	55 d		30 d	33 d	55 d		30 d	33 d
25 c	27 c	40 c		25 c	28 c	40 c		25 c	28 c	40 c		25 c	28 c



rpm
 $= (\text{mm/min} \times 1000) / (D \times 3,14)$



mm/min
 $= \text{mm/rev} \times \text{rpm}$



= mt/min



= mm/rev
 (vedi tabella - see table page pag. 23)

PUNTE A DUE DIAMETRI SUBLAND TWIST DRILLS



Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	30 c	30 c	30 c
	Acciai da costruzione Structural steel	2	700	219	22 b	22 b	22 b
	Acciai da tempra Hardening steel	3	900	280	13 b	13 b	13 b
	Acciaio automatico Automatic steel	4	1200	373			
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	17 b	17 b	17 b
	Austenitico Austenitic	3	850	265	8 c	8 c	8 c
	Ferritico+austenitico Ferritic austenitic	4	1000	311	10 b	10 b	10 b
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	157	30 d	30 d	30 d
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	219	20 b	20 b	20 b
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	22 b	22 b	22 b
	Leghe di titanio Titanium alloys	5	900	280	10 a	10 a	10 a
RAME COPPER	Rame Copper	9	350	110	18 c	18 c	18 c
	Ottone Brass	9	700	219	20 c	20 c	20 c
	Bronzo Bronze	9	700	219	12 c	12 c	12 c
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	10 b	10 b	10 b
	Leghe di nichel Nichel alloys	6	900	280	5 a	5 a	5 a
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	35 d	35 d	35 d
	Alluminio con leghe Alloyed aluminium	7	400	125	30 d	30 d	30 d
	Alluminio con leghe Alloyed aluminium	7	500	157	25 c	25 c	25 c

FORATURA DRILLING	TABELLA PARAMETRI DI AVANZAMENTO mm/giro RECOMMENDED FEED DATA mm/rev.																
	DIAMETRO DELLA PUNTA DRILL DIAMETER																
LETTERA DI RIFERIMENTO REFERENCE LETTER	D. 1	D. 2	D. 3	D. 4	D. 5	D. 6	D. 8	D. 10	D. 12	D. 14	D. 16	D. 20	D. 25	D. 30	D. 35	D. 40	D. 50
a	0,015	0,030	0,038	0,047	0,053	0,060	0,075	0,090	0,100	0,120	0,127	0,160	0,200	0,230	0,250	0,300	0,350
b	0,020	0,050	0,070	0,085	0,100	0,120	0,150	0,180	0,200	0,230	0,250	0,270	0,290	0,330	0,350	0,380	0,400
c	0,023	0,080	0,100	0,130	0,150	0,180	0,250	0,270	0,280	0,300	0,330	0,370	0,420	0,450	0,470	0,500	0,550
d	0,030	0,100	0,160	0,180	0,220	0,240	0,300	0,370	0,400	0,450	0,480	0,500	0,530	0,550	0,580	0,600	0,630
e	0,035	0,120	0,200	0,250	0,270	0,300	0,350	0,450	0,470	0,500	0,530	0,550	0,600	0,640	0,680	0,700	0,730
f	0,050	0,150	0,220	0,250	0,320	0,400	0,490	0,620	0,650	0,720	0,850	0,900	1,100	1,130	1,170	1,200	1,250
g	0,070	0,160	0,250	0,270	0,360	0,470	0,620	0,830	0,900	0,950	1,100	1,200	1,280	1,330	1,400	1,470	1,520
h	0,090	0,200	0,270	0,300	0,400	0,520	0,750	1,000	1,100	1,200	1,300	1,350	1,430	1,500	1,650	1,700	1,800

CL 100



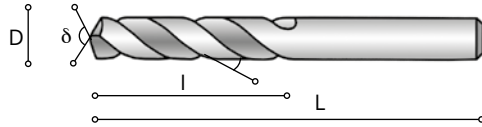
STANDARD



CL 101



DIN 1412 C



Dal Ø 1 al Ø 6 = 10 pz
Dal Ø 6,1 al Ø 13 = 5 pz
Dal Ø 13,25 al Ø 31 = 1 pz

CL100



CL101



D h8	L	l	CODE	HSS 5100..... €	HSS+8%Co 5101..... €	HSS+8%Co 6101..... € QUARTZ	HSS+8%Co 7101..... € TITANITE
1	26	6	....00100	1,93	3,15	5,25	6,62
1,1	28	7	....00110	2,12	3,15	5,25	6,62
1,2	30	8	....00120	2,12	3,15	5,25	6,62
1,25	30	8	....00125	1,97	3,15	5,25	6,62
1,3	30	8	....00130	2,23	3,15	5,25	6,62
1,4	32	9	....00140	2,23	3,15	5,25	6,62
1,5	32	9	....00150	1,34	2,52	4,56	5,94
1,6	34	9	....00160	1,64	2,81	4,87	6,23
1,7	34	10	....00170	1,64	2,81	4,87	6,23
1,75	36	11	....00175	1,42	2,81	4,87	6,23
1,8	36	11	....00180	1,64	2,81	4,87	6,23
1,9	36	11	....00190	1,64	2,81	4,87	6,23
2	38	12	....00200	1,41	2,00	4,10	5,23
2,1	38	12	....00210	1,46	2,18	4,38	5,88
2,2	40	13	....00220	1,46	2,18	4,38	5,88
2,25	40	13	....00225	1,42	2,40	4,62	6,09
2,3	40	13	....00230	1,59	2,41	4,64	6,12
2,4	43	14	....00240	1,66	2,57	4,81	6,32
2,5	43	14	....00250	1,50	2,43	4,65	6,13
2,6	43	14	....00260	1,66	2,57	4,81	6,32
2,7	46	16	....00270	1,66	2,57	4,81	6,32
2,75	46	16	....00275	1,59	2,56	4,79	6,29
2,8	46	16	....00280	1,71	2,57	4,81	6,32
2,9	46	16	....00290	1,71	2,57	4,81	6,32
3	46	16	....00300	1,50	2,31	4,53	6,02
3,1	49	18	....00310	1,67	2,41	4,64	6,12
3,2	49	18	....00320	1,59	2,55	4,98	6,63
3,25	49	18	....00325	1,50	2,47	4,76	6,29
3,3	49	18	....00330	1,59	2,48	4,78	6,32
3,4	52	20	....00340	1,82	2,85	5,16	6,67
3,5	52	20	....00350	1,59	2,66	4,97	6,53
3,6	52	20	....00360	1,82	3,15	5,70	7,37
3,7	52	20	....00370	1,82	3,15	5,70	7,37
3,75	52	20	....00375	2,05	3,14	5,67	7,34
3,8	55	22	....00380	1,98	3,15	5,70	7,37
3,9	55	22	....00390	1,98	3,15	5,70	7,37
4	55	22	....00400	1,75	3,14	5,67	7,34
4,1	55	22	....00410	1,92	3,15	6,50	8,82
4,2	55	22	....00420	1,92	3,15	6,50	8,82
4,25	55	22	....00425	1,92	3,20	6,20	8,26

D h8	L	I	CODE	HSS 5100..... €	HSS+8%Co 5101..... €	HSS+8%Co 6101..... € QUARTZ	HSS+8%Co 7101..... € TITANITE
4,3	58	24	....00430	3,23	4,74	7,91	9,98
4,4	58	24	....00440	3,23	4,74	7,91	9,98
4,5	58	24	....00450	1,92	3,20	6,20	8,26
4,6	58	24	....00460	3,23	4,74	7,91	9,98
4,7	58	24	....00470	3,23	4,74	7,91	9,98
4,75	58	24	....00475	2,33	3,84	6,89	8,95
4,8	62	26	....00480	3,00	5,14	8,34	10,42
4,9	62	26	....00490	3,30	5,14	8,34	10,42
5	62	26	....00500	2,33	3,84	6,89	8,95
5,1	62	26	....00510	3,30	5,04	8,18	10,22
5,2	62	26	....00520	3,30	5,04	8,18	10,22
5,25	62	26	....00525	2,83	4,57	7,66	9,69
5,3	62	26	....00530	3,30	5,04	8,18	10,22
5,4	66	28	....00540	4,49	6,85	10,18	12,21
5,5	66	28	....00550	2,83	4,57	7,66	9,69
5,6	66	28	....00560	4,49	6,85	10,18	12,21
5,7	66	28	....00570	4,49	6,85	10,18	12,21
5,75	66	28	....00575	3,09	4,74	7,91	9,98
5,8	66	28	....00580	4,49	6,85	10,18	12,21
5,9	66	28	....00590	4,49	6,85	10,18	12,21
6	66	28	....00600	3,09	4,65	7,75	9,78
6,1	70	31	....00610	4,65	7,08	10,93	13,33
6,2	70	31	....00620	4,65	7,08	10,93	13,33
6,25	70	31	....00625	3,15	5,29	8,96	11,36
6,3	70	31	....00630	4,65	7,08	10,93	13,33
6,4	70	31	....00640	4,89	7,32	11,20	13,60
6,5	70	31	....00650	3,15	5,29	8,96	11,36
6,6	70	31	....00660	4,89	7,32	11,20	13,60
6,7	70	31	....00670	4,89	7,32	11,20	13,60
6,75	74	34	....00675	3,78	6,53	10,33	12,73
6,8	74	34	....00680	5,59	8,42	12,41	14,80
6,9	74	34	....00690	5,59	8,42	12,41	14,80
7	74	34	....00700	3,78	6,53	10,33	12,73
7,1	74	34	....00710	6,93	10,31	14,48	16,87
7,2	74	34	....00720	6,93	10,31	14,48	16,87
7,25	74	34	....00725	4,17	7,00	10,84	13,24
7,3	74	34	....00730	6,93	10,31	14,48	16,87
7,4	74	34	....00740	6,93	10,31	14,48	16,87
7,5	74	34	....00750	4,40	7,00	10,84	13,24
7,6	79	37	....00760	8,35	12,60	17,83	20,89
7,7	79	37	....00770	8,35	12,60	17,83	20,89
7,75	79	37	....00775	4,83	7,72	12,47	15,53
7,8	79	37	....00780	8,35	12,60	17,83	20,89
7,9	79	37	....00790	8,35	12,60	17,83	20,89
8	79	37	....00800	4,83	7,72	12,47	15,53
8,1	79	37	....00810	8,58	12,99	19,03	22,70
8,2	79	37	....00820	8,58	12,99	19,03	22,70
8,25	79	37	....00825	6,31	10,63	16,43	20,10
8,3	79	37	....00830	8,58	12,99	19,03	22,70
8,4	79	37	....00840	8,58	12,99	19,03	22,70
8,5	79	37	....00850	6,31	10,63	16,43	20,10
8,6	84	40	....00860	8,90	13,47	19,54	23,22
8,7	84	40	....00870	8,90	13,47	19,54	23,22
8,75	84	40	....00875	6,31	10,63	16,43	20,10
8,8	84	40	....00880	8,90	13,47	19,54	23,22
8,9	84	40	....00890	8,90	13,47	19,54	23,22
9	84	40	....00900	6,31	10,63	16,43	20,10
9,1	84	40	....00910	11,88	17,62	24,11	27,80
9,2	84	40	....00920	11,88	17,62	24,11	27,80
9,25	84	40	....00925	9,45	15,73	22,03	25,72

CL 100



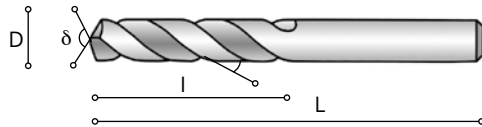
STANDARD



CL 101



DIN 1412 C



CL100



CL101



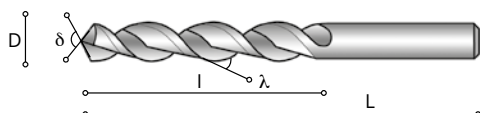
Dal Ø 1 al Ø 6 = 10 pz
Dal Ø 6,1 al Ø 13 = 5 pz
Dal Ø 13,25 al Ø 31 = 1 pz

D h8	L	l	CODE	HSS 5100..... €	HSS+8%Co 5101..... €	HSS+8%Co 6101..... € QUARTZ	HSS+8%Co 7101..... € TITANITE
9,3	84	40	....00930	11,88	17,62	24,11	27,80
9,4	84	40	....00940	11,88	17,62	24,11	27,80
9,5	84	40	....00950	9,45	15,73	22,03	25,72
9,6	89	43	....00960	15,03	21,01	27,83	31,51
9,7	89	43	....00970	15,03	21,01	27,83	31,51
9,75	89	43	....00975	9,45	18,33	24,90	28,58
9,8	89	43	....00980	15,03	21,01	27,83	31,51
9,9	89	43	....00990	15,03	21,01	27,83	31,51
10	89	43	....01000	7,55	12,83	18,83	22,52
10,25	89	43	....01025	12,44	20,46	27,23	30,91
10,5	89	43	....01050	12,44	20,46	27,23	30,91
10,75	95	47	....01075	12,44	20,46	27,23	30,91
11	95	47	....01100	12,44	20,46	27,23	30,91
11,25	95	47	....01125	12,83	21,33	28,18	31,87
11,5	95	47	....01150	12,83	21,33	28,18	31,87
11,75	95	47	....01175	16,93	25,96	33,30	36,97
12	102	51	....01200	16,93	25,96	34,64	39,34
12,25	102	51	....01225	17,25	26,91	36,41	41,67
12,5	102	51	....01250	17,25	26,91	36,41	41,67
12,75	102	51	....01275	17,25	26,91	36,41	41,67
13	102	51	....01300	17,25	26,91	36,41	41,67
13,25	107	54	....01325		32,50	42,68	48,03
13,5	107	54	....01350		31,01	41,06	46,41
13,75	107	54	....01375		31,01	41,06	46,41
14	107	54	....01400		31,01	41,06	46,41
14,25	111	56	....01425		35,57	46,06	51,41
14,5	111	56	....01450		33,95	44,27	49,63
14,75	111	56	....01475		33,95	44,27	49,63
15	111	56	....01500		33,95	44,27	49,63
15,25	115	58	....01525		44,12	55,66	61,18
15,5	115	58	....01550		42,11	53,45	58,97
15,75	115	58	....01575		44,12	55,66	61,18
16	115	58	....01600		42,11	53,45	58,97
16,25	119	60	....01625		47,93	60,79	67,00
16,5	119	60	....01650		47,93	60,79	67,00
16,75	119	60	....01675		47,93	60,79	67,00
17	119	60	....01700		47,19	59,98	66,20
17,25	123	62	....01725		53,62	67,04	73,26
17,5	123	62	....01750		53,62	67,04	73,26
17,75	123	62	....01775		53,62	67,04	73,26

D h8	L	I	CODE	HSS 5100..... €	HSS+8%Co 5101..... €	HSS+8%Co 6101..... € QUARTZ	HSS+8%Co 7101..... € TITANITE
18	123	62	....01800		51,47	64,68	70,89
18,25	127	64	....01825		58,66	74,53	82,25
18,5	127	64	....01850		58,66	74,53	82,25
18,75	127	64	....01875		58,66	74,53	82,25
19	127	64	....01900		57,08	72,80	80,52
19,25	131	66	....01925		65,08	81,59	89,31
19,5	131	66	....01950		66,38	83,22	91,10
19,75	131	66	....01975		66,38	83,22	91,10
20	131	66	....02000		61,17	77,50	85,37
20,5	136	68	....02050		77,96	95,76	103,48
21	136	68	....02100		75,54	93,32	101,19
21,5	141	70	....02150		77,96	100,71	112,25
22	141	70	....02200		79,34	102,24	113,79
22,5	146	72	....02250		95,84	130,90	150,42
23	146	72	....02300		95,31	130,32	149,84
23,5	146	72	....02350		107,85	144,11	163,63
24	151	75	....02400		89,99	125,23	145,33
24,5	151	75	....02450		114,75	151,71	171,23
25	151	75	....02500		105,41	141,94	161,85
26	156	78	....02600		123,40	168,68	194,07
27	162	81	....02700		145,52	192,99	218,38
28	162	81	....02800		145,52	192,99	218,38
29	168	84	....02900		158,74	207,55	232,93
30	168	84	....03000		158,74	207,55	232,93
31	174	87	....03100		211,65	269,41	297,66

CL 118

ACCIAIO INOX
STAINLESS STEEL



Dal Ø 1 al Ø 6 = 10 pz
Dal Ø 6,1 al Ø 13 = 5 pz
Dal Ø 13,25 al Ø 31 = 1 pz

CL118

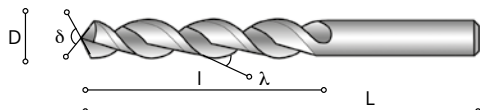


D h8	L	l	CODE	HSS+5%Co 5118..... €	HSS+5%Co 6118..... € QUARTZ	HSS+5%Co 7118..... € TITANITE
2	38	12	...00200	2,26	3,26	4,16
2,1	38	12	...00210	2,31	3,48	4,68
2,2	40	13	...00220	2,54	3,81	5,12
2,25	40	13	...00225	2,54	3,85	5,09
2,3	40	13	...00230	2,57	4,10	5,42
2,4	43	14	...00240	2,57	4,26	5,59
2,5	43	14	...00250	2,35	3,67	4,83
2,6	43	14	...00260	2,49	3,84	5,03
2,7	46	16	...00270	2,49	3,84	5,03
2,75	46	16	...00275	2,57	3,78	4,96
2,8	46	16	...00280	2,49	3,84	5,03
2,9	46	16	...00290	2,49	3,84	5,03
3	46	16	...00300	2,47	3,56	4,74
3,1	49	18	...00310	2,65	3,69	4,87
3,2	49	18	...00320	2,68	3,97	5,28
3,25	49	18	...00325	2,74	3,75	4,96
3,3	49	18	...00330	2,65	3,81	5,03
3,4	52	20	...00340	2,65	4,10	5,31
3,5	52	20	...00350	2,91	3,92	5,15
3,6	52	20	...00360	3,12	4,54	5,88
3,7	52	20	...00370	3,12	4,54	5,88
3,75	52	20	...00375	3,27	4,54	5,88
3,8	55	22	...00380	3,12	4,54	5,88
3,9	55	22	...00390	3,45	5,03	6,51
4	55	22	...00400	3,20	4,47	5,79
4,1	55	22	...00410	3,50	5,25	7,13
4,2	55	22	...00420	3,50	5,25	7,13
4,25	55	22	...00425	3,64	4,95	6,60
4,3	58	24	...00430	3,72	6,20	7,83
4,4	58	24	...00440	3,72	6,20	7,83
4,5	58	24	...00450	3,48	4,89	6,51
4,6	58	24	...00460	3,78	6,29	7,95
4,7	58	24	...00470	3,78	6,29	7,95
4,75	58	24	...00475	3,94	5,51	7,17
4,8	62	26	...00480	4,04	6,54	8,17
4,9	62	26	...00490	4,04	6,54	8,17
5	62	26	...00500	3,72	5,43	7,06
5,1	62	26	...00510	4,37	7,08	8,84
5,2	62	26	...00520	4,37	7,08	8,84
5,25	62	26	...00525	4,36	6,12	7,75

D h8	L	I	CODE	HSS+5%Co 5118..... €	HSS+5%Co 6118..... € QUARTZ	HSS+5%Co 7118..... € TITANITE
5,3	62	26	....00530	4,37	7,08	8,84
5,4	66	28	....00540	5,48	8,14	9,77
5,5	66	28	....00550	4,29	6,12	7,75
5,6	66	28	....00560	5,48	8,14	9,77
5,7	66	28	....00570	5,48	8,14	9,77
5,75	66	28	....00575	4,81	6,32	7,99
5,8	66	28	....00580	5,48	8,14	9,77
5,9	66	28	....00590	5,48	8,14	9,77
6	66	28	....00600	5,12	6,20	7,83
6,1	70	31	....00610	5,66	8,75	10,66
6,2	70	31	....00620	5,66	8,75	10,66
6,25	70	31	....00625	5,49	7,32	9,27
6,3	70	31	....00630	5,66	8,75	10,66
6,4	70	31	....00640	5,86	8,96	10,88
6,5	70	31	....00650	5,35	7,48	9,48
6,6	70	31	....00660	5,95	9,09	11,04
6,7	70	31	....00670	5,95	9,09	11,04
6,75	74	34	....00675	6,03	8,54	10,52
6,8	74	34	....00680	6,84	10,07	12,02
6,9	74	34	....00690	6,84	10,07	12,02
7	74	34	....00700	6,03	8,96	11,03
7,1	74	34	....00710	7,11	11,58	13,50
7,2	74	34	....00720	7,11	11,58	13,50
7,25	74	34	....00725	6,63	8,68	10,59
7,3	74	34	....00730	7,11	11,58	13,50
7,4	74	34	....00740	7,11	11,58	13,50
7,5	74	34	....00750	6,47	8,68	10,59
7,6	79	37	....00760	8,20	14,27	16,72
7,7	79	37	....00770	8,20	14,27	16,72
7,75	79	37	....00775	7,80	9,98	12,42
7,8	79	37	....00780	8,20	14,27	16,72
7,9	79	37	....00790	8,20	14,27	16,72
8	79	37	....00800	7,43	9,98	12,42
8,1	79	37	....00810	9,12	15,22	18,16
8,2	79	37	....00820	9,12	15,22	18,16
8,25	79	37	....00825	8,69	13,14	16,08
8,3	79	37	....00830	9,12	15,22	18,16
8,4	79	37	....00840	9,12	15,22	18,16
8,5	79	37	....00850	8,13	13,14	16,08
8,6	84	40	....00860	9,89	15,63	18,58
8,7	84	40	....00870	9,89	15,63	18,58
8,75	84	40	....00875	9,10	13,14	16,08
8,8	84	40	....00880	9,89	15,63	18,58
8,9	84	40	....00890	9,89	15,63	18,58
9	84	40	....00900	8,80	13,40	16,40
9,1	84	40	....00910	11,63	19,29	22,24
9,2	84	40	....00920	11,63	19,29	22,24
9,25	84	40	....00925	10,82	17,63	20,58
9,3	84	40	....00930	11,63	19,29	22,24
9,4	84	40	....00940	11,63	19,29	22,24
9,5	84	40	....00950	10,40	17,63	20,58
9,6	89	43	....00960	13,14	22,27	25,21
9,7	89	43	....00970	13,14	22,27	25,21
9,75	89	43	....00975	12,03	19,92	22,86
9,8	89	43	....00980	13,14	22,27	25,21
9,9	89	43	....00990	13,14	22,27	25,21
10	89	43	....01000	11,41	15,07	18,02
10,1	89	43	....01010	14,18	22,06	25,04
10,2	89	43	....01020	14,18	22,06	25,04
10,25	89	43	....01025	14,00	21,79	24,73

CL 118

ACCIAIO INOX
STAINLESS STEEL



CL118



Dal \varnothing 1 al \varnothing 6 = 10 pz
 Dal \varnothing 6,1 al \varnothing 13 = 5 pz
 Dal \varnothing 13,25 al \varnothing 31 = 1 pz

D h8	L	l	CODE	HSS+5%Co 5118..... €	HSS+5%Co 6118..... € QUARTZ	HSS+5%Co 7118..... € TITANITE
10,3	89	43	....01030	14,18	25,09	28,48
10,4	89	43	....01040	14,18	25,09	28,48
10,5	89	43	....01050	12,31	21,79	24,73
10,6	89	43	....01060	14,85	26,28	29,82
10,7	95	47	....01070	14,85	26,28	29,82
10,75	95	47	....01075	16,37	21,79	24,73
10,8	95	47	....01080	14,85	24,76	28,12
10,9	95	47	....01090	14,85	24,76	28,12
11	95	47	....01100	13,06	21,79	24,73
11,1	95	47	....01110	15,87	26,47	27,40
11,2	95	47	....01120	15,87	26,47	27,40
11,25	95	47	....01125	16,65	22,55	25,49
11,3	95	47	....01130	15,87	24,24	27,40
11,4	95	47	....01140	15,87	24,24	27,40
11,5	95	47	....01150	14,76	22,55	25,49
11,6	95	47	....01160	16,23	24,83	27,55
11,7	95	47	....01170	16,23	24,83	27,55
11,75	95	47	....01175	17,42	26,64	29,58
11,8	95	47	....01180	16,23	27,36	31,08
11,9	102	51	....01190	16,23	27,36	31,08
12	102	51	....01200	16,44	27,72	31,48
12,1	102	51	....01210	17,49	26,47	30,28
12,2	102	51	....01220	17,49	26,47	30,28
12,25	102	51	....01225	18,97	28,70	32,83
12,3	102	51	....01230	17,49	28,64	32,77
12,4	102	51	....01240	17,49	28,64	32,77
12,5	102	51	....01250	17,53	28,70	32,83
12,6	102	51	....01260	18,97	27,66	31,65
12,7	102	51	....01270	18,97	27,66	31,65
12,75	102	51	....01275	19,69	28,70	32,83
12,8	102	51	....01280	18,97	29,67	33,94
12,9	102	51	....01290	18,97	29,67	33,94
13	102	51	....01300	18,35	28,70	32,83
13,5	107	54	....01350	19,69	33,01	37,30
14	107	54	....01400	20,64	33,01	37,30
14,5	111	56	....01450	22,43	32,90	39,90
15	111	56	....01500	23,65	32,90	39,90
15,5	115	58	....01550	25,78	42,97	47,41
16	115	58	....01600	26,49	42,97	47,41

CL 104



25°-30°



STANDARD



CL 104R



25°-30°



DIN 1412 C



CL 107

OTTONE-BRONZO
BRASS-BRONZE



12°-15°



STANDARD



CL 108

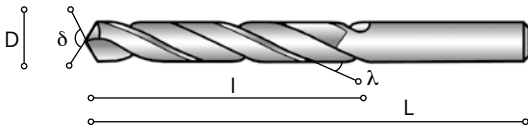
ALLUMINIO
ALUMINIUM



35°-40°



STANDARD



CL104



CL104R



CL107



CL108



Dal Ø 0,3 al Ø 6 = 10 pz
Dal Ø 6,1 al Ø 13 = 5 pz
Dal Ø 13,25 al Ø 20 = 1 pz

D h8	L	l	CODE	HSS 5104..... €	HSS 6104..... € QUARTZ	HSS 5107..... €	HSS 5108..... €
0,3	19	3	....00030	4,65			
0,35	19	4	....00035	3,87			
0,4	20	5	....00040	3,23			
0,45	20	5	....00045	3,23			
0,5	22	6	....00050	3,23			
0,55	24	7	....00055	3,23			
0,6	24	7	....00060	3,23			
0,65	26	8	....00065	2,68			
0,7	28	9	....00070	2,60			
0,75	28	9	....00075	2,60			
0,8	30	10	....00080	2,46			
0,85	30	10	....00085	2,46			
0,9	32	11	....00090	2,46			
0,95	32	11	....00095	2,46			
1	34	12	....00100	1,59	1,83		
1,05	34	12	....00105	1,59			
1,1	36	14	....00110	1,59	1,83		
1,15	36	14	....00115	1,66			
1,2	38	16	....00120	1,74	1,89		
1,25	38	16	....00125	1,27	1,89		
1,3	38	16	....00130	1,42	1,89		
1,35	40	18	....00135	1,51			
1,4	40	18	....00140	1,42	1,89		
1,45	40	18	....00145	1,51			
1,5	40	18	....00150	1,27	1,83	3,76	3,54
1,55	43	20	....00155	1,51			
1,6	43	20	....00160	1,34	1,97	3,76	3,54
1,65	43	20	....00165	1,51			
1,7	43	20	....00170	1,34	1,97	3,76	3,54
1,75	46	22	....00175	1,11	1,97		

CL 104



STANDARD



CL 104R



DIN 1412 C



CL 107

OTTONE-BRONZO
BRASS-BRONZE



STANDARD

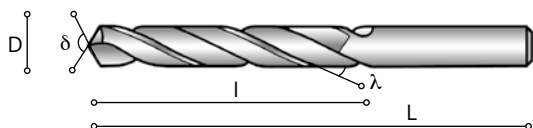


CL 108

ALLUMINIO
ALUMINIUM



STANDARD



Dal \varnothing 0,3 al \varnothing 6 = 10 pz
Dal \varnothing 6,1 al \varnothing 13 = 5 pz
Dal \varnothing 13,25 al \varnothing 20 = 1 pz

CL104



CL104R



CL107



CL108



D h8	L	l	CODE	HSS 5104..... €	HSS 6104..... € QUARTZ	HSS 5107..... €	HSS 5108..... €
1,8	46	22	....00180	1,27	1,86	3,76	3,54
1,85	46	22	....00185	1,34			
1,9	46	22	....00190	1,27	1,86	3,76	3,54
1,95	49	24	....00195	1,34			
2	49	24	....00200	1,11	1,71	3,44	3,37
2,05	49	24	....00205	1,42			
2,1	49	24	....00210	1,27	1,93	3,44	3,37
2,15	53	27	....00215	1,51			
2,2	53	27	....00220	1,27	1,93	3,44	3,37
2,25	53	27	....00225	1,42	1,89		
2,3	53	27	....00230	1,27	1,93	3,44	3,37
2,35	53	27	....00235	1,42			
2,4	57	30	....00240	1,42	1,93	3,77	3,69
2,45	57	30	....00245	1,66			
2,5	57	30	....00250	1,42	1,89	3,52	3,46
2,55	57	30	....00255	1,66			
2,6	57	30	....00260	1,51	2,20	3,77	3,69
2,65	57	30	....00265	1,66			
2,7	61	33	....00270	1,42	2,20	3,93	3,85
2,75	61	33	....00275	1,42	2,02		
2,8	61	33	....00280	1,42	2,16	3,93	3,85
2,85	61	33	....00285	1,74			
2,9	61	33	....00290	1,42	2,16	3,93	3,85
2,95	61	33	....00295	1,66			
3	61	33	....00300	1,42	1,93	3,93	3,85
3,05	65	36	....00305	1,82			
3,1	65	36	....00310	1,66	2,61	4,10	4,02
3,15	65	36	....00315	1,82			
3,2	65	36	....00320	1,47	2,61	4,10	4,02
3,25	65	36	....00325	1,59	2,61		
3,3	65	36	....00330	1,66	2,61	4,10	4,02
3,35	65	36	....00335	1,82			
3,4	70	39	....00340	1,66	2,61	4,35	4,25
3,45	70	39	....00345	1,98			

D h8	L	I	CODE	HSS 5104..... €	HSS 6104..... € QUARTZ	HSS 5107..... €	HSS 5108..... €
3,5	70	39	....00350	1,66	2,31	4,35	4,25
3,55	70	39	....00355	1,98			
3,6	70	39	....00360	1,74	2,83	4,42	4,34
3,65	70	39	....00365	1,98			
3,7	70	39	....00370	1,74	2,83	4,42	4,34
3,75	70	39	....00375	1,89	2,88		
3,8	75	43	....00380	1,74	2,98	4,67	4,59
3,85	75	43	....00385	2,20			
3,9	75	43	....00390	1,98	2,98	4,67	4,59
3,95	75	43	....00395	2,20			
4	75	43	....00400	1,89	2,61	4,67	4,59
4,05	75	43	....00405	2,20			
4,1	75	43	....00410	2,06	3,14	4,75	4,67
4,15	75	43	....00415	2,20			
4,2	75	43	....00420	2,14	3,14	4,98	4,67
4,25	75	43	....00425	2,14	3,10		
4,3	80	47	....00430	2,14	3,34	5,73	5,63
4,35	80	47	....00435	2,60			
4,4	80	47	....00440	2,14	3,42	5,73	5,63
4,45	80	47	....00445	2,60			
4,5	80	47	....00450	2,06	2,95	5,73	5,63
4,55	80	47	....00455	2,60			
4,6	80	47	....00460	2,20	3,49	6,02	5,79
4,65	80	47	....00465	2,60			
4,7	80	47	....00470	2,20	3,49	6,02	5,79
4,75	80	47	....00475	2,28	3,49		
4,8	86	52	....00480	2,28	3,49	6,02	5,79
4,85	86	52	....00485	3,39			
4,9	86	52	....00490	2,28	3,49	6,02	5,79
4,95	86	52	....00495	3,39			
5	86	52	....00500	2,20	3,27	6,02	5,79
5,05	86	52	....00505	3,39			
5,1	86	52	....00510	2,52	4,54	6,53	6,12
5,15	86	52	....00515	4,10			
5,2	86	52	....00520	2,52	4,54	6,53	6,12
5,25	86	52	....00525	3,00	4,44		
5,3	86	52	....00530	2,62	4,54	6,53	6,12
5,35	93	57	....00535	4,10			
5,4	93	57	....00540	3,00	4,54	7,63	7,63
5,45	93	57	....00545	4,10			
5,5	93	57	....00550	3,00	4,21	7,30	7,30
5,55	93	57	....00555	4,25			
5,6	93	57	....00560	3,00	4,72	8,42	7,87
5,65	93	57	....00565	4,25			
5,7	93	57	....00570	3,00	4,72	8,42	7,87
5,75	93	57	....00575	3,00	4,72		
5,8	93	57	....00580	3,00	4,72	8,42	7,87
5,85	93	57	....00585	4,25			
5,9	93	57	....00590	3,00	4,72	8,42	7,87
5,95	93	57	....00595	3,00			
6	93	57	....00600	3,00	4,22	7,98	7,48
6,05	101	63	....00605	4,42			
6,1	101	63	....00610	3,47	5,57	9,01	8,44
6,15	101	63	....00615	4,42			
6,2	101	63	....00620	3,47	5,57	9,01	8,44
6,25	101	63	....00625	3,70	5,57		
6,3	101	63	....00630	3,47	5,57	9,01	8,44
6,35	101	63	....00635	3,47			
6,4	101	63	....00640	3,70	5,57	9,61	9,00
6,45	101	63	....00645	5,67			

CL 104



STANDARD



CL 104R



DIN 1412 C



CL 107

OTTONE-BRONZO
BRASS-BRONZE



STANDARD

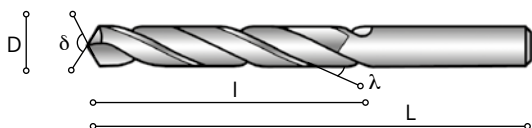


CL 108

ALLUMINIO
ALUMINIUM



STANDARD



Dal \varnothing 0,3 al \varnothing 6 = 10 pz
Dal \varnothing 6,1 al \varnothing 13 = 5 pz
Dal \varnothing 13,25 al \varnothing 20 = 1 pz

CL104



CL104R



CL107



CL108



D h8	L	l	CODE	HSS 5104..... €	HSS 6104..... € QUARTZ	HSS 5107..... €	HSS 5108..... €
6,5	101	63	....00650	3,62	5,16	9,45	8,84
6,55	101	63	....00655	5,67			
6,6	101	63	....00660	3,70	6,39	9,86	9,23
6,65	101	63	....00665	5,67			
6,7	101	63	....00670	3,70	6,39	9,86	9,23
6,75	109	69	....00675	4,42	6,39		
6,8	109	69	....00680	4,17	6,39	9,86	9,23
6,85	109	69	....00685	6,77			
6,9	109	69	....00690	4,65	6,39	9,86	9,23
6,95	109	69	....00695	6,77			
7	109	69	....00700	4,34	6,15	9,69	9,08
7,05	109	69	....00705	7,25			
7,1	109	69	....00710	4,81	7,28	13,09	13,09
7,15	109	69	....00715	7,25			
7,2	109	69	....00720	4,97	7,28	13,09	13,09
7,25	109	69	....00725	4,57	7,01		
7,3	109	69	....00730	4,97	7,34	13,09	13,09
7,35	109	69	....00735	7,25			
7,4	109	69	....00740	4,97	7,34	13,09	13,09
7,45	109	69	....00745	5,99			
7,5	109	69	....00750	4,49	6,46	10,87	10,67
7,55	117	75	....00755	8,58			
7,6	117	75	....00760	5,36	8,34	14,60	14,60
7,65	117	75	....00765	8,58			
7,7	117	75	....00770	5,36	8,34	14,60	14,60
7,75	117	75	....00775	5,36	8,18		
7,8	117	75	....00780	5,36	8,18	14,60	14,60
7,85	117	75	....00785	8,58			
7,9	117	75	....00790	5,36	8,18	13,01	14,60
7,95	117	75	....00795	8,58			
8	117	75	....00800	4,81	7,23	12,01	11,24
8,1	117	75	....00810	5,76	8,73	15,33	15,33
8,2	117	75	....00820	5,76	8,73	15,33	15,33
8,25	117	75	....00825	5,59	8,51		

D h8	L	I	CODE	HSS 5104..... €	HSS 6104..... € QUARTZ	HSS 5107..... €	HSS 5108..... €
8,3	117	75	....00830	5,76	8,73	15,33	15,33
8,4	117	75	....00840	5,76	8,73	15,33	15,33
8,5	117	75	....00850	5,52	7,85	12,69	11,88
8,6	125	81	....00860	6,93	10,61	17,97	17,97
8,7	125	81	....00870	6,93	10,61	17,97	17,97
8,75	125	81	....00875	6,93	10,66		
8,8	125	81	....00880	6,93	10,82	17,97	17,97
8,9	125	81	....00890	6,93	10,82	17,97	17,97
9	125	81	....00900	6,77	9,74	13,72	12,85
9,1	125	81	....00910	7,00	11,99	20,39	20,39
9,2	125	81	....00920	7,00	11,99	20,39	20,39
9,25	125	81	....00925	7,48	11,39		
9,3	125	81	....00930	7,48	11,99	20,39	20,39
9,4	125	81	....00940	7,48	11,99	20,39	20,39
9,5	125	81	....00950	7,40	10,68	15,19	14,22
9,6	133	87	....00960	7,87	13,05	22,79	22,79
9,7	133	87	....00970	7,87	13,05	22,79	22,79
9,75	133	87	....00975	8,19	12,75		
9,8	133	87	....00980	8,19	12,79	22,79	22,79
9,9	133	87	....00990	8,19	12,79	22,79	22,79
10	133	87	....01000	8,03	11,46	16,45	16,14
10,1	133	87	....01010	8,58	15,71		
10,2	133	87	....01020	8,58	15,71		
10,25	133	87	....01025	10,31	16,99		
10,3	133	87	....01030	11,73	16,99		
10,4	133	87	....01040	11,73	16,99		
10,5	133	87	....01050	10,23	14,39	22,19	21,76
10,6	133	87	....01060	11,73	18,13		
10,7	142	94	....01070	14,31	18,13		
10,75	142	94	....01075	13,30	17,28		
10,8	142	94	....01080	14,31	19,24		
10,9	142	94	....01090	14,31	19,24		
11	142	94	....01100	11,88	16,66	22,87	22,87
11,1	142	94	....01110	15,26	20,15		
11,2	142	94	....01120	15,11	20,15		
11,25	142	94	....01125	13,94	18,58		
11,3	142	94	....01130	15,26	20,15		
11,4	142	94	....01140	15,26	20,15		
11,5	142	94	....01150	12,44	17,51	27,59	25,83
11,6	142	94	....01160	15,26	22,03		
11,7	142	94	....01170	15,26	22,03		
11,75	142	94	....01175	14,08	21,61		
11,8	142	94	....01180	15,26	22,03		
11,9	151	101	....01190	17,25	22,03		
12	151	101	....01200	13,69	19,33	28,53	26,71
12,1	151	101	....01210	17,16	24,13		
12,2	151	101	....01220	18,41	24,13		
12,25	151	101	....01225	15,35	24,07		
12,3	151	101	....01230	15,35	24,13		
12,4	151	101	....01240	18,41	24,13		
12,5	151	101	....01250	15,11	20,79	29,69	30,50
12,6	151	101	....01260	18,41	25,32		
12,7	151	101	....01270	15,58	25,32		
12,75	151	101	....01275	15,58	24,17		
12,8	151	101	....01280	18,09	25,32		
12,9	151	101	....01290	21,87	25,32		
13	151	101	....01300	14,71	21,96	28,98	29,69
13,25	160	108	....01325	23,76	40,10		
13,5	160	108	....01350	19,36	40,10		
13,75	160	108	....01375	23,76	40,41		

CL 104



STANDARD



CL 104R



DIN 1412 C



CL 107

OTTONE-BRONZO
BRASS-BRONZE



STANDARD

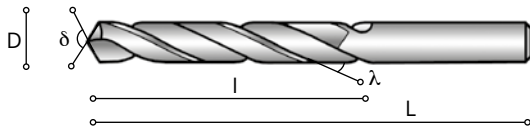


CL 108

ALLUMINIO
ALUMINIUM



STANDARD



Dal \varnothing 0,3 al \varnothing 6 = 10 pz
Dal \varnothing 6,1 al \varnothing 13 = 5 pz
Dal \varnothing 13,25 al \varnothing 20 = 1 pz

CL104



CL104R



CL107

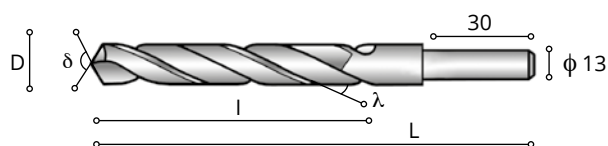


CL108



D h8	L	I	CODE	HSS 5104..... €	HSS 6104..... € QUARTZ	HSS 5107..... €	HSS 5108..... €
14	160	108	....01400	19,36	40,41		
14,25	169	114	....01425	25,96	51,13		
14,5	169	114	....01450	22,51	51,13		
14,75	169	114	....01475	25,96	52,17		
15	169	114	....01500	22,51	52,17		
15,25	178	120	....01525	37,13	57,40		
15,5	178	120	....01550	26,51	57,40		
15,75	178	120	....01575	37,13	62,82		
16	178	120	....01600	28,17	62,82		
16,25	184	125	....01625	52,87	68,56		
16,5	184	125	....01650	30,84	68,56		
16,75	184	125	....01675	54,68	69,54		
17	184	125	....01700	30,84	69,54		
17,25	191	130	....01725	58,69	75,88		
17,5	191	130	....01750	34,85	75,88		
17,75	191	130	....01775	58,69	82,74		
18	191	130	....01800	34,85	82,74		
18,25	198	135	....01825	62,16	92,27		
18,5	198	135	....01850	40,51	92,27		
18,75	198	135	....01875	62,16	92,52		
19	198	135	....01900	40,51	92,52		
19,25	205	140	....01925	79,76	102,32		
19,5	205	140	....01950	44,07	102,32		
19,75	205	140	....01975	79,76	102,97		
20	205	140	....02000	47,92	102,97		

CL 104 CR 



CL 104CR



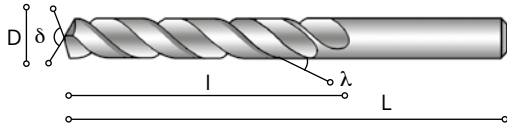
A richiesta anche con codolo ridotto diam 10 x 30 mm di lunghezza. Con quantità min 10pz il prezzo è uguale al diam. 13x30
 On request also with reduced shank diam 10 x 30 mm length. With Min quantity of 10 pcs the price will be the same as per diam 13x30

D h8	L	I	CODE	HSS 5104..... €
13,5	160	108	....01350R	23,84
14	160	108	....01400R	23,84
14,5	169	114	....01450R	26,99
15	169	114	....01500R	26,99
15,5	178	120	....01550R	31,00
16	178	120	....01600R	32,65
16,5	184	125	....01650R	35,32
17	184	125	....01700R	35,32
17,5	191	130	....01750R	39,34
18	191	130	....01800R	39,34
18,5	198	135	....01850R	44,99
19	198	135	....01900R	44,99
19,5	205	140	....01950R	48,55
20	205	140	....02000R	52,40

CL 106

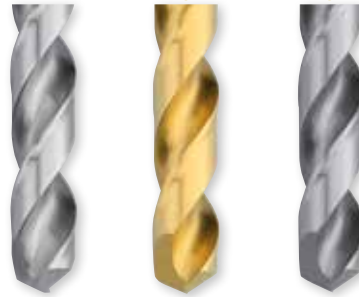


CL 105

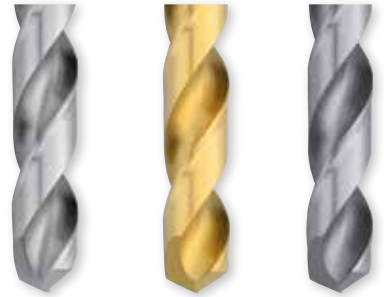


Dal $\varnothing 0,3$ al $\varnothing 6 = 10$ pz
Dal $\varnothing 6,1$ al $\varnothing 13 = 5$ pz
Dal $\varnothing 13,25$ al $\varnothing 20 = 1$ pz

CL106



CL105



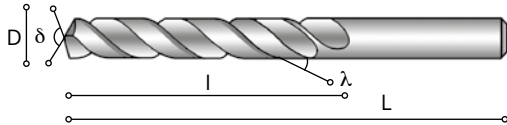
D h8	L	I	CODE	HSS+5%Co 5106..... €	HSS+5%Co 6106..... € QUARTZ	HSS+5%Co 7106..... € TITANITE	HSS+8%Co 5105..... €	HSS+8%Co 6105..... € QUARTZ	HSS+8%Co 7105..... € TITANITE
0,3	19	3	....00030	5,40	7,61	8,89			
0,4	20	5	....00040	4,10	6,19	7,47			
0,5	22	6	....00050	4,10	6,19	7,47			
0,6	24	7	....00060	3,95	6,02	7,30			
0,7	28	9	....00070	3,37	5,40	6,67			
0,75	28	9	....00075	3,37	5,40	6,67			
0,8	30	10	....00080	3,06	5,04	6,33			
0,9	32	11	....00090	3,06	5,04	6,33			
1	34	12	....00100	2,10	3,98	5,26			
1,1	36	14	....00110	2,10	3,98	5,26			
1,2	38	16	....00120	2,10	3,98	5,26			
1,25	38	16	....00125	2,33	4,24	5,53			
1,3	38	16	....00130	2,33	4,24	5,53			
1,4	40	18	....00140	2,33	4,24	5,53			
1,5	40	18	....00150	2,44	4,45	5,79			
1,6	43	20	....00160	2,63	4,64	5,99			
1,7	43	20	....00170	2,63	4,64	5,99			
1,75	46	22	....00175	2,60	4,63	5,97			
1,8	46	22	....00180	2,63	4,64	5,99			
1,9	46	22	....00190	2,63	4,64	5,99			
2	49	24	....00200	2,12	4,09	5,44	3,60	5,62	6,91
2,05	49	24	....00205				3,84	6,18	7,68
2,1	49	24	....00210	2,63	4,97	6,53	3,84	6,18	7,68
2,2	53	27	....00220	2,63	4,97	6,53	3,84	6,18	7,68
2,25	53	27	....00225	2,63	4,97	6,53	4,00	6,38	7,87
2,3	53	27	....00230	2,63	4,97	6,53	3,84	6,18	7,68
2,4	57	30	....00240	2,63	4,97	6,53	3,93	6,29	7,79
2,5	57	30	....00250	2,28	4,59	6,16	3,84	6,18	7,68
2,6	57	30	....00260	2,63	4,97	6,53	4,08	6,46	7,96
2,7	61	33	....00270	2,63	4,97	6,53	4,08	6,46	7,96
2,75	61	33	....00275	2,63	4,97	6,53	4,31	6,72	8,21
2,8	61	33	....00280	2,63	4,97	6,53	4,16	6,55	8,03
2,9	61	33	....00290	2,63	4,97	6,53	4,16	6,55	8,03
3	61	33	....00300	2,28	4,59	6,16	3,44	5,77	7,25
3,1	65	36	....00310	2,89	5,16	6,66	4,16	6,55	8,03
3,2	65	36	....00320	2,89	5,16	6,66	4,16	6,55	8,03
3,25	65	36	....00325	2,89	5,16	6,66	4,31	6,72	8,21
3,3	65	36	....00330	2,89	5,16	6,66	4,41	6,82	8,30
3,4	70	39	....00340	2,89	5,16	6,66	4,56	6,99	8,49
3,5	70	39	....00350	2,57	4,81	6,32	4,23	6,63	8,12

D h8	L	I	CODE	HSS+5%Co	HSS+5%Co	HSS+5%Co	HSS+8%Co	HSS+8%Co	HSS+8%Co
				5106..... €	6106..... € QUARTZ	7106..... € TITANITE	5105..... €	6105..... € QUARTZ	7105..... € TITANITE
3,6	70	39	....00360	3,21	5,53	7,02	4,56	6,99	8,49
3,7	70	39	....00370	3,21	5,53	7,02	4,64	7,08	8,57
3,75	70	39	....00375	3,21	5,53	7,02	5,12	7,60	9,09
3,8	75	43	....00380	3,29	5,60	7,10	4,72	7,16	8,66
3,9	75	43	....00390	3,29	5,60	7,10	4,88	7,34	8,84
4	75	43	....00400	2,89	5,87	7,94	4,56	6,99	8,49
4,1	75	43	....00410	3,54	6,58	8,66	4,96	8,13	10,20
4,2	75	43	....00420	3,54	6,58	8,66	4,96	8,13	10,20
4,25	75	43	....00425	3,71	7,67	10,42	4,88	8,04	10,11
4,3	80	47	....00430	3,69	7,49	10,11	5,28	9,20	11,81
4,4	80	47	....00440	3,69	7,49	10,11	5,37	9,31	11,92
4,5	80	47	....00450	3,21	6,96	9,59	5,04	8,94	11,55
4,6	80	47	....00460	3,86	7,65	10,28	5,52	9,47	12,09
4,7	80	47	....00470	3,86	7,65	10,28	5,67	9,64	12,25
4,75	80	47	....00475	3,78	7,50	10,08	5,52	9,42	12,00
4,8	86	52	....00480	3,86	7,65	10,28	5,67	9,64	12,25
4,9	86	52	....00490	3,86	7,65	10,28	5,85	9,83	12,43
5	86	52	....00500	3,46	7,23	9,86	5,44	9,38	12,00
5,1	86	52	....00510	5,12	8,97	11,56	5,84	9,77	12,34
5,2	86	52	....00520	5,12	8,97	11,56	5,91	9,86	12,43
5,25	86	52	....00525	5,12	8,97	11,56	5,91	9,86	12,43
5,3	86	52	....00530	5,12	8,97	11,56	5,91	9,86	12,43
5,4	93	57	....00540	5,12	8,97	11,56	6,93	10,97	13,55
5,5	93	57	....00550	4,65	8,46	11,04	6,85	10,90	13,47
5,6	93	57	....00560	5,12	8,97	11,56	7,48	11,57	14,15
5,7	93	57	....00570	5,12	8,97	11,56	7,48	11,57	14,15
5,75	93	57	....00575	5,67	9,75	12,44	7,48	11,57	14,15
5,8	93	57	....00580	5,44	9,33	11,91	7,48	11,57	14,15
5,9	93	57	....00590	5,44	9,33	11,91	7,48	11,57	14,15
6	93	57	....00600	4,65	10,01	13,81	7,08	11,14	13,71
6,1	101	63	....00610	6,24	11,77	15,56	7,72	13,40	17,21
6,2	101	63	....00620	6,24	11,77	15,56	8,42	14,17	17,98
6,25	101	63	....00625	6,54	12,34	16,31	8,42	14,17	17,98
6,3	101	63	....00630	6,45	12,01	15,81	8,42	14,17	17,98
6,4	101	63	....00640	6,45	12,01	15,81	9,14	14,97	18,76
6,5	101	63	....00650	5,59	11,06	14,85	8,35	14,08	17,89
6,6	101	63	....00660	7,48	13,14	16,94	9,14	14,97	18,76
6,7	101	63	....00670	7,48	13,14	16,94	9,14	14,97	18,76
6,75	109	69	....00675	7,48	13,14	16,94	9,77	15,65	19,45
6,8	109	69	....00680	7,48	13,14	16,94	9,77	15,65	19,45
6,9	109	69	....00690	7,48	13,14	16,94	9,77	15,65	19,45
7	109	69	....00700	6,68	12,27	16,07	8,82	14,61	18,41
7,1	109	69	....00710	7,95	13,65	17,45	11,88	17,98	21,78
7,2	109	69	....00720	7,95	13,65	17,45	11,88	17,98	21,78
7,25	109	69	....00725	7,72	13,40	17,21	11,88	17,98	21,78
7,3	109	69	....00730	8,10	13,83	17,62	11,88	17,98	21,78
7,4	109	69	....00740	8,10	13,83	17,62	11,88	17,98	21,78
7,5	109	69	....00750	6,85	12,44	16,25	9,29	15,13	18,92
7,6	117	75	....00760	9,05	14,86	18,67	14,40	20,75	24,56
7,7	117	75	....00770	9,05	14,86	18,67	14,40	20,75	24,56
7,75	117	75	....00775	9,58	15,49	19,48	14,40	20,75	24,56
7,8	117	75	....00780	9,05	14,86	18,67	14,40	20,75	24,56
7,9	117	75	....00790	9,05	14,86	18,67	14,40	20,75	24,56
8	117	75	....00800	8,03	14,90	19,60	10,93	16,94	20,74
8,1	117	75	....00810	9,77	16,81	21,51	14,40	21,92	26,62
8,2	117	75	....00820	9,77	16,81	21,51	14,40	21,92	26,62
8,25	117	75	....00825	9,45	16,46	21,16	13,76	21,23	25,91
8,3	117	75	....00830	9,91	16,98	21,68	14,40	21,92	26,62
8,4	117	75	....00840	9,91	16,98	21,68	14,40	21,92	26,62
8,5	117	75	....00850	8,50	15,43	20,13	11,33	18,54	23,24

CL 106

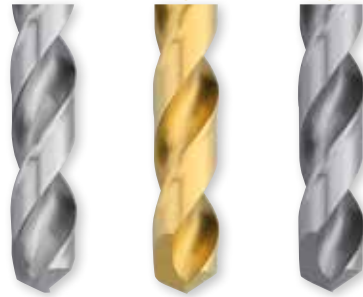


CL 105

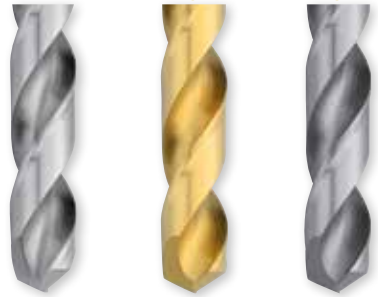


Dal $\varnothing 0,3$ al $\varnothing 6 = 10$ pz
Dal $\varnothing 6,1$ al $\varnothing 13 = 5$ pz
Dal $\varnothing 13,25$ al $\varnothing 20 = 1$ pz

CL106



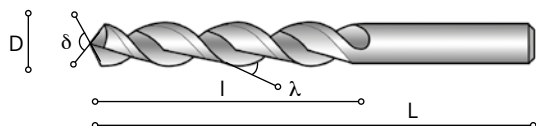
CL105



D h8	L	I	CODE	HSS+5%Co	HSS+5%Co	HSS+5%Co	HSS+8%Co	HSS+8%Co	HSS+8%Co
				5106..... €	6106..... € QUARTZ	7106..... € TITANITE	5105..... €	6105..... € QUARTZ	7105..... € TITANITE
8,6	125	81	....00860	11,73	18,97	23,67	16,93	24,68	29,38
8,7	125	81	....00870	11,73	18,97	23,67	16,93	24,68	29,38
8,75	125	81	....00875	11,65	18,90	23,60	17,48	25,29	29,98
8,8	125	81	....00880	11,73	18,97	23,67	17,48	25,29	29,98
8,9	125	81	....00890	11,73	18,97	23,67	17,48	25,29	29,98
9	125	81	....00900	10,38	17,50	22,20	14,56	22,10	26,80
9,1	125	81	....00910	12,99	20,37	25,07	18,81	26,77	31,47
9,2	125	81	....00920	12,99	20,37	25,07	18,81	26,77	31,47
9,25	125	81	....00925	12,60	19,93	24,63	19,43	27,45	32,15
9,3	125	81	....00930	13,23	20,61	25,31	20,63	28,76	33,45
9,4	125	81	....00940	13,97	21,43	26,13	20,63	28,76	33,45
9,5	125	81	....00950	11,50	18,73	23,43	14,95	22,53	27,23
9,6	133	87	....00960	14,24	21,74	26,44	23,13	31,52	36,22
9,7	133	87	....00970	14,24	21,74	26,44	23,69	32,12	36,82
9,75	133	87	....00975	14,08	21,57	26,27	22,81	31,18	35,87
9,8	133	87	....00980	14,24	21,74	26,44	23,76	32,21	36,91
9,9	133	87	....00990	14,24	21,74	26,44	23,76	32,21	36,91
10	133	87	....01000	12,60	19,93	24,63	16,61	24,34	29,04
10,1	133	87	....01010	18,41	26,34	31,03			
10,2	133	87	....01020	18,41	26,34	31,03	31,47	40,69	45,39
10,25	133	87	....01025	20,46	28,58	33,27	31,47	40,69	45,39
10,3	133	87	....01030	18,41	26,34	31,03			
10,4	133	87	....01040	18,41	26,34	31,03			
10,5	133	87	....01050	15,90	23,57	28,27	24,71	33,26	37,96
10,6	133	87	....01060	22,68	32,91	39,09			
10,7	142	94	....01070	22,68	32,91	39,09			
10,75	142	94	....01075	23,21	32,87	38,55	29,74	40,05	45,73
10,8	142	94	....01080	23,09	33,09	39,05			
10,9	142	94	....01090	23,09	33,09	39,05			
11	142	94	....01100	18,49	27,67	33,35	29,74	40,05	45,73
11,1	142	94	....01110	23,02	32,66	38,34			
11,2	142	94	....01120	23,02	32,66	38,34			
11,25	142	94	....01125	25,59	35,49	41,17	35,01	45,85	51,54
11,3	142	94	....01130	23,02	32,66	38,34			
11,4	142	94	....01140	23,02	32,66	38,34			
11,5	142	94	....01150	19,36	28,63	34,31	35,01	45,85	51,54
11,6	142	94	....01160	25,68	35,58	41,26			
11,7	142	94	....01170	25,68	35,58	41,26			
11,75	142	94	....01175	28,51	38,69	44,37	37,29	48,36	54,04
11,8	142	94	....01180	25,68	35,58	41,26			

D h8	L	I	CODE	HSS+5%Co	HSS+5%Co	HSS+5%Co	HSS+8%Co	HSS+8%Co	HSS+8%Co
				5106..... €	6106..... € QUARTZ	7106..... € TITANITE	5105..... €	6105..... € QUARTZ	7105..... € TITANITE
11,9	151	101	....01190	25,68	35,58	41,26			
12	151	101	....01200	21,57	32,05	38,45	37,29	48,36	54,04
12,1	151	101	....01210	27,92	39,04	45,45			
12,2	151	101	....01220	27,92	39,04	45,45			
12,25	151	101	....01225	31,00	42,42	48,83	46,81	59,81	66,22
12,3	151	101	....01230	27,92	39,04	45,45			
12,4	151	101	....01240	27,92	39,04	45,45			
12,5	151	101	....01250	23,45	34,12	40,52	46,81	59,81	66,22
12,6	151	101	....01260	31,73	44,20	49,13			
12,7	151	101	....01270	26,91	37,92	44,32			
12,75	151	101	....01275	31,58	43,06	49,46	50,59	63,97	70,37
12,8	151	101	....01280	31,73	44,20	51,36			
12,9	151	101	....01290	31,73	44,20	51,36			
13	151	101	....01300	25,27	36,12	42,53	50,59	63,97	70,37
13,25	160	108	....01325				55,57	69,62	76,14
13,5	160	108	....01350				54,51	68,29	74,69
13,75	160	108	....01375				54,63	68,57	75,10
14	160	108	....01400				53,59	67,27	73,67
14,25	169	114	....01425				78,03	94,32	100,85
14,5	169	114	....01450				76,55	92,53	98,93
14,75	169	114	....01475				75,87	91,93	98,46
15	169	114	....01500				74,42	90,18	96,59
15,25	178	120	....01525				87,75	105,00	111,54
15,5	178	120	....01550				86,07	103,00	109,41
15,75	178	120	....01575				91,02	108,60	115,13
16	178	120	....01600				91,08	108,66	115,19
16,25	184	125	....01625				101,77	127,99	140,40
16,5	184	125	....01650				99,83	125,55	137,73
16,75	184	125	....01675				106,10	132,76	145,18
17	184	125	....01700				104,08	130,23	142,41
17,25	191	130	....01725				114,86	142,40	154,82
17,5	191	130	....01750				112,67	139,69	151,86
17,75	191	130	....01775				128,00	156,87	169,28
18	191	130	....01800				125,56	153,88	166,06
18,25	198	135	....01825				133,57	171,94	191,27
18,5	198	135	....01850				131,02	168,67	187,63
18,75	198	135	....01875				141,35	180,51	199,84
19	198	135	....01900				138,66	177,06	196,02
19,25	205	140	....01925				145,20	184,74	204,05
19,5	205	140	....01950				142,43	181,22	200,16
19,75	205	140	....01975				181,10	224,23	243,56
20	205	140	....02000				177,65	219,95	238,91

CL 109

FORI PROFONDI
DEEP HOLE

CL109

Dal $\varnothing 2$ al $\varnothing 6$ = 10 pz
Dal $\varnothing 6,1$ al $\varnothing 13$ = 5 pz

D h8	L	I	CODE	HSS+5%Co 5109..... €	HSS+5%Co 6109..... € QUARTZ	HSS+5%Co 7109..... € TITANITE
2	49	24	...00200	3,29	5,30	6,58
2,1	49	24	...00210	3,29	5,60	7,10
2,2	53	27	...00220	3,29	5,60	7,10
2,3	53	27	...00230	3,29	5,60	7,10
2,4	57	30	...00240	3,62	5,97	7,46
2,5	57	30	...00250	3,29	5,60	7,10
2,6	57	30	...00260	3,62	5,97	7,46
2,7	61	33	...00270	3,69	6,05	7,55
2,8	61	33	...00280	3,69	6,05	7,55
2,9	61	33	...00290	3,69	6,05	7,55
3	61	33	...00300	3,62	5,97	7,46
3,1	65	36	...00310	3,86	6,21	7,72
3,2	65	36	...00320	3,86	6,21	7,72
3,3	65	36	...00330	3,86	6,21	7,72
3,4	70	39	...00340	4,10	6,49	8,00
3,5	70	39	...00350	4,10	6,49	8,00
3,6	70	39	...00360	4,34	6,75	8,25
3,7	70	39	...00370	4,34	6,75	8,25
3,8	75	43	...00380	4,34	6,75	8,25
3,9	75	43	...00390	4,34	6,75	8,25
4	75	43	...00400	4,34	6,75	8,25
4,1	75	43	...00410	4,51	7,64	9,72
4,2	75	43	...00420	4,51	7,64	9,72
4,3	80	47	...00430	5,47	9,42	12,06
4,4	80	47	...00440	5,47	9,42	12,06
4,5	80	47	...00450	5,47	9,42	12,06
4,6	80	47	...00460	5,47	9,42	12,06
4,7	80	47	...00470	5,47	9,42	12,06
4,8	86	52	...00480	5,47	9,42	12,06
4,9	86	52	...00490	5,47	9,42	12,06
5	86	52	...00500	5,47	9,42	12,06
5,1	86	52	...00510	5,96	9,97	12,59
5,2	86	52	...00520	5,96	9,97	12,59
5,3	86	52	...00530	5,96	9,97	12,59
5,4	93	57	...00540	7,55	11,73	14,35
5,5	93	57	...00550	7,14	11,28	13,91
5,6	93	57	...00560	7,63	11,80	14,43
5,7	93	57	...00570	7,63	11,80	14,43
5,8	93	57	...00580	7,63	11,80	14,43
5,9	93	57	...00590	7,63	11,80	14,43

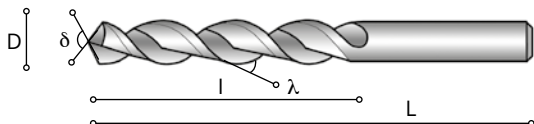
D h8	L	I	CODE	HSS+5%Co 5109..... €	HSS+5%Co 6109..... € QUARTZ	HSS+5%Co 7109..... € TITANITE
6	93	57	....00600	7,22	11,36	13,98
6,1	101	63	....00610	8,19	14,01	17,89
6,2	101	63	....00620	8,19	14,01	17,89
6,5	101	63	....00650	8,52	14,36	18,25
6,8	109	69	....00680	9,00	14,90	18,78
7	109	69	....00700	8,75	14,63	18,50
7,2	109	69	....00720	12,85	19,15	23,01
7,5	109	69	....00750	10,43	16,49	20,37
7,8	117	75	....00780	14,36	20,82	24,69
8	117	75	....00800	10,91	17,01	20,89
8,2	117	75	....00820	15,18	22,89	27,68
8,5	117	75	....00850	11,80	19,19	23,98
8,8	125	81	....00880	17,75	25,71	30,51
9	125	81	....00900	13,45	21,00	25,80
9,2	125	81	....00920	19,98	28,17	32,96
9,5	125	81	....00950	15,22	22,93	27,72
9,8	133	87	....00980	22,14	30,57	35,36
10	133	87	....01000	16,30	24,12	28,92
10,5	133	87	....01050	23,35	31,88	36,67
11	142	94	....01100	24,89	34,85	38,36
11,5	142	94	....01150	28,83	39,18	42,69
12	151	101	....01200	29,87	40,33	46,12
12,5	151	101	....01250	34,58	46,53	53,06
13	151	101	....01300	34,90	46,88	53,43

CL 119

ACCIAIO INOX
STAINLESS STEEL



DIN 1412 B



Dal \varnothing 1 al \varnothing 6 = 10 pz
Dal \varnothing 6,1 al \varnothing 13 = 5 pz
Dal \varnothing 13,25 al \varnothing 31 = 1 pz

CL119

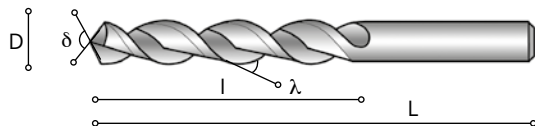


D h8	L	l	CODE	HSS+5%Co 5119..... €	HSS+5%Co 6119..... € QUARTZ	HSS+5%Co 7119..... € TITANITE
2	49	24	...00200	2,82	5,42	7,21
2,1	49	24	...00210	3,24	6,13	8,05
2,2	53	27	...00220	3,24	6,13	8,05
2,25	53	27	...00225	3,43	6,28	8,26
2,3	53	27	...00230	3,24	6,13	8,05
2,4	57	30	...00240	3,28	6,21	8,16
2,5	57	30	...00250	3,01	6,04	8,11
2,6	57	30	...00260	3,37	6,36	8,36
2,7	61	33	...00270	3,37	6,36	8,36
2,75	61	33	...00275	3,85	7,27	9,56
2,8	61	33	...00280	3,41	6,44	8,46
2,9	61	33	...00290	3,41	6,44	8,46
3	61	33	...00300	2,82	5,65	7,59
3,1	65	36	...00310	3,53	6,31	8,15
3,2	65	36	...00320	3,53	6,31	8,15
3,25	65	36	...00325	3,61	6,46	8,33
3,3	65	36	...00330	3,65	6,54	8,44
3,4	70	39	...00340	3,73	6,67	8,62
3,5	70	39	...00350	3,35	6,27	8,23
3,6	70	39	...00360	3,90	6,70	8,51
3,7	70	39	...00370	3,94	6,77	8,60
3,75	70	39	...00375	4,18	7,18	9,12
3,8	75	43	...00380	4,02	6,83	8,67
3,9	75	43	...00390	4,10	6,98	8,85
4	75	43	...00400	3,66	7,44	10,07
4,1	75	43	...00410	4,26	7,93	10,43
4,2	75	43	...00420	4,26	7,93	10,43
4,25	75	43	...00425	4,31	8,90	12,11
4,3	80	47	...00430	4,50	9,11	12,30
4,4	80	47	...00440	4,55	9,20	12,43
4,5	80	47	...00450	4,06	8,79	12,11
4,6	80	47	...00460	4,70	9,34	12,55
4,7	80	47	...00470	4,78	9,50	12,75
4,75	80	47	...00475	4,74	9,41	12,65
4,8	86	52	...00480	4,78	9,50	12,75
4,9	86	52	...00490	4,87	9,66	12,97
5	86	52	...00500	4,38	9,15	12,47
5,1	86	52	...00510	5,59	9,79	12,62
5,2	86	52	...00520	5,63	9,86	12,71
5,25	86	52	...00525	5,52	9,67	12,46
5,3	86	52	...00530	5,63	9,86	12,71

D h8	L	I	CODE	HSS+5%Co 5119..... €	HSS+5%Co 6119..... € QUARTZ	HSS+5%Co 7119..... € TITANITE
5,4	93	57	....00540	6,14	10,77	13,87
5,5	93	57	....00550	5,75	10,47	13,65
5,6	93	57	....00560	6,43	11,26	14,50
5,7	93	57	....00570	6,43	11,26	14,50
5,75	93	57	....00575	6,70	11,53	14,72
5,8	93	57	....00580	6,59	11,30	14,41
5,9	93	57	....00590	6,59	11,30	14,41
6	93	57	....00600	5,86	12,63	17,43
6,1	101	63	....00610	6,98	13,17	17,41
6,2	101	63	....00620	7,33	13,83	18,29
6,25	101	63	....00625	7,48	14,12	18,66
6,3	101	63	....00630	7,44	13,84	18,23
6,4	101	63	....00640	7,80	14,51	19,11
6,5	101	63	....00650	6,97	13,78	18,50
6,6	101	63	....00660	8,31	14,60	18,82
6,7	101	63	....00670	8,31	14,60	18,82
6,75	109	69	....00675	8,62	15,15	19,53
6,8	109	69	....00680	8,62	15,15	19,53
6,9	109	69	....00690	8,62	15,15	19,53
7	109	69	....00700	7,75	14,23	18,64
7,1	109	69	....00710	9,92	17,02	21,76
7,2	109	69	....00720	9,92	17,02	21,76
7,25	109	69	....00725	9,80	17,02	21,84
7,3	109	69	....00730	9,99	17,05	21,72
7,4	109	69	....00740	9,99	17,05	21,72
7,5	109	69	....00750	8,07	14,67	19,15
7,6	117	75	....00760	11,73	19,26	24,18
7,7	117	75	....00770	11,73	19,26	24,18
7,75	117	75	....00775	11,99	19,39	24,38
7,8	117	75	....00780	11,73	19,26	24,18
7,9	117	75	....00790	11,73	19,26	24,18
8	117	75	....00800	9,48	17,60	23,15
8,1	117	75	....00810	12,09	20,80	26,61
8,2	117	75	....00820	12,09	20,80	26,61
8,25	117	75	....00825	11,61	20,22	26,00
8,3	117	75	....00830	12,16	20,83	26,59
8,4	117	75	....00840	12,16	20,83	26,59
8,5	117	75	....00850	9,92	17,99	23,48
8,6	125	81	....00860	14,33	23,18	28,92
8,7	125	81	....00870	14,33	23,18	28,92
8,75	125	81	....00875	14,56	23,62	29,49
8,8	125	81	....00880	14,60	23,62	29,47
8,9	125	81	....00890	14,60	23,62	29,47
9	125	81	....00900	12,47	21,02	26,66
9,1	125	81	....00910	15,90	24,92	30,67
9,2	125	81	....00920	15,90	24,92	30,67
9,25	125	81	....00925	16,34	25,85	31,95
9,3	125	81	....00930	16,93	26,38	32,39
9,4	125	81	....00940	17,30	26,54	32,36
9,5	125	81	....00950	13,23	21,55	26,95
9,6	133	87	....00960	18,69	28,53	34,70
9,7	133	87	....00970	18,96	28,95	35,21
9,75	133	87	....00975	18,45	28,26	34,42
9,8	133	87	....00980	19,00	29,01	35,28
9,9	133	87	....00990	19,00	29,01	35,28
10	133	87	....01000	14,60	23,10	28,55
10,1	133	87	....01010	23,93	34,24	40,34
10,2	133	87	....01020	24,94	35,68	42,04
10,25	133	87	....01025	25,96	36,27	42,23
10,3	133	87	....01030	23,93	34,24	40,34

CL 119

ACCIAIO INOX
STAINLESS STEEL



Dal \varnothing 1 al \varnothing 6 = 10 pz
Dal \varnothing 6,1 al \varnothing 13 = 5 pz
Dal \varnothing 13,25 al \varnothing 31 = 1 pz

CL119



D h8	L	I	CODE	HSS+5%Co 5119..... €	HSS+5%Co 6119..... € QUARTZ	HSS+5%Co 7119..... € TITANITE
10,4	133	87	....01040	23,93	34,24	40,34
10,5	133	87	....01050	20,31	30,10	36,10
10,6	133	87	....01060	29,48	42,78	50,82
10,7	142	94	....01070	29,48	42,78	50,82
10,75	142	94	....01075	27,01	38,24	44,85
10,8	142	94	....01080	30,02	43,02	50,77
10,9	142	94	....01090	30,02	43,02	50,77
11	142	94	....01100	24,11	36,09	43,50
11,1	142	94	....01110	29,93	42,46	49,85
11,2	142	94	....01120	29,93	42,46	49,85
11,25	142	94	....01125	30,30	42,02	48,75
11,3	142	94	....01130	29,93	42,46	49,85
11,4	142	94	....01140	29,93	42,46	49,85
11,5	142	94	....01150	27,19	40,21	48,19
11,6	142	94	....01160	33,39	46,25	53,64
11,7	142	94	....01170	33,39	46,25	53,64
11,75	142	94	....01175	32,90	44,65	51,21
11,8	142	94	....01180	33,39	46,25	53,64
11,9	151	101	....01190	33,39	46,25	53,64
12	151	101	....01200	29,43	43,72	52,46
12,1	151	101	....01210	36,30	50,75	59,09
12,2	151	101	....01220	36,30	50,75	59,09
12,25	151	101	....01225	38,90	53,23	61,28
12,3	151	101	....01230	36,30	50,75	59,09
12,4	151	101	....01240	36,30	50,75	59,09
12,5	151	101	....01250	35,13	51,11	60,69
12,6	151	101	....01260	41,25	57,46	63,87
12,7	151	101	....01270	34,99	49,30	57,62
12,75	151	101	....01275	41,70	56,01	65,29
12,8	151	101	....01280	41,87	57,46	67,77
12,9	151	101	....01290	41,87	57,46	67,77
13	151	101	....01300	38,50	54,20	64,79
13,5	160	108	....01350	41,50	51,22	56,86
14	160	108	....01400	40,79	50,45	56,08
14,5	169	114	....01450	53,81	64,08	69,54
15	169	114	....01500	54,43	64,98	70,63
15,5	178	120	....01550	61,84	72,91	78,61
16	178	120	....01600	64,63	75,97	81,74

CL 200



25°-30°



STANDARD



CL 230

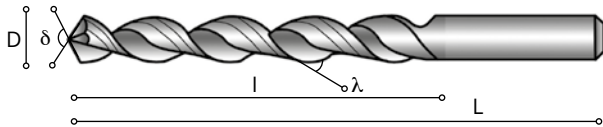
FORI PROFONDI
DEEP HOLE



35°-40°



DIN 1412 C



CL200



CL230



Dal Ø 0,5 al Ø 6 = 10 pz
Dal Ø 6,1 al Ø 13 = 5 pz

D h8	L	l	CODE	HSS 5200..... €	HSS+5%Co 5230..... €	HSS+5%Co 6230..... € QUARTZ	HSS+5%Co 7230..... € TITANITE
0,5	32	12	....00050	11,97			
0,6	35	15	....00060	9,69			
0,7	42	21	....00070	8,50			
0,8	46	25	....00080	7,95			
0,9	51	29	....00090	7,55			
1	56	33	....00100	4,81			
1,1	60	37	....00110	4,97			
1,2	65	41	....00120	4,25			
1,25	65	41	....00125	3,55			
1,3	65	41	....00130	4,25			
1,4	70	45	....00140	4,42			
1,5	70	45	....00150	3,62			
1,6	76	50	....00160	4,02			
1,7	76	50	....00170	3,95			
1,75	80	53	....00175	4,44			
1,8	80	53	....00180	3,95			
1,9	80	53	....00190	3,95			
2	85	56	....00200	2,89	5,91	8,63	10,27
2,1	85	56	....00210	3,06	6,03	9,17	11,15
2,2	90	59	....00220	3,06	6,36	9,52	11,51
2,25	90	59	....00225	3,77	7,12	10,32	12,27
2,3	90	59	....00230	3,06	6,36	9,52	11,51
2,4	95	62	....00240	3,06	6,36	9,52	11,51
2,5	95	62	....00250	3,06	6,24	9,33	11,28
2,6	95	62	....00260	3,29	6,36	9,52	11,51
2,7	100	66	....00270	3,29	6,36	9,52	11,51
2,75	100	66	....00275	4,18	7,26	10,53	12,52
2,8	100	66	....00280	3,54	6,36	9,52	11,51
2,9	100	66	....00290	3,86	6,36	9,52	11,51
3	100	66	....00300	2,89	6,24	9,33	11,28
3,1	106	69	....00310	3,46	7,78	11,92	14,48
3,2	106	69	....00320	3,46	7,47	11,59	14,15
3,25	106	69	....00325	4,44	8,59	12,80	15,37
3,3	106	69	....00330	3,69	7,47	11,59	14,15
3,4	112	73	....00340	3,69	7,96	12,11	14,67
3,5	112	73	....00350	3,46	6,61	10,56	13,07
3,6	112	73	....00360	3,69	8,35	12,55	15,13
3,7	112	73	....00370	3,86	8,35	12,55	15,13
3,75	112	73	....00375	4,74	9,15	13,42	15,98
3,8	119	78	....00380	3,95	9,00	13,25	15,81

CL 200



STANDARD

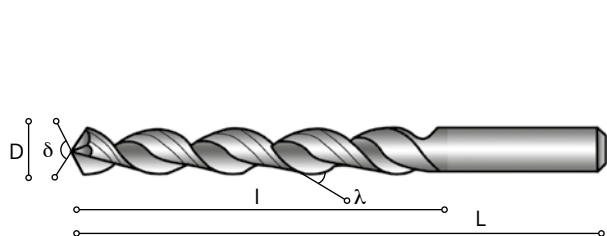


CL 230

FORI PROFONDI
DEEP HOLE



DIN 1412 C



CL200



CL230



Dal \varnothing 0,5 al \varnothing 6 = 10 pz
Dal \varnothing 6,1 al \varnothing 13 = 5 pz

D h8	L	I	CODE	HSS	HSS+5%Co	HSS+5%Co	HSS+5%Co
				5200..... €	5230..... €	6230..... € QUARTZ	7230..... € TITANITE
3,9	119	78	....00390	4,10	9,00	13,25	15,81
4	119	78	....00400	3,70	7,32	11,36	13,87
4,1	119	78	....00410	4,34	8,44	13,33	16,48
4,2	119	78	....00420	4,34	8,44	13,33	16,48
4,25	119	78	....00425	5,43	11,80	16,96	20,05
4,3	126	82	....00430	4,91	11,40	16,60	19,75
4,4	126	82	....00440	4,91	11,40	16,60	19,75
4,5	126	82	....00450	4,49	8,74	13,60	16,68
4,6	126	82	....00460	4,91	11,40	16,60	19,75
4,7	126	82	....00470	4,91	11,40	16,60	19,75
4,75	126	82	....00475	6,27	12,91	18,17	21,25
4,8	132	87	....00480	5,30	11,96	17,23	20,36
4,9	132	87	....00490	5,30	11,96	17,23	20,36
5	132	87	....00500	4,89	9,14	14,03	17,12
5,1	132	87	....00510	5,70	11,73	16,89	19,96
5,2	132	87	....00520	5,70	11,73	16,89	19,96
5,25	132	87	....00525	7,23	12,91	18,17	21,25
5,3	132	87	....00530	5,70	11,73	16,89	19,96
5,4	139	91	....00540	6,51	13,30	18,60	21,69
5,5	139	91	....00550	5,99	10,63	15,67	18,76
5,6	139	91	....00560	6,51	14,40	19,83	22,92
5,7	139	91	....00570	6,51	14,40	19,83	22,92
5,75	139	91	....00575	7,53	15,82	21,39	24,47
5,8	139	91	....00580	6,51	14,40	19,83	22,92
5,9	139	91	....00590	6,51	14,40	19,83	22,92
6	139	91	....00600	5,99	12,05	17,23	20,32
6,1	148	97	....00610	7,63			
6,2	148	97	....00620	7,63	18,41	26,68	31,65
6,25	148	97	....00625	8,25	20,31	28,77	33,74
6,3	148	97	....00630	7,63			
6,4	148	97	....00640	8,11			
6,5	148	97	....00650	7,48	18,41	26,69	31,65
6,6	148	97	....00660	8,11			
6,7	148	97	....00670	8,11			
6,75	156	102	....00675	8,74	20,31	28,77	33,74
6,8	156	102	....00680	9,40	20,78	29,29	34,27
6,9	156	102	....00690	9,40			
7	156	102	....00700	8,82	17,55	25,73	30,70
7,1	156	102	....00710	11,73			
7,2	156	102	....00720	11,73	22,74	31,45	36,41

D h8	L	I	CODE	HSS 5200..... €	HSS+5%Co 5230..... €	HSS+5%Co 6230..... € QUARTZ	HSS+5%Co 7230..... € TITANITE
7,25	156	102	....00725	10,49	25,03	33,97	38,93
7,3	156	102	....00730	11,73			
7,4	156	102	....00740	11,73			
7,5	156	102	....00750	9,29	19,83	28,25	33,21
7,6	165	109	....00760	12,20			
7,7	165	109	....00770	12,44			
7,75	165	109	....00775	11,51	26,84	35,95	40,92
7,8	165	109	....00780	12,28	24,31	33,18	38,14
7,9	165	109	....00790	12,20			
8	165	109	....00800	10,63	20,31	28,77	33,74
8,1	165	109	....00810	13,41			
8,2	165	109	....00820	13,41	24,48	34,27	39,94
8,25	165	109	....00825	11,88	26,99	37,02	42,71
8,3	165	109	....00830	13,41			
8,4	165	109	....00840	13,15			
8,5	165	109	....00850	11,80	22,74	32,34	38,03
8,6	175	115	....00860	16,45			
8,7	175	115	....00870	16,45			
8,75	175	115	....00875	14,22	27,60	37,70	43,37
8,8	175	115	....00880	16,45	25,10	34,95	40,63
8,9	175	115	....00890	16,45			
9	175	115	....00900	12,60	23,84	33,56	39,24
9,1	175	115	....00910	17,60			
9,2	175	115	....00920	17,60	32,19	42,74	48,42
9,25	175	115	....00925	15,66	35,49	46,38	52,05
9,3	175	115	....00930	17,60			
9,4	175	115	....00940	17,60			
9,5	175	115	....00950	14,48	31,09	41,53	47,21
9,6	184	121	....00960	17,77			
9,7	184	121	....00970	17,44			
9,75	184	121	....00975	16,78	47,60	62,59	70,49
9,8	184	121	....00980	17,67	43,27	57,83	65,75
9,9	184	121	....00990	17,67			
10	184	121	....01000	14,56	32,74	46,24	54,14
10,1	184	121	....01010	19,19			
10,2	184	121	....01020	19,19			
10,25	184	121	....01025	19,11	55,39	71,16	79,06
10,3	184	121	....01030	19,19			
10,4	184	121	....01040	19,19			
10,5	184	121	....01050	19,11	50,36	65,63	73,52
10,6	184	121	....01060	18,81			
10,7	195	128	....01070	21,94			
10,75	195	128	....01075	22,42	63,26	79,83	87,73
10,8	195	128	....01080	22,38			
10,9	195	128	....01090	22,38			
11	195	128	....01100	21,01	47,28	62,25	70,15
11,1	195	128	....01110	21,04			
11,2	195	128	....01120	24,75			
11,25	195	128	....01125	24,77	69,62	86,81	94,72
11,3	195	128	....01130	24,26			
11,4	195	128	....01140	24,26			
11,5	195	128	....01150	21,47	63,26	79,83	87,73
11,6	195	128	....01160	23,48			
11,7	195	128	....01170	26,66			
11,75	195	128	....01175	27,17	75,28	93,04	100,95
11,8	195	128	....01180	25,12			
11,9	205	134	....01190	25,12			
12	205	134	....01200	23,84	64,35	81,02	88,91
12,1	205	134	....01210	26,88			
12,2	205	134	....01220	26,88			

CL 200



STANDARD

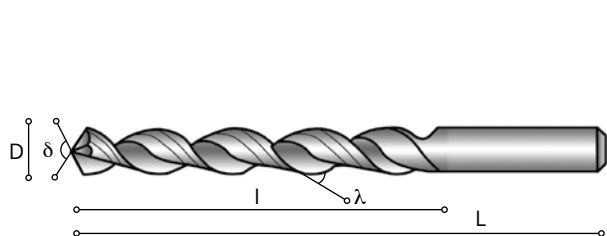


CL 230

FORI PROFONDI
DEEP HOLE



DIN 1412 C



CL200



CL230



Dal \varnothing 0,5 al \varnothing 6 = 10 pz
Dal \varnothing 6,1 al \varnothing 13 = 5 pz

D h8	L	I	CODE	HSS 5200..... €	HSS+5%Co 5230..... €	HSS+5%Co 6230..... € QUARTZ	HSS+5%Co 7230..... € TITANITE
12,25	205	134	....01225	28,61	76,15	95,83	105,14
12,3	205	134	....01230	26,48			
12,4	205	134	....01240	26,48			
12,5	205	134	....01250	24,88	69,22	88,21	97,52
12,6	205	134	....01260	24,89			
12,7	205	134	....01270	40,62			
12,75	205	134	....01275	39,82	82,38	102,66	111,97
12,8	205	134	....01280	40,62			
12,9	205	134	....01290	43,95			
13	205	134	....01300	26,91	64,90	83,45	92,75
13,25	214	140	....01325	51,66			
13,5	214	140	....01350	32,50			
13,75	214	140	....01375	56,69			
14	214	140	....01400	31,94			
14,25	220	144	....01425	68,99			
14,5	220	144	....01450	39,81			
14,75	220	144	....01475	71,30			
15	220	144	....01500	37,37			
15,25	227	149	....01525	71,30			
15,5	227	149	....01550	54,38			
15,75	227	149	....01575	73,46			
16	227	149	....01600	45,76			
16,25	235	154	....01625	75,79			
16,5	235	154	....01650	71,22			
16,75	235	154	....01675	75,79			
17	235	154	....01700	56,91			
17,25	241	158	....01725	76,41			
17,5	241	158	....01750	71,78			
17,75	241	158	....01775	76,41			
18	241	158	....01800	64,12			
18,25	247	162	....01825	121,28			
18,5	247	162	....01850	113,94			
18,75	247	162	....01875	121,28			
19	247	162	....01900	78,45			
19,25	254	166	....01925	128,06			
19,5	254	166	....01950	120,25			
19,75	254	166	....01975	120,25			
20	254	166	....02000	93,45			

