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Catalogo generale

GENERAL CATALOGUE
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vision Aziendale
COMPANY VISION

"In un sistema economico sempre più selettivo e competitivo siamo impegnati ad essere un punto di riferimento per le aziende che ricercano tecniche d'avanguardia. Le strategie e i programmi che abbiamo sviluppato sono finalizzati ad affermarci sempre più incisivamente nel mercato globale garantendo un livello qualitativo di prodotti e servizi d'eccellenza.
La determinazione ad essere sempre aggiornati nella ricerca di nuove soluzioni tecnologiche e la dedizione alle esigenze dei nostri clienti e partners rappresentano i fondamenti della nostra Azienda, decisa, come da sua storia, ad accettare le sfide che propone il mercato."

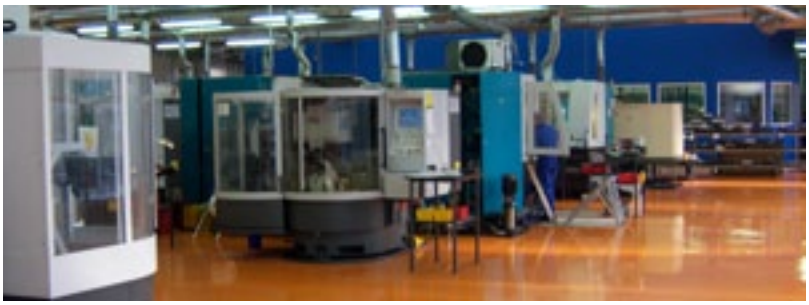
"In an economic system which is becoming more and more selective and competitive, we aim to be a reference point for the companies that search the most up to date techinques.
The strategies and programmes that we have developed are finalized to place our company more and more incisively in the global market, this guaranteeing a high product quality level and excellent services.
The determination to be always updated by researching new technological solutions and attentions paid to all requirements of our customers and partners represent the main principles of our company, which is determined as always to accept all market challanges."

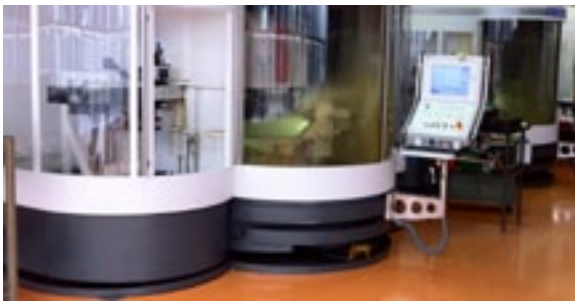
"Zur immer erfolgreicheren Eroberung des globalen Marktes haben wir Strategien und Programme entwickelt, die ein qualitativ hochwertiges Produkt- und Dienstleistungsniveau garantieren. Unsere Entschlossenheit und Bereitschaft immer wieder neue technologische Lösungen zu suchen, um die Anforderungen unserer Kunden und Partner zu erfüllen bilden die Grundlage unseres Unternehmens, dessen Ziel es wie seine Geschichte zeigt ist, sich den Herausforderungen des globalen Marktes zu stellen."

"Dans un système économique toujours plus sélectif et concurrentiel, nous nous devons d'être une référence pour toute entreprise à la recherche de technologies d'avant-garde. Les stratégies et les programmes que nous avons développés et finalisés, nous permettent d'être toujours plus incisif sur le marché mondial et garants d'un niveau qualité d'excellence, tant pour nos produits que pour nos services. Notre détermination à toujours être à la pointe de la recherche de nouvelles solutions techniques et notre dévouement pour répondre aux exigences de nos clients partenaires, représentent les fondements même de notre société, décidée, comme tout au long de son histoire, à accepter de relever les défis imposés par le marché."

"En un sistema económico cada vez más selectivo y competitivo, nuestro objetivo es ser un punto de referencia para las empresas que buscan técnicas de vanguardia. La estrategia y el programa que hemos desarrollado se cosolida de manera cada vez más incisiva en el mercado global garantizando un nivel cualitativo de producto y servicio de excelencia. La determinación de estar siempre al día en la búsqueda de nuevas soluciones tecnológicas y el esfuerzo en responder a las exigencias de nuestros clientes y colaboradores, representan la base de nuestra empresa, decidida, como en toda su historia, a aceptar los desafíos que propone el mercado."

unità produttiva / PRODUCTION PLANT





UOP QUALITY CONTROL ROOM

UOP HEAT TREATMENT

UOP WAREHOUSE

UOP UK

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SOLID CARBIDE

HPC Megatool concept

Linea di utensili in metallo duro ad alte prestazioni (High Performance Cutting) particolarmente indicata per lavorazioni di Acciai Inossidabili, leghe di Titanio, Inconel e leghe HRSA.

SOLID CARBIDE HPC TOOL LINE, SUITABLE FOR THE MACHINING OF **S**TAINLESS **S**TEEL, **T**ITANIUM ALLOYS, **I**NCONEL AND **HRSA** ALLOYS.

SOLID CARBIDE

HSC Top Class LINE

Linea di frese in metallo duro ultrafine per alta velocità (High Speed Cutting), indicata per una vasta gamma di lavorazioni complesse.

ULTRA FINE SOLID CARBIDE **HSC END MILL** LINE, SUITABLE FOR A WIDE RANGE OF COMPLEX APPLICATIONS.

SOLID CARBIDE

UNIVERSAL LINE

Linea di prodotti in metallo duro micrograno di eccellente versatilità indicata per una ampia gamma di applicazioni.

MICROGRAIN SOLID CARBIDE LINE OF EXCELLENT VERSATILITY SUITABLE FOR A WIDE RANGE OF APPLICATIONS.

HSS-PM

HSS-PM LINE

Linea di utensili in acciaio super rapido e da polveri (Powder Metal) caratterizzata da una eccezionale completezza di gamma.

HIGH **S**PEED **S**TEEL AND POWDER METAL STEEL LINE REPRESENTS AN EXCEPTIONALLY COMPLETE RANGE OF PRODUCTS.

SPECIAL TOOLS

Progettazione e realizzazione di utensili a disegno sviluppati per le aziende più tecnologicamente avanzate.

DESIGN AND PRODUCTION OF **SPECIAL TOOLS** DEVELOPED FOR THE MOST ADVANCED INDUSTRIES.

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46805	R	Z4		raccordatura CORNER ROUNDING	◕	◕	◕	○	◕	●	◕	◕	●	●	151
47105		Z3÷4		sgrossatura ROUGHING	◕	◕	◕	○	◕	○	○	○	●	●	152

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47135		Z3÷4		sgrossatura ROUGHING	◕	◕	◕	○	◕	○	○	○	●	●	153
FORATURA / DRILLING															
49105		Z2		foratura DRILLING	○	○	○	○	○	●	○	○	●	●	154 155
49120		Z2		foratura DRILLING	○	○	○	○	○	●	○	○	●	●	156 157
49305		Z2		foratura DRILLING	●	●	○	○	●	○	○	○	●	●	158 159
49310		Z2		foratura DRILLING	●	●	○	○	●	○	○	○	●	●	160
49505 Internal Coolant		Z2		foratura DRILLING	●	●	◕	○	●	○	○	○	●	●	161
49510 Internal Coolant		Z2		foratura DRILLING	●	●	◕	○	●	○	○	○	●	●	162
49610 Internal Coolant		Z2		foratura DRILLING	○	○	○	○	○	●	●	○	○	●	163
49905 Internal Coolant		Z2		foratura; svasatura DRILLING; COUNTERSINKING	●	●	◕	○	●	○	○	○	●	●	164
49910 Internal Coolant		Z2		foratura; svasatura DRILLING; COUNTERSINKING	●	●	◕	○	●	○	○	○	●	●	164
50105		Z3		foratura DRILLING	○	○	○	○	◕	○	◕	○	○	●	165 166
50120		Z3		foratura DRILLING	○	○	○	○	◕	○	◕	○	○	●	167 168 169
50510 Internal Coolant		Z3		foratura DRILLING	○	○	○	○	◕	○	◕	○	○	●	170
New **50520** Internal Coolant		Z3		foratura DRILLING	○	○	○	○	◕	○	◕	○	○	●	171
Operazioni varie / GENERIC APPLICATIONS															
51105		Z3		allargatura BORING	○	○	◕	○	○	●	◕	○	●	●	172 173

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51120		Z3		allargatura BORING	○	○	◪	○	○	●	◪	○	●	●	174 175
52105		Z2		centratura CENTERING	◪	◪	◪	○	◪	◪	◪	○	●	●	176
52110		Z2		centratura CENTERING	◪	◪	◪	○	◪	◪	◪	○	●	●	176
ALESATURA / REAMING															
56105		Z3÷7		alesatura per fori passanti THROUGH HOLES REAMING	◪	◪	◪	○	●	●	●	○	●	●	181 182
57105		Z6		alesatura per fori ciechi e passanti BLIND AND THROUGH HOLES REAMING	○	○	◪	○	◪	●	●	○	●	●	183
BARRETTE / TOOLBITS															
53105		●													177 178
53108		●													179
53110		■													180
53115		▬													180

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Fresatura / MILLING															
01105		Z8÷16		contornatura; spianatura SHOULDERING; FACEMILLING	◪	◪	○	○	◪	○	○	○	●	●	186
01110		Z6÷12 **NR**		sgrossatura; spianatura ROUGHING; FACEMILLING	◪	◪	○	○	◪	○	○	○	●	●	187
02105		Z8÷16		contornatura SHOULDERING	◪	◪	○	○	◪	○	○	○	●	●	188

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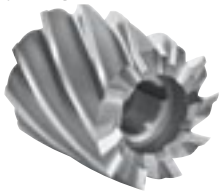
02110		Z6÷14 **NF**		semifinitura; spianatura SEMI-FINISHING; FACEMILLING	◪	◪	○	○	◪	○	○	○	●	●	188
02110		Z6÷16 **NR**		sgrossatura; spianatura ROUGHING; FACEMILLING	◪	◪	○	○	◪	○	○	○	●	●	189
02115		Z8÷16		contornatura; spianatura SHOULDERING; FACEMILLING	◪	◪	○	○	◪	○	○	○	●	●	189
02120		Z6÷14 **NR**		sgrossatura ROUGHING	◪	◪	○	○	◪	○	○	○	●	●	190
02120		Z6÷14 **NF**		semifinitura SEMI-FINISHING	◪	◪	○	○	◪	○	○	○	●	●	190
02125		Z6÷14 **NR**		sgrossatura ROUGHING	◪	◪	○	○	◪	○	○	○	●	●	191
02130		Z6÷10 **NR**		sgrossatura ROUGHING	◪	◪	○	○	◪	○	○	○	●	●	191
02135		Z4÷6		contornatura; spianatura SHOULDERING; FACEMILLING	○	○	○	○	○	○	●	○	○	○	192

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04105		Z 16÷38		apertura cava SLOTTING	◕	◕	○	○	●	○	○	○	●	●	193 194 195
04105		Z 18÷46		apertura cava SLOTTING	◕	◕	○	○	●	○	○	○	●	●	196 197 198
04110		Z 32÷68		apertura cava SLOTTING	◕	◕	○	○	●	○	○	○	●	●	199
04115		Z 10÷28 **NF**		apertura cava; semi-finitura SLOTTING; SEMI-FINISHING	◕	◕	○	○	●	○	○	○	●	●	200
04120		Z6÷10		apertura cava SLOTTING	◕	◕	○	○	○	○	●	○	○	○	201
06105		Z 20÷30		fresatura di forma FORM MILLING	◕	◕	○	○	○	○	○	○	●	●	202
06110		Z 16÷26		fresatura di forma FORM MILLING	◕	◕	○	○	○	○	○	○	●	●	202
06115		Z 18÷24		fresatura di forma FORM MILLING	◕	◕	○	○	○	○	○	○	●	●	203

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06120		Z 24÷30		fresatura di forma FORM MILLING	◪	◪	○	○	○	○	○	○	●	●	204
06125		Z 26÷30		fresatura di forma FORM MILLING	◪	◪	○	○	○	○	○	○	●	●	204
06130		Z 10÷12		fresatura di forma FORM MILLING	◪	◪	○	○	○	○	○	○	●	●	205
06145		Z 10÷12		fresatura di forma FORM MILLING	◪	◪	○	○	○	○	○	○	●	●	205
10102		Z2		apertura cava SLOTTING	◪	◪	○	○	○	◪	○	○	●	●	206
10105		Z2		apertura cava SLOTTING	◪	◪	○	○	◪	◪	○	○	●	●	207
10110 high performance		Z2		apertura cava SLOTTING	●	●	○	○	●	●	○	○	●	●	208
10110		Z2		apertura cava SLOTTING	●	●	○	○	○	◪	○	○	●	●	209
10125		Z2		apertura cava SLOTTING	●	●	○	○	○	◪	○	○	●	●	210
10140		Z2		sgrossatura ROUGHING	●	●	○	○	○	◪	○	○	●	●	211
10155		Z2		sgrossatura ROUGHING	●	●	○	○	○	◪	○	○	●	●	212
10170		Z2		apertura cava SLOTTING	●	●	○	○	○	◪	○	○	●	●	213
11405		Z1		apertura cava SLOTTING	○	○	○	○	○	◪	●	○	○	○	214

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11705	Z2		contornatura SHOULDERING	○	○	○	○	○	○	●	○	○	○	214
12105	Z2		apertura cava SLOTTING	○	○	○	○	◪	●	●	○	○	○	215
12120	Z2		apertura cava SLOTTING	○	○	○	○	◪	●	●	○	○	○	215
12505	Z2		sgrossatura ROUGHING	○	○	○	○	◪	●	●	○	○	○	216
12520	Z2		sgrossatura ROUGHING	○	○	○	○	◪	●	●	○	○	○	217
14105 high performance	Z3		contornatura SHOULDERING	●	●	○	○	●	●	○	○	●	●	217
14105	Z3		contornatura SHOULDERING	◪	◪	○	○	◪	◪	○	○	●	●	218
14120	Z3		contornatura SHOULDERING	◪	◪	○	○	◪	◪	○	○	●	●	219
14135	Z3		contornatura SHOULDERING	◪	◪	○	○	◪	◪	○	○	●	●	220
14150	Z3		contornatura SHOULDERING	◪	◪	○	○	◪	◪	○	○	●	●	221
14155	Z3		contornatura SHOULDERING	◪	◪	○	○	◪	◪	○	○	●	●	222
14160	Z3		contornatura SHOULDERING	◪	◪	○	○	◪	◪	○	○	●	●	223
14505 TORNADO high performance	Z3÷4		contornatura SHOULDERING	●	●	○	○	●	●	○	○	●	●	224
14505 TORNADO	Z3÷4		contornatura SHOULDERING	◪	◪	○	○	◪	○	○	○	●	●	224
14520 TORNADO	Z3÷4		contornatura SHOULDERING	◪	◪	○	○	◪	○	○	○	●	●	225

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14550 TORNADO		Z3÷4		contornatura SHOULDERING	○	○	○	○	◪	◪	○	○	●	●	225
14555 TORNADO		Z3÷4		contornatura SHOULDERING	○	○	○	○	◪	◪	○	○	●	●	226
14805		Z3		contornatura SHOULDERING	○	○	○	○	○	●	●	○	○	○	227
14820		Z3		contornatura SHOULDERING	○	○	○	○	○	●	●	○	○	○	228
14850		Z3		contornatura SHOULDERING	○	○	○	○	○	●	●	○	○	○	229
14855		Z3		contornatura SHOULDERING	○	○	○	○	○	●	●	○	○	○	230
15105		Z3 **WF**		semifinitura SEMI-FINISHING	○	○	○	○	○	●	●	○	○	○	231
15120		Z3 **WF**		semifinitura SEMI-FINISHING	○	○	○	○	○	●	●	○	○	○	231
17105		Z4÷8		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	232
17120		Z4÷8		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	233
17135		Z4÷8		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	234
17150		Z4÷10		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	235
17155		Z4÷10		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	236
17160		Z4÷10		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	237
17305 high performance		Z4÷6		contornatura SHOULDERING	●	●	○	○	●	●	○	○	●	●	238

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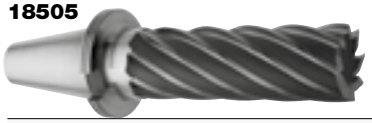
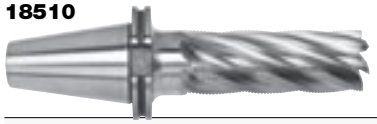
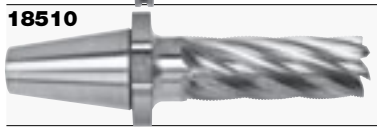
17305		Z3÷4		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	239
17320		Z3÷4		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	240
17350		Z4÷10		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	241
17355		Z4÷10		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	242
17505		Z4÷8		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	243
17520		Z4÷8		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	244
17550		Z4÷8		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	245
17555		Z4÷8		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	245
18105 high performance		Z4		contornatura SHOULDERING	●	●	○	○	●	●	○	○	●	●	246
18105		Z4		contornatura SHOULDERING	●	●	○	○	●	○	○	○	●	●	246
18150		Z4÷8		contornatura SHOULDERING	●	●	○	○	●	○	○	○	●	●	247
18505		Z8÷10 STANDARD UOP		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	248
18505		Z8÷10 DIN 2328		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	249
18510		Z6÷8 STANDARD UOP **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	250
18510		Z6÷8 STANDARD UOP **NR**		sgrossatura ROUGHIMG	○	○	○	○	◪	○	○	○	●	●	250

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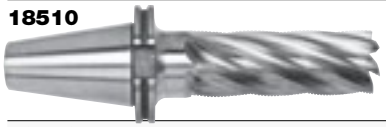
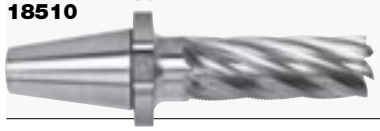
18510		Z6÷8 DIN 2328 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	251
18510		Z6÷8 DIN 2328 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	251
19105		Z4 **NF**		semifinitura SEMI-FINISHING	◪	◪	○	○	◪	○	○	○	●	●	252
19150		Z4÷5 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	○	○	○	○	●	●	253
19205 Sinthesi high performance		Z3÷5 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	●	○	○	○	●	●	254
20105		Z3÷7 **NF**		semifinitura SEMI-FINISHING	◪	◪	○	○	◪	○	○	○	●	●	255
20105		Z3÷7 **NR**		sgrossatura ROUGHING	◪	◪	○	○	◪	○	○	○	●	●	256
20120		Z3÷7 **NF**		semifinitura SEMI-FINISHING	◪	◪	○	○	◪	○	○	○	●	●	257
20120		Z3÷7 **NR**		sgrossatura ROUGHING	◪	◪	○	○	◪	○	○	○	●	●	257
20150		Z4÷8 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	258
20150		Z4÷8 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	259
20155		Z4÷8 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	260
20155		Z4÷8 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	261
20160		Z4÷8 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	262
20160		Z4÷8 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	262

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Serie / SERIES		denti TEETH	lung. LENGTH	applicazioni consigliate RECOMMENDED APPLICATIONS	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS: ≤54 HRC	>54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghisa CAST IRON	pagina PAGE
21105 high performance		Z3÷5 **NR**		sgrossatura ROUGHING	●	●	○	○	●	●	○	○	●	●	263
21105		Z3÷7 **NF**		semifinitura SEMI-FINISHING	◪	◪	○	○	◪	○	○	○	●	●	264
21105		Z3÷7 **NR**		sgrossatura ROUGHING	◪	◪	○	○	◪	○	○	○	●	●	265
21120		Z3÷7 **NF**		semifinitura SEMI-FINISHING	◪	◪	○	○	◪	○	○	○	●	●	266
21120		Z3÷7 **NR**		sgrossatura ROUGHING	◪	◪	○	○	◪	○	○	○	●	●	267
21150		Z4÷8 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	268
21150		Z4÷8 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	269
21155		Z4÷8 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	270
21155		Z4÷8 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	271
21305		Z3÷5 **NR**		sgrossatura ROUGHING	○	○	○	○	●	○	○	○	●	●	272
21505		Z3÷7 **NF**		SEMI-FINISHING semifinitura	●	●	○	○	●	○	○	○	●	●	273
21505		Z3÷7 **NR**		sgrossatura ROUGHING	◪	◪	○	○	◪	○	○	○	●	●	274
21520		Z3÷7 **NF**		semifinitura SEMI-FINISHING	◪	◪	○	○	◪	○	○	○	●	●	275
21520		Z3÷7 **NR**		sgrossatura ROUGHING	◪	◪	○	○	◪	○	○	○	●	●	276
21550		Z4÷8 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	277

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Serie / SERIES	denti TEETH	lung. LENGTH	applicazioni consigliate RECOMMENDED APPLICATIONS	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS: ≤54 HRC	>54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghisa CAST IRON	pagina PAGE
21550	Z4÷8 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	278
21555	Z4÷8 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	279
21555	Z4÷8 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	279
22105 high performance	Z3 **NRF**		sgrossatura ROUGHING	●	●	○	○	●	●	○	○	●	●	280
24105	Z4		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	280
24110	Z2		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	281
24115	Z2		apertura cava SLOTTING	○	○	○	○	◪	○	○	○	●	●	281
24120	Z2		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	282
24125	Z2		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	282
24130	Z2		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	283
24515	Z3		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	283
24530	Z3		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	284
24550	Z3		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	285
25105	Z3÷5		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	208 287
25120	Z4÷5 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	288

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Serie / SERIES		denti TEETH	lung. LENGTH	applicazioni consigliate RECOMMENDED APPLICATIONS	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	>54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghisa CAST IRON	pagina PAGE
25120		Z4÷5 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	289
25150		Z4÷5		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	290
25155		Z4÷5 **NF**		semifinitura SEMI-FINISHING	○	○	○	○	◪	○	○	○	●	●	291
25155		Z4÷5 **NR**		sgrossatura ROUGHING	○	○	○	○	◪	○	○	○	●	●	292
25505		Z4		contornatura SHOULDERING	○	○	○	○	◪	○	○	○	●	●	293
27105		Z8÷12		apertura cava 'T' 'T' SLOTTING	◪	◪	○	○	●	○	○	○	●	●	294
27120		Z6÷8		apertura cava 'T' 'T' SLOTTING	◪	◪	○	○	●	○	○	○	●	●	295
27135		Z4÷8		apertura cava 'T' 'T' SLOTTING	◪	◪	○	○	●	○	○	○	●	●	295
27150		Z8÷10		apertura cava 'T' 'T' SLOTTING	◪	◪	○	○	●	○	○	○	●	●	296
27155		Z4÷8		apertura cava 'T' 'T' SLOTTING	◪	◪	○	○	●	○	○	○	●	●	296
27505		Z5÷11		svasatura COUNTERSINKING	○	○	○	○	○	○	○	○	●	●	297
27505		Z1		svasatura COUNTERSINKING	○	○	○	○	○	○	○	○	●	●	297
27505		Z3		svasatura COUNTERSINKING	○	○	○	○	○	○	○	○	●	●	298
27550		Z5÷11		svasatura COUNTERSINKING	○	○	○	○	○	○	○	○	●	●	299
27550		Z1		svasatura COUNTERSINKING	○	○	○	○	○	○	○	○	●	●	299

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Serie / SERIES		denti TEETH	lung. LENGTH	applicazioni consigliate RECOMMENDED APPLICATIONS	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	>54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghisa CAST IRON	pagina PAGE
27550		Z3		svasatura COUNTERSINKING	○	○	○	○	○	○	○	○	●	●	300
28105		Z2		fresatura sedi viti COUNTERBORING	○	○	○	○	○	○	○	○	●	●	301
28105		Z4		fresatura sedi viti COUNTERBORING	○	○	○	○	○	○	○	○	●	●	301
28150		Z2		fresatura sedi viti COUNTERBORING	○	○	○	○	○	○	○	○	●	●	302
28150		Z4		fresatura sedi viti COUNTERBORING	○	○	○	○	○	○	○	○	●	●	302
28505		Z4÷16		raccordatura CORNER ROUNDING	○	○	○	○	○	○	○	○	●	●	303
29105		Z 12÷14		fresatura di forma FORM MILLING	○	○	○	○	○	○	○	○	●	●	304
29110		Z 12÷14		fresatura di forma FORM MILLING	○	○	○	○	○	○	○	○	●	●	305
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30105		Z3÷4		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	◕	○	○	○	●	●	306
30150		Z3÷6		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	◕	○	○	○	●	●	307
30502		Z3÷4		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	◕	○	○	○	●	●	308
30505		Z3		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	◕	○	○	○	●	●	308
30508		Z3		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	◕	○	○	○	●	●	309

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Serie / SERIES		denti TEETH	lung. LENGTH	applicazioni consigliate RECOMMENDED APPLICATIONS	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	>54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghisa CAST IRON	pagina PAGE
30510		Z3		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	◪	○	○	○	●	●	309
31105		Z4÷12		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	◪	○	○	○	●	●	310
32105		Z3÷7		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	◪	○	○	○	●	●	311 312
32150		Z5÷10		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	◪	○	○	○	●	●	313
33105		Z8÷20		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	○	○	○	○	●	●	314
33105		Z5÷14		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	○	○	○	○	●	●	315
34105		Z4		alesatura per fori passanti THROUGH HOLES REAMING	○	○	○	○	○	○	○	○	●	●	316
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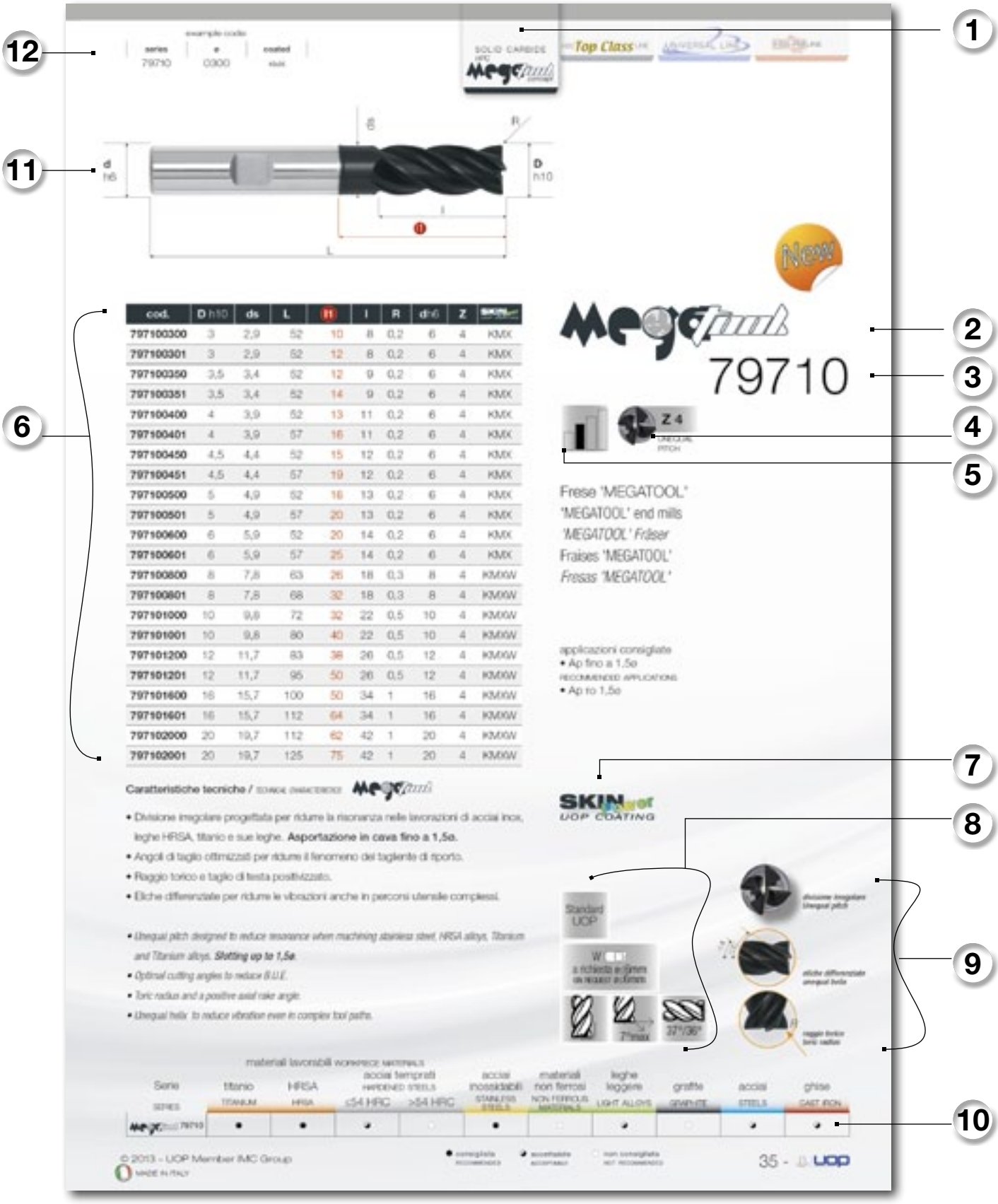

cod.	D h10	ds	L	l1	l	R	d h6	Z	
797100300	3	2,9	52	10	8	0,2	6	4	KMX
797100301	3	2,9	52	12	8	0,2	6	4	KMX
797100350	3,5	3,4	52	12	9	0,2	6	4	KMX
797100351	3,5	3,4	52	14	9	0,2	6	4	KMX
797100400	4	3,9	52	13	11	0,2	6	4	KMX
797100401	4	3,9	57	16	11	0,2	6	4	KMX
797100450	4,5	4,4	52	15	12	0,2	6	4	KMX
797100451	4,5	4,4	57	19	12	0,2	6	4	KMX
797100500	5	4,9	52	16	13	0,2	6	4	KMX
797100501	5	4,9	57	20	13	0,2	6	4	KMX
797100600	6	5,9	52	20	14	0,2	6	4	KMX
797100601	6	5,9	57	25	14	0,2	6	4	KMX
797100800	8	7,8	63	26	18	0,3	8	4	KMXW
797100801	8	7,8	68	32	18	0,3	8	4	KMXW
797101000	10	9,8	72	32	22	0,5	10	4	KMXW
797101001	10	9,8	80	40	22	0,5	10	4	KMXW
797101200	12	11,7	83	38	26	0,5	12	4	KMXW
797101201	12	11,7	95	50	26	0,5	12	4	KMXW
797101600	16	15,7	100	50	34	1	16	4	KMXW
797101601	16	15,7	112	64	34	1	16	4	KMXW
797102000	20	19,7	112	62	42	1	20	4	KMXW
797102001	20	19,7	125	75	42	1	20	4	KMXW

1- categoria di prestazione
2- denominazione Serie
3- codice Serie
4- numero denti
5- lunghezza Serie
6- tabelle dimensionali articoli
7- rivestimento
8- dati geometrici e applicativi
9- caratteristiche costruttive
10- materiali lavorabili
11- rappresentazione Serie
12- lettura del codice

1- performance category
2- Name Series
3- item number
4- number of teeth
5- Series length
6- item dimensional table
7- coating
8- geometric data and applications
9- construction characteristics
10- workpiece materials
11- Series representation
12- code reading

1 - Kategorien
2 - Name des Artikels
3 - Artikelkode
4 - Anzahl der Schneiden
5 - Serienlänge Artikel
6 - Tabellen mit Größenangaben der Artikel
7 - Beschichtung
8 - Geometrische Daten und Anwendungsdaten
9 - Bautechnische Eigenschaften
10 - Verarbeitbare Materialien
11 - Darstellung der Artikel
12 - Ablesung des Kodes

1 - catégorie de prestation
2 - désignation séries
3 - code séries
4 - nombre de dents
5 - longueur séries
6 - tableau dimensions séries
7 - revêtement
8 - données géométriques et d'applications
9 - caractéristiques d'élaboration
10 - matériels usinables
11 - représentations séries
12 - lecture du code

1 - linea de producto
2 - denominación del artículo
3 - código artículo
4 - número de labios
5 - longitud de la serie
6 - tabla de dimensiones de la serie
7 - recubrimiento
8 - datos geométricos y aplicaciones
9 - características constructivas
10 - material a trabajar
11 - representación del producto
12 - lectura del código

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HPC Megatool concept

HPC Megatool concept rappresenta un nuovo concetto di progettazione e costruzione dell'utensile, che si avvale delle più moderne tecnologie, garantendo prodotti con prestazioni di affidabilità ed asportazione truciolo di livelli mai raggiunti prima.

HPC Megatool concept trova la sua massima espressione di rendimento nelle lavorazioni di materiali estremamente difficili da lavorare, quali Acciai Inossidabili, leghe di Titanio, Inconel e leghe HRSA, in cui l'utensile è sottoposto ad elevate sollecitazioni.

HPC Megatool concept represents a new tool design and construction idea, an outcome of the most modern technology. Thus guaranteeing products of a reliability an chip removal performance level never reached before.

HPC Megatool concept reaches its peak performance when machining stainless steel and HRSA alloys, materials that are extremely difficult to machine when the tool is working under extreme conditions.

SOLID CARBIDE

HPC Megatool concept

HPC Megatool concept ist ein neues Herstellungskonzept für den Werkzeugbau, bei dem modernste Technologien zur Herstellung zuverlässiger spanender Werkzeugmaschinen eingesetzt werden, wodurch eine bisher noch nie erreichte Leistungsfähigkeit erzielt wird.
HPC Megatool concept garantiert Höchstleistungen bei der Verarbeitung von schwer zu bearbeitenden Materialien, wie z.B. nichtrostendem Stahl, Titaniumverbindungen, Inconel und HRSA-Legierungen, bei denen die Werkzeugmaschinen sehr stark beansprucht werden.

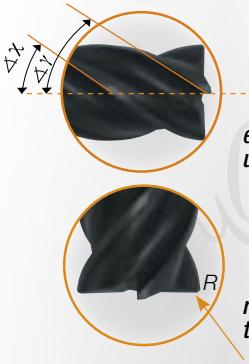
HPC Megatool concept représente une nouvelle approche de la conception et la construction d'outils, qui s'appuie sur les toutes dernières technologies, garantissant des produits d'une fiabilité et de niveaux d'enlèvement de copeaux sans précédent.
HPC Megatool concept trouve son efficacité optimale en terme de rendement dans l'usinage de matériaux extrêmement difficiles à travailler, tels que les aciers inoxydables, les alliages de Titane, Inconel et alliages HRSA, dans lesquels l'outil est soumis à de fortes contraintes.

La línea de producto en Metal Duro micrograno HPC Megatool concept se desarrolla de acuerdo con un nuevo concepto de herramienta de construcción diseñado para alcanzar un excelente rendimiento en las operaciones de mecanizado.
HPC Megatool concept encuentra su máxima expresión de rendimiento en el mecanizado de los aceros inoxidables y las aleaciones de HRSA, de acuerdo con estos requisitos se caracteriza como un producto extremadamente versátil.
El concepto de diseño innovador de la línea se desarrolla desde la característica de la división irregular e independiente de las hélices para ofrecer soluciones avanzadas para el fresado y escariado.

www.uop.it

79710

divisione irregolare
unequal pitch



eliche differenziate
unequal helix

raggio torico
toric radius

79710CS4

divisione irregolare
unequal pitch

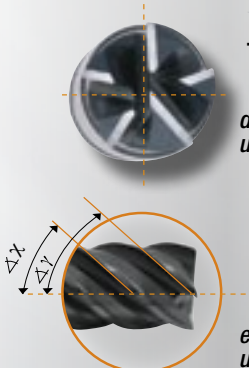
eliche differenziate
unequal helix

raggio torico
toric radius

taglio interrotto
interrupted cut

79750

divisione irregolare
unequal pitch

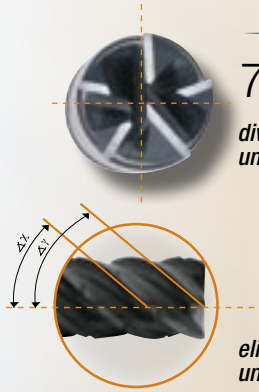


eliche differenziate
unequal helix

raggio torico
toric radius

79710CS5

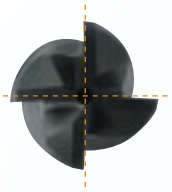
divisione irregolare
unequal pitch



eliche differenziate
unequal helix

raggio torico
toric radius

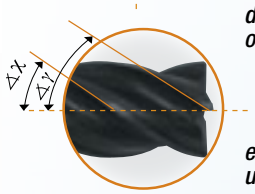
taglio interrotto
interrupted cut



79710IC4

divisione irregolare
unequal pitch

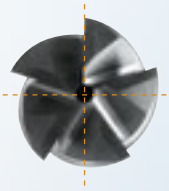
foro centrale
di lubrorefrigerazione
one central coolant hole



eliche differenziate
unequal helix

raggio torico
toric radius

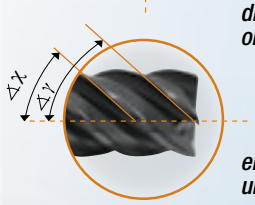
UOP
Member IMC Group



79750IC5

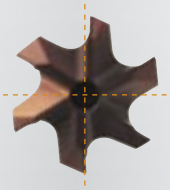
divisione irregolare
unequal pitch

foro centrale
di lubrorefrigerazione
one central coolant hole



eliche differenziate
unequal helix

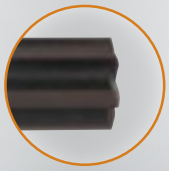
raggio torico
toric radius



59705IC

divisione irregolare
unequal pitch

foro centrale
di lubrorefrigerazione
one central coolant hole



denti dritti
straight flutes

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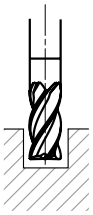
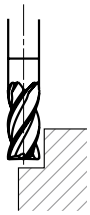
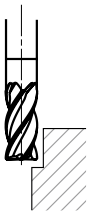
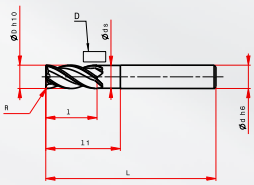
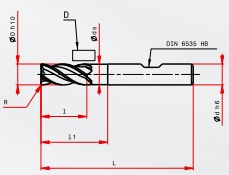
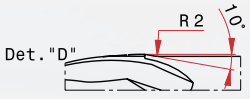
MADE IN ITALY

79710

Materiali - Materials		Cava Slotting ap = 1-1,5ø	Contornatura Shouldering ap = 1,5ø ae = 0,25 - 0,1ø	Contornatura Shouldering ap = 1,5ø ae = 0,075 - 0,25ø
				
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	100 - 120	130 - 150	150 - 200
Acciaio *Steel*	Basso contenuto di C Low carbon content	100 - 120	130 - 150	150 - 200
	Medio contenuto di C Medium carbon content	100 - 120	130 - 140	150 - 180
	Basso legato Low alloyed	90 - 100	110 - 130	150 - 170
	Alto legato High alloyed	70 - 80	90 - 100	120 - 140
	Acciaio da stampi e utensili Die/tool steel	70 - 80	90 - 100	110 - 130
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	60 - 80	90 - 100	100 - 120
	AISI 316 - 440	40 - 50	60 - 70	80 - 100
	17-4 PH 15-5 PH	40 - 50	60 - 70	70 - 90
	Leghe Cr - Co Cr - Co alloys	30 - 40	50 - 60	60 - 70
	Duplex F51	35 - 45	50 - 60	60 - 80
	Super Duplex F55	25 - 30	40 - 50	50 - 60
Leghe leggere *Light alloys*	Alluminio non legato Unalloyed aluminium	300 - 350	400 - 450	450 - 500
	Alluminio Si < 6% si < 6% aluminium	250 - 300	350 - 400	400 - 450
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	40 - 50	60 - 70	70 - 80
HRSA	HRSA Hastelloy	25 - 30	40 - 45	50 - 60
	HRSA Inconel 625			
	HRSA Inconel 718			
	HRSA Nimonic			
Ti	Titanio - Titanium	40 - 60	60 - 70	80 - 90
	Leghe di titanio Titanium alloys			

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	ap=1,5ø	ap=1ø	ae=0,25ø	ae=0,20ø	ae=0,15ø	ae=0,1ø	ae=0,075ø	ae=0,05ø	ae=0,025ø
	3	0,005	0,006	0,007	0,008	0,008	0,010	0,011	0,014	0,019
	3,5	0,006	0,007	0,008	0,009	0,010	0,012	0,013	0,016	0,022
	4	0,006	0,008	0,010	0,010	0,011	0,014	0,015	0,018	0,026
	4,5	0,007	0,009	0,011	0,011	0,013	0,015	0,017	0,021	0,029
	5	0,009	0,011	0,013	0,014	0,015	0,019	0,021	0,025	0,035
	6	0,011	0,014	0,017	0,018	0,020	0,024	0,027	0,032	0,045
	8	0,016	0,020	0,024	0,025	0,028	0,034	0,038	0,046	0,064
	10	0,025	0,027	0,032	0,034	0,038	0,046	0,051	0,062	0,086
	12	0,030	0,036	0,043	0,045	0,050	0,061	0,068	0,083	0,115
	16	0,045	0,055	0,066	0,069	0,077	0,094	0,105	0,127	0,176
	20	0,060	0,075	0,090	0,094	0,105	0,128	0,143	0,173	0,240



- È consigliato l'utilizzo di un mandrino a forte serraggio per bloccare l'utensile
- È consigliato l'uso abbondante di refrigerante
- È possibile aumentare del 20 % l'avanzamento per tagliente nell'utilizzo della serie corta dell'utensile
- *A tool holder with heavy duty clamping is recommended*
- *The abundant use of coolant is recommended*
- *It is possible to increase the Feed per tooth by 20% by using the short series of this tool*

$n = \frac{Vc \times 1000}{3{,}14 \times \varnothing}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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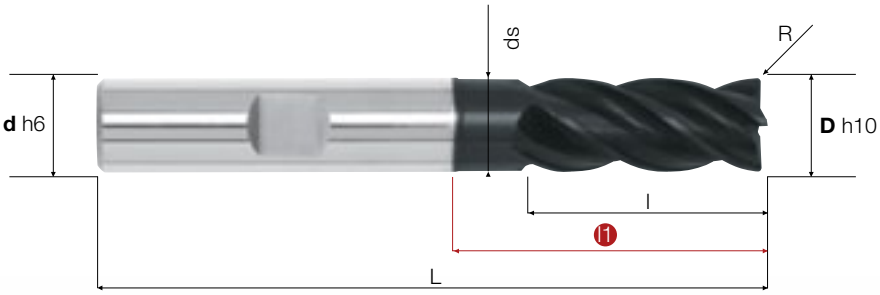


New

cod.	D h10	ds	L	l1	l	R	dh6	Z	SKIN Power UOP COATING
797100300	3	2,9	52	10	8	0,2	6	4	KMX
797100301	3	2,9	52	12	8	0,2	6	4	KMX
797100350	3,5	3,4	52	12	9	0,2	6	4	KMX
797100351	3,5	3,4	52	14	9	0,2	6	4	KMX
797100400	4	3,9	52	13	11	0,2	6	4	KMX
797100401	4	3,9	57	16	11	0,2	6	4	KMX
797100450	4,5	4,4	52	15	12	0,2	6	4	KMX
797100451	4,5	4,4	57	19	12	0,2	6	4	KMX
797100500	5	4,9	52	16	13	0,2	6	4	KMX
797100501	5	4,9	57	20	13	0,2	6	4	KMX
797100600	6	5,9	52	20	14	0,2	6	4	KMX
797100601	6	5,9	57	25	14	0,2	6	4	KMX
797100800	8	7,8	63	26	18	0,3	8	4	KMXW
797100801	8	7,8	68	32	18	0,3	8	4	KMXW
797101000	10	9,8	72	32	22	0,5	10	4	KMXW
797101001	10	9,8	80	40	22	0,5	10	4	KMXW
797101200	12	11,7	83	38	26	0,5	12	4	KMXW
797101201	12	11,7	95	50	26	0,5	12	4	KMXW
797101600	16	15,7	100	50	34	1	16	4	KMXW
797101601	16	15,7	112	64	34	1	16	4	KMXW
797102000	20	19,7	112	62	42	1	20	4	KMXW
797102001	20	19,7	125	75	42	1	20	4	KMXW

Megatool 79710

Z 4 UNEQUAL PITCH

Frese 'MEGATOOL'
'MEGATOOL' end mills
'MEGATOOL' Fräser
Fraises 'MEGATOOL'
Fresas 'MEGATOOL'

applicazioni consigliate
• Ap fino a 1,5ø
RECOMMENDED APPLICATIONS
• Ap TO 1,5ø

Caratteristiche tecniche / *TECHNICAL CHARACTERISTICS* Megatool

- Divisione irregolare progettata per ridurre la risonanza nelle lavorazioni di acciai inox, leghe HRSA, titanio e sue leghe. **Asportazione in cava fino a 1,5ø.**
- Angoli di taglio ottimizzati per ridurre il fenomeno del tagliente di riporto.
- Raggio torico e taglio di testa positivizzato.
- Eliche differenziate per ridurre le vibrazioni anche in percorsi utensile complessi.

- *Unequal pitch designed to reduce resonance when machining stainless steel, HRSA alloys, Titanium and Titanium alloys.* ***Slotting up to 1,5ø.***
- *Optimal cutting angles to reduce B.U.E.*
- *Toric radius and a positive axial rake angle.*
- *Unequal helix to reduce vibration even in complex tool paths.*

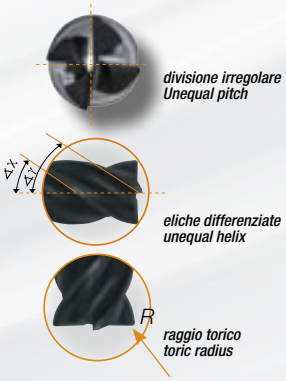
SKIN Power UOP COATING

Standard UOP

W a richiesta ø≤6mm
ON REQUEST ø≤6mm

7°max

37°/36°



materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
Megatool 79710	●	●	◕	○	●	○	◕	○	◕	◕

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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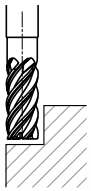
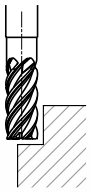
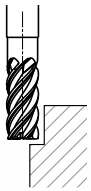
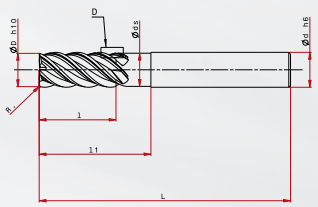
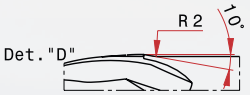
Mega Tool

79750

Materiali - Materials		Semifinitura Semi-finishing ap = 1,5 - 2ø ae = 0,4 - 0,3ø	Contornatura Shouldering ap = 1,5 - 2ø ae = 0,2 - 0,1ø	Contornatura Shouldering ap = 1,5 - 2ø ae = 0,05 - 0,025ø
				
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	130 - 140	140 - 150	150 - 200
Acciaio - Ghisa *Steel - Cast iron*	Basso contenuto di C Low carbon content	130 - 140	140 - 150	150 - 200
	Medio contenuto di C Medium carbon content	125 - 135	135 - 145	150 - 180
	Basso legato Low alloyed	110 - 120	120 - 150	150 - 170
	Alto legato High alloyed	90 - 100	110 - 130	140 - 160
	Acciaio da stampi e utensili Die/tool steel	90 - 100	100 - 120	120 - 140
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	90 - 100	100 - 110	110 - 120
	AISI 316 - 440	60 - 80	80 - 100	100 - 110
	17-4 PH 15-5 PH	60 - 70	70 - 80	90 - 110
	Leghe Cr - Co Cr - Co alloys	50 - 60	60 - 70	80 - 100
	Duplex F51	50 - 60	60 - 70	70 - 90
	Super Duplex F55	40 - 50	50 - 60	60 - 80
Leghe leggere *Light alloys*	Alluminio non legato Unalloyed aluminium	300 - 350	400 - 450	450 - 500
	Alluminio Si < 6% si < 6% aluminium	250 - 300	350 - 400	400 - 450
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	40 - 50	60 - 70	70 - 80
HRSA	HRSA Hastelloy	25 - 30	30 - 40	40 - 50
	HRSA Inconel 625			
	HRSA Inconel 718			
	HRSA Nimonic			
Ti	Titanio - Titanium	50 - 60	60 - 70	80 - 90
	Leghe di titanio Titanium alloys			

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	ae=0,4ø	ae=0,25ø	ae=0,2ø	ae=0,15ø	ae=0,1ø	ae=0,075ø	ae=0,05ø	ae=0,025ø
	6	0,015	0,017	0,018	0,020	0,024	0,027	0,032	0,045
	8	0,022	0,024	0,025	0,028	0,034	0,038	0,046	0,064
	10	0,030	0,032	0,034	0,038	0,046	0,051	0,062	0,086
	12	0,040	0,043	0,045	0,050	0,061	0,068	0,083	0,115
	16	0,061	0,066	0,069	0,077	0,094	0,105	0,127	0,140
	20	0,086	0,094	0,098	0,109	0,133	0,140	0,145	0,150



- È consigliato l'utilizzo di un mandrino a forte serraggio per bloccare l'utensile
- È consigliato l'uso abbondante di refrigerante
- *A tool holder with heavy duty clamping is recommended*
- *The abundant use of coolant is recommended*

$$n = \frac{Vc \times 1000}{3{,}14 \times ø} \qquad Vf = fz \times n \times z \qquad Q = \frac{a_p \times a_e \times Vf}{1000}$$

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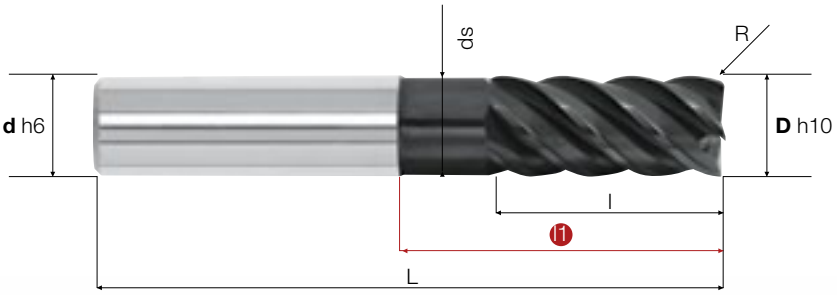
example code:

series	ø	coated
79750	0600	KMX



New

Megatool 79750

cod.	D h10	ds	L	l1	l	R	dh6	Z	SKIN Power UOP COATING
797500600	6	5,6	55	19	13	0,1	6	5	KMX
797500601	6	5,6	61	25	10	0,1	6	5	KMX
797500800	8	7,5	61	25	17	0,1	8	5	KMX
797500801	8	7,5	69	33	13	0,1	8	5	KMX
797501000	10	9,5	72	32	22	0,1	10	5	KMX
797501001	10	9,5	82	42	17	0,1	10	5	KMX
797501200	12	11,5	83	38	26	0,2	12	5	KMX
797501201	12	11,5	95	50	20	0,2	12	5	KMX
797501600	16	15,5	98	50	34	0,2	16	5	KMX
797501601	16	15,5	114	66	26	0,2	16	5	KMX
797502000	20	19,5	112	62	42	0,2	20	5	KMX
797502001	20	19,5	132	82	32	0,2	20	5	KMX

Z 5
UNEQUAL PITCH

Frese 'MEGATOOL'
'MEGATOOL' end mills
'MEGATOOL' Fräser
Fraises 'MEGATOOL'
Fresas 'MEGATOOL'

Caratteristiche tecniche / *TECHNICAL CHARACTERISTICS* Megatool

- Divisione irregolare progettata per ridurre la risonanza nelle lavorazioni di acciai inox, leghe HRSA, titanio e sue leghe. **Eccellenti operazioni di finitura.**
- Angoli di taglio ottimizzati per ridurre il fenomeno del tagliente di riporto.
- Raggio torico e taglio di testa positivizzato.
- Eliche differenziate per ridurre le vibrazioni anche in percorsi utensile complessi.

- *Unequal pitch designed to reduce resonance when machining stainless steel, HRSA alloys, Titanium and Titanium alloys.* ***Excellent finishing operations.***
- *Optimal cutting angles to reduce B.U.E.*
- *Toric radius and a positive axial rake angle.*
- *Unequal helix to reduce vibrations even in complex tool paths.*

applicazioni consigliate
- Ae 0,4ø

RECOMMENDED APPLICATIONS
- Ae 0,4ø

SKIN Power UOP COATING

Common finishing

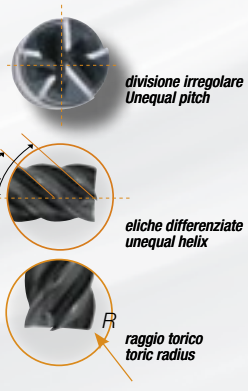
Megatool 79750

Standard UOP

W a richiesta ON REQUEST

7°max

45°/46°



materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio / TITANIUM	HRSA	acciai temprati / HARDENED STEELS ≤54 HRC	acciai temprati / HARDENED STEELS >54 HRC	acciai inossidabili / STAINLESS STEELS	materiali non ferrosi / NON FERROUS MATERIALS	leghe leggere / LIGHT ALLOYS	grafite / GRAPHITE	acciai / STEELS	ghise / CAST IRON
Megatool 79750	●	●	◕	○	●	○	◕	○	◕	◕

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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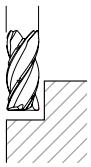
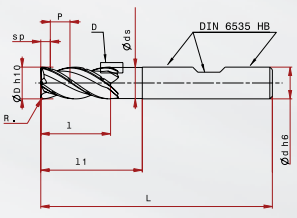
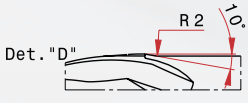
79710CS4

Materiali - Materials		Cava Slotting ap = 1 - 1,5ø	Semifinitura Semi-finishing ap = 1,5 - 2ø ae = 0,4 - 0,3ø	Contornatura Shouldering ap = 1,5 - 2ø ae = 0,2 - 0,1ø
				
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	100 - 120	130 - 140	140 - 150
Acciaio - Ghisa *Steel - Cast iron*	Basso contenuto di C Low carbon content	100 - 120	130 - 140	140 - 150
	Medio contenuto di C Medium carbon content	100 - 120	125 - 135	135 - 145
	Basso legato Low alloyed	90 - 100	110 - 120	120 - 150
	Alto legato High alloyed	70 - 80	90 - 100	110 - 130
	Acciaio da stampi e utensili Die/tool steel	70 - 80	90 - 100	100 - 120
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	60 - 80	90 - 100	100 - 110
	AISI 316 - 440	40 - 50	60 - 80	80 - 100
	17-4 PH 15-5 PH	40 - 50	60 - 70	70 - 80
	Leghe Cr - Co Cr - Co alloys	30 - 40	50 - 60	60 - 70
	Duplex F51	35 - 45	50 - 60	60 - 70
	Super Duplex F55	25 - 30	40 - 50	50 - 60
Leghe leggere *Light alloys*	Alluminio non legato Unalloyed aluminium	300 - 350	350 - 400	400 - 450
	Alluminio Si < 6% si < 6% aluminium	250 - 300	300 - 350	350 - 400
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	40 - 50	40 - 50	60 - 70
HRSA	HRSA Hastelloy	25 - 30	25 - 30	30 - 40
	HRSA Inconel 625			
	HRSA Inconel 718			
	HRSA Nimonic			
Ti	Titanio - Titanium	50 - 60	50 - 60	60 - 70
	Leghe di titanio Titanium alloys			

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	ap=1ø	ap=1,5ø	ae=0,4ø	ae=0,25ø	ae=0,2ø	ae=0,15ø	ae=0,1ø	ae=0,075ø
	8	0,022	0,024	0,022	0,024	0,025	0,028	0,034	0,038
	10	0,030	0,032	0,030	0,032	0,034	0,038	0,046	0,051
	12	0,040	0,043	0,040	0,043	0,045	0,050	0,061	0,068
	16	0,061	0,066	0,061	0,066	0,069	0,077	0,094	0,105
	20	0,070	0,078	0,086	0,094	0,098	0,109	0,133	0,140



- È consigliato l'utilizzo di un mandrino a forte serraggio per bloccare l'utensile
- È consigliato l'uso abbondante di refrigerante
- *A tool holder with heavy duty clamping is recommended*
- *The abundant use of coolant is recommended*

$n = \frac{Vc \times 1000}{3,14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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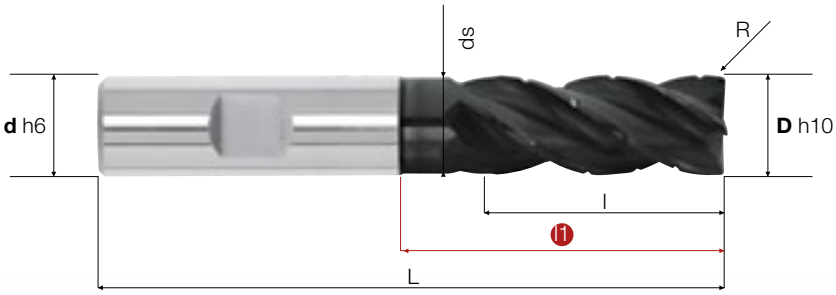

INTERRUPTED CUT

New

Megatool Chip Splitter

79710CS4

Z 4 UNEQUAL PITCH

Frese 'MEGATOOL chip splitter'
'MEGATOOL chip splitter' end mills
'MEGATOOL chip splitter' Fräser
Fraises 'MEGATOOL chip splitter'
Fresas 'MEGATOOL chip splitter'

cod.	D h10	ds	L	l1	l	R	d h6	Z	SKIN Power UOP COATING
79710CS40800	8	7,8	63	26	18	0,3	8	4	KMXW
79710CS40801	8	7,8	68	32	18	0,3	8	4	KMXW
79710CS41000	10	9,8	72	32	22	0,5	10	4	KMXW
79710CS41001	10	9,8	80	40	22	0,5	10	4	KMXW
79710CS41200	12	11,7	83	38	26	0,5	12	4	KMXW
79710CS41201	12	11,7	95	50	26	0,5	12	4	KMXW
79710CS41600	16	15,7	100	50	34	1	16	4	KMXW
79710CS41601	16	15,7	112	64	34	1	16	4	KMXW
79710CS42000	20	19,7	112	62	42	1	20	4	KMXW
79710CS42001	20	19,7	125	75	42	1	20	4	KMXW

Caratteristiche tecniche / *TECHNICAL CHARACTERISTICS* Megatool Chip Splitter

- Divisione irregolare progettata per ridurre la risonanza nelle lavorazioni di acciai inox, leghe HRSA, titanio e sue leghe. **Asportazione in cava fino a 1,5Ø.**
- Angoli di taglio ottimizzati per ridurre il fenomeno del tagliente di riporto.
- Raggio torico e taglio di testa positivizzato.
- Eliche differenziate per ridurre le vibrazioni anche in percorsi utensile complessi.
- Taglio interrotto per ridurre la dimensione del truciolo.

- *Unequal pitch designed to reduce resonance when machining stainless steel, HRSA alloys, Titanium and Titanium alloys.* ***Slotting up to 1,5Ø.***
- *Optimal cutting angles to reduce B.U.E.*
- *Toric radius and a positive axial rake angle.*
- *Unequal helix to reduce vibrations even in complex tool paths.*
- *Interrupted cut to reduce chip size.*

applicazioni consigliate
- Ap fino a 1,5ø

RECOMMENDED APPLICATIONS
- Ap TO 1,5ø

SKIN Power UOP COATING

Standard chip size

Megatool Chip Splitter 79710CS4

Standard UOP

W

36°/37°

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
79710CS4	●	●	◪	○	●	○	◪	○	◪	◪

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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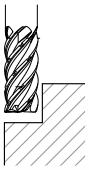
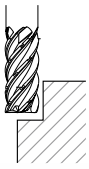
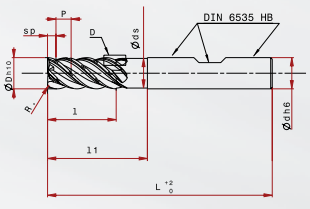
MADE IN ITALY

79710CS5

Materiali - Materials		Cava Slotting ap = 1ø	Semifinitura Semi-finishing ap = 1,5 - 2ø ae = 0,4 - 0,3ø	Contornatura Shouldering ap = 1,5 - 2ø ae = 0,2 - 0,1ø
				
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	100 - 120	130 - 140	140 - 150
Acciaio - Ghisa *Steel - Cast iron*	Basso contenuto di C Low carbon content	100 - 120	130 - 140	140 - 150
	Medio contenuto di C Medium carbon content	100 - 120	125 - 135	135 - 145
	Basso legato Low alloyed	90 - 100	110 - 120	120 - 150
	Alto legato High alloyed	70 - 80	90 - 100	110 - 130
	Acciaio da stampi e utensili Die/tool steel	70 - 80	90 - 100	100 - 120
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	60 - 80	90 - 100	100 - 110
	AISI 316 - 440	40 - 50	60 - 80	80 - 100
	17-4 PH 15-5 PH	40 - 50	60 - 70	70 - 80
	Leghe Cr - Co Cr - Co alloys	30 - 40	50 - 60	60 - 70
	Duplex F51	35 - 45	50 - 60	60 - 70
	Super Duplex F55	25 - 30	40 - 50	50 - 60
Leghe leggere *Light alloys*	Alluminio non legato Unalloyed aluminium	–	350 - 400	400 - 450
	Alluminio Si < 6% si < 6% aluminium	–	300 - 350	350 - 400
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	25 - 30	40 - 50	60 - 70
HRSA	HRSA Hastelloy	25 - 30	25 - 30	30 - 40
	HRSA Inconel 625			
	HRSA Inconel 718			
	HRSA Nimonic			
Ti	Titanio - Titanium	40 - 60	50 - 60	60 - 70
	Leghe di titanio Titanium alloys			

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	cava 1 x ø	ae=0,4ø	ae=0,25ø	ae=0,2ø	ae=0,15ø	ae=0,1ø	ae=0,075ø
	8	0,020	0,022	0,024	0,025	0,028	0,034	0,038
	10	0,027	0,030	0,032	0,034	0,038	0,046	0,051
	12	0,036	0,040	0,043	0,045	0,050	0,061	0,068
	16	0,055	0,061	0,066	0,069	0,077	0,094	0,105
	20	0,075	0,086	0,094	0,098	0,109	0,133	0,140

- È consigliato l'utilizzo di un mandrino a forte serraggio per bloccare l'utensile
- È consigliato l'uso abbondante di refrigerante
- *A tool holder with heavy duty clamping is recommended*
- *The abundant use of coolant is recommended*

$n = \frac{Vc \times 1000}{3,14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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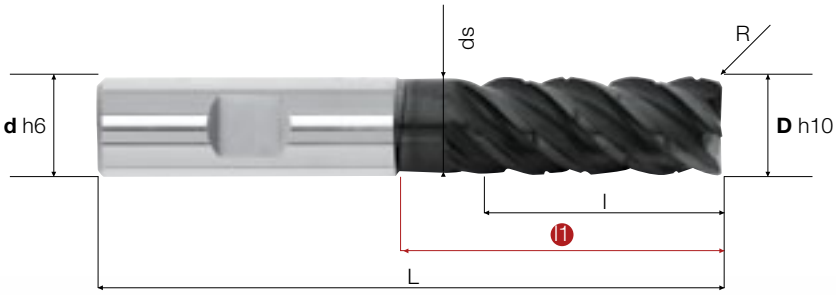
INTERRUPTED CUT



New

Megatool Chip Splitter

79710CS5

Frese 'MEGATOOL chip splitter'
'MEGATOOL chip splitter' end mills
'MEGATOOL chip splitter' Fräser
Fraises 'MEGATOOL chip splitter'
Fresas 'MEGATOOL chip splitter'

cod.	D h10	ds	L	l1	l	R	d h6	Z	SKIN Power UOP COATING
79710CS50800	8	7,8	63	26	18	0,3	8	5	KMXW
79710CS50801	8	7,8	68	32	18	0,3	8	5	KMXW
79710CS51000	10	9,8	72	32	22	0,5	10	5	KMXW
79710CS51001	10	9,8	80	40	22	0,5	10	5	KMXW
79710CS51200	12	11,7	83	38	26	0,5	12	5	KMXW
79710CS51201	12	11,7	95	50	26	0,5	12	5	KMXW
79710CS51600	16	15,7	100	50	34	1	16	5	KMXW
79710CS51601	16	15,7	112	64	34	1	16	5	KMXW
79710CS52000	20	19,7	112	62	42	1	20	5	KMXW
79710CS52001	20	19,7	125	75	42	1	20	5	KMXW

Caratteristiche tecniche / *TECHNICAL CHARACTERISTICS* Megatool Chip Splitter

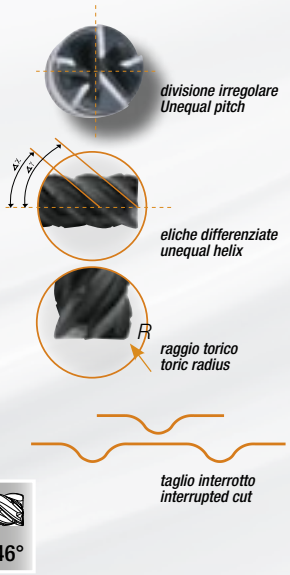
- Divisione irregolare progettata per ridurre la risonanza nelle lavorazioni di acciai inox, leghe HRSA, titanio e sue leghe. **Asportazione in cava fino a 1Ø.**
- Angoli di taglio ottimizzati per ridurre il fenomeno del tagliente di riporto.
- Raggio torico e taglio di testa positivizzato.
- Eliche differenziate per ridurre le vibrazioni anche in percorsi utensile complessi.
- Taglio interrotto per ridurre la dimensione del truciolo.

- *Unequal pitch designed to reduce resonance when machining stainless steel, HRSA alloys, Titanium and Titanium alloys.* ***Slotting up to 1Ø.***
- *Optimal cutting angles to reduce B.U.E.*
- *Toric radius and a positive axial rake angle.*
- *Unequal helix to reduce vibrations even in complex tool paths.*
- *Interrupted cut to reduce chip size.*

applicazioni consigliate
- Ap fino a 1ø

RECOMMENDED APPLICATIONS
- Ap TO 1ø

SKIN Power UOP COATING



Standard UOP

W

45°/46°

Standard chip size

Megatool Chip Splitter 79710CS5

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
79710CS5	●	●	◪	○	●	○	◪	○	◪	◪

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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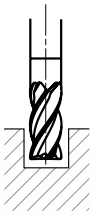
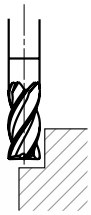
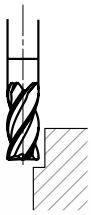
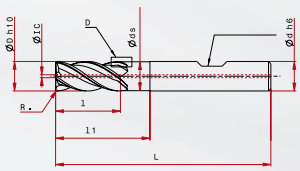
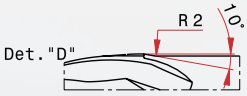
79710IC4

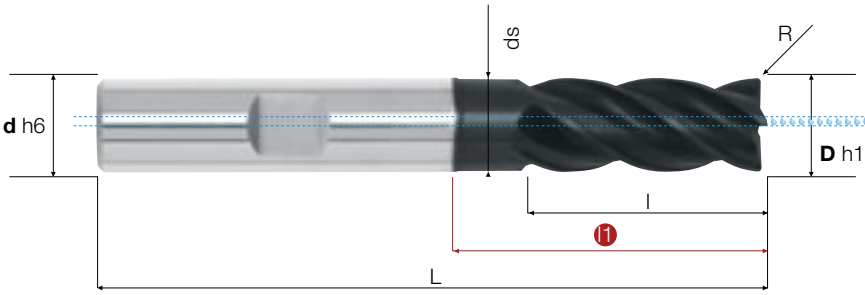
Materiali - Materials		Cava Slotting ap = 1-1,5ø	Contornatura Shouldering ap = 1,5ø ae = 0,2 - 0,1ø	Contornatura Shouldering ap = 1,5ø ae = 0,07 - 0,025ø
				
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	130 - 140	140 - 150	150 - 200
Acciaio - Ghisa *Steel - Cast iron*	Basso contenuto di C Low carbon content	130 - 140	140 - 150	150 - 200
	Medio contenuto di C Medium carbon content	125 - 135	135 - 145	150 - 180
	Basso legato Low alloyed	110 - 120	120 - 150	150 - 170
	Alto legato High alloyed	90 - 100	110 - 130	140 - 160
	Acciaio da stampi e utensili Die/tool steel	90 - 100	100 - 120	120 - 140
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	90 - 100	100 - 110	110 - 120
	AISI 316 - 440	60 - 80	80 - 100	100 - 110
	17-4 PH 15-5 PH	60 - 70	70 - 80	90 - 110
	Leghe Cr - Co Cr - Co alloys	50 - 60	60 - 70	80 - 100
	Duplex F51	50 - 60	60 - 70	70 - 90
	Super Duplex F55	40 - 50	50 - 60	60 - 80
Leghe leggere *Light alloys*	Alluminio non legato Unalloyed aluminium	300 - 350	400 - 450	450 - 500
	Alluminio Si < 6% si < 6% aluminium	250 - 300	350 - 400	400 - 450
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	40 - 50	60 - 70	70 - 80
HRSA	HRSA Hastelloy	25 - 30	30 - 40	40 - 50
	HRSA Inconel 625			
	HRSA Inconel 718			
	HRSA Nimonic			
Ti	Titanio - Titanium	50 - 60	60 - 70	80 - 90
	Leghe di titanio Titanium alloys			

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	Cava 1,5ø	Cava1ø	ae=0,25ø	ae=0,20ø	ae=0,15ø	ae=0,1ø	ae=0,075ø	ae=0,05ø	ae=0,025ø
	6	0,011	0,014	0,017	0,018	0,020	0,024	0,027	0,032	0,045
	8	0,016	0,020	0,024	0,025	0,028	0,034	0,038	0,046	0,064
	10	0,025	0,027	0,032	0,034	0,038	0,046	0,051	0,062	0,086
	12	0,030	0,036	0,043	0,045	0,050	0,061	0,068	0,083	0,115
	16	0,045	0,055	0,066	0,069	0,077	0,094	0,105	0,127	0,176
	20	0,060	0,075	0,090	0,094	0,105	0,128	0,143	0,173	0,240



- È consigliato l'utilizzo di un mandrino a forte serraggio per bloccare l'utensile
- È consigliato l'uso abbondante di refrigerante per evitare shock termico in entrata in cava (passante o aperta)
- *A tool holder with heavy duty clamping is recommended*
- *The abundant use of coolant is recommended in slotting operations*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$



INTERNAL COOLANT

New

Megatool Internal Coolant

79710IC4

Z 4

UNEQUAL PITCH
ONE CENTRAL COOLANT HOLE

cod.	D h10	ds	L	l1	l	R	ic	d h6	Z	SKIN Power UOP COATING
79710IC40600	6	5,9	52	20	14	0,2	1	6	4	KMX
79710IC40601	6	5,9	57	25	14	0,2	1	6	4	KMX
79710IC40800	8	7,8	63	26	18	0,3	1,3	8	4	KMXW
79710IC40801	8	7,8	68	32	18	0,3	1,3	8	4	KMXW
79710IC41000	10	9,8	72	32	22	0,5	2	10	4	KMXW
79710IC41001	10	9,8	80	40	22	0,5	2	10	4	KMXW
79710IC41200	12	11,7	83	38	26	0,5	2	12	4	KMXW
79710IC41201	12	11,7	95	50	26	0,5	2	12	4	KMXW
79710IC41600	16	15,7	100	50	34	1	2	16	4	KMXW
79710IC41601	16	15,7	112	64	34	1	2	16	4	KMXW
79710IC42000	20	19,7	112	62	42	1	3	20	4	KMXW
79710IC42001	20	19,7	125	75	42	1	3	20	4	KMXW

Frese 'MEGATOOL internal coolant'
'MEGATOOL internal coolant' end mills
'MEGATOOL intenal coolant' Fräser
Fraises 'MEGATOOL internal coolant'
Fresas 'MEGATOOL internal coolant'

Caratteristiche tecniche / *TECHNICAL CHARACTERISTICS* Megatool Internal Coolant

- Divisione irregolare progettata per ridurre la risonanza nelle lavorazioni di acciai inox, leghe HRSA, titanio e sue leghe. **Asportazione in cava fino a 1,5ø.**
- Angoli di taglio ottimizzati per ridurre il fenomeno del tagliente di riporto.
- Raggio torico e taglio di testa positivizzato.
- Eliche differenziate per ridurre le vibrazioni anche in percorsi utensile complessi.
- Foro centrale di lubrorefrigerazione interna per una migliore evacuazione del truciolo.

- *Unequal pitch designed to reduce resonance when machining stainless steel, HRSA alloys, Titanium and Titanium alloys.* ***Slotting up to 1,5ø****.*
- *Optimal cutting angles to reduce B.U.E.*
- *Toric radius and a positive axial rake angle.*
- *Unequal helix to reduce vibrations even in complex tool paths.*
- *One central coolant hole for better chip evacuation.*

SKIN Power UOP COATING

Standard UOP

W a richiesta ø 6mm
ON REQUEST ø 6mm

36°/37°

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
79710IC4	●	●	◪	○	●	○	◪	○	◪	◪

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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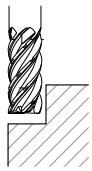
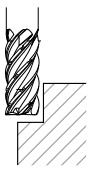
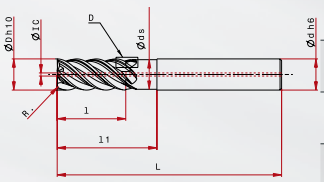
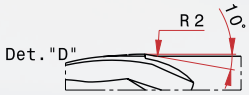
MADE IN ITALY

79750IC5

Materiali - Materials		Semifinitura Semi-finishing ap = 1,5 - 2ø ae = 0,4 - 0,3ø	Contornatura Shouldering ap = 1,5 - 2ø ae = 0,2 - 0,1ø	Contornatura Shouldering ap = 1,5 - 2ø ae = 0,05 - 0,025ø
				
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	130 - 140	140 - 150	150 - 200
Acciaio - Ghisa Steel - Cast iron	Basso contenuto di C Low carbon content	130 - 140	140 - 150	150 - 200
	Medio contenuto di C Medium carbon content	125 - 135	135 - 145	150 - 180
	Basso legato Low alloyed	110 - 120	120 - 150	150 - 170
	Alto legato High alloyed	90 - 100	110 - 130	140 - 160
	Acciaio da stampi e utensili Die/tool steel	90 - 100	100 - 120	120 - 140
Acciaio inossidabile leghe speciali Stainless steel - special alloys	AISI 304 - 416 - 420	90 - 100	100 - 110	110 - 120
	AISI 316 - 440	60 - 80	80 - 100	100 - 110
	17-4 PH 15-5 PH	60 - 70	70 - 80	90 - 110
	Leghe Cr - Co Cr - Co alloys	50 - 60	60 - 70	80 - 100
	Duplex F51	50 - 60	60 - 70	70 - 90
	Super Duplex F55	40 - 50	50 - 60	60 - 80
Leghe leggere Light alloys	Alluminio non legato Unalloyed aluminium	300 - 350	400 - 450	450 - 500
	Alluminio Si < 6% si < 6% aluminium	250 - 300	350 - 400	400 - 450
Acciai temprati HARDENED STEELS	≤ 54 HRC	40 - 50	60 - 70	70 - 80
HRSA	HRSA Hastelloy	25 - 30	30 - 40	40 - 50
	HRSA Inconel 625			
	HRSA Inconel 718			
	HRSA Nimonic			
Ti	Titanio - Titanium	50 - 60	60 - 70	80 - 90
	Leghe di titanio Titanium alloys			

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	ae=0,4ø	ae=0,25ø	ae=0,2ø	ae=0,15ø	ae=0,1ø	ae=0,075ø	ae=0,05ø	ae=0,025ø
	6	0,015	0,017	0,018	0,020	0,024	0,027	0,032	0,045
	8	0,022	0,024	0,025	0,028	0,034	0,038	0,046	0,064
	10	0,030	0,032	0,034	0,038	0,046	0,051	0,062	0,086
	12	0,040	0,043	0,045	0,050	0,061	0,068	0,083	0,115
	16	0,061	0,066	0,069	0,077	0,094	0,105	0,127	0,140
	20	0,086	0,094	0,098	0,109	0,133	0,140	0,145	0,150



- È consigliato l'utilizzo di un mandrino a forte serraggio per bloccare l'utensile
- È consigliato l'uso abbondante di refrigerante per evitare shock termico in entrata in cava (passante o aperta)
- *A tool holder with heavy duty clamping is recommended*
- *The abundant use of coolant is recommended in slotting operations*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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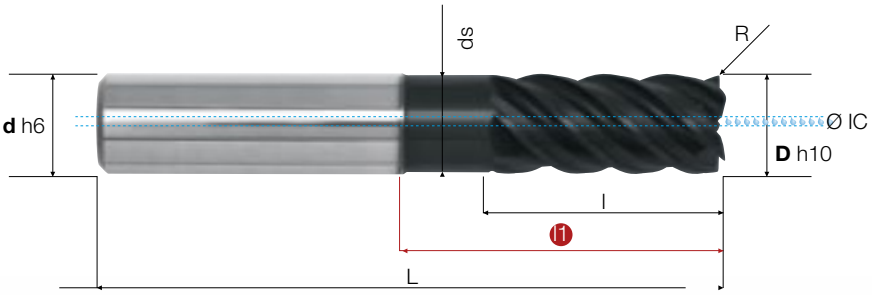


INTERNAL COOLANT

New

Megatool Internal Coolant

79750IC5

Z 5

UNEQUAL PITCH
ONE CENTRAL COOLANT HOLE

cod.	D h10	ds	L	l1	l	R	ic	d h6	Z	SKIN Power UOP COATING
79750IC50600	6	5,6	55	19	13	0,1	1	6	5	KMX
79750IC50601	6	5,6	61	25	10	0,1	1	6	5	KMX
79750IC50800	8	7,5	61	25	17	0,1	1,3	8	5	KMX
79750IC50801	8	7,5	69	33	13	0,1	1,3	8	5	KMX
79750IC51000	10	9,5	72	32	22	0,1	2	10	5	KMX
79750IC51001	10	9,5	82	42	17	0,1	2	10	5	KMX
79750IC51200	12	11,5	83	38	26	0,2	2	12	5	KMX
79750IC51201	12	11,5	95	50	20	0,2	2	12	5	KMX
79750IC51600	16	15,5	98	50	34	0,2	2	16	5	KMX
79750IC51601	16	15,5	114	66	26	0,2	2	16	5	KMX
79750IC52000	20	19,5	112	62	42	0,2	3	20	5	KMX
79750IC52001	20	19,5	132	82	32	0,2	3	20	5	KMX

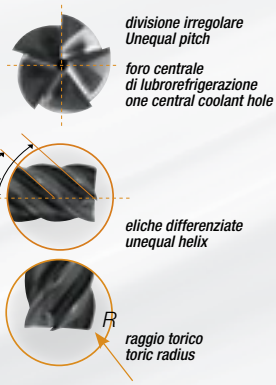
Frese 'MEGATOOL internal coolant'
'MEGATOOL internal coolant' end mills
'MEGATOOL intenal coolant' Fräser
Fraises 'MEGATOOL internal coolant'
Fresas 'MEGATOOL internal coolant'

Caratteristiche tecniche / *TECHNICAL CHARACTERISTICS* Megatool Internal Coolant

- Divisione irregolare progettata per ridurre la risonanza nelle lavorazioni di acciai inox, leghe HRSA, titanio e sue leghe. **Asportazione in cava fino a 1,5ø.**
- Angoli di taglio ottimizzati per ridurre il fenomeno del tagliente di riporto.
- Raggio torico e taglio di testa positivizzato.
- Eliche differenziate per ridurre le vibrazioni anche in percorsi utensile complessi.
- Foro centrale di lubrorefrigerazione interna per una migliore evacuazione del truciolo.

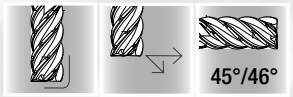
- *Unequal pitch designed to reduce resonance when machining stainless steel, HRSA alloys, Titanium and Titanium alloys.* ***Slotting up to 1,5ø****.*
- *Optimal cutting angles to reduce B.U.E.*
- *Toric radius and a positive axial rake angle.*
- *Unequal helix to reduce vibrations even in complex tool paths.*
- *One central coolant hole for better chip evacuation.*

SKIN Power UOP COATING



Standard UOP

W a richiesta ON REQUEST



materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
79750IC5	●	●	◕	○	●	○	◕	○	◕	◕

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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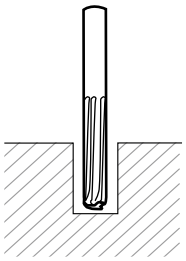
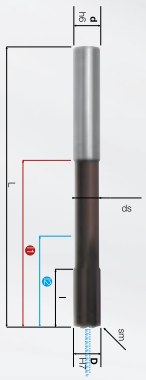
MADE IN ITALY

59705IC

Materiali - Materials		Alesatura fori ciechi Blind holes Reaming
		
	Gruppo e descrizione Group and description	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	60 - 120
Acciaio - Ghisa *Steel - Cast iron*	Basso contenuto di C Low carbon content	120 - 250
	Medio contenuto di C Medium carbon content	120 - 250
	Basso legato Low alloyed	120 - 250
	Alto legato High alloyed	120 - 250
	Acciaio da stampi e utensili Die/tool steel	70 - 120
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	60 - 120
	AISI 316 - 440	60 - 120
	17-4 PH 15-5 PH	25 - 60
	Leghe Cr - Co Cr - Co alloys	25 - 50
	Duplex F51	20 - 40
	Super Duplex F55	20 - 40
Leghe leggere *Light alloys*	Alluminio non legato Unalloyed aluminium	250 - 500
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	25 - 60
HRSA	HRSA Hastelloy	25 - 50
	HRSA Inconel 625	
	HRSA Inconel 718	
	HRSA Nimonic	
Ti	Titanio - Titanium	30 - 80
	Leghe di titanio Titanium alloys	

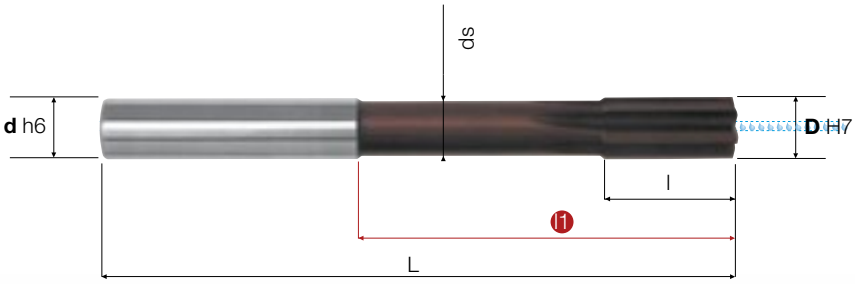
AVANZAMENTO mm/giro **FEED mm/rev**	D	check the run out: max 0,01 mm
	4-4,5-5	0,1 - 0,4
	5,5-6-6,5-7-7,5	0,15 - 0,7
	8-8,5-9-9,5-10	0,5 - 1
	10,5-11-11,5-12	0,7 - 1,2

- È consigliato l'utilizzo di un mandrino a forte serraggio per bloccare l'utensile
- È consigliato l'uso abbondante di refrigerante
- *A tool holder with heavy duty clamping is recommended*
- *The abundant use of coolant is recommended*

$n = \frac{Vc \times 1000}{3{,}14 \times \varnothing}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

example code:

series	ø	coated
57910IC	0800	KMXW



cod.	D H7	ds	L	l1	l	d h6	Z	EVOtech
59705IC0400	4	3,5	68	40	12	6	4	KMX
59705IC0450	4,5	4	76	40	12	6	4	KMX
59705IC0500	5	4,5	76	40	12	6	4	KMX
59705IC0550	5,5	5	76	40	12	6	4	KMX
59705IC0600	6	5,5	76	40	12	6	4	KMX
59705IC0650	6,5	6	101	65	15	8	6	KMX
59705IC0700	7	6,5	101	65	15	8	6	KMX
59705IC0750	7,5	7	101	65	15	8	6	KMX
59705IC0800	8	7	101	65	15	8	6	KMX
59705IC0850	8,5	7,5	101	61	18	10	6	KMX
59705IC0900	9	8	101	61	18	10	6	KMX
59705IC0950	9,5	8,5	101	61	18	10	6	KMX
59705IC1000	10	9	101	61	18	10	6	KMX
59705IC1050	10,5	9,5	130	85	18	12	6	KMX
59705IC1100	11	10	130	85	18	12	6	KMX
59705IC1150	11,5	10,5	130	85	18	12	6	KMX
59705IC1200	12	11	130	85	18	12	6	KMX

New

Megatool Reamer

59705IC

Z4÷6

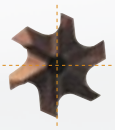
UNEQUAL PITCH
ONE CENTRAL COOLANT HOLE

Alesatori 'MEGATOOL'
'MEGATOOL' reamer
Rebahlen 'MEGATOOL'
Alesoirs 'MEGATOOL'
Escariador 'MEGATOOL'

EVOtech UOP COATING

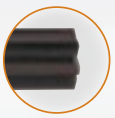
Caratteristiche tecniche / *TECHNICAL CHARACTERISTICS* Megatool Reamer

- Eccellenti prestazioni nelle lavorazioni di alesatura di fori ciechi.
- *Exellent machining performance in blind holes reaming.*

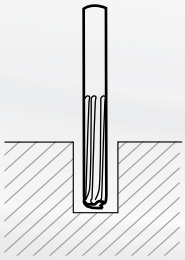


divisione irregolare
unequal pitch

foro centrale
di lubrorefrigerazione
one central coolant hole



denti dritti
straight flutes



Alesatura per fori ciechi
Blind holes reaming

H | UNI DIN 212D ISO

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
Megatool 79710R5	◪	◪	◪	○	◪	○	◪	○	●	◪

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

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SOLID CARBIDE

HSC Top Class LINE

La linea di prodotti in metallo duro Ultrafine HSC Top Class LINE comprende utensili con caratteristiche tecniche e geometriche che li rendono adatti alle lavorazioni ad alta velocità di taglio (High Speed Cutting) sulle più moderne macchine utensili.

The Ultrafine Solid Carbide HSC Top Class LINE includes tools with technical and geometric characteristics suitable for High Speed Cutting on the most modern milling machines.

Member IMC Group

SOLID CARBIDE

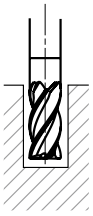
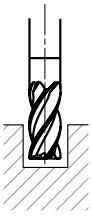
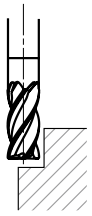
HSC Top Class LINE

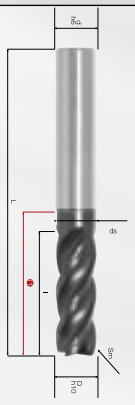
Die Produktserie aus ultrafeinem Hartmetall HSC Top Class LINE beinhaltet Werkzeuge mit technischen und geometrischen Eigenschaften, die sich für hochmoderne Werkzeugmaschinen für Verarbeitungsprozesse mit Hochgeschwindigkeitszuschnitt HSC eignen.

La ligne de produits en carbure micrograin surdensifié HSC Top Class LINE regroupe des outils de fraisage aux caractéristiques techniques et géométriques les rendant appropriés à l'usinage grande vitesse (UGV) sur les machines-outils les plus modernes.

La línea de productos en Metal Duro microgramo HSC Top Class LINE incluye herramientas de fresado utilizados desde desbastes hasta las soluciones tecnológicamente más avanzadas en el campo de la fabricación de los moldes. La Línea HSC Top Class LINE se desarrolla con el fin de ofrecer una amplia gama de fresas de alta velocidad (HSC), capaz de satisfacer las necesidades del usuario en las aplicaciones más exigentes.

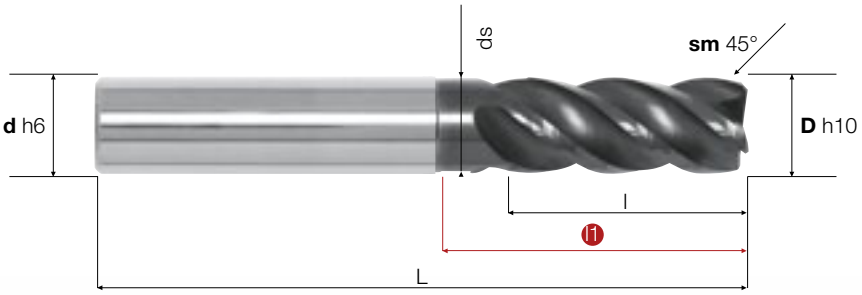
78705

Materiali - Materials		Cava Slotting ap = 2ø	Cava Slotting ap = 1ø	Cava Slotting ap = 0,5ø	Contornatura Shouldering ap = 1ø - 2ø ae = 0,2 - 0,1ø
					
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	110 - 115	120 - 130	130 - 140	150 - 160
Acciaio *Steel*	Basso contenuto di C Low carbon content	115 - 120	130 - 140	140 - 150	160 - 170
	Medio contenuto di C Medium carbon content	115 - 120	120 - 130	120 - 130	160 - 170
	Basso legato Low alloyed	90 - 100	100 - 110	110 - 115	140 - 150
	Alto legato High alloyed	70 - 80	80 - 90	80 - 90	130 - 140
	Acciaio da stampi e utensili Die/tool steel	70 - 80	70 - 80	70 - 80	100 - 110
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	–	60 - 70	60 - 70	70 - 80
	AISI 316 - 440	–	40 - 50	40 - 50	70 - 80
	17-4 PH 15-5 PH	–	40 - 50	40 - 50	50 - 60
	Leghe Cr - Co Cr - Co alloys	–	30 - 40	30 - 40	40 - 50
	Duplex F51	–	35 - 45	35 - 45	40 - 50
	Super Duplex F55	–	25 - 30	25 - 30	40 - 50
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	–	_	40 - 45	60 - 70
HRSA	HRSA Hastelloy	–	25 - 30	35 - 40	35 -45
	HRSA Inconel 625				
	HRSA Inconel 718				
	HRSA Nimonic				
Ti	Titanio - Titanium	–	40 - 45	45 - 50	60 - 70
	Leghe di titanio Titanium alloys				

AVANZAMENTO fz mm/tagliente **FEED mm/tooth**	D	fz	fz	fz	fz
	5	0,007	0,007	0,007	0,009
	6	0,009	0,009	0,009	0,012
	8	0,012	0,012	0,012	0,015
	10	0,022	0,022	0,022	0,025
	12	0,028	0,028	0,028	0,030
	16	0,040	0,040	0,040	0,050
	20	0,060	0,060	0,060	0,080
	25	0,080	0,080	0,080	0,100

■ È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
■ *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

■ $n = \frac{Vc \times 1000}{3{,}14 \times ø}$ ■ $Vf = fz \times n \times z$ ■ $Q = \frac{a_p \times a_e \times Vf}{1000}$



cod.	D h10	ds	l1	l	L	sm45°	dh6	Z	SKIN Plus UOP COATING
787050500	5	4,8	18	12	60	0,25	6	4	KMX
787050600	6	5,7	21	14	60	0,30	6	4	KMX
787050800	8	7,7	26	18	63	0,40	8	4	KMX
787051000	10	9,7	32	22	72	0,50	10	4	KMX
787051200	12	11,7	38	26	83	0,60	12	4	KMX
787051600	16	15,6	42	34	92	0,80	16	4	KMX
787052000	20	19,6	54	42	104	1,00	20	4	KMX
787052500	25	24,6	66	52	125	1,20	25	4	KMX

STORM

78705

Z4
UNEQUAL PITCH

Caratteristiche tecniche / *TECHNICAL CHARACTERISTICS* STORM

- Geometria della gola arrotondata per facilitare l'evacuazione del truciolo.
- Passo differenziato per lavorazioni estreme.
- Smusso di rinforzo del tagliente.
- Alte prestazioni in sgrossatura.
- Assenza di vibrazioni.

- *Rounded flute geometry for better chip evacuation.*
- *Unequal pitch for extreme applications.*
- *Chamfer for strong edge.*
- *High performances in roughing applications.*
- *Vibration reduction.*

Frese 'STORM'
'STORM' end mills
'STORM' Fräser
Fraises 'STORM'
Fresas 'STORM'

applicazioni consigliate
• Ap fino a 2ø
RECOMMENDED APPLICATIONS
• Ap TO 2ø

SKIN Plus
UOP COATING

H

Standard UOP

λ°s 40

W
a richiesta
ON REQUEST

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
STORM 78705	◕	◕	◕	○	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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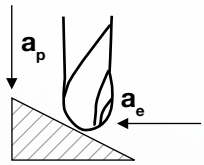
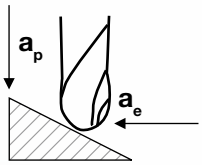
MADE IN ITALY

81105

Materiali - Materials		Semifinitura Semi-finishing ap = 0,1ø ae = 0,1ø	Finitura Finishing ap = 0,01ø ae = 0,01ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	110 - 120	260 - 270
Acciaio *Steel*	Basso contenuto di C Low carbon content	130 - 140	290 - 300
	Medio contenuto di C Medium carbon content	120 - 130	270 - 280
	Basso legato Low alloyed	120 - 130	270 - 280
	Alto legato High alloyed	100 - 110	240 - 250
	Acciaio da stampi e utensili Die/tool steel	90 - 100	230 - 240
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	85 - 95	190 - 200
	> 54 HRC	65 - 75	130 - 140

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	1	0,010	0,020
	2	0,012	0,025
	3	0,015	0,030
	4	0,020	0,040
	5	0,022	0,045
	6	0,025	0,050
	8	0,027	0,055
	10	0,030	0,060
	12	0,033	0,065
	16	0,035	0,070
	20	0,038	0,075

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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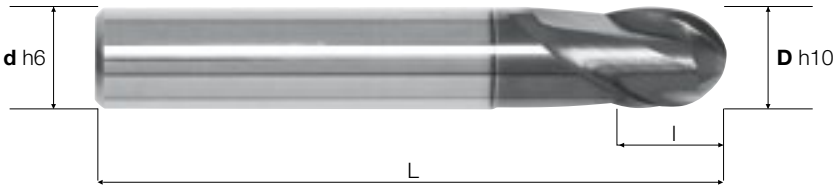

cod.	D h10	l	L	dh6	Z	SKIN plus UOP COATING
811050100	1	3	38	3	2	KMX
811050150	1,5	3	38	3	2	KMX
811050200	2	3	38	3	2	KMX
811050250	2,5	3	38	3	2	KMX
811050301	3	4	50	6	2	KMX
811050350	3,5	4	50	6	2	KMX
811050400	4	5	54	6	2	KMX
811050500	5	6	54	6	2	KMX
811050600	6	7	54	6	2	KMX
811050700	7	8	58	8	2	KMX
811050800	8	9	58	8	2	KMX
811050900	9	10	66	10	2	KMX
811051000	10	11	66	10	2	KMX
811051200	12	12	73	12	2	KMX
811051400	14	14	75	14	2	KMX
811051600	16	16	82	16	2	KMX
811051800	18	18	84	18	2	KMX
811052000	20	20	92	20	2	KMX

81105

Z 2
BALL-NOSED CUTTERS

Frese a due taglienti a testa semisferica
Ball-nosed two flute end mills
Halbrundkopffräser Zweischneider
Fraises deux tailles deux dents à bout hémisphérique
Fresas hemisféricas de dos labios

SKIN plus UOP COATING

Standard UOP

H

λ°s 32

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio / TITANIUM	HRSA / HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili / STAINLESS STEELS	materiali non ferrosi / NON FERROUS MATERIALS	leghe leggere / LIGHT ALLOYS	grafite / GRAPHITE	acciai / STEELS	ghise / CAST IRON
81105	◪	◪	●	◪	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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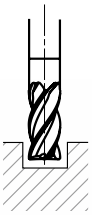
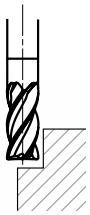
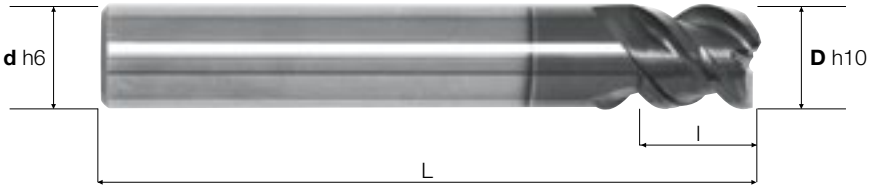
83105

Materiali - Materials		Cava Slotting ap = 0,25ø	Contornatura Shouldering ap = 1ø ae = 0,1ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 100	120 - 130
Acciaio *Steel*	Basso contenuto di C Low carbon content	80 - 100	120 - 130
	Medio contenuto di C Medium carbon content	80 - 100	120 - 130
	Basso legato Low alloyed	70 - 90	110 -120
	Alto legato High alloyed	70 - 90	90 - 100
	Acciaio da stampi e utensili Die/tool steel	60 - 80	90 - 100
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	50 - 60	80 - 90
	AISI 316 - 440	40 - 50	60 - 70
	17-4 PH 15-5 PH	40 - 50	60 - 70
	Leghe Cr - Co Cr - Co alloys	30 - 40	50 - 60
	Duplex F51	30 - 40	50 - 60
	Super Duplex F55	20 - 30	40 - 50
HRSA	HRSA Hastelloy	20 - 30	40 - 50
	HRSA Inconel 625		
	HRSA Inconel 718		
	HRSA Nimonic		
Ti	Titanio - Titanium	40 - 50	60 - 70
	Leghe di titanio Titanium alloys		

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	4	0,004	0,010
	5	0,005	0,012
	6	0,007	0,013
	8	0,010	0,015
	10	0,020	0,025
	12	0,025	0,030
	16	0,030	0,040
	20	0,050	0,060

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$



cod.	D h10	l	L	dh6	Z	SKIN plus UOP COATING
831050300	3	4	50	6	3	KMX
831050350	3,5	4	50	6	3	KMX
831050400	4	5	54	6	3	KMX
831050450	4,5	5	54	6	3	KMX
831050500	5	6	54	6	3	KMX
831050600	6	7	54	6	3	KMX
831050700	7	8	58	8	3	KMX
831050800	8	9	58	8	3	KMX
831050900	9	10	66	10	3	KMX
831051000	10	11	66	10	3	KMX
831051200	12	12	73	12	3	KMX
831051400	14	14	75	14	3	KMX
831051600	16	16	82	16	3	KMX
831051800	18	18	84	18	3	KMX
831052000	20	20	92	20	3	KMX

TORNADO

83105

Z3

Frese 'Tornado'
'Tornado' end mills
'Tornado' *Fräser*
Fraises 'Tornado'
Fresa 'Tornado'

SKIN plus UOP COATING

H

UNI DIN 6527 ISO

λ°s 55

W a richiesta ON REQUEST

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
TORNADO 83105	●	◪	○	○	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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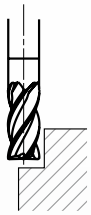
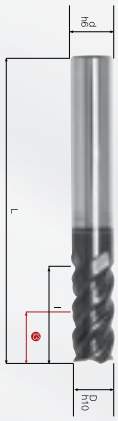
doubleACTION

85105
85120
85130

Materiali - Materials		Cava Slotting ap = 0,5ø	Contornatura Shouldering ap = 1,5 - 2ø ae = 0,2 - 0,1ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 100	100 - 120
Acciaio Steel	Basso contenuto di C Low carbon content	80 - 100	100 - 120
	Medio contenuto di C Medium carbon content	80 - 100	100 - 120
	Basso legato Low alloyed	70 - 90	90 - 110
	Alto legato High alloyed	70 - 90	90 - 110
	Acciaio da stampi e utensili Die/tool steel	60 - 80	80 - 100
Acciai temprati HARDENED STEELS	≤ 54 HRC	40 - 50	50 - 60
	> 54 HRC	35 - 40	40 - 50

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	4	0,010	0,014
	5	0,012	0,016
	6	0,014	0,018
	8	0,016	0,020
	10	0,020	0,024
	12	0,030	0,035
	14	0,040	0,045
	16	0,050	0,055
	18	0,055	0,065
	20	0,060	0,075
	25	0,070	0,080

series **85120** a_p consigliato | *RECOMMENDED* 0,25 Ø, **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -25%

series **85130** **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -50%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

- $n = \frac{Vc \times 1000}{3,14 \times ø}$
- $Vf = fz \times n \times z$
- $Q = \frac{a_p \times a_e \times Vf}{1000}$

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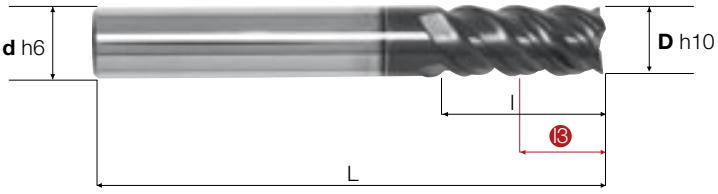
example code:

series	ø	coated
85105	0400	KMX
85120	0400	KMX
85130	1200	KMX



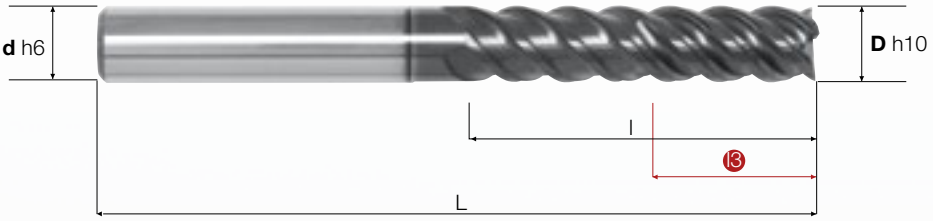
doubleACTION 85105

Z 4

UNI DIN 6527 ISO

Frese 'Double Action'
'Double Action' end mills
Fräser 'Double Action'
Fraises 'Double Action'
Fresas 'Double Action'

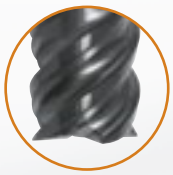
cod.	D h10	l3	l	L	dh6	Z	SKIN plus UOP COATING
851050400	4	6	11	57	6	4	KMX
851050500	5	7	13	57	6	4	KMX
851050600	6	7	13	57	6	4	KMX
851050800	8	10	19	63	8	4	KMX
851051000	10	11	22	72	10	4	KMX
851051200	12	13	26	83	12	4	KMX
851051400	14	13	26	83	14	4	KMX
851051600	16	16	32	92	16	4	KMX
851051800	18	16	32	92	18	4	KMX
851052000	20	19	38	104	20	4	KMX
851052500	25	23	45	125	25	4	KMX



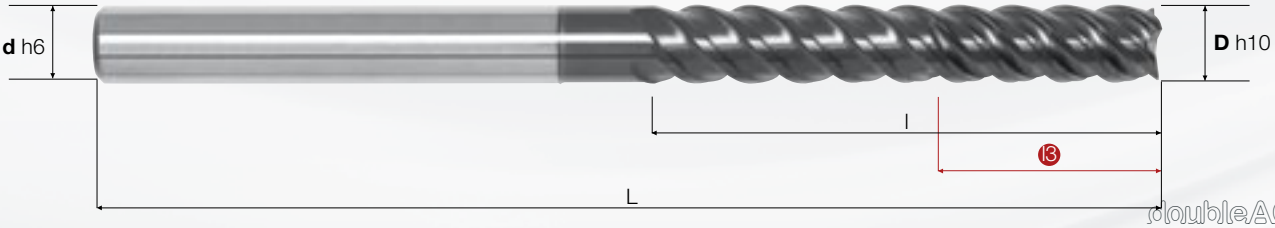
doubleACTION 85120

Z 4

Standard UOP



cod.	D h10	l3	l	L	dh6	Z	SKIN plus UOP COATING
851200400	4	10	19	63	6	4	KMX
851200500	5	12	24	68	6	4	KMX
851200600	6	12	24	68	6	4	KMX
851200800	8	19	38	88	8	4	KMX
851201000	10	23	45	95	10	4	KMX
851201200	12	27	53	110	12	4	KMX
851201400	14	27	53	110	14	4	KMX
851201600	16	32	63	123	16	4	KMX
851201800	18	32	63	123	18	4	KMX
851202000	20	38	75	141	20	4	KMX
851202500	25	45	90	160	25	4	KMX



doubleACTION 85130

Z 4

Standard UOP

SKIN plus UOP COATING

H | λ°s 50 | W a richiesta ON REQUEST

cod.	D h10	l3	l	L	dh6	Z	SKIN plus UOP COATING
851301200	12	35	75	160	12	4	KMX
851301400	14	35	75	160	14	4	KMX
851301600	16	40	85	165	16	4	KMX
851301800	18	40	85	165	18	4	KMX
851302000	20	55	130	200	20	4	KMX
851302500	25	60	130	210	25	4	KMX

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
doubleACTION **85105**	◪	◪	●	●	○	○	○	○	●	●
doubleACTION **85120**	◪	◪	●	●	○	○	○	○	●	●
doubleACTION **85130**	◪	◪	●	●	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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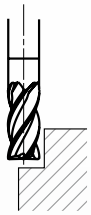
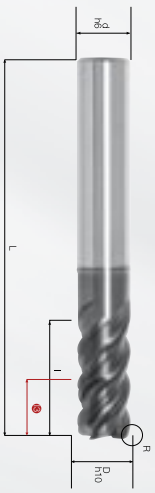
MADE IN ITALY

doubleACTION

85110

Materiali - Materials		Cava Slotting ap = 0,5ø	Contornatura Shouldering ap = 1,5 - 2ø ae = 0,2 - 0,1ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 100	100 - 120
Acciaio *Steel*	Basso contenuto di C Low carbon content	80 - 100	100 - 120
	Medio contenuto di C Medium carbon content	80 - 100	100 - 120
	Basso legato Low alloyed	70 - 90	90 - 110
	Alto legato High alloyed	70 - 90	90 - 110
	Acciaio da stampi e utensili Die/tool steel	60 - 80	80 - 100
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	40 - 50	50 - 60
	> 54 HRC	35 - 40	40 - 50

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	4	0,010	0,014
	5	0,012	0,016
	6	0,014	0,018
	8	0,016	0,020
	10	0,020	0,024
	12	0,030	0,035
	14	0,040	0,045
	16	0,050	0,055
	18	0,055	0,065
	20	0,060	0,075
	25	0,070	0,080

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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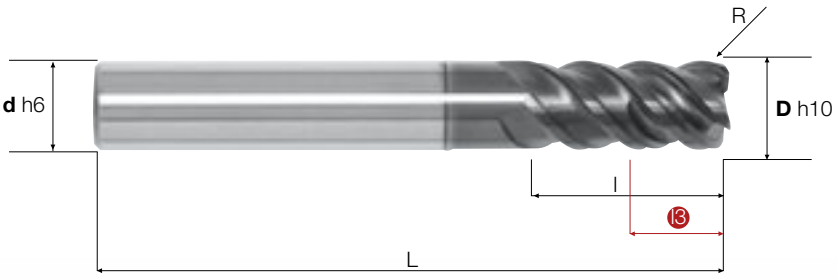

cod.	D h10	l3	l	L	R	dh6	Z	SKIN plus UOP COATING
851100403	4	6	11	57	0,3	6	4	KMX
851100405	4	6	11	57	0,5	6	4	KMX
851100503	5	7	13	57	0,3	6	4	KMX
851100505	5	7	13	57	0,5	6	4	KMX
851100605	6	7	13	57	0,5	6	4	KMX
851100610	6	7	13	57	1	6	4	KMX
851100805	8	10	19	63	0,5	8	4	KMX
851100810	8	10	19	63	1	8	4	KMX
851101005	10	11	22	72	0,5	10	4	KMX
851101010	10	11	22	72	1	10	4	KMX
851101210	12	13	26	83	1	12	4	KMX
851101215	12	13	26	83	1,5	12	4	KMX
851101410	14	13	26	83	1	14	4	KMX
851101415	14	13	26	83	1,5	14	4	KMX
851101610	16	16	32	92	1	16	4	KMX
851101620	16	16	32	92	2	16	4	KMX
851101810	18	16	32	92	1	18	4	KMX
851101820	18	16	32	92	2	18	4	KMX
851102010	20	19	38	104	1	20	4	KMX
851102020	20	19	38	104	2	20	4	KMX
851102510	25	23	45	125	1	25	4	KMX
851102520	25	23	45	125	2	25	4	KMX

doubleACTION

85110

Z 4
TORIC CUTTERS

Frese toroidali 'Double Action'
'Double Action' toric end mills
Torus Fräser 'Double Action'
Fraises toriques 'Double Action'
Fresas toricas 'Double Action'

SKIN plus
UOP COATING

UNI DIN 6527 ISO

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ON REQUEST

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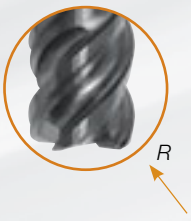

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
doubleACTION **85110**	◪	◪	●	●	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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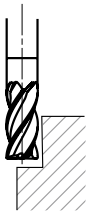
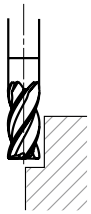
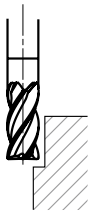
MADE IN ITALY

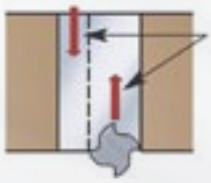
85505
85510

Geometria della gola arrotondata per facilitare l'evacuazione truciolo.
Nocciolo rinforzato per assicurare la massima rigidità nelle operazioni di contornatura (Z4)
Rounded flute geometry for better chip removal. Reinforced core diameter to assure excellent rigidity in shouldering applications (Z4)

Z/2 al centro per penetrazioni assiali. Taglio di testa positivo. Vano trucioli ampliato e raggiato. Distanza tra i taglienti maggiorata.
Z/2 to center for axial penetration. Positive axial rake at the point of the tool Increased and rounded gash. Strong web

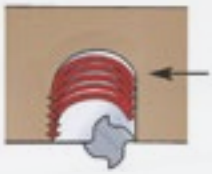
Materiali - Materials		Contornatura Shouldering ap = 2ø ae = 0,5ø	Contornatura Shouldering ap = 2ø ae = 0,3ø	Contornatura Shouldering ap = 2ø ae = 0,15ø
heavyDUTY				
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	150 - 160	160 - 170	170 - 180
Acciaio *Steel*	Basso contenuto di C Low carbon content	150 - 160	160 - 170	170 - 180
	Medio contenuto di C Medium carbon content	150 - 160	160 - 170	170 - 180
	Basso legato Low alloyed	140 - 150	150 - 160	160 - 170
	Alto legato High alloyed	120 - 130	130 - 140	140 - 150
	Acciaio da stampi e utensili Die/tool steel	110 - 120	120 - 130	130 -140
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	–	70 - 80	80 - 90
	AISI 316 - 440	–	60 - 70	70 - 80
	17-4 PH 15-5 PH	–	50 - 60	60 - 70
	Leghe Cr - Co Cr - Co alloys	–	40 - 50	40 - 50
	Duplex F51	–	40 - 50	40 - 50
	Super Duplex F55	–	25 - 30	40 - 50
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	–	–	60 - 70
	> 54 HRC	–	–	40 - 50
HRSA	HRSA Hastelloy	–	–	40 - 50
	HRSA Inconel 625			
	HRSA Inconel 718			
	HRSA Nimonic			
Ti	Titanio - Titanium	–	–	60 - 70
	Leghe di titanio Titanium alloys			

Metodo convenzionale
Conventional method

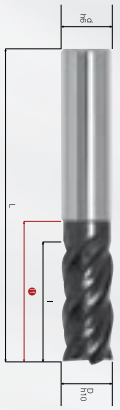


Percorso utensile
Tool path

Metodo trocoidale
Trochoidal method



Percorso utensile
Tool path



AVANZAMENTO fz mm/tagliente FEED mm/tooth D	fz	fz	fz
5	0,007	0,008	0,009
6	0,009	0,010	0,011
8	0,012	0,013	0,014
10	0,017	0,018	0,019
12	0,025	0,026	0,027
16	0,030	0,032	0,034
20	0,040	0,043	0,046
25	0,050	0,054	0,060

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3,14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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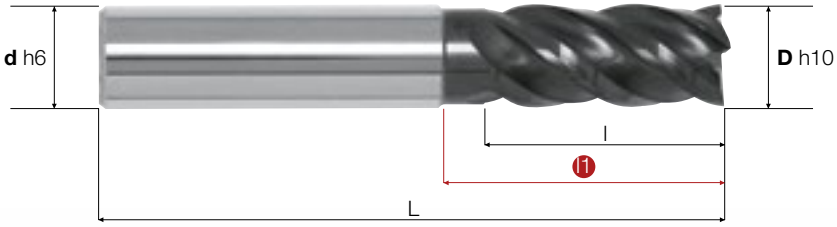
example code:

series	ø	coated
85505	0300	KMX
85510	0300	KMX



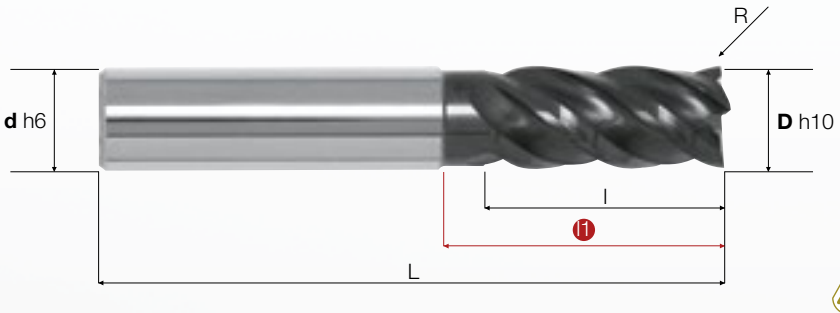
heavy DUTY

85505

Z 4

Frese 'HEAVY DUTY'
'HEAVY DUTY' end mills
Fräser 'HEAVY DUTY'
Fraises 'HEAVY DUTY'
Fresas 'HEAVY DUTY'

cod.	D h10	l1	l	L	dh6	Z	SKIN plus UOP COATING
855050300	3	15	11	60	6	4	KMX
855050400	4	16	11	60	6	4	KMX
855050500	5	18	11	60	6	4	KMX
855050600	6	22	13	60	6	4	KMX
855050800	8	30	19	72	8	4	KMX
855051000	10	32	22	72	10	4	KMX
855051200	12	38	26	83	12	4	KMX
855051400	14	41	28	83	14	4	KMX
855051600	16	42	32	92	16	4	KMX
855052000	20	52	38	104	20	4	KMX
855052500	25	63	45	125	25	4	KMX



heavy DUTY

85510

Z 4
TORIC CUTTERS

Frese toroidali 'HEAVY DUTY'
'HEAVY DUTY' toric end mills
Torus Fräser 'HEAVY DUTY'
Fraises toriques 'HEAVY DUTY'
Fresas toricas 'HEAVY DUTY'

cod.	D h10	l1	l	L	R	dh6	Z	SKIN plus UOP COATING
855100300	3	15	11	60	0,2	6	4	KMX
855100400	4	16	11	60	0,2	6	4	KMX
855100500	5	18	11	60	0,2	6	4	KMX
855100600	6	22	13	60	0,2	6	4	KMX
855100800	8	30	19	72	0,3	8	4	KMX
855101000	10	32	22	72	0,5	10	4	KMX
855101200	12	38	26	83	0,5	12	4	KMX
855101400	14	41	28	83	1	14	4	KMX
855101600	16	42	32	92	1	16	4	KMX
855102000	20	52	38	104	1	20	4	KMX
855102500	25	63	45	125	1	25	4	KMX

SKIN plus
UOP COATING

Standard UOP	H	λ°s 40

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio / TITANIUM	HRSA / HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili / STAINLESS STEELS	materiali non ferrosi / NON FERROUS MATERIALS	leghe leggere / LIGHT ALLOYS	grafite / GRAPHITE	acciai / STEELS	ghise / CAST IRON
heavy DUTY 85505	◪	◪	●	◪	◪	○	○	○	●	●
heavy DUTY 85510	◪	◪	●	◪	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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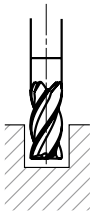
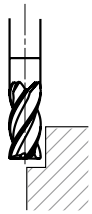
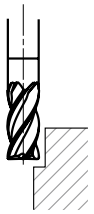
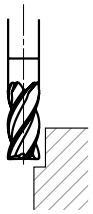
MADE IN ITALY

85705
85710

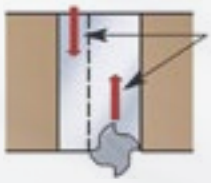
heavyDUTY

Spoglia esterna radiale:
- Miglior finitura
- Stabilità del filo tagliente
- Maggiore resistenza all'usura

Side radial relief angle:
- *Better finishing*
- *Cutting edge stability*
- *Greater wear resistance*

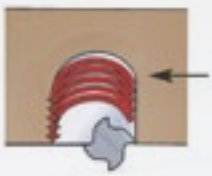
Materiali - Materials		Cava Slotting ap = 1ø	Contornatura Shouldering ap = 2ø ae = 0,3ø	Contornatura Shouldering ap = 2ø ae = 0,15ø	Contornatura Shouldering ap = 2ø ae = 0,15ø
					
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	120 - 130	150 - 160	160 - 170	170 - 180
Acciaio Steel	Basso contenuto di C Low carbon content	120 - 130	150 - 160	160 - 170	170 - 180
	Medio contenuto di C Medium carbon content	120 - 130	150 - 160	160 - 170	170 - 180
	Basso legato Low alloyed	110 - 120	140 - 150	150 - 160	160 - 170
	Alto legato High alloyed	90 - 100	120 - 130	130 - 140	140 - 150
	Acciaio da stampi e utensili Die/tool steel	80 - 90	110 - 120	120 - 130	130 -140
Acciaio inossidabile leghe speciali Stainless steel - special alloys	AISI 304 - 416 - 420	50 - 60	–	70 - 80	80 - 90
	AISI 316 - 440	40 - 50	–	60 - 70	70 - 80
	17-4 PH 15-5 PH	40 - 50	–	50 - 60	40 - 50
	Leghe Cr - Co Cr - Co alloys	30 - 40	–	40 - 50	40 - 50
	Duplex F51	35 - 45	–	40 - 50	40 - 50
	Super Duplex F55	25 - 30	–	30 - 40	40 - 50
Acciai temprati HARDENED STEELS	≤ 54 HRC	50 - 60	–	–	60 - 70
	> 54 HRC	30 - 40	–	–	40 - 50
HRSA	HRSA Hastelloy	25 - 30	–	–	40 - 50
	HRSA Inconel 625				
	HRSA Inconel 718				
	HRSA Nimonic				
Ti	Titanio - Titanium	40 - 60	–	–	60 - 70
	Leghe di titanio Titanium alloys				

Metodo convenzionale
Conventional method



Percorso utensile
Tool path

Metodo trocoidale
Trochoidal method



Percorso utensile
Tool path

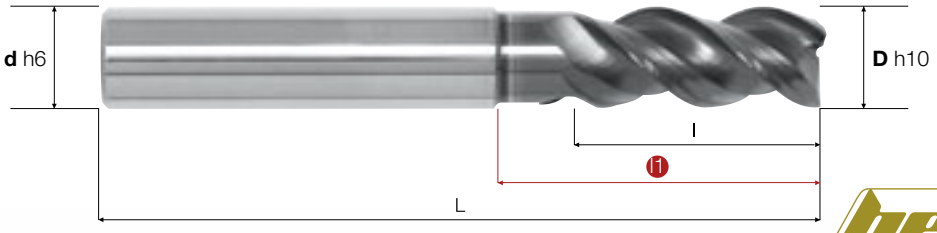
AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz	fz	fz
	5	0,007	0,007	0,008	0,009
	6	0,009	0,009	0,009	0,010
	8	0,012	0,012	0,013	0,014
	10	0,017	0,017	0,018	0,019
	12	0,025	0,025	0,026	0,027
	16	0,030	0,030	0,031	0,032
	20	0,040	0,040	0,043	0,046
	25	0,050	0,050	0,054	0,060

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3,14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

example code:

series	ø	coated
85705	0300	KMX
85710	0300	KMX



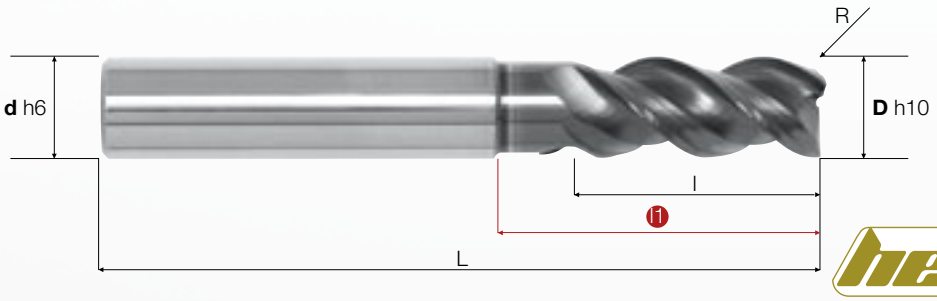
heavy DUTY

85705

cod.	D h10	l1	l	L	dh6	Z	SKIN plus UOP COATING
857050300	3	15	11	60	6	3	KMX
857050400	4	16	11	60	6	3	KMX
857050500	5	18	11	60	6	3	KMX
857050600	6	22	13	60	6	3	KMX
857050800	8	30	19	72	8	3	KMX
857051000	10	32	22	72	10	3	KMX
857051200	12	38	26	83	12	3	KMX
857051400	14	41	28	83	14	3	KMX
857051600	16	42	32	92	16	3	KMX
857052000	20	52	38	104	20	3	KMX
857052500	25	63	45	125	25	3	KMX

Z 3

Frese 'HEAVY DUTY'
'HEAVY DUTY' end mills
Fräser 'HEAVY DUTY'
Fraises 'HEAVY DUTY'
Fresas 'HEAVY DUTY'



heavy DUTY

85710

cod.	D h10	l1	l	L	R	dh6	Z	SKIN plus UOP COATING
857100300	3	15	11	60	0,2	6	3	KMX
857100400	4	16	11	60	0,2	6	3	KMX
857100500	5	18	11	60	0,2	6	3	KMX
857100600	6	22	13	60	0,2	6	3	KMX
857100800	8	30	19	72	0,3	8	3	KMX
857101000	10	32	22	72	0,5	10	3	KMX
857101200	12	38	26	83	0,5	12	3	KMX
857101400	14	41	28	83	1	14	3	KMX
857101600	16	42	32	92	1	16	3	KMX
857102000	20	52	38	104	1	20	3	KMX
857102500	25	63	45	125	1	25	3	KMX

Z 3 TORIC CUTTERS

Frese toroidali 'HEAVY DUTY'
'HEAVY DUTY' toric end mills
Torus Fräser 'HEAVY DUTY'
Fraises toriques 'HEAVY DUTY'
Fresas toricas 'HEAVY DUTY'

SKIN plus UOP COATING

Standard UOP	N	λ°s 45	W a richiesta ON REQUEST

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
heavy DUTY 85705	◕	◕	●	◕	◕	○	○	○	●	●
heavy DUTY 85710	◕	◕	●	◕	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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La serie TORUS trova il proprio sviluppo e perfezionamento con l'intento di proporre al mercato un utensile estremamente robusto ed in grado di sostenere alti avanzamenti di taglio. TORUS garantisce performance di eccellenza durante le operazioni di sgrossatura e semifinitura, grazie alla sua stabilità e precisione durante l'azione di taglio.