CL 111-1



25°-30°



STANDARD



CL 110-1

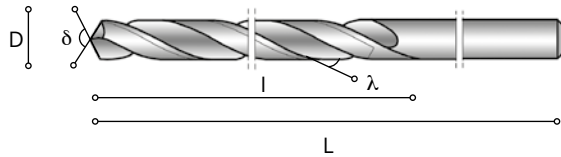
FORI PROFONDI
DEEP HOLE



35°-40°



DIN 1412 C



CL111-1



CL110-1



Dal Ø 3 al Ø 8 = 5 pz
Dal Ø 8,25 al Ø 13 = 1 pz

D h8	L	I	CODE	HSS 5111..... €	HSS+5%Co 5110..... €	HSS+5%Co 6110..... € QUARTZ	HSS+5%Co 7110..... € TITANITE
2	125	85	....00200	8,91	12,29	16,02	18,40
2,25	135	90	....00225	10,55	15,26	19,69	21,56
2,5	140	95	....00250	8,59	12,29	16,48	18,40
2,75	150	100	....00275	10,55	16,85	22,75	24,04
3	150	100	....00300	9,22	13,70	19,28	20,59
3,25	155	105	....00325	11,33	16,85	22,75	24,04
3,5	165	115	....00350	10,55	14,12	19,84	23,39
3,75	165	115	....00375	13,69	19,43	25,59	29,09
4	175	120	....00400	10,19	14,12	19,84	23,39
4,25	175	120	....00425	14,01	20,63	27,95	32,03
4,5	185	125	....00450	11,10	16,21	25,25	29,55
4,75	185	125	....00475	14,01	21,25	30,79	35,09
5	195	135	....00500	11,18	16,21	25,25	29,55
5,25	195	135	....00525	15,58	21,47	31,03	35,35
5,5	205	140	....00550	13,32	17,91	27,35	31,78
5,75	205	140	....00575	17,72	21,47	31,03	35,35
6	205	140	....00600	14,16	16,70	25,94	30,32
6,25	215	150	....00625	19,59	25,18	37,58	43,12
6,5	215	150	....00650	18,63	21,47	33,49	39,04
6,75	225	155	....00675	21,33	27,39	40,00	45,54
7	225	155	....00700	18,07	24,00	36,48	42,13
7,25	225	155	....00725	25,03	34,85	48,22	53,76
7,5	225	155	....00750	21,79	29,42	42,25	47,79
7,75	240	165	....00775	25,03	35,96	50,67	56,93
8	240	165	....00800	24,16	30,05	44,17	50,43
8,25	240	165	....00825	35,41	47,05	62,88	69,14
8,5	240	165	....00850	33,39	40,75	55,95	62,21
8,75	250	175	....00875	35,41	50,35	66,50	72,76
9	250	175	....00900	31,24	43,43	58,89	65,15
9,25	250	175	....00925	38,40	58,93	75,93	82,19
9,5	250	175	....00950	36,73	50,35	66,50	72,76
9,75	265	185	....00975	40,51	60,02	80,47	88,60
10	265	185	....01000	34,15	45,63	64,64	72,77
10,5	265	185	....01050	40,91	60,19	82,23	91,23
11	280	195	....01100	45,95	58,98	81,22	90,40
11,5	280	195	....01150	50,19	71,82	95,04	104,04
12	295	205	....01200	60,65	64,76	87,25	96,27
12,5	295	205	....01250	63,55	83,63	108,02	117,02
13	295	205	....01300	60,97	83,63	108,02	117,02

CL 111-2



STANDARD

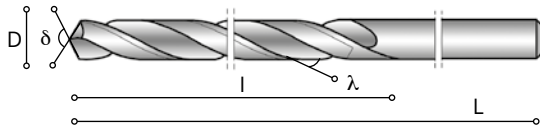


CL 110-2

FORI PROFONDI
DEEP HOLE



DIN 1412 C



CL111-2



CL110-2



Dal \varnothing 2 al \varnothing 8 = 5 pz
Dal \varnothing 8,25 al \varnothing 13 = 1 pz

D h8	L	I	CODE	HSS 5111..... €	HSS+5%Co 5110..... €	HSS+5%Co 6110..... € QUARTZ	HSS+5%Co 7110..... € TITANITE
3	190	130	....20300	12,12	17,94	26,02	29,47
3,25	200	135	....20325	15,66	22,47	31,13	34,66
3,5	210	145	....20350	13,62	19,34	27,68	31,21
3,75	210	145	....20375	15,66	22,03	30,52	33,98
4	220	150	....20400	13,69	18,96	28,09	32,05
4,25	220	150	....20425	21,18	28,33	39,56	44,18
4,5	235	160	....20450	16,53	22,51	35,13	40,92
4,75	235	160	....20475	22,11	28,33	41,55	47,33
5	245	170	....20500	17,01	21,18	33,67	39,46
5,25	245	170	....20525	22,81	31,64	45,17	50,96
5,5	260	180	....20550	23,29	28,42	41,84	47,75
5,75	260	180	....20575	22,51	31,64	45,17	50,96
6	260	180	....20600	20,72	27,86	41,02	46,81
6,25	275	190	....20625	30,05	33,04	51,82	60,11
6,5	275	190	....20650	25,03	30,78	49,26	57,55
6,75	290	200	....20675	30,61	38,15	56,41	64,54
7	290	200	....20700	26,91	35,16	53,41	61,70
7,25	290	200	....20725	35,02	45,71	64,72	72,86
7,5	290	200	....20750	31,32	40,99	59,53	67,66
7,75	305	210	....20775	36,59	45,71	71,95	84,15
8	305	210	....20800	35,41	39,89	65,56	77,76
8,25	305	210	....20825	46,26	66,49	94,81	107,01
8,5	305	210	....20850	47,45	60,42	88,15	100,34
8,75	320	220	....20875	46,26	66,49	94,81	107,01
9	320	220	....20900	43,82	58,06	85,54	97,74
9,25	320	220	....20925	54,91	79,76	109,41	121,61
9,5	320	220	....20950	53,73	69,39	98,02	110,22
9,75	340	235	....20975	56,03	83,08	113,06	125,26
10	340	235	....21000	50,43	63,81	91,87	104,06
10,5	340	235	....21050	65,85	88,89	121,83	135,33
11	365	250	....21100	75,60	79,76	123,80	144,06
11,5	365	250	....21150	84,18	102,44	148,74	169,00
12	375	260	....21200	84,18	89,93	134,98	155,24
12,5	375	260	....21250	89,84	98,97	144,94	165,20
13	375	260	....21300	87,87	102,44	148,74	169,00

CL 111-3



25°-30°



STANDARD



CL 110-3

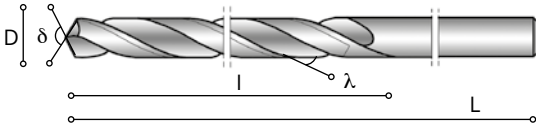
FORI PROFONDI
DEEP HOLE



35°-40°



DIN 1412 C



CL111-3



CL110-3



Dal Ø 3,5 al Ø 8 = 5 pz
Dal Ø 8,25 al Ø 13 = 1 pz

D h8	L	I	CODE	HSS 5111..... €	HSS+5%Co 5110..... €	HSS+5%Co 6110..... € QUARTZ	HSS+5%Co 7110..... € TITANITE
3,5	265	180	....30350	19,43	26,15	40,27	46,60
3,75	265	180	....30375	20,31	29,68	44,16	50,49
4	280	190	....30400	18,63	26,15	40,27	46,60
4,25	280	190	....30425	26,12	35,41	52,44	59,97
4,5	295	200	....30450	23,29	31,87	48,55	56,06
4,75	295	200	....30475	24,79	35,41	52,44	59,97
5	315	210	....30500	19,82	30,74	54,46	65,94
5,25	315	210	....30525	36,65	37,85	61,86	73,13
5,5	330	225	....30550	26,44	34,30	57,96	69,24
5,75	330	225	....30575	27,69	38,32	62,38	73,66
6	330	225	....30600	26,56	34,47	58,14	69,42
6,25	350	235	....30625	34,30	43,50	69,96	82,41
6,5	350	235	....30650	31,16	39,34	64,95	77,15
6,75	370	250	....30675	40,83	54,13	92,05	110,37
7	370	250	....30700	39,40	50,66	88,22	106,56
7,25	370	250	....30725	46,65	60,97	99,57	117,90
7,5	370	250	....30750	44,91	56,87	95,06	113,40
7,75	390	265	....30775	46,97	67,51	106,76	125,08
8	390	265	....30800	45,71	59,09	97,49	115,82
8,25	390	265	....30825	67,57	80,71	121,28	139,62
8,5	390	265	....30850	65,22	73,95	113,84	132,18
8,75	410	280	....30875	70,25	84,96	142,23	169,69
9	410	280	....30900	65,64	78,52	135,13	162,60
9,25	410	280	....30925	79,29	99,75	158,50	185,96
9,5	410	280	....30950	72,30	92,28	150,28	177,74
9,75	430	295	....30975	78,12	107,15	166,64	194,10
10	430	295	....31000	71,50	89,93	147,69	175,16
10,5	430	295	....31050	76,86	94,47	158,03	188,42
11	455	310	....31100	87,64	93,38	183,86	229,44
11,5	455	310	....31150	94,25	105,88	197,63	243,19
12	480	330	....31200	93,23	109,41	201,50	247,08
12,5	480	330	....31250	98,11	122,57	217,18	263,44
13	480	330	....31300	101,01	123,76	218,51	264,77

CL 150



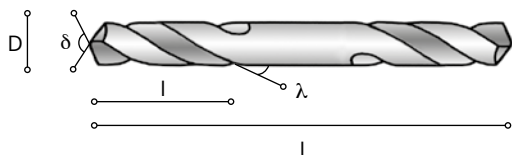
N

 λ

25°-30°

 δ
118°

STANDARD



CL150



D h8	L	l	CODE	HSS 5150..... €
2,2	40	13	....00220	3,21
2,4	43	14	....00240	3,21
2,5	43	14	....00250	3,21
2,8	46	16	....00280	3,21
3	46	16	....00300	3,21
3,1	49	18	....00310	3,11
3,2	49	18	....00320	3,11
3,4	52	20	....00340	3,20
3,5	52	20	....00350	3,37
3,7	52	20	....00370	3,37
3,8	55	22	....00380	3,43
4	55	22	....00400	3,43
4,1	55	22	....00410	3,43
4,2	55	22	....00420	3,43
4,3	58	24	....00430	7,22
4,4	58	24	....00440	7,22
4,5	58	24	....00450	4,58
4,6	58	24	....00460	7,07
4,9	62	26	....00490	7,07
5	62	26	....00500	5,14
5,2	62	26	....00520	7,22
5,3	62	26	....00530	7,22
5,5	66	28	....00550	6,18
5,6	66	28	....00560	9,64
5,8	66	28	....00580	9,64
6	66	28	....00600	6,81

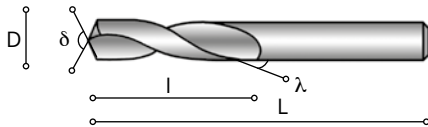
CL 102



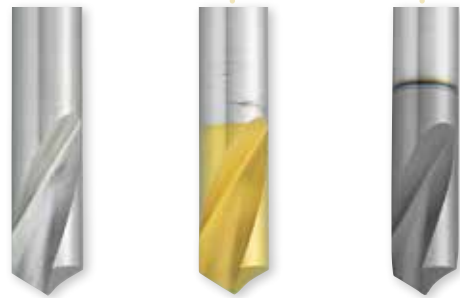
25°-30°



DIN 1412 A



CL102



D h6	L	l	CODE	HSS+8%Co 5102..... €	HSS+8%Co 6102..... € QUARTZ	HSS+8%Co 7102..... € TITANITE
6	66	20	....00060	18,33	22,80	24,84
8	79	25	....00080	20,93	27,00	30,05
10	89	25	....01000	21,56	28,57	32,37
12	102	30	....01200	29,67	38,89	43,72
16	115	35	....01600	46,54	58,88	64,93
20	131	40	....02000	80,22	98,08	105,66

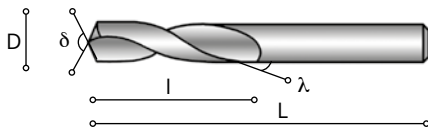
CL 103



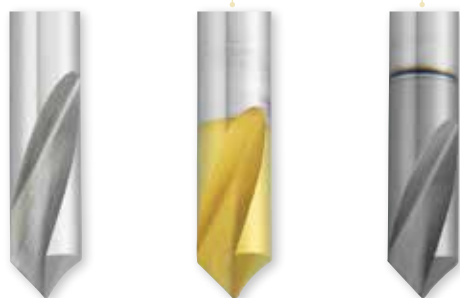
25°-30°



DIN 1412 A

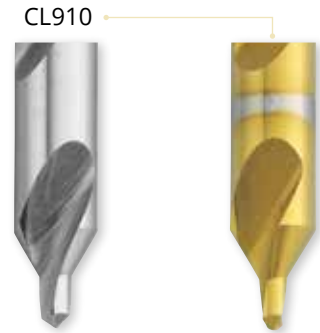
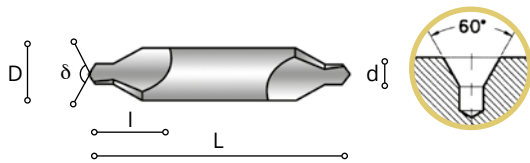


CL103



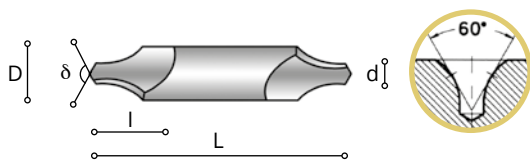
D h6	L	l	CODE	HSS+8%Co 5103..... €	HSS+8%Co 6103..... € QUARTZ	HSS+8%Co 7103..... € TITANITE
6	66	20	....00060	18,33	22,80	24,84
8	79	25	....00080	20,93	27,00	30,05
10	89	25	....01000	21,56	28,57	32,37
12	102	30	....01200	29,67	38,89	43,72
16	115	35	....01600	46,54	58,88	64,93
20	131	40	....02000	81,77	98,08	105,66

CL 910



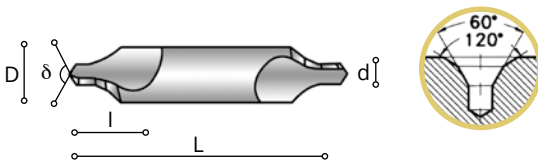
d k13	D h9	L	CODE	HSS 5910..... €	HSS 6910..... € QUARTZ
1	3,15	31,5	....00100	6,84	9,49
1,25	3,15	31,5	....00125	6,72	9,40
1,6	4	35,5	....00160	6,52	9,19
2	5	40	....00200	7,06	10,49
2,5	6,3	45	....00250	7,96	11,99
3,15	8	50	....00315	9,45	13,62
4	10	56	....00400	15,58	21,01
5	12,5	63	....00500	22,33	28,76
6,3	16	71	....00630	32,02	39,42

CL 920

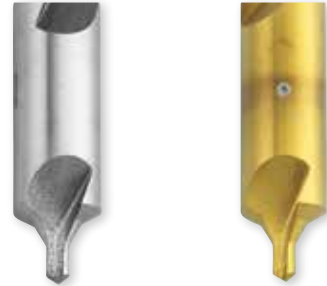


d k13	D h9	L	CODE	HSS 5920..... €	HSS 6920..... € QUARTZ
1	3,15	31,5	....00100	6,99	9,66
1,25	3,15	31,5	....00125	6,89	9,58
1,6	4	35,5	....00160	5,61	8,20
2	5	40	....00200	9,01	12,62
2,5	6,3	45	....00250	9,60	13,79
3,15	8	50	....00315	10,28	14,55
4	10	56	....00400	16,06	21,52
5	12,5	63	....00500	23,59	30,15
6,3	16	71	....00630	33,68	41,25

CL 930



CL930

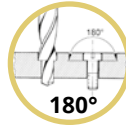
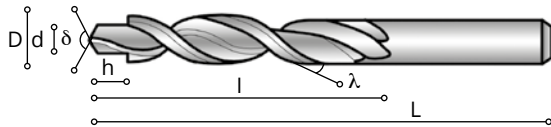


d k13	D h9	L	CODE	HSS 5930..... €	HSS 6930..... € QUARTZ
1	4	35,5	....00100	11,18	14,24
1,25	5	40	....00125	11,41	15,17
1,6	6,3	45	....00160	11,75	16,15
2	8	50	....00200	11,75	16,15
2,5	10	56	....00250	16,13	21,57
3,15	11,2	60	....00315	20,06	25,90
4	14	67	....00400	29,02	36,09
5	18	75	....00500	40,32	49,83
6,3	20	80	....00630	51,84	64,39

CL 270



DIN 1412 A



CL270

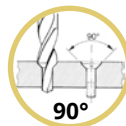
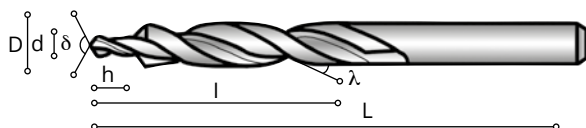


VITE SCREW	D h8	d h9	L	l	h	CODE	HSS 5270..... €
M3	6	3,4	93	57	9	....00003	44,54
M4	8	4,5	117	75	11	....00004	51,92
M5	10	5,5	133	87	13	....00005	59,86
M6	11	6,6	142	94	15	....00006	66,83
M8	15	9	169	114	19	....00008	97,05
M10	18	11	191	130	23	....00010	171,64

CL 271



DIN 1412 A



CL271

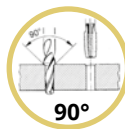
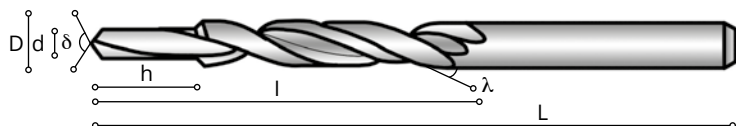


VITE SCREW	D h8	d h9	L	l	h	CODE	HSS 5271..... €
M3	6	3,2	93	57	9	....00003	42,21
M4	8	4,3	117	75	11	....00004	51,11
M5	10	5,3	133	87	13	....00005	64,20
M6	11,5	6,4	142	94	15	....00006	75,84
M8	15	8,4	169	114	19	....00008	125,83

CL 272



DIN 1412 A



CL272



VITE SCREW	D h8	d h9	L	l	h	CODE	HSS 5272..... €
M3	3,4	2,5	70	39	8,8	....00003	38,53
M4	4,5	3,3	80	47	11,4	....00004	40,52
M5	5,5	4,2	93	57	13,6	....00005	42,05
M6	6,6	5	101	63	16,5	....00006	45,25
M8	9	6,8	125	81	21	....00008	51,11
M10	11	8,5	142	94	25,5	....00010	68,60
M12	13,5	10,2	160	108	30	....00012	88,28

CM 300



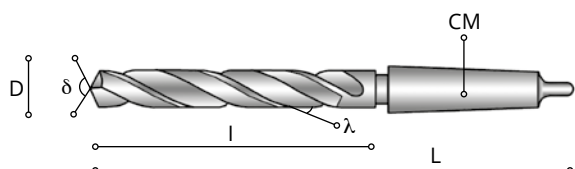
STANDARD



CM 303



STANDARD



CM300



CM303



CM 300 dal diametro 3 al diametro 5,9 fino ad esaurimento
CM 300 from diameter 3,00 to diameter 5,9 until stocks last.

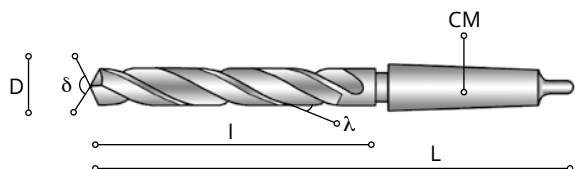
D h8	L	I	CM	CODE	HSS 5300..... €	HSS+5%Co 5303..... €	HSS+5%Co 6303..... € QUARTZ	HSS+5%Co 7303..... € TITANITE
3	114	33	1	....00300	19,04			
3,10	117	36	1	....00310	24,07			
3,20	117	36	1	....00320	24,07			
3,25	117	36	1	....00325	22,24			
3,30	117	36	1	....00330	25,81			
3,40	120	39	1	....00340	25,81			
3,50	120	39	1	....00350	18,28			
3,60	120	39	1	....00360	24,59			
3,70	120	39	1	....00370	24,59			
3,75	120	39	1	....00375	21,82			
3,80	124	43	1	....00380	24,72			
3,90	124	43	1	....00390	24,72			
4,00	124	43	1	....00400	17,36			
4,10	124	43	1	....00410	24,22			
4,20	124	43	1	....00420	24,22			
4,25	124	43	1	....00425	21,78			
4,30	128	47	1	....00430	24,22			
4,40	128	47	1	....00440	24,22			
4,50	128	47	1	....00450	17,21			
4,60	128	47	1	....00460	24,22			
4,70	128	47	1	....00470	24,22			
4,75	128	47	1	....00475	21,78			
4,80	133	52	1	....00480	24,67			
4,90	133	52	1	....00490	24,67			
5,00	133	52	1	....00500	15,69	34,80	44,23	49,40
5,10	133	52	1	....00510	25,67			
5,20	133	52	1	....00520	25,67			
5,25	133	52	1	....00525	21,59			
5,30	133	52	1	....00530	25,67			
5,40	138	57	1	....00540	25,67			
5,50	138	57	1	....00550	16,34	34,18	44,43	49,71
5,60	138	57	1	....00560	25,19			
5,70	138	57	1	....00570	25,19			
5,75	138	57	1	....00575	21,03			
5,80	138	57	1	....00580	25,19			
5,90	138	57	1	....00590	25,19			
6,00	138	57	1	....00600	14,68	34,18	44,43	49,71
6,10	144	63	1	....00610	25,25			
6,20	144	63	1	....00620	25,25			
6,25	144	63	1	....00625	21,81			

D h8	L	I	CM	CODE	HSS 5300..... €	HSS+5%Co 5303..... €	HSS+5%Co 6303..... € QUARTZ	HSS+5%Co 7303..... € TITANITE
6,30	144	63	1	....00630	25,25			
6,40	144	63	1	....00640	25,25			
6,50	144	63	1	....00650	14,36	31,73	43,40	49,93
6,60	144	63	1	....00660	25,25			
6,70	144	63	1	....00670	25,25			
6,75	150	69	1	....00675	17,25			
6,80	150	69	1	....00680	25,25			
6,90	150	69	1	....00690	25,25			
7,00	150	69	1	....00700	15,29	32,44	44,00	50,40
7,10	150	69	1	....00710	26,36			
7,20	150	69	1	....00720	26,36			
7,25	150	69	1	....00725	20,78			
7,30	150	69	1	....00730	26,36			
7,40	150	69	1	....00740	26,36			
7,50	150	69	1	....00750	16,20	34,97	46,94	53,48
7,60	156	75	1	....00760	26,83			
7,70	156	75	1	....00770	26,83			
7,75	156	75	1	....00775	20,78			
7,80	156	75	1	....00780	26,83			
7,90	156	75	1	....00790	26,83			
8,00	156	75	1	....00800	14,79	31,24	42,68	49,08
8,10	156	75	1	....00810	21,53			
8,20	156	75	1	....00820	21,53			
8,25	156	75	1	....00825	20,09			
8,30	156	75	1	....00830	21,53			
8,40	156	75	1	....00840	21,53			
8,50	156	75	1	....00850	15,11	35,07	46,94	53,60
8,60	162	81	1	....00860	23,04			
8,70	162	81	1	....00870	23,04			
8,75	162	81	1	....00875	21,26			
8,80	162	81	1	....00880	23,04			
8,90	162	81	1	....00890	23,04			
9,00	162	81	1	....00900	15,43	37,99	50,13	56,53
9,10	162	81	1	....00910	28,26			
9,20	162	81	1	....00920	28,26			
9,25	162	81	1	....00925	22,37			
9,30	162	81	1	....00930	28,26			
9,40	162	81	1	....00940	28,26			
9,50	162	81	1	....00950	15,43	39,35	51,60	57,99
9,60	168	87	1	....00960	28,26			
9,70	168	87	1	....00970	28,26			
9,75	168	87	1	....00975	23,69			
9,80	168	87	1	....00980	28,26			
9,90	168	87	1	....00990	28,26			
10,00	168	87	1	....01000	16,05	38,48	50,63	57,05
10,10	168	87	1	....01010	22,46			
10,20	168	87	1	....01020	22,46			
10,25	168	87	1	....01025	21,74			
10,30	168	87	1	....01030	22,99			
10,40	168	87	1	....01040	22,99			
10,50	168	87	1	....01050	19,21	41,23	53,67	60,07
10,60	168	87	1	....01060	25,03			
10,70	175	94	1	....01070	25,03			
10,75	175	94	1	....01075	22,78			
10,80	175	94	1	....01080	24,95			
10,90	175	94	1	....01090	24,95			
11,00	175	94	1	....01100	18,81	40,70	53,24	59,78
11,10	175	94	1	....01110	25,72			
11,20	175	94	1	....01120	25,72			
11,25	175	94	1	....01125	22,74			

CM 300



CM 303



CM300



CM303



D h8	L	I	CM	CODE	HSS 5300..... €	HSS+5%Co 5303..... €	HSS+5%Co 6303..... € QUARTZ	HSS+5%Co 7303..... € TITANITE
11,30	175	94	1	....01130	26,89			
11,40	175	94	1	....01140	26,89			
11,50	175	94	1	....01150	20,46	43,42	56,24	62,79
11,60	175	94	1	....01160	25,32			
11,70	175	94	1	....01170	25,32			
11,75	175	94	1	....01175	22,74			
11,80	175	94	1	....01180	26,36			
11,90	182	101	1	....01190	26,36			
12,00	182	101	1	....01200	20,86	42,05	58,56	68,05
12,10	182	101	1	....01210	26,44			
12,20	182	101	1	....01220	26,44			
12,25	182	101	1	....01225	25,17			
12,30	182	101	1	....01230	26,44			
12,40	182	101	1	....01240	26,44			
12,50	182	101	1	....01250	22,11	47,58	64,64	74,13
12,60	182	101	1	....01260	26,44			
12,70	182	101	1	....01270	26,64			
12,75	182	101	1	....01275	23,37			
12,80	182	101	1	....01280	29,28			
12,90	182	101	1	....01290	29,28			
13,00	182	101	1	....01300	23,15	46,31	63,01	72,31
13,20	182	101	1	....01320	31,83			
13,25	189	108	1	....01325	26,19			
13,50	189	108	1	....01350	26,19	64,74	83,27	92,58
13,75	189	108	1	....01375	26,19			
13,80	189	108	1	....01380	31,83			
14,00	189	108	1	....01400	27,56	62,46	80,76	90,07
14,25	212	114	2	....01425	31,38			
14,50	212	114	2	....01450	30,38	70,06	97,11	112,59
14,75	212	114	2	....01475	32,44			
15,00	212	114	2	....01500	32,44	63,50	89,90	105,38
15,25	218	120	2	....01525	33,66			
15,50	218	120	2	....01550	34,49	71,58	98,79	114,27
15,75	218	120	2	....01575	33,97			
16,00	218	120	2	....01600	31,38	68,53	95,44	110,91
16,25	223	125	2	....01625	37,01			
16,50	223	125	2	....01650	35,49	72,81	100,14	115,61
16,75	223	125	2	....01675	37,01			
17,00	223	125	2	....01700	34,72	68,99	95,94	111,42
17,25	228	130	2	....01725	37,77			

D h8	L	I	CM	CODE	HSS 5300..... €	HSS+5%Co 5303..... €	HSS+5%Co 6303..... € QUARTZ	HSS+5%Co 7303..... € TITANITE
17,50	228	130	2	....01750	37,77	75,85	103,49	118,95
17,75	228	130	2	....01775	39,14			
18,00	228	130	2	....01800	39,24	71,29	98,47	113,94
18,25	233	135	2	....01825	42,34			
18,50	233	135	2	....01850	41,43	78,91	116,33	139,13
18,75	233	135	2	....01875	42,34			
19,00	233	135	2	....01900	42,40	74,57	111,54	134,33
19,25	238	140	2	....01925	45,23			
19,50	238	140	2	....01950	43,56	89,02	127,45	150,25
19,75	238	140	2	....01975	47,15			
20,00	238	140	2	....02000	44,46	87,27	124,95	147,30
20,25	243	145	2	....02025	50,73			
20,50	243	145	2	....02050	50,73	105,34	145,39	168,19
20,75	243	145	2	....02075	52,70			
21,00	243	145	2	....02100	50,73	101,72	141,27	163,96
21,25	248	150	2	....02125	56,36			
21,50	248	150	2	....02150	56,36	112,26	152,42	174,77
21,75	248	150	2	....02175	58,55			
22,00	248	150	2	....02200	58,55	106,82	146,86	169,57
22,25	248	150	2	....02225	59,70			
22,50	253	155	2	....02250	59,70	130,33	191,48	228,62
22,75	253	155	2	....02275	63,98			
23,00	253	155	2	....02300	63,82	126,23	186,96	224,11
23,25	276	155	3	....02325	67,47			
23,50	276	155	3	....02350	64,58	136,05	197,76	234,91
23,75	281	160	3	....02375	76,31			
24,00	281	160	3	....02400	67,62	139,45	201,52	238,66
24,25	281	160	3	....02425	77,52			
24,50	281	160	3	....02450	73,18	148,04	.	.
24,75	281	160	3	....02475	81,49			
25,00	281	160	3	....02500	71,25	143,33	.	.
25,25	286	165	3	....02525	86,66			
25,50	286	165	3	....02550	83,46	178,96	.	.
25,75	286	165	3	....02575	90,62			
26,00	286	165	3	....02600	84,83	169,83	.	.
26,25	286	165	3	....02625	91,54			
26,50	286	165	3	....02650	85,29	189,02	.	.
26,75	291	170	3	....02675	97,93			
27,00	291	170	3	....02700	91,23	187,03	.	.
27,25	291	170	3	....02725	101,90			
27,50	291	170	3	....02750	91,46	222,07	.	.
27,75	291	170	3	....02775	102,05			
28,00	291	170	3	....02800	93,82	192,06	.	.
28,25	296	175	3	....02825	108,75			
28,50	296	175	3	....02850	101,44	233,33	.	.
28,75	296	175	3	....02875	110,73			
29,00	296	175	3	....02900	98,24	201,20	.	.
29,25	296	175	3	....02925	112,41			
29,50	296	175	3	....02950	102,70	243,55	.	.
29,75	296	175	3	....02975	112,41			
30,00	296	175	3	....03000	102,06	212,93	.	.
30,25	301	180	3	....03025	128,09			
30,50	301	180	3	....03050	128,09	258,17	.	.
30,75	301	180	3	....03075	128,09			
31,00	301	180	3	....03100	122,46	258,17	.	.
31,25	301	180	3	....03125	134,34			
31,50	301	180	3	....03150	134,34	283,00	.	.
31,75	306	185	3	....03175	134,34			
32,00	334	185	4	....03200	134,03	282,23	.	.
32,50	334	185	4	....03250	144,24	341,17	.	.

● a richiesta - on demand

CM 300



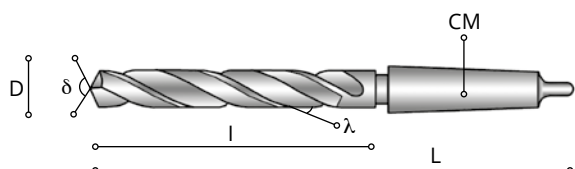
STANDARD



CM 303



STANDARD



CM300



CM303



D h8	L	I	CM	CODE	HSS 5300..... €	HSS+5%Co 5303..... €	HSS+5%Co 6303..... € QUARTZ	HSS+5%Co 7303..... € TITANITE
33,00	334	185	4	....03300	143,17	341,17	•	•
33,50	334	185	4	....03350	160,23	388,54	•	•
34,00	339	190	4	....03400	160,07	370,87	•	•
34,50	339	190	4	....03450	179,88	370,87	•	•
35,00	339	190	4	....03500	160,07	370,87	•	•
35,50	339	190	4	....03550	181,40	447,03	•	•
36,00	344	195	4	....03600	182,47	447,03	•	•
36,50	344	195	4	....03650	195,87	466,83	•	•
37,00	344	195	4	....03700	188,71	466,83	•	•
37,50	344	195	4	....03750	207,60	535,37	•	•
38,00	349	200	4	....03800	206,08	535,37	•	•
38,50	349	200	4	....03850	249,48	556,08	•	•
39,00	349	200	4	....03900	206,04	556,08	•	•
39,50	349	200	4	....03950	251,77	556,08	•	•
40,00	349	200	4	....04000	221,61	538,41	•	•
40,50	354	205	4	....04050	264,87	553,39	•	•
41,00	354	205	4	....04100	245,52	553,57	•	•
41,50	354	205	4	....04150	283,15	580,65	•	•
42,00	354	205	4	....04200	256,03	578,27	•	•
42,50	354	205	4	....04250	289,54	650,59	•	•
43,00	359	210	4	....04300	280,86	641,58	•	•
43,50	359	210	4	....04350	319,09	665,26	•	•
44,00	359	210	4	....04400	287,26	662,96	•	•
44,50	359	210	4	....04450	341,79	723,98	•	•
45,00	359	210	4	....04500	304,77	709,60	•	•
45,50	364	215	4	....04550	345,59	724,95	•	•
46,00	364	215	4	....04600	308,13	717,91	•	•
46,50	364	215	4	....04650	388,08	759,08	•	•
47,00	364	215	4	....04700	325,64	754,30	•	•
47,50	364	215	4	....04750	397,68	783,37	•	•
48,00	369	220	4	....04800	355,49	778,47	•	•
48,50	369	220	4	....04850	412,46	800,13	•	•
49,00	369	220	4	....04900	364,93	800,13	•	•
49,50	369	220	4	....04950	417,48	838,46	•	•
50,00	369	220	4	....05000	373,15	838,46	•	•
50,50	374	225	4	....05050	438,50			
51	412	225	5	....05100	457,84			
52	412	225	5	....05200	473,99			
53	412	225	5	....05300	479,78			
54	417	230	5	....05400	516,17			

• a richiesta - on demand

D h8	L	I	CM	CODE	HSS 5300..... €	HSS+5%Co 5303..... €	HSS+5%Co 6303..... € QUARTZ	HSS+5%Co 7303..... € TITANITE
55	417	230	5	....05500	524,56			
56	417	230	5	....05600	524,56			
57	422	235	5	....05700	555,62			
58	422	235	5	....05800	587,15			
59	422	235	5	....05900	587,15			
60	422	235	5	....06000	608,18			
61	427	240	5	....06100	649,68			
62	427	240	5	....06200	672,06			
63	427	240	5	....06300	712,98			
64	432	245	5	....06400	730,53			
65	432	245	5	....06500	772,77			
66	432	245	5	....06600	828,31			
67	432	245	5	....06700	828,31			
68	437	250	5	....06800	889,60			
69	437	250	5	....06900	944,48			
70	437	250	5	....07000	973,05			
71	437	250	5	....07100	993,43			
72	442	255	5	....07200	1062,31			
73	442	255	5	....07300	1105,40			
74	442	255	5	....07400	1155,94			
75	442	255	5	....07500	1185,64			
76	447	260	5	....07600	1284,88			
77	514	260	6	....07700	1437,48			
78	514	260	6	....07800	1465,67			
79	514	260	6	....07900	1533,49			
80	514	260	6	....08000	1568,15			
85	519	265	6	....08500	2017,01			
90	524	270	6	....09000	2154,09			
95	529	275	6	....09500	2608,93			
100	534	280	6	....10000	2859,58			

CM 301



STANDARD

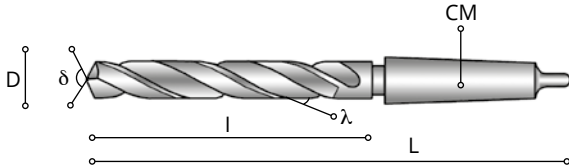


CM 302

FORI PROFONDI
DEEP HOLE



DIN 1412 C



CM301



CM302



D h8	L	I	CM	CODE	HSS	HSS+5%Co	HSS+5%Co	HSS+5%Co
					5301..... €	5302..... €	6302..... € QUARTZ	7302..... € TITANITE
8	181	100	1	....00800	29,25	48,06	65,64	76,53
8,5	181	100	1	....00850	26,80	49,75	67,47	78,35
9	188	107	1	....00900	30,58	57,03	75,27	86,16
9,5	188	107	1	....00950	33,38	59,47	77,89	88,79
10	197	116	1	....01000	34,71	60,04	78,51	89,39
10,5	197	116	1	....01050	35,94	64,19	82,96	93,84
11	206	125	1	....01100	36,91	69,20	88,32	99,21
11,5	206	125	1	....01150	36,91	74,39	93,89	104,78
12	215	134	1	....01200	36,91	75,05	98,39	112,18
12,5	215	134	1	....01250	37,95	78,17	101,72	115,52
13	215	134	1	....01300	38,09	84,20	108,19	121,99
13,5	223	142	1	....01350	42,68	92,46	116,19	129,40
14	223	142	1	....01400	45,57	97,07	121,13	134,33
14,5	245	147	2	....01450	56,63	113,17	143,70	161,03
15	245	147	2	....01500	56,63	116,35	147,09	164,42
15,5	251	153	2	....01550	62,07	121,85	159,87	170,33
16	251	153	2	....01600	62,07	127,10	165,50	175,95
16,5	257	159	2	....01650	65,13	136,87	175,95	186,41
17	257	159	2	....01700	65,13	144,38	184,00	194,46
17,5	263	165	2	....01750	72,62	150,90	190,98	201,44
18	263	165	2	....01800	69,56	159,67	200,39	210,84
18,5	269	171	2	....01850	79,25	163,74	217,01	249,12
19	269	171	2	....01900	73,63	172,70	226,62	258,73
19,5	275	177	2	....01950	86,05	182,20	236,79	268,89
20	275	177	2	....02000	79,42	188,71	243,77	275,88
20,5	282	184	2	....02050	86,72			
21	282	184	2	....02100	103,56	197,29	252,96	285,06
21,5	289	191	2	....02150	107,14			
22	289	191	2	....02200	103,56	208,25	264,69	296,82
22,5	296	198	2	....02250	111,04			
23	296	198	2	....02300	111,37	230,18	299,69	340,68
23,5	319	198	3	....02350	121,33			
24	327	206	3	....02400	137,81	251,25	338,20	391,48
24,5	327	206	3	....02450	147,95			
25	327	206	3	....02500	137,81	276,56	•	•
25,5	335	214	3	....02550	147,95			
26	335	214	3	....02600	143,70	294,02	•	•
26,5	335	214	3	....02650	152,19			
27	343	222	3	....02700	164,80	340,95	•	•
27,5	343	222	3	....02750	166,66			

• a richiesta - on demand

D h8	L	I	CM	CODE	HSS 5301..... €	HSS+5%Co 5302..... €	HSS+5%Co 6302..... € QUARTZ	HSS+5%Co 7302..... € TITANITE
28	343	222	3	....02800	174,86	353,87	•	•
28,5	351	230	3	....02850	188,93			
29	351	230	3	....02900	188,76	381,04	•	•
29,5	351	230	3	....02950	204,41			
30	351	230	3	....03000	195,05	407,09	•	•

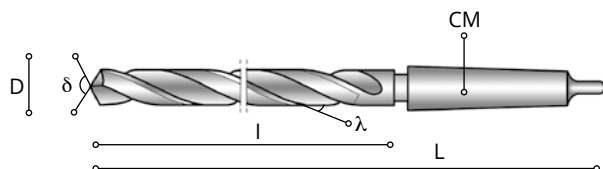
● a richiesta - on demand

CM 304



CM 306

FORI PROFONDI
DEEP HOLE



CM304



CM306



D h8	L	I	CM	CODE	HSS 5304..... €	HSS+5%Co 5306..... €	HSS+5%Co 6306..... € QUARTZ	HSS+5%Co 7306..... € TITANITE
8	265	165	1	....00800	51,48	82,58	112,17	128,65
8,5	265	165	1	....00850	57,71	98,96	130,19	146,65
9	275	175	1	....00900	62,46	97,43	129,41	146,55
9,5	275	175	1	....00950	67,23	105,26	137,11	153,57
10	285	185	1	....01000	63,85	98,55	129,74	146,21
10,5	285	185	1	....01050	71,59	121,51	155,00	171,46
11	300	195	1	....01100	87,43	111,64	147,67	166,87
11,5	300	195	1	....01150	91,31	113,74	149,99	169,21
12	310	205	1	....01200	92,45	118,13	163,79	182,78
12,5	310	205	1	....01250	91,70	135,61	178,19	194,46
13	310	205	1	....01300	94,12	130,68	172,75	189,02
13,5	325	220	1	....01350	96,65	147,23	190,97	207,24
14	325	220	1	....01400	96,65	150,20	194,21	210,48
14,5	340	220	2	....01450	101,95	164,30	222,53	246,13
15	340	220	2	....01500	104,44	166,56	225,03	248,62
15,5	355	230	2	....01550	122,46	183,52	264,55	299,93
16	355	230	2	....01600	117,06	184,00	265,10	300,47
16,5	355	230	2	....01650	127,76	193,66	275,72	311,09
17	355	230	2	....01700	127,76	200,54	283,29	318,68
17,5	370	245	2	....01750	151,31	212,79	•	•
18	370	245	2	....01800	138,13	221,65	•	•
18,5	370	245	2	....01850	142,76	239,27	•	•
19	370	245	2	....01900	149,39	239,67	•	•
19,5	385	260	2	....01950	159,37	266,97	•	•
20	385	260	2	....02000	163,28	265,74	•	•
20,5	385	260	2	....02050	175,00	335,54	•	•
21	385	260	2	....02100	185,63	317,64	•	•
21,5	405	270	2	....02150	217,89	363,03	•	•
22	405	270	2	....02200	205,21	347,46	•	•
22,5	405	270	2	....02250	237,26	386,42	•	•
23	405	270	2	....02300	226,39	376,47	•	•
23,5	425	270	3	....02350	280,80	472,21	•	•
24	440	290	3	....02400	255,66	431,20	•	•
24,5	440	290	3	....02450	299,12	509,48	•	•
25	440	290	3	....02500	270,88	446,89	•	•
25,5	440	290	3	....02550	323,86	542,08	•	•
26	440	290	3	....02600	290,74	491,28	•	•
26,5	440	290	3	....02650	342,76	550,48	•	•
27	460	305	3	....02700	300,42	510,23	•	•
27,5	460	305	3	....02750	336,56	598,86	•	•

• a richiesta - on demand

D h8	L	I	CM	CODE	HSS 5304..... €	HSS+5%Co 5306..... €	HSS+5%Co 6306..... € QUARTZ	HSS+5%Co 7306..... € TITANITE
28	460	305	3	....02800	323,22	540,97	•	•
28,5	460	305	3	....02850	379,77	635,46	•	•
29	460	305	3	....02900	342,76	581,07	•	•
29,5	460	305	3	....02950	388,82	646,45	•	•
30	460	305	3	....03000	372,36	614,13	•	•
30,5	480	320	3	....03050	443,29			
31	480	320	3	....03100	402,64	733,22	•	•
32	505	320	4	....03200	430,95			
33	505	320	4	....03300	475,04			
34	530	340	4	....03400	504,14			
35	530	340	4	....03500	512,32			
36	530	340	4	....03600	544,74			
37	530	340	4	....03700	562,91			
38	555	360	4	....03800	591,39			
39	555	360	4	....03900	613,34			
40	555	360	4	....04000	652,59			
41	555	360	4	....04100	697,97			
42	555	360	4	....04200	721,22			
43	585	385	4	....04300	806,60			
44	585	385	4	....04400	837,67			
45	585	385	4	....04500	883,39			
46	585	385	4	....04600	927,19			
47	585	385	4	....04700	976,59			
48	605	405	4	....04800	1072,72			
49	605	405	4	....04900	1126,28			
50	605	405	4	....05000	1177,71			

● a richiesta - on demand

CM 305



STANDARD

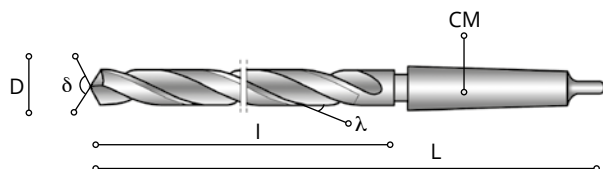


CM 307

FORI PROFONDI
DEEP HOLE



DIN 1412 C



CM305



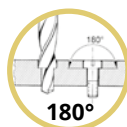
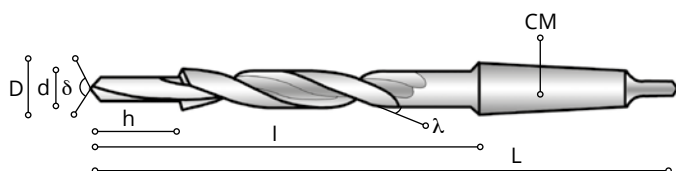
CM307



D h8	L	I	CM	CODE	HSS 5305..... €	HSS+5%Co 5307..... €
8	330	210	1	....00800	75,15	120,72
8,5	330	210	1	....00850	82,12	135,11
9	345	220	1	....00900	87,98	139,94
9,5	345	220	1	....00950	92,94	154,42
10	360	235	1	....01000	84,60	138,58
10,5	360	235	1	....01050	100,48	170,80
11	375	250	1	....01100	106,74	162,61
11,5	375	250	1	....01150	114,07	174,14
12	395	260	1	....01200	109,67	174,14
12,5	395	260	1	....01250	121,61	193,57
13	395	260	1	....01300	126,20	187,83
13,5	410	275	1	....01350	138,86	211,69
14	410	275	1	....01400	142,70	210,41
14,5	425	275	2	....01450	148,92	231,41
15	425	275	2	....01500	148,92	231,41
15,5	445	295	2	....01550	161,56	247,25
16	445	295	2	....01600	158,39	254,36
16,5	445	295	2	....01650	167,23	272,30
17	445	295	2	....01700	176,53	287,37
17,5	465	310	2	....01750	184,39	325,31
18	465	310	2	....01800	195,09	344,21
18,5	465	310	2	....01850	200,12	353,80
19	465	310	2	....01900	210,98	372,27
19,5	490	325	2	....01950	222,62	392,77
20	490	325	2	....02000	230,57	412,67
20,5	490	325	2	....02050	237,17	441,81
21	490	325	2	....02100	241,10	431,50
21,5	515	345	2	....02150	265,99	491,19
22	515	345	2	....02200	265,99	478,83
22,5	515	345	2	....02250	281,63	517,71
23	515	345	2	....02300	288,36	517,71
23,5	535	345	3	....02350	333,36	623,98
24	555	365	3	....02400	315,55	571,65
24,5	555	365	3	....02450	367,17	656,03
25	555	365	3	....02500	351,38	619,31
25,5	555	365	3	....02550	411,54	764,78
26	555	365	3	....02600	385,23	688,19
26,5	555	365	3	....02650	439,20	821,19
27	580	385	3	....02700	414,21	728,48
27,5	580	385	3	....02750	469,79	869,52

D h8	L	I	CM	CODE	HSS 5305..... €	HSS+5%Co 5307..... €
28	580	385	3	....02800	416,89	791,63
28,5	580	385	3	....02850	467,94	905,55
29	580	385	3	....02900	481,78	876,53
29,5	580	385	3	....02950	526,37	966,43
30	580	385	3	....03000	514,65	911,20
31	610	410	3	....03100	547,13	
32	635	410	4	....03200	579,69	
33	635	410	4	....03300	645,85	
34	665	430	4	....03400	645,85	
35	665	430	4	....03500	645,85	
36	665	430	4	....03600	649,06	
37	665	430	4	....03700	734,06	
38	695	460	4	....03800	745,07	
39	695	460	4	....03900	757,77	
40	695	460	4	....04000	770,22	
41	695	460	4	....04100	860,96	
42	695	460	4	....04200	909,64	
43	735	490	4	....04300	997,39	
44	735	490	4	....04400	1026,58	
45	735	490	4	....04500	1061,91	
46	735	490	4	....04600	1114,64	
47	735	490	4	....04700	1173,99	
48	765	510	4	....04800	1289,54	
49	765	510	4	....04900	1353,98	
50	765	510	4	....05000	1415,82	

CM 370

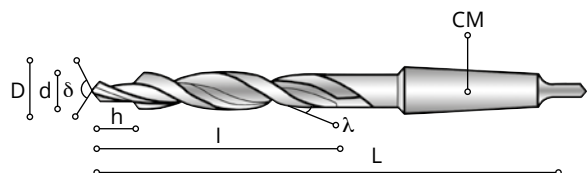


CM370



VITE SCREW	D h8	d h9	L	l	h	CM	CODE	HSS 5370..... €
M5	10	5,5	168	87	13	1	....00005	89,95
M6	11	6,6	175	94	15	1	....00006	90,84
M8	15	9	212	114	19	2	....00008	122,72
M10	18	11	228	130	23	2	....00010	162,87
M12	20	13,5	238	140	27	2	....00012	194,00
M14	24	15,5	281	160	31	3	....00014	242,15
M16	26	17,5	286	165	35	3	....00016	285,08
M18	30	20	296	175	39	3	....00018	331,30
M20	33	22	334	185	43	4	....00020	386,57

CM 371



CM371

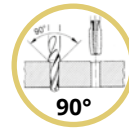
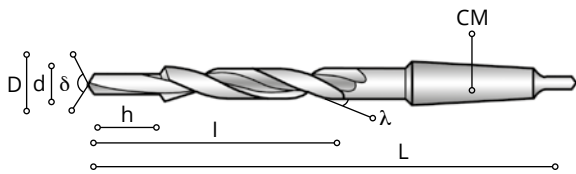


VITE SCREW	D h8	d h9	L	l	h	CM	CODE	HSS 5371..... €
M5	11	5,5	175	94	13	1	....00005	98,86
M6	13	6,6	182	101	15	1	....00006	107,05
M8	17,2	9	228	130	19	2	....00008	154,15
M10	21,5	11	248	150	23	2	....00010	222,57

CM 372




DIN 1412 A








CM372



VITE SCREW	D h8	d h9	L	l	h	CM	CODE	HSS 5372..... €
M8	9	6,8	162	81	21	1	....00008	82,32
M10	11	8,5	175	94	25,5	1	....00010	96,29
M12	13,5	10,2	189	108	30	1	....00012	115,07
M14	15,5	12	218	120	34,5	2	....00014	138,33
M16	17,5	14	228	130	38,5	2	....00016	165,54
M18	20	15,5	238	140	43,5	2	....00018	190,00
M20	22	17,5	248	150	47,5	2	....00020	224,43

Articolo Article	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
ALESATORI REAMERS							
ALESATORI A MANO CODOLO CILINDRICO HAND REAMERS SHANK							
 AL 111	Acciai comuni Standard steel		HSS	White	DIN 206/B	3-40	80
 AS 115	Acciai comuni Standard steel		HSS	White	DIN 9/A	5 -20	81
ALESATORI A MACCHINA MACHINE REAMERS							
 AM 117	Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 212 B/D	2 - 20	82
 AM 112	Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 208/B	5 - 40	84
ALESATORI A MACCHINA TIPO A MANICOTTO FORO CONICO 1:30 SHELL REAMERS, TAPER HOLE 1:30							
 AMM 113	Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 219/B	20 - 80	85
 AFE 116	Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 219/C	25 - 60	85
MANDRINI PER ALESATORI A MANICOTTO ARBOR FOR SHELL REAMERS							
 MAN 114			1.5990 - DIN16 CrNi4	White	DIN 217/B	10 - 40	86
SVASATORI COUNTERSINKS							
CODOLO CILINDRICO SHANK							
 SV 74	Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 335 C	10,4 - 31	87
 SV 74	Acciai tenaci Hardened steel		HSS+5%CO	Sapphire MULTI	DIN 335 C	10,4 - 31	87
 SV 75	Acciai tenaci Hardened steel		HSS	White	DIN 335 C	5,3 - 31	88
 SV 75	Acciai tenaci Hardened steel		HSS	Quartz	DIN 335 C	5,3 - 31	88
 SV 75	Acciai tenaci Hardened steel		HSS	Sapphire	DIN 335 C	5,3 - 31	88
 SV 76	Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 335 C	6,3 - 31	89
 SV 76	Acciai tenaci Hardened steel		HSS+5%CO	Quartz	DIN 335 C	6,3 - 31	89
 SV 76	Acciai tenaci Hardened steel		HSS+5%CO	Sapphire	DIN 335 C	6,3 - 31	89

Articolo Article	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
 SV 77			HSS	White			89
 SV 77			HSS	Quartz			89
CODOLO CONO MORSE MORSE TAPER SHANK							
 SV 72	Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 334 B DIN 335 B	25 - 50	87
SVASATORI PER SEDI DI VITI A TESTA CILINDRICA COUNTERBORES FOR CAPSCREW							
CODOLO CILINDRICO SHANK							
 BR 51	Acciai comuni Standard steel		HSS+5%CO	White	DIN 373	M3 - M20	90
CODOLO CONO MORSE MORSE TAPER SHANK							
 BR 52	Acciai comuni Standard steel		HSS+5%CO	White	DIN 375	M6 - M24	91



rpm
 $= (\text{mm}/\text{min} \times 1000) / (D \times 3,14)$



mm/min
 $= \text{mm}/\text{rev} \times \text{rpm}$



= mt/min

















= mm/rev
 (vedi tabella - see table page pag.78)

				ALESATORI A MANO HAND REAMERS		ALESATORI A MACCHINA MACHINE REAMERS							
				HSS		HSS+5%Co						HSS+5%Co	
Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	160			20 f	20 f	18 f	15 f			30 d
	Acciai da costruzione Structural steel	2	700	220			18 f	18 f	15 f	12 e			25 c
	Acciai da tempra Hardening steel	3	900	280			15 f	15 f	12 e	10 d			20 c
	Acciaio automatico Automatic steel	4	1200	373			10 d	10 d	8 d	6 d			10 b
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	268			12 e	12 e	10 d	8 d			12 b
	Austenitico Austenitic	3	850	268			6 c	6 c	4 c	2 b			10 b
	Ferritico+austenitico Ferritic austenitic	4	1000	317			4 c	4 c	2 b	2 a			5 a
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	160			15 g	15 g	12 e	10 e			20 d
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	220			12 e	12 e	10 d	8 d			12 d
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	160			12 e	12 e	10 d	8 d			10 b
	Leghe di titanio Titanium alloys	5	900	280			4 c	4 c	6 d	4 c			5 a
RAME COPPER	Rame Copper	9	350	110			20 g	20 g	15 f	12 e			25 c
	Ottone Brass	9	700	220			25 h	25 h	18 f	15 f			20 c
	Bronzo Bronze	9	700	220			20 g	20 g	15 f	12 e			25 d
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	220			6 c	6 c	4 c	2 b			5 a
	Leghe di nichel Nichel alloys	6	900	280			4 c	4 c	2 b	1 a			1 a
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110					20 h	18 h			30 e
	Alluminio con leghe Alloyed aluminium	7	400	125					18 h	15 h			25 d
	Alluminio con leghe Alloyed aluminium	7	500	160					15 f	12 e			20 c

SVASATORI CONICI COUNTERSINKS

SVASATORI PER SEDI DI VITI A TESTA CILINDRICA COUNTER BORES FOR CAPSCREWS

																			
SV74	SV74	SV75	SV75	SV75	SV75	SV76	SV76	SV76	SV76	SV76	SV76	SV77	SV77	SV77	SV77	BR51	BR51	BR52	BR52
DIN 335C										DIN 335C						DIN 373		DIN 375	
HSS+8%Co		HSS				HSS+5%Co						HSS+5%Co							
																			
mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev
30 d	40 d	30 d	32 d	40 d	30 d	32 d	40 d								25 c	25 c			
25 c	35 c	25 c	28 c	35 c	25 c	28 c	35 c								20 c	20 c			
20 c	30 c	20 c	24 c	30 c	20 c	24 c	30 c								18 b	18 b			
10 b	15 c	10 b	12 b	15 c	10 b	12 b	15 c								10 b	10 b			
12 b	22 b	12 b	17 b	22 b	12 b	17 b	22 b								8 b	8 b			
10 b	20 b	10 b	16 b	20 b	10 b	16 b	20 b								4 b	4 b			
5 a	10 a	5 a	8 a	10 a	5 a	8 a	10 a								4 a	4 a			
20 d	30 d	20 d	24 d	30 d	20 d	24 d	30 d								20 d	20 d			
12 d	20 d	12 d	16 d	20 d	12 d	16 d	20 d								10 c	10 c			
10 b	18 d	10 b	14 b	18 d	10 b	14 b	18 d								10 c	10 c			
5 a	10 a	5 a	8 a	10 a	5 a	8 a	10 a								5 c	5 c			
25 c	35 c	25 c	28 c	35 c	25 c	28 c	35 c								20 b	20 b			
20 c	30 c	20 c	24 c	30 c	20 c	24 c	30 c								18 b	18 b			
25 d	35 d	25 d	28 d	35 d	25 d	28 d	35 d								20 b	20 b			
5 a	10 a	5 a	8 a	10 a	5 a	8 a	10 a								5 c	5 c			
1 a	3 a	1 a	2 a	3 a	1 a	2 a	3 a								1 a	1 a			
30 e	40 e	30 e	32 e	40 e	30 e	32 e	40 e								25 d	25 d			
25 d	35 d	25 d	28 d	35 d	25 d	28 d	35 d								20 d	20 d			
20 c	30 c	20 c	24 c	30 c	20 c	24 c	30 c								18 d	18 d			

FORATURA DRILLING	TABELLA PARAMETRI DI AVANZAMENTO mm/giro RECOMMENDED FEED DATA mm/rev.																
	DIAMETRO DELLA PUNTA DRILL DIAMETER																
	LETTERA DI RIFERIMENTO REFERENCE LETTER	D. 1	D. 2	D. 3	D. 4	D. 5	D. 6	D. 8	D. 10	D. 12	D. 14	D. 16	D. 20	D. 25	D. 30	D. 35	D. 40	D. 50
a	0,015	0,030	0,038	0,047	0,053	0,060	0,075	0,090	0,100	0,120	0,127	0,160	0,200	0,230	0,250	0,300	0,350
b	0,020	0,050	0,070	0,085	0,100	0,120	0,150	0,180	0,200	0,230	0,250	0,270	0,290	0,330	0,350	0,380	0,400
c	0,023	0,080	0,100	0,130	0,150	0,180	0,250	0,270	0,280	0,300	0,330	0,370	0,420	0,450	0,470	0,500	0,550
d	0,030	0,100	0,160	0,180	0,220	0,240	0,300	0,370	0,400	0,450	0,480	0,500	0,530	0,550	0,580	0,600	0,630
e	0,035	0,120	0,200	0,250	0,270	0,300	0,350	0,450	0,470	0,500	0,530	0,550	0,600	0,640	0,680	0,700	0,730
f	0,050	0,150	0,220	0,250	0,320	0,400	0,490	0,620	0,650	0,720	0,850	0,900	1,100	1,130	1,170	1,200	1,250
g	0,070	0,160	0,250	0,270	0,360	0,470	0,620	0,830	0,900	0,950	1,100	1,200	1,280	1,330	1,400	1,470	1,520
h	0,090	0,200	0,270	0,300	0,400	0,520	0,750	1,000	1,100	1,200	1,300	1,350	1,430	1,500	1,650	1,700	1,800





max 2 mm

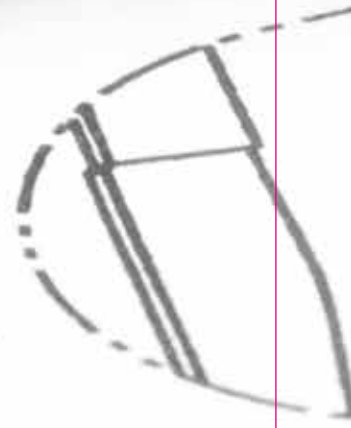
E

30 ± 0.05

5 ± 0.02

15

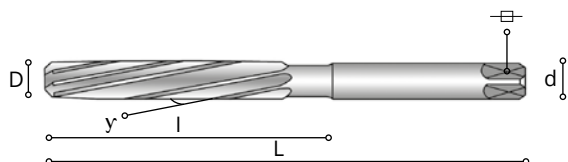
M 5-1



AL 111



7°-10°

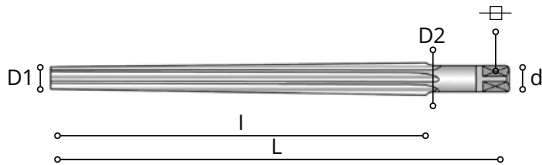


AL111



D H7	L	l	d e9		z	CODE	HSS 1111..... €
3	62	31	3	2,1	4	....03000	31,00
4	76	38	4	3	6	....04000	31,64
5	87	44	5	3,8	6	....50000	35,41
6	93	47	6	4,3	6	....60000	34,68
7	107	54	7	5,5	6	....70000	39,91
8	115	58	8	6,2	6	....80000	43,52
9	124	62	9	7	6	....90000	44,93
10	133	66	10	8	6	....10000	45,96
11	142	71	11	9	6	....11000	52,70
12	152	76	12	10	8	....12000	51,60
13	152	76	13	10	8	....13000	61,99
14	163	81	14	11	8	....14000	60,43
15	163	81	15	11	8	....15000	65,91
16	175	87	16	12	8	....16000	67,47
17	175	87	17	12	8	....17000	83,69
18	188	93	18	14,5	8	....18000	81,22
19	188	93	19	14,5	8	....19000	92,68
20	201	100	20	16	8	....20000	97,44
21	201	100	21	16	8	....21000	113,40
22	215	107	22	18	8	....22000	106,05
23	215	107	23	18	8	....23000	133,57
24	231	115	24	20	8	....24000	126,34
25	231	115	25	20	10	....25000	135,06
26	231	115	26	20	10	....26000	146,07
27	247	124	27	22	10	....27000	186,05
28	247	124	28	22	10	....28000	170,12
29	247	124	29	22	10	....29000	194,62
30	247	124	30	22	10	....30000	185,63
32	265	133	32	24	10	....32000	206,98
34	284	142	34	29	10	....34000	227,97
35	284	142	35	29	10	....35000	241,07
36	284	142	36	29	10	....36000	253,86
38	305	152	38	32	12	....38000	294,57
40	305	152	40	32	12	....40000	327,46

AS 115
CONICITÀ 1:50
TAPER 1:50



AS115

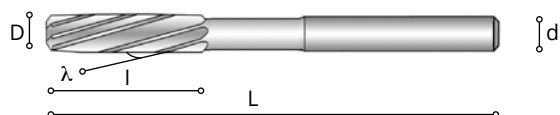


D Nom.	D1	D2	L	I	d h11		z	CODE	HSS 1115..... €
5	4,9	6,36	100	73	6,3	4,9	5	....50000	49,50
6	5,9	8	135	105	8	6,2	5	....60000	58,33
6,5	6,4	8,6	140	110	8	6,2	5	....65000	65,66
8	7,9	10,8	180	145	10	8	5	....80000	70,70
10	9,9	13,4	215	175	12,5	10	7	....10000	86,62
12	11,8	16	255	210	14	11	7	....12000	118,08
16	15,8	20,4	280	230	18	14,5	9	....16000	180,94
20	19,8	24,8	310	250	22,4	18	9	....20000	376,74

AM 117



7°-10°



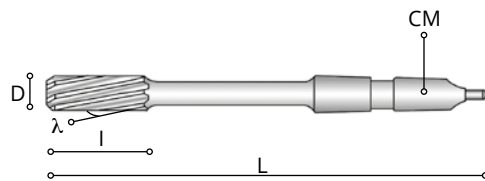
AM117



D H7	L	l	d h9	Z	CODE	HSS+5%Co 1117..... €
2	49	11	2	4	....02000	27,06
2,1	49	11	2,1	4	....21000	31,89
2,2	53	12	2,2	4	....22000	31,89
2,3	53	12	2,3	4	....23000	31,89
2,4	57	14	2,4	4	....24000	31,89
2,5	57	14	2,5	4	....25000	25,61
2,6	57	14	2,6	4	....26000	29,89
2,7	61	15	2,7	4	....27000	29,89
2,8	61	15	2,8	4	....28000	29,89
2,9	61	15	2,9	4	....29000	29,89
3	61	15	3	4	....30000	25,61
3,1	65	16	3,1	4	....31000	31,23
3,2	65	16	3,2	4	....32000	31,23
3,3	65	16	3,3	4	....33000	31,23
3,4	70	18	3,4	4	....34000	31,23
3,5	70	18	3,5	6	....35000	27,07
3,6	70	18	3,6	6	....36000	33,06
3,7	70	18	3,7	6	....37000	33,06
3,8	75	19	4	6	....38000	33,06
3,9	75	19	4	6	....39000	33,06
4	75	19	4	6	....40000	27,07
4,1	75	19	4	6	....41000	33,89
4,2	75	19	4	6	....42000	33,89
4,3	80	21	4,5	6	....43000	33,89
4,4	80	21	4,5	6	....44000	33,89
4,5	80	21	4,5	6	....45000	30,06
4,6	80	21	4,5	6	....46000	35,41
4,7	80	21	4,5	6	....47000	35,41
4,8	86	23	5	6	....48000	35,41
4,9	86	23	5	6	....49000	35,41
5	86	23	5	6	....50000	30,06
5,1	86	23	5	6	....51000	39,22
5,2	86	23	5	6	....52000	39,22
5,3	86	23	5	6	....53000	39,22
5,4	93	26	5,6	6	....54000	39,22
5,5	93	26	5,6	6	....55000	32,34
5,6	93	26	5,6	6	....56000	37,32
5,7	93	26	5,6	6	....57000	37,32
5,8	93	26	5,6	6	....58000	37,32
5,9	93	26	5,6	6	....59000	37,32

D H7	L	I	d h9	Z	CODE	HSS+5%Co 1117..... €
6	93	26	5,6	6	....60000	31,61
6,1	101	28	6,3	6	....61000	41,99
6,2	101	28	6,3	6	....62000	41,99
6,3	101	28	6,3	6	....63000	41,99
6,4	101	28	6,3	6	....64000	41,99
6,5	101	28	6,3	6	....65000	33,15
6,6	101	28	6,3	6	....66000	39,88
6,7	101	28	6,3	6	....67000	39,88
6,8	109	31	7,1	6	....68000	39,88
6,9	109	31	7,1	6	....69000	39,88
7	109	31	7,1	6	....70000	33,15
7,1	109	31	7,1	6	....71000	44,25
7,2	109	31	7,1	6	....72000	44,25
7,3	109	31	7,1	6	....73000	44,25
7,4	109	31	7,1	6	....74000	44,25
7,5	109	31	7,1	6	....75000	34,61
7,6	117	33	8	6	....76000	41,51
7,7	117	33	8	6	....77000	41,51
7,8	117	33	8	6	....78000	41,51
7,9	117	33	8	6	....79000	41,51
8	117	33	8	6	....80000	34,61
8,1	117	33	8	6	....81000	49,38
8,2	117	33	8	6	....82000	49,38
8,3	117	33	8	6	....83000	49,38
8,4	117	33	8	6	....84000	49,38
8,5	117	33	8	6	....85000	39,13
8,6	125	36	9	6	....86000	44,93
8,7	125	36	9	6	....87000	44,93
8,8	125	36	9	6	....88000	44,93
8,9	125	36	9	6	....89000	44,93
9	125	36	9	6	....90000	40,59
9,1	125	36	9	6	....91000	51,44
9,2	125	36	9	6	....92000	51,44
9,3	125	36	9	6	....93000	51,44
9,4	125	36	9	6	....94000	51,44
9,5	125	36	9	6	....95000	42,13
9,6	133	38	10	6	....96000	47,87
9,7	133	38	10	6	....97000	47,87
9,8	133	38	10	6	....98000	47,87
9,9	133	38	10	6	....99000	47,87
10	133	38	10	6	....10000	42,13
11	142	41	10	6	....11000	48,13
12	151	44	10	6	....12000	53,70
13	151	44	10	6	....13000	57,88
14	160	47	12,5	6	....14000	58,64
15	162	50	12,5	8	....15000	63,20
16	170	52	12,5	8	....16000	75,27
17	175	54	14	8	....17000	89,04
18	182	56	14	8	....18000	91,16
19	189	58	16	8	....19000	107,47
20	195	60	16	8	....20000	98,77


AM 112


DIN
208/B λ 7°-10°

AM112



DH7	L	l	CM	Z	CODE	HSS+5%Co 1112..... €
5	133	23	1	6	....50000	49,76
6	138	26	1	6	....60000	50,42
7	150	31	1	6	....70000	53,43
8	156	33	1	6	....80000	53,43
9	162	36	1	6	....90000	58,00
10	168	38	1	6	....10000	57,73
11	175	41	1	6	....11000	61,04
12	182	44	1	8	....12000	61,04
13	182	44	1	8	....13000	67,16
14	189	47	1	8	....14000	65,31
15	204	50	2	8	....15000	68,32
16	210	52	2	8	....16000	74,36
17	214	54	2	8	....17000	80,49
18	219	56	2	8	....18000	80,49
19	223	58	2	8	....19000	88,49
20	228	60	2	8	....20000	80,88
21	232	62	2	10	....21000	93,74
22	237	64	2	10	....22000	86,85
23	241	66	2	10	....23000	95,80
24	268	68	3	10	....24000	100,22
25	268	68	3	10	....25000	104,91
26	273	70	3	10	....26000	116,48
27	277	71	3	10	....27000	130,26
28	277	71	3	10	....28000	136,53
29	281	73	3	10	....29000	140,84
30	281	73	3	10	....30000	141,95
32	317	77	4	10	....32000	174,09
34	321	78	4	10	....34000	190,51
35	321	78	4	12	....35000	206,61
36	325	79	4	12	....36000	229,36
38	329	81	4	12	....38000	245,98
40	329	81	4	12	....40000	263,01

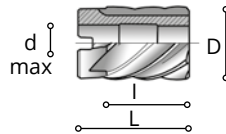
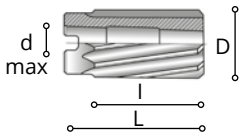
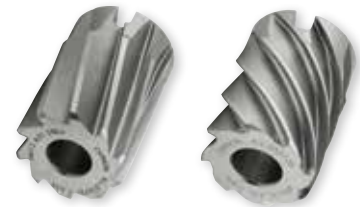
AMM 113 

AFE 116 



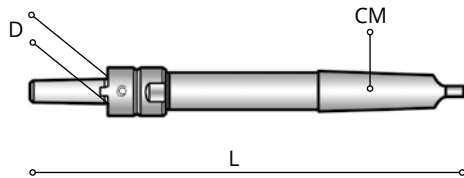
AMM113

AFE116



DH7	L	I	d max	AMM113	AFE116	CODE	HSS+5%Co	HSS+5%Co
				Z	Z		1113.....	1116.....
							€	€
20	40	28	10	8		....20000	126,34	
21	40	28	10	8		....21000	128,25	
22	40	28	10	8		....22000	131,45	
23	40	28	10	8		....23000	132,97	
24	45	32	13	10		....24000	138,68	
25	45	32	13	10	8	....25000	140,20	141,61
26	45	32	13	10	8	....26000	146,07	146,07
27	45	32	13	10	8	....27000	152,84	152,84
28	45	32	13	10	8	....28000	152,84	152,84
29	45	32	13	10	8	....29000	161,60	161,60
30	45	32	13	10	8	....30000	161,60	161,60
31	50	36	16	10		....31000	173,06	
32	50	36	16	10	8	....32000	167,96	173,05
33	50	36	16	10		....33000	184,30	
34	50	36	16	10	8	....34000	184,30	184,29
35	50	36	16	12		....35000	184,30	
36	56	40	19	12	8	....36000	195,64	202,27
37	56	40	19	12		....37000	206,79	
38	56	40	19	12	8	....38000	206,79	206,79
39	56	40	19	12		....39000	221,39	
40	56	40	19	12	8	....40000	217,19	221,39
42	56	40	19	12	8	....42000	233,72	233,72
44	63	45	22	12		....44000	256,22	
45	63	45	22	12	8	....45000	262,96	262,96
46	63	45	22	14		....46000	270,85	
48	63	45	22	14	8	....48000	283,19	283,19
50	63	45	22	14	8	....50000	285,47	296,59
52	71	50	27	14	8	....52000	328,11	328,11
55	71	50	27	14	8	....55000	346,13	346,13
56	71	50	27	16	10	....56000	435,07	435,07
58	71	50	27	16	10	....58000	368,63	368,63
60	71	50	27	16	10	....60000	388,85	404,00
62	80	56	32	16		....62000	470,29	
65	80	56	32	16		....65000	526,88	
68	80	56	32	16		....68000	552,80	
70	80	56	32	16		....70000	562,79	
72	90	63	40	16		....72000	628,97	
75	90	63	40	16		....75000	667,76	
78	90	63	40	16		....78000	712,43	
80	90	63	40	20		....80000	754,73	

MAN 114

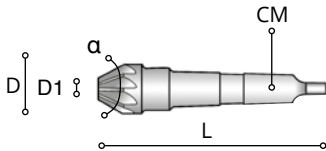
DIN
217/B

MAN114



D	L	CM	CODE	1.5990 - DIN 16CrNi4
				1114..... €
10	216	2	....10000	168,50
13	250	3	....13000	202,25
16	261	3	....16000	219,01
19	298	4	....19000	252,74
22	312	4	....22000	286,49
27	359	4	....27000	320,20
32	345	4	....32000	334,75
40	396	5	....40000	435,64

SV 72

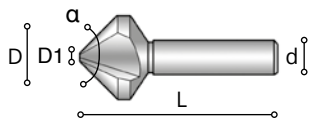


SV72



D	D1	α $\begin{matrix} +0^\circ \\ -1^\circ \end{matrix}$	L	CM	Z	CODE	HSS+5%Co 1720..... €
25	7	60°	125	2	7	....25600	118,71
31,5	9	60°	132	2	7	....31560	162,16
40	12	60°	160	3	10	....40600	235,58
50	16	60°	165	3	12	....50600	323,16
25	7	90°	121	2	7	....25900	118,71
31,5	9	90°	124	2	7	....31590	162,16
40	12	90°	150	3	10	....40900	235,58
50	16	90°	153	3	12	....50900	323,16

SV 74

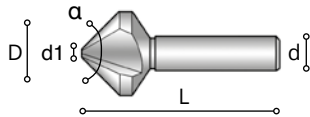


SV74



D	D1z9	α $\begin{matrix} +0^\circ \\ -1^\circ \end{matrix}$	L	d h9	CODE	HSS+8%Co 1740..... €	HSS+8%Co 2740..... € SAPPHIRE MULTI
10,4	2,5	90°	50	6	....10490	30,32	40,11
11,5	2,8	90°	56	8	....11590	31,42	41,33
12,4	2,8	90°	56	8	....12490	35,12	46,03
15	3,2	90°	60	10	....15090	38,82	50,08
16,5	3,2	90°	60	10	....16590	41,40	55,00
19	3,5	90°	63	10	....19090	49,53	65,65
20,5	3,5	90°	63	10	....20590	53,61	70,12
23	3,8	90°	67	10	....23090	69,14	89,66
25	3,8	90°	67	10	....25090	72,09	92,91
28	4	90°	71	12	....28090	85,69	112,40
31	4,2	90°	71	12	....31090	100,93	132,92

SV 75

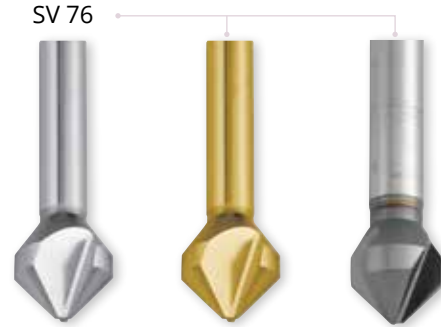
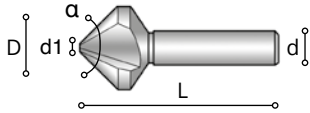


SV 75



D	d	α $+0^\circ$ -1°	d1	L	Code	HSS 1750..... €	HSS 6750..... € Quartz	HSS 2750..... € Sapphire
5,30	4,00	90°	1,5	40	....05390	8,84	14,40	16,96
6,30	5,00	90°	1,5	45	....06390	9,60	15,65	18,46
8,30	6,00	90°	2	50	....08390	11,08	18,61	22,03
10,40	6,00	90°	2,5	50	....10490	13,30	20,69	24,08
11,50	8,00	90°	2,8	56	....11590	15,29	24,78	27,68
12,40	8,00	90°	2,8	56	....12490	16,11	24,68	28,51
15,00	10,00	90°	3,2	60	....15090	19,23	30,11	35,39
16,50	10,00	90°	3,2	60	....16590	22,60	32,36	36,80
20,50	10,00	90°	3,5	63	....20590	32,06	46,10	51,41
25,00	10,00	90°	3,8	67	....25090	38,71	54,66	62,05
31,00	12,00	90°	4,2	71	....31090	49,05	69,30	78,75

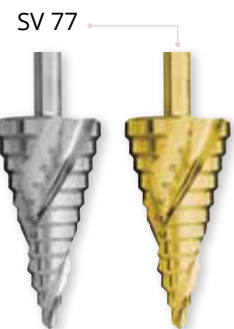
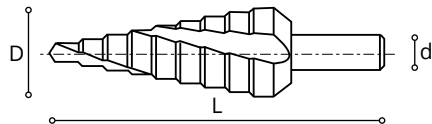
SV 76



D	d	α $+0^\circ$ -1°	d1	L	Code	HSS+5%Co 1760..... €	HSS+5%Co 6760..... € Quartz	HSS+5%Co 2760..... € Sapphire
6,30	5,00	90°	1,5	45	....06390	13,90	22,65	25,59
8,30	6,00	90°	2	50	....08390	15,81	26,55	30,00
10,40	6,00	90°	2,5	50	....10490	19,95	31,03	35,06
12,40	8,00	90°	2,8	56	....12490	23,79	36,43	41,16
15,00	10,00	90°	3,2	60	....15090	31,43	42,03	47,70
16,50	10,00	90°	3,2	60	....16590	32,20	46,11	52,11
19,00	10,00	90°	3,5	63	....19090	45,39	56,55	63,13
20,50	10,00	90°	3,5	63	....20590	46,98	60,05	67,88
23,00	10,00	90°	3,8	67	....23090	56,21	75,36	85,51
25,00	10,00	90°	3,8	67	....25090	59,09	79,60	89,76
28,00	12,00	90°	4	71	....28090	76,56	93,33	108,18
31,00	12,00	90°	4,2	71	....31090	87,91	117,33	131,85

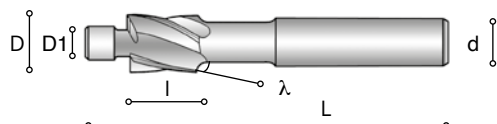
PUNTE A GRADINO IN ELICA | STEP DRILLS WITH SPIRAL FLUTE

SV 77



D	d	N° Gradini N° Step	L	Code	HSS 1770 €	HSS 6770 € Quartz
4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12	6	9	66	....00001	43,41	54,50
4 - 6 - 8 - 10 - 12 - 14 - 16 - 18 - 20	8	9	77	....00002	57,95	73,64
4 - 6 - 8 - 10 - 12 - 14 - 16 - 18 - 20 - 22 - 24 - 26 - 28 - 30	10	14	101	....00003	99,68	128,55
4 - 6 - 9 - 12 - 15 - 18 - 21 - 24 - 27 - 30 - 33 - 36 - 39	12	13	108	....00004	136,33	175,40
6 - 9 - 13 - 16 - 19 - 21 - 23 - 26 - 29 - 32 - 35 - 38	12	12	100	....00005	135,86	174,84

BR 51

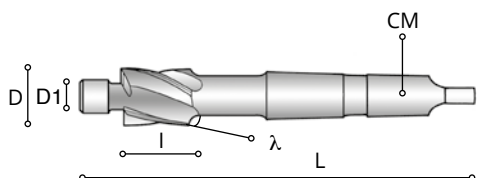


BR51



	D H8	D1 f8	L	l	d h9	Z	CODE	HSS+5%Co 1510..... €
M3	5,9	3,2	71	14	6	3	....30000	35,90
M4	7,4	4,3	71	14	8	3	....40000	35,90
M5	9,4	5,3	80	18	10	3	....50000	38,60
M6	10,4	6,4	80	18	10	3	....60000	40,37
M8	13,5	8,4	100	22	12	3	....80000	50,24
M10	16,5	10,5	100	22	12	3	....10000	63,59
M12	19	13	100	22	16	3	....12000	78,97
M14	23	15	130	30	16	3	....14000	106,80
M16	25	17	150	30	20	3	....16000	134,60
M18	28	19	155	35	20	3	....18000	168,69
M20	31	21	165	35	20	3	....20000	200,11



BR 52











































BR52









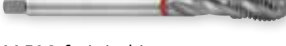









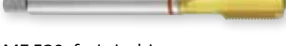

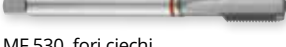

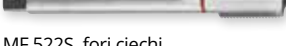





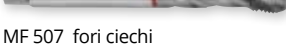

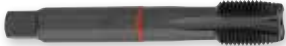







	D H8	D1 f8	L	I	CM	CODE	HSS+5%Co 1520..... €
M6	10,4	6,4	125	18	1	....60000	56,03
M8	13,5	8,4	140	22	1	....80000	64,69
M10	16,5	10,5	150	25	2	....10000	79,63
M12	19	13	150	25	2	....12000	97,29
M14	23	15	160	30	2	....14000	122,54
M16	25	17	160	30	2	....16000	154,60
M18	28	19	190	35	3	....18000	184,02
M20	31	21	190	35	3	....20000	221,35
M22	34	23	205	40	3	....22000	312,59
M24	37	25	205	40	3	....24000	384,62

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
MASCHI A MANO HAND TAPS								
Filettatura Metrica ISO passo grosso DIN 13 ISO Metric coarse thread DIN 13								
 M 500 (set 3 pezzi / 3 pcs set)		Acciai comuni Standard steel	6H	HSS	White	DIN 352	M 2 - M 52	116
 M 501 Sbozzatore /Rougher		Acciai comuni Standard steel		HSS	White	DIN 352	M 2 - M 52	116
 M 501 Semifinitore / semifinisher		Acciai comuni Standard steel		HSS	White	DIN 352	M 2 - M 52	116
 M 501 Finitore / Finisher		Acciai comuni Standard steel	6H	HSS	White	DIN 352	M 2 - M 52	116
 M 518 S / Left		Acciai comuni Standard steel	6H	HSS	White	DIN 352	M 3 - M 39	117
 M 519 S / Left		Acciai comuni Standard steel	6H	HSS	White	DIN 352	M 3 - M 39	117
 M 523		Acciai inox Stainless steel	6HX	HSS-E	White	DIN 352	M 3 - M 20	118
 M 523		Acciai inox Stainless steel	6HX	HSS-E	Quartz	DIN 352	M 3 - M 20	118
 M 595		Acciai durezza HRC 40 Hardness steel HRC 40	6HX	RESISTOR	Opal	DIN 352	M 3 - M 20	119



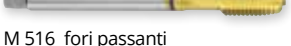
Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
Filettatura Metrica ISO passo fine DIN 13 ISO Metric Fine thread DIN 13								
 MF 510 (set 2 pezzi / 2 pcs set)		Acciai comuni Standard steel	6H	HSS	White	DIN 2181	M 3 - M 52	120
 MF 596		Acciai durezza HRC 40 Hardness steel HRC 40	6HX	RESISTOR	Opal	DIN 2181	M 8 - M 16	122
Filettatura GAS cilindrica Whitworth DIN EN ISO 228 Whitworth pipe thread DIN EN ISO 228								
 G 540 set 2 pezzi / 2 pcs set		Acciai comuni Standard steel	ISO 228	HSS	White	DIN 5157	G 1/8-28 - G2-11	123
 G 555		Acciai inox Stainless steel	ISO 228	HSS - E	White	DIN 5157	G 1/8-28 - G1/2-14	124
 G 554		Acciai durezza HRC 40 Hardness steel HRC 40	ISO 228	RESISTOR	Opal	DIN 5157	G 1/8-28 - G1/2-14	124
Filettatura Americana UNC Passo Grosso ASME B1.1 UNC coarse thread ASME B 1.1								
 UNC 556 set 3 pezzi / 3 pcs set		Acciai comuni Standard steel	2B	HSS	White	DIN 352	UNC 5- 40 - UNC 1" 1/2-6	125
Maschi a Mano Filettatura Americana UNF Passo Fine ASME B1.1 UNF fine thread ASME B 1.1								
 UNF 558 set 2 pezzi / 2 pcs set		Acciai comuni Standard steel	2B	HSS	White	DIN 2181	UNF 5-44 - UNF 1" 1/2-12	126
MASCHI A MACCHINA MACHINE TAPS								
Filettatura Metrica ISO passo grosso DIN 13 ISO Metric coarse thread DIN 13								
 M 508 fori passanti		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 371	M 2 - M 10	127
 M 508 fori passanti		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 371	M 2 - M 10	127
 M 508 fori passanti		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 371	M 2 - M 10	127
 M 508 fori passanti		Acciai tenaci Hardened steel	6H	RESISTOR	Opal	DIN 371	M 2 - M 10	127
 M 502 fori passanti		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 376	M 3- M 42	128















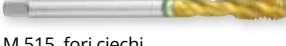

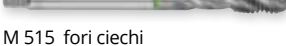

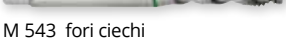

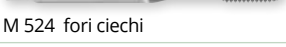



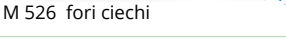

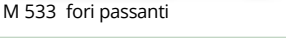

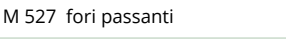





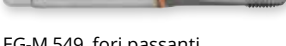

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
 M 502 fori passanti		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 376	M 3 - M 42	128
 M 502 fori passanti		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 376	M 3 - M 42	128
 M 503 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 376	M 3 - M 52	129
 M 503 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 376	M 3 - M 52	129
 M 503 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 376	M 3 - M 52	129
 M 521S fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 376	M 3 - M 39	129
 M 509 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 371	M 2 - M 10	130
 M 509 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 371	M 2 - M 10	130
 M 509 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 371	M 2 - M 10	130
 M 514 dadi		Acciai comuni Standard steel	6H	HSS - EX	Black White	DIN 357	M 4 - M 20	131
 M 514 dadi		Acciai comuni Standard steel	6H	HSS - EX	Quartz	DIN 357	M 4 - M 20	131
 M 514 dadi		Acciai comuni Standard steel	6H	HSS - EX	Titanite	DIN 357	M 4 - M 20	131
 M 511 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 371	M 2 - M 10	132
 M 511 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 371	M 2 - M 10	132
 M 511 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 371	M 2 - M 10	132
 M 505 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 376	M 3 - M 36	133
 M 505 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 376	M 3 - M 36	133
 M 505 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 376	M 3 - M 36	133
 M 512 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 371	M 2 - M 10	134
 M 512 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 371	M 2 - M 10	134







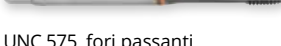

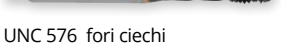

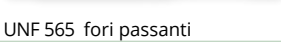



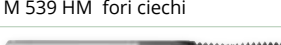




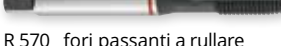

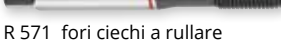

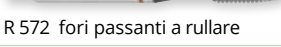





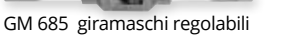
Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
 M 512 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 371	M 2 - M 10	134
 M 512 fori ciechi		Acciai tenaci Hardened steel	6H	RESISTOR	Opal	DIN 371	M 2 - M 10	134
 M 506 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 376	M 3 - M 36	135
 M 506 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 376	M 3 - M 36	135
 M 506 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 376	M 3 - M 36	135
Filettatura Metrica ISO passo fine DIN 13 ISO Metric fine thread DIN 13								
 MF 520 fori passanti		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 374	MF 4 - MF 36	136
 MF 520 fori passanti		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 374	MF 4 - MF 36	136
 MF 520 fori passanti		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 374	MF 4 - MF 36	136
 MF 530 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 374	MF 4 - MF24	137
 MF 530 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 374	MF 4 - MF24	137
 MF 530 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 374	MF 4 - MF24	137
 MF 522S fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 374	MF 4 - MF24	137
 MF 507 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Black White	DIN 374	MF 4 - MF 36	138
 MF 507 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Quartz	DIN 374	MF 4 - MF 36	138
 MF 507 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - EX	Titanite	DIN 374	MF 4 - MF 36	138
Filettatura GAS cilindrica Whitworth DIN EN ISO 228 Whitworth pipe thread DIN EN ISO 228								
 G 550 fori passanti		Acciai tenaci Hardened steel	ISO 228	HSS - EX	Black White	DIN 5156	G 1/8 - 28 - G 2" -11	139
 G 550 fori passanti		Acciai tenaci Hardened steel	ISO 228	HSS - EX	Quartz	DIN 5156	G 1/8 - 28 - G 2" -11	139
 G 550 fori passanti		Acciai tenaci Hardened steel	ISO 228	HSS - EX	Titanite	DIN 5156	G 1/8 - 28 - G 2" -11	139












Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
 G 504 fori ciechi		Acciai tenaci Hardened steel	ISO 228	HSS - EX	Black White	DIN 5156	G 1/8 - 28 - G 2" -11	140
 G 504 fori ciechi		Acciai tenaci Hardened steel	ISO 228	HSS - EX	Quartz	DIN 5156	G 1/8 - 28 - G 2" -11	140
 G 504 fori ciechi		Acciai tenaci Hardened steel	ISO 228	HSS - EX	Titanite	DIN 5156	G 1/8 - 28 - G 2" -11	140
 G 551 fori ciechi		Acciai tenaci Hardened steel	ISO 228	HSS - EX	Black White	DIN 5156	G 1/8 - 28 - G 1" -11	141
 G 551 fori ciechi		Acciai tenaci Hardened steel	ISO 228	HSS - EX	Quartz	DIN 5156	G 1/8 - 28 - G 1" -11	141
 G 551 fori ciechi		Acciai tenaci Hardened steel	ISO 228	HSS - EX	Titanite	DIN 5156	G 1/8 - 28 - G 1" -11	141
Filettatura Americana UNC Passo Grosso ASME B1.1 UNC coarse thread ASME B 1.1								
 UNC 560 fori passanti		Acciai tenaci Hardened steel	2B	HSS - EX	Black White	DIN 371 DIN 376	UNC 5-40 - UNC 1"1/2 -16	142
 UNC 560 fori passanti		Acciai tenaci Hardened steel	2B	HSS - EX	Quartz	DIN 371 DIN 376	UNC 5-40 - UNC 1"1/2 -16	142
 UNC 560 fori passanti		Acciai tenaci Hardened steel	2B	HSS - EX	Titanite	DIN 371 DIN 376	UNC 5-40 - UNC 1"1/2 -16	142
 UNC 561 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - EX	Black White	DIN 371 DIN 376	UNC 5 - 40 - UNC 1"1/2 -16	143
 UNC 561 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - EX	Quartz	DIN 371 DIN 376	UNC 5 - 40 - UNC 1"1/2 -16	143
 UNC 561 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - EX	Titanite	DIN 371 DIN 376	UNC 5 - 40 - UNC 1"1/2 -16	143
 UNC 559 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - E	Black White	DIN 371 DIN 376	UNC 5-40 - UNC 1"1/2 -16	144
 UNC 559 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - E	Quartz	DIN 371 DIN 376	UNC 5-40 - UNC 1"1/2 -16	144
 UNC 559 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - E	Titanite	DIN 371 DIN 376	UNC 5-40 - UNC 1"1/2 -16	144
Filettatura Americana UNF Passo Fine ASME B1.1 UNF fine thread ASME B 1.1								
 UNF 562 fori passanti		Acciai tenaci Hardened steel	2B	HSS - EX	Black White	DIN 371 DIN 374	UNF 5-44 - UNF 1"-12	145
 UNF 562 fori passanti		Acciai tenaci Hardened steel	2B	HSS - EX	Quartz	DIN 371 DIN 374	UNF 5-44 - UNF 1"-12	145
 UNF 562 fori passanti		Acciai tenaci Hardened steel	2B	HSS - EX	Titanite	DIN 371 DIN 374	UNF 5-44 - UNF 1"-12	145
 UNF 563 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - EX	Black White	DIN 371 DIN 374	UNF 5-44 - UNF 1"1/2 -12	146

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
 UNF 563 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - EX	Quartz	DIN 371 DIN 374	UNF 5-44 - UNF 1"1/2 -12	146
 UNF 563 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - EX	Titanite	DIN 371 DIN 374	UNF 5-44 - UNF 1"1/2 -12	146
 UNF 564 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - E	Black White	DIN 371 DIN 374	UNF 5-44 - UNF 1"1/2 -12	147
 UNF 564 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - E	Quartz	DIN 371 DIN 374	UNF 5-44 - UNF 1"1/2 -12	147
 UNF 564 fori ciechi		Acciai tenaci Hardened steel	2B	HSS - E	Titanite	DIN 371 DIN 374	UNF 5-44 - UNF 1"1/2 -12	147
Filettatura Whitworth a passo grosso norma BS 84 Whitworth thread standard BS 84								
 W 580 fori passanti		Acciai tenaci Hardened steel	Medium	HSS - EX	Black White	DIN 371 DIN 376	W 1/8 - 40 - W 1 - 8	148
 W 581 fori ciechi		Acciai tenaci Hardened steel	Medium	HSS - EX	Black White	DIN 371 DIN 376	W 1/8 - 40 - W 1 - 8	149
Filettatura Gas Conica Americana, conicità 1:16 ANSI/ASME B 1.20.1 American Tapered pipe thread, taper 1:16 ANSI/ASME B 1.20.1								
 NPT 590 fori ciechi		Acciai tenaci Hardened steel		HSS - EX	Black White	DIN 371 DIN 374	NPT 1/8-27 - NPT 1"-11.1/2	150
Filettatura Metrica ISO passo grosso DIN 13 ISO Metric coarse thread DIN 13								
 M 531 fori passanti		Acciai tenaci Hardened steel	6G	HSS - E	Black White	DIN 371 DIN 376	M 3 - M 20	151
 M 532 fori ciechi		Acciai tenaci Hardened steel	6G	HSS - E	Black White	DIN 371 DIN 376	M 3 - M 20	152
 M 546 fori passanti		Acciai tenaci Hardened steel	6H	HSS - E	Black White	DIN 371EL DIN 376EL	M 3 - M 16	153
 M 546 fori passanti		Acciai tenaci Hardened steel	6H	HSS - E	Quartz	DIN 371EL DIN 376EL	M 3 - M 16	153
 M 546 fori passanti		Acciai tenaci Hardened steel	6H	HSS - E	Titanite	DIN 371EL DIN 376EL	M 3 - M 16	153
 M 545 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - E	Black White	DIN 371EL DIN 376EL	M 3 - M 16	154
 M 545 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - E	Quartz	DIN 371EL DIN 376EL	M 3 - M 16	154
 M 545 fori ciechi		Acciai tenaci Hardened steel	6H	HSS - E	Titanite	DIN 371EL DIN 376EL	M 3 - M 16	154
Filettatura per tubi corazzati DIN 40430 Steel conduit thread DIN 40430								
 PG 591 fori ciechi		Acciai comuni Standard steel		HSS - E	White	DIN 40432	PG 7 - 20 - PG 29 - 16	155

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
Filettatura Metrica ISO passo grosso DIN 13 ISO Metric coarse thread DIN 13								
 PM 700 punta a forare kombi		Acciai comuni Standard steel	6H	HSS	White	CARMON NORM.	M 3 - M 12	156
 PM 700 punta a forare kombi		Acciai comuni Standard steel	6H	HSS	Quartz	CARMON NORM.	M 3 - M 12	156
 M 535 fori passanti		Acciai comuni Standard steel	6H	HSS - EX	Black White	DIN 371 DIN 376	M 3 - M 30	157
 M 535 fori passanti		Acciai comuni Standard steel	6H	HSS - EX	Quartz	DIN 371 DIN 376	M 3 - M 30	157
 M 536 fori ciechi		Acciai comuni Standard steel	6H	HSS - EX	Black White	DIN 371 DIN 376	M 3 - M 30	157
 M 536 fori ciechi		Acciai comuni Standard steel	6H	HSS - EX	Quartz	DIN 371 DIN 376	M 3 - M 30	157
 M 516 fori passanti		Acciai inox Stainless steel	6H	HSS - EX	Black White	DIN 371 DIN 376	M 2 - M 30	158
 M 516 fori passanti		Acciai inox Stainless steel	6H	HSS - EX	Quartz	DIN 371 DIN 376	M 2 - M 30	158
 M 517 fori ciechi		Acciai inox Stainless steel	6H	HSS - EX	Black White	DIN 371 DIN 376	M 2 - M 30	158
 M 517 fori ciechi		Acciai inox Stainless steel	6H	HSS - EX	Quartz	DIN 371 DIN 376	M 2 - M 30	158
Filettatura Metrica ISO passo fine DIN 13 ISO Metric fine thread DIN 13								
 MF 547 fori passanti		Acciai inox Stainless steel	6H	HSS - E	Black White	DIN 371 DIN 374	MF 4 - M 16	159
 MF 547 fori passanti		Acciai inox Stainless steel	6H	HSS - E	Quartz	DIN 371 DIN 374	MF 4 - M 16	159
 MF 548 fori ciechi		Acciai inox Stainless steel	6H	HSS - E	Black White	DIN 371 DIN 374	MF 4 - M 16	160
 MF 548 fori ciechi		Acciai inox Stainless steel	6H	HSS - E	Quartz	DIN 371 DIN 374	MF 4 - M 16	160
Filettatura GAS cilindrica Whitworth DIN EN ISO 228 Whitworth pipe thread GAS DIN EN ISO 228								
 G 553 fori passanti		Acciai inox Stainless steel		HSS - E	Black White	DIN 5156	G 1/8 - 28 - G 1" -11	161
 G 553 fori passanti		Acciai inox Stainless steel		HSS - E	Quartz	DIN 5156	G 1/8 - 28 - G 1" -11	161
 G 552 fori ciechi		Acciai inox Stainless steel		HSS - E	Black White	DIN 5156	G 1/8 - 28 - G 1" -11	162
 G 552 fori ciechi		Acciai inox Stainless steel		HSS - E	Quartz	DIN 5156	G 1/8 - 28 - G 1" -11	162

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
Filettatura Metrica ISO passo grosso DIN 13 ISO Metric coarse thread DIN 13								
 M 513 fori passanti		Alluminio - Rame Aluminium - Copper	6H	HSS - EX	Black White	DIN 371	M 3 - M 10	163
 M 513 fori passanti		Alluminio - Rame Aluminium - Copper	6H	HSS - EX	Quartz	DIN 371	M 3 - M 10	163
 M 513 fori passanti		Alluminio - Rame Aluminium - Copper	6H	HSS - EX	Titanite	DIN 371	M 3 - M 10	163
 M 544 fori passanti		Alluminio aluminium	6H	HSS - E	White	DIN 371 DIN 376	M 3 - M 12	164
 M 541 fori ciechi		Alluminio aluminium	6HX	HSS - E	Titanite	DIN 371 DIN 376	M 3 - M 16	165
 M 542 fori ciechi		Alluminio aluminium	6HX	RESISTOR	Opal	DIN 371 DIN 376	M 5 - M 16	166
 M 515 fori ciechi		Alluminio - Rame Aluminium - Copper	6H	HSS - EX	Black White	DIN 376	M 3 - M 16	167
 M 515 fori ciechi		Alluminio - Rame Aluminium - Copper	6H	HSS - EX	Quartz	DIN 376	M 3 - M 16	167
 M 515 fori ciechi		Alluminio - Rame Aluminium - Copper	6H	HSS - EX	Titanite	DIN 376	M 3 - M 16	167
 M 543 fori ciechi		Alluminio aluminium	6H	HSS - E	White	DIN 371 DIN 376	M 3 - M 12	168
 M 524 fori ciechi		Ghisa cast iron	6HX	RESISTOR	Opal	DIN 371 DIN 376	M 3 - M 16	169
 M 525 fori ciechi		Ghisa Cast Iron	6HX	RESISTOR	Opal	DIN 371 DIN 376	M 5 - M 16	170
 M 526 fori ciechi		Ghisa Cast Iron	6HX	RESISTOR	Opal	DIN 371 DIN 376	M 5 - M 16	171
 M 533 fori passanti		Acciai tenaci Hardened steel	6H	RESISTOR	Opal	DIN 371 DIN 376	M 3 - M 16	172
 M 527 fori passanti		Acciai tenaci Hardened steel	6H	RESISTOR	Opal	DIN 371 DIN 376	M 5 - M 16	173
 M 534 fori ciechi		Acciai tenaci Hardened steel	6H	RESISTOR	Opal	DIN 371 DIN 376	M 3 - M 16	174
 M 528 fori ciechi		Acciai tenaci Hardened steel	6H	RESISTOR	Opal	DIN 371 DIN 376	M 5 - M 16	175
 EG-M 549 fori passanti		Acciai tenaci Hardened steel	6H	RESISTOR	Opal	DIN 371 DIN 376	EG - M 2 EG - M 20	176

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
 EG-M529 fori ciechi		Acciai tenaci Hardened steel	6H	RESISTOR	Opal	DIN 371 DIN 376	EG - M 2 EG - M 20	177
 G 537 fori passanti		Acciai tenaci Hardened steel	ISO 228	RESISTOR	Opal	DIN 5156	G 1/8 G 1"	178
 G 538 fori ciechi		Acciai tenaci Hardened steel	ISO 228	RESISTOR	Opal	DIN 5156	G 1/8 G 1"	178
 UNC 575 fori passanti		Acciai tenaci Hardened steel	2B	RESISTOR	Opal	DIN 371 DIN 376	UNC 4-40 UNC 5/8-11	179
 UNC 576 fori ciechi		Acciai tenaci Hardened steel	2B	RESISTOR	Opal	DIN 371 DIN 376	UNC 4-40 UNC 5/8-11	180
 UNF 565 fori passanti		Acciai tenaci Hardened steel	2B	RESISTOR	Opal	DIN 371 DIN 376	UNC 4-48 UNC 5/8-18	181
 UNF 567 fori ciechi		Acciai tenaci Hardened steel	2B	RESISTOR	Opal	DIN 371 DIN 376	UNC 4-48 UNC 5/8-18	182
 M 539 HM fori ciechi		Acciaio HRC 40/60 Hardness steel HRC 40/60	6HX	HM	Opal	DIN 371 DIN 376	M 3 - M 16	183
 CL 28 M HM		Acciai tenaci Hardened steel		MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM.	M6 - M16	184
Filettatura Metrica ISO passo fine DIN 13 ISO Metric fine thread DIN 13								
 CL 29 MF HM		Acciai tenaci Hardened steel		MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM.	M8 - M20	185
Punte per rimuovere maschi rotti Drills to remove broken Taps								
 P HM 701				HM	Titanite		M 3 - M 12	186
Filettatura Metrica ISO passo grosso DIN 13 ISO Metric coarse thread DIN 13								
 R 570 fori passanti a rullare		Acciai tenaci Hardened steel	6HX	HSS - EX	Black White	DIN 371	M 3 - M 10	187
 R 571 fori ciechi a rullare		Acciai tenaci Hardened steel	6HX	HSS - EX	Black White	DIN 371	M 3 - M 10	187
 R 572 fori passanti a rullare		Acciai tenaci Hardened steel	6HX	HSS - EX	Black White	DIN 371	M 2 - M 10	187
 R 573 fori ciechi		Acciai tenaci Hardened steel	6HX	RESISTOR	Quartz	DIN 371	M 4 - M 10	188
 R 574 fori ciechi		Acciai tenaci Hardox Hardened Steel Hardox	6HX	RESISTOR	Opal	DIN 371	M 5 - M 10	189
Giramaschi regolabili Adjustable tap wrenches								
 GM 685 giramaschi regolabili				HSS	White	DIN 1814	0 - 7	190

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Tolleranza Tolerance	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
FILIERE DIES								
Filettatura Metrica ISO passo grosso DIN 13 ISO Metric coarse thread DIN 13								
 FM 610	IMBOCCO CORRETTO SPIRAL POINT	Acciai comuni Standard steel	6g	HSS	White	DIN EN 22568	M 1,6 - M52	191
 FMX 670	IMBOCCO CORRETTO SPIRAL POINT	Acciai inox Stainless steel	6g	HSS-E	Black	DIN EN 22568	M 3 - M30	191
 FMS 630	IMBOCCO CORRETTO SPIRAL POINT	Acciai comuni Standard steel	6g	HSS	White	DIN EN 22568	M 3 - M30	191
Filettatura Metrica ISO passo fine DIN 13 ISO Metric fine thread thread DIN 13								
 FMF 600	IMBOCCO CORRETTO SPIRAL POINT	Acciai comuni Standard steel	6g	HSS	White	DIN EN 22568	MF 2 - MF 52	192
 FMFX 680	IMBOCCO CORRETTO SPIRAL POINT	Acciai inox Stainless steel	6g	HSS-E	Black	DIN EN 22568	MF 8 - MF 24	192
 FMFS 640	IMBOCCO CORRETTO SPIRAL POINT	Acciai comuni Standard steel	6g	HSS	White	DIN EN 22568	MF 3 - MF 30	192
Filettatura Americana UNC Passo Grosso ASME B1.1 UNC coarse thread ASME B 1.1								
 FUNC 645	IMBOCCO CORRETTO SPIRAL POINT	Acciai comuni Standard steel	2A	HSS	White	DIN EN 22568	UNC 4-40 / UNC 1"-8	195
Filettatura Americana UNF Passo fine ASME B1.1 UNF fine thread ASME B 1.1								
 FUNF 650	IMBOCCO CORRETTO SPIRAL POINT	Acciai comuni Standard steel	2A	HSS	White	DIN EN 22568	UNF 4-48 / UNF 1"-12	196
Filettatura GAS cilindrica Whitworth DIN EN ISO 228 Whitworth pipe thread DIN EN ISO 228								
 FG 620	IMBOCCO CORRETTO SPIRAL POINT	Acciai comuni Standard steel	A	HSS	White	DIN EN 24231	G 1/8 - 28 - G 2" -11	197
 FGX 622	IMBOCCO CORRETTO SPIRAL POINT	Acciai inox Stainless steel	A	HSS-E	Black	DIN EN 24231	G 1/8 - 28 - G 1" -11	197
Filettatura Whitworth a passo grosso norma BS 84 Whitworth thread standard BS 84								
 FW 660	IMBOCCO CORRETTO SPIRAL POINT	Acciai comuni Standard steel	Medium	HSS	White	DIN EN 22568	W 1/16" -60 - W 1 1/2" - 6	198
Filettatura GAS conica Americana, conicità 1:16 American tapered pipe threads, taper 1:16								
 FNPT 690	IMBOCCO CORRETTO SPIRAL POINT	Acciai comuni Standard steel		HSS	White	DIN EN 22568	NPT 1/8-27 - NPT 1"-11.1/2	199
Filettatura per tubi corazzati DIN 40430 Steel conduit thread DIN 40430								
 FPG 691	IMBOCCO CORRETTO SPIRAL POINT	Acciaio Standard Standard Steel		HSS	White	DIN EN 22568	PG 7 - 20 - PG 29 - 16	200
Porta filiere Die stocks								
 PF 856	PORTA FILIERE				White	DIN 225	0 -14	201



rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$



= mt/min

✓ consigliato / recommended

MASCHI A MANO HAND TAPS

M500	M501	M518	M519S	M523	M523	M595	MF596	MF510	G540
DIN 352							DIN 2181		DIN 5157
HSS				HSS-E		RES		HSS	

Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV																				
				mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min										
	HRC 40																						
	HRC 60																						
	HARDOX																						
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	160																			
	Acciai da costruzione Structural steel	2	700	220																			
	Acciai da tempra Hardening steel	3	900	280																			
	Acciaio automatico Automatic steel	4	1200	373																			
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	268					✓	✓													
	Austenitico Austenitic	3	850	268					✓	✓													
	Ferritico+austenitico Ferritic austenitic	4	1000	317					✓	✓													
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	160																			
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	220																			
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	160																			
	Leghe di titanio Titanium alloys	5	900	280																			
RAME COPPER	Rame Copper	9	350	110																			
	Ottone Brass	9	700	220																			
	Bronzo Bronze	9	700	220																			
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	220																			
	Leghe di nichel Nichel alloys	6	900	280																			
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110																			
	Alluminio con leghe Alloyed aluminium	7	400	125																			
	Alluminio con leghe Alloyed aluminium	7	500	160																			

MASCHI A MANO HAND TAPS				MASCHI A MACCHINA MACHINE TAPS												
G555	G554	UNC556	UNC558	M508				M502			M503			M521S		
DIN 5157		DIN 352		DIN 2181		DIN 371				DIN 376						
HSS-E				HSS-EX				HSS-EX			HSS-EX					
RES				HSS				HSS-EX				HSS-EX				
C				B				B			C					
mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	
	√															
				26	41	50	60	26	41	50	26	41	50	26		
				23	38	47	57	23	38	47	23	38	47	23		
				10	13	17	27	10	13	17	10	13	17	10		
√																
√																
√																
				16	26	30	40	16	26	30	16	26	30	16		
				5	10	19	30	5	10	19	5	10	19	5		
				13	27	30	40	13	27	30	13	27	30	13		
				6	10	13	27	6	10	13	6	10	13	6		



rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$



= mt/min









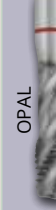

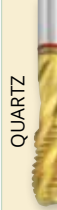




























consigliato / recommended

MASCHI A MACCHINA MACHINE TAPS



Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	C			~12P			C			
				mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	
	HRC 40												
	HRC 60												
	HARDOX												
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	160	26	41	50	26	41	48	26	41	50
	Acciai da costruzione Structural steel	2	700	220	23	38	47	23	38	43	23	38	47
	Acciai da tempra Hardening steel	3	900	280	10	13	17	10	13	15	10	13	17
	Acciaio automatico Automatic steel	4	1200	373									
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	268				10	14	18			
	Austenitico Austenitic	3	850	268				8	12	15			
	Ferritico+austenitico Ferritic austenitic	4	1000	317									
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	160									
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	220									
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	160	16	26	30	16	26	30	16	26	30
	Leghe di titanio Titanium alloys	5	900	280	5	10	19	5	10	18	5	10	19
RAME COPPER	Rame Copper	9	350	110									
	Ottone Brass	9	700	220									
	Bronzo Bronze	9	700	220									
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	220	13	27	30				13	27	30
	Leghe di nichel Nichel alloys	6	900	280	6	10	13				6	10	13
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110									
	Alluminio con leghe Alloyed aluminium	7	400	125									
	Alluminio con leghe Alloyed aluminium	7	500	160									

MASCHI A MACCHINA MACHINE TAPS

M505			M 512				M506			MF 520			MF 530		
															
DIN 376			DIN 371				DIN 376			DIN 374			DIN 374		
															
HSS-EX			HSS-EX				HSS-EX			HSS-EX			HSS-EX		
															
C										B			C		
mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min
26	41	50	26	41	50	60	26	41	50	26	41	50	26	41	50
23	38	47	23	38	47	57	23	38	47	23	38	47	23	38	47
10	13	17	10	13	17	27	10	13	17	10	13	17	10	13	17
						27									
						27									
16	26	30	16	26	30	40	16	26	30	16	26	30	16	26	30
5	10	19	5	10	19	30	5	10	19	5	10	19	5	10	19
13	27	30	13	27	30	40	13	27	30	13	27	30	13	27	30
6	10	13	6	10	13	27	6	10	13	6	10	13	6	10	13



rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$



= mt/min



consigliato / recommended

MASCHI A MACCHINA MACHINE TAPS



Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	C			B			C				
				mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min		
	HRC 40													
	HRC 60													
	HARDOX													
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	160	26	26	41	50	26	41	50	26	41	50
	Acciai da costruzione Structural steel	2	700	220	23	23	38	47	23	38	47	23	38	47
	Acciai da tempra Hardening steel	3	900	280	10	10	13	17	10	13	17	10	13	17
	Acciaio automatico Automatic steel	4	1200	373										
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	268										
	Austenitico Austenitic	3	850	268										
	Ferritico+austenitico Ferritic austenitic	4	1000	317										
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	160										
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	220										
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	160	16	16	26	30	16	26	30	16	26	30
	Leghe di titanio Titanium alloys	5	900	280	5	5	10	19	5	10	19	5	10	19
RAME COPPER	Rame Copper	9	350	110										
	Ottone Brass	9	700	220										
	Bronzo Bronze	9	700	220										
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	220	13	13	27	30	13	27	30	13	27	30
	Leghe di nichel Nichel alloys	6	900	280	6	6	10	13	6	10	13	6	10	13
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110										
	Alluminio con leghe Alloyed aluminium	7	400	125										
	Alluminio con leghe Alloyed aluminium	7	500	160										

MASCHI A MACCHINA MACHINE TAPS

G551			UNC 560			UNC 561			UNC 559			UNF562					
	QUARTZ	TITANITE		QUARTZ	TITANITE		QUARTZ	TITANITE		QUARTZ	TITANITE		QUARTZ	TITANITE			
DIN 5156						DIN 371			DIN 376			DIN 371			DIN 374		
HSS-EX																	
C			B			C			C			B					
mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min			
26	41	50	26	41	50	26	41	50	26	41	50	26	41	50			
23	38	47	23	38	47	23	38	47	23	38	47	23	38	47			
10	13	17	10	13	17	10	13	17	10	13	17	10	13	17			
16	26	30	16	26	30	16	26	30	16	26	30	16	26	30			
5	10	19	5	10	19	5	10	19	5	10	19	5	10	19			
13	27	30	13	27	30	13	27	30	13	27	30	13	27	30			
6	10	13	6	10	13	6	10	13	6	10	13	6	10	13			



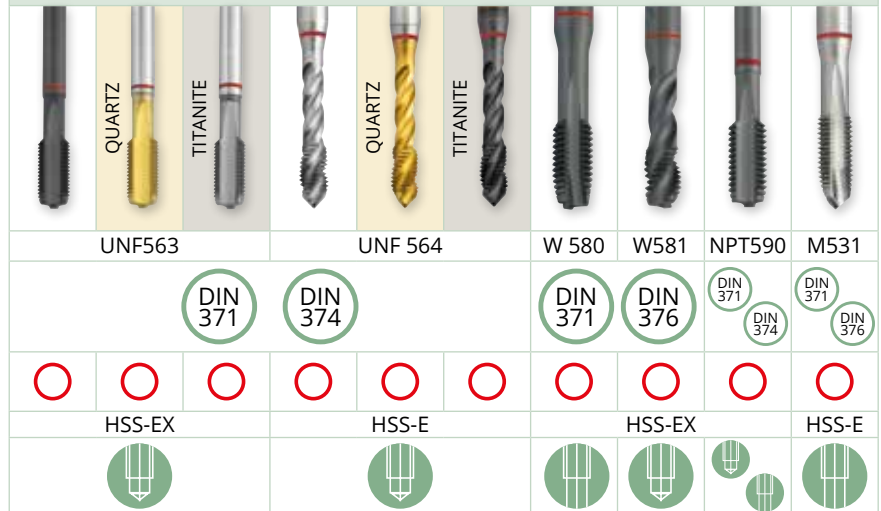
rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$



= mt/min

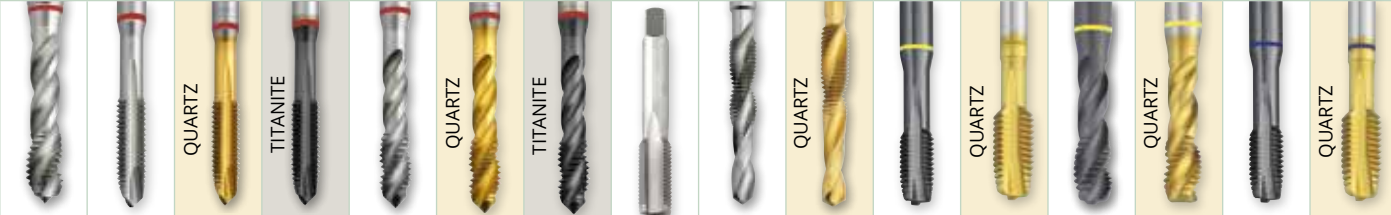




































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MASCHI A MACCHINA MACHINE TAPS



Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	C			C			B	C	C	B	
				mt/min	mt/min	mt/min				mt/min	mt/min		mt/min	
	HRC 40													
	HRC 60													
	HARDOX													
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	160	26	41	50	26	41	50	26	26	26	26
	Acciai da costruzione Structural steel	2	700	220	23	38	47	23	38	47	23	23	23	23
	Acciai da tempra Hardening steel	3	900	280	10	13	17	10	13	17	10	10	10	10
	Acciaio automatico Automatic steel	4	1200	373										
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	268										
	Austenitico Austenitic	3	850	268										
	Ferritico+austenitico Ferritic austenitic	4	1000	317										
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	160										
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	220										
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	160	16	26	30	16	26	30	16	16	16	16
	Leghe di titanio Titanium alloys	5	900	280	5	10	19	5	10	19	5	5	5	5
RAME COPPER	Rame Copper	9	350	110										
	Ottone Brass	9	700	220										
	Bronzo Bronze	9	700	220										
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	220	13	27	30	13	27	30	13	13	13	13
	Leghe di nichel Nichel alloys	6	900	280	6	10	13	6	10	13	6	6	6	6
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110										
	Alluminio con leghe Alloyed aluminium	7	400	125										
	Alluminio con leghe Alloyed aluminium	7	500	160										

MASCHI A MACCHINA MACHINE TAPS

															
M 532	M546				M 545		PG 591	PM 700		M535		M 536		M516	
															
															
HSS-E	HSS-E						HSSE	HSS		HSS-EX					
															
															
mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min
26	26	41	50	26	41	50	26	26	40	26	41	26	41		
23	23	38	47	23	38	47	23	23	36	23	38	23	38		
10	10	13	17	10	13	17	10	10	12	10	13	10	13		
										10	14	10	14	10	14
										8	12	8	12	8	12
														5	10
16	15					15	16	16	24	16	26	16	26	16	26
5	5					5	5	5	10	5	10	5	10	5	10
13	10					10	13	13	25					13	27
6	5					5	6	6	10					6	10



rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$


















= mt/min



consigliato / recommended

MASCHI A MACCHINA MACHINE TAPS

									
M 517		MF 547		MF 548		G 553		G552	
DIN 371		DIN 376		DIN 371		DIN 374		DIN 5156	
HSS-EX		HSS-E		HSS-E		HSS-E		HSS-E	
									

Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	C		B		C		B		C		
				mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min			
	HRC 40													
	HRC 60													
	HARDOX													
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	160			26	41	26	41				
	Acciai da costruzione Structural steel	2	700	220			23	38	23	38				
	Acciai da tempratura Hardening steel	3	900	280			10	13	10	13				
	Acciaio automatico Automatic steel	4	1200	373										
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	268	10	14	15	20	15	20	10	16	10	16
	Austenitico Austenitic	3	850	268	8	12	12	18	12	18	8	13	8	13
	Ferritico+austenitico Ferritic austenitic	4	1000	317	5	10	8	12	8	12	5	7	5	7
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	160										
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	220										
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	160	16	26	20	25	20	25	16		16	
	Leghe di titanio Titanium alloys	5	900	280	5	10	8	12	8	12	5		5	
RAME COPPER	Rame Copper	9	350	110										
	Ottone Brass	9	700	220										
	Bronzo Bronze	9	700	220										
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	220	13	27	15	20	15	20	13		13	
	Leghe di nichel Nichel alloys	6	900	280	6	10	8	12	8	12	6		6	
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110										
	Alluminio con leghe Alloyed aluminium	7	400	125										
	Alluminio con leghe Alloyed aluminium	7	500	160										



rpm
 $= (\text{mt}/\text{min} \times 1000) / (D \times 3,14)$



= mt/min



consigliato / recommended

MASCHI A MACCHINA MACHINE TAPS

Pag. 378		TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	RESISTOR									
					E	B	E	B	C	B	C	B	C	D
					mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min
		HRC 40												10
		HRC 60												5
		HARDOX			25	20	20	20	20	20	20	20	20	
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	160	45	40	30	40	30	40	30	40	30	
	Acciai da costruzione Structural steel	2	700	220	35	28	20	28	20	28	20	28	20	
	Acciai da tempratura Hardening steel	3	900	280	25	20	15	20	15	20	15	20	15	
	Acciaio automatico Automatic steel	4	1200	373										25
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	268	22	18	15	18	15	18	15	18	15	
	Austenitico Austenitic	3	850	268	22	18	15	18	15	18	15	18	15	
	Ferritico+austenitico Ferritic austenitic	4	1000	317	22	18	15	18	15	18	15	18	15	
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	160										
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	220										
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	160	25	20	20	20	20	20	20	20	20	
	Leghe di titanio Titanium alloys	5	900	280	10	8	8	8	8	8	8	8	8	
RAME COPPER	Rame Copper	9	350	110	50	45	35	45	35	45	35	45	35	
	Ottone Brass	9	700	220	35	30	25	30	25	30	25	30	25	
	Bronzo Bronze	9	700	220	25	20	20	20	20	20	20	20	20	
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	220	28	22	22	22	22	22	22	22	22	
	Leghe di nichel Nichel alloys	6	900	280	10	8	8	8	8	8	8	8	8	
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110			40		40		40		40	
	Alluminio con leghe Alloyed aluminium	7	400	125			60		60		60		60	
	Alluminio con leghe Alloyed aluminium	7	500	160			38		38		38		38	

MASCHI A MACCHINA MACHINE TAPS									FILIERE DIES				
													
CL28MHM	CL29MFHM	PHM 701	R 570	R 571	R 572	R 573	R 574	GM 685	FM 610	FMX 670	FMS 630	FMF 600	
													
													
HM			HSS-EX		RESISTOR				HSS	HSS-E	HSS	HSS	
													
													
mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	
80	80						30						
90	90		26	26	26	30	50		26	26	26	26	
80	80		23	23	23	25	35		23	23	23	23	
60	60		10	10	10	15	28		10	10	10	10	
40	40						20						
60	60						25		10	10	10	10	
60	60						25		8	8	8	8	
40	40						25		5	5	5	5	
120	120												
100	100												
50	50						28		16	16	16	16	
30	30						14		5	5	5	5	
150	150						60						
150	150						40						
160	160						28						
130	130						30		13	13	13	13	
100	100						18		6	6	6	6	
			17	17	17								
			36	36	36								
			16	16	16								



rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$

















= mt/min

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FILIERE DIES

					FILIERE DIES				
					FMFX 680	FMFS 640	FUNC 645	FUNF 650	FG 620
					DIN EN 22568				DIN EN 24231
					HSS-E		HSS		
Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV		mt/min	mt/min	mt/min	mt/min	mt/min
	HRC 40								
	HRC 60								
	HARDOX								
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	160	26	26	26	26	26
	Acciai da costruzione Structural steel	2	700	220	23	23	23	23	23
	Acciai da tempra Hardening steel	3	900	280	10	10	10	10	10
	Acciaio automatico Automatic steel	4	1200	373					
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	268	10	10	10	10	10
	Austenitico Austenitic	3	850	268	8	8	8	8	8
	Ferritico+austenitico Ferritic austenitic	4	1000	317	5	5	5	5	5
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	160					
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	220					
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	160	16	16	16	16	16
	Leghe di titanio Titanium alloys	5	900	280	5	5	5	5	5
RAME COPPER	Rame Copper	9	350	110					
	Ottone Brass	9	700	220					
	Bronzo Bronze	9	700	220					
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	220	13	13	13	13	13
	Leghe di nichel Nichel alloys	6	900	280	6	6	6	6	6
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110					
	Alluminio con leghe Alloyed aluminium	7	400	125					
	Alluminio con leghe Alloyed aluminium	7	500	160					

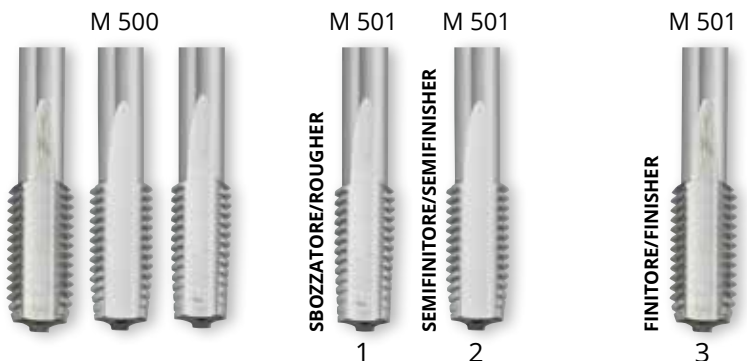
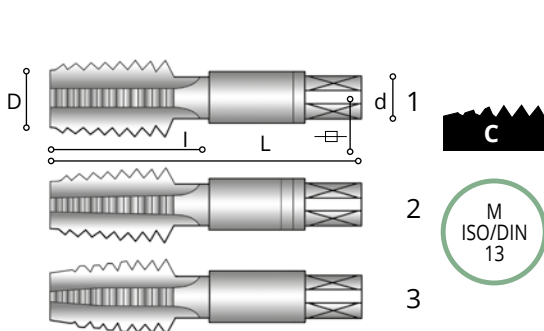
FILIERE DIES

				
FGX 622	FW 660	FNPT 690	FPG 691	PF856
				
HSS-E		HSS		
				
mt/min	mt/min	mt/min	mt/min	mt/min
26	26	26	26	
23	23	23	23	
10	10	10	10	
10	10	10	10	
8	8	8	8	
5	5	5	5	
16	16	16	16	
5	5	5	5	
13	13	13	13	
6	6	6	6	

M 500



M 501

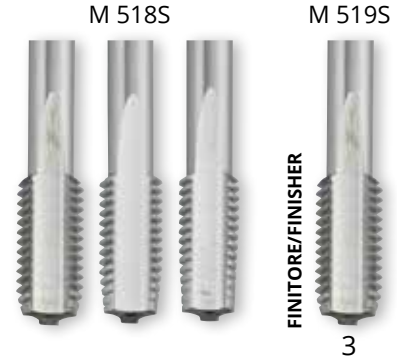
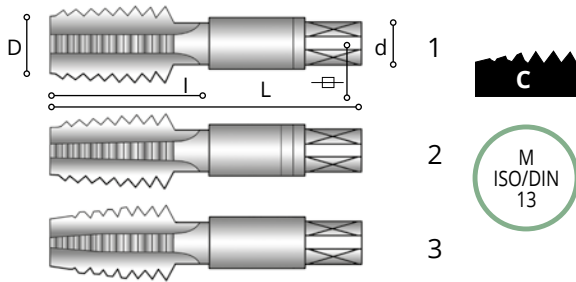


D		L	l	d		CODE	HSS	CODE	HSS	HSS	CODE	HSS
							5500..... €		55011..... €	55012..... €		5501..... €
M 2 x 0,4	1,6	36	8	2,8	2,1	....00002	35,17	....0002	11,73	11,73	....00002	11,73
M 2,5 x 0,45	2	40	9	2,8	2,1	....00025	31,16	....0025	10,38	10,38	....00025	10,38
M 2,6 x 0,45	2,1	40	9	2,8	2,1	....00026	31,16	....0026	10,38	10,38	....00026	10,38
M 3 x 0,5	2,5	40	11	3,5	2,7	....00003	24,48	....0003	8,15	8,15	....00003	8,15
M 3,5 x 0,6	2,9	45	12	4	3	....00035	27,79	....0035	9,25	9,25	....00035	9,25
M 4 x 0,7	3,3	45	13	4,5	3,4	....00004	24,48	....0004	8,15	8,15	....00004	8,15
M 4,5 x 0,75	3,8	50	16	6	4,9	....00045	40,37	....0045	13,45	13,45	....00045	13,45
M 5 x 0,8	4,2	50	16	6	4,9	....00005	26,12	....0005	8,71	8,71	....00005	8,71
M 6 x 1	5	50	19	6	4,9	....00006	26,12	....0006	8,71	8,71	....00006	8,71
M 7 x 1	6	50	19	6	4,9	....00007	38,15	....0007	12,72	12,72	....00007	12,72
M 8 x 1,25	6,8	63	22	6	4,9	....00008	29,42	....0008	9,81	9,81	....00008	9,81
M 9 x 1,25	7,8	63	22	7	5,5	....00009	49,88	....0009	16,63	16,63	....00009	16,63
M 10 x 1,5	8,5	70	24	7	5,5	....00100	37,29	....0010	12,43	12,43	....00010	12,43
M 11 x 1,5	9,5	70	24	8	6,2	....00110	56,81	....0011	18,94	18,94	....00011	18,94
M 12 x 1,75	10,2	75	28	9	7	....00120	47,52	....0012	15,84	15,84	....00012	15,84
M 14 x 2	12	80	30	11	9	....00140	59,94	....0014	19,99	19,99	....00014	19,99
M 16 x 2	14	80	32	12	9	....00160	73,48	....0016	24,49	24,49	....00016	24,49
M 18 x 2,5	15,5	95	34	14	11	....00180	103,05	....0018	34,35	34,35	....00018	34,35
M 20 x 2,5	17,5	95	34	16	12	....00200	113,45	....0020	37,82	37,82	....00020	37,82
M 22 x 2,5	19,5	100	34	18	14,5	....00220	137,20	....0022	45,73	45,73	....00022	45,73
M 24 x 3	21	110	38	18	14,5	....00240	153,48	....0024	51,16	51,16	....00024	51,16
M 27 x 3	24	110	38	20	16	....00270	207,28	....0027	69,10	69,1	....00027	69,10
M 30 x 3,5	26,5	125	45	22	18	....00300	261,96	....0030	87,32	87,32	....00030	87,32
M 33 x 3,5	29,5	125	50	25	20	....00330	372,95	....0033	124,32	124,32	....00033	124,32
M 36 x 4	32	150	56	28	22	....00360	530,03	....0036	176,68	176,68	....00036	176,68
M 39 x 4	35	150	60	32	24	....00390	565,89	....0039	188,63	188,63	....00039	188,63
M 42 x 4,5	37,5	150	60	32	24	....00420	668,72	....0042	222,92	222,92	....00042	222,92
M 45 x 4,5	40,5	160	65	36	29	....00450	745,55	....0045	248,51	248,51	....00045	248,51
M 48 x 5	43	180	70	36	29	....00480	879,74	....0048	293,25	293,25	....00048	293,25
M 52 x 5	47	180	70	40	32	....00520	1014,54	....0052	338,17	338,17	....00052	338,17

M 518S

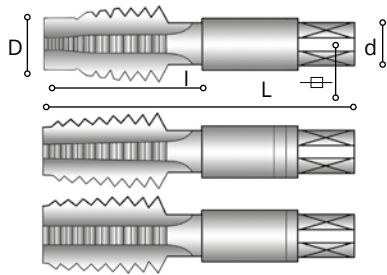


M 519S



D		L	l	d		CODE	HSS 5518..... €	HSS 5519..... €
M 3 x 0,5	2,5	40	11	3,5	2,7	....00003	36,31	12,10
M 3,5 x 0,6	2,9	45	12	4	3	....00035	42,67	14,22
M 4 x 0,7	3,3	45	13	4,5	3,4	....00004	34,99	11,66
M 4,5 x 0,75	3,8	50	16	6	4,9	....00045	49,43	16,48
M 5 x 0,8	4,2	50	16	6	4,9	....00005	36,31	12,10
M 6 x 1	5	50	19	6	4,9	....00006	38,33	12,78
M 7 x 1	6	50	19	6	4,9	....00007	50,78	16,92
M 8 x 1,25	6,8	63	22	6	4,9	....00008	42,70	14,23
M 9 x 1,25	7,8	63	22	7	5,5	....00009	65,95	21,98
M 10 x 1,5	8,5	70	24	7	5,5	....00010	52,27	17,42
M 12 x 1,75	10,2	75	28	9	7	....00012	66,84	22,28
M 14 x 2	12	80	30	11	9	....00014	85,59	28,52
M 16 x 2	14	80	32	12	9	....00016	105,48	35,17
M 18 x 2,5	15,5	95	34	14	11	....00018	149,31	49,78
M 20 x 2,5	17,5	95	34	16	12	....00020	157,64	52,56
M 22 x 2,5	19,5	100	34	18	14,5	....00022	188,57	62,87
M 24 x 3	21	110	38	18	14,5	....00024	210,33	70,11
M 27 x 3	24	110	38	20	16	....00027	282,53	94,18
M 30 x 3,5	26,5	125	45	22	18	....00030	352,59	117,53
M 33 x 3,5	29,5	125	50	25	20	....00033	433,33	144,44
M 36 x 4	32	150	56	28	22	....00036	511,01	170,34
M 39 x 4	35	150	60	32	24	....00039	663,30	221,11

M 523
INOX



1



2

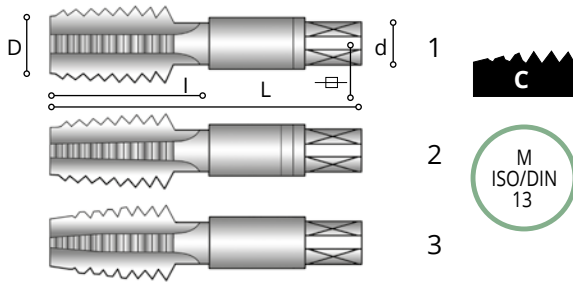


3



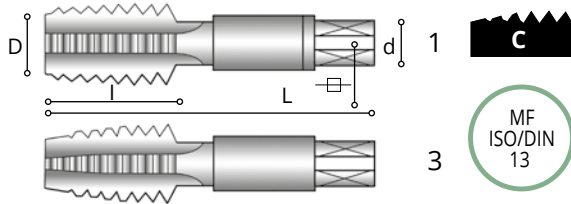
D		L	l	d		CODE	HSS-E 5523..... €	HSS-E 6523..... € QUARTZ
M 3 x 0,5	2,5	40	10	3,5	2,7	....00003	43,82	57,37
M 4 x 0,7	3,3	45	12	4,5	3,4	....00004	43,82	57,37
M 5 x 0,8	4,2	50	14	6	4,9	....00005	44,18	62,23
M 6 x 1	5	56	16	6	4,9	....00006	45,06	68,26
M 8 x 1,25	6,8	63	20	6	4,9	....00008	54,03	81,60
M 10 x 1,5	8,5	70	22	7	5,5	....00010	73,13	112,54
M 12 x 1,75	10,2	75	24	9	7	....00012	89,68	142,49
M 14 x 2	12	80	26	11	9	....00014	133,43	191,99
M 16 x 2	14	80	27	12	9	....00016	162,46	228,54
M 18 x 2,5	15,5	95	30	14	11	....00018	221,24	314,42
M 20 x 2,5	17,5	95	32	16	12	....00020	266,61	356,05

M 595
HRC40



D		L	l	d		CODE	RESISTOR 8595..... € OPAL
M 3 x 0,5	2,5	40	10	3,5	2,7	....30030	74,65
M 4 x 0,7	3,3	50	12	6	4,9	....40030	74,65
M 5 x 0,8	4,2	50	14	6	4,9	....50030	80,12
M 6 x 1	5	56	16	6	4,9	....60030	87,29
M 8 x 1,25	6,8	63	20	6	4,9	....80030	106,54
M 10 x 1,5	8,5	70	22	7	5,5	....10030	147,38
M 12 x 1,75	10,2	75	24	9	7	....12030	199,39
M 16 x 2	14	80	27	12	9	....16030	315,25
M 20 x 2,5	17,5	95	32	16	12	....20030	492,63



MF 510



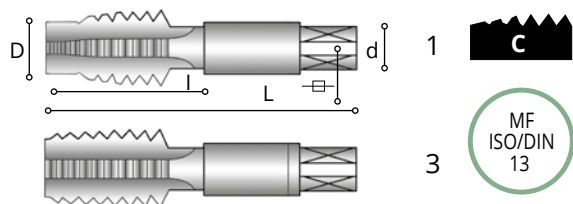
M510



D		L	l	d		CODE	HSS 5510..... €
MF 3 x 0,35	2,65	40	8	3,5	2,7	...00003	32,81
MF 4 x 0,5	3,5	45	10	4,5	3,4	...00004	27,06
MF 4,5 x 0,5	4	50	12	6	4,9	...00045	40,78
MF 5 x 0,5	4,5	50	12	6	4,9	...00005	29,39
MF 5,5 x 0,5	5	50	12	6	4,9	...00055	48,02
MF 6 x 0,5	5,5	50	14	6	4,9	...50006	31,87
MF 6 x 0,75	5,3	50	14	6	4,9	...75006	31,08
MF 7 x 0,75	6,2	50	14	6	4,9	...75007	37,09
MF 8 x 0,5	7,5	50	18	6	4,9	...50008	38,84
MF 8 x 0,75	7,3	50	18	6	4,9	...75008	36,64
MF 8 x 1	7	56	22	6	4,9	...10008	28,89
MF 9 x 0,75	8,2	56	18	7	5,5	...75009	47,19
MF 9 x 1	8	63	22	7	5,5	...10009	46,58
MF 10 x 0,75	9,3	63	20	7	5,5	...75010	45,75
MF 10 x 1	9	63	20	7	5,5	...10010	32,96
MF 10 x 1,25	8,8	70	24	7	5,5	...12510	37,99
MF 11 x 1	10	63	20	8	6,2	...10011	52,00
MF 12 x 1	11	70	22	9	7	...10012	41,70
MF 12 x 1,25	10,8	70	22	9	7	...12512	42,23
M 12 x 1,5	10,5	70	22	9	7	...15012	39,48
MF 14 x 1	13	70	22	11	9	...10014	52,47
MF 14 x 1,25	12,8	70	22	11	9	...12514	53,38
MF 14 x 1,5	12,5	70	22	11	9	...15014	50,30
MF 15 x 1	14	70	22	12	9	...10015	66,76
MF 15 x 1,5	13,5	70	22	12	9	...15015	59,08
MF 16 x 1	15	70	22	12	9	...10016	57,82
MF 16 x 1,25	14,8	70	22	12	9	...12516	58,98
MF 16 x 1,5	14,5	70	22	12	9	...15016	49,96
MF 18 x 1	17	80	22	14	11	...10018	78,60
MF 18 x 1,5	16,5	80	22	14	11	...15018	75,20
MF 18 x 2	16	80	22	14	11	...20018	96,22
MF 20 x 1	19	80	22	16	12	...10020	84,96
MF 20 x 1,5	18,5	80	22	16	12	...15020	74,82
MF 20 x 2	18	80	22	16	12	...20020	103,20
MF 22 x 1	21	80	22	18	14,5	...10022	115,48
MF 22 x 1,5	20,5	80	22	18	14,5	...00022	90,16
MF 22 x 2	20	80	22	18	14,5	...20022	117,28
MF 24 x 1	23	90	22	18	14,5	...10024	140,01
MF 24 x 1,5	22,5	90	22	18	14,5	...00024	105,80
MF 24 x 2	22	90	22	18	14,5	...20024	124,30

D		L	I	d		CODE	HSS 5510..... €
MF 25 x 1	24	90	22	18	14,5	....10025	140,01
MF 25 x 1,5	23,5	90	22	18	14,5	....15025	136,55
MF 25 x 2	23	90	22	18	14,5	....20025	140,05
MF 26 x 1,5	24,5	90	22	18	14,5	....15026	156,62
MF 27 x 1	26	90	22	20	16	....10027	183,51
MF 27 x 1,5	25,5	90	22	20	16	....15027	156,62
MF 27 x 2	25	90	22	20	16	....20027	168,27
MF 28 x 1,5	26,5	90	22	20	16	....15028	156,83
MF 28 x 2	26	90	22	20	16	....20028	156,92
MF 30 x 1,5	28,5	90	22	22	18	....15030	186,67
MF 30 x 2	28	90	22	22	18	....20030	208,23
MF 32 x 1,5	30,5	90	22	22	18	....15032	211,53
MF 33 x 1,5	31,5	100	25	25	20	....15033	281,92
MF 33 x 2	31	100	25	25	20	....20033	302,70
MF 35 x 1,5	33,5	100	25	28	22	....15035	281,92
MF 36 x 1,5	34,5	100	25	28	22	....15036	326,77
MF 36 x 2	34	125	40	28	22	....20036	326,77
MF 36 x 3	33	125	40	28	22	....30036	339,04
MF 39 x 1,5	37,5	110	25	32	24	....15039	418,85
MF 39 x 2	37	125	40	32	24	....20039	461,59
MF 39 x 3	36	125	40	32	24	....30039	461,59
MF 40 x 1,5	38,5	110	25	32	24	....15040	361,46
MF 40 x 2	38	125	40	32	24	....20040	361,46
MF 40 x 3	37	125	40	32	24	....30040	361,46
MF 42 x 1,5	40,5	110	25	32	24	....15042	411,25
MF 42 x 2	40	125	40	32	24	....20042	414,58
MF 42 x 3	39	125	40	32	24	....30042	413,41
MF 45 x 1,5	43,5	110	25	36	29	....15045	487,40
MF 45 x 2	43	125	40	36	29	....20045	489,05
MF 45 x 3	42	125	40	36	29	....30045	487,99
MF 48 x 1,5	46,5	140	40	36	29	....15048	548,31
MF 48 x 2	46	140	40	36	29	....20048	548,77
MF 48 x 3	45	140	40	36	29	....30048	548,77
MF 50 x 1,5	48,5	140	40	36	29	....15050	654,93
MF 50 x 2	48	140	40	36	29	....20050	658,44
MF 50 x 3	47	140	40	36	29	....30050	658,44
MF 52 x 1,5	50,5	140	40	40	32	....15052	715,86
MF 52 x 2	50	140	40	40	32	....20052	717,39
MF 52 x 3	49	140	40	40	32	....30052	717,39

MF 596
HRC40

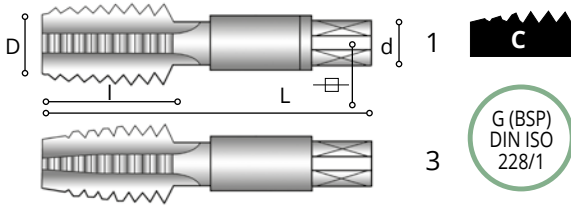


MF596



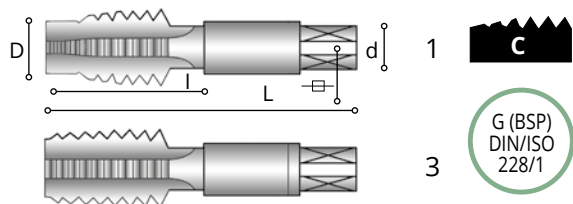
D		L	l	d		CODE	RESISTOR 8596..... € OPAL
MF 8 x 1	7	63	17	6	4,9	...10008	85,77
MF 10 x 1	9	63	18	7	5,5	...10010	120,99
MF 12 x 1,5	10,5	70	20	9	7	...15012	158,56
MF 16 x 1,5	14,5	70	20	12	9	...15016	256,94

G 540



D	D (mm)		L	l	d		CODE	HSS 5540..... €
G 1/8 - 28	9,73	8,8	63	20	7	5,5	....00108	44,01
G 1/4 - 19	13,16	11,8	70	22	11	9	....00104	59,65
G 3/8 - 19	16,66	15,25	70	22	12	9	....00308	72,36
G 1/2 - 14	20,96	19	80	22	16	12	....00102	103,16
G 5/8 - 14	22,91	21	80	22	18	14,5	....00508	125,05
G 3/4 - 14	26,44	24,5	90	22	20	16	....00304	151,86
G 7/8 - 14	30,20	28,25	90	22	22	18	....00708	209,50
G 1" - 11	33,25	30,75	100	25	25	20	....00100	245,76
G 1" 1/8 - 11	37,90	35	125	40	28	22	....01108	376,74
G 1" 1/4 - 11	41,91	39,5	125	40	32	24	....01104	440,74
G 1" 3/8 - 11	44,32	42	125	40	36	29	....01308	513,39
G 1" 1/2 - 11	47,80	45	140	40	36	29	....01102	556,50
G 1" 3/4 - 11	53,75	51	140	40	40	32	....01304	650,80
G 2" - 11	59,61	57	160	40	45	35	....00200	814,40

G 555
INOX

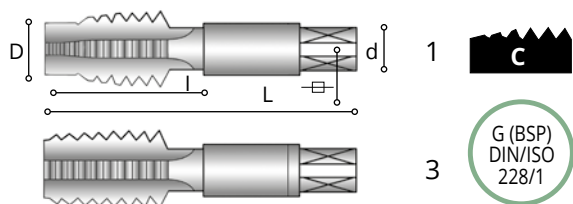


G555



D	D (mm)		L	l	d		CODE	HSS-E 5555..... €
G 1/8-28	9,73	8,8	63	18	7	5,5	....00108	67,22
G 1/4-19	13,16	11,8	70	22	11	9	....00104	87,27
G 3/8-19	16,66	15,25	70	22	12	9	....00308	108,47
G 1/2-14	20,96	19	80	22	16	12	....00102	140,83

G 554
HRC40

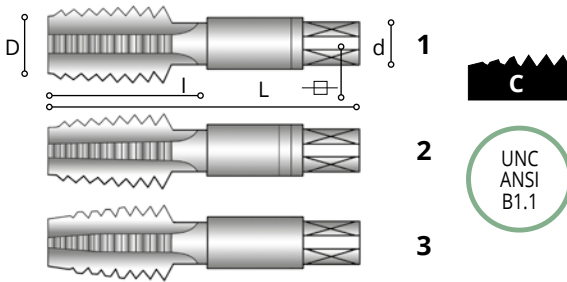


G554



D	D (mm)		L	l	d		CODE	RESISTOR 8554..... € OPAL
G 1/8-28	9,73	8,8	63	18	7	5,5	....10830	133,59
G 1/4-19	13,16	11,8	70	22	11	9	....10430	233,98
G 3/8-19	16,66	15,25	70	22	12	9	....30830	294,97
G 1/2-14	20,96	19	80	22	16	12	....10230	409,23

UNC 556

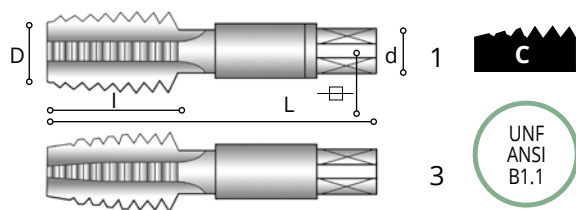


UNC556



D	D (mm)		L	I	d		CODE	HSS 5556..... €
UNC 5 - 40	3,175	2,65		11	3,5	2,7	....00540	44,13
UNC 6 - 32	3,505	2,85	45	12	4	3	....00632	44,13
UNC 8 - 32	4,166	3,5	45	13	4,5	3,4	....00832	44,13
UNC 10 - 24	4,826	3,9	50	16	6	4,9	....01024	52,15
UNC 12 - 24	5,486	4,5	50	16	6	4,9	....01224	52,15
UNC 1/4 - 20	6,35	5,1	50	19	6	4,9	....01420	52,15
UNC 5/16 - 18	7,938	6,6	56	22	6	4,9	....51618	57,96
UNC 3/8 - 16	9,525	8	63	22	7	5,5	....03816	62,68
UNC 7/16 - 14	11,11	9,4	70	24	8	6,2	....71614	77,25
UNC 1/2 - 13	12,7	10,8	75	28	9	7	....71213	89,88
UNC 9/16 - 12	14,29	12,2	80	30	11	9	....91612	120,66
UNC 5/8 - 11	15,88	13,5	80	32	12	9	....05811	127,42
UNC 3/4 - 10	19,05	16,5	95	34	14	11	....03410	164,77
UNC 7/8 - 9	22,23	19,5	100	34	18	14,5	....07809	208,35
UNC 1" - 8	25,4	22,25	110	38	18	14,5	....01008	279,49
UNC 1" 1/8 - 7	28,58	25	125	45	22	18	....11807	372,67
UNC 1" 1/4 - 7	31,75	28	125	50	25	20	....11407	387,71
UNC 1" 3/8 - 6	34,93	30,75	150	56	28	22	....13806	539,68
UNC 1" 1/2 - 6	38,1	34	150	60	32	24	....11206	617,50

UNF 558

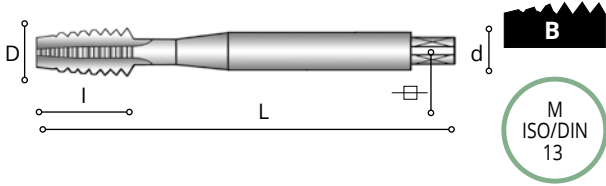


UNF558



D	D (mm)		L	l	d		CODE	HSS 5558..... €
UNF 5 - 44	3,175	2,7	40	11	3,5	2,7	...00544	33,72
UNF 6 - 40	3,505	2,95	45	13	4	3	...00640	33,77
UNF 8 - 36	4,166	3,5	45	13	4,5	3,4	...00836	33,33
UNF 10 - 32	4,826	4,1	50	16	6	4,9	...01032	33,33
UNF 12 - 28	5,486	4,7	50	16	6	4,9	...01228	38,74
UNF 1/4 - 28	6,35	5,5	50	19	6	4,9	...01428	38,68
UNF 5/16 - 24	7,938	6,9	56	22	6	4,9	...51624	43,03
UNF 3/8 - 24	9,525	8,5	63	22	7	5,5	...03824	47,27
UNF 7/16 - 20	11,11	9,9	63	22	8	6,2	...71620	57,04
UNF 1/2 - 20	12,7	11,5	63	22	9	7	...01220	66,68
UNF 9/16 - 18	14,29	12,9	70	22	11	9	...91618	87,51
UNF 5/8 - 18	15,88	14,5	70	22	12	9	...05818	79,42
UNF 3/4 - 16	19,05	17,5	80	25	14	11	...03416	121,22
UNF 7/8 - 14	22,23	20,4	80	25	18	14,5	...07814	129,43
UNF 1" - 12	25,4	23,25	80	28	18	14,5	...01012	179,67
UNF 1" 1/8 - 12	28,58	26,5	90	28	22	18	...11812	231,89
UNF 1" 1/4 - 12	31,75	29,5	90	28	22	18	...11412	284,91
UNF 1" 3/8 - 12	34,93	32,75	125	38	28	22	...13812	409,44
UNF 1" 1/2 - 12	38,1	36	125	38	28	22	...11212	462,89

M 508

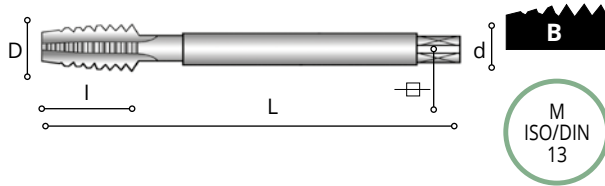


M508

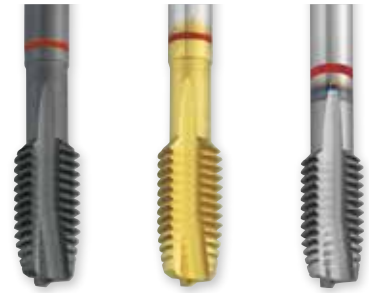


D		L	l	d		CODE	HSS-EX	HSS-EX	HSS-EX	CODE	RESISTOR
							5508..... €	6508..... € QUARTZ	7508..... € TITANITE		8508..... € OPAL
M 2 x 0,4	1,6	45	8	2,8	2,1	....00002	19,68	23,60	25,06		
M 2,5 x 0,45	2	50	9	2,8	2,1	....00025	19,68	23,60	25,06		
M 2,6 x 0,45	2,1	50	9	2,8	2,1	....00026	19,68	23,60	25,06		
M 3 x 0,5	2,5	56	10	3,5	2,7	....00003	15,26	18,73	20,21	....30030	41,98
M 3,5 x 0,6	2,9	56	12	4	3	....00035	16,38	19,97	21,42		
M 4 x 0,7	3,3	63	12	4,5	3,4	....00004	15,50	19,69	21,73	....40030	41,98
M 5 x 0,8	4,2	70	14	6	4,9	....00005	16,37	20,64	22,67	....50030	41,98
M 6 x 1	5	80	18	6	4,9	....00006	16,37	20,64	23,94	....60030	41,98
M 7 x 1	6	80	18	7	5,5	....00007	18,33	24,15	27,21		
M 8 x 1,25	6,8	90	20	8	6,2	....00008	18,65	24,50	27,55	....80030	54,86
M 10 x 1,5	8,5	100	20	10	8	....00010	23,53	30,61	34,30	....10030	66,78

M 502



M502

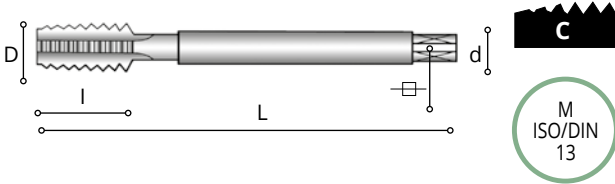


D		L	I	d		CODE	HSS-EX 5502..... €	HSS-EX 6502..... € QUARTZ	HSS-EX 7502..... € TITANITE
M 3 x 0,5	2,5	56	11	2,2	-	....00003	17,62	21,33	22,80
M 4 x 0,7	3,3	63	13	2,8	2,1	....00004	17,62	21,33	22,80
M 5 x 0,8	4,2	70	16	3,5	2,7	....00005	17,62	22,02	24,06
M 6 x 1	5	80	19	4,5	3,4	....00006	17,62	22,47	25,31
M 7 x 1	6	80	19	5,5	4,3	....00007	21,10	27,18	30,24
M 8 x 1,25	6,8	90	22	6	4,9	....00008	20,31	26,31	29,37
M 10 x 1,5	8,5	100	24	7	5,5	....00010	23,61	30,70	34,38
M 11 x 1,5	9,5	100	24	8	6,2	....00011	36,87	45,28	48,97
M 12 x 1,75	10,2	110	28	9	7	....00012	28,09	36,97	41,67
M 14 x 2	12	110	30	11	9	....00014	39,82	50,49	55,68
M 16 x 2	14	110	32	12	9	....00016	45,23	56,46	61,64
M 18 x 2,5	15,5	125	34	14	11	....00018	59,56	73,19	79,12
M 20 x 2,5	17,5	140	34	16	12	....00020	67,04	83,28	90,64
M 22 x 2,5	19,5	140	34	18	14,5	....00022	84,56	102,56	109,93
M 24 x 3	21	160	38	18	14,5	....00024	90,40	112,78	142,50
M 27 x 3	24	160	38	20	16	....00027	122,88	166,12	189,97
M 30 x 3,5	26,5	180	45	22	18	....00030	149,93	195,87	219,72
M 33 x 3,5	29,5	180	50	25	20	....00033	202,00	256,60	283,14
M 36 x 4	32	200	56	28	22	....00036	282,39	356,15	391,30
M 39 x 4	35	200	60	32	24	....00039	351,70	432,39	467,52
M 42 x 4,5	37,5	200	60	32	24	....00042	418,64	524,10	573,21

M 503

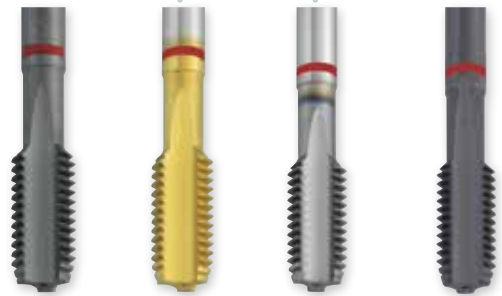


M 521S



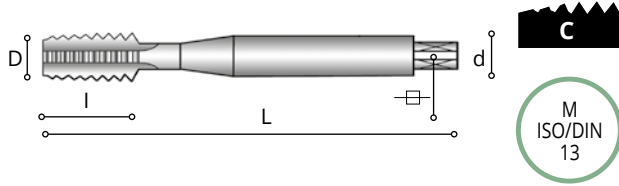
M503

M 521S



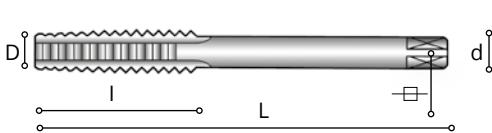
D		L	l	d		CODE	HSS-EX 5503..... €	HSS-EX 6503..... € QUARTZ	HSS-EX 7503..... € TITANITE	HSS-EX 5521..... €
M 3 x 0,5	2,5	56	11	2,2	-	....00003	14,63	18,05	19,51	25,35
M 4 x 0,7	3,3	63	13	2,8	2,1	....00004	16,53	20,13	21,59	25,96
M 5 x 0,8	4,2	70	16	3,5	2,7	....00005	16,53	20,82	22,84	25,96
M 6 x 1	5	80	19	4,5	3,4	....00006	16,53	21,27	24,11	25,96
M 7 x 1	6	80	19	5,5	4,3	....00007	20,63	26,67	29,72	
M 8 x 1,25	6,8	90	22	6	4,9	....00008	16,53	22,16	25,21	29,02
M 10 x 1,5	8,5	100	24	7	5,5	....00010	20,15	26,90	30,57	34,11
M 11 x 1,5	9,5	100	24	8	6,2	....00011	29,40	37,06	40,74	
M 12 x 1,75	10,2	110	28	9	7	....00012	25,64	34,29	38,98	43,88
M 14 x 2	12	110	30	11	9	....00014	34,70	44,87	50,05	54,82
M 16 x 2	14	110	32	12	9	....00016	42,10	53,02	58,19	62,67
M 18 x 2,5	15,5	125	34	14	11	....00018	56,64	69,99	75,92	88,63
M 20 x 2,5	17,5	140	34	16	12	....00020	60,34	75,92	83,28	103,90
M 22 x 2,5	19,5	140	34	18	14,5	....00022	81,66	99,36	106,72	120,01
M 24 x 3	21	160	38	18	14,5	....00024	87,48	109,58	139,30	126,94
M 27 x 3	24	160	38	20	16	....00027	114,61	157,01	180,87	170,85
M 30 x 3,5	26,5	180	45	22	18	....00030	136,34	180,90	204,76	197,57
M 33 x 3,5	29,5	180	50	25	20	....00033	199,97	254,36	280,90	255,20
M 36 x 4	32	200	56	28	22	....00036	223,17	291,00	326,13	303,12
M 39 x 4	35	200	60	32	24	....00039	291,14	365,78	400,91	359,27
M 42 x 4,5	37,5	200	60	32	24	....00042	327,96	424,34	473,45	
M 45 x 4,5	40,5	220	65	36	29	....00045	343,23	455,89	516,34	
M 48 x 5	43	250	70	36	29	....00048	410,03	529,37	589,82	
M 52 x 5	47	250	70	40	32	....00052	514,47	656,12	706,58	

M 509



D		L	I	d		CODE	HSS-EX 5509..... €	HSS-EX 6509..... € QUARTZ	HSS-EX 7509..... € TITANITE
M 2 x 0,4	1,6	45	8	2,8	2,1	....00002	20,31	24,28	25,75
M 2,5 x 0,45	2	50	9	2,8	2,1	....00025	20,31	24,28	25,75
M 2,6 x 0,45	2,1	50	9	2,8	2,1	....00026	20,31	24,28	25,75
M 3 x 0,5	2,5	56	10	3,5	2,7	....00003	13,68	17,01	18,48
M 3,5 x 0,6	2,9	56	12	4	3	....00035	16,78	20,39	21,86
M 4 x 0,7	3,3	63	12	4,5	3,4	....00004	13,69	17,69	19,73
M 5 x 0,8	4,2	70	14	6	4,9	....00005	14,56	18,65	20,69
M 6 x 1	5	80	18	6	4,9	....00006	14,56	18,65	21,94
M 7 x 1	6	80	18	7	5,5	....00007	16,37	22,00	25,04
M 8 x 1,25	6,8	90	20	8	6,2	....00008	17,16	22,85	25,90
M 10 x 1,5	8,5	100	20	10	8	....00010	19,99	26,71	30,39

M 514



~12P

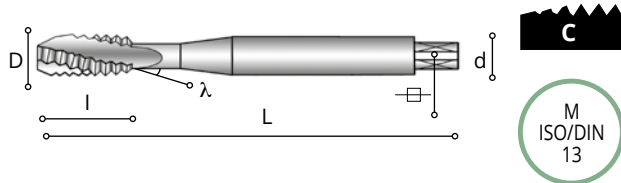
M
ISO/DIN
13

M514

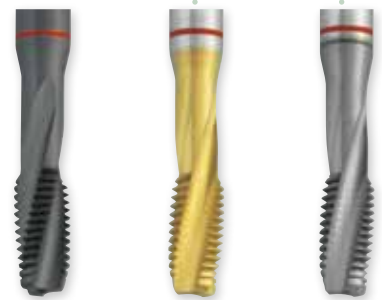


D		L	I	d		CODE	HSS-EX 5514..... €	HSS-EX 6514..... € QUARTZ	HSS-EX 7514..... € TITANITE
M 4 x 0,7	3,3	90	25	2,8	2,1	....00004	26,51	31,65	33,59
M 5 x 0,8	4,2	100	28	3,5	2,7	....00005	28,17	34,32	36,90
M 6 x 1	5	110	32	4,5	3,4	....00006	29,82	36,78	39,87
M 8 x 1,25	6,8	125	40	6	4,9	....00008	37,53	46,19	50,00
M 10 x 1,5	8,5	140	45	7	5,5	....00010	41,93	52,20	56,90
M 12 x 1,75	10,2	180	50	9	7	....00012	55,23	68,09	73,77
M 14 x 2	12	200	56	11	9	....00014	77,80	97,63	106,94
M 16 x 2	14	200	63	12	9	....00016	91,09	112,27	121,58
M 18 x 2,5	15,5	220	63	14	11	....00018	110,36	141,45	156,93
M 20 x 2,5	17,5	250	70	16	12	....00020	122,56	163,76	186,12

M 511

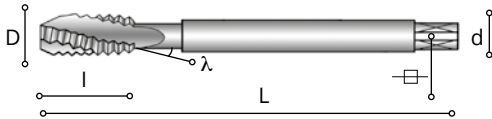


M511



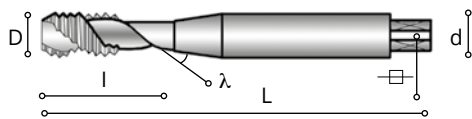
D		L	I	d		CODE	HSS-EX 5511..... €	HSS-EX 6511..... € QUARTZ	HSS-EX 7511..... € TITANITE
M 2 x 0,4	1,6	45	8	2,8	2,1	....00002	20,17	24,15	25,61
M 2,5 x 0,45	2	50	9	2,8	2,1	....00025	18,10	21,86	23,31
M 2,6 x 0,45	2,1	50	9	2,8	2,1	....00026	18,10	21,86	23,31
M 3 x 0,5	2,5	56	11	3,5	2,7	....00003	16,37	19,96	21,42
M 4 x 0,7	3,3	63	13	4,5	3,4	....00004	16,37	20,64	22,67
M 5 x 0,8	4,2	70	15	6	4,9	....00005	17,16	21,50	23,53
M 6 x 1	5	80	17	6	4,9	....00006	18,09	23,25	25,82
M 7 x 1	6	80	17	7	5,5	....00007	19,04	24,93	27,97
M 8 x 1,25	6,8	90	20	8	6,2	....00008	19,99	25,96	29,01
M 10 x 1,5	8,5	100	20	10	8	....00010	24,63	31,82	35,50

M 505

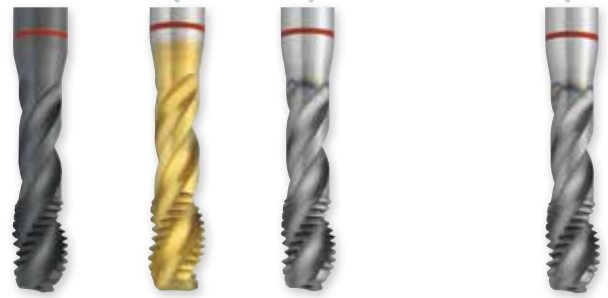


D		L	I	d		CODE	HSS-EX 5505..... €	HSS-EX 6505..... € QUARTZ	HSS-EX 7505..... € TITANITE
M 3 x 0,5	2,5	56	11	2,2	-	....00003	18,33	22,12	23,58
M 4 x 0,7	3,3	63	13	2,8	2,1	....00004	19,04	22,89	24,35
M 5 x 0,8	4,2	70	16	3,5	2,7	....00005	18,18	22,64	24,67
M 6 x 1	5	80	19	4,5	3,4	....00006	19,99	25,34	27,91
M 7 x 1	6	80	19	5,5	4,3	....00007	20,31	26,31	29,37
M 8 x 1,25	6,8	90	22	6	4,9	....00008	21,79	27,96	31,01
M 10 x 1,5	8,5	100	24	7	5,5	....00010	27,14	34,58	38,27
M 12 x 1,75	10,2	110	28	9	7	....00012	30,92	40,09	44,78
M 14 x 2	12	110	30	11	9	....00014	42,65	53,62	58,79
M 16 x 2	14	110	32	12	9	....00016	48,93	60,53	65,72
M 18 x 2,5	15,5	125	34	14	11	....00018	67,04	81,43	87,35
M 20 x 2,5	17,5	140	34	16	12	....00020	75,23	92,45	99,92
M 22 x 2,5	19,5	140	34	18	14,5	....00022	90,70	109,31	116,67
M 24 x 3	21	160	38	18	14,5	....00024	96,14	130,05	148,82
M 27 x 3	24	160	38	20	16	....00027	132,78	177,47	201,68
M 30 x 3,5	26,5	180	45	22	18	....00030	158,19	204,95	228,80
M 33 x 3,5	29,5	180	50	25	20	....00033	215,46	271,38	297,94
M 36 x 4	32	200	56	28	22	....00036	258,14	330,16	365,82

M 512

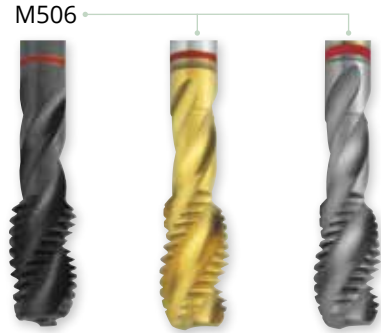
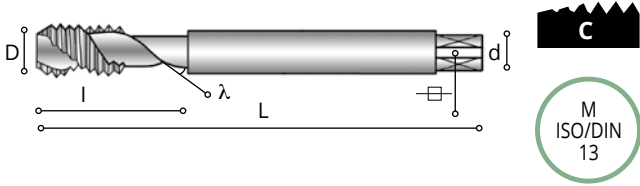


M 512



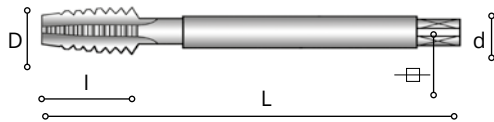
D		L	I	d		CODE	HSS-EX 5512..... €	HSS-EX 6512..... € QUARTZ	HSS-EX 7512..... € TITANITE	CODE	RESISTOR 8512..... € OPAL
M 2 x 0,4	1,6	45	8	2,8	2,1	....00002	21,64	25,75	27,21		
M 2,5 x 0,45	2	50	9	2,8	2,1	....00025	21,64	25,75	27,21		
M 2,6 x 0,45	2,1	50	9	2,8	2,1	....00026	21,64	25,75	27,21		
M 3 x 0,5	2,5	56	5	3,5	2,7	....00003	16,37	19,96	21,42	....30030	44,09
M 4 x 0,7	3,3	63	7	4,5	3,4	....00004	17,16	21,50	23,53	....40030	44,09
M 5 x 0,8	4,2	70	8	6	4,9	....00005	18,09	22,53	24,57	....50030	44,09
M 6 x 1	5	80	10	6	4,9	....00006	18,09	23,25	25,82	....60030	44,09
M 7 x 1	6	80	10	7	5,5	....00007	18,67	24,52	27,56		
M 8 x 1,25	6,8	90	13	8	6,2	....00008	20,86	26,91	29,97	....80030	57,78
M 10 x 1,5	8,5	100	15	10	8	....00010	24,63	31,82	35,50	....10030	70,39

M 506

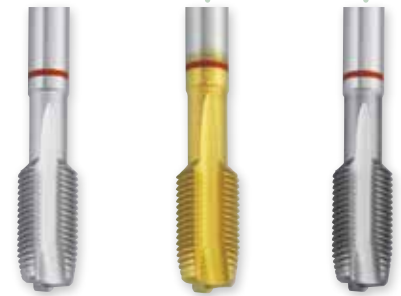


D		L	l	d		CODE	HSS-EX 5506..... €	HSS-EX 6506..... € QUARTZ	HSS-EX 7506..... € TITANITE
M 3 x 0,5	2,5	56	5	2,2	-	....00003	18,09	21,85	23,31
M 4 x 0,7	3,3	63	7	2,8	2,1	....00004	17,94	21,68	23,15
M 5 x 0,8	4,2	70	8	3,5	2,7	....00005	17,59	21,98	24,02
M 6 x 1	5	80	10	4,5	3,4	....00006	18,81	24,04	26,62
M 7 x 1	6	80	10	5,5	4,3	....00007	20,31	26,31	29,37
M 8 x 1,25	6,8	90	13	6	4,9	....00008	21,94	28,13	31,18
M 10 x 1,5	8,5	100	15	7	5,5	....00010	27,39	34,85	38,54
M 12 x 1,75	10,2	110	18	9	7	....00012	31,24	40,43	45,13
M 14 x 2	12	110	20	11	9	....00014	42,95	53,95	59,12
M 16 x 2	14	110	20	12	9	....00016	49,33	60,97	66,15
M 18 x 2,5	15,5	125	25	14	11	....00018	67,65	82,12	88,03
M 20 x 2,5	17,5	140	25	16	12	....00020	73,13	89,99	97,35
M 22 x 2,5	19,5	140	25	18	14,5	....00022	91,57	110,27	117,63
M 24 x 3	21	160	30	18	14,5	....00024	96,99	130,99	149,76
M 27 x 3	24	160	38	20	16	....00027	134,07	178,87	203,08
M 30 x 3,5	26,5	180	45	22	18	....00030	159,69	206,61	230,47
M 33 x 3,5	29,5	180	50	25	20	....00033	200,80	255,78	282,73
M 36 x 4	32	200	56	28	22	....00036	330,15	409,37	445,03
M 39 x 4	35	200	40	32	24	....00039	462,42	543,42	578,42
M 42 x 4,5	37,5	200	45	32	24	....00042	550,53	631,05	659,53

MF 520



MF520

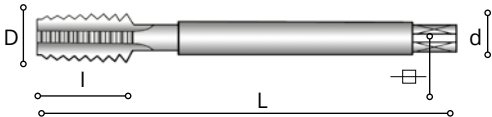


D		L	I	d		CODE	HSS-EX 5520..... €	HSS-EX 6520..... € QUARTZ	HSS-EX 7520..... € TITANITE
MF 4 x 0,5	3,5	63	10	2,8	2,1	....00004	26,21	30,77	32,24
MF 5 x 0,5	4,5	70	12	3,5	2,7	....00005	26,21	31,46	33,50
MF 5,5 x 0,5	5	80	12	4	3	....00055	34,32	41,11	43,68
MF 6 x 0,5	5,5	80	14	4,5	3,4	....05006	27,97	34,13	36,71
MF 6 x 0,75	5,3	80	14	4,5	3,4	....07506	26,21	32,18	34,75
MF 7 x 0,75	6,2	80	14	5,5	4,3	....07507	29,17	36,15	39,27
MF 8 x 0,75	7,3	80	18	6	4,9	....07508	29,91	36,87	39,93
MF 8 x 1	7	90	20	6	4,9	....10008	27,17	33,87	36,93
MF 10 x 0,75	9,2	90	20	7	5,5	....07510	33,22	41,27	44,95
MF 10 x 1	9	90	20	7	5,5	....10010	34,14	42,28	45,96
MF 10 x 1,25	8,8	100	20	7	5,5	....12510	34,14	42,28	45,96
MF 11 x 1	10	90	20	8	6,2	....10011	42,28	51,32	55,08
MF 12 x 1	11	100	20	9	7	....10012	39,92	48,64	52,32
MF 12 x 1,25	10,8	100	20	9	7	....12512	38,75	47,36	51,04
MF 12 x 1,5	10,5	100	20	9	7	....15012	38,75	47,36	51,04
MF 14 x 1	13	100	20	11	9	....10014	49,13	59,24	63,26
MF 14 x 1,25	12,8	100	20	11	9	....12514	54,74	65,32	69,30
MF 14 x 1,5	12,5	100	20	11	9	....15014	54,74	65,32	69,30
MF 15 x 1	14	100	20	12	9	....10015	62,67	74,14	78,18
MF 15 x 1,5	13,5	100	20	12	9	....15015	61,74	73,04	77,02
MF 16 x 1	15	100	20	12	9	....10016	66,01	77,73	81,71
MF 16 x 1,5	14,5	100	20	12	9	....15016	63,87	75,37	79,34
MF 18 x 1	17	110	24	14	11	....10018	81,99	97,89	103,81
MF 18 x 1,5	16,5	110	24	14	11	....15018	76,36	91,81	97,83
MF 18 x 2	16	125	32	14	11	....20018	75,63	90,87	96,80
MF 20 x 1	19	125	24	16	12	....10020	88,87	107,31	114,66
MF 20 x 1,5	18,5	125	24	16	12	....15020	84,35	102,33	109,69
MF 20 x 2	18	140	32	16	12	....20020	79,74	97,25	104,61
MF 22 x 1	21	125	24	18	14,5	....10022	96,60	115,80	123,17
MF 22 x 1,5	20,5	125	24	18	14,5	....00022	91,10	109,77	117,14
MF 22 x 2	20	140	32	18	14,5	....20022	115,35	136,43	143,79
MF 24 x 1	23	140	27	18	14,5	....10024	127,23	153,29	163,58
MF 24 x 1,5	22,5	140	27	18	14,5	....00024	102,49	126,08	136,38
MF 24 x 2	22	140	27	18	14,5	....20024	129,57	155,86	166,16
MF 25 x 1,5	23,5	140	27	18	14,5	....15025	141,57	169,09	179,38
MF 26 x 1,5	24,5	140	27	18	14,5	....15026	123,17	150,92	162,86
MF 27 x 1,5	25,5	140	27	20	16	....15027	129,98	158,35	170,24
MF 27 x 2	25	140	27	20	16	....20027	131,51	160,02	171,91
MF 28 x 1,5	26,5	140	27	20	16	....15028	141,34	186,88	211,09
MF 28 x 2	26	140	27	20	16	....20028	145,72	191,71	215,92
MF 30 x 1,5	28,5	150	27	22	18	....15030	150,01	196,40	220,62
MF 30 x 2	28	150	27	22	18	....20030	150,01	196,40	220,62
MF 33 x 2	31	160	30	25	20	....20033	188,42	241,66	268,19
MF 36 x 3	33	200	56	28	22	....30036	252,54	324,01	359,66

MF 530

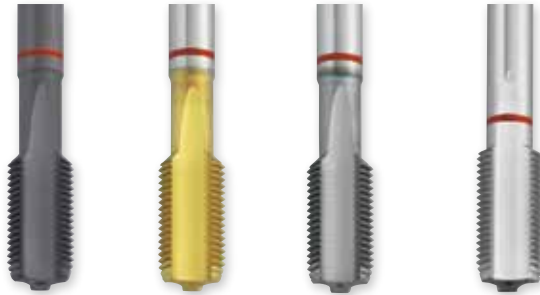


MF 522S



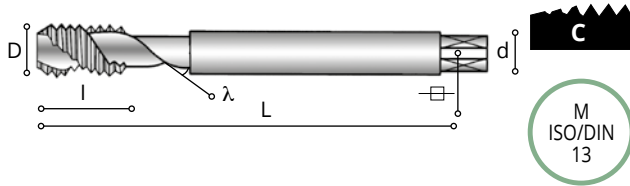
MF530

MF522S

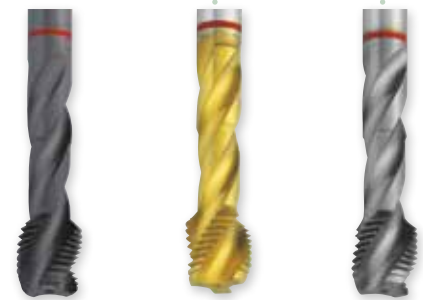


D		L	I	d		CODE	HSS-EX	HSS-EX	HSS-EX	HSS-EX
							5530..... €	6530..... € QUARTZ	7530..... € TITANITE	5522..... €
MF 4 x 0,5	3,5	63	10	2,8	2,1	....00004	23,76	28,07	29,55	45,72
MF 5 x 0,5	4,5	70	12	3,5	2,7	....00005	24,16	29,21	32,49	45,72
MF 6 x 0,5	5,5	80	14	4,5	3,4	....05006	25,64	31,57	34,14	
MF 6 x 0,75	5,3	80	14	4,5	3,4	....07506	26,59	32,60	35,18	50,41
MF 7 x 0,75	6,2	80	14	5,5	4,3	....07507	44,99	56,33	61,63	44,99
MF 8 x 0,75	7,3	80	18	6	4,9	....07508	26,59	32,60	36,28	44,99
MF 8 x 1	7	90	20	6	4,9	....10008	24,16	30,55	33,61	41,14
MF 9 x 1	8	90	20	7	5,5	....10009	46,38	58,06	63,54	46,38
MF 10 x 0,75	9,2	90	20	7	5,5	....07510	50,57	63,31	69,28	50,57
MF 10 x 1	9	90	20	7	5,5	....10010	26,64	34,05	37,72	44,99
MF 10 x 1,25	8,8	100	20	7	5,5	....12510	28,73	36,32	40,01	44,99
MF 11 x 1	10	90	20	8	6,2	....10011	54,31	67,99	74,40	54,31
MF 12 x 1	11	100	20	9	7	....10012	31,61	39,59	43,34	52,72
MF 12 x 1,25	10,8	100	20	9	7	....12512	36,94	45,42	49,16	52,72
MF 12 x 1,5	10,5	100	20	9	7	....15012	30,03	37,84	41,61	52,72
MF 14 x 1	13	100	20	11	9	....10014	46,13	55,93	59,97	67,00
MF 14 x 1,25	12,8	100	20	11	9	....12514	45,45	55,10	59,08	67,00
MF 14 x 1,5	12,5	100	20	11	9	....00014	42,41	51,84	55,89	67,00
MF 15 x 1	14	100	20	12	9	....10015	91,55	114,62	125,43	91,55
MF 16 x 1	15	100	20	12	9	....10016	53,18	63,68	67,73	85,25
MF 16 x 1,5	14,5	100	20	12	9	....00016	46,29	56,12	60,16	76,01
MF 18 x 1	17	110	24	14	11	....10018	67,89	82,39	88,30	97,74
MF 18 x 1,5	16,5	110	24	14	11	....00018	56,10	69,56	75,61	97,74
MF 18 x 2	16	125	32	14	11	....20018	67,89	82,39	88,30	
MF 20 x 1	19	125	24	16	12	....10020	79,68	97,20	104,57	107,88
MF 20 x 1,5	18,5	125	24	16	12	....00020	62,04	77,98	85,49	107,88
MF 20 x 2	18	140	32	16	12	....20020	79,53	97,03	104,39	
MF 22 x 1	21	125	24	18	14,5	....10022	89,10	107,69	115,15	127,11
MF 22 x 1,5	20,5	125	24	18	14,5	....00022	72,61	89,63	97,13	129,02
MF 22 x 2	20	140	32	18	14,5	....20022	86,03	104,32	111,79	
MF 24 x 1	23	140	27	18	14,5	....10024	111,55	136,06	146,36	146,70
MF 24 x 1,5	22,5	140	27	18	14,5	....00024	77,44	98,81	109,30	148,90
MF 24 x 2	22	140	27	18	14,5	....20024	100,28	123,86	134,31	181,59