Our TORUS series was developed and perfected in order to offer an extremely tough tool able to sustain high cutting feeds. Thanks to its stability and precision during cutting, TORUS guarantees excellent performance during roughing and semi finishing operations.

Die Produktserie TORUS wurde entwickelt und perfektioniert, um dem Markt ein extrem robustes Werkzeug zu bieten, das auch bei hohen Schlagfronten eingesetzt werden kann. Werkzeuge der Serie TORUS garantieren bei der Durchführung der Vorschrupparbeiten und der vorbereitenden Oberflächenbehandlung dank ihrer Stabilität und Präzision beim Schneidevorgang eine exzellente Leistungsfähigkeit.

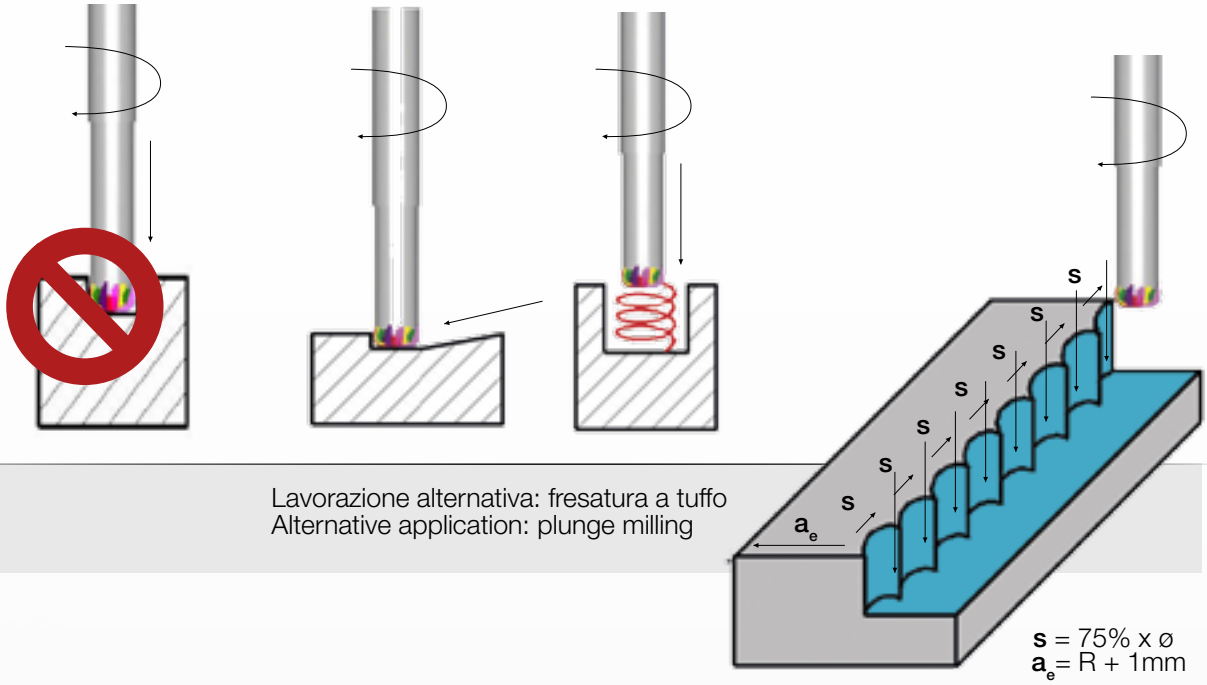
La série TORUS trouve son propre développement et perfectionnement dans l'intention de proposer au marché un outil extrêmement robuste et en mesure de supporter de fortes avances de coupe. TORUS garantie des performances d'excellence durant les opérations d'ébauche et de semi finition, grâce à sa précision et stabilité durant le processus de coupe.

La serie TORUS se ha desarrollado y optimizado con el objetivo de ofrecer al mercado una herramienta extremadamente robusta y con capacidad para soportar altos avances. TORUS garantiza un excelente rendimiento durante las operaciones de desbaste y semi-acabado, debido a su estabilidad y precisión durante la acción de corte.

Non per operazioni di foratura
No drilling operations

Rampa
Ramping method

Interpolazione elicoidale
Helical interpolation

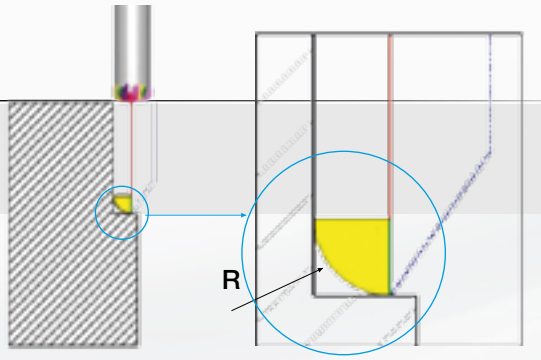


Lavorazione alternativa: fresatura a tuffo
Alternative application: plunge milling

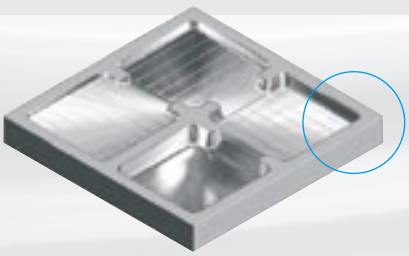
s = 75% x ø
a_e = R + 1mm

LINEA ROSSA: avanzamento di lavoro
LINEA VERDE: 30% avanzamento di lavoro
TRATTEGGIO BLU: avanzamento rapido

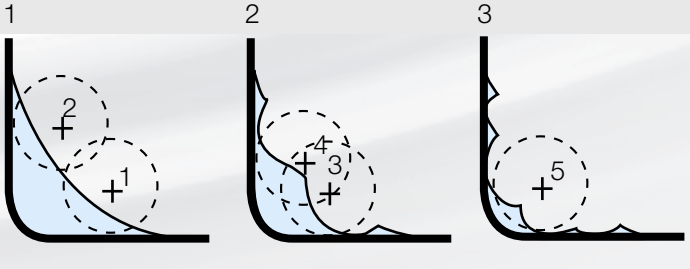
RED LINE = plunge feed
GREEN LINE = 30% plunge feed
BLUE BROKEN LINE = rapid feed



Esempio di foratura a tuffo, sgrossatura
Example plunge milling, roughing



Riduzione dei raggi negli angoli
Milling corner removal



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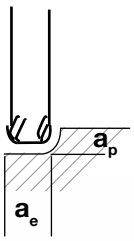
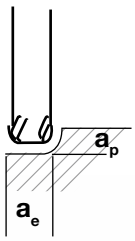
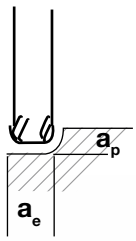
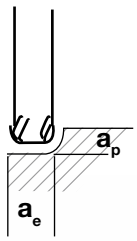
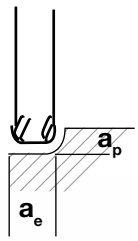
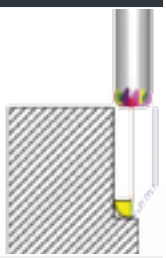
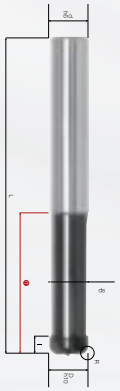
PARAMETRI TECNICI
TECHNICAL PARAMETERS

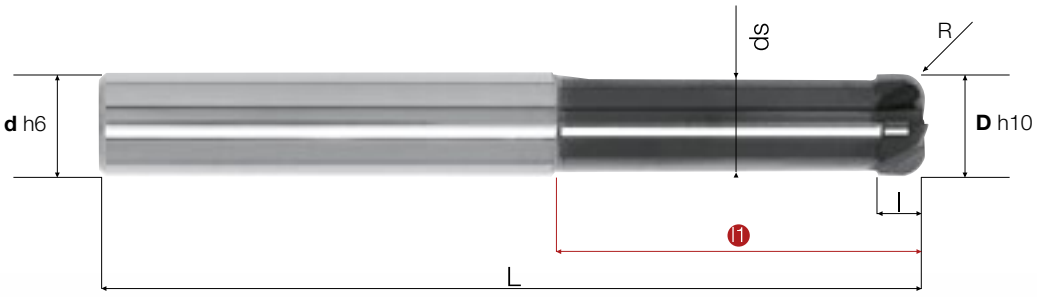
TORUS 86110

Materiali - Materials		Semifinitura Semi-finishing ap = 0,15R ae = 0,4ø	Semifinitura Semi-finishing ap = 0,1R ae = 0,35ø	Semifinitura Semi-finishing ap = 0,1R ae = 0,3ø	Semifinitura Semi-finishing ap = 0,075R ae = 0,3ø	Semifinitura Semi-finishing ap = 0,05R ae = 0,3ø	Penetrazione assiale Plunge milling
							
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	150 - 160	160 - 170	160 - 170	170 - 180	190 - 200	100 - 120
Acciaio *Steel*	Basso contenuto di C Low carbon content	150 - 160	160 - 170	160 - 170	170 - 180	190 - 200	110 - 130
	Medio contenuto di C Medium carbon content	150 - 160	160 - 170	160 - 170	170 - 180	190 - 200	110 - 130
	Basso legato Low alloyed	140 - 150	150 - 160	150 - 160	160 - 170	170 - 180	110 - 130
	Alto legato High alloyed	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	100 - 120
	Acciaio da stampi e utensili Die/tool steel	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	80 - 100
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304	–	–	60 - 70	65 - 75	70 - 80	60 - 80
	AISI 316	–	–	60 - 70	65 - 75	70 - 80	60 - 80
	17-4 PH 15-5 PH	–	–	60 - 70	65 - 75	70 - 80	40 - 60
	Leghe Cr - Co Cr - Co alloys	–	–	50 - 60	55 - 65	60 - 70	40 - 60
	Duplex F51	–	–	50 - 60	55 - 65	60 - 70	30 - 50
	Super Duplex F55	–	–	45 - 55	50 - 60	55 - 65	30 - 50
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	–	–	–	100 - 110	80 - 90	30 - 50
	> 54 HRC	–	–	–	–	50 - 70	20 - 30
HRSA	HRSA Hastelloy	–	–	–	–	–	30 - 50
	HRSA Inconel 625						
	HRSA Inconel 718						
	HRSA Nimonic						
Ti	Titanio - Titanium	–	–	–	–	–	30 - 50
	Leghe di titanio Titanium alloys						

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	R	fz	fz	fz	fz	fz	f mm/giro - mm/rev. plunge milling
	4	1	0,20	0,15	0,20	0,16	0,10	0,05 - 0,06
	5	1,2	0,25	0,22	0,25	0,20	0,15	0,055 - 0,06
	6	1,5	0,28	0,27	0,30	0,25	0,17	0,06 - 0,065
	8	2	0,30	0,35	0,35	0,35	0,21	0,07 - 0,08
	10	2	0,50	0,45	0,45	0,45	0,30	0,09 - 0,1
	12	3	0,60	0,50	0,50	0,50	0,32	0,13 - 0,15

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$



cod.	D h10	ds	l1	l	L	R	dh6	Z	SKIN plus UOP COATING
861100400	4	3,6	12	1,6	50	1	6	4	KMX
861100500	5	4,5	15	2	50	1,2	6	4	KMX
861100600	6	5,4	21	2,5	57	1,5	6	4	KMX
861100800	8	7,2	28	3,5	63	2	8	4	KMX
861101000	10	9,2	35	4	72	2	10	4	KMX
861101200	12	11	42	5	83	3	12	4	KMX

TORUS

86110

Z4
TORIC CUTTERS

Frese 'TORUS'
'TORUS' end mills
Fräser 'TORUS'
Fraises 'TORUS'
Fresas 'TORUS'

SKIN plus
UOP COATING

Standard UOP

H

W a richiesta ON REQUEST

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
TORUS 86110	◪	◪	●	●	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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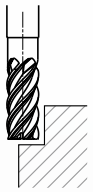
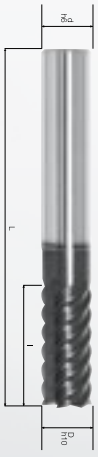
MADE IN ITALY

87105
87120

Materiali - Materials		Contornatura Shouldering ap = 1,5ø ae = 0,1 - 0,05ø
		
	Gruppo e descrizione Group and description	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	170 - 180
Acciaio Steel	Alto legato High alloyed	140 - 150
	Acciaio da stampi e utensili Die/tool steel	130 - 140
Acciai temprati HARDENED STEELS	≤ 54 HRC	60 - 70
	> 54 HRC	30 - 40

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	4	0,012
	5	0,014
	6	0,016
	8	0,028
	10	0,035
	12	0,038
	14	0,040
	16	0,045
	18	0,050
	20	0,055
	25	0,045

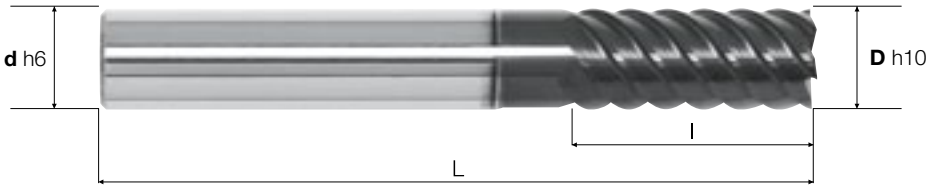
series **87120** **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -50%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3,14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

example code:

series	ø	coated
87105	0400	KMX
87120	0400	KMX



cod.	D h10	l	L	dh6	Z	SKIN plus UOP COATING
871050400	4	11	57	6	4	KMX
871050500	5	13	57	6	4	KMX
871050600	6	13	57	6	4	KMX
871050800	8	19	63	8	6	KMX
871051000	10	22	72	10	6	KMX
871051200	12	26	83	12	6	KMX
871051400	14	26	83	14	8	KMX
871051600	16	32	92	16	8	KMX
871051800	18	32	92	18	8	KMX
871052000	20	38	104	20	8	KMX
871052500	25	45	125	25	8	KMX

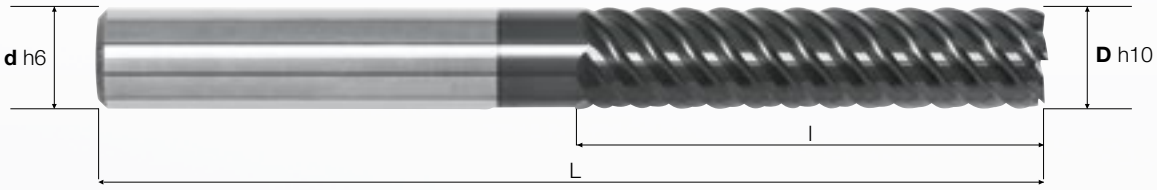
SHARK

UNI DIN 6527 ISO

Z 4 | Z 6 | Z 8

87105

Frese 'SHARK'
'SHARK' end mills
Fräser 'SHARK'
Fraises 'SHARK'
Fresas 'SHARK'



cod.	D h10	l	L	dh6	Z	SKIN plus UOP COATING
871200400	4	19	63	6	4	KMX
871200500	5	24	68	6	4	KMX
871200600	6	24	68	6	4	KMX
871200800	8	38	88	8	6	KMX
871201000	10	45	95	10	6	KMX
871201200	12	53	110	12	6	KMX
871201400	14	53	110	14	8	KMX
871201600	16	63	123	16	8	KMX
871201800	18	63	123	18	8	KMX
871202000	20	75	141	20	8	KMX
871202500	25	90	160	25	8	KMX

SHARK

Standard UOP

Z 4 | Z 6 | Z 8

87120

SKIN plus UOP COATING

H | λ°s 55 | W a richiesta ON REQUEST

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
SHARK 87105	○	○	●	●	○	○	○	○	◪	●
SHARK 87120	○	○	●	●	○	○	○	○	◪	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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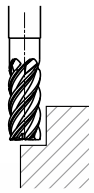
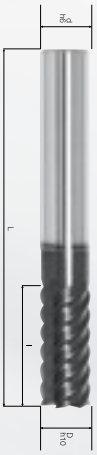
MADE IN ITALY

88105
88120
88130

Materiali - Materials		Contornatura Shouldering ap = 1,5ø ae = 0,1 - 0,05ø
		
	Gruppo e descrizione Group and description	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	170 - 180
Acciaio Steel	Basso contenuto di C Low carbon content	170 - 180
	Medio contenuto di C Medium carbon content	170 - 180
	Basso legato Low alloyed	160 - 170
	Alto legato High alloyed	140 - 150
	Acciaio da stampi e utensili Die/tool steel	130 - 140
Acciai temprati HARDENED STEELS	≤ 54 HRC	60 - 70
HRSA	HRSA Hastelloy	50 - 60
	HRSA Inconel 625	
	HRSA Inconel 718	
	HRSA Nimonic	
Ti	Titanio - Titanium	80 - 90
	Leghe di titanio Titanium alloys	

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	4	0,012
	5	0,014
	6	0,016
	8	0,028
	10	0,035
	12	0,038
	14	0,040
	16	0,045
	18	0,050
	20	0,055
	25	0,045

series **88120** **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -50%

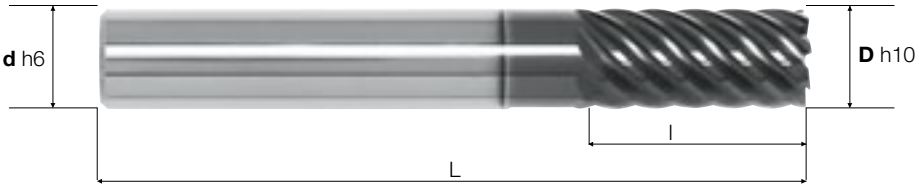
series **88130** **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -50%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$$n = \frac{Vc \times 1000}{3{,}14 \times ø} \qquad Vf = fz \times n \times z \qquad Q = \frac{a_p \times a_e \times Vf}{1000}$$

example code:

series	ø	coated
88105	0400	KMX
88120	0400	KMX
88130	1200	KMX



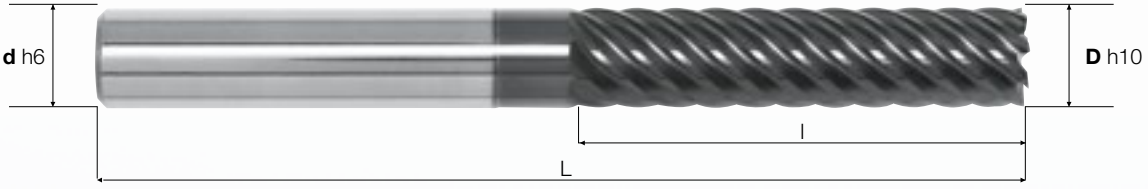
Z 6 Z 8 Z 10 Z 12 Z 16

SHINE 88105

Frese 'SHINE'
'SHINE' end mills
Fräser 'SHINE'
Fraises 'SHINE'
Fresas 'SHINE'

UNI DIN 6527 ISO

cod.	D h10	l	L	dh6	Z	SKIN Plus UOP COATING
881050400	4	11	57	6	6	KMX
881050500	5	13	57	6	6	KMX
881050600	6	13	57	6	6	KMX
881050800	8	19	63	8	6	KMX
881051000	10	22	72	10	8	KMX
881051200	12	26	83	12	8	KMX
881051400	14	26	83	14	10	KMX
881051600	16	32	92	16	10	KMX
881051800	18	32	92	18	12	KMX
881052000	20	38	104	20	12	KMX
881052500	25	45	125	25	16	KMX

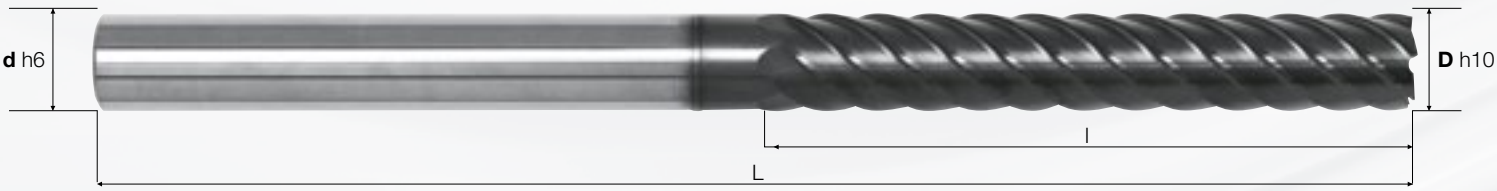


Standard UOP

SHINE 88120

Z 6 Z 8 Z 10 Z 12 Z 16

cod.	D h10	l	L	dh6	Z	SKIN Plus UOP COATING
881200400	4	19	63	6	6	KMX
881200500	5	24	68	6	6	KMX
881200600	6	24	68	6	6	KMX
881200800	8	38	88	8	6	KMX
881201000	10	45	95	10	8	KMX
881201200	12	53	110	12	8	KMX
881201400	14	53	110	14	10	KMX
881201600	16	63	123	16	10	KMX
881201800	18	63	123	18	12	KMX
881202000	20	75	141	20	12	KMX
881202500	25	90	160	25	16	KMX



Standard UOP

SHINE 88130

Z 6 Z 8

H | λ°s 45 | W a richiesta ON REQUEST

SKIN Plus UOP COATING

cod.	D h10	l	L	dh6	Z	SKIN Plus UOP COATING
881301200	12	75	160	12	6	KMX
881301400	14	75	160	14	8	KMX
881301600	16	85	165	16	8	KMX
881301800	18	85	165	18	8	KMX
881302000	20	130	200	20	8	KMX
881302500	25	130	210	25	8	KMX

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
SHINE 88105	◪	◪	●	○	◪	○	○	○	●	●
SHINE 88120	◪	◪	●	○	◪	○	○	○	●	●
SHINE 88130	◪	◪	●	○	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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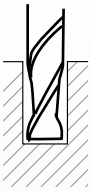
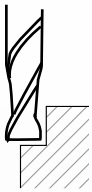
MADE IN ITALY

89100

Materiali - Materials		Cava Slotting ap = 0,1ø	Contornatura Shouldering ap = 1,5ø ae = 0,3ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	300 - 350	450 - 500
	Alluminio Si < 6% si < 6% aluminium	250 - 300	400 - 450
	Materiali termoplastici Thermoplastic materials	250 - 300	300 - 400
	Rame/Ottone Copper/Brass	200 - 250	300 - 350

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	4	0,020	0,025
	5	0,030	0,035
	6	0,040	0,045
	8	0,045	0,050
	10	0,050	0,055
	12	0,055	0,060
	16	0,060	0,065
	20	0,070	0,070

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

- $n = \frac{Vc \times 1000}{3,14 \times ø}$
- $Vf = fz \times n \times z$
- $Q = \frac{a_p \times a_e \times Vf}{1000}$

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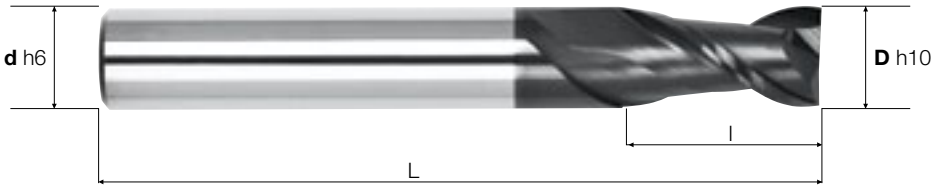

cod.	D h10	l	L	dh6	Z	SKIN plus UOP COATING
891000200	2	6	38	3	2	KMX
891000300	3	7	57	6	2	KMX
891000400	4	8	57	6	2	KMX
891000500	5	10	57	6	2	KMX
891000600	6	10	57	6	2	KMX
891000700	7	13	63	8	2	KMX
891000800	8	16	63	8	2	KMX
891000900	9	16	72	10	2	KMX
891001000	10	19	72	10	2	KMX
891001200	12	22	83	12	2	KMX
891001400	14	22	83	14	2	KMX
891001600	16	26	92	16	2	KMX
891001800	18	26	92	18	2	KMX
891002000	20	32	104	20	2	KMX

89100

Z2

Frese a due taglienti a testa piana
Two flute end mills
Schaftfräser Zweischneiden
Fraises deux dents
Fresas de dos labios

SKIN plus UOP COATING

UNI DIN 6527 ISO

W

λ°s 40

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89100	◪	◪	○	○	◪	●	●	○	◪	○

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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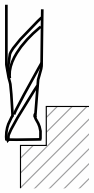
MADE IN ITALY

89105

Materiali - Materials		Cava Slotting ap = 0,02 - 0,03ø	Contornatura Shouldering ap = 1ø ae = 0,015ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	100 - 110	130 - 140
Acciaio Steel	Basso contenuto di C Low carbon content	100 - 110	120 - 130
	Medio contenuto di C Medium carbon content	100 - 110	120 - 130
	Basso legato Low alloyed	90 - 100	100 - 110
	Alto legato High alloyed	80 - 90	90 - 100
	Acciaio da stampi e utensili Die/tool steel	70 - 80	80 - 90
Acciai temprati HARDENED STEELS	≤ 54 HRC	70 - 80	80 - 90
	> 54 HRC	60 - 70	70 - 80

AVANZAMENTO fz mm/tagliente FEED mm/tooth D	fz	fz
4	0,007	0,010
5	0,010	0,013
6	0,012	0,017
8	0,015	0,020
10	0,020	0,025
12	0,025	0,028
16	0,030	0,034
20	0,035	0,040

esecuzione **extralunga** | ***EXTRA LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3,14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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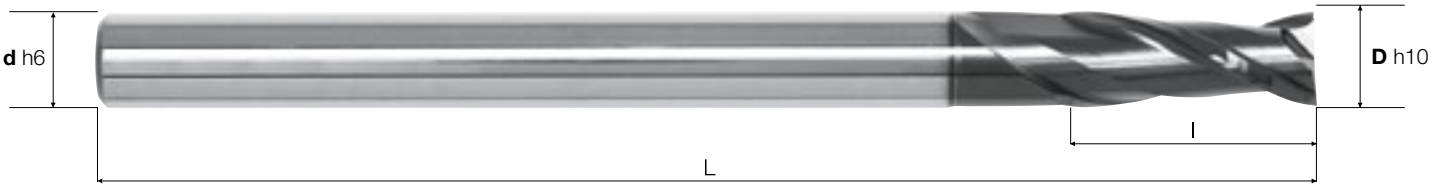

cod.	D h10	l	L	dh6	Z	SKIN plus UOP COATING
891050401	4	8	100	4	2	KMX
891050400	4	16	150	4	2	KMX
891050601	6	10	100	6	2	KMX
891050600	6	16	150	6	2	KMX
891050801	8	14	100	8	2	KMX
891050800	8	20	150	8	2	KMX
891051001	10	18	100	10	2	KMX
891051000	10	25	150	10	2	KMX
891051202	12	22	100	12	2	KMX
891051200	12	30	150	12	2	KMX
891051201	12	30	200	12	2	KMX
891051600	16	32	150	16	2	KMX
891051601	16	32	200	16	2	KMX
891052000	20	40	150	20	2	KMX
891052001	20	40	200	20	2	KMX

89105

Z2

Frese a due taglienti a testa piana
Two flute end mills
Schaftfräser Zweischneiden
Fraises deux dents
Fresas de dos labios

SKIN plus UOP COATING

Standard UOP

H

λ°s 32

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89105	◪	◪	◪	◪	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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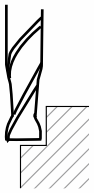
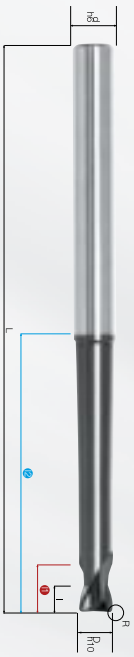
MADE IN ITALY

89110

Materiali - Materials		Cava Slotting ap = 0,02 - 0,03ø	Contornatura Shouldering ap = 1ø ae = 0,015ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	100 - 110	130 - 140
Acciaio Steel	Basso contenuto di C Low carbon content	100 - 110	120 - 130
	Medio contenuto di C Medium carbon content	100 - 110	120 - 130
	Basso legato Low alloyed	90 - 100	100 - 110
	Alto legato High alloyed	80 - 90	90 - 100
	Acciaio da stampi e utensili Die/tool steel	70 - 80	80 - 90
Acciai temprati HARDENED STEELS	≤ 54 HRC	70 - 80	80 - 90
	> 54 HRC	60 - 70	70 - 80

AVANZAMENTO fz mm/tagliente FEED mm/tooth D	fz	fz
4	0,008	0,011
5	0,010	0,013
6	0,012	0,017
8	0,015	0,020
10	0,020	0,025
12	0,025	0,028
16	0,030	0,034
20	0,035	0,040



esecuzione **extralunga** | ***EXTRA LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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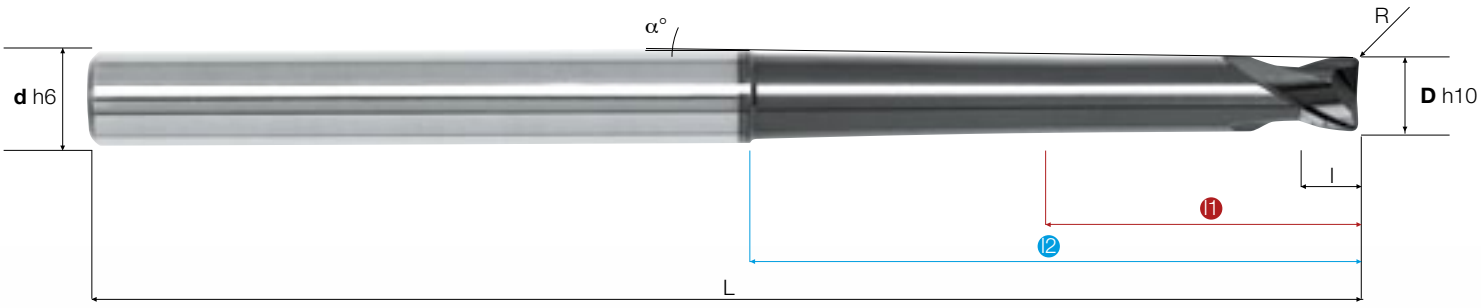

cod.	D h10	l	l1	l2	L	R	α°	dh6	Z	SKINplus UOP COATING
891100100	1	2	4	40	80	0,25	1°30'	6	2	KMX
891100200	2	2	8	40	80	0,5	1°30'	6	2	KMX
891100300	3	2	12	40	80	0,5	1°30'	6	2	KMX
891100400	4	3	16	40	80	0,5	1°30'	6	2	KMX
891100510	5	3	20	40	80	1	1°	6	2	KMX
891100610	6	4			80	1	–	6	2	KMX
891100611	6	4	25	50	100	1	2°	6	2	KMX
891100810	8	4			100	1	–	8	2	KMX
891100811	8	4	32	60	120	1	1°30'	10	2	KMX
891101010	10	6			120	1	–	10	2	KMX
891101015	10	6			120	1,5	–	10	2	KMX
891101011	10	6	40	80	160	1	1°	12	2	KMX
891101016	10	6	40	80	160	1,5	1°	12	2	KMX
891101210	12	8			160	1	–	12	2	KMX
891101220	12	8			160	2	–	12	2	KMX
891101211	12	8	50	100	200	1	1°30'	16	2	KMX
891101221	12	8	50	100	200	2	1°30'	16	2	KMX
891101625	16	8			200	2,5	–	16	2	KMX
891101650	16	8			200	5	–	16	2	KMX

89110

Z2
TORIC CUTTERS

Frese toroidali a due taglienti
Two flute toric cutters
Torusfräser Zweischneider
Fraises toriques deux dents
Fresas toricas de dos labios

SKINplus
UOP COATING

Standard UOP

H

λ°s 32

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89110	○	○	◪	◪	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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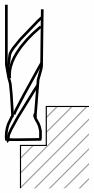
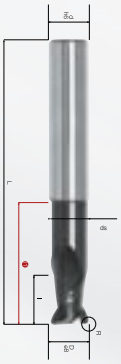
MADE IN ITALY

89115

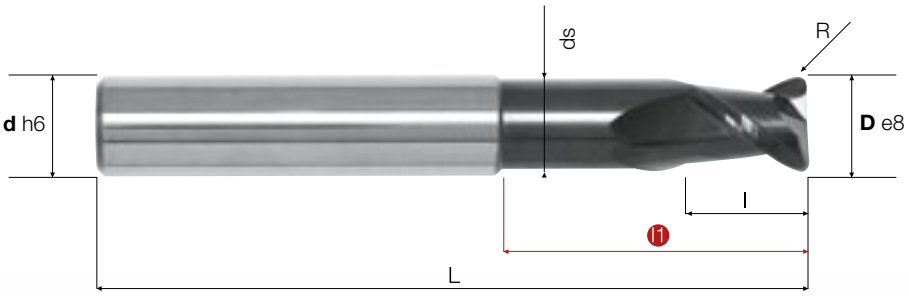
Materiali - Materials		Cava Slotting ap = 0,02 - 0,03ø	Contornatura Shouldering ap = 1ø ae = 0,015ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	150 - 160	170 - 180
Acciaio Steel	Basso contenuto di C Low carbon content	150 - 160	170 - 180
	Medio contenuto di C Medium carbon content	150 - 160	170 - 180
	Basso legato Low alloyed	140 - 150	160 - 170
	Alto legato High alloyed	130 - 140	150 - 160
	Acciaio da stampi e utensili Die/tool steel	100 - 110	120 - 130
Acciai temprati HARDENED STEELS	≤ 54 HRC	90 - 100	110 - 120
	≤ 54 HRC	80 - 90	100 - 110

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	4	0,008	0,011
	5	0,010	0,013
	6	0,012	0,017
	8	0,015	0,020
	10	0,020	0,025
	12	0,025	0,028
	16	0,030	0,034
	20	0,035	0,040

esecuzione **extralunga** | ***EXTRA LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

- $n = \frac{Vc \times 1000}{3,14 \times ø}$
- $Vf = fz \times n \times z$
- $Q = \frac{a_p \times a_e \times Vf}{1000}$



cod.	D e8	ds	l	l1	L	R	dh6	Z	SKIN plus UOP COATING
891150300	3	2,8	4	9	57	0,5	6	2	KMX
891150400	4	3,7	5	12	57	0,5	6	2	KMX
891150500	5	4,6	6	15	57	0,5	6	2	KMX
891150600	6	5,5	7	20	57	1	6	2	KMX
891150601	6	5,5	7	33	70	1	6	2	KMX
891150800	8	7,4	9	26	63	1	8	2	KMX
891150801	8	7,4	9	43	80	1	8	2	KMX
891151000	10	9,2	11	31	72	1,5	10	2	KMX
891151001	10	9,2	11	43	84	1,5	10	2	KMX
891151200	12	11	12	37	83	1,5	12	2	KMX
891151201	12	11	12	51	97	1,5	12	2	KMX
891151600	16	15	16	43	92	2	16	2	KMX
891151601	16	15	16	71	120	2	16	2	KMX
891152000	20	19	20	53	104	2	20	2	KMX
891152001	20	19	20	79	130	2	20	2	KMX
891152500	25	24	25	64	121	2,5	25	2	KMX
891152501	25	24	25	93	150	2,5	25	2	KMX

89115

Z2
TORIC CUTTERS

Frese toroidali a due taglienti
Two flute toric cutters
Torusfräser Zweischneider
Fraises toriques deux dents
Fresas toricas de dos labios

SKIN plus
UOP COATING

Standard UOP

H

λ°s
25

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89115	○	○	◪	◪	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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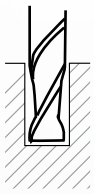
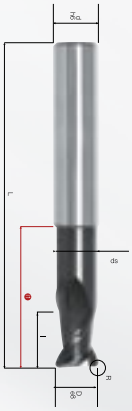
MADE IN ITALY

89120

Materiali - Materials		Cava Slotting ap = 0,1ø	Contornatura Shouldering ap = 1,5ø ae = 0,3ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	300 - 350	450 - 500
	Alluminio Si < 6% si < 6% aluminium	250 - 300	400 - 450
	Materiali termoplastici Thermoplastic materials	250 - 300	300 - 400
	Rame/Ottone Copper/Brass	200 - 250	300 - 350

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	4	0,022	0,027
	5	0,033	0,038
	6	0,045	0,050
	8	0,050	0,055
	10	0,055	0,060
	12	0,060	0,065
	16	0,065	0,070
	20	0,070	0,075
	25	0,075	0,080

esecuzione **extralunga** | ***EXTRA LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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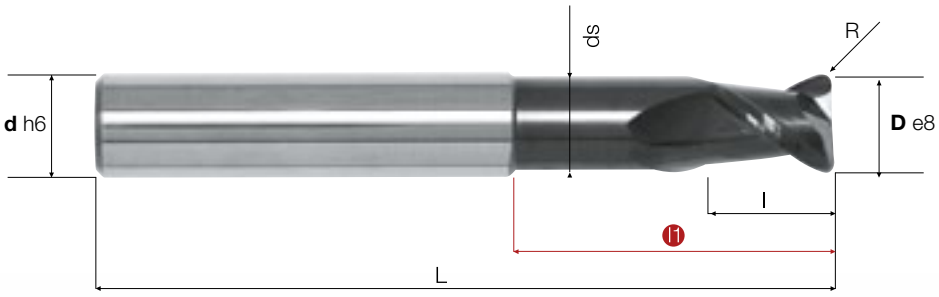

cod.	D e8	ds	l	l1	L	R	dh6	Z	SKIN plus UOP COATING
891200300	3	2,8	4	9	57	0,5	6	2	KMX
891200400	4	3,7	5	12	57	0,5	6	2	KMX
891200500	5	4,6	6	15	57	0,5	6	2	KMX
891200600	6	5,5	7	20	57	1	6	2	KMX
891200601	6	5,5	7	33	70	1	6	2	KMX
891200800	8	7,4	9	26	63	1	8	2	KMX
891200801	8	7,4	9	43	80	1	8	2	KMX
891201000	10	9,2	11	31	72	1,5	10	2	KMX
891201001	10	9,2	11	43	84	1,5	10	2	KMX
891201200	12	11	12	37	83	1,5	12	2	KMX
891201201	12	11	12	51	97	1,5	12	2	KMX
891201600	16	15	16	43	92	2	16	2	KMX
891201601	16	15	16	71	120	2	16	2	KMX
891202000	20	19	20	53	104	2	20	2	KMX
891202001	20	19	20	79	130	2	20	2	KMX
891202500	25	24	25	64	121	2,5	25	2	KMX
891202501	25	24	25	93	150	2,5	25	2	KMX

89120

Z2
TORIC CUTTERS

Frese toroidali a due taglienti
Two flute toric cutters
Torusfräser Zweischneider
Fraises toriques deux dents
Fresas toricas de dos labios

SKIN plus
UOP COATING

UNI
DIN 6527
ISO

W

W
a richiesta
ON REQUEST

λ°s
40

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89120	○	○	○	○	○	●	●	○	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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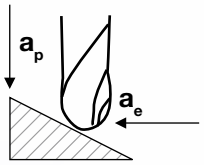
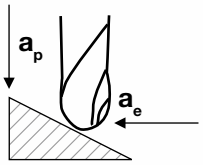
89125

Materiali - Materials		Semifinitura Semi-finishing ap = 0,1ø ae = 0,1ø	Finitura Finishing ap = 0,01ø ae = 0,01ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	110 - 120	150 - 170
Acciaio Steel	Basso contenuto di C Low carbon content	130 - 140	170 - 180
	Medio contenuto di C Medium carbon content	120 - 130	160 - 180
	Basso legato Low alloyed	120 - 130	160 - 180
	Alto legato High alloyed	100 - 110	140 - 150
	Acciaio da stampi e utensili Die/tool steel	90 - 100	130 - 150
Acciai temprati HARDENED STEELS	≤ 54 HRC	70 - 20	100 - 110
	> 54 HRC	60 - 70	80 - 90

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	1	0,002	0,0025
	2	0,004	0,0045
	3	0,006	0,0065
	4	0,010	0,0120
	5	0,015	0,0170
	6	0,018	0,0200
	8	0,022	0,0240
	10	0,025	0,0270
	12	0,027	0,0290
	16	0,030	0,0320
	20	0,035	0,0370

esecuzione **extralunga** | ***EXTRA LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3,14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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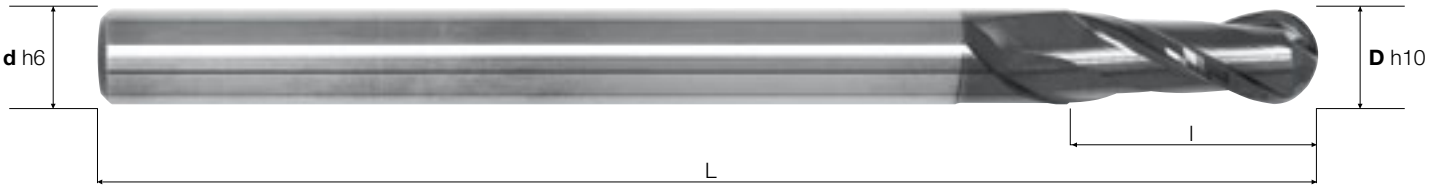
MADE IN ITALY



cod.	D h10	l	L	dh6	Z	SKIN plus UOP COATING
891250401	4	8	100	4	2	KMX
891250400	4	16	150	4	2	KMX
891250601	6	10	100	6	2	KMX
891250600	6	16	150	6	2	KMX
891250801	8	14	100	8	2	KMX
891250800	8	20	150	8	2	KMX
891251001	10	18	100	10	2	KMX
891251000	10	25	150	10	2	KMX
891251202	12	22	100	12	2	KMX
891251200	12	30	150	12	2	KMX
891251201	12	30	200	12	2	KMX
891251600	16	32	150	16	2	KMX
891251601	16	32	200	16	2	KMX
891252000	20	40	150	20	2	KMX
891252001	20	40	200	20	2	KMX

89125

Z 2
BALL-NOSED CUTTERS

Frese a due taglienti a testa semisferica
Ball-nosed two flute end mills
Halbrundkopffräser Zweischneider
Fraises deux tailles deux dents à bout hémisphérique
Fresas hemisféricas de dos labios

SKIN plus UOP COATING

Standard UOP

H

λ°s 32

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89125	○	○	◪	◪	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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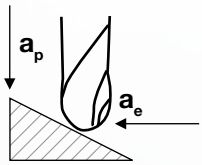
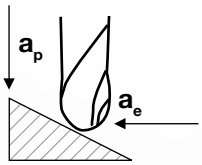
MADE IN ITALY

89135

Materiali - Materials		Semifinitura Semi-finishing ap = 0,1ø ae = 0,1ø	Finitura Finishing ap = 0,01ø ae = 0,01ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	150 - 160	280 - 300
Acciaio *Steel*	Basso contenuto di C Low carbon content	140 - 150	260 - 280
	Medio contenuto di C Medium carbon content	140 - 150	260 - 280
	Basso legato Low alloyed	130 - 150	260 - 280
	Alto legato High alloyed	120 - 140	230 - 250
	Acciaio da stampi e utensili Die/tool steel	110 - 120	200 - 220
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	80 - 90	150 - 160
	> 54 HRC	70 - 80	120 - 130

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	1	0,002	0,008
	2	0,003	0,013
	3	0,005	0,015
	4	0,010	0,020
	5	0,015	0,025
	6	0,020	0,030
	8	0,025	0,035
	10	0,030	0,040
	12	0,035	0,045
	16	0,040	0,050
	20	0,045	0,055

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$$n = \frac{Vc \times 1000}{3{,}14 \times ø} \qquad Vf = fz \times n \times z \qquad Q = \frac{a_p \times a_e \times Vf}{1000}$$

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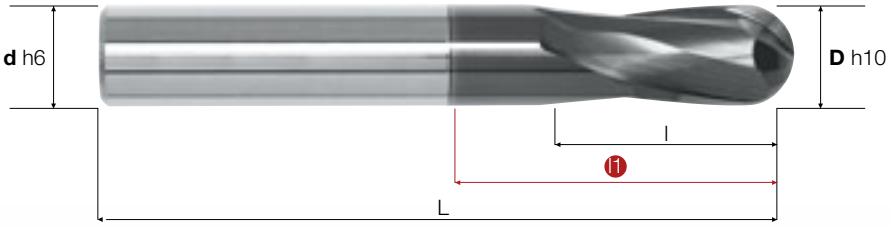

cod.	Dh10	l	l1	L	Rf8	dh6	Z	SKIN plus UOP COATING
891350100	1	2,5	4	50	0,5	4	2	KMX
891350150	1,5	2,5	4	50	0,75	4	2	KMX
891350200	2	3	4	50	1	6	2	KMX
891350250	2,5	3	4	50	1,25	6	2	KMX
891350300	3	5	7	60	1,5	6	2	KMX
891350400	4	6	8	70	2	6	2	KMX
891350500	5	8	10	80	2,5	6	2	KMX
891350600	6	9		90	3	6	2	KMX
891350700	7	11	13	100	3,5	8	2	KMX
891350800	8	12		100	4	8	2	KMX
891351000	10	15		100	5	10	2	KMX
891351200	12	18		110	6	12	2	KMX
891351600	16	24		140	8	16	2	KMX
891352000	20	30		160	10	20	2	KMX

89135

Z 2
BALL-NOSED CUTTERS

Frese a due taglienti a testa semisferica
Ball-nosed two flute end mills
Halbrundkopffräser Zweischneider
Fraises deux tailles deux dents à bout hémisphérique
Fresas hemisféricas de dos labios

SKIN plus UOP COATING

Standard UOP

H

λ°s 15

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89135	○	○	●	●	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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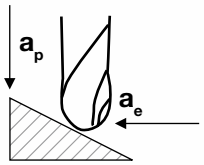
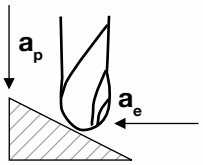
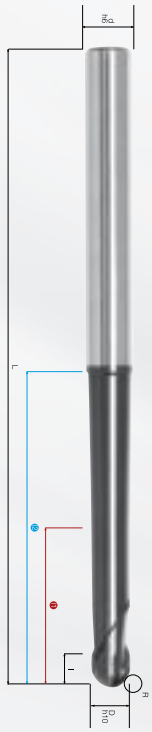
MADE IN ITALY

89140

Materiali - Materials		Semifinitura Semi-finishing ap = 0,1ø ae = 0,1ø	Finitura Finishing ap = 0,01ø ae = 0,01ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	110 - 120	150 - 170
Acciaio Steel	Basso contenuto di C Low carbon content	130 - 140	170 - 180
	Medio contenuto di C Medium carbon content	120 - 130	160 - 180
	Basso legato Low alloyed	120 - 130	160 - 180
	Alto legato High alloyed	100 - 110	140 - 150
	Acciaio da stampi e utensili Die/tool steel	90 - 100	130 - 150
Acciai temprati HARDENED STEELS	≤ 54 HRC	70 - 80	100 - 110
	> 54 HRC	60 - 70	80 - 90

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	1	0,002	0,0025
	2	0,004	0,0045
	3	0,006	0,0065
	4	0,010	0,0120
	5	0,015	0,0170
	6	0,018	0,0200
	8	0,022	0,0240
	10	0,025	0,0270
	12	0,027	0,0300

esecuzione **extralunga** | ***EXTRA LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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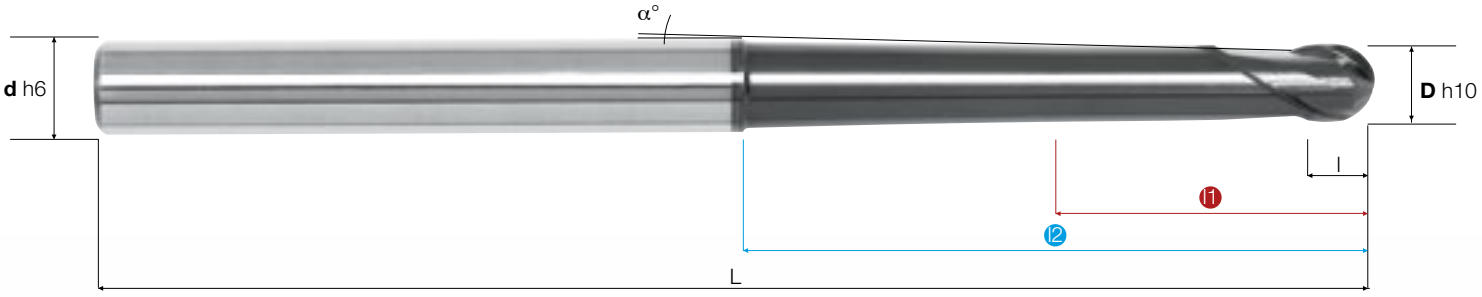

cod.	D h10	l	l1	l2	L	R	α°	dh6	Z	SKIN plus UOP COATING
891400100	1	2	4	40	80	0,5	1°30'	6	2	KMX
891400200	2	3	8	40	80	1	1°30'	6	2	KMX
891400300	3	4	12	40	80	1,5	1°30'	6	2	KMX
891400400	4	5	16	40	80	2	1°30'	6	2	KMX
891400500	5	6	20	40	80	2,5	1°	6	2	KMX
891400600	6	6			80	3	–	6	2	KMX
891400601	6	6	25	50	100	3	1°30'	8	2	KMX
891400800	8	7			100	4	–	8	2	KMX
891400801	8	7	32	60	120	4	1°30'	10	2	KMX
891401000	10	9			120	5	–	10	2	KMX
891401001	10	9	40	80	160	5	1°	12	2	KMX
891401200	12	11	50	100	200	6	1°30'	16	2	KMX

89140

Z 2
BALL-NOSED CUTTERS

Frese a due taglienti a testa semisferica
Ball-nosed two flute end mills
Halbrundkopffräser Zweischneider
Fraises deux tailles deux dents à bout hémisphérique
Fresas hemisféricas de dos labios

SKIN plus UOP COATING

Standard UOP

H

λ°s 32

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89140	○	○	◪	◪	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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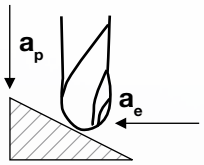
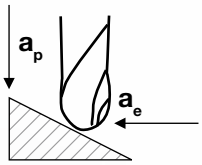
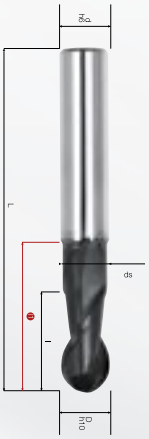
MADE IN ITALY

89145

Materiali - Materials		Semifinitura Semi-finishing ap = 0,1ø ae = 0,1ø	Finitura Finishing ap = 0,05ø ae = 0,01ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	300 - 350	450 - 500
	Alluminio Si < 6% si < 6% aluminium	250 - 300	400 - 450
	Materiali termoplastici Thermoplastic materials	250 - 300	300 - 400
	Rame/Ottone Copper/Brass	200 - 250	300 - 350

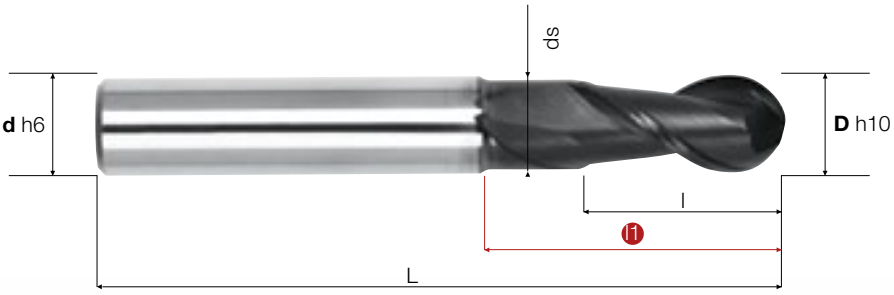
AVANZAMENTO fz mm/tagliente FEED mm/tooth D	fz	fz
2	0,010	0,012
3	0,015	0,017
4	0,020	0,023
5	0,030	0,034
6	0,040	0,045
8	0,045	0,050
10	0,050	0,055
12	0,055	0,060
16	0,060	0,065
20	0,065	0,070
25	0,070	0,075



esecuzione **extralunga** | ***EXTRA LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$



cod.	D h10	ds	l	l1	L	Rf8	dh6	Z	SKIN plus UOP COATING
891450200	2	1,8	4	6	57	1	6	2	KMX
891450300	3	2,8	6	9	57	1,5	6	2	KMX
891450301	3	2,8	6	9	75	1,5	6	2	KMX
891450400	4	3,7	8	12	57	2	6	2	KMX
891450401	4	3,7	8	12	75	2	6	2	KMX
891450500	5	4,6	10	15	57	2,5	6	2	KMX
891450501	5	4,6	10	15	80	2,5	6	2	KMX
891450600	6	5,5	12	20	57	3	6	2	KMX
891450601	6	5,5	12	20	80	3	6	2	KMX
891450800	8	7,4	16	26	63	4	8	2	KMX
891450801	8	7,4	16	26	90	4	8	2	KMX
891451000	10	9,2	20	31	72	5	10	2	KMX
891451001	10	9,2	20	31	100	5	10	2	KMX
891451200	12	11	24	37	83	6	12	2	KMX
891451201	12	11	24	37	120	6	12	2	KMX
891451600	16	15	32	43	92	8	16	2	KMX
891451601	16	15	32	43	140	8	16	2	KMX
891452000	20	19	40	53	104	10	20	2	KMX
891452001	20	19	40	53	150	10	20	2	KMX
891452500	25	24	45	64	121	12,5	25	2	KMX
891452501	25	24	45	64	160	12,5	25	2	KMX

89145

Z 2
BALL-NOSED CUTTERS

Frese a due taglienti a testa semisferica
Ball-nosed two flute end mills
Halbrundkopffräser Zweischneider
Fraises deux tailles deux dents à bout hémisphérique
Fresas hemisféricas de dos labios

SKIN plus
UOP COATING

Standard UOP

W

W
a richiesta
ON REQUEST

λ°s
40

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89140	○	○	○	○	○	●	●	○	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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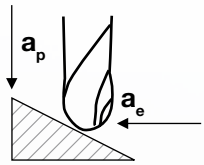
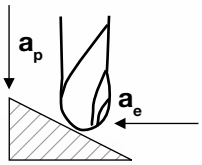
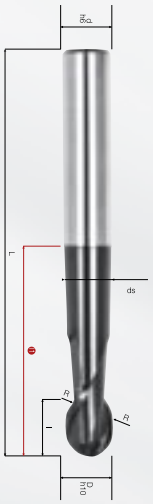
89150

Materiali - Materials		Semifinitura Semi-finishing ap = 0,1ø ae = 0,1ø	Finitura Finishing ap = 0,05ø ae = 0,05ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	110 - 120	150 - 170
Acciaio *Steel*	Basso contenuto di C Low carbon content	130 - 140	170 - 180
	Medio contenuto di C Medium carbon content	120 - 130	160 - 180
	Basso legato Low alloyed	120 - 130	160 - 180
	Alto legato High alloyed	100 - 110	140 - 150
	Acciaio da stampi e utensili Die/tool steel	90 - 100	130 - 150
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	70 - 80	100 - 110

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	3	0,008	0,010
	4	0,012	0,014
	5	0,018	0,020
	6	0,020	0,022
	8	0,024	0,025
	10	0,028	0,030
	12	0,030	0,033
	16	0,033	0,040

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$$n = \frac{Vc \times 1000}{3{,}14 \times ø} \qquad Vf = fz \times n \times z \qquad Q = \frac{a_p \times a_e \times Vf}{1000}$$

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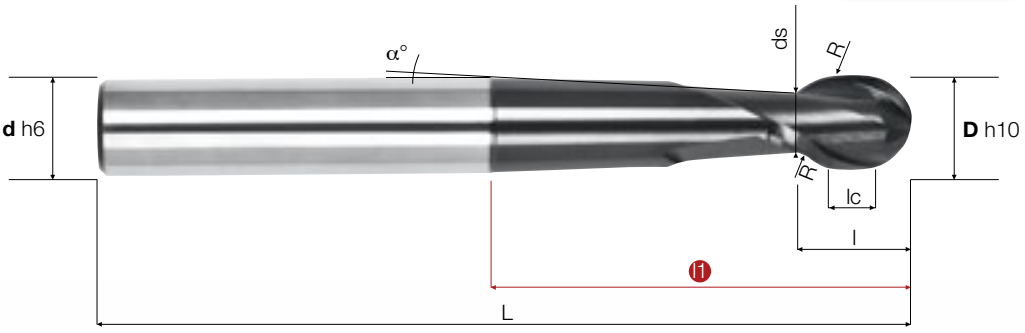

cod.	D h10	ds	l	l1	lc	L	R	α°	dh6	Z	SKINplus UOP COATING
891500300	3	2,5	4	30	1,671	80	1,5	1°30'	6	2	KMX
891500400	4	3,3	5	30	1,870	80	2	1°30'	6	2	KMX
891500500	5	4,1	7	43	3,069	80	2,5	1°	6	2	KMX
891500600	6	4,7	7	30	2,135	100	3	1°	6	2	KMX
891500800	8	6,5	9	36	2,668	100	4	1°	8	2	KMX
891501000	10	8,2	11	43	3,138	100	5	1°	10	2	KMX
891501200	12	9,8	13	52	3,537	100	6	1°30'	12	2	KMX
891501600	16	13,4	15	61	2,629	150	8	1°30'	16	2	KMX

89150

Z 2
BALL-NOSED CUTTERS

Frese a due taglienti a testa semisferica
Ball-nosed two flute end mills
Halbrundkopffräser Zweischneider
Fraises deux tailles deux dents à bout hémisphérique
Fresas hemisféricas de dos labios

SKINplus UOP COATING

Standard UOP

H

λ°s 32

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89150	○	○	●	○	○	○	○	○	◕	◕

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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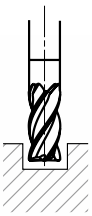
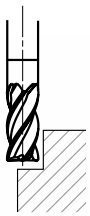
89155

Materiali - Materials		Cava Slotting ap = 0,25ø	Contornatura Shouldering ap = 1ø ae = 0,15ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 100	100 - 110
Acciaio Steel	Basso contenuto di C Low carbon content	80 - 100	100 -110
	Medio contenuto di C Medium carbon content	80 - 100	100 - 110
	Basso legato Low alloyed	70 - 90	90 - 110
	Alto legato High alloyed	70 - 90	90 - 110
	Acciaio da stampi e utensili Die/tool steel	60 - 80	80 - 100
Acciai temprati HARDENED STEELS	≤ 54 HRC	40 - 50	50 - 60
	≤ 54 HRC	35 - 40	40 - 50

AVANZAMENTO fz mm/tagliente FEED mm/tooth D	fz	fz
4	0,010	0,012
5	0,012	0,014
6	0,015	0,018
8	0,020	0,022
10	0,025	0,027
12	0,027	0,030
14	0,030	0,033
16	0,033	0,035
18	0,035	0,038
20	0,040	0,045

esecuzione **lunga** | ***LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3,14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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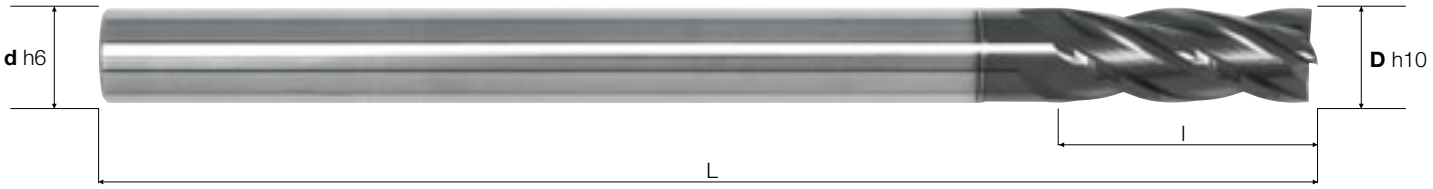
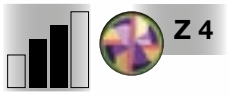


cod.	D h10	l	L	dh6	Z	SKIN plus UOP COATING
891550401	4	8	100	4	4	KMX
891550400	4	16	150	4	4	KMX
891550601	6	10	100	6	4	KMX
891550600	6	16	150	6	4	KMX
891550801	8	14	100	8	4	KMX
891550800	8	20	150	8	4	KMX
891551001	10	18	100	10	4	KMX
891551000	10	25	150	10	4	KMX
891551202	12	22	100	12	4	KMX
891551200	12	30	150	12	4	KMX
891551201	12	30	200	12	4	KMX
891551600	16	32	150	16	4	KMX
891551601	16	32	200	16	4	KMX
891552000	20	40	150	20	4	KMX
891552001	20	40	200	20	4	KMX

89155



Frese a quattro taglienti testa piana
Four flute cutters
Fräser Vierschneider
Fraises quatre dents
Fresa de cuatro labios

SKIN plus UOP COATING

Standard UOP

H

λ°s 32

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89155	○	○	◪	◪	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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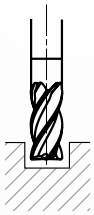
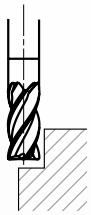
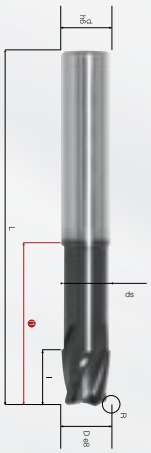
89160

Materiali - Materials		Cava Slotting ap = 0,3ø	Contornatura Shouldering ap = 1ø ae = 0,15ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 100	100 - 110
Acciaio Steel	Basso contenuto di C Low carbon content	80 - 100	100 - 110
	Medio contenuto di C Medium carbon content	80 - 100	100 - 110
	Basso legato Low alloyed	70 - 90	90 - 110
	Alto legato High alloyed	70 - 90	90 - 110
	Acciaio da stampi e utensili Die/tool steel	60 - 80	80 - 100
Acciai temprati HARDENED STEELS	≤ 54 HRC	40 - 50	50 - 60
	≤ 54 HRC	35 - 40	40 - 50

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	4	0,010	0,015
	5	0,015	0,020
	6	0,018	0,025
	8	0,020	0,027
	10	0,025	0,030
	12	0,027	0,033
	14	0,030	0,035
	16	0,035	0,040
	18	0,040	0,045
	20	0,045	0,050
	25	0,050	0,055

esecuzione **extralunga** | ***EXTRA LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

- $n = \frac{Vc \times 1000}{3,14 \times ø}$
- $Vf = fz \times n \times z$
- $Q = \frac{a_p \times a_e \times Vf}{1000}$

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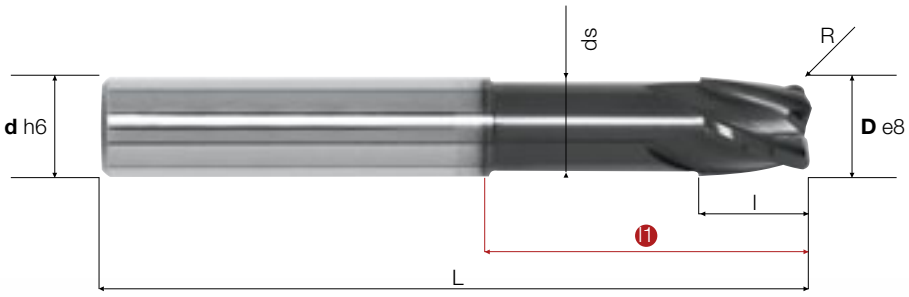

cod.	D e8	ds	l	l1	L	R	dh6	Z	SKIN plus UOP COATING
891600300	3	2,8	4	9	57	0,5	6	4	KMX
891600400	4	3,7	5	12	57	0,5	6	4	KMX
891600500	5	4,6	6	15	57	0,5	6	4	KMX
891600600	6	5,5	7	20	57	1	6	4	KMX
891600601	6	5,5	7	33	70	1	6	4	KMX
891600800	8	7,4	9	26	63	1	8	4	KMX
891600801	8	7,4	9	43	80	1	8	4	KMX
891601000	10	9,2	11	31	72	1,5	10	4	KMX
891601001	10	9,2	11	43	84	1,5	10	4	KMX
891601200	12	11	12	37	83	1,5	12	4	KMX
891601201	12	11	12	51	97	1,5	12	4	KMX
891601600	16	15	16	43	92	2	16	4	KMX
891601601	16	15	16	71	120	2	16	4	KMX
891602000	20	19	20	53	104	2	20	4	KMX
891602001	20	19	20	79	130	2	20	4	KMX
891602500	25	24	25	64	125	2,5	25	4	KMX
891602501	25	24	25	93	150	2,5	25	4	KMX

89160

Z 4
TORIC CUTTERS

Frese toroidali a quattro taglienti
Four flute toric cutters
Torusfräser Vierschneiden
Fraises toriques quatre dents
Fresas toricas de cuatro labios

SKIN plus
UOP COATING

Standard UOP

H

W a richiesta ON REQUEST

λ°s 25

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89160	○	○	◪	◪	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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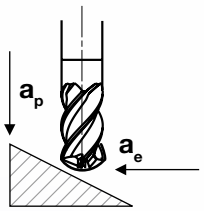
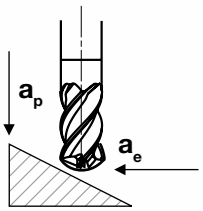
89165

Materiali - Materials		Semifinitura Semi-finishing ap = 0,1ø ae = 0,1ø	Finitura Finishing ap = 0,01ø ae = 0,01ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	110 - 120	150 - 170
Acciaio Steel	Basso contenuto di C Low carbon content	130 - 140	170 - 180
	Medio contenuto di C Medium carbon content	120 - 130	160 - 180
	Basso legato Low alloyed	120 - 130	160 - 180
	Alto legato High alloyed	100 - 110	140 - 150
	Acciaio da stampi e utensili Die/tool steel	90 - 100	130 - 150
Acciai temprati HARDENED STEELS	≤ 54 HRC	70 - 80	100 - 110
	> 54 HRC	60 - 70	80 - 90

AVANZAMENTO fz mm/tagliente FEED mm/tooth D	fz	fz
1	0,002	0,0025
2	0,004	0,0045
3	0,006	0,0065
4	0,010	0,0120
5	0,015	0,0170
6	0,018	0,0200
8	0,022	0,0240
10	0,025	0,0270
12	0,027	0,0230
16	0,030	0,0320
20	0,035	0,0370

esecuzione **extralunga** | ***EXTRA LONG*** *EXECUTION* **Vc** consigliata | *RECOMMENDED* -20%, **fz** consigliato | *RECOMMENDED* -20%

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3,14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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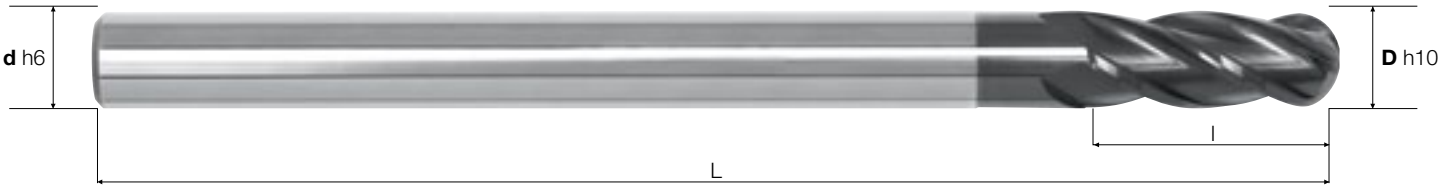

cod.	D h10	l	L	dh6	Z	SKIN plus UOP COATING
891650401	4	8	100	4	4	KMX
891650400	4	16	150	4	4	KMX
891650601	6	10	100	6	4	KMX
891650600	6	16	150	6	4	KMX
891650801	8	14	100	8	4	KMX
891650800	8	20	150	8	4	KMX
891651001	10	18	100	10	4	KMX
891651000	10	25	150	10	4	KMX
891651202	12	22	100	12	4	KMX
891651200	12	30	150	12	4	KMX
891651201	12	30	200	12	4	KMX
891651600	16	32	150	16	4	KMX
891651601	16	32	200	16	4	KMX
891652000	20	40	150	20	4	KMX
891652001	20	40	200	20	4	KMX

89165

Z 4

BALL-NOSED CUTTERS

Frese a quattro taglienti a testa semisferica
Ball-nosed four flute end mills
Halbrundkopffräser Vierschneiden
Fraises quatre tailles deux dents à bout hémisphérique
Fresas hemisféricas de cuatro labios

SKIN plus UOP COATING

Standard UOP

H

λ°s 32

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89165	◪	◪	●	◪	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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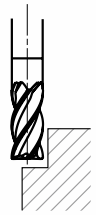
89510

Materiali - Materials		Contornatura Shouldering ap = 1,5ø ae = 0,05ø
		
	Gruppo e descrizione Group and description	Vc (mt /min.)
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	120 - 130
Acciaio *Steel*	Basso contenuto di C Low carbon content	120 - 130
	Medio contenuto di C Medium carbon content	110 - 120
	Basso legato Low alloyed	110 - 120
	Alto legato High alloyed	100 - 110
	Acciaio da stampi e utensili Die/tool steel	90 - 100
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	70 - 80
	AISI 316 - 440	60 - 70
	17-4 PH 15-5 PH	50 - 60
	Leghe Cr - Co Cr - Co alloys	40 - 50
	Duplex F51	40 - 50
	Super Duplex F55	30 - 40
Acciai temprati *HARDENED STEELS*	≤ 54 HRC	50 - 60
	> 54 HRC	40 - 50

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	8	0,020
	10	0,030
	12	0,040
	14	0,050
	16	0,055
	20	0,060

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$$n = \frac{Vc \times 1000}{3{,}14 \times ø} \qquad Vf = fz \times n \times z \qquad Q = \frac{a_p \times a_e \times Vf}{1000}$$

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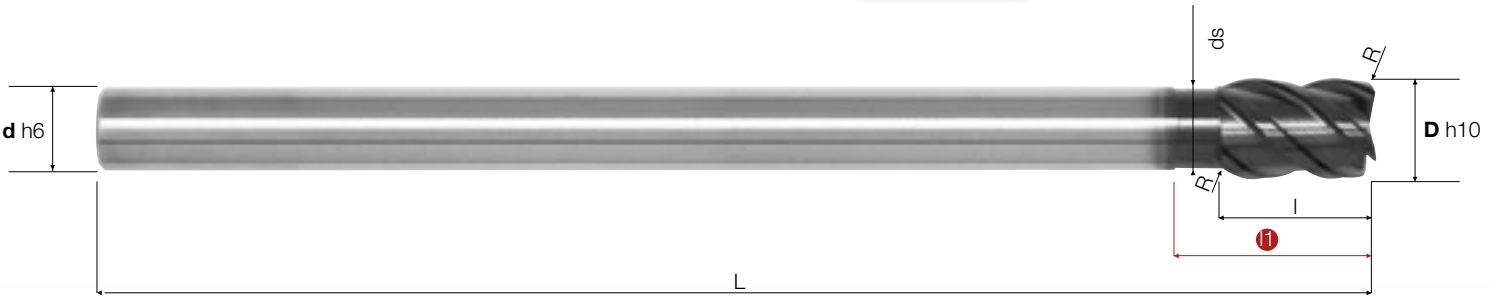

cod.	D h10	ds	l	l1	L	R	dh6	Z	SKIN plus UOP COATING
895100800	8	5,5	12	15	100	0,3	6	4	KMX
895100801	8	5,5	12	15	100	0,5	6	4	KMX
895101000	10	7,5	15	20	130	0,5	8	4	KMX
895101001	10	7,5	15	20	130	1	8	4	KMX
895101200	12	9,5	18	23	150	0,5	10	4	KMX
895101201	12	9,5	18	23	150	1	10	4	KMX
895101400	14	11,5	21	26	160	0,5	12	4	KMX
895101401	14	11,5	21	26	160	1	12	4	KMX
895101600	16	13,5	27	32	160	0,5	14	4	KMX
895101601	16	13,5	27	32	160	1	14	4	KMX
895102000	20	17,5	33	38	200	0,5	18	4	KMX
895102001	20	17,5	33	38	200	1	18	4	KMX

89510

Z 4 TORIC CUTTERS

Frese toroidali a quattro taglienti
Four flute toric cutters
Torusfräser Vierschneiden
Fraises toriques quatre dents
Fresas toricas de cuatro labios

SKIN plus UOP COATING

Standard UOP

H

λ°s 45

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89510	○	○	◪	◪	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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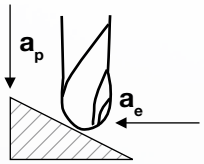
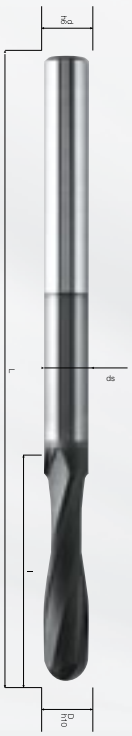
90105

Materiali - Materials		Semifinitura / Finitura Semi-finishing / Finishing ap = 0,05-0,1ø ae = 0,05-0,1ø
		
	Gruppo e descrizione Group and description	Vc (mt /min.)
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	400 - 600
	Alluminio Si < 6% si < 6% aluminium	400 - 600
	Materiali termoplastici Thermoplastic materials	300 - 400
	Rame/Ottone Copper/Brass	400 - 450
Grafite *Graphite*		400 - 500

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	2	0,01
	3	0,015
	4	0,02
	5	0,025
	6	0,03
	8	0,04
	10	0,05
	12	0,06



- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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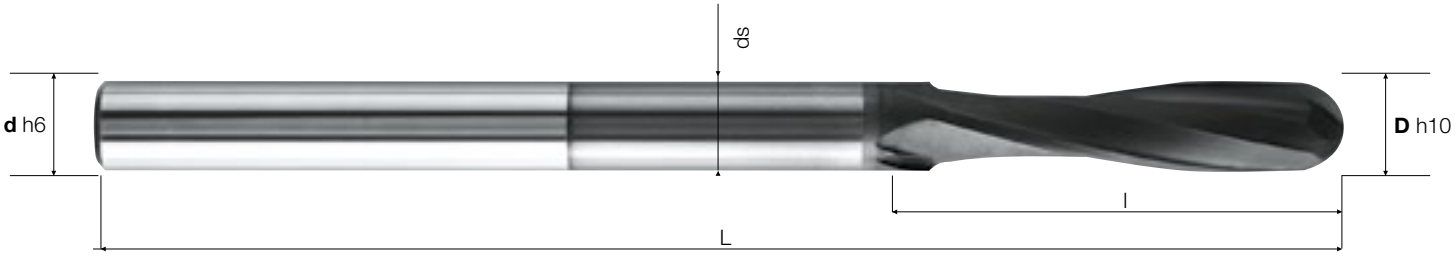

cod.	D h10	ds	l	L	R	dh6	Z	DIAMOND Gph
901050210	2	1,9	10	80	1	4	2	KMD
901050220	2	1,9	20	100	1	4	2	KMD
901050310	3	2,9	10	80	1,5	4	2	KMD
901050320	3	2,9	20	100	1,5	4	2	KMD
901050420	4	3,9	20	100	2	4	2	KMD
901050430	4	3,9	30	110	2	4	2	KMD
901050530	5	4,9	30	100	2,5	6	2	KMD
901050540	5	4,9	40	110	2,5	6	2	KMD
901050630	6	5,8	30	110	3	6	2	KMD
901050640	6	5,8	40	160	3	6	2	KMD
901050840	8	7,8	40	110	4	8	2	KMD
901050850	8	7,8	50	160	4	8	2	KMD
901051040	10	9,8	40	110	5	10	2	KMD
901051050	10	9,8	50	160	5	10	2	KMD
901051250	12	11,8	50	160	6	12	2	KMD

90105

Frese a testa semisferica a due taglienti
Ball-nosed end mills
Halbrundkopffräser
Fraises à bout hémisphérique
Fresas hemisféricas de dos labios

DIAMOND Gph

Standard UOP

Graphite

W a richiesta ON REQUEST

λ°s 15

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
90105	○	○	○	○	○	◪	◪	●	○	○

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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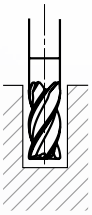
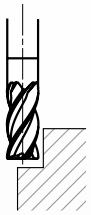
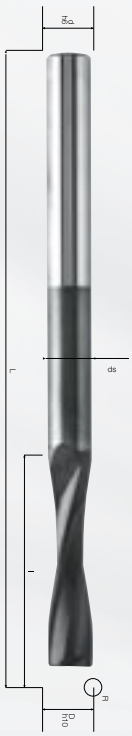
MADE IN ITALY

90107

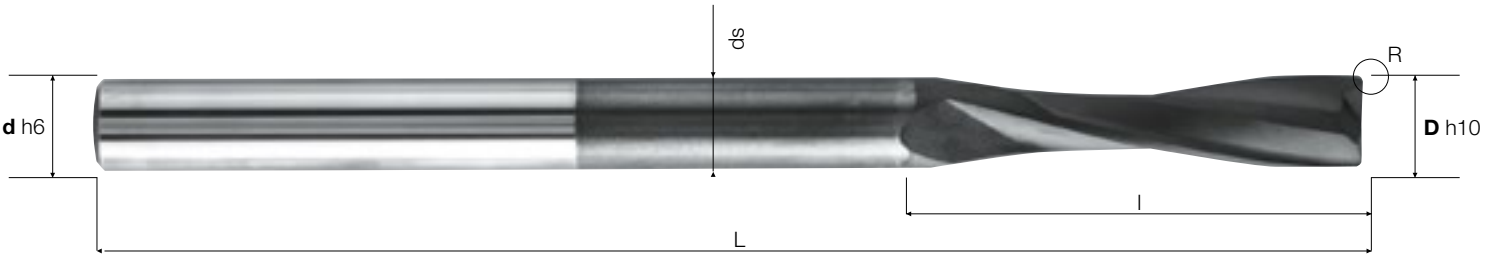
Materiali - Materials		Cava Slotting ap = 0,4ø corta /short ap=0,1ø lunga/long	Contornatura Shouldering ap = 1,5ø - 2ø ae = 0,2 - 0,1ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	400 - 500	600 - 700
	Alluminio Si < 6% si < 6% aluminium	400 - 500	600 - 700
	Materiali termoplastici Thermoplastic materials	300 - 400	400 - 500
	Rame/Ottone Copper/Brass	350 - 450	450 - 500
Grafite *Graphite*		400 - 450	500 - 600

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	2	0,006	0,008
	3	0,009	0,01
	4	0,012	0,014
	5	0,015	0,018
	6	0,018	0,02
	8	0,025	0,028
	10	0,03	0,032
	12	0,04	0,045



- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$



cod.	D h10	ds	l	L	R	dh6	Z	DIAMOND Gph
901070212	2	1,9	10	80	0,2	4	2	KMD
901070222	2	1,9	20	100	0,2	4	2	KMD
901070313	3	2,9	10	80	0,3	4	2	KMD
901070323	3	2,9	20	100	0,3	4	2	KMD
901070425	4	3,9	20	100	0,5	4	2	KMD
901070435	4	3,9	30	110	0,5	4	2	KMD
901070535	5	4,9	30	100	0,5	6	2	KMD
901070545	5	4,9	40	110	0,5	6	2	KMD
901070635	6	5,8	30	110	0,5	6	2	KMD
901070645	6	5,8	40	160	0,5	6	2	KMD
901070845	8	7,8	40	110	0,5	8	2	KMD
901070855	8	7,8	50	160	0,5	8	2	KMD
901071040	10	9,8	40	110	1	10	2	KMD
901071050	10	9,8	50	160	1	10	2	KMD
901071250	12	11,8	50	160	1	12	2	KMD

90107

Z2
TORIC CUTTERS

Frese toroidali a due taglienti
Toric cutters
Torusfräser
Fraises toriques
Fresas toricas

DIAMOND Gph

Standard UOP

Graphite

W ON REQUEST a richiesta

λ°s 15

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
90107	○	○	○	○	○	◪	◪	●	○	○

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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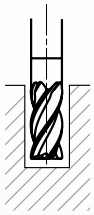
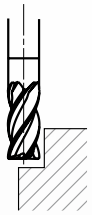
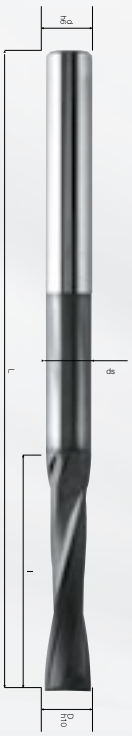
90110

Materiali - Materials		Cava Slotting ap = 0,4ø corta /short ap=0,1ø lunga/long	Contornatura Shouldering ap = 1,5ø - 2ø ae = 0,2 - 0,1ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	400 - 500	600 - 700
	Alluminio Si < 6% si < 6% aluminium	400 - 500	600 - 700
	Materiali termoplastici Thermoplastic materials	300 - 400	400 - 500
	Rame/Ottone Copper/Brass	350 - 450	450 - 500
Grafite *Graphite*		400 - 450	500 - 600

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	2	0,006	0,008
	3	0,009	0,01
	4	0,012	0,014
	5	0,015	0,018
	6	0,018	0,02
	8	0,025	0,028
	10	0,03	0,032
	12	0,04	0,045



- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$n = \frac{Vc \times 1000}{3{,}14 \times ø}$ $Vf = fz \times n \times z$ $Q = \frac{a_p \times a_e \times Vf}{1000}$

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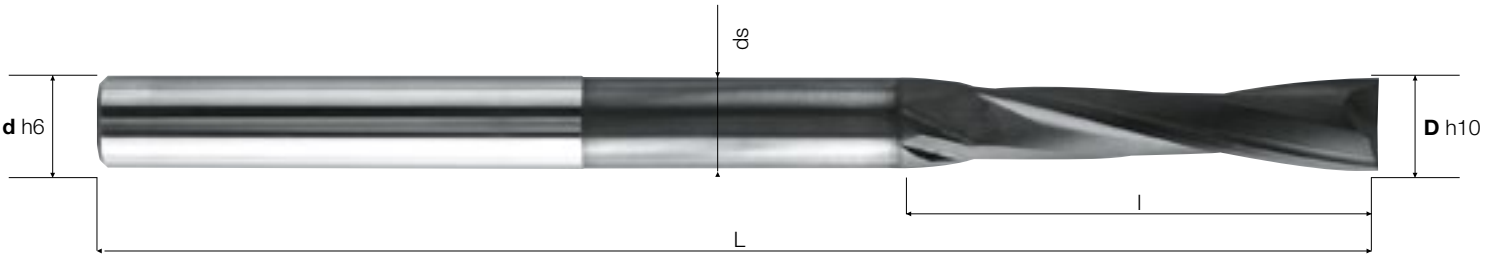
example code:

series	ø	coated
90110	0210	KMD



cod.	D h10	ds	l	L	dh6	Z	DIAMOND Gph
901100210	2	1,9	10	80	4	2	KMD
901100220	2	1,9	20	100	4	2	KMD
901100310	3	2,9	10	80	4	2	KMD
901100320	3	2,9	20	100	4	2	KMD
901100420	4	3,9	20	100	4	2	KMD
901100430	4	3,9	30	110	4	2	KMD
901100530	5	4,9	30	100	6	2	KMD
901100540	5	4,9	40	110	6	2	KMD
901100630	6	5,8	30	110	6	2	KMD
901100640	6	5,8	40	160	6	2	KMD
901100840	8	7,8	40	110	8	2	KMD
901100850	8	7,8	50	160	8	2	KMD
901101040	10	9,8	40	110	10	2	KMD
901101050	10	9,8	50	160	10	2	KMD
901101250	12	11,8	50	160	12	2	KMD

90110

Z2

Frese a testa piana a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresas de dos labios

DIAMOND Gph

Standard UOP

Graphite

W ON REQUEST a richiesta

λ°s 15

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
90110	○	○	○	○	○	◪	◪	●	○	○

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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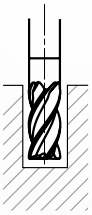
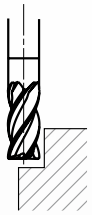
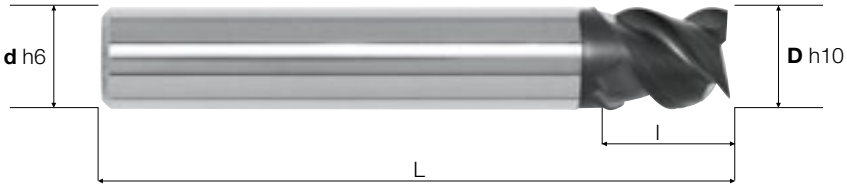
90120

Materiali - Materials		Cava Slotting ap = 0,4ø	Contornatura Shouldering ap = 1ø ae = 0,1 - 0,25ø
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	400 - 500	600 - 700
	Alluminio Si < 6% si < 6% aluminium	400 - 500	600 - 700
	Materiali termoplastici Thermoplastic materials	300 - 400	400 - 500
	Rame/Ottone Copper/Brass	350 - 450	450 - 500
Grafite *Graphite*		400 - 450	500 - 600

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz
	2	0,006	0,008
	3	0,009	0,01
	4	0,012	0,014
	5	0,015	0,018
	6	0,018	0,02
	8	0,025	0,028
	10	0,03	0,032
	12	0,04	0,045

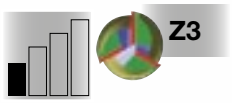
- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$$n = \frac{Vc \times 1000}{3{,}14 \times ø} \qquad Vf = fz \times n \times z \qquad Q = \frac{a_p \times a_e \times Vf}{1000}$$



	cod.	D h10	l	L	dh6	Z	DIAMOND Gph
*	**901200300**	3	4	50	6	3	KMD
*	**901200350**	3,5	4	50	6	3	KMD
*	**901200400**	4	5	54	6	3	KMD
*	**901200450**	4,5	5	54	6	3	KMD
*	**901200500**	5	6	54	6	3	KMD
*	**901200600**	6	7	54	6	3	KMD
*	**901200700**	7	8	58	8	3	KMD
*	**901200800**	8	9	58	8	3	KMD
*	**901200900**	9	10	66	10	3	KMD
*	**901201000**	10	11	66	10	3	KMD
*	**901201200**	12	12	72	12	3	KMD

90120



Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresas de tres labios

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

DIAMOND Gph

UNI
DIN 6527
ISO

Graphite

λ°s
55

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
90120	○	○	○	○	○	◪	◪	●	○	○

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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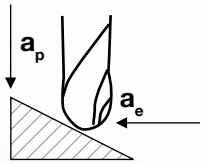
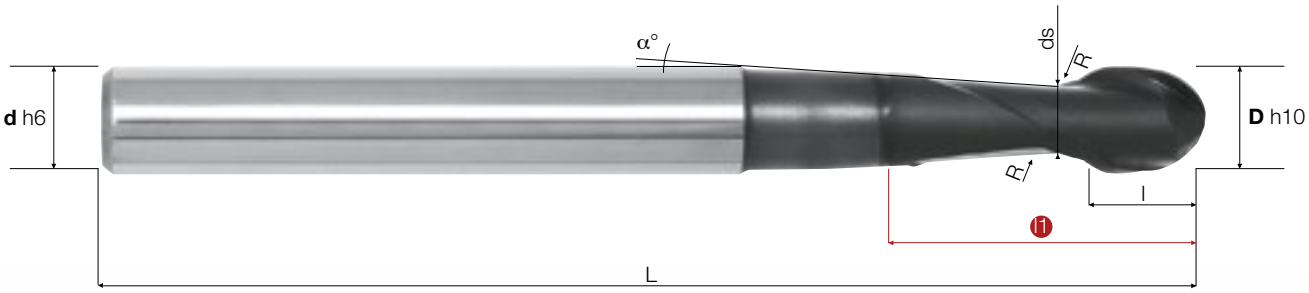
90130

Materiali - Materials		Semifinitura / Finitura Semi-finishing / Finishing ap = 0,05-0,1ø ae = 0,05-0,1ø
		
	Gruppo e descrizione Group and description	Vc (mt /min.)
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	400 - 600
	Alluminio Si < 6% si < 6% aluminium	400 - 600
	Materiali termoplastici Thermoplastic materials	300 - 400
	Rame/Ottone Copper/Brass	400 - 450
Grafite *Graphite*		400 - 500

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	3	0,015
	4	0,02
	5	0,025
	6	0,03
	8	0,04
	10	0,05
	12	0,06

- È consigliato l'utilizzo di un mandrino a forte serraggio e un'elevata rigidità della macchina utensile
- *We suggest the use of a tool holder with heavy duty clamping and elevated machine tool rigidity*

$$n = \frac{Vc \times 1000}{3{,}14 \times ø} \qquad Vf = fz \times n \times z \qquad Q = \frac{a_p \times a_e \times Vf}{1000}$$



	cod.	D h10	ds	l	l1	L	R	α°	dh6	Z	DIAMOND Gph
*	**901300300**	3	2,5	4	30	80	1,5	1°30'	6	2	KMD
*	**901300400**	4	3,3	5	30	80	2	1°30'	6	2	KMD
*	**901300500**	5	4,1	7	43	80	2,5	1°	6	2	KMD
*	**901300600**	6	4,7	7	30	100	3	1°	6	2	KMD
*	**901300800**	8	6,5	9	36	100	4	1°	8	2	KMD
*	**901301000**	10	8,2	11	43	100	5	1°	10	2	KMD
*	**901301200**	12	9,8	13	52	100	6	1°30'	12	2	KMD

90130

Z 2
BALL-NOSED CUTTERS

Frese a testa semisferica a due taglienti
Ball-nosed end mills
Halbrundkopffräser
Fraises à bout hémisphérique
Fresas hemisféricas

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

DIAMOND Gph

Standard UOP

Graphite

W ON REQUEST a richiesta

λ°s 32

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
90130	○	○	○	○	○	◕	◕	●	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

UOP
Member IMC Group

New

micro

serie 892

La serie micro si rivolge al mercato degli stampisti dove precisione e stabilità dell'utensile sono condizioni necessarie per lavorare in condizioni ideali. Lo studio delle geometrie ottimali ed una vasta gamma di lunghezze e versioni permettono all'operatore di trovare la miglior soluzione possibile per ogni applicazione richiesta.

Caratteristiche

- Maggiore resistenza dell'utensile grazie ad una accurata selezione di materie prime.
- Eccellente stabilità di taglio ottenuta mediante una nuova geometria del tagliente e innovative caratteristiche di rastremazione del sottomandrino.
- Elevata durata nella lavorazione di acciai temprati fino a 65 HRC garantita dal nuovissimo rivestimento EVOtech UOP COATING.

The micro series is aimed at the die making market where precision and stability of the tool are necessary for ideal applications conditions. The study of perfect geometries as well as a wide range of lengths and versions allow the operator to find a solution for any requested application.

Characteristics

- Greater tool resistance thanks to a precise selection of raw materials.
- Stable cutting conditions obtained with new cutting edge geometries and an innovative neck taper.
- Improved tool life when applications hardened steels with up to 65 HRC due to EVOtech UOP COATING coating.

Die micro-Serie ist für den Markt der Formbearbeitungen, auf dem sind Werkzeugpräzision- und Stabilität die Grundbedingungen für optimalen Arbeitsbedingungen, bestimmt. Die Untersuchung über die optimalen Geometrien und die weite Länge- und Ausführungsauswahl erlauben dem Arbeiter eine Lösung für jede Bearbeitung zu finden.

Eigenschaften

- *Ausgezeichnete Werkzeugqualität dank einer sorgfältigen Rohstoffwahl.*
- *Höchstmögliche Schneidenstabilität dank einer neuen Schneidegeometrie und einer innovativen Spindelverjüngung.*
- *Hohe Lebensdauer in der Bearbeitung von gehärtetem Stahl bis zum 65 HRC dank der neuesten EVOtech UOP COATING Beschichtung.*

La série micro s'adresse au marché des moulistes pour lesquels précision et stabilité des outils sont des conditions nécessaires pour travailler dans des conditions idéales. L'étude des géométries optimales et une vaste gamme de longueurs et versions permettent aux opérateurs de trouver la meilleure solution possible pour chaque application demandée.

Caractéristiques

- Meilleure résistance des outils grâce à une sélection rigoureuse de la matière première.
- Excellente tenue de coupe obtenue par une nouvelle géométrie du taillant et des caractéristiques innovantes de raccordement sous mandrin.
- Durée d'usinage élevée des aciers trempés jusqu'à 65 Hrc, assurée par le tout nouveau revêtement EVOtech UOP COATING.

"La serie micro se presenta en el mercado de los moldistas donde la precisión y estabilidad de la herramienta son parámetros necesarios para trabajar en condiciones ideales." El estudio de las geometrías óptimas y de una amplia gama de longitudes y versiones permiten encontrar una solución para todas las aplicaciones necesarias.

Características

- *Excelente calidad de la herramienta gracias a una óptima selección de materias primas.*
- *Absoluta estabilidad de corte obtenida con una nueva geometría de corte y una novedosa transición del mango a los labio de corte.*
- *Elevada duración en el trabajo de aceros templados hasta 65 HRC, favorecida por el recubrimiento EVOtech UOP COATING.*

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Tolleranza di forma
Form tollerance

Diameter Tolerance	0 -0,008mm
Shank Tolerance	h6

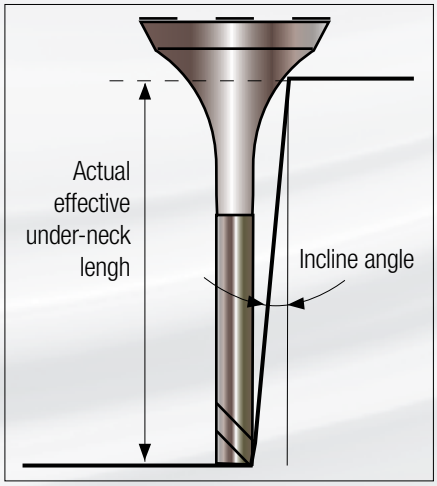
L'analisi di tutte le variabili di lavorazione e delle varie inclinazioni della parete di lavoro permette di sviluppare una nuova geometria del sottomandrino con la realizzazione di un raggio ed uno smusso per rendere più stabile l'utensile. Un costante controllo delle tolleranze su raggio e diametro garantisce la massima precisione anche nelle lavorazioni più estreme. La nuova geometria di testa combinata con l'innovativo rivestimento EVOtech UOP COATING permette una eccellente finitura superficiale.

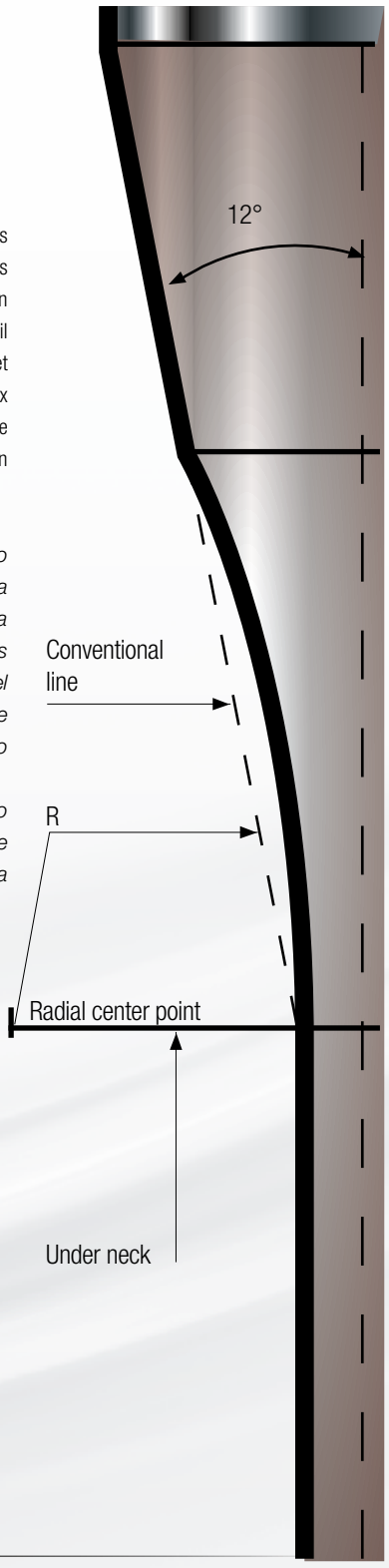
By analysing all the applications variables and wall inclinations, we were able to develop a new neck geometry by creating a radius and chamfer to ensure stability of the tool. A constant control of the radius and diameter tolerances guarantee maximum precision. The new head geometry combined with the innovative coating EVOtech UOP COATING ensure an excellent surface finish.

Die Analyse aller Bearbeitungsvariablen und der Neigungen der Arbeitswand erlaubt, dank der Ausführung eines Radius und einer Abrundung, die das Werkzeug stabil machen, eine neue Spindelgeometrie zu entwickeln. Die höchstmögliche Präzision wird von der beständigen Überprüfung der Radius- und Durchmessertoleranzen auch in extremen Bearbeitungen garantiert. Die neue Kopfgeometrie und die innovative EVOtech UOP COATING Beschichtung erlauben eine ausgezeichnete Oberflächen-Feinbearbeitung.

L'analyse de toutes les variables d'usinage et des diverses inclinaisons de la face de travail a permis de développer une nouvelle géométrie sous mandrin par la réalisation d'un rayon et d'un dégagement rendant l'outil plus stable. Un contrôle permanent des tolérances sur rayon et diamètre garantit une précision maximale même pour les travaux les plus extrêmes. La nouvelle géométrie en bout combinée avec le revêtement novateur EVOtech UOP COATING permet d'obtenir un excellent état de surface.

Los análisis de todas las variables de trabajo y de las inclinaciones de las paredes a mecanizar permiten desarrollar una nueva geometría en la transición del mango a los labios de corte con la creación de un radio y de un bisel para darle estabilidad a la herramienta, un constante control de las tolerancias sobre el radio y el diámetro garantizan la máxima precisión.
La geometría del corte combinada con el novedoso recubrimiento EVOtech UOP COATING permiten un excelente acabado superficial y un significativo aumento de la vida de la herramienta.





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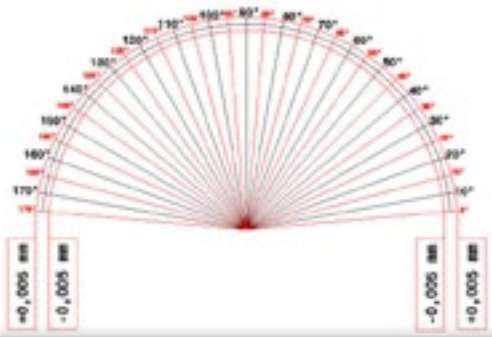
PARAMETRI TECNICI
TECHNICAL PARAMETERS

micro

89230

precision
STABILITY
durability



			Acciai ≤ 45 HRC – Rame Steels ≤ 45 HRC – Copper (n - Fz +20%)				Acciai da utensili Tool steel (25÷45 HRC)				Acciai temprati ≤ 54 HRC Hardened steels ≤ 54 HRC				Acciai temprati > 54 HRC Hardened steels > 54 HRC			
D mm	R mm	l1	ap mm	ae mm	n	Vf	ap mm	ae mm	n	Vf	ap mm	ae mm	n	Vf	ap mm	ae mm	n	Vf
0,5	0,25	4	0,020	0,055	36000	1944	0,017	0,051	31500	1575	0,012	0,040	27000	1296	0,012	0,035	25000	1000
0,5	0,25	6	0,012	0,040	32000	1536	0,010	0,033	28000	1232	0,008	0,025	24000	1008	0,007	0,020	22000	704
0,6	0,3	4	0,024	0,070	36000	2160	0,020	0,060	31500	2016	0,015	0,045	26500	1590	0,011	0,040	25000	1250
0,6	0,3	6	0,015	0,045	32000	1920	0,013	0,038	28000	1568	0,010	0,029	24000	1200	0,090	0,026	22500	990
0,6	0,3	8	0,015	0,043	31500	1890	0,012	0,040	29000	1624	0,009	0,030	23500	1175	0,008	0,022	22000	968
0,8	0,4	2	0,060	0,200	40000	2880	0,068	0,200	35000	2520	0,050	0,145	30000	1800	0,040	0,140	28000	1400
0,8	0,4	4	0,055	0,160	40000	2880	0,046	0,140	35000	2450	0,040	0,100	30000	1680	0,034	0,100	28000	1400
0,8	0,4	6	0,035	0,100	35500	2343	0,027	0,082	31500	2142	0,020	0,060	27000	1620	0,018	0,060	25500	1275
0,8	0,4	10	0,020	0,060	32000	1920	0,017	0,054	28000	1568	0,013	0,040	24000	1200	0,010	0,035	22500	900
1	0,5	3	0,100	0,290	36000	3096	0,085	0,220	31500	2709	0,063	0,190	27000	1890	0,055	0,180	25000	1550
1	0,5	4	0,070	0,210	36000	3096	0,055	0,175	31500	2709	0,050	0,140	27000	1890	0,040	0,120	25000	1550
1	0,5	5	0,050	0,130	33000	2640	0,038	0,100	28500	2394	0,040	0,080	25000	1700	0,025	0,075	22500	1350
1	0,5	6	0,040	0,120	32000	2496	0,034	0,095	28200	2369	0,030	0,078	24500	1617	0,022	0,070	22300	1338
1	0,5	8	0,040	0,120	32000	2496	0,034	0,095	28200	2312	0,025	0,078	24500	1617	0,022	0,070	22300	1338
1	0,5	10	0,025	0,080	32000	2496	0,023	0,058	28200	2256	0,015	0,050	24200	1597	0,015	0,042	22300	1338
1	0,5	12	0,022	0,075	29000	2088	0,020	0,058	25200	1714	0,015	0,045	22000	1408	0,013	0,040	20200	1050
1	0,5	16	0,015	0,045	28500	1824	0,013	0,038	25200	1512	0,010	0,030	21700	1128	0,010	0,024	20200	929
1	0,5	20	0,010	0,030	22000	1320	0,008	0,025	18900	1096	0,006	0,020	16000	800	0,008	0,014	15000	660
1,2	0,6	8	0,040	0,120	28500	2280	0,035	0,100	25200	2016	0,025	0,075	21500	1505	0,022	0,072	20100	1286
1,2	0,6	12	0,030	0,090	28500	2280	0,025	0,080	25200	1966	0,020	0,060	21500	1462	0,016	0,055	20100	1206
1,4	0,7	8	0,050	0,160	25100	2008	0,047	0,140	22000	1760	0,035	0,100	19000	1330	0,030	0,095	17500	1120
1,4	0,7	16	0,035	0,110	22500	1710	0,030	0,090	19700	1340	0,022	0,070	17000	1122	0,020	0,060	15800	948
1,5	0,75	8	0,060	0,160	25200	2016	0,050	0,150	22000	1760	0,037	0,120	19000	1330	0,030	0,090	17500	1120
1,5	0,75	12	0,055	0,150	25200	1966	0,045	0,150	22000	1672	0,035	0,110	19000	1254	0,030	0,095	17500	1050
1,5	0,75	20	0,040	0,110	22500	1530	0,030	0,100	19500	1326	0,025	0,070	17000	1020	0,020	0,060	15500	806
1,6	0,8	12	0,060	0,185	23000	2070	0,050	0,160	20400	1754	0,040	0,120	17500	1400	0,035	0,100	16200	1134
1,6	0,8	20	0,040	0,120	20700	1656	0,034	0,100	18200	1347	0,025	0,080	15500	1085	0,020	0,065	14500	870
1,8	0,9	12	0,070	0,200	23300	2097	0,060	0,170	20500	1845	0,045	0,130	17500	1400	0,040	0,120	16500	1155
1,8	0,9	20	0,040	0,130	21000	1680	0,038	0,115	18200	1456	0,030	0,090	15500	1085	0,025	0,075	14500	870
2	1	6	0,200	0,600	21000	3150	0,170	0,500	18400	2723	0,130	0,390	15600	1872	0,120	0,360	14600	1460
2	1	8	0,140	0,410	21000	3150	0,118	0,350	18400	2686	0,090	0,275	15600	1872	0,080	0,250	14600	1460
2	1	10	0,130	0,400	21000	3150	0,119	0,360	18400	2650	0,090	0,275	15600	1810	0,078	0,230	14600	1460
2	1	12	0,080	0,250	19000	2584	0,068	0,200	16500	2211	0,055	0,155	14100	1607	0,050	0,140	13200	1294
2	1	16	0,080	0,240	18800	2482	0,068	0,200	16500	2178	0,052	0,150	14100	1579	0,048	0,140	13200	1294
2	1	20	0,050	0,150	18700	2431	0,045	0,125	16500	2145	0,032	0,100	14100	1579	0,030	0,085	13200	1267
2	1	25	0,048	0,145	16800	2016	0,042	0,125	14700	1617	0,033	0,090	12500	1300	0,028	0,085	11800	1062
2	1	30	0,035	0,090	16700	1837	0,025	0,075	14700	1588	0,021	0,060	12500	1250	0,015	0,052	11800	1015
2,5	1,25	13	0,150	0,400	16500	1980	0,100	0,260	15500	2170	0,080	0,220	11500	1104	0,075	0,140	10900	1003
3	1,5	8	0,300	0,900	16000	2400	0,250	0,750	14000	1988	0,190	0,580	12000	1440	0,180	0,520	11300	1175
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3	1,5	12	0,200	0,580	14500	1943	0,177	0,510	12600	1714	0,130	0,390	11000	1276	0,120	0,360	11000	1100
3	1,5	16	0,200	0,550	14500	1885	0,160	0,500	12600	1638	0,125	0,360	11000	1210	0,110	0,350	11000	1056
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3	1,5	25	0,085	0,240	13800	1766	0,070	0,190	12000	1464	0,055	0,150	10400	1061	0,040	0,140	10100	889
3	1,5	35	0,075	0,230	12900	1548	0,067	0,190	11200	1232	0,050	0,154	9600	960	0,040	0,138	9000	756
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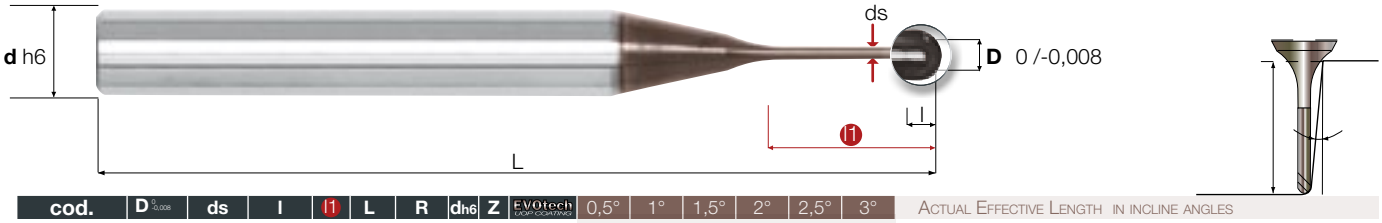
4	2	16	0,270	0,830	11500	2300	0,230	0,700	10000	1860	0,170	0,530	8600	1273	0,150	0,450	8000	1120
4	2	20	0,200	0,550	11000	1980	0,160	0,500	10000	1800	0,090	0,400	8200	1148	0,100	0,250	7500	990
4	2	35	0,100	0,300	10300	1751	0,090	0,250	9000	1530	0,070	0,190	7600	1049	0,060	0,180	7200	936
4	2	50	0,090	0,260	9250	1480	0,080	0,250	8000	1200	0,065	0,190	6900	925	0,050	0,170	6400	768
5	2,5	25	0,350	1,000	9000	2160	0,300	0,900	7900	1896	0,220	0,650	6700	1206	0,200	0,600	6300	1071
5	2,5	40	0,200	0,600	8200	1804	0,170	0,500	7000	1400	0,125	0,400	6100	1074	0,110	0,350	5700	946
6	3	30	0,400	1,100	8000	1920	0,320	1,000	7000	1680	0,250	0,800	6000	1140	0,230	0,710	5500	957
6	3	50	0,150	0,450	7250	1523	0,130	0,360	6300	1411	0,100	0,280	5450	981	0,080	0,250	5100	867

RACCOMANDAZIONI: se la macchina non dovesse disporre dei giri mandrino richiesti, si consiglia l'adattamento dell'avanzamento con lo stesso rapporto.
WARNING: If the cutting machine rpm available is lower than recommended reduce the feed rate to the same ratio.
EMPFEHLUNGEN: Wenn das Gerät nicht über die Runden Spindel erforderlich, empfehlen wir die Anpassung des Fortschritts mit dem gleichen Verhältnis.
RECOMMANDATIONS: Si la machine ne devait pas disposer des vitesses de broches requises, nous vous conseillons d'adapter l'avance avec le même rapport.
RECOMENDACIONES: Si la máquina no dispone de las revoluciones necesarias, se aconseja utilizar las máximas posibles manteniendo el mismo avance por diente indicado.



cod.	D -0,008	ds	l	l1	L	R	dh6	Z	EVOtech	0,5°	1°	1,5°	2°	2,5°	3°
										ACTUAL EFFECTIVE LENGTH IN INCLINE ANGLES						
892300050	0,5	0,48	1,00	4	50	0,25	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892300051	0,5	0,48	1,00	6	50	0,25	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
892300052	0,5	0,48	0,35	4	50	0,25	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892300053	0,5	0,48	0,35	6	50	0,25	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
892300060	0,6	0,58	1,00	4	50	0,3	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892300061	0,6	0,58	1,00	6	50	0,3	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
892300062	0,6	0,58	0,40	4	50	0,3	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892300063	0,6	0,58	0,40	8	50	0,3	4	2	KMX	9,3	9,85	10,31	10,7	11,06	11,39
892300080	0,8	0,77	1,00	4	50	0,4	4	2	KMX	5,04	5,43	5,77	6,08	6,36	6,63
892300081	0,8	0,77	1,00	6	50	0,4	4	2	KMX	7,2	7,66	8,07	8,42	8,75	9,05
892300082	0,8	0,77	0,50	2	50	0,4	4	2	KMX	2,83	3,14	3,39	3,64	3,86	4,09
892300083	0,8	0,77	0,50	6	50	0,4	4	2	KMX	7,2	7,66	8,06	8,42	8,75	9,05
892300084	0,8	0,77	0,50	10	50	0,4	4	2	KMX	11,47	12,03	12,55	12,98	13,36	13,69
892300100	1	0,95	1,00	5	58	0,5	6	2	KMX	6,21	6,63	6,95	7,31	7,61	7,89
892300101	1	0,95	1,00	10	58	0,5	6	2	KMX	11,53	12,12	12,6	13,02	13,4	13,75
892300102	1	0,95	0,80	3	50	0,5	4	2	KMX	4,05	4,35	4,67	4,94	5,19	5,43
892300103	1	0,95	0,80	4	50	0,5	4	2	KMX	5,13	5,51	5,83	6,13	6,41	6,67
892300104	1	0,95	0,80	6	50	0,5	4	2	KMX	7,27	7,74	8,12	8,47	8,79	9,08
892300105	1	0,95	0,80	8	50	0,5	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,44
892300106	1	0,95	0,80	10	50	0,5	4	2	KMX	11,53	12,11	12,6	13,02	13,4	13,75
892300107	1	0,95	0,80	12	55	0,5	4	2	KMX	13,63	14,28	14,8	15,25	15,65	16,03
892300108	1	0,95	0,80	16	55	0,5	4	2	KMX	17,85	18,58	19,16	19,66	20,23	21,34
892300109	1	0,95	0,80	20	60	0,5	4	2	KMX	22,03	22,83	23,47	24,02	25,27	26,65
892300120	1,2	1,15	1,10	8	50	0,6	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,43
892300121	1,2	1,15	1,10	12	55	0,6	4	2	KMX	13,64	14,28	14,8	15,25	15,65	16,03
892300140	1,4	1,34	1,30	8	50	0,7	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
892300141	1,4	1,34	1,30	16	55	0,7	4	2	KMX	17,87	18,59	19,17	19,67	20,26	21,37
892300150	1,5	1,44	1,50	8	58	0,75	6	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
892300151	1,5	1,44	1,50	12	58	0,75	6	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
892300152	1,5	1,44	1,35	8	50	0,75	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
892300153	1,5	1,44	1,35	12	55	0,75	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
892300154	1,5	1,44	1,35	20	60	0,75	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
892300160	1,6	1,54	1,40	12	55	0,8	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
892300161	1,6	1,54	1,40	20	60	0,8	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
892300180	1,8	1,73	1,60	12	55	0,9	4	2	KMX	13,7	14,32	14,83	15,28	15,68	16,1
892300181	1,8	1,73	1,60	20	60	0,9	4	2	KMX	22,07	22,87	23,5	24,08	–	–
892300200	2	1,92	2,00	10	58	1	6	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
892300201	2	1,92	1,70	6	50	1	4	2	KMX	7,4	7,83	8,2	8,54	8,85	9,14
892300202	2	1,92	1,70	8	50	1	4	2	KMX	9,52	10,02	10,44	10,82	11,16	11,48
892300203	2	1,92	1,70	10	50	1	4	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
892300204	2	1,92	1,70	12	55	1	4	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
892300205	2	1,92	1,70	16	55	1	4	2	KMX	17,92	18,63	19,2	19,7	20,32	–
892300206	2	1,92	1,70	20	60	1	4	2	KMX	22,1	22,89	23,52	24,11	–	–
892300207	2	1,92	1,70	25	65	1	4	2	KMX	27,29	28,17	28,86	–	–	–
892300208	2	1,92	1,70	30	70	1	4	2	KMX	32,47	33,43	34,38	–	–	–
892300212	2	1,92	2,00	12	58	1	6	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
892300216	2	1,92	2,00	16	65	1	6	2	KMX	17,92	18,63	19,2	19,7	20,32	21,44
892300220	2	1,92	2,00	20	65	1	6	2	KMX	22,1	22,89	23,52	24,11	25,36	26,75
892300250	2,5	2,40	2,00	13	58	1,25	6	2	KMX	14,84	15,46	15,98	16,43	16,84	17,51
892300308	3	2,85	3,00	8	58	1,5	6	2	KMX	9,71	10,17	10,57	10,93	11,26	11,57
892300310	3	2,85	2,50	10	58	1,5	6	2	KMX	11,81	12,33	12,77	13,16	13,53	13,86
892300312	3	2,85	3,00	12	58	1,5	6	2	KMX	13,91	14,47	14,96	15,38	15,77	16,33
892300316	3	2,85	3,00	16	65	1,5	6	2	KMX	18,08	18,74	19,29	19,77	20,51	21,63
892300320	3	2,85	4,00	20	65	1,5	6	2	KMX	22,24	22,98	23,59	24,28	25,54	26,94
892300325	3	2,85	2,50	25	70	1,5	6	2	KMX	27,42	28,26	28,93	30,27	31,84	–
892300335	3	2,85	2,50	35	80	1,5	6	2	KMX	37,75	38,74	40,25	42,23	–	–
892300400	4	3,90	3,00	16	60	2	6	2	KMX	17,96	18,65	19,22	19,71	20,36	–
892300401	4	3,90	3,00	35	80	2	6	2	KMX	37,66	38,67	39,87	–	–	–
892300402	4	3,90	3,00	50	100	2	6	2	KMX	53,1	54,66	–	–	–	–
892300412	4	3,90	4,50	12	58	2	6	2	KMX	13,77	14,37	14,87	15,31	15,7	16,17
892300416	4	3,90	4,50	16	58	2	6	2	KMX	17,96	18,65	19,22	19,71	20,36	20,87
892300420	4	3,90	5,00	20	65	2	6	2	KMX	22,12	22,9	23,52	24,14	–	–
892300500	5	4,90	3,50	25	70	2,5	6	2	KMX	27,34	28,58	–	–	–	–
892300501	5	4,90	3,50	40	80	2,5	6	2	KMX	42,98	–	–	–	–	–
892300600	6	5,90	6,00	30	75	3	6	2	KMX	–	–	–	–	–	–
892300601	6	5,90	6,00	50	100	3	6	2	KMX	–	–	–	–	–	–

SERIES UOP MICRO SUPERIOR

micro

89230

New

Z 2 BALL-NOSED CUTTERS

Frese 'MICRO SUPERIOR' testa semisferica
Ball-nosed two flute 'MICRO SUPERIOR' end mills
Halbrundfopffräser 'MICRO SUPERIOR'
Fraises à bout hémisphérique 'MICRO SUPERIOR'
Fresas hemisféricas 'MICRO SUPERIOR'

EVOtech UOP COATING

Standard UOP

HSC

λ°s 30

precision STABILITY durability

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
micro 89230	○	○	●	●	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

micro

89231

precision
STABILITY
durability

Diameter Tolerance
0
- 0,008 mm

		Acciai ≤ 45 HRC – Rame Steels ≤ 45 HRC – Copper (n - Fz +20%)			Acciai da utensili Tool steel (25÷45 HRC)			Acciai temprati ≤ 54 HRC Hardened steels ≤ 54 HRC			Acciai temprati > 54 HRC Hardened steels > 54 HRC		
D mm	l1	a_p mm	n	Vf	a_p mm	n	Vf	a_p mm	n	Vf	a_p mm	n	Vf
0,5	4	0,020	29000	1044	0,016	25200	655	0,010	22000	528	0,008	20200	444
0,5	6	0,012	26000	832	0,010	22400	560	0,007	19400	388	0,005	18000	360
0,6	4	0,024	29000	1334	0,020	25200	1058	0,013	21500	688	0,011	20200	525
0,6	6	0,015	29000	1276	0,013	25200	1109	0,009	21500	688	0,007	20200	525
0,6	8	0,015	26000	1040	0,012	22400	806	0,009	19400	543	0,006	18000	432
0,8	2	0,060	33000	1716	0,045	28000	1288	0,028	24000	864	0,022	22500	630
0,8	4	0,055	31000	1488	0,040	26000	1040	0,021	22000	660	0,017	20000	480
0,8	6	0,035	29000	1276	0,026	25000	1000	0,016	21500	602	0,013	20000	440
0,8	10	0,015	26000	1040	0,010	22000	792	0,006	20000	480	0,006	18000	360
1	3	0,100	29000	1624	0,085	25000	1300	0,050	22000	880	0,045	20200	646
1	4	0,070	29000	1624	0,055	25000	1300	0,035	22000	880	0,028	20200	646
1	5	0,055	27000	1350	0,040	23000	1104	0,030	20500	820	0,020	19000	608
1	6	0,040	26000	1248	0,034	22000	1012	0,020	19500	741	0,016	18300	549
1	8	0,040	26000	1248	0,032	22000	1012	0,019	19500	702	0,016	18300	549
1	10	0,025	26000	1248	0,021	21500	989	0,015	19500	663	0,010	18200	546
1	12	0,024	23000	1058	0,020	20100	844	0,015	17500	560	0,010	16200	454
1	16	0,016	23000	1012	0,012	20000	720	0,010	17300	484	0,008	16000	384
1	20	0,010	22000	792	0,008	19000	570	0,006	16500	330	0,006	15000	300
1,2	8	0,075	26000	1560	0,065	22400	1165	0,040	19200	691	0,030	17800	570
1,2	12	0,030	23500	1316	0,024	20100	965	0,015	17400	557	0,012	16200	486
1,4	8	0,090	22500	1350	0,08	19000	988	0,040	16500	660	0,035	15700	502
1,4	16	0,035	18000	900	0,027	15600	655	0,018	13500	432	0,015	12500	350
1,5	8	0,100	22500	1350	0,080	19600	1058	0,050	16800	672	0,040	15700	502
1,5	12	0,060	20200	1212	0,045	19600	1019	0,030	15200	578	0,025	14200	454
1,5	20	0,030	15500	713	0,020	15200	699	0,020	12000	384	0,016	10500	273
1,6	12	0,070	19000	1216	0,055	16400	918	0,034	14000	616	0,025	13100	472
1,6	20	0,040	16700	935	0,034	14500	667	0,020	12500	500	0,017	11800	378
1,8	12	0,070	19000	1216	0,060	16400	951	0,035	14000	616	0,030	13100	498
1,8	20	0,040	16500	924	0,035	14500	783	0,023	12500	450	0,018	11700	374
2	6	0,200	17000	1360	0,160	14500	1044	0,100	12600	655	0,080	11800	543
2	8	0,140	17000	1360	0,110	14500	1044	0,070	12600	655	0,055	11800	543
2	10	0,135	17000	1360	0,110	14500	1044	0,070	12500	625	0,055	11700	515
2	12	0,080	15200	1216	0,060	13200	898	0,040	11400	570	0,032	10600	445
2	16	0,080	15200	1155	0,064	13200	871	0,040	11300	542	0,031	10500	441
2	20	0,050	15100	1057	0,040	13200	871	0,025	11300	542	0,020	10500	420
2	25	0,047	13500	918	0,040	12100	678	0,025	10100	465	0,020	9400	357
2	30	0,030	13200	871	0,024	11550	601	0,015	10000	420	0,012	9300	335
2,5	13	0,160	14000	1400	0,140	12500	1150	0,080	10700	685	0,072	10000	560
3	8	0,300	13000	1300	0,240	11100	1021	0,150	9600	634	0,120	9000	540
3	10	0,250	13000	1040	0,165	11000	990	0,110	9600	614	0,100	9000	540
3	12	0,200	13000	1040	0,160	11000	968	0,100	9600	595	0,080	9000	540
3	16	0,160	12000	936	0,090	10000	800	0,080	8900	534	0,060	8500	493
3	20	0,120	11500	874	0,082	10000	780	0,060	8600	499	0,050	8100	454
3	25	0,090	11500	851	0,065	9950	776	0,050	8500	476	0,040	8000	432
3	35	0,070	11000	770	0,060	9800	725	0,040	8400	454	0,032	8000	416
4	12	0,400	9700	1358	0,320	8400	1008	0,200	7200	648	0,160	6700	536
4	16	0,320	9600	1248	0,250	8300	979	0,170	7200	634	0,130	6700	509
4	20	0,280	9500	1216	0,210	8300	963	0,140	7200	605	0,110	6700	469
4	35	0,140	8600	1032	0,120	7500	825	0,070	6400	538	0,050	6000	408
4	50	0,090	8500	969	0,075	7400	740	0,050	6400	512	0,040	6000	384
5	25	0,330	7500	900	0,300	6400	768	0,120	5700	479	0,100	5400	378
5	40	0,180	7400	740	0,200	6300	630	0,100	5500	418	0,080	5400	302
6	30	0,380	6400	896	0,340	5300	689	0,200	6600	594	0,150	6200	496
6	50	0,180	6300	756	0,210	5300	530	0,110	6500	520	0,080	6100	366

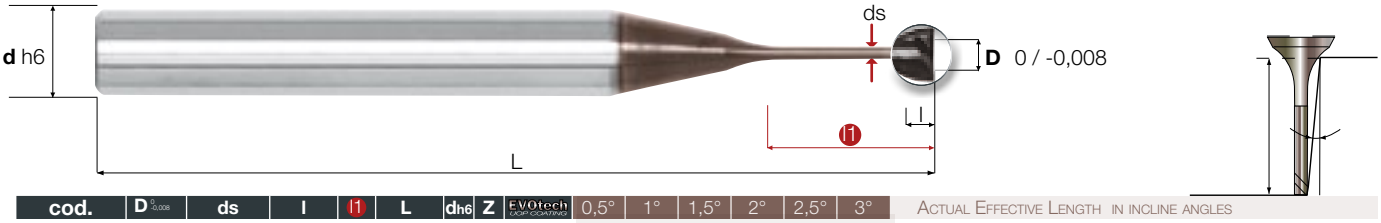
RACCOMANDAZIONI: se la macchina non dovesse disporre dei giri mandrino richiesti, si consiglia l'adattamento dell'avanzamento con lo stesso rapporto.