MF 507

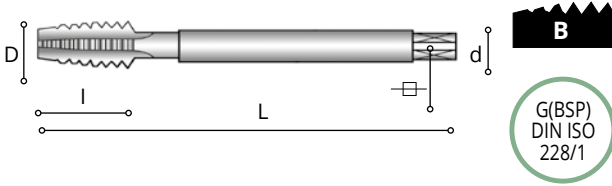


MF507



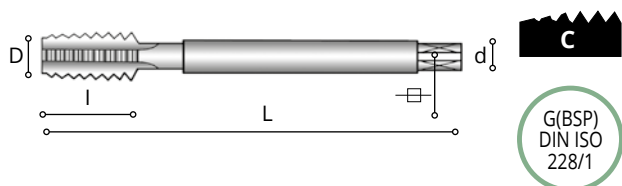
D		L	I	d		CODE	HSS-EX 5507..... €	HSS-EX 6507..... € QUARTZ	HSS-EX 7507..... € TITANITE
MF 4 x 0,5	3,5	63	7	2,8	2,1	....00004	27,59	32,29	33,76
MF 5 x 0,5	4,5	70	8	6	4,9	....00005	28,07	33,52	35,55
MF 6 x 0,5	5,5	80	10	4,5	3,4	....00006	28,07	34,23	36,81
MF 8 x 1	7	90	13	6	4,9	....00008	28,33	35,13	38,18
MF 10 x 1	9	90	13	7	5,5	....00010	31,19	39,04	42,72
MF 10 x 1,25	8,8	100	15	7	5,5	....12510	40,14	48,88	52,56
MF 12 x 1	11	100	15	9	7	....10012	38,70	47,38	51,14
MF 12 x 1,25	10,8	100	15	9	7	....12512	48,75	58,36	62,03
MF 12 x 1,5	10,5	100	15	9	7	....15012	36,40	44,85	48,58
MF 14 x 1,25	12,8	100	15	11	9	....12514	60,16	71,30	75,27
MF 14 x 1,5	12,5	100	15	11	9	....00014	51,83	62,19	66,23
MF 16 x 1,5	14,5	100	15	12	9	....00016	62,22	73,65	77,69
MF 18 x 1,5	16,5	110	17	14	11	....00018	70,98	85,88	91,90
MF 20 x 1,5	18,5	125	17	16	12	....00020	79,46	97,11	104,58
MF 22 x 1,5	20,5	125	17	18	14,5	....00022	90,39	109,11	116,59
MF 24 x 1,5	22,5	140	20	18	14,5	....00024	111,07	135,78	146,29
MF 24 x 2	22	140	20	18	14,5	....20024	120,93	146,64	157,14
MF 25 x 1	24	140	20	18	14,5	....10025	182,83	214,65	225,11
MF 25 x 1,5	23,5	140	20	18	14,5	....15025	182,83	214,65	225,11
MF 26 x 1,5	24,5	140	20	18	14,5	....15026	176,16	209,14	221,03
MF 27 x 1,5	25,5	140	20	20	16	....15027	173,56	206,05	217,76
MF 27 x 2	25	140	20	20	16	....20027	182,83	216,48	228,35
MF 28 x 1	27	140	20	20	16	....10028	225,83	263,79	275,66
MF 28 x 1,5	26,5	140	20	20	16	....15028	222,49	259,89	271,59
MF 28 x 2	26	140	20	20	16	....20028	226,94	265,09	277,02
MF 30 x 1,5	28,5	150	22	22	18	....15030	222,49	275,68	299,54
MF 30 x 2	28	150	22	22	18	....20030	223,06	276,77	300,98
MF 32 x 0,5	31,5	150	22	22	18	....00032	239,28	298,29	325,35
MF 32 x 1	31	150	22	22	18	....10032	239,28	298,29	325,35
MF 32 x 1,5	30,5	150	22	22	18	....15032	234,59	292,44	318,97
MF 32 x 2	30	150	22	22	18	....20032	233,40	291,13	317,67
MF 33 x 2	31	160	24	25	20	....20033	290,81	354,79	381,73
MF 34 x 1,5	32,5	170	24	28	22	....15034	343,65	413,08	440,16
MF 36 x 1,5	34,5	170	24	28	22	....15036	371,58	448,85	479,82
MF 36 x 3	33	200	30	28	22	....30036	371,58	454,94	490,60

G 550



D	D (mm)		L	I	d		CODE	HSS-EX 5550..... €	HSS-EX 6550..... € QUARTZ	HSS-EX 7550..... € TITANITE
G 1/8 - 28	9,73	8,8	90	18	7	5,5	....00108	37,20	45,65	49,35
G 1/4 - 19	13,16	11,8	100	22	11	9	....00104	48,85	58,87	62,85
G 3/8 - 19	16,66	15,25	100	22	12	9	....00308	64,35	76,92	81,64
G 1/2 - 14	20,96	19	125	25	16	12	....00102	83,94	101,87	109,23
G 5/8 - 14	22,91	21	125	25	18	14,5	....00508	104,15	127,92	138,20
G 3/4 - 14	26,44	24,5	140	28	20	16	....00304	134,99	163,64	175,34
G 7/8 - 14	30,20	28,25	150	30	22	18	....00708	174,79	226,66	253,20
G 1" - 11	33,25	30,75	160	30	25	20	....00100	190,12	243,53	270,07
G 1" 1/8 - 11	37,90	35	170	30	28	22	....01108	284,35	352,92	383,87
G 1" 1/4 - 11	41,91	39,5	170	30	32	24	....01104	359,16	450,03	492,44
G 1" 3/8 - 11	44,32	42	180	32	36	29	....01308	420,96	517,20	558,98
G 1" 1/2 - 11	47,80	45	190	32	36	29	....01102	491,13	604,80	654,64
G 1" 3/4 - 11	53,75	51	190	32	40	32	....01304	638,02	783,88	830,14
G 2" - 11	59,61	57	220	40	45	35	....00200	774,74	946,92	1000,31

G 504

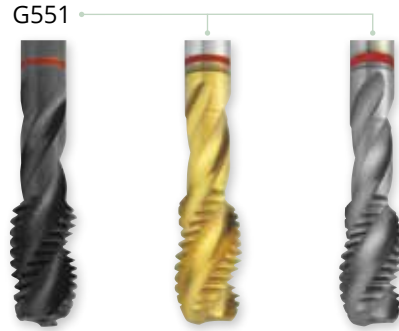
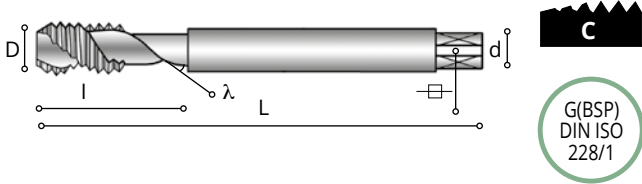


G504



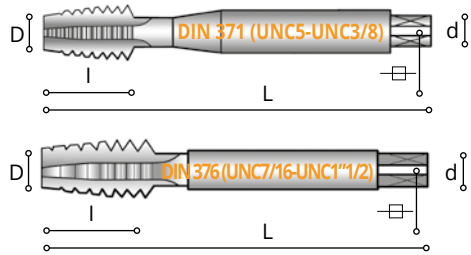
D	D (mm)		L	I	d		CODE	HSS-EX 5504..... €	HSS-EX 6504..... € QUARTZ	HSS-EX 7504..... € TITANITE
G 1/8 - 28	9,73	8,8	90	18	7	5,5	....00108	27,06	34,51	38,18
G 1/4 - 19	13,16	11,8	100	22	11	9	....00104	36,51	45,28	49,26
G 3/8 - 19	16,66	15,25	100	22	12	9	....00308	51,23	62,48	67,20
G 1/2 - 14	20,96	19	125	25	16	12	....00102	68,92	85,36	92,72
G 5/8 - 14	22,91	21	125	25	18	14,5	....00508	88,89	111,13	121,42
G 3/4 - 14	26,44	24,5	140	28	20	16	....00304	105,95	131,70	143,41
G 7/8 - 14	30,20	28,25	150	28	22	18	....00708	150,08	199,49	226,02
G 1" - 11	33,25	30,75	160	30	25	20	....00100	173,07	224,76	251,31
G 1" 1/8 - 11	37,90	35	170	30	28	22	....00118	251,50	316,18	346,68
G 1" 1/4 - 11	41,91	39,5	170	30	32	24	....00114	309,07	394,11	435,91
G 1" 3/8 - 11	44,32	42	180	32	36	29	....01308	377,82	469,73	511,51
G 1" 1/2 - 11	47,80	45	190	32	36	29	....01102	412,90	517,77	566,89
G 1" 3/4 - 11	53,75	51	190	32	40	32	....01304	551,74	680,81	732,52
G 2" - 11	59,61	57	220	40	45	35	....00200	616,79	762,70	821,81

G 551



D	D (mm)		L	I	d		CODE	HSS-EX 5551..... €	HSS-EX 6551..... € QUARTZ	HSS-EX 7551..... € TITANITE
G 1/8 - 28	9,73	8,8	90	10	7	5,5	....00108	47,33	56,79	60,48
G 1/4 - 19	13,16	11,8	100	14	11	9	....00104	85,21	98,85	102,82
G 3/8 - 19	16,66	15,25	100	15	12	9	....00308	84,19	98,74	103,48
G 1/2 - 14	20,96	19	125	17	16	12	....00102	112,18	132,95	140,31
G 5/8 - 14	22,91	21	125	20	18	14,5	....00508	174,44	205,22	215,52
G 3/4 - 14	26,44	24,5	140	20	20	16	....00304	198,34	233,32	245,03
G 7/8 - 14	30,20	28,25	150	22	22	18	....00708	253,65	313,40	339,94
G 1" - 11	33,25	30,75	160	24	25	20	....00100	373,25	444,96	471,50

UNC 560

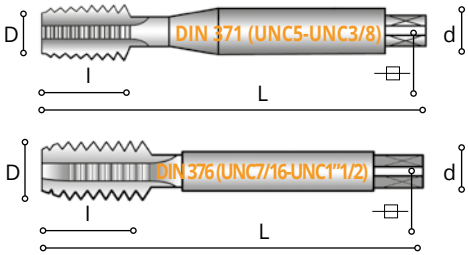


UNC560



D	D (mm)		L	I	d		CODE	HSS-EX 5560..... €	HSS-EX 6560..... € QUARTZ	HSS-EX 7560..... € TITANITE
UNC 5 - 40	3,175	2,65	56	10	3,5	2,7	....00540	25,56	30,07	31,55
UNC 6 - 32	3,505	2,85	56	12	4	3	....00632	24,23	28,60	30,06
UNC 8 - 32	4,166	3,5	63	12	4,5	3,4	....00832	24,23	29,29	31,33
UNC 10 - 24	4,826	3,9	70	14	6	4,9	....01024	26,92	32,24	34,28
UNC 12 - 24	5,486	4,5	80	18	6	4,9	....01224	27,39	33,48	36,06
UNC 1/4 - 20	6,35	5,1	80	18	7	5,5	....01420	28,73	35,57	38,62
UNC 5/16 - 18	7,938	6,6	90	20	8	6,2	....01618	30,53	37,55	40,61
UNC 3/8 - 16	9,525	8	100	21	10	8	....03816	29,43	37,10	40,78
UNC 7/16 - 14	11,11	9,4	100	20	8	6,2	....071614	37,75	46,26	49,94
UNC 1/2 - 13	12,7	10,8	110	24	9	7	....01213	41,06	51,88	57,05
UNC 9/16 - 12	14,29	12,2	110	28	11	9	....091612	66,24	79,57	84,74
UNC 5/8 - 11	15,88	13,5	110	30	12	9	....05811	59,62	72,30	77,47
UNC 3/4 - 10	19,05	16,5	125	32	14	11	....03410	80,85	98,65	106,17
UNC 7/8 - 9	22,23	19,5	140	32	18	14,5	....07809	100,27	123,90	134,41
UNC 1" - 8	25,4	22,25	160	36	20	16	....01008	133,57	177,88	201,74
UNC 1" 1/8 - 7	28,58	25	180	40	22	18	....11807	182,89	232,13	255,98
UNC 1" 1/4 - 7	31,75	28	180	40	22	18	....11407	221,05	277,54	304,08
UNC 1" 3/8 - 6	34,93	30,75	200	45	28	22	....13806	258,65	324,08	354,64
UNC 1" 1/2 - 6	38,1	34	200	45	28	22	....11206	323,87	402,68	438,52

UNC 561

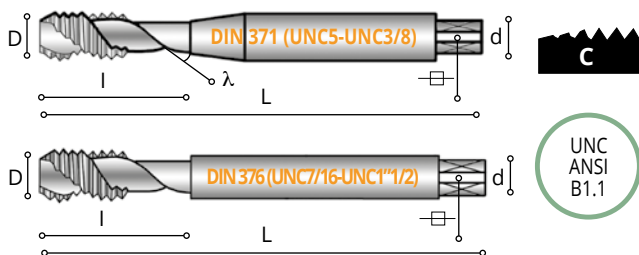


UNC561

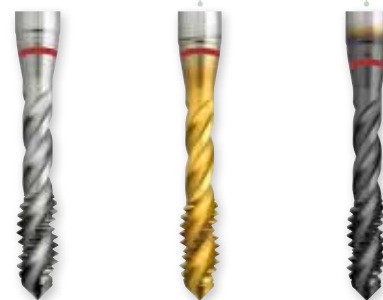


D	D (mm)		L	I	d		CODE	HSS-EX 5561..... €	HSS-EX 6561..... € QUARTZ	HSS-EX 7561..... € TITANITE
UNC 5 - 40	3,175	2,65	56	10	3,5	2,7	....00540	21,57	25,67	27,13
UNC 6 - 32	3,505	2,85	56	12	4	3	....00632	27,62	32,32	33,79
UNC 8 - 32	4,166	3,5	63	12	4,5	3,4	....00832	19,99	24,62	26,65
UNC 10 - 24	4,826	3,9	70	14	6	4,9	....01024	21,64	26,43	28,48
UNC 12 - 24	5,486	4,5	80	18	6	4,9	....01224	22,11	27,68	30,25
UNC 1/4 - 20	6,35	5,1	80	18	7	5,5	....01420	22,42	28,64	31,70
UNC5/16 - 18	7,938	6,6	90	20	8	6,2	....51618	24,08	30,47	33,52
UNC 3/8 - 16	9,525	8	100	21	10	8	....03816	28,49	36,06	39,74
UNC 7/16 - 14	11,11	9,4	100	20	8	6,2	....71614	37,13	45,57	49,26
UNC 1/2 - 13	12,7	10,8	110	24	9	7	....01213	37,75	48,25	53,42
UNC 9/16 - 12	14,29	12,2	110	28	11	9	....91612	43,04	54,05	59,22
UNC 5/8 - 11	15,88	13,5	110	30	12	9	....05811	54,29	66,42	71,60
UNC 3/4 - 10	19,05	16,5	125	32	14	11	....03410	77,31	94,79	102,30
UNC 7/8 - 9	22,23	19,5	140	32	18	14,5	....07809	95,07	118,22	128,70
UNC 1" - 8	25,4	22,25	160	36	20	16	....01008	127,28	170,96	194,81
UNC 1" 1/8 - 7	28,58	25	180	40	22	18	....11807	174,25	222,62	246,47
UNC 1" 1/4 - 7	31,75	28	180	40	22	18	....11407	209,02	264,31	290,84
UNC 1" 3/8 - 6	34,93	30,75	200	45	28	22	....13806	288,78	357,23	387,77
UNC 1" 1/2 - 6	38,1	34	200	45	28	22	....11206	314,70	392,59	428,42

UNC 559

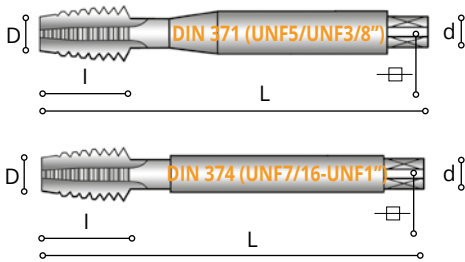


UNC559



D	D (mm)		L	l	d		CODE	HSS-E 5559..... €	HSS-E 6559..... € QUARTZ	HSS-E 7559..... € TITANITE
UNC 5 - 40	3,175	2,65	56	5	3,5	2,7	....00540	30,68	36,09	37,86
UNC 6 - 32	3,505	2,85	56	6	4	3	....00632	29,08	34,32	36,08
UNC 8 - 32	4,166	3,5	63	7	4,5	3,4	....00832	29,08	35,15	37,59
UNC 10 - 24	4,826	3,9	70	8	6	4,9	....01024	31,33	37,53	39,90
UNC 12 - 24	5,486	4,5	80	10	6	4,9	....01224	31,88	38,97	41,97
UNC 1/4 - 20	6,35	5,1	80	12	7	5,5	....01420	33,45	41,41	44,96
UNC 5/16 - 18	7,938	6,6	90	15	8	6,2	....01618	35,53	43,71	47,27
UNC 3/8 - 16	9,525	8	100	18	10	8	....03816	35,31	44,52	48,93
UNC 7/16 - 14	11,112	9,4	100	15	8	6,2	....071614	47,90	58,69	63,37
UNC 1/2 - 13	12,7	10,8	110	18	9	7	....01213	51,33	64,85	71,31
UNC 9/16 - 12	14,288	12,2	110	20	11	9	....091612	79,49	95,49	101,69
UNC 5/8 - 11	15,875	13,5	110	20	12	9	....05811	71,54	86,76	92,97
UNC 3/4 - 10	19,05	16,5	125	25	14	11	....03410	95,11	116,07	124,91
UNC 7/8 - 9	22,225	19,5	140	30	18	14,5	....07809	132,35	163,55	177,42
UNC 1" - 8	25,4	22,25	160	30	20	16	....01008	155,48	207,06	234,83
UNC 1" 1/8 - 7	28,575	25	180	40	22	18	....11807	219,46	278,56	307,18
UNC 1" 1/4 - 7	31,75	28	180	37	22	18	....11407	265,25	333,05	364,90
UNC 1" 3/8 - 6	34,925	30,75	200	40	28	22	....13806	319,69	400,57	438,34
UNC 1" 1/2 - 6	38,1	34	200	55	28	22	....11206	470,94	585,53	637,66

UNF 562

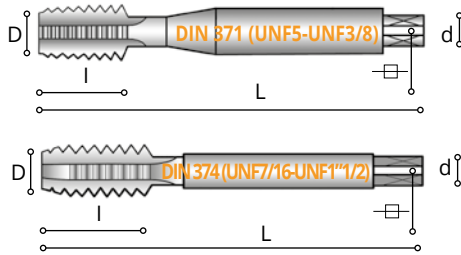


UNF562



D	D (mm)		L	I	d		CODE	HSS-EX 5562..... €	HSS-EX 6562..... € QUARTZ	HSS-EX 7562..... € TITANITE
UNF 5 - 44	3,175	2,7	56	10	3,5	2,7	....00544	28,34	33,11	34,57
UNF 6 - 40	3,505	2,95	56	12	4	3	....00640	28,34	33,11	34,57
UNF 8 - 36	4,166	3,5	63	12	4,5	3,4	....00836	28,34	33,80	35,84
UNF 10 - 32	4,826	4,1	70	14	6	4,9	....01032	28,81	34,31	36,34
UNF 12 - 28	5,486	4,7	80	18	6	4,9	....01228	31,00	37,44	39,91
UNF 1/4 - 28	6,35	5,5	80	18	7	5,5	....01428	31,00	38,07	41,12
UNF 5/16 - 24	7,938	6,9	90	20	8	6,2	....51624	32,34	39,55	42,60
UNF 3/8 - 24	9,525	8,5	100	21	10	8	....03824	36,19	44,54	48,21
UNF 7/16 - 20	11,11	9,9	100	20	8	6,2	....71620	44,07	53,20	56,88
UNF 1/2 - 20	12,7	11,5	100	20	9	7	....01220	44,07	53,59	57,56
UNF 9/16 - 18	14,29	12,9	100	20	11	9	....91618	68,28	80,22	84,21
UNF 5/8 - 18	15,88	14,5	100	20	12	9	....05818	62,94	74,35	78,33
UNF 3/4 - 16	19,05	17,5	110	24	14	11	....03416	89,76	108,27	115,63
UNF 7/8 - 14	22,23	20,4	125	24	18	14,5	....07814	104,94	128,79	139,07
UNF 1" - 12	25,4	23,25	140	27	18	14,5	....01012	134,12	162,68	174,37

UNF 563

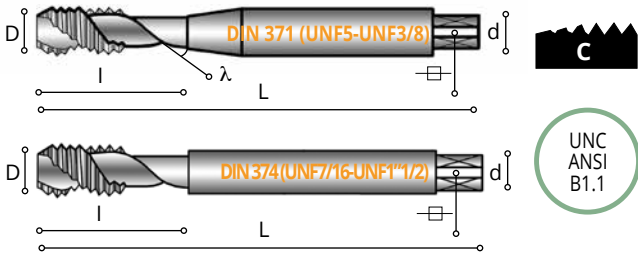


UNF563

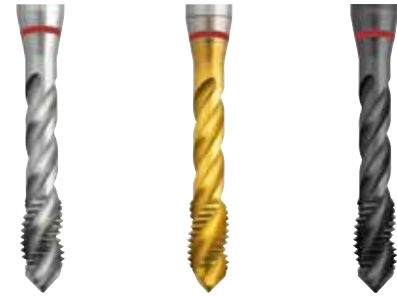


D	D (mm)		L	l	d		CODE	HSS-EX 5563..... €	HSS-EX 6563..... € QUARTZ	HSS-EX 7563..... € TITANITE
UNF 5 - 44	3,175	2,7	56	10	3,5	2,7	....00544	24,87	29,26	30,68
UNF 6 - 40	3,505	2,95	56	12	4	3	....00640	23,75	28,01	29,42
UNF 8 - 36	4,166	3,5	63	12	4,5	3,4	....00836	23,75	28,67	30,65
UNF 10 - 32	4,826	4,1	70	14	6	4,9	....01032	24,87	29,91	31,89
UNF 12 - 28	5,486	4,7	80	18	6	4,9	....01228	27,64	33,64	36,14
UNF 1/4 - 28	6,35	5,5	80	18	7	5,5	....01428	28,49	35,31	38,36
UNF 5/16 - 24	7,938	6,9	90	20	8	6,2	....01624	29,82	36,78	39,84
UNF 3/8 - 24	9,525	8,5	100	21	10	8	....03824	34,18	42,19	45,76
UNF 7/16 - 20	11,11	9,9	100	20	8	6,2	....071620	45,31	54,57	58,26
UNF 1/2 - 20	12,7	11,5	100	20	9	7	....01220	43,95	53,32	57,18
UNF 9/16 - 18	14,29	12,9	100	20	11	9	....091618	79,53	92,60	96,58
UNF 5/8 - 18	15,88	14,5	100	20	12	9	....05818	66,39	78,00	81,86
UNF 3/4 - 16	19,05	17,5	110	24	14	11	....03416	92,19	110,97	118,33
UNF 7/8 - 14	22,23	20,4	125	24	18	14,5	....07814	112,89	137,53	147,82
UNF 1" - 12	25,4	23,25	140	27	18	14,5	....01012	148,80	178,36	189,71
UNF 1" 1/8 - 12	28,58	26,5	150	28	22	18	....11812	185,98	235,51	259,36
UNF 1" 1/4 - 12	31,75	29,5	150	28	22	18	....11412	216,25	272,26	298,80
UNF 1" 3/8 - 12	34,93	32,75	170	28	28	22	....13812	321,89	388,47	415,01
UNF 1" 1/2 - 12	38,1	36	170	30	32	24	....11212	369,57	446,05	476,55

UNF 564



UNF564



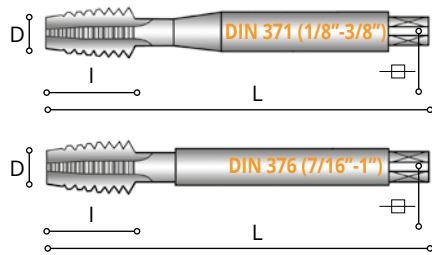
D	D (mm)		L	I	d		CODE	HSS-E 5564..... €	HSS-E 6564..... € QUARTZ	HSS-E 7564..... € TITANITE
UNF 5 - 44	3,175	2,7	56	5	3,5	2,7	....00544	34,00	39,73	41,49
UNF 6 - 40	3,505	2,95	56	6	4	3	....00640	34,00	39,73	41,49
UNF 8 - 36	4,166	3,5	63	7	4,5	3,4	....00836	34,00	40,56	43,01
UNF 10 - 32	4,826	4,1	70	8	6	4,9	....01032	34,57	41,17	43,61
UNF 12 - 28	5,486	4,7	80	10	6	4,9	....01228	37,20	44,93	48,02
UNF 1/4 - 28	6,35	5,5	80	12	7	5,5	....01428	37,20	45,69	49,34
UNF 5/16 - 24	7,938	6,9	90	15	8	6,2	....51624	38,81	47,45	51,12
UNF 3/8 - 24	9,525	8,5	100	18	10	8	....03824	43,43	53,45	57,86
UNF 7/16 - 20	11,112	9,9	100	15	8	6,2	....71620	56,64	68,21	72,82
UNF 1/2 - 20	12,7	11,5	100	15	9	7	....01220	56,64	68,71	73,69
UNF 9/16 - 18	14,288	13	100	15	11	9	....91618	95,44	111,12	115,90
UNF 5/8 - 18	15,875	14,5	100	15	12	9	....05818	82,13	96,49	101,27
UNF 3/4 - 16	19,05	17,5	110	17	14	11	....03416	110,63	133,16	141,99
UNF 7/8 - 14	22,225	20,5	125	17	18	14,5	....07814	152,00	185,17	199,02
UNF 1" - 12	25,4	23,3	140	20	18	14,5	....01012	184,07	220,65	234,70
UNF 1" 1/8 - 12	28,575	26,5	150	22	22	18	....11812	227,63	288,26	317,45
UNF 1" 1/4 - 12	31,75	29,5	150	22	22	18	....11412	259,50	326,71	358,56
UNF 1" 3/8 - 12	34,925	32,8	170	22	28	22	....13812	392,06	473,15	505,48
UNF 1" 1/2 - 12	38,1	36	170	24	32	24	....11212	548,14	661,58	706,83

W 580

DIN
371DIN
376 λ
0°

55°

Medium

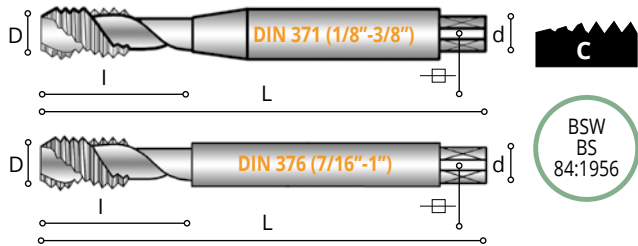


W580



D	D (mm)		L	I	d		CODE	HSS-EX 5580..... €
W 1/8-40	3,175	2,5	56	10	3,5	2,7	....00108	23,12
W 3/16-24	4,762	3,6	70	14	6	4,9	....00316	23,46
W 1/4-20	6,35	5,1	80	18	7	5,5	....00104	24,75
W 5/16-18	7,938	6,5	90	20	8	6,2	....00516	26,80
W 3/8-16	9,525	7,9	100	21	10	8	....00308	30,39
W 7/16-14	11,11	9,25	100	20	8	6,2	....00716	42,99
W 1/2-12	12,7	10,5	110	24	9	7	....00102	43,80
W 5/8-11	15,88	13,5	110	30	12	9	....00508	60,07
W 3/4-10	19,05	16,5	125	32	14	11	....00304	84,90
W 7/8-9	22,23	19,25	140	32	18	14,5	....00708	119,48
W 1"-8	25,4	22	160	36	20	16	....00100	122,01

W 581



W581

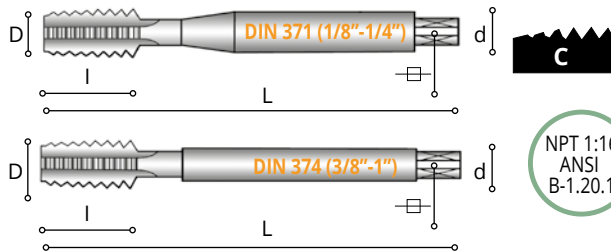


D	D (mm)		L	I	d		CODE	HSS-EX 5581..... €
W 1/8-40	3,175	2,5	56	5	3,5	2,7	....00108	25,40
W 3/16-24	4,762	3,6	70	8	6	4,9	....00316	25,81
W 1/4-20	6,35	5,1	80	12	7	5,5	....00104	27,20
W 5/16-18	7,938	6,5	90	15	8	6,2	....00516	29,48
W 3/8-16	9,525	7,9	100	18	10	8	....00308	34,06
W 7/16-14	11,11	9,25	100	15	8	6,2	....00716	48,05
W 1/2-12	12,7	10,5	110	18	9	7	....00102	48,05
W 5/8-11	15,88	13,5	110	20	12	9	....00508	64,86
W 3/4-10	19,05	16,5	125	25	14	11	....00304	99,99
W 7/8-9	22,23	19,25	140	25	18	14,5	....00708	137,08
W 1"-8	25,4	22	160	30	20	16	....00100	132,98

NPT 590

DIN
371DIN
374 λ
0°

60°

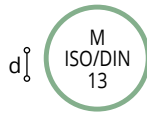
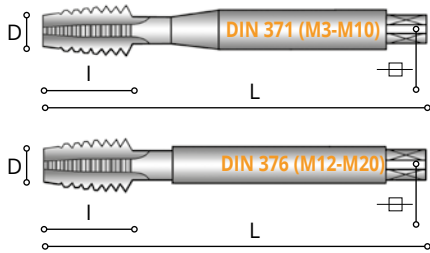
NPT 1:16
ANSI
B-1.20.1

NPT 590



D		L	I	d		CODE	HSS-EX 5590..... €
NPT 1/8-27	8,5	90	12	7	5,5	....00108	71,08
NPT 1/4-18	11,1	100	18	11	9	....00104	85,90
NPT 3/8-18	14,7	110	18	14	11	....00308	93,92
NPT 1/2-14	18	140	23	18	14,5	....00102	124,81
NPT 3/4-14	23,25	140	24	20	16	....00304	177,34
NPT 1"-11,1/2	29,25	160	30	25	20	....00100	370,72

M 531

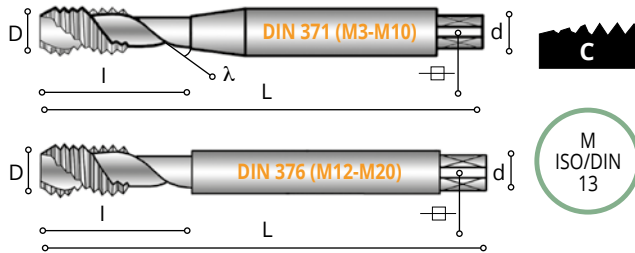


M531



D		L	I	d		CODE	HSS-E 5531..... €
M 3 x 0,5	2,5	56	10	3,5	2,7	....00003	15,99
M 4 x 0,7	3,3	63	12	4,5	3,4	....00004	16,24
M 5 x 0,8	4,2	70	14	6	4,9	....00005	17,18
M 6 x 1	5	80	18	6	4,9	....00006	17,18
M 8 x 1,25	6,8	90	20	8	6,2	....00008	19,95
M 10 x 1,5	8,5	100	20	10	8	....00010	25,54
M 12 x 1,75	10,2	110	29	9	7	....00012	36,23
M 14 X 2	12	110	30	11	9	....00014	49,50
M 16 x 2	14	110	32	12	9	....00016	52,92
M 20 X 2.5	17,5	140	34	16	12	....00020	76,98

M 532

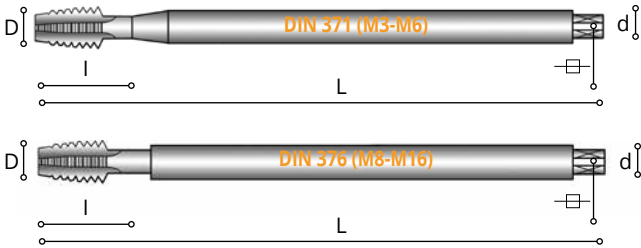


M 532



D		L	l	d		CODE	HSS-E 5532..... €
M 3 x 0,5	2,5	56	5	3,5	2,7	....00003	17,57
M 4 x 0,7	3,3	63	7	4,5	3,4	....00004	17,92
M 5 x 0,8	4,2	70	8	6	4,9	....00005	18,86
M 6 x 1	5	80	10	6	4,9	....00006	18,86
M 8 x 1,25	6,8	90	13	8	6,2	....00008	21,93
M 10 x 1,5	8,5	100	15	10	8	....00010	28,17
M 12 x 1,75	10,2	110	18	9	7	....00012	39,85
M 14 x 2	12	110	20	11	9	....00014	54,45
M 16 x 2	14	110	20	12	9	....00016	58,26
M 20 x 2,5	17,5	140	25	16	12	....00020	84,69

M 546

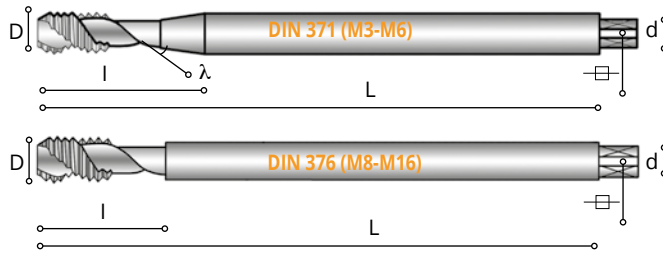


M546

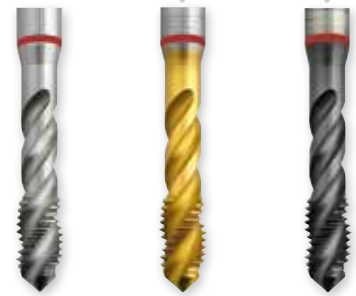


D		L	I	d		CODE	HSS-E 5546..... €	HSS-E 6546..... € QUARTZ	HSS-E 7546..... € TITANITE
M 3 X0,5	2,5	100	10	3,5	2,7	....00003	33,63	41,00	45,26
M 4 x 0,7	3,3	125	12	4,5	3,4	....00004	34,23	42,89	47,31
M 5 x 0,8	4,2	140	14	6	4,9	....00005	36,06	44,92	49,50
M 6 x 1	5	160	18	6	4,9	....00006	36,06	46,35	52,05
M 8 x 1,25	6,8	180	20	6	4,9	....00008	47,58	62,49	70,36
M 10 x 1,5	8,5	200	22	7	5,5	....00010	59,09	76,24	85,09
M 12 x 1,75	10,2	220	29	9	7	....00012	76,16	89,87	97,06
M 14 x 2	12	220	30	11	9	....00014	104,08	117,61	130,07
M 16 x 2	14	220	32	12	9	....00016	111,31	125,78	139,11

M 545

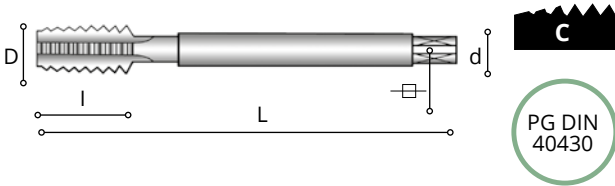


M545



D		L	I	d		CODE	HSS-E 5545..... €	HSS-E 6545..... € QUARTZ	HSS-E 7545..... € TITANITE
M 3 X 0,5	2,5	100	5	3,5	2,7	....00003	36,95	45,04	49,72
M 4 x 0,7	3,3	125	7	4,5	3,4	....00004	37,69	47,23	52,10
M 5 x 0,8	4,2	140	8	6	4,9	....00005	39,67	49,41	54,45
M 6 x 1	5	160	10	6	4,9	....00006	39,67	50,98	57,25
M 8 x 1,25	6,8	180	13	6	4,9	....00008	53,05	69,68	78,46
M 10 x 1,5	8,5	200	15	7	5,5	....00010	65,04	83,92	93,66
M 12 x 1,75	10,2	220	18	9	7	....00012	83,86	98,95	106,87
M 14 x 2	12	220	20	11	9	....00014	114,49	129,37	143,08
M 16 x 2	14	220	20	12	9	....00016	122,52	138,45	153,13

PG 591

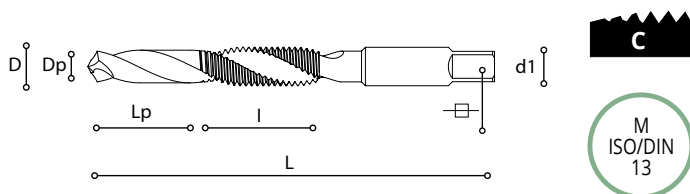


PG591



D	D (mm)		L	I	d		CODE	HSS-E 5591..... €
PG 7 - 20	12,50	11,4	70	22	9	7	....00007	55,91
PG 9 - 18	15,20	14	70	22	12	9	....00009	62,20
PG 11 - 18	18,60	17,25	80	22	14	11	....00011	69,33
PG 13,5 - 18	20,40	19	80	22	16	12	....00135	85,31
PG 16 - 18	22,50	21,25	80	22	18	14,5	....00016	98,67
PG 21 - 16	28,30	27	90	22	22	18	....00021	122,52
PG 29 - 16	37	35,5	100	25	28	22	....00029	185,05

PM 700



PM700



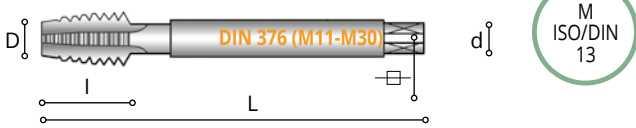
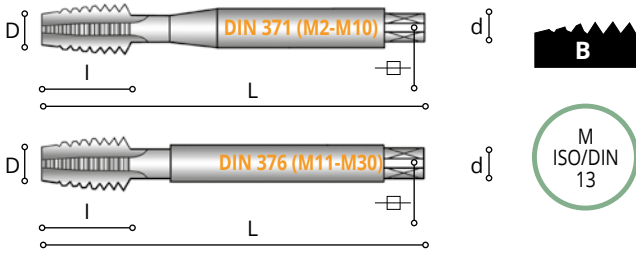
D	Dp	Lp	L	I	d1		CODE	HSS 5700..... €	HSS 6700..... € QUARTZ
M 3x0,5	2,5	16	56	11	3	2,4	....00003	38,08	44,59
M 4x0,7	3,3	18	63	14	4	3	....00004	38,08	44,59
M 5x0,8	4,2	20	71	18	5	3,8	....00005	38,90	46,53
M 6x1	5	22	80	22	6	4,9	....00006	43,30	51,19
M 8x1,25	6,8	26	95	25	8	6,2	....00008	44,08	52,36
M 10x1,5	8,5	30	106	31	10	8	....00010	58,98	70,38
M 12x1,75	10,2	32	115	35	12	9	....00012	64,73	76,98

M.P. TECH (MULTI PURPOSE)

M 535



M 536

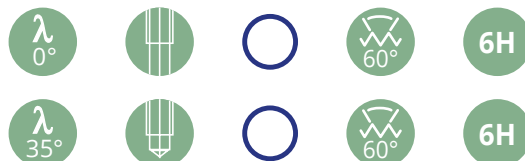


D		L	I	d		CODE	HSS-EX 5535..... €	HSS-EX 6535..... € QUARTZ	HSS-EX 5536..... €	HSS-EX 6536..... € QUARTZ
M 3 x 0,5	2,5	56	10	3,5	2,7	....00003	15,26	18,73	16,37	19,96
M 3,5 x 0,6	2,9	56	12	4	3	....00035	23,13	24,40	25,03	29,47
M 4 x 0,7	3,3	63	12	4,5	3,4	....00004	16,38	19,69	17,16	21,50
M 4,5 x 0,75	3,7	70	14	6	4,9	....00045	24,70	29,76	25,49	30,68
M 5 x 0,8	4,2	70	14	6	4,9	....00005	16,37	20,64	18,09	22,53
M 6 x 1	5	80	18	6	4,9	....00006	16,37	20,64	18,09	23,25
M 7 x 1	6	80	18	7	5,5	....00007	18,33	24,15	18,67	24,52
M 8 x 1,25	6,8	90	20	8	6,2	....00008	18,65	24,50	20,86	26,91
M 10 x 1,5	8,5	100	20	10	8	....00010	23,53	30,61	24,63	31,82
M 12 x 1,75	10,2	110	28	9	7	....00012	28,09	36,97	31,24	40,43
M 14 x 2	12	110	30	11	9	....00014	39,82	50,49	42,95	53,95
M 16 x 2	14	110	32	12	9	....00016	45,23	56,46	49,33	60,97
M 18 x 2,5	15,5	125	34	14	11	....00018	59,56	73,19	67,65	82,12
M 20 x 2,5	17,5	140	34	16	12	....00020	67,04	83,28	73,13	89,99
M 22 x 2,5	19,5	140	34	18	14,5	....00220	84,56	102,56	91,57	110,27
M 24 x 3	21	160	38	18	14,5	....00024	90,40	112,78	96,99	130,99
M 27 x 3	24	160	38	20	16	....00027	122,88	166,12	132,09	176,23
M 30 x 3,5	26,5	180	45	22	18	....00030	149,93	195,87	159,69	206,61

M 516
INOX

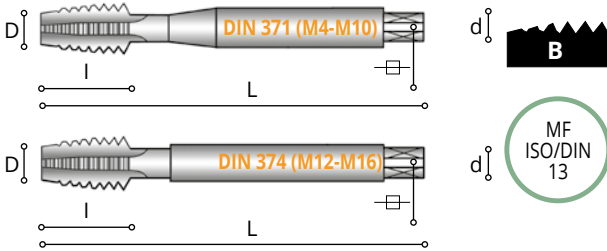


M 517
INOX



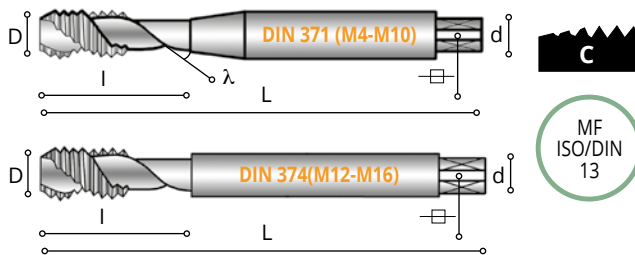
D		L	l	d		CODE	HSS-EX 5516..... €	HSS-EX 6516..... € QUARTZ	HSS-EX 5517..... €	HSS-EX 6517..... € QUARTZ
M 2 x 0,4	1,6	45	8	2,8	2,1	....00002	31,24	36,31	33,83	39,15
M 2,2 x 0,45	1,75	45	8	2,8	2,1	....00022	33,99	39,35	36,51	42,11
M 2,3 x 0,4	1,9	45	8	2,8	2,1	....00023	35,41	40,89	37,99	43,75
M 2,5 x 0,45	2	50	9	2,8	2,1	....00025	29,43	34,31	32,96	38,20
M 2,6 x 0,45	2,1	50	9	2,8	2,1	....00026	29,11	33,97	31,71	36,82
M 3 x 0,5	2,5	56	5	3,5	2,7	....00003	18,96	22,80	23,45	27,74
M 3,5 x 0,6	2,9	56	6	4	3	....00035	23,13	27,40	25,03	29,47
M 4 x 0,7	3,3	63	7	4,5	3,4	....00004	18,96	23,50	23,45	28,44
M 4,5 x 0,75	3,7	70	7,5	6	4,9	....00045	24,66	29,76	25,49	30,68
M 5 x 0,8	4,2	70	8	6	4,9	....00005	19,59	24,18	24,01	29,04
M 6 x 1	5	80	10	6	4,9	....00006	20,54	25,94	24,95	30,79
M 7 x 1	6	80	10	7	5,5	....00007	29,42	36,35	31,71	38,86
M 8 x 1,25	6,8	90	13	8	6,2	....00008	23,93	30,30	28,17	34,96
M 9 x 1,25	7,8	90	13	9	7	....00009	38,95	47,56	41,93	50,85
M 10 x 1,5	8,5	100	15	10	8	....00010	30,77	38,58	35,09	43,33
M 11 x 1,5	9,5	100	15	8	6,2	....00011	49,64	59,33	57,98	68,51
M 12 x 1,75	10,2	110	18	9	7	....00012	38,00	47,88	46,33	57,04
M 14 x 2	12	110	20	11	9	....00014	49,96	61,66	60,89	73,68
M 16 x 2	14	110	20	12	9	....00016	55,77	68,06	66,17	79,48
M 18 x 2,5	15,5	125	25	14	11	....00018	83,23	99,25	94,40	111,54
M 20 x 2,5	17,5	140	25	16	12	....00020	91,17	109,84	100,77	120,39
M 22 x 2,5	19,5	140	25	18	14,5	....00220	124,86	146,87	144,98	169,03
M 24 x 3	21	160	30	18	14,5	....00024	144,66	183,43	157,17	197,19
M 27 x 3	24	160	38	20	16	....00027	220,73	273,74	233,63	287,94
M 30 x 3,5	26,5	180	45	22	18	....00030	273,92	332,24	293,72	354,05

MF 547 INOX



D		L	I	d		CODE	HSS-E 5547..... €	HSS-E 6547..... € QUARTZ
MF 4 x 0,5	3,5	63	10	4,5	3,4	....00004	25,33	31,38
MF 5 x 0,5	4,5	70	12	6	4,9	....00005	35,57	43,92
MF 6 x 0,5	5,5	80	14	6	4,9	....05006	26,73	33,76
MF 6 x 0,75	5,3	80	14	6	4,9	....07506	24,92	31,47
MF 8 x 0,75	7,3	80	18	8	6,2	....07508	34,90	44,20
MF 8 x 1	7	90	20	8	6,2	....10008	32,46	41,11
MF 10 x 0,75	9,2	90	20	10	8	....07510	43,66	54,74
MF 10 x 1	9	90	20	10	8	....10010	34,95	43,82
MF 10 x 1,25	8,8	100	20	10	8	....12510	40,79	51,14
MF 12 x 1	11	100	20	9	7	....10012	45,12	56,86
MF 12 x 1,25	10,8	100	20	9	7	....12512	48,77	61,47
MF 12 x 1,5	10,5	100	20	9	7	....15012	45,12	56,86
MF 14 X 1	13	100	20	11	9	....10014	61,49	75,89
MF 14 X 1,5	12,5	100	20	11	9	....15014	61,49	75,89
MF 16 x 1	15	100	20	12	9	....10016	74,36	90,75
MF 16 x 1,5	14,5	100	20	12	9	....15016	63,14	77,06

MF 548
INOX

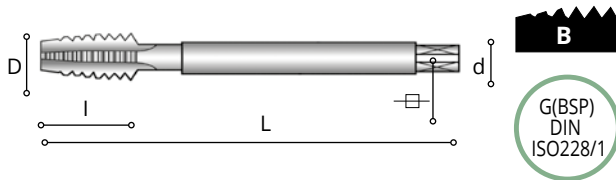


MF548



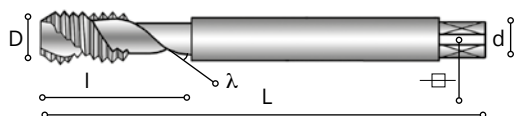
D		L	I	d		CODE	HSS-E 5548..... €	HSS-E 6548..... € QUARTZ
MF 4 x 0,5	3,5	63	7	4,5	3,4	....00004	27,90	33,83
MF 5 x 0,5	4,5	70	8	6	4,9	....00005	39,15	47,36
MF 6 x 0,5	5,5	80	10	6	4,9	....05006	29,40	36,27
MF 6 x 0,75	5,3	80	10	6	4,9	....07506	27,36	33,76
MF 8 x 0,75	7,3	80	10	8	6,2	....07508	31,84	39,53
MF 8 x 1	7	90	13	8	6,2	....10008	29,60	36,75
MF 10 x 0,75	9,2	90	13	10	8	....07510	43,68	53,93
MF 10 x 1	9	90	13	10	8	....10010	34,95	43,16
MF 10 x 1,25	8,8	100	15	10	8	....12510	40,77	50,34
MF 12 x 1	11	100	10	9	7	....10012	49,58	61,03
MF 12 x 1,25	10,8	100	15	9	7	....12512	53,72	66,13
MF 12 x 1,5	10,5	100	15	9	7	....15012	49,58	61,03
MF 14 X 1	13	100	15	11	9	....10014	67,80	82,04
MF 14 X 1,5	12,5	100	15	11	9	....15014	67,80	82,04
MF 16 x 1	15	100	15	12	9	....10016	78,43	94,21
MF 16 x 1,5	14,5	100	15	12	9	....15016	69,42	83,39

G 553
INOX



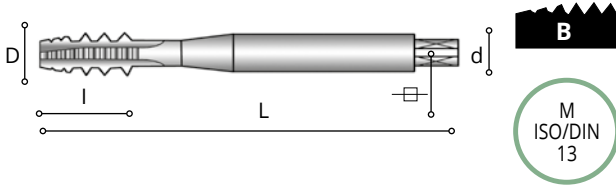
D	D (mm)		L	I	d		CODE	HSS-E 5553..... €	HSS-E 6553..... € QUARTZ
G 1/8"-28	9,73	8,8	90	18	7	5,5	....00108	39,60	48,59
G 1/4"-19	13,16	11,8	100	22	11	9	....00104	71,07	85,65
G 3/8"-19	16,66	15,25	100	22	12	9	....00308	70,22	83,94
G 1/2"-14	20,96	19	125	25	16	12	....00102	93,72	113,74
G 5/8"-14	22,91	21	125	25	18	14,5	....00508	145,62	178,86
G 3/4"-14	26,44	24,5	140	28	20	16	....00304	165,63	200,78
G 7/8"-14	30,20	28,25	150	28	22	18	....00708	211,78	274,62
G 1"-11	33,25	30,75	160	30	25	20	....00100	311,52	399,02

G 552
INOX



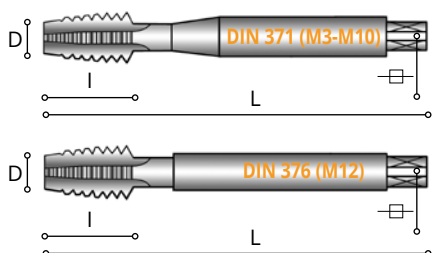
D	D (mm)		L	I	d		CODE	HSS-E 5552..... €	HSS-E 6552..... € QUARTZ
G 1/8"-28	9,73	8,8	90	10	7	5,5	....00108	43,51	53,39
G 1/4"-19	13,16	11,8	100	14	11	9	....00104	78,36	94,43
G 3/8"-19	16,66	15,25	100	15	12	9	....00308	77,30	92,40
G 1/2"-14	20,96	19	125	17	16	12	....00102	103,12	125,14
G 5/8"-14	22,91	21	125	17	18	14,5	....00508	161,78	198,70
G 3/4"-14	26,44	24,5	140	20	20	16	....00304	182,16	220,81
G 7/8"-14	30,20	28,25	150	22	22	18	....00708	235,11	304,88
G 1"-11	33,25	30,75	160	24	25	20	....00100	342,78	439,06

M 513 ALUMINUM



D		L	l	d		CODE	HSS-EX	HSS-EX	HSS-EX
							5513..... €	6513..... € QUARTZ	7513..... € TITANITE
M 3 x 0,5	2,5	56	10	3,5	2,7	....00003	18,96	22,80	24,27
M 4 x 0,7	3,3	63	12	4,5	3,4	....00004	18,96	23,49	25,53
M 5 x 0,8	4,2	70	14	6	4,9	....00005	19,99	24,62	26,66
M 6 x 1	5	80	18	6	4,9	....00006	19,99	25,34	27,91
M 8 x 1,25	6,8	90	20	8	6,2	....00008	24,01	30,38	33,44
M 10 x 1,5	8,5	100	20	10	8	....00010	30,68	38,47	42,15

M 544
SOFT
ALUMINUM

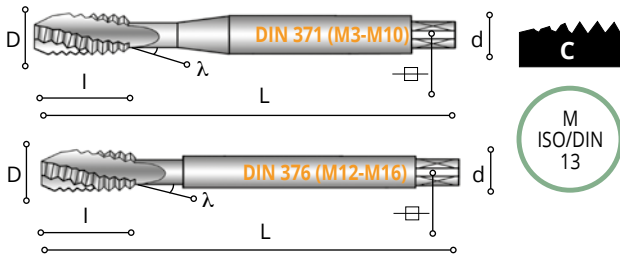


M544



D		L	l	d		CODE	HSS-E 5544..... €
M 3 x 0,5	2,5	56	10	3,5	2,7	....00003	17,16
M 4 x 0,7	3,3	63	12	4,5	3,4	....00004	17,45
M 5 x 0,8	4,2	70	14	6	4,9	....00005	18,42
M 6 x 1	5	80	18	6	4,9	....00006	18,42
M 8 x 1,25	6,8	90	20	8	6,2	....00008	21,41
M 10 x 1,5	8,5	100	20	10	8	....00010	27,56
M 12 x 1,75	10,2	110	29	9	7	....00012	38,87

M 541
ALU

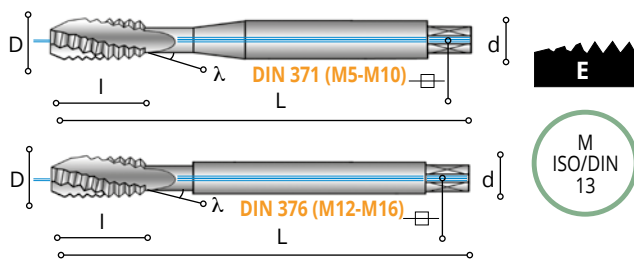


M541



D		L	I	d		CODE	HSS-E 7541..... € TITANITE
M 3 x 0,5	2,5	56	11	3,5	2,7	....00003	22,29
M 4 x 0,7	3,3	63	13	4,5	3,4	....00004	22,63
M 5 x 0,8	4,2	70	15	6	4,9	....00005	24,45
M 6 x 1	5	80	17	6	4,9	....00006	25,28
M 8 x 1,25	6,8	90	20	8	6,2	....00008	30,14
M 10 x 1,5	8,5	100	20	10	8	....00010	41,60
M 12 x 1,75	10,2	110	29	9	7	....00012	55,14
M 16 x 2	14	110	32	12	9	....00016	80,18

M 542
ALU

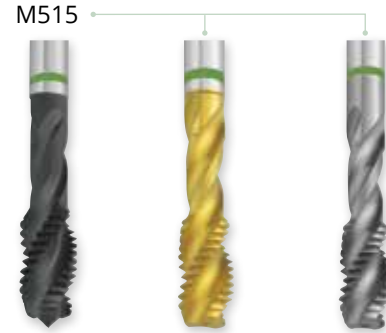
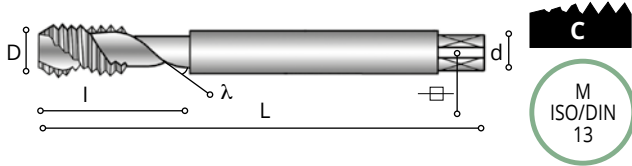


M542



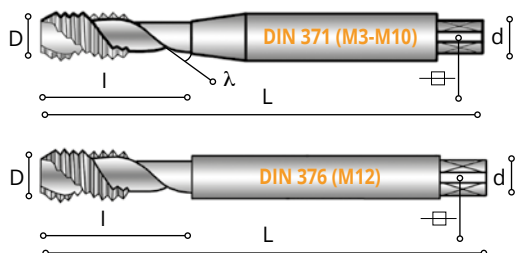
D		L	l	d		CODE	RESISTOR 8542..... € OPAL
M 5 x 0,8	4,2	70	15	6	4,9	...50030	36,68
M 6 x 1	5	80	17	6	4,9	...60030	37,92
M 8 x 1,25	6,8	90	20	8	6,2	...80030	45,23
M 10 x 1,5	8,5	100	20	10	8	...10030	62,39
M 12 x 1,75	10,2	110	29	9	7	...12030	82,70
M 16 x 2	14	110	32	12	9	...16030	104,16

M 515
ALU



D		L	I	d		CODE	HSS-EX 5515..... €	HSS-EX 6515..... € QUARTZ	HSS-EX 7515..... € TITANITE
M 3 x 0,5	2,5	56	5	2,2	-	....00003	18,49	22,29	23,75
M 4 x 0,7	3,3	63	7	2,8	2,1	....00004	18,49	22,29	23,75
M 5 x 0,8	4,2	70	8	3,5	2,7	....00005	19,43	24,01	26,04
M 6 x 1	5	80	10	4,5	3,4	....00006	19,43	24,74	27,31
M 8 x 1,25	6,8	90	13	6	4,9	....00008	24,24	30,64	33,68
M 10 x 1,5	8,5	100	15	7	5,5	....00010	30,52	38,31	41,98
M 12 x 1,75	10,2	110	18	9	7	....00012	34,38	43,89	48,59
M 14 x 2	12	110	20	11	9	....00014	47,45	58,89	64,07
M 16 x 2	14	110	20	12	9	....00016	54,44	66,59	71,76

M 543
ALU

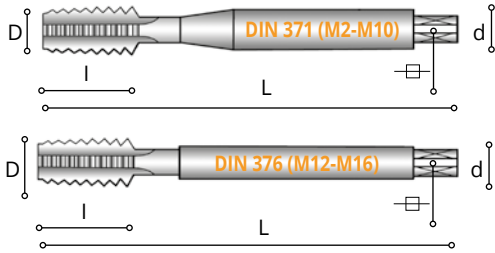


M543



D		L	l	d		CODE	HSS-E 5543..... €
M 3 X 0,5	2,5	56	5	3,5	2,7	....00003	20,29
M 4 x 0,7	3,3	63	7	4,5	3,4	....00004	20,67
M 5 x 0,8	4,2	70	8	6	4,9	....00005	21,75
M 6 x 1	5	80	10	6	4,9	....00006	21,75
M 8 x 1,25	6,8	90	13	8	6,2	....00008	25,37
M 10 x 1,5	8,5	100	15	10	8	....00010	32,37
M 12 x 1,75	10,2	110	18	9	7	....00012	45,96

M 524 GHISA CAST IRON

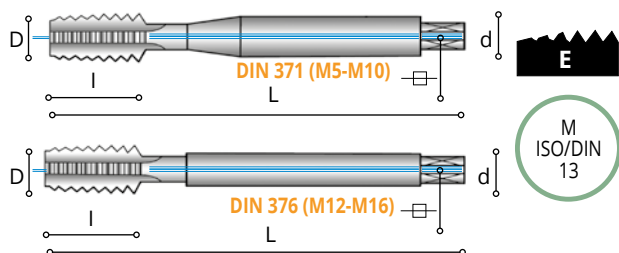


M524



D		L	I	d		CODE	RESISTOR 5524..... € OPAL
M 3	2,5	56	10	3,5	2,7	....00003	20,80
M 4	3,3	63	12	4,5	3,4	....00004	23,81
M 5	4,2	70	14	6	4,9	....00005	22,29
M 6	5	80	18	6	4,9	....00006	23,66
M 8	6,8	90	20	8	6,2	....00008	31,98
M 10	8,5	100	20	10	8	....00010	40,71
M 12	10,2	110	28	9	7	....00012	55,04
M 16	14	110	32	12	9	....00016	75,61

M 525
GHISA
CAST IRON

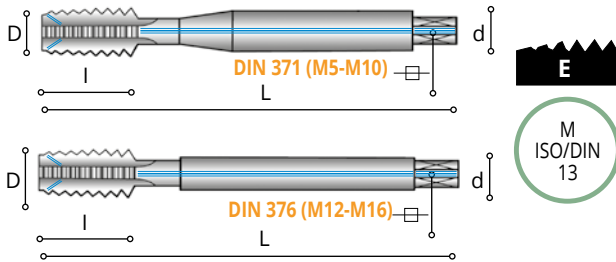


M525



D		L	l	d		CODE	RESISTOR 8525..... € OPAL
M 5 x 0,8	4,2	70	14	6	4,9	...50030	28,86
M 6 x 1	5	80	18	6	4,9	...60030	29,95
M 8 x 1,25	6,8	90	20	8	6,2	...80030	36,18
M 10 x 1,5	8,5	100	20	10	8	...10030	47,77
M 12 x 1,75	10,2	110	29	9	7	...12030	66,08
M 16 x 2	14	110	32	12	9	...16030	94,83

M 526 GHISA CAST IRON

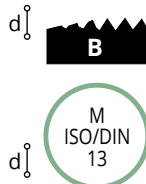
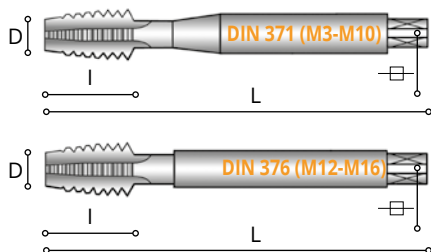


M526



D		L	I	d		CODE	RESISTOR 8526..... € OPAL
M 5 x 0,8	4,2	70	14	6	4,9	....50030	32,67
M 6 x 1	5	80	18	6	4,9	....60030	33,96
M 8 x 1,25	6,8	90	20	8	6,2	....80030	40,99
M 10 x 1,5	8,5	100	20	10	8	....10030	54,15
M 12 X 1,75	10,2	110	29	9	7	....12030	74,89
M 16 x 2	14	110	32	12	9	....16030	108,47

M 533

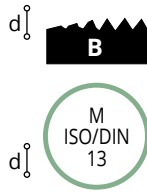
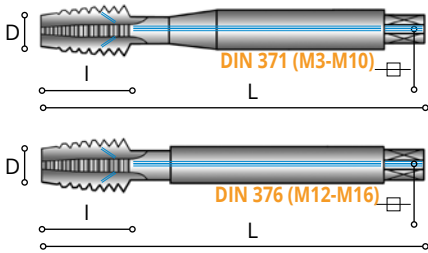
MASCHIATURA RIGIDA
RIGID TAPPING

M533



D		L	l	d		CODE	RESISTOR 8533..... € OPAL
M 3 x 0,5	2,5	56	5	3,5	2,7	...30030	23,28
M 4 x 0,7	3,3	63	7	4,5	3,4	...40030	23,61
M 5 x 0,8	4,2	70	8	6	4,9	...50030	25,53
M 6 x 1	5	80	10	6	4,9	...60030	26,30
M 8 x 1,25	6,8	90	13	8	6,2	...80030	31,57
M 10 x 1,5	8,5	100	15	10	8	...10030	41,46
M 12 x 1,75	10,2	110	18	9	7	...12030	57,66
M 14 x 2	12	110	20	11	9	...14030	90,19
M 16 x 2	14	110	20	12	9	...16030	82,64
M 18 x 2,5	15,5	125	25	14	11	...18030	127,98
M 20 x 2,5	17,5	140	25	16	12	...20030	138,84

M 527
MASCHIATURA RIGIDA
RIGID TAPPING



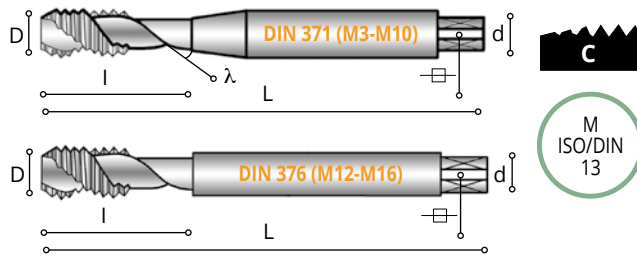
M527



D		L	I	d		CODE	RESISTOR 8527..... € OPAL
M 5 x 0,8	4,2	70	8	6	4,9	....50030	41,98
M 6 x 1	5	80	10	6	4,9	....60030	43,29
M 8 x 1,25	6,8	90	13	8	6,2	....80030	51,94
M 10 x 1,5	8,5	100	15	10	8	....10030	68,16
M 12 x 1,75	10,2	110	18	9	7	....12030	94,83
M 16 x 2	14	110	20	12	9	....16030	136,04

M 534

MASCHIATURA RIGIDA
RIGID TAPPING



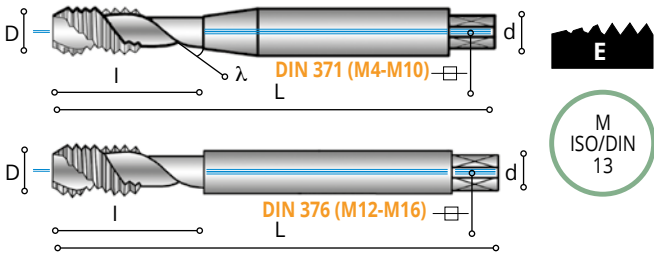
M534



D		L	l	d		CODE	RESISTOR 8534..... € OPAL
M 3 x 0,5	2,5	56	5	3,5	2,7	...30030	25,75
M 4 x 0,7	3,3	63	7	4,5	3,4	...40030	26,91
M 5 x 0,8	4,2	70	8	6	4,9	...50030	28,97
M 6 x 1	5	80	10	6	4,9	...60030	28,55
M 8 x 1,25	6,8	90	13	8	6,2	...80030	33,99
M 10 x 1,5	8,5	100	15	10	8	...10030	45,66
M 12 x 1,75	10,2	110	18	9	7	...12030	62,19
M 14 x 2	12	110	20	11	9	...14030	96,92
M 16 x 2	14	110	20	12	9	...16030	89,23
M 18 x 2,5	15,5	125	25	14	11	...18030	137,64
M 20 x 2,5	17,5	140	25	16	12	...20030	148,99

M 528

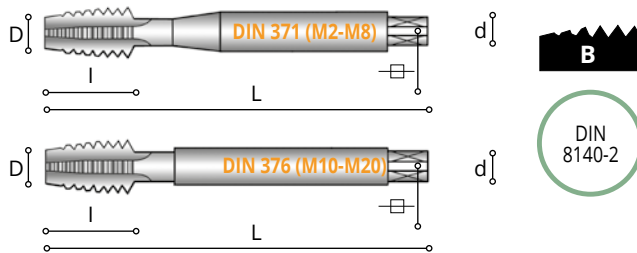
MASCHIATURA RIGIDA
RIGID TAPPING



M528



D		L	I	d		CODE	RESISTOR 8528..... € OPAL
M 5 x 0,8	4,2	70	8	6	4,9	....50030	44,32
M 6 x 1	5	80	10	6	4,9	....60030	45,69
M 8 x 1,25	6,8	90	13	8	6,2	....80030	54,49
M 10 x 1,5	8,5	100	15	10	8	....10030	71,30
M 12 x 1,75	10,2	110	18	9	7	....12030	99,54
M 16 x 2	14	110	20	12	9	....16030	142,86

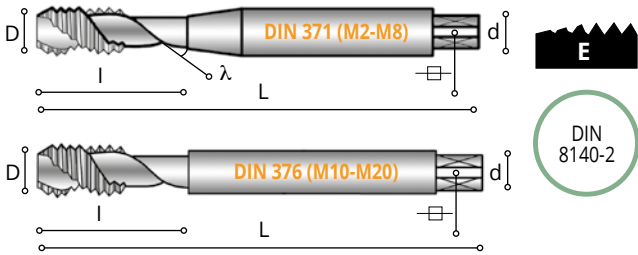
EG-M 549
MASCHIATURA RIGIDA
RIGID TAPPING

EG-M549



D		L	l	d		CODE	RESISTOR 8549..... € OPAL
EG-M 2 x 0,4	2,10	50	9	2,8	2,1	...00002	69,44
EG-M 2,5 x 0,45	2,65	56	10	3,5	2,7	...00025	69,44
EG-M 3 x 0,5	3,15	63	12	4,5	3,4	...00003	53,79
EG-M 4 x 0,7	4,20	70	14	6	4,9	...00004	56,09
EG-M 5 x 0,8	5,25	80	18	6	4,9	...00005	60,41
EG-M 6 x 1	6,30	90	18	8	6,2	...00006	62,01
EG-M 8 x 1,25	8,40	100	20	10	8	...00008	80,28
EG-M 10 x 1,50	10,50	100	15	9	7	...00010	116,46
EG-M 12 x 1,75	12,50	110	20	11	9	...00012	148,19
EG-M 14 x 2	14,50	110	20	12	9	...00014	188,74
EG-M 16 x 2	16,50	125	20	14	11	...00016	202,04
EG-M 18 x 2,5	18,75	140	27	18	14,5	...00018	253,92
EG-M 20 x 2,5	20,75	160	30	18	14,5	...00020	279,09

EG-M 529
 MASCHIATURA RIGIDA
 RIGID TAPPING



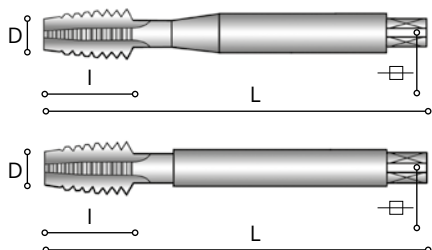
EG-M529



D		L	I	d		CODE	RESISTOR 8529..... € OPAL
EG-M 2 x 0,4	2,10	50	5	2,8	2,1	....00002	77,43
EG-M 2,5 x 0,45	2,65	56	5	3,5	2,7	....00025	77,43
EG-M 3 x 0,5	3,15	63	5	4,5	3,4	....00003	59,97
EG-M 4 x 0,7	4,20	70	8	6	4,9	....00004	62,60
EG-M 5 x 0,8	5,25	80	10	6	4,9	....00005	67,53
EG-M 6 x 1	6,30	90	10	8	6,2	....00006	69,33
EG-M 8 x 1,25	8,40	100	16	10	8	....00008	88,00
EG-M 10 x 1,50	10,50	100	15	9	7	....00010	127,56
EG-M 12 x 1,75	12,50	110	20	11	9	....00012	160,78
EG-M 14 x 2	14,50	110	20	12	9	....00014	211,07
EG-M 16 x 2	16,50	125	20	14	11	....00016	226,06
EG-M 18 x 2,5	18,75	140	27	18	14,5	....00018	276,52
EG-M 20 x 2,5	20,75	160	30	18	14,5	....00020	334,26

G 537

MASCHIATURA RIGIDA
RIGID TAPPING



G537

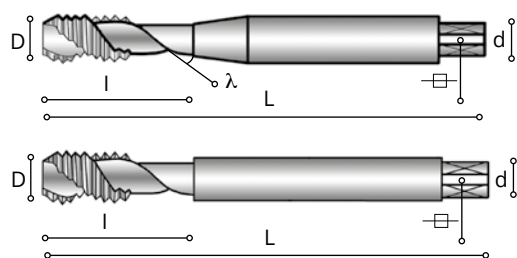


D	D (mm)		L	I	d		CODE	RESISTOR 8537..... € OPAL
G 1/8 _ 28	9,728	8,8	90	10	7	5,5	....00108	63,15
G 1/4 _ 19	13,157	11,8	100	14	11	9	....00104	103,86
G 3/8 _ 19	16,662	15,25	100	15	12	9	....00308	115,39
G 1/2 _ 14	20,955	19	125	17	16	12	....00102	141,88
G 5/8 _ 14	22,911	21	125	20	18	14,5	....00508	214,92
G 3/4 _ 14	26,441	24,5	140	20	20	16	....00304	241,02
G 7/8 _ 14	30,201	28,25	150	22	22	18	....00708	315,87
G 1" _ 11	33,249	30,75	160	24	25	20	....00100	434,09

MASCHI A MACCHINA SYNCHRO PER FORI CIECHI | MACHINE SYNCHRO TAPS FOR BLIND HOLES

G 538

MASCHIATURA RIGIDA
RIGID TAPPING



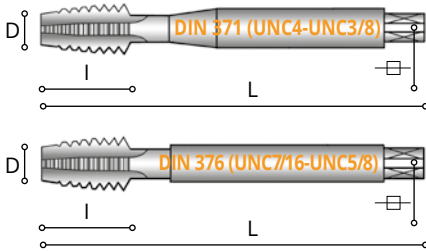
G538



D	D (mm)		L	I	d		CODE	RESISTOR 8538..... € OPAL
G 1/8 _ 28	9,728	8,8	90	10	7	5,5	....00108	69,78
G 1/4 _ 19	13,157	11,8	100	14	11	9	....00104	114,94
G 3/8 _ 19	16,662	15,25	100	15	12	9	....00308	125,97
G 1/2 _ 14	20,955	19	125	17	16	12	....00102	155,83
G 5/8 _ 14	22,911	21	125	20	18	14,5	....00508	235,58
G 3/4 _ 14	26,441	24,5	140	20	20	16	....00304	265,55
G 7/8 _ 14	30,201	28,25	150	22	22	18	....00708	347,85
G 1" _ 11	33,249	30,75	160	24	25	20	....00100	480,56

UNC 575

MASCHIATURA RIGIDA
RIGID TAPPING



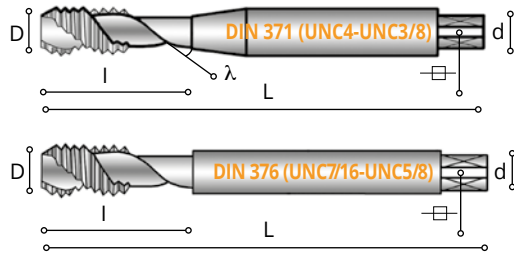
UNC575



D	D (mm)		L	I	d		CODE	RESISTOR 8575..... € OPAL
UNC 4_40	2,844	2,35	56	5	3,5	2,7	....00440	39,85
UNC 5_40	3,175	2,65	56	7	3,5	2,7	....00540	36,04
UNC 6_32	3,505	2,85	56	6	4	3	....00632	36,12
UNC 8_32	4,166	3,5	63	7	4,5	3,4	....00832	33,88
UNC 10_24	4,826	3,9	70	8	6	4,9	....01024	37,43
UNC 12_24	5,486	4,5	80	10	6	4,9	....01224	37,94
UNC 1/4_20	6,35	5,1	80	13	7	5,5	....01420	32,85
UNC 5/16_18	7,938	6,6	90	13	8	6	....51618	44,62
UNC 3/8_16	9,525	8	100	15	10	8	....03816	61,04
UNC 7/16_14	11,112	9,4	100	15	8	6,2	....71614	72,78
UNC 1/2_13	12,7	10,8	110	18	9	7	....01213	102,40
UNC 9/16_12	14,288	12,2	110	20	11	9	....91612	108,76
UNC 5/8_11	15,875	13,5	110	22	12	9	....05811	98,56
UNC 3/4_10	19,05	16,5	125	32	14	11	....00304	139,50
UNC 1" _8	25,40	22,5	160	36	20	16	....00100	281,28

UNC 576

MASCHIATURA RIGIDA
RIGID TAPPING



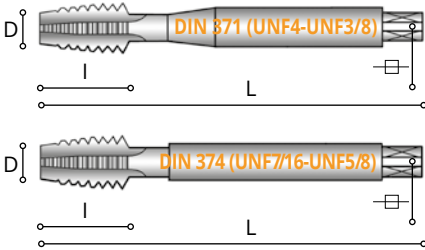
UNC576



D	D (mm)		L	l	d		CODE	RESISTOR 8576..... € OPAL
UNC 4_40	2,844	2,35	56	5	3,5	2,7	...00440	42,23
UNC 5_40	3,175	2,65	56	7	3,5	2,7	...00540	41,22
UNC 6_32	3,505	2,85	56	6	4	3	...00632	41,74
UNC 8_32	4,166	3,5	63	7	4,5	3,4	...00832	41,05
UNC 10_24	4,826	3,9	70	8	6	4,9	...01024	42,33
UNC 12_24	5,486	4,5	80	10	6	4,9	...01224	43,48
UNC 1/4_20	6,35	5,1	80	13	7	5,5	...01420	57,17
UNC 5/16_18	7,938	6,6	90	13	8	6	...51618	56,27
UNC 3/8_16	9,525	8	100	15	10	8	...03816	66,83
UNC 7/16_14	11,112	9,4	100	15	8	6,2	...71614	78,77
UNC 1/2_13	12,7	10,8	110	18	9	7	...01213	110,49
UNC 9/16_12	14,288	12,2	110	20	11	9	...91612	117,99
UNC 5/8_11	15,875	13,5	110	22	12	9	...05811	106,81
UNC 3/4_10	19,05	16,5	125	32	14	11	...00304	150,00
UNC 1"_8	25,40	22,5	160	36	20	16	...00100	303,36

UNF 565

MASCHIATURA RIGIDA
RIGID TAPPING



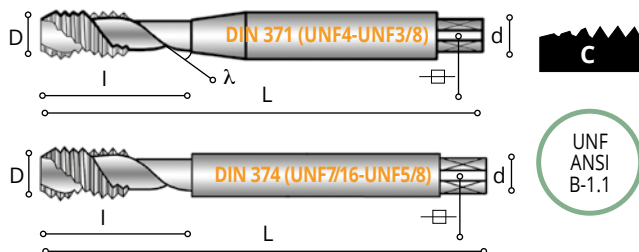
UNF565



D	D (mm)		L	I	d		CODE	RESISTOR 8565..... € OPAL
UNF 4_48	2,844	2,4	56	5	3,5	2,7	....00448	41,79
UNF 5_44	3,175	2,7	56	7	3,5	2,7	....00544	40,40
UNF 6_40	3,505	2,95	56	6	4	3	....00640	40,91
UNF 8_36	4,165	3,5	63	7	4,5	3,4	....00836	37,41
UNF 10_32	4,826	4,1	70	8	6	4,9	....01032	48,91
UNF 12_28	5,486	4,6	80	10	6	4,9	....01228	50,08
UNF 1/4_28	6,35	5,5	80	10	7	5,5	....01428	50,37
UNF 5/16_24	7,938	6,9	90	13	8	6	....51624	50,97
UNF 3/8_24	9,525	8,5	100	15	10	8	....03824	66,36
UNF 7/16_20	11,112	9,9	100	15	8	6,2	....71620	81,50
UNF 1/2_20	12,7	11,5	100	15	9	7	....01220	115,22
UNF 9/16_20	14,288	12,9	100	15	11	9	....91618	125,34
UNF 5/8_18	15,875	14,5	100	15	12	9	....05818	112,55
UNF 3/4_16	19,05	17,5	110	24	14	11	....00304	153,55
UNF 1" _12	25,40	23,25	140	27	18	14,5	....00100	309,41

UNF 567

MASCHIATURA RIGIDA
RIGID TAPPING

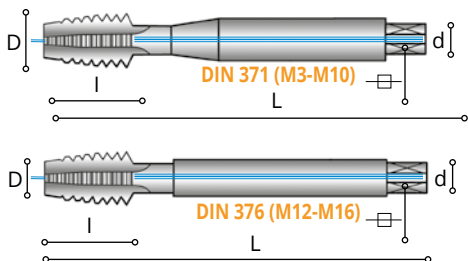


UNF567



D	D (mm)		L	I	d		CODE	RESISTOR 8567..... € OPAL
UNF 4_48	2,844	2,4	56	5	3,5	2,7	....00448	47,80
UNF 5_44	3,175	2,7	56	7	3,5	2,7	....00544	46,60
UNF 6_40	3,505	2,95	56	6	4	3	....00640	47,78
UNF 8_36	4,165	3,5	63	7	4,5	3,4	....00836	44,67
UNF 10_32	4,826	4,1	70	8	6	4,9	....01032	53,00
UNF 12_28	5,486	4,6	80	10	6	4,9	....01228	47,05
UNF 1/4_28	6,35	5,5	80	10	7	5,5	....01428	66,04
UNF 5/16_24	7,938	6,9	90	13	8	6	....51624	62,28
UNF 3/8_24	9,525	8,5	100	15	10	8	....03824	74,55
UNF 7/16_20	11,112	9,9	100	15	8	6,2	....71620	88,48
UNF 1/2_20	12,7	11,5	100	15	9	7	....01220	125,42
UNF 9/16_18	14,288	12,9	100	15	11	9	....91618	135,74
UNF 5/8_18	15,875	14,5	100	15	12	9	....05818	122,22
UNF 3/4_16	19,05	17,5	110	24	14	11	....00304	165,00
UNF 1" _12	25,40	23,25	140	27	18	14,5	....00100	333,60

M 539 HM
HRC 40-60



M539



D		L	I	d		CODE	HM 8539..... € OPAL
*M 3 X 0,5	2,5	56	5	3,5	2,7	....00003	205,74
*M 4 X 0,7	3,3	63	7	4,5	3,4	....00004	205,74
*M 5 x 0,8	4,2	70	8	6	4,9	....00005	269,63
M 6 x 1	5	80	10	6	4,9	....00006	269,63
M 8 x 1,25	6,8	90	13	8	6,2	....00008	361,85
M 10 x 1,5	8,5	100	15	10	8	....00010	438,43
M 12 X 1,75	10,2	110	18	9	7	....00012	540,62
M 16 x 2	14	110	20	12	9	....00016	914,71

* Maschi senza foro di lubrificazione / * Taps without internal cooling

CL 28 M HM

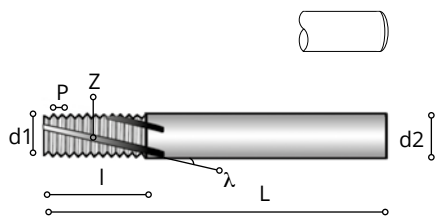


M

 λ
15°

60°

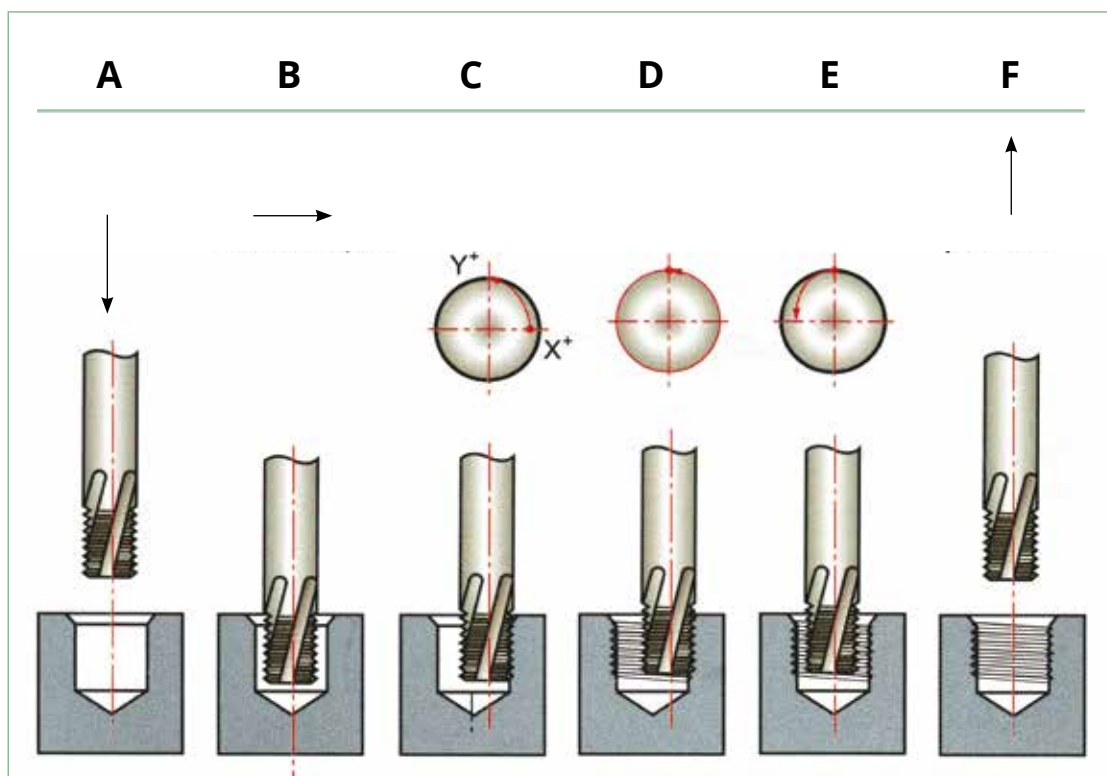
2XD



CL28MHM



M	P	d1	L	l	d2	Z	CODE	Micrograin Carbide Co10
								2280..... € SAPPHIRE
M6	1	4,5	57	13	6	3	....00006	189,07
M8	1,25	6	65	17,5	6	3	....00008	227,02
M10	1,5	7,5	72	21	8	4	....00010	251,13
M12	1,75	9,5	80	26,25	10	4	....00012	325,99
M14	2	10	83	30	10	4	....00014	325,99
M16	2	12	92	34	12	4	....00016	443,22



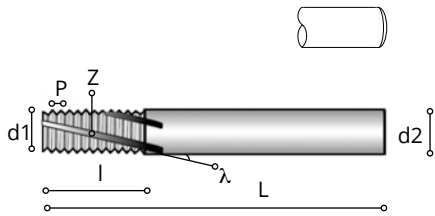
CL 29 MF HM 

MF

λ 15°

60°

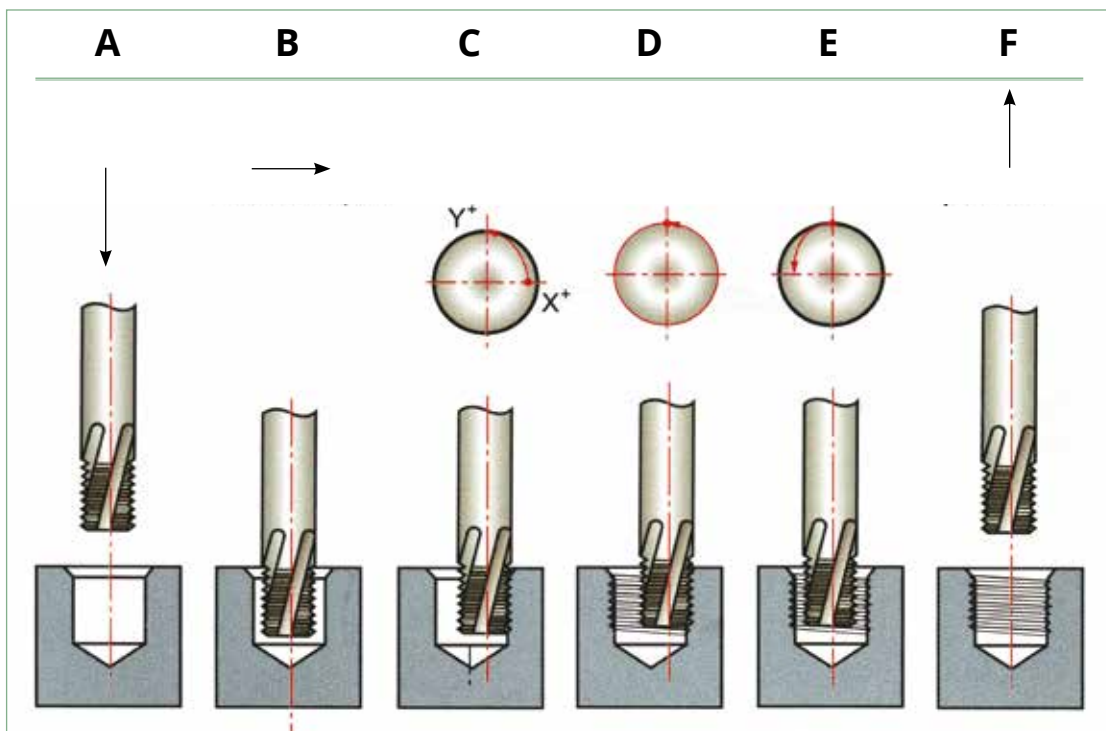
2XD



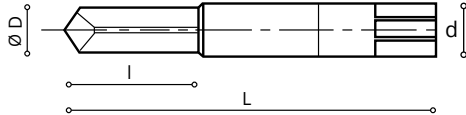
CL29MFHM



MF	P	d1	L	l	d2	Z	CODE	Micrograin Carbide Co10
								2290..... € SAPPHIRE
MF 8	0.75	6	57	12,75	6	3	....07508	189,07
MF 8	1.0	6	57	13	6	3	....10008	189,07
MF 10	1.0	8	63	16	8	4	....10010	251,13
MF 12	1.0	9,5	72	19	10	4	....10012	325,99
MF 12	1.25	9,5	72	18,75	10	4	....12512	325,99
MF 12	1.5	9,5	72	19,5	10	4	....15012	325,99
MF 14	1.0	10	83	22	10	4	....10014	325,99
MF 14	1.5	10	83	22,5	10	4	....15014	325,99
MF 16	1.0	12	83	25	12	4	....10016	402,73
MF 16	1.5	12	83	25,5	12	4	....15016	402,73
MF 18	1.0	14	92	28	14	5	....10018	528,35
MF 18	1.5	14	92	28,5	14	5	....15018	528,35
MF 20	1.0	16	92	31	16	5	....10020	611,46
MF 20	1.5	16	92	31,5	16	5	....15020	611,46



P HM 701

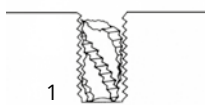


P HM 701

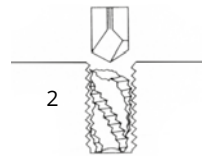


M	Ø D	L	l	d h6	CODE	HM 7701..... € TITANITE
M3	2,5	38	10	3	....00003	68,14
M4	3,3	46	14	4	....00004	96,12
M5	4,2	50	19	5	....00005	108,17
M6	5	50	23	6	....00006	120,16
M8	6,8	60	23	8	....00008	132,22
M10	8,5	80	25	10	....00010	168,22
M12	10,2	80	35	12	....00012	244,36

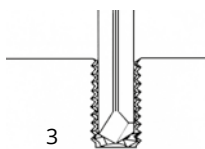
CONSIGLI PER UTILIZZO PUNTA CON LUBRIFICANTE | ADVISE FOR THE CORRECT USE OF THE DRILL WITH LUBRICATION



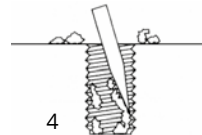
1 - Per un buon centraggio rettificare in piano i maschi spezzati obliquamente
1 - For good centring, obliquely broken off taps have to be ground flat



2 - Il centraggio si ottiene dopo essersi avvicinati più volte con l'utensile
2 - Create a centring point by multiple approaches with the drilling out tool



3 - Proseguire con avanzamento costante. Scaricare i trucioli più volte
3 - Drill out with an even feed rate. Evacuate chips frequently



4 - Pulire il foro e rimuovere i residui con un utensile a punta
4 - Clean up the hole and remove debris with a pointed tool

Vc = (m/min) 30 - 60	
	mm/rev
M3	0,06
M4	0,08
M5	0,11
M6	0,11
M8	0,12
M10	0,16
M12	0,20

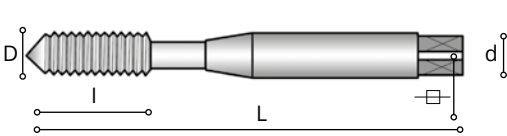
R 570



R 571



R 572



R570



R571

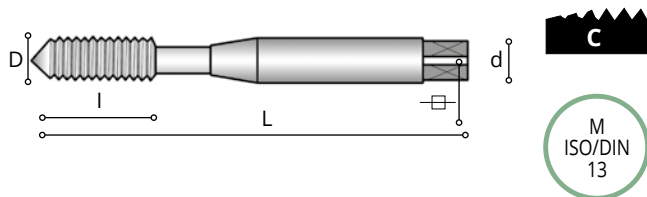


R572



D		L	I	d		CODE	HSS-EX 5570..... €	HSS-EX 5571..... €	HSS-EX 5572..... €
M 2 x 0,4	1,8	45	8	2,8	2,1	....00002			37,71
M 2,3 x 0,4	2,1	45	9	2,8	2,1	....00023			32,10
M 2,6 x 0,45	2,4	50	9	2,8	2,1	....00026			32,10
M 3 x 0,5	2,8	56	11	3,5	2,7	....00003	23,03	23,03	25,67
M 3,5 x 0,6	3,2	56	12	4	3	....00035			28,91
M 4 x 0,7	3,7	63	13	4,5	3,4	....00004	23,03	23,03	25,67
M 5 x 0,8	4,6	70	15	6	4,9	....00005	23,03	23,03	26,48
M 6 x 1	5,5	80	17	6	4,9	....00006	23,03	23,03	26,48
M 8 x 1,25	7,4	90	20	8	6,2	....00008	28,09	28,09	34,51
M 10 x 1,5	9,3	100	22	10	8	....00010	33,70	33,70	40,92

R 573

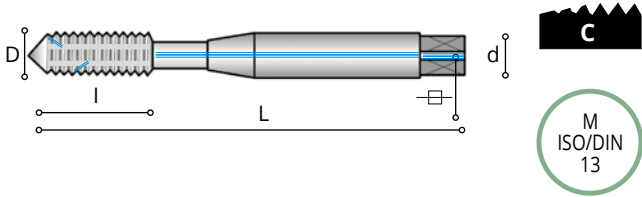


R573



D		L	l	d		CODE	RESISTOR 6573..... € QUARTZ
M 4 x 0,7	3,7	63	7	4,5	3,4	....40030	41,36
M 5 x 0,8	4,65	70	8	6	4,9	....50030	43,44
M 6 x 1	5,55	80	10	6	4,9	....60030	46,33
M 8 x 1,25	7,4	90	13	8	6,2	....80030	55,37
M 10 x 1,5	9,3	100	15	10	8	....10030	67,47

R 574
 HARDOX



R574

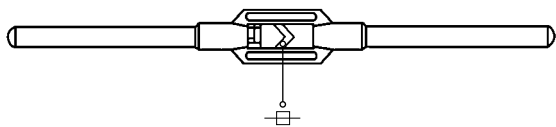


D		L	l	d		CODE	RESISTOR 8574..... € OPAL
M 5 x 0,8	4,65	70	8	6	4,9	....50030	47,08
M 6 x 1	5,55	80	10	6	4,9	....60030	50,19
M 8 x 1,25	7,4	90	13	8	6,2	....80030	59,97
M 10 x 1,5	9,3	100	15	10	8	....10030	73,10



GM 685



GM685



Il diametro 0 fino ad esaurimento
Diameter 0 until stocks last

Nr.			CODE	HSS 5685..... €
0	2 - 5	M 1 - 8	....00000	19,83
1	2 - 6,3	M 1 - 10	....00001	21,00
2	3 - 9	M4 - 12	....00002	31,00
3	4,9 - 12	M 5 - 20	....00003	44,31
4	5,5 - 16	M 9 - 27	....00004	62,47
5	7 - 20	M 13 - 33	....00005	92,83
6	11 - 24	M 19 - 39	....00006	225,51
7	16 - 39	M 27 - 64	....00007	225,51

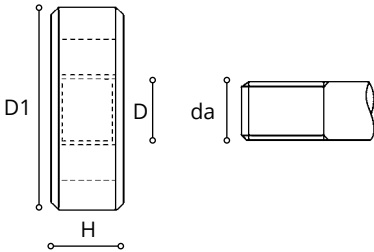
FM 610



FMX 670
INOX



FMS 630



FM610

FMX670

FMS630



D	da	D1	H	CODE	HSS 5610..... €	HSS-E 5670..... €	HSS 5630..... €
M 1,6 x 0,35	1,54	16	5	...00160	28,49		
M 2 x 0,4	1,94	16	5	...00002	28,49		
M 2,5 x 0,45	2,43	16	5	...00025	28,49		
M 3 x 0,5	2,92	20	5	...00003	22,09	29,60	31,54
M 3,5 x 0,6	3,41	20	5	...00035	22,40		31,54
M 4 x 0,7	3,9	20	5	...00004	21,93	29,60	31,54
M 4,5 x 0,75	4,4	20	7	...00045	22,99		33,20
M 5 x 0,8	4,9	20	7	...00005	23,61	31,41	34,58
M 6 x 1	5,88	20	7	...00006	23,61	31,87	34,58
M 7 x 1	6,88	25	9	...00007	26,35		40,37
M 8 x 1,25	7,86	25	9	...00008	25,89	34,94	37,61
M 9 x 1,25	8,86	25	9	...00009	26,35		37,61
M 10 x 1,5	9,85	30	11	...00010	26,81	44,82	39,14
M 11 x 1,5	10,85	30	11	...00011	33,79		52,39
M 12 x 1,75	11,83	38	14	...00012	36,09	60,34	52,39
M 14 x 2	13,82	38	14	...00014	37,77	60,34	55,14
M 16 x 2	15,82	45	18	...00016	50,73	89,80	71,44
M 18 x 2,5	17,79	45	18	...00018	52,39	89,80	72,82
M 20 x 2,5	19,79	45	18	...00020	61,26	96,73	75,45
M 22 x 2,5	21,79	55	22	...00022	70,34	147,57	99,98
M 24 x 3	23,76	55	22	...00024	80,15	147,57	108,40
M 27 x 3	26,76	65	25	...00027	100,80	201,27	193,73
M 30 x 3,5	29,73	65	25	...00030	104,75	201,27	236,23
M 33 x 3,5	32,73	65	25	...00033	108,41		
M 36 x 4	35,7	65	25	...00036	115,62		
M 39 x 4	38,7	75	30	...00039	164,04		
M 42 x 4,5	41,68	75	30	...00042	189,78		
M 45 x 4,5	44,68	90	36	...00450	428,76		
M 48 x 5	47,65	90	36	...00048	428,76		
M 52 x 5	51,65	90	36	...00052	430,43		

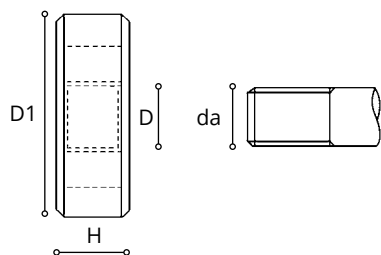
FMF 600



FMX 680
INOX



FMFS 640



FMF600

FMFX680

FMFS640



D	da	D1	H	CODE	HSS 5600..... €	HSS-E 5680..... €	HSS 5640..... €
MF 2 x 0,25	1,95	16	5	....00002	37,92		
MF 2,5 x 0,35	2,44	16	5	....00025	37,92		
MF 3 x 0,35	2,94	20	5	....00003	27,12		42,34
MF 3,5 x 0,35	3,44	20	5	....00035	27,12		42,34
MF 4 x 0,5	3,93	20	5	....00004	27,12		40,82
MF 4,5x 0,5	4,43	20	5	....00045			40,82
MF 5 x 0,5	4,90	20	5	....00005	27,12		40,82
MF 5,5 x 0,5	5,43	20	5	....00055	27,12		40,82
MF 6 x 0,75	5,90	20	7	....00006	27,12		36,86
MF 7 x 0,75	6,90	25	9	....00007	29,08		44,92
MF 8 x 0,75	7,90	25	9	....07508	29,08		39,75
MF 8 x 1	7,88	25	9	....10008	29,08	37,65	39,75
MF 9 x 0,75	8,90	25	9	....07509	30,82		
MF 9 x 1	8,88	25	9	....10009	30,82		42,59
MF 10 x 0,75	9,90	30	11	....75010	38,68		
MF 10 x 0,75	9,90	30	11	....07510			49,20
MF 10 x 1	9,88	30	11	....10010	37,62	46,76	55,59
MF 10 x 1,25	9,86	30	11	....12510	37,62		55,59
MF 11 x 0,75	10,90	30	11	....07511	46,45		
MF 11 x 1	10,88	30	11	....10011	46,45		68,84
MF 11 x 1,25	10,86	30	11	....12511			68,84
MF 12 x 1	11,88	38	10	....10012	46,45		64,74
MF 12 x 1,25	11,86	38	10	....12512	45,85	61,27	64,74
MF 12 x 1,5	11,85	38	10	....15012	45,85	61,27	64,74
MF 14 x 1	13,88	38	10	....10014	46,45		66,13
MF 14 x 1,25	13,86	38	10	....12514	46,45		66,13
MF 14 x 1,5	13,85	38	10	....15014	45,85	61,58	66,13
MF 15 x 1	14,88	38	10	....10015	63,21		71,73
MF 15 x 1,5	14,85	38	10	....15015	63,21		71,73
MF 16 x 1	15,88	45	14	....10016	65,95		93,68
MF 16 x 1,25	15,86	45	14	....12516	64,58		
MF 16 x 1,5	15,85	45	14	....15016	65,35	91,59	93,68
MF 18 x 1	17,88	45	14	....10018	65,95		93,68
MF 18 x 1,5	17,85	45	14	....15018	65,35	91,59	93,68
MF 18 x 2	17,80	45	14	....20018	65,35		
MF 20 x 1	19,88	45	14	....10020	68,09		97,88
MF 20 x 1,5	19,85	45	14	....15020	68,09	103,06	97,88

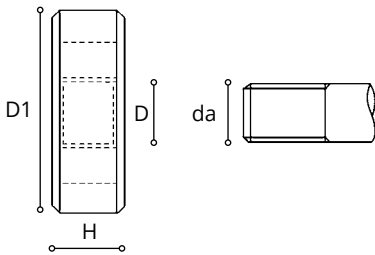
FMF 600



FMFX 680
INOX



FMFS 640



FMF600

FMFX680

FMFS640



D	da	D1	H	CODE	HSS 5600..... €	HSS-E 5680..... €	HSS 5640..... €
MF 20 x 2	19,80	45	14	....20020	68,09		
MF 22 x 1	21,88	55	16	....10022	101,29		141,96
MF 22 x 1,5	21,85	55	16	....15022	100,38	153,07	141,96
MF 22 x 2	21,80	55	16	....20022	100,38		
MF 24 x 1	23,88	55	16	....10024	106,47		151,71
MF 24 x 1,5	23,85	55	16	....15024	106,47	158,09	151,71
MF 24 x 2	23,80	55	16	....20024	106,47		
MF 25 x 1,5	24,85	55	16	....15025	138,91		
MF 25 x 2	24,80	55	16	....20025	138,91		
MF 26 x 1,5	25,85	55	16	....15026	138,91		
MF 26 x 2	25,80	55	16	....20026	138,91		
MF 27 x 1	26,88	65	18	....10027			210,96
MF 27 x 1,5	26,85	65	18	....15027	141,80		210,96
MF 27 x 2	26,80	65	18	....20027	141,80		
MF 28 x 1,5	27,85	65	18	....15028	141,80		210,96
MF 28 x 2	27,80	65	18	....20028	141,80		210,96
MF 30 x 1	29,85	65	18	....10030	144,57		223,12
MF 30 x 1,5	29,85	65	18	....15030	144,57		223,12
MF 30 x 2	29,80	65	18	....20030	144,57		
MF 32 x 1,5	31,85	65	18	....15032	144,88		
MF 32 x 2	31,82	65	18	....20032	144,88		
MF 33 x 1,5	32,85	65	18	....15033	149,99		
MF 33 x 2	32,82	65	18	....20033	149,99		
MF 36 x 1,5	35,85	65	18	....15036	156,51		
MF 36 x 2	35,82	65	18	....20036	156,51		
MF 36 x 3	35,76	65	25	....30036	156,51		
MF 39 x 1,5	38,85	75	20	....15039	210,89		
MF 39 x 2	38,82	75	20	....20039	210,89		
MF 39 x 3	38,76	75	30	....30039	210,89		
MF 40 x 1,5	39,85	75	20	....15040	210,89		
MF 40 x 2	39,82	75	20	....20040	210,89		
MF 40 x 3	39,76	75	30	....30040	210,89		
MF 42 x 1,5	41,85	75	20	....15042	215,06		
MF 42 x 2	41,82	75	20	....20042	215,06		
MF 42 x 3	41,76	75	30	....30042	215,06		
MF 45 x 1,5	44,85	90	22	....15045	341,66		
MF 45 x 2	44,82	90	22	....20045	341,66		
MF 45 x 3	44,76	90	36	....30045	341,66		
MF 48 x 1,5	47,85	90	22	....15048	341,66		
MF 48 x 2	47,82	90	22	....20048	341,66		
MF 48 x 3	47,76	90	36	....30048	341,66		

FMF 600



6g

FMFX 680
INOX

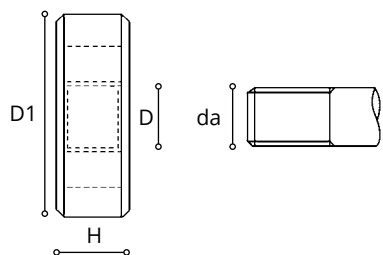


6g

FMFS 640



6g



FMF600

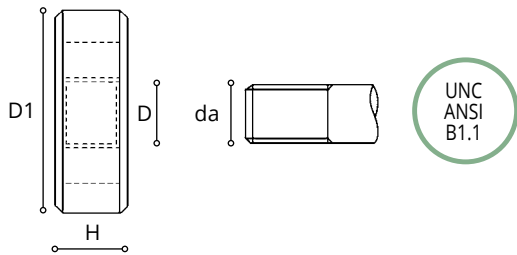
FMFX680

FMFS640



D	da	D1	H	CODE	HSS 5600..... €	HSS-E 5680..... €	HSS 5640..... €
MF 50 x 1,5	49,85	90	22	....15050	354,98		
MF 50 x 2	49,82	90	22	....20050	354,98		
MF 50 x 3	49,76	90	36	....30050	354,98		
MF 52 x 1,5	51,85	90	22	....15052	418,09		
MF 52 x 2	51,82	90	22	....20052	418,09		
MF 52 x 3	51,76	90	36	....30052	418,09		

FUNC 645



FUNC645

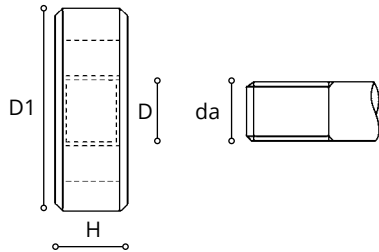


D	da	D1	H	CODE	HSS 5645..... €
UNC 4 - 40	2,76	20	5	....00440	45,30
UNC 5 - 40	3,09	20	5	....00540	45,30
UNC 6 - 32	3,41	20	7	....00632	45,30
UNC 8 - 32	4,07	20	7	....00832	45,30
UNC 10 - 24	4,71	20	7	....01024	45,30
UNC 12 - 24	5,37	20	7	....01224	49,04
UNC 1/4 - 20	6,22	20	7	....01420	44,24
UNC 5/16 - 18	7,80	25	9	....51618	48,75
UNC 3/8 - 16	9,37	30	11	....03816	54,89
UNC 7/16 - 14	10,95	30	11	....71614	55,09
UNC 1/2 - 13	12,52	38	14	....01213	71,46
UNC 9/16 - 12	14,10	38	14	....91612	71,72
UNC 5/8 - 11	15,68	45	18	....05811	98,77
UNC 3/4 - 10	18,84	45	18	....03410	99,08
UNC 7/8 - 9	22,00	55	22	....07809	136,26
UNC 1" - 8	25,16	55	22	....01008	143,64

FUNF 650

DIN EN
22568

2A

UNF
ANSI
B1.1

FUNF650



D	da	D1	H	CODE	HSS 5650..... €
UNF 4 - 48	2,77	20	5	....00448	41,83
UNF 5 - 44	3,10	20	5	....00544	39,25
UNF 6 - 40	3,42	20	5	....00640	39,25
UNF 8 - 36	4,08	20	7	....00836	39,25
UNF 10 - 32	4,73	20	7	....01032	39,26
UNF 12 - 28	5,38	20	7	....01228	42,50
UNF 1/4 - 28	6,24	20	7	....01428	44,24
UNF 5/16 - 24	7,82	25	9	....51624	47,72
UNF 3/8 - 24	9,41	30	11	....03824	54,89
UNF 7/16 - 20	10,98	30	11	....71620	48,60
UNF 1/2 - 20	12,56	38	10	....01220	71,72
UNF 9/16 - 18	14,14	38	10	....91618	72,03
UNF 5/8 - 18	15,73	45	14	....05818	98,77
UNF 3/4 - 16	18,89	45	14	....03416	99,08
UNF 7/8 - 14	22,05	55	16	....07814	136,26
UNF 1" - 12	25,21	55	16	....01012	143,64

FG 620

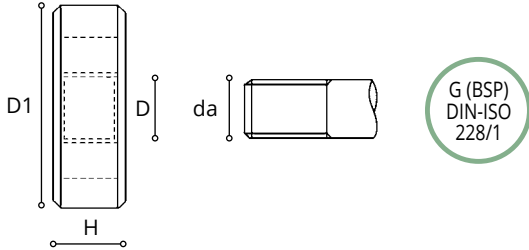


FGX 622
INOX



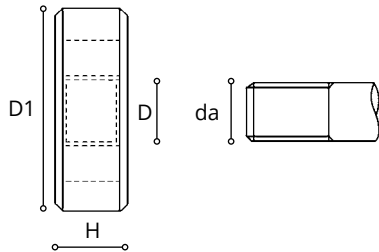
FG620

FGX622



D	da	D1	H	CODE	HSS 5620..... €	HSS-E 5622..... €
G 1/8 - 28	9,58	30	11	....00108	37,48	45,14
G 1/4 - 19	13,01	38	10	....00104	37,48	56,24
G 3/8 - 19	16,51	45	14	....00308	62,15	89,63
G 1/2 - 14	20,80	45	14	....00102	61,53	89,63
G 5/8 - 14	22,77	55	16	....00508	75,70	
G 3/4 - 14	26,26	55	16	....00304	110,12	141,85
G 7/8 - 14	30,02	65	18	....00708	111,18	
G 1" - 11	33,07	65	18	....00100	115,15	207,57
G 1" 1/8 - 11	37,72	75	20	....01108	163,43	
G 1" 1/4 - 11	41,73	75	20	....10104	163,43	
G 1" 3/8 - 11	44,14	90	22	....01308	203,34	
G 1" 1/2 - 11	47,62	90	22	....01102	208,51	
G 1" 3/4 - 11	53,57	105	22	....01304	235,31	
G 2" - 11	59,43	105	22	....00200	320,45	

FW 660

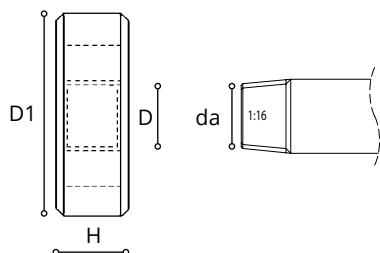


FW660



D	da	D1	H	CODE	HSS 5660..... €
W 1/16-60	1,51	16	5	....00116	50,64
W 3/32-48	2,3	16	5	....00332	36,04
W 1/8-40	3,09	20	5	....00108	32,04
W 5/32-32	3,88	20	5	....00532	36,04
W 3/16-24	4,66	20	7	....00316	32,04
W 7/32-24	5,46	20	7	....00732	37,96
W 1/4-20	6,24	20	7	....00104	34,06
W 5/16-18	7,82	25	9	....00516	35,24
W 3/8-16	9,4	30	11	....00308	42,04
W 7/16-14	10,98	30	11	....00716	43,04
W 1/2-12	12,56	38	14	....00102	57,07
W 9/16-12	14,14	38	14	....00916	60,96
W 5/8-11	15,72	45	18	....00508	80,09
W 3/4-10	18,89	45	18	....00304	85,09
W 7/8-9	22,1	55	22	....00708	120,13
W 1"-8	25,27	55	22	....00100	132,14
W 1" 1/8-7	28,44	65	25	....01108	164,98
W 1" 1/4-7	31,61	65	25	....01104	179,81
W 1" 3/8-6	34,77	65	25	....01308	179,81
W 1" 1/2-6	37,95	75	30	....01102	251,08

FNPT 690



FNPT690

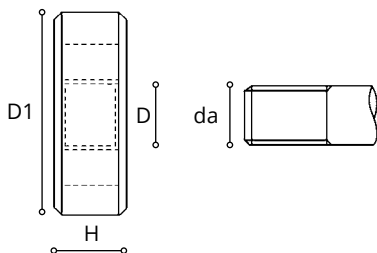


D	da	D1	H	CODE	HSS 5690..... €
NPT 1/8 - 27	9,99	30	11	....00108	55,13
NPT 1/4 - 18	13,26	38	14	....00104	66,41
NPT 3/8 - 18	16,67	45	18	....00308	93,60
NPT 1/2 - 14	20,71	45	18	....00102	96,60
NPT 3/4 - 14	26,03	55	22	....00304	182,04
NPT 1" - 11.1/2	32,59	65	25	....00100	210,65

FPG 691



FPG691




D	da	D1	H	CODE	HSS 5691..... €
PG 7 - 20	12,4	38	10	....00007	37,69
PG 9 - 18	15,1	45	14	....00009	54,71
PG 11 - 18	18,5	45	14	....00011	54,71
PG 13,5 - 18	20,3	45	14	....00135	54,71
PG 16 - 18	22,4	55	16	....00016	114,77
PG 21 - 16	28,15	65	18	....00021	141,93
PG 29 - 16	36,85	65	18	....00029	141,93














PF 856



PF856



Nr.	D x H		CODE	HSS 5856..... €
0	16 x 5	M 1 - 2,6	....00000	14,61
1	20 x 5	MF 3 - 4	....00001	17,37
2	20 x 7	M 4,5 - 6	....00002	17,37
3	25 x 9	M 7 - 9	....00003	20,70
4	30 x 11	M 10 - 11	....00004	22,99
5	38 x 14	M 12 - 14	....00005	26,03
6	38 x 10	MF 12 - 14	....00006	26,03
7	45 x 18	M 16 - 20	....00007	36,37
8	45 x 14	MF 16 - 20	....00008	36,37
9	55 x 22	M 22 - 24	....00009	46,50
10	55 x 16	MF 22 - 24	....00010	46,50
11	65 x 25	M 27 - 36	....00011	76,48
12	65 x 18	MF 26 - 35	....00012	76,48
13	75 x 30	M 39 - 42	....00013	127,54
14	75 x 20	MF 38 - 42	....00014	127,54

Articolo Article	Tipo Type	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
CALIBRI A TAMPONE PASSA / NON PASSA SMOOTH PLUG GAUGES GO / NO-GO							
 TL 800	P - NP GO - NO/GO					2,00 - 30,00	204
 TF M810	P - NP GO - NO/GO					M2 - M52	205
 AF M820	P GO					M2 - M52	205
 AF M821	NP NO/GO					M2 - M52	205
 TF MF 811	P - NP GO - NO/GO					MF4 - MF52	206
 AF MF822	P GO					MF4 - MF52	206
 AF MF823	NP NO/GO					MF4 - MF52	206
 TF G812	P - NP GO - NO/GO					G1/8 - 28 G1" - 1/2	208
 AF G824	P GO					G1/8 - 28 G1" - 1/2	208
 AF G825	NP NO/GO					G1/8 - 28 G1" - 1/2	208
 TF UNC813	P - NP GO - NO/GO					UNC5 - 40 UNC2"	209
 TF UNF814	P - NP GO - NO/GO					UNF5 - 44 UNF1" - 1/2	210
 TF NPT815						NPT1/16 NPT2"	211

Calibration Certificate

inspection certificate meets the requirements of the ISO 9001:2008

carmon
 Utensileria Carmon Srl
 Via Matteotti, 142
 25014 Costenedolo (BS) • Italia
 P.Iva / C.F. 00361110174
 www.carmon.it

Customer: Utensileria Carmon Srl
 Type of gauge: Internal screw gauge
 Thread designation: M32x1.5 - 7H
 Standard: ISO 1502
 1. Flank angle: 30°±12'
 2. Flank angle: 30°±12'
 Pitch: 1.5±0.005mm
 Method of measurement: Three-wire-method
 Used wire diameter: Ø0.895
 Measuring force: 2.5 N
 Part number: 13290137/1329138

Gauge nominal values

	GO side	NO GO side
Major diameter (max):	φ32.03mm	φ31.597mm
Major diameter (min):	φ32.002mm	φ31.569mm
Effective diameter (max):	φ31.049mm	φ31.29mm
Effective diameter (min):	φ31.035mm	φ31.276mm
Minor diameter - maximum value:	φ30.1595mm	φ30.1595mm
Effective diameter - Wear limit:	φ31.021mm	φ31.268mm

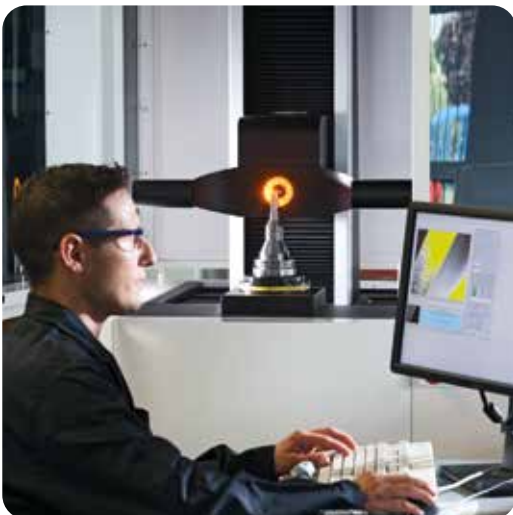
Measuring values of Effective diameter GO side

Meas. Plane No.	Meas. Value No.	Measure [mm]	Effective φ [mm]
1	1	32.425	31.039
2	1	32.425	31.039

Measuring values of Effective diameter NO GO side

Meas. Plane No.	Meas. Value No.	Measure [mm]	Effective φ [mm]
1	1	32.6715	31.2855
2	1	32.672	31.286

Valuation: Gauge in tolerance
 Uncertainty of measurement: ±0.0018 mm
 Measurement equipment: Abbe - measuring machine; Nr 4034; Date of Calibration 2011-12.
 Traceability: Gauge blocks sets made of steel MLAr-112; Nr 970186; Date of calibration 2011-12.
 Reference temperature: VDI/VDE/DGQ/2618
 Date: 20.6°C
 Operator: 2013-09-09
 xxxxxxxxxxxx



Tutti i calibri tamponi lisci, filettati e anelli passa/non passa sono accompagnati da un certificato di controllo dimensionale ISO9001. A richiesta è possibile avere il certificato di taratura LAT.

All internal flat and threaded screw gauges and the rings go/no go are accompanied by an ISO9001 certificate of dimensional control. Upon request it's possible to have the certificate of calibration LAT.

Alle Kaliber, Lehdornen, Gut- und Ausschlusslehren und Lehrringe werden mit einem Mess-Pruefzeugnis geliefert ISO9001. Auf Anfrage kann man auch eine LAT Bescheinigung liefern.

Toutes les calibres / tampons filetés et lisses et toutes les bagues entre/n'entre pas sont accompagnés d'un certificat de contrôle dimensionnel ISO9001. Sur commande vous pouvez demander le certificat d'étalonnage LAT.

Todos los calibres machos de roscas y lisos y los anelos pasa/no pasa se entregan con un certificado de control dimensional ISO9001. Es también posible tener el certificado de calibración LAT previa petición.

TL 800

P - NP GO - NO/GO

H7

TL 800



D	CODE	5800..... €
2	....00002	84,87
3	....00003	77,67
4	....00004	77,67
5	....00005	77,67
6	....00006	77,67
7	....00007	77,67
8	....00008	77,67
9	....00009	87,33
10	....00010	89,52
11	....00011	113,38
12	....00012	94,56
13	....00013	113,38
14	....00014	94,56
15	....00015	127,68
16	....00016	106,42
17	....00017	127,68
18	....00018	106,42
19	....00019	143,41
20	....00020	119,49
21	....00021	143,41
22	....00022	119,49
23	....00023	143,41
24	....00024	119,49
25	....00025	133,88
26	....00026	133,88
27	....00027	133,88
28	....00028	133,88
29	....00029	160,67
30	....00030	133,88

TF M810 P - NP GO - NO/GO

AF M820 P - GO

AF M821 NP - NO/GO



6H



6g



6g

TF M810



AF M820



AF M821



M	P	CODE	5810..... €	5820..... €	5821..... €
M 2	0,40	....00002	206,92	199,73	199,73
M 2,5	0,45	....00025	192,06	199,73	199,73
M 3	0,50	....00003	167,74	159,77	159,77
M 3,5	0,60	....00035	185,47	159,77	159,77
M 4	0,70	....00004	137,61	159,77	159,77
M 4,5	0,75	....00450	197,49	159,77	159,77
M 5	0,80	....00005	132,25	159,77	159,77
M 6	1,00	....00006	133,42	159,77	159,77
M 7	1,00	....00007	161,46	159,77	159,77
M 8	1,25	....00008	148,15	159,77	159,77
M 9	1,25	....00009	183,68	175,71	175,71
M 10	1,50	....00010	151,36	175,71	175,71
M 12	1,75	....00012	167,12	175,71	175,71
M 14	2,00	....00014	161,04	191,72	191,72
M 16	2,00	....00016	182,91	191,72	191,72
M 18	2,50	....00018	209,01	275,60	275,60
M 20	2,50	....00020	238,27	275,60	275,60
M 22	2,50	....00022	235,86	275,60	275,60
M 24	3,00	....00024	243,03	275,60	275,60
M 27	3,00	....00027	269,84	335,48	335,48
M 30	3,50	....00030	281,69	499,22	499,22
M 33	3,50	....00033	319,52	499,22	499,22
M 36	4,00	....00036	320,12	499,22	499,22
M 39	4,00	....00039	331,84	499,22	499,22
M 42	4,50	....00042	351,35	567,16	567,16
M 45	4,50	....00045	350,03	567,16	567,16
M 48	5,00	....00048	379,82	658,99	658,99
M 52	5,00	....00052	452,24	678,41	678,41

TF MF811 P - NP GO - NO/GO



6H

AF MF822 P - GO



6g

AF MF823 NP - NO/GO



6g

TF MF811



AF MF822



AF MF823



MF	P	CODE	5811..... €	5822..... €	5823..... €
MF 4	0,50	....00004	155,46	299,88	299,88
MF 4,5	0,50	....00045	155,46	314,78	314,78
MF 5	0,50	....00005	155,46	299,88	299,88
MF 6	0,50	....05006	156,83	378,48	378,48
MF 6	0,75	....07506	156,83	299,88	299,88
MF 8	0,50	....05008	204,59	378,48	378,48
MF 8	0,75	....07508	204,59	299,88	299,88
MF 8	1,00	....10008	184,12	191,99	191,99
MF 10	0,75	....07510	215,48	299,88	299,88
MF 10	1,00	....10010	196,36	216,27	216,27
MF 10	1,25	....12510	196,36	216,27	216,27
MF 12	1,00	....10012	231,85	216,27	216,27
MF 12	1,25	....12512	231,85	216,27	216,27
MF 12	1,50	....15012	205,64	216,27	216,27
MF 14	1,00	....10014	238,67	226,12	226,12
MF 14	1,25	....12514	238,67	226,12	226,12
MF 14	1,50	....15014	198,12	226,12	226,12
MF 16	1,00	....10016	265,96	226,12	226,12
MF 16	1,50	....15016	235,93	226,12	226,12
MF 18	1,00	....10018	247,79	290,03	290,03
MF 18	1,50	....15018	207,29	290,03	290,03
MF 18	2,00	....20018	214,43	290,03	290,03
MF 20	1,00	....10020	274,63	290,03	290,03
MF 20	1,50	....15020	263,34	290,03	290,03
MF 20	2,00	....20020	249,57	290,03	290,03
MF 22	1,00	....10022	268,36	290,03	290,03
MF 22	1,50	....15022	242,65	290,03	290,03
MF 22	2,00	....20022	242,65	290,03	290,03
MF 24	1,00	....10024	304,10	290,03	290,03
MF 24	1,50	....15024	250,80	290,03	290,03
MF 24	2,00	....20024	250,80	290,03	290,03
MF 25	1,50	....15025	272,75	339,19	339,19
MF 26	1,50	....15026	261,84	339,19	339,19
MF 27	1,50	....15027	267,30	339,19	339,19
MF 27	2,00	....20027	267,30	339,19	339,19
MF 28	1,50	....15028	272,75	339,19	339,19
MF 28	2,00	....20028	283,65	339,19	339,19
MF 30	1,00	....10030	287,79	521,05	521,05
MF 30	1,50	....15030	272,75	412,95	412,95
MF 30	2,00	....20030	287,79	412,95	412,95

MF	P	CODE	5811..... €	5822..... €	5823..... €
MF 32	1,50	....15032	293,44	412,95	412,95
MF 33	1,50	....15033	316,38	412,95	412,95
MF 33	2,00	....20033	316,38	412,95	412,95
MF 33	3,00	....30033	339,53	521,05	521,05
MF 35	1,50	....15035	314,65	412,95	412,95
MF 36	1,50	....15036	316,01	412,95	412,95
MF 36	2,00	....20036	321,02	412,95	412,95
MF 36	3,00	....30036	319,77	521,05	521,05
MF 38	1,50	....15038	310,37	412,95	412,95
MF 39	2,00	....20039	319,77	412,95	412,95
MF 39	3,00	....30039	319,77	521,05	521,05
MF 40	1,50	....15040	322,78	412,95	412,95
MF 40	2,00	....20040	319,77	412,95	412,95
MF 40	3,00	....30040	329,55	521,05	521,05
MF 42	1,50	....15042	319,77	481,75	481,75
MF 42	2,00	....20042	329,18	481,75	481,75
MF 42	3,00	....30042	333,56	570,20	570,20
MF 45	1,50	....15045	325,04	481,75	481,75
MF 45	2,00	....20045	334,07	481,75	481,75
MF 45	3,00	....30045	334,19	575,15	575,15
MF 48	1,50	....15048	333,56	481,75	481,75
MF 48	2,00	....20048	326,04	481,75	481,75
MF 48	3,00	....30048	331,06	575,15	575,15
MF 50	1,50	....15050	326,04	481,75	481,75
MF 50	2,00	....20050	334,19	481,75	481,75
MF 50	3,00	....30050	357,64	575,15	575,15
MF 52	1,50	....15052	357,64	629,22	629,22
MF 52	2,00	....20052	373,19	658,72	658,72
MF 52	3,00	....30052	373,19	737,37	737,37

TF G812 P - NP GO - NO/GO

AF G824 P - GO

AF G825 NP - NO/GO



TF G812

AF G824

AF G825



GAS	D	CODE	5812..... €	5824..... €	5825..... €
G 1/8 - 28	9,73	....00108	220,98	283,55	283,55
G 1/4 - 19	13,16	....00104	220,95	283,55	283,55
G 3/8 - 19	16,66	....00308	233,23	283,55	283,55
G 1/2 - 14	20,96	....00102	276,23	283,55	283,55
G 5/8 - 14	22,91	....00508	293,65	335,48	335,48
G 3/4 - 14	26,44	....00304	331,48	335,48	335,48
G 7/8 - 14	30,2	....00708	368,31	335,48	335,48
G 1" - 11	33,25	....00100	405,14	475,27	475,27
G 1" 1/8 - 11	37,9	....01108	419,87	475,27	475,27
G 1" 1/4 - 11	41,91	....01104	446,53	475,27	475,27
G 1" 1/2 - 11	47,8	....01102	475,15	475,27	475,27

TF UNC813 P - NP GO - NO/GO



TF UNC813



UNC	D	CODE	5813..... €
UNC 5 - 40	3,18	....00540	164,96
UNC 6 - 32	3,51	....00632	164,96
UNC 8 - 32	4,17	....00832	164,96
UNC 10 - 24	4,83	....01024	164,96
UNC 12 - 24	5,49	....01224	164,96
UNC 1/4 - 20	6,35	....01420	217,02
UNC 5/16 - 18	7,94	....51618	217,02
UNC 3/8 - 16	9,53	....03816	227,16
UNC 7/16 - 14	11,11	....71614	227,16
UNC 1/2 - 13	12,7	....01213	234,41
UNC 9/16 - 12	14,29	....91612	234,41
UNC 5/8 - 11	15,88	....05811	310,62
UNC 3/4 - 10	19,05	....03410	310,75
UNC 7/8 - 9	22,23	....07809	310,62
UNC 1" - 8	25,4	....01008	348,27
UNC 1" 1/8 - 7	28,58	....11807	348,10
UNC 1" 1/4 - 7	31,75	....11407	390,49
UNC 1" 3/8 - 6	34,93	....13806	390,49
UNC 1" 1/2 - 6	38,1	....11206	390,49
UNC 1" 3/4 - 5	44,45	....13405	417,74
UNC 2" - 4,5	50,8	....00200	498,26

TF UNF814 P - NP GO - NO/GO



2B

TF UNF814

UNF
ANSI
B1.1

UNF	D	CODE	5814..... €
UNF 5 - 44	3,18	....00544	164,95
UNF 6 - 40	3,51	....00640	164,95
UNF 8 - 36	4,17	....00836	158,07
UNF 10 - 32	4,83	....01032	158,09
UNF 12 - 28	5,49	....01228	164,96
UNF 1/4 - 28	6,35	....01428	164,96
UNF 5/16 - 24	7,94	....51624	164,96
UNF 3/8 - 24	9,53	....03824	217,70
UNF 7/16 - 20	11,11	....71620	217,70
UNF 1/2 - 20	12,70	....01220	234,41
UNF 9/16 - 18	14,29	....91618	210,94
UNF 5/8 - 18	15,88	....05818	297,80
UNF 3/4 - 16	19,05	....03416	297,80
UNF 7/8 - 14	22,23	....07814	310,75
UNF 1" - 12	25,40	....01012	348,27
UNF 1" 1/8 - 12	28,58	....11812	348,27
UNF 1" 1/4 - 12	31,75	....11412	390,49
UNF 1" 3/8 - 12	34,93	....13812	390,49
UNF 1" 1/2 - 12	38,10	....11212	390,49


















TF NPT815
































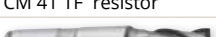
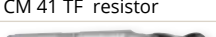

TF NPT815














NPT	P	CODE	5815..... €
NPT 1/16	27	....00116	251,05
NPT 1/8	27	....00108	236,63
NPT 1/4	18	....00104	256,17
NPT 3/8	18	....00308	276,69
NPT 1/2	14	....00102	297,78
NPT 3/4	14	....00304	326,48
NPT 1"	11,5	....00100	366,07
NPT 1" 1/4	11,5	....01104	400,36
NPT 1" 1/2	11,5	....01102	417,76
NPT 2"	11,5	....00200	478,51
















Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
FRESE A CODOLO CILINDRICO STRAIGHT SHANK AND MILLS								
FRESE A DUE TAGLIENTI TWO FLUTE SLOT DRILLS								
 CL 11	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 327 D	1 - 40	232
 CL 11	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 327 D	1 - 25	232
 CL 11 resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	DIN 327 D	2 - 25	232
 CL 11 resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 327 D	2 - 25	232
 CL 12	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	CARMON NORM	3 - 25	234
 CL 12	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	CARMON NORM	3 - 25	234
 CL 12 resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	CARMON NORM	3 - 25	234
 CL 12 resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	CARMON NORM	3 - 25	234
 CL 13F	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 327 H	4 - 40	235
 CL 18	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 327 D	2 - 20	236
 CL 19	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	CARMON NORM	3 - 20	237
FRESE A TRE TAGLIENTI THREE FLUTE END MILLS								
 CL 16	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 844 B	2 - 25	238
 CL 16	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 844 B	2 - 25	238
 CL 16 resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	DIN 844 B	3 - 25	238
 CL 16 resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 844 B	3 - 25	238
 CL 30 FE	N	Acciai comuni Standard steel Acciai tenaci hardened steel	45	HSS+8%CO	White	DIN 844 B	6 - 20	239
 CL 17	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 844 B	3 - 25	240










Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
FRESE CILINDRICHE FRONTALI MULTIFLUTE FINISHING CUTTERS								
 CL 21 TF	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 844 B	3 - 40	241
 CL 21 TF	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 844 B	3 - 32	241
 CL 21 TF resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	DIN 844 B	3 - 32	241
 CL 21 TF resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 844 B	3 - 32	241
 CL 21 TF resistor	N	Acciai inox Stainless steel	30	RESISTOR	Pearl	DIN 844 B	3 - 32	241
 CL 22 TF	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 844 B	3 - 25	242
 CL 22 TF	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 844 B	3 - 25	242
 CL 22 TF resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	DIN 844 B	3 - 25	242
 CL 22 TF resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 844 B	3 - 25	242
FRESE CILINDRICHE FRONTALI A SGROSSARE ROUGHING END MILLS								
 CL 24 TF	NR	Acciai comuni Standard steel acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 844 B	6 - 40	243
 CL 24 TF	NR	Acciai comuni Standard steel acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 844 B	6 - 32	243
 CL 24 TF resistor	NR	Acciai comuni Standard steel acciai tenaci hardened steel	30	RESISTOR	White	DIN 844 B	6 - 32	243
 CL 24 TF resistor	NR	Acciai comuni Standard steel acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 844 B	6 - 32	243
 CL 24 TF resistor	NR	Acciai inox Stainless steel	30	RESISTOR	Pearl	DIN 844 B	6 - 32	243
 CL 24 TF PF	HR	Acciai comuni Standard steel acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 844 B	6 - 40	244
 CL 24 TF PF	HR	Acciai comuni Standard steel acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 844 B	6 - 32	244
 CL 24 TF PF resistor	HR	Acciai comuni Standard steel acciai tenaci hardened steel	30	RESISTOR	White	DIN 844 B	6 - 32	244
 CL 24 TF PF resistor	HR	Acciai comuni Standard steel acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 844 B	6 - 32	244

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
 CL 24 TF PF resistor	HR	Acciai inox Stainless steel	30	RESISTOR	Pearl	DIN 844 B	6 - 32	244
 CL 24 SL - TF	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 844 B	6- 25	245
 CL 24 SL - TF	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 844 B	6- 25	245
 CL 24 SL - TFPF	HR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 844 B	6- 25	246
 CL 24 SL - TFPF	HR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 844 B	6- 25	246
 CL 25 TF	NF	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 844 B	6 - 25	247
 CL 25 TF	NF	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 844 B	6 - 25	247
FRESE A CODOLO CONICO MORSE TAPER SHANK END MILLS								
FRESE CILINDRICHE A DUE TAGLIANTI TWO FLUTE SLOT MILLS								
 CM 31	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 326 D	14 - 40	248
FRESE CILINDRICHE A TRE TAGLIANTI THREE FLUTE SLOT MILLS								
 CM 36	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 845 B	14 - 40	249
 CM 37 FE	N	Acciai comuni Standard steel Acciai tenaci hardened steel	45	HSS+8%CO	White	DIN 845 B	16 - 40	249
 CM 38	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 845 B	16 - 40	250
FRESE CILINDRICHE FRONTALI MULTIFLUTE FINISHING CUTTERS								
 CM 41 TF	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 845 B	14 - 50	251
 CM 41 TF	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 845 B	14 - 40	251
 CM 41 TF resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	DIN 845 B	16 - 50	251
 CM 41 TF resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 845 B	16 - 40	251
 CM 41 R	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 1899 2D	16 - 40	252
 CM 44 R	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 1899 2D	16 - 40	252

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
 CM 42	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 845 B	16 - 50	252
 CM 42	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 845 B	16 - 40	252
 CM 42 resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	DIN 845 B	16 - 50	252
 CM 42 resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 845 B	16 - 40	252
 CM 42 R	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 1899 2D	16 - 40	253
 CM 48 R	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 1899 2D	16 - 40	253
 CM 43	N	Acciai comuni Standard steel Acciai tenaci hardened steel	20	HSS+8%CO	White	CARMON NORM	16 - 40	253
 CM 44 TF	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 845 B	16 - 50	254
 CM 44 TF	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 845 B	16 - 40	254
 CM 44 TF resistor	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	DIN 845 B	16 - 40	254
 CM 44 TF resistor	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 845 B	16 - 40	254
 CM 48	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 845 B	16 - 50	255
 CM 48	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 845 B	16 - 40	255
 CM 48 resistor	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	DIN 845 B	16 - 50	255
 CM 48 resistor	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 845 B	16 - 40	255
 CM 45 TF	NF	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 845 B	16 - 50	256
FRESE CONICHE PER STAMPI DIESINKING MILLING CUTTERS								
 CS 47	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 1889 EA	0° 30' - 7° 7	257

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
FRESE AD ANGOLO DOVETAIL CUTTERS								
 TCL 60 A	N	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	DIN 1833 A/B	16 - 25	258
 TCL 60 B	N	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	DIN 1833 A/B	16 - 25	258
FRESE PER SEDI DI LINGUETTE AMERICANE WOODRUFF WOODRUFF KEYSEAT CUTTERS								
 TCL 61	N	Acciai comuni Standard steel Acciai tenaci hardened steel	10	HSS+5%CO	White	DIN 850 B	10,5 - 45,50	259
FRESE PER SCANALATURA A " T " T-SLOT CUTTERS								
 TCL 62	N	Acciai comuni Standard steel Acciai tenaci hardened steel	12° - 15°	HSS+5%CO	White	DIN 851 AA	12,5 - 32	260
 TCM 63	N	Acciai comuni Standard steel Acciai tenaci hardened steel	12° - 15°	HSS+5%CO	White	DIN 851 B	22 - 56	261
FRESE A PROFILO CONCAVO AD UN QUARTO D CERCHIO QUARTER CIRCLE CUTTERS								
 RC 135	N	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	DIN 6518 B	1 - 20	262
FRESE A DISCO A TRE TAGLIANTI DIRITTI E ALTERNATI SIDE AND FACE CUTTERS WITH STRAIGHT STAGGERED TEETH								
 CR 81	H	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	DIN 885 B	50 - 160	263
 CR 83	N	Acciai comuni Standard steel Acciai tenaci hardened steel	8° - 15°	HSS+5%CO	White	DIN 885 A	50 - 250	265
FRESE SOTTILI A TAGLI ALTERNATI STUGGERED TEETH SAWS								
 CR 85	H	Acciai comuni Standard steel Acciai tenaci hardened steel	8° - 15°	HSS+5%CO	White	DIN 1834 A	63 - 160	268
FRESE FRONTALI AD ANGOLO ANGLE SHELL END MILLS								
 FA 91	H	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	DIN 842 A	40 - 100	269
FRESE AD ANGOLO PRISMATICHE DOUBLE ANGLE CUTTERS								
 FP 92	H	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	DIN 847	50 - 100	270

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
FRESE CILINDRICHE FRONTALI A SGROSSARE E FINIRE ROUGHING AND FINISHING SHELL END MILLS								
CF 94 	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 1880	40 - 160	271
CF 94 	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	Sapphire MULTI	DIN 1880	40 - 100	271
CF 94  resistor	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	White	DIN 1880	40 - 100	271
CF 94  resistor	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 1880	40 - 100	271
CF 95 	NF	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 1880	40 - 100	271
CF 96 	N	Acciai comuni Standard steel Acciai tenaci hardened steel	20	HSS+8%CO	White	DIN 1880	40 - 100	272
CF 96 	N	Acciai comuni Standard steel Acciai tenaci hardened steel	20	HSS+8%CO	Sapphire MULTI	DIN 1880	40 - 100	272
CF 96  resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	20	RESISTOR	White	DIN 1880	40 - 100	272
CF 96  resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	20	RESISTOR	Sapphire MULTI	DIN 1880	40 - 100	272
CF 97 	W	Acciai comuni Standard steel Acciai tenaci hardened steel	40	HSS+5%CO	White	DIN 1880	40 - 125	272
CF 98 	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 841	30 - 75	273
CF 99 	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	HSS+8%CO	White	DIN 841	30 - 75	273
FRESE A DISCO PER DENTARE CREMAGLIERE ANGOLO DI PRESSIONE 20° RACK MILLING CUTTERS PRESSURE ANGLE 20°								
SCR 121 	N	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	CARMON NORM	1 - 10	274
FRESE A PROFILO COSTANTE SEMICIRCOLARE CONVESSO CONVEX CUTTERS								
SCV 131 	N	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	DIN 856	1 - 10	275
FRESE A PROFILO COSTANTE SEMICIRCOLARE CONCAVO CONCAVE CUTTERS								
SCC 132 	N	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	DIN 855 A	1 - 10	276

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
FRESE A DISCO PER DENTARE INGRANAGGI CILINDRICI ANGOLO DI PRESSIONE 20° INVOLUTE GEAR CUTTERS 20° PRESSURE ANGLE								
MOD 141 	N	Acciai comuni Standard steel Acciai tenaci hardened steel	0	HSS+5%CO	White	UNI 4501	MOD 0,5 MOD 10 (DA 1 A 8)	277
PUNTE PER FORATURA A DUE DIAMETRI DI PROFILATI STEP MILLS								
ALL 156 	W	Alluminio aluminum	30	HSS+5%CO	White	CARMON NORM	6 - 6,5	278
FRESE A DUE TAGLIENTI PER LAVORARE PROFILATI PANTOGRAPH END MILLS								
ALL 157 	W	Alluminio aluminum	30	HSS+5%CO	White	CARMON NORM	4 - 6	278
FRESE MONOTAGLIENTI PER LAVORARE PROFILATI PANTOGRAPH END MILLS								
ALL 158 	W	Alluminio aluminum	30	HSS+5%CO	White	CARMON NORM	4 - 10	279
ALL 158 	W	Alluminio aluminum	30	HSS+5%CO	Sapphire MULTI	CARMON NORM	4 - 10	279
FRESE CILINDRICHE FRONTALI MULTIFLUTE CUTTERS								
ALL 160 resistor 	W	Alluminio aluminum	40	RESISTOR	White	DIN 844 B	6 - 32	280
ALL 164 resistor 	WR	Alluminio aluminum	35	RESISTOR	White	DIN 844 B	8 - 32	280
ALL 162 resistor 	W	Alluminio aluminum	40	RESISTOR	White	DIN 844 B	6 - 32	281
ALL 166 resistor 	WR	Alluminio aluminum	35	RESISTOR	White	DIN 844 B	10 - 32	281





rpm
= (mt/min x 1000) / (D x 3,14)



mm/min
= mm/rev x rpm



= mt/min



= mm/tooth

(vedi tabella - see table page pag. 230)

FRESE A CODOLO CILINDRICO STRAIGHT SHANK END MILLS

	SAPPHIRE MULTI		SAPPHIRE MULTI		SAPPHIRE MULTI		SAPPHIRE MULTI		
CL11				CL12				CL13F	CL18
DIN 327/D				CARMON NORM.				DIN 327/H	DIN 327/D
HSS+8%Co		RESISTOR		HSS+8%Co		RESISTOR		HSS+8%Co	

Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	60 b	120 b	75 b	130 a	60 b	120 b	75 b	130 a	60 b	40 t
	Acciai da costruzione Structural steel	2	700	219	50 b	100 b	65 b	120 b	50 b	100 b	65 b	120 b	50 b	28 t
	Acciai da tempra Hardening steel	3	900	280	12 c	45 c	35 c	70 c	12 c	45 c	35 c	70 c	12 c	24 t
	Acciaio automatico Automatic steel	4	1200	373		14 d		25 c		14 d		25 c		
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	25 e	35 e	40 c	80 c	25 e	35 e	40 c	80 c	25 e	25 e
	Austenitico Austenitic	3	850	265		22 g	35 c	70 c		22 g	35 c	70 c		
	Ferritico+austenitico Ferritic austenitic	4	1000	311				20 b				20 b		
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180 hb	2	500	157	30 b	50 b	35 r	58 r	30 b	50 b	35 r	58 r	30 b	30 b
	Ghisa oltre 180 hb Cast iron over 180 hb	3	700	219	25 b	45 b	30 r	45 r	25 b	45 b	30 r	45 r	25 b	25 b
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	30 e	38 e	35 e	45 e	30 e	38 e	35 e	45 e	30 e	30 e
	Leghe di titanio Titanium alloys	5	900	280	25 e	33 e	28 e	38 e	25 e	33 e	28 e	38 e	25 e	25 e
RAME COPPER	Rame Copper	9	350	110	135 c	215 c	150 d	260 d	135 c	215 c	150 d	260 d	135 c	135 c
	Ottone Brass	9	700	219	140 c	220 c	160 d	270 d	140 c	220 c	160 d	270 d	140 c	140 c
	Bronzo Bronze	9	700	219	140 c	220 c	160 d	270 d	140 c	220 c	160 d	270 d	140 c	140 c
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	50 e	100 e	55 s	125 s	50 e	100 e	55 s	125 s	50 e	50 e
	Leghe di nichel Nichel alloys	6	900	280	15 b	25 b	18 s	35 s	15 b	25 b	18 s	35 s	15 b	15 b
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	330 f	660 f	350 r	700 r	330 f	660 f	350 r	700 r	330 f	330 f
	Alluminio con leghe Alloyed aluminium	7	400	125	330 f	660 f	350 r	700 r	330 f	660 f	350 r	700 r	330 f	330 f
	Alluminio con leghe Alloyed aluminium	7	500	157	100 f	200 f	120 r	240 r	100 f	200 f	120 r	240 r	100 f	100 f

FRESE A CODOLO CILINDRICO STRAIGHT SHANK END MILLS

CL19		CL16				CL30FE	CL17		CL21TF				CL22TF		
CARMON NORM.		DIN 844/B													
HSS+8%Co		RESISTOR			HSS+8%Co				RESISTOR			HSS+8%Co			
mt/min mm/tooth		mt/min mm/tooth			mt/min mm/tooth				mt/min mm/tooth			mt/min mm/tooth			
40 t	50 a	100 a	60 b	120 b	50 a	50 a	50 a	100 a	60 b	120 b	120 b	50 a	100 a		
28 t	40 a	80 a	50 b	100 b	40 a	40 a	40 a	80 a	50 b	100 b	100 b	40 a	80 a		
24 t	28 n	60 b	40 c	80 c	28 n	28 n	28 n	60 b	40 c	80 c	80 c	28 n	60 b		
		35 d		38 c				35 d		38 c	38 c		35 d		
25 e	20 e	34 e	28 e	45 e	20 e	20 e	20 e	34 e	28 e	45 e	45 e	20 e	34 e		
	15 e	25 e	20 e	35 e	15 e	15 e	15 e	25 e	20 e	35 e	35 e	15 e	25 e		
	8 d	18 e	12 e	23 e	8 d	8 d	8 d	18 e	12 e	23 e	23 e	8 d	18 e		
30 b	30 b	50 b	35 r	58 r	30 b	30 b	30 b	50 b	35 r	58 r	58 r	30 b	50 b		
25 b	25 b	45 b	30 r	45 r	25 b	25 b	25 b	45 b	30 r	45 r	45 r	25 b	45 b		
30 e	30 e	38 e	35 e	45 e	30 e	30 e	30 e	38 e	35 e	45 e	45 e	30 e	38 e		
25 e	25 e	33 e	28 e	38 e	25 e	25 e	25 e	33 e	28 e	38 e	38 e	25 e	33 e		
135 c	135 c	215 c	150 d	260 d	135 c	135 c	135 c	215 c	150 d	260 d	260 d	135 c	215 c		
140 c	140 c	220 c	160 d	270 d	140 c	140 c	140 c	220 c	160 d	270 d	270 d	140 c	220 c		
140 c	140 c	220 c	160 d	270 d	140 c	140 c	140 c	220 c	160 d	270 d	270 d	140 c	220 c		
50 e	50 e	100 e	55 s	125 s	50 e	50 e	50 e	100 e	55 s	125 s	125 s	50 e	100 e		
15 b	15 b	25 b	18 s	35 s	15 b	15 b	15 b	25 b	18 s	35 s	35 s	15 b	25 b		
330 f	330 f	660 f	350 r	700 r	660 f	330 f	330 f	660 f	350 r	700 r	700 r	330 f	660 f		
330 f	330 f	660 f	350 r	700 r	660 f	330 f	330 f	660 f	350 r	700 r	700 r	330 f	660 f		
100 f	100 f	200 f	120 r	240 r	200 f	100 f	100 f	200 f	120 r	240 r	240 r	100 f	200 f		



rpm
= (mt/min x 1000) / (D x 3,14)



mm/min
= mm/rev x rpm



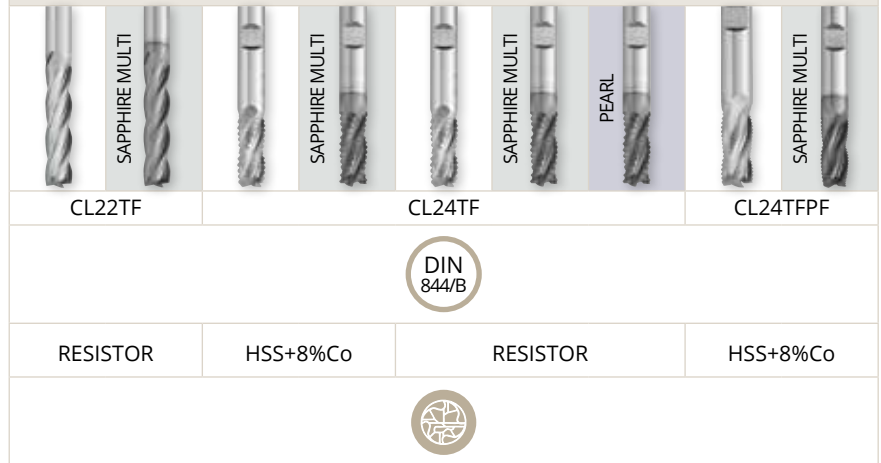
= mt/min



= mm/tooth

(vedi tabella - see table page pag. 230)

FRESE A CODOLO CILINDRICO STRAIGHT SHANK END MILLS



Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	60 b	120 b	50 s	100 s	60 r	120 r	120 b	50 s	100 s
	Acciai da costruzione Structural steel	2	700	219	50 b	100 b	40 s	80 s	50 r	100 r	100 b	40 s	80 s
	Acciai da tempra Hardening steel	3	900	280	40 c	80 c	28 s	60 s	40 r	80 r	80 c	28 s	60 s
	Acciaio automatico Automatic steel	4	1200	373		38 c		35 s		38 r	38 c		35 s
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	28 e	45 e	25 r	35 r	30 r	45 r	45 e	25 r	35 r
	Austenitico Austenitic	3	850	265	20 e	35 e			28 r	40 r	35 e		
	Ferritico+austenitico Ferritic austenitic	4	1000	311	12 e	23 e		18 i	15 r	25 r	23 e		18 i
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180 hb	2	500	157	35 r	58 r	27 m	45 m	32 m	50 m	50 m	27 m	45 m
	Ghisa oltre 180 hb Cast iron over 180 hb	3	700	219	30 r	45 r	22 m	40 m	27 m	45 m	45 m	22 m	40 m
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	35 e	45 e	32 h	40 h	35 m	45 m	45 m	32 h	40 h
	Leghe di titanio Titanium alloys	5	900	280	28 e	38 e	28 h	36 h	30 m	40 m	40 m	28 h	36 h
RAME COPPER	Rame Copper	9	350	110	150 d	260 d	140 s	220 s	155 s	235 s	235 s	140 s	220 s
	Ottone Brass	9	700	219	160 d	270 d	150 s	225 s	160 s	230 s	230 s	150 s	225 s
	Bronzo Bronze	9	700	219	160 d	270 d	150 s	225 s	160 s	230 s	230 s	150 s	225 s
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	55 s	125 s	55 u	110 u	65 u	120 u	120 u	55 u	110 u
	Leghe di nichel Nichel alloys	6	900	280	18 s	35 s	20 u	30 u	30 u	60 u	60 u	20 u	30 u
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	350 r	700 r	330 u	660 u	350 u	700 u	700 u	330 u	660 u
	Alluminio con leghe Alloyed aluminium	7	400	125	350 r	700 r	330 u	660 u	350 u	700 u	700 u	330 u	660 u
	Alluminio con leghe Alloyed aluminium	7	500	157	120 r	240 r	100 u	200 u	100 u	200 u	200 u	100 u	200 u

FRESE A CODOLO CILINDRICO STRAIGHT SHANK END MILLS									FRESE A CODOLO CONICO MORSE TAPER SHANK END MILLS						
CL24TFPF	CL24SLTF	CL24SLTFPF	CL25TF	CM31	CM36	CM37FE	CM38	CM41TF							
RESISTOR			HSS+8%Co						HSS+8%Co						
mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	
60 r	120 r	120 b	50 s	100 s	50 s	100 s	50 s	100 s	60 b	50 a	50 a	50 i	50 a	100 a	
50 r	100 r	100 b	40 s	80 s	40 s	80 s	40 s	80 s	50 b	40 a	40 a	40 i	40 a	80 a	
40 r	80 r	80 c	28 s	60 s	28 s	60 s	28 s	60 s	12 c	28 n	28 n	28 i	28 n	56 n	
	38 r	38 c		35 s		35 s		35 s						35 d	
30 r	45 r	45 r	25 r	35 r	25 r	35 r	25 r	35 r	25 e	20 e	20 e	20 g	20 e	34 e	
28 r	40 r	40 r								15 e	15 e	15 g	15 e	25 e	
15 r	25 r	25 r		18 i		18 i		18 i		8 d	8 d	8 i	8 d	18 d	
32 m	50 m	50 m	27 m	45 m	27 m	45 m	27 m	45 m	30 b	30 b	30 b	30 i	30 b	50 b	
27 m	45 m	45 m	22 m	40 m	22 m	40 m	22 m	40 m	25 b	25 b	25 b	25 i	25 b	45 b	
35 m	45 m	40 h	32 h	40 h	32 h	40 h	32 h	40 h	30 e	30 e	30 e	30 g	30 e	38 e	
30 m	40 m	36 h	28 h	36 h	28 h	36 h	28 h	36 h	25 e	25 e	25 e	25 g	25 e	33 e	
155 s	235 s	235 s	140 s	220 s	140 s	220 s	140 s	220 s	135 c	135 c	135 c	135 i	135 c	215 c	
160 s	230 s	230 s	150 s	225 s	150 s	225 s	150 s	225 s	140 c	140 c	140 c	140 i	140 c	220 c	
160 s	230 s	230 s	150 s	225 s	150 s	225 s	150 s	225 s	140 c	140 c	140 c	140 i	140 c	220 c	
65 u	120 u	120 u	55 u	110 u	55 u	110 u	55 u	110 u	50 e	50 e	50 e	50 g	50 e	100 e	
30 u	60 u	60 u	20 u	30 u	20 u	30 u	20 u	30 u	15 b	15 b	15 b	15 i	15 b	25 b	
350 u	700 u	700 u	330 u	660 u	330 u	660 u	330 u	660 u	330 f	330 f	660 f	330 i	330 f	660 f	
350 u	700 u	700 u	330 u	660 u	330 u	660 u	330 u	660 u	330 f	330 f	660 f	330 i	330 f	660 f	
100 u	200 u	200 u	100 u	200 u	100 u	200 u	100 u	200 u	100 f	100 f	200 f	100 i	100 f	200 f	



rpm
= (mt/min x 1000) / (D x 3,14)



mm/min
= mm/rev x rpm



= mt/min



= mm/tooth




















(vedi tabella - see table page pag. 230)

FRESE A CODOLO CONICO MORSE TAPER SHANK END MILLS

	SAPPHIRE MULTI				SAPPHIRE MULTI		SAPPHIRE MULTI
CM41TF		CM41R	CM44R	CM42			
DIN 845/B		DIN 1889/2D		DIN 845/B			
RESISTOR		HSS+8%Co					
							

Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	60 b	120 b	50 a	50 s	50 g	100 g	60 b	120 b
	Acciai da costruzione Structural steel	2	700	219	50 b	100 b	40 a	40 s	40 g	80 g	50 b	100 b
	Acciai da tempra Hardening steel	3	900	280	40 c	80 c	28 n	28 s	28 i	56 i	40 c	80 c
	Acciaio automatico Automatic steel	4	1200	373		38 c				35 d		38 c
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	28 e	45 e	20 e	25 r	20 c	34 c	28 e	45 e
	Austenitico Austenitic	3	850	265	20 e	35 e	15 e		15 c	25 c	20 e	35 e
	Ferritico+austenitico Ferritic austenitic	4	1000	311	12 e	23 e	8 d		8 i	18 i	12 e	23 e
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180 hb	2	500	157	35 r	58 r	30 b	27 m	30 i	50 i	35 r	58 r
	Ghisa oltre 180 hb Cast iron over 180 hb	3	700	219	30 r	45 r	25 b	22 m	25 i	45 i	30 r	45 r
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	35 e	45 e	30 e	32 h	30 c	38 c	35 e	45 e
	Leghe di titanio Titanium alloys	5	900	280	28 e	38 e	25 e	28 h	25 c	33 c	28 e	38 e
RAME COPPER	Rame Copper	9	350	110	150 d	260 d	135 c	140 s	135 h	215 h	150 d	260 d
	Ottone Brass	9	700	219	160 d	270 d	140 c	150 s	140 h	220 h	160 d	270 d
	Bronzo Bronze	9	700	219	160 d	270 d	140 c	150 s	140 h	220 h	160 d	270 d
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	55 s	125 s	50 e	55 u	50 c	100 c	55 s	125 s
	Leghe di nichel Nichel alloys	6	900	280	18 s	35 s	15 b	20 u	15 i	25 i	18 s	35 s
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	350 r	700 r	330 f	330 u	330 h	660 h	350 r	700 r
	Alluminio con leghe Alloyed aluminium	7	400	125	350 r	700 r	330 f	330 u	330 h	660 h	350 r	700 r
	Alluminio con leghe Alloyed aluminium	7	500	157	120 r	240 r	100 f	100 u	100 h	200 h	120 r	240 r

FRESE A CODOLO CONICO MORSE TAPER SHANK END MILLS

FRESE A CODOLO CONICO MORSE TAPER SHANK END MILLS												
												
CM42R	CM48R	CM43	CM44TF				CM48				CM45TF	
												
HSS+8%Co				RESISTOR			HSS+8%Co			RESISTOR		HSS+8%Co
												
mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	
50 g	50 g	25 m	50 s	100 s	60 r	120 r	50 g	100 g	60 r	120 r	50 s	
40 g	40 g	18 m	40 s	80 s	50 r	100 r	40 g	80 g	50 r	100 r	40 s	
28 i	28 g	12 m	28 s	56 s	40 r	80 r	28 g	56 g	40 r	80 r	28 s	
		10 m		35 s		38 r		35 s		38 r		
20 c	25 h		25 r	35 r	30 r	45 r	25 h	35 h	30 r	45 r	25 r	
15 c					28 r	40 r			28 r	40 r		
8 i				18 i	15 r	25 r		18 i	15 r	25 r		
30 i	27 m		27 m	45 m	32 m	50 m	27 m	45 m	32 m	50 m	27 m	
25 i	22 m	16 m	22 m	40 m	27 m	45 m	22 m	40 m	27 m	45 m	22 m	
30 c	32 h		32 h	40 h	35 m	45 m	32 h	40 h	35 m	45 m	32 h	
25 c	28 h		28 h	36 h	30 m	40 m	28 h	36 h	30 m	40 m	28 h	
135 h	140 o		140 s	220 s	155 s	235 s	140 o	220 o	155 s	235 s	140 s	
140 h	150 o		150 s	225 s	160 s	230 s	150 o	225 o	160 s	230 s	150 s	
140 h	150 o		150 s	225 s	160 s	230 s	150 o	225 o	160 s	230 s	150 s	
50 c	55 i		55 u	110 u	65 u	120 u	55 i	110 i	65 u	120 u	55 u	
15 i	20 i		20 u	30 u	30 u	60 u	20 i	30 i	30 u	60 u	20 u	
330 h	330 i	150 m	330 u	660 u	350 u	700 u	330 i	660 i	350 u	700 u	330 u	
330 h	330 i		330 u	660 u	350 u	700 u	330 i	660 i	350 u	700 u	330 u	
100 h	100 i		100 u	200 u	100 u	200 u	100 i	200 i	100 u	200 u	100 u	



rpm
= (mt/min x 1000) / (D x 3,14)



mm/min
= mm/rev x rpm



= mt/min











= mm/tooth

(vedi tabella - see table page pag. 230)

		UTENSILI VARI VARIOUS CUTTING TOOLS									FRESE A DISCO, AD ANGOLO E FRONTALI SIDE AND FACE CUTTER, ANGLE CUTTER, SHELL END MILLS			
		HSS+5%Co												
Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	50 a	35 f	30 c	35 c	35 c	50 a	40 i	40 c	40 i	
	Acciai da costruzione Structural steel	2	700	219	40 a	30 f	25 c	30 c	30 c	40 a	35 i	35 c	35 i	
	Acciai da tempra Hardening steel	3	900	280	28 n	25 e	20 b	25 b	25 b	28 n	30 i	30 c	30 i	
	Acciaio automatico Automatic steel	4	1200	373		15 d	10 b	15 b	15 b		20 i	20 c	20 i	
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	20 e	18 d	15 c	18 c	18 c	20 e	25 i	25 c	25 i	
	Austenitico Austenitic	3	850	265	15 e	15 c	10 b	15 b	15 b	15 e	20 i	20 c	20 i	
	Ferritico+austenitico Ferritic austenitic	4	1000	311	8 d	10 b	10 a	10 a	10 a	8 d	10 i	10 c	10 i	
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180 hb	2	500	157	30 b	20 e	20 b	20 b	20 b	30 b	25 c	25 d	25 c	
	Ghisa oltre 180 hb Cast iron over 180 hb	3	700	219	25 b	15 c	15 b	15 b	15 b	25 b	15 c	15 d	15 c	
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	30 e	25 e	30 c	25 b	25 b	30 e	25 c	25 a	25 c	
	Leghe di titanio Titanium alloys	5	900	280	25 e	15 c	20 b	15 b	15 b	25 e	15 i	15 b	15 i	
RAME COPPER	Rame Copper	9	350	110	135 c	75 f	25 c	90 d	90 d	135 c	120 i	120 c	120 i	
	Ottone Brass	9	700	219	140 c	75 f	25 c	90 d	90 d	140 c	120 i	120 c	120 i	
	Bronzo Bronze	9	700	219	140 c	65 f	35 c	35 c	35 c	140 c	120 i	120 c	120 i	
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	50 e	20 d	30 c	25 b	25 b	50 e	35 i	35 c	35 i	
	Leghe di nichel Nichel alloys	6	900	280	15 b	12 c	6 a	6 a	6 a	15 b	12 c	12 b	12 c	
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	330 f	150 i	60 h	150 i	150 i	330 f	350 c	350 d	350 c	
	Alluminio con leghe Alloyed aluminium	7	400	125	330 f	55 h	30 d	55 h	55 h	330 f	100 c	100 d	100 c	
	Alluminio con leghe Alloyed aluminium	7	500	157	100 f	40 g	15 b	40 g	40 g	100 f	70 c	70 d	70 c	

FRESE A DISCO, AD ANGOLO E FRONTALI
SIDE AND FACE CUTTER, ANGLE CUTTER, SHELL END MILLS

				 SAPPHIRE MULTI		 SAPPHIRE MULTI		 SAPPHIRE MULTI		 SAPPHIRE MULTI					
FA91	FP92	CF94				CF95	CF96				CF97	CF98	CF99		
DIN 842/A	DIN 847	DIN 1880										DIN 841			
HSS+5%Co		HSS+8%Co		RESISTOR		HSS+8%Co		RESISTOR		HSS+5%Co		HSS+8%Co			
mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth		
35 m	35 m	30 d	60 d	35 t	70 t	30 d	30 d	60 d	35 t	70 t		30 d	30 d		
14 m	14 m	25 d	50 d	30 t	60 t	25 d	25 d	50 d	30 t	60 t		25 d	25 d		
11 m	11 m	20 c	40 d	25 p	50 p	20 c	20 c	40 d	25 p	50 p		20 c	20 c		
9 m	9 m	10 b	20 b	14 r	28 r	10 b	10 b	20 b	14 r	28 r		10 b	10 b		
14 m	14 m	20 c	40 c	20 b	40 b	20 c	20 c	40 c	20 b	40 b		20 c	20 c		
12 m	12 m	15 c	30 c	15 n	30 n	15 c	15 c	30 c	15 n	30 n		15 c	15 c		
10 m	10 m	6 a	12 a	8 r	16 r	6 a	6 a	12 a	8 r	16 r		6 a	6 a		
25 m	25 m	20 b	40 b	25 d	50 d	20 b	20 b	40 b	25 d	50 d		20 b	20 b		
20 m	20 m	15 b	30 b	20 d	40 d	15 b	15 b	30 b	20 d	40 d		15 b	15 b		
		30 c	30 c	35 d	70 d	30 c	30 c	30 c	35 d	70 d		30 c	30 c		
		20 b	40 b	25 a	50 a	20 b	20 b	40 b	25 a	50 a		20 b	20 b		
		70 g	140 g	80 f	160 f	70 g	70 g	140 g	80 f	160 f		70 g	70 g		
		70 g	140 g	80 f	160 f	70 g	70 g	140 g	80 f	160 f		70 g	70 g		
		35 f	70 f	40 b	80 b	35 f	35 f	70 f	40 b	80 b		35 f	35 f		
		30 c	60 c	35 d	70 d	30 c	30 c	60 c	35 d	70 d		30 c	30 c		
		12 a	24 a	15 a	30 a	12 a	12 a	24 a	15 a	30 a		12 a	12 a		
85 m	85 m	200 h	400 h	230 i	450 i	200 h					200 d	200 h	200 h		
		60 d	120 d	80 d	160 d	60 d					120 d	60 d	60 d		
		35 d	70 d	40 d	80 d	35 d					80 d	35 d	35 d		



rpm
= (mt/min x 1000) / (D x 3,14)



mm/min
= mm/rev x rpm



= mt/min



= mm/tooth

(vedi tabella - see table page pag. 230)

FRESE A DISCO, AD ANGOLO E FRONTALI SIDE AND FACE CUTTER, ANGLE CUTTER, SHELL END MILLS



SCR121



SCV131



SCC132





MOD141



HSS+5%Co

Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL		N/mm ²	HV	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	25 m	25 m	25 m	25 m
	Acciai da costruzione Structural steel	2	700	219	14 m	14 m	14 m	14 m
	Acciai da tempra Hardening steel	3	900	280	11 m	11 m	11 m	11 m
	Acciaio automatico Automatic steel	4	1200	373	9 m	9 m	9 m	9 m
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	14 m	14 m	14 m	14 m
	Austenitico Austenitic	3	850	265	12 m	12 m	12 m	12 m
	Ferritico+austenitico Ferritic austenitic	4	1000	311	10 m	10 m	10 m	10 m
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180 hb	2	500	157	25 m	25 m	25 m	25 m
	Ghisa oltre 180 hb Cast iron over 180 hb	3	700	219	20 m	20 m	20 m	20 m
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157				
	Leghe di titanio Titanium alloys	5	900	280				
RAME COPPER	Rame Copper	9	350	110				
	Ottone Brass	9	700	219				
	Bronzo Bronze	9	700	219				
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219				
	Leghe di nichel Nichel alloys	6	900	280				
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	85 m	85 m	85 m	85 m
	Alluminio con leghe Alloyed aluminium	7	400	125				
	Alluminio con leghe Alloyed aluminium	7	500	157				

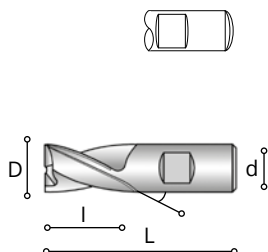
UTENSILI PER PROFILATI D'ALLUMINIO, PVC E LEGHE LEGGERE
CUTTING TOOLS FOR ALUMINIUM PROFILES,
PLASTIC AND LIGHT ALLOYS

SAPPHIRE MULTI							
ALL156	ALL157	ALL158		ALL160	ALL162	ALL164	ALL166
CARMON NORM.				DIN 844/B			
HSS+5%Co				RESISTOR			
							
mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth	mt/min mm/tooth
				60 b	60 b	60 r	60 r
				50 b	50 b	50 r	50 r
				40 c	40 c	40 r	40 r
				28 e	28 e	30 r	30 r
				20 e	20 e	28 r	28 r
				12 e	12 e	15 r	15 r
				35 r	35 r	32 m	32 m
				30 r	30 r	27 m	27 m
				35 e	35 e	35 m	35 m
				28 e	28 e	30 m	30 m
				150 d	150 d	155 s	155 s
				160 d	160 d	160 s	160 s
				160 d	160 d	160 s	160 s
				55 s	55 s	110 u	110 u
				18 s	18 s	30 u	30 u
100 c	100 c	200 v	400 v	350 r	350 r	350 u	350 u
				350 r	350 r	350 u	350 u
				120 r	120 r	100 u	100 u

FRESATURA MILLING		TABELLA PARAMETRI DI AVANZAMENTO mm/dente FEED DATA mm/tooth.																
		DIAMETRO DELLA FRESA MILLING DIAMETER																
TIPO DI FRESATURA TYPE OF MILLING	LETTERA DI RIFERIMENTO REFERENCE LETTER	D.1	D.2	D.3	D.4	D.5	D.6	D.8	D.10	D.12	D.14	D.16	D.20	D.25	D.30	D.35	D.40	D.50
FRESATURA DI CAVE SLOTING	a	0,005	0,010	0,015	0,020	0,025	0,030	0,045	0,060	0,075	0,085	0,095	0,100	0,102	0,110	0,107	0,106	0,108
	b	0,005	0,008	0,013	0,017	0,023	0,027	0,040	0,056	0,065	0,074	0,085	0,087	0,089	0,100	0,098	0,096	0,098
	c	0,004	0,007	0,012	0,016	0,021	0,022	0,034	0,050	0,057	0,067	0,079	0,080	0,082	0,085	0,088	0,087	0,089
	d	0,004	0,008	0,010	0,014	0,020	0,025	0,036	0,052	0,063	0,072	0,083	0,084	0,086	0,092	0,098	0,100	0,102
	e	0,008	0,010	0,019	0,025	0,036	0,043	0,062	0,087	0,106	0,125	0,145	0,147	0,149	0,173	0,156	0,168	0,177
	f	0,008	0,010	0,015	0,020	0,022	0,024	0,035	0,042	0,054	0,056	0,067	0,079	0,086	0,089	0,091	0,091	0,091
SGROSSATURA ROUGHING	g						0,027	0,036	0,037	0,045	0,053	0,057	0,074	0,075	0,055	0,057	0,056	0,056
	h						0,024	0,033	0,034	0,039	0,046	0,051	0,065	0,067	0,050	0,051	0,049	0,052
	i						0,022	0,031	0,034	0,040	0,045	0,054	0,063	0,065	0,050	0,055	0,056	0,060
	l						0,025	0,036	0,048	0,064	0,080	0,093	0,105	0,100	0,102	0,112	0,115	0,120
	m						0,026	0,011	0,014	0,018	0,022	0,027	0,030	0,033	0,036	0,040	0,043	0,045
SEMI FINITURA SEMI-FINISHING	n	0,008	0,012	0,017	0,023	0,030	0,036	0,052	0,061	0,073	0,083	0,106	0,083	0,078	0,084	0,089	0,095	0,100
	o	0,007	0,010	0,016	0,020	0,027	0,025	0,047	0,055	0,066	0,074	0,090	0,074	0,070	0,075	0,080	0,900	0,950
	p	0,080	0,011	0,018	0,021	0,029	0,029	0,050	0,060	0,070	0,080	0,099	0,082	0,075	0,080	0,085	0,095	0,101
	q	0,008	0,015	0,022	0,025	0,037	0,035	0,067	0,080	0,094	0,107	0,100	0,095	0,113	0,120	0,128	0,140	0,147
	r	0,013	0,017	0,020	0,026	0,030	0,030	0,048	0,057	0,063	0,075	0,095	0,094	0,092	0,093	0,105	0,108	0,115
FINITURA FINISHING	s	0,011	0,016	0,025	0,030	0,040	0,038	0,073	0,088	0,102	0,115	0,146	0,114	0,108	0,115	0,125	0,138	0,143
	t	0,008	0,013	0,022	0,025	0,036	0,036	0,047	0,066	0,078	0,093	0,105	0,130	0,104	0,098	0,105	0,112	0,128
	u	0,009	0,014	0,020	0,025	0,030	0,042	0,060	0,072	0,083	0,093	0,114	0,098	0,089	0,095	0,100	0,110	0,118
	v	0,012	0,018	0,025	0,034	0,046	0,048	0,060	0,083	0,100	0,116	0,135	0,122	0,140	0,149	0,155	0,178	0,180
	z	0,016	0,022	0,027	0,033	0,038	0,048	0,061	0,073	0,083	0,094	0,115	0,117	0,118	0,135	0,137	0,140	0,143

Carmon

CL 11

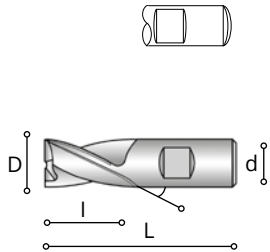


CL11



D e8	L	I	d h6	Z	CODE	HSS+8%Co 1110..... €	HSS+8%Co 2110..... € SAPPHIRE MULTI	CODE	RESISTOR 1110..... €	RESISTOR 2110..... € SAPPHIRE MULTI
1	47	2,5	6	2	...01000	23,87	30,92			
1,5	47	3	6	2	...01500	22,24	29,13			
2	48	4	6	2	...02000	19,91	26,57	...02030	23,16	30,15
2,5	49	5	6	2	...25000	19,91	26,57			
3	49	5	6	2	...30000	16,93	23,29	...30030	19,43	26,03
3,5	50	6	6	2	...35000	16,93				
4	51	7	6	2	...40000	16,43	22,75	...40030	18,90	25,45
4,5	51	7	6	2	...45000	17,01				
5	52	8	6	2	...50000	16,15	22,43	...50030	18,62	25,16
5,5	52	8	6	2	...55000	16,43				
6	52	8	6	2	...60000	15,20	21,38	...60030	17,94	24,47
6,5	60	10	10	2	...65000	21,67				
7	60	10	10	2	...70000	22,10	31,21	...70030	25,66	35,09
7,5	60	10	10	2	...75000	22,17				
8	61	11	10	2	...80000	20,77	29,60	...80030	24,00	33,18
8,5	61	11	10	2	...85000	25,15				
9	61	11	10	2	...90000	24,98	34,40	...90030	29,17	38,64
9,5	61	11	10	2	...95000	25,28				
10	63	13	10	2	...10000	23,52	32,64	...10030	27,36	36,86
10,5	70	13	12	2	...10500	30,31				
11	70	13	12	2	...11000	29,04	38,70	...11030	33,85	44,00
11,5	70	13	12	2	...11500	30,02				
12	73	16	12	2	...12000	29,15	38,82	...12030	34,32	44,62
12,5	73	16	12	2	...12500	32,43				
13	73	16	12	2	...13000	32,43	43,07	...13030	38,87	50,38
13,5	73	16	12	2	...13500	35,89				
14	73	16	12	2	...14000	34,84	45,71	...14030	41,68	53,35
14,5	73	16	12	2	...14500	39,75				
15	73	16	12	2	...15000	39,75	50,47	...15030	46,49	58,65
15,5	79	19	16	2	...15500	42,33				
16	79	19	16	2	...16000	41,70	53,26	...16030	48,92	61,22
17	79	19	16	2	...17000	47,59	63,43	...17030	65,08	82,66
18	79	19	16	2	...18000	52,86	69,24	...18030	65,08	82,66
19	79	19	16	2	...19000	65,34	85,17	...19030	81,65	103,09
20	88	22	20	2	...20000	62,21	81,44	...20030	75,15	95,88
22	88	22	20	2	...22000	82,78	104,06	...22030	100,36	123,42
24	102	26	25	2	...24000	120,00	155,65	...24030	149,46	188,05
25	102	26	25	2	...02500	120,00	155,65	...25030	151,70	190,87
26	102	26	25	2	...26000	131,65				
28	102	26	25	2	...28000	139,48				