WARNING: If the cutting machine rpm available is lower than recommended reduce the feed rate to the same ratio.

EMPFEHLUNGEN: Wenn das Gerät nicht über die Runden Spindel erforderlich, empfehlen wir die Anpassung des Fortschritts mit dem gleichen Verhältnis.

RECOMMANDATIONS: Si la machine ne devait pas disposer des vitesses de broches requises, nous vous conseillons d'adapter l'avance avec le même rapport.

RECOMENDACIONES: Si la máquina no dispone de las revoluciones necesarias, se aconseja utilizar las máximas posibles manteniendo el mismo avance por diente indicado.



cod.	D	ds	l	l1	L	dh6	Z	EVOtech	0,5°	1°	1,5°	2°	2,5°	3°
892310050	0,5	0,48	1,00	4	50	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892310051	0,5	0,48	1,00	6	50	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
892310052	0,5	0,48	0,35	4	50	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892310053	0,5	0,48	0,35	6	50	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
892310060	0,6	0,58	1,00	4	50	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892310061	0,6	0,58	1,00	6	50	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
892310062	0,6	0,58	0,40	4	50	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892310063	0,6	0,58	0,40	8	50	4	2	KMX	9,3	9,85	10,31	10,7	11,06	11,39
892310080	0,8	0,77	1,00	4	50	4	2	KMX	5,04	5,43	5,77	6,08	6,36	6,63
892310081	0,8	0,77	1,00	6	50	4	2	KMX	7,2	7,66	8,07	8,42	8,75	9,05
892310082	0,8	0,77	0,50	2	50	4	2	KMX	2,83	3,14	3,39	3,64	3,86	4,09
892310083	0,8	0,77	0,50	6	50	4	2	KMX	7,2	7,66	8,06	8,42	8,75	9,05
892310084	0,8	0,77	0,50	10	50	4	2	KMX	11,47	12,03	12,55	12,98	13,36	13,69
892310100	1	0,95	1,00	5	58	6	2	KMX	6,21	6,63	6,95	7,31	7,61	7,89
892310101	1	0,95	1,00	10	58	6	2	KMX	11,53	12,12	12,6	13,02	13,4	13,75
892310102	1	0,95	0,80	3	50	4	2	KMX	4,05	4,35	4,67	4,94	5,19	5,43
892310103	1	0,95	0,80	4	50	4	2	KMX	5,13	5,51	5,83	6,13	6,41	6,67
892310104	1	0,95	0,80	6	50	4	2	KMX	7,27	7,74	8,12	8,47	8,79	9,08
892310105	1	0,95	0,80	8	50	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,44
892310106	1	0,95	0,80	10	50	4	2	KMX	11,53	12,11	12,6	13,02	13,4	13,75
892310107	1	0,95	0,80	12	55	4	2	KMX	13,63	14,28	14,8	15,25	15,65	16,03
892310108	1	0,95	0,80	16	55	4	2	KMX	17,85	18,58	19,16	19,66	20,23	21,34
892310109	1	0,95	0,80	20	60	4	2	KMX	22,03	22,83	23,47	24,02	25,27	26,65
892310120	1,2	1,15	1,10	8	50	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,43
892310121	1,2	1,15	1,10	12	55	4	2	KMX	13,64	14,28	14,8	15,25	15,65	16,03
892310140	1,4	1,34	1,30	8	50	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
892310141	1,4	1,34	1,30	16	55	4	2	KMX	17,87	18,59	19,17	19,67	20,26	21,37
892310150	1,5	1,44	1,50	8	58	6	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
892310151	1,5	1,44	1,50	12	58	6	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
892310152	1,5	1,44	1,35	8	50	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
892310153	1,5	1,44	1,35	12	55	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
892310154	1,5	1,44	1,35	20	60	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
892310160	1,6	1,54	1,40	12	55	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
892310161	1,6	1,54	1,40	20	60	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
892310180	1,8	1,73	1,60	12	55	4	2	KMX	13,7	14,32	14,83	15,28	15,68	16,1
892310181	1,8	1,73	1,60	20	60	4	2	KMX	22,07	22,87	23,5	24,08	–	–
892310200	2	1,92	2,00	10	58	6	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
892310201	2	1,92	1,70	6	50	4	2	KMX	7,4	7,83	8,2	8,54	8,85	9,14
892310202	2	1,92	1,70	8	50	4	2	KMX	9,52	10,02	10,44	10,82	11,16	11,48
892310203	2	1,92	1,70	10	50	4	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
892310204	2	1,92	1,70	12	55	4	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
892310205	2	1,92	1,70	16	55	4	2	KMX	17,92	18,63	19,2	19,7	20,32	–
892310206	2	1,92	1,70	20	60	4	2	KMX	22,1	22,89	23,52	24,11	–	–
892310207	2	1,92	1,70	25	65	4	2	KMX	27,29	28,17	28,86	–	–	–
892310208	2	1,92	1,70	30	70	4	2	KMX	32,47	33,43	34,38	–	–	–
892310212	2	1,92	2,00	12	58	6	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
892310216	2	1,92	2,00	16	65	6	2	KMX	17,92	18,63	19,2	19,7	20,32	21,44
892310220	2	1,92	2,00	20	65	6	2	KMX	22,1	22,89	23,52	24,11	25,36	26,75
892310250	2,5	2,40	2,00	13	58	6	2	KMX	14,84	15,46	15,98	16,43	16,84	17,51
892310308	3	2,85	3,00	8	58	6	2	KMX	9,71	10,17	10,57	10,93	11,26	11,57
892310310	3	2,85	2,50	10	58	6	2	KMX	11,81	12,33	12,77	13,16	13,53	13,86
892310312	3	2,85	3,00	12	58	6	2	KMX	13,91	14,47	14,96	15,38	15,77	16,33
892310316	3	2,85	3,00	16	65	6	2	KMX	18,08	18,74	19,29	19,77	20,51	21,63
892310320	3	2,85	4,00	20	65	6	2	KMX	22,24	22,98	23,59	24,28	25,54	26,94
892310325	3	2,85	2,50	25	70	6	2	KMX	27,42	28,26	28,93	30,27	31,84	–
892310335	3	2,85	2,50	35	80	6	2	KMX	37,75	38,74	40,25	42,23	–	–
892310400	4	3,90	3,00	16	60	6	2	KMX	17,96	18,65	19,22	19,71	20,36	–
892310401	4	3,90	3,00	35	80	6	2	KMX	37,66	38,67	39,87	–	–	–
892310402	4	3,90	3,00	50	100	6	2	KMX	53,1	54,66	–	–	–	–
892310412	4	3,90	4,50	12	58	6	2	KMX	13,77	14,37	14,87	15,31	15,7	16,17
892310416	4	3,90	4,50	16	58	6	2	KMX	17,96	18,65	19,22	19,71	20,36	20,87
892310420	4	3,90	5,00	20	65	6	2	KMX	22,12	22,9	23,52	24,14	–	–
892310500	5	4,90	3,50	25	70	6	2	KMX	27,34	28,58	–	–	–	–
892310501	5	4,90	3,50	40	80	6	2	KMX	42,98	–	–	–	–	–
892310600	6	5,90	6,00	30	75	6	2	KMX	–	–	–	–	–	–
892310601	6	5,90	6,00	50	100	6	2	KMX	–	–	–	–	–	–

Actual Effective Length in incline angles

micro

89231

New

Z2

Frese 'MICRO SUPERIOR' a testa piana
'MICRO SUPERIOR' two flute end mills
Schaftfräser 'MICRO SUPERIOR'
Fraises 'MICRO SUPERIOR'
Fresas 'MICRO SUPERIOR'

EVOtech UOP COATING

Standard UOP

HSC

λ°s 30

precision
STABILITY
durability

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio / TITANIUM	HRSA / HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili / STAINLESS STEELS	materiali non ferrosi / NON FERROUS MATERIALS	leghe leggere / LIGHT ALLOYS	grafite / GRAPHITE	acciai / STEELS	ghise / CAST IRON
micro 89231	○	○	●	●	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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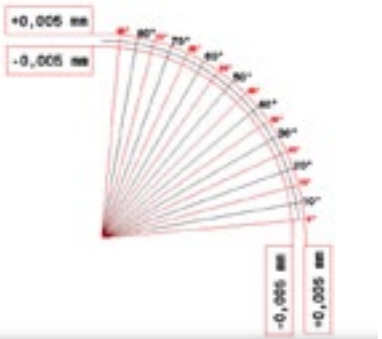
MADE IN ITALY

micro

89232

precision
STABILITY
durability



			Acciai ≤ 45 HRC – Rame Steels ≤ 45 HRC – Copper (n - Fz +20%)			Acciai da utensili Tool steel (25÷45 HRC)			Acciai temprati ≤ 54 HRC Hardened steels ≤ 54 HRC			Acciai temprati > 54 HRC Hardened steels > 54 HRC		
D mm	R mm	l1	a_p mm	n	Vf	a_p mm	n	Vf	a_p mm	n	Vf	a_p mm	n	Vf
0,5	0,10	4	0,020	29000	1044	0,016	25200	655	0,010	22000	528	0,008	20200	444
0,5	0,10	6	0,012	26000	832	0,010	22400	560	0,007	19400	388	0,005	18000	360
0,6	0,10	4	0,024	29000	1334	0,020	25200	1058	0,013	21500	688	0,011	20200	525
0,6	0,10	6	0,015	29000	1276	0,013	25200	1109	0,009	21500	688	0,007	20200	525
0,6	0,10	8	0,015	26000	1040	0,012	22400	806	0,009	19400	543	0,006	18000	432
0,8	0,10	2	0,060	33000	1716	0,045	28000	1288	0,028	24000	864	0,022	22500	630
0,8	0,10	4	0,055	31000	1488	0,040	26000	1040	0,021	22000	660	0,017	20000	480
0,8	0,10	6	0,035	29000	1276	0,026	25000	1000	0,016	21500	602	0,013	20000	440
0,8	0,10	10	0,015	26000	1040	0,010	22000	792	0,006	20000	480	0,006	18000	360
1	0,10	3	0,100	29000	1624	0,085	25000	1300	0,050	22000	880	0,045	20200	646
1	0,10	4	0,070	29000	1624	0,055	25000	1300	0,035	22000	880	0,028	20200	646
1	0,10	5	0,055	27000	1350	0,040	23000	1104	0,030	20500	820	0,020	19000	608
1	0,10	6	0,040	26000	1248	0,034	22000	1012	0,020	19500	741	0,016	18300	549
1	0,10	8	0,040	26000	1248	0,032	22000	1012	0,019	19500	702	0,016	18300	549
1	0,10	10	0,025	26000	1248	0,021	21500	989	0,015	19500	663	0,010	18200	546
1	0,10	12	0,024	23000	1058	0,020	20100	844	0,015	17500	560	0,010	16200	454
1	0,10	16	0,016	23000	1012	0,012	20000	720	0,010	17300	484	0,008	16000	384
1	0,10	20	0,010	22000	792	0,008	19000	570	0,006	16500	330	0,006	15000	300
1,2	0,10	8	0,075	26000	1560	0,065	22400	1165	0,040	19200	691	0,030	17800	570
1,2	0,10	12	0,030	23500	1316	0,024	20100	965	0,015	17400	557	0,012	16200	486
1,4	0,10	8	0,090	22500	1350	0,08	19000	988	0,040	16500	660	0,035	15700	502
1,4	0,10	16	0,035	18000	900	0,027	15600	655	0,018	13500	432	0,015	12500	350
1,5	0,15	8	0,100	22500	1350	0,080	19600	1058	0,050	16800	672	0,040	15700	502
1,5	0,15	12	0,060	20200	1212	0,045	19600	1019	0,030	15200	578	0,025	14200	454
1,5	0,15	20	0,030	15500	713	0,020	15200	699	0,020	12000	384	0,016	10500	273
1,6	0,15	12	0,070	19000	1216	0,055	16400	918	0,034	14000	616	0,025	13100	472
1,6	0,15	20	0,040	16700	935	0,034	14500	667	0,020	12500	500	0,017	11800	378
1,8	0,15	12	0,070	19000	1216	0,060	16400	951	0,035	14000	616	0,030	13100	498
1,8	0,15	20	0,040	16500	924	0,035	14500	783	0,023	12500	450	0,018	11700	374
2	0,20	6	0,200	17000	1360	0,160	14500	1044	0,100	12600	655	0,080	11800	543
2	0,20	8	0,140	17000	1360	0,110	14500	1044	0,070	12600	655	0,055	11800	543
2	0,20	10	0,135	17000	1360	0,110	14500	1044	0,070	12500	625	0,055	11700	515
2	0,20	12	0,080	15200	1216	0,060	13200	898	0,040	11400	570	0,032	10600	445
2	0,20	16	0,080	15200	1155	0,064	13200	871	0,040	11300	542	0,031	10500	441
2	0,20	20	0,050	15100	1057	0,040	13200	871	0,025	11300	542	0,020	10500	420
2	0,20	25	0,047	13500	918	0,040	12100	678	0,025	10100	465	0,020	9400	357
2	0,20	30	0,030	13200	871	0,024	11550	601	0,015	10000	420	0,012	9300	335
2,5	0,25	13	0,160	14000	1400	0,140	12500	1150	0,080	10700	685	0,072	10000	560
3	0,30	8	0,300	13000	1300	0,240	11100	1021	0,150	9600	634	0,120	9000	540
3	0,30	10	0,250	13000	1040	0,165	11000	990	0,110	9600	614	0,100	9000	540
3	0,30	12	0,200	13000	1040	0,160	11000	968	0,100	9600	595	0,080	9000	540
3	0,30	16	0,160	12000	936	0,090	10000	800	0,080	8900	534	0,060	8500	493
3	0,30	20	0,120	11500	874	0,082	10000	780	0,060	8600	499	0,050	8100	454
3	0,30	25	0,090	11500	851	0,065	9950	776	0,050	8500	476	0,040	8000	432
3	0,30	35	0,070	11000	770	0,060	9800	725	0,040	8400	454	0,032	8000	416
4	0,40	12	0,400	9700	1358	0,320	8400	1008	0,200	7200	648	0,160	6700	536
4	0,40	16	0,320	9600	1248	0,250	8300	979	0,170	7200	634	0,130	6700	509
4	0,40	20	0,280	9500	1216	0,210	8300	963	0,140	7200	605	0,110	6700	469
4	0,40	35	0,140	8600	1032	0,120	7500	825	0,070	6400	538	0,050	6000	408
4	0,40	50	0,090	8500	969	0,075	7400	740	0,050	6400	512	0,040	6000	384
5	0,50	25	0,330	7500	900	0,300	6400	768	0,120	5700	479	0,100	5400	378
5	0,50	40	0,180	7400	740	0,200	6300	630	0,100	5500	418	0,080	5400	302
6	0,50	30	0,380	6400	896	0,340	5300	689	0,200	6600	594	0,150	6200	496
6	0,50	50	0,180	6300	756	0,210	5300	530	0,110	6500	520	0,080	6100	366

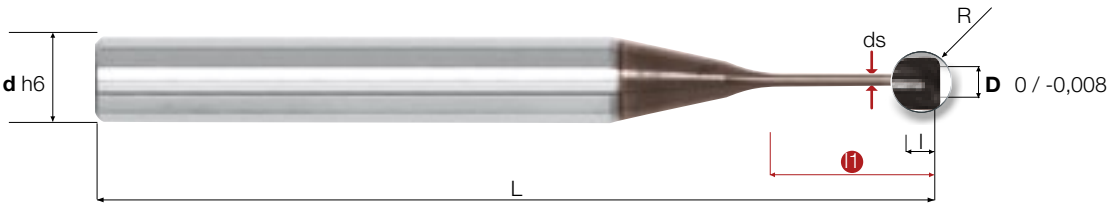
RACCOMANDAZIONI: se la macchina non dovesse disporre dei giri mandrino richiesti, si consiglia l'adattamento dell'avanzamento con lo stesso rapporto.

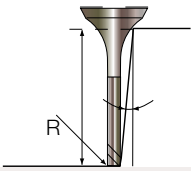
WARNING: If the cutting machine rpm available is lower than recommended reduce the feed rate to the same ratio.

EMPFEHLUNGEN: Wenn das Gerät nicht über die Runden Spindel erforderlich, empfehlen wir die Anpassung des Fortschritts mit dem gleichen Verhältnis.

RECOMMANDATIONS: Si la machine ne devait pas disposer des vitesses de broches requises, nous vous conseillons d'adapter l'avance avec le même rapport.

RECOMENDACIONES: Si la máquina no dispone de las revoluciones necesarias, se aconseja utilizar las máximas posibles manteniendo el mismo avance por diente indicado.





cod.	D -0,008	ds	l	l1	L	R	dh6	Z	EVOtech	0,5°	1°	1,5°	2°	2,5°	3°
										Actual Effective Length in incline angles					
892320050	0,5	0,48	1,00	4	50	0,10	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892320051	0,5	0,48	1,00	6	50	0,10	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
892320052	0,5	0,48	0,35	4	50	0,10	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892320053	0,5	0,48	0,35	6	50	0,10	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
892320060	0,6	0,58	1,00	4	50	0,10	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892320061	0,6	0,58	1,00	6	50	0,10	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
892320062	0,6	0,58	0,40	4	50	0,10	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
892320063	0,6	0,58	0,40	8	50	0,10	4	2	KMX	9,3	9,85	10,31	10,7	11,06	11,39
892320080	0,8	0,77	1,00	4	50	0,10	4	2	KMX	5,04	5,43	5,77	6,08	6,36	6,63
892320081	0,8	0,77	1,00	6	50	0,10	4	2	KMX	7,2	7,66	8,07	8,42	8,75	9,05
892320082	0,8	0,77	0,50	2	50	0,10	4	2	KMX	2,83	3,14	3,39	3,64	3,86	4,09
892320083	0,8	0,77	0,50	6	50	0,10	4	2	KMX	7,2	7,66	8,06	8,42	8,75	9,05
892320084	0,8	0,77	0,50	10	50	0,10	4	2	KMX	11,47	12,03	12,55	12,98	13,36	13,69
892320100	1	0,95	1,00	5	58	0,10	6	2	KMX	6,21	6,63	6,95	7,31	7,61	7,89
892320101	1	0,95	1,00	10	58	0,10	6	2	KMX	11,53	12,12	12,6	13,02	13,4	13,75
892320102	1	0,95	0,80	3	50	0,10	4	2	KMX	4,05	4,35	4,67	4,94	5,19	5,43
892320103	1	0,95	0,80	4	50	0,10	4	2	KMX	5,13	5,51	5,83	6,13	6,41	6,67
892320104	1	0,95	0,80	6	50	0,10	4	2	KMX	7,27	7,74	8,12	8,47	8,79	9,08
892320105	1	0,95	0,80	8	50	0,10	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,44
892320106	1	0,95	0,80	10	50	0,10	4	2	KMX	11,53	12,11	12,6	13,02	13,4	13,75
892320107	1	0,95	0,80	12	55	0,10	4	2	KMX	13,63	14,28	14,8	15,25	15,65	16,03
892320108	1	0,95	0,80	16	55	0,10	4	2	KMX	17,85	18,58	19,16	19,66	20,23	21,34
892320109	1	0,95	0,80	20	60	0,10	4	2	KMX	22,03	22,83	23,47	24,02	25,27	26,65
892320120	1,2	1,15	1,10	8	50	0,10	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,43
892320121	1,2	1,15	1,10	12	55	0,10	4	2	KMX	13,64	14,28	14,8	15,25	15,65	16,03
892320140	1,4	1,34	1,30	8	50	0,10	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
892320141	1,4	1,34	1,30	16	55	0,10	4	2	KMX	17,87	18,59	19,17	19,67	20,26	21,37
892320150	1,5	1,44	1,50	8	58	0,15	6	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
892320151	1,5	1,44	1,50	12	58	0,15	6	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
892320152	1,5	1,44	1,35	8	50	0,15	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
892320153	1,5	1,44	1,35	12	55	0,15	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
892320154	1,5	1,44	1,35	20	60	0,15	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
892320160	1,6	1,54	1,40	12	55	0,15	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
892320161	1,6	1,54	1,40	20	60	0,15	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
892320180	1,8	1,73	1,60	12	55	0,15	4	2	KMX	13,7	14,32	14,83	15,28	15,68	16,1
892320181	1,8	1,73	1,60	20	60	0,15	4	2	KMX	22,07	22,87	23,5	24,08	–	–
892320200	2	1,92	2,00	10	58	0,20	6	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
892320201	2	1,92	1,70	6	50	0,20	4	2	KMX	7,4	7,83	8,2	8,54	8,85	9,14
892320202	2	1,92	1,70	8	50	0,20	4	2	KMX	9,52	10,02	10,44	10,82	11,16	11,48
892320203	2	1,92	1,70	10	50	0,20	4	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
892320204	2	1,92	1,70	12	55	0,20	4	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
892320205	2	1,92	1,70	16	55	0,20	4	2	KMX	17,92	18,63	19,2	19,7	20,32	–
892320206	2	1,92	1,70	20	60	0,20	4	2	KMX	22,1	22,89	23,52	24,11	–	–
892320207	2	1,92	1,70	25	65	0,20	4	2	KMX	27,29	28,17	28,86	–	–	–
892320208	2	1,92	1,70	30	70	0,20	4	2	KMX	32,47	33,43	34,38	–	–	–
892320212	2	1,92	2,00	12	58	0,20	6	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
892320216	2	1,92	2,00	16	65	0,20	6	2	KMX	17,92	18,63	19,2	19,7	20,32	21,44
892320220	2	1,92	2,00	20	65	0,20	6	2	KMX	22,1	22,89	23,52	24,11	25,36	26,75
892320250	2,5	2,40	2,00	13	58	0,25	6	2	KMX	14,84	15,46	15,98	16,43	16,84	17,51
892320308	3	2,85	3,00	8	58	0,30	6	2	KMX	9,71	10,17	10,57	10,93	11,26	11,57
892320310	3	2,85	2,50	10	58	0,30	6	2	KMX	11,81	12,33	12,77	13,16	13,53	13,86
892320312	3	2,85	3,00	12	58	0,30	6	2	KMX	13,91	14,47	14,96	15,38	15,77	16,33
892320316	3	2,85	3,00	16	65	0,30	6	2	KMX	18,08	18,74	19,29	19,77	20,51	21,63
892320320	3	2,85	4,00	20	65	0,30	6	2	KMX	22,24	22,98	23,59	24,28	25,54	26,94
892320325	3	2,85	2,50	25	70	0,30	6	2	KMX	27,42	28,26	28,93	30,27	31,84	–
892320335	3	2,85	2,50	35	80	0,30	6	2	KMX	37,75	38,74	40,25	42,23	–	–
892320400	4	3,90	3,00	16	60	0,40	6	2	KMX	17,96	18,65	19,22	19,71	20,36	–
892320401	4	3,90	3,00	35	80	0,40	6	2	KMX	37,66	38,67	39,87	–	–	–
892320402	4	3,90	3,00	50	100	0,40	6	2	KMX	53,1	54,66	–	–	–	–
892320412	4	3,90	4,50	12	58	0,40	6	2	KMX	13,77	14,37	14,87	15,31	15,7	16,17
892320416	4	3,90	4,50	16	58	0,40	6	2	KMX	17,96	18,65	19,22	19,71	20,36	20,87
892320420	4	3,90	5,00	20	65	0,40	6	2	KMX	22,12	22,9	23,52	24,14	–	–
892320500	5	4,90	3,50	25	70	0,50	6	2	KMX	27,34	28,58	–	–	–	–
892320501	5	4,90	3,50	40	80	0,50	6	2	KMX	42,98	–	–	–	–	–
892320600	6	5,90	6,00	30	75	0,50	6	2	KMX	–	–	–	–	–	–
892320601	6	5,90	6,00	50	100	0,50	6	2	KMX	–	–	–	–	–	–

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STABILITY
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Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
micro 89232	○	○	●	●	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

89130

			Acciai ≤ 45 HRC – Rame Steels ≤ 45 HRC – Copper (n - Fz +20%)				Acciai da utensili Tool steel (25÷45 HRC)				Acciai temprati ≤ 54 HRC Hardened steels ≤ 54 HRC				Acciai temprati > 54 HRC Hardened steels > 54 HRC			
D mm	R mm	l1	ap mm	ae mm	n	Vf	ap mm	ae mm	n	Vf	ap mm	ae mm	n	Vf	ap mm	ae mm	n	Vf
0,5	0,25	4	0,020	0,055	36000	1944	0,017	0,051	31500	1575	0,012	0,040	27000	1296	0,012	0,035	25000	1000
0,5	0,25	6	0,012	0,040	32000	1536	0,010	0,033	28000	1232	0,008	0,025	24000	1008	0,007	0,020	22000	704
0,6	0,3	4	0,024	0,070	36000	2160	0,020	0,060	31500	2016	0,015	0,045	26500	1590	0,011	0,040	25000	1250
0,6	0,3	6	0,015	0,045	32000	1920	0,013	0,038	28000	1568	0,010	0,029	24000	1200	0,090	0,026	22500	990
0,6	0,3	8	0,015	0,043	31500	1890	0,012	0,040	29000	1624	0,009	0,030	23500	1175	0,008	0,022	22000	968
0,8	0,4	2	0,060	0,200	40000	2880	0,068	0,200	35000	2520	0,050	0,145	30000	1800	0,040	0,140	28000	1400
0,8	0,4	4	0,055	0,160	40000	2880	0,046	0,140	35000	2450	0,040	0,100	30000	1680	0,034	0,100	28000	1400
0,8	0,4	6	0,035	0,100	35500	2343	0,027	0,082	31500	2142	0,020	0,060	27000	1620	0,018	0,060	25500	1275
0,8	0,4	10	0,020	0,060	32000	1920	0,017	0,054	28000	1568	0,013	0,040	24000	1200	0,010	0,035	22500	900
1	0,5	3	0,100	0,290	36000	3096	0,085	0,220	31500	2709	0,063	0,190	27000	1890	0,055	0,180	25000	1550
1	0,5	4	0,070	0,210	36000	3096	0,055	0,175	31500	2709	0,050	0,140	27000	1890	0,040	0,120	25000	1550
1	0,5	5	0,050	0,130	33000	2640	0,038	0,100	28500	2394	0,040	0,080	25000	1700	0,025	0,075	22500	1350
1	0,5	6	0,040	0,120	32000	2496	0,034	0,095	28200	2369	0,030	0,078	24500	1617	0,022	0,070	22300	1338
1	0,5	8	0,040	0,120	32000	2496	0,034	0,095	28200	2312	0,025	0,078	24500	1617	0,022	0,070	22300	1338
1	0,5	10	0,025	0,080	32000	2496	0,023	0,058	28200	2256	0,015	0,050	24200	1597	0,015	0,042	22300	1338
1	0,5	12	0,022	0,075	29000	2088	0,020	0,058	25200	1714	0,015	0,045	22000	1408	0,013	0,040	20200	1050
1	0,5	16	0,015	0,045	28500	1824	0,013	0,038	25200	1512	0,010	0,030	21700	1128	0,010	0,024	20200	929
1	0,5	20	0,010	0,030	22000	1320	0,008	0,025	18900	1096	0,006	0,020	16000	800	0,008	0,014	15000	660
1,2	0,6	8	0,040	0,120	28500	2280	0,035	0,100	25200	2016	0,025	0,075	21500	1505	0,022	0,072	20100	1286
1,2	0,6	12	0,030	0,090	28500	2280	0,025	0,080	25200	1966	0,020	0,060	21500	1462	0,016	0,055	20100	1206
1,4	0,7	8	0,050	0,160	25100	2008	0,047	0,140	22000	1760	0,035	0,100	19000	1330	0,030	0,095	17500	1120
1,4	0,7	16	0,035	0,110	22500	1710	0,030	0,090	19700	1340	0,022	0,070	17000	1122	0,020	0,060	15800	948
1,5	0,75	8	0,060	0,160	25200	2016	0,050	0,150	22000	1760	0,037	0,120	19000	1330	0,030	0,090	17500	1120
1,5	0,75	12	0,055	0,150	25200	1966	0,045	0,150	22000	1672	0,035	0,110	19000	1254	0,030	0,095	17500	1050
1,5	0,75	20	0,040	0,110	22500	1530	0,030	0,100	19500	1326	0,025	0,070	17000	1020	0,020	0,060	15500	806
1,6	0,8	12	0,060	0,185	23000	2070	0,050	0,160	20400	1754	0,040	0,120	17500	1400	0,035	0,100	16200	1134
1,6	0,8	20	0,040	0,120	20700	1656	0,034	0,100	18200	1347	0,025	0,080	15500	1085	0,020	0,065	14500	870
1,8	0,9	12	0,070	0,200	23300	2097	0,060	0,170	20500	1845	0,045	0,130	17500	1400	0,040	0,120	16500	1155
1,8	0,9	20	0,040	0,130	21000	1680	0,038	0,115	18200	1456	0,030	0,090	15500	1085	0,025	0,075	14500	870
2	1	6	0,200	0,600	21000	3150	0,170	0,500	18400	2723	0,130	0,390	15600	1872	0,120	0,360	14600	1460
2	1	8	0,140	0,410	21000	3150	0,118	0,350	18400	2686	0,090	0,275	15600	1872	0,080	0,250	14600	1460
2	1	10	0,130	0,400	21000	3150	0,119	0,360	18400	2650	0,090	0,275	15600	1810	0,078	0,230	14600	1460
2	1	12	0,080	0,250	19000	2584	0,068	0,200	16500	2211	0,055	0,155	14100	1607	0,050	0,140	13200	1294
2	1	16	0,080	0,240	18800	2482	0,068	0,200	16500	2178	0,052	0,150	14100	1579	0,048	0,140	13200	1294
2	1	20	0,050	0,150	18700	2431	0,045	0,125	16500	2145	0,032	0,100	14100	1579	0,030	0,085	13200	1267
2	1	25	0,048	0,145	16800	2016	0,042	0,125	14700	1617	0,033	0,090	12500	1300	0,028	0,085	11800	1062
2	1	30	0,035	0,090	16700	1837	0,025	0,075	14700	1588	0,021	0,060	12500	1250	0,015	0,052	11800	1015
2,5	1,25	13	0,150	0,400	16500	1980	0,100	0,260	15500	2170	0,080	0,220	11500	1104	0,075	0,140	10900	1003
3	1,5	8	0,300	0,900	16000	2400	0,250	0,750	14000	1988	0,190	0,580	12000	1440	0,180	0,520	11300	1175
3	1,5	10	0,210	0,630	16000	2400	0,180	0,520	14000	1988	0,130	0,400	12000	1416	0,120	0,380	11200	1142
3	1,5	12	0,200	0,580	14500	1943	0,177	0,510	12600	1714	0,130	0,390	11000	1276	0,120	0,360	11000	1100
3	1,5	16	0,200	0,550	14500	1885	0,160	0,500	12600	1638	0,125	0,360	11000	1210	0,110	0,350	11000	1056
3	1,5	20	0,150	0,340	13800	1766	0,078	0,200	12000	1488	0,110	0,330	10400	1061	0,095	0,300	10300	906
3	1,5	25	0,085	0,240	13800	1766	0,070	0,190	12000	1464	0,055	0,150	10400	1061	0,040	0,140	10100	889
3	1,5	35	0,075	0,230	12900	1548	0,067	0,190	11200	1232	0,050	0,154	9600	960	0,040	0,138	9000	756
4	2	12	0,300	1,000	11500	2300	0,340	1,000	10000	1900	0,250	0,750	8600	1290	0,230	0,700	8000	1120
4	2	16	0,270	0,830	11500	2300	0,230	0,700	10000	1860	0,170	0,530	8600	1273	0,150	0,450	8000	1120
4	2	20	0,200	0,550	11000	1980	0,160	0,500	10000	1800	0,090	0,400	8200	1148	0,100	0,250	7500	990
4	2	35	0,100	0,300	10300	1751	0,090	0,250	9000	1530	0,070	0,190	7600	1049	0,060	0,180	7200	936
4	2	50	0,090	0,260	9250	1480	0,080	0,250	8000	1200	0,065	0,190	6900	925	0,050	0,170	6400	768
5	2,5	25	0,350	1,000	9000	2160	0,300	0,900	7900	1896	0,220	0,650	6700	1206	0,200	0,600	6300	1071
5	2,5	40	0,200	0,600	8200	1804	0,170	0,500	7000	1400	0,125	0,400	6100	1074	0,110	0,350	5700	946
6	3	30	0,400	1,100	8000	1920	0,320	1,000	7000	1680	0,250	0,800	6000	1140	0,230	0,710	5500	957
6	3	50	0,150	0,450	7250	1523	0,130	0,360	6300	1411	0,100	0,280	5450	981	0,080	0,250	5100	867

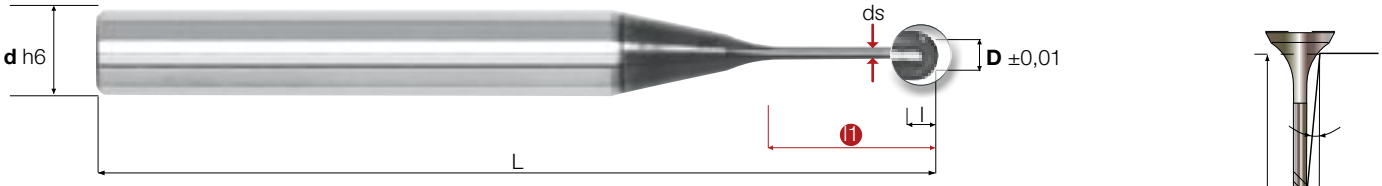
RACCOMANDAZIONI: se la macchina non dovesse disporre dei giri mandrino richiesti, si consiglia l'adattamento dell'avanzamento con lo stesso rapporto.

WARNING: If the cutting machine rpm available is lower than recommended reduce the feed rate to the same ratio.

EMPFEHLUNGEN: Wenn das Gerät nicht über die Runden Spindel erforderlich, empfehlen wir die Anpassung des Fortschritts mit dem gleichen Verhältnis.

RECOMMANDATIONS: Si la machine ne devait pas disposer des vitesses de broches requises, nous vous conseillons d'adapter l'avance avec le même rapport.

RECOMENDACIONES: Si la máquina no dispone de las revoluciones necesarias, se aconseja utilizar las máximas posibles manteniendo el mismo avance por diente indicado.



cod.	D±0,01	ds	l	l1	L	R	dh6	Z	SKIN plus UOP COATING	0,5°	1°	1,5°	2°	2,5°	3°
										ACTUAL EFFECTIVE LENGTH IN INCLINE ANGLES						
891300050	0,5	0,48	1	4	50	0,25	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891300051	0,5	0,48	1	6	50	0,25	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
891300052	0,5	0,48	0,35	4	50	0,25	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891300053	0,5	0,48	0,35	6	50	0,25	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
891300060	0,6	0,58	1	4	50	0,3	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891300061	0,6	0,48	1	6	50	0,3	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
891300062	0,6	0,48	0,4	4	50	0,3	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891300063	0,6	0,48	0,4	8	50	0,3	4	2	KMX	9,3	9,85	10,31	10,7	11,06	11,39
891300080	0,8	0,77	1	4	50	0,4	4	2	KMX	5,04	5,43	5,77	6,08	6,36	6,63
891300081	0,8	0,77	1	6	50	0,4	4	2	KMX	7,2	7,66	8,07	8,42	8,75	9,05
891300082	0,8	0,77	0,5	2	50	0,4	4	2	KMX	2,83	3,14	3,39	3,64	3,86	4,09
891300083	0,8	0,77	0,5	6	50	0,4	4	2	KMX	7,2	7,66	8,06	8,42	8,75	9,05
891300084	0,8	0,77	0,5	10	50	0,4	4	2	KMX	11,47	12,03	12,55	12,98	13,36	13,69
891300100	1	0,95	1	5	58	0,5	6	2	KMX	6,21	6,63	6,95	7,31	7,61	7,89
891300101	1	0,95	1	10	58	0,5	6	2	KMX	11,53	12,12	12,6	13,02	13,4	13,75
891300102	1	0,95	0,8	3	50	0,5	4	2	KMX	4,05	4,35	4,67	4,94	5,19	5,43
891300103	1	0,95	0,8	4	50	0,5	4	2	KMX	5,13	5,51	5,83	6,13	6,41	6,67
891300104	1	0,95	0,8	6	50	0,5	4	2	KMX	7,27	7,74	8,12	8,47	8,79	9,08
891300105	1	0,95	0,8	8	50	0,5	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,44
891300106	1	0,95	0,8	10	50	0,5	4	2	KMX	11,53	12,11	12,6	13,02	13,4	13,75
891300107	1	0,95	0,8	12	55	0,5	4	2	KMX	13,63	14,28	14,8	15,25	15,65	16,03
891300108	1	0,95	0,8	16	55	0,5	4	2	KMX	17,85	18,58	19,16	19,66	20,23	21,34
891300109	1	0,95	0,8	20	60	0,5	4	2	KMX	22,03	22,83	23,47	24,02	25,27	26,65
891300120	1,2	1,15	1,1	8	50	0,6	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,43
891300121	1,2	1,15	1,1	12	55	0,6	4	2	KMX	13,64	14,28	14,8	15,25	15,65	16,03
891300140	1,4	1,34	1,3	8	50	0,7	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
891300141	1,4	1,34	1,3	16	55	0,7	4	2	KMX	17,87	18,59	19,17	19,67	20,26	21,37
891300150	1,5	1,44	1,5	8	58	0,75	6	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
891300151	1,5	1,44	1,5	12	58	0,75	6	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
891300152	1,5	1,44	1,35	8	50	0,75	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
891300153	1,5	1,44	1,35	12	55	0,75	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
891300154	1,5	1,44	1,35	20	60	0,75	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
891300160	1,6	1,54	1,4	12	55	0,8	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
891300161	1,6	1,54	1,4	20	60	0,8	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
891300180	1,8	1,73	1,6	12	55	0,9	4	2	KMX	13,7	14,32	14,83	15,28	15,68	16,1
891300181	1,8	1,73	1,6	20	60	0,9	4	2	KMX	22,07	22,87	23,5	24,08	–	–
891300200	2	1,92	2	10	58	1	6	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
891300201	2	1,92	1,7	6	50	1	4	2	KMX	7,4	7,83	8,2	8,54	8,85	9,14
891300202	2	1,92	1,7	8	50	1	4	2	KMX	9,52	10,02	10,44	10,82	11,16	11,48
891300203	2	1,92	1,7	10	50	1	4	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
891300204	2	1,92	1,7	12	55	1	4	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
891300205	2	1,92	1,7	16	55	1	4	2	KMX	17,92	18,63	19,2	19,7	20,32	–
891300206	2	1,92	1,7	20	60	1	4	2	KMX	22,1	22,89	23,52	24,11	–	–
891300207	2	1,92	1,7	25	65	1	4	2	KMX	27,29	28,17	28,86	–	–	–
891300208	2	1,92	1,7	30	70	1	4	2	KMX	32,47	33,43	34,38	–	–	–
891300212	2	1,92	2	12	58	1	6	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
891300216	2	1,92	2	16	65	1	6	2	KMX	17,92	18,63	19,2	19,7	20,32	21,44
891300220	2	1,92	2	20	65	1	6	2	KMX	22,1	22,89	23,52	24,11	25,36	26,75
891300250	2,5	2,4	2	13	58	1,25	6	2	KMX	14,84	15,46	15,98	16,43	16,84	17,51
891300308	3	2,85	3	8	58	1,5	6	2	KMX	9,71	10,17	10,57	10,93	11,26	11,57
891300310	3	2,85	2,5	10	58	1,5	6	2	KMX	11,81	12,33	12,77	13,16	13,53	13,86
891300312	3	2,85	3	12	58	1,5	6	2	KMX	13,91	14,47	14,96	15,38	15,77	16,33
891300316	3	2,85	3	16	65	1,5	6	2	KMX	18,08	18,74	19,29	19,77	20,51	21,63
891300320	3	2,85	4	20	65	1,5	6	2	KMX	22,24	22,98	23,59	24,28	25,54	26,94
891300325	3	2,85	2,5	25	70	1,5	6	2	KMX	27,42	28,26	28,93	30,27	31,84	–
891300335	3	2,85	2,5	35	80	1,5	6	2	KMX	37,75	38,74	40,25	42,23	–	–
891300400	4	3,9	3	16	60	2	6	2	KMX	17,96	18,65	19,22	19,71	20,36	–
891300401	4	3,9	3	35	80	2	6	2	KMX	37,66	38,67	39,87	–	–	–
891300402	4	3,9	3	50	100	2	6	2	KMX	53,1	54,66	–	–	–	–
891300412	4	3,9	4,5	12	58	2	6	2	KMX	13,77	14,37	14,87	15,31	15,7	16,17
891300416	4	3,9	4,5	16	58	2	6	2	KMX	17,96	18,65	19,22	19,71	20,36	20,87
891300420	4	3,9	5	20	65	2	6	2	KMX	22,12	22,9	23,52	24,14	–	–
891300500	5	4,9	3,5	25	70	2,5	6	2	KMX	27,34	28,58	–	–	–	–
891300501	5	4,9	3,5	40	80	2,5	6	2	KMX	42,98	–	–	–	–	–
891300600	6	5,9	6	30	75	3	6	2	KMX	–	–	–	–	–	–
891300601	6	5,9	6	50	100	3	6	2	KMX	–	–	–	–	–	–

micro

89130

Z 2

BALL-NOSED CUTTERS

Frese 'MICRO' testa semisferica
Ball-nosed two flute 'MICRO' end mills
Halbrundfopffräser 'MICRO'
Fraises à bout hémisphérique 'MICRO'
Fresas hemisféricas'MICRO'

SKIN plus UOP COATING

Standard UOP

H

λ°s 30

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
micro 89130	○	○	●	●	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

89131

Diameter Tolerance ±0,01 mm

Materiale Material		Acciai ≤ 45 HRC – Rame Steels ≤ 45 HRC – Copper (n - Fz +20%)			Acciai da utensili Tool steel (25÷45 HRC)			Acciai temprati ≤ 54 HRC Hardened steels ≤ 54 HRC			Acciai temprati > 54 HRC Hardened steels > 54 HRC		
D mm	l1	a_p mm	n	Vf	a_p mm	n	Vf	a_p mm	n	Vf	a_p mm	n	Vf
0,5	4	0,020	29000	1044	0,016	25200	655	0,010	22000	528	0,008	20200	444
0,5	6	0,012	26000	832	0,010	22400	560	0,007	19400	388	0,005	18000	360
0,6	4	0,024	29000	1334	0,020	25200	1058	0,013	21500	688	0,011	20200	525
0,6	6	0,015	29000	1276	0,013	25200	1109	0,009	21500	688	0,007	20200	525
0,6	8	0,015	26000	1040	0,012	22400	806	0,009	19400	543	0,006	18000	432
0,8	2	0,060	33000	1716	0,045	28000	1288	0,028	24000	864	0,022	22500	630
0,8	4	0,055	31000	1488	0,040	26000	1040	0,021	22000	660	0,017	20000	480
0,8	6	0,035	29000	1276	0,026	25000	1000	0,016	21500	602	0,013	20000	440
0,8	10	0,015	26000	1040	0,010	22000	792	0,006	20000	480	0,006	18000	360
1	3	0,100	29000	1624	0,085	25000	1300	0,050	22000	880	0,045	20200	646
1	4	0,070	29000	1624	0,055	25000	1300	0,035	22000	880	0,028	20200	646
1	5	0,055	27000	1350	0,040	23000	1104	0,030	20500	820	0,020	19000	608
1	6	0,040	26000	1248	0,034	22000	1012	0,020	19500	741	0,016	18300	549
1	8	0,040	26000	1248	0,032	22000	1012	0,019	19500	702	0,016	18300	549
1	10	0,025	26000	1248	0,021	21500	989	0,015	19500	663	0,010	18200	546
1	12	0,024	23000	1058	0,020	20100	844	0,015	17500	560	0,010	16200	454
1	16	0,016	23000	1012	0,012	20000	720	0,010	17300	484	0,008	16000	384
1	20	0,010	22000	792	0,008	19000	570	0,006	16500	330	0,006	15000	300
1,2	8	0,075	26000	1560	0,065	22400	1165	0,040	19200	691	0,030	17800	570
1,2	12	0,030	23500	1316	0,024	20100	965	0,015	17400	557	0,012	16200	486
1,4	8	0,090	22500	1350	0,08	19000	988	0,040	16500	660	0,035	15700	502
1,4	16	0,035	18000	900	0,027	15600	655	0,018	13500	432	0,015	12500	350
1,5	8	0,100	22500	1350	0,080	19600	1058	0,050	16800	672	0,040	15700	502
1,5	12	0,060	20200	1212	0,045	19600	1019	0,030	15200	578	0,025	14200	454
1,5	20	0,030	15500	713	0,020	15200	699	0,020	12000	384	0,016	10500	273
1,6	12	0,070	19000	1216	0,055	16400	918	0,034	14000	616	0,025	13100	472
1,6	20	0,040	16700	935	0,034	14500	667	0,020	12500	500	0,017	11800	378
1,8	12	0,070	19000	1216	0,060	16400	951	0,035	14000	616	0,030	13100	498
1,8	20	0,040	16500	924	0,035	14500	783	0,023	12500	450	0,018	11700	374
2	6	0,200	17000	1360	0,160	14500	1044	0,100	12600	655	0,080	11800	543
2	8	0,140	17000	1360	0,110	14500	1044	0,070	12600	655	0,055	11800	543
2	10	0,135	17000	1360	0,110	14500	1044	0,070	12500	625	0,055	11700	515
2	12	0,080	15200	1216	0,060	13200	898	0,040	11400	570	0,032	10600	445
2	16	0,080	15200	1155	0,064	13200	871	0,040	11300	542	0,031	10500	441
2	20	0,050	15100	1057	0,040	13200	871	0,025	11300	542	0,020	10500	420
2	25	0,047	13500	918	0,040	12100	678	0,025	10100	465	0,020	9400	357
2	30	0,030	13200	871	0,024	11550	601	0,015	10000	420	0,012	9300	335
2,5	13	0,160	14000	1400	0,140	12500	1150	0,080	10700	685	0,072	10000	560
3	8	0,300	13000	1300	0,240	11100	1021	0,150	9600	634	0,120	9000	540
3	10	0,250	13000	1040	0,165	11000	990	0,110	9600	614	0,100	9000	540
3	12	0,200	13000	1040	0,160	11000	968	0,100	9600	595	0,080	9000	540
3	16	0,160	12000	936	0,090	10000	800	0,080	8900	534	0,060	8500	493
3	20	0,120	11500	874	0,082	10000	780	0,060	8600	499	0,050	8100	454
3	25	0,090	11500	851	0,065	9950	776	0,050	8500	476	0,040	8000	432
3	35	0,070	11000	770	0,060	9800	725	0,040	8400	454	0,032	8000	416
4	12	0,400	9700	1358	0,320	8400	1008	0,200	7200	648	0,160	6700	536
4	16	0,320	9600	1248	0,250	8300	979	0,170	7200	634	0,130	6700	509
4	20	0,280	9500	1216	0,210	8300	963	0,140	7200	605	0,110	6700	469
4	35	0,140	8600	1032	0,120	7500	825	0,070	6400	538	0,050	6000	408
4	50	0,090	8500	969	0,075	7400	740	0,050	6400	512	0,040	6000	384
5	25	0,330	7500	900	0,300	6400	768	0,120	5700	479	0,100	5400	378
5	40	0,180	7400	740	0,200	6300	630	0,100	5500	418	0,080	5400	302
6	30	0,380	6400	896	0,340	5300	689	0,200	6600	594	0,150	6200	496
6	50	0,180	6300	756	0,210	5300	530	0,110	6500	520	0,080	6100	366

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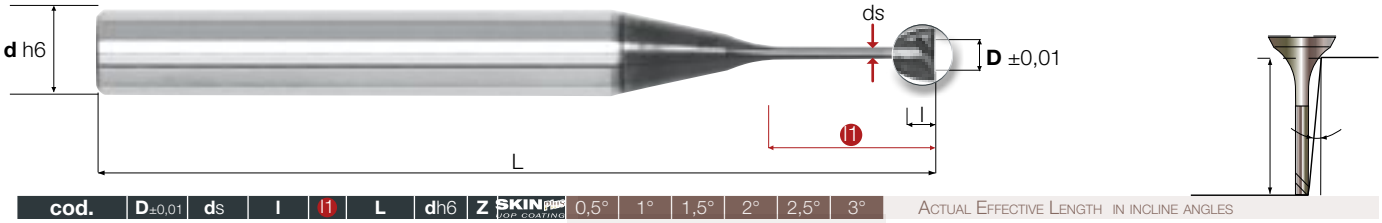
RECOMMANDATIONS: Si la machine ne devait pas disposer des vitesses de broches requises, nous vous conseillons d'adapter l'avance avec le même rapport.

RECOMENDACIONES: Si la máquina no dispone de las revoluciones necesarias, se aconseja utilizar las máximas posibles manteniendo el mismo avance por diente indicado.



cod.	D±0,01	ds	l	l1	L	dh6	Z	SKIN Plus UOP COATING	0,5°	1°	1,5°	2°	2,5°	3°
891310050	0,5	0,48	1	4	50	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891310051	0,5	0,48	1	6	50	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
891310052	0,5	0,48	0,35	4	50	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891310053	0,5	0,48	0,35	6	50	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
891310060	0,6	0,58	1	4	50	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891310061	0,6	0,48	1	6	50	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
891310062	0,6	0,48	0,4	4	50	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891310063	0,6	0,48	0,4	8	50	4	2	KMX	9,3	9,85	10,31	10,7	11,06	11,39
891310080	0,8	0,77	1	4	50	4	2	KMX	5,04	5,43	5,77	6,08	6,36	6,63
891310081	0,8	0,77	1	6	50	4	2	KMX	7,2	7,66	8,07	8,42	8,75	9,05
891310082	0,8	0,77	0,5	2	50	4	2	KMX	2,83	3,14	3,39	3,64	3,86	4,09
891310083	0,8	0,77	0,5	6	50	4	2	KMX	7,2	7,66	8,06	8,42	8,75	9,05
891310084	0,8	0,77	0,5	10	50	4	2	KMX	11,47	12,03	12,55	12,98	13,36	13,69
891310100	1	0,95	1	5	58	6	2	KMX	6,21	6,63	6,95	7,31	7,61	7,89
891310101	1	0,95	1	10	58	6	2	KMX	11,53	12,12	12,6	13,02	13,4	13,75
891310102	1	0,95	0,8	3	50	4	2	KMX	4,05	4,35	4,67	4,94	5,19	5,43
891310103	1	0,95	0,8	4	50	4	2	KMX	5,13	5,51	5,83	6,13	6,41	6,67
891310104	1	0,95	0,8	6	50	4	2	KMX	7,27	7,74	8,12	8,47	8,79	9,08
891310105	1	0,95	0,8	8	50	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,44
891310106	1	0,95	0,8	10	50	4	2	KMX	11,53	12,11	12,6	13,02	13,4	13,75
891310107	1	0,95	0,8	12	55	4	2	KMX	13,63	14,28	14,8	15,25	15,65	16,03
891310108	1	0,95	0,8	16	55	4	2	KMX	17,85	18,58	19,16	19,66	20,23	21,34
891310109	1	0,95	0,8	20	60	4	2	KMX	22,03	22,83	23,47	24,02	25,27	26,65
891310120	1,2	1,15	1,1	8	50	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,43
891310121	1,2	1,15	1,1	12	55	4	2	KMX	13,64	14,28	14,8	15,25	15,65	16,03
891310140	1,4	1,34	1,3	8	50	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
891310141	1,4	1,34	1,3	16	55	4	2	KMX	17,87	18,59	19,17	19,67	20,26	21,37
891310150	1,5	1,44	1,5	8	58	6	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
891310151	1,5	1,44	1,5	12	58	6	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
891310152	1,5	1,44	1,35	8	50	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
891310153	1,5	1,44	1,35	12	55	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
891310154	1,5	1,44	1,35	20	60	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
891310160	1,6	1,54	1,4	12	55	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
891310161	1,6	1,54	1,4	20	60	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
891310180	1,8	1,73	1,6	12	55	4	2	KMX	13,7	14,32	14,83	15,28	15,68	16,1
891310181	1,8	1,73	1,6	20	60	4	2	KMX	22,07	22,87	23,5	24,08	–	–
891310200	2	1,92	2	10	58	6	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
891310201	2	1,92	1,7	6	50	4	2	KMX	7,4	7,83	8,2	8,54	8,85	9,14
891310202	2	1,92	1,7	8	50	4	2	KMX	9,52	10,02	10,44	10,82	11,16	11,48
891310203	2	1,92	1,7	10	50	4	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
891310204	2	1,92	1,7	12	55	4	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
891310205	2	1,92	1,7	16	55	4	2	KMX	17,92	18,63	19,2	19,7	20,32	–
891310206	2	1,92	1,7	20	60	4	2	KMX	22,1	22,89	23,52	24,11	–	–
891310207	2	1,92	1,7	25	65	4	2	KMX	27,29	28,17	28,86	–	–	–
891310208	2	1,92	1,7	30	70	4	2	KMX	32,47	33,43	34,38	–	–	–
891310212	2	1,92	2	12	58	6	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
891310216	2	1,92	2	16	65	6	2	KMX	17,92	18,63	19,2	19,7	20,32	21,44
891310220	2	1,92	2	20	65	6	2	KMX	22,1	22,89	23,52	24,11	25,36	26,75
891310250	2,5	2,4	2	13	58	6	2	KMX	14,84	15,46	15,98	16,43	16,84	17,51
891310308	3	2,85	3	8	58	6	2	KMX	9,71	10,17	10,57	10,93	11,26	11,57
891310310	3	2,85	2,5	10	58	6	2	KMX	11,81	12,33	12,77	13,16	13,53	13,86
891310312	3	2,85	3	12	58	6	2	KMX	13,91	14,47	14,96	15,38	15,77	16,33
891310316	3	2,85	3	16	65	6	2	KMX	18,08	18,74	19,29	19,77	20,51	21,63
891310320	3	2,85	4	20	65	6	2	KMX	22,24	22,98	23,59	24,28	25,54	26,94
891310325	3	2,85	2,5	25	70	6	2	KMX	27,42	28,26	28,93	30,27	31,84	–
891310335	3	2,85	2,5	35	80	6	2	KMX	37,75	38,74	40,25	42,23	–	–
891310400	4	3,9	3	16	60	6	2	KMX	17,96	18,65	19,22	19,71	20,36	–
891310401	4	3,9	3	35	80	6	2	KMX	37,66	38,67	39,87	–	–	–
891310402	4	3,9	3	50	100	6	2	KMX	53,1	54,66	–	–	–	–
891310412	4	3,9	4,5	12	58	6	2	KMX	13,77	14,37	14,87	15,31	15,7	16,17
891310416	4	3,9	4,5	16	58	6	2	KMX	17,96	18,65	19,22	19,71	20,36	20,87
891310420	4	3,9	5	20	65	6	2	KMX	22,12	22,9	23,52	24,14	–	–
891310500	5	4,9	3,5	25	70	6	2	KMX	27,34	28,58	–	–	–	–
891310501	5	4,9	3,5	40	80	6	2	KMX	42,98	–	–	–	–	–
891310600	6	5,9	6	30	75	6	2	KMX	–	–	–	–	–	–
891310601	6	5,9	6	50	100	6	2	KMX	–	–	–	–	–	–

Actual Effective Length in incline angles

micro

89131

Z2

Frese 'MICRO' a testa piana
'MICRO' two flute end mills
Schaftfräser 'MICRO'
Fraises 'MICRO'
Fresas 'MICRO'

SKIN Plus UOP COATING

Standard UOP

H

λ°s 30

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
micro 89131	○	○	●	●	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

89132

			Acciai ≤ 45 HRC – Rame Steels ≤ 45 HRC – Copper (n - Fz +20%)			Acciai da utensili Tool steel (25÷45 HRC)			Acciai temprati ≤ 54 HRC Hardened steels ≤ 54 HRC			Acciai temprati > 54 HRC Hardened steels > 54 HRC		
D mm	R mm	l1	a_p mm	n	Vf	a_p mm	n	Vf	a_p mm	n	Vf	a_p mm	n	Vf
0,5	0,10	4	0,020	29000	1044	0,016	25200	655	0,010	22000	528	0,008	20200	444
0,5	0,10	6	0,012	26000	832	0,010	22400	560	0,007	19400	388	0,005	18000	360
0,6	0,10	4	0,024	29000	1334	0,020	25200	1058	0,013	21500	688	0,011	20200	525
0,6	0,10	6	0,015	29000	1276	0,013	25200	1109	0,009	21500	688	0,007	20200	525
0,6	0,10	8	0,015	26000	1040	0,012	22400	806	0,009	19400	543	0,006	18000	432
0,8	0,10	2	0,060	33000	1716	0,045	28000	1288	0,028	24000	864	0,022	22500	630
0,8	0,10	4	0,055	31000	1488	0,040	26000	1040	0,021	22000	660	0,017	20000	480
0,8	0,10	6	0,035	29000	1276	0,026	25000	1000	0,016	21500	602	0,013	20000	440
0,8	0,10	10	0,015	26000	1040	0,010	22000	792	0,006	20000	480	0,006	18000	360
1	0,10	3	0,100	29000	1624	0,085	25000	1300	0,050	22000	880	0,045	20200	646
1	0,10	4	0,070	29000	1624	0,055	25000	1300	0,035	22000	880	0,028	20200	646
1	0,10	5	0,055	27000	1350	0,040	23000	1104	0,030	20500	820	0,020	19000	608
1	0,10	6	0,040	26000	1248	0,034	22000	1012	0,020	19500	741	0,016	18300	549
1	0,10	8	0,040	26000	1248	0,032	22000	1012	0,019	19500	702	0,016	18300	549
1	0,10	10	0,025	26000	1248	0,021	21500	989	0,015	19500	663	0,010	18200	546
1	0,10	12	0,024	23000	1058	0,020	20100	844	0,015	17500	560	0,010	16200	454
1	0,10	16	0,016	23000	1012	0,012	20000	720	0,010	17300	484	0,008	16000	384
1	0,10	20	0,010	22000	792	0,008	19000	570	0,006	16500	330	0,006	15000	300
1,2	0,10	8	0,075	26000	1560	0,065	22400	1165	0,040	19200	691	0,030	17800	570
1,2	0,10	12	0,030	23500	1316	0,024	20100	965	0,015	17400	557	0,012	16200	486
1,4	0,10	8	0,090	22500	1350	0,08	19000	988	0,040	16500	660	0,035	15700	502
1,4	0,10	16	0,035	18000	900	0,027	15600	655	0,018	13500	432	0,015	12500	350
1,5	0,15	8	0,100	22500	1350	0,080	19600	1058	0,050	16800	672	0,040	15700	502
1,5	0,15	12	0,060	20200	1212	0,045	19600	1019	0,030	15200	578	0,025	14200	454
1,5	0,15	20	0,030	15500	713	0,020	15200	699	0,020	12000	384	0,016	10500	273
1,6	0,15	12	0,070	19000	1216	0,055	16400	918	0,034	14000	616	0,025	13100	472
1,6	0,15	20	0,040	16700	935	0,034	14500	667	0,020	12500	500	0,017	11800	378
1,8	0,15	12	0,070	19000	1216	0,060	16400	951	0,035	14000	616	0,030	13100	498
1,8	0,15	20	0,040	16500	924	0,035	14500	783	0,023	12500	450	0,018	11700	374
2	0,20	6	0,200	17000	1360	0,160	14500	1044	0,100	12600	655	0,080	11800	543
2	0,20	8	0,140	17000	1360	0,110	14500	1044	0,070	12600	655	0,055	11800	543
2	0,20	10	0,135	17000	1360	0,110	14500	1044	0,070	12500	625	0,055	11700	515
2	0,20	12	0,080	15200	1216	0,060	13200	898	0,040	11400	570	0,032	10600	445
2	0,20	16	0,080	15200	1155	0,064	13200	871	0,040	11300	542	0,031	10500	441
2	0,20	20	0,050	15100	1057	0,040	13200	871	0,025	11300	542	0,020	10500	420
2	0,20	25	0,047	13500	918	0,040	12100	678	0,025	10100	465	0,020	9400	357
2	0,20	30	0,030	13200	871	0,024	11550	601	0,015	10000	420	0,012	9300	335
2,5	0,25	13	0,160	14000	1400	0,140	12500	1150	0,080	10700	685	0,072	10000	560
3	0,30	8	0,300	13000	1300	0,240	11100	1021	0,150	9600	634	0,120	9000	540
3	0,30	10	0,250	13000	1040	0,165	11000	990	0,110	9600	614	0,100	9000	540
3	0,30	12	0,200	13000	1040	0,160	11000	968	0,100	9600	595	0,080	9000	540
3	0,30	16	0,160	12000	936	0,090	10000	800	0,080	8900	534	0,060	8500	493
3	0,30	20	0,120	11500	874	0,082	10000	780	0,060	8600	499	0,050	8100	454
3	0,30	25	0,090	11500	851	0,065	9950	776	0,050	8500	476	0,040	8000	432
3	0,30	35	0,070	11000	770	0,060	9800	725	0,040	8400	454	0,032	8000	416
4	0,40	12	0,400	9700	1358	0,320	8400	1008	0,200	7200	648	0,160	6700	536
4	0,40	16	0,320	9600	1248	0,250	8300	979	0,170	7200	634	0,130	6700	509
4	0,40	20	0,280	9500	1216	0,210	8300	963	0,140	7200	605	0,110	6700	469
4	0,40	35	0,140	8600	1032	0,120	7500	825	0,070	6400	538	0,050	6000	408
4	0,40	50	0,090	8500	969	0,075	7400	740	0,050	6400	512	0,040	6000	384
5	0,50	25	0,330	7500	900	0,300	6400	768	0,120	5700	479	0,100	5400	378
5	0,50	40	0,180	7400	740	0,200	6300	630	0,100	5500	418	0,080	5400	302
6	0,50	30	0,380	6400	896	0,340	5300	689	0,200	6600	594	0,150	6200	496
6	0,50	50	0,180	6300	756	0,210	5300	530	0,110	6500	520	0,080	6100	366

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EMPFEHLUNGEN: Wenn das Gerät nicht über die Runden Spindel erforderlich, empfehlen wir die Anpassung des Fortschritts mit dem gleichen Verhältnis.

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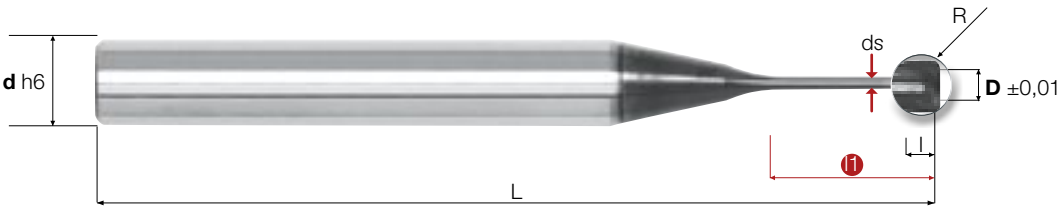
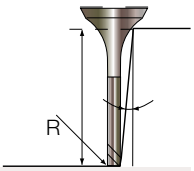
RECOMENDACIONES: Si la máquina no dispone de las revoluciones necesarias, se aconseja utilizar las máximas posibles manteniendo el mismo avance por diente indicado.





cod.	D±0,01	ds	l	l1	L	R	dh6	Z	SKIN plus UOP COATING	0,5°	1°	1,5°	2°	2,5°	3°
										ACTUAL EFFECTIVE LENGTH IN INCLINE ANGLES						
891320050	0,5	0,48	1	4	50	0,1	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891320051	0,5	0,48	1	6	50	0,1	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
891320052	0,5	0,48	0,35	4	50	0,1	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891320053	0,5	0,48	0,35	6	50	0,1	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
891320060	0,6	0,58	1	4	50	0,1	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891320061	0,6	0,48	1	6	50	0,1	4	2	KMX	7,16	7,64	8,05	8,4	8,73	9,03
891320062	0,6	0,48	0,4	4	50	0,1	4	2	KMX	4,99	5,4	5,74	6,05	6,34	6,6
891320063	0,6	0,48	0,4	8	50	0,1	4	2	KMX	9,3	9,85	10,31	10,7	11,06	11,39
891320080	0,8	0,77	1	4	50	0,1	4	2	KMX	5,04	5,43	5,77	6,08	6,36	6,63
891320081	0,8	0,77	1	6	50	0,1	4	2	KMX	7,2	7,66	8,07	8,42	8,75	9,05
891320082	0,8	0,77	0,5	2	50	0,1	4	2	KMX	2,83	3,14	3,39	3,64	3,86	4,09
891320083	0,8	0,77	0,5	6	50	0,1	4	2	KMX	7,2	7,66	8,06	8,42	8,75	9,05
891320084	0,8	0,77	0,5	10	50	0,1	4	2	KMX	11,47	12,03	12,55	12,98	13,36	13,69
891320100	1	0,95	1	5	58	0,1	6	2	KMX	6,21	6,63	6,95	7,31	7,61	7,89
891320101	1	0,95	1	10	58	0,1	6	2	KMX	11,53	12,12	12,6	13,02	13,4	13,75
891320102	1	0,95	0,8	3	50	0,1	4	2	KMX	4,05	4,35	4,67	4,94	5,19	5,43
891320103	1	0,95	0,8	4	50	0,1	4	2	KMX	5,13	5,51	5,83	6,13	6,41	6,67
891320104	1	0,95	0,8	6	50	0,1	4	2	KMX	7,27	7,74	8,12	8,47	8,79	9,08
891320105	1	0,95	0,8	8	50	0,1	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,44
891320106	1	0,95	0,8	10	50	0,1	4	2	KMX	11,53	12,11	12,6	13,02	13,4	13,75
891320107	1	0,95	0,8	12	55	0,1	4	2	KMX	13,63	14,28	14,8	15,25	15,65	16,03
891320108	1	0,95	0,8	16	55	0,1	4	2	KMX	17,85	18,58	19,16	19,66	20,23	21,34
891320109	1	0,95	0,8	20	60	0,1	4	2	KMX	22,03	22,83	23,47	24,02	25,27	26,65
891320120	1,2	1,15	1,1	8	50	0,1	4	2	KMX	9,41	9,93	10,37	10,76	11,11	11,43
891320121	1,2	1,15	1,1	12	55	0,1	4	2	KMX	13,64	14,28	14,8	15,25	15,65	16,03
891320140	1,4	1,34	1,3	8	50	0,1	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
891320141	1,4	1,34	1,3	16	55	0,1	4	2	KMX	17,87	18,59	19,17	19,67	20,26	21,37
891320150	1,5	1,44	1,5	8	58	0,15	6	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
891320151	1,5	1,44	1,5	12	58	0,15	6	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
891320152	1,5	1,44	1,35	8	50	0,15	4	2	KMX	9,45	9,96	10,4	10,78	11,13	11,45
891320153	1,5	1,44	1,35	12	55	0,15	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
891320154	1,5	1,44	1,35	20	60	0,15	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
891320160	1,6	1,54	1,4	12	55	0,15	4	2	KMX	13,67	14,3	14,82	15,26	15,67	16,06
891320161	1,6	1,54	1,4	20	60	0,15	4	2	KMX	22,05	22,85	23,49	24,05	25,3	–
891320180	1,8	1,73	1,6	12	55	0,15	4	2	KMX	13,7	14,32	14,83	15,28	15,68	16,1
891320181	1,8	1,73	1,6	20	60	0,15	4	2	KMX	22,07	22,87	23,5	24,08	–	–
891320200	2	1,92	2	10	58	0,2	6	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
891320201	2	1,92	1,7	6	50	0,2	4	2	KMX	7,4	7,83	8,2	8,54	8,85	9,14
891320202	2	1,92	1,7	8	50	0,2	4	2	KMX	9,52	10,02	10,44	10,82	11,16	11,48
891320203	2	1,92	1,7	10	50	0,2	4	2	KMX	11,63	12,19	12,66	13,07	13,44	13,79
891320204	2	1,92	1,7	12	55	0,2	4	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
891320205	2	1,92	1,7	16	55	0,2	4	2	KMX	17,92	18,63	19,2	19,7	20,32	–
891320206	2	1,92	1,7	20	60	0,2	4	2	KMX	22,1	22,89	23,52	24,11	–	–
891320207	2	1,92	1,7	25	65	0,2	4	2	KMX	27,29	28,17	28,86	–	–	–
891320208	2	1,92	1,7	30	70	0,2	4	2	KMX	32,47	33,43	34,38	–	–	–
891320212	2	1,92	2	12	58	0,2	6	2	KMX	13,73	14,35	14,85	15,29	15,69	16,13
891320216	2	1,92	2	16	65	0,2	6	2	KMX	17,92	18,63	19,2	19,7	20,32	21,44
891320220	2	1,92	2	20	65	0,2	6	2	KMX	22,1	22,89	23,52	24,11	25,36	26,75
891320250	2,5	2,4	2	13	58	0,25	6	2	KMX	14,84	15,46	15,98	16,43	16,84	17,51
891320308	3	2,85	3	8	58	0,3	6	2	KMX	9,71	10,17	10,57	10,93	11,26	11,57
891320310	3	2,85	2,5	10	58	0,3	6	2	KMX	11,81	12,33	12,77	13,16	13,53	13,86
891320312	3	2,85	3	12	58	0,3	6	2	KMX	13,91	14,47	14,96	15,38	15,77	16,33
891320316	3	2,85	3	16	65	0,3	6	2	KMX	18,08	18,74	19,29	19,77	20,51	21,63
891320320	3	2,85	4	20	65	0,3	6	2	KMX	22,24	22,98	23,59	24,28	25,54	26,94
891320325	3	2,85	2,5	25	70	0,3	6	2	KMX	27,42	28,26	28,93	30,27	31,84	–
891320335	3	2,85	2,5	35	80	0,3	6	2	KMX	37,75	38,74	40,25	42,23	–	–
891320400	4	3,9	3	16	60	0,4	6	2	KMX	17,96	18,65	19,22	19,71	20,36	–
891320401	4	3,9	3	35	80	0,4	6	2	KMX	37,66	38,67	39,87	–	–	–
891320402	4	3,9	3	50	100	0,4	6	2	KMX	53,1	54,66	–	–	–	–
891320412	4	3,9	4,5	12	58	0,4	6	2	KMX	13,77	14,37	14,87	15,31	15,7	16,17
891320416	4	3,9	4,5	16	58	0,4	6	2	KMX	17,96	18,65	19,22	19,71	20,36	20,87
891320420	4	3,9	5	20	65	0,4	6	2	KMX	22,12	22,9	23,52	24,14	–	–
891320500	5	4,9	3,5	25	70	0,5	6	2	KMX	27,34	28,58	–	–	–	–
891320501	5	4,9	3,5	40	80	0,5	6	2	KMX	42,98	–	–	–	–	–
891320600	6	5,9	6	30	75	0,5	6	2	KMX	–	–	–	–	–	–
891320601	6	5,9	6	50	100	0,5	6	2	KMX	–	–	–	–	–	–

micro

89132

Z2

TORIC CUTTERS

Frese 'MICRO' toroidali
'MICRO' Toric cutters
Torusfräser 'MICRO'
Fraises toriques 'MICRO'
Fresas toricas 'MICRO'

SKIN plus
UOP COATING

Standard UOP

H

λ°s 30

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
micro 89132	○	○	●	●	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

89133

Diameter Tolerance ± 0,01 mm

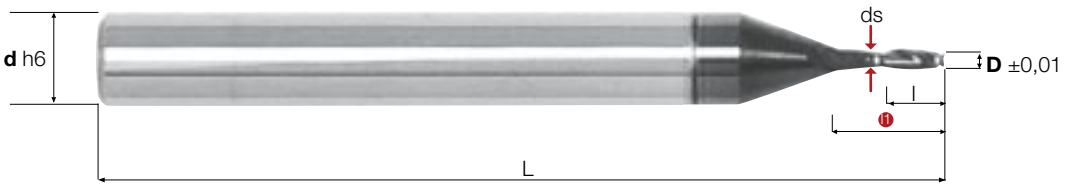
ap consigliata | *RECOMMENDED* 1,5ø
ae consigliata | *RECOMMENDED* 0,01ø

Materiale Material		**Acciai ≤ 45 HRC – Rame** Steels ≤ 45 HRC – Copper **(n - Fz +20%)**		**Acciai da utensili** Tool steel **(25÷45 HRC)**		**Acciai temprati ≤ 54 HRC** Hardened steels ≤ 54 HRC		**Acciai temprati > 54 HRC** Hardened steels > 54 HRC	
D mm	**l**	**n**	**Vf**	**n**	**Vf**	**n**	**Vf**	**n**	**Vf**
0,4	0,8	29000	522	26000	325	22000	250	16000	225
0,5	1	29000	522	26000	325	22000	250	16000	225
0,6	1,2	29000	650	26000	500	22000	350	16000	250
0,7	1,4	29000	650	26000	500	22000	350	16000	250
0,8	1,6	29000	850	26000	650	22000	425	16000	325
0,9	2	29000	825	26000	650	22000	300	16000	325
1	2,5	29000	800	26000	650	22000	450	16000	325
1,1	2,5	26000	750	23000	600	20000	350	14000	300
1,2	4	26000	750	23000	600	19000	350	13000	275
1,3	4	23000	650	22000	550	18000	300	12000	250
1,4	4	22000	650	20000	500	17000	250	11000	250
1,5	4	20000	650	19000	500	16000	250	10000	250

RACCOMANDAZIONI: se la macchina non dovesse disporre dei giri mandrino richiesti, si consiglia l'adattamento dell'avanzamento con lo stesso rapporto.
WARNING: If the cutting machine rpm available is lower than recommended reduce the feed rate to the same ratio.
EMPFEHLUNGEN: Wenn das Gerät nicht über die Runden Spindel erforderlich, empfehlen wir die Anpassung des Fortschritts mit dem gleichen Verhältnis.
RECOMMANDATIONS: Si la machine ne devait pas disposer des vitesses de broches requises, nous vous conseillons d'adapter l'avance avec le même rapport.
RECOMENDACIONES: Si la máquina no dispone de las revoluciones necesarias, se aconseja utilizar las máximas posibles manteniendo el mismo avance por diente indicado.

example code:

series	ø	coated
89133	0040	KMX



cod.	D±0,01	ds	l	l1	L	dh6	Z	SKIN Plus UOP COATING
891330040	0,4	0,38	0,8	2	40	3	2	KMX
891330050	0,5	0,48	1	2	40	3	2	KMX
891330060	0,6	0,58	1,2	2,5	40	3	2	KMX
891330070	0,7	0,68	1,4	2,5	40	3	2	KMX
891330080	0,8	0,78	1,6	3	40	3	2	KMX
891330090	0,9	0,88	2	3,5	40	3	2	KMX
891330100	1	0,98	2,5	4	40	4	2	KMX
891330110	1,1	1,08	2,5	4	40	4	2	KMX
891330120	1,2	1,18	4	5,5	40	4	2	KMX
891330130	1,3	1,28	4	5,5	40	4	2	KMX
891330140	1,4	1,38	4	5,5	40	4	2	KMX
891330150	1,5	1,48	4	5,5	40	4	2	KMX

89133

Z2

Microfrese
Two flute end mills
Scharftfräser Zweischneider
Fraises deux tailles deux dents
Fresas de dos labios

SKIN Plus UOP COATING

Standard UOP

H

λ°s 30

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
89132	○	○	◪	◪	○	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

UOP
Member IMC Group
SOLID CARBIDE
UNIVERSAL LINE

Il punto di forza della **UOP** UNIVERSAL LINE è la capacità di rispondere alle esigenze dell'utilizzatore con una proposta di prodotti tra le più complete sul mercato.

The advantage of **UOP** UNIVERSAL LINE lies in its ability to fulfil the needs of the user by offering a product that is one of the most complete on the market.

Member IMC Group

SOLID CARBIDE

UNIVERSAL LINE

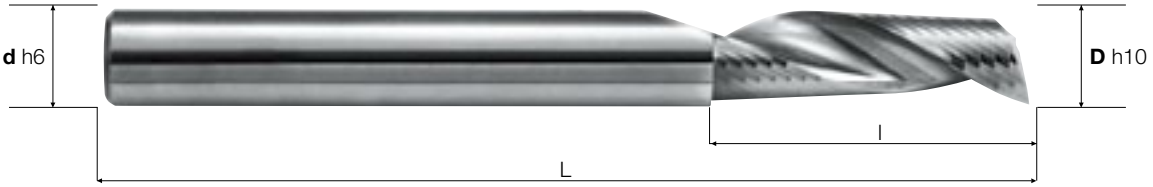
Die Stärke der Produkte UNIVERSAL LINE *liegt in Ihrer Anpassungsfähigkeit an die Anforderungen des Benutzers. Die Produktpalette ist unter den heute auf dem Markt verfügbaren Produkten eines der vollständigsten und umfassendsten Angebote.*

La force de notre UNIVERSAL LINE est sa capacité à répondre aux exigences des utilisateurs grâce à une offre de gamme des plus complètes du marché.

La UNIVERSAL LINE *tiene su fuerza en la amplitud de la gama de herramientas de corte, un surtido de los más completos en el mercado.*

example code:

series	ø	uncoated	coated
40105	0300	KM	KMX
40110	0300	KM	KMX



40105

Z 1

Frese ad un tagliente elica destra, taglio destro
Single flute end mills right hand helix, right hand cut
Einzahnfräser-Rechtsdrall, rechtschneiden
Fraises une dent hélice à droite, coupe à droite
Fresas de un labio, hélice a derechas, corte a la derecha

SKIN Alu UOP COATING

λ°s 32 | W | Standard UOP

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN Alu UOP COATING
401050300	3	14	40	3	1	KM	KMX
401050400	4	16	50	4	1	KM	KMX
401050500	5	18	60	5	1	KM	KMX
401050600	6	23	70	6	1	KM	KMX
401050800	8	25	75	8	1	KM	KMX

40110

Z 1

Frese ad un tagliente elica sinistra, taglio destro
Single flute end mills left hand helix, right hand cut
Einzahnfräser-Linksdrall, rechtschneiden
Fraises une dent hélice à droite, coupe à droite
Fresas de un labio, hélice a izquierdas, corte a la derecha

SKIN Alu UOP COATING

λ°s 32 | W | Standard UOP

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN Alu UOP COATING
401100300	3	14	40	3	1	KM	KMX
401100400	4	16	50	4	1	KM	KMX
401100500	5	18	60	5	1	KM	KMX
401100600	6	23	70	6	1	KM	KMX
401100800	8	25	75	8	1	KM	KMX

materiali lavorabili WORKPIECE MATERIALS

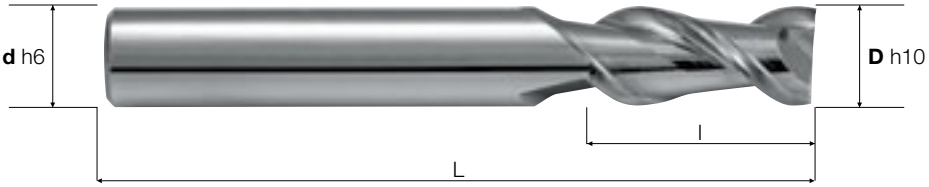
Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
40105	○	○	○	○	○	●	●	○	○	○
40110	○	○	○	○	○	●	●	○	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	uncoated	coated
40130	0300	KM	KMX
40135	0300	KM	KMX



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN Alu UOP COATING
401300300	3	8	57	6	2	KM	KMX
401300400	4	11	57	6	2	KM	KMX
401300500	5	13	57	6	2	KM	KMX
401300600	6	13	57	6	2	KM	KMX
401300800	8	19	63	8	2	KM	KMX
401301000	10	22	72	10	2	KM	KMX
401301200	12	26	83	12	2	KM	KMX
401301400	14	26	83	14	2	KM	KMX
401301600	16	32	92	16	2	KM	KMX
401301800	18	32	92	18	2	KM	KMX
401302000	20	38	104	20	2	KM	KMX

Z2

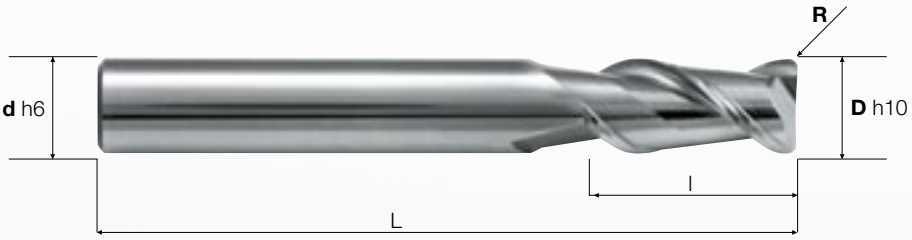
40130

Frese a testa piana a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresas de dos labios

SKIN Alu UOP COATING

W | λ°s 45 | W ON REQUEST a richiesta | Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 341



cod.	D h10	R	l	L	dh6	Z	UNCOATED	SKIN Alu UOP COATING
401350300	3	0,5	8	57	6	2	KM	KMX
401350400	4	0,5	11	57	6	2	KM	KMX
401350500	5	0,5	13	57	6	2	KM	KMX
401350600	6	0,5	13	57	6	2	KM	KMX
401350800	8	0,5	19	63	8	2	KM	KMX
401351000	10	1	22	72	10	2	KM	KMX
401351200	12	1	26	83	12	2	KM	KMX
401351400	14	1	26	83	14	2	KM	KMX
401351600	16	1,5	32	92	16	2	KM	KMX
401351800	18	1,5	32	92	18	2	KM	KMX
401352000	20	2	38	104	20	2	KM	KMX

Z2 TORIC CUTTERS

40135

Frese toroidali a due taglienti
Two flute toric end mills
Torusfräser Zweischneider
Fraises toriques deux dents
Fresas toricas de dos labios

SKIN Alu UOP COATING

W | λ°s 45 | W ON REQUEST a richiesta | Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 341

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
40130	○	○	○	○	○	●	●	○	○	○
40135	○	○	○	○	○	●	●	○	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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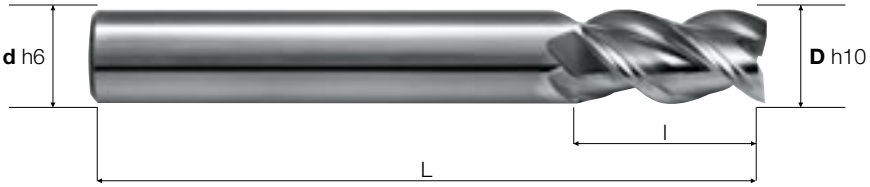
MADE IN ITALY

example code:

series	ø	uncoated	coated
40150	0300	KM	KMX
40170	0600	KM	KMX



40150

Z 3

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresas de tres labios

SKIN Alu UOP COATING

Standard UOP | λ°s 45 | W | W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 343

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN Alu UOP COATING
401500300	3	7	57	6	3	KM	KMX
401500400	4	8	57	6	3	KM	KMX
401500500	5	10	57	6	3	KM	KMX
401500600	6	10	57	6	3	KM	KMX
401500700	7	13	63	8	3	KM	KMX
401500800	8	16	63	8	3	KM	KMX
401500900	9	16	72	10	3	KM	KMX
401501000	10	19	72	10	3	KM	KMX
401501200	12	22	83	12	3	KM	KMX
401501400	14	22	83	14	3	KM	KMX
401501600	16	26	92	16	3	KM	KMX
401501800	18	26	92	18	3	KM	KMX
401502000	20	32	104	20	3	KM	KMX

40170

Z 3

Frese a sgrossare
Roughing end mills
Schruppfräser
Fraises ébauches deux tailles
Fresas para desbaste

SKIN Alu UOP COATING

Standard UOP | λ°s 30 | NRW | W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 343

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN Alu UOP COATING
401700600	6	16	57	6	3	KM	KMX
401700700	7	16	63	8	3	KM	KMX
401700800	8	16	63	8	3	KM	KMX
401700900	9	19	72	10	3	KM	KMX
401701000	10	22	72	10	3	KM	KMX
401701200	12	26	83	12	3	KM	KMX
401701400	14	26	83	14	3	KM	KMX
401701600	16	32	92	16	3	KM	KMX
401701800	18	32	92	18	3	KM	KMX
401702000	20	38	104	20	3	KM	KMX
401702500	25	45	125	25	3	KM	KMX

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
40150	○	○	○	○	○	●	●	○	○	○
40170	◕	◕	◕	○	○	●	●	○	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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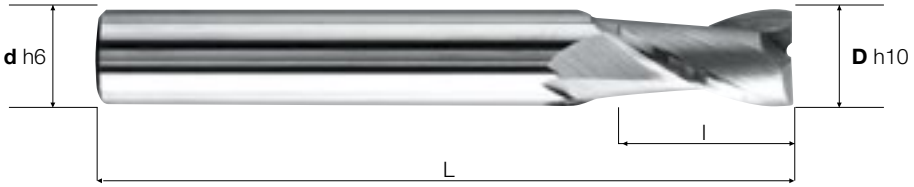

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
411050200	2	7	40	2	2	KM	KMX
411050250	2,5	8	40	2,5	2	KM	KMX
411050300	3	8	40	3	2	KM	KMX
411050350	3,5	10	50	3,5	2	KM	KMX
411050400	4	10	50	4	2	KM	KMX
411050450	4,5	12	50	4,5	2	KM	KMX
411050500	5	12	50	5	2	KM	KMX
411050550	5,5	14	57	5,5	2	KM	KMX
411050600	6	14	57	6	2	KM	KMX
411050650	6,5	14	60	6,5	2	KM	KMX
411050700	7	14	60	7	2	KM	KMX
411050750	7,5	16	63	7,5	2	KM	KMX
411050800	8	16	63	8	2	KM	KMX
411050850	8,5	18	67	8,5	2	KM	KMX
411050900	9	18	67	9	2	KM	KMX
411050950	9,5	20	72	9,5	2	KM	KMX
411051000	10	20	72	10	2	KM	KMX
411051050	10,5	20	72	10,5	2	KM	KMX
411051100	11	20	83	11	2	KM	KMX
411051200	12	22	83	12	2	KM	KMX
411051300	13	25	83	13	2	KM	KMX
411051400	14	25	83	14	2	KM	KMX
411051500	15	32	92	15	2	KM	KMX
411051600	16	32	92	16	2	KM	KMX
411051700	17	32	92	17	2	KM	KMX
411051800	18	32	92	18	2	KM	KMX
411051900	19	38	104	19	2	KM	KMX
411052000	20	38	104	20	2	KM	KMX

Z2

41105

Frese a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresas de dos labios

SKIN
UOP COATING

UNI DIN 6528 ISO	H	λ°s 32	W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 341

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
41105	○	○	◕	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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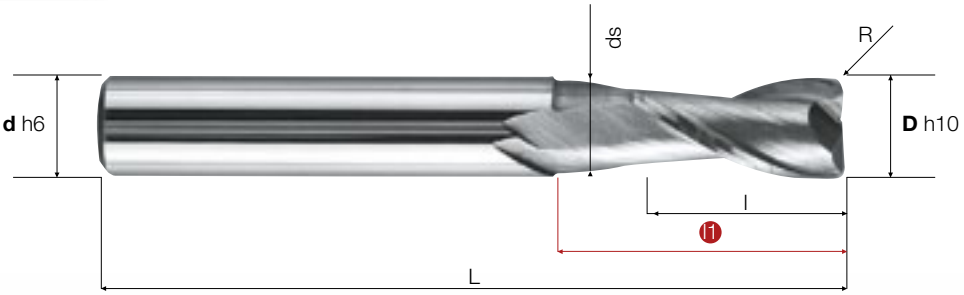
example code:

series	ø	uncoated	coated
41107	0200	KM	KMX
41110	0300	KM	KMX



41107

Z2

TORIC CUTTERS

Frese toroidali a due taglienti

Toric cutters

Torusfräser

Fraises toriques

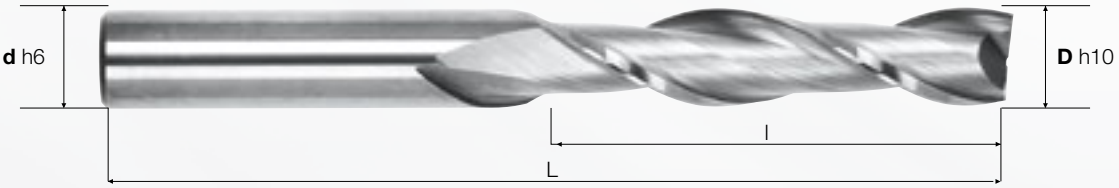
Fresas toricas

SKIN UOP COATING

Standard UOP | W ON REQUEST a richiesta | λ°s 32° | H

cod.	Dh10	R	l	ds	l1	L	dh6	Z	UNCOATED	SKIN UOP COATING
411070200	2	0,2	7	1,9	11	40	2	2	KM	KMX
411070300	3	0,3	8	2,8	12	40	3	2	KM	KMX
411070400	4	0,5	10	3,7	16	50	4	2	KM	KMX
411070500	5	0,5	12	4,6	16	50	5	2	KM	KMX
411070600	6	0,5	14	5,5	20	57	6	2	KM	KMX
411070800	8	1	16	7,4	22	63	8	2	KM	KMX
411071000	10	1	20	9,2	28	72	10	2	KM	KMX
411071200	12	1	22	11	30	83	12	2	KM	KMX
411071400	14	1,5	25	13	33	83	14	2	KM	KMX
411071600	16	1,5	32	15	42	92	16	2	KM	KMX
411071800	18	2	32	17	42	92	18	2	KM	KMX
411072000	20	2	38	19	50	104	20	2	KM	KMX

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 341



41110

Z2

Frese a due taglienti

Two flute end mills

Schaftfräser Zweischneider

Fraises deux tailles deux dents

Fresas de dos labios

SKIN UOP COATING

Standard UOP | W ON REQUEST a richiesta | λ°s 32 | H

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
411100300	3	20	55	3	2	KM	KMX
411100400	4	20	60	4	2	KM	KMX
411100500	5	20	60	5	2	KM	KMX
411100600	6	24	65	6	2	KM	KMX
411100700	7	30	75	7	2	KM	KMX
411100800	8	32	80	8	2	KM	KMX
411100900	9	32	80	9	2	KM	KMX
411101000	10	32	80	10	2	KM	KMX
411101100	11	50	100	11	2	KM	KMX
411101200	12	50	100	12	2	KM	KMX
411101300	13	55	115	13	2	KM	KMX
411101400	14	55	115	14	2	KM	KMX
411101500	15	60	120	15	2	KM	KMX
411101600	16	60	120	16	2	KM	KMX
411101700	17	60	120	17	2	KM	KMX
411101800	18	60	120	18	2	KM	KMX
411101900	19	60	130	19	2	KM	KMX
411102000	20	60	130	20	2	KM	KMX

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 341

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
41107	○	○	◕	○	○	◕	○	○	●	●
41110	○	○	◕	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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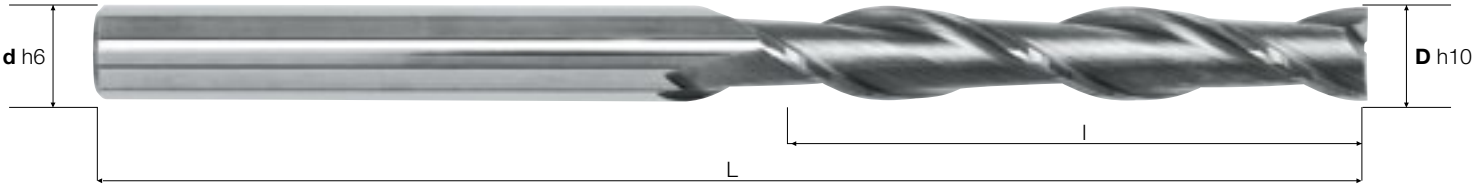
MADE IN ITALY

example code:

series	ø	uncoated	coated
41120	0300	KM	KMX
41135	0200	KM	KMX



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
411200300	3	25	70	3	2	KM	KMX
411200400	4	32	72	4	2	KM	KMX
411200500	5	32	80	5	2	KM	KMX
411200600	6	40	82	6	2	KM	KMX
411200700	7	42	100	7	2	KM	KMX
411200800	8	42	100	8	2	KM	KMX
411200900	9	45	100	9	2	KM	KMX
411201000	10	45	100	10	2	KM	KMX
411201100	11	70	130	11	2	KM	KMX
411201200	12	75	160	12	2	KM	KMX
411201300	13	75	160	13	2	KM	KMX
411201400	14	75	160	14	2	KM	KMX
411201500	15	75	160	15	2	KM	KMX
411201600	16	75	160	16	2	KM	KMX
411201700	17	75	160	17	2	KM	KMX
411201800	18	75	160	18	2	KM	KMX
411201900	19	75	160	19	2	KM	KMX
411202000	20	75	160	20	2	KM	KMX

Z2

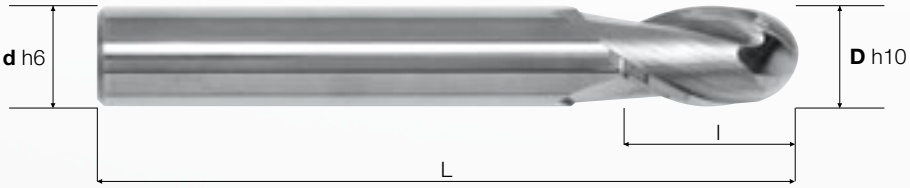
41120

Frese a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresas de dos labios

SKIN
UOP COATING

H | λ°s 32 | W ON REQUEST a richiesta | Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 341



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
411350200	2	7	40	2	2	KM	KMX
411350300	3	8	40	3	2	KM	KMX
411350400	4	10	50	4	2	KM	KMX
411350500	5	12	50	5	2	KM	KMX
411350600	6	14	57	6	2	KM	KMX
411350700	7	14	60	7	2	KM	KMX
411350800	8	16	63	8	2	KM	KMX
411350900	9	18	67	9	2	KM	KMX
411351000	10	20	72	10	2	KM	KMX
411351100	11	20	83	11	2	KM	KMX
411351200	12	22	83	12	2	KM	KMX
411351300	13	25	83	13	2	KM	KMX
411351400	14	25	83	14	2	KM	KMX
411351500	15	32	92	15	2	KM	KMX
411351600	16	32	92	16	2	KM	KMX
411351700	17	32	92	17	2	KM	KMX
411351800	18	32	92	18	2	KM	KMX
411351900	19	38	104	19	2	KM	KMX
411352000	20	38	104	20	2	KM	KMX

Z 2
BALL-NOSED CUTTERS

41135

Frese a testa sferica a due taglienti
Ball-nosed two flute end mills
Halbrundkopffräser Zweischneider
Fraises deux tailles deux dents à bout hémisphérique
Fresas hemisféricas de dos labios

SKIN
UOP COATING

H | λ°s 32 | W ON REQUEST a richiesta | Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 342

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
41120	○	○	◪	○	○	◪	○	○	●	●
41135	○	○	◪	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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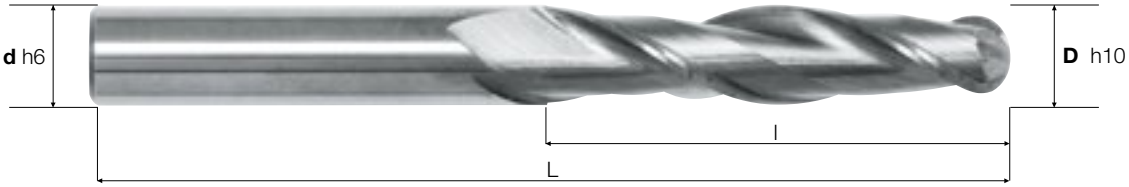
example code:

series	ø	uncoated	coated
41140	0300	KM	KMX
41150	0300	KM	KMX



41140

Z 2 BALL-NOSED CUTTERS

Frese a testa sferica a due taglienti

Ball-nosed two flute end mills

Halbrundkopffräser Zweischneider

Fraises deux tailles deux dents à bout hémisphérique

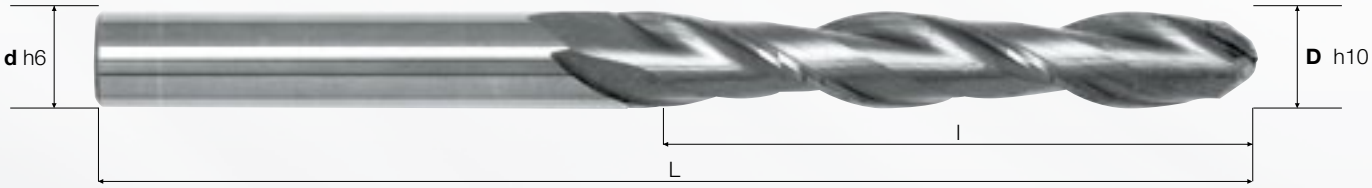
Fresas hemisféricas de dos labios

SKIN UOP COATING

Standard UOP | W ON REQUEST a richiesta | λ°s 32 | H

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 342

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
411400300	3	20	55	3	2	KM	KMX
411400400	4	20	60	4	2	KM	KMX
411400500	5	20	60	5	2	KM	KMX
411400600	6	24	65	6	2	KM	KMX
411400700	7	30	75	7	2	KM	KMX
411400800	8	32	80	8	2	KM	KMX
411400900	9	32	80	9	2	KM	KMX
411401000	10	32	80	10	2	KM	KMX
411401100	11	50	100	11	2	KM	KMX
411401200	12	50	100	12	2	KM	KMX
411401300	13	55	115	13	2	KM	KMX
411401400	14	55	115	14	2	KM	KMX
411401500	15	60	120	15	2	KM	KMX
411401600	16	60	120	16	2	KM	KMX
411401700	17	60	120	17	2	KM	KMX
411401800	18	60	120	18	2	KM	KMX
411401900	19	60	130	19	2	KM	KMX
411402000	20	60	130	20	2	KM	KMX



41150

Z 2 BALL-NOSED CUTTERS

Frese a testa sferica a due taglienti

Ball-nosed two flute end mills

Halbrundkopffräser Zweischneider

Fraises deux tailles deux dents à bout hémisphérique

Fresas hemisféricas de dos labios

SKIN UOP COATING

Standard UOP | W ON REQUEST a richiesta | λ°s 32 | H

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 342

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
411500300	3	25	70	3	2	KM	KMX
411500400	4	32	72	4	2	KM	KMX
411500500	5	32	80	5	2	KM	KMX
411500600	6	40	82	6	2	KM	KMX
411500700	7	42	100	7	2	KM	KMX
411500800	8	42	100	8	2	KM	KMX
411500900	9	45	100	9	2	KM	KMX
411501000	10	45	100	10	2	KM	KMX
411501100	11	70	130	11	2	KM	KMX
411501200	12	75	160	12	2	KM	KMX
411501300	13	75	160	13	2	KM	KMX
411501400	14	75	160	14	2	KM	KMX
411501500	15	75	160	15	2	KM	KMX
411501600	16	75	160	16	2	KM	KMX
411501700	17	75	160	17	2	KM	KMX
411501800	18	75	160	18	2	KM	KMX
411501900	19	75	160	19	2	KM	KMX
411502000	20	75	160	20	2	KM	KMX

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
41140	○	○	◪	○	○	◪	○	○	●	●
41150	○	○	◪	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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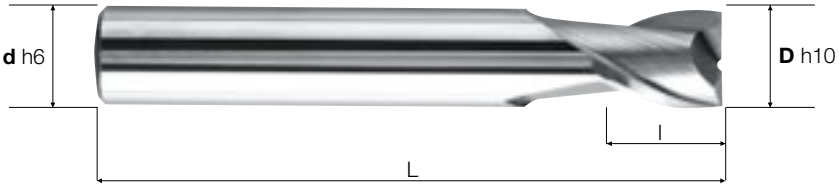

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
421050100	1	3	38	3	2	KM	KMX
421050150	1,5	3	38	3	2	KM	KMX
421050200	2	3	38	3	2	KM	KMX
421050250	2,5	3	38	3	2	KM	KMX
421050300	3	4	38	3	2	KM	KMX
421050301	3	4	50	6	2	KM	KMX
421050350	3,5	4	50	6	2	KM	KMX
421050400	4	5	54	6	2	KM	KMX
421050450	4,5	5	54	6	2	KM	KMX
421050500	5	6	54	6	2	KM	KMX
421050600	6	7	54	6	2	KM	KMX
421050700	7	8	58	8	2	KM	KMX
421050800	8	9	58	8	2	KM	KMX
421050900	9	10	66	10	2	KM	KMX
421051000	10	11	66	10	2	KM	KMX
421051200	12	12	73	12	2	KM	KMX
421051400	14	14	75	14	2	KM	KMX
421051600	16	16	82	16	2	KM	KMX
421051800	18	18	84	18	2	KM	KMX
421052000	20	20	92	20	2	KM	KMX

Z2

42105

Frese a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresas de dos labios

SKIN
UOP COATING

UNI DIN 6527 ISO | H | λ°s 32 | W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 341

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
42105	○	○	◕	○	○	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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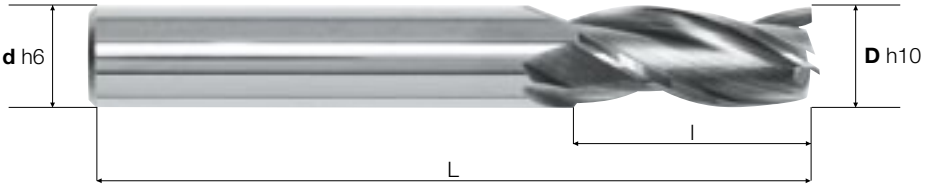
MADE IN ITALY

example code:

series	ø	uncoated	coated
43105	0300	KM	KMX



43105

Z 3

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresas de tres labios

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
431050200	2	7	40	2	3	KM	KMX
431050250	2,5	10	40	2,5	3	KM	KMX
431050300	3	10	40	3	3	KM	KMX
431050350	3,5	11	50	3,5	3	KM	KMX
431050400	4	11	50	4	3	KM	KMX
431050450	4,5	13	50	4,5	3	KM	KMX
431050500	5	13	50	5	3	KM	KMX
431050550	5,5	16	57	5,5	3	KM	KMX
431050600	6	16	57	6	3	KM	KMX
431050650	6,5	16	60	6,5	3	KM	KMX
431050700	7	16	60	7	3	KM	KMX
431050750	7,5	19	63	7,5	3	KM	KMX
431050800	8	19	63	8	3	KM	KMX
431050850	8,5	19	67	8,5	3	KM	KMX
431050900	9	19	67	9	3	KM	KMX
431050950	9,5	22	72	9,5	3	KM	KMX
431051000	10	22	72	10	3	KM	KMX
431051050	10,5	22	72	10,5	3	KM	KMX
431051100	11	22	83	11	3	KM	KMX
431051200	12	26	83	12	3	KM	KMX
431051300	13	26	83	13	3	KM	KMX
431051400	14	28	83	14	3	KM	KMX
431051500	15	32	92	15	3	KM	KMX
431051600	16	32	92	16	3	KM	KMX
431051700	17	32	92	17	3	KM	KMX
431051800	18	32	92	18	3	KM	KMX
431051900	19	38	104	19	3	KM	KMX
431052000	20	38	104	20	3	KM	KMX

SKIN
UOP COATING

W ON REQUEST a richiesta | λ°s 30 | H | UNI DIN 6528 ISO

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 343

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
43105	○	○	◕	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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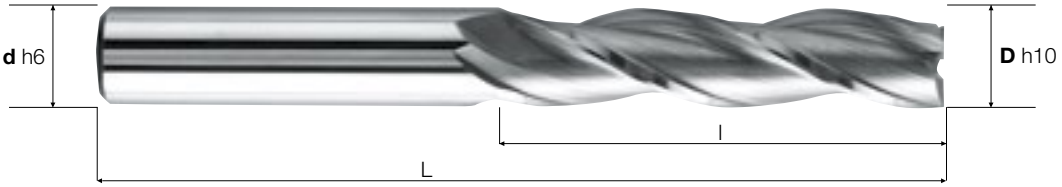
MADE IN ITALY

example code:

series	ø	uncoated	coated
43110	0300	KM	KMX
43120	0300	KM	KMX



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
431100300	3	20	55	3	3	KM	KMX
431100400	4	20	60	4	3	KM	KMX
431100500	5	20	60	5	3	KM	KMX
431100600	6	24	65	6	3	KM	KMX
431100700	7	30	75	7	3	KM	KMX
431100800	8	32	80	8	3	KM	KMX
431100900	9	32	80	9	3	KM	KMX
431101000	10	32	80	10	3	KM	KMX
431101100	11	50	100	11	3	KM	KMX
431101200	12	50	100	12	3	KM	KMX
431101300	13	55	115	13	3	KM	KMX
431101400	14	55	115	14	3	KM	KMX
431101500	15	60	120	15	3	KM	KMX
431101600	16	60	120	16	3	KM	KMX
431101700	17	60	120	17	3	KM	KMX
431101800	18	60	120	18	3	KM	KMX
431101900	19	60	130	19	3	KM	KMX
431102000	20	60	130	20	3	KM	KMX

Z 3

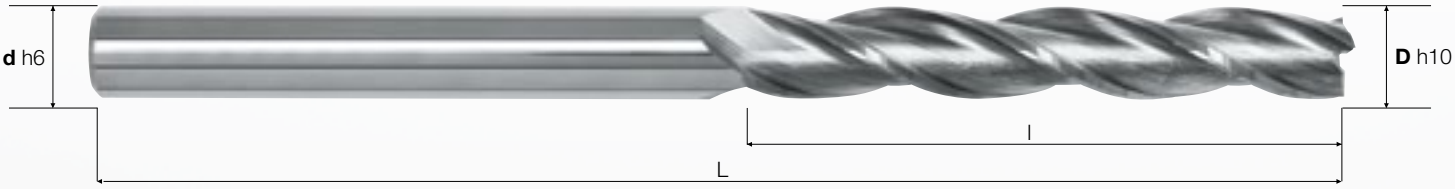
43110

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresas de tres labios

SKIN UOP COATING

Standard UOP | H | λ°s 30 | W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 343



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
431200300	3	25	70	3	3	KM	KMX
431200400	4	32	72	4	3	KM	KMX
431200500	5	32	80	5	3	KM	KMX
431200600	6	40	82	6	3	KM	KMX
431200700	7	42	100	7	3	KM	KMX
431200800	8	42	100	8	3	KM	KMX
431200900	9	45	100	9	3	KM	KMX
431201000	10	45	100	10	3	KM	KMX
431201100	11	70	130	11	3	KM	KMX
431201200	12	75	160	12	3	KM	KMX
431201300	13	75	160	13	3	KM	KMX
431201400	14	75	160	14	3	KM	KMX
431201500	15	75	160	15	3	KM	KMX
431201600	16	75	160	16	3	KM	KMX
431201700	17	75	160	17	3	KM	KMX
431201800	18	75	160	18	3	KM	KMX
431201900	19	75	160	19	3	KM	KMX
431202000	20	75	160	20	3	KM	KMX