CL 11

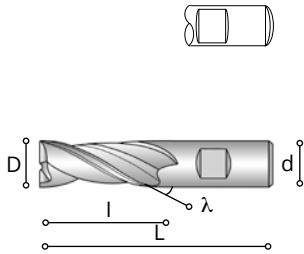


CL11



D e8	L	I	d h6	Z	CODE	HSS+8%Co	HSS+8%Co	CODE	RESISTOR	RESISTOR
						1110..... €	2110..... € SAPPHIRE MULTI		1110..... €	2110..... € SAPPHIRE MULTI
30	102	26	25	2	....03000	153,52				
32	112	32	32	2	....32000	170,35				
35	112	32	32	2	....03500	201,28				
36	112	32	32	2	....36000	218,20				
38	118	38	32	2	....38000	245,78				
40	118	38	32	2	....04000	274,41				

CL 12

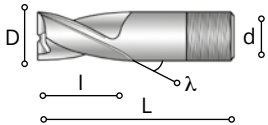
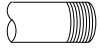


CL12



D e8	L	I	d h6	Z	CODE	HSS+8%Co 1120..... €	HSS+8%Co 2120..... € SAPPHIRE MULTI	CODE	RESISTOR 1120..... €	RESISTOR 2120..... € SAPPHIRE MULTI
3	56	8	6	2	...30000	22,80	29,74	...30030	26,71	34,05
4	63	11	6	2	...40000	22,31	29,21	...40030	26,06	33,34
5	68	13	6	2	...50000	22,31	29,21	...50030	26,06	33,34
6	68	13	6	2	...60000	21,59	28,44	...60030	25,28	32,47
7	80	16	10	2	...70000	28,18	39,40	...70030	32,93	44,63
8	88	19	10	2	...80000	26,61	37,68	...80030	31,22	42,74
9	88	19	10	2	...90000	32,21	43,85	...90030	37,88	50,08
10	95	22	10	2	...10000	29,36	40,70	...10030	34,38	46,22
11	102	22	12	2	...11000	40,88	55,96	...11030	47,89	63,66
12	110	26	12	2	...12000	36,93	51,38	...12030	43,88	59,22
13	110	26	12	2	...13000	50,12	67,25	...13030	59,08	77,10
14	110	26	12	2	...14000	47,16	63,75	...14030	55,52	72,95
15	110	26	12	2	...15000	57,70	75,60	...15030	68,19	87,11
16	123	32	16	2	...16000	57,35	74,98	...16030	67,54	86,17
17	123	32	16	2	...17000	71,42	92,45	...17030	85,01	107,39
18	123	32	16	2	...18000	70,02	90,64	...18030	88,76	111,53
19	123	32	16	2	...19000	90,26	116,20	...19030	110,99	139,34
20	141	38	20	2	...20000	89,35	123,57	...20030	98,06	122,82
22	141	38	20	2	...22000	108,80	144,97	...22030	130,86	169,22
24	166	45	25	2	...24000	152,04	210,31	...24030	188,75	250,69
25	166	45	25	2	...25000	148,89	206,84	...25030	187,76	250,25

CL 13F

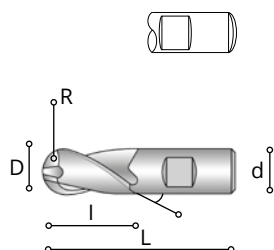


CL13F



D e8	L	l	d h8	Z	CODE	HSS+8%Co 1130..... €
4	51	7	6	2	....04000	16,75
5	52	8	6	2	....50000	16,40
6	52	8	6	2	....60000	16,07
7	60	10	10	2	....70000	21,93
8	61	11	10	2	....80000	21,58
9	61	11	10	2	....90000	24,69
10	63	13	10	2	....10000	24,82
11	70	13	12	2	....11000	29,63
12	73	16	12	2	....12000	30,67
13	73	16	12	2	....13000	32,60
14	73	16	12	2	....14000	35,21
15	73	16	12	2	....15000	39,22
16	79	19	16	2	....16000	41,83
17	79	19	16	2	....17000	46,36
18	79	19	16	2	....18000	51,77
19	79	19	16	2	....19000	64,15
20	88	22	20	2	....20000	62,58
22	88	22	20	2	....22000	118,70
24	102	26	25	2	....24000	123,05
25	102	26	25	2	....25000	123,05
26	102	26	25	2	....26000	132,82
28	102	26	25	2	....28000	140,66
30	102	26	25	2	....30000	153,91
32	112	32	32	2	....32000	170,47
35	112	32	32	2	....35000	199,23
36	112	32	32	2	....36000	217,01
38	118	38	32	2	....38000	243,85
40	118	38	32	2	....40000	271,03

CL 18

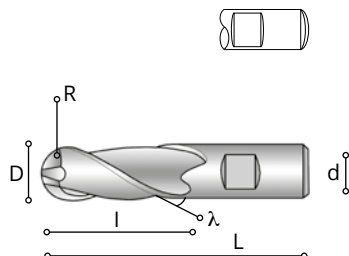


CL18



D e8	R ± 0,02	L	l	d h6	Z	CODE	HSS+8%Co 1180..... €
2	1	48	4	6	2	....02000	33,28
3	1,5	49	5	6	2	....30000	29,94
4	2	51	7	6	2	....40000	28,11
5	2,5	52	8	6	2	....50000	28,11
6	3	52	8	6	2	....60000	28,11
7	3,5	60	10	10	2	....70000	37,33
8	4	61	11	10	2	....80000	37,33
9	4,5	61	11	10	2	....90000	37,71
10	5	63	13	10	2	....10000	38,82
11	5,5	70	13	12	2	....11000	44,52
12	6	73	16	12	2	....12000	44,52
13	6,5	73	16	12	2	....13000	53,42
14	7	73	16	12	2	....14000	53,42
15	7,5	73	16	12	2	....15000	59,95
16	8	79	19	16	2	....16000	59,90
17	8,5	79	19	16	2	....17000	72,97
18	9	79	19	16	2	....18000	72,97
19	9,5	79	19	16	2	....19000	86,50
20	10	88	22	20	2	....20000	86,50

CL 19

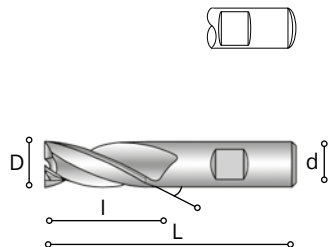


CL19



D e8	R ± 0,02	L	l	d h6	Z	CODE	HSS+8%Co 1190..... €
3	1,5	56	8	6	2	...30000	36,92
4	2	63	11	6	2	...40000	36,92
5	2,5	68	13	6	2	...50000	36,92
6	3	68	13	6	2	...60000	36,27
7	3,5	80	16	10	2	...70000	44,61
8	4	88	19	10	2	...80000	43,08
9	4,5	88	19	10	2	...90000	52,10
10	5	95	22	10	2	...10000	47,60
11	5,5	102	22	12	2	...11000	59,00
12	6	110	26	12	2	...12000	56,88
13	6,5	110	26	12	2	...13000	72,52
14	7	110	26	12	2	...14000	70,33
15	7,5	110	26	12	2	...15000	82,05
16	8	123	32	16	2	...16000	82,99
17	8,5	123	32	16	2	...17000	102,27
18	9	123	32	16	2	...18000	97,63
19	9,5	123	32	16	2	...19000	131,63
20	10	141	38	20	2	...20000	124,40

CL 16

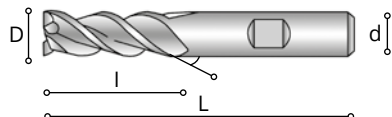


CL16



D e8	L	I	d h6	Z	CODE	HSS+8%Co 1160..... €	HSS+8%Co 2160..... € SAPHIRE MULTI	CODE	RESISTOR 1160..... €	RESISTOR 2160..... € SAPHIRE MULTI
2	51	7	6	3	...02000	22,24	29,13			
3	52	8	6	3	...30000	18,57	25,08	...30030	21,67	28,51
4	55	11	6	3	...40000	17,57	23,98	...40030	20,76	27,50
5	57	13	6	3	...50000	17,57	23,98	...50030	21,14	27,91
6	57	13	6	3	...60000	16,50	22,83	...60030	20,09	26,76
7	66	16	10	3	...70000	26,84	36,28			
8	69	19	10	3	...80000	24,83	34,07	...80030	29,15	38,83
9	69	19	10	3	...90000	29,04	38,70			
10	72	22	10	3	...10000	26,40	35,81	...10030	31,01	40,87
11	79	22	12	3	...11000	35,48	47,43			
12	83	26	12	3	...12000	32,59	44,26	...12030	39,00	51,44
13	83	26	12	3	...13000	39,86	52,95			
14	83	26	12	3	...14000	37,47	50,30	...14030	44,70	58,41
15	83	26	12	3	...15000	48,22	62,29			
16	92	32	16	3	...16000	47,01	60,82	...16030	56,42	71,16
17	92	32	16	3	...17000	60,81	77,91			
18	92	32	16	3	...18000	58,28	75,14	...18030	71,37	89,36
19	92	32	16	3	...19000	69,82	89,82			
20	104	38	20	3	...20000	70,02	93,94	...20030	87,23	112,86
22	104	38	20	3	...22000	90,76	116,75	...22030	109,45	137,31
24	121	45	25	3	...24000	130,91	167,64	...24030	161,56	201,37
25	121	45	25	3	...25000	129,29	166,21	...25030	159,67	199,64

CL 30FE

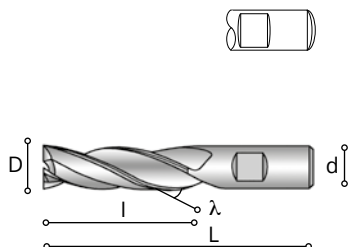


CL30FE



D js14	L	l	d h6	Z	CODE	HSS+8%Co 1300..... €
6	57	13	6	3	....60000	23,80
8	69	19	10	3	....80000	34,19
10	72	22	10	3	....10000	36,63
12	83	26	12	3	....12000	43,76
14	83	26	12	3	....14000	46,88
16	92	32	16	3	....16000	59,03
18	92	32	16	3	....18000	72,22
20	104	38	20	3	....20000	87,43

CL 17

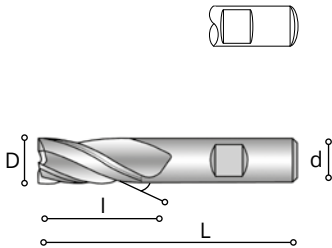


CL17



D e8	L	l	d h6	Z	CODE	HSS+8%Co 1170..... €
3	56	12	6	3	....30000	24,50
4	63	19	6	3	....40000	23,38
5	68	24	6	3	....50000	22,52
6	68	24	6	3	....60000	21,88
7	80	30	10	3	....70000	37,18
8	88	38	10	3	....80000	35,18
9	88	38	10	3	....90000	36,10
10	95	45	10	3	....10000	33,72
11	102	45	12	3	....11000	44,67
12	110	53	12	3	....12000	41,86
13	110	53	12	3	....13000	52,14
14	110	53	12	3	....14000	48,60
15	110	53	12	3	....15000	62,17
16	123	63	16	3	....16000	60,12
17	123	63	16	3	....17000	78,27
18	123	63	16	3	....18000	75,09
19	123	63	16	3	....19000	91,85
20	141	75	20	3	....20000	90,49
22	141	75	20	3	....22000	116,61
24	166	90	25	3	....24000	167,43
25	166	90	25	3	....25000	167,43

CL 21TF



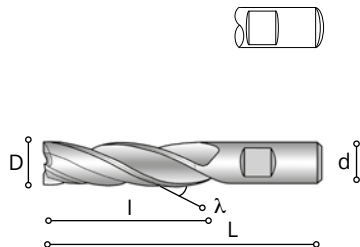
CL 21TF

INOX



D js14	L	I	d h6	Z	CODE	HSS+8%Co 1213..... €	HSS+8%Co 2215..... € SAPPHIRE MULTI	CODE	RESISTOR 1213..... €	RESISTOR 2215..... € SAPPHIRE MULTI	RESISTOR 2218..... € PEARL
3	52	8	6	4	...03000	17,74	24,19	...03030	20,36	27,06	27,06
3,5	54	10	6	4	...03500	18,85					
4	55	11	6	4	...04000	16,57	22,89	...04030	19,79	26,43	26,43
4,5	55	11	6	4	...45000	17,92					
5	57	13	6	4	...50000	17,01	23,38	...50030	19,21	25,80	25,80
5,5	57	13	6	4	...55000	17,34					
6	57	13	6	4	...60000	16,71	23,05	...60030	18,88	25,43	25,43
6,5	66	16	10	4	...65000	26,80					
7	66	16	10	4	...70000	26,82	36,26	...70030	28,05	37,62	37,62
7,5	66	16	10	4	...75000	26,82					
8	69	19	10	4	...80000	24,75	33,99	...80030	28,05	37,62	37,62
8,5	69	19	10	4	...85000	27,27					
9	69	19	10	4	...90000	27,27	36,19	...90030	29,21	38,89	38,89
9,5	69	19	10	4	...95000	27,14					
10	72	22	10	4	...10000	26,10	35,48	...10030	29,21	38,89	39,05
10,5	79	22	12	4	...10500	32,05					
11	79	22	12	4	...11000	32,04	43,67	...11030	39,75	52,13	52,13
11,5	79	22	12	4	...11500	31,55					
12	83	26	12	4	...12000	31,54	43,03	...12030	37,90	50,09	50,09
12,5	83	26	12	4	...12500	40,77					
13	83	26	12	4	...13000	41,38	54,75	...13030	45,43	59,20	59,20
13,5	83	26	12	4	...13500	35,30					
14	83	26	12	4	...14000	34,44	46,99	...14030	43,47	57,06	57,06
14,5	83	26	12	4	...14500	43,66					
15	83	26	12	4	...15000	44,31	57,97	...15030	52,99	67,57	67,57
15,5	92	32	16	4	...15500	42,84					
16	92	32	16	4	...16000	42,85	55,30	...16030	54,07	68,76	68,76
17	92	32	16	4	...17000	65,75	86,24	...17030	67,68	85,46	85,46
18	92	32	16	4	...18000	53,67	69,89	...18030	64,54	82,03	82,03
19	92	32	16	4	...19000	64,45	84,11	...19030	78,41	99,46	99,46
20	104	38	20	4	...20000	63,63	85,51	...20030	78,79	103,83	103,83
22	104	38	20	4	...22000	99,74	126,62	...22030	115,52	143,98	143,98
24	121	45	25	5	...24000	140,00	177,64	...24030	168,20	208,67	208,67
25	121	45	25	5	...25000	140,00	177,64	...25030	168,20	208,67	208,67
26	121	45	25	5	...26000	154,10	196,35				
28	121	45	25	6	...28000	166,46	209,96				
30	121	45	25	6	...30000	183,17	228,34	...30030	226,90	276,43	276,43
32	133	53	32	6	...32000	212,31	263,54	...32030	275,24	332,54	332,54
35	133	53	32	6	...35000	249,78					
38	143	63	32	6	...38000	268,74					
40	143	63	32	8	...40000	325,59					

CL 22TF

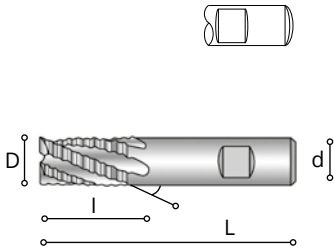


CL22TF



D js14	L	l	d h6	Z	CODE	HSS+8%Co 1223..... €	HSS+8%Co 2223..... € SAPPHIRE MULTI	CODE	RESISTOR 1223..... €	RESISTOR 2223..... € SAPPHIRE MULTI
3	56	12	6	4	...30000	25,23	33,26	...30030	26,71	34,05
4	63	19	6	4	...40000	24,22	31,32	...40030	25,98	33,25
5	68	24	6	4	...50000	23,58	30,60	...50030	25,31	32,51
6	68	24	6	4	...60000	22,58	29,52	...60030	24,37	31,47
7	80	30	10	4	...70000	35,54	47,51	...70030	39,51	51,87
8	88	38	10	4	...80000	35,33	47,28	...80030	37,88	50,08
9	88	38	10	4	...90000	35,33	47,28	...90030	39,51	51,87
10	95	45	10	4	...10000	33,42	45,17	...10030	36,26	48,29
11	102	45	12	4	...11000	43,90	59,07	...11030	49,56	65,29
12	110	53	12	4	...12000	41,56	57,34	...12030	47,02	62,40
13	110	53	12	4	...13000	50,35	67,16	...13030	56,11	73,48
14	110	53	12	4	...14000	45,10	61,49	...14030	58,10	75,79
15	110	53	12	4	...15000	59,08	76,72	...15030	66,86	85,25
16	123	63	16	4	...16000	58,73	76,48	...16030	69,96	88,84
17	123	63	16	4	...17000	84,44	106,24	...17030	91,99	114,51
18	123	63	16	4	...18000	68,67	89,16	...18030	86,37	108,63
19	123	63	16	4	...19000	99,52	126,09	...19030	112,27	140,04
20	141	75	20	4	...20000	83,56	117,19	...20030	106,95	142,95
22	141	75	20	4	...22000	121,55	158,99	...22030	147,47	187,50
24	166	90	25	5	...24000	168,70	228,64	...24030	212,03	276,30
25	166	90	25	5	...25000	168,70	228,64	...25030	220,30	285,38

CL 24TF



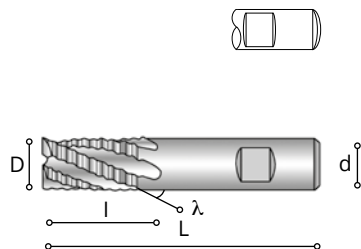
CL 24TF

INOX



D js14	L	I	d h6	Z	CODE	HSS+8%Co 1243..... €	HSS+8%Co 2245..... € SAPPHIRE MULTI	CODE	RESISTOR 1243..... €	RESISTOR 2245..... € SAPPHIRE MULTI	RESISTOR 2248..... € PEARL
6	57	13	6	3	...60000	31,56	39,38	...60030	35,68	43,91	43,91
7	66	16	10	3	...70000	47,98	59,53	...70030	57,27	69,76	69,76
8	69	19	10	3	...80000	46,74	58,18	...80030	55,88	68,24	68,24
9	69	19	10	3	...90000	47,97	59,53	...90030	57,27	69,76	69,76
10	72	22	10	4	...10000	45,33	56,64	...10030	55,47	67,78	67,78
11	79	22	12	4	...11000	52,38	66,02	...11030	63,94	78,74	78,74
12	83	26	12	4	...12000	49,81	63,20	...12030	63,03	77,74	77,74
13	83	26	12	4	...13000	57,48	72,31	...13030	70,98	87,18	87,17
14	83	26	12	4	...14000	53,34	67,78	...14030	67,65	83,51	83,51
15	83	26	12	4	...15000	63,14	78,55	...15030	80,22	97,34	97,34
16	92	32	16	4	...16000	63,94	79,43	...16030	81,70	98,97	98,97
18	92	32	16	4	...18000	71,02	88,98	...18030	90,94	110,90	110,90
20	104	38	20	4	...20000	91,22	117,25	...20030	117,18	145,82	145,81
22	104	38	20	4	...22000	102,55	129,72	...22030	132,90	163,10	163,10
24	121	45	25	4	...24000	156,09	195,34				
25	121	45	25	4	...25000	151,95	190,78	...25030	199,99	243,64	243,64
28	121	45	25	4	...28000	170,15	214,01				
30	121	45	25	5	...30000	183,48	228,67	...30030	241,77	292,79	292,79
32	133	53	32	5	...32000	213,70	264,84	...32030	284,48	342,71	342,71
35	133	53	32	5	...35000	274,56					
38	143	63	32	5	...38000	298,99					
40	143	63	32	6	...40000	298,99					

CL 24TF-PF



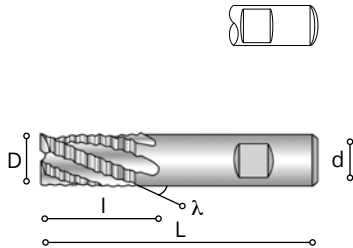
CL24TF-PF

INOX



D js14	L	l	d h6	Z	CODE	HSS+8%Co 1244..... €	HSS+8%Co 2246..... € SAPPHIRE MULTI	CODE	RESISTOR 1244..... €	RESISTOR 2246..... € SAPPHIRE MULTI	RESISTOR 2249..... € PEARL
6	57	13	6	3	....60000	43,42	52,43	....60030	49,91	59,58	59,58
7	66	16	10	3	....70000	51,07	62,78	....70030	70,45	83,98	83,98
8	69	19	10	3	....80000	50,07	62,78	....80030	69,07	82,74	82,74
9	69	19	10	3	....90000	51,07	62,78	....90030	70,45	83,98	83,98
10	72	22	10	4	....10000	50,07	61,85	....10030	69,07	82,74	82,74
11	79	22	12	4	....11000	58,01	72,23	....11030	80,15	96,57	96,57
12	83	26	12	4	....12000	58,01	72,23	....12030	77,74	93,92	93,92
13	83	26	12	4	....13000	65,80	81,49	....13030	83,56	101,00	101,00
14	83	26	12	4	....14000	65,80	81,49	....14030	82,41	99,75	99,75
15	83	26	12	4	....15000	71,08	87,29	....15030	90,56	108,72	108,72
16	92	32	16	4	....16000	76,34	93,08	....16030	96,15	114,87	114,87
18	92	32	16	4	....18000	94,89	115,24	....18030	106,14	127,62	127,62
20	104	38	20	4	....20000	100,00	126,92	....20030	127,81	157,50	157,50
22	104	38	20	4	....22000	123,78	153,32	....22030	153,09	185,56	185,56
24	121	45	25	4	....24000	183,67	226,04				
25	121	45	25	4	....25000	183,67	226,04	....25030	212,70	257,97	257,97
28	121	45	25	4	....28000	193,36	239,93				
30	121	45	25	5	....30000	212,70	261,23	....30030	254,41	307,10	307,10
32	133	53	32	5	....32000	247,48	302,45	....32030	298,68	358,77	358,77
35	133	53	32	5	....35000	278,42					
38	143	63	32	5	....38000	312,97					
40	143	63	32	6	....40000	325,98					

CL 24SL-TF

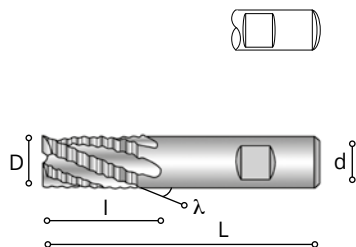


CL24SL-TF

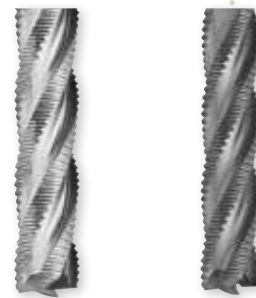


D js14	L	l	d h6	Z	CODE	HSS+8%Co 1247..... €	HSS+8%Co 2247..... € SAPPHIRE MULTI
6	68	24	6	3	....60000	56,35	66,66
8	88	38	10	3	....80000	56,82	69,92
10	95	45	10	4	....10000	58,19	71,43
12	110	53	12	4	....12000	67,84	84,13
14	110	53	12	4	....14000	74,45	92,37
16	123	63	16	4	....16000	90,42	110,11
18	123	63	16	4	....18000	101,53	123,70
20	141	75	20	4	....20000	122,01	156,53
22	141	75	20	4	....22000	148,68	185,86
24	166	90	25	4	....24000	201,69	259,85
25	166	90	25	4	....25000	201,69	259,85

CL 24SL-TF-PF

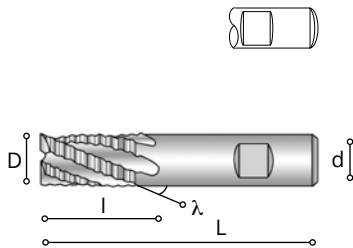
DIN
844BHR
mm λ
30°

CL 24SL-TF-PF

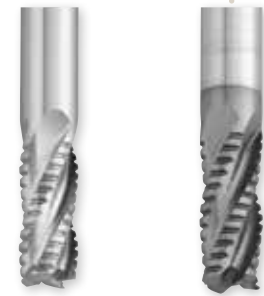


D js14	L	l	d h6	Z	CODE	HSS+8%Co 1248..... €	HSS+8%Co 2248..... € SAPPHIRE MULTI
6	68	24	6	3	...06000	66,84	78,19
8	88	38	10	3	...08000	67,39	82,53
10	95	45	10	4	...01000	69,01	84,32
12	110	53	12	4	...01200	80,45	99,27
14	110	53	12	4	...01400	83,87	104,14
16	123	63	16	4	...01600	100,36	122,28
18	123	63	16	4	...01800	114,39	139,45
20	141	75	20	4	...02000	137,47	176,50
22	141	75	20	4	...02200	161,23	202,63
24	166	90	25	4	...02400	234,25	300,74
25	166	90	25	4	...02500	234,25	300,74

CL 25TF

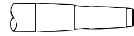
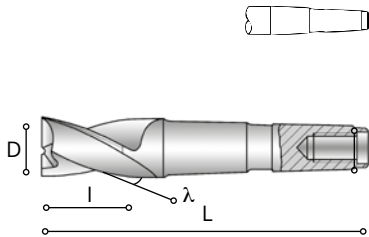


CL 25TF



D js14	L	l	d h6	Z	CODE	HSS+8%Co 1253..... €	HSS+8%Co 2253..... € SAPPHIRE MULTI
6	57	13	6	3	....60000	32,03	39,97
7	66	16	10	3	....70000	48,69	60,42
8	69	19	10	3	....80000	47,44	59,05
9	69	19	10	3	....90000	48,69	60,42
10	72	22	10	4	....10000	46,01	57,49
11	79	22	12	4	....11000	53,17	67,01
12	83	26	12	4	....12000	50,56	64,15
13	83	26	12	4	....13000	58,34	73,39
14	83	26	12	4	....14000	54,14	68,80
15	83	26	12	4	....15000	64,09	79,73
16	92	32	16	4	....16000	64,90	80,62
18	92	32	16	4	....18000	72,09	90,31
20	104	38	20	4	....20000	92,59	119,01
22	104	38	20	4	....22000	104,09	131,67
24	121	45	25	4	....24000	158,43	198,27
25	121	45	25	4	....25000	154,23	193,64

CM 31



CM31

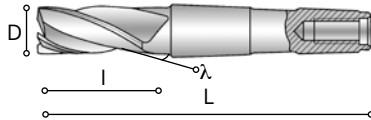


D e8	L	I	CM	Z	CODE	HSS+8%Co 1310..... €
14	101	16	2	2	....14000	61,68
15	101	16	2	2	....15000	68,84
16	104	19	2	2	....16000	64,58
17	104	19	2	2	....17000	71,52
18	104	19	2	2	....18000	67,54
19	104	19	2	2	....19000	82,77
20	124	22	3	2	....20000	100,36
21	124	22	3	2	....21000	109,31
22	124	22	3	2	....22000	105,49
23	124	22	3	2	....23000	122,90
24	128	26	3	2	....24000	116,47
25	128	26	3	2	....25000	120,00
26	128	26	3	2	....26000	129,49
28	128	26	3	2	....28000	145,34
30	128	26	3	2	....30000	164,11
32	157	32	4	2	....32000	204,10
34	157	32	4	2	....34000	223,37
35	157	32	4	2	....35000	240,85
36	157	32	4	2	....36000	255,07
38	163	38	4	2	....38000	287,02
40	163	38	4	2	....40000	317,73

CM 36



CM 37FE



CM36

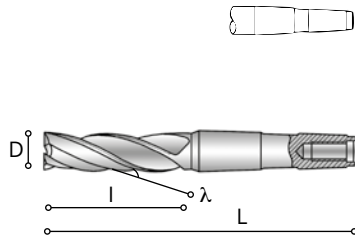


CM37FE



CM36 D e8 CM37FE D js14	L	I	CM	Z	CODE	HSS+8%Co 1360..... €	HSS+8%Co 1370..... €
14	111	26	2	3	....14000	69,81	
15	111	26	2	3	....15000	73,98	
16	117	32	2	3	....16000	75,05	86,67
17	117	32	2	3	....17000	99,98	
18	117	32	2	3	....18000	81,50	
19	117	32	2	3	....19000	110,87	
20	140	38	3	3	....20000	116,93	142,95
21	140	38	3	3	....21000	129,34	
22	140	38	3	3	....22000	123,70	
23	140	38	3	3	....23000	139,97	
24	147	45	3	3	....24000	140,46	
25	147	45	3	3	....25000	143,51	173,73
26	147	45	3	3	....26000	151,09	
28	147	45	3	3	....28000	160,28	
30	147	45	3	3	....30000	186,56	203,94
32	178	53	4	3	....32000	222,27	
34	178	53	4	3	....34000	240,44	
35	178	53	4	3	....35000	257,63	263,79
36	178	53	4	3	....36000	262,29	
38	188	63	4	3	....38000	309,72	
40	188	63	4	3	....40000	348,14	406,94

CM 38

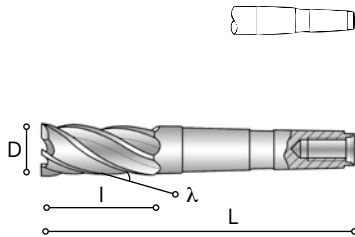


CM38



D js14	L	I	CM	Z	CODE	HSS+8%Co 1380..... €
16	148	63	2	3	....16000	93,28
18	148	63	2	3	....18000	101,57
20	177	75	3	3	....20000	134,76
22	177	75	3	3	....22000	151,47
24	192	90	3	3	....24000	187,86
25	192	90	3	3	....25000	197,18
26	192	90	3	3	....26000	203,69
28	192	90	3	3	....28000	216,16
30	192	90	3	3	....30000	237,10
32	231	106	4	3	....32000	319,29
34	231	106	4	3	....34000	358,52
35	231	106	4	3	....35000	376,66
36	231	106	4	3	....36000	410,90
38	250	125	4	3	....38000	474,96
40	250	125	4	3	....40000	533,10

CM 41TF



CM41TF

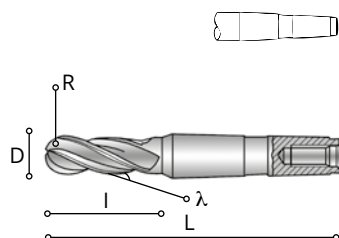


D js14	L	I	CM	Z	CODE	HSS+8%Co 1410..... €	HSS+8%Co 2410..... € SAPPHIRE MULTI	CODE	RESISTOR 1410..... €	RESISTOR 2410..... € SAPPHIRE MULTI
14	111	26	2	4	....14000	69,40	90,37			
15	111	26	2	4	....15000	76,51	97,98			
16	117	32	2	4	....16000	71,53	92,50	....16030	82,90	104,81
17	117	32	2	4	....17000	76,10				
18	117	32	2	4	....18000	73,92	94,93	....18030	89,55	112,54
19	117	32	2	4	....19000	87,35				
20	140	38	3	4	....20000	104,91	139,51	....20030	131,32	168,46
21	140	38	3	4	....21000	116,81				
22	140	38	3	4	....22000	117,28	153,13	....22030	150,50	189,19
23	140	38	3	5	....23000	140,82				
24	147	45	3	5	....24000	135,86	192,50	....24030	170,62	230,75
25	147	45	3	5	....25000	139,05	196,02	....25030	174,66	235,18
26	147	45	3	5	....26000	145,00	214,29	....26030	183,30	256,43
28	147	45	3	6	....28000	155,46	227,45	....28030	191,64	265,61
30	147	45	3	6	....30000	177,56	250,12	....30030	232,36	312,03
32	178	53	4	6	....32000	205,52	287,00	....32030	275,24	363,69
34	178	53	4	6	....34000	234,28	318,64	....34030	306,36	397,93
35	178	53	4	6	....35000	237,15	323,01	....35030	305,83	397,35
36	178	53	4	6	....36000	275,90	373,53	....36030	331,22	434,38
38	188	63	4	6	....38000	283,70	392,71	....38030	366,09	483,35
40	188	63	4	8	....40000	318,79	431,33	....40030	425,62	550,43
42	188	63	4	8	....42000	497,17				
44	188	63	4	8	....44000	498,05				
45	188	63	4	8	....45000	442,96		....45030	594,34	
50	233	75	5	8	....50000	604,32		....50030	837,60	

CM 41R



CM 44R



CM41R

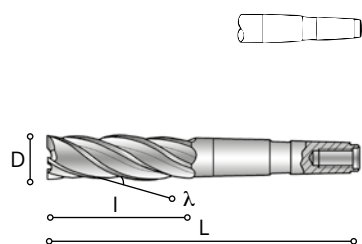
CM44R



D js14	R ±0,02	L	I	CM	CM41R Z	CM44R Z	CODE	HSS+8%Co 1411..... €	HSS+8%Co 1441..... €
16	8	117	32	2	4	3	....16000	118,57	122,91
20	10	140	38	3	4	4	....20000	142,00	167,01
25	12,5	147	45	3	5	4	....25000	198,92	228,62
30	15	147	45	3	6	530000	255,76	297,35
32	16	178	53	4	6	532000	321,98	330,67
40	20	188	63	4	8	640000	374,65	467,18

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CM 42



CM42

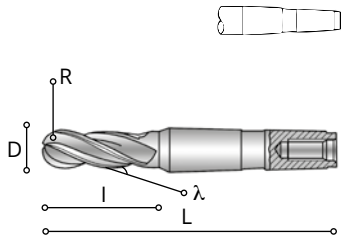


D js14	L	I	CM	Z	CODE	HSS+8%Co 1420..... €	HSS+8%Co 2420..... € SAPPHERE MULTI	CODE	RESISTOR 1420..... €	RESISTOR 2420..... € SAPPHERE MULTI
16	148	63	2	4	....16000	92,25	119,81	....16030	110,86	140,29
18	148	63	2	4	....18000	96,50	124,50	....18030	116,23	146,20
20	177	75	3	4	....20000	128,91	186,17	....20030	153,84	212,30
22	177	75	3	4	....22000	148,73	206,67	....22030	182,63	243,97
24	192	90	3	5	....24000	185,99	257,10	....24030	237,22	313,46
25	192	90	3	5	....25000	186,41	257,59	....25030	235,17	312,79
26	192	90	3	5	....26000	197,31	280,25	....26030	243,55	331,11
28	192	90	3	6	....28000	213,95	298,55	....28030	266,12	355,95
30	192	90	3	6	....30000	231,15	317,47	....30030	286,74	378,61
32	231	106	4	6	....32000	319,23	434,89	....32030	403,13	527,18
34	231	106	4	6	....34000	351,29	470,16	....34030	450,12	578,88
35	231	106	4	6	....35000	369,14	489,79	....35030	476,17	607,52
36	231	106	4	6	....36000	387,97	523,42	....36030	504,71	651,85
38	250	125	4	6	....38000	465,27	608,45	....38030	614,01	772,08
40	250	125	4	8	....40000	515,89	664,15	....40030	690,55	856,27
45	250	125	4	8	....45000	621,87		....45030	853,24	
50	308	150	5	8	....50000	892,03		....50030	1249,05	

CM 42R



CM 48R



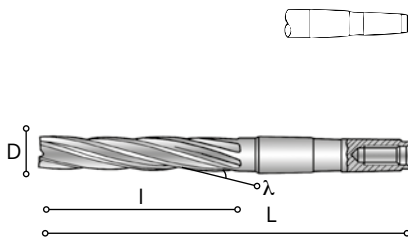
CM42R

CM48R



D js14	R ± 0,02	L	I	CM	CM42R Z	CM48R Z	CODE	HSS+8%Co 1421..... €	HSS+8%Co 1481..... €
16	8	148	63	2	4	3	....16000	137,89	154,79
20	10	177	75	3	4	4	....20000	192,18	214,87
25	12,5	192	90	3	5	4	....25000	255,83	303,88
30	15	192	90	3	6	5	....30000	334,60	384,02
32	16	231	106	4	6	5	....32000	405,39	467,81
40	20	250	125	4	8	6	....40000	565,21	668,99

CM 43



CM43



D js14	L	I	CM	Z	CODE	HSS+8%Co 1430..... €
16	170	90	2	6	....16000	134,45
18	200	100	3	8	....18000	201,63
20	210	110	3	8	....20000	215,65
22	210	110	3	8	....22000	229,59
24	225	125	3	8	....24000	268,47
25	225	125	3	8	....25000	292,18
26	250	125	4	8	....26000	324,83
28	265	140	4	8	....28000	355,45
30	265	140	4	8	....30000	386,49
32	285	160	4	10	....32000	434,16
34	285	160	4	10	....34000	464,65
36	305	180	4	10	....36000	504,13
38	310	185	4	10	....38000	577,72
40	315	190	4	10	....40000	646,94

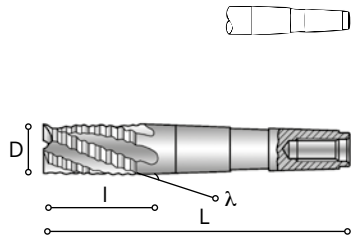
CM 44TF



CM 44TF



CM 44

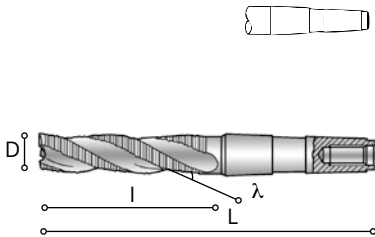


CM44TF



D js14	L	I	CM	Z	CODE	HSS+8%Co 1444..... €	HSS+8%Co 2444..... € SAPHIRE MULTI	CODE	RESISTOR 1444..... €	RESISTOR 2444..... € SAPHIRE MULTI
16	117	32	2	3	...16000	86,24	108,49	...16030	106,06	130,28
18	117	32	2	3	...18000	94,74	117,82	...18030	119,67	145,58
20	140	38	3	4	...20000	128,16	165,09	...20030	158,37	197,86
22	140	38	3	4	...22000	135,21	172,38	...22030	170,34	211,00
24	147	45	3	4	...24000	154,02	212,49	...24030	194,08	256,55
25	147	45	3	4	...25000	158,64	217,57	...25030	201,78	265,51
26	147	45	3	4	...26000	165,50	236,83	...26030	215,90	292,28
28	147	45	3	4	...28000	186,09	260,32	...28030	233,27	311,39
30	147	45	3	5	...30000	201,67	276,63	...30030	261,18	341,89
32	178	53	4	5	...32000	241,32	326,38	...32030	300,78	391,79
35	178	53	4	5	...35000	264,00	351,33			
36	178	53	4	5	...36000	277,38	376,54			
40	188	63	4	6	...40000	328,85	444,01	...40030	431,80	549,92
45	188	63	4	6	...45000	458,11				
50	233	75	5	6	...50000	622,45				

CM 48

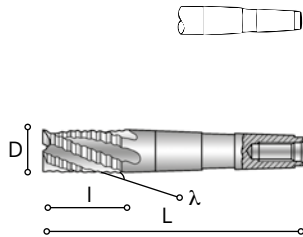


CM48



D js14	L	I	CM	Z	CODE	HSS+8%Co	HSS+8%Co	CODE	RESISTOR	RESISTOR
						1480..... €	2480..... € SAPPHIRE MULTI		1480..... €	2480..... € SAPPHIRE MULTI
16	148	63	2	3	....16000	112,30	141,87	....16030	140,91	173,35
18	148	63	2	3	....18000	117,62	147,72	....18030	147,85	180,97
20	177	75	3	4	....20000	168,75	229,55	....20030	215,58	280,20
22	177	75	3	4	....22000	178,77	239,71	....22030	232,53	298,85
24	192	90	3	4	....24000	228,95	304,38	....24030	297,47	379,74
25	192	90	3	4	....25000	233,75	309,65	....25030	305,99	389,10
28	192	90	3	4	....28000	263,51	353,07	....28030	346,95	444,85
30	192	90	3	5	....30000	280,15	371,37	....30030	367,86	467,85
32	231	106	4	5	....32000	351,54	470,43	....32030	468,27	598,83
35	231	106	4	5	....35000	392,47	515,46	....35030	523,67	659,76
38	250	125	4	5	....38000	500,47	647,17	....38030	680,19	844,87
40	250	125	4	6	....40000	515,66	663,89	....40030	717,18	885,57
45	250	125	4	6	....45000	648,85		....45030	875,06	
50	308	150	5	6	....50000	899,50		....50030	1314,23	

CM45TF

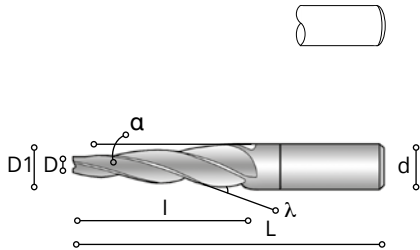


CM45TF



D js14	L	I	CM	Z	CODE	HSS+8%Co 1450..... €
16	117	32	2	3	....16000	87,53
18	117	32	2	3	....18000	96,16
20	140	38	3	4	....20000	122,75
22	140	38	3	4	....22000	137,24
24	147	45	3	4	....24000	156,33
25	147	45	3	4	....25000	161,02
26	147	45	3	4	....26000	167,97
28	147	45	3	4	....28000	186,09
30	147	45	3	5	....30000	204,70
32	178	53	4	5	....32000	244,94
35	178	53	4	5	....35000	257,90
36	178	53	4	5	....36000	265,67
40	188	63	4	6	....40000	327,24
45	188	63	4	6	....45000	447,54
50	233	75	5	6	....50000	631,79

CS 47



CS47

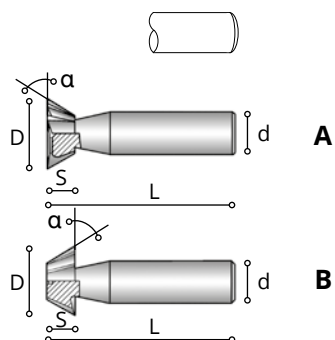


$\alpha \pm 10'$	D k12	D1	L	l	d h8	Z	CODE	HSS+8%Co 1470..... €
0° 30'	3	3,3	60	17	6	3	....03003	31,21
0° 30'	4	4,4	65	23	6	3	....03004	31,21
0° 30'	5	5,5	70	29	6	3	....03005	39,18
0° 30'	6	6,5	75	29	10	4	....03006	47,22
1°	3	3,5	60	15	6	3	....10003	34,53
1°	4	4,7	65	20	6	3	....10004	34,53
1°	5	5,9	70	26	6	3	....10005	42,13
1°	6	7,4	80	40	8	4	....10006	50,68
1°	8	9,6	90	45	10	4	....10008	56,01
1°30'	3	3,8	60	16	6	3	....13003	44,18
1°30'	4	5	65	19	6	3	....13004	46,41
1°30'	5	6,3	70	25	6	3	....13005	49,43
1°30'	6	8,1	80	40	8	4	....13006	53,70
1°30'	8	10,35	90	45	10	4	....13008	60,44
2°	3	4,1	60	16	6	3	....20003	32,84
2°	4	6	65	28,5	6	3	....20004	42,13
2°	5	6,75	70	25	6	3	....20005	48,61
2°	6	8,8	80	40	8	4	....20006	56,20
2°	8	11,15	90	45	12	4	....20008	91,94
3°	6	12,3	100	60	12	4	....30006	74,04
3°	8	16,4	125	80	16	4	....30008	108,50
4°	6	13	100	50	12	4	....40006	91,58
4°	8	18,5	125	75	20	4	....40008	133,16
5°	6	16,5	112	60	16	4	....50006	120,77
6°	8	17,45	100	45	16	4	....60008	186,63
7°	6	19,75	112	56	20	4	....70006	217,77
2°52'	6	10	95	40	10	4	....25206	75,39
2°52'	12	20	140	80	20	4	....25212	97,14
4° 34'	6	16	112	62,5	16	4	....43406	217,77
5° 43'	6	14	95	40	12	4	....54306	88,85
7° 7'	6	20	120	56	20	4	....77006	131,73

TCL 60A

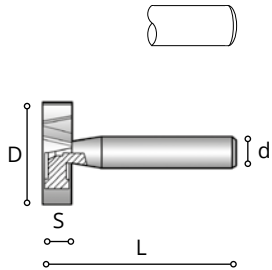


TCL 60B



D js16	α ± 30'	L	S js14	d h8	Z	CODE	HSS+5%Co
							1601..... A
							1602..... B
							€
16	45°	60	4	12	8	....16450	63,06
20	45°	63	5	12	8	....20450	82,34
25	45°	67	6,3	16	10	....25450	102,22
32	45°	71	8	16	12	....32450	147,63
16	60°	60	6,3	12	8	....16600	63,06
20	60°	63	8	12	8	....20600	82,34
25	60°	67	10	16	10	....25600	102,22
32	60°	71	12,5	16	12	....32600	147,63
16	70°	60	7	12	8	....16700	63,06
20	70°	63	9	12	8	....20700	82,34
25	70°	67	11	16	10	....25700	102,22

TCL 61

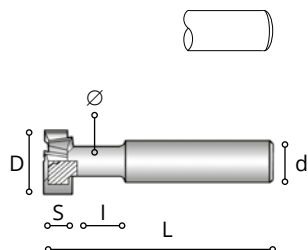


D +0,05 -0	s d9	L	d h8	Z	CODE	HSS+5%Co 1610..... €
10,5	2	50	6	6	....10520	50,24
10,5	2,5	50	6	6	....10525	50,24
10,5	3	50	6	6	....10530	50,24
13,5	2	56	10	8	....13520	55,64
13,5	3	56	10	8	....13530	55,64
13,5	4	56	10	8	....13540	55,64
16,5	3	56	10	8	....16530	65,51
16,5	4	56	10	8	....16540	65,51
16,5	5	56	10	8	....16550	65,51
16,5	6	56	10	8	....16560	65,51
19,5	3	56	10	8	....19530	74,49
19,5	4	56	10	8	....19540	74,49
19,5	5	56	10	8	....19550	74,49
19,5	6	56	10	8	....19560	74,49
22,5	4	56	10	8	....22540	87,06
22,5	5	56	10	8	....22550	87,06
22,5	6	56	10	8	....22560	87,06
22,5	8	56	10	8	....22580	87,06
25,5	5	56	10	8	....25550	100,48
25,5	6	56	10	8	....25560	100,48
25,5	7	56	10	8	....25570	100,48
25,5	8	56	10	8	....25580	100,47
28,5	6	56	10	8	....28560	119,34
28,5	8	56	10	8	....28580	119,34
28,5	10	63	12	8	....28510	119,34
32,5	6	56	10	10	....32560	139,07
32,5	7	56	10	10	....32570	139,07
32,5	8	56	10	10	....32580	139,07
32,5	10	63	12	10	....32510	139,07
45,5	10	63	12	10	....45510	195,65

TCL 62



12°-15°



TCL62

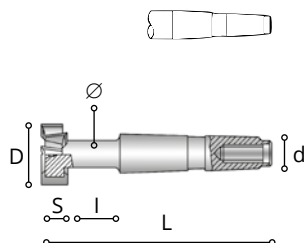


D $\begin{smallmatrix} +0,05 \\ 0 \end{smallmatrix}$	S $\begin{smallmatrix} +0 \\ -0,05 \end{smallmatrix}$	Ø	L	I	d h8	Z	CODE	HSS+5%Co 1620..... €
12,5	6	5	57	11	10	6	....12500	74,49
16	8	7	62	14	10	6	....16000	87,06
18	8	8	70	17	12	6	....18000	96,01
19	9	8	70	17	12	6	....19000	99,63
21	9	10	74	20	12	6	....21000	110,35
22	10	10	74	20	12	6	....22000	113,97
25	11	12	82	23	16	6	....25000	133,89
28	12	13	85	25	16	6	....28000	149,87
32	14	15	90	28	16	8	....32000	176,69

TCM 63



12°-15°

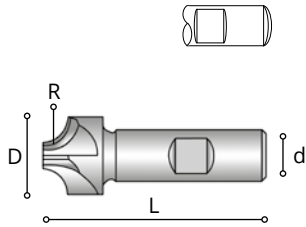


TCM63



$D \begin{smallmatrix} +0,05 \\ 0 \end{smallmatrix}$	$S \begin{smallmatrix} +0 \\ -0,05 \end{smallmatrix}$	Ø	L	I	CM	Z	CODE	HSS+5%Co 1630..... €
22	10	10	98	20	2	6	....22000	131,96
25	11	12	103	23	2	6	....25000	143,66
28	12	13	106	25	2	6	....28000	162,49
32	14	15	111	28	2	8	....32000	192,29
36	16	17	133	32	3	8	....36000	217,43
40	18	19	138	35	3	8	....40000	260,73
45	20	21	143	38	3	8	....45000	311,80
50	22	25	173	43	4	10	....50000	389,90
56	24	28	182	50	4	10	....56000	502,45

RC 135



RC135



R H11	D js14	L	d h6	Z	CODE	HSS+5%Co 1135..... €
1	8	60	10	4	....01000	44,89
1,5	9	60	10	4	....15000	44,89
2	10	60	10	4	....20000	44,89
2,5	11	60	10	4	....25000	45,09
3	12	60	12	4	....30000	68,12
3,5	14	60	12	4	....35000	71,41
4	14	60	12	4	....40000	71,41
4,5	16	60	12	4	....45000	77,68
5	16	60	16	4	....50000	77,68
5,5	20	67	16	4	....55000	91,98
6	20	67	16	4	....60000	91,98
6,5	24	71	16	4	....65000	103,59
7	24	71	16	4	....70000	103,59
7,5	24	71	16	4	....75000	103,59
8	24	71	16	4	....80000	103,59
8,5	28	85	20	4	....85000	114,46
9	28	85	20	4	....90000	114,46
9,5	28	85	20	4	....95000	114,46
10	28	85	20	4	....10000	114,46
10,5	32	90	20	4	....10500	142,77
11	32	90	20	4	....11000	142,77
12	34	90	20	4	....12000	143,24
13	42	100	20	4	....13000	243,26
14	44	100	20	6	....14000	244,56
15	46	100	20	6	....01500	304,91
16	48	100	20	6	....16000	304,91
18	52	112	20	6	....18000	447,12
20	58	112	20	6	....02000	601,29

CR 81



CR81

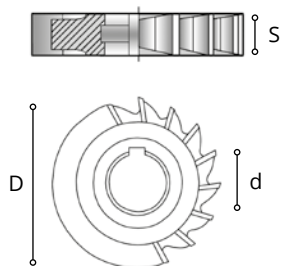


D js16	S k11	d H7	Z	CODE	HSS+5%Co 181..... €
50	4	16	20	...150004	98,75
50	5	16	20	...150005	98,75
50	6	16	20	...150006	105,56
50	8	16	20	...150008	110,10
50	10	16	20	...150010	129,64
63	4	22	22	...263004	113,18
63	5	22	22	...263005	119,35
63	6	22	22	...263006	119,35
63	8	22	22	...263008	131,94
63	10	22	22	...263010	145,66
63	12	22	20	...263012	153,07
63	14	22	20	...263014	166,78
80	6	22	24	...280006	159,75
80	8	22	24	...280008	166,29
80	10	22	24	...280010	179,00
80	12	22	24	...280012	192,73
80	14	22	20	...280014	207,25
80	16	22	20	...280016	231,47
80	18	22	20	...280018	239,57
80	6	27	24	...380006	159,75
80	8	27	24	...380008	166,29
80	10	27	24	...380010	179,00
80	12	27	24	...380012	192,73
80	14	27	20	...380014	207,25
80	16	27	20	...380016	219,02
80	18	27	20	...380018	239,57
100	6	27	26	...310006	206,24
100	8	27	26	...310008	224,84
100	10	27	26	...310010	243,25
100	12	27	26	...310012	263,94
100	14	27	22	...310014	283,59
100	16	27	22	...310016	299,76
100	18	27	22	...310018	320,48
100	20	27	22	...310020	352,18
100	18	32	22	...410018	320,47
100	20	32	22	...410020	338,97
125	8	32	30	...412508	305,17
125	10	32	30	...412510	325,80
125	12	32	24	...412512	349,95
125	14	32	24	...412514	378,18

CR 81



H

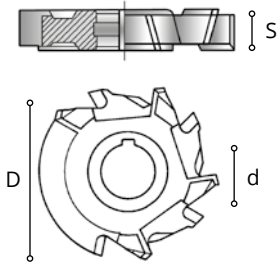


CR81



D js16	S k11	d H7	Z	CODE	HSS+5%Co 181..... €
125	16	32	24	...412516	412,76
125	18	32	24	...412518	461,14
125	20	32	24	...412520	495,79
160	10	32	36	...416010	486,56
160	12	32	30	...416012	521,38
160	14	32	30	...416014	561,81
160	16	32	30	...416016	599,58
160	18	32	30	...416018	641,74
160	20	32	30	...416020	681,98
160	22	32	30	...416022	765,58
160	25	32	30	...416025	899,31
160	28	32	30	...416028	1025,19
160	32	32	30	...416032	1184,63
160	18	40	30	...516018	641,74
160	20	40	30	...516020	681,98
160	22	40	30	...516022	765,58
160	25	40	30	...516025	899,31
160	28	40	30	...516028	1025,19
160	32	40	30	...516032	1184,63

CR 83

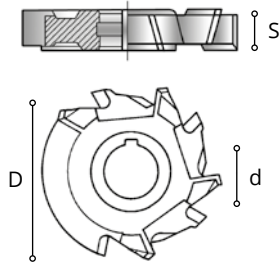


CR83



D js16	S k11	d H7	Z	CODE	HSS+5%Co 183..... €
50	3	16	14	...150003	111,37
50	4	16	14	...150004	97,79
50	5	16	14	...150005	97,79
50	6	16	14	...150006	104,53
50	7	16	14	...150007	109,03
50	8	16	14	...150008	109,03
50	9	16	14	...150009	122,48
50	10	16	14	...150010	126,24
63	3	22	16	...263003	140,83
63	4	22	16	...263004	112,09
63	5	22	16	...263005	118,21
63	6	22	16	...263006	118,21
63	7	22	14	...263007	124,33
63	8	22	14	...263008	130,66
63	9	22	14	...263009	137,48
63	10	22	14	...263010	144,24
63	12	22	14	...263012	151,57
63	14	22	14	...263014	166,78
63	16	22	14	...263016	177,29
63	18	22	14	...263018	184,49
80	3	22	18	...280003	170,44
80	4	22	18	...280004	140,83
80	5	22	18	...280005	150,00
80	6	22	18	...280006	158,19
80	7	22	16	...280007	163,61
80	8	22	16	...280008	163,61
80	9	22	16	...280009	170,44
80	10	22	16	...280010	184,16
80	12	22	16	...280012	198,29
80	14	22	16	...280014	213,24
80	16	22	16	...280016	227,56
80	18	22	16	...280018	239,57
80	20	22	16	...280020	253,97
80	3	27	18	...380003	170,44
80	4	27	18	...380004	140,83
80	5	27	18	...380005	150,00
80	6	27	18	...380006	158,19
80	7	27	16	...380007	163,61
80	8	27	16	...380008	163,61
80	9	27	16	...380009	170,44

CR 83



CR83

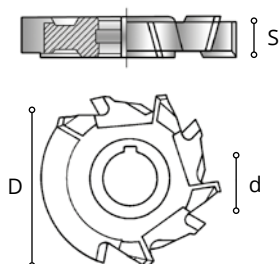


D js16	S k11	d H7	Z	CODE	HSS+5%Co 183..... €
80	10	27	16	...380010	184,16
80	12	27	16	...380012	198,29
80	14	27	16	...380014	213,24
80	16	27	16	...380016	227,56
80	18	27	16	...380018	239,57
80	20	27	16	...380020	253,97
100	3	27	22	...310003	234,05
100	4	27	22	...310004	189,77
100	5	27	22	...310005	195,41
100	6	27	22	...310006	204,24
100	7	27	18	...310007	213,64
100	8	27	18	...310008	222,65
100	9	27	18	...310009	231,78
100	10	27	18	...310010	240,89
100	12	27	18	...310012	261,38
100	14	27	18	...310014	283,59
100	16	27	18	...310016	299,76
100	18	27	18	...310018	320,48
100	20	27	18	...310020	338,97
100	3	32	22	...410003	234,05
100	4	32	22	...410004	189,77
100	5	32	22	...410005	195,41
100	6	32	22	...410006	204,24
100	7	32	18	...410007	213,64
100	8	32	18	...410008	222,65
100	9	32	18	...410009	231,78
100	10	32	18	...410010	240,89
100	12	32	18	...410012	261,38
100	14	32	18	...410014	283,59
100	16	32	18	...410016	299,76
100	18	32	18	...410018	320,48
100	20	32	18	...410020	338,97
125	4	32	24	...412504	288,64
125	5	32	24	...412505	283,22
125	6	32	24	...412506	283,22
125	7	32	20	...412507	295,41
125	8	32	20	...412508	302,21
125	10	32	20	...412510	322,65
125	12	32	20	...412512	346,55
125	14	32	20	...412514	378,18

CR 83



8°-15°



CR83

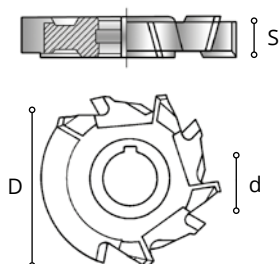


D js16	S k11	d H7	Z	CODE	HSS+5%Co 183..... €
125	16	32	20	...412516	412,76
125	18	32	20	...412518	461,14
125	20	32	20	...412520	495,79
125	22	32	20	...412522	561,01
125	25	32	18	...412525	656,98
160	5	32	26	...416005	468,11
160	6	32	26	...416006	422,49
160	7	32	26	...416007	476,12
160	8	32	26	...416008	445,23
160	10	32	22	...416010	481,84
160	12	32	22	...416012	516,31
160	14	32	22	...416014	561,81
160	16	32	24	...416016	599,58
160	18	32	24	...416018	641,74
160	20	32	22	...416020	681,98
160	22	32	22	...416022	765,58
160	25	32	22	...416025	899,25
160	32	32	22	...416032	1184,63
160	5	40	26	...516005	468,11
160	6	40	26	...516006	422,49
160	7	40	26	...516007	476,12
160	8	40	26	...516008	445,23
160	10	40	22	...516010	481,84
160	12	40	22	...516012	516,31
160	14	40	22	...516014	561,81
160	16	40	24	...516016	599,58
160	18	40	24	...516018	641,74
160	20	40	22	...516020	681,98
160	32	40	22	...516032	1184,63
200	10	40	34	...520010	729,18
200	12	40	30	...520012	777,70
200	14	40	30	...520014	840,64
200	16	40	30	...520016	909,75
200	18	40	30	...520018	986,22
200	20	40	28	...520020	1069,78
200	28	40	28	...520028	1389,24
250	14	40	36	...525014	1298,91
250	16	40	36	...525016	1438,22
250	18	40	36	...525018	1541,99
250	20	40	36	...525020	1611,01

CR 85



8°-15°

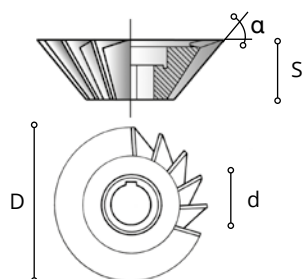


CR85



D js16	S k11	d H7	Z	CODE	HSS+5%Co 185..... €
63	1,6	22	28	...263016	144,41
63	2	22	28	...263002	130,83
63	2,5	22	28	...263025	130,83
80	1,6	27	32	...380016	162,51
80	2	27	32	...380002	162,51
80	2,5	27	32	...380025	162,51
100	1,6	32	36	...410016	194,65
100	2	32	36	...410002	194,65
100	2,5	32	36	...410025	194,65
125	1,6	32	40	...412516	261,67
125	2	32	40	...412502	261,67
125	2,5	32	40	...412525	261,67
125	3	32	40	...412503	261,67
160	2	40	44	...516002	376,49
160	2,5	40	44	...516025	376,49
160	3	40	44	...516003	376,49
160	4	40	44	...516004	376,49

FA 91



FA91

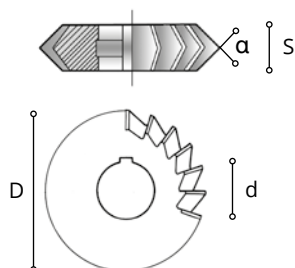


D js16	α ± 25'	S js14	d H7	Z	CODE	HSS+5%Co 1910..... €
40	45°	10	10	14	....40045	129,85
50	45°	13	13	16	....50045	153,98
63	45°	18	16	16	....63045	205,55
80	45°	22	22	18	....80045	324,58
100	45°	28	27	20	....10045	552,67
40	50°	13	10	14	....40050	129,85
50	50°	16	13	16	....50050	153,98
63	50°	20	16	16	....63050	205,55
80	50°	25	22	18	....80050	324,58
100	50°	32	27	20	....10050	552,67
40	60°	13	10	14	....40060	129,85
50	60°	16	13	16	....50060	153,98
63	60°	20	16	16	....63060	205,55
80	60°	25	22	18	....80060	324,58
100	60°	32	27	20	....10060	552,67

FP 92



H

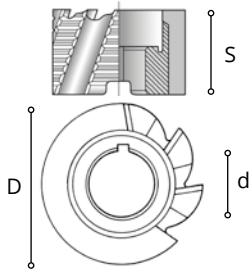


FP92

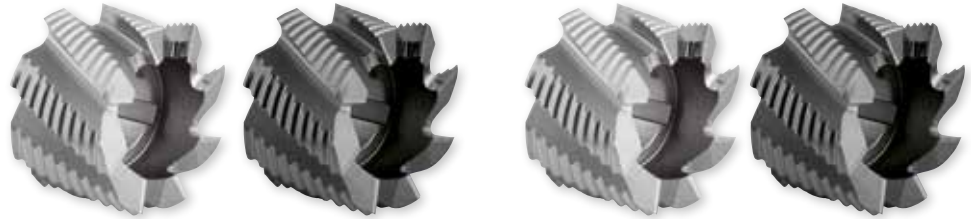


D js16	$\alpha \pm 30'$	S js16	d H7	Z	CODE	HSS+5%Co 1920..... €
50	45°	8	16	16	....50045	129,76
63	45°	10	22	18	....63045	175,87
80	45°	12	27	18	....80045	263,22
100	45°	18	32	20	....10045	377,82
50	60°	10	16	16	....50060	139,59
63	60°	14	22	18	....63060	186,12
80	60°	18	27	18	....80060	270,25
100	60°	25	32	20	....10060	411,09
50	90°	14	16	16	....50090	145,46
63	90°	20	22	18	....63090	200,74
80	90°	22	27	18	....80090	297,14
100	90°	32	32	20	....10090	441,78

CF 94

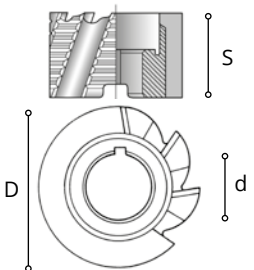


CF94



D js16	S k16	d H7	Z	CODE	HSS+8%Co	HSS+8%Co	CODE	RESISTOR	RESISTOR
					1940..... €	2940..... € SAPPHIRE MULTI		1940..... €	2940..... € SAPPHIRE MULTI
40	32	16	6	....40000	174,24	241,34	....40030	233,64	307,69
50	36	22	6	....50000	230,05	304,61	....50030	315,46	398,55
63	40	27	8	....63000	326,21	433,76	....63030	447,10	566,74
80	45	27	10	....80000	510,76	654,18	....80030	716,60	880,58
100	50	32	12	....10000	769,02	970,27	....10030	1068,27	1299,44
160	63	50	16	....16000	2278,18				

CF 95

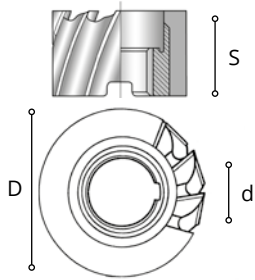


CF95



D js16	S k16	d H7	Z	CODE	HSS+8%Co
					1950..... €
40	32	16	6	....40000	174,23
50	36	22	6	....50000	230,06
63	40	27	8	....63000	326,21
80	45	27	10	....80000	510,76
100	50	32	12	....10000	769,02

CF 96

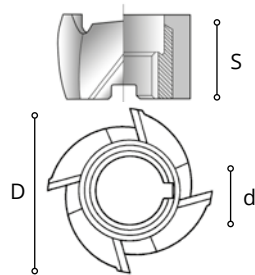


CF96



D js16	S k16	d H7	Z	CODE	HSS+8%Co 1960..... €	HSS+8%Co 2960..... € SAPPHIRE MULTI	CODE	RESISTOR 1960..... €	RESISTOR 2960..... € SAPPHIRE MULTI
40	32	16	8	...40000	131,00	193,91	...40030	182,38	251,79
50	36	22	8	...50000	173,89	243,87	...50030	239,51	315,78
63	40	27	10	...63000	251,21	353,52	...63030	327,66	435,35
80	45	27	10	...80000	366,09	495,03	...80030	504,56	647,35
100	50	32	12	...10000	589,46	772,76	...10030	805,95	1010,89

CF 97
ALU



CF97

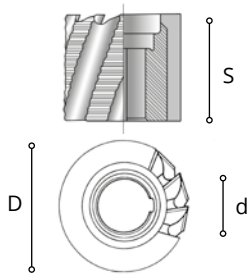


D js16	S k16	d H7	Z	CODE	HSS+5%Co 1970..... €
40	32	16	3	...40000	128,11
50	36	22	3	...50000	166,53
63	40	27	4	...63000	236,85
80	45	27	4	...80000	352,04
100	50	32	4	...10000	569,14
125	56	40	5	...12500	1047,86

CF 98



CF 99



CF98

CF99

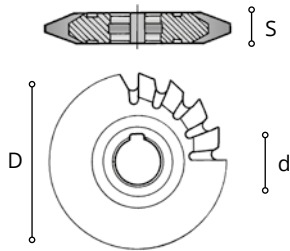


D js16	S k16	d H7	CF98 Z	CF99 Z	CODE	HSS+8%Co 1980..... €	HSS+8%Co 1990..... €
30	30	13	6	5	...30000	115,05	141,63
35	35	16	8	5	...35000	128,72	160,05
40	40	16	8	6	...40000	164,73	196,90
50	50	22	8	6	...50000	241,07	255,67
60	60	27	10	8	...60000	328,86	399,89
75	75	27	10	10	...75000	563,61	677,22

SCR 121



N

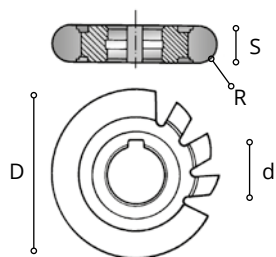
 λ
0°


SCR121



Mod	D js16	S js16	d H7	Z	CODE	HSS+5%Co 1121..... €
1	100	8	22	18	....01000	339,48
1,5	100	8	22	18	....15000	339,47
2	100	8	22	16	....20000	349,02
2,5	100	9	22	16	....25000	355,41
3	100	10	22	16	....30000	368,06
3,5	100	11	22	16	....35000	390,27
4	100	11	22	16	....40000	390,27
4,5	125	13	27	18	....45000	755,15
5	125	14	27	18	....50000	755,15
5,5	125	15	27	18	....55000	863,00
6	125	16	27	18	....60000	863,00
6,5	125	17	27	18	....65000	920,21
7	125	18	27	18	....70000	920,21
8	125	21	27	18	....80000	999,54
9	125	24	27	18	....90000	999,54
10	125	26	27	18	....10000	1110,62

SCV 131

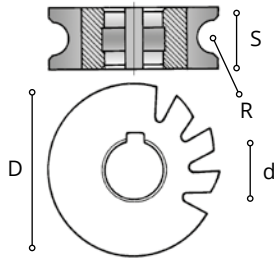


SCV131



R h11	D js16	S	d H7	Z	CODE	HSS+5%Co 1131..... €
1	50	2	16	14	....01000	114,83
1,5	50	3	16	14	....01500	120,30
2	50	4	16	14	....02000	122,96
2,5	63	5	22	12	....25000	130,71
3	63	6	22	12	....30000	138,25
3,5	63	7	22	12	....35000	158,66
4	63	8	22	12	....40000	165,78
4,5	63	9	22	12	....45000	173,54
5	63	10	22	12	....50000	181,31
5,5	80	11	27	12	....55000	212,56
6	80	12	27	12	....60000	212,56
6,5	80	13	27	12	....65000	229,45
7	80	14	27	12	....70000	238,64
7,5	80	15	27	12	....75000	248,35
8	80	16	27	12	....80000	258,84
8,5	100	17	32	12	....85000	304,54
9	100	18	32	12	....90000	316,62
9,5	100	19	32	12	....95000	328,68
10	100	20	32	12	....10000	344,48

SCC 132



SCC132

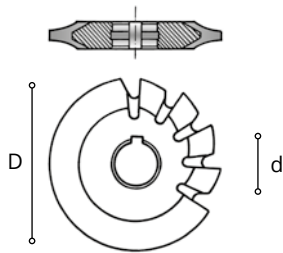


R H11	D js16	S	d H7	Z	CODE	HSS+5%Co 1132..... €
1	50	6	16	14	....01000	146,82
1,5	50	8	16	14	....01500	153,19
2	50	9	16	14	....02000	152,20
2,5	63	10	22	12	....25000	156,44
3	63	12	22	12	....30000	179,36
3,5	63	14	22	12	....35000	196,68
4	63	16	22	12	....40000	215,79
4,5	63	18	22	12	....45000	232,32
5	63	20	22	12	....50000	244,32
5,5	80	22	27	12	....55000	275,43
6	80	24	27	12	....60000	304,61
6,5	80	26	27	12	....65000	333,21
7	80	28	27	12	....70000	353,84
7,5	80	30	27	12	....75000	422,88
8	80	32	27	12	....80000	444,80
8,5	100	34	32	12	....85000	487,21
9	100	34	32	12	....90000	549,49
9,5	100	36	32	12	....95000	576,66
10	100	36	32	12	....10000	594,98

MOD 141



FRESA TIPO/TYPE	1	2	3	4	5	6	7	8
N°DENTI DA FRESARE NO. OF TEETH TO BE PRODUCED	12-13	14-16	17-20	21-25	26-34	35-54	55-134	135-00



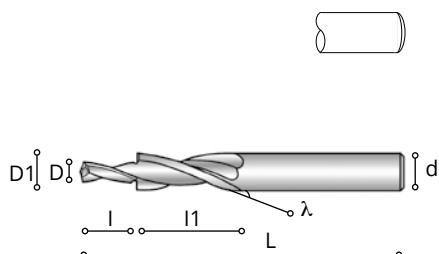
MOD141



Mod. 141 dal modulo 6,5 al modulo 10 fino ad esaurimento
Mod. 141 from module 6,5 to module 10,00 until stocks last.

Mod	D js16	d H7	CODE	HSS+5%Co 1141..... €
0,5	40	16	....0500 (1+8)	111,38
0,75	40	16	....0750 (1+8)	111,38
1	50	16	....0100 (1+8)	105,13
1,25	50	16	....1250 (1+8)	116,30
1,5	63	22	....1500 (1+8)	121,67
1,75	63	22	....1750 (1+8)	138,36
2	63	22	....2000 (1+8)	135,71
2,25	63	22	....2250 (1+8)	149,40
2,5	63	22	....2500 (1+8)	139,83
2,75	70	27	....2750 (1+8)	187,70
3	70	27	....3000 (1+8)	169,63
3,25	70	27	....3250 (1+8)	191,61
3,5	80	27	....3500 (1+8)	207,71
3,75	80	27	....3750 (1+8)	237,51
4	80	27	....4000 (1+8)	254,88
4,25	80	27	....4250 (1+8)	305,34
4,5	90	27	....4500 (1+8)	341,08
4,75	90	27	....4750 (1+8)	341,08
5	90	32	....5000 (1+8)	383,22
5,25	90	32	....5250 (1+8)	444,93
5,5	90	32	....5500 (1+8)	444,93
5,75	90	32	....5750 (1+8)	487,22
6	100	32	....6000 (1+8)	487,22
6,5	100	32	....6500 (1+8)	549,01
7	110	32	....7000 (1+8)	649,63
8	110	32	....8000 (1+8)	698,32
9	125	40	....9000 (1+8)	1136,85
10	125	40	....1000 (1+8)	1136,85

ALL 156 ALU



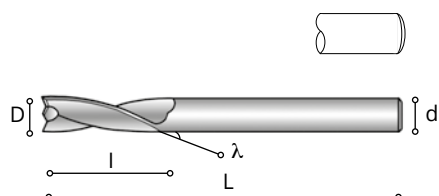
ALL156



D	D1	L	l	l1	d h8	Z	CODE	HSS+5%Co 4156..... €
6	12	83	13	35	10	2	....61283	63,25
6	14	83	13	35	10	2	....61483	66,68
5	12	100	15	35	10	2	....51200	66,69
6	10	100	15	35	10	2	....61000	66,68
6	11	100	15	35	10	2	....61100	66,68
6	11,5	100	15	35	10	2	....60011	66,68
6	12	100	15	35	10	2	....61200	66,68
5,5	11,5	100	12	35	12	2	....55115	66,68
6	11,5	100	12	35	12	2	....60115	66,68
6,5	11,5	100	12	35	12	2	....65115	66,68
6	12	100	12	35	12	2	....61210	66,68
6,5	13,5	100	12	35	12	2	....65135	75,61
6	11,5	122	18	45	12	2	....61150	75,61
6	12	122	18	45	12	2	....61212	75,61
6,5	11,5	122	18	45	12	2	....65122	75,61
6,5	12	122	18	45	12	2	....65012	75,61

FRESE A DUE TAGLIANTI PER LA LAVORAZIONE DI PROFILATI | PANTOGRAPH END MILLS

ALL 157 ALU

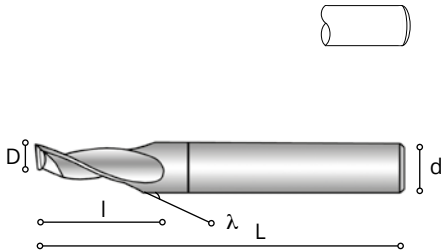


ALL157



D	L	l	d h8	Z	CODE	HSS+5%Co 4157..... €
4	55	14	6	2	....40000	23,76
5	58	15	6	2	....50000	23,76
3-6	65	10/15	6	2	....36000	37,21

ALL 158 ALU

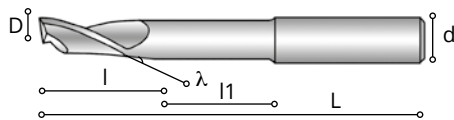


ALL158



D	L	I	d h8	Z	CODE	HSS+5%Co 4158..... €	CODE	HSS+5%Co 2158..... € SAPPHIRE MULTI
4	60	12	6	1	....46000	29,36	....46002	36,96
5	60	15	6	1	....56015	28,29	....56152	35,78
5	60	25	6	1	....56000	32,51	....56002	40,41
6	60	15	6	1	....66000	29,36	....66002	36,96
2,75/5	68	8/15	8	1	....27550	41,89	....27552	51,62
3	68	12	8	1	....30000	27,36	....30002	35,63
4	68	12	8	1	....40000	26,62	....40002	34,82
5	68	15	8	1	....50000	26,62	....58002	34,82
6	68	15	8	1	....60000	26,62	....60002	34,82
7	68	15	8	1	....70000	26,62	....70002	34,82
8	80	15	8	1	....80000	26,62	....88002	36,31
10	80	15	8	1	....10008	33,20	....10002	45,82
5	68	15	10	1	....50010	28,29	....51002	37,88
6	68	15	10	1	....60010	28,29	....61002	37,88
10	80	15	10	1	....10080	37,33	....10012	49,48

ALL 158 ALU

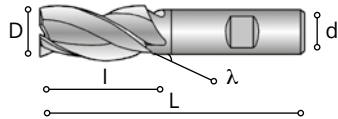
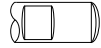


D	L	I	I1	d h8	Z	CODE	HSS+5%Co 4158..... €	CODE	HSS+5%Co 2158..... € SAPPHIRE MULTI
5	80	15	40	8	1	....50080	31,35	....50802	41,53
6	80	15	40	8	1	....60080	31,35	....60082	41,53
8	80	15	40	8	1	....80080	31,35	....80802	41,53
8	95	18	50	8	1	....80095	31,79	....89502	42,01
8	120	18	70	8	1	....80120	33,28	....81202	45,31
10	95	18	50	8	1	....10000	36,17	....10802	48,27
8	95	18	50	10	1	....80010	39,52	....81002	51,89
10	95	18	50	10	1	....10010	38,45	....10102	50,70
10	120	18	70	10	1	....10120	39,52	....10122	54,26

ALL 160
ALU



ALL 164
ALU



ALL160



ALL164

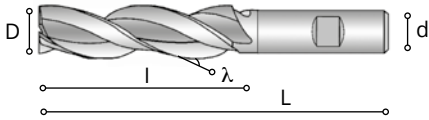


ALL160 D k10 ALL164 D k12	L	l	d h6	ALL160 Z	ALL164 Z	CODE	RESISTOR 4160..... €	RESISTOR 4164..... €
6	57	13	6	2		....60030	24,04	
8	69	19	10	2	3	....80030	31,30	48,43
10	72	22	10	3	3	....10030	35,12	49,50
12	83	26	12	3	3	....12030	42,06	59,11
14	83	26	12	3		....14030	48,11	
16	92	32	16	3	3	....16030	58,41	78,17
18	92	32	16	3		....18030	71,98	
20	104	38	20	3	3	....20030	95,10	112,76
25	121	45	25	3	3	....25030	164,97	201,92
32	133	53	32	3	3	....32030	280,23	294,67

ALL 162
ALU



ALL 166
ALU




ALL162

















ALL166



ALL162 D k10 ALL166 D k12	L	l	d h6	ALL162 Z	ALL166 Z	CODE	RESISTOR 4162..... €	RESISTOR 4166..... €
6	68	24	6	2		....60030	26,01	
8	88	38	10	2		....80030	41,40	
10	95	45	10	3	3	....10030	43,11	61,31
12	110	53	12	3	3	....12030	52,72	74,31
16	123	63	16	3	3	....16030	80,97	103,88
20	141	75	20	3	3	....20030	127,30	145,29
25	166	90	25	3	3	....25030	216,18	260,63
32	186	106	32	3	3	....32030	330,63	402,59

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point angle	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
FRESE A DUE TAGLIENTI TWO FLUTE SLOT DRILLS								
 CL 11 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 L DIN 6528	1 - 20	294
 CL 11 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	1 - 20	294
 CL 11 HMB	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	3 - 20	295
 CL 11 Cr HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 L DIN 6528	2 - 20	296
 CL 11 Cr HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	2 - 20	296
 CL 11 Rs HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 K	2 - 5,5	297
 CL 11 Rs HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 K	2 - 5,5	297
 CL 12 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	CARMON NORM	3 - 20	298
 CL 12 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	3 - 20	298
 CL 18 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 L DIN 6528	2 - 20	299
 CL 18 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	2 - 20	299
 CL 18 SL HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	CARMON NORM	3 - 20	300
 CL 18 SL HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	3 - 20	300
FRESE A TRE TAGLIENTI THREE FLUTE SLOT DRILLS								
 CL 16 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	CARMON NORM	2 - 20	301
 CL 16 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	2 - 20	301
 CL 16 HMB	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	3 - 20	302
 CL 16 Cr HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 L DIN 6528	2 - 20	303
 CL 16 Cr HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	2 - 20	303

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point angle	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
 CL 16 RS HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 K	2 - 5,5	304
 CL 16 RS HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 K	2 - 5,5	304
 CL 16 R HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 L DIN 6528	2 - 20	305
 CL 16 R HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	2 - 20	305
 CL 17 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	CARMON NORM	3 - 20	306
 CL 17 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	3 - 20	306
 CL 17 R HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	CARMON NORM	3 - 20	307
 CL 17 R HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	3 - 20	307
FRESE A QUATTRO TAGLIANTI FOUR FLUTE SLOT DRILLS								
 CL 21 TF HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 L DIN 6528	2 - 20	308
 CL 21 TF HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	2 - 20	308
 CL 21 TF HMB	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	3 - 20	309
 CL 21 Cr HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 L DIN 6528	2 - 20	310
 CL 21 Cr HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	2 - 20	310
 CL 21 RS HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 K	2 - 5,5	311
 CL 21 RS HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 K	2 - 5,5	311
 CL 21 R HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6527 L DIN 6528	2 - 20	312
 CL 21 R HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L DIN 6528	2 - 20	312
 CL 21 ED HM	N	Acciai tenaci Hardened steel	38 / 40	MICROGRAIN CARBIDE Co10	Sapphire Sleek	DIN 6527 L DIN 6528	5 - 20	313
 CL 22 ED HM	N	Acciai tenaci Hardened steel	38 / 40	MICROGRAIN CARBIDE Co10	Sapphire Sleek	DIN 6527 L DIN 6528	5 - 20	314

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point angle	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
 CL 22 TF HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	CARMON NORM	3 - 20	135
 CL 22 TF HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	3 - 20	315
 CL 22 R HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	CARMON NORM	3 - 20	316
 CL 22 R HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	M 3 - M 20	316
FRESE CILINDRICHE FRONTALI A SGRASSARE ROUGHING END MILLS								
 CL 24 TF PF HM	HR	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6528	6 - 20	317
 CL 24 TF PF HM	HR	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6528	6 - 20	317
 CL 25 TF HM	NF	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	DIN 6528	6 - 20	317
 CL 25 TF HM	NF	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6528	6 - 20	317
FRESE CONICHE PER STAMPI DIESINKING MILLING CUTTERS								
 CS 47 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	White	CARMON NORM	1° - 5°	318
 CS 47 HM	N	Acciai tenaci Hardened steel	30	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	1° - 5°	318
FRESE MONOTAGLIANTE PER ALLUMINIO SINGLE FLUTE END MILLS FOR ALUMINUM								
 ALL 158 HM	W	Alluminio aluminium	30	MICROGRAIN CARBIDE Co10	White	CARMON NORM	3 - 12	319
 ALL 158 HM	W	Alluminio aluminium	30	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	3 - 12	319
FRESE IN METALLO DURO PER ALLUMINIO SOLID CARBIDE END MILLS FOR ALUMINUM								
 ALL 161 HM	W	Alluminio aluminium	45	MICROGRAIN CARBIDE Co10	White	DIN 6528	3 - 20	320
 ALL 161 HM	W	Alluminio aluminium	45	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6528	3 - 20	320
 ALL 163 HM	W	Alluminio aluminium	45	MICROGRAIN CARBIDE Co10	White	DIN 6528	3 - 20	321
 ALL 163 HM	W	Alluminio aluminium	45	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6528	3 - 20	321

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point angle	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal diameter range	pag page
FRESE A DUE TAGLIENTI CON TESTA SEMISFERICA BALL NOSED TWO FLUTE END MILLS								
 CL 19 HM	HSC	Acciai temprati Tempered steels	30	MICROGRAIN CARBIDE Co12	Sapphire	CARMON NORM	1 - 20	322
 CL 19 CM HM	HSC	Acciai temprati Tempered steels	30	MICROGRAIN CARBIDE Co12	Sapphire	CARMON NORM	3 - 16	322
FRESE MULTITAGLIENTE PER SUPERFINITURA MULTIFLUTE SUPERFINISHING END MILLS								
 CL 26 HM	HSC	Acciai temprati Tempered steels	45	MICROGRAIN CARBIDE Co12	Sapphire	DIN 6528	6 - 20	323
 CL 26 SL HM	HSC	Acciai temprati Tempered steels	45	MICROGRAIN CARBIDE Co12	Sapphire	DIN 6528	6 - 20	323
FRESE TORICHE A QUATTRO TAGLIENTI FOUR FLUTE CUTTERS WITH CORNER RADIUS								
 CL 27 CR HM	HSC	Acciai temprati Tempered steels	30	MICROGRAIN CARBIDE Co12	Sapphire	CARMON NORM	3 - 16	324
 CL 27 CR SL HM	HSC	Acciai temprati Tempered steels	30	MICROGRAIN CARBIDE Co12	Sapphire	CARMON NORM	3 - 16	325
PUNTE ELICOIDALI IN METALLO DURO SOLID CARBIDE TWIST DRILLS								
PUNTE EXTRA CORTE TWIST DRILLS, STUB LENGHT								
 CL 400 HM	N	Acciai tenaci Hardened steel	118°	MICROGRAIN CARBIDE Co10	White	DIN 6539	2,00 - 13,00	326
 CL 400 HM	N	Acciai tenaci Hardened steel	118°	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6539	2,00 - 13,00	326
PUNTE ELICOIDALI CORTE TWIST DRILLS JOBBER LENGTH								
 CL 410 HM	N	Acciai tenaci Hardened steel	118°	MICROGRAIN CARBIDE Co10	White	DIN 338	2,00 - 10,00	328
 CL 410 HM	N	Acciai tenaci Hardened steel	118°	MICROGRAIN CARBIDE Co10	Sapphire	DIN 338	2,00 - 10,00	328
PUNTE CON CODOLO RINFORZATO TWIST DRILLS WITH REINFORCED SHANK								
 CL 415 HM	N	Acciai tenaci Hardened steel	140°	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6537K	3,00 -20,00	329
 CL 425 HM	N	Acciai tenaci Hardened steel	140°	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6537K	3,00 -20,00	329
 CL 420 HM	N	Acciai tenaci Hardened steel	140°	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6537L	3,00 -20,00	332
 CL 430 HM	N	Acciai tenaci Hardened steel	140°	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6537L	3,00 -20,00	332
 CL 435 HM	N	Acciai tenaci Hardened steel	140°	MICROGRAIN CARBIDE Co10	Sapphire	CARMON NORM	3,00 -12,00	335



rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$

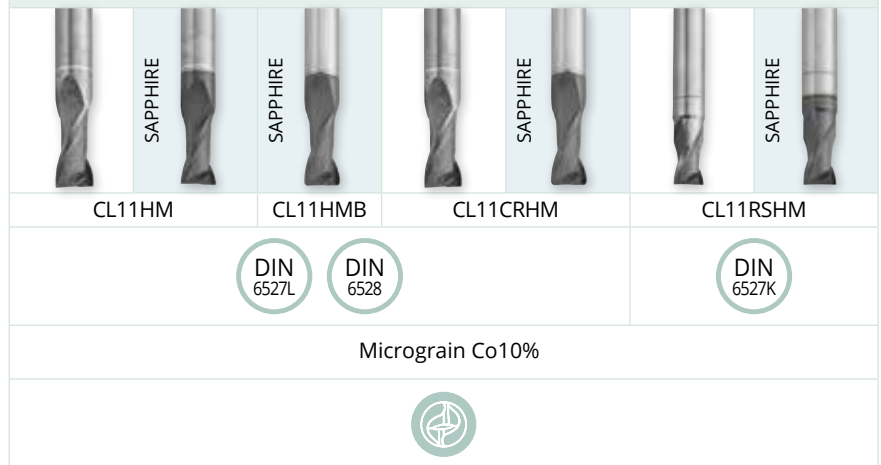


= mm/tooth
 (vedi tabella - see table page pag. 293)



= mt/min























FRESE A DUE TAGLIANTI TWO FLUTE END MILLS



Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL		N/mm ²	HV	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	130	210	210	130	200	130	210
	Acciai da costruzione Structural steel	2	700	219	120	200	200	120	190	120	200
	Acciai da tempra Hardening steel	3	900	280	100	140	140	100	130	100	140
	Acciaio automatico Automatic steel	4	1200	373		75	75		60		75
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	20	100	100	20	140	20	100
	Austenitico Austenitic	3	850	265	15	70	70	15	100	15	70
	Ferritico+austenitico Ferritic austenitic	4	1000	311		60	60		90		60
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	157	110	155	155	140	230	110	155
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	219	50	80	80	90	140	50	80
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	115	140	140	110	140	115	140
	Leghe di titanio Titanium alloys	5	900	280	70	90	90	70	90	70	90
RAME COPPER	Rame Copper	9	350	110	200	420	420			200	420
	Ottone Brass	9	700	219	200	420	420			200	420
	Bronzo Bronze	9	700	219	200	420	420			200	420
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	120	160	160	40	160	120	160
	Leghe di nichel Nichel alloys	6	900	280	10	30	30	10	30	10	30
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	200	300	300				
	Alluminio con leghe Alloyed aluminium	7	400	125	200	300	300				
	Alluminio con leghe Alloyed aluminium	7	500	157	300	600	600				