Z 3

43120

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresas de tres labios

SKIN UOP COATING

Standard UOP | H | λ°s 30 | W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 343

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio / TITANIUM	HRSA / HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili / STAINLESS STEELS	materiali non ferrosi / NON FERROUS MATERIALS	leghe leggere / LIGHT ALLOYS	grafite / GRAPHITE	acciai / STEELS	ghise / CAST IRON
43110	○	○	◕	○	○	◕	○	○	●	●
43120	○	○	◕	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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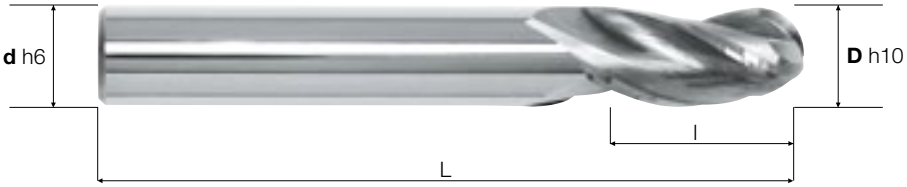
MADE IN ITALY

example code:

series	ø	uncoated	coated
43135	0200	KM	KMX
43140	0300	KM	KMX



43135

Z 3

BALL-NOSED CUTTERS

Frese a tre taglienti a testa semisferica

Ball-nosed three flute end mills

Halbrundkopffräser Dreischneider

Fraises deux tailles trois dents à bout hémisphérique

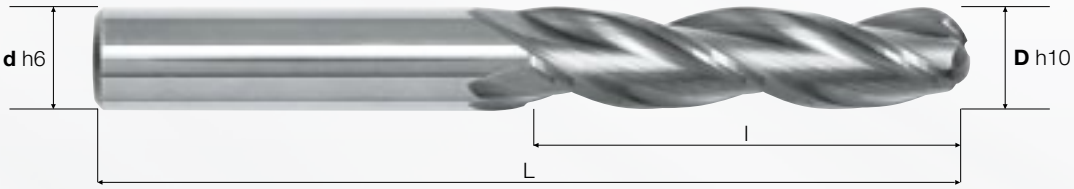
Fresas hemisférica de tres labios

SKIN UOP COATING

W ON REQUEST a richiesta | λ°s 30 | H | Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 344

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
431350200	2	7	40	2	3	KM	KMX
431350300	3	10	40	3	3	KM	KMX
431350400	4	11	50	4	3	KM	KMX
431350500	5	13	50	5	3	KM	KMX
431350600	6	16	57	6	3	KM	KMX
431350700	7	16	60	7	3	KM	KMX
431350800	8	19	63	8	3	KM	KMX
431350900	9	19	67	9	3	KM	KMX
431351000	10	22	72	10	3	KM	KMX
431351100	11	22	83	11	3	KM	KMX
431351200	12	26	83	12	3	KM	KMX
431351300	13	26	83	13	3	KM	KMX
431351400	14	28	83	14	3	KM	KMX
431351500	15	32	92	15	3	KM	KMX
431351600	16	32	92	16	3	KM	KMX
431351700	17	32	92	17	3	KM	KMX
431351800	18	32	92	18	3	KM	KMX
431351900	19	38	104	19	3	KM	KMX
431352000	20	38	104	20	3	KM	KMX



43140

Z 3

BALL-NOSED CUTTERS

Frese a tre taglienti a testa semisferica

Ball-nosed three flute end mills

Halbrundkopffräser Dreischneider

Fraises deux tailles trois dents à bout hémisphérique

Fresas hemisférica de tres labios

SKIN UOP COATING

W ON REQUEST a richiesta | λ°s 30 | H | Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 344

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
431400300	3	20	55	3	3	KM	KMX
431400400	4	20	60	4	3	KM	KMX
431400500	5	20	60	5	3	KM	KMX
431400600	6	24	65	6	3	KM	KMX
431400700	7	30	75	7	3	KM	KMX
431400800	8	32	80	8	3	KM	KMX
431400900	9	32	80	9	3	KM	KMX
431401000	10	32	80	10	3	KM	KMX
431401100	11	50	100	11	3	KM	KMX
431401200	12	50	100	12	3	KM	KMX
431401300	13	55	115	13	3	KM	KMX
431401400	14	55	115	14	3	KM	KMX
431401500	15	60	120	15	3	KM	KMX
431401600	16	60	120	16	3	KM	KMX
431401700	17	60	120	17	3	KM	KMX
431401800	18	60	120	18	3	KM	KMX
431401900	19	60	130	19	3	KM	KMX
431402000	20	60	130	20	3	KM	KMX

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
43135	○	○	◪	○	○	◪	○	○	●	●
43140	○	○	◪	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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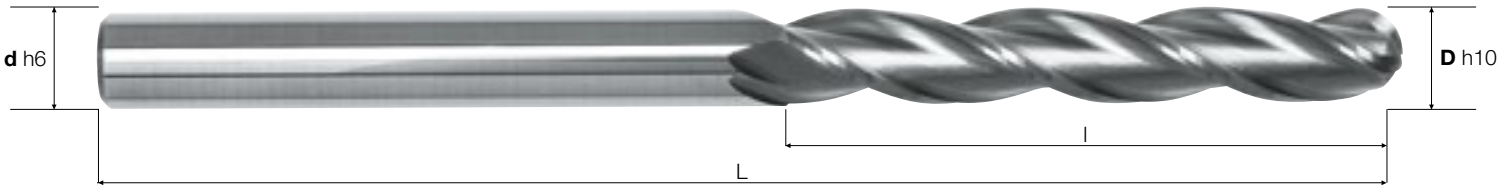
MADE IN ITALY



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
431500300	3	25	70	3	3	KM	KMX
431500400	4	32	72	4	3	KM	KMX
431500500	5	32	80	5	3	KM	KMX
431500600	6	40	82	6	3	KM	KMX
431500700	7	42	100	7	3	KM	KMX
431500800	8	42	100	8	3	KM	KMX
431500900	9	45	100	9	3	KM	KMX
431501000	10	45	100	10	3	KM	KMX
431501100	11	70	130	11	3	KM	KMX
431501200	12	75	160	12	3	KM	KMX
431501300	13	75	160	13	3	KM	KMX
431501400	14	75	160	14	3	KM	KMX
431501500	15	75	160	15	3	KM	KMX
431501600	16	75	160	16	3	KM	KMX
431501700	17	75	160	17	3	KM	KMX
431501800	18	75	160	18	3	KM	KMX
431501900	19	75	160	19	3	KM	KMX
431502000	20	75	160	20	3	KM	KMX

Z 3

BALL-NOSED CUTTERS

43150

Frese a tre taglienti a testa semisferica

Ball-nosed three flute end mills

Halbrundkopffräser Dreischneider

Fraises deux tailles trois dents à bout hémisphérique

Fresas hemisférica de tres labios

SKIN
UOP COATING

Standard UOP	H	λ°s 30	W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 344

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
43150	○	○	◕	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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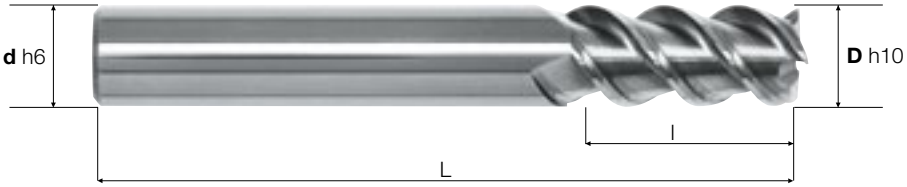
example code:

series	ø	uncoated	coated
43505	0200	KM	KMX



TORNADO

43505

Z 3

Frese "Tornado"
"Tornado" end mills
"Tornado" Schaftfräser
Fraises "Tornado"
Fresa "Tornado"

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
435050200	2	7	40	2	3	KM	KMX
435050250	2,5	10	40	2,5	3	KM	KMX
435050300	3	10	40	3	3	KM	KMX
435050350	3,5	11	50	3,5	3	KM	KMX
435050400	4	11	50	4	3	KM	KMX
435050450	4,5	13	50	4,5	3	KM	KMX
435050500	5	13	50	5	3	KM	KMX
435050550	5,5	16	57	5,5	3	KM	KMX
435050600	6	16	57	6	3	KM	KMX
435050650	6,5	16	60	6,5	3	KM	KMX
435050700	7	16	60	7	3	KM	KMX
435050750	7,5	19	63	7,5	3	KM	KMX
435050800	8	19	63	8	3	KM	KMX
435050850	8,5	19	67	8,5	3	KM	KMX
435050900	9	19	67	9	3	KM	KMX
435050950	9,5	22	72	9,5	3	KM	KMX
435051000	10	22	72	10	3	KM	KMX
435051050	10,5	22	72	10,5	3	KM	KMX
435051100	11	22	83	11	3	KM	KMX
435051200	12	26	83	12	3	KM	KMX
435051300	13	26	83	13	3	KM	KMX
435051400	14	28	83	14	3	KM	KMX
435051500	15	32	92	15	3	KM	KMX
435051600	16	32	92	16	3	KM	KMX
435051700	17	32	92	17	3	KM	KMX
435051800	18	32	92	18	3	KM	KMX
435051900	19	38	104	19	3	KM	KMX
435052000	20	38	104	20	3	KM	KMX

SKIN
UOP COATING

W ON REQUEST a richiesta | λ°s 55 | H | UNI DIN 6528 ISO

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 343

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
43505	○	○	◕	○	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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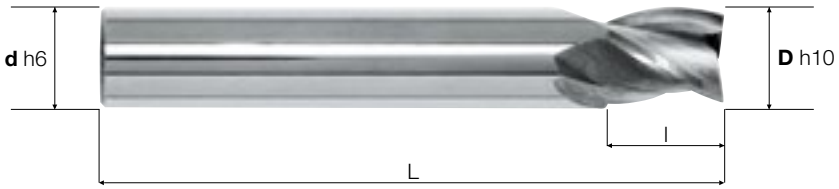
MADE IN ITALY

example code:

series	ø	uncoated	coated
44105	0200	KM	KMX



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
441050200	2	3	38	3	3	KM	KMX
441050250	2,5	3	38	3	3	KM	KMX
441050300	3	4	50	6	3	KM	KMX
441050350	3,5	4	50	6	3	KM	KMX
441050400	4	5	54	6	3	KM	KMX
441050450	4,5	5	54	6	3	KM	KMX
441050500	5	6	54	6	3	KM	KMX
441050600	6	7	54	6	3	KM	KMX
441050700	7	8	58	8	3	KM	KMX
441050800	8	9	58	8	3	KM	KMX
441050900	9	10	66	10	3	KM	KMX
441051000	10	11	66	10	3	KM	KMX
441051200	12	12	73	12	3	KM	KMX
441051400	14	14	75	14	3	KM	KMX
441051600	16	16	82	16	3	KM	KMX
441051800	18	18	84	18	3	KM	KMX
441052000	20	20	92	20	3	KM	KMX

Z 3

44105

Frese a tre taglienti
Three flute end mills
Schafträser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

SKIN
UOP COATING

UNI DIN 6527 ISO	H	λ°s	W
		32	ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 343

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
44105	◕	◕	◕	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

example code:

series	ø	uncoated	coated
45105	0200	KM	KMX

45105

Z 4

Frese a quattro taglienti
Four flute end mills
Schaftfräser Vierschneider
Fraises deux tailles quatre dents
Fresa de cuatro labios

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
451050200	2	7	40	2	4	KM	KMX
451050250	2,5	10	40	2,5	4	KM	KMX
451050300	3	10	40	3	4	KM	KMX
451050350	3,5	11	50	3,5	4	KM	KMX
451050400	4	11	50	4	4	KM	KMX
451050450	4,5	13	50	4,5	4	KM	KMX
451050500	5	13	50	5	4	KM	KMX
451050550	5,5	16	57	5,5	4	KM	KMX
451050600	6	16	57	6	4	KM	KMX
451050650	6,5	16	60	6,5	4	KM	KMX
451050700	7	16	60	7	4	KM	KMX
451050750	7,5	19	63	7,5	4	KM	KMX
451050800	8	19	63	8	4	KM	KMX
451050850	8,5	19	67	8,5	4	KM	KMX
451050900	9	19	67	9	4	KM	KMX
451050950	9,5	22	72	9,5	4	KM	KMX
451051000	10	22	72	10	4	KM	KMX
451051050	10,5	22	72	10,5	4	KM	KMX
451051100	11	22	83	11	4	KM	KMX
451051200	12	26	83	12	4	KM	KMX
451051300	13	26	83	13	4	KM	KMX
451051400	14	28	83	14	4	KM	KMX
451051500	15	32	92	15	4	KM	KMX
451051600	16	32	92	16	4	KM	KMX
451051700	17	32	92	17	4	KM	KMX
451051800	18	32	92	18	4	KM	KMX
451051900	19	38	104	19	4	KM	KMX
451052000	20	38	104	20	4	KM	KMX

SKIN
UOP COATING

W	λ°s	H	UNI
ON REQUEST a richiesta	30		DIN 6528 ISO

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 345

materiali lavorabili WORKPIECE MATERIALS

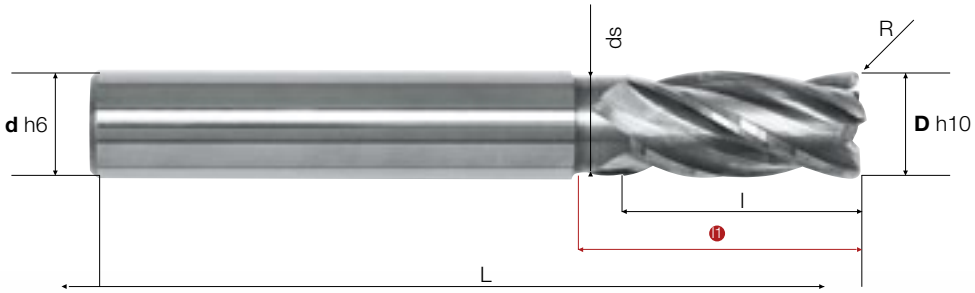
Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
45105	◕	◕	◕	○	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	uncoated	coated
45107	0200	KM	KMX
45110	0300	KM	KMX



cod.	D h10	ds	R	l	L	l1	dh6	Z	UNCOATED	SKIN UOP COATING
451070200	2	1,9	0,2	7	40	11	2	4	KM	KMX
451070300	3	2,8	0,3	10	40	13	3	4	KM	KMX
451070400	4	3,7	0,5	11	50	16	4	4	KM	KMX
451070500	5	4,6	0,5	13	50	16	5	4	KM	KMX
451070600	6	5,5	0,5	16	57	20	6	4	KM	KMX
451070800	8	7,4	1	19	63	23	8	4	KM	KMX
451071000	10	9,2	1	22	72	28	10	4	KM	KMX
451071200	12	11	1	26	83	32	12	4	KM	KMX
451071400	14	13	1,5	28	83	34	14	4	KM	KMX
451071600	16	15	1,5	32	92	42	16	4	KM	KMX
451071800	18	17	2	32	92	42	18	4	KM	KMX
451072000	20	19	2	38	104	50	20	4	KM	KMX

Z 4 TORIC CUTTERS

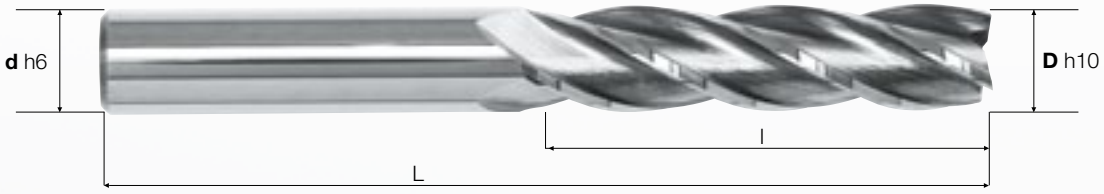
45107

Frese toroidali a quattro taglienti
Four flute toric cutters
Torousfräser Vierschneider
Fraises toriques quatre dents
Fresas toricas de cuatro labios

SKIN UOP COATING

Standard UOP | H | λ°s 30 | W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 345



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
451100300	3	20	55	3	4	KM	KMX
451100400	4	20	60	4	4	KM	KMX
451100500	5	20	60	5	4	KM	KMX
451100600	6	24	65	6	4	KM	KMX
451100700	7	30	75	7	4	KM	KMX
451100800	8	32	80	8	4	KM	KMX
451100900	9	32	80	9	4	KM	KMX
451101000	10	32	80	10	4	KM	KMX
451101100	11	50	100	11	4	KM	KMX
451101200	12	50	100	12	4	KM	KMX
451101300	13	55	115	13	4	KM	KMX
451101400	14	55	115	14	4	KM	KMX
451101500	15	60	120	15	4	KM	KMX
451101600	16	60	120	16	4	KM	KMX
451101700	17	60	120	17	4	KM	KMX
451101800	18	60	120	18	4	KM	KMX
451101900	19	60	130	19	4	KM	KMX
451102000	20	60	130	20	4	KM	KMX

Z 4

45110

Frese a quattro taglienti
Four flute end mills
Schafträser Vierschneider
Fraises deux tailles quatre dents
Fresa de cuatro labios

SKIN UOP COATING

Standard UOP | H | λ°s 30 | W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 345

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
45107	◕	◕	◕	○	◕	○	○	○	●	●
45110	◕	◕	◕	○	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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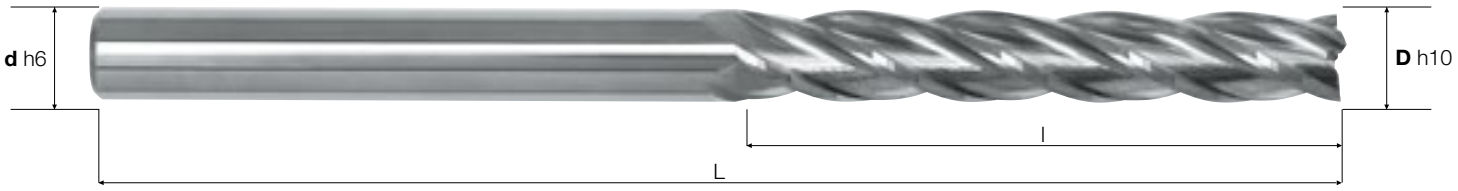
MADE IN ITALY

example code:

series	ø	uncoated	coated
45120	0300	KM	KMX
45135	0200	KM	KMX



45120

Z 4

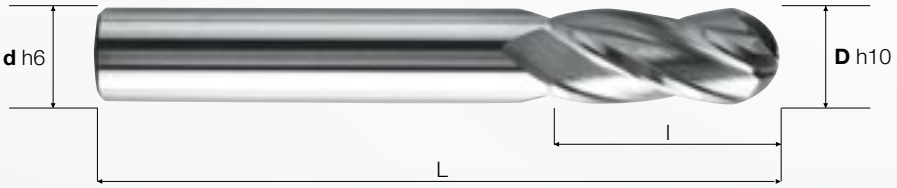
Frese a quattro taglienti
Four flute end mills
Schaftfräser Vierschneider
Fraises deux tailles quatre dents
Fresa de cuatro labios

SKIN UOP COATING

W ON REQUEST a richiesta | λ°s 30 | H | Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 345

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
451200300	3	25	70	3	4	KM	KMX
451200400	4	32	72	4	4	KM	KMX
451200500	5	32	80	5	4	KM	KMX
451200600	6	40	82	6	4	KM	KMX
451200700	7	42	100	7	4	KM	KMX
451200800	8	42	100	8	4	KM	KMX
451200900	9	45	100	9	4	KM	KMX
451201000	10	45	100	10	4	KM	KMX
451201100	11	70	130	11	4	KM	KMX
451201200	12	75	160	12	4	KM	KMX
451201300	13	75	160	13	4	KM	KMX
451201400	14	75	160	14	4	KM	KMX
451201500	15	75	160	15	4	KM	KMX
451201600	16	75	160	16	4	KM	KMX
451201700	17	75	160	17	4	KM	KMX
451201800	18	75	160	18	4	KM	KMX
451201900	19	75	160	19	4	KM	KMX
451202000	20	75	160	20	4	KM	KMX



45135

Z 4 BALL-NOSED CUTTERS

Frese a quattro taglienti a testa semisferica
Ball-nosed four flute end mills
Halbrundkopffräser Vierschneider
Fraises deux tailles quatre dents à bout hémisphérique
Fresas hemisférica de cuatro labios

SKIN UOP COATING

W ON REQUEST a richiesta | λ°s 30 | H | Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 346

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
451350200	2	7	40	2	4	KM	KMX
451350300	3	10	40	3	4	KM	KMX
451350400	4	11	50	4	4	KM	KMX
451350500	5	13	50	5	4	KM	KMX
451350600	6	16	57	6	4	KM	KMX
451350700	7	16	60	7	4	KM	KMX
451350800	8	19	63	8	4	KM	KMX
451350900	9	19	67	9	4	KM	KMX
451351000	10	22	72	10	4	KM	KMX
451351100	11	22	83	11	4	KM	KMX
451351200	12	26	83	12	4	KM	KMX
451351300	13	26	83	13	4	KM	KMX
451351400	14	28	83	14	4	KM	KMX
451351500	15	32	92	15	4	KM	KMX
451351600	16	32	92	16	4	KM	KMX
451351700	17	32	92	17	4	KM	KMX
451351800	18	32	92	18	4	KM	KMX
451351900	19	38	104	19	4	KM	KMX
451352000	20	38	104	20	4	KM	KMX

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
45120	◕	◕	◕	○	◕	○	○	○	●	●
45135	◕	◕	◕	○	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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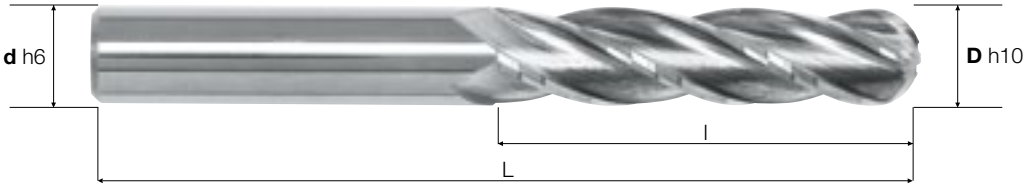
MADE IN ITALY

example code:

series	ø	uncoated	coated
45140	0300	KM	KMX
45150	0300	KM	KMX



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
451400300	3	20	55	3	4	KM	KMX
451400400	4	20	60	4	4	KM	KMX
451400500	5	20	60	5	4	KM	KMX
451400600	6	24	65	6	4	KM	KMX
451400700	7	30	75	7	4	KM	KMX
451400800	8	32	80	8	4	KM	KMX
451400900	9	32	80	9	4	KM	KMX
451401000	10	32	80	10	4	KM	KMX
451401100	11	50	100	11	4	KM	KMX
451401200	12	50	100	12	4	KM	KMX
451401300	13	55	115	13	4	KM	KMX
451401400	14	55	115	14	4	KM	KMX
451401500	15	60	120	15	4	KM	KMX
451401600	16	60	120	16	4	KM	KMX
451401700	17	60	120	17	4	KM	KMX
451401800	18	60	120	18	4	KM	KMX
451401900	19	60	130	19	4	KM	KMX
451402000	20	60	130	20	4	KM	KMX

Z 4 BALL-NOSED CUTTERS

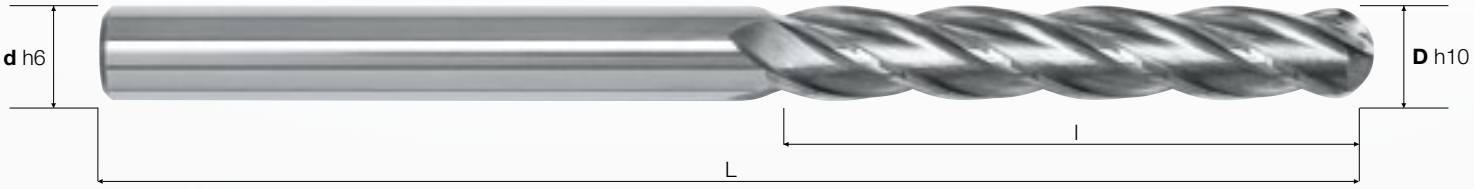
45140

Frese a quattro taglienti a testa semisferica
Ball-nosed four flute end mills
Halbrundkopffräser Vierschneider
Fraises deux tailles quatre dents à bout hémisphérique
Fresas hemisférica de cuatro labios

SKIN UOP COATING

Standard UOP	H	λ°s 30	W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 346



cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
451500300	3	25	70	3	4	KM	KMX
451500400	4	32	72	4	4	KM	KMX
451500500	5	32	80	5	4	KM	KMX
451500600	6	40	82	6	4	KM	KMX
451500700	7	42	100	7	4	KM	KMX
451500800	8	42	100	8	4	KM	KMX
451500900	9	45	100	9	4	KM	KMX
451501000	10	45	100	10	4	KM	KMX
451501100	11	70	130	11	4	KM	KMX
451501200	12	75	160	12	4	KM	KMX
451501300	13	75	160	13	4	KM	KMX
451501400	14	75	160	14	4	KM	KMX
451501500	15	75	160	15	4	KM	KMX
451501600	16	75	160	16	4	KM	KMX
451501700	17	75	160	17	4	KM	KMX
451501800	18	75	160	18	4	KM	KMX
451501900	19	75	160	19	4	KM	KMX
451502000	20	75	160	20	4	KM	KMX

Z 4 BALL-NOSED CUTTERS

45150

Frese a quattro taglienti a testa semisferica
Ball-nosed four flute end mills
Halbrundkopffräser Vierschneider
Fraises deux tailles quatre dents à bout hémisphérique
Fresas hemisférica de cuatro labios

SKIN UOP COATING

Standard UOP	H	λ°s 30	W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 346

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
45140	◪	◪	◪	○	◪	○	○	○	●	●
45150	◪	◪	◪	○	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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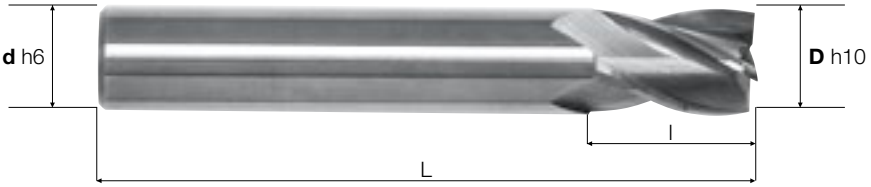
MADE IN ITALY

example code:

series	ø	uncoated	coated
45505	0200	KM	KMX



45505

Z 4

Frese a quattro taglienti
Four flute end mills
Schaftfräser Vierschneider
Fraises deux tailles quatre dents
Fresa de cuatro labios

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
455050200	2	4	38	3	4	KM	KMX
455050250	2,5	4	38	3	4	KM	KMX
455050300	3	5	50	6	4	KM	KMX
455050350	3,5	6	50	6	4	KM	KMX
455050400	4	8	54	6	4	KM	KMX
455050450	4,5	8	54	6	4	KM	KMX
455050500	5	9	54	6	4	KM	KMX
455050600	6	10	54	6	4	KM	KMX
455050700	7	11	58	8	4	KM	KMX
455050800	8	12	58	8	4	KM	KMX
455050900	9	13	66	10	4	KM	KMX
455051000	10	14	66	10	4	KM	KMX
455051200	12	16	73	12	4	KM	KMX
455051400	14	18	75	14	4	KM	KMX
455051600	16	22	82	16	4	KM	KMX
455051800	18	24	84	18	4	KM	KMX
455052000	20	26	92	20	4	KM	KMX

SKIN UOP COATING

W ON REQUEST a richiesta | λ°s 32 | H | UNI DIN 6527 ISO

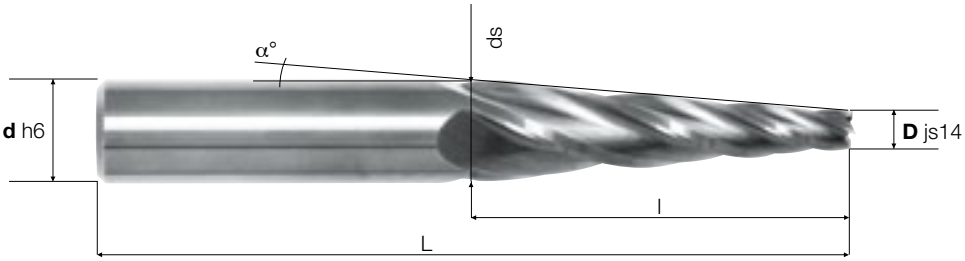
parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 345

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
45505	◕	◕	◕	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY



cod.	D js14	ds	α°	l	L	dh6	Z	SKIN plus UOP COATING
461050504	4	4,52	0°30'	30	80	6	4	KMX
461050506	6	6,55	0°30'	32	80	7	4	KMX
461050508	8	8,87	0°30'	50	100	10	4	KMX
461051005	4	5,22	1°	35	85	6	4	KMX
461051007	6	7,04	1°	30	80	7	4	KMX
461051008	6	8,09	1°	60	110	8	4	KMX
461051507	6	7,57	1°30'	30	80	8	4	KMX
461051510	8	10,61	1°30'	50	100	11	4	KMX
461052008	6	8,09	2°	30	80	8	4	KMX
461052010	6	10,19	2°	60	110	11	4	KMX
461052507	4	7,05	2°30'	35	85	7	4	KMX
461052509	6	9,49	2°30'	40	90	10	4	KMX
461052511	6	11,41	2°30'	62	120	12	4	KMX
461053007	4	7,66	3°	35	85	8	4	KMX
461053009	6	9,66	3°	35	85	10	4	KMX
461053012	6	12,28	3°	60	120	12	4	KMX
461054008	4	8,89	4°	35	85	10	4	KMX
461054011	6	11,59	4°	40	90	12	4	KMX
461054015	8	15,83	4°	56	110	16	4	KMX
461055010	4	10,12	5°	35	85	11	4	KMX
461055013	6	13,34	5°	42	95	14	4	KMX
461055016	6	16,14	5°	58	115	16	4	KMX

Z 4

46105

Frese coniche per stampi
Tapered end mills
Konische fräser
Fraises conique
Fresa cónicas

SKIN plus UOP COATING

Standard UOP	H	λ°s 25	W ON REQUEST a richiesta

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
46105	○	○	◕	○	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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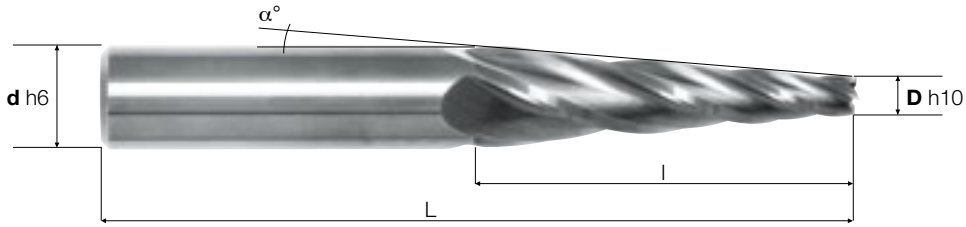
MADE IN ITALY

example code:

series	ø	coated
46110	1005	KMX



46110

Z 4

Frese coniche a testa piana
a quattro taglienti
Tapered end mills
Konische fräser
Fraises coniques
Fresas cónicas

cod.	D h10	l	L	dh6	α°	Z	SKIN plus UOP COATING
461101005	1	8	45	4	0°30'	4	KMX
461101010	1	12	45	4	0°30'	4	KMX
461101015	1	8	45	4	1°	4	KMX
461101020	1	12	45	4	1°	4	KMX
461101025	1	8	45	4	1°30'	4	KMX
461101030	1	12	45	4	1°30'	4	KMX
461101035	1	8	45	4	2°	4	KMX
461101040	1	12	45	4	2°	4	KMX
461101505	1,5	8	45	4	0°30'	4	KMX
461101510	1,5	12	45	4	0°30'	4	KMX
461101515	1,5	16	50	4	0°30'	4	KMX
461101520	1,5	8	45	4	1°	4	KMX
461101525	1,5	12	45	4	1°	4	KMX
461101530	1,5	16	50	4	1°	4	KMX
461101535	1,5	8	45	4	1°30'	4	KMX
461101540	1,5	12	45	4	1°30'	4	KMX
461101545	1,5	16	50	4	1°30'	4	KMX
461101550	1,5	8	45	4	2°	4	KMX
461101555	1,5	12	45	4	2°	4	KMX
461101560	1,5	16	50	4	2°	4	KMX
461102005	2	12	45	4	0°30'	4	KMX
461102010	2	16	50	4	0°30'	4	KMX
461102015	2	12	45	4	1°	4	KMX
461102020	2	16	50	4	1°	4	KMX
461102025	2	12	45	4	1°30'	4	KMX
461102030	2	16	50	4	1°30'	4	KMX
461102035	2	12	45	4	2°	4	KMX
461102040	2	16	50	4	2°	4	KMX

SKIN plus UOP COATING

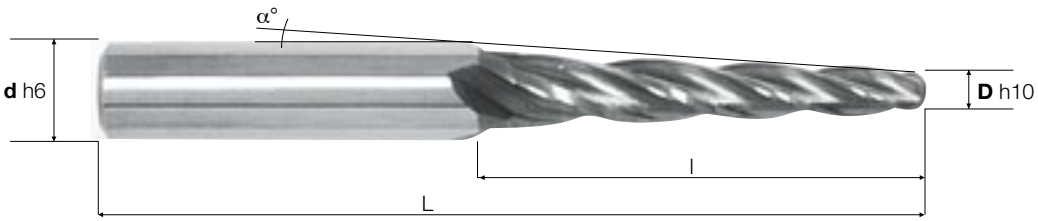
Standard UOP | H | λ°s 25

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
46110	○	○	◕	○	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY



cod.	D h10	l	L	dh6	R	α°	Z	SKIN plus UOP COATING
461151005	1	8	45	4	0,5	0°30'	4	KMX
461151010	1	12	45	4	0,5	0°30'	4	KMX
461151015	1	8	45	4	0,5	1°	4	KMX
461151020	1	12	45	4	0,5	1°	4	KMX
461151025	1	8	45	4	0,5	1°30'	4	KMX
461151030	1	12	45	4	0,5	1°30'	4	KMX
461151035	1	8	45	4	0,5	2°	4	KMX
461151040	1	12	45	4	0,5	2°	4	KMX
461151505	1,5	8	45	4	0,75	0°30'	4	KMX
461151510	1,5	12	45	4	0,75	0°30'	4	KMX
461151515	1,5	16	50	4	0,75	0°30'	4	KMX
461151520	1,5	8	45	4	0,75	1°	4	KMX
461151525	1,5	12	45	4	0,75	1°	4	KMX
461151530	1,5	16	50	4	0,75	1°	4	KMX
461151535	1,5	8	45	4	0,75	1°30'	4	KMX
461151540	1,5	12	45	4	0,75	1°30'	4	KMX
461151545	1,5	16	50	4	0,75	1°30'	4	KMX
461151550	1,5	8	45	4	0,75	2°	4	KMX
461151555	1,5	12	45	4	0,75	2°	4	KMX
461151560	1,5	16	50	4	0,75	2°	4	KMX
461152005	2	12	45	4	1	0°30'	4	KMX
461152010	2	16	50	4	1	0°30'	4	KMX
461152015	2	12	45	4	1	1°	4	KMX
461152020	2	16	50	4	1	1°	4	KMX
461152025	2	12	45	4	1	1°30'	4	KMX
461152030	2	16	50	4	1	1°30'	4	KMX
461152035	2	12	45	4	1	2°	4	KMX
461152040	2	16	50	4	1	2°	4	KMX

Z 4 BALL-NOSED CUTTERS

46115

Frese coniche a testa semisferica
Ball-nosed tapered end mills
Konische Halbrundkopffräser
Fraises coniques à bout hémisphérique
Fresas cónicas hemisféricas

SKIN plus UOP COATING

Standard UOP	H	λ°s 25

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
46115	○	○	◪	○	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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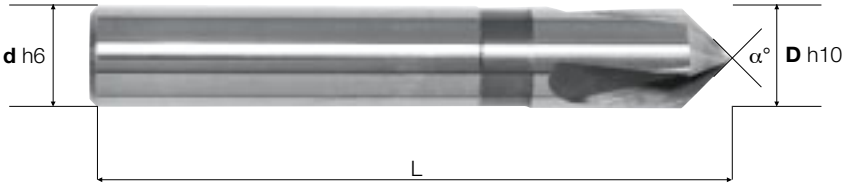
MADE IN ITALY

example code:

series	ø	uncoated	coated
46505	9003	KM	KMX
46805	0100	KM	KMX



46505

Z3

Frese a svasare
Countersinks
Kegelsenker
Fraises à chanfreiner
Fresa para avellanado

cod.	D h10	α°	L	dh6	Z	UNCOATED	SKIN plus UOP COATING
465059003	3	90	40	3	3	KM	KMX
465059004	4	90	50	4	3	KM	KMX
465059005	5	90	50	5	3	KM	KMX
465059006	6	90	50	6	3	KM	KMX
465059008	8	90	60	8	3	KM	KMX
465059010	10	90	70	10	3	KM	KMX
465059012	12	90	75	12	3	KM	KMX
465059016	16	90	90	16	3	KM	KMX
465059020	20	90	100	20	3	KM	KMX

SKIN plus UOP COATING

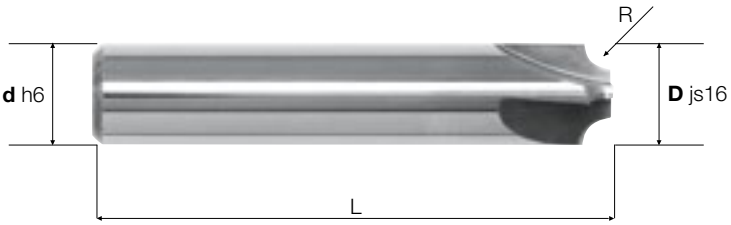
W ON REQUEST a richiesta | H | Standard UOP

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
46505	◪	◪	◪	○	◪	●	◪	◪	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY



cod.	D js16	R	L	dh6	Z	UNCOATED	SKIN plus UOP COATING
468050100	10	1	50	10	4	KM	KMX
468050150	10	1,5	50	10	4	KM	KMX
468050200	10	2	50	10	4	KM	KMX
468050250	10	2,5	50	10	4	KM	KMX
468050300	12	3	60	12	4	KM	KMX
468050400	12	4	60	12	4	KM	KMX
468050500	16	5	75	16	4	KM	KMX
468050600	16	6	75	16	4	KM	KMX

Z4

46805

Frese 1/4 di raggio concavo
Corner-rounding cutters
Viertelrund-profilfräser Konkav
Fraises concaves quart-de-cercle
Fresas cóncavas de 1/4 de radio

SKIN plus UOP COATING

Standard UOP | H | W ON REQUEST a richiesta

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
46805	◪	◪	◪	○	◪	●	◪	◪	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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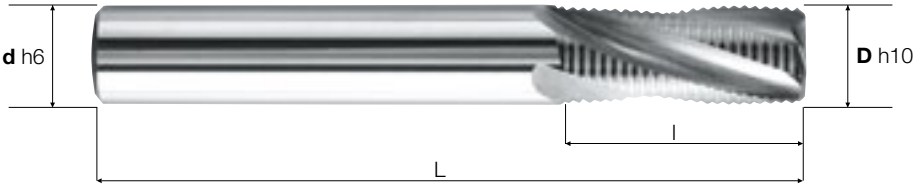
MADE IN ITALY

example code:

series	ø	uncoated	coated
47105	0500	KM	KMX



47105

Frese a sgrossare
Roughing end mills
Schruppfräser
Fraises ébauches deux tailles
Fresas para desbaste

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
471050500	5	13	50	5	3	KM	KMX
471050600	6	16	57	6	4	KM	KMX
471050700	7	16	60	7	4	KM	KMX
471050800	8	19	63	8	4	KM	KMX
471050900	9	19	67	9	4	KM	KMX
471051000	10	22	72	10	4	KM	KMX
471051100	11	22	83	11	4	KM	KMX
471051200	12	26	83	12	4	KM	KMX
471051300	13	26	83	13	4	KM	KMX
471051400	14	28	83	14	4	KM	KMX
471051500	15	32	92	15	4	KM	KMX
471051600	16	32	92	16	4	KM	KMX
471051700	17	32	92	17	4	KM	KMX
471051800	18	32	92	18	4	KM	KMX
471051900	19	38	104	19	4	KM	KMX
471052000	20	38	104	20	4	KM	KMX

SKIN
UOP COATING

UNI DIN 6528 ISO | NR | λ°s 20 | W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 347

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
47105	◕	◕	◕	○	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	uncoated	coated
47135	0500	KM	KMX

cod.	D h10	l	L	dh6	Z	UNCOATED	SKIN UOP COATING
471350500	5	13	50	5	3	KM	KMX
471350600	6	16	57	6	4	KM	KMX
471350700	7	16	60	7	4	KM	KMX
471350800	8	19	63	8	4	KM	KMX
471350900	9	19	67	9	4	KM	KMX
471351000	10	22	72	10	4	KM	KMX
471351100	11	22	83	11	4	KM	KMX
471351200	12	26	83	12	4	KM	KMX
471351300	13	26	83	13	4	KM	KMX
471351400	14	28	83	14	4	KM	KMX
471351500	15	32	92	15	4	KM	KMX
471351600	16	32	92	16	4	KM	KMX
471351700	17	32	92	17	4	KM	KMX
471351800	18	32	92	18	4	KM	KMX
471351900	19	38	104	19	4	KM	KMX
471352000	20	38	104	20	4	KM	KMX

Z 3÷4
BALL-NOSED CUTTERS

47135

Frese a sgrossare a testa semisferica
Roughing ball-nosed end mills
Halbrundkopfschruppfräser
Fraises deux tailles à bout hémisphérique
Fresa hemisférica para desbaste

SKIN
UOP COATING

Standard UOP	NR	λ°s 20	W ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 348

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
47135	◕	◕	◕	○	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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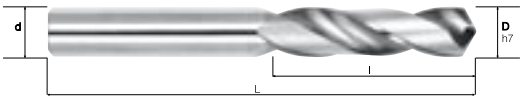
MADE IN ITALY

example code:

series	ø	uncoated	coated
49105	0200	KM	KMX



49105

Z2

Punte a due eliche
Two flute twist drills
Spiralbohrer zweischneider
Forets helicoidaux a deux lèvres
Broca de dos labios

DRILLING DEPTH 3XØ

SKINdrill UOP COATING

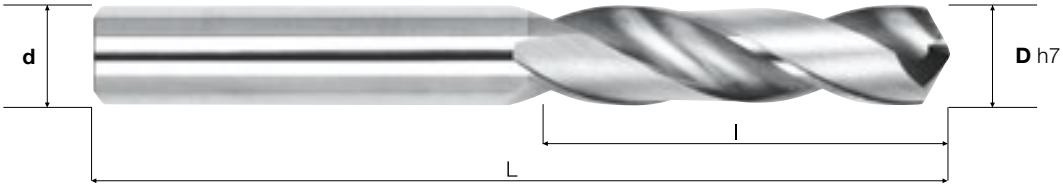
HEAD ANGLE 120°	DIN 1897	H	λ°s 30	ON REQUEST DIN 1809

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

cod.	D h7	l	L	d	Z	UNCOATED	SKINdrill UOP COATING
491050200	2,0	12	38	2,0	2	KM	KMX
491050210	2,1	12	38	2,1	2	KM	KMX
491050220	2,2	13	40	2,2	2	KM	KMX
491050230	2,3	13	40	2,3	2	KM	KMX
491050240	2,4	14	43	2,4	2	KM	KMX
491050250	2,5	14	43	2,5	2	KM	KMX
491050260	2,6	14	43	2,6	2	KM	KMX
491050270	2,7	16	46	2,7	2	KM	KMX
491050280	2,8	16	46	2,8	2	KM	KMX
491050290	2,9	16	46	2,9	2	KM	KMX
491050300	3,0	16	46	3,0	2	KM	KMX
491050310	3,1	18	49	3,1	2	KM	KMX
491050320	3,2	18	49	3,2	2	KM	KMX
491050330	3,3	18	49	3,3	2	KM	KMX
491050340	3,4	20	52	3,4	2	KM	KMX
491050350	3,5	20	52	3,5	2	KM	KMX
491050360	3,6	20	52	3,6	2	KM	KMX
491050370	3,7	20	52	3,7	2	KM	KMX
491050380	3,8	22	55	3,8	2	KM	KMX
491050390	3,9	22	55	3,9	2	KM	KMX
491050400	4,0	22	55	4,0	2	KM	KMX
491050410	4,1	22	55	4,1	2	KM	KMX
491050420	4,2	22	55	4,2	2	KM	KMX
491050430	4,3	24	58	4,3	2	KM	KMX
491050440	4,4	24	58	4,4	2	KM	KMX
491050450	4,5	24	58	4,5	2	KM	KMX
491050460	4,6	24	58	4,6	2	KM	KMX
491050470	4,7	24	58	4,7	2	KM	KMX
491050480	4,8	26	62	4,8	2	KM	KMX
491050490	4,9	26	62	4,9	2	KM	KMX
491050500	5,0	26	62	5,0	2	KM	KMX
491050510	5,1	26	62	5,1	2	KM	KMX
491050520	5,2	26	62	5,2	2	KM	KMX
491050530	5,3	26	62	5,3	2	KM	KMX
491050540	5,4	28	66	5,4	2	KM	KMX
491050550	5,5	28	66	5,5	2	KM	KMX
491050560	5,6	28	66	5,6	2	KM	KMX
491050570	5,7	28	66	5,7	2	KM	KMX
491050580	5,8	28	66	5,8	2	KM	KMX
491050590	5,9	28	66	5,9	2	KM	KMX
491050600	6,0	28	66	6,0	2	KM	KMX
491050610	6,1	31	70	6,1	2	KM	KMX
491050620	6,2	31	70	6,2	2	KM	KMX
491050630	6,3	31	70	6,3	2	KM	KMX
491050640	6,4	31	70	6,4	2	KM	KMX
491050650	6,5	31	70	6,5	2	KM	KMX
491050660	6,6	31	70	6,6	2	KM	KMX
491050670	6,7	31	70	6,7	2	KM	KMX
491050680	6,8	34	74	6,8	2	KM	KMX
491050690	6,9	34	74	6,9	2	KM	KMX
491050700	7,0	34	74	7,0	2	KM	KMX
491050710	7,1	34	74	7,1	2	KM	KMX
491050720	7,2	34	74	7,2	2	KM	KMX
491050730	7,3	34	74	7,3	2	KM	KMX
491050740	7,4	34	74	7,4	2	KM	KMX
491050750	7,5	34	74	7,5	2	KM	KMX
491050760	7,6	37	79	7,6	2	KM	KMX
491050770	7,7	37	79	7,7	2	KM	KMX
491050780	7,8	37	79	7,8	2	KM	KMX
491050790	7,9	37	79	7,9	2	KM	KMX
491050800	8,0	37	79	8,0	2	KM	KMX
491050810	8,1	37	79	8,1	2	KM	KMX
491050820	8,2	37	79	8,2	2	KM	KMX
491050830	8,3	37	79	8,3	2	KM	KMX
491050840	8,4	37	79	8,4	2	KM	KMX
491050850	8,5	37	79	8,5	2	KM	KMX

continues on the next page →

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED



→I continuation of the previous page

cod.	D h7	l	L	d	Z	UNCOATED	SKIN UOP COATING
491050860	8,6	40	84	8,6	2	KM	KMX
491050870	8,7	40	84	8,7	2	KM	KMX
491050880	8,8	40	84	8,8	2	KM	KMX
491050890	8,9	40	84	8,9	2	KM	KMX
491050900	9,0	40	84	9,0	2	KM	KMX
491050910	9,1	40	84	9,1	2	KM	KMX
491050920	9,2	40	84	9,2	2	KM	KMX
491050930	9,3	40	84	9,3	2	KM	KMX
491050940	9,4	40	84	9,4	2	KM	KMX
491050950	9,5	40	84	9,5	2	KM	KMX
491050960	9,6	43	89	9,6	2	KM	KMX
491050970	9,7	43	89	9,7	2	KM	KMX
491050980	9,8	43	89	9,8	2	KM	KMX
491050990	9,9	43	89	9,9	2	KM	KMX
491051000	10,0	43	89	10,0	2	KM	KMX
491051010	10,1	43	89	10,1	2	KM	KMX
491051020	10,2	43	89	10,2	2	KM	KMX
491051030	10,3	43	89	10,3	2	KM	KMX
491051040	10,4	43	89	10,4	2	KM	KMX
491051050	10,5	43	89	10,5	2	KM	KMX
491051060	10,6	43	89	10,6	2	KM	KMX
491051070	10,7	47	95	10,7	2	KM	KMX
491051080	10,8	47	95	10,8	2	KM	KMX
491051090	10,9	47	95	10,9	2	KM	KMX
491051100	11,0	47	95	11,0	2	KM	KMX
491051110	11,1	47	95	11,1	2	KM	KMX
491051120	11,2	47	95	11,2	2	KM	KMX
491051130	11,3	47	95	11,3	2	KM	KMX
491051140	11,4	47	95	11,4	2	KM	KMX
491051150	11,5	47	95	11,5	2	KM	KMX
491051160	11,6	47	95	11,6	2	KM	KMX
491051170	11,7	47	95	11,7	2	KM	KMX
491051180	11,8	47	95	11,8	2	KM	KMX
491051190	11,9	51	102	11,9	2	KM	KMX
491051200	12,0	51	102	12,0	2	KM	KMX
491051250	12,5	51	102	12,5	2	KM	KMX
491051300	13,0	51	102	13,0	2	KM	KMX
491051350	13,5	54	107	13,5	2	KM	KMX
491051400	14,0	54	107	14,0	2	KM	KMX
491051450	14,5	56	111	14,5	2	KM	KMX
491051500	15,0	56	111	15,0	2	KM	KMX
491051550	15,5	58	115	15,5	2	KM	KMX
491051600	16,0	58	115	16,0	2	KM	KMX
491051700	17,0	60	119	17,0	2	KM	KMX
491051800	18,0	62	123	18,0	2	KM	KMX
491051900	19,0	64	127	19,0	2	KM	KMX
491052000	20,0	66	131	20,0	2	KM	KMX

Z2

49105

Punte a due eliche
Two flute twist drills
Spiralbohrer zweischneider
Forets helicoidaux a deux lèvres
Broca de dos labios

DRILLING DEPTH 3XØ

SKINdrill UOP COATING

DIN 1897	H	λ°s 30	ON REQUEST DIN 1809	HEAD ANGLE 120°

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
49105	○	○	○	○	○	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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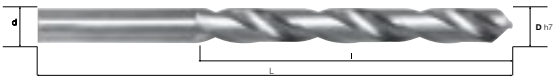
MADE IN ITALY

example code:

series	ø	uncoated	coated
49120	0200	KM	KMX



49120

Punte a due eliche
Two flute twist drills
Spiralbohrer zweischneider
Forets helicoidaux a deux lèvres
Broca de dos labios

DRILLING DEPTH TO Ø12 7XØ

FROM Ø12,5 TO Ø20 5XØ

SKINdrill UOP COATING

HEAD ANGLE 120°	DIN 338	H	λ°s 30	ON REQUEST DIN 1809

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

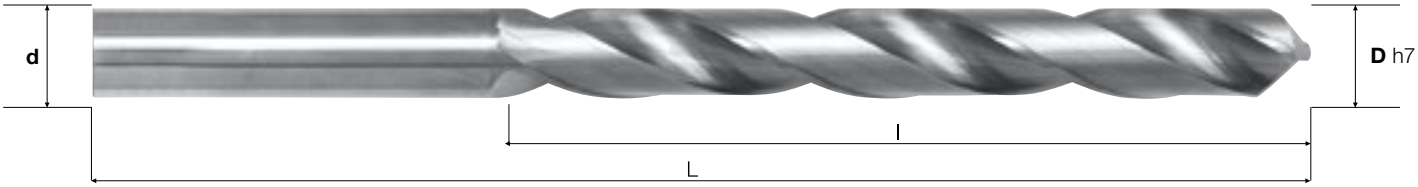
cod.	D h7	l	L	d	Z	UNCOATED	SKINdrill UOP COATING
491200200	2,0	24	49	2,0	2	KM	KMX
491200210	2,1	24	49	2,1	2	KM	KMX
491200220	2,2	27	53	2,2	2	KM	KMX
491200230	2,3	27	53	2,3	2	KM	KMX
491200240	2,4	30	57	2,4	2	KM	KMX
491200250	2,5	30	57	2,5	2	KM	KMX
491200260	2,6	30	57	2,6	2	KM	KMX
491200270	2,7	33	61	2,7	2	KM	KMX
491200280	2,8	33	61	2,8	2	KM	KMX
491200290	2,9	33	61	2,9	2	KM	KMX
491200300	3,0	33	61	3,0	2	KM	KMX
491200310	3,1	36	65	3,1	2	KM	KMX
491200320	3,2	36	65	3,2	2	KM	KMX
491200330	3,3	36	65	3,3	2	KM	KMX
491200340	3,4	39	70	3,4	2	KM	KMX
491200350	3,5	39	70	3,5	2	KM	KMX
491200360	3,6	39	70	3,6	2	KM	KMX
491200370	3,7	39	70	3,7	2	KM	KMX
491200380	3,8	43	75	3,8	2	KM	KMX
491200390	3,9	43	75	3,9	2	KM	KMX
491200400	4,0	43	75	4,0	2	KM	KMX
491200410	4,1	43	75	4,1	2	KM	KMX
491200420	4,2	43	75	4,2	2	KM	KMX
491200430	4,3	47	80	4,3	2	KM	KMX
491200440	4,4	47	80	4,4	2	KM	KMX
491200450	4,5	47	80	4,5	2	KM	KMX
491200460	4,6	47	80	4,6	2	KM	KMX
491200470	4,7	47	80	4,7	2	KM	KMX
491200480	4,8	52	86	4,8	2	KM	KMX
491200490	4,9	52	86	4,9	2	KM	KMX
491200500	5,0	52	86	5,0	2	KM	KMX
491200510	5,1	52	86	5,1	2	KM	KMX
491200520	5,2	52	86	5,2	2	KM	KMX
491200530	5,3	52	86	5,3	2	KM	KMX
491200540	5,4	57	93	5,4	2	KM	KMX
491200550	5,5	57	93	5,5	2	KM	KMX
491200560	5,6	57	93	5,6	2	KM	KMX
491200570	5,7	57	93	5,7	2	KM	KMX
491200580	5,8	57	93	5,8	2	KM	KMX
491200590	5,9	57	93	5,9	2	KM	KMX
491200600	6,0	57	93	6,0	2	KM	KMX
491200610	6,1	63	101	6,1	2	KM	KMX
491200620	6,2	63	101	6,2	2	KM	KMX
491200630	6,3	63	101	6,3	2	KM	KMX
491200640	6,4	63	101	6,4	2	KM	KMX
491200650	6,5	63	101	6,5	2	KM	KMX
491200660	6,6	63	101	6,6	2	KM	KMX
491200670	6,7	63	101	6,7	2	KM	KMX
491200680	6,8	69	109	6,8	2	KM	KMX
491200690	6,9	69	109	6,9	2	KM	KMX
491200700	7,0	69	109	7,0	2	KM	KMX
491200710	7,1	69	109	7,1	2	KM	KMX
491200720	7,2	69	109	7,2	2	KM	KMX
491200730	7,3	69	109	7,3	2	KM	KMX
491200740	7,4	69	109	7,4	2	KM	KMX
491200750	7,5	69	109	7,5	2	KM	KMX
491200760	7,6	75	117	7,6	2	KM	KMX
491200770	7,7	75	117	7,7	2	KM	KMX
491200780	7,8	75	117	7,8	2	KM	KMX
491200790	7,9	75	117	7,9	2	KM	KMX
491200800	8,0	75	117	8,0	2	KM	KMX
491200810	8,1	75	117	8,1	2	KM	KMX
491200820	8,2	75	117	8,2	2	KM	KMX
491200830	8,3	75	117	8,3	2	KM	KMX
491200840	8,4	75	117	8,4	2	KM	KMX
491200850	8,5	75	117	8,5	2	KM	KMX

continues on the next page →

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	uncoated	coated
49120	0200	KM	KMX



→I continuation of the previous page

cod.	D h7	l	L	d	Z	UNCOATED	SKIN UOP COATING
491200860	8,6	81	125	8,6	2	KM	KMX
491200870	8,7	81	125	8,7	2	KM	KMX
491200880	8,8	81	125	8,8	2	KM	KMX
491200890	8,9	81	125	8,9	2	KM	KMX
491200900	9,0	81	125	9,0	2	KM	KMX
491200910	9,1	81	125	9,1	2	KM	KMX
491200920	9,2	81	125	9,2	2	KM	KMX
491200930	9,3	81	125	9,3	2	KM	KMX
491200940	9,4	81	125	9,4	2	KM	KMX
491200950	9,5	81	125	9,5	2	KM	KMX
491200960	9,6	87	133	9,6	2	KM	KMX
491200970	9,7	87	133	9,7	2	KM	KMX
491200980	9,8	87	133	9,8	2	KM	KMX
491200990	9,9	87	133	9,9	2	KM	KMX
491201000	10,0	87	133	10,0	2	KM	KMX
491201010	10,1	87	133	10,1	2	KM	KMX
491201020	10,2	87	133	10,2	2	KM	KMX
491201030	10,3	87	133	10,3	2	KM	KMX
491201040	10,4	87	133	10,4	2	KM	KMX
491201050	10,5	87	133	10,5	2	KM	KMX
491201060	10,6	87	133	10,6	2	KM	KMX
491201070	10,7	94	142	10,7	2	KM	KMX
491201080	10,8	94	142	10,8	2	KM	KMX
491201090	10,9	94	142	10,9	2	KM	KMX
491201100	11,0	94	142	11,0	2	KM	KMX
491201110	11,1	94	142	11,1	2	KM	KMX
491201120	11,2	94	142	11,2	2	KM	KMX
491201130	11,3	94	142	11,3	2	KM	KMX
491201140	11,4	94	142	11,4	2	KM	KMX
491201150	11,5	94	142	11,5	2	KM	KMX
491201160	11,6	94	142	11,6	2	KM	KMX
491201170	11,7	94	142	11,7	2	KM	KMX
491201180	11,8	94	142	11,8	2	KM	KMX
491201190	11,9	101	151	11,9	2	KM	KMX
491201200	12,0	101	151	12,0	2	KM	KMX
491201250	12,5	101	151	12,5	2	KM	KMX
491201300	13,0	101	151	13,0	2	KM	KMX
491201350	13,5	108	160	13,5	2	KM	KMX
491201400	14,0	108	160	14,0	2	KM	KMX
491201450	14,5	114	169	14,5	2	KM	KMX
491201500	15,0	114	169	15,0	2	KM	KMX
491201550	15,5	120	178	15,5	2	KM	KMX
491201600	16,0	120	178	16,0	2	KM	KMX
491201700	17,0	125	184	17,0	2	KM	KMX
491201800	18,0	130	191	18,0	2	KM	KMX
491201900	19,0	135	198	19,0	2	KM	KMX
491202000	20,0	140	205	20,0	2	KM	KMX

Z2

49120

Punte a due eliche
Two flute twist drills
Spiralbohrer zweischneider
Forets helicoidaux a deux lèvres
Broca de dos labios

DRILLING DEPTH TO Ø12 7XØ

FROM Ø12,5 TO Ø20 5XØ

SKIN Drill UOP COATING

DIN 338	H	λ°s 30	ON REQUEST DIN 1809	HEAD ANGLE 120°

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
49120	○	○	○	○	○	○	●	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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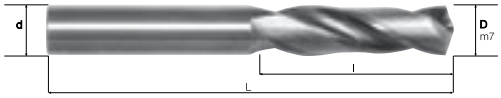
MADE IN ITALY

example code:

series	ø	uncoated	coated
49305	0200	KM	KMX



49305

Punte a due eliche "TS"

"TS" two flute twist drills

"TS" spiralbohrer Zweischneider

Forets helicoidaux a deux lèvres "TS"

Broca de dos labios "TS"

DRILLING DEPTH 3XØ

SKINDrill UOP COATING

HEAD ANGLE 140°	UNI DIN 6539 ISO	H	λ°s 30

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

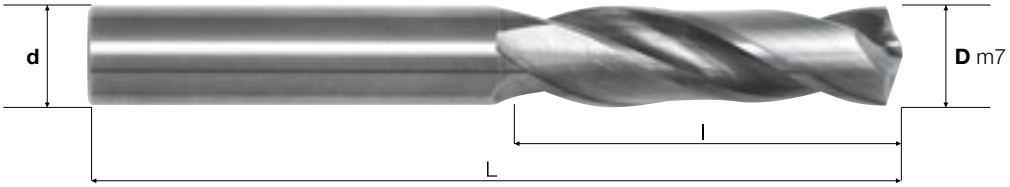
cod.	D m7	l	L	d	Z	UNCOATED	SKINDrill UOP COATING
493050200	2	16	46	2	2	KM	KMX
493050210	2,1	16	46	2,1	2	KM	KMX
493050220	2,2	16	46	2,2	2	KM	KMX
493050230	2,3	16	46	2,3	2	KM	KMX
493050240	2,4	16	46	2,4	2	KM	KMX
493050250	2,5	16	46	2,5	2	KM	KMX
493050260	2,6	16	46	2,6	2	KM	KMX
493050270	2,7	16	46	2,7	2	KM	KMX
493050280	2,8	16	46	2,8	2	KM	KMX
493050290	2,9	16	46	2,9	2	KM	KMX
493050300	3	16	46	3	2	KM	KMX
493050310	3,1	18	49	3,1	2	KM	KMX
493050320	3,2	18	49	3,2	2	KM	KMX
493050330	3,3	18	49	3,3	2	KM	KMX
493050340	3,4	20	52	3,4	2	KM	KMX
493050350	3,5	20	52	3,5	2	KM	KMX
493050360	3,6	20	52	3,6	2	KM	KMX
493050370	3,7	20	52	3,7	2	KM	KMX
493050380	3,8	22	55	3,8	2	KM	KMX
493050390	3,9	22	55	3,9	2	KM	KMX
493050400	4	22	55	4	2	KM	KMX
493050410	4,1	22	55	4,1	2	KM	KMX
493050420	4,2	22	55	4,2	2	KM	KMX
493050430	4,3	24	58	4,3	2	KM	KMX
493050440	4,4	24	58	4,4	2	KM	KMX
493050450	4,5	24	58	4,5	2	KM	KMX
493050460	4,6	24	58	4,6	2	KM	KMX
493050470	4,7	24	58	4,7	2	KM	KMX
493050480	4,8	26	62	4,8	2	KM	KMX
493050490	4,9	26	62	4,9	2	KM	KMX
493050500	5	26	62	5	2	KM	KMX
493050510	5,1	26	62	5,1	2	KM	KMX
493050520	5,2	26	62	5,2	2	KM	KMX
493050530	5,3	26	62	5,3	2	KM	KMX
493050540	5,4	28	66	5,4	2	KM	KMX
493050550	5,5	28	66	5,5	2	KM	KMX
493050560	5,6	28	66	5,6	2	KM	KMX
493050570	5,7	28	66	5,7	2	KM	KMX
493050580	5,8	28	66	5,8	2	KM	KMX
493050590	5,9	28	66	5,9	2	KM	KMX
493050600	6	28	66	6	2	KM	KMX
493050610	6,1	31	70	6,1	2	KM	KMX
493050620	6,2	31	70	6,2	2	KM	KMX
493050630	6,3	31	70	6,3	2	KM	KMX
493050640	6,4	31	70	6,4	2	KM	KMX
493050650	6,5	31	70	6,5	2	KM	KMX
493050660	6,6	31	70	6,6	2	KM	KMX
493050670	6,7	31	70	6,7	2	KM	KMX
493050680	6,8	34	74	6,8	2	KM	KMX
493050690	6,9	34	74	6,9	2	KM	KMX
493050700	7	34	74	7	2	KM	KMX
493050710	7,1	34	74	7,1	2	KM	KMX
493050720	7,2	34	74	7,2	2	KM	KMX
493050730	7,3	34	74	7,3	2	KM	KMX
493050740	7,4	34	74	7,4	2	KM	KMX
493050750	7,5	34	74	7,5	2	KM	KMX
493050760	7,6	37	79	7,6	2	KM	KMX
493050770	7,7	37	79	7,7	2	KM	KMX
493050780	7,8	37	79	7,8	2	KM	KMX
493050790	7,9	37	79	7,9	2	KM	KMX
493050800	8	41	79	8	2	KM	KMX
493050810	8,1	47	79	8,1	2	KM	KMX

continues on the next page →

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	uncoated	coated
49305	0200	KM	KMX



→I continuation of the previous page

cod.	D m7	l	L	d	Z	UNCOATED	SKIN UOP COATING
493050820	8,2	47	79	8,2	2	KM	KMX
493050830	8,3	47	79	8,3	2	KM	KMX
493050840	8,4	47	79	8,4	2	KM	KMX
493050850	8,5	47	79	8,5	2	KM	KMX
493050860	8,6	47	84	8,6	2	KM	KMX
493050870	8,7	47	84	8,7	2	KM	KMX
493050880	8,8	47	84	8,8	2	KM	KMX
493050890	8,9	47	84	8,9	2	KM	KMX
493050900	9	47	84	9	2	KM	KMX
493050910	9,1	47	84	9,1	2	KM	KMX
493050920	9,2	47	84	9,2	2	KM	KMX
493050930	9,3	47	84	9,3	2	KM	KMX
493050940	9,4	47	84	9,4	2	KM	KMX
493050950	9,5	47	84	9,5	2	KM	KMX
493050960	9,6	47	89	9,6	2	KM	KMX
493050970	9,7	47	89	9,7	2	KM	KMX
493050980	9,8	47	89	9,8	2	KM	KMX
493050990	9,9	47	89	9,9	2	KM	KMX
493051000	10	47	89	10	2	KM	KMX
493051010	10,1	47	89	10,1	2	KM	KMX
493051020	10,2	47	89	10,2	2	KM	KMX
493051030	10,3	47	89	10,3	2	KM	KMX
493051040	10,4	47	89	10,4	2	KM	KMX
493051050	10,5	47	89	10,5	2	KM	KMX
493051060	10,6	47	89	10,6	2	KM	KMX
493051070	10,7	47	95	10,7	2	KM	KMX
493051080	10,8	47	95	10,8	2	KM	KMX
493051090	10,9	47	95	10,9	2	KM	KMX
493051100	11	47	95	11	2	KM	KMX
493051110	11,1	47	95	11,1	2	KM	KMX
493051120	11,2	47	95	11,2	2	KM	KMX
493051130	11,3	47	95	11,3	2	KM	KMX
493051140	11,4	47	95	11,4	2	KM	KMX
493051150	11,5	47	95	11,5	2	KM	KMX
493051160	11,6	47	95	11,6	2	KM	KMX
493051170	11,7	47	95	11,7	2	KM	KMX
493051180	11,8	47	95	11,8	2	KM	KMX
493051190	11,9	47	95	11,9	2	KM	KMX
493051200	12	55	102	12	2	KM	KMX
493051250	12,5	55	102	12,5	2	KM	KMX
493051300	13	55	102	13	2	KM	KMX
493051350	13,5	55	107	13,5	2	KM	KMX
493051400	14	60	107	14	2	KM	KMX
493051450	14,5	60	111	14,5	2	KM	KMX
493051500	15	60	111	15	2	KM	KMX
493051550	15,5	60	115	15,5	2	KM	KMX
493051600	16	65	115	16	2	KM	KMX

Z2

49305

Punte a due eliche "TS"
"TS" two flute twist drills
"TS" spiralbohrer Zweischneider
Forets helicoidaux a deux lèvres "TS"
Broca de dos labios "TS"

DRILLING DEPTH 3XØ

SKIN Drill UOP COATING

UNI DIN 6539 ISO	H	λ°s 30	HEAD ANGLE 140°

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
49305	●	●	○	○	●	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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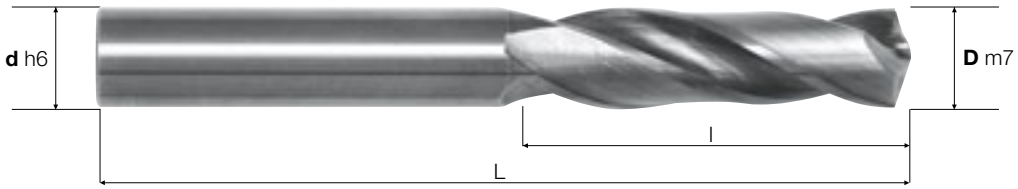
MADE IN ITALY

example code:

series	ø	uncoated	coated
49310	0300	KM	KMX



49310

Z2

Punte a due eliche "TS"

"TS" two flute twist drills

"TS" spiralbohrer Zweischneider

Forets helicoidaux a deux lèvres "TS"

Broca de dos labios "TS"

DRILLING DEPTH 3XØ

cod.	D m7	l	L	d h6	Z	UNCOATED	SKINDrill UOP COATING
493100300	3	20	62	6	2	KM	KMX
493100320	3,2	20	62	6	2	KM	KMX
493100330	3,3	20	62	6	2	KM	KMX
493100350	3,5	20	62	6	2	KM	KMX
493100040	4	24	66	6	2	KM	KMX
493100450	4,5	24	66	6	2	KM	KMX
493100500	5	28	66	6	2	KM	KMX
493100550	5,5	28	66	6	2	KM	KMX
493100600	6	28	66	6	2	KM	KMX
493100650	6,5	34	79	8	2	KM	KMX
493100670	6,7	34	79	8	2	KM	KMX
493100680	6,8	34	79	8	2	KM	KMX
493100700	7	34	79	8	2	KM	KMX
493100750	7,5	41	79	8	2	KM	KMX
493100800	8	41	79	8	2	KM	KMX
493100850	8,5	47	89	10	2	KM	KMX
493100900	9	47	89	10	2	KM	KMX
493100950	9,5	47	89	10	2	KM	KMX
493101000	10	47	89	10	2	KM	KMX
493101020	10,2	55	102	12	2	KM	KMX
493101050	10,5	55	102	12	2	KM	KMX
493101080	10,8	55	102	12	2	KM	KMX
493101100	11	55	102	12	2	KM	KMX
493101150	11,5	55	102	12	2	KM	KMX
493101180	11,8	55	102	12	2	KM	KMX
493101200	12	55	102	12	2	KM	KMX
493101250	12,5	60	107	14	2	KM	KMX
493101300	13	60	107	14	2	KM	KMX
493101350	13,5	60	107	14	2	KM	KMX
493101400	14	60	107	14	2	KM	KMX
493401450	14,5	65	115	16	2	KM	KMX
493101500	15	65	115	16	2	KM	KMX
493101550	15,5	65	115	16	2	KM	KMX
493101600	16	65	115	16	2	KM	KMX
493101650	16,5	73	123	18	2	KM	KMX
493101700	17	73	123	18	2	KM	KMX
493101800	18	73	123	18	2	KM	KMX
493101850	18,5	79	131	20	2	KM	KMX
493101900	19	79	131	20	2	KM	KMX
493101950	19,5	79	131	20	2	KM	KMX
493102000	20	79	131	20	2	KM	KMX

SKINDrill UOP COATING

HEAD ANGLE 140°	UNI DIN 6537 ISO	H	λ°s 30	ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio / TITANIUM	HRSA / HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili / STAINLESS STEELS	materiali non ferrosi / NON FERROUS MATERIALS	leghe leggere / LIGHT ALLOYS	grafite / GRAPHITE	acciai / STEELS	ghise / CAST IRON
49310	●	●	○	○	●	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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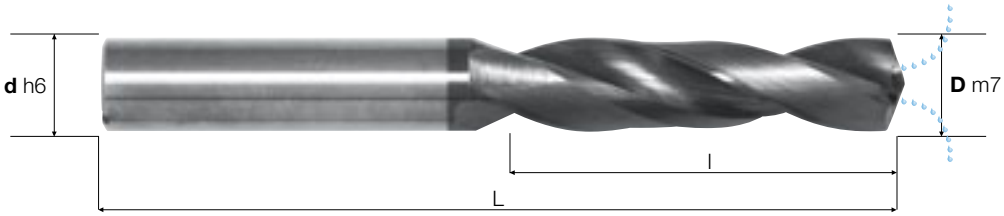
MADE IN ITALY



cod.	D m7	l	L	dh6	Z	SKINDrill UOP COATING
495050500	5	28	66	6	2	KMX
495050550	5,5	28	66	6	2	KMX
495050600	6	28	66	6	2	KMX
495050650	6,5	34	79	8	2	KMX
495050670	6,7	34	79	8	2	KMX
495050680	6,8	34	79	8	2	KMX
495050700	7	34	79	8	2	KMX
495050750	7,5	41	79	8	2	KMX
495050780	7,8	41	79	8	2	KMX
495050800	8	41	79	8	2	KMX
495050850	8,5	47	89	10	2	KMX
495050880	8,8	47	89	10	2	KMX
495050900	9	47	89	10	2	KMX
495050950	9,5	47	89	10	2	KMX
495050980	9,8	47	89	10	2	KMX
495051000	10	47	89	10	2	KMX
495051020	10,2	55	102	12	2	KMX
495051050	10,5	55	102	12	2	KMX
495051080	10,8	55	102	12	2	KMX
495051100	11	55	102	12	2	KMX
495051150	11,5	55	102	12	2	KMX
495051180	11,8	55	102	12	2	KMX
495051200	12	55	102	12	2	KMX
495051250	12,5	60	107	14	2	KMX
495051300	13	60	107	14	2	KMX
495051350	13,5	60	107	14	2	KMX
495051400	14	60	107	14	2	KMX
495051450	14,5	65	115	16	2	KMX
495051500	15	65	115	16	2	KMX
495051550	15,5	65	115	16	2	KMX
495051600	16	65	115	16	2	KMX
495051650	16,5	73	123	18	2	KMX
495051700	17	73	123	18	2	KMX
495051750	17,5	73	123	18	2	KMX
495051800	18	73	123	18	2	KMX
495051850	18,5	79	131	20	2	KMX
495051900	19	79	131	20	2	KMX
495052000	20	79	131	20	2	KMX

Z2

49505

Punte a due eliche "HP" con fori per refrigerante

"HP" two flute twist drills wit inner coolant

"HP" spiralbohrer Zweischneider mit IKZ

Forets helicoidaux a deux lèvres "HP"

avec trous d'arrosage

Broca de dos labios "HP" con agujeros para refrigerante

Internal Coolant

DRILLING DEPTH 3XØ

SKINDrill UOP COATING

UNI DIN 6537 ISO | H | ON REQUEST a richiesta | HEAD ANGLE 140°

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
49505	●	●	◪	○	●	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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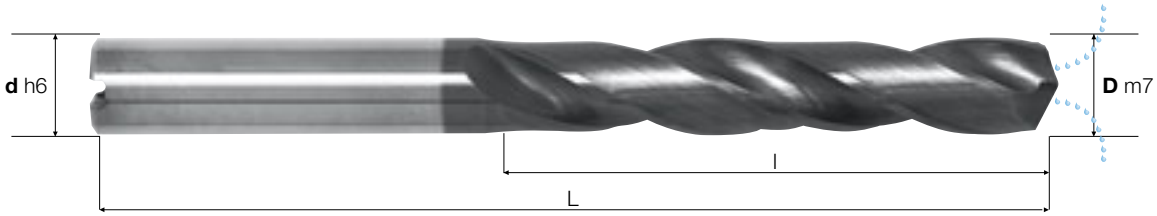
MADE IN ITALY

example code:

series	ø	coated
49510	0500	KMX



49510

Z2

Punte a due eliche "HP" con fori per refrigerante

"HP" two flute twist drills wit inner coolant

"HP" spiralbohrer Zweischneider mit IKZ

Forets helicoidaux a deux lèvres "HP"

avec trous d'arrosage

Broca de dos labios "HP" con agujeros para refrigerante

Internal Coolant

DRILLING DEPTH 3XØ

SKINDrill UOP COATING

HEAD ANGLE 140° | UNI DIN 6537 ISO | H | ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

cod.	D m7	l	L	dh6	Z	SKINDrill UOP COATING
495100500	5	44	82	6	2	KMX
495100600	6	44	82	6	2	KMX
495100650	6,5	53	91	8	2	KMX
495100670	6,7	53	91	8	2	KMX
495100680	6,8	53	91	8	2	KMX
495100700	7	53	91	8	2	KMX
495100750	7,5	53	91	8	2	KMX
495100780	7,8	53	91	8	2	KMX
495100800	8	53	91	8	2	KMX
495100850	8,5	61	103	10	2	KMX
495100880	8,8	61	103	10	2	KMX
495100900	9	61	103	10	2	KMX
495100950	9,5	61	103	10	2	KMX
495100980	9,8	61	103	10	2	KMX
495101000	10	61	103	10	2	KMX
495101020	10,2	71	118	12	2	KMX
495101050	10,5	71	118	12	2	KMX
495101080	10,8	71	118	12	2	KMX
495101100	11	71	118	12	2	KMX
495101150	11,5	71	118	12	2	KMX
495101180	11,8	71	118	12	2	KMX
495101200	12	71	118	12	2	KMX
495101250	12,5	77	124	14	2	KMX
495101300	13	77	124	14	2	KMX
495101350	13,5	77	124	14	2	KMX
495101400	14	77	124	14	2	KMX
495101450	14,5	83	133	16	2	KMX
495101500	15	83	133	16	2	KMX
495101550	15,5	83	133	16	2	KMX
495101600	16	83	133	16	2	KMX
495101650	16,5	93	143	18	2	KMX
495101700	17	93	143	18	2	KMX
495101750	17,5	93	143	18	2	KMX
495101800	18	93	143	18	2	KMX
495101900	19	101	153	20	2	KMX
495102000	20	101	153	20	2	KMX

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio / TITANIUM	HRSA / HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili / STAINLESS STEELS	materiali non ferrosi / NON FERROUS MATERIALS	leghe leggere / LIGHT ALLOYS	grafite / GRAPHITE	acciai / STEELS	ghise / CAST IRON
49510	●	●	◕	○	●	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

cod.	D m7	l	L	dh6	Z	SKINDrill UOP COATING
496100500	5	44	82	6	2	KMX
496100600	6	44	82	6	2	KMX
496100650	6,5	53	91	8	2	KMX
496100670	6,7	53	91	8	2	KMX
496100680	6,8	53	91	8	2	KMX
496100700	7	53	91	8	2	KMX
496100750	7,5	53	91	8	2	KMX
496100780	7,8	53	91	8	2	KMX
496100800	8	53	91	8	2	KMX
496100850	8,5	61	103	10	2	KMX
496100880	8,8	61	103	10	2	KMX
496100900	9	61	103	10	2	KMX
496100950	9,5	61	103	10	2	KMX
496100980	9,8	61	103	10	2	KMX
496101000	10	61	103	10	2	KMX
496101020	10,2	71	118	12	2	KMX
496101050	10,5	71	118	12	2	KMX
496101080	10,8	71	118	12	2	KMX
496101100	11	71	118	12	2	KMX
496101150	11,5	71	118	12	2	KMX
496101180	11,8	71	118	12	2	KMX
496101200	12	71	118	12	2	KMX
496101250	12,5	77	124	14	2	KMX
496101300	13	77	124	14	2	KMX
496101350	13,5	77	124	14	2	KMX
496101400	14	77	124	14	2	KMX
496101450	14,5	83	133	16	2	KMX
496101500	15	83	133	16	2	KMX
496101550	15,5	83	133	16	2	KMX
496101600	16	83	133	16	2	KMX
496101650	16,5	93	143	18	2	KMX
496101700	17	93	143	18	2	KMX
496101750	17,5	93	143	18	2	KMX
496101800	18	93	143	18	2	KMX
496101900	19	101	153	20	2	KMX
496102000	20	101	153	20	2	KMX

Z2

49610

Punte a taglienti dritti con fori per refrigerante
Straight flute drills wit inner coolant
Geradegenutete Bohrer mit IKZ
Forets avec denture droite avec trous d'arrosage
Brocas de labios rectos con agujeros para refrigerante

Internal Coolant

DRILLING DEPTH 4XØ

SKINDrill UOP COATING

UNI DIN 6537 ISO | H | ON REQUEST a richiesta | HEAD ANGLE 130°

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
49610	○	○	○	○	○	●	●	○	○	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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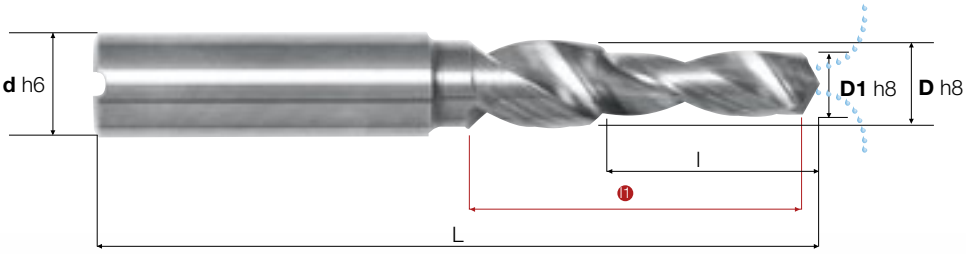
MADE IN ITALY

example code:

series	ø	uncoated	coated
49905	0402	KM	KMX
49910	0302	KM	KMX



Internal Coolant

49905

Z2

Punte a gradino a 90° con fori per refrigerante

Step drills 90° wit inner coolant

Stufenbohrer 90° mit IKZ

Forets étagés 90° avec trous d'arrosage

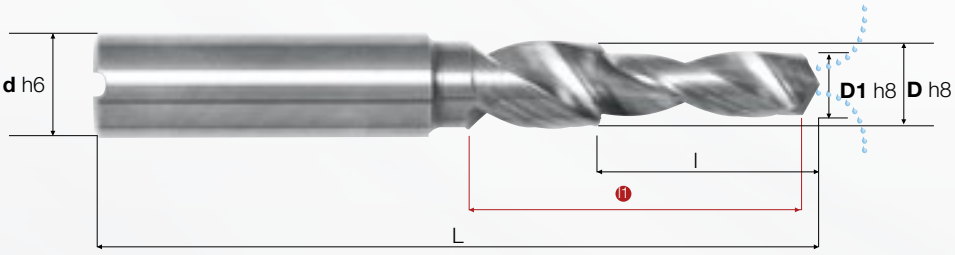
Broca bi-diametral de 90° con agujeros para refrigerante

cod.		Dh8	D1h8	l1	l	L	dh6	Z	UNCOATED	SKINDrill UOP COATING
499050402	M4	4,5	3,3	20	11,4	66	6	2	KM	KMX
499050502	M5	5,5	4,2	28	13,6	66	6	2	KM	KMX
499050602	M6	6,6	5	31	16,5	79	8	2	KM	KMX
499050802	M8	9	6,8	40	21	83	10	2	KM	KMX
499051002	M10	11	8,5	48	25,5	95	12	2	KM	KMX
499051202	M12	13,5	10,2	54	30	110	16	2	KM	KMX

SKINDrill UOP COATING

HEAD ANGLE 120° | Standard UOP | H | ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349



Internal Coolant

49910

Z2

Punte a gradino a 180° con fori per refrigerante

Step drills 180 wit inner coolant

Stufenbohrer 180° mit IKZ

Forets étagés 180° avec trous d'arrosage

Broca bi-diametral de 180° con agujeros para refrigerante

cod.		Dh8	D1h8	l1	l	L	dh6	Z	UNCOATED	SKINDrill UOP COATING
499100302	M3	6	3,4	28	9	66	6	2	KM	KMX
499100402	M4	8	4,5	37	11	79	8	2	KM	KMX
499100502	M5	10	5,5	43	13	83	10	2	KM	KMX
499100602	M6	11	6,6	47	15	95	12	2	KM	KMX
499100802	M8	15	9	52	21	110	16	2	KM	KMX
499101002	M10	18	11	52	26	110	18	2	KM	KMX

SKINDrill UOP COATING

HEAD ANGLE 120° | Standard UOP | H | ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
49905	●	●	◕	○	●	○	○	○	●	●
49910	●	●	◕	○	●	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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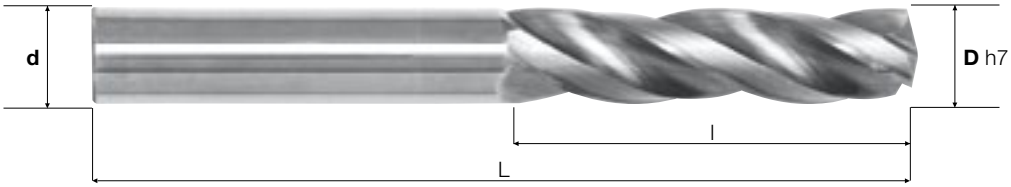
MADE IN ITALY

example code:

series	ø	uncoated	coated
50105	0200	KM	KMX



cod.	D h7	l	L	d	Z	UNCOATED	SKIN UOP COATING
501050200	2	12	38	2	3	KM	KMX
501050210	2,1	12	38	2,1	3	KM	KMX
501050220	2,2	13	40	2,2	3	KM	KMX
501050230	2,3	13	40	2,3	3	KM	KMX
501050240	2,4	14	43	2,4	3	KM	KMX
501050250	2,5	14	43	2,5	3	KM	KMX
501050260	2,6	14	43	2,6	3	KM	KMX
501050270	2,7	16	46	2,7	3	KM	KMX
501050280	2,8	16	46	2,8	3	KM	KMX
501050290	2,9	16	46	2,9	3	KM	KMX
501050300	3	16	46	3	3	KM	KMX
501050310	3,1	18	49	3,1	3	KM	KMX
501050320	3,2	18	49	3,2	3	KM	KMX
501050330	3,3	18	49	3,3	3	KM	KMX
501050340	3,4	20	52	3,4	3	KM	KMX
501050350	3,5	20	52	3,5	3	KM	KMX
501050360	3,6	20	52	3,6	3	KM	KMX
501050370	3,7	20	52	3,7	3	KM	KMX
501050380	3,8	22	55	3,8	3	KM	KMX
501050390	3,9	22	55	3,9	3	KM	KMX
501050400	4	22	55	4	3	KM	KMX
501050410	4,1	22	55	4,1	3	KM	KMX
501050420	4,2	22	55	4,2	3	KM	KMX
501050430	4,3	24	58	4,3	3	KM	KMX
501050440	4,4	24	58	4,4	3	KM	KMX
501050450	4,5	24	58	4,5	3	KM	KMX
501050460	4,6	24	58	4,6	3	KM	KMX
501050470	4,7	24	58	4,7	3	KM	KMX
501050480	4,8	26	62	4,8	3	KM	KMX
501050490	4,9	26	62	4,9	3	KM	KMX
501050500	5	26	62	5	3	KM	KMX
501050510	5,1	26	62	5,1	3	KM	KMX
501050520	5,2	26	62	5,2	3	KM	KMX
501050530	5,3	26	62	5,3	3	KM	KMX
501050540	5,4	28	66	5,4	3	KM	KMX
501050550	5,5	28	66	5,5	3	KM	KMX
501050560	5,6	28	66	5,6	3	KM	KMX
501050570	5,7	28	66	5,7	3	KM	KMX
501050580	5,8	28	66	5,8	3	KM	KMX
501050590	5,9	28	66	5,9	3	KM	KMX
501050600	6	28	66	6	3	KM	KMX
501050610	6,1	31	70	6,1	3	KM	KMX
501050620	6,2	31	70	6,2	3	KM	KMX
501050630	6,3	31	70	6,3	3	KM	KMX
501050640	6,4	31	70	6,4	3	KM	KMX
501050650	6,5	31	70	6,5	3	KM	KMX
501050660	6,6	31	70	6,6	3	KM	KMX
501050670	6,7	31	70	6,7	3	KM	KMX
501050680	6,8	34	74	6,8	3	KM	KMX

continues on the next page →

Z3

50105

Punte a tre eliche
Three flute twist drills
Spiralbohrer Dreischneider
Forets helicoidaux a trois lèvres
Broca de tres labios

DRILLING DEPTH 3XØ

SKIN Drill UOP COATING

Standard UOP	H	λ°s 30	ON REQUEST DIN 1809	HEAD ANGLE 150°

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
50105	○	○	○	○	◕	○	◕	○	○	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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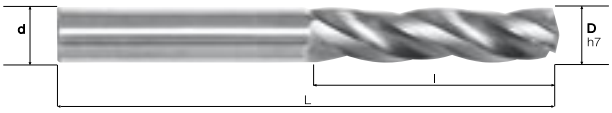
MADE IN ITALY



50105

Z3

Punte a tre eliche
Three flute twist drills
Spiralbohrer Dreischneider
Forets helicoidaux a trois lèvres
Broca de tres labios

DRILLING DEPTH 3XØ

SKINDrill UOP COATING

HEAD ANGLE 150°	Standard UOP	H	λ°s 30	ON REQUEST DIN 1809

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

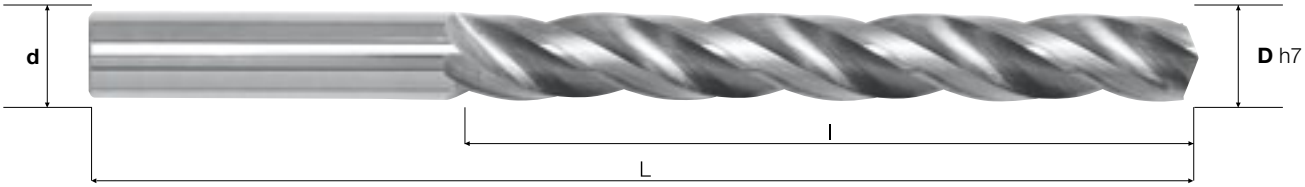
→| continuation of the previous page

cod.	D h7	l	L	d	Z	UNCOATED	SKIN UOP COATING
501050690	6,9	34	74	6,9	3	KM	KMX
501050700	7	34	74	7	3	KM	KMX
501050710	7,1	34	74	7,1	3	KM	KMX
501050720	7,2	34	74	7,2	3	KM	KMX
501050730	7,3	34	74	7,3	3	KM	KMX
501050740	7,4	34	74	7,4	3	KM	KMX
501050750	7,5	34	74	7,5	3	KM	KMX
501050760	7,6	37	79	7,6	3	KM	KMX
501050770	7,7	37	79	7,7	3	KM	KMX
501050780	7,8	37	79	7,8	3	KM	KMX
501050790	7,9	37	79	7,9	3	KM	KMX
501050800	8	37	79	8	3	KM	KMX
501050810	8,1	37	79	8,1	3	KM	KMX
501050820	8,2	37	79	8,2	3	KM	KMX
501050830	8,3	37	79	8,3	3	KM	KMX
501050840	8,4	37	79	8,4	3	KM	KMX
501050850	8,5	37	79	8,5	3	KM	KMX
501050860	8,6	40	84	8,6	3	KM	KMX
501050870	8,7	40	84	8,7	3	KM	KMX
501050880	8,8	40	84	8,8	3	KM	KMX
501050890	8,9	40	84	8,9	3	KM	KMX
501050900	9	40	84	9	3	KM	KMX
501050910	9,1	40	84	9,1	3	KM	KMX
501050920	9,2	40	84	9,2	3	KM	KMX
501050930	9,3	40	84	9,3	3	KM	KMX
501050940	9,4	40	84	9,4	3	KM	KMX
501050950	9,5	40	84	9,5	3	KM	KMX
501050960	9,6	43	89	9,6	3	KM	KMX
501050970	9,7	43	89	9,7	3	KM	KMX
501050980	9,8	43	89	9,8	3	KM	KMX
501050990	9,9	43	89	9,9	3	KM	KMX
501051000	10	43	89	10	3	KM	KMX
501051010	10,1	43	89	10,1	3	KM	KMX
501051020	10,2	43	89	10,2	3	KM	KMX
501051030	10,3	43	89	10,3	3	KM	KMX
501051040	10,4	43	89	10,4	3	KM	KMX
501051050	10,5	43	89	10,5	3	KM	KMX
501051060	10,6	43	89	10,6	3	KM	KMX
501051070	10,7	47	95	10,7	3	KM	KMX
501051080	10,8	47	95	10,8	3	KM	KMX
501051090	10,9	47	95	10,9	3	KM	KMX
501051100	11	47	95	11	3	KM	KMX
501051110	11,1	47	95	11,1	3	KM	KMX
501051120	11,2	47	95	11,2	3	KM	KMX
501051130	11,3	47	95	11,3	3	KM	KMX
501051140	11,4	47	95	11,4	3	KM	KMX
501051150	11,5	47	95	11,5	3	KM	KMX
501051160	11,6	47	95	11,6	3	KM	KMX
501051170	11,7	47	95	11,7	3	KM	KMX
501051180	11,8	47	95	11,8	3	KM	KMX
501051190	11,9	51	102	11,9	3	KM	KMX
501051200	12	51	102	12	3	KM	KMX
501051250	12,5	51	102	12,5	3	KM	KMX
501051300	13	51	102	13	3	KM	KMX
501051350	13,5	54	107	13,5	3	KM	KMX
501051400	14	54	107	14	3	KM	KMX
501051450	14,5	56	111	14,5	3	KM	KMX
501051500	15	56	111	15	3	KM	KMX
501051550	15,5	58	115	15,5	3	KM	KMX
501051600	16	58	115	16	3	KM	KMX
501051700	17	60	119	17	3	KM	KMX
501051800	18	62	123	18	3	KM	KMX
501051900	19	64	127	19	3	KM	KMX
501052000	20	66	131	20	3	KM	KMX

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	uncoated	coated
50120	0200	KM	KMX



cod.	D h7	l	L	d	Z	UNCOATED	SKIN UOP COATING
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501200210	2,1	24	49	2,1	3	KM	KMX
501200220	2,2	27	53	2,2	3	KM	KMX
501200230	2,3	27	53	2,3	3	KM	KMX
501200240	2,4	30	57	2,4	3	KM	KMX
501200250	2,5	30	57	2,5	3	KM	KMX
501200260	2,6	30	57	2,6	3	KM	KMX
501200270	2,7	33	61	2,7	3	KM	KMX
501200280	2,8	33	61	2,8	3	KM	KMX
501200290	2,9	33	61	2,9	3	KM	KMX
501200300	3	33	61	3	3	KM	KMX
501200310	3,1	36	65	3,1	3	KM	KMX
501200320	3,2	36	65	3,2	3	KM	KMX
501200330	3,3	36	65	3,3	3	KM	KMX
501200340	3,4	39	70	3,4	3	KM	KMX
501200350	3,5	39	70	3,5	3	KM	KMX
501200360	3,6	39	70	3,6	3	KM	KMX
501200370	3,7	39	70	3,7	3	KM	KMX
501200380	3,8	43	75	3,8	3	KM	KMX
501200390	3,9	43	75	3,9	3	KM	KMX
501200400	4	43	75	4	3	KM	KMX
501200410	4,1	43	75	4,1	3	KM	KMX
501200420	4,2	43	75	4,2	3	KM	KMX
501200430	4,3	47	80	4,3	3	KM	KMX
501200440	4,4	47	80	4,4	3	KM	KMX
501200450	4,5	47	80	4,5	3	KM	KMX
501200460	4,6	47	80	4,6	3	KM	KMX
501200470	4,7	52	86	4,7	3	KM	KMX
501200480	4,8	52	86	4,8	3	KM	KMX
501200490	4,9	52	86	4,9	3	KM	KMX
501200500	5	52	86	5	3	KM	KMX
501200510	5,1	52	86	5,1	3	KM	KMX
501200520	5,2	52	86	5,2	3	KM	KMX
501200530	5,3	52	86	5,3	3	KM	KMX
501200540	5,4	57	93	5,4	3	KM	KMX
501200550	5,5	57	93	5,5	3	KM	KMX
501200560	5,6	57	93	5,6	3	KM	KMX
501200570	5,7	57	93	5,7	3	KM	KMX
501200580	5,8	57	93	5,8	3	KM	KMX
501200590	5,9	57	93	5,9	3	KM	KMX
501200600	6	57	93	6	3	KM	KMX
501200610	6,1	63	101	6,1	3	KM	KMX
501200620	6,2	63	101	6,2	3	KM	KMX
501200630	6,3	63	101	6,3	3	KM	KMX
501200640	6,4	63	101	6,4	3	KM	KMX
501200650	6,5	63	101	6,5	3	KM	KMX

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Z3

50120

Punte a tre eliche
Three flute twist drills
Spiralbohrer Dreischneider
Forets helicoidaux a trois lèvres
Broca de tres labios

DRILLING DEPTH 5XØ

SKIN Drill UOP COATING

Standard UOP	H	λ°s 30	ON REQUEST DIN 1809	HEAD ANGLE 150°

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
50120	○	○	○	○	◕	○	◕	○	○	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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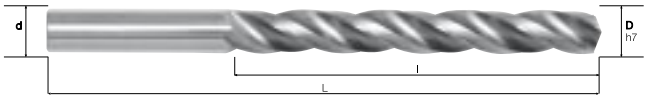

50120

Z3

Punte a tre eliche
Three flute twist drills
Spiralbohrer Dreischneider
Forets helicoidaux a trois lèvres
Broca de tres labios

DRILLING DEPTH 5XØ

SKINDrill UOP COATING

HEAD ANGLE 150°	Standard UOP	H	λ°s 30	ON REQUEST DIN 1809

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

→ continuation of the previous page

cod.	D h7	l	L	d	Z	UNCOATED	SKIN UOP COATING
501200660	6,6	63	101	6,6	3	KM	KMX
501200670	6,7	63	101	6,7	3	KM	KMX
501200680	6,8	69	109	6,8	3	KM	KMX
501200690	6,9	69	109	6,9	3	KM	KMX
501200700	7	69	109	7	3	KM	KMX
501200710	7,1	69	109	7,1	3	KM	KMX
501200720	7,2	69	109	7,2	3	KM	KMX
501200730	7,3	69	109	7,3	3	KM	KMX
501200740	7,4	69	109	7,4	3	KM	KMX
501200750	7,5	69	109	7,5	3	KM	KMX
501200760	7,6	75	117	7,6	3	KM	KMX
501200770	7,7	75	117	7,7	3	KM	KMX
501200780	7,8	75	117	7,8	3	KM	KMX
501200790	7,9	75	117	7,9	3	KM	KMX
501200800	8	75	117	8	3	KM	KMX
501200810	8,1	75	117	8,1	3	KM	KMX
501200820	8,2	75	117	8,2	3	KM	KMX
501200830	8,3	75	117	8,3	3	KM	KMX
501200840	8,4	75	117	8,4	3	KM	KMX
501200850	8,5	75	117	8,5	3	KM	KMX
501200860	8,6	81	125	8,6	3	KM	KMX
501200870	8,7	81	125	8,7	3	KM	KMX
501200880	8,8	81	125	8,8	3	KM	KMX
501200890	8,9	81	125	8,9	3	KM	KMX
501200900	9	81	125	9	3	KM	KMX
501200910	9,1	81	125	9,1	3	KM	KMX
501200920	9,2	81	125	9,2	3	KM	KMX
501200930	9,3	81	125	9,3	3	KM	KMX
501200940	9,4	81	125	9,4	3	KM	KMX
501200950	9,5	81	125	9,5	3	KM	KMX
501200960	9,6	87	133	9,6	3	KM	KMX
501200970	9,7	87	133	9,7	3	KM	KMX
501200980	9,8	87	133	9,8	3	KM	KMX
501200990	9,9	87	133	9,9	3	KM	KMX
501201000	10	87	133	10	3	KM	KMX
501201010	10,1	87	133	10,1	3	KM	KMX
501201020	10,2	87	133	10,2	3	KM	KMX
501201030	10,3	87	133	10,3	3	KM	KMX
501201040	10,4	87	133	10,4	3	KM	KMX
501201050	10,5	87	133	10,5	3	KM	KMX
501201060	10,6	87	133	10,6	3	KM	KMX
501201070	10,7	94	142	10,7	3	KM	KMX
501201080	10,8	94	142	10,8	3	KM	KMX
501201090	10,9	94	142	10,9	3	KM	KMX

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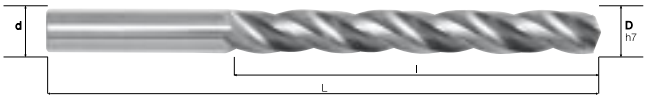
→| continuation of the previous page

cod.	D h7	l	L	d	Z	UNCOATED	SKIN UOP COATING
501201100	11	94	142	11	3	KM	KMX
501201110	11,1	94	142	11,1	3	KM	KMX
501201120	11,2	94	142	11,2	3	KM	KMX
501201130	11,3	94	142	11,3	3	KM	KMX
501201140	11,4	94	142	11,4	3	KM	KMX
501201150	11,5	94	142	11,5	3	KM	KMX
501201160	11,6	94	142	11,6	3	KM	KMX
501201170	11,7	94	142	11,7	3	KM	KMX
501201180	11,8	94	142	11,8	3	KM	KMX
501201190	11,9	101	151	11,9	3	KM	KMX
501201200	12	101	151	12	3	KM	KMX
501201250	12,5	101	151	12,5	3	KM	KMX
501201300	13	101	151	13	3	KM	KMX
501201350	13,5	108	160	13,5	3	KM	KMX
501201400	14	108	160	14	3	KM	KMX
501201450	14,5	114	169	14,5	3	KM	KMX
501201500	15	114	169	15	3	KM	KMX
501201550	15,5	120	178	15,5	3	KM	KMX
501201600	16	120	178	16	3	KM	KMX
501201700	17	125	184	17	3	KM	KMX
501201800	18	130	191	18	3	KM	KMX
501201900	19	135	198	19	3	KM	KMX
501202000	20	140	205	20	3	KM	KMX



Z3

50120

Punte a tre eliche
Three flute twist drills
Spiralbohrer Dreischneider
Forets helicoidaux a trois lèvres
Broca de tres labios

DRILLING DEPTH 5XØ

SKIN Drill UOP COATING

Standard UOP	H	λ°s 30	ON REQUEST DIN 1809	HEAD ANGLE 150°

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
50120	○	○	○	○	◕	○	◕	○	○	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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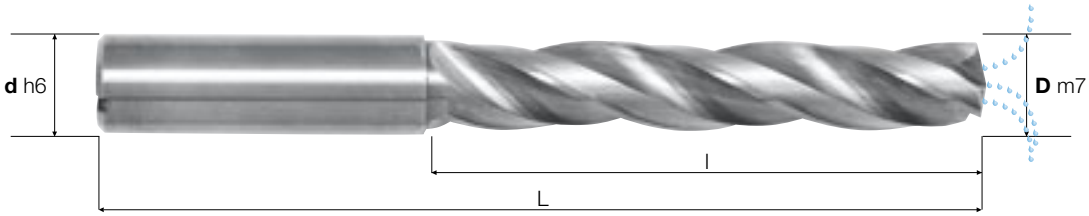
example code:

series	ø	uncoated	coated
50510	0500	KM	KMX



50510

Z3

Punte a tre eliche "HP"
con fori per refrigerante
"HP" three flute twist drills wit inner coolant
"HP" Spiralbohrer Dreischneider mit IKZ
Forets helicoidaux a trois lèvres "HP"
avec trous d'arrosage
Broca de tres labios "HP"
con agujeros para refrigerante

Internal Coolant

DRILLING DEPTH 4XØ

cod.	D m7	l	L	d h6	Z	UNCOATED	SKINDrill UOP COATING
505100500	5	44	82	6	3	KM	KMX
505100600	6	44	82	6	3	KM	KMX
505100650	6,5	53	91	8	3	KM	KMX
505100660	6,6	53	91	8	3	KM	KMX
505100680	6,8	53	91	8	3	KM	KMX
505100700	7	53	91	8	3	KM	KMX
505100750	7,5	53	91	8	3	KM	KMX
505100780	7,8	53	91	8	3	KM	KMX
505100800	8	53	91	8	3	KM	KMX
505100850	8,5	61	103	10	3	KM	KMX
505100880	8,8	61	103	10	3	KM	KMX
505100900	9	61	103	10	3	KM	KMX
505100950	9,5	61	103	10	3	KM	KMX
505100980	9,8	61	103	10	3	KM	KMX
505101000	10	61	103	10	3	KM	KMX
505101020	10,2	71	118	12	3	KM	KMX
505101050	10,5	71	118	12	3	KM	KMX
505101080	10,8	71	118	12	3	KM	KMX
505101100	11	71	118	12	3	KM	KMX
505101150	11,5	71	118	12	3	KM	KMX
505101180	11,8	71	118	12	3	KM	KMX
505101200	12	71	118	12	3	KM	KMX
505101250	12,5	77	124	14	3	KM	KMX
505101300	13	77	124	14	3	KM	KMX
505101350	13,5	77	124	14	3	KM	KMX
505101400	14	77	124	14	3	KM	KMX
505101450	14,5	83	133	16	3	KM	KMX
505101500	15	83	133	16	3	KM	KMX
505101550	15,5	83	133	16	3	KM	KMX
505101600	16	83	133	16	3	KM	KMX
505101650	16,5	93	143	18	3	KM	KMX
505101700	17	93	143	18	3	KM	KMX
505101750	17,5	93	143	18	3	KM	KMX
505101800	18	93	143	18	3	KM	KMX
505101900	19	101	153	20	3	KM	KMX
505102000	20	101	153	20	3	KM	KMX

SKINDrill UOP COATING

HEAD ANGLE 150° | Standard UOP | H | ON REQUEST a richiesta

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
50510	○	○	○	○	◕	○	◕	○	○	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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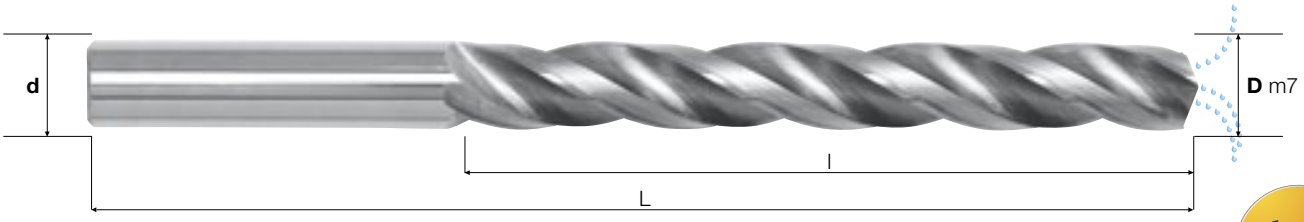

New

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505200550	5,5	57	93	6	3	KM	KMX
505200600	6	57	93	6	3	KM	KMX
505200650	6,5	63	101	8	3	KM	KMX
505000680	6,8	69	109	8	3	KM	KMX
505200700	7	69	109	8	3	KM	KMX
505200750	7,5	69	109	8	3	KM	KMX
505200800	8	75	117	8	3	KM	KMX
505200850	8,5	75	117	10	3	KM	KMX
505200880	8,8	81	125	10	3	KM	KMX
505200900	9	81	125	10	3	KM	KMX
505200950	9,5	81	125	10	3	KM	KMX
505201000	10	87	133	10	3	KM	KMX
505201020	10,2	87	133	12	3	KM	KMX
505201050	10,5	87	133	12	3	KM	KMX
505201100	11	94	142	12	3	KM	KMX
505201150	11,5	94	142	12	3	KM	KMX
505201200	12	101	151	12	3	KM	KMX
505201250	12,5	101	151	14	3	KM	KMX
505201300	13	101	151	14	3	KM	KMX
505201350	13,5	108	160	14	3	KM	KMX
505201400	14	108	160	14	3	KM	KMX
505201450	14,5	114	169	16	3	KM	KMX
505201500	15	114	169	16	3	KM	KMX
505201550	15,5	120	178	16	3	KM	KMX
505201600	16	120	178	16	3	KM	KMX

Z3

50520

Punte a tre eliche "HP"
con fori per refrigerante
"HP" three flute twist drills wit inner coolant
"HP" Spiralbohrer Dreischneider mit IKZ
Forets helicoidaux a trois lèvres "HP"
avec trous d'arrosage
Broca de tres labios "HP"
con agujeros para refrigerante

Internal Coolant

DRILLING DEPTH 5XØ

SKIN Drill UOP COATING

Standard UOP	H	ON REQUEST a richiesta	HEAD ANGLE 150°

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 349

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
50520	○	○	○	○	◕	○	◕	○	○	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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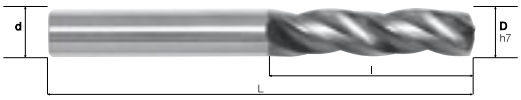


51105

Z3

Allargatori a tre eliche
Three flute core drills
Aufbohrer mit drei Lippen
Forets aléseurs trois lèvres
Broca escariadora de tres labios

DRILLING DEPTH 3XØ

SKINDrill UOP COATING

Standard UOP	H	λ°s 30	ON REQUEST DIN 1809

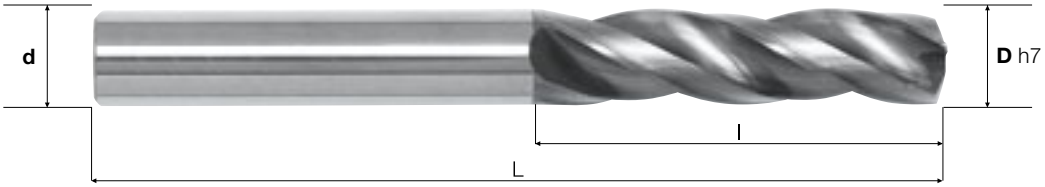
cod.	D h7	l	L	d	Z	UNCOATED	SKINDrill UOP COATING
511050200	2	11	37	2	3	KM	KMX
511050210	2,1	11	37	2,1	3	KM	KMX
511050220	2,2	12	39	2,2	3	KM	KMX
511050230	2,3	12	39	2,3	3	KM	KMX
511050240	2,4	13	42	2,4	3	KM	KMX
511050250	2,5	13	42	2,5	3	KM	KMX
511050260	2,6	13	42	2,6	3	KM	KMX
511050270	2,7	15	45	2,7	3	KM	KMX
511050280	2,8	15	45	2,8	3	KM	KMX
511050290	2,9	15	45	2,9	3	KM	KMX
511050300	3	15	45	3	3	KM	KMX
511050310	3,1	17	48	3,1	3	KM	KMX
511050320	3,2	17	48	3,2	3	KM	KMX
511050330	3,3	17	48	3,3	3	KM	KMX
511050340	3,4	19	51	3,4	3	KM	KMX
511050350	3,5	19	51	3,5	3	KM	KMX
511050360	3,6	19	51	3,6	3	KM	KMX
511050370	3,7	19	51	3,7	3	KM	KMX
511050380	3,8	21	54	3,8	3	KM	KMX
511050390	3,9	21	54	3,9	3	KM	KMX
511050400	4	21	54	4	3	KM	KMX
511050410	4,1	21	54	4,1	3	KM	KMX
511050420	4,2	21	54	4,2	3	KM	KMX
511050430	4,3	23	57	4,3	3	KM	KMX
511050440	4,4	23	57	4,4	3	KM	KMX
511050450	4,5	23	57	4,5	3	KM	KMX
511050460	4,6	23	57	4,6	3	KM	KMX
511050470	4,7	23	57	4,7	3	KM	KMX
511050480	4,8	25	61	4,8	3	KM	KMX
511050490	4,9	25	61	4,9	3	KM	KMX
511050500	5	25	61	5	3	KM	KMX
511050510	5,1	25	61	5,1	3	KM	KMX
511050520	5,2	25	61	5,2	3	KM	KMX
511050530	5,3	25	61	5,3	3	KM	KMX
511050540	5,4	27	65	5,4	3	KM	KMX
511050550	5,5	27	65	5,5	3	KM	KMX
511050560	5,6	27	65	5,6	3	KM	KMX
511050570	5,7	27	65	5,7	3	KM	KMX
511050580	5,8	27	65	5,8	3	KM	KMX
511050590	5,9	27	65	5,9	3	KM	KMX
511050600	6	27	65	6	3	KM	KMX
511050610	6,1	30	69	6,1	3	KM	KMX
511050620	6,2	30	69	6,2	3	KM	KMX
511050630	6,3	30	69	6,3	3	KM	KMX
511050640	6,4	30	69	6,4	3	KM	KMX
511050650	6,5	30	69	6,5	3	KM	KMX
511050660	6,6	30	69	6,6	3	KM	KMX
511050670	6,7	30	69	6,7	3	KM	KMX
511050680	6,8	33	73	6,8	3	KM	KMX
511050690	6,9	33	73	6,9	3	KM	KMX
511050700	7	33	73	7	3	KM	KMX
511050710	7,1	33	73	7,1	3	KM	KMX
511050720	7,2	33	73	7,2	3	KM	KMX
511050730	7,3	33	73	7,3	3	KM	KMX
511050740	7,4	33	73	7,4	3	KM	KMX
511050750	7,5	33	73	7,5	3	KM	KMX
511050760	7,6	35	77	7,6	3	KM	KMX
511050770	7,7	35	77	7,7	3	KM	KMX
511050780	7,8	35	77	7,8	3	KM	KMX
511050790	7,9	35	77	7,9	3	KM	KMX
511050800	8	35	77	8	3	KM	KMX
511050810	8,1	35	77	8,1	3	KM	KMX
511050820	8,2	35	77	8,2	3	KM	KMX
511050830	8,3	35	77	8,3	3	KM	KMX
511050840	8,4	35	77	8,4	3	KM	KMX
511050850	8,5	35	77	8,5	3	KM	KMX

continues on the next page →

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	uncoated	coated
51105	0860	KM	KMX



→I continuation of the previous page

cod.	D h7	l	L	d	Z	UNCOATED	SKIN UOP COATING
511050860	8,6	38	82	8,6	3	KM	KMX
511050870	8,7	38	82	8,7	3	KM	KMX
511050880	8,8	38	82	8,8	3	KM	KMX
511050890	8,9	38	82	8,9	3	KM	KMX
511050900	9	38	82	9	3	KM	KMX
511050910	9,1	38	82	9,1	3	KM	KMX
511050920	9,2	38	82	9,2	3	KM	KMX
511050930	9,3	38	82	9,3	3	KM	KMX
511050940	9,4	38	82	9,4	3	KM	KMX
511050950	9,5	38	82	9,5	3	KM	KMX
511050960	9,6	41	87	9,6	3	KM	KMX
511050970	9,7	41	87	9,7	3	KM	KMX
511050980	9,8	41	87	9,8	3	KM	KMX
511050990	9,9	41	87	9,9	3	KM	KMX
511051000	10	41	87	10	3	KM	KMX
511051010	10,1	41	87	10,1	3	KM	KMX
511051020	10,2	41	87	10,2	3	KM	KMX
511051030	10,3	41	87	10,3	3	KM	KMX
511051040	10,4	41	87	10,4	3	KM	KMX
511051050	10,5	41	87	10,5	3	KM	KMX
511051060	10,6	41	87	10,6	3	KM	KMX
511051070	10,7	45	93	10,7	3	KM	KMX
511051080	10,8	45	93	10,8	3	KM	KMX
511051090	10,9	45	93	10,9	3	KM	KMX
511051100	11	45	93	11	3	KM	KMX
511051110	11,1	45	93	11,1	3	KM	KMX
511051120	11,2	45	93	11,2	3	KM	KMX
511051130	11,3	45	93	11,3	3	KM	KMX
511051140	11,4	45	93	11,4	3	KM	KMX
511051150	11,5	45	93	11,5	3	KM	KMX
511051160	11,6	45	93	11,6	3	KM	KMX
511051170	11,7	45	93	11,7	3	KM	KMX
511051180	11,8	45	93	11,8	3	KM	KMX
511051190	11,9	49	100	11,9	3	KM	KMX
511051200	12	49	100	12	3	KM	KMX
511051250	12,5	49	100	12,5	3	KM	KMX
511051300	13	49	100	13	3	KM	KMX
511051350	13,5	52	105	13,5	3	KM	KMX
511051400	14	52	105	14	3	KM	KMX
511051450	14,5	54	109	14,5	3	KM	KMX
511051500	15	54	109	15	3	KM	KMX
511051550	15,5	55	112	15,5	3	KM	KMX
511051600	16	55	112	16	3	KM	KMX
511051700	17	57	116	17	3	KM	KMX
511051800	18	59	120	18	3	KM	KMX
511051900	19	61	124	19	3	KM	KMX
511052000	20	63	128	20	3	KM	KMX

Z3

51105

Allargatori a tre eliche
Three flute core drills
Aufbohrer mit drei Lippen
Forets aléseurs trois lèvres
Broca escariadora de tres labios

DRILLING DEPTH 3XØ

SKIN Drill UOP COATING

Standard UOP	H	λ°s 30	ON REQUEST DIN 1809

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
51105	○	○	◕	○	○	●	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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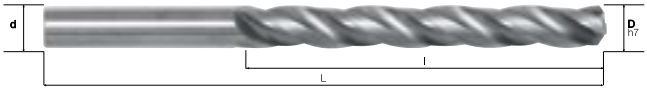
MADE IN ITALY