FRESE A DUE TAGLIENTI TWO FLUTE END MILLS

FRESE A TRE TAGLIENTI THREE FLUTE END MILLS

FRESE A DUE TAGLIENTI TWO FLUTE END MILLS						FRESE A TRE TAGLIENTI THREE FLUTE END MILLS					
											
CL12HM		CL18HM		CL18SLHM		CL16HM		CL16HMB	CL16CRHM		
											
Micrograin Co10%						Micrograin Co10%					
											
mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	
130	210	120	200	120	200	130	210	210	130	200	
120	200	110	190	110	190	120	200	200	120	190	
100	140	90	130	90	130	100	140	140	100	130	
	75		60		60		75	75		60	
20	100	20	140	20	140	20	100	100	20	140	
15	70	15	100	15	100	15	70	70	15	100	
	60		90		90		60	60		90	
110	155	140	230	140	230	110	155	155	140	230	
50	80	90	140	90	140	50	80	80	90	140	
115	140	110	140	110	140	115	140	140	110	140	
70	90	70	90	70	90	70	90	90	70	90	
200	420					200	420	420			
200	420					200	420	420			
200	420					200	420	420			
120	160	40	160	40	160	120	160	160	40	160	
10	30	10	30	10	30	10	30	30	10	30	
200	300					200	300	300			
200	300					200	300	300			
300	600					300	600	600			



rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$

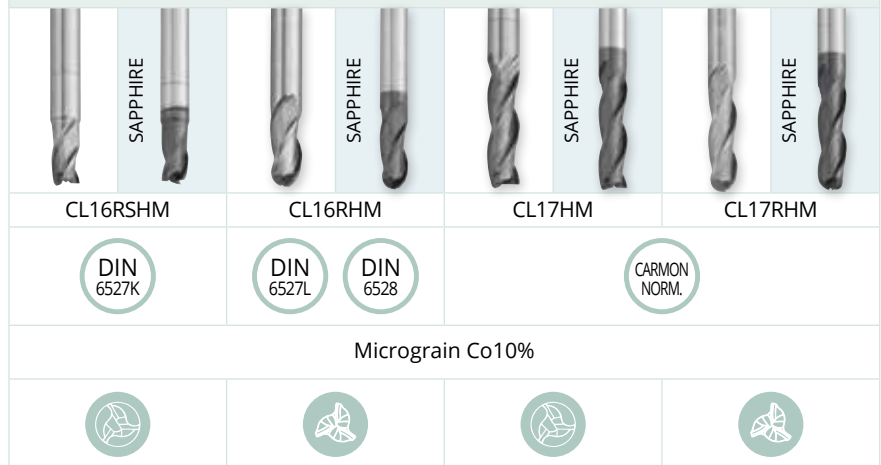


= mm/tooth
 (vedi tabella - see table page pag. 293)



= mt/min


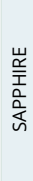
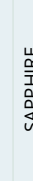







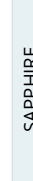









FRESE A TRE TAGLIANTI THREE FLUTE END MILLS



Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	130	210	120	200	130	210	120	200
	Acciai da costruzione Structural steel	2	700	219	120	200	110	190	120	200	110	190
	Acciai da tempra Hardening steel	3	900	280	100	140	90	130	100	140	90	130
	Acciaio automatico Automatic steel	4	1200	373		75		60		75		60
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	20	100	20	140	20	100	20	140
	Austenitico Austenitic	3	850	265	15	70	15	100	15	70	15	100
	Ferritico+austenitico Ferritic austenitic	4	1000	311		60		90		60		90
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	157	110	155	140	230	110	155	140	230
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	219	50	80	90	140	50	80	90	140
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	115	140	110	140	115	140	110	140
	Leghe di titanio Titanium alloys	5	900	280	70	90	70	90	70	90	70	90
RAME COPPER	Rame Copper	9	350	110	200	420			200	420		
	Ottone Brass	9	700	219	200	420			200	420		
	Bronzo Bronze	9	700	219	200	420			200	420		
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	120	160	40	160	120	160	40	160
	Leghe di nichel Nichel alloys	6	900	280	10	30	10	30	10	30	10	30
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110					200	300		
	Alluminio con leghe Alloyed aluminium	7	400	125					200	300		
	Alluminio con leghe Alloyed aluminium	7	500	157					300	600		

FRESE A QUATTRO TAGLIANTI FOUR FLUTE END MILLS

FRESE A QUATTRO TAGLIANTI CON ELICA DIFFERENZIATA E DIVISIONE IRREGOLARE FOUR FLUTE END MILLS WITH HELIX DIFFERENTIATED IRREGULAR DIVISION

FRESE A QUATTRO TAGLIANTI FOUR FLUTE END MILLS						FRESE A QUATTRO TAGLIANTI CON ELICA DIFFERENZIATA E DIVISIONE IRREGOLARE FOUR FLUTE END MILLS WITH HELIX DIFFERENTIATED IRREGULAR DIVISION					
											
CL21TFHM		CL21TFHM		CL21CRHM		CL21RSHM		CL21RHM		CL21EDHM	CL22EDHM
											
Micrograin Co10%											
											
mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min
130	210	210	130	200	130	210	120	200	250	175	
120	200	200	120	190	120	200	110	190	240	170	
100	140	140	100	130	100	140	90	130	170	120	
	75	75		60		75		60	90	60	
20	140	140	20	140	20	100	20	140	170	120	
15	100	100	15	100	15	70	15	100	120	85	
	90	90		90		60		90	110	75	
120	230	230	140	230	110	155	140	230	280	200	
80	140	140	90	140	50	80	90	140	170	120	
115	140	140	110	140	115	140	110	140	170	120	
70	90	90	70	90	70	90	70	90	110	75	
200	420	420			200	420			500	350	
200	420	420			200	420			500	350	
200	420	420			200	420			500	350	
120	160	160	40	160	120	160	40	160	200	140	
10	30	30	10	30	10	30	10	30	40	30	
200	300	300									
200	300	300									
300	600	600									



rpm
 $= (\text{mt/min} \times 1000) / (D \times 3,14)$



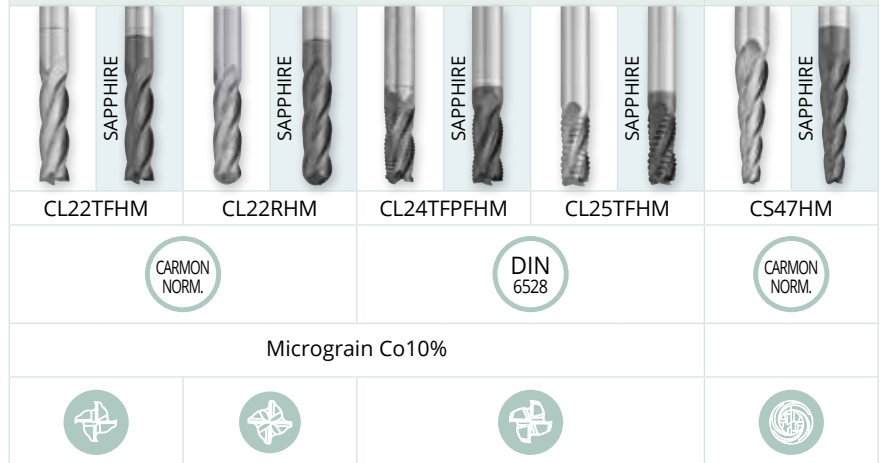
= mm/tooth
 (vedi tabella - see table page pag. 293)




















= mt/min

FRESE A QUATTRO TAGLIANTI FOUR FLUTE END MILLS

FRESE CONICHE PER STAMPI DIESINKING MILLING CUTTERS



Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	CL22TFHM		CL22RHM		CL24TFPFHM		CL25TFHM		CS47HM	
				mt/min	mm/tooth	mt/min	mm/tooth	mt/min	mm/tooth	mt/min	mm/tooth	mt/min	mm/tooth
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	130	210	120	200	130	210	130	210	130	210
	Acciai da costruzione Structural steel	2	700	120	200	110	190	120	200	120	200	120	200
	Acciai da tempra Hardening steel	3	900	100	140	90	130	100	140	100	140	100	140
	Acciaio automatico Automatic steel	4	1200		75		60		75		75		75
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	20	140	20	140	20	140	20	140	20	140
	Austenitico Austenitic	3	850	15	100	15	100	15	100	15	100	15	100
	Ferritico+austenitico Ferritic austenitic	4	1000		90		90		90		90		90
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	120	230	140	230	120	230	120	230	120	230
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	80	140	90	140	80	140	80	140	80	140
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	115	140	110	140	115	140	115	140	115	140
	Leghe di titanio Titanium alloys	5	900	70	90	70	90	70	90	70	90	70	90
RAME COPPER	Rame Copper	9	350	110	200	420		200	420	200	420	200	420
	Ottone Brass	9	700	219	200	420		200	420	200	420	200	420
	Bronzo Bronze	9	700	219	200	420		200	420	200	420	200	420
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	120	160	40	160	120	160	120	160	120
	Leghe di nichel Nichel alloys	6	900	280	10	30	10	30	10	30	10	30	10
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110	200	300		200	300	200	300	200	300
	Alluminio con leghe Alloyed aluminium	7	400	125	200	300		200	300	200	300	200	300
	Alluminio con leghe Alloyed aluminium	7	500	157	300	600		300	600	300	600	300	600

FRESE MONOTAGLIENTE PER ALLUMINIO SINGLE FLUTE END MILLS FOR ALUMINUM		FRESE IN METALLO DURO PER ALLUMINIO SOLID CARBIDE END MILLS FOR ALUMINUM				FRESE A DUE TAGLIANTI TWO FLUTE END MILLS		FRESE MULTITAGLIENTE PER SUPERFINITURA MULTIFLUTE SUPERFINISHING END MILLS		FRESE TORICHE A QUATTRO TAGLIANTI FOUR FLUTE CUTTERS WITH CORNER RADIUS	
	SAPPHIRE										
ALL158HM		ALL161HM		ALL163HM		CL19HM	CL19CMHM	CL26HM	CL26SLHM	CL27CRHM	CL27CRSLHM
CARMON NORM.		DIN 6528				CARMON NORM.		DIN 6528		CARMON NORM.	
		Micrograin Co10%				Micrograin Co12%		Micrograin Co12%			
											
mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min	mt/min
						310	310	310	310	310	310
						300	300	300	300	300	300
						220	220	220	220	220	220
						70	70	70	70	70	70
		20	100	20	100	200	200	200	200	200	200
		15	70	15	70	150	150	150	150	150	150
			60		60	100	100	100	100	100	100
		110	155	110	155	290	290	290	290	290	290
		50	80	50	80	180	180	180	180	180	180
		115	140	115	140	200	200	200	200	200	200
		70	90	70	90	120	120	120	120	120	120
		200	420	200	420						
		200	420	200	420						
		200	420	200	420						
				120	160	230	230	230	230	230	230
				10	30	50	50	50	50	50	50
220	320	200	300	200	300						
220	320	200	300	200	300						
300	600	300	600	300	600						



rpm
 $= (mt/min \times 1000) / (D \times 3,14)$



mm/min
 $= mm/rev \times rpm$



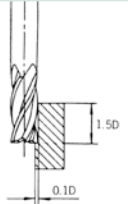
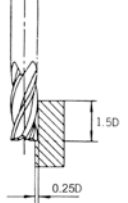
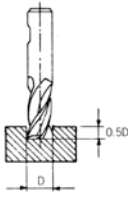
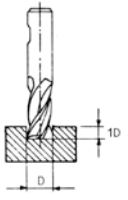
= mt/min



= mm/rev
 (vedi tabella - see table page pag. 293)

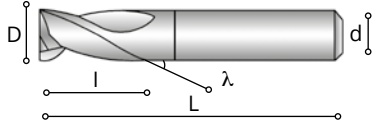
PUNTE EXTRA CORTE TWIST DRILLS, STUB LENGTH		PUNTE CORTE TWIST DRILLS, JOBBER LENGTH		PUNTE CON CODOLO RINFORZATO TWIST DRILLS WITH REINFORCED SHANK									
	SAPPHIRE		SAPPHIRE										
CL400		CL410		CL415	CL425	CL420	CL430	CL435					
DIN 6539		DIN 338		DIN 6537K	DIN 6537K	DIN 6537L	DIN 6537L	DIN 6537L	CARMON NORM.				
HM		HM		HM									

Pag. 378	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min		mt/min		mt/min		mt/min		mt/min		mt/min	
				mm/rev	mm/rev	mm/rev	mm/rev	mm/rev	mm/rev	mm/rev	mm/rev	mm/rev	mm/rev		
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel	1	500	157	85 a	120 f	85 a	120 f	120 c	150 c	120 c	150 c	150 c	150 c	150 c
	Acciai da costruzione Structural steel	2	700	219	70 a	115 f	70 a	115 f	100 b	120 b	100 b	120 b	120 b	120 b	120 b
	Acciai da tempra Hardening steel	3	900	280	45 a	90 f	45 a	90 f	80 b	100 b	80 b	100 b	100 b	100 b	100 b
	Acciaio automatico Automatic steel	4	1200	373	40 a	50 f	40 a	50 f	60 a	70 a	60 a	70 a	70 a	70 a	70 a
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel	3	850	265	50 g	55 f	50 g	55 f	70 c	80 c	70 c	80 c	80 c	80 c	80 c
	Austenitico Austenitic	3	850	265	45 g	50 f	45 g	50 f	60 c	70 c	60 c	70 c	70 c	70 c	70 c
	Ferritico+austenitico Ferritic austenitic	4	1000	311					40 e	50 e	40 e	50 e	50 e	50 e	50 e
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb	2	500	157	75 b	90 f	75 b	90 f	75 c	75 c	80 c	80 c	80 c	80 c	80 c
	Ghisa oltre 180 hb Cast iron over 180hb	3	700	219	55 b	70 f	55 b	70 f	65 b	65 b	65 b	65 b	65 b	65 b	65 b
TITANIO TITANIUM	Titanio non legato Unalloyed titanium	5	500	157	45 a	55 a	45 a	55 a	55 c	65 c	55 c	65 c	65 c	65 c	65 c
	Leghe di titanio Titanium alloys	5	900	280	30 a	40 a	30 a	40 a	45 b	55 b	45 b	55 b	55 b	55 b	55 b
RAME COPPER	Rame Copper	9	350	110	300 f		300 f								
	Ottone Brass	9	700	219	300 f		300 f								
	Bronzo Bronze	9	700	219	300 f		300 f								
NICHEL NICKEL	Nichel non legato Unalloyed nichel	6	700	219	45 a	55 f	45 a	55 f	40 b	50 b	40 b	50 b	50 b	50 b	50 b
	Leghe di nichel Nichel alloys	6	900	280	30 a	45 f	30 a	45 f	30 a	40 a	30 a	40 a	40 a	40 a	40 a
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium	7	350	110											
	Alluminio con leghe Alloyed aluminium	7	400	125											
	Alluminio con leghe Alloyed aluminium	7	500	157											

FRESATURA MILLING	TABELLA PARAMETRI DI AVANZAMENTO mm/dente FEED DATA mm/tooth.											
	DIAMETRO DELLA FRESA MILLING DIAMETER											
TIPO DI FRESATURA TYPE OF MILLING	2	3	4	5	6	8	10	12	14	16	18	20
	0,016	0,025	0,035	0,040	0,065	0,070	0,080	0,095	0,100	0,120	0,140	0,160
	0,013	0,025	0,030	0,040	0,050	0,055	0,060	0,070	0,080	0,090	0,100	0,120
	0,007	0,009	0,012	0,014	0,016	0,022	0,035	0,045	0,055	0,065	0,070	0,075
	0,004	0,008	0,010	0,013	0,015	0,025	0,035	0,040	0,045	0,050	0,055	0,060

FORATURA DRILLING	TABELLA PARAMETRI DI AVANZAMENTO mm/giro RECOMMENDED FEED DATA mm/rev.																
	DIAMETRO DELLA PUNTA DRILL DIAMETER																
LETTERA DI RIFERIMENTO REFERENCE LETTER	D. 1	D. 2	D. 3	D. 4	D. 5	D. 6	D. 8	D. 10	D. 12	D. 14	D. 16	D. 20	D. 25	D. 30	D. 35	D. 40	D. 50
a	0,015	0,030	0,038	0,047	0,053	0,060	0,075	0,090	0,100	0,120	0,127	0,160	0,200	0,230	0,250	0,300	0,350
b	0,020	0,050	0,070	0,085	0,100	0,120	0,150	0,180	0,200	0,230	0,250	0,270	0,290	0,330	0,350	0,380	0,400
c	0,023	0,080	0,100	0,130	0,150	0,180	0,250	0,270	0,280	0,300	0,330	0,370	0,420	0,450	0,470	0,500	0,550
d	0,030	0,100	0,160	0,180	0,220	0,240	0,300	0,370	0,400	0,450	0,480	0,500	0,530	0,550	0,580	0,600	0,630
e	0,035	0,120	0,200	0,250	0,270	0,300	0,350	0,450	0,470	0,500	0,530	0,550	0,600	0,640	0,680	0,700	0,730
f	0,050	0,150	0,220	0,250	0,320	0,400	0,490	0,620	0,650	0,720	0,850	0,900	1,100	1,130	1,170	1,200	1,250
g	0,070	0,160	0,250	0,270	0,360	0,470	0,620	0,830	0,900	0,950	1,100	1,200	1,280	1,330	1,400	1,470	1,520
h	0,090	0,200	0,270	0,300	0,400	0,520	0,750	1,000	1,100	1,200	1,300	1,350	1,430	1,500	1,650	1,700	1,800

CL 11HM

LASER RING I[®]

CL11HM



D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10		Micrograin Carbide Co10
						1110..... €	CODE	2110..... € SAPPHIRE
1	40	3	4	2	....01009	22,18	....01008	27,71
1,5	40	4,5	4	2	....01509	21,54	....01508	27,01
2	38	6	3	2	....02009	18,68	....02008	22,90
2,5	38	7	3	2	....25009	19,32	....25008	25,43
3	38	7	3	2	....30009	20,00	....30008	25,03
3,5	50	7	3,5	2	....35009	20,36	....35008	25,83
4	50	8	4	2	....40009	18,66	....40008	23,43
4,5	50	8	4,5	2	....45009	23,94	....45008	30,86
5	50	10	5	2	....50009	21,63	....50008	28,27
5,5	57	10	5,5	2	....55009	26,76	....55008	33,97
6	57	10	6	2	....60009	24,82	....60008	31,91
7	60	13	7	2	....70009	31,46	....70008	39,99
8	63	16	8	2	....80009	39,11	....80008	48,39
9	67	16	9	2	....90009	48,43	....90008	59,96
10	72	19	10	2	....10009	55,12	....10008	64,52
12	83	22	12	2	....12009	77,87	....12008	91,04
14	83	22	14	2	....14009	103,14	....14008	121,50
16	92	26	16	2	....16009	140,51	....16008	162,61
18	92	26	18	218009	173,7218008	200,42
20	104	32	20	220009	225,8520008	264,25

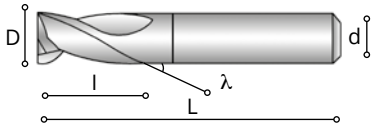
CL 11 HMB

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6527L

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CL11HMB



D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10
						2110..... € SAPPHIRE SLEEK
3,00	50	7	3,00	230008B	17,52
3,50	50	7	3,50	2	....35008B	18,08
4,00	50	8	4,00	2	....40008B	16,40
4,50	50	8	4,50	2	....45008B	21,60
5,00	50	10	5,00	2	....50008B	19,79
5,50	57	10	5,50	2	....55008B	23,78
6,00	57	10	6,00	2	....60008B	22,34
6,50	60	13	6,50	2	....65008B	25,01
7,00	60	13	7,00	2	....70008B	27,99
7,50	63	16	7,50	2	....75008B	31,35
8,00	63	16	8,00	2	....80008B	33,87
8,50	67	16	8,50	2	....85008B	37,94
9,00	67	16	9,00	2	....90008B	41,97
9,50	72	19	9,50	2	....95008B	47,43
10,00	72	19	10,00	2	....10008B	45,16
10,50	72	19	10,50	2	....10508B	51,93
11,00	83	22	11,00	2	....11008B	63,89
12,00	83	22	12,00	2	....12008B	63,73
13,00	83	22	13,00	2	....13008B	80,60
14,00	83	22	14,00	2	....14008B	86,75
15,00	92	22	15,00	2	....15008B	106,32
16,00	92	26	16,00	2	....16008B	122,42
17,00	92	26	17,00	2	....17008B	152,16
18,00	92	26	18,00	2	....18008B	160,95
19,00	92	26	19,00	219008B	197,00
20,00	104	32	20,00	220008B	203,34

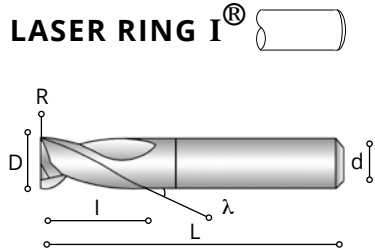
CL 11CrHM

DIN
6527LDIN
6528

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30°

LASER RING I®



CL11CrHM



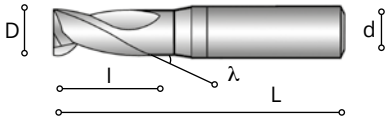
D h10	R	L	I	d h6	Z	CODE	Micrograin Carbide Co10		Micrograin Carbide Co10
							1110..... €	CODE	2110..... € SAPPHIRE
2	0,3	38	6	3	2	....02019	20,55	....02018	25,19
3	0,3	38	7	3	2	....30019	22,00	....30018	27,53
4	0,5	50	8	4	2	....40019	20,53	....40018	25,77
5	0,5	50	10	5	2	....50019	23,79	....50018	31,10
6	0,5	57	10	6	2	....60019	27,30	....60018	35,10
7	0,8	60	13	7	2	....70019	34,61	....70018	43,99
8	0,8	63	16	8	2	....80019	43,02	....80018	53,23
9	0,8	67	16	9	2	....90019	53,27	....90018	65,96
10	1	72	19	10	2	....10019	60,63	....10018	70,97
12	1	83	22	12	2	....12019	87,21	....12018	100,14
14	1	83	22	14	2	....14019	115,51	....14018	137,65
16	1,5	92	26	16	2	....16019	157,38	....16018	184,24
18	1,5	92	26	18	2	....18019	194,57	....18018	227,07
20	2	104	32	20	2	....20019	252,96	....20018	299,40

Altri raggi a richiesta - We can manufacture on request these cutters with different corner radius size

CL 11RsHM 



LASER RING I[®] 



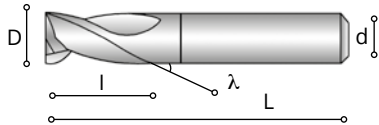
CL11RsHM



D h10	L	I	d h6	Z	CODE	Micrograin Carbide Co10	
						1110..... €	CODE
2	50	3	6	2	....02029	30,40	....02028
2,5	50	3	6	2	....25029	30,40	....25028
3	50	4	6	2	....30029	30,40	....30028
3,5	50	4	6	2	....35029	30,40	....35028
4	54	5	6	2	....40029	30,40	....40028
4,5	54	5	6	2	....45029	30,40	....45028
5	54	6	6	2	....50029	30,40	....50028
5,5	54	7	6	2	....55029	30,40	....55028

Micrograin Carbide Co10
2110.....
€ SAPPHIRE

CL 12HM

LASER RING I[®]

CL12HM

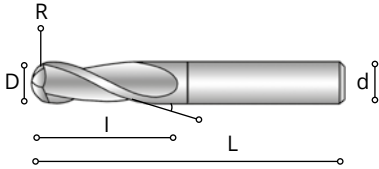


D h10	L	I	d h6	Z	CODE	Micrograin Carbide Co10		Micrograin Carbide Co10
						1120..... €	CODE	2120..... € SAPPHIRE
3	55	14	3	2	....30009	24,76	....30008	31,41
4	55	16	4	2	....40009	26,69	....40008	33,06
5	60	20	5	2	....50009	28,66	....50008	36,28
6	70	20	6	2	....60009	33,26	....60008	41,18
7	75	26	7	2	....70009	47,91	....70008	58,64
8	80	32	8	2	....80009	56,52	....80008	69,12
9	80	32	9	2	....90009	64,74	....90008	79,62
10	100	36	10	2	....10009	80,20	....10008	93,85
12	100	40	12	2	....12009	118,27	....12008	125,72
14	100	45	14	2	....14009	184,03	....14008	188,40
16	120	52	16	2	....16009	205,98	....16008	248,20
18	120	52	18	2	....18009	261,77	....18008	298,47
20	130	64	20	2	....20009	396,19	....20008	420,98

CL 18HM



LASER RING I[®]

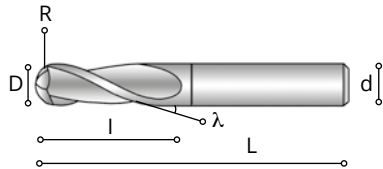


CL18HM



D h10	R ±0,02	L	I	d h6	Z	CODE	Micrograin Carbide Co10		
							1180..... €	CODE	
							Micrograin Carbide Co10		
							2180..... € SAPPHIRE		
2	1	38	6	3	2	....02009	29,79	....02008	35,93
3	1,5	38	7	3	2	....30009	25,74	....30008	30,61
4	2	50	8	4	2	....40009	29,48	....40008	34,02
5	2,5	50	10	5	2	....50009	34,03	....50008	40,39
6	3	57	10	6	2	....60009	34,34	....60008	41,03
7	3,5	60	13	7	2	....70009	50,38	....70008	58,56
8	4	63	16	8	2	....80009	47,53	....80008	55,52
9	4,5	67	16	9	2	....90009	74,45	....90008	89,72
10	5	72	19	10	2	....10009	72,28	....10008	81,06
12	6	83	22	12	2	....12009	89,55	....12008	105,94
14	7	83	22	14	2	....14009	125,54	....14008	146,31
16	8	92	26	16	2	....16009	157,52	....16008	175,43
18	9	92	26	18	2	....18009	209,70	....18008	240,42
20	10	104	32	20	2	....20009	265,54	....20008	291,29

CL 18SLHM

LASER RING I[®]

CL18SLHM

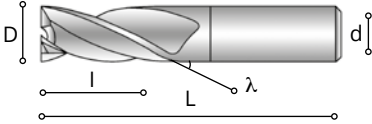


D h10	R ± 0,02	L	I	d h6	Z	CODE	Micrograin Carbide Co10		Micrograin Carbide Co10
							1182..... €	CODE	2182..... € SAPPHIRE
3	1,5	55	14	3	2	....30009	41,93	....30008	49,14
4	2	55	16	4	2	....40009	43,85	....40008	48,61
5	2,5	60	20	5	2	....50009	48,21	....50008	57,32
6	3	70	20	6	2	....60009	53,12	....60008	61,72
7	3,5	75	26	7	2	....70009	69,88	....70008	82,59
8	4	80	32	8	2	....80009	69,88	....80008	82,59
9	4,5	80	32	9	2	....90009	99,47	....90008	109,37
10	5	100	36	10	2	....10009	99,47	....10008	109,37
12	6	100	40	12	2	....12009	135,03	....12008	142,29
14	7	100	45	14	2	....14009	191,37	....14008	219,69
16	8	120	52	16	2	....16009	257,93	....16008	295,23
18	9	120	52	18	2	....18009	307,04	....18008	360,02
20	10	130	64	20	2	....20009	409,59	....20008	464,21

CL 16HM



LASER RING I® 



CL16HM

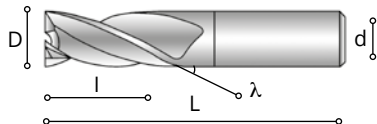


D h10	L	I	d h6	Z	CODE	Micrograin Carbide Co10		
						1160..... €	CODE	
						Micrograin Carbide Co10		
						2160..... € SAPPHIRE		
2	38	6	3	3	....02009	18,68	....02008	22,90
3	38	7	3	3	....30009	20,00	....30008	25,03
4	50	8	4	3	....40009	18,66	....40008	23,43
5	50	10	5	3	....50009	21,63	....50008	28,27
6	57	10	6	3	....60009	24,82	....60008	31,91
7	60	13	7	3	....70009	31,46	....70008	39,99
8	63	16	8	3	....80009	39,11	....80008	48,39
9	67	16	9	3	....90009	48,43	....90008	59,96
10	72	19	10	3	....10009	55,12	....10008	64,52
12	83	22	12	3	....12009	77,87	....12008	91,04
14	83	22	14	3	....14009	103,14	....14008	121,50
16	92	26	16	3	....16009	140,51	....16008	162,61
18	92	26	18	318009	173,7218008	200,42
20	104	32	20	320009	225,8520008	264,25

CL 16 HMB

DIN
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6528

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CL16HMB

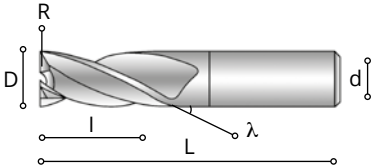


D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10
						2160..... € SAPPHIRE SLEEK
3,00	50	7	3,00	330008B	17,52
3,50	50	7	3,50	3	....35008B	19,49
4,00	50	8	4,00	3	....40008B	16,40
4,50	50	8	4,50	3	....45008B	23,08
5,00	50	10	5,00	3	....50008B	19,79
5,50	57	10	5,50	3	....55008B	25,71
6,00	57	10	6,00	3	....60008B	22,34
6,50	60	13	6,50	3	....65008B	25,56
7,00	60	13	7,00	3	....70008B	28,00
7,50	63	16	7,50	3	....75008B	31,81
8,00	63	16	8,00	3	....80008B	33,87
8,50	67	16	8,50	3	....85008B	38,40
9,00	67	16	9,00	3	....90008B	41,97
9,50	72	19	9,50	3	....95008B	47,92
10,00	72	19	10,00	3	....10008B	45,16
10,50	72	19	10,50	3	....10508B	52,39
11,00	83	22	11,00	3	....11008B	65,48
12,00	83	22	12,00	3	....12008B	63,73
13,00	83	22	13,00	3	....13008B	82,55
14,00	83	22	14,00	3	....14008B	86,75
15,00	92	22	15,00	3	....15008B	108,01
16,00	92	26	16,00	3	....16008B	122,42
17,00	92	26	17,00	3	....17008B	152,16
18,00	92	26	18,00	3	....18008B	160,95
19,00	92	26	19,00	3	....19008B	197,00
20,00	104	32	20,00	3	....20008B	203,34

CL 16CrHM



LASER RING I[®]



CL16CrHM



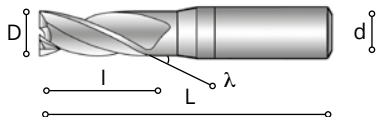
D h10	R	L	I	d h6	Z	CODE	Micrograin Carbide Co10	CODE	Micrograin Carbide Co10
							1160..... €		2160..... € SAPPHIRE
2	0,3	38	6	3	3	....02019	20,55	....02018	25,19
3	0,3	38	7	3	3	....30019	22,00	....30018	27,53
4	0,5	50	8	4	3	....40019	20,53	....40018	25,77
5	0,5	50	10	5	3	....50019	23,79	....50018	31,10
6	0,5	57	10	6	3	....60019	27,30	....60018	35,10
7	0,8	60	13	7	3	....70019	34,61	....70018	43,99
8	0,8	63	16	8	3	....80019	43,02	....80018	53,23
9	0,8	67	16	9	3	....90019	53,27	....90018	65,96
10	1	72	19	10	3	....10019	60,63	....10018	70,97
12	1	83	22	12	3	....12019	87,21	....12018	100,14
14	1	83	22	14	3	....14019	115,51	....14018	137,65
16	1,5	92	26	16	3	....16019	157,38	....16018	184,24
18	1,5	92	26	18	3	....18019	194,57	....18018	227,07
20	2	104	32	20	3	....20019	252,96	....20018	299,40

Altri raggi a richiesta - We can manufacture on request these cutters with different corner radius size

CL 16RsHM

DIN
6527K

N

 λ
30°LASER RING I[®] (DIN 6535
Form HA)

CL16RsHM

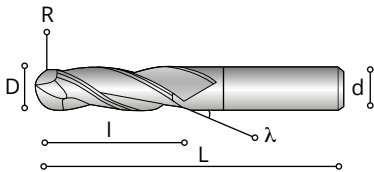


D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10		
						1160..... €	CODE	
2	50	3	6	3	....02029	30,40	....02028	2160..... € SAPPHIRE
2,5	50	3	6	3	....25029	30,40	....25028	37,97
3	50	4	6	3	....30029	30,40	....30028	37,97
3,5	50	4	6	3	....35029	30,40	....35028	37,97
4	54	5	6	3	....40029	30,40	....40028	37,97
4,5	54	5	6	3	....45029	30,40	....45028	37,97
5	54	6	6	3	....50029	30,40	....50028	37,97
5,5	54	7	6	3	....55029	30,40	....55028	37,97

CL 16RHM



LASER RING I[®]

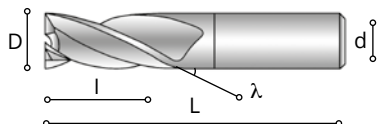


CL16RHM



D h10	R ± 0,02	L	l	d h6	Z	CODE	Micrograin Carbide Co10	CODE	Micrograin Carbide Co10
							1161..... €		2161..... € SAPPHIRE
2	1	38	6	3	3	....02009	29,79	....02008	35,93
3	1,5	38	7	3	3	....30009	25,74	....30008	30,61
4	2	50	8	4	3	....40009	29,48	....40008	34,02
5	2,5	50	10	5	3	....50009	34,03	....50008	40,39
6	3	57	10	6	3	....60009	34,34	....60008	41,03
7	3,5	60	13	7	3	....70009	50,38	....70008	58,56
8	4	63	16	8	3	....80009	47,53	....80008	55,52
9	4,5	67	16	9	3	....90009	74,45	....90008	89,72
10	5	72	19	10	3	....10009	72,28	....10008	81,06
12	6	83	22	12	3	....12009	89,55	....12008	105,94
14	7	83	22	14	3	....14009	125,54	....14008	146,31
16	8	92	26	16	3	....16009	157,52	....16008	175,43
18	9	92	26	18	3	....18009	209,70	....18008	240,42
20	10	104	32	20	3	....20009	265,54	....20008	291,29

CL 17HM

LASER RING I[®]

CL17HM

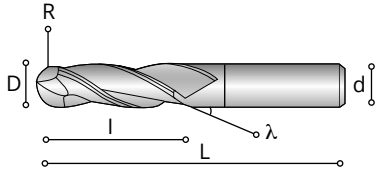


D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10		Micrograin Carbide Co10
						1170..... €	CODE	2170..... € SAPPHIRE
3	55	14	3	3	....30009	24,76	....30008	31,41
4	55	16	4	3	....40009	26,69	....40008	33,06
5	60	20	5	3	....50009	28,66	....50008	36,28
6	70	20	6	3	....60009	33,26	....60008	41,18
7	75	26	7	3	....70009	47,91	....70008	58,64
8	80	32	8	3	....80009	56,52	....80008	69,12
9	80	32	9	3	....90009	64,74	....90008	79,62
10	100	36	10	3	....10009	80,20	....10008	93,85
12	100	40	12	3	....12009	118,27	....12008	125,72
14	100	45	14	3	....14009	184,03	....14008	188,40
16	120	52	16	3	....16009	205,98	....16008	248,20
18	120	52	18	3	....18009	261,77	....18008	298,47
20	130	64	20	3	....20009	396,19	....20008	420,98

CL 17RHM



LASER RING I[®]



CL17RHM

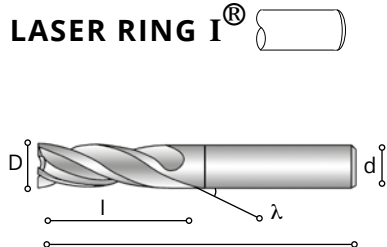


D h10	R ± 0,02	L	I	d h6	Z	CODE	Micrograin Carbide Co10	CODE	Micrograin Carbide Co10
							1171..... €		2171..... € SAPPHIRE
3	1,5	55	14	3	3	....30009	43,46	....30008	50,24
4	2	55	16	4	3	....40009	46,35	....40008	54,15
5	2,5	60	20	5	3	....50009	48,42	....50008	59,22
6	3	70	20	6	3	....60009	53,12	....60008	63,78
7	3,5	75	26	7	3	....70009	71,19	....70008	86,34
8	4	80	32	8	3	....80009	72,47	....80008	87,85
9	4,5	80	32	9	3	....90009	99,47	....90008	109,37
10	5	100	36	10	3	....10009	99,47	....10008	111,39
12	6	100	40	12	3	....12009	135,03	....12008	147,00
14	7	100	45	14	3	....14009	196,87	....14008	223,47
16	8	120	52	16	3	....16009	257,93	....16008	297,43
18	9	120	52	18	3	....18009	312,54	....18008	372,49
20	10	130	64	20	3	....20009	416,15	....20008	479,47

CL 21TFHM

DIN
6527LDIN
6528

N

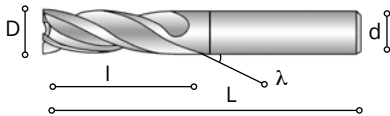
 λ
30°LASER RING I[®]

CL21TFHM



D h10	L	I	d h6	Z	CODE	Micrograin Carbide Co10		Micrograin Carbide Co10
						1213..... €	CODE	2215..... € SAPPHIRE
2	38	7	3	4	....02009	18,68	....02008	22,90
3	38	8	3	4	....30009	20,00	....30008	25,03
4	50	11	4	4	....40009	18,66	....40008	23,43
5	50	13	5	4	....50009	21,63	....50008	28,27
6	57	13	6	4	....60009	24,82	....60008	31,91
7	60	16	7	4	....70009	31,46	....70008	39,99
8	63	19	8	4	....80009	39,11	....80008	48,39
9	67	19	9	4	....90009	48,43	....90008	59,96
10	72	22	10	4	....10009	55,12	....10008	64,52
12	83	26	12	4	....12009	77,87	....12008	91,04
14	83	26	14	4	....14009	103,14	....14008	121,50
16	92	32	16	4	....16009	143,32	....16008	165,86
18	92	32	18	4	....18009	173,72	....18008	200,42
20	104	38	20	4	....20009	225,85	....20008	264,25

CL21TFHMB



CL21TFHMB



D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10
						2215..... € SAPPHIRE SLEEK
3,00	50	10	3,00	4	....30008B	17,52
3,50	50	10	3,50	4	....35008B	19,50
4,00	50	11	4,00	4	....40008B	16,40
4,50	50	11	4,50	4	....45008B	23,10
5,00	50	13	5,00	4	....50008B	19,79
5,50	57	13	5,50	4	....55008B	25,71
6,00	57	13	6,00	4	....60008B	22,34
6,50	60	16	6,50	4	....65008B	25,56
7,00	60	16	7,00	4	....70008B	28,00
7,50	63	19	7,50	4	....75008B	31,81
8,00	63	19	8,00	4	....80008B	33,87
8,50	67	19	8,50	4	....85008B	38,40
9,00	67	19	9,00	4	....90008B	41,97
9,50	72	22	9,50	4	....95008B	47,92
10,00	72	22	10,00	4	....10008B	45,16
10,50	72	22	10,50	4	....10508B	52,39
11,00	83	25	11,00	4	....11008B	65,48
12,00	83	25	12,00	4	....12008B	63,73
13,00	83	25	13,00	4	....13008B	82,55
14,00	83	26	14,00	4	....14008B	87,58
15,00	92	32	15,00	4	....15008B	109,18
16,00	92	32	16,00	4	....16008B	122,42
17,00	92	32	17,00	4	....17008B	153,84
18,00	92	32	18,00	4	....18008B	160,95
19,00	92	32	19,00	419008B	198,83
20,00	104	38	20,00	420008B	203,34

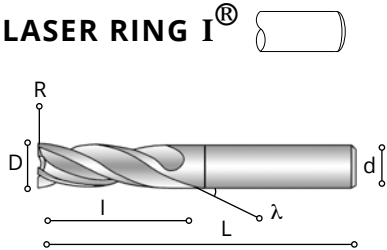
CL 21CrHM

DIN
6527LDIN
6528

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30°

LASER RING I®



CL21CrHM



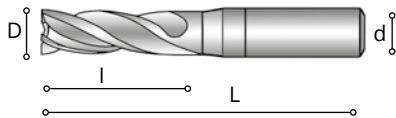
D h10	R	L	I	d h6	Z	CODE	Micrograin Carbide Co10	CODE	Micrograin Carbide Co10
							1210..... €		2210..... € SAPPHIRE
2	0,3	38	7	3	4	....02019	21,22	....02018	25,91
3	0,3	38	8	3	4	....30019	22,74	....30018	28,33
4	0,5	50	11	4	4	....40019	21,19	....40018	26,52
5	0,5	50	13	5	4	....50019	24,55	....50018	31,97
6	0,5	57	13	6	4	....60019	28,14	....60018	36,06
7	0,8	60	16	7	4	....70019	35,63	....70018	45,13
8	0,8	63	19	8	4	....80019	44,24	....80018	54,59
9	0,8	67	19	9	4	....90019	54,79	....90018	67,65
10	1	72	22	10	4	....10019	62,83	....10018	76,11
12	1	83	26	12	4	....12019	89,84	....12018	102,92
14	1	83	26	14	4	....14019	118,98	....14018	141,54
16	1,5	92	32	16	4	....16019	162,09	....16018	189,50
18	1,5	92	32	18	4	....18019	200,31	....18018	233,48
20	2	104	38	20	4	....20019	260,48	....20018	307,84

Altri raggi a richiesta - We can manufacture on request these cutters with different corner radius size

CL 21RSHM 



LASER RING I[®] 



CL21RSHM

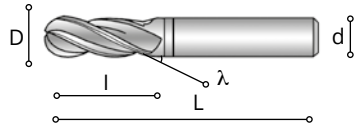


D h10	L	I	d h6	Z	CODE	1213..... €	CODE	Micrograin Carbide Co10
								2215..... € SAPPHIRE
2	50	4	6	4	....02029	30,41	....02028	37,97
2,5	50	4	6	4	....25029	30,41	....25028	38,54
3	50	5	6	4	....30029	30,41	....30028	37,97
3,5	50	6	6	4	....35029	30,41	....35028	38,54
4	54	8	6	4	....40029	30,41	....40028	37,97
4,5	54	8	6	4	....45029	30,41	....45028	38,54
5	54	9	6	4	....50029	30,41	....50028	38,54
5,5	54	10	6	4	....55029	30,41	....55028	38,54

CL 21RHM

DIN
6527LDIN
6528

N

 λ
30°LASER RING I[®] 

CL21RHM



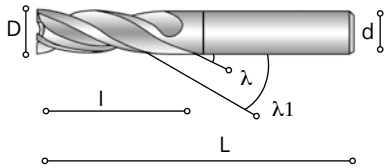
D h10	R ± 0,02	L	I	d h6	Z	CODE	Micrograin Carbide Co10		Micrograin Carbide Co10
							1211..... €	CODE	2211..... € SAPPHIRE
2	1	38	7	3	4	....02009	30,39	....02008	35,93
3	1,5	38	8	3	4	....30009	25,74	....30008	30,61
4	2	50	11	4	4	....40009	29,48	....40008	34,02
5	2,5	50	13	5	4	....50009	34,03	....50008	40,39
6	3	57	13	6	4	....60009	34,34	....60008	41,03
7	3,5	60	16	7	4	....70009	50,38	....70008	58,56
8	4	63	19	8	4	....80009	47,53	....80008	55,52
9	4,5	67	19	9	4	....90009	74,45	....90008	89,72
10	5	72	22	10	4	....10009	72,28	....10008	81,06
12	6	83	26	12	4	....12009	89,55	....12008	105,94
14	7	83	26	14	4	....14009	125,54	....14008	146,31
16	8	92	32	16	4	....16009	157,52	....16008	175,43
18	9	92	32	18	4	....18009	209,70	....18008	240,42
20	10	104	38	20	4	....20009	265,54	....20008	291,29

FRESE A QUATTRO TAGLIENTI CON ELICA DIFFERENZIATA E DIVISIONE IRREGOLARE
FOUR FLUTE END MILLS WITH HELIX DIFFERENTIATED IRREGULAR DIVISION

CL 21EDHM



LASER RING I[®] 



CL21EDHM



D h10	L	I	d h6	Z	CODE	Micrograin Carbide Co10
						2216..... € SAPPHIRE SLEEK
5	50	13	5	4	....50008	38,44
6	57	13	6	4	....60008	41,48
8	63	19	8	4	....80008	54,91
10	72	22	10	4	....10008	70,37
12	83	26	12	4	....12008	96,56
14	83	26	14	4	....14008	146,03
16	92	32	16	4	....16008	171,12
18	92	32	18	4	....18008	212,32
20	104	38	20	4	....20008	274,90

FRESE A QUATTRO TAGLIENTI CON ELICA DIFFERENZIATA E DIVISIONE IRREGOLARE
FOUR FLUTE END MILLS WITH HELIX DIFFERENTIATED IRREGULAR DIVISION

CL 22EDHM

DIN
6527LDIN
6528

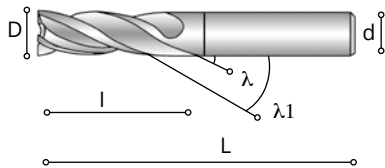
N

 λ
38° λ_1
40°

45°



LASER RING I[®] 



CL22EDHM

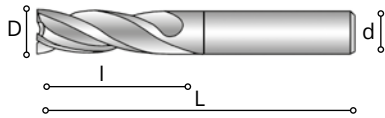


D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10
						2226..... € SAPPHIRE SLEEK
5	60	20	5	4	....50008	44,16
6	70	20	6	4	....60008	48,94
8	80	32	8	4	....80008	78,17
10	100	36	10	4	....10008	103,44
12	100	40	12	4	....12008	142,21
14	100	45	14	4	....14008	207,31
16	120	52	16	4	....16008	268,57
18	120	52	18	4	....18008	319,11
20	130	64	20	4	....20008	447,09

CL 22TFHM 



LASER RING I[®] 

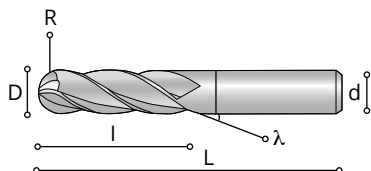


CL22TFHM



D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10		
						1223..... €	CODE	
						Micrograin Carbide Co10		
						2225..... € SAPPHIRE		
3	55	14	3	4	....30009	24,76	....30008	31,41
4	55	16	4	4	....40009	26,69	....40008	33,06
5	60	20	5	4	....50009	28,66	....50008	36,28
6	70	20	6	4	....60009	33,26	....60008	41,18
7	75	26	7	4	....70009	47,91	....70008	58,64
8	80	32	8	4	....80009	56,52	....80008	69,12
9	80	32	9	4	....90009	64,74	....90008	79,62
10	100	36	10	4	....10009	80,20	....10008	93,85
12	100	40	12	4	....12009	118,27	....12008	125,72
14	100	45	14	4	....14009	184,03	....14008	188,40
16	120	52	16	4	....16009	205,98	....16008	248,20
18	120	52	18	4	....18009	261,77	....18008	298,47
20	130	64	20	4	....20009	396,19	....20008	420,98

CL 22RHM

LASER RING I[®]

CL22RHM

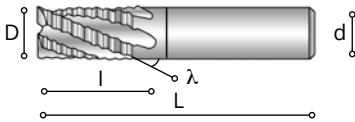


D h10	R ± 0,02	L	I	d h6	Z	CODE	Micrograin Carbide Co10		Micrograin Carbide Co10	
							1221..... €	CODE	2221..... € SAPPHIRE	
3	1,5	55	14	3	4	....30009	43,46	....30008		50,24
4	2	55	16	4	4	....40009	46,35	....40008		54,15
5	2,5	60	20	5	4	....50009	48,42	....50008		59,22
6	3	70	20	6	4	....60009	53,12	....60008		63,78
7	3,5	75	26	7	4	....70009	71,19	....70008		86,34
8	4	80	32	8	4	....80009	72,47	....80008		87,85
9	4,5	80	32	9	4	....90009	99,47	....90008		109,37
10	5	100	36	10	4	....10009	99,47	....10008		111,39
12	6	100	40	12	4	....12009	135,03	....12008		147,00
14	7	100	45	14	4	....14009	196,87	....14008		223,47
16	8	120	52	16	4	....16009	257,93	....16008		297,43
18	9	120	52	18	4	....18009	312,54	....18008		372,49
20	10	130	64	20	4	....20009	416,15	....20008		479,47

CL 24TFPFHM 



LASER RING I[®] 



CL24TFPFHM



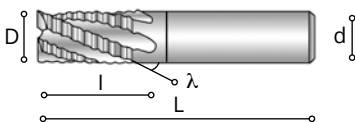
D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10	CODE	Micrograin Carbide Co10
						1244..... €		2246..... € SAPPHIRE
6	57	13	6	4	....60009	36,04	....60008	43,65
8	63	19	8	4	....80009	53,11	....80008	63,17
10	72	22	10	4	....10009	75,24	....10008	88,57
12	83	26	12	4	....12009	102,89	....12008	120,77
14	83	26	14	4	....14009	129,31	....14008	144,39
16	92	32	16	4	....16009	168,31	....16008	190,22
18	92	32	18	4	....18009	205,80	....18008	231,68
20	104	38	20	4	....20009	258,71	....20008	295,61

FRESE CILINDRICHE FRONTALI PER SEMIFINIRE | SEMIFINISHING END MILLS

CL 25TFHM 



LASER RING I[®] 



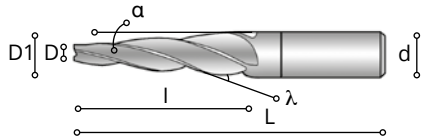
CL25TFHM



D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10	CODE	Micrograin Carbide Co10
						1253..... €		2255..... € SAPPHIRE
6	57	13	6	4	....60009	37,69	....60008	45,52
8	63	19	8	4	....80009	55,52	....80008	65,90
10	72	22	10	4	....10009	78,64	....10008	92,41
12	83	26	12	4	....12009	107,56	....12008	126,02
14	83	26	14	4	....14009	135,19	....14008	150,69
16	92	32	16	4	....16009	175,95	....16008	198,59
18	92	32	18	4	....18009	215,14	....18008	241,89
20	104	38	20	4	....20009	270,46	....20008	308,57

Su richiesta si possono fornire toriche e con testa emisferica - On request we can manufacture also with corner radius or full radius

CS 47HM

LASER RING I[®]

CS47HM



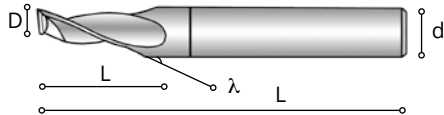
α	D	D1	L	l	d h6	Z	CODE	Micrograin Carbide Co10	CODE	Micrograin Carbide Co10
								1470..... €		2470..... € SAPPHIRE
1°	4	5,22	80	35	6	4	....10049	67,24	....10048	79,05
1°	5	6,40	85	40	7	4	....10059	96,11	....10058	111,77
1°	6	7,57	90	45	8	4	....10069	105,33	....10068	121,90
1°	8	10,00	100	57	10	4	....10089	129,80	....10088	150,01
2°	4	6,44	80	35	7	4	....20049	84,29	....20048	98,76
2°	5	8,00	85	43	8	4	....20059	103,68	....20058	120,08
2°	6	9,14	90	45	10	4	....20069	117,84	....20068	136,85
2°	8	12,00	100	57	12	4	....20089	153,45	....20088	176,02
3°	4	8,00	80	38	8	4	....30049	96,80	....30048	112,52
3°	5	9,19	85	40	10	4	....30059	107,66	....30058	125,65
3°	6	10,00	90	38	10	4	....30069	104,09	....30068	121,72
3°	8	14,00	100	57	14	4	....30089	179,71	....30088	205,50
4°	4	8,89	80	35	10	4	....40049	104,91	....40048	122,63
4°	5	10,59	85	40	11	4	....40059	125,40	....40058	145,17
4°	6	12,00	90	43	12	4	....40069	127,05	....40068	146,98
4°	8	16,00	100	57	16	4	....40089	204,88	....40088	233,18
5°	4	10,00	80	34	10	4	....50049	105,60	....50048	123,39
5°	5	12,00	85	40	12	4	....50059	122,79	....50058	142,29
5°	6	14,00	90	46	14	4	....50069	169,13	....50068	193,85

Su richiesta si possono fornire conicità diverse - On request we can manufacture with different angles

ALL 158HM
ALU



LASER RING I[®]



ALL158HM



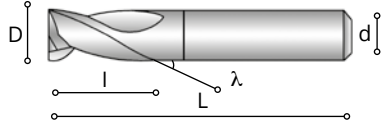
D	L	I	I1	d h6	Z	CODE	Micrograin Carbide Co10	CODE	Micrograin Carbide Co10
							4158..... €		2158..... € SAPPHIRE
3	50	12	-	3	1	....30009	23,22	....30008	28,95
4	50	15	-	4	1	....40009	27,20	....40008	33,33
5	60	17	-	5	1	....50009	32,27	....50008	40,17
5	60	17	-	8	1	....50089	51,14	....50088	62,06
6	60	20	-	6	1	....60009	36,63	....60008	44,97
6	60	20	-	8	1	....60089	54,96	....60088	66,25
8	70	22	-	8	1	....80009	55,98	....80008	66,95
8	100	25	50	8	1	....81009	71,65	....81008	85,65
10	80	25	-	10	1	....10009	83,96	....10008	100,53
10	100	25	50	10	1	....10109	102,81	....10108	121,25
12	100	30	45	12	1	....12009	113,33	....12008	133,08

ALL 161HM
ALU

DIN
6528



LASER RING I[®]



ALL161HM



D h10	L	l	d h6	Z	CODE	Micrograin Carbide Co10		Micrograin Carbide Co10
						4161..... €	CODE	2161..... € SAPPHIRE
3	50	7	3	2	....30009	22,49	....03008	27,63
4	50	8	4	2	....40009	23,93	....04008	29,10
5	50	10	5	2	....50009	22,60	....05008	29,32
6	57	10	6	2	....60009	26,05	....06008	33,27
7	60	13	7	2	....70009	33,04	....07008	41,72
8	63	16	8	2	....80009	41,07	....08008	50,55
9	67	16	9	2	....90009	50,85	....09008	62,62
10	72	19	10	2	....10009	57,87	....01008	67,43
12	83	22	12	2	....12009	81,76	....01208	95,20
14	83	22	14	2	....14009	108,29	....01408	127,16
16	92	26	16	2	....16009	147,54	....01608	170,34
18	92	26	18	2	....18009	182,40	....01808	209,98
20	104	32	20	2	....20009	237,14	....00208	276,74

Su richiesta si possono fornire toriche e con testa semisferica - On request we can manufacture also with corner radius or full radius

ALL 163HM
ALU

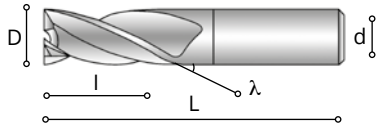
DIN
6528

W

λ
45°



LASER RING I® 



ALL163HM



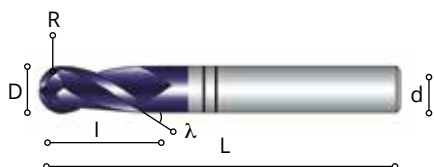
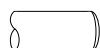
D h10	L	l	d h6	Z	CODE	1163..... €	CODE	Micrograin Carbide Co10
								2163..... € SAPPHIRE
3	50	7	3	3	....30009	26,10	....30008	31,46
4	50	8	4	3	....40009	27,82	....40008	33,30
5	50	10	5	3	....50009	26,27	....50008	33,39
6	57	10	6	3	....60009	30,35	....60008	38,02
7	60	13	7	3	....70009	40,11	....70008	49,54
8	63	16	8	3	....80009	42,72	....80008	52,38
9	67	16	9	3	....90009	56,62	....90008	69,00
10	72	19	10	3	....10009	55,14	....10008	64,54
12	83	22	12	3	....12009	81,73	....12008	95,18
14	83	22	14	3	....14009	111,42	....14008	130,63
16	92	26	16	3	....16009	146,93	....16008	169,68
18	92	26	18	3	....18009	182,13	....18008	209,69
20	104	32	20	3	....20009	237,21	....20008	276,83

Su richiesta si possono fornire toriche e con testa emisferica - On request we can manufacture also with corner radius or full radius

CL 19HM



LASER RING II®



CL19HM



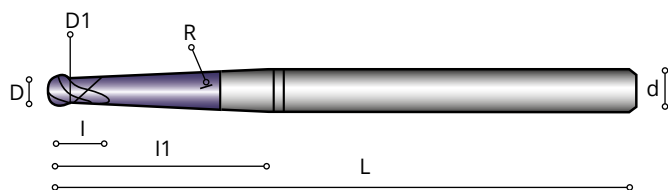
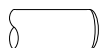
D e8	R ±0,01	L	I	d h6	Z	CODE	Micrograin Carbide Co12
							2190..... € SAPPHIRE
1	0,5	50	2,5	4	2	....01009	67,71
1,5	0,75	50	4	4	2	....01509	67,71
2	1	50	5	6	2	....02009	65,31
3	1,5	60	8	6	2	....03009	65,63
4	2	70	8	6	2	....04009	65,63
5	2,5	80	10	6	2	....05009	66,91
6	3	90	12	6	2	....06009	80,92
8	4	100	14	8	2	....08009	100,02
10	5	100	18	10	2	....10009	115,20
12	6	110	22	12	2	....12009	168,29
16	8	140	30	16	2	....16009	305,53
20	10	160	38	20	2	....20009	427,70

FRESE A DUE TAGLIANTI CON TESTA SEMISFERICA PER MACCHINE A COPIARE | BALL NOSED TWO FLUTE END

CL 19CMHM



LASER RING II®



CL19CMHM

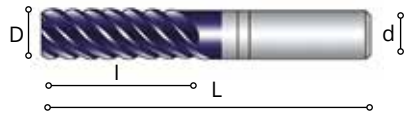


D h10	D1	R ±0,01	L	I	I1	D h6	Z	CODE	Micrograin Carbide Co12
									2191..... € SAPPHIRE
3	2,5	1,5	80	4	30	6	2	....03009	76,34
4	3,3	2	80	5	30	6	2	....04009	76,34
5	4,1	2,5	80	6	43	6	2	....05009	76,34
6	4,7	3	100	7	30	6	2	....06009	83,35
8	6,5	4	100	9	36	8	2	....08009	118,10
10	8,2	5	100	11	43	10	2	....10009	190,47
12	9,8	6	100	13	52	12	2	....12009	236,19
16	13,4	8	150	15	61	16	2	....16009	438,34

CL 26HM



LASER RING II® 



CL26HM



D e8	L	I	d h6	Z	CODE	Micrograin Carbide Co12
						2260..... € SAPPHIRE
6	57	13	6	6	....60009	42,37
8	63	19	8	6	....80009	59,51
10	72	22	10	6	....10009	95,16
12	83	26	12	6	....12009	127,59
14	83	26	14	6	....14009	160,01
16	92	32	16	6	....16009	213,57
18	92	32	18	6	....18009	261,36
20	104	38	20	8	....20009	350,70

CL 26SLHM



LASER RING II® 

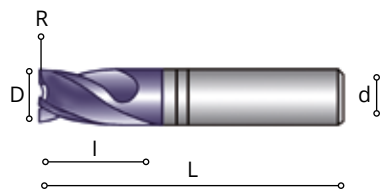


CL26SLHM



D e8	L	I	d h6	Z	CODE	Micrograin Carbide Co12
						2262..... € SAPPHIRE
6	80	26	6	6	....60009	53,98
8	85	36	8	6	....80009	78,85
10	95	44	10	6	....10009	117,78
12	105	52	12	6	....12009	157,31
14	105	52	14	6	....14009	203,82
16	130	64	16	6	....16009	289,04
18	130	64	18	6	....18009	355,49
20	150	76	20	8	....20009	423,71

CL 27CrHM

LASER RING II[®]

CL27CrHM

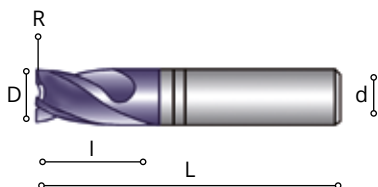


D e8	R	L	I	I1	d1	d h6	Z	CODE	Micrograin Carbide Co12
									2270..... € SAPPHIRE
3	0,3	50	4			3	4	....30019	41,47
4	0,3	50	5			4	4	....40019	45,75
5	0,3	50	6			5	4	....50019	50,90
6	0,8	57	7			6	4	....60019	57,58
8	0,8	63	9			8	4	....80019	74,10
10	1	72	11			10	4	....10019	112,16
12	1	83	12	25	11	12	4	....12019	139,93
16	1,5	92	16	30	15	16	4	....16019	245,97

CL 27CrSLHM



LASER RING II[®]



CL27CrSLHM



D e8	R	L	I	I1	d1	d h6	Z	CODE	Micrograin Carbide Co12
									2272..... € SAPPHIRE
3	0,3	80	4			6	4	....30019	65,46
4	0,3	80	5			6	4	....40019	70,26
5	0,3	80	6			6	4	....50019	75,40
6	0,8	80	7	18	5,5	6	4	....60019	73,69
8	0,8	80	9	21	7,5	8	4	....80019	91,68
10	1	100	11	35	9,3	10	4	....10019	141,19
12	1	110	12	35	11	12	4	....12019	174,31
16	1,5	120	16	40	15	16	4	....16019	297,47

Altri raggi a richiesta - We can manufacture on request

CL 400 HM

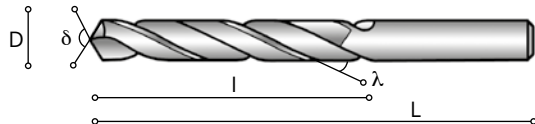
DIN
6539

N

 λ
30° δ
118°

A-GRIND

3xD



CL400



D h7	L	I	CODE	Micrograin Carbide Co10	
				5400..... €	7400..... € SAPPHIRE
2	38	12	....00200	11,36	15,39
2,1	38	12	....00210	12,75	17,44
2,2	40	13	....00220	12,75	17,44
2,3	40	13	....00230	12,75	17,44
2,4	43	14	....00240	12,75	17,44
2,5	43	14	....00250	12,75	17,44
2,6	43	14	....00260	12,75	17,44
2,7	46	16	....00270	16,91	22,02
2,8	46	16	....00280	16,91	22,02
2,9	46	16	....00290	16,91	22,02
3	46	16	....00300	16,91	22,02
3,1	49	18	....00310	17,22	22,35
3,2	49	18	....00320	17,22	22,35
3,3	49	18	....00330	17,22	22,35
3,4	52	20	....00340	18,53	23,79
3,5	52	20	....00350	18,53	23,79
3,6	52	20	....00360	20,46	25,91
3,7	52	20	....00370	20,46	25,91
3,8	52	20	....00380	22,07	27,69
3,9	55	22	....00390	22,07	27,69
4	55	22	....00400	22,07	27,69
4,1	55	22	....00410	23,24	30,23
4,2	55	22	....00420	23,24	30,23
4,3	58	24	....00430	24,62	31,75
4,4	58	24	....00440	24,62	31,75
4,5	58	24	....00450	24,62	31,75
4,6	58	24	....00460	24,62	31,75
4,7	58	24	....00470	26,48	33,79
4,8	62	26	....00480	26,48	33,79
4,9	62	26	....00490	26,48	33,79
5	62	26	....00500	26,48	33,79
5,1	62	26	....00510	26,48	33,79
5,2	62	26	....00520	34,49	42,61
5,3	62	26	....00530	34,49	42,61
5,4	66	28	....00540	34,49	42,61
5,5	66	28	....00550	34,49	42,61
5,6	66	28	....00560	36,67	45,00
5,7	66	28	....00570	36,67	45,00
5,8	66	28	....00580	36,67	45,00
5,9	66	28	....00590	36,67	45,00

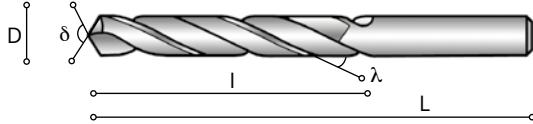
D h7	L	I	CODE	Micrograin Carbide Co10	
				5400..... €	7400..... € SAPPHIRE
6	66	28	....00600	36,67	45,00
6,1	70	31	....00610	45,83	55,95
6,2	70	31	....00620	45,83	55,95
6,3	70	31	....00630	45,83	55,95
6,4	70	31	....00640	45,83	55,95
6,5	70	31	....00650	44,52	54,50
6,6	70	31	....00660	54,11	65,05
6,7	70	31	....00670	54,11	65,05
6,8	74	34	....00680	54,11	65,05
6,9	74	34	....00690	54,11	65,05
7	74	34	....00700	53,49	64,37
7,5	74	34	....00750	64,36	76,33
8	79	37	....00800	72,00	86,24
8,5	79	37	....00850	90,75	108,24
9	84	40	....00900	91,68	109,26
9,5	84	40	....00950	102,01	120,63
10	89	43	....01000	104,64	123,51
10,2	89	43	....01020	124,15	144,98
10,5	89	43	....01050	124,15	144,98
11	95	47	....01100	137,91	160,11
11,5	95	47	....01150	161,59	186,15
12	102	51	....01200	161,59	188,52
13	102	51	....01300	195,77	227,23

CL 410 HM DIN
338

N

 λ
30° δ
118° A-GRIND


5xD




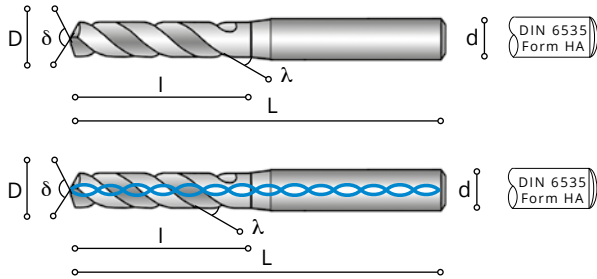
CL410



D h7	L	l	CODE	Micrograin Carbide Co10	
				5410..... €	7410..... € SAPPHIRE
2	49	24	....00200	14,90	19,29
2,2	53	27	....00220	19,23	24,57
2,5	57	30	....00250	18,85	24,15
2,6	57	30	....00260	25,23	31,18
3	61	33	....00300	24,40	30,25
3,1	65	36	....00310	24,40	30,25
3,3	65	36	....00330	24,62	30,50
3,5	70	39	....00350	26,80	32,89
4	75	43	....00400	30,27	36,71
4,2	75	43	....00420	31,26	39,06
4,5	80	47	....00450	37,68	47,37
5	86	52	....00500	41,15	51,19
5,5	93	57	....00550	54,49	65,86
6	93	57	....00600	57,73	69,43
6,5	101	63	....00650	71,47	87,32
6,8	109	69	....00680	86,51	103,87
7	109	69	....00700	85,73	103,01
8	117	75	....00800	102,01	120,92
8,5	117	75	....00850	118,84	141,50
10	133	87	....01000	149,72	175,46

CL 415 HM 

CL 425 HM 




CL415

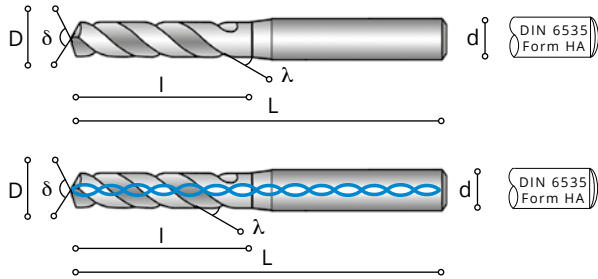
CL425



D m7	L	l	d h6	CODE	Micrograin Carbide Co10	
					7415..... € SAPPHIRE	7425..... € SAPPHIRE
3	62	20	6	....00300	45,37	73,27
3,1	62	20	6	....00310	45,37	73,27
3,2	62	20	6	....00320	45,37	73,27
3,3	62	20	6	....00330	45,37	73,27
3,4	62	20	6	....00340	45,37	73,27
3,5	62	20	6	....00350	45,37	73,27
3,6	62	20	6	....00360	45,37	73,27
3,7	62	20	6	....00370	45,37	73,27
3,8	66	24	6	....00380	45,37	73,27
3,9	66	24	6	....00390	45,37	73,27
4	66	24	6	....00400	45,37	73,27
4,1	66	24	6	....00410	45,37	73,27
4,2	66	24	6	....00420	45,37	73,27
4,3	66	24	6	....00430	45,37	73,27
4,4	66	24	6	....00440	45,37	73,27
4,5	66	24	6	....00450	45,37	73,27
4,6	66	24	6	....00460	45,37	73,27
4,7	66	24	6	....00470	45,37	73,27
4,8	66	28	6	....00480	45,37	73,27
4,9	66	28	6	....00490	45,37	73,27
5	66	28	6	....00500	45,37	73,27
5,1	66	28	6	....00510	45,37	73,27
5,2	66	28	6	....00520	45,37	73,27
5,3	66	28	6	....00530	45,37	73,27
5,4	66	28	6	....00540	45,37	73,27
5,5	66	28	6	....00550	45,37	73,27
5,6	66	28	6	....00560	45,37	73,27
5,7	66	28	6	....00570	45,37	73,27
5,8	66	28	6	....00580	45,37	73,27
5,9	66	28	6	....00590	45,37	73,27
6	66	28	6	....00600	45,37	73,27
6,1	79	34	8	....00610	70,29	99,53
6,2	79	34	8	....00620	70,29	99,53
6,3	79	34	8	....00630	70,29	99,53
6,4	79	34	8	....00640	70,29	99,53
6,5	79	34	8	....00650	70,29	99,53
6,6	79	34	8	....00660	70,29	99,53
6,7	79	34	8	....00670	70,29	99,53
6,8	79	34	8	....00680	70,29	99,53
6,9	79	34	8	....00690	70,29	99,53

CL 415 HM 

CL 425 HM 




CL415


CL425



D m7	L	l	d h6	CODE	Micrograin Carbide Co10	
					7415..... € SAPPHIRE	7425..... € SAPPHIRE
7	79	34	8	....00700	70,29	99,53
7,1	79	41	8	....00710	70,29	99,53
7,2	79	41	8	....00720	70,29	99,53
7,3	79	41	8	....00730	70,29	99,53
7,4	79	41	8	....00740	70,29	99,53
7,5	79	41	8	....00750	70,29	99,53
7,6	79	41	8	....00760	70,29	99,53
7,7	79	41	8	....00770	70,29	99,53
7,8	79	41	8	....00780	70,29	99,53
7,9	79	41	8	....00790	70,29	99,53
8	79	41	8	....00800	70,29	99,53
8,1	89	47	10	....00810	89,76	111,51
8,2	89	47	10	....00820	89,76	111,51
8,3	89	47	10	....00830	89,76	111,51
8,4	89	47	10	....00840	89,76	111,51
8,5	89	47	10	....00850	89,76	111,51
8,6	89	47	10	....00860	89,76	111,51
8,7	89	47	10	....00870	89,76	111,51
8,8	89	47	10	....00880	89,76	111,51
8,9	89	47	10	....00890	89,76	111,51
9	89	47	10	....00900	89,76	111,51
9,1	89	47	10	....00910	89,76	111,51
9,2	89	47	10	....00920	89,76	111,51
9,3	89	47	10	....00930	89,76	111,51
9,4	89	47	10	....00940	89,76	111,51
9,5	89	47	10	....00950	89,76	111,51
9,6	89	47	10	....00960	89,76	111,51
9,7	89	47	10	....00970	89,76	111,51
9,8	89	47	10	....00980	89,76	111,51
9,9	89	47	10	....00990	89,76	111,51
10	89	47	10	....01000	89,76	111,51
10,1	102	55	12	....01010	112,90	159,64
10,2	102	55	12	....01020	112,90	159,64
10,3	102	55	12	....01030	112,90	159,64
10,4	102	55	12	....01040	112,90	159,64
10,5	102	55	12	....01050	112,90	159,64
10,6	102	55	12	....01060	112,90	159,64
10,7	102	55	12	....01070	112,90	159,64
10,8	102	55	12	....01080	112,90	159,64
10,9	102	55	12	....01090	112,90	159,64

D m7	L	l	d h6	CODE	Micrograin Carbide Co10	
					7415..... € SAPPHIRE	7425..... € SAPPHIRE
11	102	55	12	....01100	112,90	159,64
11,1	102	55	12	....01110	112,90	159,64
11,2	102	55	12	....01120	112,90	159,64
11,3	102	55	12	....01130	112,90	159,64
11,4	102	55	12	....01140	112,90	159,64
11,5	102	55	12	....01150	112,90	159,64
11,6	102	55	12	....01160	112,90	159,64
11,7	102	55	12	....01170	112,90	159,64
11,8	102	55	12	....01180	112,90	159,64
11,9	102	55	12	....01190	112,90	159,64
12	102	55	12	....01200	112,90	159,64
12,3	107	60	14	....01230	168,35	
12,5	107	60	14	....01250	168,35	223,09
12,8	107	60	14	....01280	168,35	
13	107	60	14	....01300	168,35	223,09
13,5	107	60	14	....01350	168,35	223,09
13,8	107	60	14	....01380	168,35	
14	107	60	14	....01400	168,35	223,09
14,5	115	65	16	....01450	206,51	272,28
14,8	115	65	16	....01480	206,51	
15	115	65	16	....01500	206,51	272,28
15,5	115	65	16	....01550	206,51	272,28
15,8	115	65	16	....01580	206,51	
16	115	65	16	....01600	206,51	272,28
16,5	123	73	18	....01650	252,70	437,41
16,8	123	73	18	....01680	252,70	
17	123	73	18	....01700	252,70	437,41
17,5	123	73	18	....01750	252,70	437,41
17,8	123	73	18	....01780	252,70	
18	123	73	18	....01800	252,70	437,41
18,5	131	79	20	....01850	310,43	477,88
19	131	79	20	....01900	310,43	477,88
19,5	131	79	20	....01950	310,43	477,88
19,8	131	79	20	....01980	310,43	
20	131	79	20	....02000	310,43	477,88

CL 420 HM 

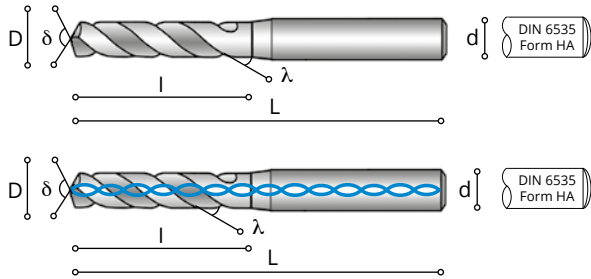
CL 430 HM 



S-GRIND



S-GRIND



CL420





CL430

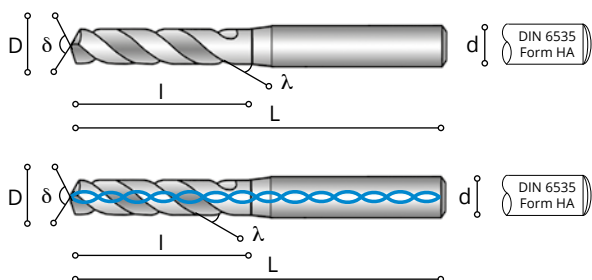


D m7	L	l	d h6	CODE	Micrograin Carbide Co10	
					7420..... € SAPPHIRE	7430..... € SAPPHIRE
3	66	28	6	....00300	61,22	94,04
3,1	66	28	6	....00310	61,22	94,04
3,2	66	28	6	....00320	61,22	94,04
3,3	66	28	6	....00330	61,22	94,04
3,4	66	28	6	....00340	61,22	94,04
3,5	66	28	6	....00350	61,22	94,04
3,6	66	28	6	....00360	61,22	94,04
3,7	66	28	6	....00370	61,22	94,04
3,8	74	36	6	....00380	61,22	94,04
3,9	74	36	6	....00390	61,22	94,04
4	74	36	6	....00400	61,22	94,04
4,1	74	36	6	....00410	61,22	94,04
4,2	74	36	6	....00420	61,22	94,04
4,3	74	36	6	....00430	61,22	94,04
4,4	74	36	6	....00440	61,22	94,04
4,5	74	36	6	....00450	61,22	94,04
4,6	74	36	6	....00460	61,22	94,04
4,7	74	36	6	....00470	61,22	94,04
4,8	82	44	6	....00480	61,22	94,04
4,9	82	44	6	....00490	61,22	94,04
5	82	44	6	....00500	61,22	94,04
5,1	82	44	6	....00510	61,22	94,04
5,2	82	44	6	....00520	61,22	94,04
5,3	82	44	6	....00530	61,22	94,04
5,4	82	44	6	....00540	61,22	94,04
5,5	82	44	6	....00550	61,22	94,04
5,6	82	44	6	....00560	61,22	94,04
5,7	82	44	6	....00570	61,22	94,04
5,8	82	44	6	....00580	61,22	94,04
5,9	82	44	6	....00590	61,22	94,04
6	82	44	6	....00600	61,22	94,04
6,1	91	53	8	....00610	75,19	103,91
6,2	91	53	8	....00620	75,19	103,91
6,3	91	53	8	....00630	75,19	103,91
6,4	91	53	8	....00640	75,19	103,91
6,5	91	53	8	....00650	75,19	103,91
6,6	91	53	8	....00660	75,19	103,91
6,7	91	53	8	....00670	75,19	103,91
6,8	91	53	8	....00680	75,19	103,91
6,9	91	53	8	....00690	75,19	103,91

D m7	L	l	d h6	CODE	Micrograin Carbide Co10	
					7420..... € SAPPHIRE	7430..... € SAPPHIRE
7	91	53	8	....00700	75,19	103,91
7,1	91	53	8	....00710	75,19	103,91
7,2	91	53	8	....00720	75,19	103,91
7,3	91	53	8	....00730	75,19	103,91
7,4	91	53	8	....00740	75,19	103,91
7,5	91	53	8	....00750	75,19	103,91
7,6	91	53	8	....00760	75,19	103,91
7,7	91	53	8	....00770	75,19	103,91
7,8	91	53	8	....00780	75,19	103,91
7,9	91	53	8	....00790	75,19	103,91
8	91	53	8	....00800	75,19	103,91
8,1	103	61	10	....00810	96,84	123,67
8,2	103	61	10	....00820	96,84	123,68
8,3	103	61	10	....00830	96,84	123,68
8,4	103	61	10	....00840	96,84	123,68
8,5	103	61	10	....00850	96,84	123,68
8,6	103	61	10	....00860	96,84	123,68
8,7	103	61	10	....00870	96,84	123,68
8,8	103	61	10	....00880	96,84	123,68
8,9	103	61	10	....00890	96,84	123,68
9	103	61	10	....00900	96,84	123,68
9,1	103	61	10	....00910	96,84	123,68
9,2	103	61	10	....00920	96,84	123,68
9,3	103	61	10	....00930	96,84	123,68
9,4	103	61	10	....00940	96,84	123,68
9,5	103	61	10	....00950	96,84	123,68
9,6	103	61	10	....00960	96,84	123,68
9,7	103	61	10	....00970	96,84	123,68
9,8	103	61	10	....00980	96,84	123,68
9,9	103	61	10	....00990	96,84	123,68
10	103	61	10	....01000	96,84	123,68
10,1	118	71	12	....01010	150,57	173,85
10,2	118	71	12	....01020	150,57	173,85
10,3	118	71	12	....01030	150,57	173,85
10,4	118	71	12	....01040	150,57	173,85
10,5	118	71	12	....01050	150,57	173,85
10,6	118	71	12	....01060	150,57	173,85
10,7	118	71	12	....01070	150,57	173,85
10,8	118	71	12	....01080	150,57	173,85
10,9	118	71	12	....01090	150,57	173,85
11	118	71	12	....01100	150,57	173,85
11,1	118	71	12	....01110	150,57	173,85
11,2	118	71	12	....01120	150,57	173,85
11,3	118	71	12	....01130	150,57	173,85
11,4	118	71	12	....01140	150,57	173,85
11,5	118	71	12	....01150	150,57	173,85
11,6	118	71	12	....01160	150,57	173,85
11,7	118	71	12	....01170	150,57	173,85
11,8	118	71	12	....01180	150,57	173,85
11,9	118	71	12	....01190	150,57	173,85
12	118	71	12	....01200	150,57	173,85
12,3	124	77	14	....01230	178,41	
12,5	124	77	14	....01250	178,41	234,03
12,8	124	77	14	....01280	178,41	
13	124	77	14	....01300	178,41	234,02
13,5	124	77	14	....01350	178,41	234,02
13,8	124	77	14	....01380	178,41	
14	124	77	14	....01400	178,41	234,02
14,5	133	83	16	....01450	224,61	309,29
14,8	133	83	16	....01480	224,61	

CL 420 HM 

CL 430 HM 



CL420

CL430

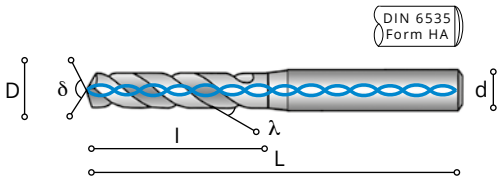


D m7	L	l	d h6	CODE	Micrograin Carbide Co10	
					7420..... € SAPPHIRE	7430..... € SAPPHIRE
15	133	83	16	....01500	224,61	309,29
15,5	133	83	16	....01550	224,61	309,29
15,8	133	83	16	....01580	224,61	309,29
16	133	83	16	....01600	224,61	309,29
16,5	143	93	18	....01650	284,67	462,57
16,8	143	93	18	....01680	284,67	462,57
17	143	93	18	....01700	284,67	462,57
17,5	143	93	18	....01750	284,67	462,57
17,8	143	93	18	....01780	284,67	462,57
18	143	93	18	....01800	284,67	462,57
18,5	153	101	20	....01850	357,01	529,58
19	153	101	20	....01900	357,01	529,58
19,5	153	101	20	....01950	357,01	529,58
19,8	153	101	20	....01980	357,01	529,58
20	153	101	20	....02000	357,01	529,58

CL 435 HM 



S-GRIND



CL435

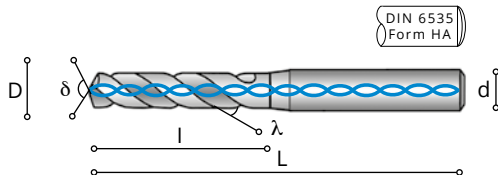


D m7	L	l	d h6	CODE	Micrograin Carbide Co10
					7435..... € SAPPHIRE
3	72	34	6	....00300	184,03
3,1	72	34	6	....00310	184,03
3,2	72	34	6	....00320	184,03
3,3	72	34	6	....00330	184,03
3,4	72	34	6	....00340	184,03
3,5	72	34	6	....00350	184,03
3,6	72	34	6	....00360	184,03
3,7	72	34	6	....00370	184,03
3,8	81	43	6	....00380	184,03
3,9	81	43	6	....00390	184,03
4	81	43	6	....00400	184,03
4,1	81	43	6	....00410	184,03
4,2	81	43	6	....00420	184,03
4,3	81	43	6	....00430	184,03
4,4	81	43	6	....00440	184,03
4,5	81	43	6	....00450	184,03
4,6	81	43	6	....00460	184,03
4,7	81	43	6	....00470	184,03
4,8	95	57	6	....00480	184,03
4,9	95	57	6	....00490	184,03
5	95	57	6	....00500	184,03
5,1	95	57	6	....00510	184,03
5,2	95	57	6	....00520	184,03
5,3	95	57	6	....00530	184,03
5,4	95	57	6	....00540	184,03
5,5	95	57	6	....00550	184,03
5,6	95	57	6	....00560	184,03
5,7	95	57	6	....00570	184,03
5,8	95	57	6	....00580	184,03
5,9	95	57	6	....00590	184,03
6	95	57	6	....00600	184,03
6,1	114	76	8	....00610	200,28
6,2	114	76	8	....00620	200,28
6,3	114	76	8	....00630	200,28
6,4	114	76	8	....00640	200,28
6,5	114	76	8	....00650	200,28
6,6	114	76	8	....00660	200,28
6,7	114	76	8	....00670	200,28
6,8	114	76	8	....00680	200,28
6,9	114	76	8	....00690	200,28

CL 435 HM



S-GRIND



CL435



D m7	L	l	d h6	CODE	Micrograin Carbide Co10
					7435..... € SAPPHIRE
7	114	76	8	....00700	200,28
7,1	114	76	8	....00710	200,28
7,2	114	76	8	....00720	200,28
7,3	114	76	8	....00730	200,28
7,4	114	76	8	....00740	200,28
7,5	114	76	8	....00750	200,28
7,6	114	76	8	....00760	200,28
7,7	114	76	8	....00770	200,28
7,8	114	76	8	....00780	200,28
7,9	114	76	8	....00790	200,28
8	114	76	8	....00800	200,28
8,1	142	95	10	....00810	271,22
8,2	142	95	10	....00820	271,22
8,3	142	95	10	....00830	271,22
8,4	142	95	10	....00840	271,22
8,5	142	95	10	....00850	271,22
8,6	142	95	10	....00860	271,22
8,7	142	95	10	....00870	271,22
8,8	142	95	10	....00880	271,22
8,9	142	95	10	....00890	271,22
9	142	95	10	....00900	271,22
9,1	142	95	10	....00910	271,22
9,2	142	95	10	....00920	271,22
9,3	142	95	10	....00930	271,22
9,4	142	95	10	....00940	271,22
9,5	142	95	10	....00950	271,22
9,6	142	95	10	....00960	271,22
9,7	142	95	10	....00970	271,22
9,8	142	95	10	....00980	271,22
9,9	142	95	10	....00990	271,22
10	142	95	10	....01000	271,22
10,1	162	114	12	....01010	357,58
10,2	162	114	12	....01020	357,58
10,3	162	114	12	....01030	357,58
10,4	162	114	12	....01040	357,58
10,5	162	114	12	....01050	357,58
10,6	162	114	12	....01060	357,58
10,7	162	114	12	....01070	357,58
10,8	162	114	12	....01080	357,58
10,9	162	114	12	....01090	357,58

D m7	L	I	d h6	CODE	Micrograin Carbide Co10
					7435..... € SAPPHIRE
11	162	114	12	....01100	357,58
11,1	162	114	12	....01110	357,58
11,2	162	114	12	....01120	357,58
11,3	162	114	12	....01130	357,58
11,4	162	114	12	....01140	357,58
11,5	162	114	12	....01150	357,58
11,6	162	114	12	....01160	357,58
11,7	162	114	12	....01170	357,58
11,8	162	114	12	....01180	357,58
11,9	162	114	12	....01190	357,58
12	162	114	12	....01200	357,58

Carmon

APPLICAZIONI CONSIGLIATE

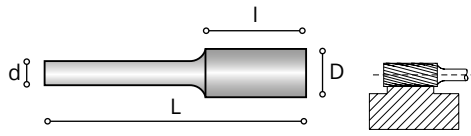


	Taglio Alluminio Aluminium Cut	Taglio singolo Single Cut	Taglio rompitrucciolo Chip Breaker	Diamante Diamant Cut	Taglio doppio Double Cut
Applicazioni - Application	LR401	LR402	LR403	LR404	LR406
Alluminio Aluminium	•				
Ottone-Bronzo-Rame Brass-Bronze-Copper			•		•
Fibra di Carbonio Carbon Fiber		•			
Fibra di vetro Fiberglass				•	
Ghisa Cast Iron		•	•		•
Plastica Plastic	•		•	•	•
Acciaio 40-50 HRC 40-50 HRC Steel		•	•	•	•
Acciaio 55-60 HRC 55-60 HRC Steel		•	•	•	•
Acciaio al Carbonio Carbon Steel		•	•		•
Acciaio Nickel Cromo Nickel Chrome Steel		•	•	•	•
Acciaio Inox Stainless Steel		•	•		•
Titanio Titanium		•	•		•
Zinco Zinc	•				

cilindrica 1 taglio cylindrical 1 cut (ZYA)