51120

Z3

Allargatori a tre eliche

Three flute core drills

Aufbohrer mit drei Lippen

Forets aléseurs trois lèvres

Broca escariadora de tres labios

DRILLING DEPTH 5XØ

SKINDrill UOP COATING

Standard UOP	H	λ°s 30	ON REQUEST DIN 1809

cod.	D h7	l	L	d	Z	UNCOATED	SKINDrill UOP COATING
511200200	2	23	48	2	3	KM	KMX
511200210	2,1	23	48	2,1	3	KM	KMX
511200220	2,2	26	52	2,2	3	KM	KMX
511200230	2,3	26	52	2,3	3	KM	KMX
511200240	2,4	29	56	2,4	3	KM	KMX
511200250	2,5	29	56	2,5	3	KM	KMX
511200260	2,6	29	56	2,6	3	KM	KMX
511200270	2,7	32	60	2,7	3	KM	KMX
511200280	2,8	32	60	2,8	3	KM	KMX
511200290	2,9	32	60	2,9	3	KM	KMX
511200300	3	32	60	3	3	KM	KMX
511200310	3,1	35	64	3,1	3	KM	KMX
511200320	3,2	35	64	3,2	3	KM	KMX
511200330	3,3	35	64	3,3	3	KM	KMX
511200340	3,4	38	69	3,4	3	KM	KMX
511200350	3,5	38	69	3,5	3	KM	KMX
511200360	3,6	38	69	3,6	3	KM	KMX
511200370	3,7	38	69	3,7	3	KM	KMX
511200380	3,8	42	74	3,8	3	KM	KMX
511200390	3,9	42	74	3,9	3	KM	KMX
511200400	4	42	74	4	3	KM	KMX
511200410	4,1	42	74	4,1	3	KM	KMX
511200420	4,2	42	74	4,2	3	KM	KMX
511200430	4,3	46	79	4,3	3	KM	KMX
511200440	4,4	46	79	4,4	3	KM	KMX
511200450	4,5	46	79	4,5	3	KM	KMX
511200460	4,6	46	79	4,6	3	KM	KMX
511200470	4,7	46	79	4,7	3	KM	KMX
511200480	4,8	51	85	4,8	3	KM	KMX
511200490	4,9	51	85	4,9	3	KM	KMX
511200500	5	51	85	5	3	KM	KMX
511200510	5,1	51	85	5,1	3	KM	KMX
511250520	5,2	51	85	5,2	3	KM	KMX
511200530	5,3	51	85	5,3	3	KM	KMX
511200540	5,4	56	92	5,4	3	KM	KMX
511200550	5,5	56	92	5,5	3	KM	KMX
511200560	5,6	56	92	5,6	3	KM	KMX
511200570	5,7	56	92	5,7	3	KM	KMX
511200580	5,8	56	92	5,8	3	KM	KMX
511200590	5,9	56	92	5,9	3	KM	KMX
511200600	6	56	92	6	3	KM	KMX
511200610	6,1	62	100	6,1	3	KM	KMX
511200620	6,2	62	100	6,2	3	KM	KMX
511200630	6,3	62	100	6,3	3	KM	KMX
511200640	6,4	62	100	6,4	3	KM	KMX
511200650	6,5	62	100	6,5	3	KM	KMX
511200660	6,6	62	100	6,6	3	KM	KMX
511200670	6,7	62	100	6,7	3	KM	KMX
511200680	6,8	68	108	6,8	3	KM	KMX
511200690	6,9	68	108	6,9	3	KM	KMX
511200700	7	68	108	7	3	KM	KMX
511200710	7,1	68	108	7,1	3	KM	KMX
511200720	7,2	68	108	7,2	3	KM	KMX
511200730	7,3	68	108	7,3	3	KM	KMX
511200740	7,4	68	108	7,4	3	KM	KMX
511200750	7,5	68	108	7,5	3	KM	KMX
511200760	7,6	73	115	7,6	3	KM	KMX
511200770	7,7	73	115	7,7	3	KM	KMX
511200780	7,8	73	115	7,8	3	KM	KMX
511200790	7,9	73	115	7,9	3	KM	KMX
511200800	8	73	115	8	3	KM	KMX
511200810	8,1	73	115	8,1	3	KM	KMX
511200820	8,2	73	115	8,2	3	KM	KMX
511200830	8,3	73	115	8,3	3	KM	KMX
511200840	8,4	73	115	8,4	3	KM	KMX
511200850	8,5	73	115	8,5	3	KM	KMX

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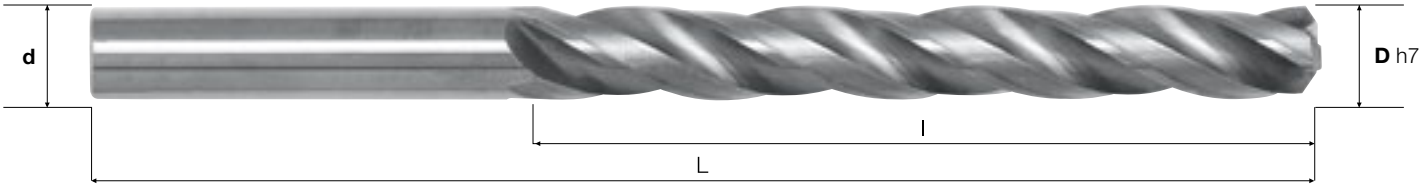
● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED



→I continuation of the previous page

cod.	D h7	l	L	d	Z	UNCOATED	SKIN UOP COATING
511200860	8,6	79	123	8,6	3	KM	KMX
511200870	8,7	79	123	8,7	3	KM	KMX
511200880	8,8	79	123	8,8	3	KM	KMX
511200890	8,9	79	123	8,9	3	KM	KMX
511200900	9	79	123	9	3	KM	KMX
511200910	9,1	79	123	9,1	3	KM	KMX
511200920	9,2	79	123	9,2	3	KM	KMX
511200930	9,3	79	123	9,3	3	KM	KMX
511200940	9,4	79	123	9,4	3	KM	KMX
511200950	9,5	79	123	9,5	3	KM	KMX
511200960	9,6	85	131	9,6	3	KM	KMX
511200970	9,7	85	131	9,7	3	KM	KMX
511200980	9,8	85	131	9,8	3	KM	KMX
511200990	9,9	85	131	9,9	3	KM	KMX
511201000	10	85	131	10	3	KM	KMX
511201010	10,1	85	131	10,1	3	KM	KMX
511201020	10,2	85	131	10,2	3	KM	KMX
511201030	10,3	85	131	10,3	3	KM	KMX
511201040	10,4	85	131	10,4	3	KM	KMX
511201050	10,5	85	131	10,5	3	KM	KMX
511201060	10,6	85	131	10,6	3	KM	KMX
511201070	10,7	92	140	10,7	3	KM	KMX
511201080	10,8	92	140	10,8	3	KM	KMX
511201090	10,9	92	140	10,9	3	KM	KMX
511201100	11	92	140	11	3	KM	KMX
511201110	11,1	92	140	11,1	3	KM	KMX
511201120	11,2	92	140	11,2	3	KM	KMX
511201130	11,3	92	140	11,3	3	KM	KMX
511201140	11,4	92	140	11,4	3	KM	KMX
511201150	11,5	92	140	11,5	3	KM	KMX
511201160	11,6	92	140	11,6	3	KM	KMX
511201170	11,7	92	140	11,7	3	KM	KMX
511201180	11,8	92	140	11,8	3	KM	KMX
511201190	11,9	99	149	11,9	3	KM	KMX
511201200	12	99	149	12	3	KM	KMX
511201250	12,5	99	149	12,5	3	KM	KMX
511201300	13	99	149	13	3	KM	KMX
511201350	13,5	106	158	13,5	3	KM	KMX
511201400	14	106	158	14	3	KM	KMX
511201450	14,5	112	167	14,5	3	KM	KMX
511201500	15	112	167	15	3	KM	KMX
511201550	15,5	117	175	15,5	3	KM	KMX
511201600	16	117	175	16	3	KM	KMX
511201700	17	122	181	17	3	KM	KMX
511201800	18	127	188	18	3	KM	KMX
511201900	19	132	195	19	3	KM	KMX
511202000	20	137	202	20	3	KM	KMX

Z3

51120

Allargatori a tre eliche
Three flute core drills
Aufbohrer mit drei Lippen
Forets aléseurs trois lèvres
Broca escariadora de tres labios

DRILLING DEPTH 5XØ

SKINDrill UOP COATING

Standard UOP	H	λ°s 30	ON REQUEST DIN 1809

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
51120	○	○	◕	○	○	●	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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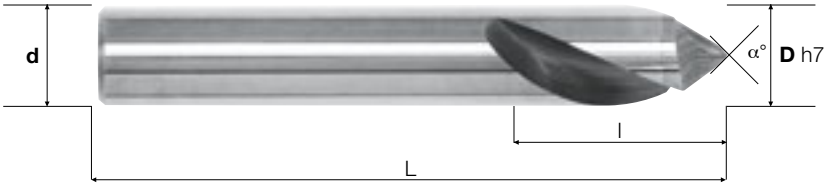
MADE IN ITALY

example code:

series	ø	uncoated	coated
52105	0500	KM	KMX
52110	0500	KM	KMX



52105

Z2

Punte a centrare a 90° per macchine CNC

CNC drills

CNC-Anbohrer

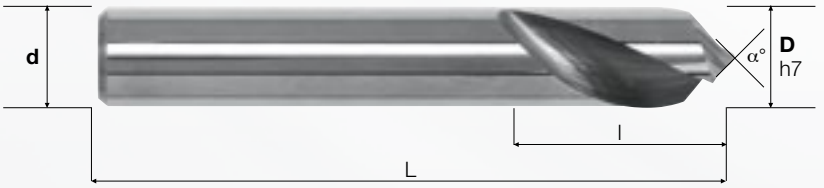
Forets CNC

Brocas de puntear para maquina de control numerico CNC

SKIN UOP COATING

Standard UOP | H | λ°s 25

cod.	D h7	α°	l	L	d	Z	UNCOATED	SKIN UOP COATING
521050500	5	90	10	50	5	2	KM	KMX
521050600	6	90	16	50	6	2	KM	KMX
521050800	8	90	20	60	8	2	KM	KMX
521051000	10	90	22	70	10	2	KM	KMX
521051200	12	90	22	75	12	2	KM	KMX
521051600	16	90	25	90	16	2	KM	KMX
521052000	20	90	28	100	20	2	KM	KMX



52110

Z2

Punte a centrare a 120° per macchine CNC

CNC drills

CNC-Anbohrer

Forets CNC

Brocas de puntear para maquina de control numerico CNC

SKIN UOP COATING

λ°s 25 | H | Standard UOP

cod.	D h7	α°	l	L	d	Z	UNCOATED	SKIN UOP COATING
521100500	5	120	10	50	5	2	KM	KMX
521100600	6	120	16	50	6	2	KM	KMX
521100800	8	120	20	60	8	2	KM	KMX
521101000	10	120	22	70	10	2	KM	KMX
521101200	12	120	22	75	12	2	KM	KMX
521101600	16	120	25	90	16	2	KM	KMX
521102000	20	120	28	100	20	2	KM	KMX

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
52105	◕	◕	◕	○	◕	◕	◕	○	●	●
52110	◕	◕	◕	○	◕	◕	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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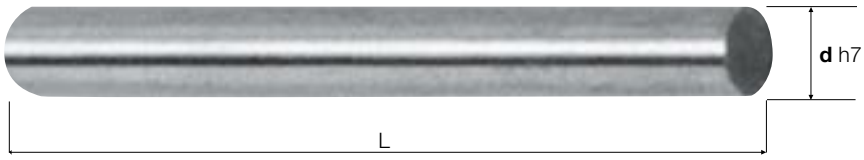
MADE IN ITALY



cod.	d h7	L	UNCOATED
531050210	2	100	KM
531050215	2	150	KM
531050220	2	200	KM
531050310	3	100	KM
531050315	3	150	KM
531050320	3	200	KM
531050410	4	100	KM
531050415	4	150	KM
531050420	4	200	KM
531050510	5	100	KM
531050515	5	150	KM
531050520	5	200	KM
531050610	6	100	KM
531050615	6	150	KM
531050620	6	200	KM
531050710	7	100	KM
531050715	7	150	KM
531050720	7	200	KM
531050810	8	100	KM
531050815	8	150	KM
531050820	8	200	KM
531050910	9	100	KM
531050915	9	150	KM
531050920	9	200	KM
531051010	10	100	KM
531051015	10	150	KM
531051020	10	200	KM
531051110	11	100	KM
531051115	11	150	KM
531051120	11	200	KM
531051210	12	100	KM
531051215	12	150	KM
531051220	12	200	KM

continues on the next page →

53105

Barrette tonde
Round toolits
Runde drehlinge
Barreaux ronds
Barra redonda

Standard UOP ●

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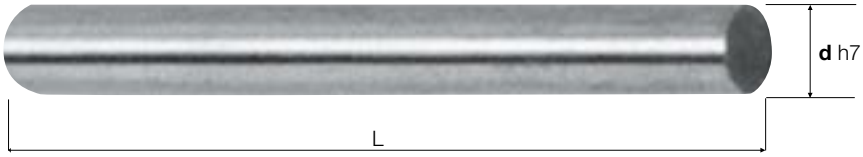
MADE IN ITALY

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	uncoated
53105	1810	KM
53108	0210	KM



53105

Barrette tonde
Round toolits
Runde drehlinge
Barreaux ronds
Barra redonda

→ continuation of the previous page

cod.	d h7	L	UNCOATED
531051310	13	100	KM
531051315	13	150	KM
531051320	13	200	KM
531051410	14	100	KM
531051415	14	150	KM
531051420	14	200	KM
531051510	15	100	KM
531051515	15	150	KM
531051520	15	200	KM
531051610	16	100	KM
531051615	16	150	KM
531051620	16	200	KM
531051710	17	100	KM
531051715	17	150	KM
531051720	17	200	KM
531051810	18	100	KM
531051815	18	150	KM
531051820	18	200	KM
531051910	19	100	KM
531051915	19	150	KM
531051920	19	200	KM
531052010	20	100	KM
531052015	20	150	KM
531052020	20	200	KM
531052210	22	100	KM
531052215	22	150	KM
531052220	22	200	KM
531052510	25	100	KM
531052515	25	150	KM
531052520	25	200	KM

Standard UOP ●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

53108

Bulini
Engraving tools
Graverstichel
Burins a graver
Buriles

cod.	d h7	l	L	S ±0,05	UNCOATED
531080210	2	3	100	1	KM
531080215	2	3	150	1	KM
531080310	3	4	100	1,5	KM
531080315	3	4	150	1,5	KM
531080410	4	5	100	2	KM
531080415	4	5	150	2	KM
531080510	5	7	100	2,5	KM
531080515	5	7	150	2,5	KM
531080610	6	8	100	3	KM
531080615	6	8	150	3	KM
531080710	7	8	100	3,5	KM
531080715	7	8	150	3,5	KM
531080810	8	10	100	4	KM
531080815	8	10	150	4	KM
531080910	9	10	100	4,5	KM
531080915	9	10	150	4,5	KM
531081010	10	13	100	5	KM
531081015	10	13	150	5	KM
531081110	11	16	100	5,5	KM
531081115	11	16	150	5,5	KM
531081210	12	16	100	6	KM
531081215	12	16	150	6	KM
531081310	13	18	100	6,5	KM
531081315	13	18	150	6,5	KM
531081410	14	18	100	7	KM
531081415	14	18	150	7	KM
531081510	15	20	100	7,5	KM
531081515	15	20	150	7,5	KM
531081610	16	20	100	8	KM
531081615	16	20	150	8	KM

Standard UOP

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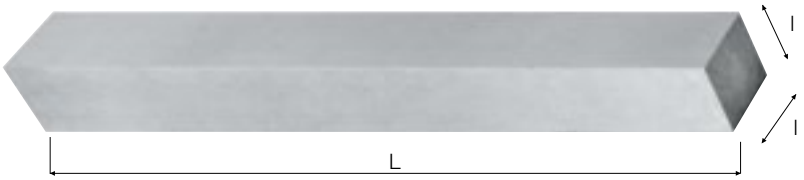
MADE IN ITALY

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	uncoated
53110	0410	KM
53115	0302	KM

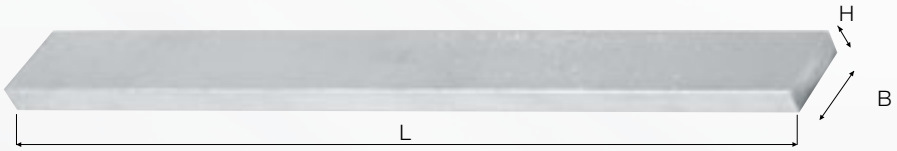


53110

Barrette quadre grezze
Raw square toolbits
Rohe Vierkante Drehlinge
Barreaux carrés bruts
Barra cuadrada

cod.	lxl	L	UNCOATED
531100410	4,25	100	KM
531100510	5,25	100	KM
531100610	6,3	100	KM
531100810	8,3	100	KM

Standard UOP



53115

Barrette rettangolari grezze
Raw flat toolbits
Rohe Flache Drehlinge
Barreaux rectangulaires bruts
Pletina rectangular

cod.	B	H	L	UNCOATED
531150302	3	2	140	KM
531150402	4	2	140	KM
531150502	5	2	140	KM
531150503	5	3	140	KM
531150602	6	2	140	KM
531150603	6	3	140	KM
531150802	8	2	140	KM
531150803	8	3	140	KM
531150804	8	4	140	KM
531151003	10	3	140	KM
531151004	10	4	140	KM
531151005	10	5	140	KM
531151304	13	4	140	KM
531151305	13	5	140	KM
531151604	16	4	140	KM
531152005	20	5	140	KM
531152006	20	6	140	KM

Standard UOP

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

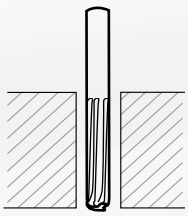
cod.	D H7	l	L	λ°s	Z	UNCOATED	SKIN UOP COATING
561050100	1	5	37	30	3	KM	KMX
561050110	1,1	7	40	30	3	KM	KMX
561050120	1,2	7	40	30	3	KM	KMX
561050130	1,3	7	40	30	3	KM	KMX
561050140	1,4	8	40	30	3	KM	KMX
561050150	1,5	8	40	30	3	KM	KMX
561050160	1,6	9	43	30	3	KM	KMX
561050170	1,7	9	43	30	3	KM	KMX
561050180	1,8	10	46	30	3	KM	KMX
561050190	1,9	10	46	30	3	KM	KMX
561050200	2	11	49	10	5	KM	KMX
561050210	2,1	11	49	10	5	KM	KMX
561050220	2,2	12	53	10	5	KM	KMX
561050230	2,3	12	53	10	5	KM	KMX
561050240	2,4	14	57	10	5	KM	KMX
561050250	2,5	14	57	10	5	KM	KMX
561050260	2,6	14	57	10	5	KM	KMX
561050270	2,7	15	61	10	5	KM	KMX
561050280	2,8	15	61	10	5	KM	KMX
561050290	2,9	15	61	10	5	KM	KMX
561050300	3	15	61	10	5	KM	KMX
561050310	3,1	16	65	10	5	KM	KMX
561050320	3,2	16	65	10	5	KM	KMX
561050330	3,3	16	65	10	5	KM	KMX
561050340	3,4	18	70	10	5	KM	KMX
561050350	3,5	18	70	10	5	KM	KMX
561050360	3,6	18	70	10	5	KM	KMX
561050370	3,7	18	70	10	5	KM	KMX
561050380	3,8	19	75	10	5	KM	KMX
561050390	3,9	19	75	10	5	KM	KMX
561050400	4	19	75	10	5	KM	KMX
561050410	4,1	19	75	10	5	KM	KMX
561050420	4,2	19	75	10	5	KM	KMX
561050430	4,3	21	80	10	5	KM	KMX
561050440	4,4	21	80	10	5	KM	KMX
561050450	4,5	21	80	10	5	KM	KMX
561050460	4,6	21	80	10	5	KM	KMX
561050470	4,7	21	80	10	5	KM	KMX
561050480	4,8	23	86	10	5	KM	KMX
561050490	4,9	23	86	10	5	KM	KMX
561050500	5	23	86	10	5	KM	KMX
561050510	5,1	23	86	10	5	KM	KMX
561050520	5,2	23	86	10	5	KM	KMX
561050530	5,3	26	93	10	5	KM	KMX

continues on the next page →

Z3÷7

56105

Alesatori a macchina
Machine reamers
Maschinen-Rebahlen
Alesoirs a machine
Escariador



Alesatura per fori passanti
Through holes reaming

SKIN
UOP COATING

λ°s 30/10 | H | UNI DIN 212D ISO

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 350

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio / TITANIUM	HRSA / HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili / STAINLESS STEELS	materiali non ferrosi / NON FERROUS MATERIALS	leghe leggere / LIGHT ALLOYS	grafite / GRAPHITE	acciai / STEELS	ghise / CAST IRON
56105	◕	◕	◕	○	●	●	●	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

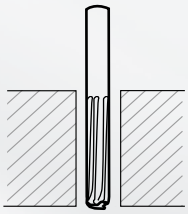
example code:

series	ø	uncoated	coated
56105	0440	KM	KMX

56105

Z3÷7

Alesatura per fori passanti
Through holes reaming



SKIN UOP COATING

λ°s		
30/10	H	UNI DIN 212D ISO

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 350

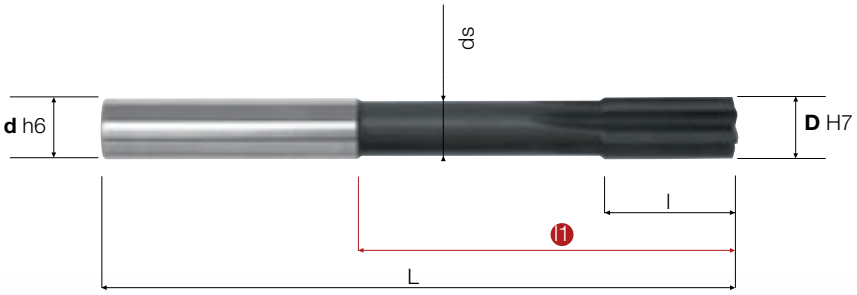
→ continuation of the previous page

cod.	D H7	l	L	λ°s	Z	UNCOATED	SKIN UOP COATING
561050540	5,4	26	93	10	6	KM	KMX
561050550	5,5	26	93	10	6	KM	KMX
561050560	5,6	26	93	10	6	KM	KMX
561050570	5,7	26	93	10	6	KM	KMX
561050580	5,8	26	93	10	6	KM	KMX
561050590	5,9	26	93	10	6	KM	KMX
561050600	6	26	93	10	6	KM	KMX
561050610	6,1	28	101	10	6	KM	KMX
561050620	6,2	28	101	10	6	KM	KMX
561050630	6,3	28	101	10	6	KM	KMX
561050640	6,4	28	101	10	6	KM	KMX
561050650	6,5	28	101	10	6	KM	KMX
561050660	6,6	28	101	10	6	KM	KMX
561050670	6,7	31	109	10	6	KM	KMX
561050680	6,8	31	109	10	6	KM	KMX
561050690	6,9	31	109	10	6	KM	KMX
561050700	7	31	109	10	6	KM	KMX
561050710	7,1	31	109	10	6	KM	KMX
561050720	7,2	31	109	10	6	KM	KMX
561050730	7,3	31	109	10	6	KM	KMX
561050740	7,4	31	109	10	6	KM	KMX
561050750	7,5	33	117	10	6	KM	KMX
561050760	7,6	33	117	10	6	KM	KMX
561050770	7,7	33	117	10	6	KM	KMX
561050780	7,8	33	117	10	6	KM	KMX
561050790	7,9	33	117	10	6	KM	KMX
561050800	8	33	117	10	6	KM	KMX
561050810	8,1	33	117	10	6	KM	KMX
561050820	8,2	33	117	10	6	KM	KMX
561050830	8,3	33	117	10	6	KM	KMX
561050840	8,4	33	117	10	6	KM	KMX
561050850	8,5	36	125	10	6	KM	KMX
561050860	8,6	36	125	10	6	KM	KMX
561050870	8,7	36	125	10	6	KM	KMX
561050880	8,8	36	125	10	6	KM	KMX
561050890	8,9	36	125	10	6	KM	KMX
561050900	9	36	125	10	6	KM	KMX
561050910	9,1	36	125	10	6	KM	KMX
561050920	9,2	36	125	10	6	KM	KMX
561050930	9,3	36	125	10	6	KM	KMX
561050940	9,4	36	125	10	6	KM	KMX
561050950	9,5	38	133	10	6	KM	KMX
561050960	9,6	38	133	10	6	KM	KMX
561050970	9,7	38	133	10	6	KM	KMX
561050980	9,8	38	133	10	6	KM	KMX
561050990	9,9	38	133	10	6	KM	KMX
561051000	10	38	133	10	6	KM	KMX
561051050	10,5	41	142	10	7	KM	KMX
561051100	11	41	142	10	7	KM	KMX
561051000	11,5	44	151	10	7	KM	KMX
561051150	12	44	151	10	7	KM	KMX
561051200	12,5	44	151	10	7	KM	KMX
561051250	13	44	151	10	7	KM	KMX
561051300	13,5	47	160	10	7	KM	KMX
561051400	14	47	160	10	7	KM	KMX
561051450	14,5	50	162	10	7	KM	KMX
561051500	15	50	162	10	7	KM	KMX
561051550	15,5	52	170	10	7	KM	KMX
561051600	16	52	170	10	7	KM	KMX

materiali lavorabili WORKPIECE MATERIALS

Serie / SERIES	titanio / TITANIUM	HRSA / HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
56105	◕	◕	◕	○	●	●	●	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED



New

cod.	D H7	ds	l	l1	L	dh6	Z	SKIN UOP COATING
571050300	3	–	15	30	61	3	6	KMX
571050320	3,2	–	18	33	70	3,2	6	KMX
571050350	3,5	–	18	33	70	3,5	6	KMX
571050400	4	3,5	19	44	75	4	6	KMX
571050450	4,5	4	21	46	80	4,5	6	KMX
571050500	5	4,3	23	53	86	5	6	KMX
571050550	5,5	4,5	26	56	93	5,6	6	KMX
571050600	6	5	26	56	93	5,6	6	KMX
571050650	6,5	5,5	28	63	101	6,3	6	KMX
571050700	7	6,5	31	69	109	7,1	6	KMX
571050750	7,5	6,5	31	69	109	7,1	6	KMX
571050800	8	7	33	75	117	8	6	KMX
571050850	8,5	7	33	75	117	8	6	KMX
571050900	9	8	36	81	125	9	6	KMX
571050950	9,5	8	36	81	125	9	6	KMX
571051000	10	9	38	87	133	10	6	KMX
571051050	10,5	9	38	87	133	10	6	KMX
571051100	11	9	41	96	142	10	6	KMX
571051200	12	9	44	105	151	10	6	KMX
571051300	13	9	44	105	151	10	6	KMX
571051400	14	11,5	47	110	160	12,5	8	KMX
571051500	15	11,5	50	112	162	12,5	8	KMX
571051600	16	11,5	52	120	170	12,5	8	KMX

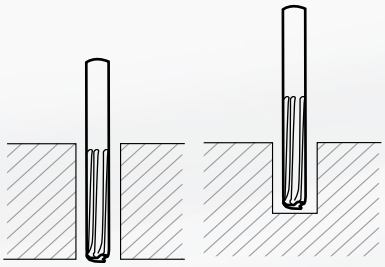
Z6÷8

57105

Alesatori a denti diritti
Straight flutes reamer
Maschinen-Rebahlen mit geraden Zähnen
Alesoirs machine à denture droite
Escariador con labios rectos

Alesatura per fori passanti
Through holes reaming

Alesatura per fori ciechi
Blind holes reaming



SKIN
UOP COATING

H

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 350

materiali lavorabili WORKPIECE MATERIALS

Serie SERIES	titanio TITANIUM	HRSA HRSA	acciai temprati HARDENED STEELS ≤54 HRC	acciai temprati HARDENED STEELS >54 HRC	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	grafite GRAPHITE	acciai STEELS	ghise CAST IRON
57105	○	○	◪	○	◪	●	●	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

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Member IMC Group

HSS-PM

HSS-PM LINE

La linea di prodotti **UOP** HSS-PM LINE rappresenta una soluzione di eccezionale completezza di gamma nelle applicazioni di asportazione truciolo frutto di pluriennale esperienza. L'accoglienza che il mercato riserva ai prodotti in acciaio super rapido e da polveri (Powder Metal) permette a HSS-PM LINE di **UOP** di essere un riferimento nel settore.

As a result of years of experience, **UOP** HSS-PM LINE represents an exceptionally complete solutions with its chip removal application range. The market welcomes **UOP** HSS-PM LINE with it products in HSS and PM making **UOP** a reference point for all in the sector.

HSS-PM

HSS-PM LINE

Die Produktserie HSS-PM LINE *verfügt über eine außergewöhnlich vollständige Produktpalette für Maschinen für die spanende Metallbearbeitung und ist das Ergebnis eines langjährigen Erfahrungsschatzes. Die Nachfrage des Marktes nach Schnellstahl- und Pulverstahlprodukten (POWDER METAL) macht* HSS-PM LINE *von* ***UOP*** *in dieser Branche zu einem Referenzprodukt.*

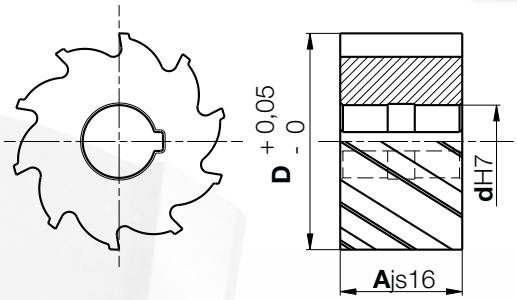
La ligne de produits HSS-PM LINE représente une solution de gammes excellemment complète pour les applications d'enlèvement de copeaux fruit de l'expérience pluriannuelle et d'évolutions technologiques continues. L'accueil que le marché réserve aux produits en acier super rapide et fritté (méthodologie des poudres) fait de la HSS-PM LINE de **UOP** d'être une référence du secteur.

La línea de productos HSS-PM LINE *es una solución de excepcional amplitud de gama en aplicaciones de mecanizado, es el resultado de muchos años de experiencia y continua evolución tecnológica. La aceptación de que el mercado reserva a los productos de acero súper rápido y sinterizado (polvo metálico) permite a* HSS-PM LINE *de* ***UOP*** *a ser una referencia en el sector.*

www.uop.it

example code:

series	ø	X-85 UNCOATED
01105	0020	CM



01105

Z 8÷16

Frese a ***FINIRE*** per spianare
Finishing facemilling cutters
Walzenfräser
Fraises pour finition à surfacer
Fresas de planear para acabado

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D + 0,05 - 0	Ajs16	dH7	Z	X-85 (PM Co 8,5%)
*	**011050020**	40	20	16	8	CM
*	**011050032**	40	32	16	8	CM
*	**011050050**	40	50	16	8	CM
*	**011050070**	40	70	16	8	CM
*	**011051025**	50	25	22	8	CM
*	**011051040**	50	40	22	8	CM
*	**011051063**	50	63	22	8	CM
*	**011051080**	50	80	22	8	CM
*	**011052032**	63	32	27	8	CM
*	**011052050**	63	50	27	8	CM
*	**011052070**	63	70	27	8	CM
*	**011052090**	63	90	27	8	CM
*	**011053036**	80	36	32	10	CM
*	**011053063**	80	63	32	10	CM
*	**011053080**	80	80	32	10	CM
*	**011053100**	80	100	32	10	CM
*	**011054040**	100	40	40	12	CM
*	**011054070**	100	70	40	12	CM
*	**011054090**	100	90	40	12	CM
*	**011054110**	100	110	40	12	CM
*	**011055050**	125	50	50	14	CM
*	**011055080**	125	80	50	14	CM
*	**011055110**	125	110	50	14	CM
*	**011055140**	125	140	50	14	CM
*	**011056063**	160	63	60	16	CM
*	**011056100**	160	100	60	16	CM
*	**011056125**	160	125	60	16	CM
*	**011056160**	160	160	60	16	CM

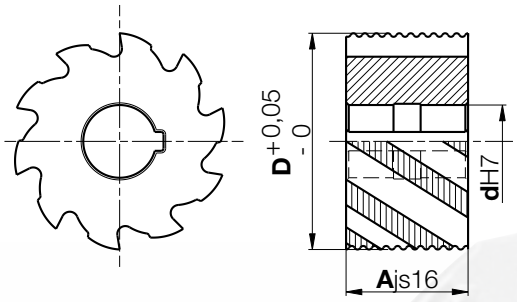
λ°s		
32	N	UNI 3901 DIN 884 ISO 2584

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
01105	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	X-85 UNCOATED
01110	0020	CM



	cod.	D + 0,05 - 0	Ajs16	dH7	Z	X-85 (PM Co 8,5%)
*	**011100020**	40	20	16	6	CM
*	**011100032**	40	32	16	6	CM
*	**011100050**	40	50	16	6	CM
*	**011100070**	40	70	16	6	CM
*	**011101025**	50	25	22	7	CM
*	**011101040**	50	40	22	7	CM
*	**011101063**	50	63	22	7	CM
*	**011101080**	50	80	22	7	CM
*	**011102032**	63	32	27	8	CM
*	**011102050**	63	50	27	8	CM
*	**011102070**	63	70	27	8	CM
*	**011102090**	63	90	27	8	CM
*	**011103036**	80	36	32	8	CM
*	**011103063**	80	63	32	8	CM
*	**011103080**	80	80	32	8	CM
*	**011103100**	80	100	32	8	CM
*	**011104040**	100	40	40	10	CM
*	**011104070**	100	70	40	10	CM
*	**011104090**	100	90	40	10	CM
*	**011104110**	100	110	40	10	CM
*	**011105050**	125	50	50	10	CM
*	**011105080**	125	80	50	12	CM
*	**011105110**	125	110	50	10	CM
*	**011105140**	125	140	50	10	CM
*	**011106063**	160	63	60	12	CM
*	**011106100**	160	100	60	12	CM
*	**011106125**	160	125	60	12	CM
*	**011106160**	160	160	60	12	CM

Z 6÷12

01110

Frese a ***SGROSSARE*** per spianare
Roughing facemilling cutters
Schruppfräser
Fraises pour d'ébauche à surfacer
Fresas de planer para desbaste

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

UNI 3901
DIN 884
ISO 2584

NR

λ°s
32

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
01110	◪	◪	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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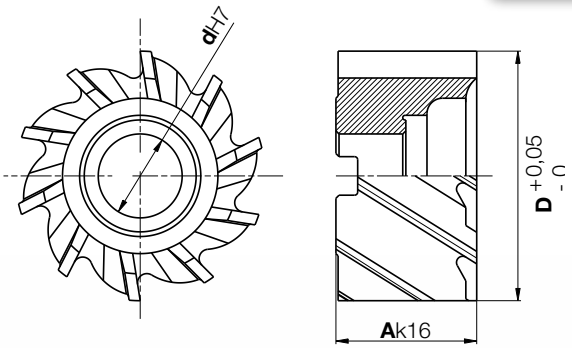
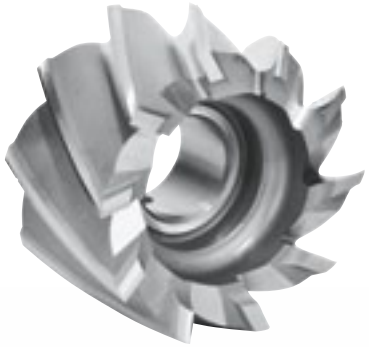
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
02105	0400	CM	CMX
02110	0400	CM	CMX





02105

Z 8÷16

Frese a ***FINIRE*** con cava di trascinamento trasversale

Finishing milling cwith transversal driving slot

Fräser mit Quernut

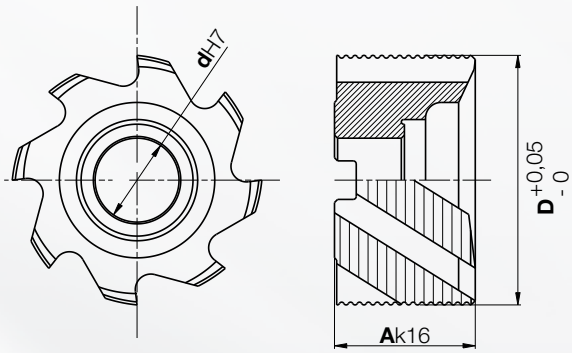
Fraises pour finition deux tailles avec rainure transversale

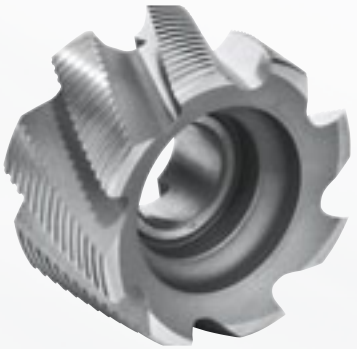
Fresa para acabado con chavetero de arrastre transversal

SKIN UOP COATING

λ°s 32 | N | UNI 3903 DIN 1880 ISO 2586

cod.	D + 0,05 - 0	Ak16	dH7	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
021050400	40	32	16	8	CM	CMX
021050500	50	36	22	8	CM	CMX
021050630	63	40	27	8	CM	CMX
021050800	80	45	27	10	CM	CMX
021051000	100	50	32	12	CM	CMX
021051250	125	56	40	14	CM	CMX
021051600	160	63	50	16	CM	CMX





02110

Z 6÷14

Frese a ***SEMIFINIRE*** con cava di trascinamento trasversale

Semifinishing cutters end mills with transversal driving slot

Schruppschilchfräser mit Quernut

Fraises pour semifinition avec rainure transversale

Fresa para semi-acabado con chavetero de arrastre transversal

SKIN UOP COATING

λ°s 28 | NF | UNI 3903 DIN 1880 ISO 2586

cod.	D + 0,05 - 0	Ak16	dH7	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
021100400	40	32	16	6	CM	CMX
021100500	50	36	22	6	CM	CMX
021100630	63	40	27	8	CM	CMX
021100800	80	45	27	8	CM	CMX
021101000	100	50	32	10	CM	CMX
021101250	125	56	40	12	CM	CMX
021101600	160	63	50	14	CM	CMX

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
02105	◕	◕	◕	○	○	●	●
02110	◕	◕	◕	○	○	●	●

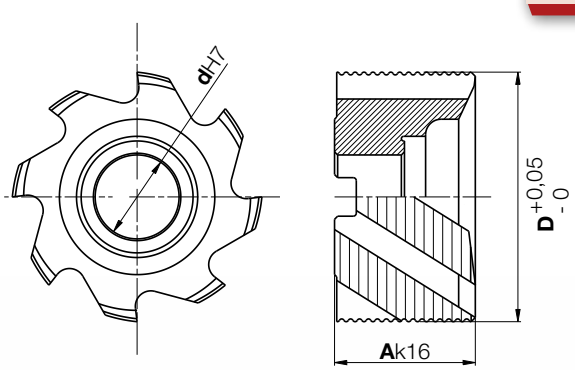
● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
02105	0401	CM	CMX
02115	0300	CM	CMX



cod.	D +0,05 - 0	Ak16	dH7	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
021100401	40	32	16	6	CM	CMX
021100501	50	36	22	6	CM	CMX
021100631	63	40	27	8	CM	CMX
021100801	80	45	27	8	CM	CMX
021101001	100	50	32	10	CM	CMX
021101251	125	56	40	12	CM	CMX
021101601	160	63	50	14	CM	CMX

Z 6÷14

02110

Frese a ***SGROSSARE*** con cava di trascinamento trasversale

Roughing cutters with transversal driving slot

Schruppfräser mit Quernut

Fraises d'ébauche avec rainure transversale

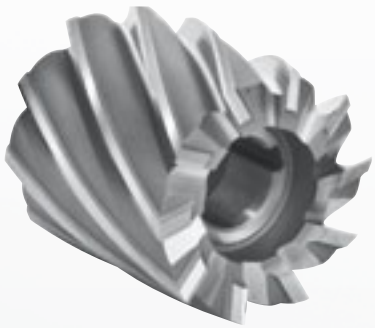
Fresa para desbaste con chavetero de arrastre transversal

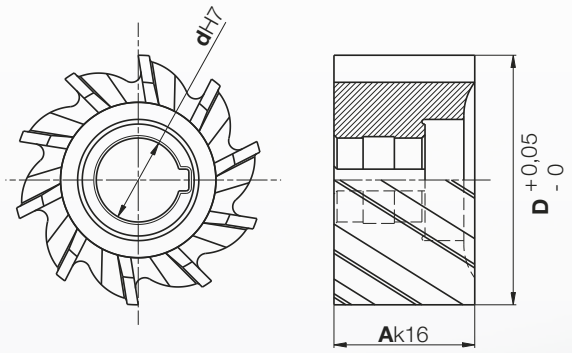
UNI 3903
DIN 1880
ISO 2586

NR

λ°s
28

SKIN
UOP COATING





cod.	D +0,05 - 0	Ak16	dH7	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
021150300	30	30	13	8	CM	CMX
021150350	35	35	16	8	CM	CMX
021150400	40	20	16	8	CM	CMX
021150401	40	40	16	8	CM	CMX
021150500	50	25	22	8	CM	CMX
021150501	50	50	22	8	CM	CMX
021150600	60	30	27	8	CM	CMX
021150601	60	60	27	8	CM	CMX
021150750	75	35	27	10	CM	CMX
021150751	75	75	27	10	CM	CMX
021150900	90	35	27	12	CM	CMX
021151100	110	35	32	14	CM	CMX
021151300	130	35	40	14	CM	CMX
021151500	150	40	40	16	CM	CMX

Z 8÷16

02115

Frese a ***FINIRE*** con spacco longitudinale

Finishing milling cutters with transversal driving slot

Fräser mit Längsnut

Fraises pour finition deux tailles avec rainure longitudinale

Fresa para acabado con chavetero longitudinal

UNI
DIN 841
ISO 2586

N

λ°s
32

SKIN
UOP COATING

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
02110	◕	◕	◕	○	○	●	●
02115	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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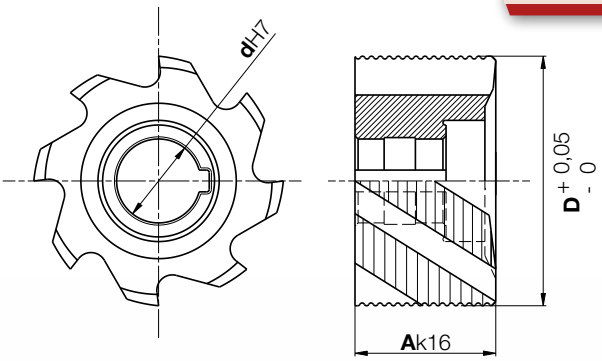
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
02120	0300	CM	CMX
02120	0301	CM	CMX



02120

Z 6÷14

Frese a ***SEMIFINIRE*** con spacco longitudinale

Semi-finishing cutters with longitudinal keyway

Schruppschlichtfräser mit längsnut

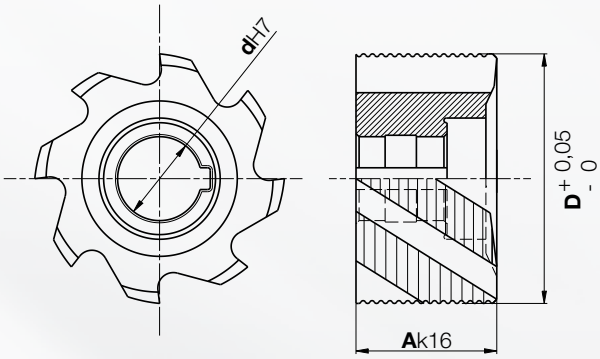
Fraises pour semifinition avec rainure longitudinale

Fresa para semi-acabado con chavetero longitudinal

SKIN UOP COATING

λ°s 28 | NF | UNI DIN 841 ISO 2586

cod.	D + 0,05 - 0	Ak16	dH7	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
021200300	30	30	13	6	CM	CMX
021200350	35	35	16	6	CM	CMX
021200400	40	20	16	8	CM	CMX
021200402	40	40	16	6	CM	CMX
021200500	50	25	22	8	CM	CMX
021200502	50	50	22	8	CM	CMX
021200600	60	30	27	10	CM	CMX
021200602	60	60	27	10	CM	CMX
021200750	75	35	27	10	CM	CMX
021200752	75	75	27	10	CM	CMX
021200900	90	35	27	12	CM	CMX
021201100	110	35	32	12	CM	CMX
021201300	130	35	40	14	CM	CMX
021201500	150	40	40	14	CM	CMX



02120

Z 6÷14

Frese a ***SGROSSARE*** con spacco longitudinale

Roughing cutters with longitudinal keyway

Schruppfräser mit Längsnut

Fraises d'ébauche deux tailles avec rainure longitudinale

Fresa para desbaste con chavetero longitudinal

SKIN UOP COATING

λ°s 28 | NR | UNI DIN 841 ISO 2586

cod.	D + 0,05 - 0	Ak16	dH7	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
021200301	30	30	13	6	CM	CMX
021200351	35	35	16	6	CM	CMX
021200401	40	20	16	8	CM	CMX
021200403	40	40	16	6	CM	CMX
021200501	50	25	22	8	CM	CMX
021200503	50	50	22	8	CM	CMX
021200601	60	30	27	10	CM	CMX
021200603	60	60	27	10	CM	CMX
021200751	75	35	27	10	CM	CMX
021200753	75	75	27	10	CM	CMX
021200901	90	35	27	12	CM	CMX
021201101	110	35	32	12	CM	CMX
021201301	130	35	40	14	CM	CMX
021201501	150	40	40	14	CM	CMX

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
02120	◕	◕	◕	○	○	●	●
02120	◕	◕	◕	○	○	●	●

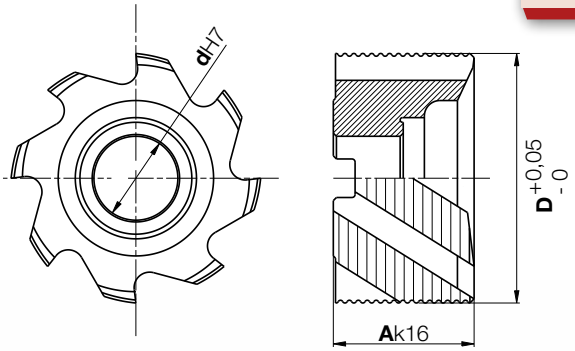
● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
02125	0401	CM	CMX
02130	0401	CM	CMX



Z 6÷14

02125

cod.	D + 0,05 - 0	Ak16	dH7	Z	X-85 (PM Co 8,5%)	SKINinox UOP COATING
021250401	40	32	16	6	CM	CMX
021250501	50	36	22	6	CM	CMX
021250631	63	40	27	8	CM	CMX
021250801	80	45	27	8	CM	CMX
021251001	100	50	32	10	CM	CMX
021251251	125	56	40	12	CM	CMX
021251601	160	63	50	14	CM	CMX

Frese a ***SGROSSARE*** con cava di trascinamento trasversale

Roughing cutters with transversal driving slot

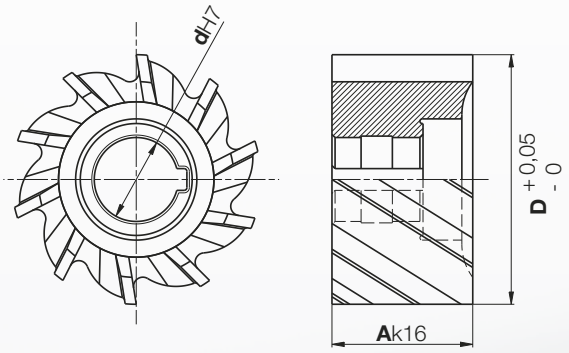
Schruppfräser mit Quernut

Fraises d'ébauche deux tailles avec rainure transversale

Fresa para desbaste con chavetero dearrastre transversal

UNI 3903
DIN 1880
ISO 2586
NR
λ°s 28

SKINinox UOP COATING



Z 6÷10

02130

cod.	D + 0,05 - 0	Ak16	dH7	Z	X-85 (PM Co 8,5%)	SKINinox UOP COATING
021300401	40	40	16	6	CM	CMX
021300501	50	50	22	8	CM	CMX
021300601	60	60	27	8	CM	CMX
021300751	75	75	27	10	CM	CMX

Frese a ***SGROSSARE*** con spacco longitudinale

Roughing cutters with longitudinal keyway

Schruppfräser mit Längsnut

Fraises ébauches deux tailles avec rainure longitudinale

Fresa para desbaste con chavetero longitudinal

UNI
DIN 841
ISO 2586
NR
λ°s 28

SKINinox UOP COATING

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
02125	◕	◕	◕	○	○	●	●
02130	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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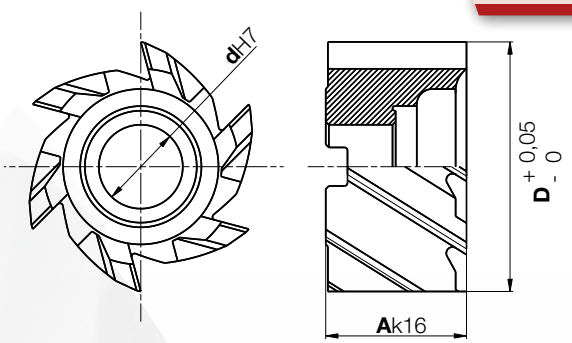
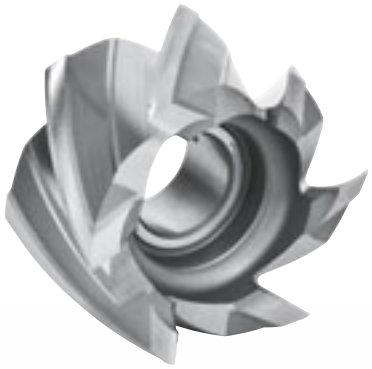
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
02135	0400	AM	CM	CMX





02135

Z 4÷6

Frese a ***FINIRE*** con cava di trascinamento trasversale

Finishing milling cutters with transversal driving slot

Fräser mit Quernut

Fraises cylindriques deux tailles avec rainure transversale

Fresa para acabado con chavetero de arrastre transversal

cod.	D + 0,05 - 0	Ak16	dH7	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
021350400	40	32	16	4	AM	CM	CMX
021350500	50	36	22	4	AM	CM	CMX
021350630	63	40	27	4	AM	CM	CMX
021350800	80	45	27	6	AM	CM	CMX
021351000	100	50	32	6	AM	CM	CMX

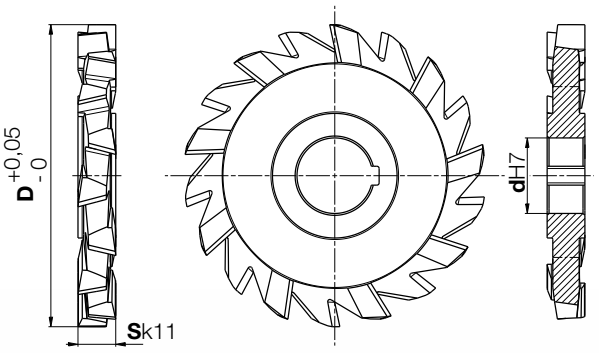
SKIN Alu
UOP COATING

λ°s		
40	W	UNI 3903 DIN 1880 ISO 2586

Serie	materiali lavorabili WORKPIECE MATERIALS		acciai inossidabili	materiali non ferrosi	leghe leggere	acciai	ghise
SERIES	titanio TITANIUM	HRSA HRSA	STAINLESS STEELS	NON FERROUS MATERIALS	LIGHT ALLOYS	STEELS	CAST IRON
02135	○	○	○	○	●	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY



Z 16÷38

04105

Frese a disco a tre tagli elicoidali alternati
Side and face milling cutters Staggered teeth
Scheibenfräser Kreuzverzahnt
Fraises trois tailles Denture alternée
Fresa de tres cortes Diente alterno

cod.	D +0,05 -0	Sk 11	C1	dH7	λ°s	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
041051040	50	4	26	16	20	16	AM	CM	CMX
041051050	50	5	26	16	20	16	AM	CM	CMX
041051060	50	6	26	16	20	16	AM	CM	CMX
041051070	50	7	26	16	15	16	AM	CM	CMX
041051080	50	8	26	16	15	16	AM	CM	CMX
041051090	50	9	26	16	15	16	AM	CM	CMX
041051100	50	10	26	16	15	16	AM	CM	CMX
041052040	63	4	33	22	20	18	AM	CM	CMX
041052050	63	5	33	22	15	18	AM	CM	CMX
041052060	63	6	33	22	15	18	AM	CM	CMX
041052070	63	7	33	22	15	18	AM	CM	CMX
041052080	63	8	33	22	15	18	AM	CM	CMX
041052090	63	9	33	22	15	18	AM	CM	CMX
041052100	63	10	33	22	15	18	AM	CM	CMX
041052120	63	12	33	22	10	18	AM	CM	CMX
041052140	63	14	33	22	10	18	AM	CM	CMX
041052160	63	16	33	22	10	16	AM	CM	CMX
041052180	63	18	33	22	10	16	AM	CM	CMX
041052200	63	20	33	22	10	16	AM	CM	CMX
041053040	80	4	36	22	20	20	AM	CM	CMX
041053041	80	4	40	27	20	20	AM	CM	CMX
041053050	80	5	36	22	15	20	AM	CM	CMX
041053051	80	5	40	27	15	20	AM	CM	CMX
041053060	80	6	36	22	15	20	AM	CM	CMX
041053061	80	6	40	27	15	20	AM	CM	CMX
041053070	80	7	36	22	15	20	AM	CM	CMX
041053071	80	7	40	27	15	20	AM	CM	CMX
041053080	80	8	36	22	15	20	AM	CM	CMX
041053081	80	8	40	27	15	20	AM	CM	CMX
041053090	80	9	36	22	15	20	AM	CM	CMX
041053091	80	9	40	27	15	20	AM	CM	CMX

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SKIN
UOP COATING

UNI 3905A DIN 885A ISO 2587	H	λ°s 28

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 362

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
04105	◕	◕	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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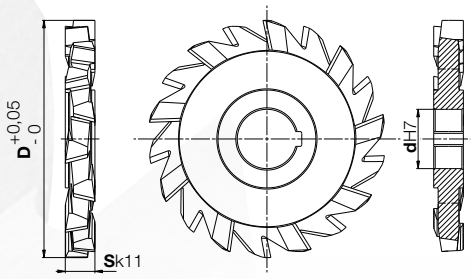
example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
04105	3121	AM	CM	CMX



04105

Z 16÷38

Frese a disco a tre tagli elicoidali alternati
Side and face milling cutters Staggered teeth
Scheibenfräser Kreuzverzahnt
Fraises trois tailles Denture alternée
Fresa de tres cortes Diente alterno

SKIN UOP COATING

UNI 3905A DIN 885A ISO 2587	H	λ°s 28

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 362

→| continuation of the previous page

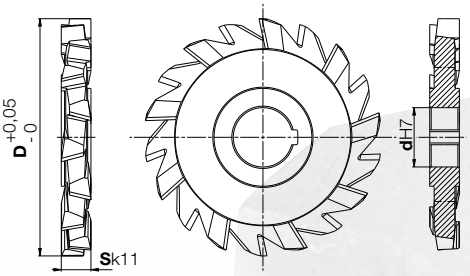
cod.	D +0,05 -0	Sk 11	C1	dH7	λ°s	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
041053100	80	10	36	22	15	18	AM	CM	CMX
041053101	80	10	40	27	15	18	AM	CM	CMX
041053120	80	12	36	22	15	18	AM	CM	CMX
041053121	80	12	40	27	15	18	AM	CM	CMX
041053140	80	14	36	22	10	18	AM	CM	CMX
041053141	80	14	40	27	10	18	AM	CM	CMX
041053160	80	16	36	22	15	18	AM	CM	CMX
041053161	80	16	40	27	15	18	AM	CM	CMX
041053180	80	18	36	22	15	18	AM	CM	CMX
041053181	80	18	40	27	15	18	AM	CM	CMX
041053200	80	20	36	22	10	18	AM	CM	CMX
041053201	80	20	40	27	10	18	AM	CM	CMX
041054040	100	4	46	27	15	24	AM	CM	CMX
041054041	100	4	50	32	15	24	AM	CM	CMX
041054050	100	5	46	27	15	24	AM	CM	CMX
041054051	100	5	50	32	15	24	AM	CM	CMX
041054060	100	6	46	27	15	24	AM	CM	CMX
041054061	100	6	50	32	15	24	AM	CM	CMX
041054070	100	7	46	27	15	24	AM	CM	CMX
041054071	100	7	50	32	15	24	AM	CM	CMX
041054080	100	8	46	27	15	22	AM	CM	CMX
041054081	100	8	50	32	15	22	AM	CM	CMX
041054090	100	9	46	27	15	22	AM	CM	CMX
041054091	100	9	50	32	15	22	AM	CM	CMX
041054100	100	10	46	27	15	22	AM	CM	CMX
041054101	100	10	50	32	15	22	AM	CM	CMX
041054120	100	12	46	27	15	20	AM	CM	CMX
041054121	100	12	50	32	15	20	AM	CM	CMX
041054140	100	14	46	27	15	20	AM	CM	CMX
041054141	100	14	50	32	15	20	AM	CM	CMX
041054150	100	15	46	27	15	20	AM	CM	CMX
041054151	100	15	50	32	15	20	AM	CM	CMX
041054160	100	16	46	27	15	20	AM	CM	CMX
041054161	100	16	50	32	15	20	AM	CM	CMX
041054180	100	18	46	27	13	20	AM	CM	CMX
041054181	100	18	50	32	13	20	AM	CM	CMX
041054200	100	20	46	27	13	20	AM	CM	CMX
041054201	100	20	50	32	13	20	AM	CM	CMX
041054220	100	22	46	27	10	20	AM	CM	CMX
041054221	100	22	50	32	10	20	AM	CM	CMX
041054250	100	25	46	27	10	20	AM	CM	CMX
041054251	100	25	50	32	10	20	AM	CM	CMX
041055050	125	5	52	32	15	26	AM	CM	CMX
041055060	125	6	52	32	15	26	AM	CM	CMX
041055080	125	8	52	32	15	26	AM	CM	CMX
041055100	125	10	52	32	15	24	AM	CM	CMX
041055120	125	12	52	32	15	22	AM	CM	CMX
041055140	125	14	52	32	15	22	AM	CM	CMX
041055160	125	16	52	32	15	22	AM	CM	CMX

continues on the next page →|

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

→ continuation of the previous page

cod.	D +0,05 -0	Sk 11	C1	dH7	λ°s	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
041055180	125	18	52	32	15	22	AM	CM	CMX
041055200	125	20	52	32	10	22	AM	CM	CMX
041055220	125	22	52	32	10	22	AM	CM	CMX
041055250	125	25	52	32	10	22	AM	CM	CMX
041055280	125	28	52	32	10	22	AM	CM	CMX
041056060	160	6	58	32	15	28	AM	CM	CMX
041056061	160	6	66	40	15	28	AM	CM	CMX
041056080	160	8	58	32	15	28	AM	CM	CMX
041056081	160	8	66	40	15	28	AM	CM	CMX
041056100	160	10	58	32	15	26	AM	CM	CMX
041056101	160	10	66	40	15	26	AM	CM	CMX
041056120	160	12	58	32	15	26	AM	CM	CMX
041056121	160	12	66	40	15	26	AM	CM	CMX
041056140	160	14	58	32	15	24	AM	CM	CMX
041056141	160	14	66	40	15	24	AM	CM	CMX
041056160	160	16	58	32	15	24	AM	CM	CMX
041056161	160	16	66	40	15	24	AM	CM	CMX
041056180	160	18	58	32	15	24	AM	CM	CMX
041056181	160	18	66	40	15	24	AM	CM	CMX
041056200	160	20	58	32	15	24	AM	CM	CMX
041056201	160	20	66	40	15	24	AM	CM	CMX
041056220	160	22	58	32	13	24	AM	CM	CMX
041056221	160	22	66	40	13	24	AM	CM	CMX
041056250	160	25	58	32	13	24	AM	CM	CMX
041056251	160	25	66	40	13	24	AM	CM	CMX
041056280	160	28	58	32	10	24	AM	CM	CMX
041056281	160	28	66	40	10	24	AM	CM	CMX
041056320	160	32	58	32	10	24	AM	CM	CMX
041056321	160	32	66	40	10	24	AM	CM	CMX
041057080	200	8	80	40	16	34	AM	CM	CMX
041057100	200	10	80	40	16	32	AM	CM	CMX
041057120	200	12	80	40	16	30	AM	CM	CMX
041057140	200	14	80	40	16	30	AM	CM	CMX
041057160	200	16	80	40	16	30	AM	CM	CMX
041057180	200	18	80	40	16	30	AM	CM	CMX
041057200	200	20	80	40	16	30	AM	CM	CMX
041057220	200	22	80	40	16	30	AM	CM	CMX
041057250	200	25	80	40	16	30	AM	CM	CMX
041057280	200	28	80	40	14	30	AM	CM	CMX
041057320	200	32	80	40	14	30	AM	CM	CMX
041058140	250	14	90	50	15	38	AM	CM	CMX
041058160	250	16	90	50	15	36	AM	CM	CMX
041058180	250	18	90	50	15	34	AM	CM	CMX
041058200	250	20	90	50	15	34	AM	CM	CMX
041058250	250	25	90	50	15	30	AM	CM	CMX
041058280	250	28	90	50	15	28	AM	CM	CMX
041058300	250	30	90	50	15	26	AM	CM	CMX
041058320	250	32	90	50	15	26	AM	CM	CMX



Z 16÷38

04105

Frese a disco a tre tagli elicoidali alternati
Side and face milling cutters Staggered teeth
Scheibenfräser Kreuzverzahnt
Fraises trois tailles Denture alternée
Fresa de tres cortes Diente alterno

SKIN
UOP COATING

UNI 3905A DIN 885A ISO 2587	H	λ°s 28

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 362

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
04105	◪	◪	●	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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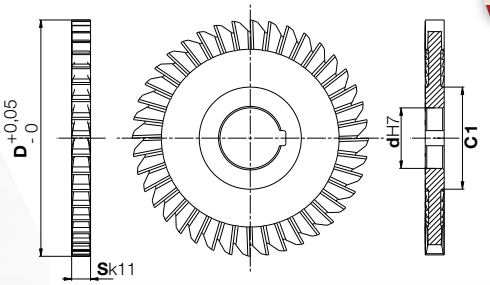
example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
04105	1042	AM	CM	CMX



04105

Z 18÷46

Frese a disco a tre taglienti diritti
Side and face milling cutters Straigh teeth
Scheibenfräser Geradeverzahnt
Fraises trois tailles Denture droite
Fresa de tres cortes Diente recto

SKIN
UOP COATING

UNI 3905B
DIN 885B
ISO 2587
H

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 362

cod.	D +0,05 -0	Sk11	C1	dH7	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
041051042	50	4	26	16	20	AM	CM	CMX
041051052	50	5	26	16	20	AM	CM	CMX
041051062	50	6	26	16	20	AM	CM	CMX
041051072	50	7	26	16	18	AM	CM	CMX
041051082	50	8	26	16	18	AM	CM	CMX
041051092	50	9	26	16	18	AM	CM	CMX
041051102	50	10	26	16	18	AM	CM	CMX
041052042	63	4	33	22	20	AM	CM	CMX
041052052	63	5	33	22	20	AM	CM	CMX
041052062	63	6	33	22	20	AM	CM	CMX
041052072	63	7	33	22	20	AM	CM	CMX
041052082	63	8	33	22	20	AM	CM	CMX
041052092	63	9	33	22	20	AM	CM	CMX
041052102	63	10	33	22	18	AM	CM	CMX
041052122	63	12	33	22	18	AM	CM	CMX
041052142	63	14	33	22	18	AM	CM	CMX
041052162	63	16	33	22	18	AM	CM	CMX
041052182	63	18	33	22	18	AM	CM	CMX
041052202	63	20	33	22	18	AM	CM	CMX
041053042	80	4	36	22	24	AM	CM	CMX
041053043	80	4	40	27	24	AM	CM	CMX
041053052	80	5	36	22	24	AM	CM	CMX
041053053	80	5	40	27	24	AM	CM	CMX
041053062	80	6	36	22	24	AM	CM	CMX
041053063	80	6	40	27	24	AM	CM	CMX
041053072	80	7	36	22	22	AM	CM	CMX
041053073	80	7	40	27	22	AM	CM	CMX
041053082	80	8	36	22	22	AM	CM	CMX
041053083	80	8	40	27	22	AM	CM	CMX
041053092	80	9	36	22	22	AM	CM	CMX
041053093	80	9	40	27	22	AM	CM	CMX
041053102	80	10	36	22	20	AM	CM	CMX
041053103	80	10	40	27	20	AM	CM	CMX
041053122	80	12	36	22	20	AM	CM	CMX
041053123	80	12	40	27	20	AM	CM	CMX
041053142	80	14	36	22	20	AM	CM	CMX
041053143	80	14	40	27	20	AM	CM	CMX
041053162	80	16	36	22	20	AM	CM	CMX
041053163	80	16	40	27	20	AM	CM	CMX
041053182	80	18	36	22	20	AM	CM	CMX
041053183	80	18	40	27	20	AM	CM	CMX
041053202	80	20	36	22	20	AM	CM	CMX
041053203	80	20	40	27	20	AM	CM	CMX
041054042	100	4	46	27	26	AM	CM	CMX
041054043	100	4	50	32	26	AM	CM	CMX
041054052	100	5	46	27	26	AM	CM	CMX
041054053	100	5	50	32	26	AM	CM	CMX
041054062	100	6	46	27	24	AM	CM	CMX
041054063	100	6	50	32	24	AM	CM	CMX
041054072	100	7	46	27	24	AM	CM	CMX
041054073	100	7	50	32	24	AM	CM	CMX
041054082	100	8	46	27	22	AM	CM	CMX

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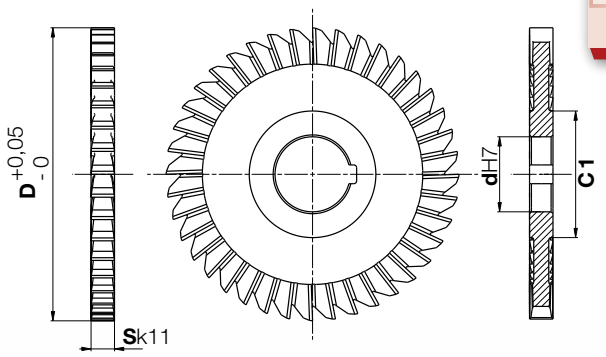
● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
04105	4083	AM	CM	CMX



→ continuation of the previous page

cod.	D +0,05 -0	Sk11	C1	dH7	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
041054083	100	8	50	32	22	AM	CM	CMX
041054092	100	9	46	27	22	AM	CM	CMX
041054093	100	9	50	32	22	AM	CM	CMX
041054102	100	10	46	27	22	AM	CM	CMX
041054103	100	10	50	32	22	AM	CM	CMX
041054122	100	12	46	27	22	AM	CM	CMX
041054123	100	12	50	32	22	AM	CM	CMX
041054142	100	14	46	27	22	AM	CM	CMX
041054143	100	14	50	32	22	AM	CM	CMX
041054152	100	15	46	27	22	AM	CM	CMX
041054153	100	15	50	32	22	AM	CM	CMX
041054162	100	16	46	27	22	AM	CM	CMX
041054163	100	16	50	32	22	AM	CM	CMX
041054182	100	18	46	27	22	AM	CM	CMX
041054183	100	18	50	32	22	AM	CM	CMX
041054202	100	20	46	27	20	AM	CM	CMX
041054203	100	20	50	32	20	AM	CM	CMX
041054222	100	22	46	27	20	AM	CM	CMX
041054223	100	22	50	32	20	AM	CM	CMX
041054252	100	25	46	27	20	AM	CM	CMX
041054253	100	25	50	32	20	AM	CM	CMX
041055052	125	5	52	32	30	AM	CM	CMX
041055062	125	6	52	32	30	AM	CM	CMX
041055082	125	8	52	32	28	AM	CM	CMX
041055102	125	10	52	32	28	AM	CM	CMX
041055122	125	12	52	32	28	AM	CM	CMX
041055142	125	14	52	32	26	AM	CM	CMX
041055162	125	16	52	32	26	AM	CM	CMX
041055182	125	18	52	32	26	AM	CM	CMX
041055202	125	20	52	32	26	AM	CM	CMX
041055222	125	22	52	32	26	AM	CM	CMX
041055252	125	25	52	32	26	AM	CM	CMX
041055282	125	28	52	32	26	AM	CM	CMX
041056062	160	6	58	32	40	AM	CM	CMX
041056063	160	6	66	40	40	AM	CM	CMX
041056082	160	8	58	32	36	AM	CM	CMX
041056083	160	8	66	40	36	AM	CM	CMX

continues on the next page →

Z 18÷46

04105

Frese a disco a tre taglienti diritti
Side and face milling cutters Straigh teeth
Scheibenfräser Geradeverzahnt
Fraises trois tailles Denture droite
Fresa de tres cortes Diente recto

SKIN
UOP COATING

UNI 3905B
DIN 885B
ISO 2587
H

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 362

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
04105	◪	◪	●	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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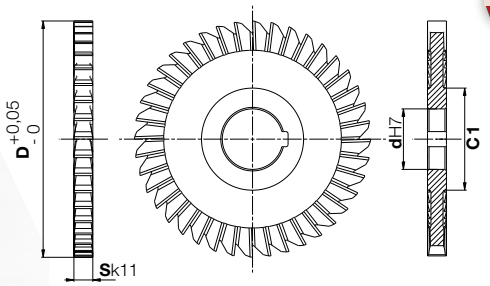
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
04105	6103	AM	CM	CMX



04105

Z 20÷46

Frese a disco a tre taglienti diritti
Side and face milling cutters Straigh teeth
Scheibenfräser Geradeverzahnt
Fraises trois tailles Denture droite
Fresa de tres cortes Diente recto

→ continuation of the previous page

cod.	D + 0,05 - 0	Sk11	C1	dH7	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
041056102	160	10	58	32	36	AM	CM	CMX
041056103	160	10	66	40	36	AM	CM	CMX
041056122	160	12	58	32	36	AM	CM	CMX
041056123	160	12	66	40	36	AM	CM	CMX
041056142	160	14	58	32	36	AM	CM	CMX
041056143	160	14	66	40	36	AM	CM	CMX
041056162	160	16	58	32	36	AM	CM	CMX
041056163	160	16	66	40	36	AM	CM	CMX
041056182	160	18	58	32	34	AM	CM	CMX
041056183	160	18	66	40	34	AM	CM	CMX
041056202	160	20	58	32	34	AM	CM	CMX
041056203	160	20	66	40	34	AM	CM	CMX
041056222	160	22	58	32	34	AM	CM	CMX
041056223	160	22	66	40	34	AM	CM	CMX
041056252	160	25	58	32	34	AM	CM	CMX
041056253	160	25	66	40	34	AM	CM	CMX
041056282	160	28	58	32	34	AM	CM	CMX
041056283	160	28	66	40	34	AM	CM	CMX
041056322	160	32	58	32	34	AM	CM	CMX
041056323	160	32	66	40	34	AM	CM	CMX
041057082	200	8	80	40	42	AM	CM	CMX
041057102	200	10	80	40	40	AM	CM	CMX
041057122	200	12	80	40	40	AM	CM	CMX
041057142	200	14	80	40	40	AM	CM	CMX
041057162	200	16	80	40	38	AM	CM	CMX
041057182	200	18	80	40	38	AM	CM	CMX
041057202	200	20	80	40	38	AM	CM	CMX
041057222	200	22	80	40	38	AM	CM	CMX
041057252	200	25	80	40	38	AM	CM	CMX
041057282	200	28	80	40	38	AM	CM	CMX
041057322	200	32	80	40	38	AM	CM	CMX
041058142	250	14	90	50	46	AM	CM	CMX
041058162	250	16	90	50	46	AM	CM	CMX
041058182	250	18	90	50	46	AM	CM	CMX
041058202	250	20	90	50	46	AM	CM	CMX
041058252	250	25	90	50	46	AM	CM	CMX
041058282	250	28	90	50	46	AM	CM	CMX
041058302	250	30	90	50	46	AM	CM	CMX
041058322	250	32	90	50	46	AM	CM	CMX

SKIN
UOP COATING

UNI 3905B
DIN 885B
ISO 2587
H

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 362

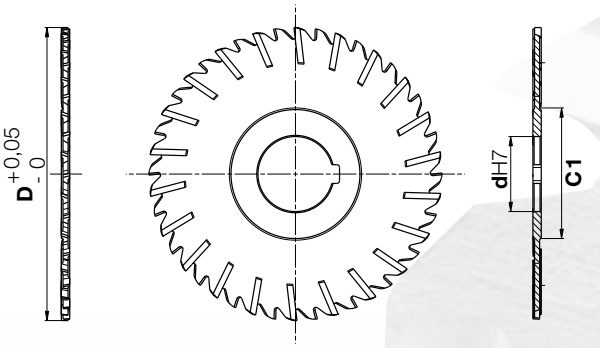
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
04105	◪	◪	●	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
04110	2016	CM	CMX



cod.	D +0,05 -0	Sk11	C1	dH7	λ°	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
041102016	63	1,6	33	22	20	32	CM	CMX
041102020	63	2	33	22	20	32	CM	CMX
041102025	63	2,5	33	22	20	32	CM	CMX
041102030	63	3	33	22	20	28	CM	CMX
041102035	63	3,5	33	22	20	28	CM	CMX
041103020	80	2	36	22	20	36	CM	CMX
041103025	80	2,5	36	22	20	36	CM	CMX
041103030	80	3	36	22	20	32	CM	CMX
041103035	80	3,5	36	22	20	32	CM	CMX
041104020	100	2	46	27	20	44	CM	CMX
041104025	100	2,5	46	27	20	44	CM	CMX
041104030	100	3	46	27	20	40	CM	CMX
041104035	100	3,5	46	27	20	40	CM	CMX
041105020	125	2	52	32	20	44	CM	CMX
041105025	125	2,5	52	32	20	44	CM	CMX
041105030	125	3	52	32	20	44	CM	CMX
041105035	125	3,5	52	32	20	40	CM	CMX
041105040	125	4	52	32	20	40	CM	CMX
041106030	160	3	58	32	20	50	CM	CMX
041106040	160	4	58	32	20	50	CM	CMX
041106050	160	5	58	32	20	50	CM	CMX
041107040	200	4	80	40	20	60	CM	CMX
041107050	200	5	80	40	20	60	CM	CMX
041107060	200	6	80	40	20	60	CM	CMX
041108060	250	6	90	50	15	68	CM	CMX
041108080	250	8	90	50	15	68	CM	CMX
041108100	250	10	90	50	15	68	CM	CMX
041108120	250	12	90	50	15	68	CM	CMX

Z 32÷68

04110

Seghe circolari a tre tagli elicoidali alternati
Slitting saws Staggered teeth
Kreissägen Kreuzverzahnt
Fraises trois tailles Denture alternée
Sierra de tres cortes Diente alterno

SKIN UOP COATING

Standard UOP | H

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 362

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
04110	◪	◪	●	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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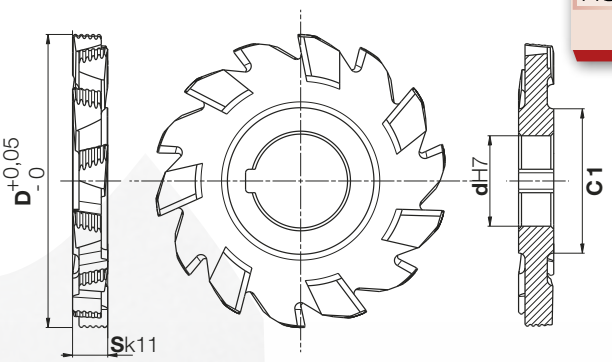
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
04115	2060	CM	CMX



04115

Z 10÷28

Frese a disco a tre tagli **SEMIFINIRE**
Side and face milling cutters Staggered teeth
Scheibenfräser Kreuzverzahnt
Fraises trois tailles Denture alternée
Fresa de tres cortes Diente alterno

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	Djs16	Sk11	C1	dH7	λ°	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	041152060	63	6	33	22	10	10	CM	CMX
*	041152080	63	8	33	22	10	10	CM	CMX
*	041152100	63	10	33	22	10	10	CM	CMX
*	041152120	63	12	33	22	10	10	CM	CMX
*	041152140	63	14	33	22	10	10	CM	CMX
*	041152160	63	16	33	22	10	10	CM	CMX
*	041152180	63	18	33	22	10	10	CM	CMX
*	041152200	63	20	33	22	10	10	CM	CMX
*	041153060	80	6	40	27	10	12	CM	CMX
*	041153080	80	8	40	27	10	12	CM	CMX
*	041153100	80	10	40	27	10	12	CM	CMX
*	041153120	80	12	40	27	10	12	CM	CMX
*	041153140	80	14	40	27	10	12	CM	CMX
*	041153160	80	16	40	27	10	10	CM	CMX
*	041153180	80	18	40	27	10	10	CM	CMX
*	041153200	80	20	40	27	10	10	CM	CMX
*	041154080	100	8	50	32	10	16	CM	CMX
*	041154100	100	10	50	32	10	16	CM	CMX
*	041154120	100	12	50	32	10	14	CM	CMX
*	041154140	100	14	50	32	10	14	CM	CMX
*	041154160	100	16	50	32	10	14	CM	CMX
*	041154180	100	18	50	32	10	12	CM	CMX
*	041154200	100	20	50	32	10	12	CM	CMX
*	041154220	100	22	50	32	10	12	CM	CMX
*	041154250	100	25	50	32	10	12	CM	CMX
*	041155100	125	10	52	32	10	18	CM	CMX
*	041155120	125	12	52	32	10	18	CM	CMX
*	041155140	125	14	52	32	10	16	CM	CMX
*	041155160	125	16	52	32	10	16	CM	CMX
*	041155180	125	18	52	32	10	16	CM	CMX
*	041155200	125	20	52	32	10	14	CM	CMX
*	041155220	125	22	52	32	10	14	CM	CMX
*	041155250	125	25	52	32	10	14	CM	CMX
*	041155280	125	28	52	32	10	14	CM	CMX
*	041156120	160	12	66	40	10	18	CM	CMX
*	041156140	160	14	66	40	10	18	CM	CMX
*	041156160	160	16	66	40	10	18	CM	CMX
*	041156180	160	18	66	40	10	18	CM	CMX
*	041156200	160	20	66	40	10	18	CM	CMX
*	041156220	160	22	66	40	10	16	CM	CMX
*	041156250	160	25	66	40	10	16	CM	CMX
*	041156280	160	28	66	40	10	16	CM	CMX
*	041156300	160	30	66	40	10	16	CM	CMX
*	041157160	200	16	80	40	12	22	CM	CMX
*	041157200	200	20	80	40	12	20	CM	CMX
*	041157250	200	25	80	40	12	20	CM	CMX
*	041157300	200	30	80	40	12	18	CM	CMX
*	041158200	250	20	90	50	15	26	CM	CMX
*	041158250	250	25	90	50	10	28	CM	CMX
*	041158300	250	30	90	50	10	28	CM	CMX

SKIN UOP COATING

NF — UNI 3905A, DIN 885A, ISO 2587

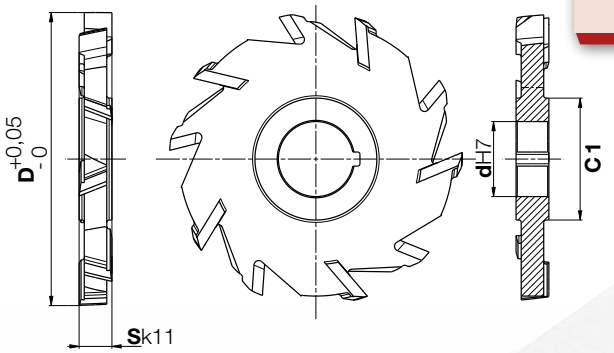
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
04115	◕	◕	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
04120	2040	AM	CM	CMX



04120

Z 6÷10

Frese a disco a tre taglienti elicoidali alternati
Side and face milling cutters Staggered teeth
Scheibenfräser Kreuzverzahnt
Fraises trois tailles Denture alternée
Fresa de tres cortes Diente alterno

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D + 0,05 - 0	Sk11	C1	dH7	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
*	**041202040**	63	4	33	22	6	AM	CM	CMX
*	**041202050**	63	5	33	22	6	AM	CM	CMX
*	**041202060**	63	6	33	22	6	AM	CM	CMX
*	**041202080**	63	8	33	22	6	AM	CM	CMX
*	**041202100**	63	10	33	22	6	AM	CM	CMX
*	**041202120**	63	12	33	22	6	AM	CM	CMX
*	**041202140**	63	14	33	22	6	AM	CM	CMX
*	**041203040**	80	4	40	27	8	AM	CM	CMX
*	**041203050**	80	5	40	27	8	AM	CM	CMX
*	**041203060**	80	6	40	27	8	AM	CM	CMX
*	**041203080**	80	8	40	27	8	AM	CM	CMX
*	**041203100**	80	10	40	27	8	AM	CM	CMX
*	**041203120**	80	12	40	27	8	AM	CM	CMX
*	**041203140**	80	14	40	27	8	AM	CM	CMX
*	**041203160**	80	16	40	27	8	AM	CM	CMX
*	**041203180**	80	18	40	27	8	AM	CM	CMX
*	**041204060**	100	6	50	32	8	AM	CM	CMX
*	**041204080**	100	8	50	32	8	AM	CM	CMX
*	**041204100**	100	10	50	32	8	AM	CM	CMX
*	**041204120**	100	12	50	32	8	AM	CM	CMX
*	**041204140**	100	14	50	32	8	AM	CM	CMX
*	**041204160**	100	16	50	32	8	AM	CM	CMX
*	**041204180**	100	18	50	32	8	AM	CM	CMX
*	**041204200**	100	20	50	32	8	AM	CM	CMX
*	**041205060**	125	6	52	32	10	AM	CM	CMX
*	**041205080**	125	8	52	32	10	AM	CM	CMX
*	**041205100**	125	10	52	32	10	AM	CM	CMX
*	**041205120**	125	12	52	32	10	AM	CM	CMX
*	**041205140**	125	14	52	32	10	AM	CM	CMX
*	**041205160**	125	16	52	32	10	AM	CM	CMX
*	**041205180**	125	18	52	32	10	AM	CM	CMX
*	**041205200**	125	20	52	32	10	AM	CM	CMX
*	**041205220**	125	22	52	32	10	AM	CM	CMX
*	**041205250**	125	25	52	32	10	AM	CM	CMX
*	**041206060**	160	6	58	32	10	AM	CM	CMX
*	**041206080**	160	8	58	32	10	AM	CM	CMX
*	**041206100**	160	10	58	32	10	AM	CM	CMX
*	**041206120**	160	12	58	32	10	AM	CM	CMX
*	**041206140**	160	14	58	32	10	AM	CM	CMX
*	**041206160**	160	16	58	32	10	AM	CM	CMX
*	**041206180**	160	18	58	32	10	AM	CM	CMX
*	**041206200**	160	20	58	32	10	AM	CM	CMX
*	**041206220**	160	22	58	32	10	AM	CM	CMX
*	**041206250**	160	25	58	32	10	AM	CM	CMX
*	**041206280**	160	28	58	32	10	AM	CM	CMX
*	**041206320**	160	32	58	32	10	AM	CM	CMX

SKIN Alu
UOP COATING

UNI 3905A DIN 885A ISO 2587	W	λ°s 25

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
04120	◕	◕	○	○	●	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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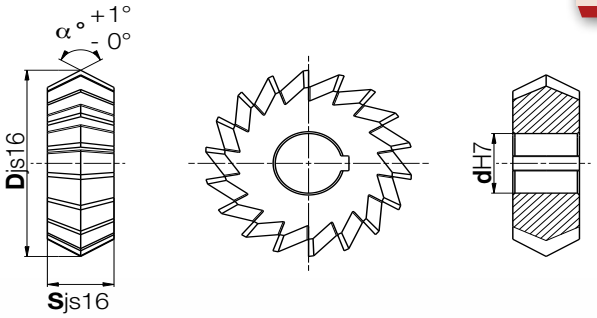
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
06105	4056	CM	CMX
06110	4040	CM	CMX



06105

Z 20÷30

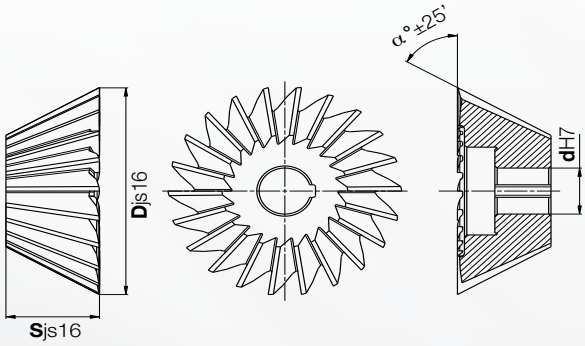
Frese ad angolo prismatiche
Double equal angle cutters
Prismenfräser
Fraises isocèles
Fresa de ángulo prismático

SKIN UOP COATING

H

UNI 3907
DIN 847
ISO 6108

cod.	Djs16	α°+1° - 0°	Sjs16	dH7	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
061054056	56	45	10	16	24	CM	CMX
061054063	63	45	12	22	22	CM	CMX
061054080	80	45	16	22	26	CM	CMX
061054100	100	45	18	27	30	CM	CMX
061056056	56	60	12	16	22	CM	CMX
061056063	63	60	16	22	20	CM	CMX
061056080	80	60	20	22	24	CM	CMX
061056100	100	60	25	27	26	CM	CMX
061059056	56	90	14	16	22	CM	CMX
061059063	63	90	18	22	20	CM	CMX
061059080	80	90	22	22	22	CM	CMX
061059100	100	90	28	27	24	CM	CMX



06110

Z 16÷26

Frese ad angolo
Angular cutters
Winkelstirnfräser
Fraises coniques deux tailles en bout
Fresa de ángulo

SKIN UOP COATING

H

UNI 3908
DIN 842A
ISO

cod.	Djs16	α° ±25'	Sjs16	dH7	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
061104040	40	45	12	10	18	CM	CMX
061104050	50	45	15	13	20	CM	CMX
061104063	63	45	18	16	20	CM	CMX
061104080	80	45	23	22	24	CM	CMX
061104100	100	45	30	27	24	CM	CMX
061104125	125	45	38	32	26	CM	CMX
061104160	160	45	45	40	26	CM	CMX
061105040	40	50	13	10	16	CM	CMX
061105050	50	50	16	13	18	CM	CMX
061105063	63	50	20	16	20	CM	CMX
061105080	80	50	25	22	22	CM	CMX
061105100	100	50	32	27	26	CM	CMX
061105125	125	50	40	32	26	CM	CMX
061105160	160	50	50	40	26	CM	CMX
061106040	40	60	13	10	18	CM	CMX
061106050	50	60	16	13	18	CM	CMX
061106063	63	60	20	16	18	CM	CMX
061106080	80	60	25	22	20	CM	CMX
061106100	100	60	32	27	22	CM	CMX
061106125	125	60	40	32	24	CM	CMX
061106160	160	60	50	40	26	CM	CMX

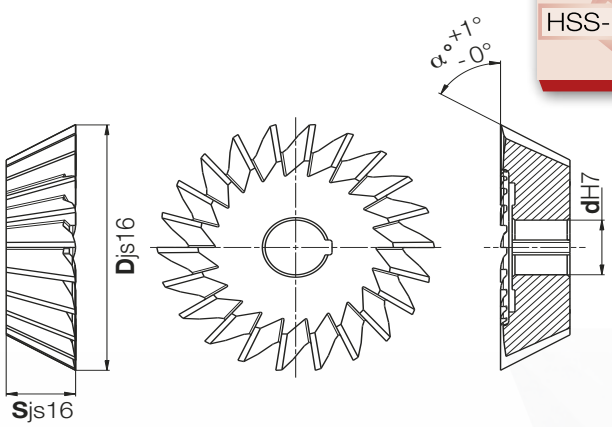
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
06105	◕	◕	○	○	○	●	●
06110	◕	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
06115	4550	CM	CMX



cod.	Djs16	α°+1° - 0°	Sjs16	dH7	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
061154550	50	45	10	16	22	CM	CMX
061154563	63	45	13	22	22	CM	CMX
061154580	80	45	15	27	24	CM	CMX
061155050	50	50	11	16	22	CM	CMX
061155063	63	50	15	22	22	CM	CMX
061155080	80	50	16	27	24	CM	CMX
061155550	50	55	12	16	20	CM	CMX
061155563	63	55	16	22	22	CM	CMX
061155580	80	55	18	27	22	CM	CMX
061156050	50	60	12	16	20	CM	CMX
061156063	63	60	18	22	20	CM	CMX
061156080	80	60	18	27	22	CM	CMX
061156550	50	65	12	16	20	CM	CMX
061156563	63	65	18	22	20	CM	CMX
061156580	80	65	20	27	22	CM	CMX
061157050	50	70	12	16	20	CM	CMX
061157063	63	70	18	22	20	CM	CMX
061157064	63	70	28	22	20	CM	CMX
061157080	80	70	20	27	22	CM	CMX
061157550	50	75	12	16	18	CM	CMX
061157563	63	75	18	22	20	CM	CMX
061157564	63	75	28	22	20	CM	CMX
061157580	80	75	22	27	20	CM	CMX
061158050	50	80	12	16	18	CM	CMX
061158063	63	80	18	22	20	CM	CMX
061158064	63	80	28	22	20	CM	CMX
061158080	80	80	24	27	20	CM	CMX
061158550	50	85	12	16	18	CM	CMX
061158563	63	85	18	22	20	CM	CMX
061158580	80	85	24	27	20	CM	CMX

Z 18÷24

06115

Frese ad angolo
Angular cutters for toolmakin
Winkelfräser für werkzeuge
Fraises coniques pour outils
Fresa de ángulo

SKIN
UOP COATING

UNI 3909A
DIN 1823A
ISO
H

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
06115	◪	◪	○	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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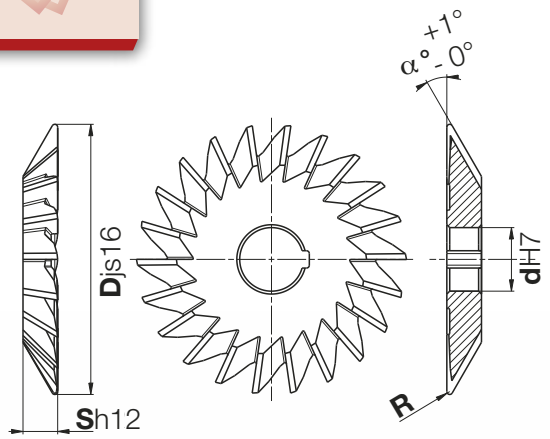
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
06120	1056	CM	CMX
06125	1863	CM	CMX

06120

Z 24÷30



Frese ad angolo per utensili
Angular cutters for toolmaking
Lückenfräser für werkzeuge
Fraises coniques pour outils
Fresa de ángulo

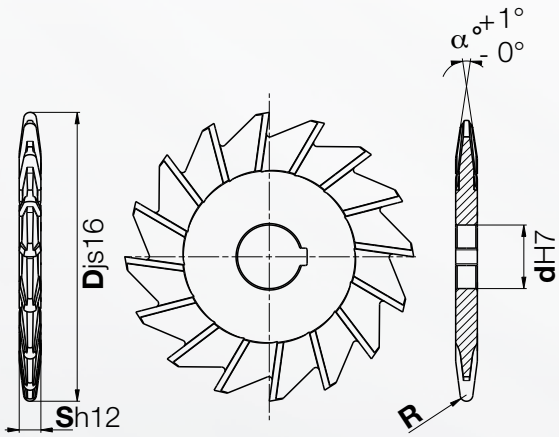
SKIN
UOP COATING

H — UNI 3910A, DIN 1824A, ISO

cod.	Djs16	α°+1° - 0°	Sh12	dH7	R	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
061201056	56	18	6	16	1	26	CM	CMX
061201080	80	18	9	22	1,2	26	CM	CMX
061201100	100	18	12	22	1,6	30	CM	CMX
061202056	56	24	6	16	1	24	CM	CMX
061202080	80	24	9	22	1,2	26	CM	CMX
061202100	100	24	12	22	1,6	30	CM	CMX
061203056	56	30	6	16	1	24	CM	CMX
061203080	80	30	9	22	1,2	26	CM	CMX
061203100	100	30	12	22	1,6	30	CM	CMX

06125

Z 26÷30



Frese ad angolo per utensili
Angular cutters for toolmaking
Lückenfräser für werkzeuge
Fraises coniques pour outils
Fresa de ángulo

SKIN
UOP COATING

H — UNI 3910B, DIN 1824B, ISO 2586

cod.	Djs16	α°+1° - 0°	Sh12	dH7	R	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
061251863	63	18	6	16	1	26	CM	CMX
061251890	90	18	10	22	1,6	30	CM	CMX
061252463	63	24	6	16	1	26	CM	CMX
061252490	90	24	10	22	1,6	30	CM	CMX
061253063	63	30	6	16	1	26	CM	CMX
061253090	90	30	10	22	1,6	30	CM	CMX

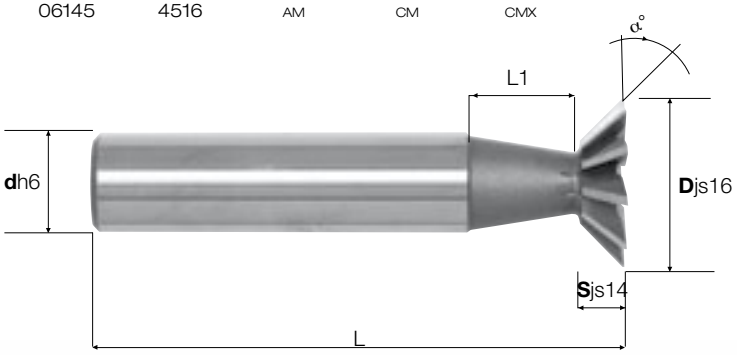
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
06120	◕	◕	○	○	○	●	●
06125	◕	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
06130	4516	AM	CM	CMX
06145	4516	AM	CM	CMX



Z 10÷12

06130

Frese ad angolo divergente
Dovetail cutters
Winkelfräser
Fraises coniques
Fresa de ángulo

cod.	Djs16	α° ± 30'	Sjs14	L1	L	dh6	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
061304516	16	45	4	11,3	60	12	10	AM	CM	CMX
061304520	20	45	5	13,5	63	12	10	AM	CM	CMX
061304525	25	45	6,3	13	67	12	10	AM	CM	CMX
061304532	32	45	8	14	71	16	12	AM	CM	CMX
061306016	16	60	6,3	11	60	12	10	AM	CM	CMX
061306020	20	60	8	10	63	12	10	AM	CM	CMX
061306025	25	60	10	11,5	67	12	10	AM	CM	CMX
061306032	32	60	12,5	10	71	16	12	AM	CM	CMX
061307016	16	70	7	10	60	12	10	AM	CM	CMX
061307020	20	70	9	10	63	12	10	AM	CM	CMX
061307025	25	70	11	8,7	67	16	10	AM	CM	CMX

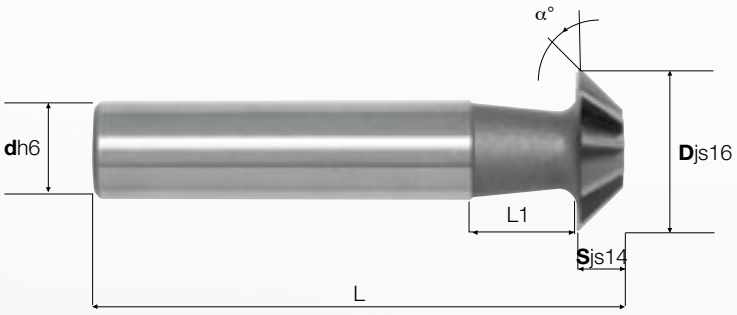
SKIN UOP COATING

UNI 8262A
DIN 1833A
ISO 3959

N

W a richiesta ON REQUEST

F a richiesta ON REQUEST



Z 10÷12

06145

Frese ad angolo convergente
Inverted dovetail cutters
Winkelfräser
Fraises coniques
Fresa de ángulo

cod.	Djs16	α° ± 30'	Sjs14	L1	L	dh6	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
061454516	16	45	4	11,3	60	12	10	AM	CM	CMX
061454520	20	45	5	13,5	63	12	10	AM	CM	CMX
061454525	25	45	6,3	13	67	12	10	AM	CM	CMX
061454532	32	45	8	14	71	16	12	AM	CM	CMX
061456016	16	60	6,3	11	60	12	10	AM	CM	CMX
061456020	20	60	8	10	63	12	10	AM	CM	CMX
061456025	25	60	10	11,5	67	12	10	AM	CM	CMX
061456032	32	60	12,5	10	71	16	12	AM	CM	CMX
061457016	16	70	7	10	60	12	10	AM	CM	CMX
061457020	20	70	9	10	63	12	10	AM	CM	CMX
061457025	25	70	11	8,7	67	16	10	AM	CM	CMX

SKIN UOP COATING

UNI 8262B
DIN 1833B
ISO 3959

N

W a richiesta ON REQUEST

F a richiesta ON REQUEST

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
06130	◕	◕	○	○	○	●	●
06145	◕	◕	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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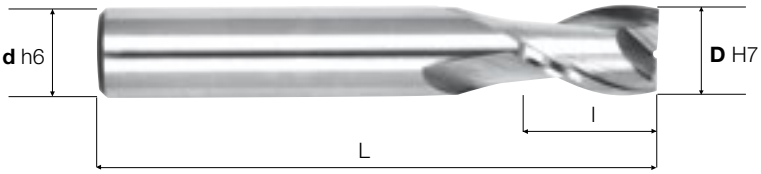
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
10102	0100	CM	CMX



10102

Z2

Frese a due taglienti in tolleranza H7
Two flute slot drills in tolerance H7
Langlochfräser Zweischneider in Toleranz H7
Fraises á rainurer deux dents en tolérance H7
Fresa de dos labios para ranurar en tolerancia H7

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	DH7	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	101020100	1	3	47	6	2	CM	CMX
	101020150	1,5	3	47	6	2	CM	CMX
	101020200	2	4	48	6	2	CM	CMX
	101020250	2,5	5	49	6	2	CM	CMX
	101020300	3	5	49	6	2	CM	CMX
	101020350	3,5	6	50	6	2	CM	CMX
	101020400	4	7	51	6	2	CM	CMX
	101020450	4,5	7	51	6	2	CM	CMX
	101020500	5	8	52	6	2	CM	CMX
	101020550	5,5	8	52	6	2	CM	CMX
	101020600	6	8	52	6	2	CM	CMX
	101020650	6,5	10	60	10	2	CM	CMX
	101020700	7	10	60	10	2	CM	CMX
	101020750	7,5	10	60	10	2	CM	CMX
	101020800	8	11	61	10	2	CM	CMX
	101020850	8,5	11	61	10	2	CM	CMX
	101020900	9	11	61	10	2	CM	CMX
	101020950	9,5	13	63	10	2	CM	CMX
	101021000	10	13	63	10	2	CM	CMX
	101021050	10,5	13	70	12	2	CM	CMX
	101021100	11	13	70	12	2	CM	CMX
	101021200	12	16	73	12	2	CM	CMX
	101021300	13	16	73	12	2	CM	CMX
	101021400	14	16	73	12	2	CM	CMX
	101021500	15	19	79	16	2	CM	CMX
	101021600	16	19	79	16	2	CM	CMX
	101021700	17	19	79	16	2	CM	CMX
	101021800	18	19	79	16	2	CM	CMX
*	**101021801**	18	19	85	20	2	CM	CMX
	101021900	19	22	82	16	2	CM	CMX
*	**101021901**	19	22	88	20	2	CM	CMX
	101022000	20	22	82	16	2	CM	CMX
	101022001	20	22	88	20	2	CM	CMX
	101022100	21	22	88	20	2	CM	CMX
	101022200	22	22	88	20	2	CM	CMX
*	**101022201**	22	22	98	25	2	CM	CMX
	101022300	23	22	88	20	2	CM	CMX
	101022400	24	26	102	25	2	CM	CMX
	101022500	25	26	102	25	2	CM	CMX
	101022600	26	26	102	25	2	CM	CMX
	101022800	28	26	102	25	2	CM	CMX
	101023000	30	26	102	25	2	CM	CMX
	101023200	32	32	112	32	2	CM	CMX
	101023400	34	32	112	32	2	CM	CMX
	101023500	35	32	112	32	2	CM	CMX
	101023600	36	32	112	32	2	CM	CMX
*	**101023800**	38	38	118	32	2	CM	CMX
*	**101024000**	40	38	118	32	2	CM	CMX
*	**101024500**	45	38	118	32	2	CM	CMX
*	**101025000**	50	45	125	32	2	CM	CMX

SKIN UOP COATING

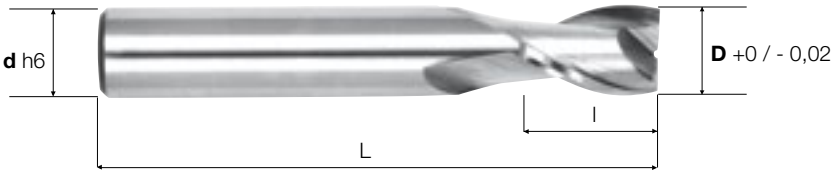
λ°s		
32	N	UNI 8254 DIN 327B ISO 1641/I
	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 353

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
10102	◪	◪	○	◪	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY



	cod.	D +0 - 0,02	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	101050200	2	5	36	4	2	CM	CMX
	101050250	2,5	5	36	4	2	CM	CMX
	101050300	3	8	40	4	2	CM	CMX
	101050350	3,5	8	40	4	2	CM	CMX
	101050400	4	8	40	4	2	CM	CMX
	101050450	4,5	10	45	6	2	CM	CMX
	101050500	5	10	45	6	2	CM	CMX
	101050600	6	10	45	6	2	CM	CMX
	101050700	7	12	50	8	2	CM	CMX
	101050800	8	12	50	8	2	CM	CMX
	101050900	9	12	50	8	2	CM	CMX
	101051000	10	16	56	10	2	CM	CMX
	101051100	11	16	56	10	2	CM	CMX
	101051200	12	20	65	12	2	CM	CMX
	101051300	13	20	65	12	2	CM	CMX
	101051400	14	20	65	12	2	CM	CMX
	101051500	15	20	65	12	2	CM	CMX
	101051600	16	25	78	16	2	CM	CMX
	101051700	17	25	78	16	2	CM	CMX
	101051800	18	25	78	16	2	CM	CMX
	101051900	19	28	86	20	2	CM	CMX
	101052000	20	28	86	20	2	CM	CMX
*	**101052100**	21	28	86	20	2	CM	CMX
	101052200	22	32	90	20	2	CM	CMX
*	**101052300**	23	32	90	20	2	CM	CMX
	101052400	24	36	100	25	2	CM	CMX
	101052500	25	36	100	25	2	CM	CMX
	101052600	26	36	100	25	2	CM	CMX
	101052800	28	36	100	25	2	CM	CMX
	101053000	30	40	110	25	2	CM	CMX
	101053200	32	40	110	25	2	CM	CMX

Z2

10105

Frese a due taglienti standard UOP
Two flute slot drills UOP standard
Langlochfräser Zweischneider UOP standard
Fraises á rainurer deux dents standard UOP
Fresa de dos labios para ranurar standard UOP

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

Standard UOP	N	λ°s 32
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 353

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
10105	◕	◕	◕	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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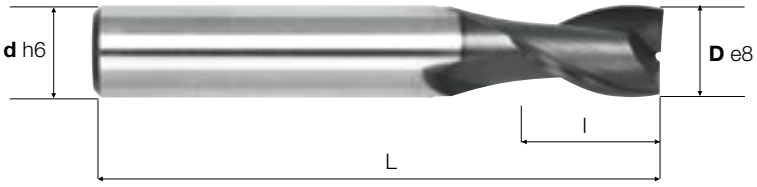
MADE IN ITALY

example code:

series	ø	X-105 COATED
10110	0600	EMX



ALTE PRESTAZIONI
HIGH PERFORMANCE

10110

Z2

Frese a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresa de dos labios

cod.	De8	l	L	dh6	Z	X-105 (PM Co 10,5%) SKIN UOP COATING
101100600	6	8	52	6	2	EMX
101100800	8	11	61	10	2	EMX
101101000	10	13	63	10	2	EMX
101101200	12	16	73	12	2	EMX
101101400	14	16	73	12	2	EMX
101101600	16	19	79	16	2	EMX
101101800	18	19	79	16	2	EMX
101102001	20	22	88	20	2	EMX
101102200	22	22	88	20	2	EMX
101102500	25	26	102	25	2	EMX
101102800	28	26	102	25	2	EMX
101103000	30	26	102	25	2	EMX
101103200	32	32	112	32	2	EMX

SKIN
UOP COATING

λ°s		
32	N	UNI 8254 DIN 327B ISO 1641/I
	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 360

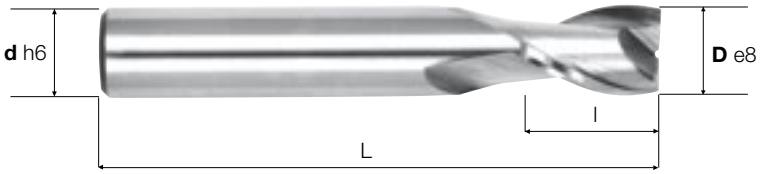
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
10110	●	●	●	●	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
10110	0100	AM	CM	CMX



cod.	De8	l	L	dh6	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
101100100	1	3	47	6	2	–	CM	CMX
101100150	1,5	3	47	6	2	–	CM	CMX
101100200	2	4	48	6	2	–	CM	CMX
101100250	2,5	5	49	6	2	–	CM	CMX
101100300	3	5	49	6	2	–	CM	CMX
101100350	3,5	6	50	6	2	–	CM	CMX
101100400	4	7	51	6	2	–	CM	CMX
101100450	4,5	7	51	6	2	–	CM	CMX
101100500	5	8	52	6	2	–	CM	CMX
101100550	5,5	8	52	6	2	–	CM	CMX
101100600	6	8	52	6	2	AM	CM	CMX
101100650	6,5	10	60	10	2	AM	CM	CMX
101100700	7	10	60	10	2	AM	CM	CMX
101100750	7,5	10	60	10	2	AM	CM	CMX
101100800	8	11	61	10	2	AM	CM	CMX
101100850	8,5	11	61	10	2	AM	CM	CMX
101100900	9	11	61	10	2	AM	CM	CMX
101100950	9,5	13	63	10	2	AM	CM	CMX
101101000	10	13	63	10	2	AM	CM	CMX
101101050	10,5	13	70	12	2	AM	CM	CMX
101101100	11	13	70	12	2	AM	CM	CMX
101101200	12	16	73	12	2	AM	CM	CMX
101101300	13	16	73	12	2	AM	CM	CMX
101101400	14	16	73	12	2	AM	CM	CMX
101101500	15	19	79	16	2	AM	CM	CMX
101101600	16	19	79	16	2	AM	CM	CMX
101101700	17	19	79	16	2	AM	CM	CMX
101101800	18	19	79	16	2	AM	CM	CMX
101101801	18	19	85	20	2	AM	CM	CMX
101101900	19	22	82	16	2	AM	CM	CMX
101101901	19	22	88	20	2	AM	CM	CMX
101102000	20	22	82	16	2	AM	CM	CMX
101102001	20	22	88	20	2	AM	CM	CMX
101102100	21	22	88	20	2	AM	CM	CMX
101102200	22	22	88	20	2	AM	CM	CMX
101102201	22	22	98	25	2	AM	CM	CMX
101102300	23	22	88	20	2	AM	CM	CMX
101102400	24	26	102	25	2	AM	CM	CMX
101102500	25	26	102	25	2	AM	CM	CMX
101102600	26	26	102	25	2	AM	CM	CMX
101102800	28	26	102	25	2	AM	CM	CMX
101103000	30	26	102	25	2	AM	CM	CMX
101103200	32	32	112	32	2	AM	CM	CMX
101103400	34	32	112	32	2	AM	CM	CMX
101103500	35	32	112	32	2	AM	CM	CMX
101103600	36	32	112	32	2	AM	CM	CMX
101103800	38	38	118	32	2	AM	CM	CMX
101104000	40	38	118	32	2	AM	CM	CMX
101104500	45	38	118	32	2	AM	CM	CMX
101105000	50	45	125	32	2	AM	CM	CMX

Z2

10110

Frese a due taglienti in tolleranza e8
Two flute slot drills in tolerance e8
Langlochfräser Zweischneider in Toleranz e8
Fraises á rainurer deux dents en tolérance e8
Fresa de dos labios para ranurar en tolerancia e8

SKIN
UOP COATING

UNI 8254 DIN 327B ISO 1641/I	N	λ°s 32
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 353

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
10110	◪	◪	○	◪	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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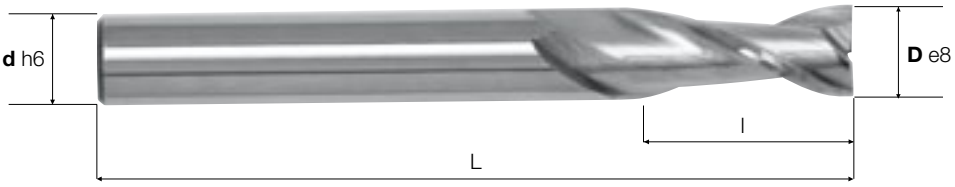
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
10125	0300	AM	CM	CMX



10125

Z2

Frese a due taglienti in tolleranza e8

Two flute slot drills in tolerance e8

Langlochfräser Zweischneider in Toleranz e8

Fraises á rainurer deux dents en tolérance e8

Fresa de dos labios para ranurar en tolerancia e8

cod.	De8	l	L	dh6	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
101250300	3	9	60	6	2	–	CM	CMX
101250350	3,5	13	67	6	2	–	CM	CMX
101250400	4	13	67	6	2	–	CM	CMX
101250450	4,5	13	70	6	2	–	CM	CMX
101250500	5	16	70	6	2	–	CM	CMX
101250550	5,5	16	76	6	2	–	CM	CMX
101250600	6	16	76	6	2	AM	CM	CMX
101250650	6,5	16	76	10	2	AM	CM	CMX
101250700	7	19	79	10	2	AM	CM	CMX
101250750	7,5	19	79	10	2	AM	CM	CMX
101250800	8	19	79	10	2	AM	CM	CMX
101250850	8,5	22	83	10	2	AM	CM	CMX
101250900	9	22	83	10	2	AM	CM	CMX
101250950	9,5	22	83	10	2	AM	CM	CMX
101251000	10	22	83	10	2	AM	CM	CMX
101251050	10,5	25	95	12	2	AM	CM	CMX
101251100	11	25	95	12	2	AM	CM	CMX
101251200	12	28	98	12	2	AM	CM	CMX
101251300	13	28	98	12	2	AM	CM	CMX
101251400	14	32	102	12	2	AM	CM	CMX
101251500	15	32	108	16	2	AM	CM	CMX
101251600	16	32	108	16	2	AM	CM	CMX
101251700	17	35	114	16	2	AM	CM	CMX
101251800	18	35	114	16	2	AM	CM	CMX
101251900	19	38	117	16	2	AM	CM	CMX
101252000	20	38	117	16	2	AM	CM	CMX
101252100	21	38	132	20	2	–	CM	CMX
101252200	22	41	135	20	2	AM	CM	CMX
101252300	23	41	135	20	2	–	CM	CMX
101252400	24	41	152	25	2	AM	CM	CMX
101252500	25	44	159	25	2	AM	CM	CMX
101252600	26	44	159	25	2	AM	CM	CMX
101252800	28	44	159	25	2	AM	CM	CMX
101253000	30	50	159	25	2	AM	CM	CMX
101253200	32	52	165	32	2	AM	CM	CMX
101253400	34	54	167	32	2	AM	CM	CMX
101253500	35	54	167	32	2	AM	CM	CMX
101253600	36	54	167	32	2	AM	CM	CMX
101253800	38	56	169	32	2	AM	CM	CMX
101254000	40	56	174	32	2	AM	CM	CMX
101254500	45	60	180	32	2	AM	CM	CMX
101255000	50	65	185	32	2	AM	CM	CMX

SKIN
UOP COATING

λ°s		
32	N	Standard UOP
	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 353

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
10125	◕	◕	○	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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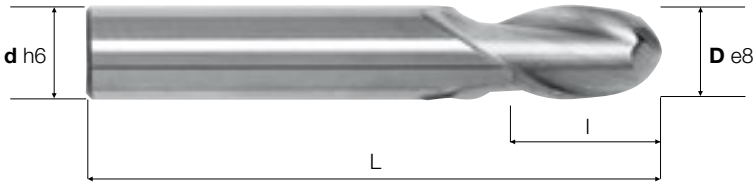
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
10140	0100	CM	CMX



cod.	De8	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
101400100	1	3	47	6	2	CM	CMX
101400150	1,5	3	47	6	2	CM	CMX
101400200	2	4	48	6	2	CM	CMX
101400300	3	5	49	6	2	CM	CMX
101400400	4	7	51	6	2	CM	CMX
101400500	5	8	52	6	2	CM	CMX
101400600	6	8	52	6	2	CM	CMX
101400700	7	10	60	10	2	CM	CMX
101400800	8	11	61	10	2	CM	CMX
101400900	9	11	61	10	2	CM	CMX
101401000	10	13	63	10	2	CM	CMX
101401100	11	13	70	12	2	CM	CMX
101401200	12	16	73	12	2	CM	CMX
101401300	13	16	73	12	2	CM	CMX
101401400	14	16	73	12	2	CM	CMX
101401500	15	19	79	16	2	CM	CMX
101401600	16	19	79	16	2	CM	CMX
101401700	17	19	79	16	2	CM	CMX
101401800	18	19	79	16	2	CM	CMX
101401900	19	22	88	20	2	CM	CMX
101402000	20	22	88	20	2	CM	CMX
101402200	22	22	88	20	2	CM	CMX
101402500	25	26	102	25	2	CM	CMX
101402800	28	26	102	25	2	CM	CMX
101403000	30	26	102	25	2	CM	CMX
101403200	32	32	112	32	2	CM	CMX

Z 2

10140

Frese a due taglienti a testa semisferica
Ball nosed two flute slot drills
Halbrundkopffräser Zweischneider
Fraises à bout hémisphérique deux dents
Fresa hemisférica de dos labios

SKIN
UOP COATING

UNI DIN ISO 1641/I	N	λ°s 32
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 353

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
10140	◪	◪	○	◪	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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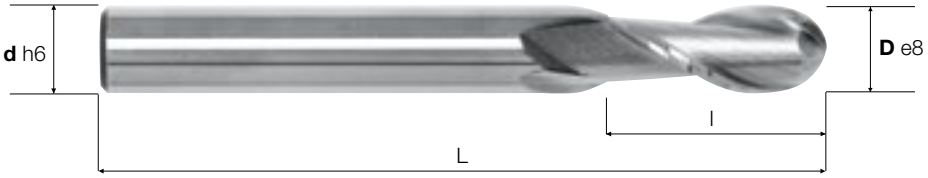
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
10155	0300	CM	CMX



10155

Z 2

Frese a due taglienti a testa semisferica

Ball nosed two flute slot drills

Halbrundkopffräser Zweischneider

Fraises à bout hémisphérique deux dents

Fresa hemisférica de dos labios

cod.	De8	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
101550300	3	9	60	6	2	CM	CMX
101550400	4	13	67	6	2	CM	CMX
101550500	5	16	70	6	2	CM	CMX
101550600	6	16	76	6	2	CM	CMX
101550700	7	19	79	10	2	CM	CMX
101550800	8	19	79	10	2	CM	CMX
101550900	9	22	83	10	2	CM	CMX
101551000	10	22	83	10	2	CM	CMX
101551100	11	25	95	12	2	CM	CMX
101551200	12	28	98	12	2	CM	CMX
101551300	13	28	98	12	2	CM	CMX
101551400	14	32	102	12	2	CM	CMX
101551500	15	32	108	16	2	CM	CMX
101551600	16	32	108	16	2	CM	CMX
101551700	17	35	114	16	2	CM	CMX
101551800	18	35	114	16	2	CM	CMX
101551900	19	38	132	20	2	CM	CMX
101552000	20	38	132	20	2	CM	CMX
101552200	22	41	135	20	2	CM	CMX
101552500	25	44	159	25	2	CM	CMX
101552800	28	44	159	25	2	CM	CMX
101553000	30	50	159	25	2	CM	CMX
101553200	32	52	165	32	2	CM	CMX

SKIN
UOP COATING

λ°s		
32	N	Standard UOP
W a richiesta ON REQUEST		F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 353

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
10155	◪	◪	○	◪	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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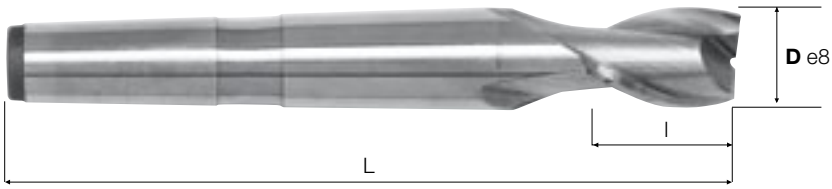
MADE IN ITALY



	cod.	De8	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	101700600	6	8	80	1	2	CM	CMX
*	101700700	7	10	83	1	2	CM	CMX
*	101700800	8	11	83	1	2	CM	CMX
*	101700900	9	11	83	1	2	CM	CMX
	101701000	10	13	83	1	2	CM	CMX
*	101701100	11	13	83	1	2	CM	CMX
	101701200	12	16	86	1	2	CM	CMX
*	101701300	13	16	86	1	2	CM	CMX
	101701400	14	16	101	2	2	CM	CMX
*	101701500	15	19	104	2	2	CM	CMX
	101701600	16	19	104	2	2	CM	CMX
*	101701700	17	19	104	2	2	CM	CMX
	101701800	18	19	104	2	2	CM	CMX
*	101701900	19	22	107	2	2	CM	CMX
	101702000	20	22	124	3	2	CM	CMX
*	101702100	21	22	124	3	2	CM	CMX
	101702200	22	22	124	3	2	CM	CMX
*	101702300	23	22	124	3	2	CM	CMX
	101702400	24	26	128	3	2	CM	CMX
	101702500	25	26	128	3	2	CM	CMX
	101702600	26	26	128	3	2	CM	CMX
*	101702700	27	26	128	3	2	CM	CMX
	101702800	28	26	128	3	2	CM	CMX
*	101702900	29	26	128	3	2	CM	CMX
	101703000	30	32	134	3	2	CM	CMX
	101703200	32	32	157	4	2	CM	CMX
	101703400	34	32	157	4	2	CM	CMX
	101703500	35	32	157	4	2	CM	CMX
	101703600	36	32	157	4	2	CM	CMX
	101703800	38	38	163	4	2	CM	CMX
	101704000	40	38	163	4	2	CM	CMX
	101704500	45	38	163	4	2	CM	CMX
	101705000	50	45	170	4	2	CM	CMX

Z2

10170

Frese a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresa de dos labios

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8260A
DIN 326D
ISO 1641/I

N

λ°s
32

CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
10170	◕	◕	○	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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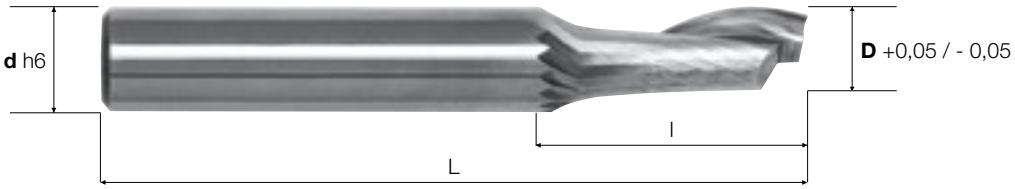
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
11405	0317	CM	CMX
11705	0600	CM	CMX



11405

Z 1

Frese a un tagliente elicoidale
Single flute end mills
Einzahnfräser
Fraises une dent
Fresa helicoidal de un labio

SKIN Alu UOP COATING

W	F	λ°s		
a richiesta ON REQUEST	a richiesta ON REQUEST	32	W	Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 354

cod.	D +0,05 - 0,05	D"	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
114050317	3,17	1/8	11	55	6,35	1	CM	CMX
114050400	4		11	55	6	1	CM	CMX
114050476	4,76	3/16	13	60	6,35	1	CM	CMX
114050500	5		13	60	6	1	CM	CMX
114050555	5,55	7/32	13	60	6,35	1	CM	CMX
114050600	6		13	60	6	1	CM	CMX
114050635	6,35	1/4	13	60	6,35	1	CM	CMX
114050700	7		16	65	10	1	CM	CMX
114050754	7,54	19/64	16	65	9,52	1	CM	CMX
114050800	8		19	70	10	1	CM	CMX
114050873	8,73	11/32	22	75	9,52	1	CM	CMX
114050952	9,52	3/8	22	75	9,52	1	CM	CMX
114051000	10		22	75	10	1	CM	CMX
114051111	11,11	7/16	25	80	12,7	1	CM	CMX
114051200	12		25	80	12	1	CM	CMX
114051270	12,7	1/2	25	80	12,7	1	CM	CMX

11705

Z2

Frese a due taglienti diritti
Two flute end mills straight teeth
Langlochfräser Geradegenutet
Fraises deux dents droites
Fresa de dos labios rectos

SKIN Alu UOP COATING

W	F	λ°s		
a richiesta ON REQUEST	a richiesta ON REQUEST	32	W	Standard UOP

	cod.	De8	D"	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
*	**117050600**	6		13	65	6	2	CM	CMX
*	**117050630**	6,35	1/4	13	60	6,35	2	CM	CMX
*	**117050631**	6,35	1/4	13	71	6,35	2	CM	CMX
*	**117050632**	6,35	1/4	16	80	6,35	2	CM	CMX
*	**117050633**	6,35	1/4	16	80	9,52	2	CM	CMX
*	**117050790**	7,94	5/16	16	80	9,52	2	CM	CMX
*	**117050791**	7,94	5/16	20	71	9,52	2	CM	CMX
*	**117050950**	9,52	3/8	13	67	9,52	2	CM	CMX
*	**117050951**	9,52	3/8	16	67	12,7	2	CM	CMX
*	**117051270**	12,7	1/2	13	67	9,52	2	CM	CMX
*	**117051271**	12,7	1/2	16	67	12,7	2	CM	CMX
*	**117051580**	15,87	5/8	15	80	12,7	2	CM	CMX
*	**117051581**	15,87	5/8	20	80	12,7	2	CM	CMX
*	**117051900**	19,05	3/4	20	105	15,87	2	CM	CMX

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

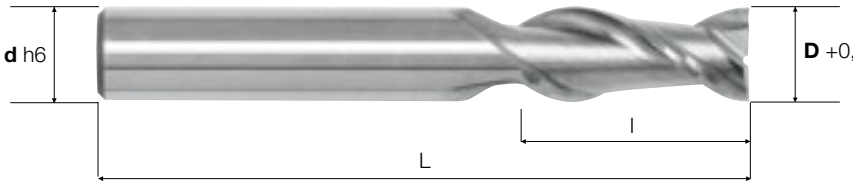
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
11405	○	○	○	◪	●	○	○
11705	○	○	○	○	●	○	○

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
12105	0200	CM	CMX
12120	0300	CM	CMX



cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
121050200	2	7	51	6	2	CM	CMX
121050300	3	8	52	6	2	CM	CMX
121050400	4	11	55	6	2	CM	CMX
121050500	5	13	57	6	2	CM	CMX
121050600	6	13	57	6	2	CM	CMX
121050700	7	16	66	10	2	CM	CMX
121050800	8	19	69	10	2	CM	CMX
121050900	9	19	69	10	2	CM	CMX
121051000	10	22	72	10	2	CM	CMX
121051100	11	22	79	12	2	CM	CMX
121051200	12	26	83	12	2	CM	CMX
121051300	13	26	83	12	2	CM	CMX
121051400	14	26	83	12	2	CM	CMX
121051500	15	32	92	16	2	CM	CMX
121051600	16	32	92	16	2	CM	CMX
121051800	18	32	92	16	2	CM	CMX
121052000	20	38	104	20	2	CM	CMX
121052200	22	38	104	20	2	CM	CMX
121052500	25	45	121	25	2	CM	CMX
121052800	28	45	121	25	2	CM	CMX
121053000	30	45	121	25	2	CM	CMX
121053200	32	53	133	32	2	CM	CMX

Z2

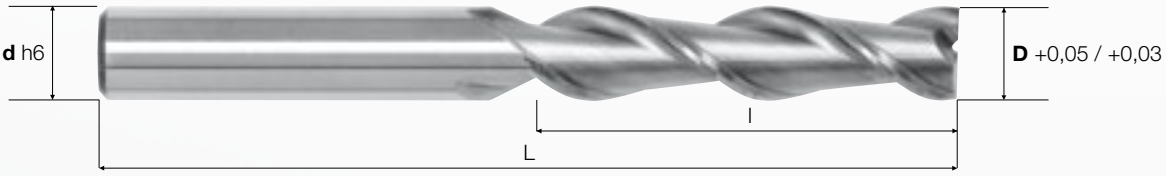
12105

Frese a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresa de dos labios

SKIN Alu UOP COATING

UNI 8244 DIN 844A ISO 1641/I	W	λ°s 40	W	F
			a richiesta ON REQUEST	a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 354



cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
121200300	3	12	56	6	2	CM	CMX
121200400	4	19	63	6	2	CM	CMX
121200500	5	24	68	6	2	CM	CMX
121200600	6	24	68	6	2	CM	CMX
121200700	7	30	80	10	2	CM	CMX
121200800	8	38	88	10	2	CM	CMX
121200900	9	38	88	10	2	CM	CMX
121201000	10	45	95	10	2	CM	CMX
121201100	11	45	102	12	2	CM	CMX
121201200	12	53	110	12	2	CM	CMX
121201300	13	53	110	12	2	CM	CMX
121201400	14	53	110	12	2	CM	CMX
121201500	15	63	123	16	2	CM	CMX
121201600	16	63	123	16	2	CM	CMX
121201800	18	63	123	16	2	CM	CMX
121202000	20	75	141	20	2	CM	CMX
121202200	22	75	141	20	2	CM	CMX
121202500	25	90	166	25	2	CM	CMX
121202800	28	90	166	25	2	CM	CMX
121203000	30	90	166	25	2	CM	CMX
121203200	32	106	186	32	2	CM	CMX

Z2

12120

Frese a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresa de dos labios

SKIN Alu UOP COATING

UNI 8244 DIN 844A ISO 1641/I	W	λ°s 40	W	F
			a richiesta ON REQUEST	a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 354

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
12105	○	○	◪	●	●	○	○
12120	○	○	◪	●	●	○	○

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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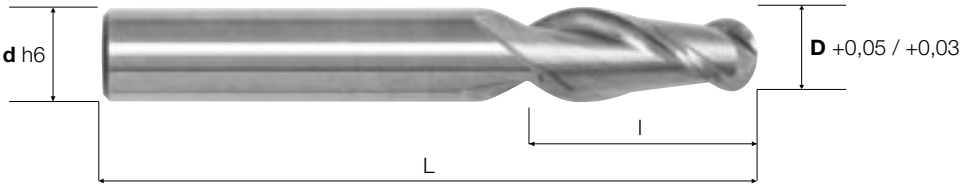
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
12505	0200	CM	CMX



12505

Z 2

Frese a due taglienti a testa semisferica

Ball nosed two flute slot drills

Halbrundkopffräser Zweischneider

Fraises à bout hémisphérique deux dents

Fresa hemisférica de dos labios

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

	cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
	125050200	2	7	51	6	2	CM	CMX
	125050300	3	8	52	6	2	CM	CMX
	125050400	4	11	55	6	2	CM	CMX
	125050500	5	13	57	6	2	CM	CMX
	125050600	6	13	57	6	2	CM	CMX
*	**125050700**	7	16	66	10	2	CM	CMX
	125050800	8	19	69	10	2	CM	CMX
*	**125050900**	9	19	69	10	2	CM	CMX
	125051000	10	22	72	10	2	CM	CMX
*	**125051100**	11	22	79	12	2	CM	CMX
	125051200	12	26	83	12	2	CM	CMX
*	**125051300**	13	26	83	12	2	CM	CMX
	125051400	14	26	83	12	2	CM	CMX
	125051500	15	32	92	16	2	CM	CMX
	125051600	16	32	92	16	2	CM	CMX
	125051800	18	32	92	16	2	CM	CMX
	125052000	20	38	104	20	2	CM	CMX
	125052200	22	38	104	20	2	CM	CMX
	125052500	25	45	121	25	2	CM	CMX
	125052800	28	45	121	25	2	CM	CMX
	125053000	30	45	121	25	2	CM	CMX
	125053200	32	53	133	32	2	CM	CMX

SKIN Alu UOP COATING

W a richiesta ON REQUEST	F a richiesta ON REQUEST	λ°s 40	W	UNI DIN ISO 1641/I

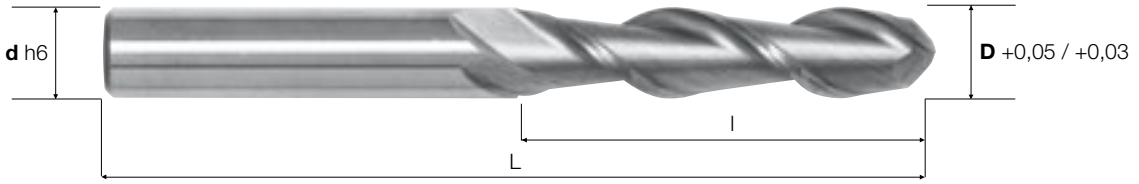
parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 353

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
12505	○	○	◕	●	●	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	X-85 UNCOATED	X-85 COATED	X-105 COATED
12520	0300	CM	CMX	–
14105	0600	–	–	EMX



	cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
	125200300	3	12	56	6	2	CM	CMX
	125200400	4	19	63	6	2	CM	CMX
	125200500	5	24	68	6	2	CM	CMX
	125200600	6	24	68	6	2	CM	CMX
*	125200700	7	30	80	10	2	CM	CMX
	125200800	8	38	88	10	2	CM	CMX
*	125200900	9	38	88	10	2	CM	CMX
	125201000	10	45	95	10	2	CM	CMX
*	125201100	11	45	102	12	2	CM	CMX
	125201200	12	53	110	12	2	CM	CMX
*	125201300	13	53	110	12	2	CM	CMX
	125201400	14	53	110	12	2	CM	CMX
	125201500	15	63	123	16	2	CM	CMX
	125201600	16	63	123	16	2	CM	CMX
	125201800	18	63	123	16	2	CM	CMX
	125202000	20	75	141	20	2	CM	CMX
	125202200	22	75	141	20	2	CM	CMX
	125202500	25	90	166	25	2	CM	CMX
	125202800	28	90	166	25	2	CM	CMX
	125203000	30	90	166	25	2	CM	CMX
	125203200	32	106	186	32	2	CM	CMX

Z 2

12520

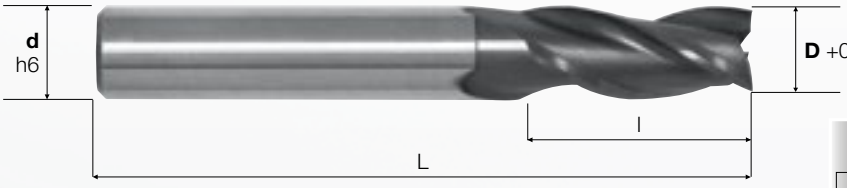
Frese a due taglienti a testa semisferica
Ball nosed two flute slot drills
Halbrundkopffräser Zweischneider
Fraises à bout hémisphérique deux dents
Fresa hemisférica de dos labios

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN Alu UOP COATING

UNI DIN ISO 1641/I	W	λ°s 40	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 353



ALTE PRESTAZIONI
HIGH PERFORMANCE

	cod.	D +0 - 0,03	l	L	dh6	Z	X-105 (PM Co 10,5%)	SKIN UOP COATING
	141050600	6	13	57	6	3	EMX	
	141050800	8	19	69	10	3	EMX	
	141051000	10	22	72	10	3	EMX	
	141051200	12	26	83	12	3	EMX	
	141051400	14	26	83	12	3	EMX	
	141051600	16	32	92	16	3	EMX	
	141051800	18	32	92	16	3	EMX	
	141052001	20	38	104	20	3	EMX	
*	141052200	22	38	104	20	3	EMX	
*	141052500	25	45	121	25	3	EMX	
*	141052800	28	45	121	25	3	EMX	
*	141053000	30	45	121	25	3	EMX	
*	141053200	32	53	133	32	3	EMX	

Z 3

14105

Frese a tre taglienti ad alte prestazioni
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN UOP COATING

UNI 8244 DIN 844A ISO 1641/I	N	λ°s 32	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 360

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
12520	○	○	◪	●	●	○	○
14105	●	●	●	●	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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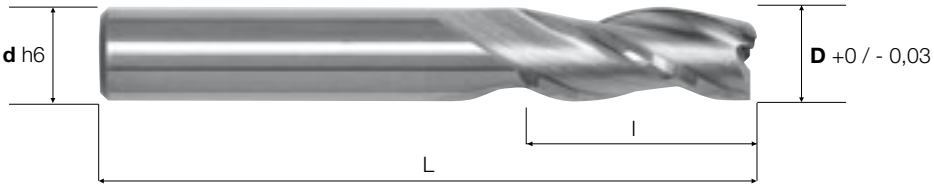
example code:

series	ø	X-85 UNCOATED	X-85 COATED
14105	0200	CM	CMX



14105

Z 3

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0 - 0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	141050200	2	7	51	6	3	CM	CMX
	141050250	2,5	8	52	6	3	CM	CMX
	141050300	3	8	52	6	3	CM	CMX
	141050350	3,5	10	54	6	3	CM	CMX
	141050400	4	11	55	6	3	CM	CMX
	141050450	4,5	11	55	6	3	CM	CMX
	141050500	5	13	57	6	3	CM	CMX
	141050550	5,5	13	57	6	3	CM	CMX
	141050600	6	13	57	6	3	CM	CMX
	141050650	6,5	16	66	10	3	CM	CMX
	141050700	7	16	66	10	3	CM	CMX
	141050800	8	19	69	10	3	CM	CMX
	141050900	9	19	69	10	3	CM	CMX
	141051000	10	22	72	10	3	CM	CMX
	141051100	11	22	79	12	3	CM	CMX
	141051200	12	26	83	12	3	CM	CMX
	141051300	13	26	83	12	3	CM	CMX
	141051400	14	26	83	12	3	CM	CMX
	141051500	15	32	92	16	3	CM	CMX
	141051600	16	32	92	16	3	CM	CMX
	141051700	17	32	92	16	3	CM	CMX
	141051800	18	32	92	16	3	CM	CMX
*	**141051801**	18	32	98	20	3	CM	CMX
	141051900	19	38	98	16	3	CM	CMX
*	**141051901**	19	38	104	20	3	CM	CMX
	141052000	20	38	98	16	3	CM	CMX
*	**141052001**	20	38	104	20	3	CM	CMX
	141052200	22	38	104	20	3	CM	CMX
*	**141052201**	22	38	114	25	3	CM	CMX
	141052400	24	45	121	25	3	CM	CMX
	141052500	25	45	121	25	3	CM	CMX
	141052600	26	45	121	25	3	CM	CMX
	141052800	28	45	121	25	3	CM	CMX
	141053000	30	45	121	25	3	CM	CMX
	141053200	32	53	133	32	3	CM	CMX
	141053400	34	53	133	32	3	CM	CMX
	141053500	35	53	133	32	3	CM	CMX
	141053600	36	53	133	32	3	CM	CMX
	141053800	38	63	143	32	3	CM	CMX
	141054000	40	63	143	32	3	CM	CMX
	141054500	45	63	143	32	3	CM	CMX
	141054800	48	75	155	32	3	CM	CMX
	141055000	50	75	155	32	3	CM	CMX

SKIN
UOP COATING

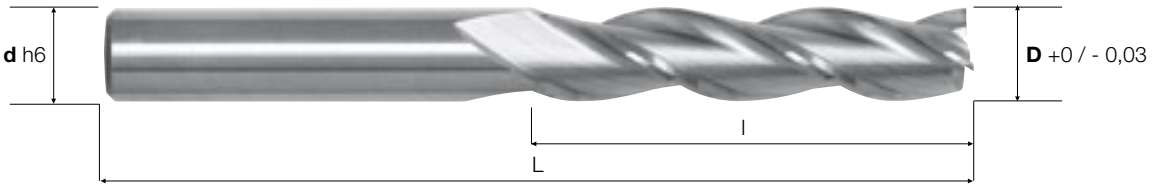
W a richiesta ON REQUEST	F a richiesta ON REQUEST	λ°s 32	N	UNI 8244 DIN 844A ISO 1641/I

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 355

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14105	◕	◕	◕	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY



	cod.	D +0 - 0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	141200200	2	10	54	6	3	CM	CMX
	141200300	3	12	56	6	3	CM	CMX
	141200400	4	19	63	6	3	CM	CMX
	141200500	5	24	68	6	3	CM	CMX
	141200600	6	24	68	6	3	CM	CMX
	141200700	7	30	80	10	3	CM	CMX
	141200800	8	38	88	10	3	CM	CMX
	141200900	9	38	88	10	3	CM	CMX
	141201000	10	45	95	10	3	CM	CMX
	141201100	11	45	102	12	3	CM	CMX
	141201200	12	53	110	12	3	CM	CMX
	141201300	13	53	110	12	3	CM	CMX
	141201400	14	53	110	12	3	CM	CMX
	141201500	15	63	123	16	3	CM	CMX
	141201600	16	63	123	16	3	CM	CMX
	141201700	17	63	123	16	3	CM	CMX
	141201800	18	63	123	16	3	CM	CMX
*	**141201801**	18	63	129	20	3	CM	CMX
	141201900	19	75	135	16	3	CM	CMX
*	**141201901**	19	75	141	20	3	CM	CMX
	141202000	20	75	135	16	3	CM	CMX
*	**141202001**	20	75	141	20	3	CM	CMX
	141202200	22	75	141	20	3	CM	CMX
*	**141202201**	22	75	151	25	3	CM	CMX
	141202400	24	90	166	25	3	CM	CMX
	141202500	25	90	166	25	3	CM	CMX
	141202600	26	90	166	25	3	CM	CMX
	141202800	28	90	166	25	3	CM	CMX
	141203000	30	90	166	25	3	CM	CMX
	141203200	32	106	186	32	3	CM	CMX
	141203400	34	106	186	32	3	CM	CMX
	141203500	35	106	186	32	3	CM	CMX
	141203600	36	106	186	32	3	CM	CMX
	141203800	38	125	205	32	3	CM	CMX
	141204000	40	125	205	32	3	CM	CMX

Z 3

14120

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8244 DIN 844A ISO 1641/I	N	λ°s 32	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 355

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14120	◪	◪	◪	◪	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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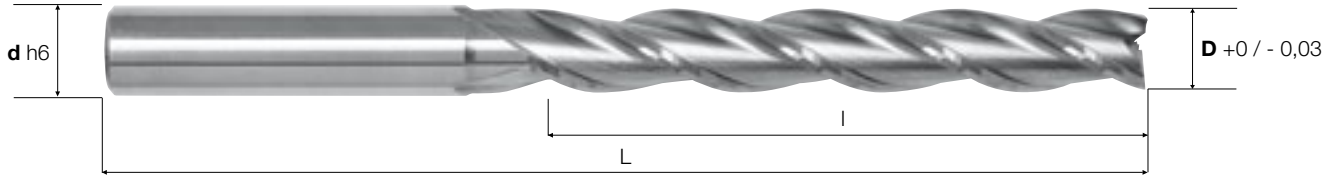
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
14135	0600	CM	CMX



14135

Z 3

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

cod.	D +0 - 0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
141350600	6	56	106	10	3	CM	CMX
141350700	7	63	113	10	3	CM	CMX
141350800	8	63	113	10	3	CM	CMX
141350900	9	70	120	10	3	CM	CMX
141351000	10	70	120	10	3	CM	CMX
141351100	11	80	137	12	3	CM	CMX
141351200	12	80	137	12	3	CM	CMX
141351300	13	80	137	12	3	CM	CMX
141351400	14	80	137	12	3	CM	CMX
141351500	15	90	150	16	3	CM	CMX
141351600	16	90	150	16	3	CM	CMX
141351700	17	90	150	16	3	CM	CMX
141351800	18	100	166	20	3	CM	CMX
141351900	19	110	176	20	3	CM	CMX
141352000	20	110	176	20	3	CM	CMX
141352200	22	110	176	20	3	CM	CMX
141352500	25	125	201	25	3	CM	CMX
141352800	28	135	211	25	3	CM	CMX
141353000	30	140	216	25	3	CM	CMX
141353200	32	150	230	32	3	CM	CMX

SKIN
UOP COATING

W	F	λ°s	N	Standard
a richiesta ON REQUEST	a richiesta ON REQUEST	32		UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 355

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14135	◕	◕	◕	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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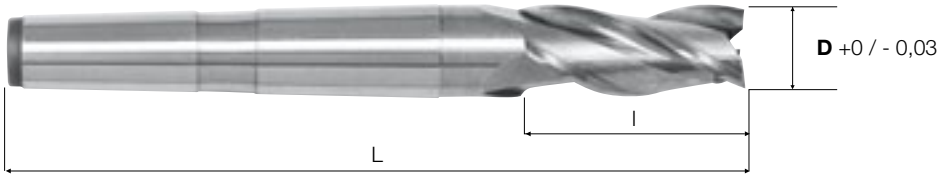

	cod.	D +0 - 0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	141500600	6	13	83	1	3	CM	CMX
*	141500700	7	16	86	1	3	CM	CMX
*	141500800	8	19	89	1	3	CM	CMX
*	141500900	9	19	89	1	3	CM	CMX
	141501000	10	22	92	1	3	CM	CMX
	141501200	12	26	96	1	3	CM	CMX
	141501400	14	26	111	2	3	CM	CMX
	141501500	15	32	117	2	3	CM	CMX
	141501600	16	32	117	2	3	CM	CMX
	141501800	18	32	117	2	3	CM	CMX
	141502000	20	38	140	3	3	CM	CMX
	141502200	22	38	140	3	3	CM	CMX
	141502400	24	45	147	3	3	CM	CMX
	141502500	25	45	147	3	3	CM	CMX
	141502600	26	45	147	3	3	CM	CMX
	141502800	28	45	147	3	3	CM	CMX
	141503000	30	53	155	3	3	CM	CMX
	141503200	32	53	178	4	3	CM	CMX
	141503400	34	53	178	4	3	CM	CMX
	141503500	35	53	178	4	3	CM	CMX
	141503600	36	53	178	4	3	CM	CMX
	141503800	38	63	188	4	3	CM	CMX
	141504000	40	63	188	4	3	CM	CMX
	141504500	45	63	188	4	3	CM	CMX
	141505000	50	75	200	4	3	CM	CMX

Z 3

14150

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8250 DIN 845B ISO 1641/ II	N	λ°s 32	CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14150	◕	◕	◕	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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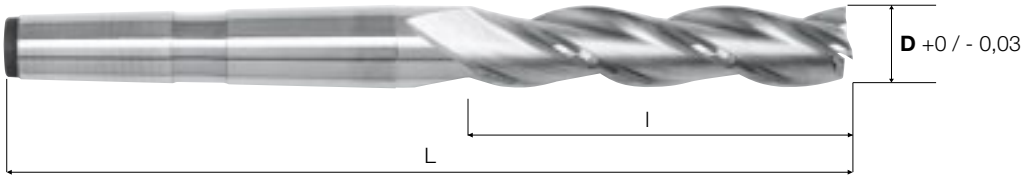
example code:

series	ø	X-85 UNCOATED	X-85 COATED
14155	0600	CM	CMX



14155

Z 3

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0 - 0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	141550600	6	24	94	1	3	CM	CMX
*	141550700	7	30	100	1	3	CM	CMX
*	141550800	8	38	108	1	3	CM	CMX
*	141550900	9	38	108	1	3	CM	CMX
	141551000	10	45	115	1	3	CM	CMX
	141551200	12	53	123	1	3	CM	CMX
	141551400	14	53	138	2	3	CM	CMX
	141551500	15	63	148	2	3	CM	CMX
	141551600	16	63	148	2	3	CM	CMX
	141551800	18	63	148	2	3	CM	CMX
	141552000	20	75	177	3	3	CM	CMX
	141552200	22	75	177	3	3	CM	CMX
	141552400	24	90	192	3	3	CM	CMX
	141552500	25	90	192	3	3	CM	CMX
	141552600	26	90	192	3	3	CM	CMX
	141552800	28	90	192	3	3	CM	CMX
	141553000	30	90	192	3	3	CM	CMX
	141553200	32	106	231	4	3	CM	CMX
	141553400	34	106	231	4	3	CM	CMX
	141553500	35	106	231	4	3	CM	CMX
	141553600	36	106	231	4	3	CM	CMX
	141553800	38	125	250	4	3	CM	CMX
	141554000	40	125	250	4	3	CM	CMX
	141554500	45	125	250	4	3	CM	CMX
	141555000	50	150	275	4	3	CM	CMX

SKIN
UOP COATING

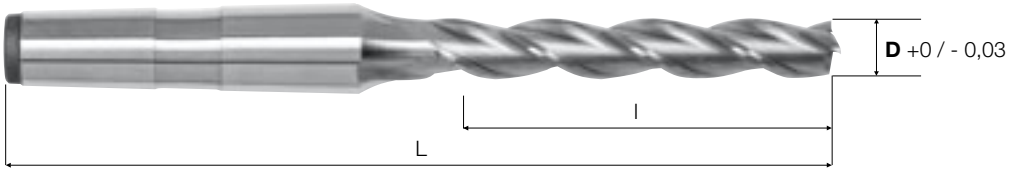
λ°s	N	UNI 8250 DIN 845B ISO 1641/ II
32		CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14155	◪	◪	◪	◪	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	X-85 UNCOATED	X-85 COATED
14160	0800	CM	CMX



	cod.	D +0 - 0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**141600800**	8	63	148	2	3	CM	CMX
*	**141600900**	9	63	148	2	3	CM	CMX
	141601000	10	70	155	2	3	CM	CMX
	141601200	12	80	165	2	3	CM	CMX
	141601400	14	80	165	2	3	CM	CMX
	141601500	15	90	175	2	3	CM	CMX
	141601600	16	90	175	2	3	CM	CMX
	141601800	18	100	202	3	3	CM	CMX
	141602000	20	110	212	3	3	CM	CMX
	141602200	22	110	212	3	3	CM	CMX
	141602400	24	125	227	3	3	CM	CMX
	141602500	25	125	250	4	3	CM	CMX
	141602600	26	125	250	4	3	CM	CMX
	141602800	28	135	260	4	3	CM	CMX
	141603000	30	140	265	4	3	CM	CMX
	141603200	32	150	275	4	3	CM	CMX
	141603400	34	150	275	4	3	CM	CMX
	141603500	35	150	275	4	3	CM	CMX
	141603600	36	150	275	4	3	CM	CMX
	141603800	38	180	305	4	3	CM	CMX
	141604000	40	180	305	4	3	CM	CMX
	141604500	45	190	315	4	3	CM	CMX
	141605000	50	200	325	4	3	CM	CMX

Z 3

14160

Frese a tre taglienti
Three flute end mills
Schaftfräser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

Standard UOP | N | λ°s 32

CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14160	◪	◪	◪	◪	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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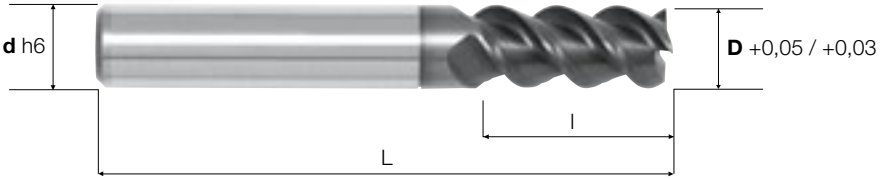
MADE IN ITALY

example code:

series	ø	X-105 UNCOATED	X-85 UNCOATED	X-85 COATED
14505	0600	EMX	–	–
14505	0300	–	CM	CMX

ALTE PRESTAZIONI
HIGH PERFORMANCE



TORNADO

14505

Z 3÷4

Frese "Tornado"
"Tornado" end mills
"Tornado" Schaftfräser
Fraises "Tornado"
Fresa "Tornado"

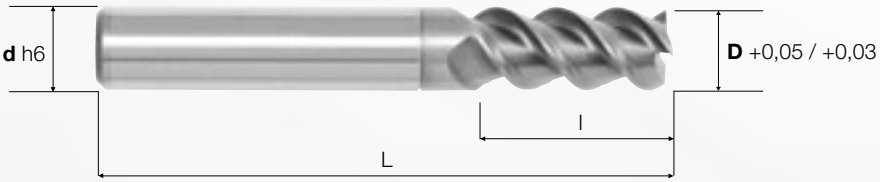
cod.	D +0,05 +0,03	l	L	dh6	Z	X-105 (PM Co 10,5%)
* 145050600	6	13	57	6	3	EMX
* 145050800	8	19	69	10	3	EMX
* 145051000	10	22	72	10	3	EMX
* 145051200	12	26	83	12	3	EMX
* 145051400	14	26	83	12	3	EMX
* 145051600	16	32	92	16	3	EMX
* 145051800	18	32	92	16	3	EMX
* 145052000	20	38	104	20	3	EMX
* 145052200	22	38	104	20	3	EMX
* 145052500	25	45	121	25	4	EMX

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

W	F	λ°s		
a richiesta ON REQUEST	a richiesta ON REQUEST	55	H	UNI 8244 DIN 844A ISO 1641/I

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 360



TORNADO

14505

Z 3÷4

Frese "Tornado"
"Tornado" end mills
"Tornado" Schaftfräser
Fraises "Tornado"
Fresa "Tornado"

cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
145050300	3	8	52	6	3	CM	CMX
145050400	4	11	55	6	3	CM	CMX
145050500	5	13	57	6	3	CM	CMX
145050600	6	13	57	6	3	CM	CMX
145050700	7	16	66	10	3	CM	CMX
145050800	8	19	69	10	3	CM	CMX
145050900	9	19	69	10	3	CM	CMX
145051000	10	22	72	10	3	CM	CMX
* 145051100	11	22	79	12	3	CM	CMX
145051200	12	26	83	12	3	CM	CMX
* 145051300	13	26	83	12	3	CM	CMX
145051400	14	26	83	12	3	CM	CMX
145051500	15	32	92	16	3	CM	CMX
145051600	16	32	92	16	3	CM	CMX
* 145051700	17	32	92	16	3	CM	CMX
145051800	18	32	92	16	3	CM	CMX
* 145051900	19	38	104	20	3	CM	CMX
145052000	20	38	104	20	3	CM	CMX
145052200	22	38	104	20	3	CM	CMX
145052500	25	45	121	25	4	CM	CMX

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

W	F	λ°s		
a richiesta ON REQUEST	a richiesta ON REQUEST	55	H	UNI 8244 DIN 844A ISO 1641/I

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 355

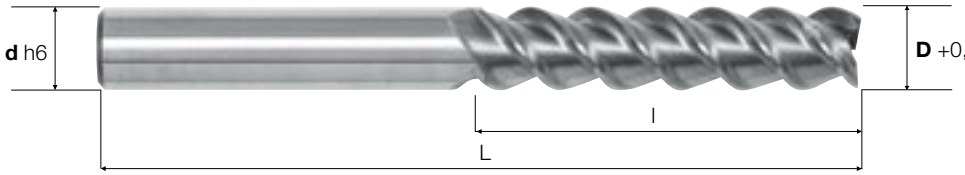
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
TORNADO 14505	●	●	●	●	○	●	●
TORNADO 14505	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
14520	0300	CM	CMX
14550	2000	CM	CMX



TORNADO 14520

Frese "Tornado"
"Tornado" end mills
"Tornado" Schaftfräser
Fraises "Tornado"
Fresa "Tornado"

Z 3÷4

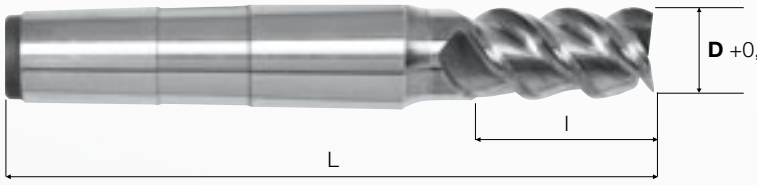
* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN UOP COATING

	cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	145200300	3	12	56	6	3	CM	CMX
	145200400	4	19	63	6	3	CM	CMX
	145200500	5	24	68	6	3	CM	CMX
	145200600	6	24	68	6	3	CM	CMX
	145200700	7	30	80	10	3	CM	CMX
	145200800	8	38	88	10	3	CM	CMX
	145200900	9	38	88	10	3	CM	CMX
	145201000	10	45	95	10	3	CM	CMX
*	145201100	11	45	102	12	3	CM	CMX
	145201200	12	53	110	12	3	CM	CMX
*	145201300	13	53	110	12	3	CM	CMX
	145201400	14	53	110	12	3	CM	CMX
	145201500	15	63	123	16	3	CM	CMX
	145201600	16	63	123	16	3	CM	CMX
*	145201700	17	63	123	16	3	CM	CMX
	145201800	18	63	123	16	3	CM	CMX
*	145201900	19	75	141	20	3	CM	CMX
	145202000	20	75	141	20	3	CM	CMX
	145202200	22	75	141	20	3	CM	CMX
	145202500	25	90	166	25	4	CM	CMX

UNI 8244 DIN 844A ISO 1641/I	H	λ°s 55	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 355



TORNADO 14550

Frese "Tornado"
"Tornado" end mills
"Tornado" Schaftfräser
Fraises "Tornado"
Fresa "Tornado"

Z 3÷4

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN UOP COATING

	cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	145502000	20	38	140	3	3	CM	CMX
*	145502200	22	38	140	3	3	CM	CMX
*	145502500	25	45	147	3	4	CM	CMX
*	145502800	28	45	147	3	4	CM	CMX
*	145503000	30	53	155	3	4	CM	CMX
*	145503200	32	53	178	4	4	CM	CMX
*	145503600	36	63	188	4	4	CM	CMX
*	145504000	40	63	188	4	4	CM	CMX

UNI 8244 DIN 844A ISO 1641/I	H	λ°s 55	CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
TORNADO 14520	◕	◕	◕	○	○	●	●
TORNADO 14550	○	○	◕	◕	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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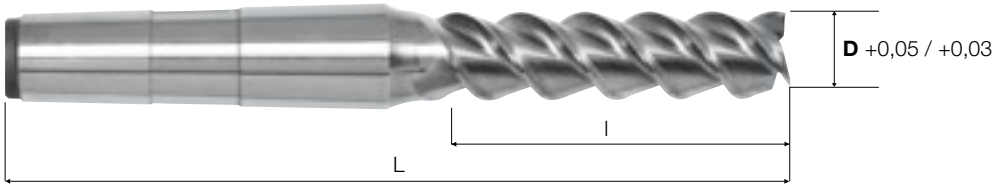
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
14555	2000	CM	CMX



TORNADO

14555

Z 3÷4

Frese "Tornado"
"Tornado" end mills
"Tornado" Schaftfräser
Fraises "Tornado"
Fresa "Tornado"

	cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**145552000**	20	75	177	3	3	CM	CMX
*	**145552200**	22	75	177	3	3	CM	CMX
*	**145552500**	25	90	192	3	4	CM	CMX
*	**145552800**	28	90	192	3	4	CM	CMX
*	**145553000**	30	90	192	3	4	CM	CMX
*	**145553200**	32	106	231	4	4	CM	CMX
*	**145553600**	36	106	231	4	4	CM	CMX
*	**145554000**	40	125	250	4	4	CM	CMX

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

λ°s 55 | N | UNI 8250 DIN 845B ISO 1641/ II

CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
TORNADO 14555	○	○	◪	◪	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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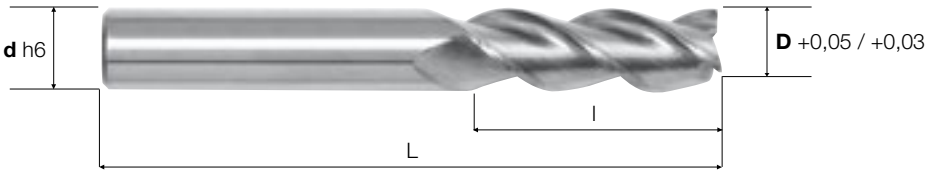
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
14805	0300	CM	CMX



cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
148050300	3	14	58	6	3	CM	CMX
148050400	4	18	62	6	3	CM	CMX
148050500	5	20	64	6	3	CM	CMX
148050600	6	22	66	6	3	CM	CMX
148050700	7	22	72	10	3	CM	CMX
148050800	8	25	75	10	3	CM	CMX
148050900	9	25	75	10	3	CM	CMX
148051000	10	28	78	10	3	CM	CMX
148051200	12	32	89	12	3	CM	CMX
148051400	14	32	89	12	3	CM	CMX
148051600	16	36	96	16	3	CM	CMX
148051800	18	40	100	16	3	CM	CMX
148052000	20	45	110	20	3	CM	CMX
148052200	22	45	110	20	3	CM	CMX
148052500	25	50	125	25	3	CM	CMX
148052800	28	56	132	25	3	CM	CMX
148053000	30	63	140	25	3	CM	CMX
148053200	32	63	143	32	3	CM	CMX
148053600	36	70	150	32	3	CM	CMX
148054000	40	70	150	32	3	CM	CMX

Z 3

14805

Frese a tre taglienti
Three flute end mills
Schafträser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

SKIN Alu
UOP COATING

Standard UOP	W	λ°s 40	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 356

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14805	○	○	○	●	●	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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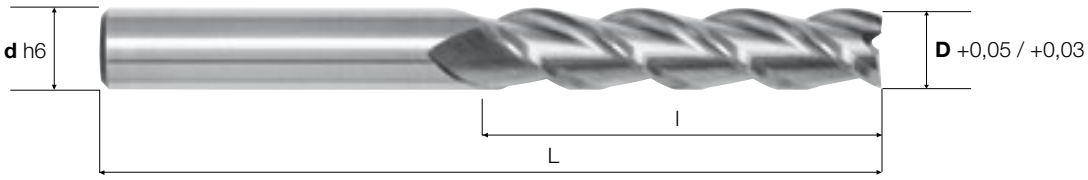
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
14820	0300	CM	CMX



14820

Z 3

Frese a tre taglienti
Three flute end mills
Schafträser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
148200300	3	18	62	6	3	CM	CMX
148200400	4	22	65	6	3	CM	CMX
148200500	5	26	70	6	3	CM	CMX
148200600	6	30	75	6	3	CM	CMX
148200700	7	34	84	10	3	CM	CMX
148200800	8	34	84	10	3	CM	CMX
148200900	9	40	90	10	3	CM	CMX
148201000	10	40	90	10	3	CM	CMX
148201200	12	56	113	12	3	CM	CMX
148201400	14	63	120	12	3	CM	CMX
148201600	16	63	123	16	3	CM	CMX
148201800	18	71	131	16	3	CM	CMX
148202000	20	71	137	20	3	CM	CMX
148202200	22	80	146	20	3	CM	CMX
148202500	25	80	156	25	3	CM	CMX
148202800	28	90	166	25	3	CM	CMX
148203000	30	90	166	25	3	CM	CMX
148203200	32	90	170	32	3	CM	CMX
148203600	36	100	180	32	3	CM	CMX
148204000	40	100	180	32	3	CM	CMX

SKIN Alu
UOP COATING

W	F	λ°s		
a richiesta ON REQUEST	a richiesta ON REQUEST	40	W	Standard UOP

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 356

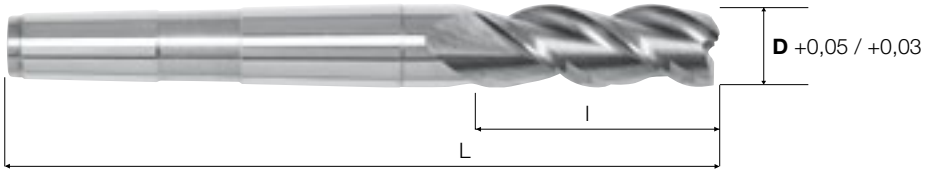
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14820	○	○	○	●	●	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
14850	0600	CM	CMX



	cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
*	148500600	6	22	92	1	3	CM	CMX
*	148500700	7	22	92	1	3	CM	CMX
*	148500800	8	25	95	1	3	CM	CMX
*	148500900	9	25	95	1	3	CM	CMX
	148501000	10	28	98	1	3	CM	CMX
	148501200	12	32	102	1	3	CM	CMX
	148501400	14	32	117	2	3	CM	CMX
	148501500	15	35	120	2	3	CM	CMX
	148501600	16	35	120	2	3	CM	CMX
	148501800	18	40	125	2	3	CM	CMX
	148502000	20	45	147	3	3	CM	CMX
	148502200	22	45	147	3	3	CM	CMX
	148502400	24	50	152	3	3	CM	CMX
	148502500	25	50	152	3	3	CM	CMX
	148502600	26	56	158	3	3	CM	CMX
	148502800	28	56	158	3	3	CM	CMX
	148503000	30	63	165	3	3	CM	CMX
	148503200	32	63	188	4	3	CM	CMX
	148503400	34	70	195	4	3	CM	CMX
	148503500	35	70	195	4	3	CM	CMX
	148503600	36	70	195	4	3	CM	CMX
	148503800	38	70	195	4	3	CM	CMX
	148504000	40	70	195	4	3	CM	CMX
	148504500	45	80	205	4	3	CM	CMX
	148505000	50	90	215	4	3	CM	CMX

Z 3

14850

Frese a tre taglienti
Three flute end mills
Schafträser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN Alu
UOP COATING

Standard UOP	W	λ°s 40	CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14850	○	○	○	●	●	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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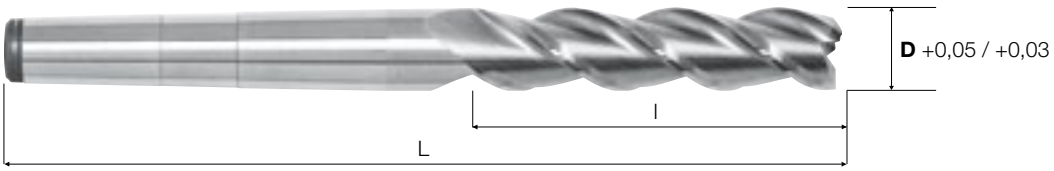
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
14855	0600	CM	CMX



14855

Z 3

Frese a tre taglienti
Three flute end mills
Schafträser Dreischneider
Fraises deux tailles trois dents
Fresa de tres labios

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
*	**148550600**	6	40	110	1	3	CM	CMX
*	**148550700**	7	40	110	1	3	CM	CMX
*	**148550800**	8	40	110	1	3	CM	CMX
*	**148550900**	9	40	110	1	3	CM	CMX
	148551000	10	45	115	1	3	CM	CMX
	148551200	12	50	120	1	3	CM	CMX
	148551400	14	50	135	2	3	CM	CMX
	148551500	15	50	135	2	3	CM	CMX
	148551600	16	56	141	2	3	CM	CMX
	148551800	18	63	148	2	3	CM	CMX
	148552000	20	70	172	3	3	CM	CMX
	148552200	22	70	172	3	3	CM	CMX
	148552400	24	80	182	3	3	CM	CMX
	148552500	25	80	182	3	3	CM	CMX
	148552600	26	80	182	3	3	CM	CMX
	148552800	28	90	192	3	3	CM	CMX
	148553000	30	90	192	3	3	CM	CMX
	148553200	32	100	225	4	3	CM	CMX
	148553400	34	110	235	4	3	CM	CMX
	148553500	35	110	235	4	3	CM	CMX
	148553600	36	110	235	4	3	CM	CMX
	148553800	38	110	235	4	3	CM	CMX
	148554000	40	110	235	4	3	CM	CMX
	148554500	45	120	245	4	3	CM	CMX
	148555000	50	130	255	4	3	CM	CMX

SKIN Alu
UOP COATING

CM= MORSE SHANK	λ°s 40	W	Standard UOP

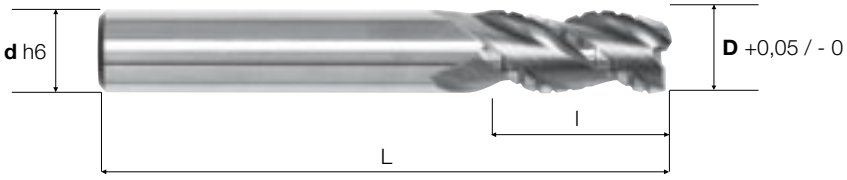
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
14855	○	○	○	●	●	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
15105	0600	CM	CMX
15120	0600	CM	CMX



cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
151050600	6	13	57	6	3	CM	CMX
151050800	8	19	69	10	3	CM	CMX
151051000	10	22	72	10	3	CM	CMX
151051200	12	26	83	12	3	CM	CMX
151051400	14	26	83	12	3	CM	CMX
151051500	15	32	92	16	3	CM	CMX
151051600	16	32	92	16	3	CM	CMX
151051800	18	32	92	16	3	CM	CMX
151052000	20	38	104	20	3	CM	CMX
151052200	22	38	104	20	3	CM	CMX
151052500	25	45	121	25	3	CM	CMX
151052800	28	45	121	25	3	CM	CMX
151053000	30	45	121	25	3	CM	CMX
151053200	32	53	133	32	3	CM	CMX
151053600	36	53	133	32	3	CM	CMX
151054000	40	63	143	32	3	CM	CMX

Z 3

15105

Frese a tre taglienti a ***SEMIFINIRE***

Three flute roughing and semi-finishing end mills

Schrupp-schlichtschafträser Dreischneider

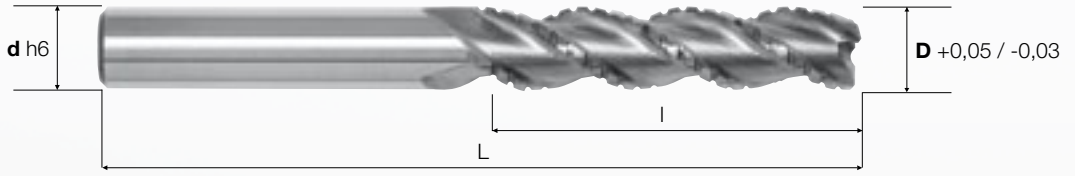
Fraises ébauches de semi-finition trois dents

Fresa de tres labios para desbaste y semi-acabado

SKIN Alu UOP COATING

UNI 8244 DIN 844A ISO 1641/I	WF	λ°s 40	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358



cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN Alu UOP COATING
151200600	6	24	68	6	3	CM	CMX
151200800	8	38	88	10	3	CM	CMX
151201000	10	45	95	10	3	CM	CMX
151201200	12	53	110	12	3	CM	CMX
151201400	14	53	110	12	3	CM	CMX
151201500	15	63	123	16	3	CM	CMX
151201600	16	63	123	16	3	CM	CMX
151201800	18	63	123	16	3	CM	CMX
151202000	20	75	141	20	3	CM	CMX
151202200	22	75	141	20	3	CM	CMX
151202500	25	90	166	25	3	CM	CMX
151202800	28	90	166	25	3	CM	CMX
151203000	30	90	166	32	3	CM	CMX
151203200	32	106	186	32	3	CM	CMX
151203600	36	106	186	32	3	CM	CMX
151204000	40	125	205	32	3	CM	CMX

Z 3

15120

Frese a tre taglienti a ***SEMIFINIRE***

Three flute roughing and semi-finishing end mills

Schrupp-schlichtschafträser Dreischneider

Fraises ébauches de semi-finition trois dents

Fresa de tres labios para desbaste y semi-acabado

SKIN Alu UOP COATING

UNI 8244 DIN 844A ISO 1641/I	WF	λ°s 40	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
15105	○	○	○	●	●	○	○
15120	○	○	○	●	●	○	○

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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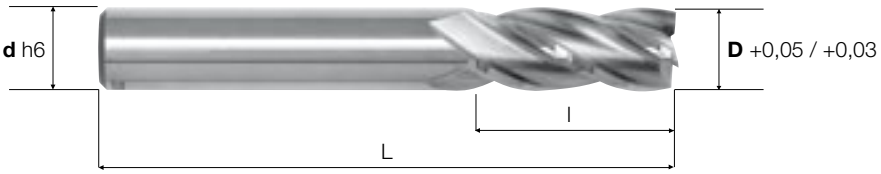
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17105	0200	CM	CMX



17105

Z 4÷8

Frese a **FINIRE**

Finishing end mills

Schaftfräser

Fraises pour finition

Fresa para acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

	cod.	D +0,05 + 0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	171050200	2	7	51	6	4	CM	CMX
	171050250	2,5	8	52	6	4	CM	CMX
	171050300	3	8	52	6	4	CM	CMX
	171050350	3,5	10	54	6	4	CM	CMX
	171050400	4	11	55	6	4	CM	CMX
	171050450	4,5	11	55	6	4	CM	CMX
	171050500	5	13	57	6	4	CM	CMX
	171050550	5,5	13	57	6	4	CM	CMX
	171050600	6	13	57	6	4	CM	CMX
	171050650	6,5	16	66	10	4	CM	CMX
	171050700	7	16	66	10	4	CM	CMX
	171050800	8	19	69	10	4	CM	CMX
	171050900	9	19	69	10	4	CM	CMX
	171051000	10	22	72	10	4	CM	CMX
	171051100	11	22	79	12	4	CM	CMX
	171051200	12	26	83	12	4	CM	CMX
	171051300	13	26	83	12	4	CM	CMX
	171051400	14	26	83	12	4	CM	CMX
	171051500	15	32	92	16	4	CM	CMX
	171051600	16	32	92	16	4	CM	CMX
	171051700	17	32	92	16	4	CM	CMX
	171051800	18	32	92	16	4	CM	CMX
*	**171051801**	18	32	98	20	4	CM	CMX
	171051900	19	38	98	16	4	CM	CMX
*	**171051901**	19	38	104	20	4	CM	CMX
	171052000	20	38	98	16	4	CM	CMX
	171052001	20	38	104	20	4	CM	CMX
	171052200	22	38	104	20	4	CM	CMX
*	**171052201**	22	38	114	25	4	CM	CMX
	171052400	24	45	121	25	5	CM	CMX
	171052500	25	45	121	25	5	CM	CMX
	171052600	26	45	121	25	5	CM	CMX
	171052800	28	45	121	25	5	CM	CMX
	171053000	30	45	121	25	6	CM	CMX
	171053200	32	53	133	32	6	CM	CMX
	171053400	34	53	133	32	6	CM	CMX
	171053500	35	53	133	32	6	CM	CMX
	171053600	36	53	133	32	6	CM	CMX
	171053800	38	63	143	32	6	CM	CMX
	171054000	40	63	143	32	8	CM	CMX
	171054500	45	63	143	32	8	CM	CMX
	171054800	48	75	155	32	8	CM	CMX
	171055000	50	75	155	32	8	CM	CMX

SKIN UOP COATING

λ°s 32 | N | UNI 8244 DIN 844A ISO 1641/I

W a richiesta ON REQUEST | F a richiesta ON REQUEST

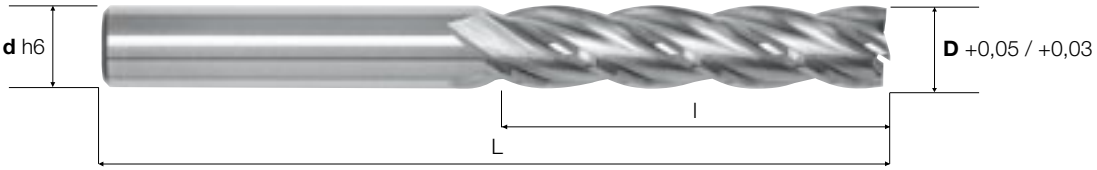
parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 357

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17105	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY



	cod.	D +0,05 + 0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	171200200	2	10	54	6	4	CM	CMX
	171200300	3	12	56	6	4	CM	CMX
	171200400	4	19	63	6	4	CM	CMX
	171200500	5	24	68	6	4	CM	CMX
	171200600	6	24	68	6	4	CM	CMX
	171200700	7	30	80	10	4	CM	CMX
	171200800	8	38	88	10	4	CM	CMX
	171200900	9	38	88	10	4	CM	CMX
	171201000	10	45	95	10	4	CM	CMX
	171201100	11	45	102	12	4	CM	CMX
	171201200	12	53	110	12	4	CM	CMX
	171201300	13	53	110	12	4	CM	CMX
	171201400	14	53	110	12	4	CM	CMX
	171201500	15	63	123	16	4	CM	CMX
	171201600	16	63	123	16	4	CM	CMX
	171201700	17	63	123	16	4	CM	CMX
	171201800	18	63	123	16	4	CM	CMX
*	**171201801**	18	63	129	20	4	CM	CMX
	171201900	19	75	135	16	4	CM	CMX
*	**171201901**	19	75	141	20	4	CM	CMX
	171202000	20	75	135	16	4	CM	CMX
	171202001	20	75	141	20	4	CM	CMX
	171202200	22	75	141	20	4	CM	CMX
*	**171202201**	22	75	151	25	4	CM	CMX
	171202400	24	90	166	25	5	CM	CMX
	171202500	25	90	166	25	5	CM	CMX
	171202600	26	90	166	25	5	CM	CMX
	171202800	28	90	166	25	5	CM	CMX
	171203000	30	90	166	25	6	CM	CMX
	171203200	32	106	186	32	6	CM	CMX
	171203400	34	106	186	32	6	CM	CMX
	171203500	35	106	186	32	6	CM	CMX
	171203600	36	106	186	32	6	CM	CMX
	171203800	38	125	205	32	6	CM	CMX
	171204000	40	125	205	32	8	CM	CMX

Z 4÷8 17120

Frese a **FINIRE**

Finishing end mills

Schaftfräser

Fraises pour finition

Fresa para acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8244
DIN 844A
ISO 1641/I

N

λ°s
32

W a richiesta ON REQUEST

F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 357

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17120	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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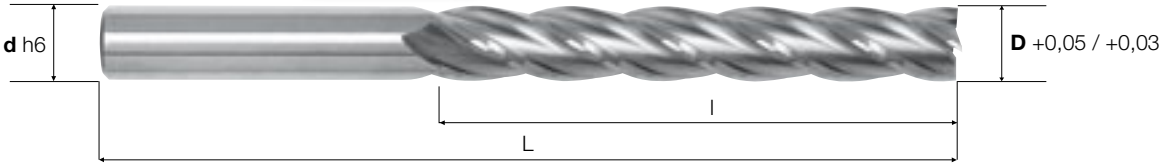
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17135	0600	CM	CMX



17135

Z 4÷6

Frese a **FINIRE**

Finishing end mills

Schaftfräser

Fraises pour finition

Fresa para acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

	cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	171350600	6	56	106	10	4	CM	CMX
	171350700	7	63	113	10	4	CM	CMX
	171350800	8	63	113	10	4	CM	CMX
	171350900	9	70	120	10	4	CM	CMX
	171351000	10	70	120	10	4	CM	CMX
*	**171351100**	11	80	137	12	4	CM	CMX
	171351200	12	80	137	12	4	CM	CMX
*	**171351300**	13	80	137	12	4	CM	CMX
	171351400	14	80	137	12	4	CM	CMX
	171351500	15	90	150	16	4	CM	CMX
	171351600	16	90	150	16	4	CM	CMX
*	**171351700**	17	90	150	16	4	CM	CMX
	171351800	18	100	166	20	4	CM	CMX
*	**171351900**	19	110	176	20	4	CM	CMX
	171352000	20	110	176	20	4	CM	CMX
	171352200	22	110	176	20	4	CM	CMX
	171352500	25	125	201	25	5	CM	CMX
	171352800	28	135	211	25	5	CM	CMX
	171353000	30	140	216	25	6	CM	CMX
	171353200	32	150	230	32	6	CM	CMX

SKIN UOP COATING

λ°s		
32	N	Standard UOP
	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 357

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17135	○	○	◪	○	○	●	●

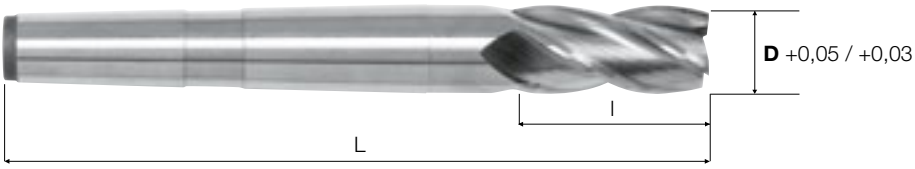
● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17150	0600	CM	CMX



	cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	171500600	6	13	83	1	4	CM	CMX
*	171500700	7	16	86	1	4	CM	CMX
*	171500800	8	19	89	1	4	CM	CMX
*	171500900	9	19	89	1	4	CM	CMX
	171501000	10	22	92	1	4	CM	CMX
*	171501100	11	22	92	1	4	CM	CMX
	171501200	12	26	96	1	4	CM	CMX
*	171501300	13	26	96	1	4	CM	CMX
	171501400	14	26	111	2	4	CM	CMX
*	171501500	15	32	117	2	4	CM	CMX
	171501600	16	32	117	2	4	CM	CMX
*	171501700	17	32	117	2	4	CM	CMX
	171501800	18	32	117	2	4	CM	CMX
*	171501900	19	38	123	2	4	CM	CMX
	171502000	20	38	140	3	4	CM	CMX
*	171502100	21	38	140	3	4	CM	CMX
	171502200	22	38	140	3	4	CM	CMX
*	171502300	23	38	140	3	5	CM	CMX
	171502400	24	45	147	3	5	CM	CMX
	171502500	25	45	147	3	5	CM	CMX
	171502600	26	45	147	3	5	CM	CMX
*	171502700	27	45	147	3	5	CM	CMX
	171502800	28	45	147	3	5	CM	CMX
*	171502900	29	45	147	3	5	CM	CMX
	171503000	30	53	155	3	6	CM	CMX
	171503200	32	53	178	4	6	CM	CMX
	171503400	34	53	178	4	6	CM	CMX
	171503500	35	53	178	4	6	CM	CMX
	171503600	36	53	178	4	6	CM	CMX
	171503800	38	63	188	4	6	CM	CMX
	171504000	40	63	188	4	8	CM	CMX
	171504500	45	63	188	4	8	CM	CMX
*	171505000	50	75	200	5	8	CM	CMX
	171505001	50	75	233	5	8	CM	CMX
*	171505600	56	75	233	5	8	CM	CMX
*	171506300	63	90	248	5	8	CM	CMX

Z 4÷8

17150

Frese a ***FINIRE***

Finishing end mills

Schaftfräser

Fraises pour finition

Fresa para acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

SKIN UOP COATING

UNI 8250 DIN 845B ISO 1641/ II	N	λ°s 32

CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17150	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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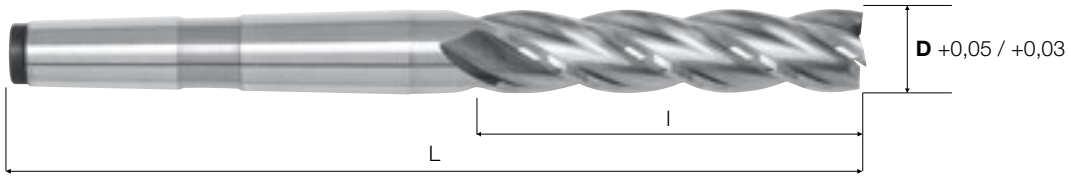
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17155	0600	CM	CMX



17155 Z 4÷10

Frese a **FINIRE**

Finishing end mills

Schaftfräser

Fraises pour finition

Fresa para acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

	cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	171550600	6	24	94	1	4	CM	CMX
*	171550700	7	30	100	1	4	CM	CMX
*	171550800	8	38	108	1	4	CM	CMX
*	171550900	9	38	108	1	4	CM	CMX
	171551000	10	45	115	1	4	CM	CMX
	171551200	12	53	123	1	4	CM	CMX
	171551400	14	53	138	2	4	CM	CMX
*	171551500	15	63	148	2	4	CM	CMX
	171551600	16	63	148	2	4	CM	CMX
	171551800	18	63	148	2	4	CM	CMX
	171552000	20	75	177	3	4	CM	CMX
	171552200	22	75	177	3	4	CM	CMX
	171552400	24	90	192	3	5	CM	CMX
	171552500	25	90	192	3	5	CM	CMX
	171552600	26	90	192	3	5	CM	CMX
	171552800	28	90	192	3	5	CM	CMX
	171553000	30	90	192	3	6	CM	CMX
	171553200	32	106	231	4	6	CM	CMX
	171553400	34	106	231	4	6	CM	CMX
	171553500	35	106	231	4	6	CM	CMX
	171553600	36	106	231	4	6	CM	CMX
	171553800	38	125	250	4	8	CM	CMX
	171554000	40	125	250	4	8	CM	CMX
	171554500	45	125	250	4	8	CM	CMX
	171555000	50	150	308	5	8	CM	CMX
*	171555600	56	150	308	5	8	CM	CMX
*	171556300	63	180	338	5	10	CM	CMX

SKIN UOP COATING

λ°s		
32	N	UNI 8250 DIN 845B ISO 1641/ II

CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17155	○	○	◪	○	○	●	●

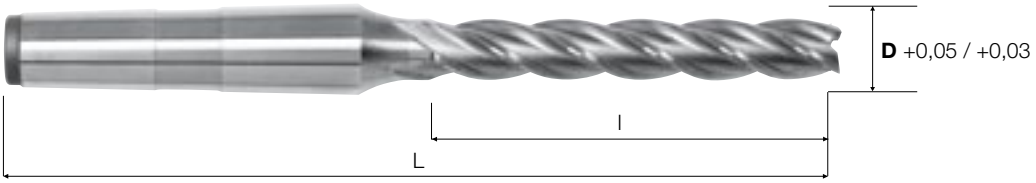
● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17160	0800	CM	CMX



	cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	171600800	8	63	148	2	4	CM	CMX
*	171600900	9	63	148	2	4	CM	CMX
	171601000	10	70	155	2	4	CM	CMX
	171601200	12	80	165	2	4	CM	CMX
	171601400	14	80	165	2	4	CM	CMX
*	171601500	15	90	175	2	4	CM	CMX
	171601600	16	90	175	2	4	CM	CMX
	171601800	18	100	202	3	4	CM	CMX
	171602000	20	110	212	3	4	CM	CMX
	171602200	22	110	212	3	4	CM	CMX
	171602400	24	125	227	3	5	CM	CMX
	171602500	25	125	250	4	5	CM	CMX
	171602600	26	125	250	4	5	CM	CMX
	171602800	28	135	260	4	5	CM	CMX
	171603000	30	140	265	4	6	CM	CMX
	171603200	32	150	275	4	6	CM	CMX
	171603400	34	150	275	4	6	CM	CMX
	171603500	35	150	275	4	6	CM	CMX
	171603600	36	150	275	4	6	CM	CMX
	171603800	38	180	305	4	8	CM	CMX
	171604000	40	180	305	4	8	CM	CMX
	171604500	45	190	315	4	8	CM	CMX
	171605000	50	200	360	5	8	CM	CMX
*	171605600	56	210	370	5	8	CM	CMX
*	171606300	63	220	380	5	10	CM	CMX

Z 4÷10

17160

Frese a ***FINIRE***

Finishing end mills

Schaftfräser

Fraises pour finition

Fresa para acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

SKIN
UOP COATING

Standard UOP	N	λ°s 32

CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17160	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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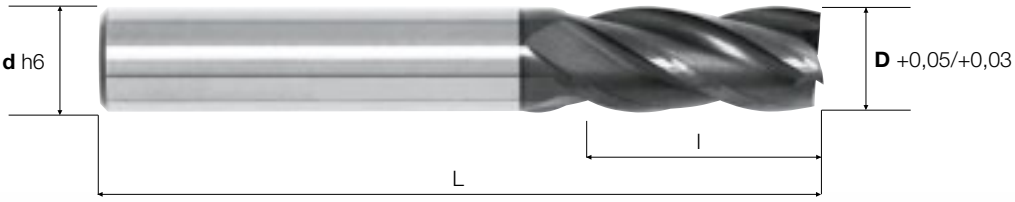
MADE IN ITALY

example code:

series	ø	X-105 COATED
17305	0600	EMX

ALTE PRESTAZIONI
HIGH PERFORMANCE



17305

Z 4÷8

Frese a **FINIRE** con tagliente al centro
Finishing end mills center cutting
Schaftfräser zentrum schnitt
Fraises pour finition coupe au centre
Fresa para acabado corte al centro

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0,05 +0,03	l	L	dh6	Z	X-105 (PM Co 10,5%)
	173050600	6	13	57	6	4	EMX
	173050800	8	19	69	10	4	EMX
	173051000	10	22	72	10	4	EMX
	173051200	12	26	83	12	4	EMX
	173051400	14	26	83	12	4	EMX
	173051600	16	32	92	16	4	EMX
	173051800	18	32	92	16	4	EMX
	173052001	20	38	104	20	4	EMX
	173052200	22	38	104	20	4	EMX
	173052500	25	45	121	25	5	EMX
*	**173052800**	28	45	121	25	5	EMX
*	**173053000**	30	45	121	25	6	EMX
*	**173053200**	32	53	133	32	6	EMX

SKIN
UOP COATING

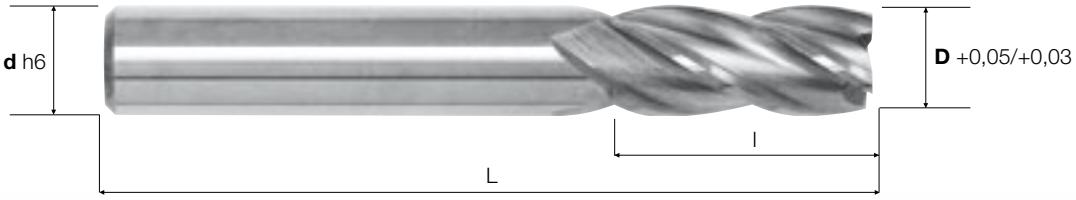
λ°s 32	N	UNI 8244 DIN 844A ISO 1641/I
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 361

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17305	●	●	●	●	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY



	cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	173050200	2	7	51	6	4	CM	CMX
	173050300	3	8	52	6	4	CM	CMX
	173050400	4	11	55	6	4	CM	CMX
	173050500	5	13	57	6	4	CM	CMX
	173050600	6	13	57	6	4	CM	CMX
	173050800	8	19	69	10	4	CM	CMX
	173051000	10	22	72	10	4	CM	CMX
	173051200	12	26	83	12	4	CM	CMX
	173051400	14	26	83	12	4	CM	CMX
	173051500	15	32	92	16	4	CM	CMX
	173051600	16	32	92	16	4	CM	CMX
	173051800	18	32	92	16	4	CM	CMX
*	**173051801**	18	32	98	20	4	CM	CMX
	173052000	20	38	98	16	4	CM	CMX
	173052001	20	38	104	20	4	CM	CMX
	173052200	22	38	104	20	4	CM	CMX
*	**173052201**	22	38	114	25	4	CM	CMX
	173052400	24	45	121	25	5	CM	CMX
	173052500	25	45	121	25	5	CM	CMX
	173052600	26	45	121	25	5	CM	CMX
	173052800	28	45	121	25	5	CM	CMX
	173053000	30	45	121	25	6	CM	CMX
	173053200	32	53	133	32	6	CM	CMX
	173053600	36	53	133	32	6	CM	CMX
	173054000	40	63	143	32	8	CM	CMX
	173055000	50	75	155	32	8	CM	CMX

Z 4÷8

17305

Frese a ***FINIRE*** con tagliente al centro
Finishing end mills center cutting
Schaftfräser zentrum schnitt
Fraises pour finition coupe au centre
Fresa para acabado corte al centro

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8244 DIN 844A ISO 1641/I	N	λ°s 32
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 357

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17305	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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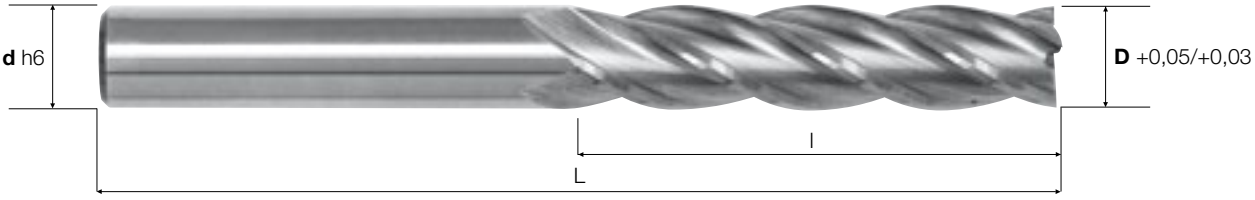
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17320	0200	CM	CMX



17320

Z 4÷8

Frese a **FINIRE** con tagliente al centro
Finishing end mills center cutting
Schaftfräser zentrum schnitt
Fraises pour finition coupe au centre
Fresa para acabado corte al centro

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	173200200	2	10	54	6	4	CM	CMX
	173200300	3	12	56	6	4	CM	CMX
	173200400	4	19	63	6	4	CM	CMX
	173200500	5	24	68	6	4	CM	CMX
	173200600	6	24	68	6	4	CM	CMX
	173200800	8	38	88	10	4	CM	CMX
	173201000	10	45	95	10	4	CM	CMX
	173201200	12	53	110	12	4	CM	CMX
	173201400	14	53	110	12	4	CM	CMX
	173201500	15	63	123	16	4	CM	CMX
	173201600	16	63	123	16	4	CM	CMX
	173201800	18	63	123	16	4	CM	CMX
*	**173201801**	18	63	129	20	4	CM	CMX
	173202000	20	75	135	16	4	CM	CMX
	173202001	20	75	141	20	4	CM	CMX
	173202200	22	75	141	20	4	CM	CMX
*	**173202201**	22	75	151	25	4	CM	CMX
	173202400	24	90	166	25	5	CM	CMX
	173202500	25	90	166	25	5	CM	CMX
	173202600	26	90	166	25	5	CM	CMX
	173202800	28	90	166	25	5	CM	CMX
	173203000	30	90	166	25	6	CM	CMX
	173203200	32	106	186	32	6	CM	CMX
	173203600	36	106	186	32	6	CM	CMX
	173204000	40	125	205	32	8	CM	CMX

SKIN
UOP COATING

λ°s		
32	N	UNI 8244 DIN 844A ISO 1641/I
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 360

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17320	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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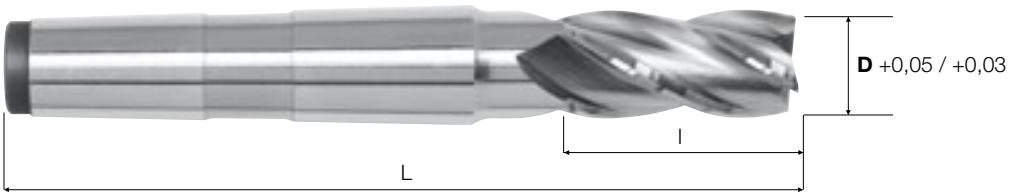
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17350	1000	CM	CMX



	cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	173501000	10	22	92	1	4	CM	CMX
	173501200	12	26	96	1	4	CM	CMX
	173501400	14	26	111	2	4	CM	CMX
	173501500	15	32	117	2	4	CM	CMX
	173501600	16	32	117	2	4	CM	CMX
	173501800	18	32	117	2	4	CM	CMX
	173502000	20	38	140	3	4	CM	CMX
	173502200	22	38	140	3	4	CM	CMX
	173502400	24	45	147	3	5	CM	CMX
	173502500	25	45	147	3	5	CM	CMX
	173502600	26	45	147	3	5	CM	CMX
	173502800	28	45	147	3	5	CM	CMX
	173503000	30	53	155	3	6	CM	CMX
	173503200	32	53	178	4	6	CM	CMX
	173503400	34	53	178	4	6	CM	CMX
	173503500	35	53	178	4	6	CM	CMX
	173503600	36	53	178	4	6	CM	CMX
	173503800	38	63	188	4	6	CM	CMX
	173504000	40	63	188	4	8	CM	CMX
	173504500	45	63	188	4	8	CM	CMX
	173505000	50	75	200	4	8	CM	CMX
	173505001	50	75	233	5	8	CM	CMX
*	**173505600**	56	75	233	5	8	CM	CMX
*	**173506300**	63	90	248	5	8	CM	CMX

Z 4÷8

17350

Frese a ***FINIRE*** con tagliente al centro
Finishing end mills center cutting
Schaftfräser zentrum schnitt
Fraises pour finition coupe au centre
Fresa para acabado corte al centro

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8244 DIN 844A ISO 1641/I	N	λ°s 32
CM= MORSE SHANK		

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17350	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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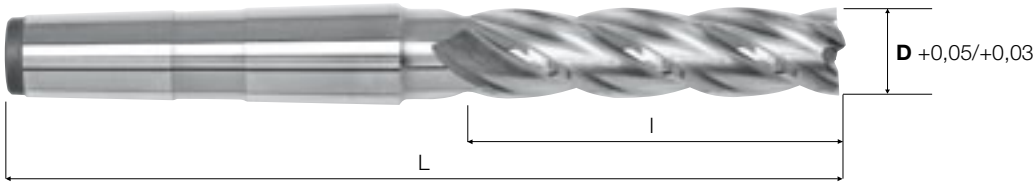
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17355	1000	CM	CMX



17355

Z 4÷10

Frese a **FINIRE** con tagliente al centro
Finishing end mills center cutting
Schaftfräser zentrum schnitt
Fraises pour finition coupe au centre
Fresa para acabado corte al centro

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	173551000	10	45	115	1	4	CM	CMX
	173551200	12	53	123	1	4	CM	CMX
	173551400	14	53	138	2	4	CM	CMX
	173551500	15	63	148	2	4	CM	CMX
	173551600	16	63	148	2	4	CM	CMX
	173551800	18	63	148	2	4	CM	CMX
	173552000	20	75	177	3	4	CM	CMX
	173552200	22	75	177	3	4	CM	CMX
	173552400	24	90	192	3	5	CM	CMX
	173552500	25	90	192	3	5	CM	CMX
	173552600	26	90	192	3	5	CM	CMX
	173552800	28	90	192	3	5	CM	CMX
	173553000	30	90	192	3	6	CM	CMX
	173553200	32	106	231	4	6	CM	CMX
	173553400	34	106	231	4	6	CM	CMX
	173553500	35	106	231	4	6	CM	CMX
	173553600	36	106	231	4	6	CM	CMX
	173553800	38	125	250	4	6	CM	CMX
	173554000	40	125	250	4	8	CM	CMX
	173554500	45	125	250	4	8	CM	CMX
	173555000	50	150	308	5	8	CM	CMX
*	**173555600**	56	150	308	5	8	CM	CMX
*	**173556300**	63	180	338	5	10	CM	CMX

SKIN UOP COATING

λ°s		
32	N	UNI 8250 DIN 845B ISO 1641/ II

CM= MORSE SHANK

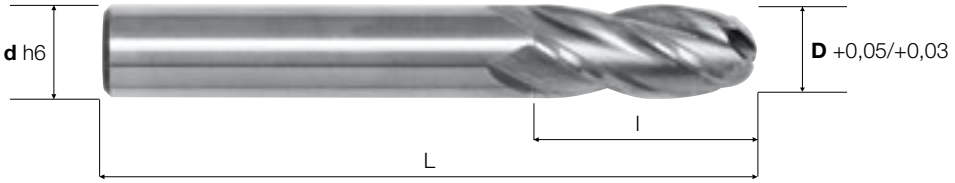
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17355	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17505	0200	CM	CMX



	cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	175050200	2	7	51	6	4	CM	CMX
	175050300	3	8	52	6	4	CM	CMX
	175050400	4	11	55	6	4	CM	CMX
	175050500	5	13	57	6	4	CM	CMX
	175050600	6	13	57	6	4	CM	CMX
	175050800	8	19	69	10	4	CM	CMX
	175051000	10	22	72	10	4	CM	CMX
	175051200	12	26	83	12	4	CM	CMX
	175051400	14	26	83	12	4	CM	CMX
	175051500	15	32	92	16	4	CM	CMX
	175051600	16	32	92	16	4	CM	CMX
	175051800	18	32	92	16	4	CM	CMX
*	**175051801**	18	32	98	20	4	CM	CMX
	175052000	20	38	98	16	4	CM	CMX
	175052001	20	38	104	20	4	CM	CMX
	175052200	22	38	104	20	4	CM	CMX
*	**175052201**	22	38	114	25	4	CM	CMX
	175052400	24	45	121	25	5	CM	CMX
	175052500	25	45	121	25	5	CM	CMX
	175052600	26	45	121	25	5	CM	CMX
	175052800	28	45	121	25	5	CM	CMX
	175053000	30	45	121	25	6	CM	CMX
	175053200	32	53	133	32	6	CM	CMX
	175053600	36	53	133	32	6	CM	CMX
	175054000	40	63	143	32	8	CM	CMX
	175055000	50	75	155	32	8	CM	CMX

Z 4÷8
BALL-NOSED CUTTERS

17505

Frese a testa semisferica
Ball nosed end mills
Halbrundkopffräser
Fraises à bout hémisphérique
Fresa hemisférica

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

INI DIN ISO 1641/I	N	λ°s 32
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 357

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17505	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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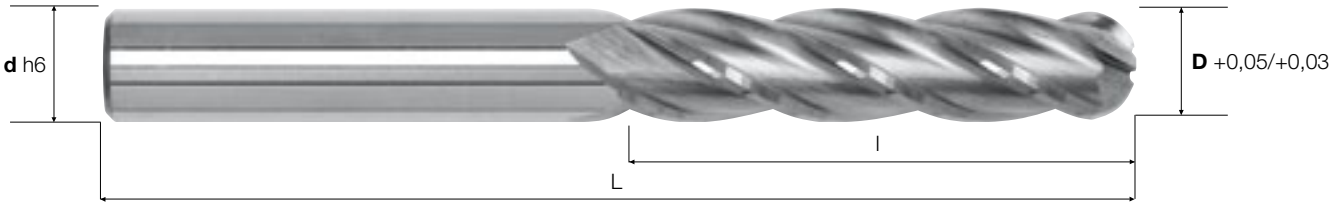
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17520	0200	CM	CMX



17520

Z 4÷8

BALL-NOSED CUTTERS

Frese a testa semisferica
Ball nosed end mills
Halbrundkopffräser
Fraises à bout hémisphérique
Fresa hemisférica

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0,05 +0,03	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	175200200	2	10	54	6	4	CM	CMX
	175200300	3	12	56	6	4	CM	CMX
	175200400	4	19	63	6	4	CM	CMX
	175200500	5	24	68	6	4	CM	CMX
	175200600	6	24	68	6	4	CM	CMX
	175200800	8	38	88	6	4	CM	CMX
	175201000	10	45	95	10	4	CM	CMX
	175201200	12	53	110	12	4	CM	CMX
	175201400	14	53	110	12	4	CM	CMX
	175201500	15	63	123	16	4	CM	CMX
	175201600	16	63	123	16	4	CM	CMX
	175201800	18	63	123	16	4	CM	CMX
*	**175201801**	18	63	129	20	4	CM	CMX
	175202000	20	75	135	16	4	CM	CMX
	175202001	20	75	141	20	4	CM	CMX
	175202200	22	75	141	20	4	CM	CMX
*	**175202201**	22	75	151	25	4	CM	CMX
	175202400	24	90	166	25	5	CM	CMX
	175202500	25	90	166	25	5	CM	CMX
	175202600	26	90	166	25	5	CM	CMX
	175202800	28	90	166	25	5	CM	CMX
	175203000	30	90	166	25	6	CM	CMX
	175203200	32	106	186	32	6	CM	CMX
	175203600	36	106	186	32	6	CM	CMX
	175204000	40	125	205	32	8	CM	CMX

SKIN
UOP COATING

λ°s		
32	N	UNI DIN ISO 1641/I
W a richiesta ON REQUEST		F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 357

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17520	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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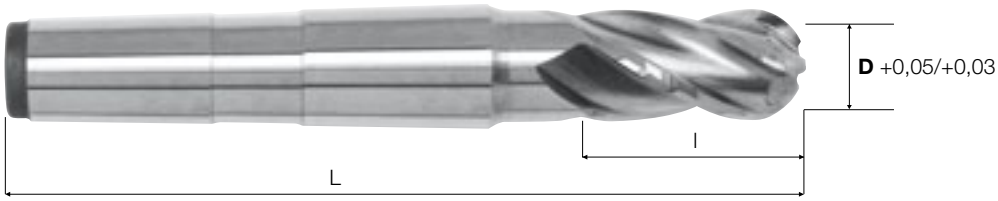
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
17550	1600	CM	CMX
17555	1600	CM	CMX



cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
175501600	16	32	117	2	4	CM	CMX
175502000	20	38	140	3	4	CM	CMX
175502200	22	38	140	3	4	CM	CMX
175502400	24	45	147	3	5	CM	CMX
175502500	25	45	147	3	5	CM	CMX
175502800	28	45	147	3	5	CM	CMX
175503000	30	53	155	3	6	CM	CMX
175503200	32	53	178	4	6	CM	CMX
175503600	36	53	178	4	6	CM	CMX
175504000	40	63	188	4	8	CM	CMX
175505000	50	75	233	5	8	CM	CMX

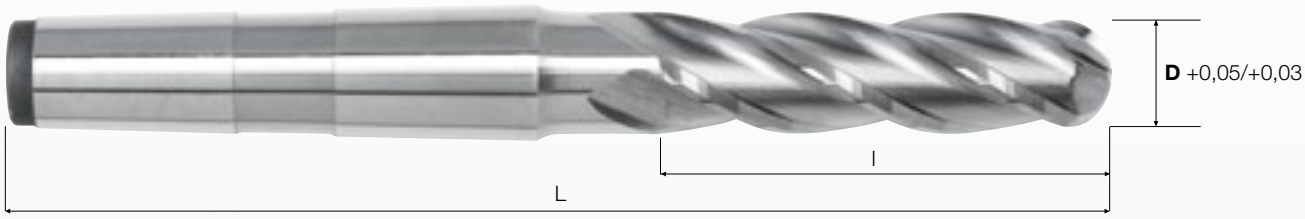
Z 4÷8 BALL-NOSED CUTTERS

17550

Frese a testa semisferica
Ball nosed end mills
Halbrundkopffräser
Fraises à bout hémisphérique
Fresa hemisférica

SKIN UOP COATING

UNI DIN ISO 1641/I	N	λ°s 32	CM= MORSE SHANK



cod.	D +0,05 +0,03	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
175551600	16	63	148	2	4	CM	CMX
175552000	20	75	177	3	4	CM	CMX
175552200	22	75	177	3	4	CM	CMX
175552400	24	90	192	3	5	CM	CMX
175552500	25	90	192	3	5	CM	CMX
175552800	28	90	192	3	5	CM	CMX
175553000	30	90	192	3	6	CM	CMX
175553200	32	106	231	4	6	CM	CMX
175553600	36	106	231	4	6	CM	CMX
175554000	40	125	250	4	8	CM	CMX
175555000	50	150	308	5	8	CM	CMX

Z 4÷8 BALL-NOSED CUTTERS

17555

Frese a testa semisferica
Ball nosed end mills
Halbrundkopffräser
Fraises à bout hémisphérique
Fresa hemisférica

SKIN UOP COATING

UNI DIN ISO 1641/II	N	λ°s 32	CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
17550	○	○	◕	○	○	●	●
17555	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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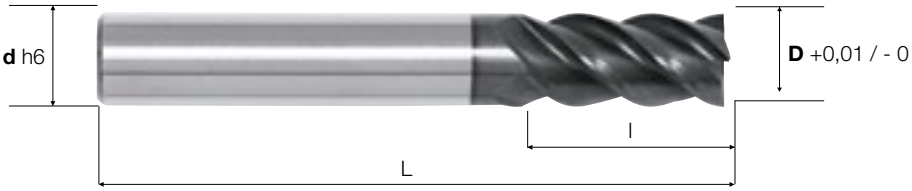
MADE IN ITALY

example code:

series	ø	X-105 UNCOATED	X-85 UNCOATED	X-85 COATED
18105	0600	EMX	–	–
18105	0200	–	CM	CMX



ALTE PRESTAZIONI
HIGH PERFORMANCE

18105

Z 4

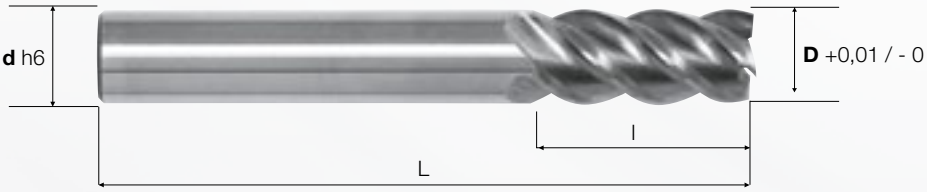
Frese per superfinitura
Superfinishing end mills
Hochfertigung
Fraises pour superfinition deux tailles
Fresa para super acabado

SKIN
UOP COATING

W	F	λ°s	N	
a richiesta ON REQUEST	a richiesta ON REQUEST	45		UNI 8244 DIN 844A ISO 1641/I

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 361

cod.	D +0,01 - 0	l	L	dh6	Z	X-105 (PM Co 10,5%)
181050600	6	13	57	6	4	EMX
181050800	8	19	69	10	4	EMX
181051000	10	22	72	10	4	EMX
181051200	12	26	83	12	4	EMX
181051400	14	26	83	12	4	EMX
181051600	16	32	92	16	4	EMX
181051800	18	32	92	16	4	EMX
181052000	20	38	104	20	4	EMX
181052200	22	38	104	20	4	EMX



18105

Z 4

Frese per superfinitura
Superfinishing end mills
Hochfertigung
Fraises pour superfinition deux tailles
Fresa para super acabado

SKIN
UOP COATING

W	F	λ°s	N	
a richiesta ON REQUEST	a richiesta ON REQUEST	45		UNI 8244 DIN 844A ISO 1641/I

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 357

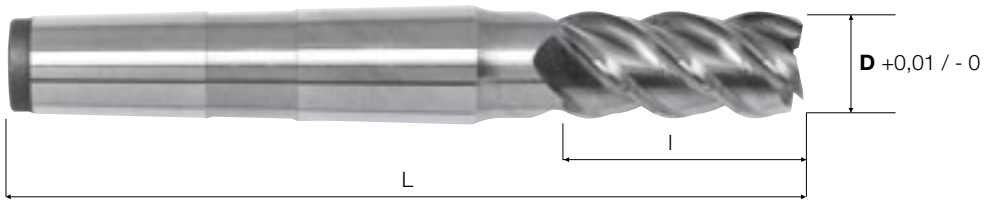
cod.	D +0,01 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
181050200	2	7	51	6	4	CM	CMX
181050300	3	8	52	6	4	CM	CMX
181050400	4	11	55	6	4	CM	CMX
181050500	5	13	57	6	4	CM	CMX
181050600	6	13	57	6	4	CM	CMX
181050800	8	19	69	10	4	CM	CMX
181051000	10	22	72	10	4	CM	CMX
181051200	12	26	83	12	4	CM	CMX
181051400	14	26	83	12	4	CM	CMX
181051500	15	32	92	16	4	CM	CMX
181051600	16	32	92	16	4	CM	CMX
181051800	18	32	92	16	4	CM	CMX
181052000	20	38	104	20	4	CM	CMX
181052200	22	38	104	20	4	CM	CMX

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
18105	●	●	●	●	○	●	●
18105	●	●	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	X-85 UNCOATED	X-85 COATED
18150	1600	CM	CMX



	cod.	D +0,01 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**181501600**	16	32	117	2	4	CM	CMX
*	**181501800**	18	32	117	2	4	CM	CMX
*	**181502000**	20	38	140	3	4	CM	CMX
*	**181502200**	22	38	140	3	4	CM	CMX
*	**181502400**	24	45	147	3	5	CM	CMX
*	**181502500**	25	45	147	3	5	CM	CMX
*	**181502600**	26	45	147	3	5	CM	CMX
*	**181502800**	28	45	147	3	5	CM	CMX
*	**181503000**	30	53	155	3	6	CM	CMX
*	**181503200**	32	53	178	4	6	CM	CMX
*	**181503400**	34	53	178	4	6	CM	CMX
*	**181503500**	35	53	178	4	6	CM	CMX
*	**181503600**	36	53	178	4	6	CM	CMX
*	**181503800**	38	63	188	4	6	CM	CMX
*	**181504000**	40	63	188	4	8	CM	CMX

Z 4÷8

18150

Frese per superfinitura
Superfinishing end mills
Hochfertigung
Fraises pour superfinition deux tailles
Fresa para super acabado

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8250 DIN 845B ISO 1641/ II	N	λ°s 32	CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
18150	●	●	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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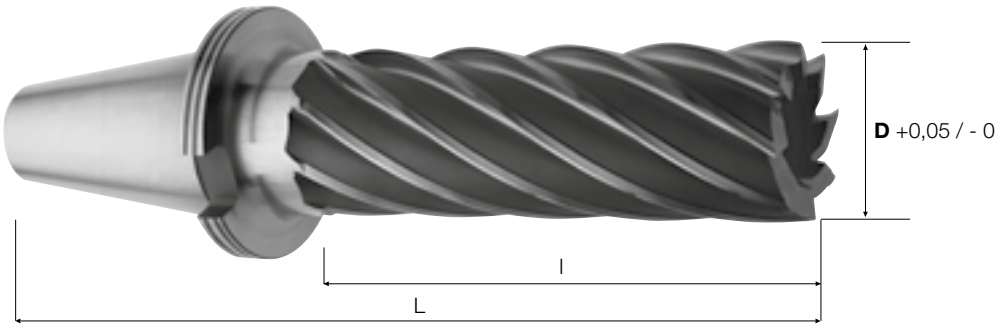
example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
18505	4510	AM	CM	CMX



18505

Z 8÷10

Frese a **FINIRE** con attacco DIN 69871
Finishing end mills shank according to DIN 69871
Fräser mit Schaft nach DIN 69871
Fraises de finition à queue selon DIN 69871
Fresas con mango para acabado DIN 69871

	cod.	D +0,05 - 0	l	L	DIN 69871	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**185054510**	45	125	281	50	8	AM	CM	CMX
*	**185055010**	50	75	231	50	8	AM	CM	CMX
*	**185055020**	50	150	306	50	8	AM	CM	CMX
*	**185055030**	50	200	356	50	8	AM	CM	CMX
*	**185055040**	50	250	406	50	8	AM	CM	CMX
*	**185055610**	56	75	231	50	8	AM	CM	CMX
*	**185055620**	56	150	306	50	8	AM	CM	CMX
*	**185055630**	56	200	356	50	8	AM	CM	CMX
*	**185056310**	63	90	246	50	8	AM	CM	CMX
*	**185056320**	63	180	336	50	8	AM	CM	CMX
*	**185056330**	63	200	356	50	8	AM	CM	CMX
*	**185056340**	63	250	406	50	8	AM	CM	CMX
*	**185058010**	80	106	262	50	10	AM	CM	CMX
*	**185058020**	80	212	368	50	10	AM	CM	CMX
*	**185058030**	80	250	406	50	10	AM	CM	CMX
*	**185058040**	80	300	456	50	10	AM	CM	CMX

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN UOP COATING

Standard UOP	N	λ°s 32	DIN 69871

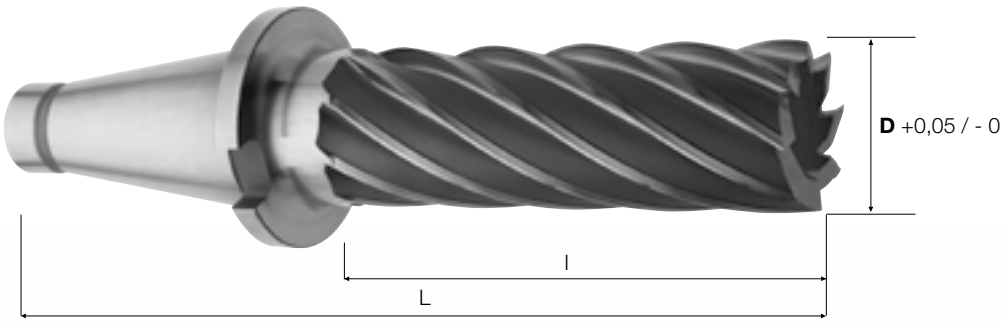
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
18505	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
18505	4511	AM	CM	CMX



	cod.	D +0,05 - 0	l	L	DIN 2080	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	185054511	45	125	303	50	8	AM	CM	CMX
*	185055011	50	75	253	50	8	AM	CM	CMX
*	185055021	50	150	328	50	8	AM	CM	CMX
*	185055031	50	200	378	50	8	AM	CM	CMX
*	185055041	50	250	428	50	8	AM	CM	CMX
*	185055611	56	75	253	50	8	AM	CM	CMX
*	185055621	56	150	328	50	8	AM	CM	CMX
*	185055631	56	200	378	50	8	AM	CM	CMX
*	185056311	63	90	268	50	8	AM	CM	CMX
*	185056321	63	180	358	50	8	AM	CM	CMX
*	185056331	63	200	378	50	8	AM	CM	CMX
*	185056341	63	250	428	50	8	AM	CM	CMX
*	185058011	80	106	284	50	10	AM	CM	CMX
*	185058021	80	212	390	50	10	AM	CM	CMX
*	185058031	80	250	428	50	10	AM	CM	CMX
*	185058041	80	300	478	50	10	AM	CM	CMX

Z 8÷10

18505

Frese a ***FINIRE*** con attacco DIN 2080
Finishing end mills shank according to DIN 2080
Fräser mit Schaft nach DIN 2080
Fraises de finition à queue selon DIN 2080
Fresas con mango para acabado DIN 2080

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

DIN 2080	λ°s	N	UNI 8252 DIN 2328 ISO 1641/III
	32		

Serie	materiali lavorabili WORKPIECE MATERIALS		acciai inossidabili	materiali non ferrosi	leghe leggere	acciai	ghise
SERIES	titanio TITANIUM	HRSA HRSA	STAINLESS STEELS	NON FERROUS MATERIALS	LIGHT ALLOYS	STEELS	CAST IRON
18505	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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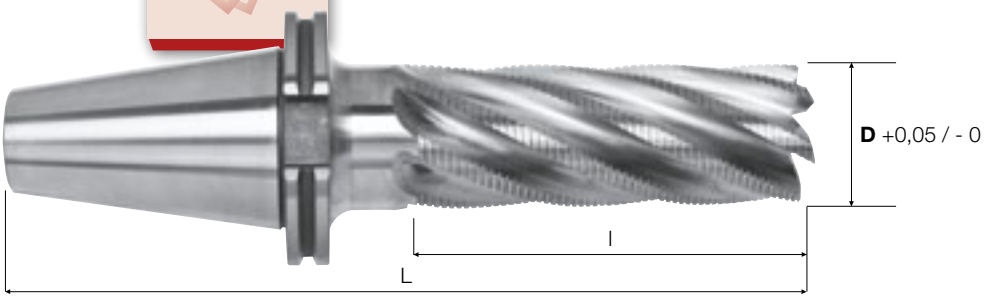
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
18510	4510	AM	CM	CMX
18510	4512	AM	CM	CMX



18510

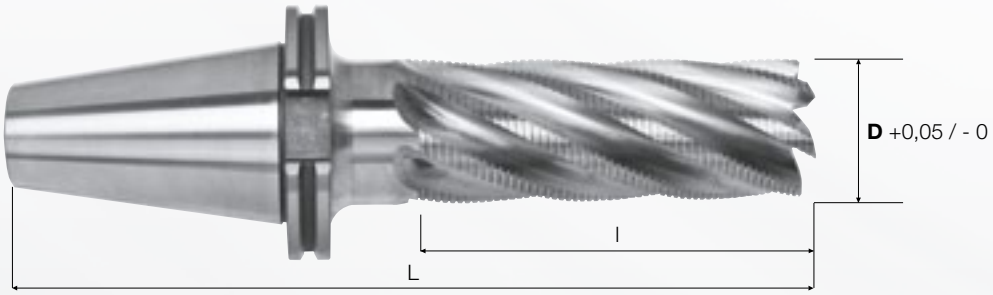
Z 6÷8

Frese a ***SEMIFINIRE*** con attacco DIN 69871
Semi-finishing end mills with shank according to DIN 69871
Schruppschlichtfräser mit Schaft nach DIN 69871
Fraises de semifinition à queue selon DIN 69871
Fresas con mango para semi-acabado DIN 69871

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN UOP COATING | DIN 69871 | λ°s 28 | NF | Standard UOP

	cod.	D +0,05 - 0	l	L	DIN 69871	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**185104510**	45	125	281	50	6	AM	CM	CMX
*	**185105010**	50	75	231	50	7	AM	CM	CMX
*	**185105020**	50	150	306	50	7	AM	CM	CMX
*	**185105030**	50	200	356	50	7	AM	CM	CMX
*	**185105040**	50	250	406	50	7	AM	CM	CMX
*	**185105610**	56	75	231	50	7	AM	CM	CMX
*	**185105620**	56	150	306	50	7	AM	CM	CMX
*	**185105630**	56	200	356	50	7	AM	CM	CMX
*	**185106310**	63	90	246	50	8	AM	CM	CMX
*	**185106320**	63	180	336	50	8	AM	CM	CMX
*	**185106330**	63	200	356	50	8	AM	CM	CMX
*	**185106340**	63	250	406	50	8	AM	CM	CMX
*	**185108010**	80	106	262	50	8	AM	CM	CMX
*	**185108020**	80	212	368	50	8	AM	CM	CMX
*	**185108030**	80	250	406	50	8	AM	CM	CMX
*	**185108040**	80	300	456	50	8	AM	CM	CMX



18510

Z 6÷8

Frese a ***SGROSSARE*** con attacco DIN 69871
Roughing end mills with shank according to DIN 69871
Schruppfräser mit Schaft nach DIN 69871
Fraises ébauches à queue selon DIN 69871
Fresas con mango para desbaste DIN 69871

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN UOP COATING | Standard UOP | NR | λ°s 28 | DIN 69871

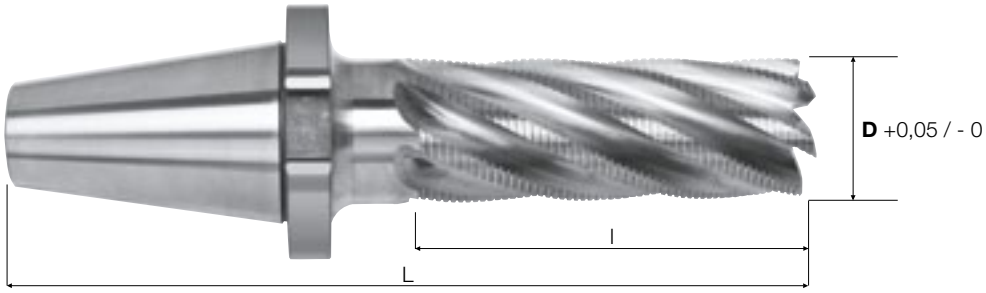
	cod.	D +0,05 - 0	l	L	DIN 69871	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**185104512**	45	125	281	50	6	AM	CM	CMX
*	**185105012**	50	75	231	50	7	AM	CM	CMX
*	**185105022**	50	150	306	50	7	AM	CM	CMX
*	**185105032**	50	200	356	50	7	AM	CM	CMX
*	**185105042**	50	250	406	50	7	AM	CM	CMX
*	**185105612**	56	75	231	50	7	AM	CM	CMX
*	**185105622**	56	150	306	50	7	AM	CM	CMX
*	**185105632**	56	200	356	50	7	AM	CM	CMX
*	**185106312**	63	90	246	50	8	AM	CM	CMX
*	**185106322**	63	180	336	50	8	AM	CM	CMX
*	**185106332**	63	200	356	50	8	AM	CM	CMX
*	**185106342**	63	250	406	50	8	AM	CM	CMX
*	**185108012**	80	106	262	50	8	AM	CM	CMX
*	**185108022**	80	212	368	50	8	AM	CM	CMX
*	**185108032**	80	250	406	50	8	AM	CM	CMX
*	**185108042**	80	300	456	50	8	AM	CM	CMX

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
18505	○	○	◪	○	○	●	●
18510	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
18510	4511	AM	CM	CMX
18510	4513	AM	CM	CMX



	cod.	D +0,05 - 0	l	L	DIN 2080	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**185104511**	45	125	303	50	6	AM	CM	CMX
*	**185105011**	50	75	253	50	7	AM	CM	CMX
*	**185105021**	50	150	328	50	7	AM	CM	CMX
*	**185105031**	50	200	378	50	7	AM	CM	CMX
*	**185105041**	50	250	428	50	7	AM	CM	CMX
*	**185105611**	56	75	253	50	7	AM	CM	CMX
*	**185105621**	56	150	328	50	7	AM	CM	CMX
*	**185105631**	56	200	378	50	7	AM	CM	CMX
*	**185106311**	63	90	268	50	8	AM	CM	CMX
*	**185106321**	63	180	358	50	8	AM	CM	CMX
*	**185106331**	63	200	378	50	8	AM	CM	CMX
*	**185106341**	63	250	428	50	8	AM	CM	CMX
*	**185108011**	80	106	284	50	8	AM	CM	CMX
*	**185108021**	80	212	390	50	8	AM	CM	CMX
*	**185108031**	80	250	428	50	8	AM	CM	CMX
*	**185108041**	80	300	478	50	8	AM	CM	CMX

Z 6÷8

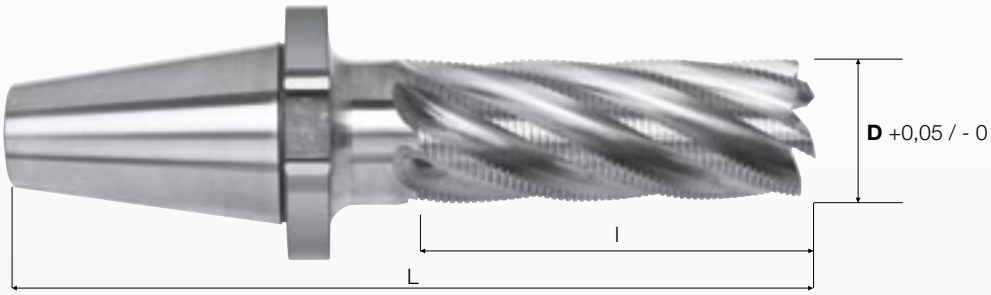
18510

Frese a ***SEMIFINIRE*** con attacco DIN 2080
Semi-finishing end mills with shank according to DIN 2080
Schruppschlichtfräser mit Schaft nach DIN 2080
Fraises de semifinition à queue selon DIN 2080
Fresas con mango para semi-acabado DIN 2080

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

Standard UOP | NF | λ°s 28 | DIN 2080

SKIN UOP COATING



	cod.	D +0,05 - 0	l	L	DIN 2080	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**185104513**	45	125	303	50	6	AM	CM	CMX
*	**185105013**	50	75	253	50	7	AM	CM	CMX
*	**185105023**	50	150	328	50	7	AM	CM	CMX
*	**185105033**	50	200	378	50	7	AM	CM	CMX
*	**185105043**	50	250	428	50	7	AM	CM	CMX
*	**185105613**	56	75	253	50	7	AM	CM	CMX
*	**185105623**	56	150	328	50	7	AM	CM	CMX
*	**185105633**	56	200	378	50	7	AM	CM	CMX
*	**185106313**	63	90	268	50	8	AM	CM	CMX
*	**185106323**	63	180	358	50	8	AM	CM	CMX
*	**185106333**	63	200	378	50	8	AM	CM	CMX
*	**185106343**	63	250	428	50	8	AM	CM	CMX
*	**185108013**	80	106	284	50	8	AM	CM	CMX
*	**185108023**	80	212	390	50	8	AM	CM	CMX
*	**185108033**	80	250	428	50	8	AM	CM	CMX
*	**185108043**	80	300	478	50	8	AM	CM	CMX

Z 6÷8

18510

Frese a ***SGROSSARE*** con attacco DIN 2080
Roughing end mills with shank according to DIN 2080
Schruppfräser mit Schaft nach DIN 2080
Fraises ébauches à queue selon DIN 2080
Fresas con mango para desbaste DIN 2080

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

DIN 2080 | λ°s 28 | NR | UNI 8254 DIN 327B ISO 1641/I

SKIN UOP COATING

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
18510	○	○	◕	○	○	●	●
18510	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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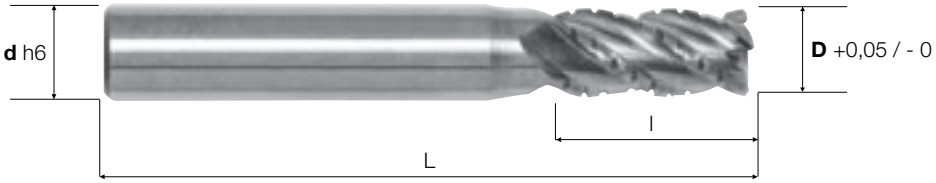
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
19105	0600	CM	CMX



19105

Z 4

Frese a **SEMIFINIRE** Tagliente interrotto
Semi-finishing end mills Interrupted cutting edge
Schruppschlichtfräser Unterbrochene Schneide
Fraises pour semifinition Taille interrompue
Fresa para semi acabado Corte discontinuo

cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
191050600	6	13	57	6	4	CM	CMX
191050700	7	16	66	10	4	CM	CMX
191050800	8	19	69	10	4	CM	CMX
191050900	9	19	69	10	4	CM	CMX
191051000	10	22	72	10	4	CM	CMX
191051100	11	22	79	12	4	CM	CMX
191051200	12	26	83	12	4	CM	CMX
191051300	13	26	83	12	4	CM	CMX
191051400	14	26	83	12	4	CM	CMX
191051500	15	32	92	16	4	CM	CMX
191051600	16	32	92	16	4	CM	CMX
191051700	17	32	92	16	4	CM	CMX
191051800	18	32	92	16	4	CM	CMX
191051900	19	38	104	20	4	CM	CMX
191052000	20	38	104	20	4	CM	CMX
191052200	22	38	104	20	4	CM	CMX
191052400	24	45	121	25	4	CM	CMX
191052500	25	45	121	25	4	CM	CMX

SKIN
UOP COATING

W	F	λ°s	NF	
a richiesta ON REQUEST	a richiesta ON REQUEST	40		UNI 8244 DIN 844A ISO 1641/I

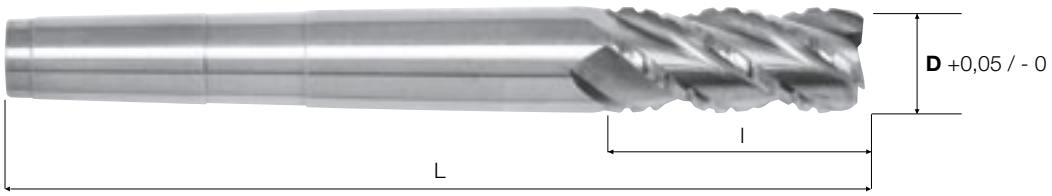
parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358

Serie	materiali lavorabili WORKPIECE MATERIALS		acciai inossidabili	materiali non ferrosi	leghe leggere	acciai	ghise
SERIES	titanio TITANIUM	HRSA HRSA	STAINLESS STEELS	NON FERROUS MATERIALS	LIGHT ALLOYS	STEELS	CAST IRON
19105	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	X-85 UNCOATED	X-85 COATED
19150	1000	CM	CMX



	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**191501000**	10	22	92	1	4	CM	CMX
*	**191501100**	11	22	92	1	4	CM	CMX
*	**191501200**	12	26	96	1	4	CM	CMX
*	**191501300**	13	26	96	1	4	CM	CMX
*	**191501400**	14	26	111	2	4	CM	CMX
*	**191501500**	15	32	117	2	4	CM	CMX
*	**191501600**	16	32	117	2	4	CM	CMX
*	**191501700**	17	32	117	2	4	CM	CMX
*	**191501800**	18	32	117	2	4	CM	CMX
*	**191501900**	19	38	123	2	4	CM	CMX
*	**191502000**	20	38	140	3	4	CM	CMX
*	**191502200**	22	38	140	3	4	CM	CMX
*	**191502400**	24	45	147	3	4	CM	CMX
*	**191502500**	25	45	147	3	4	CM	CMX
*	**191502600**	26	45	147	3	5	CM	CMX
*	**191502800**	28	45	147	3	5	CM	CMX
*	**191503000**	30	53	155	3	5	CM	CMX
*	**191503200**	32	53	178	4	5	CM	CMX
*	**191503400**	34	53	178	4	5	CM	CMX
*	**191503500**	35	53	178	4	5	CM	CMX
*	**191503600**	36	53	178	4	5	CM	CMX
*	**191503800**	38	63	188	4	5	CM	CMX
*	**191504000**	40	63	188	4	5	CM	CMX
*	**191504500**	45	63	188	4	6	CM	CMX
*	**191505000**	50	75	233	5	6	CM	CMX
*	**191505600**	56	75	233	5	6	CM	CMX
*	**191506300**	63	90	248	5	7	CM	CMX

Z 4÷7

19150

Frese a ***SEMIFINIRE*** Tagliente interrotto
Semi-finishing end mills Interrupted cutting edge
Schruppschlichtfräser Unterbrochene Schneide
Fraises pour semifinition Taille interrompue
Fresa para semi acabado Corte discontinuo

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8250
DIN 845B
ISO1641/II

NF

λ°s
40

CM=
MORSE
SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
19150	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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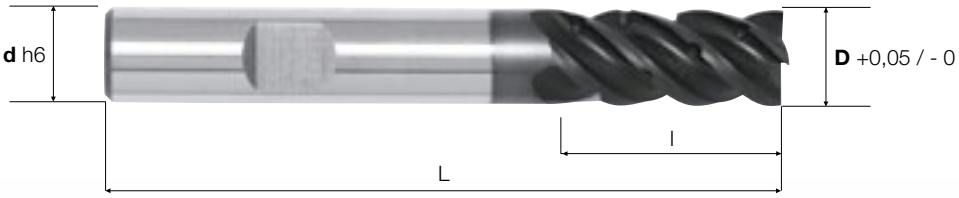
ALTE PRESTAZIONI
HIGH PERFORMANCE



19205

Z 3÷5

Frese "Sinthesi"
"Sinthesi" end mills
Fräser "Sinthesi"
Fraises "Sinthesi"
Fresas "Sinthesi"

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0,05 - 0	l	L	dh6	Z	X-105 (PM Co 10,5%) SKIN UOP COATING
*	**192050600**	6	13	57	6	3	EMXW
*	**192050800**	8	19	69	10	3	EMXW
*	**192051000**	10	22	72	10	4	EMXW
*	**192051200**	12	26	83	12	4	EMXW
*	**192051400**	14	26	83	12	4	EMXW
*	**192051500**	15	32	92	16	4	EMXW
*	**192051600**	16	32	92	16	4	EMXW
*	**192051800**	18	32	92	16	4	EMXW
*	**192052000**	20	38	104	20	4	EMXW
*	**192052200**	22	38	104	20	4	EMXW
*	**192052500**	25	45	121	25	4	EMXW
*	**192052800**	28	45	121	25	5	EMXW
*	**192053000**	30	45	121	25	5	EMXW
*	**192053200**	32	53	133	32	5	EMXW

SKIN
UOP COATING

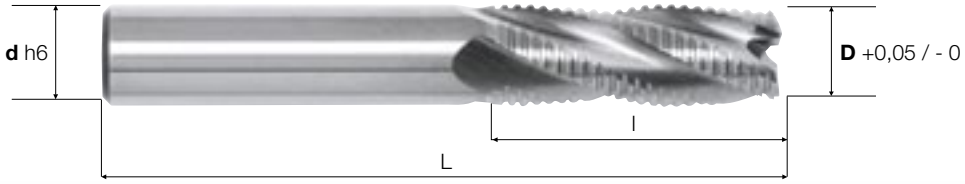
λ°S 45 | NF | UNI 8244 DIN 844B ISO 1641/I | W

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
19205	○	○	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	X-85 UNCOATED	X-85 COATED
20105	0603	CM	CMX



	cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	201050601	6	16	60	6	3	CM	CMX
*	**201050701**	7	22	64	10	4	CM	CMX
	201050801	8	22	64	10	4	CM	CMX
*	**201050901**	9	28	70	10	4	CM	CMX
	201051001	10	28	70	10	4	CM	CMX
*	**201051101**	11	32	80	12	4	CM	CMX
	201051201	12	32	80	12	4	CM	CMX
*	**201051301**	13	32	80	12	4	CM	CMX
	201051401	14	32	80	12	4	CM	CMX
*	**201051501**	15	36	90	16	4	CM	CMX
	201051601	16	36	90	16	4	CM	CMX
*	**201051701**	17	40	100	16	4	CM	CMX
	201051801	18	40	100	16	4	CM	CMX
*	**201051805**	18	40	105	20	4	CM	CMX
	201052001	20	45	110	20	4	CM	CMX
*	**201052201**	22	45	110	20	4	CM	CMX
*	**201052401**	24	45	110	20	5	CM	CMX
*	**201052405**	24	45	120	25	5	CM	CMX
	201052501	25	50	125	25	5	CM	CMX
*	**201052601**	26	50	125	25	5	CM	CMX
*	**201052801**	28	50	125	25	5	CM	CMX
*	**201053001**	30	63	135	25	5	CM	CMX
	201053201	32	63	140	25	5	CM	CMX
*	**201053205**	32	63	145	32	5	CM	CMX
	201053601	36	70	150	32	6	CM	CMX
	201054001	40	70	150	32	6	CM	CMX
*	**201054501**	45	76	155	32	6	CM	CMX
*	**201055001**	50	82	160	32	7	CM	CMX

Z 3÷7

20105

Frese a ***SEMIFINIRE***

Semi-finishing end mills

Schruppschlichfräser

Fraises pour semifinition

Fresa para semi-acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

SKIN
UOP COATING

Standard UOP	NF	λ°s 28
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
20105	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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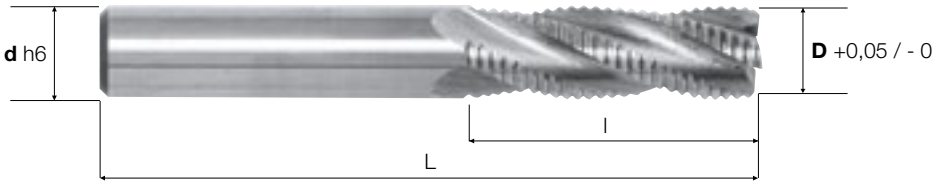
example code:

series	ø	X-85 UNCOATED	X-85 COATED
20105	0601	CM	CMX



20105

Z 3÷7

Frese a **SGROSSARE**

Roughing end mills

Schruppfräser

Fraises ébauches

Fresas para desbaste

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

	cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	201050603	6	16	60	6	3	CM	CMX
*	201050703	7	22	64	10	4	CM	CMX
	201050803	8	22	64	10	4	CM	CMX
*	201050903	9	28	70	10	4	CM	CMX
	201051003	10	28	70	10	4	CM	CMX
*	201051103	11	32	80	12	4	CM	CMX
	201051203	12	32	80	12	4	CM	CMX
*	201051303	13	32	80	12	4	CM	CMX
	201051403	14	32	80	12	4	CM	CMX
*	201051503	15	36	90	16	4	CM	CMX
	201051603	16	36	90	16	4	CM	CMX
*	201051703	17	40	100	16	4	CM	CMX
	201051803	18	40	100	16	4	CM	CMX
*	201051807	18	40	105	20	4	CM	CMX
	201052003	20	45	110	20	4	CM	CMX
*	201052203	22	45	110	20	4	CM	CMX
*	201052403	24	45	110	20	5	CM	CMX
*	201052407	24	45	120	25	5	CM	CMX
	201052503	25	50	125	25	5	CM	CMX
*	201052603	26	50	125	25	5	CM	CMX
*	201052803	28	50	125	25	5	CM	CMX
*	201053003	30	63	135	25	5	CM	CMX
	201053203	32	63	140	25	5	CM	CMX
*	201053207	32	63	145	32	5	CM	CMX
	201053603	36	70	150	32	6	CM	CMX
	201054003	40	70	150	32	6	CM	CMX
*	201054503	45	76	155	32	6	CM	CMX
*	201055003	50	82	160	32	7	CM	CMX