LR401
LR402
LR403
LR404
LR406

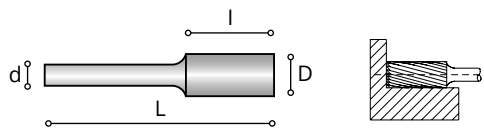


D	d	l	L	Code USA	Code	A401 €	A402 €	A403 €	A404 €	A406 €
3,00	3,00	13	38	SA-43M	....00313	11,93	9,18	9,18	11,00	9,18
4,00	3,00	13	51	SA-52M	....00413	29,04	22,34	22,34	26,80	22,34
5,00	6,00	16	61	SA-53M	....00516	29,04	22,34	22,34	26,80	22,34
6,00	6,00	16	61	SA-1M	....00616	26,21	20,16	20,16	24,20	20,16
8,00	6,00	20	65	SA-2M	....00820	30,80	23,69	23,69	28,44	23,69
10,00	6,00	20	65	SA-3M	....01020	33,83	26,03	26,03	31,23	26,03
12,00	6,00	25	70	SA-5M	....01225	51,24	39,41	39,41	47,30	39,41
16,00	6,00	25	70	SA-6M	....01625	76,36	58,74	58,74	70,49	58,74
19,00	6,00	25	70	SA-7M	....01925	100,44	78,01	78,01	92,70	78,01

cilindrica 2 tagli cylindrical 2 cut (ZYA-S)



LR401
LR402
LR403
LR404
LR406

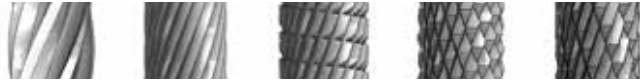
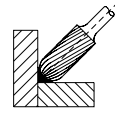
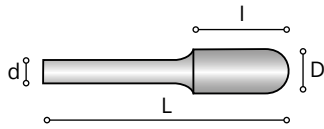


D	d	l	L	Code USA	Code	B401 €	B402 €	B403 €	B404 €	B406 €
3,00	3,00	13	38	SB-43M	....00313	11,93	9,18	9,18	11,00	9,18
4,00	3,00	13	51	SB-52M	....00413	29,04	22,34	22,34	26,80	22,34
5,00	6,00	16	61	SB-53M	....00516	29,04	22,34	22,34	26,80	22,34
6,00	6,00	16	61	SB-1M	....00616	29,15	22,43	22,43	26,90	22,43
8,00	6,00	20	65	SB-2M	....00820	33,83	26,03	26,03	31,23	26,03
10,00	6,00	20	65	SB-3M	....01020	36,98	28,44	28,44	34,13	28,44
12,00	6,00	25	70	SB-5M	....01225	55,74	42,88	42,88	51,45	42,88
16,00	6,00	25	70	SB-6M	....01625	82,44	63,41	63,41	76,10	63,41
19,00	6,00	25	70	SB-7M	....01925	104,54	82,03	82,03	96,49	82,03

cilindrica sferica
cylindrical spherical (WRC)



LR401
LR402
LR403
LR404
LR406



D	d	I	L	Code USA	Code	C401 €	C402 €	C403 €	C404 €	C406 €
3,00	3,00	13	38	SC-43M	....00313	11,93	9,18	9,18	11,00	9,18
4,00	3,00	13	51	SC-52M	....00413	29,04	22,34	22,34	26,80	22,34
5,00	3,00	13	51	SC-53M	....00513	29,04	22,34	22,34	26,80	22,34
6,00	6,00	16	61	SC-1M	....00616	31,59	24,30	24,30	29,16	24,30
8,00	6,00	20	65	SC-2M	....00820	34,23	26,33	26,33	31,59	26,33
10,00	6,00	20	65	SC-3M	....01020	35,60	27,39	27,39	32,86	27,39
12,00	6,00	25	70	SC-5M	....01225	54,28	41,75	41,75	50,10	41,75
16,00	6,00	25	70	SC-6M	....01625	76,36	58,74	58,74	70,49	58,74
19,00	6,00	25	70	SC-7M	....01925	106,63	82,03	82,03	98,41	82,03

A richiesta/On request

cilindrica sferica L 250
cylindrical spherical length 250 mm

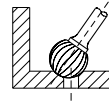
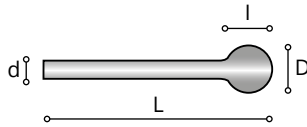


D	d	I	L	Code USA	Code	C406 €				
6	6	5,4	250							
8	6	7,2	250							
10	6	9	250							
12	6	11	250							
16	6	14	250							
Altre lunghezze - Other lengths										
6	6	16	80							
6	6	16	100							
6	6	16	70							

sferica
spherical (KUD)



LR401
LR402
LR403
LR404
LR406



D	d	l	L	Code USA	Code	D401 €	D402 €	D403 €	D404 €	D406 €
3,00	3,00	2,3	38	SD-41M	....00302		9,18	9,18	11,00	9,18
4,00	3,00	3	41	SD-52M	....00403		22,34	22,34	26,80	22,34
5,00	3,00	4	43	SD-53M	....00504		22,34	22,34	26,80	22,34
6,00	6,00	5,4	51	SD-1M	....00605	31,59	24,30	24,30	29,16	24,30
8,00	6,00	7,2	52	SD-2M	....00807	31,59	24,30	24,30	29,16	24,30
10,00	6,00	9	54	SD-3M	....01009	31,78	24,45	24,45	29,34	24,45
12,00	6,00	11	56	SD-5M	....01211	44,19	33,99	33,99	40,79	33,99
16,00	6,00	14	60	SD-6M	....01614	60,93	46,86	46,86	56,24	46,86
19,00	6,00	19	62	SD-7M	....01919	80,38	61,83	61,83	74,19	61,83

A richiesta/On request

sferica L. 250
spherical length 250 mm

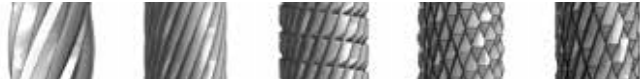
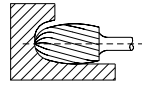
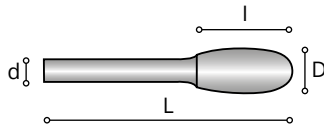


D	d	l	L	Code USA	Code	D 406 €				
6	6	5,4	250							
8	6	7,2	250							
10	6	9	250							
12	6	11	250							
16	6	14	250							

ovale
oval (TRE)



LR401
LR402
LR403
LR404
LR406

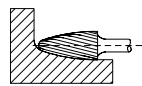
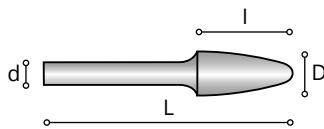


D	d	I	L	Code USA	Code	E401 €	E402 €	E403 €	E404 €	E406 €
3,00	3,00	7	38	SE-41M	....00307				11,00	9,18
5,00	3,00	8	46	SE-53M	....00508		22,34	22,34	26,80	22,34
6,00	6,00	10	55	SE-1M	....00610	31,59	24,30	24,30	29,16	24,30
8,00	6,00	13	58	SE-2M	....00813	34,23	26,33	26,33	31,59	26,33
10,00	6,00	16	61	SE-3M	....01016	37,16	28,59	28,59	34,30	28,59
12,00	6,00	20	65	SE-5M	....01220	52,23	40,18	40,18	48,20	40,18
16,00	6,00	25	70	SE-6M	....01625	78,41	60,33	60,33	72,39	60,33

ogiva a punta raggiata
tree shape-radius end (RBF)



LR401
LR402
LR403
LR404
LR406

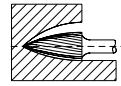
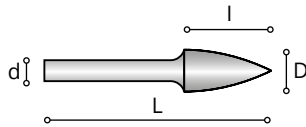


D	d	I	L	Code USA	Code	F401 €	F402 €	F403 €	F404 €	F406 €
3,00	3,00	13	38	SF-41M	....00313				11,00	9,18
5,00	3,00	13	51	SF-53M	....00513		22,34	22,34	26,80	22,34
6,00	6,00	18	63	SF-1M	....00618	31,59	24,30	24,30	29,16	24,30
8,00	6,00	20	65	SF-2M	....00820	33,25	25,58	25,58	30,69	25,58
10,00	6,00	20	65	SF-3M	....01020	34,81	26,78	26,78	32,13	26,78
12,00	6,00	25	70	SF-5M	....01225	49,88	38,36	38,36	46,04	38,36
16,00	6,00	25	70	SF-6M	....01625	71,39	54,91	54,91	65,89	55,74

ogiva a punta (SPG) tree shape-pointed end



LR401
LR402
LR403
LR404
LR406

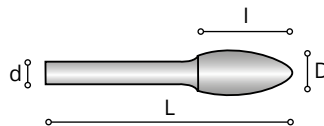


D	d	I	L	Code USA	Code	G401 €	G402 €	G403 €	G404 €	G406 €
3,00	3,00	13	38	SG-44M	....00313				11,00	9,18
5,00	3,00	13	51	SG-53M	....00513		22,34	22,34	26,80	22,34
6,00	6,00	18	63	SG-1M	....00618	31,59	24,30	24,30	29,16	24,30
8,00	6,00	20	65	SG-2M	....00820	33,64	25,88	25,88	31,05	25,88
10,00	6,00	20	65	SG-3M	....01020	35,60	27,39	27,39	32,86	27,39
12,00	6,00	25	65	SG-5M	....01225	50,26	38,66	38,66	46,40	38,66
16,00	6,00	25	70	SG-6M	....01625	73,53	56,56	56,56	67,88	56,56

fiamma (HM) flame



LR401
LR402
LR403
LR404
LR406

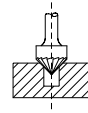
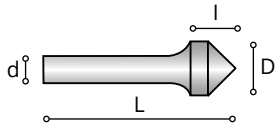


D	d	I	L	Code USA	Code	H401 €	H402 €	H403 €	H404 €	H406 €
3,00	3,00	13	38	SH-41M	....00313				11,00	9,18
6,00	6,00	18	63	SH-1M	....00618	53,66	41,29	41,29	49,54	41,29
8,00	6,00	20	65	SH-2M	....00820	60,93	46,86	46,86	56,24	46,86
10,00	6,00	20	65	SH-3M	....01020	64,59	49,69	49,69	59,63	49,69
12,00	6,00	32	77	SH-5M	....01232	71,39	54,91	54,91	65,89	54,91
16,00	6,00	36	81	SH-6M	....01636	134,75	103,65	103,65	124,39	103,65

conica 60°
60° cone shape (KSJ)



LR401
LR402
LR403
LR404
LR406

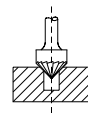
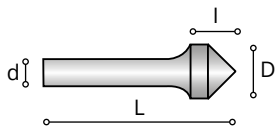


D	d	l	L	Code USA	Code	J401 €	J402 €	J403 €	J404 €	J406 €
3,00	3,00	3	38	SJ-42M	....00303				11,00	9,18
6,00	6,00	5,2	50	SJ-1M	....00605		24,30	24,30	29,16	24,30
10,00	6,00	8	53	SJ-3M	....01008		25,88	25,88	31,05	25,88
12,00	6,00	10	55	SJ-5M	....01210		35,59	35,59	42,70	35,59
16,00	6,00	14	60	SJ-6M	....01613		50,71	50,71	60,85	50,71

conica 90°
90° cone shape (KSK)



LR401
LR402
LR403
LR404
LR406

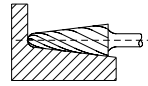
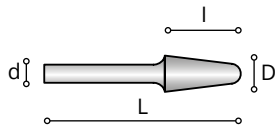


D	d	l	L	Code USA	Code	K401 €	K402 €	K403 €	K404 €	K406 €
3,00	3,00	2	38	SK-42M	....00302				11,00	9,18
6,00	6,00	3	48	SK-1M	....00603		24,30	24,30	29,16	24,30
8,00	6,00	4	48	SK-2M	....00804		24,30	24,30	29,16	24,30
10,00	6,00	5	50	SK-3M	....01005		24,30	24,30	29,16	24,30
12,00	6,00	6	51	SK-5M	....01206		33,99	33,99	40,79	33,99
16,00	6,00	8	53	SK-6M	....01608		46,40	46,40	55,69	46,40

conica con punta raggiata cone shape-radius end (KEL)



LR401
LR402
LR403
LR404
LR406

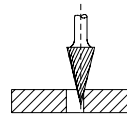
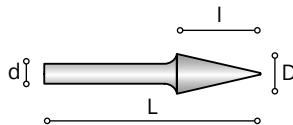


D	d	l	L	Code USA	Code	L401 €	L402 €	L403 €	L404 €	L406 €
3,00	3,00	13	38	SL-42M	....00313				11,00	9,18
6,00	6,00	16	61	SL-1M	....00616	31,59	24,30	24,30	29,16	24,30
8,00	6,00	22	67	SL-2M	....00822	35,60	27,39	27,39	32,86	27,39
10,00	6,00	25	70	SL-3M	....01025	43,61	33,55	33,55	40,25	33,55
12,00	6,00	28	73	SL-4M	....01228	54,28	41,75	41,75	50,10	41,75
16,00	6,00	33	78	SL-6M	....01633	86,60	66,61	66,61	79,94	66,61

conica a punta cone shape (SKM)



LR401
LR402
LR403
LR404
LR406

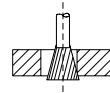
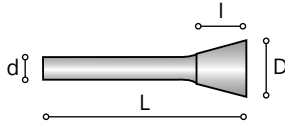


D	d	l	L	Code USA	Code	M401 €	M402 €	M403 €	M404 €	M406 €
3,00	3,00	13	38	SM-42M	....00313				11,00	9,18
6,00	6,00	18	63	SM-1M	....00618	33,64	25,88	25,88	31,05	25,88
8,00	6,00	20	63	SM-2M	....00820	35,20	27,08	27,08	32,50	27,08
10,00	6,00	20	63	SM-4M	....01020	38,23	29,41	29,41	35,29	29,41
12,00	6,00	25	70	SM-5M	....01225	54,28	41,75	41,75	50,10	41,75
16,00	6,00	25	70	SM-6M	....01625	72,36	55,66	55,66	66,79	55,66

conica rovesciata (WKN)
inverted cone shape



LR401
LR402
LR403
LR404
LR406







D	d	l	L	Code USA	Code	N401 €	N402 €	N403 €	N404 €	N406 €
3,00	3,00	7	38	SN-42M	....00307				11,00	9,18
6,00	6,00	7	52	SN-1M	....00607		24,30	24,30	29,16	24,30
10,00	6,00	10	55	SN-2M	....01010		27,83	27,83	33,40	27,83
12,00	6,00	13	58	SN-4M	....01213		37,91	37,91	45,50	37,91
16,00	6,00	15	61	SN-6M	....01615		52,65	53,70	63,19	53,70








VELOCITÀ CONSIGLIATE RECOMMENDED SPEED







Velocità consigliate Tutte le velocità consigliate nella tabella sotto riportata sono espresse X 1,000 rpm Recommended Speeds All Speeds in the table below quoted X 1,000 rpm	Ø Diametro - Diameter						
	3 mm	6 mm	8 mm	10mm	12 mm	16 mm	19 mm
Alluminio Aluminium	58 - 75	16 - 58	12 - 55	10 - 48	7 - 30	6 - 22	5 - 18
Ottone-Bronzo-Rame Brass-Bronze-Copper	45 - 75	20 - 55	18 - 45	15 - 40	10 - 27	8 - 20	6 - 15
Fibra di Carbonio Carbon Fiber	57 - 75	30 - 48	25 - 40	19 - 28	14 - 21	12 - 17	9 - 14
Fibra di vetro Fiberglass	57 - 75	30 - 48	25 - 40	19 - 28	14 - 21	12 - 17	9 - 14
Ghisa Cast Iron	45 - 75	20 - 55	18 - 45	15 - 40	10 - 27	8 - 20	6 - 15
Plastica Plastic	58 - 75	16 - 58	12 - 55	10 - 48	7 - 30	6 - 22	5 - 18
Acciaio 40-50 HRC 40-50 HRC Steel	57 - 75	30 - 48	25 - 40	19 - 28	14 - 21	12 - 17	9 - 14
Acciaio 55-60 HRC 55-60 HRC Steel	57 - 75	30 - 48	25 - 40	19 - 28	14 - 21	12 - 17	9 - 14
Acciaio al Carbonio Carbon Steel	55 - 75	42 - 58	38 - 50	27 - 38	20 - 28	17 - 19	15 - 17
Acciaio Nikel Cromo Nikel Chrome Steel	57 - 75	30 - 48	25 - 40	19 - 28	14 - 21	12 - 17	9 - 14
Acciaio Inox Stainless Steel	57 - 75	30 - 48	25 - 40	19 - 28	14 - 21	12 - 17	9 - 14
Titanio Titanium	57 - 75	30 - 48	25 - 40	19 - 28	14 - 21	12 - 17	9 - 14
Zinco Zinc	45 - 75	20 - 55	18 - 45	15 - 40	10 - 27	8 - 20	6 - 15

Carmon



Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
PUNTE EXTRA LUNGHE TWIST DRILLS EXTRA LONG SERIES								
	KIT CL 104/1 (50 PZ)	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 338 1-5,9 X 0,1	360
	KIT CL 104/2 (41 PZ)	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 338 6-10 X 0,1	360
	KIT CL 104/3 (19 PZ)	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 338 1-10 X 0,5	360
	KIT CL 104/4 (25 PZ)	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 338 1-13 X 0,5	360
	KIT CL 104/5 (49 PZ)	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 338 1-13 X 0,25	360
	KIT CL 104/6 (380 PZ)	N	Acciai comuni Standard steel	118°	HSS	Black	DIN 338 (1-13 X 0,5) - 3,3 - 4,2 - 6,8 - 10,2	360
	KIT CL 104R/1 (50 PZ)	N	Acciai comuni Standard steel	130°	HSS	Quartz	DIN 338 1-5,9 X 0,1	360
	KIT CL 104R/2 (41 PZ)	N	Acciai comuni Standard steel	130°	HSS	Quartz	DIN 338 6-10 X 0,1	360
	KIT CL 104R/3 (19 PZ)	N	Acciai comuni Standard steel	130°	HSS	Quartz	DIN 338 1-10 X 0,5	360
	KIT CL 104R/4 (25 PZ)	N	Acciai comuni Standard steel	130°	HSS	Quartz	DIN 338 1-13 X 0,5	360
	KIT CL 104R/5 (49 PZ)	N	Acciai comuni Standard steel	130°	HSS	Quartz	DIN 338 1-13 X 0,25	360
	KIT CL 106/1 (50 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+5%CO	White	DIN 338 1-5,9 X 0,1	360
	KIT CL 106/2 (41 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+5%CO	White	DIN 338 6-10 X 0,1	360
	KIT CL 106/3 (19 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+5%CO	White	DIN 338 1-10 X 0,5	360
	KIT CL 106/4 (25 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+5%CO	White	DIN 338 1-13 X 0,5	360
	KIT CL 106/5 (49 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+5%CO	White	DIN 338 1-13 X 0,25	360



































Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page	
	KIT CL 106/6 (380 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+5%CO	White	DIN 338	(1-13 X 0,5)- 3,3-4,2 - 6,8 - 10,2	360
KIT PUNTE PER PREFORI DI MASCHIATURA RANGE OF DRILLS TAPPING SIZE									
     	KIT CL 101 (6 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+8%CO	White	DIN 1897	2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5	361
	KIT CL 101 (6 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+8%CO	Quartz	DIN 1897	2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5	361
	KIT CL 101 (6 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+8%CO	Titanite	DIN 1897	2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5	361
	KIT CL 105 (6 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+8%CO	White	DIN 338	2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5	361
	KIT CL 105 (6 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+8%CO	Quartz	DIN 338	2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5	361
	KIT CL 105 (6 PZ)	W	Acciai tenaci Hardened steel	130°	HSS+8%CO	Titanite	DIN 338	2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5	361





















Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
KIT SVASATORI CONICI RANGE OF COUNTER SINKS								
	KIT SV 74 (3 PZ)	Acciai tenaci Hardened steel		HSS+8%CO	White	DIN 335/C	10,4 -12,4 -16,50	362
	KIT SV 74 (3 PZ)	Acciai tenaci Hardened steel		HSS+8%CO	Sapphire MULTI	DIN 335/C	10,4 -12,4 -16,50	362
	KIT SV 74 (5 PZ)	Acciai tenaci Hardened steel		HSS+8%CO	White	DIN 335/C	10,4 -12,4 -16,5-20,5 -25	362
	KIT SV 74 (5 PZ)	Acciai tenaci Hardened steel		HSS+8%CO	Sapphire MULTI	DIN 335/C	10,4 -12,4 -16,5-20,5 -25	362
	KIT SV 75 Hss (3 PZ)	Acciai tenaci Hardened steel		HSS	White	DIN 335/C	10,4 -12,4 -16,5	363
	KIT SV 75 Hss (3 PZ)	Acciai tenaci Hardened steel		HSS	Quartz	DIN 335/C	10,4 -12,4 -16,5	363
	KIT SV 75 Hss (3 PZ)	Acciai tenaci Hardened steel		HSS	Sapphire	DIN 335/C	10,4 -12,4 -16,5	363
	KIT SV 75 Hss (5 PZ)	Acciai tenaci Hardened steel		HSS	White	DIN 335/C	10,4 -12,4 -16,5-20,5 -25	363
	KIT SV 75 Hss (5 PZ)	Acciai tenaci Hardened steel		HSS	Quartz	DIN 335/C	10,4 -12,4 -16,5-20,5 -25	363
	KIT SV 75 Hss (5 PZ)	Acciai tenaci Hardened steel		HSS	Sapphire	DIN 335/C	10,4 -12,4 -16,5-20,5 -25	363


Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	gamma dal (mm) diameter range (mm)	pag page
KIT SV 75 Hss (6 PZ)		Acciai tenaci Hardened steel		HSS	White	DIN 335/C	6,3-8,3-10,4 -12,4-16,5- 20,5	363
KIT SV 75 Hss (6 PZ)		Acciai tenaci Hardened steel		HSS	Quartz	DIN 335/C	6,3-8,3-10,4 -12,4-16,5- 20,5	363
KIT SV 75 Hss (6 PZ)		Acciai tenaci Hardened steel		HSS	Sapphire	DIN 335/C	6,3-8,3-10,4 -12,4-16,5- 20,5	363
KIT SV 76 HssCo 5% (3 PZ)		Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 335/C	10,4-12,4 -16,5	364
KIT SV 76 HssCo 5% (3 PZ)		Acciai tenaci Hardened steel		HSS+5%CO	Quartz	DIN 335/C	10,4-12,4 -16,5	364
KIT SV 76 HssCo 5% (3 PZ)		Acciai tenaci Hardened steel		HSS+5%CO	Sapphire	DIN 335/C	10,4-12,4 -16,5	364
KIT SV 76 HssCo 5% (5 PZ)		Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 335/C	10,4-12,4 -16,5-20,5 - 25	364
KIT SV 76 HssCo 5% (5 PZ)		Acciai tenaci Hardened steel		HSS+5%CO	Quartz	DIN 335/C	10,4-12,4 -16,5-20,5 - 25	364
KIT SV 76 HssCo 5% (5 PZ)		Acciai tenaci Hardened steel		HSS+5%CO	Sapphire	DIN 335/C	10,4-12,4 -16,5-20,5 - 25	364
KIT SV 76 HssCo 5% (6 PZ)		Acciai tenaci Hardened steel		HSS+5%CO	White	DIN 335/C	6,3-8,3-10,4 -12,4-16,5- 20,5	364
KIT SV 76 HssCo 5% (6 PZ)		Acciai tenaci Hardened steel		HSS+5%CO	Quartz	DIN 335/C	6,3-8,3-10,4 -12,4-16,5- 20,5	364
KIT SV 76 HssCo 5% (6 PZ)		Acciai tenaci Hardened steel		HSS+5%CO	Sapphire	DIN 335/C	6,3-8,3-10,4 -12,4-16,5- 20,5	364

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page	
KIT MASCHI A MANO HAND TAPS SET									
 AS 500/1 (7 PZ)			0	HSS	White	DIN 352	3-4-5-6-8-10-12	365	
KIT MASCHI A MACCHINA TOLLERANZA 6H CON PUNTE PREFORI MACHINE TAPS SET TOLERANCE 6H WITH PRE HOLES DRILLS									
 553500119		Kit M 535 (7 PZ) Kit CL 119 (7 PZ)	Acciai comuni Standard steel	0	HSS-EX 5%Co	Black White	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	365
		Kit M 535 (7 PZ) Kit CL 119 (7 PZ)	Acciai comuni Standard steel	0	HSS-EX 5%Co	Quartz	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	365
553500104R		Kit M 535 (7 PZ) Kit CL 104R (7 PZ)	Acciai comuni Standard steel	0	HSS-EX HSS	Black Quartz	DIN3 71/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	365
 551600119		Kit M 516 (7 PZ) Kit CL 119 (7 PZ)	Acciaio inox Stainless steel	0	HSS-EX 5%Co	Black White	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	366
		Kit M 516 (7 PZ) Kit CL 119 (7 PZ)	Acciaio inox Stainless steel	0	HSS-EX 5%Co	Quartz	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	366
551600104R		Kit M 516 (7 PZ) Kit CL 104R (7 PZ)	Acciaio inox Stainless steel	0	HSS-EX HSS	Black Quartz	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	366
 550800106		Kit M 508 (7 PZ) Kit CL 106 (7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX 5%Co	Black White	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	366
		Kit M 508 (7 PZ) Kit CL 106 (7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX 5%Co	Quartz	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	366
750800106		Kit M 508 (7 PZ) Kit CL 106 (7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX 5%Co	Titanite	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	366
 550800104R		Kit M 508 (7 PZ) Kit CL 104R(7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX HSS	Black Quartz	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	366
		Kit M 508 (7 PZ) Kit CL 104 (7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX HSS	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	366
550800104		Kit M 508 (7 PZ) Kit CL 104 (7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX HSS	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,2	366
 550800101		Kit M 508 (7 PZ) Kit CL 101 (7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX 8%Co	Black White	DIN 371/376 DIN 1897	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,25	366
		Kit M 508 (7 PZ) Kit CL 101 (7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX 8%Co	Quartz	DIN 371/376 DIN 1897	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,25	366
650800101		Kit M 508 (7 PZ) Kit CL 101 (7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX 8%Co	Quartz	DIN 371/376 DIN 1897	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,25	366
750800101		Kit M 508 (7 PZ) Kit CL 101 (7 PZ)	Acciai tenaci Hardened steel	0	HSS-EX 8%Co	Titanite	DIN 371/376 DIN 1897	3-4-5-6-8-10-12 2,5-3,3-4,2-5- 6,8-8,5-10,25	366

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
KIT MASCHI A MACCHINA TOLLERANZA 6H CON PUNTE PREFORI MACHINE TAPS SET TOLERANCE 6H WITH PRE HOLES DRILLS								
853300106		Acciai tenaci Hardened steel	0	Resistor 5%Co	Opal	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	367
					Quartz			
553600119		Acciai comuni Standard steel	35	HSS-EX 5%Co	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	367
					White			
653600119		Acciai comuni Standard steel	35	HSS-EX 5%Co	Quartz	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	367
553600104R		Acciai comuni Standard steel	35	HSS-EX HSS	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	367
					Quartz			
551700119		Acciaio inox Stainless steel	35	HSS-EX 5%Co	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
					White			
651700119		Acciaio inox Stainless steel	35	HSS-EX 5%Co	Quartz	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
551700104R		Acciaio inox Stainless steel	35	HSS-EX HSS	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
					Quartz			
551700106		Acciaio inox Stainless steel	35	HSS-EX 5%Co	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
					White			
651700106		Acciaio inox Stainless steel	35	HSS-EX 5%Co	Quartz	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
551200106		Acciai tenaci Hardened steel	35	HSS-EX 5%Co	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
					White			
651200106		Acciai tenaci Hardened steel	35	HSS-EX 5%Co	Quartz	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
751200106		Acciai tenaci Hardened steel	35	HSS-EX 5%Co	Titanite	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
551200104R		Acciai tenaci Hardened steel	35	HSS-EX HSS	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
					Quartz			
551200104		Acciai tenaci Hardened steel	35	HSS-EX HSS	Black	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	368
551200101		Acciai tenaci Hardened steel	35	HSS-EX 8%Co	Black	DIN 371/376 DIN 1897	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,25	368
					White			
651200101		Acciai tenaci Hardened steel	35	HSS-EX 8%Co	Quartz	DIN 371/376 DIN 1897	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,25	368
751200101		Acciai tenaci Hardened steel	35	HSS-EX 8%Co	Titanite	DIN 371/376 DIN 1897	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,25	368
853400106		Acciai tenaci Hardened steel	45	Resistor 5%Co	Opal	DIN 371/376 DIN 338	3-4-5-6-8-10-12 2,5-3,3-4,2-5-6,8-8,5-10,2	369
					Quartz			



Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page	
KIT MASCHI A MACCHINA MACHINE TAPS SET									
	KIT M 508 (6 PZ)		Acciai tenaci Hardened steel	0	HSS - EX	White	DIN 371	3-4-5-6-8-10	369
	KIT M 508 (6 PZ)		Acciai tenaci Hardened steel	0	HSS - EX	Quartz	DIN 371	3-4-5-6-8-10	369
	KIT M 508 (6 PZ)		Acciai tenaci Hardened steel	0	HSS - EX	Titanite	DIN 371	3-4-5-6-8-10	369
	KIT M 509 (6 PZ)		Acciai tenaci Hardened steel	0	HSS - EX	White	DIN 371	3-4-5-6-8-10	370
	KIT M 509 (6 PZ)		Acciai tenaci Hardened steel	0	HSS - EX	Quartz	DIN 371	3-4-5-6-8-10	370
	KIT M 509 (6 PZ)		Acciai tenaci Hardened steel	0	HSS - EX	Titanite	DIN 371	3-4-5-6-8-10	370
	KIT M 513 (6 PZ)		Alluminio Aluminium	0	HSS - EX	White	DIN 371	3-4-5-6-8-10	370
	KIT M 513 (6 PZ)		Alluminio Aluminium	0	HSS - EX	Quartz	DIN 371	3-4-5-6-8-10	370
	KIT M 513 (6 PZ)		Alluminio Aluminium	0	HSS - EX	Titanite	DIN 371	3-4-5-6-8-10	370
	KIT M 516 (6 PZ)		Acciaio inox Stainless steel	0	HSS - EX	White	DIN 371	3-4-5-6-8-10	370
	KIT M 516 (6 PZ)		Acciaio inox Stainless steel	0	HSS - EX	Quartz	DIN 371	3-4-5-6-8-10	370
	KIT M 517 (6 PZ)		Acciaio inox Stainless steel	35	HSS - EX	White	DIN 371	3-4-5-6-8-10	371
	KIT M 517 (6 PZ)		Acciaio inox Stainless steel	35	HSS - EX	Quartz	DIN 371	3-4-5-6-8-10	371
	KIT M 535		Acciai teneri Soft steel	0	HSS - EX	White	DIN 371	3-4-5-6-8-10	371
	KIT M 535		Acciai teneri Soft steel	0	HSS - EX	Quartz	DIN 371	3-4-5-6-8-10	371
	KIT M 536		Acciai teneri Soft steel	35	HSS - EX	White	DIN 371	3-4-5-6-8-10	371
	KIT M 536		Acciai teneri Soft steel	35	HSS - EX	Quartz	DIN 371	3-4-5-6-8-10	371

Articolo Article	Imbocco Chamfer	Campo d'applicazione Application field	Angolo elica Point Helix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page	
KIT MASCHI A MACCHINA MACHINE TAPS SET									
	KIT M 511 (6 PZ)		Acciai tenaci Hardened steel	15	HSS - EX	White	DIN 371	3-4-5-6-8-10	372
	KIT M 511 (6 PZ)		Acciai tenaci Hardened steel	15	HSS - EX	Quartz	DIN 371	3-4-5-6-8-10	372
	KIT M 511 (6 PZ)		Acciai tenaci Hardened steel	15	HSS - EX	Titanite	DIN 371	3-4-5-6-8-10	372
	KIT M 512 (6 PZ)		Acciai tenaci Hardened steel	35	HSS - EX	White	DIN 371	3-4-5-6-8-10	372
	KIT M 512 (6 PZ)		Acciai tenaci Hardened steel	35	HSS - EX	Quartz	DIN 371	3-4-5-6-8-10	372
	KIT M 512 (6 PZ)		Acciai tenaci Hardened steel	35	HSS - EX	Titanite	DIN 371	3-4-5-6-8-10	372
	KIT R 570 (6 PZ)		Acciai tenaci Hardened steel	0	HSS - EX	White	DIN 371	3-4-5-6-8-10	372
	KIT R 571 (6 PZ)		Acciai tenaci Hardened steel	0	HSS - EX	White	DIN 371	3-4-5-6-8-10	373
	KIT R 572 (6 PZ)		Acciai tenaci Hardened steel	0	HSS - EX	White	DIN 371	3-4-5-6-8-10	373
	KIT M 524 (6 PZ)		Ghisa Cast iron	0	HSS - EX	Opal	DIN 371	3-4-5-6-8-10	373

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo al vertice Point angle	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
KIT DI FRESE POWDER STEEL END MILL SETS PULVERSTAHLFRAESER-SAETZE								
 CL 11 (6 PZ) resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 327 D	6-8-10-12-16-20	374
 CL 21 TF (6 PZ) resistor	N	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 844 B	6-8-10-12-16-20	374
 CL 24 TF (6 PZ) resistor	NR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 844 B	6-8-10-12-16-20	374
 CL 24 TF PF (6 PZ) resistor	HR	Acciai comuni Standard steel Acciai tenaci hardened steel	30	RESISTOR	Sapphire MULTI	DIN 844 B	6-8-10-12-16-20	374

Articolo Article	Tipo Type	Campo d'applicazione Application field	Angolo elica Point elix	Materiale tipo Tool material	Superficie Surface	Standard	Gamma dal (M) diameter range (M)	pag page
KIT FRESE METALLO DURO SOLID CARBIDE END MILLS SETS								
 CL 11 HM (5 PZ)	N		30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L / DIN 6528	6-8-10-12-16	375
 CL 16 HM (5 PZ)	N		30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L / DIN 6528	6-8-10-12-16	375
 CL 18 HM (5 PZ)	N		30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L / DIN 6528	6-8-10-12-16	375
 CL 21 TF HM (5 PZ)	N		30	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L / DIN 6528	6-8-10-12-16	376
 CL 21 ED HM (5 PZ)	N		38/40	MICROGRAIN CARBIDE Co10	Sapphire	DIN 6527 L / DIN 6528	6-8-10-12-16	376
 CL 19 HM (5 PZ)	HSC		30	MICROGRAIN CARBIDE Co12	Sapphire	CARMON NORM	6-8-10-12-16	376
 CL 26 HM (5 PZ)	HSC		30	MICROGRAIN CARBIDE Co12	Sapphire	DIN 6528	6-8-10-12-16	376

**LIME ROTATIVE IN METALLO DURO
TUNGSTEN CARBIDE ROTARY BURRS**

	set di lime rotative set of rotary burrs	F1225 / F1020 / D1210 / D1009 / C0616 / C1020 / B1020 / B1225	377
	set di lime rotative mm 3 codolo 3 set of rotary burrs mm 3 cod 3	formes A / C / D / E / F / G / H / J / M / N	377

CL 104



25°-30°



STANDARD



CL 104R



25°-30°



DIN 1412 C



N. PEZZI PIECES	Ø	CODE	HSS 5104..... €	HSS 6104..... € QUARTZ
50	1 - 5,9 x 0,1	....10000	114,74	178,61
41	6 - 10 x 0,1	....20000	257,10	411,44
19	1 - 10 x 0,5	....30000	80,36	132,16
25	1 - 13 x 0,5	....40000	167,59	283,89
49	1 - 13 x 0,25	....50000	380,91	571,37
380	1 - 13 x 0,5 +3,3+4,2+6,8+10,2	....60000	1699,09	2433,95



N. PEZZI PIECES																	
5	10,5	11	11,5	12	12,5	13											
10	1,5	2,5	3,3	3,5	4,2	4,5	5,5	6,5	6,8	7	7,5	8	8,5	9	9,5	10	10,2
20	1	5	6														
30	2																
40	4																
50	3																

CL 106



35°-40°



DIN 1412 C



N. PEZZI PIECES	Ø	CODE	HSS+5%Co 5106..... €
50	1 - 5,9 x 0,1	....10000	181,08
41	6 - 10 x 0,1	....20000	417,79
19	1 - 10 x 0,5	....30000	145,00
25	1 - 13 x 0,5	....40000	301,37
49	1 - 13 x 0,25	....50000	602,63
380	1 - 13 x 0,5 +3,3+4,2+6,8+10,2	....60000	2549,85



N. PEZZI PIECES																	
5	10,5	11	11,5	12	12,5	13											
10	1,5	2,5	3,3	3,5	4,2	4,5	5,5	6,5	6,8	7	7,5	8	8,5	9	9,5	10	10,2
20	1	5	6														
30	2																
40	4																
50	3																

CL 101



Ø	CODE	HSS+8%Co €
2,5-3,3-4,2-5-6,8-8,5	510110000	32,60

Ø	CODE	HSS+8%Co € QUARTZ
2,5-3,3-4,2-5-6,8-8,5	610110000	56,79

Ø	CODE	HSS+8%Co € TITANITE
2,5-3,3-4,2-5-6,8-8,5	710110000	72,22

CL 105



Ø	CODE	HSS+8%Co €
2,5-3,3-4,2-5-6,8-8,5	510510000	41,64

Ø	CODE	HSS+8%Co € QUARTZ
2,5-3,3-4,2-5-6,8-8,5	610510000	69,02

Ø	CODE	HSS+8%Co € TITANITE
2,5-3,3-4,2-5-6,8-8,5	710510000	87,58

SV 74



PEZZI PIECES	Ø	CODE	HSS+8%Co 1740..... €
3	10,4-12,4 16,5	....10000	106,84

PEZZI PIECES	Ø	CODE	HSS+8%Co 2740..... € SAPPHIRE MULTI
3	10,4-12,4 16,5	....10000	138,25

SV 74



PEZZI PIECES	Ø	CODE	HSS+8%Co 1740..... €
5	10,4-12,4-16,5- 20,5-25	....20000	232,53

PEZZI PIECES	Ø	CODE	HSS+8%Co 2740..... € SAPPHIRE MULTI
5	10,4-12,4-16,5- 20,5-25	....20000	302,12

SV 75 Hss 



PEZZI PIECES	Ø	CODE	HSS 1750..... €	CODE	HSS 6750..... € QUARTZ	CODE	HSS 2750..... € SAPPHIRE
3	10,4-12,4-16,5	....10000	49,86	....10000	70,43	....10000	79,76



PEZZI PIECES	Ø	CODE	HSS 1750..... €	CODE	HSS 6750..... € QUARTZ	CODE	HSS 2750..... € SAPPHIRE
5	10,4-12,4-16,5-20,5-25	....20000	108,13	....20000	152,69	....20000	172,18



PEZZI PIECES	Ø	CODE	HSS 1750..... €	CODE	HSS 6750..... € QUARTZ	CODE	HSS 2750..... € SAPPHIRE
6	6,3-8,3-10,4-12,4-16,5-20,5	....30000	97,01	....30000	139,67	....30000	158,24

SV 76 HssCo 5%

DIN
335/C

PEZZI PIECES	Ø	CODE	HSS+5%Co 1760..... €	CODE	HSS+5%Co 6760..... € QUARTZ	CODE	HSS+5%Co 2760..... € SAPPHIRE
3	10,4-12,4-16,5	....10000	68,99	....10000	99,07	....10000	110,91



PEZZI PIECES	Ø	CODE	HSS+5%Co 1760..... €	CODE	HSS+5%Co 6760..... € QUARTZ	CODE	HSS+5%Co 2760..... € SAPPHIRE
5	10,4-12,4-16,5-20,5-25	....20000	155,50	....20000	212,47	....20000	238,67



PEZZI PIECES	Ø	CODE	HSS+5%Co 1760..... €	CODE	HSS+5%Co 6760..... € QUARTZ	CODE	HSS+5%Co 2760..... € SAPPHIRE
6	6,3-8,3-10,4-12,4-16,5-20,5	....30000	134,20	....30000	190,36	....30000	213,54

AS 500/1

DIN 352



6H



M
ISO/DIN
13

N. PEZZI PIECES	M	CODE	HSS 5500..... €
7	3 - 4 - 5 - 6 8 - 10 - 12	....10000	262,94

KIT MASCHI A MACCHINA CON PUNTE PREFORI | MACHINE TAPS SET WITH PRE HOLES DRILLS

M 535
CL 119/CL 104R

DIN 371

DIN 376

DIN 338



6H



N. PEZZI PIECES		CODE	€
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	553500119	210,07
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	653500119	286,98
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	553500104R	191,99

M 516
CL 119/CL104R



B

N. PEZZI PIECES		CODE	€
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	551600119	246,17
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	651600119	328,38
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	551600104R	228,09

M 508
CL 106/CL 104R/CL 104/CL 101



B

N. PEZZI PIECES		CODE	€
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	550800106	196,90
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	650800106	266,79
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	750800106	308,06
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	550800104R	191,13
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	550800104	175,97
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,25	550800101	201,79
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,25	650800101	267,23
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,25	750800101	304,68

M 533
CL 106



N. PEZZI PIECES		CODE	€
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	853300106	324,43

M 536
CI 119/CL 104R



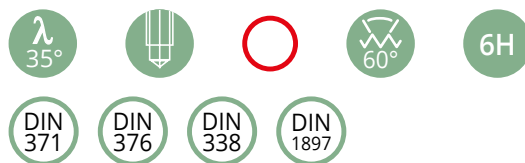
N. PEZZI PIECES		CODE	€
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	553600119	221,87
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	653600119	301,59
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	553600104R	203,78

M 517 CL 119/CL 104R/CL 106



N. PEZZI PIECES		CODE	€
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	551700119	280,89
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	651700119	366,51
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	551700104R	262,79
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	551700106	268,58
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	651700106	346,33

M 512 CL 106/CL 104R/CL 104/CL 101



N. PEZZI PIECES		CODE	€
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	551200106	209,56
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	651200106	281,40
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	751200106	321,93
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	551200104R	203,79
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	551200104	188,63
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,25	551200101	214,45
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,25	651200101	281,84
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,25	751200101	318,56

M 534
CL 106



N. PEZZI PIECES		CODE	€
14	M 3 - 4 - 5 - 6 - 8 - 10 - 12 D 2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2	853400106	347,01

KIT DI MASCHI A MACCHINA | MACHINE TAPS SETS

KIT
M 508



N. PEZZI PIECES	M	CODE	€	CODE	€ QUARTZ	CODE	€ TITANITE
6	3 - 4 - 5 - 6 8 - 10	550810000	109,62	650810000	141,06	750810000	154,24

KIT M 509

DIN 371

λ 0°



60°

6H



M ISO/DIN 13



N. PEZZI PIECES	M	CODE	€	CODE	€ QUARTZ	CODE	€ TITANITE
6	3 - 4 - 5 - 6 8 - 10	550910000	96,79	650910000	126,94	750910000	140,98

KIT M 513 ALU

DIN 371

λ 0°



60°

6H



M ISO/DIN 13



N. PEZZI PIECES	M	CODE	€	CODE	€ QUARTZ	CODE	€ TITANITE
6	3 - 4 - 5 - 6 8 - 10	551310000	136,63	651310000	168,95	751310000	183,80

KIT M 516 INOX

DIN 371

λ 0°



60°

6H



M ISO/DIN 13



N. PEZZI PIECES	M	CODE	€
6	3 - 4 - 5 - 6 8 - 10	551610000	136,80

N. PEZZI PIECES	M	CODE	€ QUARTZ
6	3 - 4 - 5 - 6 8 - 10	651610000	169,64

KIT M 517 INOX

DIN
371

λ
35°



\angle
60°

6H



M
ISO/DIN
13



N. PEZZI PIECES	M	CODE	€
6	3 - 4 - 5 - 6 8 - 10	551710000	163,16

N. PEZZI PIECES	M	CODE	€ QUARTZ
6	3 - 4 - 5 - 6 8 - 10	651710000	198,44

KIT M 535

DIN
371

λ
0°



\angle
60°

6H



M
ISO/DIN
13



N. PEZZI PIECES	M	CODE	€
6	3 - 4 - 5 - 6 8 - 10	553510000	100,70

N. PEZZI PIECES	M	CODE	€ QUARTZ
6	3 - 4 - 5 - 6 8 - 10	653510000	128,24

KIT M 536

DIN
371

λ
35°



\angle
60°

6H



M
ISO/DIN
13



N. PEZZI PIECES	M	CODE	€
6	3 - 4 - 5 - 6 8 - 10	553610000	104,15

N. PEZZI PIECES	M	CODE	€ QUARTZ
6	3 - 4 - 5 - 6 8 - 10	653610000	133,50

KIT M 511



N. PEZZI PIECES	M	CODE	€	CODE	€ QUARTZ	CODE	€ TITANITE
6	3 - 4 - 5 - 6 8 - 10	551110000	116,53	651110000	148,62	751110000	161,80

KIT M 512



N. PEZZI PIECES	M	CODE	€	CODE	€ QUARTZ	CODE	€ TITANITE
6	3 - 4 - 5 - 6 8 - 10	551210000	119,13	651210000	151,49	751210000	164,66

KIT R 570



N. PEZZI PIECES	M	CODE	€
6	3 - 4 - 5 - 6 8 - 10	557010000	157,87

KIT R 571

DIN
371



6HX



M
ISO/DIN
13



N. PEZZI PIECES	M	CODE	€
6	3 - 4 - 5 - 6 8 - 10	557110000	157,87

KIT R 572

DIN
371



6HX



M
ISO/DIN
13



N. PEZZI PIECES	M	CODE	€
6	3 - 4 - 5 - 6 8 - 10	557210000	183,67

KIT M 524 GHISA

DIN
371



6H



M
ISO/DIN
13



N. PEZZI PIECES	M	CODE	OPAL €
6	3 - 4 - 5 - 6 8 - 10	552410000	167,46

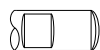
CL 11



CL 21TF



CL11



CL21TF



N. PEZZI PIECES	Ø	CODE	RESISTOR 2119..... € SAPPHIRE MULTI
6	6 - 8 - 10 - 12 - 16 - 20	....70030	304,06

N. PEZZI PIECES	Ø	CODE	RESISTOR 2219..... € SAPPHIRE MULTI
6	6 - 8 - 10 - 12 - 16 - 20	....80030	331,04

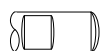
CL 24TF



CL 24TFPF



CL24TF



CL24TFPF



N. PEZZI PIECES	Ø	CODE	RESISTOR 2249..... € SAPPHIRE MULTI
6	6 - 8 - 10 - 12 - 16 - 20	....90030	508,92

N. PEZZI PIECES	Ø	CODE	RESISTOR 2249..... € SAPPHIRE MULTI
6	6 - 8 - 10 - 12 - 16 - 20	....10030	598,76

CL 11HM



N. PEZZI PIECES	Ø	CODE	Micrograin Carbide Co10
			2119..... € SAPHIRE
5	6 - 8 - 10 12 - 16	....10008	403,96

CL 16HM



N. PEZZI PIECES	Ø	CODE	Micrograin Carbide Co10
			2169..... € SAPHIRE
5	6 - 8 - 10 12 - 16	....20008	403,96

CL 18HM



N. PEZZI PIECES	Ø	CODE	Micrograin Carbide Co10
			2189..... € SAPHIRE
5	6 - 8 - 10 12 - 16	....40008	464,48

CL 21TFHM



CL 21EDHM



CL21TFHM



CL21EDHM



N. PEZZI PIECES	Ø	CODE	Micrograin Carbide Co10
			2219..... € SAPPHIRE
5	6 - 8 - 10 12 - 16	....40008	407,21

N. PEZZI PIECES	Ø	CODE	2219..... € SAPPHIRE
			....50008
5	6 - 8 - 10 12 - 16	....50008	398,84

CL 19HM



N. PEZZI PIECES	Ø	CODE	Micrograin Carbide Co12
			2199..... € SAPPHIRE
5	6 - 8 - 10 12 - 16	....50008	775,47

CL 26HM



N. PEZZI PIECES	Ø	CODE	Micrograin Carbide Co12
			2269..... € SAPPHIRE
5	6 - 8 - 10 12 - 16	....60008	542,29

set di lime rotative set of rotary burrs



F1225
F1020
D1210
D1009
C0616
C1020
B1020
B1225

Code USA	KIT €
40610000S	254,10
40110000S	330,33

set di lime rotative mm 3 codolo 3 set of rotary burrs mm 3 cod 3



formes
A
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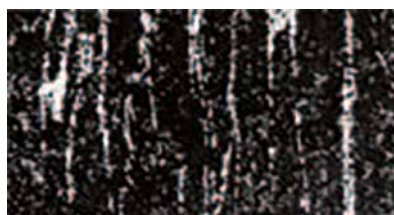
Code USA	KIT €
40620000S	94,46

HSS-HSSCo

L'acciaio rapido (HSS) è uno dei materiali più importanti nella produzione di utensili da taglio, poiché presenta buone caratteristiche di durezza, tenacità e resistenza all'usura, ed è quindi utilizzabile in una vasta gamma di applicazioni. Aggiungendo una % di cobalto nella sua composizione, si ha l'acciaio super-rapido (HSS-Co), che possiede una più elevata resistenza al calore senza peraltro compromettere la resistenza all'usura e la tenacità.

HSS steel is one of the most important materials used in the production of cutting tools because it offers good hardness features, high tensile strength and wear resistance and can be therefore used on a wide range of applications. By adding a Cobalt % in its composition you obtain High Speed Steel with higher heat resistance, thus not compromising wear resistance and tensile strength.

	UNI EN ISO 4957 (2002)	%						HRC
HSS	HS 6-5-2	C=0,90	Cr=4,20	Mo=5	W=6,50	Co=0	V=2	62-64
HSS+5%Co	HS 6-5-2-5	C=0,93	Cr=4,20	Mo=5	W=6,40	Co=4,8	V=1,80	60-66,5
HSS+8%Co	HS 2-9-1-8	C=1,08	Cr=3,90	Mo=9,4	W=1,40	Co=8	V=1,20	64,5-67,5



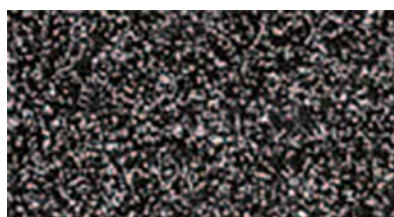
STRUTTURA HSS - STRUCTURAL HSS

RESISTOR (ASP)

La linea RESISTOR(ASP) della carmon è costruita con uno speciale acciaio ottenuto tramite un procedimento di metallurgia delle polveri il quale, rispetto alla metallurgia tradizionale, permette di ottenere una microstruttura più fine ed omogenea e quindi migliori proprietà meccaniche, in particolare elevata durezza e una migliore resistenza all'usura. Rispetto ad un acciaio rapido o super rapido, si aumentano i parametri di lavorazione, si ottiene una maggiore durata dell'utensile, e si possono lavorare acciai fino a 52 HRC.

Carmon line of products denominated RESISTOR is made out of a special powder metallurgically produced steel grade (ASP) which presents a finer and more homogeneous microstructure with better mechanical properties, particularly high hardness with better wear resistance. RESISTOR offers higher machining parameters and longer tool life over a conventional HSS or HSSCO, furthermore RESISTOR can machine materials up to 52 HRC.

	UNI EN ISO 4957 (2002)	%						HRC
HSS-E-PM RESISTOR	HS 10-2-5-8	C=1,60%	Cr=4,80%	Mo=2%	W=10,50%	Co=8%	V=5%	65,5-67



STRUTTURA ASP - STRUCTURAL ASP

METALLO DURO - HARD METAL

Il metallo duro è essenzialmente costituito da particelle di carburo di tungsteno unite a cobalto, e si ottiene dalla metallurgia delle polveri. La micrograna si riferisce alla dimensione delle particelle di carburo.

Carmon ha introdotto nella propria gamma di utensili due qualità di metallo duro, con caratteristiche chimiche, fisiche e meccaniche diverse in funzione della lavorazione che l'utensile deve svolgere.

MGCo10 "extrafine" ha un grado di micro-grana con elevata durezza e buona resistenza all'usura, tale da permettere l'utilizzo dell'utensile in una gamma più ampia di materiali.

MGCo12 "ultrafine" è caratterizzato da un'alta percentuale di carbonio e una grana ultrafine che permettono lavorazioni a velocità più elevate."

Hard Metal is composed by tungsten carbide particles with cobalt and is produced with a powder metallurgy process. Micro-grain refers to the size of carbide particles.

Carmon has introduced in its cutting tool range two grades of solid carbide with different chemical, physical and mechanical features in order to match the requirements of each application.

MGCo10 "extrafine" has a micro-grain size with high hardness and good wear resistance that allows machining of a wide range of materials.

MGCo12 "ultrafine" has a high carbide content and an ultrafine grain size and is specifically designed for high speed machining.

Tipo/Type	Grandezza/Size	WC	Co	Durezza Hardness HV30	Resistenza alla flessione Resistance to bending stress N/mm ²	Densità Density g/cm ³
MicrograinCo10	Extrafine 0,8 micron	89,70%	10%	1580	3800	14,49
MicrograinCo12	Ultrafine <0,8 micron	87,70%	12%	1700	>3800	14,11



MICROGRAIN Co10



MICROGRAIN Co12

RIVESTIMENTI A CATALOGO STANDARD - CARMON STANDARD COATINGS






Caratteristiche Tecniche Technical Features	Quartz	Pearl	Opal	Sapphire Multi	Sapphire	Titanite
Colore Colour						
Composizione di base Coating Material	TiN	TiCN/MoS2	TiCN	Multilayer TiAlN	AlTiN	AlTiN/C
Microdurezza (HV 0.05) Microhardness (HV 0.05)	2.300	3'500	3.500	3.500	3.700	3.700
Coefficiente d'attrito contro 100 Cr 6 Friction Coefficient against 100 Cr 6	0.6	0.5	0.5	0.4	0.5	0.1
Spessore (µm) Thickness (µm)	1 - 4	1 - 4	1 - 4	1 - 3	1 - 2	2 - 3
Temperatura di Deposizione (°C) Deposition Temperature (°C)	140 - 480	350-480	350 - 480	480	480	480
Resistenza all'Ossidazione (max. °C) Oxidation Resistance (max. °C)	600	400	400	700	800	800
Applicazioni Applications	Acciai da costruzione >800 N/mm, acciai inox Structural Steels >800 N/mm, Stainless Steels	Acciaio inossidabile Stainless Steel	Tutti gli acciai da costruzione, acciai da cementazione, acciai da bonifica <1200 N/mm, Alluminio e sue leghe, leghe di titanio, materie plastiche. Structural Steel, casehardening steel, Tempered Steel <1200 N/mm, Aluminium and its alloys, Plastics.	Per ogni tipo di materiale Any type of material	Per ogni tipo di materiale Any type of material	Per ogni tipo di materiale Any type of material

A RICHIESTA - CARMON COATINGS OFFERED ON REQUEST

Caratteristiche Tecniche Technical Features	Sapphire Multi sleek	Sapphire sleek	Diamond
Colore Colour			
Composizione di base Coating Material	Multilayer TiAlN	AlTiN	Carbonio
Microdurezza (HV 0.05) Microhardness (HV 0.05)	3'500	3'700	10'000
Coefficiente d'attrito contro 100 Cr 6 Friction Coefficient against 100 Cr 6	0.1	0.1	0.6
Spessore (µm) Thickness (µm)	1 - 3	1 - 2	4 - 10
Temperatura di Deposizione (°C) Deposition Temperature (°C)	480	480	
Resistenza all'Ossidazione Oxidation Resistance (°C)	700	800	1000
Applicazioni Applications	Per ogni tipo di materiale Any type of material	Per ogni tipo di materiale Any type of material	Grafite Graphite

Sleek è una nuova lavorazione che avviene nel post rivestimento e serve a ridurre il coefficiente d'attrito superficiale dell'utensile. Questo migliora notevolmente la lavorazione di materiali con scarsa evacuazione del truciolo (rame, ottone, bronzo, alluminio e sue leghe). Viene applicata principalmente ai nostri rivestimenti SAPHIRE MULTI e SAPHIRE.

"SLEEK" is a new surface treatment which is applied after coating in order to reduce friction coefficient on the cutting tool surface. This treatment improves machining process on those materials which present difficult chip flow (copper, brass, bronze, aluminum and its alloys). "Sleek" is applied mainly on the coatings "Sapphire Multi" and "Sapphire".

LAVORAZIONI APPLICATION					
Materiali da lavorare: Materials to be machined:	HSS-Co/RESISTOR	HM	HSS-Co	HM	HSS-Co/RESISTOR
Acciai non legati Unalloyed steels	Sapphire Multi	Sapphire	Quartz	Sapphire	Quartz
Acciai legati: Alloyed Steels:	Sapphire Multi	Sapphire	Quartz	Sapphire	Opal
Acciai < 50 HRC Steel < 50 HRC	Sapphire Multi	Sapphire	Titanite	Sapphire	Pearl
	Sapphire Multi sleek				
Acciai > 50 HRC Steel > 50 HRC		Sapphire		Sapphire	
		Sapphire sleek			
Acciai Inossidabili Stainless Steel	Pearl	Sapphire	Titanite	Sapphire	Pearl
		Sapphire sleek			
Ghisa Cast Iron	Sapphire Multi	Sapphire		Sapphire sleek	Titanite
	Sapphire Multi sleek	Sapphire sleek			
Leghe di Titanio Titanium, alloyed	Sapphire Multi	Sapphire	Titanite	Sapphire sleek	Titanite
Rame Copper	Sapphire Multi sleek	Sapphire sleek	Titanite	Sapphire sleek	Pearl
Ottone / Bronzo / Alpacca Brass / Bronze / Nickel Silver	Sapphire Multi sleek	Sapphire sleek	Titanite	Sapphire sleek	Pearl
Plastiche Plastics	Sapphire Multi sleek	Sapphire sleek	Titanite	Sapphire sleek	Titanite
Alluminio con Si < 10% Aluminium with Si < 10%	Sapphire Multi sleek	Sapphire sleek	Titanite	Sapphire sleek	Titanite
Alluminio con Si > 10% Aluminium with Si > 10%	Sapphire Multi sleek	Sapphire	Titanite	Sapphire	Titanite
		Diamond		Diamond	
Alluminio e Magnesio Aluminium and Magnesium	Sapphire Multi sleek	Sapphire	Titanite	Sapphire sleek	Titanite
Grafite Graphite		Sapphire Multi		Sapphire	Titanite
		Diamond		Diamond	
Materiali Compositi Composites		Sapphire sleek		Sapphire	Titanite
		Diamond		Diamond	

CLASSIFICAZIONE DEI MATERIALI GROUPS OF MATERIALS

ESEMPI DI MATERIALI - MATERIAL EXAMPLE

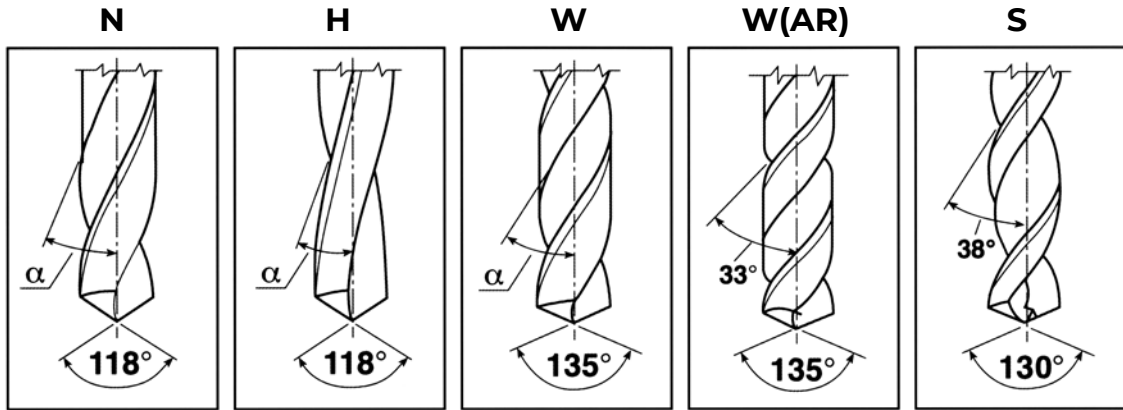
		W. - Nr.	DIN	EN	B.S.	AISI/SAE	SS
- Acciai sino a 500 N/mm2	- Steels up to 500 N/mm2	1.0037	ST 37-2	EN 10025	FE 360 B	M 1010	1311
- Acciai da costruzione	- Construction steels	1.0044	ST 44-2	EN 10025	FE 430 B FN	M 1015	1412
- Acciai alta velocità	- Steels for automatic lathes	1.0711	9 S 20	1651	220 M 07		
		1.0715	9 SMn 28	1651	230 M 07	1213	1912
		1.0718	9 MnPb 28	1651		12 L 13	1914
1							
- Acciai sopra 500 - 800 N/mm2	- Steels more than 500 - 800 N/mm2	1.0060	St 60-2	EN 10025	4360-55E; 55C	A572 GR.65	1650
- Acciai da costruzione	- Construction steels	1.0503	C 45	EN 10083-2	080 M 46	1045	1672
- Acciai alta velocità	- Steels for automatic lathes	1.0570	St 52-3	EN 10025	4360-50 D		2134
- Acciai da cementazione	- Case hardening steels	1.0727	45 S 20	1651		1146	
- Acciai da bonifica	- Tempering steels	1.1141	Ck 15	1652T.3	080 M15	1015	1370
- Acciai da utensili nonlegati	- Non-alloyed tools steels	1.1191	Ck 45		080 M 46	1045	1672
- Titanio non legato	- Non-alloyed titanium						
- Ghisa grigia < 180 HB	- Cast iron < 180 HB						
2							
- Acciai sopra 800 - 1000 N/mm2	- Steels more than 800 - 1000 N/mm2	0.6020	GG 20		GRADE 220	A48-30B	0120-00
		0.7040	GGG 40		420/12	60-40-18	0717-02
- Acciai da cementazione	- Case hardening steels	0.8035	GTW-35				
- Acciai da bonifica	- Tempering steels	0.8135	GTS-35		B 340/12	32510	
- Acciai da nitrurazione	- Nitriding steels	1.1167	36 Mn 5	17204	150 M 36	1335	2120
- Acciai da costruzione resistenti al calore	- Heat resistant construction steels	1.1221	Ck 60	EN 10083-1	060 A 62	1060	1665
- Ghisa grigia > 180 HB	- Cast iron > 180 HB	1.2312	40 CrMnMoS 8 6	17350			
		1.5732	14 NiCr 10				3415
		1.5775	31 NiCr 14		653 M 31		
		1.7131	16 MnCr 5		572 M 17	5115	2173
		1.7225	42 CrMo 4	EN 10083-1	708 M 40	4140	2244
		1.8504	34 CrAl 6				
		1.8507	34 CrAlMo 5	17211		A355 Cl.D	
		1.8509	41 CrAlMo 7		905 M 39	A355 Cl.A	2940
		1.8515	31 CrMo 12	17211	722 M 24		2240
3							
- Acciai sopra 1000 - 1300 N/mm2	- Steels more than 1000 - 1300 N/mm2	0.6030	GG 30		GRADE 300	A48-45B	0130-00
		0.7050	GGG 50		500/7	65-45-12	0727-02
- Acciai da cementazione	- Case hardening steels	0.7060	GGG 60		600/3	80-55-06	0732-03
- Acciai da bonifica	- Tempering steels	0.8065	GTW-65				
- Acciai da nitrurazione	- Nitriding steels	0.8170	GTS-70		P 690		
- Acciai da utensili per lavorazioni a caldo	- Hot working steels	1.2067	102 Cr 6	17350	BL 3	L 3	
- Acciai inossidabili ferritici	- Ferritic Stainless steel	1.2311	40 CrMnMo 7				
- Acciai inossidabili ferritici	- Titanium alloys	1.2312	40 CrMnMoS 8 6	17350			
- Leghe di titanio		1.2343	X 38 CrMoV 5-1	17350	BH 11	H 11	
		1.2344	X40CrMoV 5-1	17350	BH13	H13	HARDOX600
		1.2510	100 MnCrW 4		BO 1	O 1	HARDOX400 500
		1.2710	45 NiCr 6				
		1.2711	54 NiCrMo V 6				
		1.2714	56 NiCrMoV 7	17350			
		1.2833	100 V 1		BW 2	W 210	
		1.2842	90 MnCrV 8	17350	BO 2	O 2	
		1.3565	48 CrMo 4	17230	817 M40		
		1.4002	X 6 CrAl 13	E EN 10088	405 S 17	405	2302
		1.4006	X 10 Cr 13	E EN 10088	410 S21	410	
		1.4028	X 30 Cr 13	E EN 10088	420 S 45	420F	2304
		1.6587	17 CrNiMo 6	1672 T.3	820 A 16		
		1.8519	31 CrMoV 9	17211			
		1.8550	34 CrAlNi 7	17211			
		1.8550	34 CrAlNi 7	172111.4301	X 5 CrNi 18 10	E EN 10088	304 S 15

CLASSIFICAZIONE DEI MATERIALI GROUPS OF MATERIALS

ESEMPI DI MATERIALI - MATERIAL EXAMPLE

		W. - Nr.	DIN	EN	B.S.	AISI/SAE	SS
- Acciai da utensili per lavorazioni a freddo 12% Cr	- Tool steels for cold machining 12% Cr	1.2080	X 210 Cr 12	17350	BD 3	D 3	
- Acciai resistenti al calore = 17% Ni e 17% Cr	- High temperature steels = 17% Ni and 17% Cr	1.2379	X 155 CrVMo 12-1	17350	BD 2	D 2	2310
- Acciai inossidabili austenitici	- Austenitic stainless steel	1.2436	X 210 CrW 12	17350			2312
- Leghe di titanio indurite	- Titanium alloys hardened	1.2601	X 165 CrMoV 12	17350			
- Leghe a base di nichel non indurenti	- Nickel-based alloys	1.4301	X 5 CrNi 18 10	E EN 10088	304 S 15	304	2332
		1.4305	X 12 CrNi S 18 9	E EN 10088	303 S 22	303	2346
		1.4571	X 6CrNiMoTi 17-12-2	E EN 10088	320 S 18	316 Ti	2350
		1.4876	Incoloy 800	SEW 470	NA 15	B 163	
		1.4923	X 22 CrMoV 12-1	17240			
		1.4945	X 6 CrNiW Nb 16 16				
		1.4962	X 12 CrNiW Ti 16-13				
		1.5920	18 CrNi 8				
		1.6582	34 CrNiMo 6	EN 10083-1			
		2.4632	Nimonic 90	LW			
		2.4654	Waspalloy	LW			
		2.4665	Hastelloy X	LW			
		2.4670	Inconel 713	LW			
		2.4816	Inconel 600	17742			
		2.4856	Inconel 625	17744			
5							
- Leghe resistenti al calore	- Higt temperature alloys	2.4636	Udimet 700				
- Leghe a base di nichel indurenti	- Nickel-based alloys	2.4668	Inconel 718				
		2.4973	René 41				
			Astroloy				
			René 95				
			Stellite 6				
6							
- Alluminio puro	- Pure aluminium	3.0255	Al 99,5				
- Leghe d'alluminio non bonificato	- Non-hardened aluminium	3.2315	AlMgSi 1				
- Materiali malleabili	- Forging materials	3.3211	AlMg 1 SiCu				
		3.3535	AlMg 3				
		3.4365	AlZnMgCu 1,5				
7							
- Leghe d'alluminio bonificato	- Hardened aluminium	3.2151	G-Al Si6 Cu 4				
- Materiali malleabili	- Forging materials	3.2341	G-ALSi 5 Mg				
- Getti in lega leggera Si ≤ 10%	- Aluminium cast material Si ≤ 10%	3.2373	G-ALSi 9 Mg				
8							
- Getti in lega leggera Si > 10%	- Aluminium cast material Si > 10%	3.2381	G-ALSi 10 Mg				
- Leghe rame - zinco (ottone)	- Copper - zinc alloys (brass)	3.2581	G-ALSi 12				
- Leghe rame - stagno (bronzo)	- Copper - zinc alloys (bronze)		ALSi 17 Cu 4				
- Duroplastica laminata	- Duroplast laminated		Al Si 21 CuNiMg				
			ALSi 25 CuNiMg				
9							

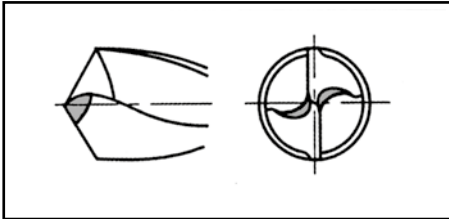
TIPO DI ESECUZIONE DELLE PUNTE ELICOIDALI TWIST DRILLS EXECUTIONS



α = Inclinazione dell'elica / Helix angle

Gruppi di diametri - Diameter groups	Esecuzione - Execution		
	α		
mm	N	H	W
0 ÷ 0,6	18°±20°	-	-
0,6 ÷ 1	20°±26°	-	-
1 ÷ 3,2	22°±28°	12°±15°	30°±38°
3,2 ÷ 5	24°±30°	14°±15°	30°±40°
5 ÷ 10	25°±32°	16°±18°	35°±42°
10 ÷ >	26°±34°	18°±20°	35°±42°

AFFILATURE SPECIALI - SPECIAL SHARPENING

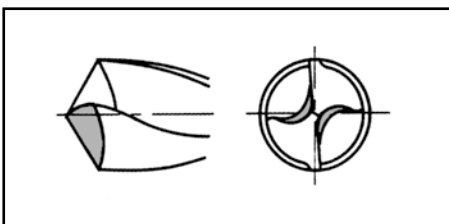


DIN 1412 forma A

Assottigliamento del nucleo; riduce lo spessore del nucleo e quindi la pressione di penetrazione, migliorando le condizioni di taglio. Viene utilizzata per punte riaffilate e per punte lunghe.

DIN 1412 shape A

Web thinning; reduces web thickness and therefore feed pressure thereby improving cutting conditions. Used for re-sharpened and long bits.

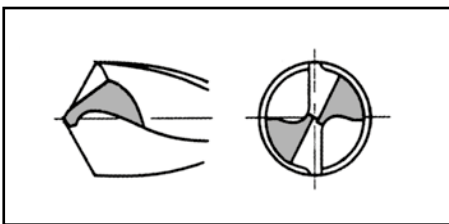


DIN 1412 forme B

Assottigliamento del nucleo con correzione del tagliente; riduce lo spessore del nucleo permettendo la correzione del tagliente.

DIN1412 forma B

Web thinning with cutting edge correction; reduces web thickness to enable cutting edge correction.

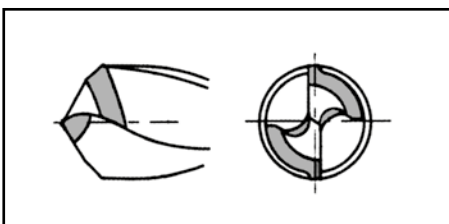


DIN1412 forma C

Affilatura a croce o affilatura a diamante; utilizzata su punte per fori profondi. La forma dell'angolo in punta favorisce l'asportazione del truciolo e riduce la pressione di penetrazione.

DIN1412 shape C

Split point or diamond type sharpening; used on bits for deep drilling. The point angle geometry facilitates chip removal and feed pressure.

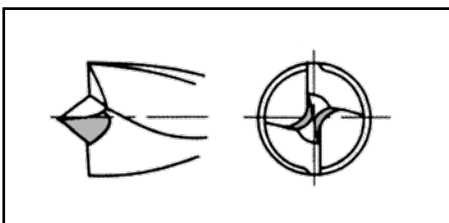


DIN1412 forma D

Affilatura per ghisa grigia; la smussatura degli spigoli esterni consente di irrobustire il tagliente. Viene usata per ghisa di durezza media o elevata e per materiali abrasivi.

DIN1412 shape D

Gray cast iron sharpening; bevelling of external edges strengthens the cutting edge. Used for medium to high gray cast iron hardness and for abrasives.

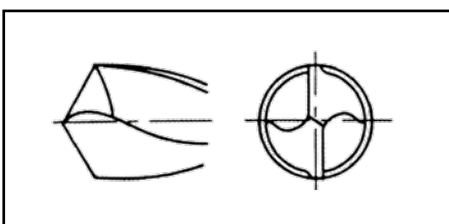


DIN1412 forma E

Affilatura per punta a centrare; consente una buona centratura, non lascia bava nei fori passanti. Poiché la punta e i lati taglienti sono delicati, conviene utilizzarla per forature di lamiere sottili.

DIN1412 shape E

Centre drill bit sharpening; ensures optimal centre drilling and does not leave burrs in through-holes. As the bit and cutting edges are delicate, this bit should be used for drilling thin sheet metal.



AFFILATURA STANDARD

STANDARD SHARPENING

ANELLI COLORATI PER MASCHI A MACCHINA COLOURED RINGS FOR MACHINE TAPS



I maschi con anello rosso sono costruiti per la maschiatura di acciai tenaci, leghe di Titanio, Nichel. Si consiglia l'utilizzo di refrigerante; olio da taglio integrale o emulsione al 4% - 5%

Main Application: Tough Steels (1200-1400 N/mm²), Titanium and Nickel Alloys.
Coolant: full cutting oil or emulsion at 4 - 5%



I maschi con anello blu, sono costruiti per la maschiatura di acciai inox, acciai pastosi (teneri) fino a 750 N/mm². Come refrigerante si consiglia l'uso di olio da taglio integrale.

Main Application: Stainless steels and soft steels up to 750 N/mm².
Coolant: full cutting oil.



I maschi con anello verde sono costruiti per la maschiatura di leghe e derivati alluminio, rame, ottone, bronzo. Refrigerante olio da taglio integrale, emulsione al 6% - 8%

Main application: Aluminium and its alloys, copper, brass, bronze.
Coolant: full cutting oil or emulsion at 6 - 8%



I maschi con anello bianco sono costruiti per la maschiatura di ghisa grigia, sferoidale (GG-GGG), materiali abrasivi a truciolo corto.

Main application: Cast Iron, Spheroidal Cast Iron (GG-GGG), abrasives materials with short chips.



I maschi con anello giallo sono costruiti per la maschiatura di acciai con resistenza medio/bassa. Possono essere impiegati per acciai da costruzione, acciai legati-bonificati, rame, leghe di rame e ottone. Si consiglia l'utilizzo di refrigerante; olio da taglio integrale o emulsione al 4% - 5%.

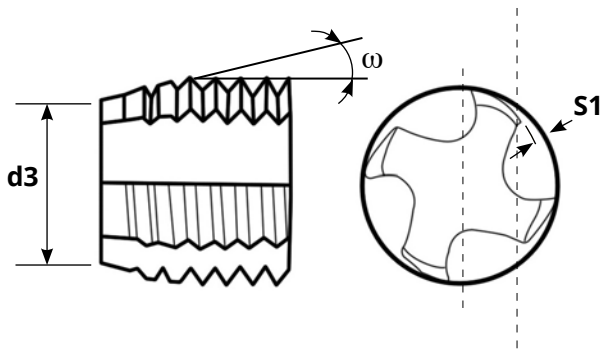
Main application: low resistance steel. These taps can be used on construction steel, tempered and alloyed steel, copper, copper alloys and brass.
Coolant: we suggest the use of full oil or 4%-5% emulsion.



I maschi con anello arancione di nuova produzione, sono costruiti per la maschiatura di acciai tenaci si consiglia l'utilizzo in maschiatura rigida con refrigerante olio da taglio integrale o emulsione allo 4% - 5%

Taps with orange ring of new production, they are built for tapping tough steels and we recommend using rigid tapping with coolant full cutting oil or emulsion at 4% - 5%.

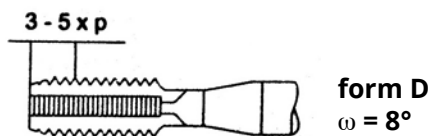
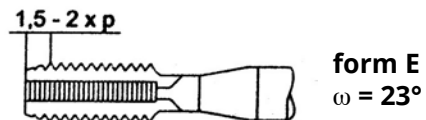
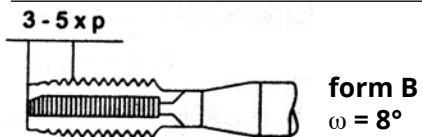
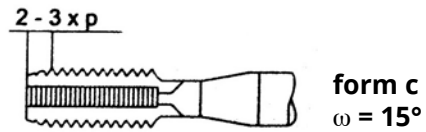
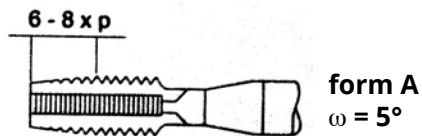
IMBOCCO - CHAMFER



d3) diametro imbocco
chamfer diameter

ω Angolo d'imbocco
Chamfer angle

S1) Spoglia radiale sull'imbocco
Chamfer radial relief



TOLLERANZE - TOLERANCES ($\mu\text{m} = 0,001 \text{ mm}$)

D	H7	H8	H11	d9	d11	e8	f8	h6	h8	h10	h11	h12	js14	js16	k11	k16	m7
1÷3	0	0	0	-20	-20	-14	-7	0	0	0	0	0	+125	+300	+60	+600	+12
	+9	+14	+60	-45	-80	-28	-21	-7	-14	-40	-60	-100	-125	-300	0	0	+1
3÷6	0	0	0	-30	-30	-20	-10	0	0	0	0	0	+150	+375	+75	+750	+16
	+12	+18	+75	-60	-105	-38	-28	-8	-18	-48	-75	-120	-150	-375	0	0	+4
6÷10	0	0	0	-40	-40	-25	-13	0	0	0	0	0	+180	+450	+90	+900	+21
	+15	+22	+90	-76	-130	-47	-35	-9	-22	-58	-90	-150	-180	-450	0	0	+6
10÷18	0	0	0	-50	-50	-32	-16	0	0	0	0	0	+215	+550	+110	+1100	+25
	+18	+27	+110	-93	-160	-59	-43	-11	-27	-70	-110	-180	-215	-550	0	0	+7
18÷30	0	0	0	-65	-65	-40	-20	0	0	0	0	0	+260	+650	+130	+1300	+29
	+21	+33	+130	-117	-195	-73	-53	-13	-33	-84	-130	-210	-260	-650	0	0	+8
30÷50	0	0	0	-80	-80	-50	-25	0	0	0	0	0	+310	+800	+160	+1600	+34
	+25	+39	+160	-142	-240	-89	-64	-16	-39	-100	-160	-250	-310	-800	0	0	+9
50÷65	0	0	0	-100	-100	-60	-30	0	0	0	0	0	+370	+950	+190	+1900	+41
	+30	+46	+190	-174	-290	-106	-76	-19	-46	-120	-190	-300	-370	-950	0	0	+11
65÷80	0	0	0	-100	-100	-60	-30	0	0	0	0		+370	+950	+190	+1900	+41
	+30	+46	+190	-174	-290	-106	-76	-19	-46	-120	-190		-370	-950	0	0	+11
80÷100	0	0	0	-120	-120	-72	-36	0	0	0	0		+435	+1100	+220	+2200	+48
	+35	+54	+220	-207	-340	-126	-90	-22	-54	-140	-220		-435	-1100	0	0	+13
100÷120	0	0	0	-120	-120	-72	-36	0	0	0	0		+435	+1100	+220	+2200	+48
	+35	+54	+220	-207	-340	-126	-90	-22	-54	-140	-220		-435	-1100	0	0	+13
120÷140	0	0	0	-145	-145	-85	-43	0	0	0	0		+500	+1250	+250	+2500	+55
	+40	+63	+250	-245	-395	-148	-106	-25	-63	-160	-250		-500	-1250	0	0	+15
140÷160	0	0	0	-145	-145	-85	-43	0	0	0	0		+500	+1250	+250	+2500	+55
	+40	+63	+250	-245	-395	-148	-106	-25	-63	-160	-250		-500	-1250	0	0	+15
160÷180	0	0	0	-145	-145	-85	-43	0	0	0	0		+500	+1250	+250	+2500	+55
	+40	+63	+250	-245	-395	-148	-106	-25	-63	-160	-250		-500	-1250	0	0	+15
180÷200	0	0	0	-170	-170	-100	-52	0	0	0	0		+575	+1450	+290	+2900	+63
	+46	+72	+290	-285	-460	-172	-122	-29	-72	-185	-290		-575	-1450	0	0	+17

Carmon
High Precision Tooling

LEGENDA LEGEND

CONDIZIONI GENERALI DI VENDITA

I prezzi del presente listino si intendono alle condizioni di sconto vigenti al momento della spedizione. Eventuali variazioni di sconto saranno comunicate preventivamente.

La spedizione della merce si intende, salvo condizioni precedentemente pattuite, franco ns. stabilimento o deposito. La merce viaggia sempre, in ogni caso, ad esclusivo rischio del committente. Non si accettano reclami se non pervenuti entro sette giorni dal ricevimento della merce.

La consegna del materiale è generalmente pronta a magazzino, salvo casi particolari.

In questi casi i tempi di consegna sono indicativi e comunque non impegnativi.

Tutte le ordinazioni, anche se verbali, si intendono sempre date ed eseguite alle condizioni sopra esposte.

Ogni eventuale clausola contenuta nel Vs. ordine, in contrario con quanto sopra, si intende priva di valore.

A richiesta si producono utensili con forme e dimensioni speciali; in questo caso sarà ns. cura comunicarVi i prezzi unitamente ai quantitativi minimi e ai tempi di consegna.

Nessun ritardo può costituire causa di annullamento dell'ordine o di rivalsa qualsiasi.

Non rispondiamo perciò di nessun danno dipendente da un ns. ritardo e la merce non può essere rifiutata per nessun motivo.

Il compratore è tenuto al pagamento integrale anche in casi di contestazione o controversia.

I pagamenti dovranno avvenire nei termini e negli accordi previsti; in caso di ritardato pagamento ci riserviamo di addebitarVi una penale pari al tasso bancario vigente in quel momento .

Gli utensili potranno essere sostituiti, previa autorizzazione della Direzione Commerciale.

La garanzia decade nel momento in cui gli utensili presentino una normale usura, un errato impiego oppure segni di manomissione.

Risponderemo comunque solamente della qualità e della tolleranza dei pezzi da noi prodotti e non del lavoro che da essi verrà eseguito.

Si esclude quindi ogni indennizzo a ns. carico all'infuori della sostituzione degli utensili riconosciuti difettosi.

Per ogni controversia che dovesse sorgere sarà competente il Foro di Brescia.

Tutti i dati sono stati redatti e controllati con la massima cura.

Non ci assumiamo comunque nessuna responsabilità per eventuali errori od omissioni.

La CARMON può a suo insindacabile giudizio cambiare in qualsiasi momento le caratteristiche ed i prezzi dei prodotti venduti.

GENERAL SALES CONDITIONS

The prices in the present list are applicable with discount conditions valid at the time of delivery.

Customers will be notified of any price variations in advance.

Goods delivery is ex our works/warehouse unless otherwise agreed. In any event goods transport remains the completely responsibility of the purchaser.

Claims will only be accepted if delivered within seven days of receipt of the said goods. Goods are generally ready for delivery from the warehouse, with the exception of special cases. In special cases delivery times are to be considered guideline only and not binding.

All orders, even if verbal, are considered issued and processed on the conditions specified above. Clauses in the customer's order that contradict the above, will be considered null and void.

Special tools with specific shapes and dimensions can be manufactured on request; in this case we will notify the customer of prices, minimum order quantities, and delivery times.

No delay constitutes cause for cancellation of the order or other recourse.

Therefore we shall not be held liable for damage caused by any delays and goods may not be refused under any circumstances.

The purchaser is obliged to fulfil total payment, also in the event of dispute or controversy.

Payments must be made within the agreed terms and methods; in the event of delayed payment, we reserve the right to make an extra charge equal to the current applicable bank rate.

Tools may be replaced with prior authorisation from the Sales Management.

The guarantee does not apply in the event of normal tool wear, incorrect use or evidence of tampering.

We shall be responsible exclusively for quality and tolerance of the tools we produce and not for the relative application.

Therefore all damages are excluded with the exception of piece replacement when acknowledged as defective.

The present conditions are subject to the exclusive jurisdiction of the Court of Brescia.

All the present information has been drawn up and checked thoroughly.

However we shall not be held liable for any errors or omissions.

CARMON reserves the right to modify prices and products at any time without notice.

GEOMETRIA DELLA GOLA
FLUTE GEOMETRY (pag 384)



INCLINAZIONE ELICA
HELIX ANGLE



ANGOLO AL VERTICE
POINT ANGLE



AFFILATURA
POINT GRINDING (pag 385)



LUNGHEZZA
LENGTH



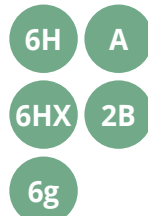
INCLINAZIONE ELICA
HELIX ANGLE



VISTA FRONTALE
FRONT VIEW



TOLLERANZA
TOLLERANCE (ISODIN13)



LUNGHEZZA
LENGTH



INCLINAZIONE ELICA
HELIX ANGLE



ANGOLO DEL DENTE
TOOTH ANGLE



ANGOLO DEL DENTE
TOOTH ANGLE



TOLLERANZA
TOLLERANCE



GEOMETRIA DELLA GOLA
FLUTE GEOMETRY (pag 342)



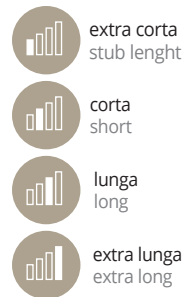
INCLINAZIONE ELICA
HELIX ANGLE



VISTA FRONTALE
FRONT VIEW



LUNGHEZZA
LENGTH



TAGLIENTI A SGROSSARE E SEMIFINIRE
ROUGHING AND SEMI-FINISHING CUTTING EDGE PROFILE

Ø	NR	HR	WR	NF
Ø 6 - Ø19	P.2			P.1,25
Ø20 - Ø30	P.3			
Ø32 - Ø75	P.4			



pag 337



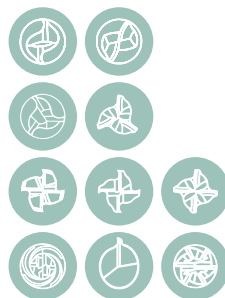
GEOMETRIA DELLA GOLA
FLUTE GEOMETRY (pag 384)



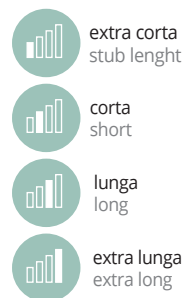
LAVORAZIONI AD ALTA VELOCITÀ
HIGH SPEED CUTTING



VISTA FRONTALE
FRONT VIEW



LUNGHEZZA
LENGTH



TAGLIENTI A SGROSSARE E SEMIFINIRE
ROUGHING AND SEMI-FINISHING CUTTING EDGE PROFILE



INCLINAZIONE ELICA
HELIX ANGLE



ANGOLO AL VERTICE
POINT ANGLE



AFFILATURA
POINT GRINDING (pag 385)



Taglio Alluminio
Aluminium Cut

Taglio singolo
Single Cut

Taglio rompitruciolo
Chip Breaker

Diamante
Diamant Cut

Taglio doppio
Double Cut

HSS

HSS+5%Co

HSS+8%Co

RESISTOR

HM

pag 378 - 379

QUARTZ

PEARL

OPAL

SAPPHIRE
MULTI

SAPPHIRE

TITANITE

pag 380 - 381

PUNTE HSS
HSS DRILLS

ALESATORI
REAMERS

MASCHI - FILIERE
TAPS - DIES

TAMPONI-ANELLI
GAUGES- RINGS

FRESE HSS
HSS MILLING CUTTERS

FRESE E PUNTE HM
HM MILLING CUTTERS & DRILLS

LIME ROTATIVE HM
HM ROTARY BURRS

TECH INFO



Carmon

High Precision Tooling

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↓ catalog