SKIN UOP COATING

λ°s 28 | NR | Standard UOP

W a richiesta ON REQUEST | F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
20105	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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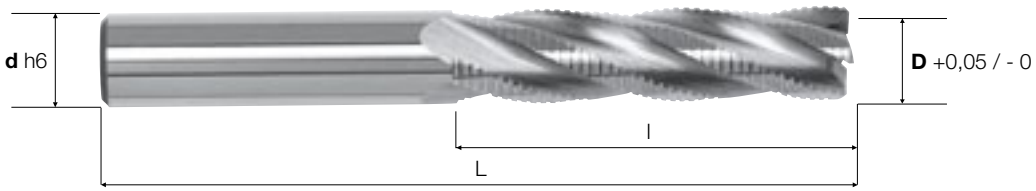
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
20120	0801	CM	CMX
20120	0803	CM	CMX



	cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	201200801	8	35	85	10	4	CM	CMX
	201201001	10	42	90	10	4	CM	CMX
	201201201	12	48	95	12	4	CM	CMX
	201201401	14	48	100	16	4	CM	CMX
*	201201501	15	54	104	16	4	CM	CMX
	201201601	16	54	104	16	4	CM	CMX
	201201801	18	60	120	16	4	CM	CMX
*	201201805	18	60	126	20	4	CM	CMX
	201202001	20	62	128	20	4	CM	CMX
*	201202201	22	64	130	20	4	CM	CMX
*	201202401	24	66	135	25	5	CM	CMX
	201202501	25	70	145	25	5	CM	CMX
*	201202801	28	70	145	25	5	CM	CMX
*	201203001	30	80	155	25	5	CM	CMX
	201203201	32	80	160	32	5	CM	CMX
	201203601	36	90	170	32	6	CM	CMX
	201204001	40	90	170	32	6	CM	CMX
*	201204501	45	100	175	32	6	CM	CMX
*	201205001	50	110	185	32	7	CM	CMX

Z 4÷7

20120

Frese a ***SEMIFINIRE***

Semi-finishing end mills

Schruppschlichtfräser

Fraises pour semifinition

Fresa para semi-acabado

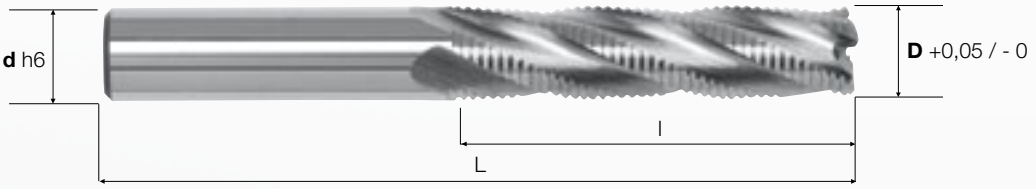
SKIN UOP COATING

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

Standard UOP	NF	λ°s 28	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358



	cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	201200803	8	35	85	10	4	CM	CMX
	201201003	10	42	90	10	4	CM	CMX
	201201203	12	48	95	12	4	CM	CMX
	201201403	14	48	100	16	4	CM	CMX
*	201201503	15	54	104	16	4	CM	CMX
	201201603	16	54	104	16	4	CM	CMX
	201201803	18	60	120	16	4	CM	CMX
*	201201807	18	60	126	20	4	CM	CMX
	201202003	20	62	128	20	4	CM	CMX
*	201202203	22	64	130	20	4	CM	CMX
*	201202403	24	66	135	25	5	CM	CMX
	201202503	25	70	145	25	5	CM	CMX
*	201202803	28	70	145	25	5	CM	CMX
*	201203003	30	80	155	25	5	CM	CMX
	201203203	32	80	160	32	5	CM	CMX
	201203603	36	90	170	32	6	CM	CMX
	201204003	40	90	170	32	6	CM	CMX
*	201204503	45	100	175	32	6	CM	CMX
*	201205003	50	110	185	32	7	CM	CMX

Z 4÷7

20120

Frese a ***SGROSSARE***

Roughing end mills

Schruppfräser

Fraises ébauches

Fresas para desbaste

SKIN UOP COATING

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

Standard UOP	NR	λ°s 28	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
20120	◪	◪	◪	○	○	●	●
20120	◪	◪	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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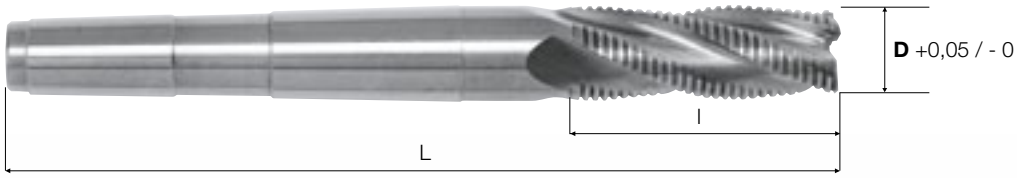
example code:

series	ø	X-85 UNCOATED	X-85 COATED
20150	1001	CM	CMX



20150

Z 4÷7

Frese a **SEMIFINIRE**

Semi-finishing end mills

Schruppschlichtfräser

Fraises pour semifinition

Fresa para semi-acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	201501001	10	28	95	1	4	CM	CMX
*	201501101	11	32	105	1	4	CM	CMX
*	201501201	12	32	105	1	4	CM	CMX
*	201501301	13	32	105	1	4	CM	CMX
*	201501401	14	32	105	1	4	CM	CMX
*	201501501	15	36	115	2	4	CM	CMX
*	201501601	16	36	115	2	4	CM	CMX
*	201501701	17	40	120	2	4	CM	CMX
*	201501801	18	40	120	2	4	CM	CMX
	201502001	20	45	125	2	4	CM	CMX
*	201502201	22	45	125	2	4	CM	CMX
*	201502401	24	50	150	3	5	CM	CMX
	201502501	25	50	150	3	5	CM	CMX
	201502601	26	56	155	3	5	CM	CMX
	201502801	28	56	155	3	5	CM	CMX
	201503001	30	63	165	3	5	CM	CMX
	201503201	32	63	188	4	5	CM	CMX
*	201503401	34	70	195	4	5	CM	CMX
*	201503501	35	70	195	4	6	CM	CMX
	201503601	36	70	195	4	6	CM	CMX
*	201503801	38	70	195	4	6	CM	CMX
	201504001	40	70	195	4	6	CM	CMX
	201504501	45	80	205	4	6	CM	CMX
*	201505001	50	90	215	4	7	CM	CMX
*	201505005	50	90	250	5	7	CM	CMX
*	201505601	56	100	260	5	7	CM	CMX
*	201506301	63	110	270	5	7	CM	CMX

SKIN UOP COATING

λ°s 28 | NF | Standard UOP

CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
20150	○	○	◕	○	○	●	●

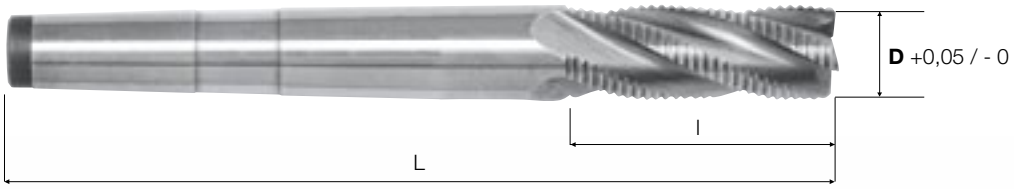
● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
20150	1003	CM	CMX



	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	201501003	10	28	95	1	4	CM	CMX
*	201501103	11	32	105	1	4	CM	CMX
*	201501203	12	32	105	1	4	CM	CMX
*	201501303	13	32	105	1	4	CM	CMX
*	201501403	14	32	105	1	4	CM	CMX
*	201501503	15	36	115	2	4	CM	CMX
*	201501603	16	36	115	2	4	CM	CMX
*	201501703	17	40	120	2	4	CM	CMX
*	201501803	18	40	120	2	4	CM	CMX
	201502003	20	45	125	2	4	CM	CMX
*	201502203	22	45	125	2	4	CM	CMX
*	201502403	24	50	150	3	5	CM	CMX
	201502503	25	50	150	3	5	CM	CMX
	201502603	26	56	155	3	5	CM	CMX
	201502803	28	56	155	3	5	CM	CMX
	201503003	30	63	165	3	5	CM	CMX
	201503203	32	63	188	4	5	CM	CMX
*	201503403	34	70	195	4	5	CM	CMX
*	201503503	35	70	195	4	6	CM	CMX
	201503603	36	70	195	4	6	CM	CMX
*	201503803	38	70	195	4	6	CM	CMX
	201504003	40	70	195	4	6	CM	CMX
	201504503	45	80	205	4	6	CM	CMX
*	201505003	50	90	215	4	7	CM	CMX
*	201505007	50	90	250	5	7	CM	CMX
*	201505603	56	100	260	5	7	CM	CMX
*	201506301	63	110	270	5	7	CM	CMX

Z 4÷7

20150

Frese a **SGROSSARE**

Roughing end mills

Schruppfräser

Fraises ébauches

Fresas para desbaste

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

SKIN UOP COATING

Standard UOP | NR | λ°s 28

CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
20150	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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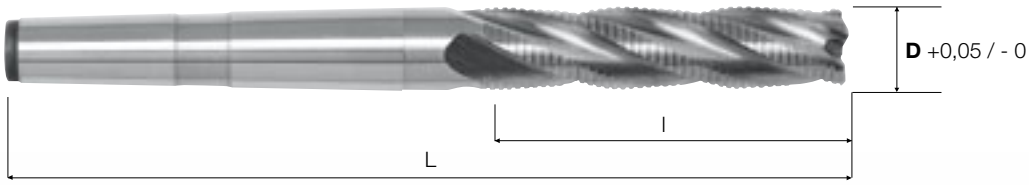
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
20155	10014	CM	CMX



20155

Z 4÷8

Frese a **SEMIFINIRE**

Semi-finishing end mills

Schruppschlichtfräser

Fraises pour semifinition

Fresa para semi-acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**201551001**	10	42	110	1	4	CM	CMX
*	**201551201**	12	48	117	1	4	CM	CMX
*	**201551401**	14	50	135	2	4	CM	CMX
*	**201551501**	15	55	140	2	4	CM	CMX
*	**201551601**	16	55	140	2	4	CM	CMX
*	**201551801**	18	60	145	2	4	CM	CMX
	201552001	20	65	148	2	4	CM	CMX
*	**201552201**	22	65	166	3	4	CM	CMX
*	**201552401**	24	70	171	3	5	CM	CMX
	201552501	25	70	171	3	5	CM	CMX
	201552601	26	70	176	3	5	CM	CMX
	201552801	28	80	186	3	5	CM	CMX
	201553001	30	85	210	4	5	CM	CMX
	201553201	32	90	215	4	5	CM	CMX
*	**201553401**	34	90	215	4	5	CM	CMX
*	**201553501**	35	90	215	4	6	CM	CMX
	201553601	36	90	215	4	6	CM	CMX
*	**201553801**	38	95	220	4	6	CM	CMX
	201554001	40	95	220	4	6	CM	CMX
*	**201554501**	45	100	225	4	6	CM	CMX
	201555001	50	110	235	4	7	CM	CMX
*	**201555005**	50	120	275	5	7	CM	CMX
*	**201555601**	56	125	280	5	7	CM	CMX
*	**201556301**	63	130	285	5	8	CM	CMX

SKIN
UOP COATING

λ°s 28 | NF | Standard UOP

CM= MORSE SHANK

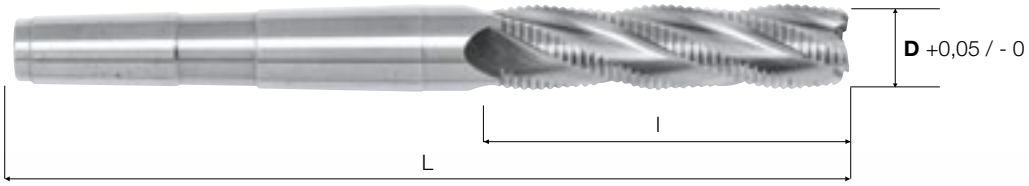
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
20155	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
20155	1003	CM	CMX



	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	201551003	10	42	110	1	4	CM	CMX
*	201551203	12	48	117	1	4	CM	CMX
*	201551403	14	50	135	2	4	CM	CMX
*	201551503	15	55	140	2	4	CM	CMX
*	201551603	16	55	140	2	4	CM	CMX
*	201551803	18	60	145	2	4	CM	CMX
	201552003	20	65	148	2	4	CM	CMX
*	201552203	22	65	166	3	4	CM	CMX
*	201552403	24	70	171	3	5	CM	CMX
	201552503	25	70	171	3	5	CM	CMX
	201552603	26	70	176	3	5	CM	CMX
	201552803	28	80	186	3	5	CM	CMX
	201553003	30	85	210	4	5	CM	CMX
	201553203	32	90	215	4	5	CM	CMX
*	201553403	34	90	215	4	5	CM	CMX
*	201553503	35	90	215	4	6	CM	CMX
	201553603	36	90	215	4	6	CM	CMX
*	201553803	38	95	220	4	6	CM	CMX
	201554003	40	95	220	4	6	CM	CMX
*	201554503	45	100	225	4	6	CM	CMX
	201555003	50	110	235	4	7	CM	CMX
*	201555007	50	120	275	5	7	CM	CMX
*	201555603	56	125	280	5	7	CM	CMX
*	201556303	63	130	285	5	8	CM	CMX

Z 4÷8

20155

Frese a **SGROSSARE**

Roughing end mills

Schruppfräser

Fraises ébauches

Fresas para desbaste

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

SKIN UOP COATING

Standard UOP | NR | λ°s 28

CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
20155	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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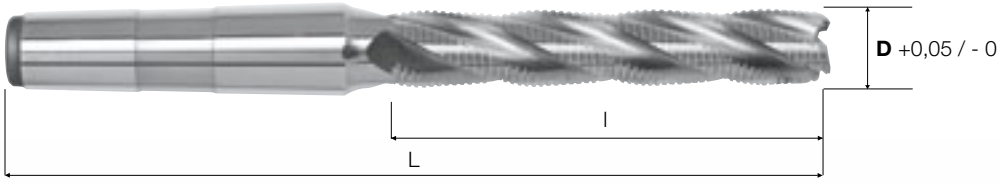
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
20160	2001	CM	CMX
20160	2003	CM	CMX



20160

Z 4÷8

Frese a **SEMIFINIRE**

Semi-finishing end mills

Schruppschlichtfräser

Fraises pour semifinition

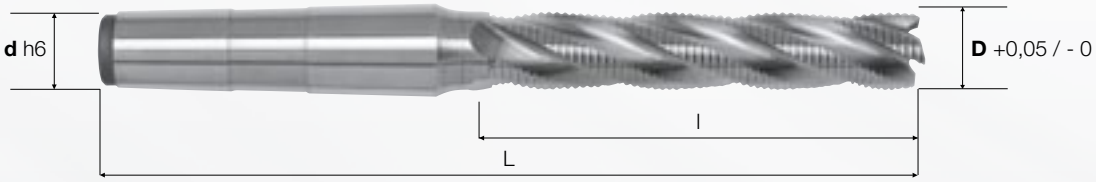
Fresa para semi-acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

SKIN UOP COATING | CM= MORSE SHANK | λ°s 28 | NF | Standard UOP

	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	201602001	20	110	212	3	4	CM	CMX
*	**201602201**	22	110	212	3	4	CM	CMX
*	**201602401**	24	125	227	3	5	CM	CMX
	201602501	25	125	250	4	5	CM	CMX
*	**201602601**	26	125	250	4	5	CM	CMX
*	**201602801**	28	135	260	4	5	CM	CMX
	201603001	30	140	265	4	5	CM	CMX
	201603201	32	150	275	4	6	CM	CMX
*	**201603401**	34	150	275	4	6	CM	CMX
*	**201603501**	35	150	275	4	6	CM	CMX
	201603601	36	150	275	4	6	CM	CMX
*	**201603801**	38	180	305	4	6	CM	CMX
	201604001	40	180	305	4	6	CM	CMX
*	**201604501**	45	190	315	4	7	CM	CMX
*	**201605001**	50	200	360	5	7	CM	CMX
*	**201605601**	56	210	370	5	7	CM	CMX
*	**201606301**	63	220	380	5	8	CM	CMX



20160

Z 4÷8

Frese a **SGROSSARE**

Roughing end mills

Schruppfräser

Fraises ébauches

Fresas para desbaste

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

SKIN UOP COATING | CM= MORSE SHANK | λ°s 28 | NR | Standard UOP

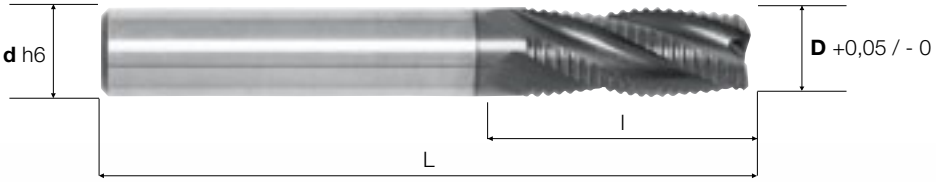
	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
	201602003	20	110	212	3	4	CM	CMX
*	**201602203**	22	110	212	3	4	CM	CMX
*	**201602403**	24	125	227	3	5	CM	CMX
	201602503	25	125	250	4	5	CM	CMX
*	**201602603**	26	125	250	4	5	CM	CMX
*	**201602803**	28	135	260	4	5	CM	CMX
	201603003	30	140	265	4	5	CM	CMX
	201603203	32	150	275	4	6	CM	CMX
*	**201603403**	34	150	275	4	6	CM	CMX
*	**201603503**	35	150	275	4	6	CM	CMX
	201603603	36	150	275	4	6	CM	CMX
*	**201603803**	38	180	305	4	6	CM	CMX
	201604003	40	180	305	4	6	CM	CMX
*	**201604503**	45	190	315	4	7	CM	CMX
*	**201605003**	50	200	360	5	7	CM	CMX
*	**201605603**	56	210	370	5	7	CM	CMX
*	**201606303**	63	220	380	5	8	CM	CMX

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
20160	○	○	◪	○	○	●	●
20160	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY



ALTE PRESTAZIONI
HIGH PERFORMANCE

cod.	D +0,05 - 0	l	L	dh6	Z	X-105 (PM Co 10,5%) SKIN UOP COATING
211050603	6	13	57	6	3	EMX
211050803	8	19	69	10	4	EMX
211051003	10	22	72	10	4	EMX
211051203	12	26	83	12	4	EMX
211051403	14	26	83	12	4	EMX
211051603	16	32	92	16	4	EMX
211051803	18	32	92	16	4	EMX
211052007	20	38	104	20	4	EMX
211052203	22	38	104	20	4	EMX
211052503	25	45	121	25	5	EMX
211052603	26	45	121	25	5	EMX
211052803	28	45	121	25	5	EMX
211053003	30	45	121	25	5	EMX
211053203	32	53	133	32	5	EMX

Z 3÷5

21105

Frese a **SGROSSARE**
Roughing end mills
Schruppfräser
Fraises ébauches
Fresas para desbaste

SKIN
UOP COATING

UNI 8244
DIN 844A
ISO 1641/I

NR

λ°s
28

W a richiesta ON REQUEST

F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 361

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21105	●	●	●	●	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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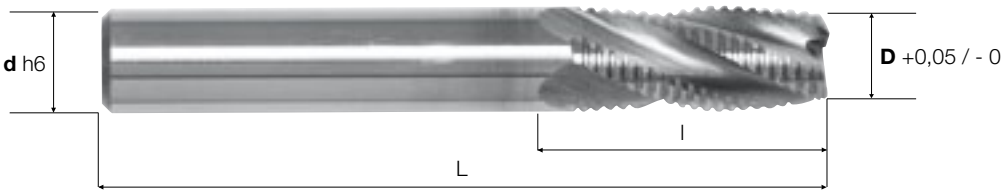
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21105	0601	CM	CMX



21105

Z 3÷7

Frese a **SEMIFINIRE** tagliente al centro
Semi-finishing end mills center cutting
Schruppschlichfräser zentrum schnitt
Fraises pour semifinition coupe au centre
Fresa para semi-acabado corte al centro

cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
211050601	6	13	57	6	3	CM	CMX
211050701	7	16	66	10	3	CM	CMX
211050801	8	19	69	10	4	CM	CMX
211050901	9	19	69	10	4	CM	CMX
211051001	10	22	72	10	4	CM	CMX
211051101	11	22	79	12	4	CM	CMX
211051201	12	26	83	12	4	CM	CMX
211051301	13	26	83	12	4	CM	CMX
211051401	14	26	83	12	4	CM	CMX
211051501	15	32	92	16	4	CM	CMX
211051601	16	32	92	16	4	CM	CMX
211051701	17	32	92	16	4	CM	CMX
211051801	18	32	92	16	4	CM	CMX
211051805	18	32	98	20	4	CM	CMX
211052001	20	38	98	16	4	CM	CMX
211052005	20	38	104	20	4	CM	CMX
211052201	22	38	104	20	4	CM	CMX
211052205	22	38	114	25	4	CM	CMX
211052401	24	45	121	25	5	CM	CMX
211052501	25	45	121	25	5	CM	CMX
211052601	26	45	121	25	5	CM	CMX
211052801	28	45	121	25	5	CM	CMX
211053001	30	45	121	25	5	CM	CMX
211053201	32	53	133	32	5	CM	CMX
211053601	36	53	133	32	6	CM	CMX
211054001	40	63	143	32	6	CM	CMX
211054501	45	63	143	32	6	CM	CMX
211055001	50	75	155	32	7	CM	CMX

SKIN
UOP COATING

λ°s 28 | NF | UNI 8244 DIN 844A ISO 1641/I

W a richiesta ON REQUEST | F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358

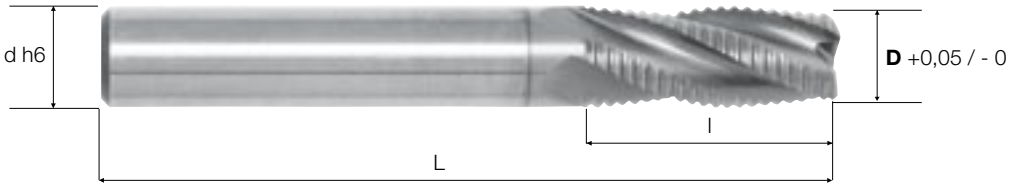
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21105	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21105	0603	CM	CMX



cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
211050603	6	13	57	6	3	CM	CMX
211050703	7	16	66	10	3	CM	CMX
211050803	8	19	69	10	4	CM	CMX
211050903	9	19	69	10	4	CM	CMX
211051003	10	22	72	10	4	CM	CMX
211051103	11	22	79	12	4	CM	CMX
211051203	12	26	83	12	4	CM	CMX
211051303	13	26	83	12	4	CM	CMX
211051403	14	26	83	12	4	CM	CMX
211051503	15	32	92	16	4	CM	CMX
211051603	16	32	92	16	4	CM	CMX
211051703	17	32	92	16	4	CM	CMX
211051803	18	32	92	16	4	CM	CMX
211051807	18	32	98	20	4	CM	CMX
211052003	20	38	98	16	4	CM	CMX
211052007	20	38	104	20	4	CM	CMX
211052203	22	38	104	20	4	CM	CMX
211052207	22	38	114	25	4	CM	CMX
211052403	24	45	121	25	5	CM	CMX
211052503	25	45	121	25	5	CM	CMX
211052603	26	45	121	25	5	CM	CMX
211052803	28	45	121	25	5	CM	CMX
211053003	30	45	121	25	5	CM	CMX
211053203	32	53	133	32	5	CM	CMX
211053603	36	53	133	32	6	CM	CMX
211054003	40	63	143	32	6	CM	CMX
211054503	45	63	143	32	6	CM	CMX
211055003	50	75	155	32	7	CM	CMX

Z 3÷7

21105

Frese a **SGROSSARE** tagliente al centro

Roughing end mills center cutting

Schruppfräser zentrum schnitt

Fraises d'ébauche coupe au centre

Fresa para desbaste corte al centro

SKIN
UOP COATING

UNI 8244
DIN 844A
ISO 1641/I

NR

λ°s
28

W a richiesta ON REQUEST

F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21105	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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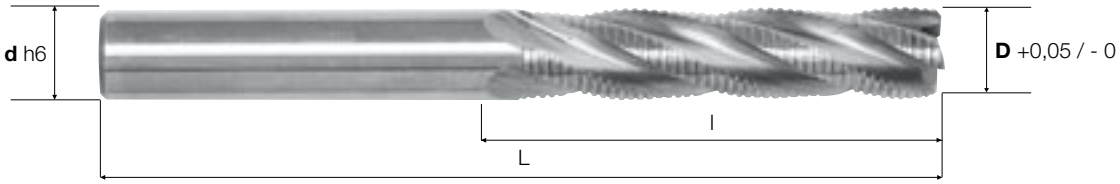
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
2120	0801	CM	CMX



21120

Z 4÷7

Frese a **SEMIFINIRE** tagliente al centro
Semi-finishing end mills center cutting
Schruppschlichtfräser zentrum schnitt
Fraises pour semifinition coupe au centre
Fresa para semi-acabado corte al centro

cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
211200801	8	38	88	10	4	CM	CMX
211201001	10	45	95	10	4	CM	CMX
211201201	12	53	110	12	4	CM	CMX
211201401	14	53	110	12	4	CM	CMX
211201501	15	63	123	16	4	CM	CMX
211201601	16	63	123	16	4	CM	CMX
211201801	18	63	123	16	4	CM	CMX
211201805	18	63	129	20	4	CM	CMX
211202001	20	75	135	16	4	CM	CMX
211202005	20	75	141	20	4	CM	CMX
211202201	22	75	141	20	4	CM	CMX
211202205	22	75	151	25	4	CM	CMX
211202401	24	90	166	25	5	CM	CMX
211202501	25	90	166	25	5	CM	CMX
211202801	28	90	166	25	5	CM	CMX
211203001	30	90	166	25	5	CM	CMX
211203201	32	106	186	32	5	CM	CMX
211203601	36	106	186	32	6	CM	CMX
211204001	40	125	205	32	6	CM	CMX
211204501	45	125	205	32	6	CM	CMX
211205001	50	150	230	32	7	CM	CMX

SKIN
UOP COATING

λ°s 28 | NF | UNI 8244 DIN 844A ISO 1641/I

W a richiesta ON REQUEST | F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358

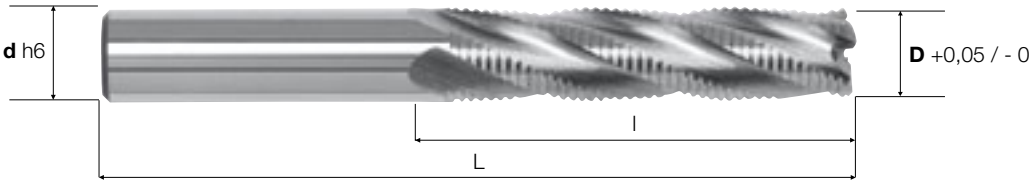
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21120	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21120	0803	CM	CMX



cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
211200803	8	38	88	10	4	CM	CMX
211201003	10	45	95	10	4	CM	CMX
211201203	12	53	110	12	4	CM	CMX
211201403	14	53	110	12	4	CM	CMX
211201503	15	63	123	16	4	CM	CMX
211201603	16	63	123	16	4	CM	CMX
211201803	18	63	123	16	4	CM	CMX
211201807	18	63	129	20	4	CM	CMX
211202003	20	75	135	16	4	CM	CMX
211202007	20	75	141	20	4	CM	CMX
211202203	22	75	141	20	4	CM	CMX
211202207	22	75	151	25	4	CM	CMX
211202403	24	90	166	25	5	CM	CMX
211202503	25	90	166	25	5	CM	CMX
211202803	28	90	166	25	5	CM	CMX
211203003	30	90	166	25	5	CM	CMX
211203203	32	106	186	32	5	CM	CMX
211203603	36	106	186	32	6	CM	CMX
211204003	40	125	205	32	6	CM	CMX
211204503	45	125	205	32	6	CM	CMX
211205003	50	150	230	32	7	CM	CMX

Z 4÷7

21120

Frese a **SGROSSARE** tagliente al centro

Roughing end mills center cutting

Schruppfräser zentrum schnitt

Fraises d'ébauche coupe au centre

Fresa para desbaste corte al centro

SKIN
UOP COATING

UNI 8244
DIN 844A
ISO 1641/I

NR

λ°s
28

W a richiesta ON REQUEST

F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 358

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21120	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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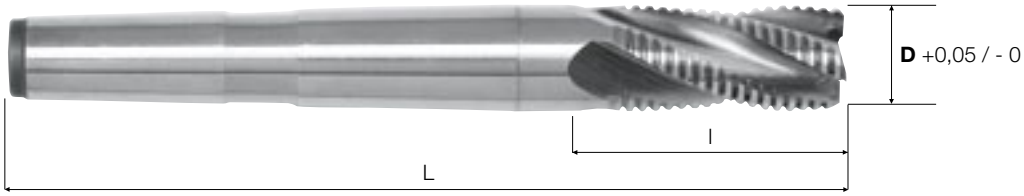
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21150	1001	CM	CMX



21150

Z 4÷8

Frese a **SEMIFINIRE** tagliente al centro
Semi-finishing end mills center cutting
Schruppschlichtfräser zentrum schnitt
Fraises pour semifinition coupe au centre
Fresa para semi-acabado corte al centro

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	211501001	10	22	92	1	4	CM	CMX
*	211501101	11	22	92	1	4	CM	CMX
*	211501201	12	26	96	1	4	CM	CMX
*	211501301	13	26	96	1	4	CM	CMX
*	211501401	14	26	111	2	4	CM	CMX
*	211501501	15	32	117	2	4	CM	CMX
	211501601	16	32	117	2	4	CM	CMX
*	211501701	17	32	117	2	4	CM	CMX
	211501801	18	32	117	2	4	CM	CMX
	211502001	20	38	140	3	4	CM	CMX
	211502201	22	38	140	3	4	CM	CMX
	211502401	24	45	147	3	5	CM	CMX
	211502501	25	45	147	3	5	CM	CMX
	211502601	26	45	147	3	5	CM	CMX
	211502801	28	45	147	3	5	CM	CMX
	211503001	30	53	155	3	5	CM	CMX
	211503201	32	53	178	4	5	CM	CMX
	211503401	34	53	178	4	5	CM	CMX
	211503501	35	53	178	4	6	CM	CMX
	211503601	36	53	178	4	6	CM	CMX
	211503801	38	63	188	4	6	CM	CMX
	211504001	40	63	188	4	6	CM	CMX
	211504501	45	63	188	4	6	CM	CMX
	211505001	50	75	200	4	7	CM	CMX
	211505005	50	75	233	5	7	CM	CMX
	211505601	56	75	233	5	7	CM	CMX
	211506301	63	90	248	5	8	CM	CMX

SKIN
UOP COATING

λ°s 28

NF

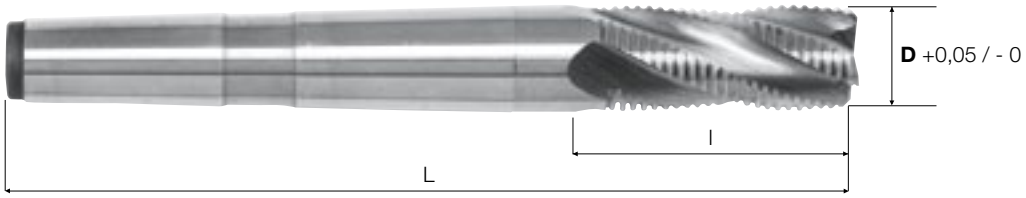
UNI 8250
DIN 845B
ISO 1641/ II

CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21150	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY



	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**211501003**	10	22	92	1	4	CM	CMX
*	**211501103**	11	22	92	1	4	CM	CMX
*	**211501203**	12	26	96	1	4	CM	CMX
*	**211501303**	13	26	96	1	4	CM	CMX
*	**211501403**	14	26	111	2	4	CM	CMX
*	**211501503**	15	32	117	2	4	CM	CMX
	211501603	16	32	117	2	4	CM	CMX
*	**211501703**	17	32	117	2	4	CM	CMX
	211501803	18	32	117	2	4	CM	CMX
	211502003	20	38	140	3	4	CM	CMX
	211502203	22	38	140	3	4	CM	CMX
	211502403	24	45	147	3	5	CM	CMX
	211502503	25	45	147	3	5	CM	CMX
	211502603	26	45	147	3	5	CM	CMX
	211502803	28	45	147	3	5	CM	CMX
	211503003	30	53	155	3	5	CM	CMX
	211503203	32	53	178	4	5	CM	CMX
	211503403	34	53	178	4	5	CM	CMX
	211503503	35	53	178	4	6	CM	CMX
	211503603	36	53	178	4	6	CM	CMX
	211503803	38	63	188	4	6	CM	CMX
	211504003	40	63	188	4	6	CM	CMX
	211504503	45	63	188	4	6	CM	CMX
	211505003	50	75	200	4	7	CM	CMX
	211505007	50	75	233	5	7	CM	CMX
	211505603	56	75	233	5	7	CM	CMX
	211506303	63	90	248	5	8	CM	CMX

Z 4÷8

21150

Frese a **SGROSSARE** tagliente al centro
Roughing end mills center cutting
Schruppfräser zentrum schnitt
Fraises d'ébauche coupe au centre
Fresa para desbaste corte al centro

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8250
DIN 845B
ISO 1641/
II

NR

λ°s
28

CM=
MORSE
SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21150	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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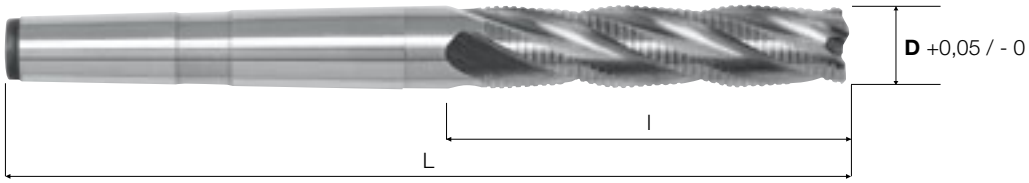
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21155	1001	CM	CMX



21155

Z 4÷8

Frese a **SEMIFINIRE** tagliente al centro
Semi-finishing end mills center cutting
Schruppschlichfräser zentrum schnitt
Fraises pour semifinition coupe au centre
Fresa para semi-acabado corte al centro

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	211551001	10	45	115	1	4	CM	CMX
*	211551201	12	53	123	1	4	CM	CMX
*	211551401	14	53	138	2	4	CM	CMX
*	211551501	15	63	148	2	4	CM	CMX
	211551601	16	63	148	2	4	CM	CMX
	211551801	18	63	148	2	4	CM	CMX
	211552001	20	75	177	3	4	CM	CMX
	211552201	22	75	177	3	4	CM	CMX
	211552401	24	90	192	3	5	CM	CMX
	211552501	25	90	192	3	5	CM	CMX
	211552601	26	90	192	3	5	CM	CMX
	211552801	28	90	192	3	5	CM	CMX
	211553001	30	90	192	3	5	CM	CMX
	211553201	32	106	231	4	5	CM	CMX
	211553401	34	106	231	4	5	CM	CMX
	211553501	35	106	231	4	6	CM	CMX
	211553601	36	106	231	4	6	CM	CMX
	211553801	38	125	250	4	6	CM	CMX
	211554001	40	125	250	4	6	CM	CMX
	211554501	45	125	250	4	6	CM	CMX
	211555001	50	150	275	4	7	CM	CMX
	211555005	50	150	308	5	7	CM	CMX
	211555601	56	150	308	5	7	CM	CMX
	211556301	63	180	338	5	8	CM	CMX

SKIN
UOP COATING

λ°s 28 | NF | UNI 8250 DIN 845B ISO 1641/ II

CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21155	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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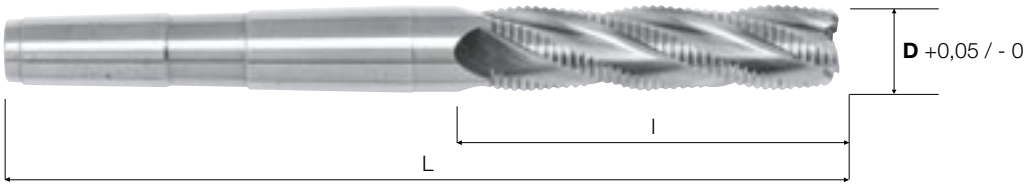

	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**211551003**	10	45	115	1	4	CM	CMX
*	**211551203**	12	53	123	1	4	CM	CMX
*	**211551403**	14	53	138	2	4	CM	CMX
*	**211551503**	15	63	148	2	4	CM	CMX
	211551603	16	63	148	2	4	CM	CMX
	211551803	18	63	148	2	4	CM	CMX
	211552003	20	75	177	3	4	CM	CMX
	211552203	22	75	177	3	4	CM	CMX
	211552403	24	90	192	3	5	CM	CMX
	211552503	25	90	192	3	5	CM	CMX
	211552603	26	90	192	3	5	CM	CMX
	211552803	28	90	192	3	5	CM	CMX
	211553003	30	90	192	3	5	CM	CMX
	211553203	32	106	231	4	5	CM	CMX
	211553403	34	106	231	4	5	CM	CMX
	211553503	35	106	231	4	6	CM	CMX
	211553603	36	106	231	4	6	CM	CMX
	211553803	38	125	250	4	6	CM	CMX
	211554003	40	125	250	4	6	CM	CMX
	211554503	45	125	250	4	6	CM	CMX
	211555003	50	150	275	4	7	CM	CMX
	211555007	50	150	308	5	7	CM	CMX
	211555603	56	150	308	5	7	CM	CMX
	211556303	63	180	338	5	8	CM	CMX

Z 4÷8

21155

Frese a **SGROSSARE** tagliente al centro
Roughing end mills center cutting
Schruppfräser zentrum schnitt
Fraises d'ébauche coupe au centre
Fresa para desbaste corte al centro

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI 8250
DIN 845B
ISO 1641/
II

NR

λ°s
28

CM=
MORSE
SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21155	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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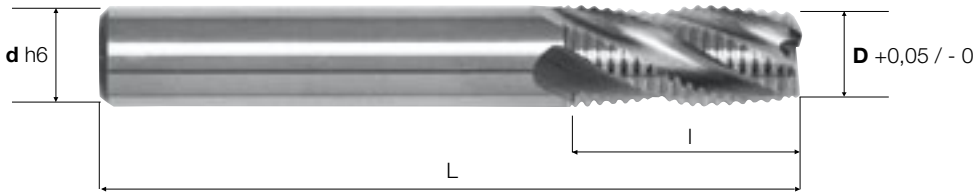
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21305	0503	CM	CMX



21305

Z 4÷8

Frese a **SGROSSARE**

Roughing end mills

Schruppfräser

Fraises ébauches

Fresas para desbaste

cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKINinox UOP COATING
213050503	5	13	57	6	3	CM	CMX
213050603	6	13	57	6	3	CM	CMX
213050803	8	19	69	10	4	CM	CMX
213051003	10	22	72	10	4	CM	CMX
213051203	12	26	83	12	4	CM	CMX
213051403	14	26	83	12	4	CM	CMX
213051503	15	32	92	16	4	CM	CMX
213051603	16	32	92	16	4	CM	CMX
213051803	18	32	92	16	4	CM	CMX
213052007	20	38	104	20	4	CM	CMX
213052203	22	38	104	20	4	CM	CMX
213052503	25	45	121	25	5	CM	CMX

SKINinox UOP COATING

λ°s		
32	NR	UNI 8244 DIN 844A ISO 1641/I
	W a richiesta ON REQUEST	F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 359

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21305	○	○	●	○	○	●	●

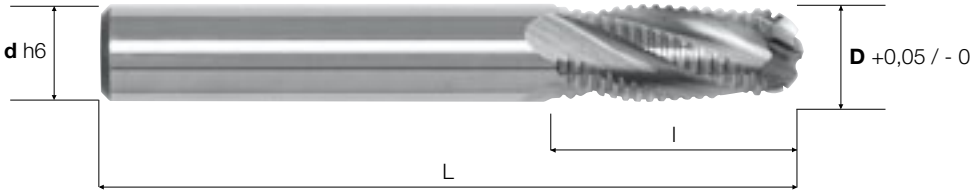
● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21505	0601	CM	CMX



cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
215050601	6	13	57	6	3	CM	CMX
215050701	7	16	66	10	3	CM	CMX
215050801	8	19	69	10	4	CM	CMX
215050901	9	19	69	10	4	CM	CMX
215051001	10	22	72	10	4	CM	CMX
215051101	11	22	79	12	4	CM	CMX
215051201	12	26	83	12	4	CM	CMX
215051301	13	26	83	12	4	CM	CMX
215051401	14	26	83	12	4	CM	CMX
215051501	15	32	92	16	4	CM	CMX
215051601	16	32	92	16	4	CM	CMX
215051801	18	32	92	16	4	CM	CMX
215051805	18	32	98	20	4	CM	CMX
215052001	20	38	98	16	4	CM	CMX
215052005	20	38	104	20	4	CM	CMX
215052201	22	38	104	20	4	CM	CMX
215052205	22	38	114	25	4	CM	CMX
215052401	24	45	121	25	5	CM	CMX
215052501	25	45	121	25	5	CM	CMX
215052601	26	45	121	25	5	CM	CMX
215052801	28	45	121	25	5	CM	CMX
215053001	30	45	121	25	5	CM	CMX
215053201	32	53	133	32	5	CM	CMX
215053601	36	53	133	32	6	CM	CMX
215054001	40	63	143	32	6	CM	CMX
215054501	45	63	143	32	6	CM	CMX
215055001	50	75	155	32	7	CM	CMX

Z 3÷7
BALL-NOSED CUTTERS

21505

Frese a ***SEMIFINIRE***, testa semisferica
Ball nosed semi-finishing end mills
Halbrundkopfschruppschtfräser
Fraises à bout hémisphérique pour semifinition
Fresa hemisférica para semi-acabado

SKIN
UOP COATING

UNI DIN ISO 1641/I | NF | λ°s 28

W a richiesta ON REQUEST | F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 359

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21505	●	●	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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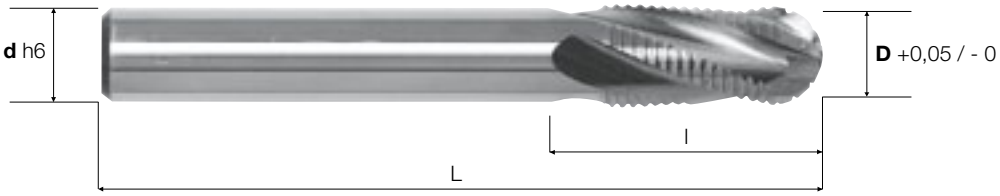
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21505	0603	CM	CMX



21505

Z 3÷7

BALL-NOSED CUTTERS

Frese a **SGROSSARE**, testa semisferica

Ball nosed roughing end mills

Halbrundkopfschruppfräser

Fraises à bout hémisphérique d'ébauche

Fresa hemisférica para desbaste

cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
215050603	6	13	57	6	3	CM	CMX
215050703	7	16	66	10	3	CM	CMX
215050803	8	19	69	10	4	CM	CMX
215050903	9	19	69	10	4	CM	CMX
215051003	10	22	72	10	4	CM	CMX
215051103	11	22	79	12	4	CM	CMX
215051203	12	26	83	12	4	CM	CMX
215051303	13	26	83	12	4	CM	CMX
215051403	14	26	83	12	4	CM	CMX
215051503	15	32	92	16	4	CM	CMX
215051603	16	32	92	16	4	CM	CMX
215051803	18	32	92	16	4	CM	CMX
215051807	18	32	98	20	4	CM	CMX
215052003	20	38	98	16	4	CM	CMX
215052007	20	38	104	20	4	CM	CMX
215052203	22	38	104	20	4	CM	CMX
215052207	22	38	114	25	4	CM	CMX
215052403	24	45	121	25	5	CM	CMX
215052503	25	45	121	25	5	CM	CMX
215052603	26	45	121	25	5	CM	CMX
215052803	28	45	121	25	5	CM	CMX
215053003	30	45	121	25	5	CM	CMX
215053203	32	53	133	32	5	CM	CMX
215053603	36	53	133	32	6	CM	CMX
215054003	40	63	143	32	6	CM	CMX
215054503	45	63	143	32	6	CM	CMX
215055003	50	75	155	32	7	CM	CMX

SKIN UOP COATING

λ°s 28 | NR | UNI DIN ISO 1641/I

W a richiesta ON REQUEST | F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 359

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21505	◕	◕	◕	○	○	●	●

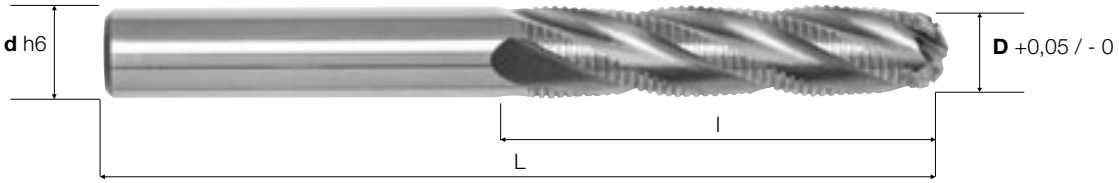
● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21520	0801	CM	CMX



cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
215200801	8	38	88	10	4	CM	CMX
215201001	10	45	95	10	4	CM	CMX
215201201	12	53	110	12	4	CM	CMX
215201401	14	53	110	12	4	CM	CMX
215201501	15	63	123	16	4	CM	CMX
215201601	16	63	123	16	4	CM	CMX
215201801	18	63	123	16	4	CM	CMX
215201805	18	63	129	20	4	CM	CMX
215202001	20	75	135	16	4	CM	CMX
215202005	20	75	141	20	4	CM	CMX
215202201	22	75	141	20	4	CM	CMX
215202205	22	75	151	25	4	CM	CMX
215202401	24	90	166	25	5	CM	CMX
215202501	25	90	166	25	5	CM	CMX
215202801	28	90	166	25	5	CM	CMX
215203001	30	90	166	25	5	CM	CMX
215203201	32	106	186	32	5	CM	CMX
215203601	36	106	186	32	6	CM	CMX
215204001	40	125	205	32	6	CM	CMX
215204501	45	125	205	32	6	CM	CMX
215205001	50	150	230	32	7	CM	CMX

Z 4÷7
BALL-NOSED CUTTERS

21520

Frese a **SEMIFINIRE**, testa semisferica
Ball nosed semi-finishing end mills
Halbrundkopfschruppschtfräser
Fraises à bout hémisphérique pour semifinition
Fresa hemisférica para semi-acabado

SKIN
UOP COATING

UNI DIN ISO 1641/I | NF | λ°s 28

W a richiesta ON REQUEST | F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 359

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21520	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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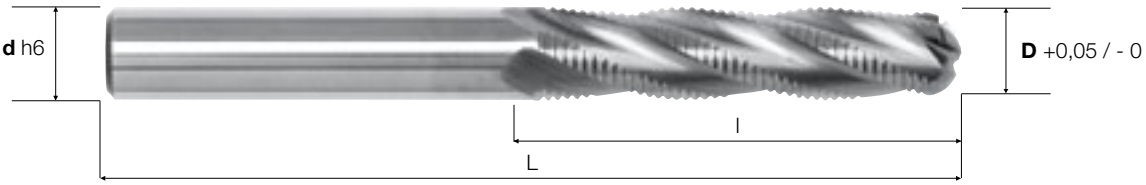
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21520	0803	CM	CMX



21520

Z 4÷7

BALL-NOSED CUTTERS

Frese a **SGROSSARE**, testa semisferica

Ball nosed roughing end mills

Halbrundkopfschruppfräser

Fraises à bout hémisphérique d'ébauche

Fresa hemisférica para desbaste

cod.	D +0,05 - 0	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
215200803	8	38	88	10	4	CM	CMX
215201003	10	45	95	10	4	CM	CMX
215201203	12	53	110	12	4	CM	CMX
215201403	14	53	110	12	4	CM	CMX
215201503	15	63	123	16	4	CM	CMX
215201603	16	63	123	16	4	CM	CMX
215201803	18	63	123	16	4	CM	CMX
215201807	18	63	129	20	4	CM	CMX
215202003	20	75	135	16	4	CM	CMX
215202007	20	75	141	20	4	CM	CMX
215202203	22	75	141	20	4	CM	CMX
215202207	22	75	151	25	4	CM	CMX
215202403	24	90	166	25	5	CM	CMX
215202503	25	90	166	25	5	CM	CMX
215202803	28	90	166	25	5	CM	CMX
215203003	30	90	166	25	5	CM	CMX
215203203	32	106	186	32	5	CM	CMX
215203603	36	106	186	32	6	CM	CMX
215204003	40	125	205	32	6	CM	CMX
215204503	45	125	205	32	6	CM	CMX
215205003	50	150	230	32	7	CM	CMX

SKIN
UOP COATING

λ°s 28 | NR | UNI DIN ISO 1641/I

W a richiesta ON REQUEST | F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 359

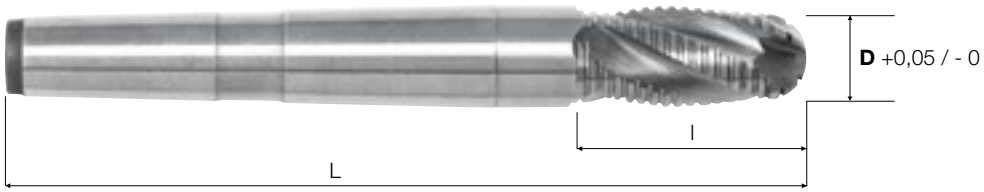
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21520	◕	◕	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21550	1001	CM	CMX



	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**215501001**	10	22	92	1	4	CM	CMX
*	**215501201**	12	26	96	1	4	CM	CMX
*	**215501401**	14	26	111	2	4	CM	CMX
*	**215501501**	15	32	117	2	4	CM	CMX
	215501601	16	32	117	2	4	CM	CMX
	215501801	18	32	117	2	4	CM	CMX
	215502001	20	38	140	3	4	CM	CMX
	215502201	22	38	140	3	4	CM	CMX
	215502401	24	45	147	3	5	CM	CMX
	215502501	25	45	147	3	5	CM	CMX
	215502601	26	45	147	3	5	CM	CMX
	215502801	28	45	147	3	5	CM	CMX
	215503001	30	53	155	3	5	CM	CMX
	215503201	32	53	178	4	5	CM	CMX
	215503401	34	53	178	4	5	CM	CMX
	215503501	35	53	178	4	6	CM	CMX
	215503601	36	53	178	4	6	CM	CMX
	215503801	38	63	188	4	6	CM	CMX
	215504001	40	63	188	4	6	CM	CMX
	215504501	45	63	188	4	6	CM	CMX
	215505001	50	75	233	5	7	CM	CMX
	215505601	56	75	233	5	7	CM	CMX
	215506301	63	90	248	5	8	CM	CMX

Z 4÷8

BALL-NOSED CUTTERS

21550

Frese a ***SEMIFINIRE***, testa semisferica

Ball nosed semi-finishing end mills

Halbrundkopfschruppschtfräser

Fraises à bout hémisphérique pour semifinition

Fresa hemisférica para semi-acabado

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI DIN ISO 1641/I | NF | λ°s 28

CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21550	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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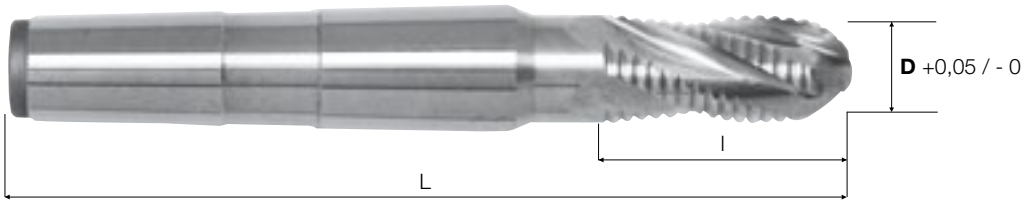
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21550	1003	CM	CMX



21550

Z 4÷8

BALL-NOSED CUTTERS

Frese a **SGROSSARE**, testa semisferica

Ball nosed roughing end mills

Halbrundkopfschruppfräser

Fraises à bout hémisphérique d'ébauche

Fresa hemisférica para desbaste

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

	cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**215501003**	10	22	92	1	4	CM	CMX
*	**215501203**	12	26	96	1	4	CM	CMX
*	**215501403**	14	26	111	2	4	CM	CMX
*	**215501503**	15	32	117	2	4	CM	CMX
	215501603	16	32	117	2	4	CM	CMX
	215501803	18	32	117	2	4	CM	CMX
	215502003	20	38	140	3	4	CM	CMX
	215502203	22	38	140	3	4	CM	CMX
	215502403	24	45	147	3	5	CM	CMX
	215502503	25	45	147	3	5	CM	CMX
	215502603	26	45	147	3	5	CM	CMX
	215502803	28	45	147	3	5	CM	CMX
	215503003	30	53	155	3	5	CM	CMX
	215503203	32	53	178	4	5	CM	CMX
	215503403	34	53	178	4	5	CM	CMX
	215503503	35	53	178	4	6	CM	CMX
	215503603	36	53	178	4	6	CM	CMX
	215503803	38	63	188	4	6	CM	CMX
	215504003	40	63	188	4	6	CM	CMX
	215504503	45	63	188	4	6	CM	CMX
	215505003	50	75	233	5	7	CM	CMX
	215505603	56	75	233	5	7	CM	CMX
	215506303	63	90	248	5	8	CM	CMX

SKIN UOP COATING

λ°s 28

NR

UNI DIN ISO 1641/I

CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21550	○	○	◕	○	○	●	●

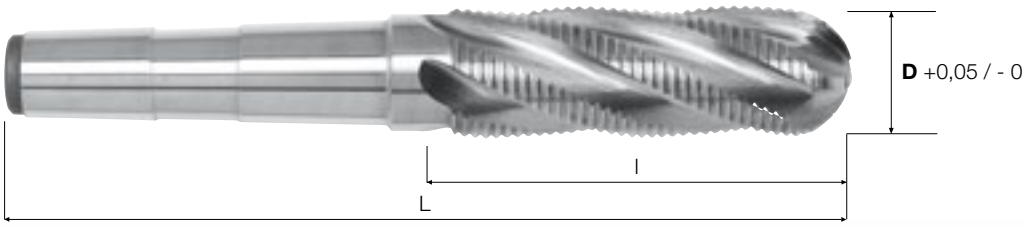
● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it

MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
21555	1601	CM	CMX
21555	1603	CM	CMX



cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
215551601	16	63	148	2	4	CM	CMX
215551801	18	63	148	2	4	CM	CMX
215552001	20	75	177	3	4	CM	CMX
215552201	22	75	177	3	4	CM	CMX
215552401	24	90	192	3	5	CM	CMX
215552501	25	90	192	3	5	CM	CMX
215552601	26	90	192	3	5	CM	CMX
215552801	28	90	192	3	5	CM	CMX
215553001	30	90	192	3	5	CM	CMX
215553201	32	106	231	4	5	CM	CMX
215553401	34	106	231	4	5	CM	CMX
215553501	35	106	231	4	6	CM	CMX
215553601	36	106	231	4	6	CM	CMX
215553801	38	125	250	4	6	CM	CMX
215554001	40	125	250	4	6	CM	CMX
215554501	45	125	250	4	6	CM	CMX
215555001	50	150	308	5	7	CM	CMX
215555601	56	150	308	5	7	CM	CMX
215556301	63	180	338	5	8	CM	CMX

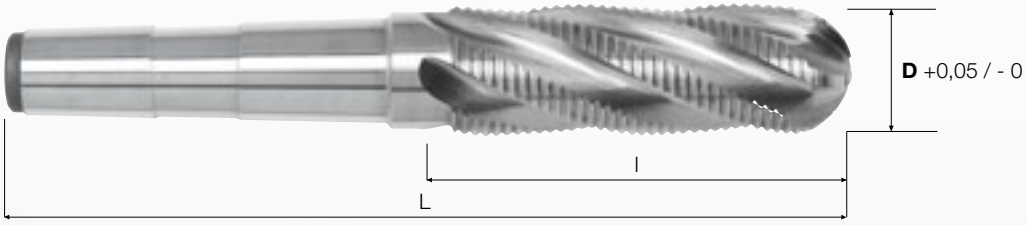
Z 4÷8
BALL-NOSED CUTTERS

21555

Frese a ***SEMIFINIRE***, testa semisferica
Ball nosed semi-finishing end mills
Halbrundkopfschruppschtfräser
Fraises à bout hémisphérique pour semifinition
Fresa hemisférica para semi-acabado

SKIN
UOP COATING

UNI DIN ISO 1641/ II | NF | λ°s 28 | CM= MORSE SHANK



cod.	D +0,05 - 0	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
215551603	16	63	148	2	4	CM	CMX
215551803	18	63	148	2	4	CM	CMX
215552003	20	75	177	3	4	CM	CMX
215552203	22	75	177	3	4	CM	CMX
215552403	24	90	192	3	5	CM	CMX
215552503	25	90	192	3	5	CM	CMX
215552603	26	90	192	3	5	CM	CMX
215552803	28	90	192	3	5	CM	CMX
215553003	30	90	192	3	5	CM	CMX
215553203	32	106	231	4	5	CM	CMX
215553403	34	106	231	4	5	CM	CMX
215553503	35	106	231	4	6	CM	CMX
215553603	36	106	231	4	6	CM	CMX
215553803	38	125	250	4	6	CM	CMX
215554003	40	125	250	4	6	CM	CMX
215554503	45	125	250	4	6	CM	CMX
215555003	50	150	308	5	7	CM	CMX
215555603	56	150	308	5	7	CM	CMX
215556303	63	180	338	5	8	CM	CMX

Z 4÷8
BALL-NOSED CUTTERS

21555

Frese a ***SGROSSARE***, testa semisferica
Ball nosed roughing end mills
Halbrundkopfschruppfräser
Fraises à bout hémisphérique d'ébauche
Fresa hemisférica para desbaste

SKIN
UOP COATING

UNI DIN ISO 1641/ II | NR | λ°s 28 | CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
21555	○	○	◪	○	○	●	●
21555	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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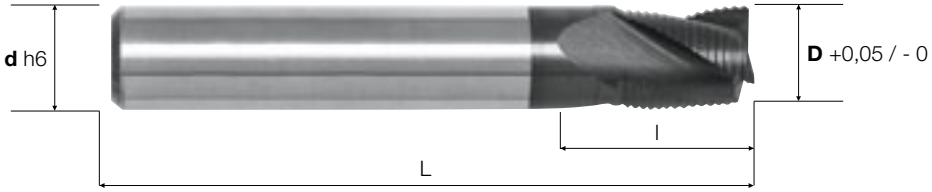
MADE IN ITALY

example code:

series	ø	X-105 UNCOATED	X-85 UNCOATED	X-85 COATED
22105	0602	EMX	–	–
24105	1000	–	CM	CMX

ALTE PRESTAZIONI
HIGH PERFORMANCE



22105

Z 3

Frese a **SGROSSARE**

Roughing end mills

Schruppfräser

Fraises ébauches

Fresas para desbaste

SKIN
UOP COATING

W a richiesta ON REQUEST | F a richiesta ON REQUEST | λ°s 32 | NRF | UNI DIN ISO 1641/I

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 361

cod.	D +0,05 - 0	l	L	dh6	Z	X-105 (PM Co 10,5%)	SKIN UOP COATING
221050602	6	8	52	6	3	EMX	
221050802	8	11	61	10	3	EMX	
221051002	10	13	63	10	3	EMX	
221051202	12	13	73	12	3	EMX	
221051402	14	16	73	12	3	EMX	
221051602	16	19	79	16	3	EMX	
221051802	18	19	79	16	3	EMX	
221052002	20	22	88	20	3	EMX	
221052202	22	22	88	20	3	EMX	
221052502	25	26	102	25	3	EMX	
221052802	28	26	102	25	3	EMX	
221053002	30	26	102	25	3	EMX	
221053202	32	32	112	32	3	EMX	

24105

Z 4

Frese a quattro taglienti

Four flutes milling cutters

Schafträser Vierschneider

Fraises deux tailles quatre dents

Fresa de cuatro labios

cod.	Dh10	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
241051000	10	30	200	10	4	CM	CMX
241051200	12	30	200	12	4	CM	CMX
241051600	16	35	200	16	4	CM	CMX
241052000	20	35	200	20	4	CM	CMX
241052500	25	40	200	25	4	CM	CMX

SKIN
UOP COATING

W a richiesta ON REQUEST | F a richiesta ON REQUEST | λ°s 32 | N | Standard UOP

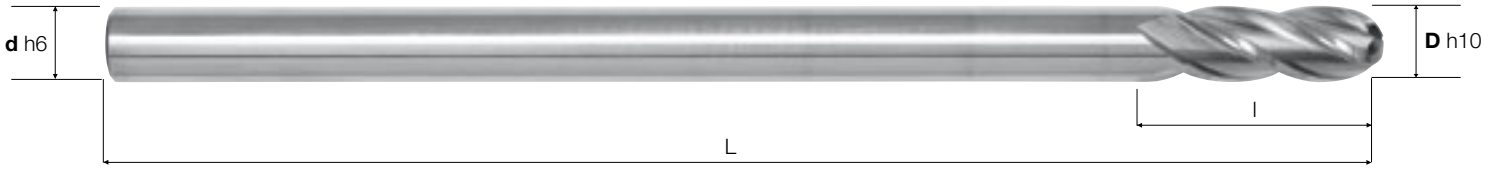
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
22105	●	●	●	●	○	●	●
24105	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
24110	1000	CM	CMX
24115	1000	CM	CMX



cod.	Dh10	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
241101000	10	30	200	10	4	CM	CMX
241101200	12	30	200	12	4	CM	CMX
241101600	16	35	200	16	4	CM	CMX
241102000	20	35	200	20	4	CM	CMX
241102500	25	40	200	25	4	CM	CMX

Z 4

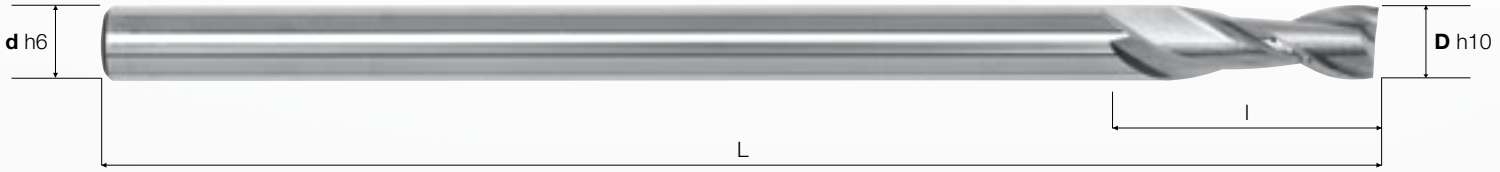
BALL-NOSED CUTTERS

24110

Frese a quattro taglienti a testa semisferica
Ball nosed milling cutters
Fräser Halbrundkopf
Fraises à bout hémisphérique
Fresa hemisférica

SKIN
UOP COATING

Standard UOP	N	λ°s 32	W a richiesta ON REQUEST	F a richiesta ON REQUEST



cod.	Dh10	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
241151000	10	30	200	10	2	CM	CMX
241151200	12	30	200	12	2	CM	CMX
241151600	16	35	200	16	2	CM	CMX
241152000	20	35	200	20	2	CM	CMX
241152500	25	40	200	25	2	CM	CMX

Z2

24115

Frese a due taglienti
Two flute end mills
Schaftfräser Zweischneider
Fraises deux tailles deux dents
Fresa de dos labios

SKIN
UOP COATING

Standard UOP	N	λ°s 32	W a richiesta ON REQUEST	F a richiesta ON REQUEST

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
24110	○	○	◪	○	○	●	●
24115	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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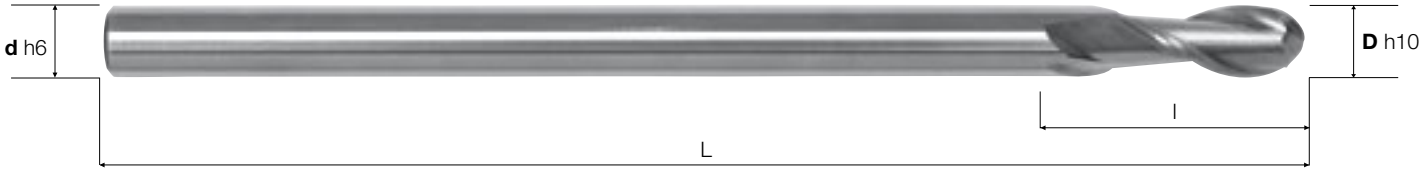
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
24120	1000	CM	CMX
24125	0150	CM	CMX



24120

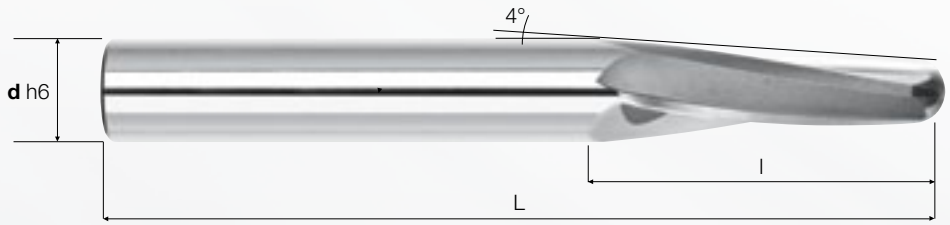
Z 2 BALL-NOSED CUTTERS

Frese a due taglienti a testa semisferica
Ball-nosed two flute slot drills
Halbrundkopffräser Zweischneider
Fraises à bout hémisphérique deux dents
Fresa hemisférica de dos labios

SKIN UOP COATING

W	F	λ°s		
a richiesta ON REQUEST	a richiesta ON REQUEST	32	N	Standard UOP

cod.	Dh10	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
241201000	10	30	200	10	2	CM	CMX
241201200	12	30	200	12	2	CM	CMX
241201600	16	35	200	16	2	CM	CMX
241202000	20	35	200	20	2	CM	CMX
241202500	25	40	200	25	2	CM	CMX



24125

Z 2 BALL-NOSED CUTTERS

Frese coniche a due taglienti a testa semisferica
Conicità 4° laterali
Ball nosed milling cutters Taper 4°
Fräser Halbrundkopf 4° Konizität
Fraises à bout hémisphérique Conicité 4°
Fresa hemisférica Conicidad 4°

SKIN UOP COATING

W	F	λ°s		
a richiesta ON REQUEST	a richiesta ON REQUEST	15	N	Standard UOP

cod.	R	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
241250150	1,5	50	180	10	2	CM	CMX
241250200	2	45	180	10	2	CM	CMX
241250250	2,5	38	180	10	2	CM	CMX
241250300	3	45	200	12	2	CM	CMX
241250350	3,5	40	200	12	2	CM	CMX
241250400	4	47	200	14	2	CM	CMX
241250500	5	47	200	16	2	CM	CMX
241250600	6	63	200	20	2	CM	CMX
241250800	8	72	200	25	2	CM	CMX

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
24120	○	○	◪	○	○	●	●
24125	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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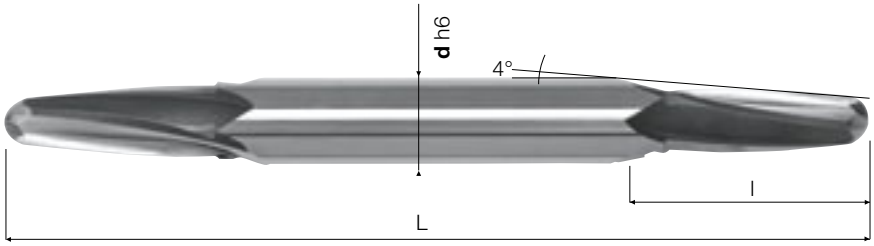
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
24130	0150	CM	CMX
24515	2530	CM	CMX



	cod.	R	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**241300150**	1,5	25	180	10	2	CM	CMX
*	**241300200**	2	30	180	10	2	CM	CMX
*	**241300250**	2,5	30	180	10	2	CM	CMX
*	**241300300**	3	30	200	12	2	CM	CMX
*	**241300350**	3,5	30	200	12	2	CM	CMX
*	**241300400**	4	35	200	14	2	CM	CMX
*	**241300500**	5	45	200	16	2	CM	CMX
*	**241300600**	6	45	200	20	2	CM	CMX
*	**241300800**	8	50	200	25	2	CM	CMX

Z 2

BALL-NOSED CUTTERS

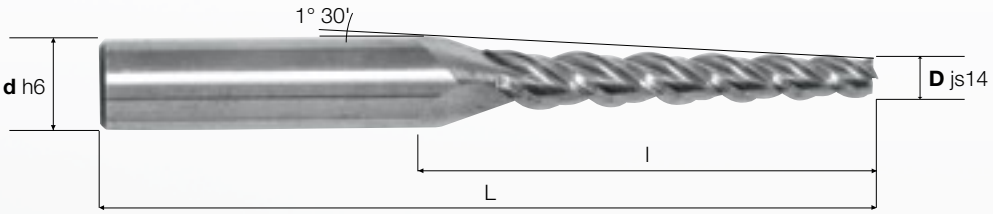
24130

Frese coniche a due taglienti a testa semisferica
Conicità 4° laterali
Ball nosed milling cutters Taper 4°
Fräser Halbrundkopf 4° Konizität
Fraises à bout hémisphérique Conicité 4°
Fresa hemisférica Conicidad 4°

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

Standard UOP | N | λ°s 15

SKIN UOP COATING



	cod.	Djs14	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**245152530**	2,5	30	70	6	3	CM	CMX
*	**245152540**	2,5	40	80	8	3	CM	CMX
*	**245153030**	3	30	75	8	3	CM	CMX
*	**245153040**	3	40	85	8	3	CM	CMX
*	**245153050**	3	50	95	10	3	CM	CMX
*	**245153530**	3,5	30	75	8	3	CM	CMX
*	**245153540**	3,5	40	85	8	3	CM	CMX
*	**245154530**	4,5	30	75	8	3	CM	CMX
*	**245154540**	4,5	40	85	10	3	CM	CMX

Z 3

24515

Frese coniche per matrici Conicità 1°30'
Tapered die-sinking cutters α = 1°30'
Gesenkfräser kegelg α = 1°30'
Fraises a matrice coniques α = 1°30'
Fresa conica para matriceria α = 1°30'

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN UOP COATING

Standard UOP | N | λ°s 40

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
24130	○	○	◪	○	○	●	●
24515	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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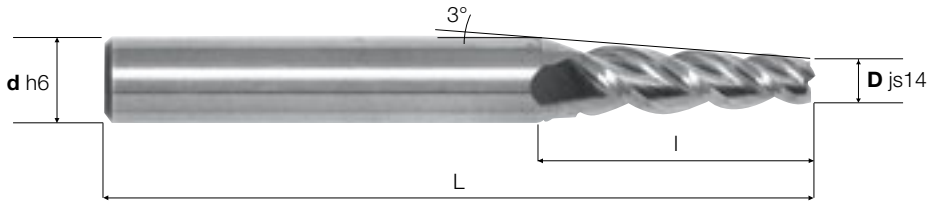
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
24530	2520	CM	CMX



24530

Z 3

Frese coniche per matrici Conicità 3°
Tapered die-sinking cutters α = 3°
Gesenkfräser kegelg α = 3°
Fraises pour matrice coniques α = 3°
Fresa conica para matriceria α = 3°

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	Djs14	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**245302520**	2,5	20	65	6	3	CM	CMX
*	**245302525**	2,5	25	70	8	3	CM	CMX
*	**245302530**	2,5	30	75	8	3	CM	CMX
*	**245302540**	2,5	40	85	8	3	CM	CMX
*	**245303020**	3	20	65	8	3	CM	CMX
*	**245303025**	3	25	70	8	3	CM	CMX
*	**245303030**	3	30	75	8	3	CM	CMX
*	**245303040**	3	40	85	8	3	CM	CMX
*	**245303050**	3	50	95	10	3	CM	CMX
*	**245303520**	3,5	20	65	8	3	CM	CMX
*	**245303525**	3,5	25	70	8	3	CM	CMX
*	**245303530**	3,5	30	75	8	3	CM	CMX
*	**245303540**	3,5	40	85	10	3	CM	CMX
*	**245303550**	3,5	50	100	10	3	CM	CMX
*	**245304030**	4	30	75	10	3	CM	CMX
*	**245304520**	4,5	20	65	8	3	CM	CMX
*	**245304525**	4,5	25	70	10	3	CM	CMX
*	**245304530**	4,5	30	75	10	3	CM	CMX
*	**245304540**	4,5	40	85	10	3	CM	CMX
*	**245304570**	4,5	70	120	12	3	CM	CMX
*	**245304580**	4,5	80	140	14	3	CM	CMX
*	**245306570**	6,5	70	125	14	3	CM	CMX
*	**245306600**	6,5	100	165	20	3	CM	CMX

SKIN
UOP COATING

λ°s		
40	N	Standard UOP

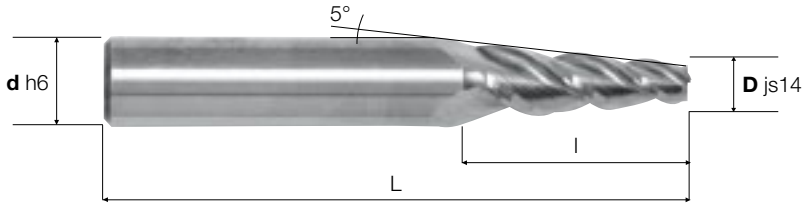
Serie	materiali lavorabili WORKPIECE MATERIALS		acciai inossidabili	materiali non ferrosi	leghe leggere	acciai	ghise
SERIES	titanio TITANIUM	HRSA HRSA	STAINLESS STEELS	NON FERROUS MATERIALS	LIGHT ALLOYS	STEELS	CAST IRON
24530	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
24550	2520	CM	CMX



	cod.	Djs14	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	245502520	2,5	20	65	8	3	CM	CMX
*	245502525	2,5	25	70	8	3	CM	CMX
*	245502530	2,5	30	75	10	3	CM	CMX
*	245502540	2,5	40	85	10	3	CM	CMX
*	245502550	2,5	50	100	12	3	CM	CMX
*	245503020	3	20	65	8	3	CM	CMX
*	245503025	3	25	70	8	3	CM	CMX
*	245503030	3	30	75	10	3	CM	CMX
*	245503040	3	40	85	10	3	CM	CMX
*	245503050	3	50	95	12	3	CM	CMX
*	245503520	3,5	20	65	8	3	CM	CMX
*	245503525	3,5	25	70	8	3	CM	CMX
*	245503530	3,5	30	75	10	3	CM	CMX
*	245503540	3,5	40	90	12	3	CM	CMX
*	245503550	3,5	50	100	14	3	CM	CMX
*	245504035	4	35	85	12	3	CM	CMX
*	245504520	4,5	20	65	10	3	CM	CMX
*	245504525	4,5	25	70	10	3	CM	CMX
*	245504530	4,5	30	80	12	3	CM	CMX
*	245504540	4,5	40	90	12	3	CM	CMX
*	245504550	4,5	50	105	16	3	CM	CMX
*	245504560	4,5	60	115	16	3	CM	CMX
*	245504570	4,5	70	125	16	3	CM	CMX
*	245504585	4,5	85	145	20	3	CM	CMX
*	245505520	5,5	20	65	10	3	CM	CMX
*	245505525	5,5	25	70	12	3	CM	CMX
*	245505530	5,5	30	80	12	3	CM	CMX
*	245505540	5,5	40	90	14	3	CM	CMX
*	245505550	5,5	50	105	16	3	CM	CMX
*	245505560	5,5	60	115	16	3	CM	CMX
*	245506540	6,5	40	90	14	3	CM	CMX
*	245506555	6,5	55	110	16	3	CM	CMX
*	245506560	6,5	60	115	16	3	CM	CMX
*	245506570	6,5	70	125	20	3	CM	CMX
*	245506580	6,5	80	140	20	3	CM	CMX
*	245506600	6,5	100	165	20	3	CM	CMX
*	245506601	6,5	100	215	20	3	CM	CMX

Z 3

24550

Frese coniche per matrici Conicità 5°
Tapered die-sinking cutters $\alpha = 5°$
Gesenkfräser kegelg $\alpha = 5°$
Fraises pour matrice coniques $\alpha = 5°$
Fresa conica para matriceria $\alpha = 5°$

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

Standard UOP	N	λ°s 40

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
24550	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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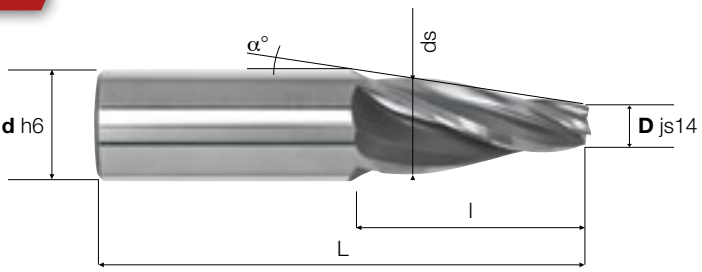
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
25105	1050	CM	CMX



25105

Z 3÷4

α° 9° 28'

Frese coniche per stampi
Conicità 9° 28' - 5° 43' - 2° 52'
Tapered end mills
Konische fräser
Fraises coniques
Fresa conica

α° 9° 28'

cod.	Djs14	ds	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
251051050	2,5	13	31,5	85	12	3	CM	CMX
251051100	4	16	36	96	16	4	CM	CMX
251051150	4	22,7	56	116	16	4	CM	CMX
251051200	4	34	90	170	32	4	CM	CMX
251051250	6	20	42	100	16	4	CM	CMX
251051300	6	27	63	138	25	4	CM	CMX
251051350	6	40	102	182	32	4	CM	CMX
251051400	8	25	50	125	25	4	CM	CMX
251051450	8	32	72	152	32	4	CM	CMX
251051500	8	45,5	112	192	32	4	CM	CMX
251051550	12	32	60	140	32	4	CM	CMX

SKIN
UOP COATING

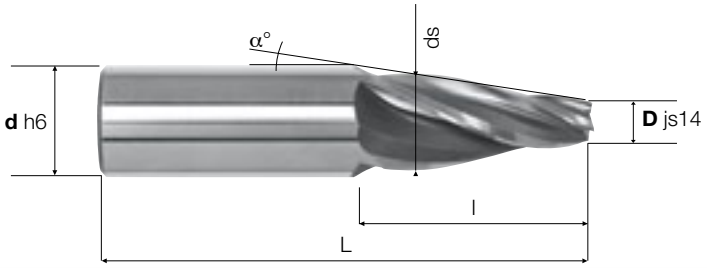
λ°s	N	UNI 8265 DIN 1889EA ISO
25	W a richiesta ON REQUEST	F a richiesta ON REQUEST

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
25105	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	X-85 UNCOATED	X-85 COATED
25105	2050	CM	CMX
25105	3050	CM	CMX



α° 5° 43' conicità 1/10

Z 3÷5

25105

α° 5° 43'

SKIN UOP COATING

λ°s 25 | N | UNI 8265 DIN 1889EA ISO

W a richiesta ON REQUEST | F a richiesta ON REQUEST

cod.	Djs14	ds	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
251052050	2,5	10	37,5	88	10	3	CM	CMX
251052100	4	12	40	97	12	4	CM	CMX
251052150	4	16	60	120	16	4	CM	CMX
251052200	4	22	90	150	16	4	CM	CMX
251052250	6	14	40	97	12	4	CM	CMX
251052300	6	18	60	120	16	4	CM	CMX
251052350	6	26	100	175	25	4	CM	CMX
251052400	8	17	45	105	16	4	CM	CMX
251052450	8	22	70	130	16	4	CM	CMX
251052500	8	28	100	175	25	4	CM	CMX
251052550	12	21	45	105	16	4	CM	CMX
251052600	12	26,2	71	146	25	4	CM	CMX
251052650	12	37	125	205	32	5	CM	CMX
251052700	16	26	50	125	25	4	CM	CMX
251052750	16	32	80	160	32	4	CM	CMX
251052800	16	41	125	205	32	5	CM	CMX
251052850	20	32,6	63	143	32	5	CM	CMX
251052900	20	40	100	180	32	5	CM	CMX
251052950	20	52	160	240	32	5	CM	CMX

α° 2° 52' conicità 1/20

Z 4÷5

25105

α° 2° 52'

SKIN UOP COATING

λ°s 25 | N | UNI 8265 DIN 1889EA ISO

W a richiesta ON REQUEST | F a richiesta ON REQUEST

cod.	Djs14	ds	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
251053050	4	8	40	90	10	4	CM	CMX
251053100	6	10	40	90	10	4	CM	CMX
251053150	6	12	60	117	12	4	CM	CMX
251053200	8	12,5	45	95	12	4	CM	CMX
251053250	8	16	80	140	16	4	CM	CMX
251053300	12	17	50	110	16	4	CM	CMX
251053350	12	20	80	140	16	4	CM	CMX
251053400	12	25	130	205	25	4	CM	CMX
251053450	16	21,6	56	116	16	4	CM	CMX
251053500	16	25	90	165	25	4	CM	CMX
251053550	16	32	160	240	32	4	CM	CMX
251053600	20	26,3	63	138	25	5	CM	CMX
251053650	20	30	100	175	32	5	CM	CMX

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
25105	○	○	◪	○	○	●	●
25105	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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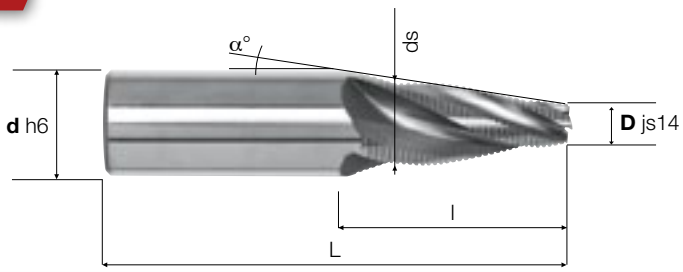
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
25120	1401	CM	CMX
25120	2301	CM	CMX
25120	3201	CM	CMX



25120

Z 4

Frese coniche a ***SEMIFINIRE*** per stampi

Conicità 9° 28' - 5° 43' - 2° 52'

Tapered end mills

Konische fräser

Fraises coniques

Fresa conica

Z 4÷5

α° 9° 28'

cod.	Djs14	ds	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
251201401	8	25	50	125	25	4	CM	CMX
251201451	8	32	72	152	32	4	CM	CMX
251201501	8	45,5	112	192	32	4	CM	CMX
251201551	12	32	60	140	32	4	CM	CMX

α° 5° 43' conicità 1/10

cod.	Djs14	ds	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
251202301	6	18	60	120	16	4	CM	CMX
251202401	8	17	45	105	16	4	CM	CMX
251202451	8	22	70	130	16	4	CM	CMX
251202501	8	28	100	175	25	4	CM	CMX
251202551	12	21	45	105	16	4	CM	CMX
251202601	12	26,2	71	146	25	4	CM	CMX
251202651	12	37	125	205	32	4	CM	CMX
251202701	16	26	50	125	25	4	CM	CMX
251202751	16	32	80	160	32	4	CM	CMX
251202801	16	41	125	205	32	4	CM	CMX
251202851	20	32,6	63	143	32	5	CM	CMX
251202901	20	40	100	180	32	5	CM	CMX
251202951	20	52	160	240	32	5	CM	CMX

α° 2° 52' conicità 1/20

Z 4÷5

cod.	Djs14	ds	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
251203201	8	12,5	45	102	12	4	CM	CMX
251203251	8	16	80	140	16	4	CM	CMX
251203301	12	17	50	110	16	4	CM	CMX
251203351	12	20	80	140	16	4	CM	CMX
251203401	12	25	130	205	25	4	CM	CMX
251203451	16	21,6	56	116	16	4	CM	CMX
251203501	16	25	90	165	25	4	CM	CMX
251203551	16	32	160	240	32	4	CM	CMX
251203601	20	26,3	63	138	25	5	CM	CMX
251203651	20	30	100	175	25	5	CM	CMX

SKIN UOP COATING

λ°s	NF	UNI 8265 DIN 1889EA ISO	W	F
25			a richiesta ON REQUEST	a richiesta ON REQUEST

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
25120	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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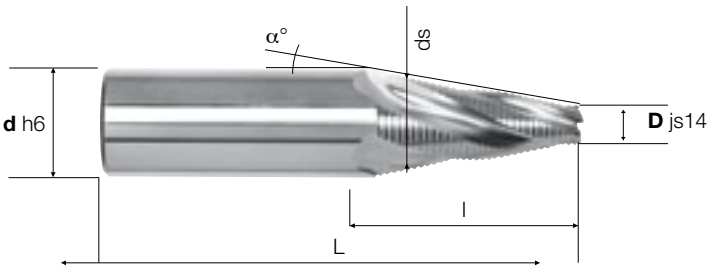
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
25120	1402	CM	CMX



25120

Z 4

Frese coniche a **SGROSSARE** per stampi
Conicità 9° 28' - 5° 43' - 2° 52'
Tapered end mills
Konische fräser
Fraises coniques
Fresa conica

α° 9° 28'

cod.	Djs14	ds	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
251201402	8	25	50	125	25	4	CM	CMX
251201452	8	32	72	152	32	4	CM	CMX
251201502	8	45,5	112	192	32	4	CM	CMX
251201552	12	32	60	140	32	4	CM	CMX

α° 5° 43' conicità 1/10

Z 4÷5

cod.	Djs14	ds	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
251202302	6	18	60	120	16	4	CM	CMX
251202402	8	17	45	105	16	4	CM	CMX
251202452	8	22	70	130	16	4	CM	CMX
251202502	8	28	100	175	25	4	CM	CMX
251202552	12	21	45	105	16	4	CM	CMX
251202602	12	26,2	71	146	25	4	CM	CMX
251202652	12	37	125	205	32	4	CM	CMX
251202702	16	26	50	125	25	4	CM	CMX
251202752	16	32	80	160	32	4	CM	CMX
251202802	16	41	125	205	32	4	CM	CMX
251202852	20	32,6	63	143	32	5	CM	CMX
251202902	20	40	100	180	32	5	CM	CMX
251202952	20	52	160	240	32	5	CM	CMX

α° 2° 52' conicità 1/20

Z 4÷5

cod.	Djs14	ds	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
251203202	8	12,5	45	102	12	4	CM	CMX
251203252	8	16	80	140	16	4	CM	CMX
251203302	12	17	50	110	16	4	CM	CMX
251203352	12	20	80	140	16	4	CM	CMX
251203402	12	25	130	205	25	4	CM	CMX
251203452	16	21,6	56	116	16	4	CM	CMX
251203502	16	25	90	165	25	4	CM	CMX
251203552	16	32	160	240	32	4	CM	CMX
251203602	20	26,3	63	138	25	5	CM	CMX
251203652	20	30	100	175	25	5	CM	CMX

SKIN
UOP COATING

UNI 8265 DIN 1889EA ISO	NR	λ°s 25	W a richiesta ON REQUEST	F a richiesta ON REQUEST

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
25120	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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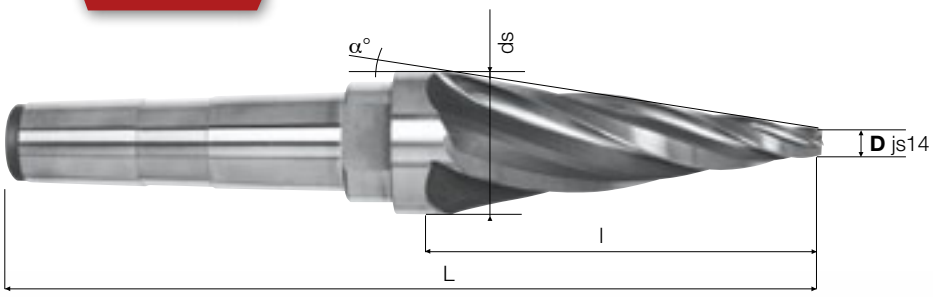
example code:

series	ø	X-85 UNCOATED	X-85 COATED
25150	1200	CM	CMX
25150	2650	CM	CMX
25150	3550	CM	CMX



25150

Z 4

Frese coniche per stampi
Conicità 9° 28' - 5° 43' - 2° 52'
Tapered end mills
Konische fräser
Fraises coniques
Fresa conica

α° 9° 28'

	cod.	Djs14	ds	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**251501200**	4	34	90	230	4	4	CM	CMX
*	**251501350**	6	39,4	100	243	4	4	CM	CMX
*	**251501450**	8	31,6	71	210	4	4	CM	CMX
*	**251501500**	8	45,4	112	258	4	4	CM	CMX

α° 5° 43' conicità 1/10

Z 5

	cod.	Djs14	ds	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**251502650**	12	37	125	265	4	5	CM	CMX
*	**251502750**	16	32	80	220	4	5	CM	CMX
*	**251502800**	16	41	125	268	4	5	CM	CMX
*	**251502850**	20	32,6	63	205	4	5	CM	CMX
*	**251502900**	20	40	100	243	4	5	CM	CMX
*	**251502950**	20	52	160	303	4	5	CM	CMX

α° 2° 52' conicità 1/20

Z 5

	cod.	Djs14	ds	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**251503550**	16	32	160	300	4	5	CM	CMX

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

CM= MORSE SHANK	λ°s 25	N	UNI DIN1889G ISO

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
25150	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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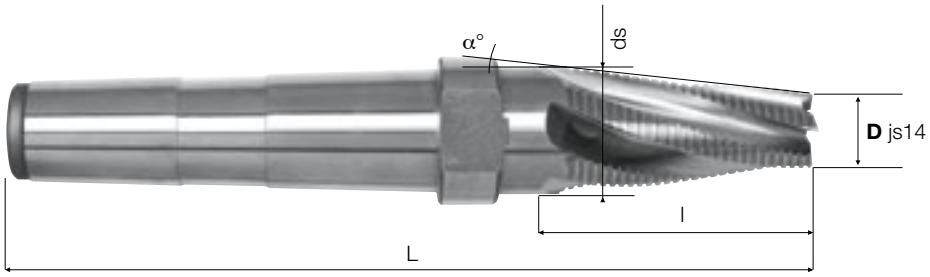
example code:

series	ø	X-85 UNCOATED	X-85 COATED
25155	1451	CM	CMX
25155	2651	CM	CMX
25155	3551	CM	CMX



25155

Z 4

Frese coniche a ***SEMIFINIRE*** per stampi
Conicità 9° 28' - 5° 43' - 2° 52'
Tapered end mills
Konische fräser
Fraises coniques
Fresa conica

α° 9° 28'

	cod.	Djs14	ds	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**251551451**	8	31,6	71	210	4	4	CM	CMX
*	**251551501**	8	45,4	112	258	4	4	CM	CMX

α° 5° 43' conicità 1/10

Z 4÷5

	cod.	Djs14	ds	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**251552651**	12	37	125	265	4	4	CM	CMX
*	**251552751**	16	32	80	220	4	4	CM	CMX
*	**251552801**	16	41	125	268	4	4	CM	CMX
*	**251552851**	20	32,6	63	205	4	5	CM	CMX
*	**251552901**	20	40	100	243	4	5	CM	CMX
*	**251552951**	20	52	160	303	4	5	CM	CMX

α° 2° 52' conicità 1/20

Z 4

	cod.	Djs14	ds	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**251553551**	16	32	160	300	4	4	CM	CMX

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN
UOP COATING

UNI DIN1889G ISO | NF | λ°s 25 | CM= MORSE SHANK

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
25155	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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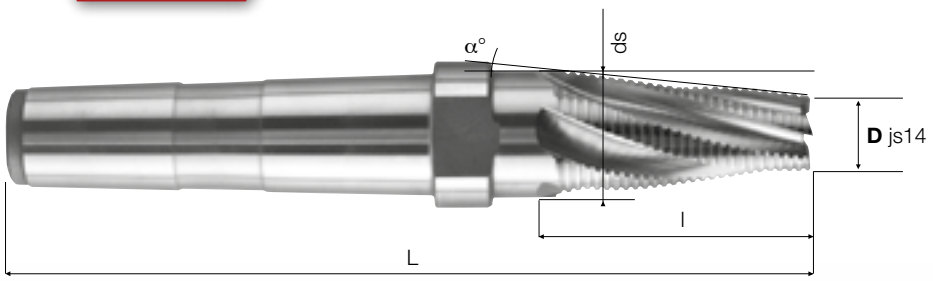
example code:

series	ø	X-85 UNCOATED	X-85 COATED
25155	1452	CM	CMX
25155	2652	CM	CMX
25155	3552	CM	CMX



25155

Z 4

Frese coniche a **SGROSSARE** per stampi
Conicità 9° 28' - 5° 43' - 2° 52'
Tapered end mills
Konische fräser
Fraises coniques
Fresa conica

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

α 9° 28'

	cod.	Djs14	ds	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**251551452**	8	31,6	71	210	4	4	CM	CMX
*	**251551502**	8	45,4	112	258	4	4	CM	CMX

α 5° 43' conicità 1/10

Z 4÷5

	cod.	Djs14	ds	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**251552652**	12	37	125	265	4	4	CM	CMX
*	**251552752**	16	32	80	220	4	4	CM	CMX
*	**251552802**	16	41	125	268	4	4	CM	CMX
*	**251552852**	20	32,6	63	205	4	5	CM	CMX
*	**251552902**	20	40	100	243	4	5	CM	CMX
*	**251552952**	20	52	160	303	4	5	CM	CMX

α 2° 52' conicità 1/20

Z 4

	cod.	Djs14	ds	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**251553552**	16	32	160	300	4	4	CM	CMX

SKIN
UOP COATING

CM= MORSE SHANK	λ°s 25	NR	UNI DIN1889G ISO

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
25155	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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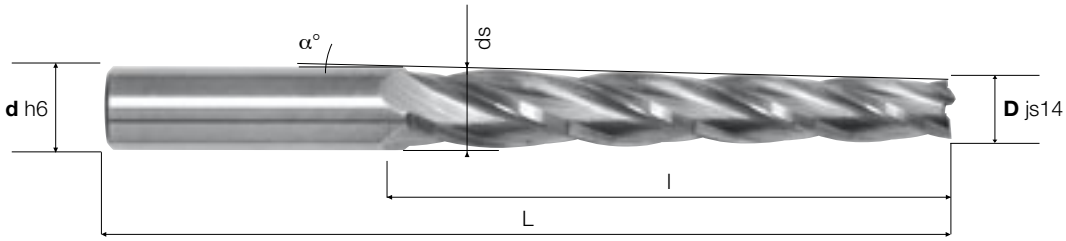
example code:

series	ø	X-85 UNCOATED	X-85 COATED
25505	0504	CM	CMX



	cod.	Djs14	ds	α°	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**255050504**	4	4,52	0°30	30	80	6	4	CM	CMX
*	**255050506**	6	6,55	0°30	32	80	10	4	CM	CMX
*	**255050508**	8	8,87	0°30	50	100	10	4	CM	CMX
*	**255050511**	10	11,3	0°30	75	125	12	4	CM	CMX
*	**255050513**	12	13,74	0°30	100	160	16	4	CM	CMX
*	**255051005**	4	5,22	1°	35	85	6	4	CM	CMX
*	**255051007**	6	7,04	1°	30	80	10	4	CM	CMX
*	**255051008**	6	8,09	1°	60	110	10	4	CM	CMX
*	**255051012**	10	12,61	1°	75	125	12	4	CM	CMX
*	**255051015**	12	15,49	1°	100	160	16	4	CM	CMX
*	**255051507**	6	7,57	1°30'	30	80	10	4	CM	CMX
*	**255051510**	8	10,61	1°30'	50	100	12	4	CM	CMX
*	**255051513**	10	13,92	1°30'	75	135	16	4	CM	CMX
*	**255051517**	12	17,23	1°30'	100	160	16	4	CM	CMX
*	**255052008**	6	8,09	2°	30	80	10	4	CM	CMX
*	**255052010**	6	10,19	2°	60	110	10	4	CM	CMX
*	**255052012**	6	12,28	2°	90	150	12	4	CM	CMX
*	**255052013**	8	13,23	2°	75	135	16	4	CM	CMX
*	**255052507**	4	7,05	2°30'	35	85	10	4	CM	CMX
*	**255052509**	6	9,49	2°30'	40	90	10	4	CM	CMX
*	**255052511**	6	11,41	2°30'	62	120	12	4	CM	CMX
*	**255052512**	6	12,98	2°30'	80	140	16	4	CM	CMX
*	**255053007**	4	7,66	3°	35	85	10	4	CM	CMX
*	**255053009**	6	9,66	3°	35	85	10	4	CM	CMX
*	**255053012**	6	12,28	3°	60	120	12	4	CM	CMX
*	**255053016**	8	16,38	3°	80	140	16	4	CM	CMX
*	**255054008**	4	8,89	4°	35	85	10	4	CM	CMX
*	**255054011**	6	11,59	4°	40	90	12	4	CM	CMX
*	**255054015**	8	15,83	4°	56	110	16	4	CM	CMX
*	**255054019**	8	19,18	4°	80	140	16	4	CM	CMX
*	**255055010**	4	10,12	5°	35	85	12	4	CM	CMX
*	**255055013**	6	13,34	5°	42	95	12	4	CM	CMX
*	**255055016**	6	16,14	5°	58	115	16	4	CM	CMX
*	**255055021**	8	21,12	5°	75	145	25	4	CM	CMX

Z 4

25505

Frese coniche per stampi
Tapered end mills
Konische fräser
Fraises coniques
Fresa conica

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

SKIN UOP COATING

Standard UOP	N	λ°s 25
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
25505	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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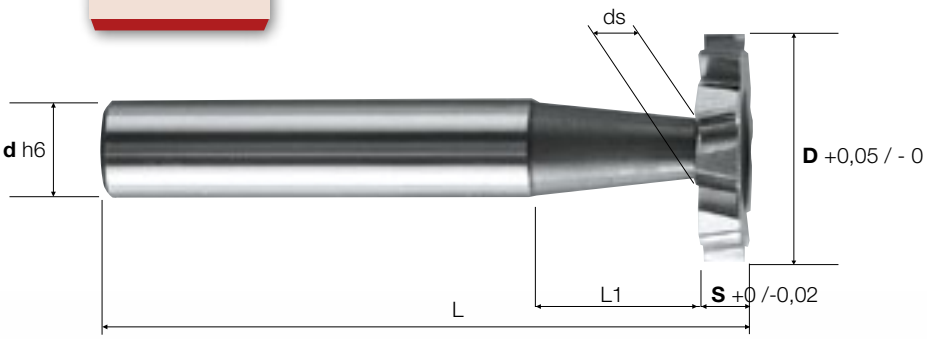
example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
27105	1020	AM	CM	CMX



27105

Z 8÷12

Frese per sedi di linguette americane (Woodruff)

Woodruff cutters

Schlitzräser

Fraises pour logement de clavette-Woodruff

Fresa de tres cortes Woodruff

cod.	D+0,05 - 0	S+0 - 0,02	ds	L1	L	dh6	λ°	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
271051020	10,5	2	4	9	50	6	13	8	AM	CM	CMX
271051025	10,5	2,5	4	9	50	6	13	8	AM	CM	CMX
271051030	10,5	3	4,2	8	50	6	13	8	AM	CM	CMX
271051302	13,5	2	4,6	12	56	10	15	8	AM	CM	CMX
271051303	13,5	3	4,6	12	56	10	15	8	AM	CM	CMX
271051304	13,5	4	4,6	12	56	10	15	8	AM	CM	CMX
271051603	16,5	3	4,6	12	56	10	15	8	AM	CM	CMX
271051604	16,5	4	4,6	12	56	10	15	8	AM	CM	CMX
271051605	16,5	5	5	9,5	56	10	15	8	AM	CM	CMX
271051606	16,5	6	5	9,5	56	10	15	8	AM	CM	CMX
271051903	19,5	3	5,6	17,5	63	10	15	10	AM	CM	CMX
271051904	19,5	4	5,6	17,5	63	10	15	10	AM	CM	CMX
271051905	19,5	5	6	16	63	10	15	10	AM	CM	CMX
271051906	19,5	6	6,5	15	63	10	15	10	AM	CM	CMX
271052204	22,5	4	6	17	63	10	13	10	AM	CM	CMX
271052205	22,5	5	6	17	63	10	13	10	AM	CM	CMX
271052206	22,5	6	6,5	13	63	10	13	10	AM	CM	CMX
271052208	22,5	8	6,5	13	63	10	13	10	AM	CM	CMX
271052505	25,5	5	7,5	12	63	10	15	12	AM	CM	CMX
271052506	25,5	6	7,5	12	63	10	15	12	AM	CM	CMX
271052507	25,5	7	7,5	12	63	10	15	12	AM	CM	CMX
271052508	25,5	8	7,5	12	63	10	15	12	AM	CM	CMX
271052806	28,5	6	8,5	10	63	10	13	12	AM	CM	CMX
271052807	28,5	7	8,5	10	63	10	13	12	AM	CM	CMX
271052808	28,5	8	8,5	10	63	10	13	12	AM	CM	CMX
271052810	28,5	10	9,3	13	71	12	13	12	AM	CM	CMX
271053206	32,5	6	8,5	16	71	12	15	12	AM	CM	CMX
271053207	32,5	7	8,5	16	71	12	15	12	AM	CM	CMX
271053208	32,5	8	8,5	16	71	12	15	12	AM	CM	CMX
271053210	32,5	10	9,3	13	71	12	15	12	AM	CM	CMX
271054510	45,5	10	11	13	71	12	13	12	AM	CM	CMX

SKIN
UOP COATING

H	UNI 8263 DIN 850B ISO	W a richiesta ON REQUEST	F a richiesta ON REQUEST

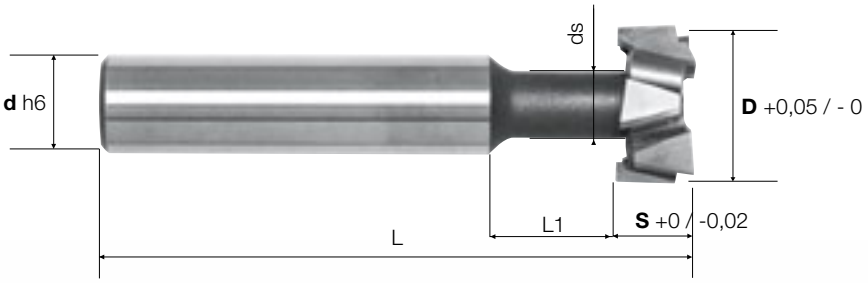
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
27105	◕	◕	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
27120	1256	AM	CM	CMX
27135	1256	AM	CM	CMX



cod.	D+0,05 - 0	S+0 - 0,02	ds	L1	L	dh6	λ°	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
271201256	12,5	6	5	11	57	10	12	6	AM	CM	CMX
271201608	16	8	7	14	62	10	12	6	AM	CM	CMX
271201808	18	8	8	15	70	12	15	6	AM	CM	CMX
271201909	19	9	8	15	70	12	15	8	AM	CM	CMX
271202109	21	9	10	18	74	12	15	8	AM	CM	CMX
271202210	22	10	10	17	74	12	15	8	AM	CM	CMX
271202511	25	11	12	20	82	16	15	8	AM	CM	CMX
271202812	28	12	13	22	85	16	15	8	AM	CM	CMX
271203214	32	14	15	25	90	16	15	8	AM	CM	CMX

Z 6÷8

27120

Frese per scanalature a T
T-slot cutters
T-Nutenfräser
Fraises pour rainures en T
Fresa para ranurado en T

SKIN UOP COATING

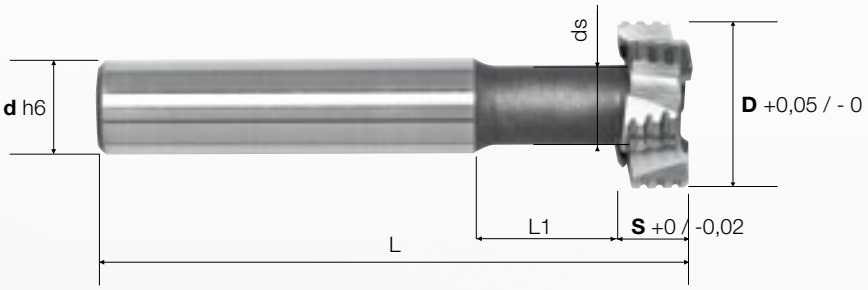
UNI 7339A
DIN 851
ISO 3337

N

W a richiesta ON REQUEST

F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 363



cod.	D+0,05 - 0	S+0 - 0,02	ds	L1	L	dh6	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
271351256	12,5	6	5	11	57	10	4	AM	CM	CMX
271351608	16	8	7	14	62	10	6	AM	CM	CMX
271351808	18	8	8	15	70	12	6	AM	CM	CMX
271351909	19	9	8	15	70	12	6	AM	CM	CMX
271352109	21	9	10	18	74	12	6	AM	CM	CMX
271352210	22	10	10	17	74	12	6	AM	CM	CMX
271352511	25	11	12	20	82	16	8	AM	CM	CMX
271352812	28	12	13	22	85	16	8	AM	CM	CMX
271353214	32	14	15	25	90	16	8	AM	CM	CMX

Z 4÷8

27135

Frese per scanalature a T
T-slot cutters
T-Nutenfräser
Fraises pour rainures en T
Fresa para ranurado en T

SKIN UOP COATING

UNI 7339A
DIN 851
ISO 3337

NF

W a richiesta ON REQUEST

F a richiesta ON REQUEST

parametri tecnici a pag. / FOR TECHNICAL PARAMETERS SEE PAGE 363

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
27120	◕	◕	●	○	○	●	●
27135	◕	◕	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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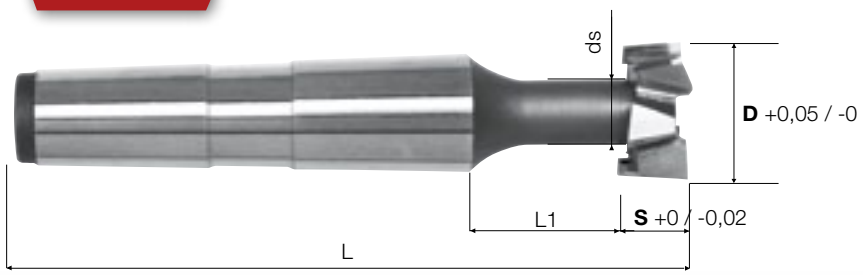
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
27150	1256	AM	CM	CMX
27155	1256	AM	CM	CMX



27150

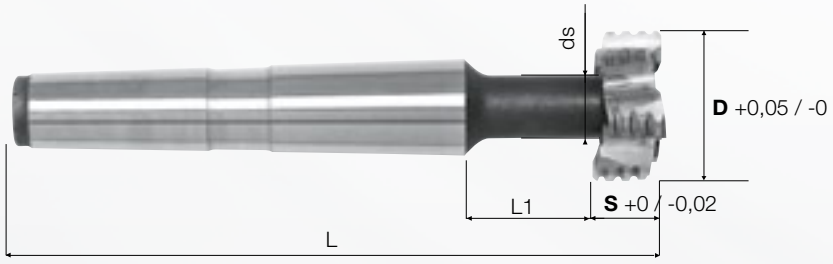
Z 8÷10

Frese per scanalature a T
T-slot cutters
T-Nutenfräser
Fraises pour rainures en T
Fresa para ranurado en T

SKIN UOP COATING

CM= MORSE SHANK | N | UNI 7339B DIN 851B ISO 3337

cod.	D+0,05 - 0	S+0 - 0,02	ds	L1	L	CM	λ°	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
271501256	12,5	6	5	9	72	1	12	8	AM	CM	CMX
271501608	16	8	7	12	77	1	12	8	AM	CM	CMX
271501808	18	8	8	17	82	1	15	8	AM	CM	CMX
271501909	19	9	8	16	82	1	15	8	AM	CM	CMX
271502109	21	9	10	24	102	2	15	8	AM	CM	CMX
271502210	22	10	10	23	102	2	15	8	AM	CM	CMX
271502511	25	11	12	24	104	2	15	8	AM	CM	CMX
271502812	28	12	13	25	106	2	15	8	AM	CM	CMX
271503214	32	14	15	28	111	2	15	8	AM	CM	CMX
271503616	36	16	17	31	133	3	15	8	AM	CM	CMX
271504018	40	18	19	36	140	3	15	8	AM	CM	CMX
271504520	45	20	20	37	143	3	15	8	AM	CM	CMX
271505022	50	22	25	46	177	4	10	10	AM	CM	CMX
271505624	56	24	27	49	182	4	10	10	AM	CM	CMX



27155

Z 4÷8

Frese per scanalature a T
T-slot cutters
T-Nutenfräser
Fraises pour rainures en T
Fresa para ranurado en T

SKIN UOP COATING

CM= MORSE SHANK | N | UNI 7339B DIN 851B ISO 3337

cod.	D+0,05 - 0	S+0 - 0,02	ds	L1	L	CM	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
271551256	12,5	6	5	9	72	1	4	AM	CM	CMX
271551608	16	8	7	12	77	1	6	AM	CM	CMX
271551808	18	8	8	17	82	1	6	AM	CM	CMX
271551909	19	9	8	16	82	1	6	AM	CM	CMX
271552109	21	9	10	24	102	2	6	AM	CM	CMX
271552210	22	10	10	23	102	2	6	AM	CM	CMX
271552511	25	11	12	24	104	2	8	AM	CM	CMX
271552812	28	12	13	25	106	2	8	AM	CM	CMX
271553214	32	14	15	28	111	2	8	AM	CM	CMX
271553616	36	16	17	31	133	3	8	AM	CM	CMX
271554018	40	18	19	36	140	3	8	AM	CM	CMX
271554520	45	20	20	37	143	3	8	AM	CM	CMX
271555022	50	22	25	46	177	4	8	AM	CM	CMX
271555624	56	24	27	49	182	4	8	AM	CM	CMX

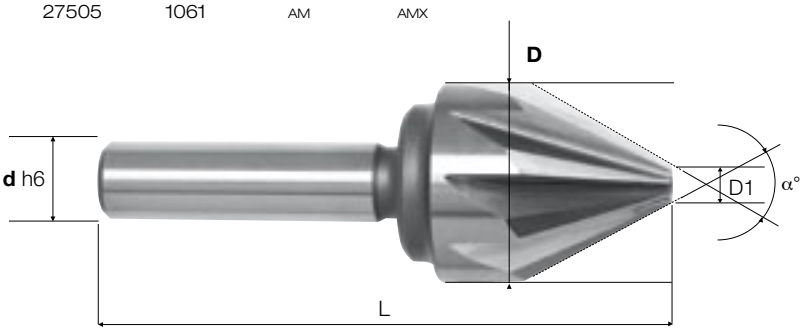
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
27150	◕	◕	●	○	○	●	●
27155	◕	◕	●	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	M-TK COATED
27505	1060	AM	AMX
27505	1061	AM	AMX



cod.	D	D1	α°	L	dh6	Z	M-TK (HSS-E)	SKIN UOP COATING
275051060	6,3	1,6	60	45	5	5	AM	AMX
275051080	8,4	2	60	50	6	5	AM	AMX
275051120	12,5	2	60	50	8	5	AM	AMX
275051160	16	3,2	60	60	10	7	AM	AMX
275051200	20	5	60	63	10	7	AM	AMX
275051250	25	5	60	72	10	9	AM	AMX
275051300	30	7	60	80	12	9	AM	AMX
275051350	35	7	60	85	12	9	AM	AMX
275051500	50	10	60	100	16	11	AM	AMX
275052060	6,3	1,6	90	45	5	5	AM	AMX
275052080	8,4	2	90	50	6	5	AM	AMX
275052120	12,5	2	90	48	8	5	AM	AMX
275052160	16	3,2	90	56	10	7	AM	AMX
275052200	20	5	90	60	10	7	AM	AMX
275052250	25	5	90	70	10	9	AM	AMX
275052300	30	7	90	78	12	9	AM	AMX
275052450	45	9	90	92	16	11	AM	AMX

Z 5÷11

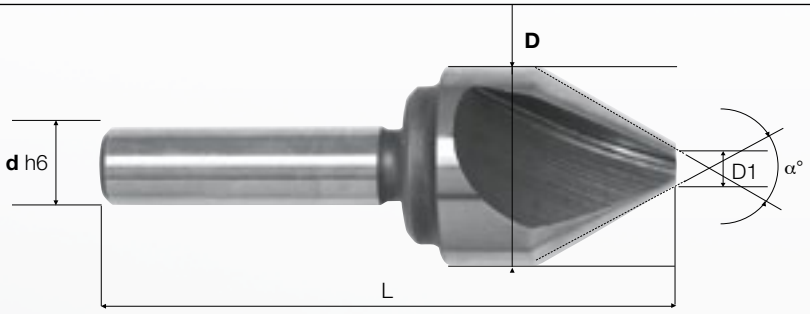
27505

Frese coniche a svasare
Countersinks
Kegelsenker
Outils à chanfreiner
Fresa conica de avellanar

SKIN UOP COATING

UNI 6847
DIN 334-335
ISO

N



cod.	D	D1	α°	L	dh6	Z	M-TK (HSS-E)	SKIN UOP COATING
275051061	6,3	1,6	60	45	5	1	AM	AMX
275051081	8,1	2	60	50	6	1	AM	AMX
275051121	12,5	2	60	50	8	1	AM	AMX
275051161	16	3,2	60	60	10	1	AM	AMX
275051201	20	5	60	63	10	1	AM	AMX
275051251	25	5	60	72	10	1	AM	AMX
275051301	30	7	60	80	12	1	AM	AMX
275051351	35	7	60	85	12	1	AM	AMX
275051501	50	10	60	100	16	1	AM	AMX
275052061	6,3	1,6	90	45	5	1	AM	AMX
275052081	8,4	2	90	50	6	1	AM	AMX
275052121	12,5	2	90	48	8	1	AM	AMX
275052161	16	3,2	90	56	10	1	AM	AMX
275052201	20	5	90	60	10	1	AM	AMX
275052251	25	5	90	70	10	1	AM	AMX
275052301	30	7	90	78	12	1	AM	AMX
275052451	45	9	90	92	16	1	AM	AMX

Z 1

27505

Frese coniche a svasare
Countersinks
Kegelsenker
Outils à chanfreiner
Fresa conica de avellanar

SKIN UOP COATING

UNI 6847
DIN 334-335
ISO

N

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
27505	○	○	○	○	○	●	●
27505	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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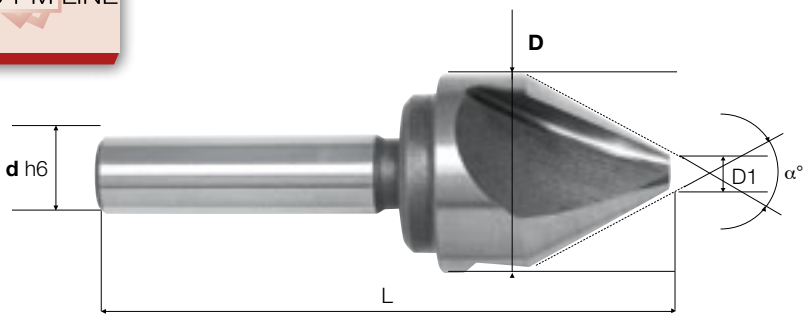
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	M-TK COATED
27505	1063	AM	AMX



27505

Z 3

Frese coniche a svasare

Countersinks

Kegelsenker

Outils à chanfreiner

Fresa conica de avellanar

cod.	D	D1	α°	L	dh6	Z	M-TK (HSS-E)	SKIN UOP COATING
275051063	6,3	1,6	60	45	5	3	AM	AMX
275051083	8,4	2	60	50	6	3	AM	AMX
275051123	12,5	2	60	50	8	3	AM	AMX
275051163	16	3,2	60	60	10	3	AM	AMX
275051203	20	5	60	63	10	3	AM	AMX
275051253	25	5	60	72	10	3	AM	AMX
275051303	30	7	60	80	12	3	AM	AMX
275051353	35	7	60	85	12	3	AM	AMX
275051503	50	10	60	100	16	3	AM	AMX
275052063	6,3	1,6	90	45	5	3	AM	AMX
275052083	8,4	2	90	50	6	3	AM	AMX
275052123	12,5	2	90	48	8	3	AM	AMX
275052163	16	3,2	90	56	10	3	AM	AMX
275052203	20	5	90	60	10	3	AM	AMX
275052253	25	5	90	70	10	3	AM	AMX
275052303	30	7	90	78	12	3	AM	AMX
275052453	45	9	90	92	16	3	AM	AMX
275053103	10,5	1,6	90	50	8	3	AM	AMX
275053123	12,5	1,8	120	60	8	3	AM	AMX
275053163	16,5	2,2	120	65	8	3	AM	AMX
275053203	20,5	2,4	120	65	10	3	AM	AMX
275053253	25	2,7	120	70	10	3	AM	AMX

SKIN UOP COATING

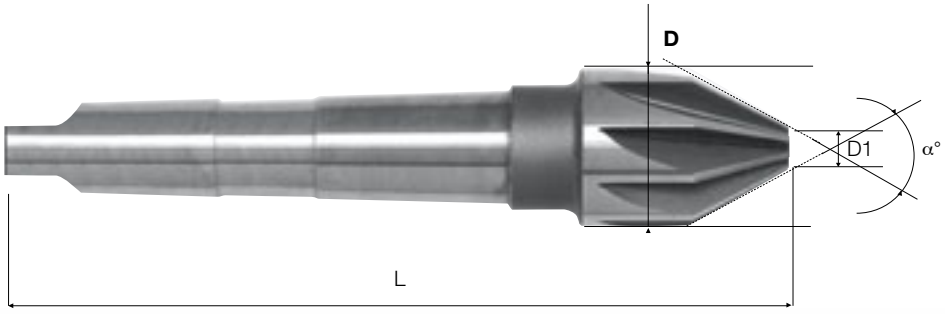
N — UNI 6847 DIN 334-335 ISO

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
27505	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	M-TK UNCOATED	M-TK COATED
27550	1130	AM	AMX
27550	1131	AM	AMX



	cod.	D	D1	α°	L	CM	Z	M-TK (HSS-E)	SKIN UOP COATING
*	**275501130**	13	2	60	95	1	5	AM	AMX
*	**275501160**	16	3,2	60	100	1	7	AM	AMX
*	**275501250**	25	7	60	125	2	9	AM	AMX
*	**275501350**	35	7	60	135	2	9	AM	AMX
*	**275501500**	50	16	60	170	3	11	AM	AMX
*	**275502120**	12	2	90	95	1	5	AM	AMX
*	**275502160**	16	3,2	90	95	1	7	AM	AMX
*	**275502200**	20	5	90	120	2	7	AM	AMX
*	**275502310**	31,5	9	90	122	2	9	AM	AMX
*	**275502450**	45	9	90	155	3	11	AM	AMX

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

Z 5÷11

27550

Frese coniche a svasare

Countersinks

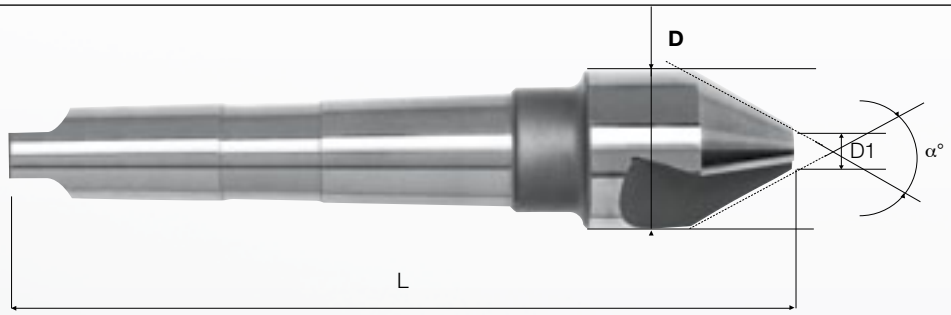
Kegelsenker

Outils à chanfreiner

Fresa conica de avellanar

SKIN
UOP COATING

UNI 6848 DIN 334-335 ISO | N | CM= MORSE SHANK



	cod.	D	D1	α°	L	CM	Z	M-TK (HSS-E)	SKIN UOP COATING
*	**275501131**	13	2	60	95	1	1	AM	AMX
*	**275501161**	16	3,2	60	100	1	1	AM	AMX
*	**275501251**	25	7	60	125	2	1	AM	AMX
*	**275501351**	35	7	60	135	2	1	AM	AMX
*	**275501501**	50	16	60	170	3	1	AM	AMX
*	**275502121**	12	2	90	95	1	1	AM	AMX
*	**275502161**	16	3,2	90	95	1	1	AM	AMX
*	**275502201**	20	5	90	120	2	1	AM	AMX
*	**275502311**	31,5	9	90	122	2	1	AM	AMX
*	**275502451**	45	9	90	155	3	1	AM	AMX

* ESAURIMENTO SCORTE, successivamente a richiesta

* LIMITED STOCK, after which on request

Z 1

27550

Frese coniche a svasare

Countersinks

Kegelsenker

Outils à chanfreiner

Fresa conica de avellanar

SKIN
UOP COATING

UNI 6848 DIN 334-335 ISO | N | CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
27550	○	○	○	○	○	●	●
27550	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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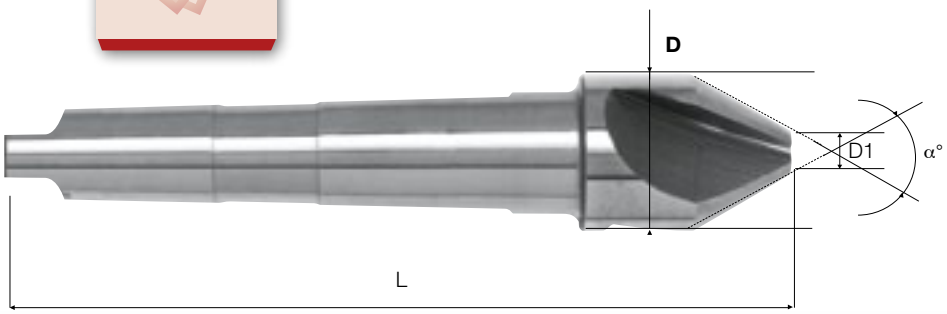
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	M-TK COATED
27550	1133	AM	AMX



27550

Z 3

Frese coniche a svasare
Countersinks
Kegelsenker
Outils à chanfreiner
Fresa conica de avellanar

* ESAURIMENTO SCORTE, successivamente a richiesta
* LIMITED STOCK, after which on request

	cod.	D	D1	α°	L	CM	Z	M-TK (HSS-E)	SKIN UOP COATING
*	**275501133**	13	2	60	95	1	3	AM	AMX
*	**275501163**	16	3,2	60	100	1	3	AM	AMX
*	**275501253**	25	7	60	125	2	3	AM	AMX
*	**275501353**	35	7	60	135	2	3	AM	AMX
*	**275501503**	50	16	60	170	3	3	AM	AMX
*	**275502123**	12	2	90	95	1	3	AM	AMX
*	**275502163**	16	3,2	90	95	1	3	AM	AMX
*	**275502203**	20	5	90	120	2	3	AM	AMX
*	**275502313**	31,5	9	90	122	2	3	AM	AMX
*	**275502453**	45	9	90	155	3	3	AM	AMX
*	**275503153**	15	2,8	120	105	1	3	AM	AMX
*	**275503193**	19	2,8	120	125	2	3	AM	AMX
*	**275503233**	23	2,8	120	130	2	3	AM	AMX
*	**275503253**	25	2,8	120	130	2	3	AM	AMX
*	**275503263**	26	2,8	120	130	2	3	AM	AMX
*	**275503303**	30	3	120	135	2	3	AM	AMX
*	**275503343**	34	3,3	120	135	2	3	AM	AMX
*	**275503373**	37	3,6	120	140	2	3	AM	AMX
*	**275503453**	45	4,3	120	156	3	3	AM	AMX

SKIN
UOP COATING

CM= MORSE SHANK	N	UNI 6848 DIN 334-335 ISO

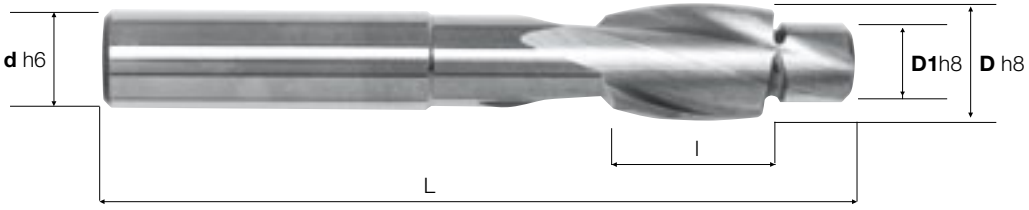
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
27550	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
28105	0302	AM	CM	CMX
28105	0304	AM	CM	CMX



cod.		Dh8	D1h8	l	L	dh6	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
281050302	3M	5,9	3,2	12	70	6	2	AM	CM	CMX
281050402	4M	7,4	4,3	12	70	8	2	AM	CM	CMX
281050502	5M	9,4	5,3	14	90	10	2	AM	CM	CMX
281050602	6M	10,4	6,4	16	100	10	2	AM	CM	CMX
281050802	8M	13,5	8,4	20	115	12	2	AM	CM	CMX
281051002	10M	16,5	10,5	25	120	12	2	AM	CM	CMX
281051202	12M	19	13	25	120	16	2	AM	CM	CMX
281051402	14M	23	15	30	130	16	2	AM	CM	CMX
281051602	16M	25	17	35	155	20	2	AM	CM	CMX
281051802	18M	28	19	40	160	20	2	AM	CM	CMX
281052002	20M	31	21	50	180	20	2	AM	CM	CMX
281052202	22M	34	23	50	185	22	2	AM	CM	CMX
281052402	24M	37	25	50	200	22	2	AM	CM	CMX

Z 2

28105

Frese per sedi di viti
Counterbores
Flachsenker
Fraises à chambrer
Fresa para asiento piano

SKIN
UOP COATING

UNI 6841
DIN
ISO
N

cod.		Dh8	D1h8	l	L	dh6	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
281050304	3M	5,9	3,2	12	70	6	4	AM	CM	CMX
281050404	4M	7,4	4,3	12	70	8	4	AM	CM	CMX
281050504	5M	9,4	5,3	14	90	10	4	AM	CM	CMX
281050604	6M	10,4	6,4	16	100	10	4	AM	CM	CMX
281050804	8M	13,5	8,4	20	115	12	4	AM	CM	CMX
281051004	10M	16,5	10,5	25	120	12	4	AM	CM	CMX
281051204	12M	19	13	25	120	16	4	AM	CM	CMX
281051404	14M	23	15	30	130	16	4	AM	CM	CMX
281051604	16M	25	17	35	155	20	4	AM	CM	CMX
281051804	18M	28	19	40	160	20	4	AM	CM	CMX
281052004	20M	31	21	50	180	20	4	AM	CM	CMX
281052204	22M	34	23	50	185	22	4	AM	CM	CMX
281052404	24M	37	25	50	200	22	4	AM	CM	CMX

Z 4

28105

Frese per sedi di viti
Counterbores
Flachsenker
Fraises à chambrer
Fresa para asiento piano

SKIN
UOP COATING

UNI 6841
DIN
ISO
N

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
28105	○	○	○	○	○	●	●
28105	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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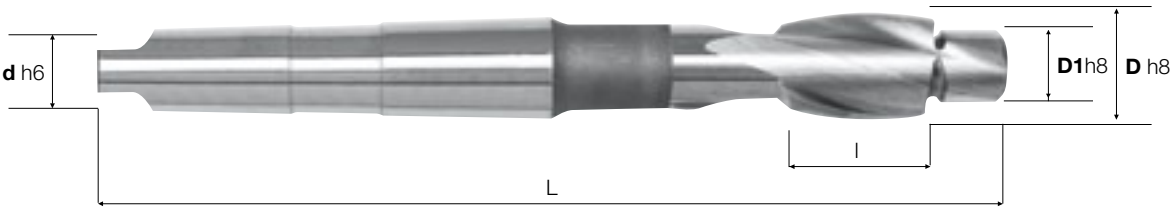
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
28150	0302	AM	CM	CMX
28150	0304	AM	CM	CMX



28150

Z 2

Frese per sedi di viti
Counterbores
Flachsenker
Fraises à chambrer
Fresa para asiento piano

SKIN
UOP COATING

MORSE | N | UNI6842 DIN ISO

cod.		Dh8	D1h8	l	L	dh6	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
281500302	3M	5,9	3,2	12	105	1	2	AM	CM	CMX
281500402	4M	7,4	4,3	12	105	1	2	AM	CM	CMX
281500502	5M	9,4	5,3	13	118	1	2	AM	CM	CMX
281500602	6M	10,4	6,4	16	125	1	2	AM	CM	CMX
281500802	8M	13,5	8,4	20	140	1	2	AM	CM	CMX
281501002	10M	16,5	10,5	25	160	2	2	AM	CM	CMX
281501202	12M	19	13	25	160	2	2	AM	CM	CMX
281501402	14M	23	15	32	170	2	2	AM	CM	CMX
281501602	16M	25	17	35	180	2	2	AM	CM	CMX
281501802	18M	28	19	40	180	2	2	AM	CM	CMX
281502002	20M	31	21	50	215	3	2	AM	CM	CMX
281502202	22M	34	23	50	220	3	2	AM	CM	CMX
281502402	24M	37	25	50	230	3	2	AM	CM	CMX

28150

Z 4

Frese per sedi di viti
Counterbores
Flachsenker
Fraises à chambrer
Fresa para asiento piano

SKIN
UOP COATING

CM= MORSE SHANK | N | UNI6842 DIN ISO

cod.		Dh8	D1h8	l	L	CM	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
281500304	3M	5,9	3,2	12	105	1	4	AM	CM	CMX
281500404	4M	7,4	4,3	12	105	1	4	AM	CM	CMX
281500504	5M	9,4	5,3	13	118	1	4	AM	CM	CMX
281500604	6M	10,4	6,4	16	125	1	4	AM	CM	CMX
281500804	8M	13,5	8,4	20	140	1	4	AM	CM	CMX
281501004	10M	16,5	10,5	25	160	2	4	AM	CM	CMX
281501204	12M	19	13	25	160	2	4	AM	CM	CMX
281501404	14M	23	15	32	170	2	4	AM	CM	CMX
281501604	16M	25	17	35	180	2	4	AM	CM	CMX
281501804	18M	28	19	40	180	2	4	AM	CM	CMX
281502004	20M	31	21	50	215	3	4	AM	CM	CMX
281502204	22M	34	23	50	220	3	4	AM	CM	CMX
281502404	24M	37	25	50	230	3	4	AM	CM	CMX

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
28150	○	○	○	○	○	●	●
28150	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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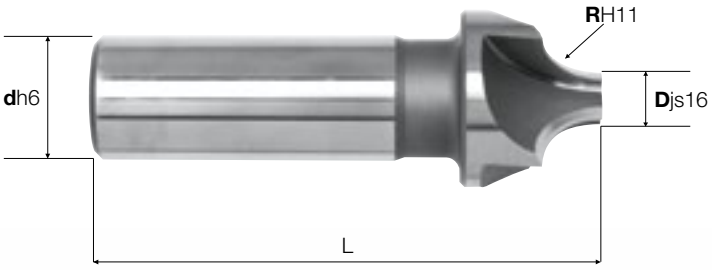

cod.	RH11	Djs16	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
285050100	1	10	60	10	4	CM	CMX
285050150	1,5	10	60	10	4	CM	CMX
285050200	2	10	60	10	4	CM	CMX
285050250	2,5	10	60	10	4	CM	CMX
285050300	3	12	60	12	4	CM	CMX
285050400	4	15	60	12	4	CM	CMX
285050500	5	18	70	16	4	CM	CMX
285050600	6	21	70	16	4	CM	CMX
285050700	7	24	70	16	4	CM	CMX
285050800	8	24	70	16	4	CM	CMX
285050900	9	28	85	20	4	CM	CMX
285050901	9	28	85	25	4	CM	CMX
285051000	10	28	85	20	4	CM	CMX
285051001	10	28	85	25	4	CM	CMX
285051100	11	35	90	20	4	CM	CMX
285051101	11	35	90	25	4	CM	CMX
285051200	12	35	100	20	4	CM	CMX
285051201	12	35	100	25	4	CM	CMX
285051250	12,5	35	100	20	4	CM	CMX
285051251	12,5	35	100	25	4	CM	CMX
285051300	13	42	100	25	4	CM	CMX
285051400	14	42	100	25	4	CM	CMX
285051500	15	48	105	25	5	CM	CMX
285051600	16	48	105	25	5	CM	CMX
285051800	18	52	115	32	5	CM	CMX
285052000	20	60	115	32	6	CM	CMX

Z 4÷6

28505

Frese di forma ad un quarto di cerchio concavo
Corner-rounding cutters
Viertelrund-Profilfräser konkav
Fraises concaves quart-de-cercle
Fresa cóncava

SKIN
UOP COATING

UNI 8264 DIN 6518A ISO	N	W a richiesta ON REQUEST	F a richiesta ON REQUEST

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
28505	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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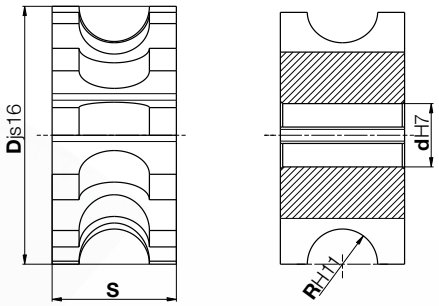
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	M-TK COATED
29105	0100	AM	AMX



29105

Z 12÷14

Frese a profilo costante concavo
Form relieved concave milling cutters
Hinterdreht, Halbrund-Profilfräser konkav
Fraises detallonee concaves 1/2 cercle
Fresa cóncava

cod.	RH11	Djs16	S	dH7	Z	M-TK (HSS-E)	SKIN UOP COATING
291050100	1	56	8	22	14	AM	AMX
291050150	1,5	56	8	22	14	AM	AMX
291050200	2	56	9	22	14	AM	AMX
291050250	2,5	56	10	22	14	AM	AMX
291050300	3	63	12	22	14	AM	AMX
291050350	3,5	63	14	22	14	AM	AMX
291050400	4	63	16	22	14	AM	AMX
291050450	4,5	63	18	22	12	AM	AMX
291050500	5	63	20	22	12	AM	AMX
291050550	5,5	63	22	22	12	AM	AMX
291050600	6	70	24	22	12	AM	AMX
291050650	6,5	70	26	22	12	AM	AMX
291050700	7	70	28	22	12	AM	AMX
291050750	7,5	80	30	27	12	AM	AMX
291050800	8	80	32	27	12	AM	AMX
291050850	8,5	80	34	27	12	AM	AMX
291050900	9	90	36	27	12	AM	AMX
291050950	9,5	90	38	27	12	AM	AMX
291051000	10	90	40	27	12	AM	AMX
291051100	11	100	42	27	12	AM	AMX
291051200	12	100	44	27	12	AM	AMX
291051250	12,5	100	46	27	12	AM	AMX
291051300	13	100	48	27	12	AM	AMX
291051400	14	100	50	27	12	AM	AMX
291051500	15	110	53	32	12	AM	AMX
291051600	16	110	56	32	12	AM	AMX
291051700	17	110	59	32	12	AM	AMX
291051800	18	125	62	32	12	AM	AMX
291051900	19	125	66	32	12	AM	AMX
291052000	20	125	70	32	12	AM	AMX

SKIN
UOP COATING

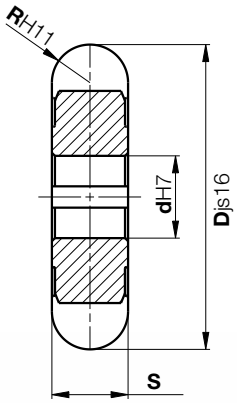
N | UNI 4499 DIN ISO

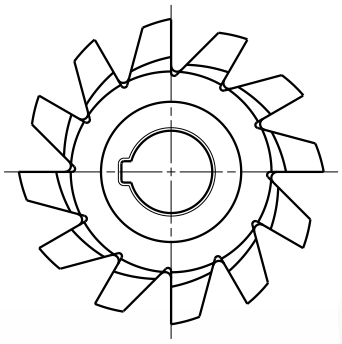
Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
29105	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	M-TK UNCOATED	M-TK COATED
29110	0100	AM	AMX





cod.	RH11	Djs16	S	dH7	Z	M-TK (HSS-E)	SKIN UOP COATING
291100100	1	50	2	22	14	AM	AMX
291100150	1,5	50	3	22	14	AM	AMX
291100200	2	50	4	22	14	AM	AMX
291100250	2,5	56	5	22	14	AM	AMX
291100300	3	56	6	22	14	AM	AMX
291100350	3,5	63	7	22	14	AM	AMX
291100400	4	63	8	22	14	AM	AMX
291100450	4,5	63	9	22	14	AM	AMX
291100500	5	63	10	22	14	AM	AMX
291100550	5,5	70	11	22	14	AM	AMX
291100600	6	70	12	22	14	AM	AMX
291100650	6,5	70	13	22	14	AM	AMX
291100700	7	70	14	22	14	AM	AMX
291100750	7,5	70	15	22	12	AM	AMX
291100800	8	70	16	22	12	AM	AMX
291100850	8,5	90	17	27	12	AM	AMX
291100900	9	90	18	27	12	AM	AMX
291100950	9,5	90	19	27	12	AM	AMX
291101000	10	90	20	27	12	AM	AMX
291101100	11	90	22	27	12	AM	AMX
291101200	12	90	24	27	12	AM	AMX
291101250	12,5	100	25	27	12	AM	AMX
291101300	13	100	26	27	12	AM	AMX
291101400	14	100	28	27	12	AM	AMX
291101500	15	110	30	32	12	AM	AMX
291101600	16	110	32	32	12	AM	AMX
291101700	17	110	34	32	12	AM	AMX
291101800	18	110	36	32	12	AM	AMX
291101900	19	125	38	32	12	AM	AMX
291102000	20	125	40	32	12	AM	AMX

Z 12÷14

29110

Frese a profilo costante convesso
Form relieved convex milling cutters
Hinterdreht, Halbrund-Profilfräser konvex
Fraises detallonee convexes 1/2 cercle
Fresa de perfil constante convexo

SKIN
UOP COATING

UNI 4498
DIN 856
ISO
N

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
29110	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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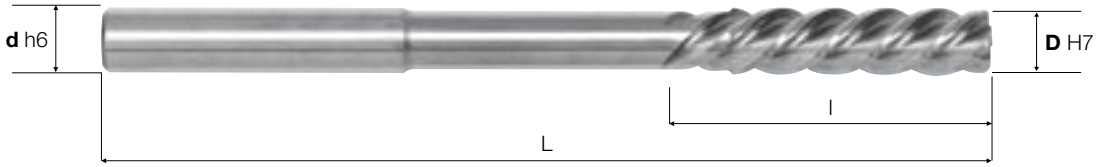
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
30105	0200	CM	CMX



30105

Z 3÷4

Alesatori a macchina
Machine reaners
Maschinen-Reibahlen
Alesoirs machine
Escariador de Maquina

* ESAURIMENTO SCORTE,
successivamente a richiesta
* LIMITED STOCK, after which on request

Diametri intermedi e tolleranze
diverse da H7
si forniscono a richiesta
In-between diameters and tolerances
different from H7
are supplied on request

	cod.	DH7	l	L	dh6	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
*	**301050200**	2	11	49	2	3	CM	CMX
*	**301050250**	2,5	14	57	2,5	3	CM	CMX
*	**301050300**	3	15	61	3	3	CM	CMX
*	**301050350**	3,5	18	70	3,5	3	CM	CMX
*	**301050400**	4	19	75	4	3	CM	CMX
*	**301050450**	4,5	21	80	4,5	3	CM	CMX
*	**301050500**	5	23	86	5	3	CM	CMX
*	**301050550**	5,5	26	93	5,5	3	CM	CMX
*	**301050600**	6	26	93	6	3	CM	CMX
*	**301050650**	6,5	28	101	6,5	3	CM	CMX
*	**301050700**	7	31	109	7	3	CM	CMX
*	**301050800**	8	33	117	8	3	CM	CMX
*	**301050900**	9	36	125	9	3	CM	CMX
*	**301051000**	10	38	133	10	4	CM	CMX
*	**301051100**	11	41	142	11	4	CM	CMX
*	**301051200**	12	44	151	12	4	CM	CMX
*	**301051300**	13	44	151	13	4	CM	CMX
*	**301051400**	14	47	160	14	4	CM	CMX
*	**301051500**	15	50	162	15	4	CM	CMX
*	**301051600**	16	52	170	16	4	CM	CMX

SKIN
UOP COATING

λ°s 45	N	UNI DIN212E ISO 521
MORSE	W a richiesta ON REQUEST	F a richiesta ON REQUEST

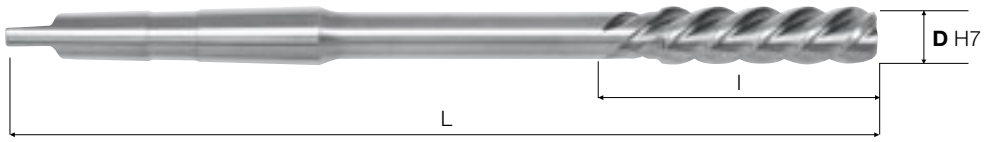
Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
30105	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

www.uop.it
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
30150	0500	CM	CMX



cod.	DH7	l	L	CM	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
301500500	5	23	133	1	3	CM	CMX
301500600	6	26	138	1	3	CM	CMX
301500700	7	31	150	1	3	CM	CMX
301500800	8	33	156	1	3	CM	CMX
301500900	9	36	162	1	3	CM	CMX
301501000	10	38	168	1	4	CM	CMX
301501100	11	41	175	1	4	CM	CMX
301501200	12	44	182	1	4	CM	CMX
301501300	13	44	182	1	4	CM	CMX
301501400	14	47	189	1	4	CM	CMX
301501500	15	50	204	2	4	CM	CMX
301501600	16	52	210	2	4	CM	CMX
301501700	17	54	214	2	4	CM	CMX
301501800	18	56	219	2	4	CM	CMX
301501900	19	58	223	2	4	CM	CMX
301502000	20	60	228	2	4	CM	CMX
301502100	21	62	232	2	4	CM	CMX
301502200	22	64	237	2	4	CM	CMX
301502300	23	66	241	2	4	CM	CMX
301502400	24	68	268	3	4	CM	CMX
301502500	25	68	268	3	5	CM	CMX
301502600	26	70	273	3	5	CM	CMX
301502700	27	71	277	3	5	CM	CMX
301502800	28	71	277	3	5	CM	CMX
301502900	29	73	281	3	5	CM	CMX
301503000	30	73	281	3	5	CM	CMX
301503100	31	75	285	3	5	CM	CMX
301503200	32	77	317	4	5	CM	CMX
301503300	33	77	317	4	5	CM	CMX
301503400	34	78	321	4	5	CM	CMX
301503500	35	78	321	4	6	CM	CMX
301503600	36	79	325	4	6	CM	CMX
301503700	37	79	325	4	6	CM	CMX
301503800	38	81	329	4	6	CM	CMX
301503900	39	81	329	4	6	CM	CMX
301504000	40	81	329	4	6	CM	CMX

Z 3÷6

30150

Alesatori a macchina
Machine reaners
Maschinen-Reibahlen
Alesoirs machine
Escariador de Maquina

Diametri intermedi e tolleranze
diverse da H7
si forniscono a richiesta
In-between diameters and tolerances
different from H7
are supplied on request

SKIN
UOP COATING

UNI DIN208C ISO 521	N	λ°s 45	CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
30150	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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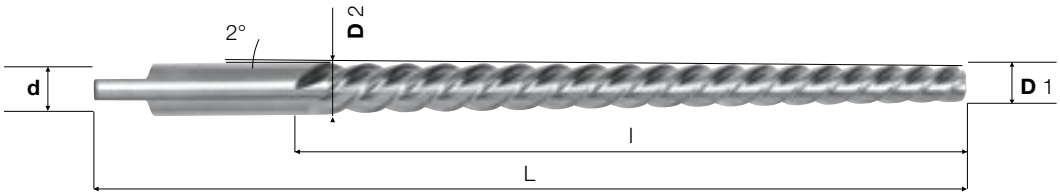
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
30502	0200	CM	CMX
30505	0600	CM	CMX



30502

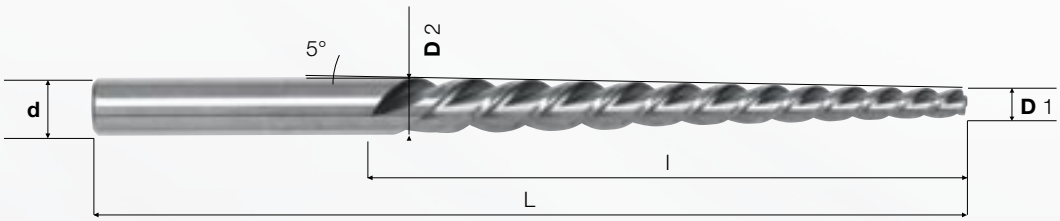
Z 3÷4

Alesatori conici, conicità 2%
Tapered reamers, taper 2%
Kegel Reibahlen, Kegel 2%
Alesoirs coniques, conicite 2%
Escariador conico, conicidad 2%

SKIN UOP COATING

λ°s 45 | N | UNI 6857 DIN ISO

cod.	Dnom	D1	D2	l	L	d	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
305020200	2	1,9	2,86	48	65	3,5	3	CM	CMX
305020250	2,5	2,4	3,46	53	75	3,5	3	CM	CMX
305020300	3	2,9	4,16	63	100	4	3	CM	CMX
305020400	4	3,9	5,40	75	115	5	3	CM	CMX
305020500	5	4,9	6,64	87	135	6,5	3	CM	CMX
305020600	6	5,9	8,28	119	170	8,5	3	CM	CMX
305020800	8	7,9	10,72	141	205	10,5	3	CM	CMX
305021000	10	9,9	13,16	163	230	14	4	CM	CMX
305021200	12	11,86	15,74	194	275	18	4	CM	CMX
305021600	16	15,84	21,12	264	355	18	4	CM	CMX
305022000	20	19,8	25,20	270	370	25	4	CM	CMX



30505

Z 3

Alesatori conici, conicità 5%
Tapered reamers, taper 5%
Kegel Reibahlen, Kegel 5%
Alesoirs coniques, conicite 5%
Escariador conico, conicidad 5%

SKIN UOP COATING

λ°s 45 | N | Standard UOP | W a richiesta ON REQUEST | F a richiesta ON REQUEST

cod.	Dnom	D1	D2	l	L	d	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
305050600	6	3	6	60	110	6	3	CM	CMX
305050800	8	4	8	80	130	8	3	CM	CMX
305051000	10	5	10	100	155	10	3	CM	CMX
305051200	12	6	12	120	180	12	3	CM	CMX

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
30502	○	○	◕	○	○	●	●
30505	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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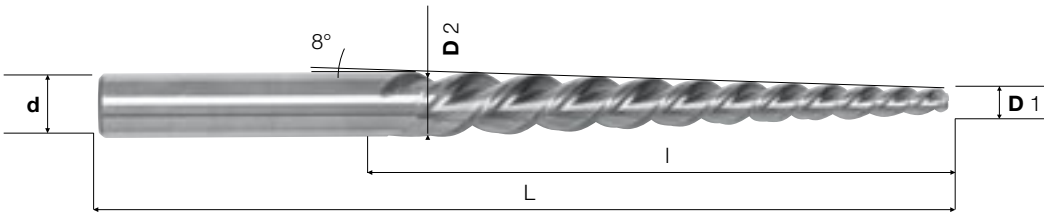
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-85 COATED
30508	0600	CM	CMX
30510	0600	CM	CMX



cod.	Dnom	D1	D2	l	L	d	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
305080600	6	2	6	50	100	6	3	CM	CMX
305080800	8	3	8	62,5	110	8	3	CM	CMX
305081000	10	4	10	75	130	10	3	CM	CMX
305081200	12	4,8	12	90	150	12	3	CM	CMX

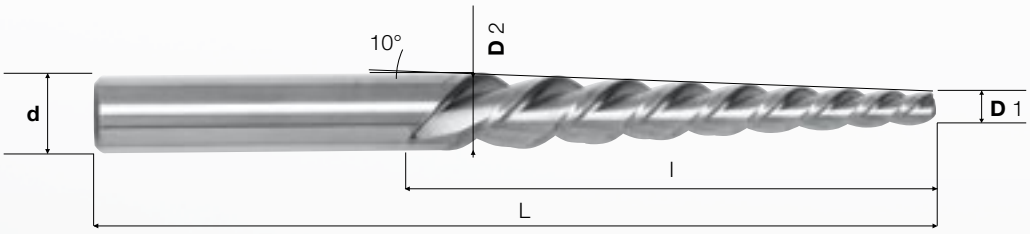
Z 3

30508

Alesatori conici, conicità 8%
Tapered reamers, taper 8%
Kegel Reibahlen, Kegel 8%
Alesoirs coniques, conicite 8%
Escariador conico, conicidad 8%

SKIN UOP COATING

Standard UOP	N	λ°s 45	W a richiesta ON REQUEST	F a richiesta ON REQUEST



cod.	Dnom	D1	D2	l	L	d	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
305100600	6	2	6	40	90	6	3	CM	CMX
305100800	8	3	8	50	100	8	3	CM	CMX
305101000	10	4	10	60	115	10	3	CM	CMX
305101200	12	5	12	70	130	12	3	CM	CMX

Z 3

30510

Alesatori conici, conicità 10%
Tapered reamers, taper 10%
Kegel Reibahlen, Kegel 10%
Alesoirs coniques, conicite 10%
Escariador conico, conicidad 10%

SKIN UOP COATING

Standard UOP	N	λ°s 45	W a richiesta ON REQUEST	F a richiesta ON REQUEST

Serie / SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
30508	○	○	◪	○	○	●	●
30510	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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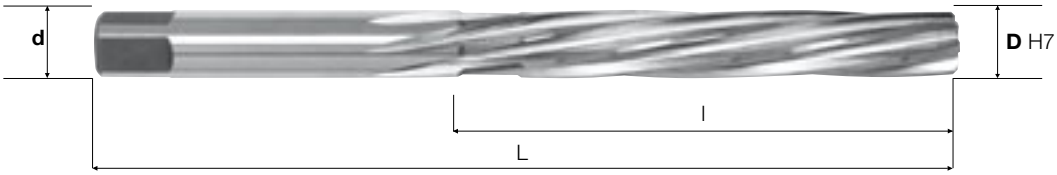
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
31105	0300	AM	CM	CMX



31105

Z 4÷12

Alesatori fissi a mano

Tapered reamers

Hand Reibahlen

Alesoirs à main

Escariador de mano

cod.	DH7	l	L	d	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
311050300	3	31	62	3	4	AM	CM	CMX
311050400	4	38	76	4	5	AM	CM	CMX
311050500	5	44	87	5	5	AM	CM	CMX
311050600	6	47	93	6	5	AM	CM	CMX
311050700	7	54	107	7	5	AM	CM	CMX
311050800	8	58	115	8	6	AM	CM	CMX
311050900	9	62	124	9	6	AM	CM	CMX
311051000	10	66	133	10	6	AM	CM	CMX
311051100	11	71	142	11	7	AM	CM	CMX
311051200	12	76	152	12	7	AM	CM	CMX
311051300	13	76	152	13	7	AM	CM	CMX
311051400	14	81	163	14	7	AM	CM	CMX
311051500	15	81	163	15	7	AM	CM	CMX
311051600	16	87	175	16	7	AM	CM	CMX
311051700	17	87	175	17	7	AM	CM	CMX
311051800	18	93	188	18	8	AM	CM	CMX
311051900	19	93	188	19	8	AM	CM	CMX
311052000	20	100	201	20	8	AM	CM	CMX
311052100	21	100	201	21	8	AM	–	–
311052200	22	107	215	22	8	AM	–	–
311052300	23	107	215	23	8	AM	–	–
311052400	24	115	231	24	8	AM	–	–
311052500	25	115	231	25	8	AM	–	–
311052600	26	115	231	26	8	AM	–	–
311052700	27	124	247	27	10	AM	–	–
311052800	28	124	247	28	10	AM	–	–
311052900	29	124	247	29	10	AM	–	–
311053000	30	124	247	30	10	AM	–	–
311053200	32	133	265	32	10	AM	–	–
311053400	34	142	284	34	10	AM	–	–
311053500	35	142	284	35	10	AM	–	–
311053600	36	142	284	36	10	AM	–	–
311053800	38	152	305	38	10	AM	–	–
311054000	40	152	305	40	10	AM	–	–
311054500	45	163	326	45	12	AM	–	–
311055000	50	174	347	50	12	AM	–	–

Diametri intermedi e tolleranze diverse da H7 si forniscono a richiesta

IN-BETWEEN DIAMETERS AND TOLERANCES DIFFERENT FROM H7 ARE SUPPLIED ON REQUEST

SKIN UOP COATING

	λ°s		
	10	N	UNI 6852 DIN 206B ISO 236/I

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
31105	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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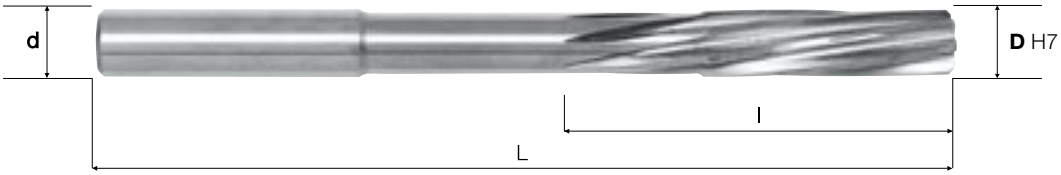
MADE IN ITALY

series	ø	example code: M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
32105	0100	AM	CM	CMX



cod.	DH7	l	L	d	λ°	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
321050100	1	5	37	1	30	3	CM	CMX
321050110	1,1	7	40	1,1	30	3	CM	CMX
321050120	1,2	7	40	1,2	30	3	CM	CMX
321050130	1,3	7	40	1,3	30	3	CM	CMX
321050140	1,4	8	40	1,4	30	3	CM	CMX
321050150	1,5	8	40	1,5	30	3	CM	CMX
321050160	1,6	9	43	1,6	30	3	CM	CMX
321050170	1,7	9	43	1,7	30	3	CM	CMX
321050180	1,8	10	46	1,8	30	3	CM	CMX
321050190	1,9	10	46	1,9	30	3	CM	CMX
321050200	2	11	49	2	10	5	CM	CMX
321050210	2,1	11	49	2,1	10	5	CM	CMX
321050220	2,2	12	53	2,2	10	5	CM	CMX
321050230	2,3	12	53	2,3	10	5	CM	CMX
321050240	2,4	14	57	2,4	10	5	CM	CMX
321050250	2,5	14	57	2,5	10	5	CM	CMX
321050260	2,6	14	57	2,6	10	5	CM	CMX
321050270	2,7	15	61	2,7	10	5	CM	CMX
321050280	2,8	15	61	2,8	10	5	CM	CMX
321050290	2,9	15	61	2,9	10	5	CM	CMX
321050300	3	15	61	3	10	5	CM	CMX
321050310	3,1	16	65	3,1	10	5	CM	CMX
321050320	3,2	16	65	3,2	10	5	CM	CMX
321050330	3,3	16	65	3,3	10	5	CM	CMX
321050340	3,4	18	70	3,4	10	5	CM	CMX
321050350	3,5	18	70	3,5	10	5	CM	CMX
321050360	3,6	18	70	3,6	10	5	CM	CMX
321050370	3,7	18	70	3,7	10	5	CM	CMX
321050380	3,8	19	75	3,8	10	5	CM	CMX
321050390	3,9	19	75	3,9	10	5	CM	CMX
321050400	4	19	75	4	10	5	CM	CMX
321050410	4,1	19	75	4,1	10	5	CM	CMX
321050420	4,2	19	75	4,2	10	5	CM	CMX
321050430	4,3	21	80	4,3	10	5	CM	CMX
321050440	4,4	21	80	4,4	10	5	CM	CMX
321050450	4,5	21	80	4,5	10	5	CM	CMX
321050460	4,6	21	80	4,6	10	5	CM	CMX
321050470	4,7	21	80	4,7	10	5	CM	CMX
321050480	4,8	23	86	4,8	10	5	CM	CMX
321050490	4,9	23	86	4,9	10	5	CM	CMX
321050500	5	23	86	5	10	5	CM	CMX
321050510	5,1	23	86	5,1	10	5	CM	CMX
321050520	5,2	23	86	5,2	10	5	CM	CMX
321050530	5,3	26	93	5,3	10	5	CM	CMX
321050540	5,4	26	93	5,4	10	5	CM	CMX
321050550	5,5	26	93	5,5	10	6	CM	CMX
321050560	5,6	26	93	5,6	10	6	CM	CMX
321050570	5,7	26	93	5,7	10	6	CM	CMX

continues on the next page →

Z 3÷7

32105

Alesatori a macchina
Machine reaners
Maschinen-Reibahlen
Alesoirs machine
Escariador de Maquina

Diametri intermedi e tolleranze
diverse da H7
si forniscono a richiesta

IN-BETWEEN DIAMETERS AND TOLERANCES
DIFFERENT FROM H7
ARE SUPPLIED ON REQUEST

SKIN
UOP COATING

UNI 6853 DIN 212D ISO 521	N	λ°s 10
W a richiesta ON REQUEST	F a richiesta ON REQUEST	

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
32105	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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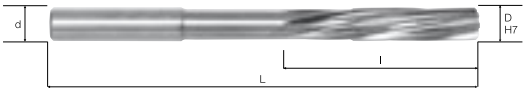
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
32105	0590	AM	CM	CMX



32105

Z 3÷7

Alesatori a macchina
Machine reaners
Maschinen-Reibahlen
Alesoirs machine
Escariador de Maquina

Diametri intermedi e tolleranze diverse da H7 si forniscono a richiesta

IN-BETWEEN DIAMETERS AND TOLERANCES DIFFERENT FROM H7 ARE SUPPLIED ON REQUEST

SKIN
UOP COATING

λ°s		
10÷30	N	UNI 6853 DIN 212D ISO 521
	W a richiesta ON REQUEST	F a richiesta ON REQUEST

→| continuation of the previous page

cod.	DH7	l	L	d	λ°	Z	X-85 (PM Co 8,5%)	SKIN UOP COATING
321050580	5,8	26	93	5,8	10	6	CM	CMX
321050590	5,9	26	93	5,9	10	6	CM	CMX
321050600	6	26	93	6	10	6	CM	CMX
321050610	6,1	28	101	6,1	10	6	CM	CMX
321050620	6,2	28	101	6,2	10	6	CM	CMX
321050630	6,3	28	101	6,3	10	6	CM	CMX
321050640	6,4	28	101	6,4	10	6	CM	CMX
321050650	6,5	28	101	6,5	10	6	CM	CMX
321050660	6,6	28	101	6,6	10	6	CM	CMX
321050670	6,7	31	109	6,7	10	6	CM	CMX
321050680	6,8	31	109	6,8	10	6	CM	CMX
321050690	6,9	31	109	6,9	10	6	CM	CMX
321050700	7	31	109	7	10	6	CM	CMX
321050710	7,1	31	109	7,1	10	6	CM	CMX
321050720	7,2	31	109	7,2	10	6	CM	CMX
321050730	7,3	31	109	7,3	10	6	CM	CMX
321050740	7,4	31	109	7,4	10	6	CM	CMX
321050750	7,5	33	117	7,5	10	6	CM	CMX
321050760	7,6	33	117	7,6	10	6	CM	CMX
321050770	7,7	33	117	7,7	10	6	CM	CMX
321050780	7,8	33	117	7,8	10	6	CM	CMX
321050790	7,9	33	117	7,9	10	6	CM	CMX
321050800	8	33	117	8	10	6	CM	CMX
321050810	8,1	33	117	8,1	10	6	CM	CMX
321050820	8,2	33	117	8,2	10	6	CM	CMX
321050830	8,3	33	117	8,3	10	6	CM	CMX
321050840	8,4	33	117	8,4	10	6	CM	CMX
321050850	8,5	36	125	8,5	10	6	CM	CMX
321050860	8,6	36	125	8,6	10	6	CM	CMX
321050870	8,7	36	125	8,7	10	6	CM	CMX
321050880	8,8	36	125	8,8	10	6	CM	CMX
321050890	8,9	36	125	8,9	10	6	CM	CMX
321050900	9	36	125	9	10	6	CM	CMX
321050910	9,1	36	125	9,1	10	6	CM	CMX
321050920	9,2	36	125	9,2	10	6	CM	CMX
321050930	9,3	36	125	9,3	10	6	CM	CMX
321050940	9,4	36	125	9,4	10	6	CM	CMX
321050950	9,5	38	133	9,5	10	6	CM	CMX
321050960	9,6	38	133	9,6	10	6	CM	CMX
321050970	9,7	38	133	9,7	10	6	CM	CMX
321050980	9,8	38	133	9,8	10	6	CM	CMX
321050990	9,9	38	133	9,9	10	6	CM	CMX
321051000	10	38	133	10	10	6	CM	CMX
321051050	10,5	41	142	10,5	10	7	CM	CMX
321051100	11	41	142	11	10	7	CM	CMX
321051150	11,5	44	151	11,5	10	7	CM	CMX
321051200	12	44	151	12	10	7	CM	CMX
321051250	12,5	44	151	12,5	10	7	CM	CMX
321051300	13	44	151	13	10	7	CM	CMX
321051350	13,5	47	160	13,5	10	7	CM	CMX
321051400	14	47	160	14	10	7	CM	CMX
321051450	14,5	50	162	14,5	10	7	CM	CMX
321051500	15	50	162	15	10	7	CM	CMX
321051550	15,5	52	170	15,5	10	7	CM	CMX
321051600	16	52	170	16	10	7	CM	CMX

Serie	materiali lavorabili WORKPIECE MATERIALS		acciai inossidabili	materiali non ferrosi	leghe leggere	acciai	ghise
SERIES	titanio TITANIUM	HRSA HRSA	STAINLESS STEELS	NON FERROUS MATERIALS	LIGHT ALLOYS	STEELS	CAST IRON
32105	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	X-85 UNCOATED	X-85 COATED
32150	0500	AM	CM	CMX

cod.	DH7	l	L	CM	Z	M-TK (HSS-E)	X-85 (PM Co 8,5%)	SKIN UOP COATING
321500500	5	23	133	1	5	AM	CM	CMX
321500600	6	26	138	1	6	AM	CM	CMX
321500700	7	31	150	1	6	AM	CM	CMX
321500800	8	33	156	1	6	AM	CM	CMX
321500900	9	36	162	1	6	AM	CM	CMX
321501000	10	38	168	1	6	AM	CM	CMX
321501100	11	41	175	1	7	AM	CM	CMX
321501200	12	44	182	1	7	AM	CM	CMX
321501300	13	44	182	1	7	AM	CM	CMX
321501400	14	47	189	1	7	AM	CM	CMX
321501500	15	50	204	2	7	AM	CM	CMX
321501600	16	52	210	2	7	AM	CM	CMX
321501700	17	54	214	2	8	AM	CM	CMX
321501800	18	56	219	2	8	AM	CM	CMX
321501900	19	58	223	2	8	AM	CM	CMX
321502000	20	60	228	2	8	AM	CM	CMX
321502100	21	62	232	2	8	AM	CM	CMX
321502200	22	64	237	2	8	AM	CM	CMX
321502300	23	66	241	2	8	AM	CM	CMX
321502400	24	68	268	3	8	AM	CM	CMX
321502500	25	68	268	3	8	AM	CM	CMX
321502600	26	70	273	3	8	AM	CM	CMX
321502700	27	71	277	3	10	AM	CM	CMX
321502800	28	71	277	3	10	AM	CM	CMX
321502900	29	73	281	3	10	AM	CM	CMX
321503000	30	73	281	3	10	AM	CM	CMX
321503100	31	75	285	3	10	AM	CM	CMX
321503200	32	77	317	4	10	AM	CM	CMX
321503300	33	77	317	4	10	AM	CM	CMX
321503400	34	78	321	4	10	AM	CM	CMX
321503500	35	78	321	4	10	AM	CM	CMX
321503600	36	79	325	4	10	AM	CM	CMX
321503700	37	79	325	4	10	AM	CM	CMX
321503800	38	81	329	4	10	AM	CM	CMX
321503900	39	81	329	4	10	AM	CM	CMX
321504000	40	81	329	4	10	AM	CM	CMX

Z 5÷10

32150

Alesatori a macchina
Machine reaners
Maschinen-Reibahlen
Alesoirs machine
Escariador de Maquina

Diametri intermedi e tolleranze
diverse da H7
si forniscono a richiesta

IN-BETWEEN DIAMETERS AND TOLERANCES
DIFFERENT FROM H7
ARE SUPPLIED ON REQUEST

SKIN
UOP COATING

UNI 6854 DIN 208B ISO 521	N	λ°s 10	CM= MORSE SHANK

Serie	materiali lavorabili WORKPIECE MATERIALS		acciai inossidabili	materiali non ferrosi	leghe leggere	acciai	ghise
SERIES	titanio TITANIUM	HRSA HRSA	STAINLESS STEELS	NON FERROUS MATERIALS	LIGHT ALLOYS	STEELS	CAST IRON
32150	○	○	◪	○	○	●	●

● consigliata RECOMMENDED ◪ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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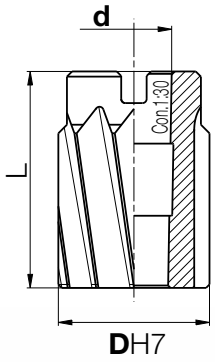
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	M-TK COATED
33105	0200	AM	AMX



33105

Z 8÷20

Alesatori a macchina tipo manicotto foro conico 1:30

Shell reaners taper hole 1:30

Aufsteck-Reibahlen kegelbohrung 1:30

Alesoirs creux alésage conique 1:30

Escariador de maquina hueco agujiero conico 1:30

Diametri intermedi e tolleranze diverse da H7 si forniscono a richiesta

IN-BETWEEN DIAMETERS AND TOLERANCES DIFFERENT FROM H7 ARE SUPPLIED ON REQUEST

SKIN UOP COATING

λ°s	N	UNI 6855 DIN 219B ISO 2402
10		

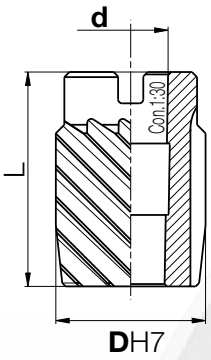
cod.	DH7	L	d	Z	M-TK (HSS-E)	SKIN UOP COATING
331050200	20	40	10	8	AM	AMX
331050210	21	40	10	8	AM	AMX
331050220	22	40	10	8	AM	AMX
331050230	23	40	10	8	AM	AMX
331050240	24	45	13	10	AM	AMX
331050250	25	45	13	10	AM	AMX
331050260	26	45	13	10	AM	AMX
331050270	27	45	13	10	AM	AMX
331050280	28	45	13	10	AM	AMX
331050290	29	45	13	10	AM	AMX
331050300	30	45	13	10	AM	AMX
331050310	31	50	16	10	AM	AMX
331050320	32	50	16	10	AM	AMX
331050330	33	50	16	10	AM	AMX
331050340	34	50	16	10	AM	AMX
331050350	35	50	16	10	AM	AMX
331050360	36	56	19	12	AM	AMX
331050370	37	56	19	12	AM	AMX
331050380	38	56	19	12	AM	AMX
331050390	39	56	19	12	AM	AMX
331050400	40	56	19	12	AM	AMX
331050420	42	56	19	12	AM	AMX
331050440	44	63	22	12	AM	AMX
331050450	45	63	22	12	AM	AMX
331050460	46	63	22	14	AM	AMX
331050470	47	63	22	14	AM	AMX
331050480	48	63	22	14	AM	AMX
331050490	49	63	22	14	AM	AMX
331050500	50	63	22	14	AM	AMX
331050520	52	71	27	14	AM	AMX
331050550	55	71	27	14	AM	AMX
331050580	58	71	27	14	AM	AMX
331050600	60	71	27	16	AM	AMX
331050620	62	80	32	16	AM	AMX
331050650	65	80	32	16	AM	AMX
331050680	68	80	32	16	AM	AMX
331050700	70	80	32	16	AM	AMX
331050720	72	90	40	16	AM	AMX
331050750	75	90	40	16	AM	AMX
331050780	78	90	40	16	AM	AMX
331050800	80	90	40	20	AM	AMX
331050820	82	90	40	20	AM	AMX
331050850	85	90	40	20	AM	AMX
331050880	88	100	50	20	AM	AMX
331050900	90	100	50	20	AM	AMX
331050920	92	100	50	20	AM	AMX
331050950	95	100	50	20	AM	AMX
331050980	98	100	50	20	AM	AMX
331051000	100	100	50	20	AM	AMX

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
33105	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	M-TK UNCOATED	M-TK COATED
33105	0201	AM	AMX



cod.	DH7	L	d	Z	M-TK (HSS-E)	SKIN UOP COATING
331050201	20	40	10	5	AM	AMX
331050211	21	40	10	5	AM	AMX
331050221	22	40	10	5	AM	AMX
331050231	23	40	10	5	AM	AMX
331050241	24	45	13	5	AM	AMX
331050251	25	45	13	5	AM	AMX
331050261	26	45	13	5	AM	AMX
331050271	27	45	13	5	AM	AMX
331050281	28	45	13	5	AM	AMX
331050291	29	45	13	6	AM	AMX
331050301	30	45	13	6	AM	AMX
331050311	31	50	16	6	AM	AMX
331050321	32	50	16	6	AM	AMX
331050331	33	50	16	7	AM	AMX
331050341	34	50	16	7	AM	AMX
331050351	35	50	16	7	AM	AMX
331050361	36	56	19	8	AM	AMX
331050371	37	56	19	8	AM	AMX
331050381	38	56	19	8	AM	AMX
331050391	39	56	19	8	AM	AMX
331050401	40	56	19	8	AM	AMX
331050421	42	56	19	8	AM	AMX
331050441	44	63	22	8	AM	AMX
331050451	45	63	22	8	AM	AMX
331050461	46	63	22	8	AM	AMX
331050471	47	63	22	8	AM	AMX
331050481	48	63	22	8	AM	AMX
331050491	49	63	22	8	AM	AMX
331050501	50	63	22	8	AM	AMX
331050521	52	71	27	8	AM	AMX
331050551	55	71	27	8	AM	AMX
331050581	58	71	27	10	AM	AMX
331050601	60	71	27	10	AM	AMX
331050621	62	80	32	10	AM	AMX
331050651	65	80	32	10	AM	AMX
331050681	68	80	32	10	AM	AMX
331050701	70	80	32	10	AM	AMX
331050721	72	90	40	10	AM	AMX
331050751	75	90	40	10	AM	AMX
331050781	78	90	40	10	AM	AMX
331050801	80	90	40	12	AM	AMX
331050821	82	90	40	12	AM	AMX
331050851	85	90	40	12	AM	AMX
331050881	88	100	50	12	AM	AMX
331050901	90	100	50	14	AM	AMX
331050921	92	100	50	14	AM	AMX
331050951	95	100	50	14	AM	AMX
331050981	98	100	50	14	AM	AMX
331051001	100	100	50	14	AM	AMX

Z 5÷14

33105

Alesatori a macchina tipo manicotto foro conico 1:30

Shell reaners taper hole 1:30

Aufsteck-Reibahlen kegelbohrung 1:30

Alesoirs creux alésage conique 1:30

Escariador de maquina hueco agujiero conico 1:30

Diametri intermedi e tolleranze diverse da H7 si forniscono a richiesta

IN-BETWEEN DIAMETERS AND TOLERANCES DIFFERENT FROM H7 ARE SUPPLIED ON REQUEST

SKIN
UOP COATING

UNI 6855 DIN 219C ISO 2402	N	λ°s 45

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
33105	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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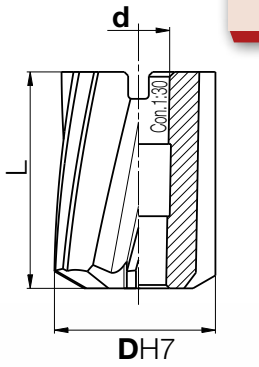
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	M-TK COATED
34105	0300	AM	AMX



34105

Z 4

Allargatori a manicotto foro conico 1:30

Shell drills taper hole 1:30

Aufsteck-Aufbohrer kegelbohrung 1:30

Forets creux alésage conique 1:30

Broca Escariadora agujiero conico 1:30

Il diametro è nominale ed è ridotto in rapporto alle dimensioni precisamente:

da 20÷30: -0,3 mm

da 30÷60: -0,4 mm

da 62÷100: -0,5 mm

DIMENSION D IS REDUCED AS FOLLOWS:

FROM 20÷30: -0,3 mm

FROM 30÷60: -0,4 mm

FROM 62÷100: -0,5 mm

SKIN
UOP COATING

λ°s		
15	N	UNI 6840 DIN 222 ISO 3314

cod.	D	L	d	Z	M-TK (HSS-E)	SKIN UOP COATING
341050200	20	40	10	4	AM	AMX
341050210	21	40	10	4	AM	AMX
341050220	22	40	10	4	AM	AMX
341050230	23	40	10	4	AM	AMX
341050240	24	45	13	4	AM	AMX
341050250	25	45	13	4	AM	AMX
341050260	26	45	13	4	AM	AMX
341050270	27	45	13	4	AM	AMX
341050280	28	45	13	4	AM	AMX
341050290	29	45	13	4	AM	AMX
341050300	30	45	13	4	AM	AMX
341050310	31	45	13	4	AM	AMX
341050320	32	45	13	4	AM	AMX
341050330	33	45	13	4	AM	AMX
341050340	34	45	13	4	AM	AMX
341050350	35	45	13	4	AM	AMX
341050360	36	50	16	4	AM	AMX
341050370	37	50	16	4	AM	AMX
341050380	38	50	16	4	AM	AMX
341050390	39	50	16	4	AM	AMX
341050400	40	50	16	4	AM	AMX
341050420	42	50	16	4	AM	AMX
341050440	44	50	16	4	AM	AMX
341050450	45	50	16	4	AM	AMX
341050460	46	56	19	4	AM	AMX
341050470	47	56	19	4	AM	AMX
341050480	48	56	19	4	AM	AMX
341050490	49	56	19	4	AM	AMX
341050500	50	56	19	4	AM	AMX
341050520	52	56	19	4	AM	AMX
341050550	55	63	22	4	AM	AMX
341050580	58	63	22	4	AM	AMX
341050600	60	63	22	4	AM	AMX
341050620	62	63	22	4	AM	AMX
341050650	65	71	27	4	AM	AMX
341050680	68	71	27	4	AM	AMX
341050700	70	71	27	4	AM	AMX
341050720	72	71	27	4	AM	AMX
341050750	75	71	27	4	AM	AMX
341050780	78	80	32	4	AM	AMX
341050800	80	80	32	4	AM	AMX
341050820	82	80	32	4	AM	AMX
341050850	85	80	32	4	AM	AMX
341050880	88	80	32	4	AM	AMX
341050900	90	80	32	4	AM	AMX
341050920	92	90	40	4	AM	AMX
341050950	95	90	40	4	AM	AMX
341050980	98	90	40	4	AM	AMX
341051000	100	90	40	4	AM	AMX

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS: titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
34105	○	○	○	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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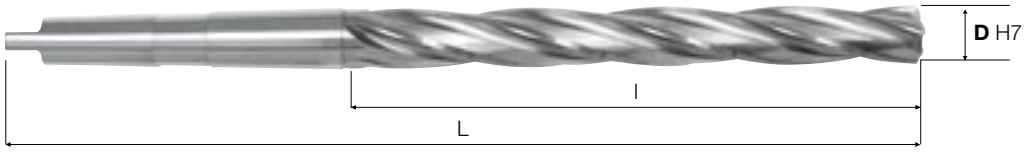
MADE IN ITALY

example code:

series	ø	M-TK UNCOATED	M-TK COATED
34150	0300	AM	AMX



cod.	DH7	l	L	CM	Z	M-TK (HSS-E)	SKIN UOP COATING
341500900	9	81	162	1	4	AM	AMX
341501000	10	87	168	1	4	AM	AMX
341501100	11	94	175	1	4	AM	AMX
341501200	12	101	182	1	4	AM	AMX
341501300	13	101	182	1	4	AM	AMX
341501400	14	108	189	1	4	AM	AMX
341501500	15	114	212	2	4	AM	AMX
341501600	16	120	218	2	4	AM	AMX
341501700	17	125	223	2	4	AM	AMX
341501800	18	130	228	2	4	AM	AMX
341501900	19	135	233	2	4	AM	AMX
341502000	20	140	238	2	4	AM	AMX
341502100	21	145	243	2	4	AM	AMX
341502200	22	150	248	2	4	AM	AMX
341502300	23	155	253	2	4	AM	AMX
341502400	24	160	281	3	4	AM	AMX
341502500	25	160	281	3	4	AM	AMX
341502600	26	165	286	3	4	AM	AMX
341502700	27	170	291	3	4	AM	AMX
341502800	28	170	291	3	4	AM	AMX
341502900	29	175	296	3	4	AM	AMX
341503000	30	175	296	3	4	AM	AMX
341503100	31	180	301	3	4	AM	AMX
341503200	32	185	334	4	4	AM	AMX
341503300	33	185	334	4	4	AM	AMX
341503400	34	190	339	4	4	AM	AMX
341503500	35	190	339	4	4	AM	AMX
341503600	36	195	344	4	4	AM	AMX
341503700	37	195	344	4	4	AM	AMX
341503800	38	200	349	4	4	AM	AMX
341503900	39	200	349	4	4	AM	AMX
341504000	40	200	349	4	4	AM	AMX

Z 4

34150

Allargatori
Core drills
Aufbohrer
Forets aleseurs
Broca escariadora

Il diametro è nominale ed è ridotto
in rapporto alle dimensioni precisamente:
da 9÷12: -0,2 mm
da 13÷19: -0,25 mm
da 20÷30: -0,3 mm
da 31÷40: -0,4 mm

DIMENSION D IS REDUCED AS FOLLOWS:
FROM 9÷12: -0,2 mm
FROM 13÷19: -0,25 mm
FROM 20÷30: -0,3 mm
FROM 31÷40: -0,4 mm
FROM 62÷100: -0,5 mm

SKIN
UOP COATING

UNI 6829 DIN 343 ISO 7079	N	λ°s 20	CM= MORSE SHANK

Serie SERIES	materiali lavorabili WORKPIECE MATERIALS titanio TITANIUM	HRSA HRSA	acciai inossidabili STAINLESS STEELS	materiali non ferrosi NON FERROUS MATERIALS	leghe leggere LIGHT ALLOYS	acciai STEELS	ghise CAST IRON
34150	○	○	◕	○	○	●	●

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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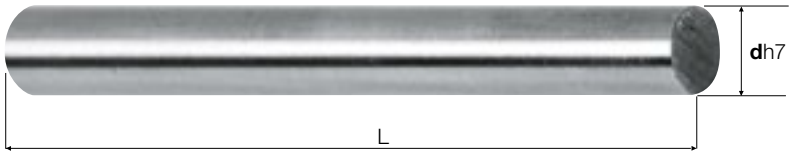
MADE IN ITALY

example code:

series	ø	X-85 UNCOATED	X-105 UNCOATED
08105	0310	CM	EM



08105

UNI 3868
DIN
ISO

●

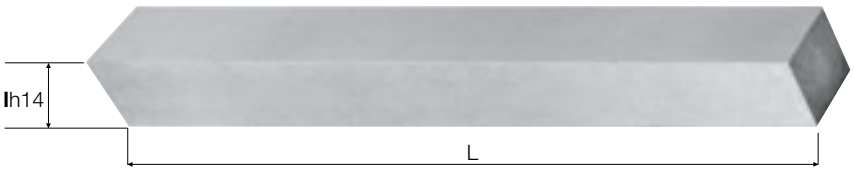
Barrette tonde
Round toolbits
Runde Drehlinge
Barreaux ronds
Barra redonda

cod.	dh7	L	X-85 (PM Co 8,5%)	X-105 (PM Co 10,5%)
081050310	3	100	CM	–
081050410	4	100	CM	–
081050415	4	150	CM	–
081050420	4	200	CM	–
081050510	5	100	CM	–
081050515	5	150	CM	–
081050520	5	200	CM	–
081050610	6	100	CM	EM
081050615	6	150	CM	EM
081050620	6	200	CM	EM
081050810	8	100	CM	EM
081050815	8	150	CM	EM
081050820	8	200	CM	EM
081051010	10	100	CM	EM
081051015	10	150	CM	EM
081051020	10	200	CM	EM
081051210	12	100	CM	EM
081051215	12	150	CM	EM
081051220	12	200	CM	EM
081051410	14	100	CM	EM
081051415	14	150	CM	EM
081051420	14	200	CM	EM
081051610	16	100	CM	EM
081051615	16	150	CM	EM
081051620	16	200	CM	EM
081051810	18	100	CM	EM
081051815	18	150	CM	EM
081051820	18	200	CM	EM
081052010	20	100	CM	EM
081052015	20	150	CM	EM
081052020	20	200	CM	EM
081052510	25	100	CM	EM
081052515	25	150	CM	EM
081052520	25	200	CM	EM
081053010	30	100	CM	EM
081053015	30	150	CM	EM
081053020	30	200	CM	EM
081053030	30	300	CM	EM

● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

example code:

series	ø	X-105 UNCOATED
08110	0615	EM
08115	1208	EM



08110

cod.	lh14	L	X-105 (PM Co 10,5%)
081100615	6	150	EM
081100620	6	200	EM
081100715	7	150	EM
081100720	7	200	EM
081100815	8	150	EM
081100820	8	200	EM
081101015	10	150	EM
081101020	10	200	EM
081101215	12	150	EM
081101220	12	200	EM
081101420	14	200	EM
081101520	15	200	EM
081101620	16	200	EM
081101820	18	200	EM
081102020	20	200	EM
081102520	25	200	EM

UNI 3868
DIN
ISO

Barrette quadre
Square toolbits
Vierkante Drehlinge
Barreaux carres
Barra cuadrada

08115

cod.	Bh14	Sh14	L	X-105 (PM Co 10,5%)
081151208	12	8	200	EM
081151503	15	3	200	EM
081151610	16	10	200	EM
081151804	18	4	200	EM
081152003	20	3	200	EM
081152004	20	4	200	EM
081152012	20	12	200	EM
081152504	25	4	200	EM
081152515	25	15	200	EM

Barrette rettangolari
Flat toolbits
Flache Drehlinge
Barreaux rectangulaires
Pletina rectangular

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● consigliata RECOMMENDED ◕ accettabile ACCEPTABLE ○ non consigliata NOT RECOMMENDED

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SPECIAL TOOLS

La progettazione e realizzazione di SPECIAL TOOLS rappresenta un elemento centrale nelle strategie **UOP**.

Gli investimenti effettuati in macchinari d'avanguardia ed il costante incremento di richieste di utensili a disegno ci invitano a migliorare sistematicamente i nostri standard qualitativi.

La fiducia che i nostri clienti e partners hanno riposto nelle nostre iniziative ci stimola a sviluppare soluzioni tecnologiche al servizio delle industrie più avanzate.

The design as well as the production of SPECIAL TOOLS represents a focal point in **UOP**'s strategies.

Investments in high tech machinery and the constant demand for special tools encourages us to systematically improve our quality standards.

The trust that our Customers and Partners have shown towards our initiatives is an incentive to develop technological solutions which we offer to the most advanced industries.

Member IMC Group

SPECIAL TOOLS

Die Entwicklung und Herstellung von SPECIAL TOOLS *ist ein zentrales Element der* ***UOP****-Strategie. Die Investition in fortschrittliche Maschinen und die kontinuierlich steigende Nachfrage nach ad hoc konzipierten und angefertigten Werkzeugen, sind für uns eine Aufforderung unsere Qualitätsstandards weiterhin systematisch zu verbessern.*
Das Vertrauen, das unsere Kunden und Partner Uns und unseren Initiativen entgegengebracht haben, motiviert uns, technologische Lösungen für die fortschrittlichsten Industriebranchen zu entwickeln.

L'étude et la réalisation de SPECIAL TOOLS représente un élément central dans la stratégie d'**UOP**. Les investissements effectués dans un parc machines d'avant-garde et l'accroissement constant des demandes en outils sur plans nous incite à améliorer systématiquement nos standards qualités. La confiance que nos clients et partenaires ont témoignée à nos initiatives nous stimule à développer des solutions technologiques au service des industries les plus avancées.

El diseño y la construcción de SPECIAL TOOLS *es un elemento clave en las estrategias* ***UOP****. Las inversiones en maquinaria de última generación y el aumento constante de la demanda de herramientas de diseño nos invita a mejorar sistemáticamente nuestros estándares de calidad. La confianza que nuestros clientes y socios han depositado en nuestros esfuerzos nos anima a desarrollar soluciones tecnológicas para servir a las industrias más avanzadas.*

www.uop.it

SPECIAL TOOLS

UOP
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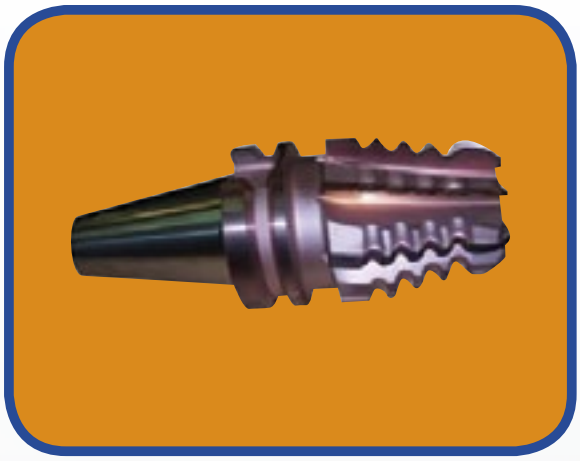


Fresa con attacco ISO 50 DIN 69871 integrato per lavorazione piede palette (settore Generazione Energia)

CHRISTMAS TREE CUTTERS WITH ISO 50 DIN 69871 SHANK (POWER GENERATION INDUSTRY)

Set di frese per lavorazione piede palette con attacco “a forchetta” (settore Generazione Energia)

SET OF MILLING CUTTERS FOR MACHINING ROTOR BLADES (POWER GENERATION INDUSTRY)

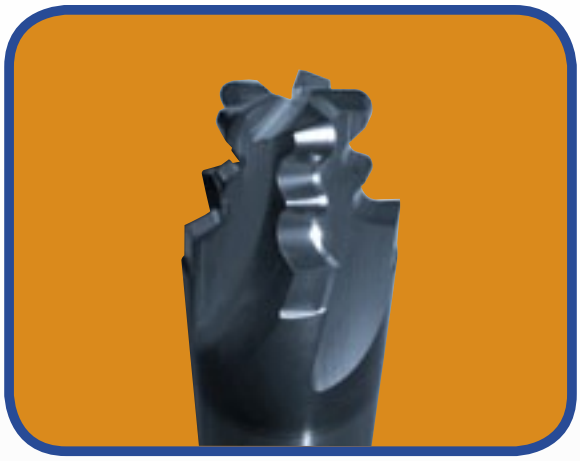
Fresa per lavorazione piede palette con attacco speciale (settore Generazione Energia)

CHRISTMAS TREE CUTTER WITH ARBOR HOLE (POWER GENERATION INDUSTRY)

Fresa a disco profilata (settore Generazione Energia)

LARGE DIAMETER PROFILED SIDE AND FACE MILLING CUTTER (POWER GENERATION INDUSTRY)

Fresa di forma
(settore Generazione Energia)
SPECIAL FORM CUTTER
(POWER GENERATION INDUSTRY)



Fresa in metallo duro per lavorazione rotore (settore Aerospaziale)
SOLID CARBIDE CHRISTMAS TREE CUTTER
(AEROSPACE INDUSTRY)

Fresa in metallo duro con lubrificazione interna per lavorazione rotore (settore Aerospaziale)
SOLID CARBIDE CHRISTMAS TREE CUTTER WITH COOLANT (AEROSPACE INDUSTRY)

Fresa profilata per lavorazione rotore (settore Generazione Energia)
FORM CUTTER FOR ROTOR MACHINING
(POWER GENERATION INDUSTRY)

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SPECIAL TOOLS

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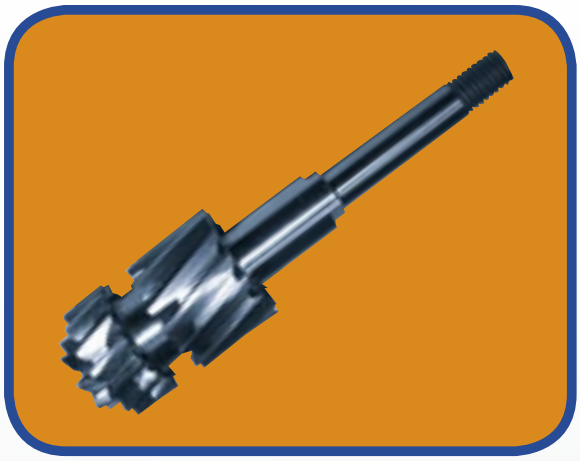
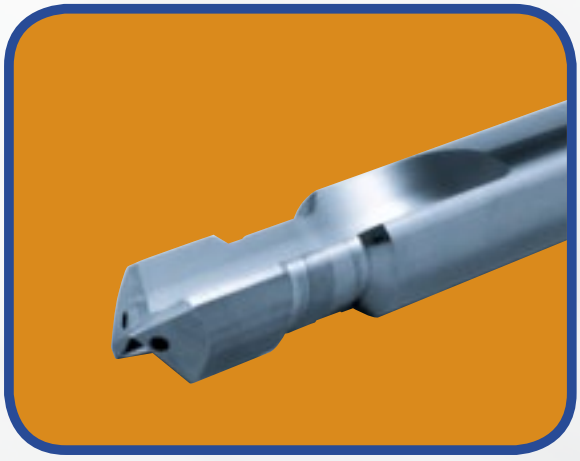


Fresa combinata per lavorazioni di particolari per fucili da caccia (settore Armi)

STEP END MILL (ARMAMENT INDUSTRY)

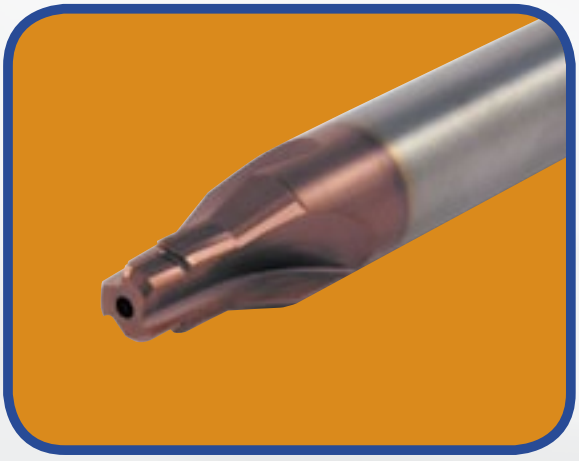
Fresa sagomata (settore Automotive)

FORM CUTTER WITH A SPECIAL PROFILE (AUTOMOTIVE INDUSTRY)



Punta a doppio smusso con lubrificazione interna per fori passanti (settore Automotive)

STEP DRILL WITH DOUBLE CHAMFER AND COOLANT THROUGH HOLES (AUTOMOTIVE INDUSTRY)

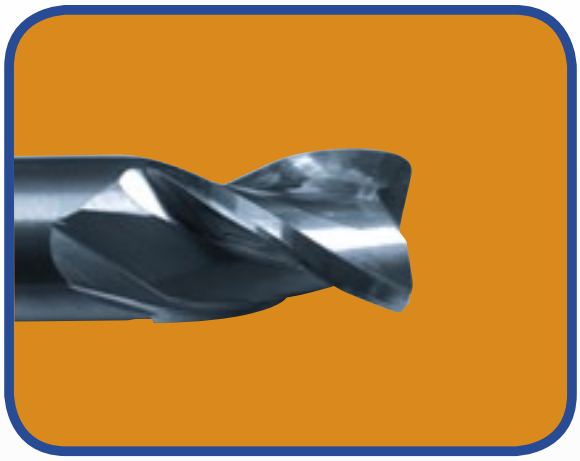


Alesatore a gradino

SPECIAL STEP REAMER

Frese per lavorazione di plastica (settore Medicale)

BEARING CUTTERS (MEDICAL INDUSTRY)



Fresa con gole sagomate (profilo “Wave”) per lavorazione Alluminio Aerospaziale (settore Aerospaziale)

END MILL WITH A “WAVE” PROFILE FOR ALUMINIUM MACHINING (AEROSPACE INDUSTRY)

Fresa rompitruciolo con gole sagomate (profilo “Wave”) per lavorazione Alluminio Aerospaziale (settore Aerospaziale)

ROUGHING END MILL WITH A “WAVE” PROFILE FOR ALUMINIUM MACHINING (AEROSPACE INDUSTRY)

Fresa per lavorazione di plastica (settore Medicale)

BEARING CUTTER (MEDICAL INDUSTRY)

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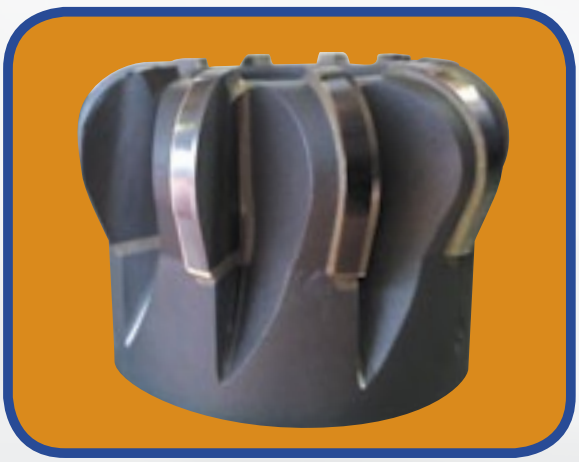
SPECIAL TOOLS

Fresa con placchette saldobrasate d.130mmX500mm con attacco ISO 50 DIN 69871 (settore Petrolifero)

CARBIDE TIPPED TAPER END MILL D.130mmX500mm WITH ISO 50 DIN 69871 SHANK (OIL INDUSTRY)

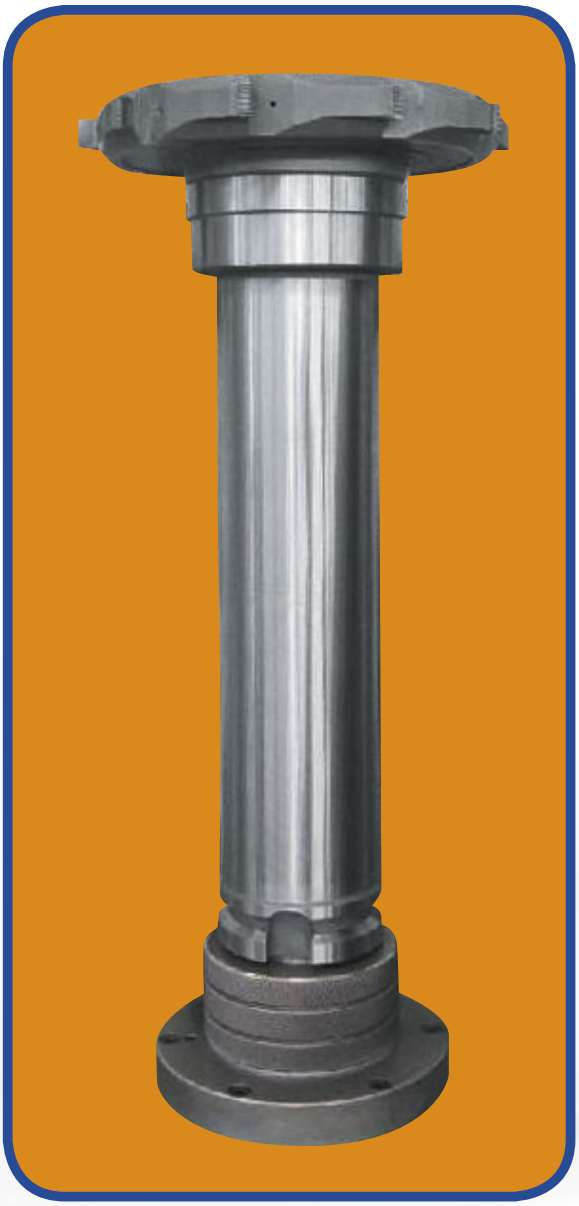
Broccia per rigatura elicoidale (settore Militare)

HELICAL BROACH FOR RIFLING GUN BARRELS (MILITARY INDUSTRY)



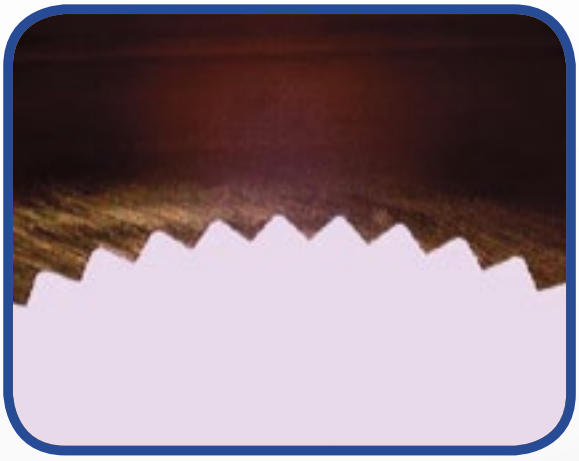
Fresa saldobrasata (settore Generazione Energia)

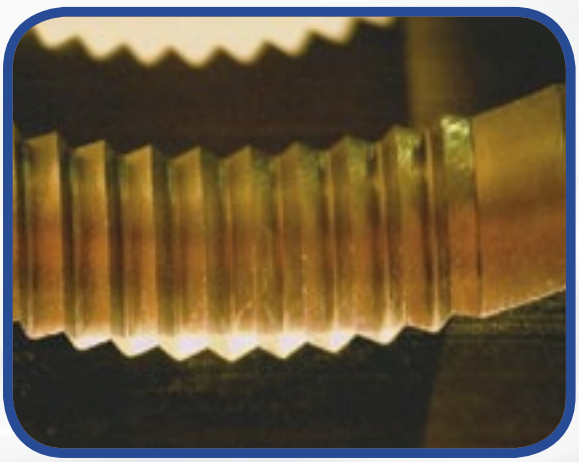
CARBIDE TIPPED FORM CUTTER (POWER GENERATION INDUSTRY)



Mandrino speciale ISO 50 DIN 69871
L600mm con fresa saldo brasata
d.230mm (per lavorazioni pesanti)
SPECIAL SHANK ISO 50 DIN 69871
L600mm WITH BRAZED FORM TOOL 9.200
INCH DIAMETER (HEAVY MACHINING)

Eseguiamo qualunque tipo di profilo affilato a spirale logaritmica
WE CAN MAKE ANY TYPE OF SPECIAL RADIAL RELIEF CUTTERS





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SERVIZI UOP
UOP SERVICES

Dalla progettazione del prodotto alla sua rigenerazione, **UOP** è partner affidabile e punto di riferimento sul mercato. Abbiamo realizzato una efficiente struttura di rigenerazione degli utensili in grado di supportare la clientela per ogni esigenza. Questo sistema di lavoro ci permette di sviluppare rapporti di Tool Management con aziende sia in campo nazionale che internazionale.

From the design to the regeneration of the product **UOP** is a trustworthy partner and a reference point on the market. **UOP** has created an efficient structure for the regeneration of tools able to support all it's Customers' needs. This system allows for the development of Tool Management relationships with National as well as International companies.

- STUDIO E REALIZZAZIONE DI UTENSILI SPECIALI
  Design and Production of Special Tools

- ESECUZIONE MODIFICHE
  Tool Modifications

- RIGENERAZIONE UTENSILI
  (RIAFFILATURA E RIVESTIMENTO)
  Tool Refurbishing (Regrinding and Coating)

- TRATTAMENTI TERMICI
  Heat Treatments

- ASSISTENZA TECNICA
  Technical Support

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Certificazione sistema qualità
QUALITY SYSTEM CERTIFICATION

Consapevoli che la soddisfazione del cliente è requisito indispensabile per il successo dell'azienda e strategia che garantisce e consolida i risultati ottenuti sul mercato, con l'obiettivo di un costante miglioramento della qualità dei propri prodotti e servizi, nel 1997 **UOP** ha ottenuto **la Certificazione del Sistema Qualità secondo la norma UNI EN ISO 9001** e successivamente, nel giugno 2008, la **Certificazione AS9100 Sistema di gestione per la qualità – Serie Aerospaziale**, standard di eccellenza riconosciuto a livello mondiale.

Knowing that the satisfaction of the customer is an essential condition for the success of the company and a strategy that guarantees and consolidates the results obtained on the market and aiming at a constant improvement in the quality of its products and services, in 1997 **UOP** obtained the Quality System certification according to the **UNI EN ISO 9001** standards and in June 2008 the world renowned **AS 9100 Quality Management Systems-Aerospace standard certification**.

Certificate GB08/74761

The management system of

UOP SpA

via Vittorio Emanuele II,
30 - 25030 Roncadelle (BS), Italy

has been assessed in accordance with EN9104 and certified as meeting the requirements of

ISO 9001:2008
AS 9100 Revision C

For the following activities

Design and production of tools in high speed steel and solid carbide, coated and uncoated.

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained by consulting the organisation

This certificate is valid from 08 December 2011 to 06 May 2014 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 09 January 2014
Issue 7. Certified since ISO 06 May 2008
Certified since ASCS 06 May 2008

Authorised by

SGS United Kingdom Ltd Systems & Services Certification
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

SGS 9001-8 27 0611

Page 1 of 1

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Informazioni tecniche

MATERIALI, RIVESTIMENTI, SIMBOLI, ABBREVIAZIONI

TECHNICAL INFORMATION

MATERIALS, COATINGS, SYMBOLS, ABBREVIATIONS

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MADE IN ITALY

Materiali e classi di prestazione
MATERIALS AND PERFORMANCE RATING

SOLID CARBIDE

HSC Top Class LINE

Dimensione Grano GRAIN SIZE	Durezza HARDNESS VICKERS HV30	Tenacità TOUGHNESS	WC + M.C.	Co Co
ULTRAFINE	1730	4000 N/mm^2	88%	12%

SOLID CARBIDE

HPC Megafinconcept

SOLID CARBIDE

UNIVERSAL LINE

Dimensione Grano GRAIN SIZE	Durezza HARDNESS	Tenacità TOUGHNESS	Co Co
micrograno MICROGRAIN	1680 HV30	3700 N/mm^2	10%

HSS-PM

HSS-PM LINE

M-TK	X-85	X-105
HSS Co 5%	PM Co 8,5%	PM Co 10,5%

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rivestimenti - COATINGS

UOP sviluppa i propri rivestimenti PVD, testandoli nel reparto di ricerca e sviluppo, mantenendo una particolare attenzione ai materiali da lavorare per i quali consiglia la soluzione più indicata.

We develop our PVD coatings by testing them in our R&D dept; proposing the best solutions for the workpiece materials and requised applications.

SKIN UOP COATING

Durezza HARDNESS
3700 HV
Resistenza all'ossidazione (°C) OXIDATION RESISTANCE
800°
Coefficiente di attrito COEFFICIENT OF FRICTION
0,5
Spessore THICKNESS
1-3 µm
Lavorazioni per ogni tipo di materiale MACHINING FOR EVERY TYPE OF MATERIAL

SKIN Alu UOP COATING

Durezza HARDNESS
3700 HV
Resistenza all'ossidazione (°C) OXIDATION RESISTANCE
800°
Coefficiente di attrito COEFFICIENT OF FRICTION
0,1
Spessore THICKNESS
1-3 µm
Lavorazioni leghe leggere, materie plastiche, materiali non ferrosi MACHINING FOR LIGHT ALLOYS, PLASTIC MATERIALS, NON FERROUS MATERIALS

SKIN Drill UOP COATING

Durezza HARDNESS
4000 HV
Resistenza all'ossidazione (°C) OXIDATION RESISTANCE
850°
Coefficiente di attrito COEFFICIENT OF FRICTION
0,1
Spessore THICKNESS
1-3 µm
Foratura per ogni tipo di materiale DRILLING FOR EVERY TYPE OF MATERIAL

SKIN Plus UOP COATING

Durezza HARDNESS
4000 HV
Resistenza all'ossidazione (°C) OXIDATION RESISTANCE
850°
Coefficiente di attrito COEFFICIENT OF FRICTION
0,1
Spessore THICKNESS
1-3 µm
Fresatura materiali duri e tenaci HARD AND TOUGH MATERIAL MILLING

SKIN Inox UOP COATING

Durezza HARDNESS
3500 HV
Resistenza all'ossidazione (°C) OXIDATION RESISTANCE
400°
Coefficiente di attrito COEFFICIENT OF FRICTION
0,05
Spessore THICKNESS
1-4 µm
Fresatura acciai inossidabili* STAINLESS STEEL MILLING*

SKIN Power UOP COATING

Durezza HARDNESS
3500 HV
Resistenza all'ossidazione (°C) OXIDATION RESISTANCE
>900°
Coefficiente di attrito COEFFICIENT OF FRICTION
0,25
Spessore THICKNESS
1-3 µm
Fresatura acciai inossidabili, titanio, inconel e leghe resistenti al calore STAINLESS STEEL, TITANIUM, INCONEL, HRSA ALLOYS MILLING

EVOtech UOP COATING

Durezza HARDNESS
3500-3700 HV
Resistenza all'ossidazione (°C) OXIDATION RESISTANCE
900°
Coefficiente di attrito COEFFICIENT OF FRICTION
0,35
Spessore THICKNESS
1 µm
Fresatura materiali duri e tenaci HARD AND TOUGH MATERIAL MILLING

DIAMOND Gph

Durezza HARDNESS
10000 HV
Resistenza all'ossidazione (°C) OXIDATION RESISTANCE
1000°
Coefficiente di attrito COEFFICIENT OF FRICTION
0,6
Spessore THICKNESS
4-10 µm
Fresatura grafite GRAPHITE APPLICATIONS

* solo per/ONLY FOR HSS-PM LINE

rivestimenti a richiesta - COATINGS ON REQUEST

		Durezza (HV) HARDNESS (HV)	Resistenza all'ossidazione (°C) OXIDATION RESISTANCE (°C)
MOVIC	Bisolfuro di molibdeno MOLYBDENUM DISULFIDE	Soft	–
TiCN	Carbonitruro di Titanio TITANIUM CARBONITRIDE	3500	500
TiN	Nitruro di Titanio TITANIUM NITRIDE	2300	600
CrN	Nitruro di Cromo CHROMIUM NITRIDE	1800	800
ZrN	Nitruro di Zirconio ZIRCONIUM NITRIDE	2700	700
DLC	Carbonio CARBONIUM	5300	600

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simbologia - SYMBOLS

esecuzione
EXECUTION

N H W

DIN 1836

Taglienti a **FINIRE**

FINISHING CUTTING EDGE PROFILE

NR NRF

DIN 1836

Taglienti a **SGROSSARE**

ROUGHING CUTTING EDGE PROFILE

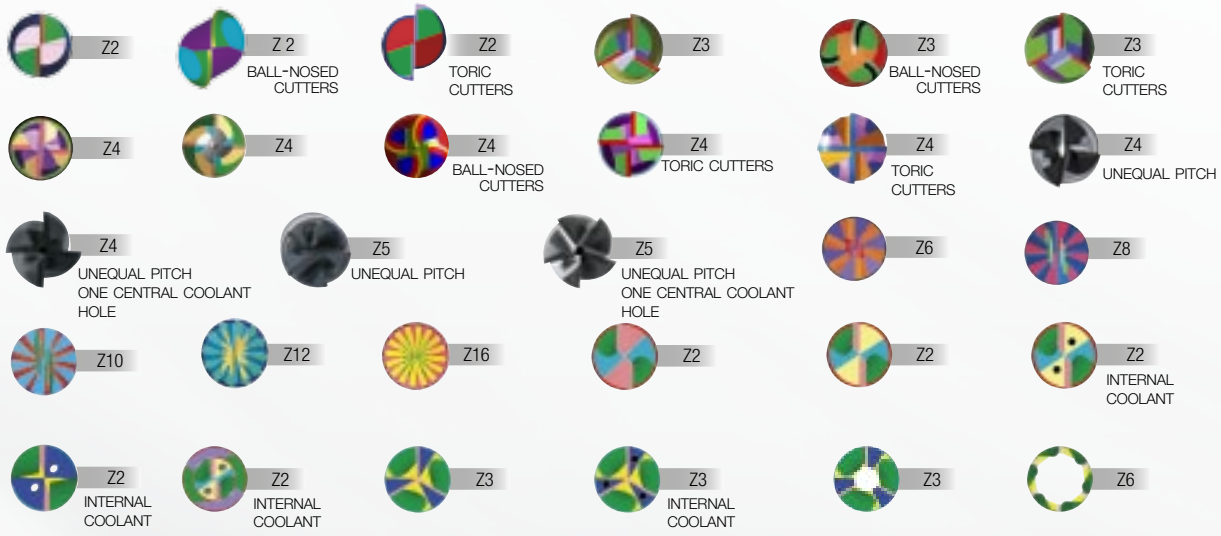
NF NF NF WF

DIN 1836

Taglienti a **SGROSSARE** e **SEMIFINIRE**

ROUGHING AND SEMI-FINISHING CUTTING EDGE PROFILE

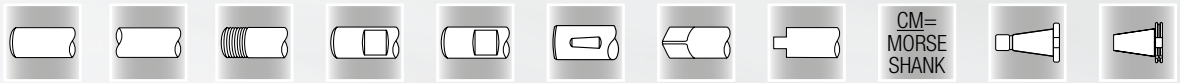
denti
TEETH



lunghezze
LENGTH

corta SHORT | normale NORMAL | lunga LONG | extralunga EXTRALONG | tutte le lunghezze ALL LENGTH

codoli
SHANKS

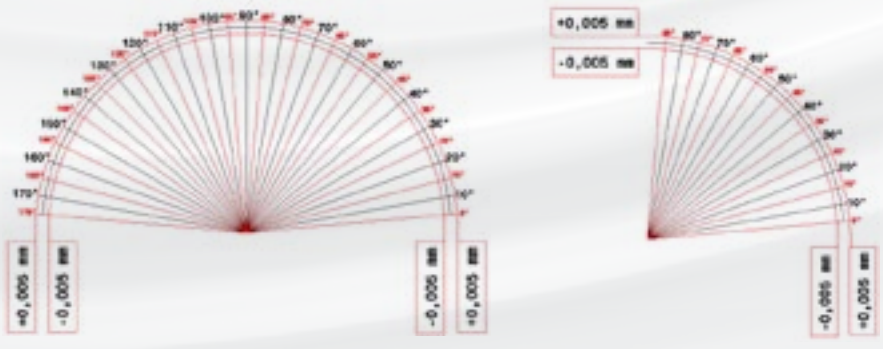


cilindrico STRAIGHT (DIN1835A) | cilindrico STRAIGHT | filettato THREADED (DIN1835D) | weldon (DIN 6535HB) | weldon (DIN1835B) | DIN 6535HE | con quadro WITH FLAT SQUARE (DIN10) | con tenone WITH TANG | morse (DIN228) | DIN2080 ISO50 | DIN69871 ISO50

abbreviazioni - ABBREVIATIONS

D	diametro del tagliente (mm)	CUTTING DIAMETER
d	diametro del gambo (mm)	SHANK DIAMETER
ds	diametro dello scarico (mm)	NECK DIAMETER
L	lunghezza totale dell'utensile (mm)	TOTAL LENGTH OF TOOL
l	lunghezza del tagliente (mm)	LENGTH OF CUT
l1	lunghezza tra la parte frontale dell'utensile fino alla fine dello scarico (mm)	LENGTH FROM THE FRONT OF THE TOOL TO THE END OF THE NECK
l2	lunghezza dalla testa dell'utensile fino all'inizio della rastrematura conica (mm)	LENGTH FROM THE FRONT OF THE TOOL TO THE TAPERING
l3	lunghezza parte di sgrossatura in frese con cave a gradini (mm)	LENGTH FROM THE FRONT OF THE TOOL TO THE END OF SCALED SLOT
Z	numero dei denti	NUMBER OF TEETH
R	raggio (mm)	CORNER RADIUS
α°	angolo di collisione "alfa"	"ALFA" COLLISION ANGLE
A	altezza utensile frese frontali	MILLING CUTTERS LENGTH OF CUT
S	spessore	WIDTH
CM	Morse tipologia di codolo	MORSE SHANK TYPE
B	larghezza barrette rettangolari	RAW FLAT TOOLBITS HEIGHT

tolleranze di forma
FORM TOLERANCE



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Formule e suggerimenti di impiego

FORMULAS AND RECOMMENDATIONS

formule
FORMULAS

D	diametro del tagliente (mm)	DIAMETER OF THE CUTTING EDGE
Z	numero dei denti	NUMBER OF TEETH
Vc	velocità di taglio (m/min.)	CUTTING SPEED
F	veocità di avanzamento (mm/min.)	FEED RATE
fz	avanzamento per dente (mm)	FEED PER TOOTH
n	numero di giri (min.)	TOOL REVOLUTION
a_p	profondità assiale (mm)	AXIAL DEPTH
a_e	profondità radiale (mm)	RADIAL DEPTH
Q	volume di truciolatura (cm^3/min.)	MATERIAL REMOVAL RATE

numero di giri TOOL REVOLUTION	$n = \frac{Vc \times 1000}{3{,}14 \times D}$	(min.)
velocità di taglio CUTTING SPEED	$Vc = \frac{D \times n \times 3{,}14}{1000}$	(m/min.)
velocità di avanzamento FEED RATE	$Vf = fz \times z \times n$	(mm/min.)
avanzamento per dente FEED PER TOOTH	$fz = \frac{F}{z \times n}$	(mm)
volume di truciolatura MATERIAL REMOVAL RATE	$Q = \frac{a_p \times a_e \times Vf}{1000}$	(cm^3/min.)

suggerimenti di impiego
RECOMMENDATIONS

●	consigliata	RECOMMENDED
◒	accettabile	ACCEPTABLE
○	non consigliata	NOT RECOMMENDED

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Parametri tecnici

TECHNICAL PARAMETERS

SOLID CARBIDE

UNIVERSAL LINE

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	41105 41107 41110* 41120** 42105	40130 40135
Materiali - Materials	**Cava Slotting** **ap = 0,5ø** **ae = 1ø**	**Cava Slotting** **ap = 0,5ø** **ae = 1ø**
Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)
	NON RIVESTITA UNCOATED	SKIN UOP COATING	NON RIVESTITA UNCOATED	SKIN Alu UOP COATING
Ghisa *CAST IRON* — Grigia/Sferoidale GREY/SPHEROIDAL	80 - 90	110 - 120	–	–
Acciaio *Steel* — Basso contenuto di C Low carbon content	90 - 100	120 - 130	–	–
Medio contenuto di C Medium carbon content	90 - 100	120 - 130	–	–
Basso legato Low alloyed	80 - 90	110 - 120	–	–
Alto legato High alloyed	70 - 80	90 - 100	–	–
Acciaio da stampi e utensili Die/tool steel	50 - 60	70 - 80	–	–
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys* — Alluminio non legato Unalloyed aluminium	–	–	90 - 100	120 - 130
Alluminio Si < 6% si < 6% aluminium	–	–	90 - 100	120 - 130
Materiali termoplastici Thermoplastic materials	–	–	120 - 130	150 - 160
Rame/Ottone Copper/Brass	90 - 100	120 - 130	–	–

AVANZAMENTO fz mm/tagliente **FEED mm/tooth**	D	fz
	3	0,008
	4	0,010
	5	0,014
	6	0,016
	8	0,022
	10	0,028
	12	0,032
	16	0,048
	20	0,065

* series **41110**
fz consigliato | *RECOMMENDED* -50%

** series **41120**
fz consigliato | *RECOMMENDED* -70%

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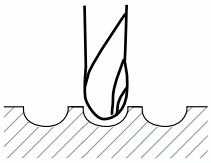
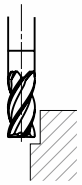
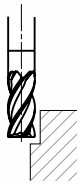
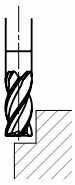
41135
41140 *
41150 **

Materiali - Materials		Sgrossatura Roughing ap = 0,4ø ae = 0,9ø	
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	
		NON RIVESTITA UNCOATED	SKIN UOP COATING
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 90	110 - 120
Acciaio Steel	Basso contenuto di C Low carbon content	90 - 100	120 - 130
	Medio contenuto di C Medium carbon content	90 - 100	120 - 130
	Basso legato Low alloyed	80 - 90	110 - 120
	Alto legato High alloyed	70 - 80	90 - 100
	Acciaio da stampi e utensili Die/tool steel	50 - 60	70 - 80
Materiali non ferrosi Leghe leggere Non ferrous materials - Light alloys	Alluminio non legato Unalloyed aluminium	–	–
	Alluminio Si < 6% si < 6% aluminium	–	–
	Materiali termoplastici Thermoplastic materials	–	–
	Rame/Ottone Copper/Brass	90 - 100	120 - 130

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	3	0,009
	4	0,012
	5	0,015
	6	0,018
	8	0,023
	10	0,033
	12	0,042
	16	0,055
	20	0,075

* series **41140** **fz** consigliato | *RECOMMENDED* -50%

** series **41150** **fz** consigliato | *RECOMMENDED* -70%

Materiali - Materials		43105 43110 * 43120 ** 43505 44105		40150 40170		43505	
		Contornatura Light Shouldering ap = 1,5ø ae = 0,15ø		**Contornatura Light Shouldering** ap = 1,5ø ae = 0,15ø		**Contornatura Shouldering** ap = 1,5ø ae = 0,5ø	
							
	Gruppo e descrizione Group and description	Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)	
		NON RIVESTITA UNCOATED	SKIN UOP COATING	NON RIVESTITA UNCOATED	SKIN Alu UOP COATING	NON RIVESTITA UNCOATED	SKIN UOP COATING
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 90	110 - 120	–	–	80 - 90	110 - 120
Acciaio *Steel*	Basso contenuto di C Low carbon content	90 - 100	120 - 130	–	–	90 - 100	120 - 130
	Medio contenuto di C Medium carbon content	90 - 100	120 - 130	–	–	90 - 100	120 - 130
	Basso legato Low alloyed	80 - 90	110 - 120	–	–	80 - 90	110 - 120
	Alto legato High alloyed	70 - 80	90 - 100	–	–	70 - 80	90 - 100
	Acciaio da stampi e utensili Die/tool steel	50 - 60	70 - 80	–	–	50 - 60	70 - 80
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	–	–	90 - 100	120 - 130	–	–
	Alluminio Si < 6% si < 6% aluminium	–	–	90 - 100	120 - 130	–	–
	Materiali termoplastici Thermoplastic materials	–	–	120 - 130	150 - 160	–	–
	Rame/Ottone Copper/Brass	90 - 100	120 - 130	–	–	90 - 100	120 - 130

AVANZAMENTO fz mm/tagliente **FEED mm/tooth**	D	fz	fz
	3	0,010	0,010
	4	0,015	0,015
	5	0,020	0,020
	6	0,025	0,023
	8	0,035	0,026
	10	0,045	0,030
	12	0,056	0,040
	16	0,080	0,060
	20	0,100	0,080

*
series **43110**
fz consigliato | *RECOMMENDED* -50%

**
series **43120**
fz consigliato | *RECOMMENDED* -70%

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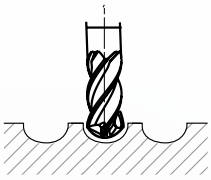
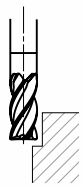
43135
43140 *
43150 **

Materiali - Materials		Sgrossatura Roughing ap = 0,4ø ae = 0,9ø	
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	
		NON RIVESTITA UNCOATED	SKIN UOP COATING
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 90	110 - 120
Acciaio Steel	Basso contenuto di C Low carbon content	90 - 100	120 - 130
	Medio contenuto di C Medium carbon content	90 - 100	120 - 130
	Basso legato Low alloyed	80 - 90	110 - 120
	Alto legato High alloyed	70 - 80	90 - 100
	Acciaio da stampi e utensili Die/tool steel	50 - 60	70 - 80
Materiali non ferrosi Leghe leggere Non ferrous materials - Light alloys	Alluminio non legato Unalloyed aluminium	–	–
	Alluminio Si < 6% si < 6% aluminium	–	–
	Materiali termoplastici Thermoplastic materials	–	–
	Rame/Ottone Copper/Brass	90 - 100	120 - 130

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	3	0,009
	4	0,012
	5	0,015
	6	0,018
	8	0,023
	10	0,033
* series **43140** **fz** consigliato | *RECOMMENDED* -50%	12	0,042
** series **43150** **fz** consigliato | *RECOMMENDED* -70%	16	0,055
	20	0,075

45105
45107
45110 *
45120 **
45505

Materiali - Materials		Contornatura Shouldering ap = 1,5ø ae = 0,15ø	
			
	Gruppo e descrizione Group and description	Vc (mt /min.) NON RIVESTITA UNCOATED	Vc (mt /min.) SKIN UOP COATING
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 90	110 - 120
Acciaio Steel	Basso contenuto di C Low carbon content	90 - 100	120 - 130
	Medio contenuto di C Medium carbon content	90 - 100	120 - 130
	Basso legato Low alloyed	80 - 90	110 - 120
	Alto legato High alloyed	70 - 80	90 - 100
	Acciaio da stampi e utensili Die/tool steel	50 - 60	70 - 80
Materiali non ferrosi Leghe leggere Non ferrous materials - Light alloys	Alluminio non legato Unalloyed aluminium	–	–
	Alluminio Si < 6% si < 6% aluminium	–	–
	Materiali termoplastici Thermoplastic materials	–	–
	Rame/Ottone Copper/Brass	90 - 100	120 - 130
Acciaio inossidabile leghe speciali Stainless steel - special alloys	AISI 304 - 416 - 420	–	60 - 70
	AISI 316 - 440	–	40 - 50
	17-4 PH 15-5 PH	–	40 - 50
	Leghe Cr - Co Cr - Co alloys	–	30 - 40
	Duplex F51	–	30 - 40
	Super Duplex F55	–	20 - 30
HRSA	HRSA Hastelloy	–	10 - 15
	HRSA Inconel 625		
	HRSA Inconel 718		
	HRSA Nimonic		
Ti	Titanio - Titanium	–	25 - 35
	Leghe di titanio Titanium alloys		

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	3	0,010
	4	0,015
	5	0,020
* series **45110** **fz** consigliato | *RECOMMENDED* -50%	6	0,025
	8	0,035
	10	0,045
** series **45120** **fz** consigliato | *RECOMMENDED* -70%	12	0,055
	16	0,080
	20	0,100

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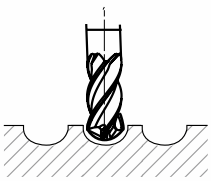
45135
45140 *
45150 **

Materiali - Materials		Sgrossatura Roughing ap = 0,4ø ae = 0,9ø
		
	Gruppo e descrizione Group and description	Vc (mt /min.)
		NON RIVESTITA UNCOATED
		SKIN UOP COATING
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	80 - 90
Acciaio *Steel*	Basso contenuto di C Low carbon content	90 - 100
	Medio contenuto di C Medium carbon content	90 - 100
	Basso legato Low alloyed	80 - 90
	Alto legato High alloyed	70 - 80
	Acciaio da stampi e utensili Die/tool steel	50 - 60
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	–
	Alluminio Si < 6% si < 6% aluminium	–
	Materiali termoplastici Thermoplastic materials	–
	Rame/Ottone Copper/Brass	90 - 100
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	–
	AISI 316 - 440	–
	17-4 PH 15-5 PH	–
	Leghe Cr - Co Cr - Co alloys	–
	Duplex F51	–
	Super Duplex F55	–
HRSA	HRSA Hastelloy	–
	HRSA Inconel 625	
	HRSA Inconel 718	
	HRSA Nimonic	
Ti	Titanio - Titanium	–
	Leghe di titanio Titanium alloys	

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	3	0,009
	4	0,012
	5	0,015
*	6	0,018
series **45140**	8	0,023
fz consigliato | *RECOMMENDED* -50%	10	0,033
**	12	0,042
series **45150**	16	0,055
fz consigliato | *RECOMMENDED* -70%	20	0,075

		47105		47105	
Materiali - Materials		**Cava Slotting ap = 1ø ae = 1ø**		**Contornatura Shouldering ap = 1,5ø ae = 0,5ø**	
	Gruppo e descrizione Group and description	Vc (mt /min.)		Vc (mt /min.)	
		NON RIVESTITA UNCOATED	SKIN UOP COATING	NON RIVESTITA UNCOATED	SKIN UOP COATING
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	60 - 70	80 - 90	100 - 110	110 - 120
Acciaio *Steel*	Basso contenuto di C Low carbon content	60 - 70	80 - 90	100 - 110	110 - 120
	Medio contenuto di C Medium carbon content	60 - 70	80 - 90	100 - 110	110 - 120
	Basso legato Low alloyed	50 - 60	70 - 80	70 - 80	80 - 90
	Alto legato High alloyed	30 - 40	50 - 60	60 - 70	70 - 80
	Acciaio da stampi e utensili Die/tool steel	30 - 40	50 - 60	50 - 60	60 - 70
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	–	40 - 50	–	60 - 70
	AISI 316 - 440	–	25 - 35	–	40 - 50
	17-4 PH 15-5 PH	–	25 - 35	–	40 - 50
	Leghe Cr - Co Cr - Co alloys	–	15 - 20	–	30 - 40
	Duplex F51	–	25 - 30	–	30 - 40
	Super Duplex F55	–	15 - 20	–	20 - 30
HRSA	HRSA Hastelloy	–	10 - 15	–	20 - 30
	HRSA Inconel 625				
	HRSA Inconel 718				
	HRSA Nimonic				
Ti	Titanio - Titanium	–	25 - 35	–	40 - 50
	Leghe di titanio Titanium alloys				
AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz		fz	
	5	* 0,015		0,020	
	6	0,016		0,022	
	8	0,020		0,026	
	10	0,025		0,030	
	12	0,030		0,040	
	16	0,050		0,060	
* **Z3**	20	0,070		0,080	

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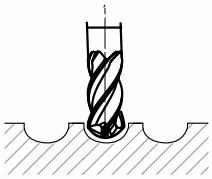
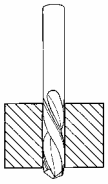
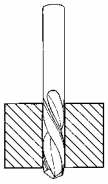
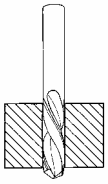
47135

Materiali - Materials		Sgrossatura Roughing ap = 0,4ø ae = 0,9ø	
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	
		NON RIVESTITA UNCOATED	SKIN UOP COATING
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	60 - 70	80 - 90
Acciaio *Steel*	Basso contenuto di C Low carbon content	60 - 70	80 - 90
	Medio contenuto di C Medium carbon content	60 - 70	80 - 90
	Basso legato Low alloyed	50 - 60	70 - 80
	Alto legato High alloyed	30 - 40	50 - 60
	Acciaio da stampi e utensili Die/tool steel	30 - 40	50 - 60
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	–	40 - 50
	AISI 316 - 440	–	25 - 35
	17-4 PH 15-5 PH	–	25 - 35
	Leghe Cr - Co Cr - Co alloys	–	15 - 20
	Duplex F51	–	25 - 30
	Super Duplex F55	–	15 - 20
HRSA	HRSA Hastelloy	–	10 - 15
	HRSA Inconel 625		
	HRSA Inconel 718		
	HRSA Nimonic		
Ti	Titanio - Titanium	–	25 - 35
	Leghe di titanio Titanium alloys		

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz
	5	* 0,012
	6	* 0,014
	8	* 0,020
	10	0,025
	12	0,030
	16	0,045
* Z3	20	0,055

		49105 49120 50105 50120	49305 49905* 49310 49910* 49505* 50510* 49510* 50520*	49610
Materiali - Materials		**Foratura Drilling**	**Foratura Drilling**	**Foratura Drilling**
				
	Gruppo e descrizione Group and description	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
		NON RIVESTITA UNCOATED / SKINdrill UOP COATING	NON RIVESTITA UNCOATED / SKINdrill UOP COATING	SKINdrill UOP COATING
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	90 - 100 / 140 - 150	90 - 100 / 140 - 150	140 - 150
Acciaio *Steel*	Basso contenuto di C Low carbon content	80 - 90 / 100 - 110	80 - 90 / 100 - 110	–
	Medio contenuto di C Medium carbon content	80 - 90 / 100 - 110	80 - 90 / 100 - 110	–
	Basso legato Low alloyed	80 - 90 / 100 - 110	80 - 90 / 100 - 110	–
	Alto legato High alloyed	60 - 70 / 90 - 100	60 - 70 / 90 - 100	–
	Acciaio da stampi e utensili Die/tool steel	50 - 60 / 70 - 80	50 - 60 / 70 - 80	–
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	– / –	– / –	200 - 250
	Alluminio Si < 6% si < 6% aluminium	– / –	– / –	180 - 200
	Materiali termoplastici Thermoplastic materials	– / –	– / –	200 - 250
	Rame/Ottone Copper/Brass	150 - 180 / 220 - 250	– / –	–
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	– / –	– / 60 - 70	–
	AISI 316 - 440	– / –	– / 45 - 55	–
	17-4 PH 15-5 PH	– / –	– / 45 - 55	–
	Leghe Cr - Co Cr - Co alloys	– / –	– / 35 - 45	–
	Duplex F51	– / –	– / 35 - 45	–
	Super Duplex F55	– / –	– / 25 - 30	–
HRSA	HRSA Hastelloy	– / –	– / 20 - 30	–
	HRSA Inconel 625			
	HRSA Inconel 718			
	HRSA Nimonic			
Ti	Titanio - Titanium Leghe di titanio Titanium alloys	– / –	– / 35 - 45	–

AVANZAMENTO f mm/giro FEED f mm/rpm	D	f
	3	0,030 - 0,040
	4	0,040 - 0,050
	5	0,060 - 0,070
	6	0,070 - 0,080
	8	0,090 - 0,100
	10	0,120 - 0,140
	12	0,140 - 0,160
	16	0,160 - 0,180
	20	0,180 - 0,200

■ * **Vc** consigliato | *RECOMMENDED* +20%

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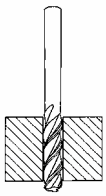
56105
57105

Materiali - Materiali		Alesatura Reaming	
			
	Gruppo e descrizione Group and description	Vc (mt /min.)	
		NON RIVESTITA UNCOATED	SKIN UOP COATING
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	10 - 15	15 - 20
Acciaio Steel	Basso contenuto di C Low carbon content	10 - 15	15 - 20
	Medio contenuto di C Medium carbon content	10 - 15	15 - 20
	Basso legato Low alloyed	8 - 10	10 - 12
	Alto legato High alloyed	8 - 10	10 - 12
	Acciaio da stampi e utensili Die/tool steel	6 - 8	8 - 10
Materiali non ferrosi Leghe leggere Non ferrous materials - Light alloys	Alluminio non legato Unalloyed aluminium	20 - 30	30 - 40
	Alluminio Si < 6% si < 6% aluminium	20 - 30	30 - 40
	Materiali termoplastici Thermoplastic materials	20 - 30	30 - 40
	Rame/Ottone Copper/Brass	10 - 12	12 - 15

AVANZAMENTO f mm/giro FEED f mm/rpm	D	f
	3	0,070 - 0,100
	4	0,080 - 0,120
	5	0,090 - 0,150
	6	0,100 - 0,180
	8	0,140 - 0,200
	10	0,160 - 0,220
	12	0,180 - 0,250
	16	0,200 - 0,300

Parametri tecnici

TECHNICAL PARAMETERS

HSS-PM

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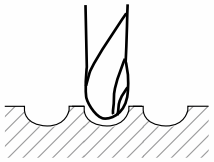
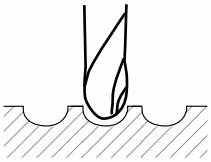
Materiali - Materials		10102 10105 10110 10125 *		10140 10155 *		12505 12520 *	
		Cava Slotting **ap = 0,5ø** **ae = 1ø**		**Sgrossatura Roughing** **ap = 0,4ø** **ae = 0,9ø**		**Sgrossatura Roughing** **ap = 0,4ø** **ae = 0,9ø**	
							
		Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)	
Gruppo e descrizione Group and description		**X-85** NON RIVESTITA UNCOATED	**X-85** **SKIN** UOP COATING	**X-85** NON RIVESTITA UNCOATED	**X-85** **SKIN** UOP COATING	**X-85** NON RIVESTITA UNCOATED	**X-85** **SKIN Alu** UOP COATING
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	20 - 25	45 - 50	20 - 25	45 - 50	–	–
Acciaio *Steel*	Basso contenuto di C Low carbon content	30 - 35	60 - 70	30 - 35	60 - 70	–	–
	Medio contenuto di C Medium carbon content	25 - 30	50 - 60	25 - 30	50 - 60	–	–
	Basso legato Low alloyed	25 - 30	50 - 60	25 - 30	50 - 60	–	–
	Alto legato High alloyed	20 - 25	40 - 50	20 - 25	40 - 50	–	–
	Acciaio da stampi e utensili Die/tool steel	15 - 20	30 - 40	15 - 20	30 - 40	–	–
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	–	–	–	–	110 - 120	250 - 260
	Alluminio Si < 6% si < 6% aluminium	–	–	–	–	70 - 80	170 - 180
	Materiali termoplastici Thermoplastic materials	–	–	–	–	130 - 140	270 - 280
	Rame/Ottone Copper/Brass	30 - 35	75 - 80	30 - 35	75 - 80	30 - 35	75 - 80

AVANZAMENTO fz mm/tagliente **FEED mm/tooth**	D	fz	fz	fz
	3	0,009	0,009	0,006
	4	0,013	0,012	0,010
	5	0,015	0,016	0,015
	6	0,018	0,018	0,020
	8	0,025	0,025	0,035
	10	0,030	0,035	0,050
	12	0,040	0,050	0,070
	16	0,065	0,090	0,120
	20	0,090	0,110	0,145

*
series **10125**; series **10155**;
series **12520**
fz consigliato | *RECOMMENDED* -50%

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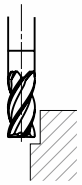
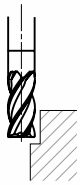
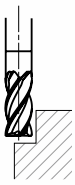
Materiali - Materials	Cava Slotting ap = 1ø ae = 1ø		Cava Slotting ap = 0,5ø ae = 1ø		Contornatura Shouldering ap = 1,5ø ae = 0,5ø		Contornatura leggera Light shouldering ap = 1,5ø ae = 0,15ø	
	11405 12105 12120 *		11405 12105 12120 *		11405 12105 12120 *		11405 12105 12120 *	
Gruppo e descrizione Group and description	Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)	
	X-85 NON RIVESTITA UNCOATED	X-85 SKIN Alu UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN Alu UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN Alu UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN Alu UOP COATING
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys* — Alluminio non legato Unalloyed aluminium	110 - 120	250 - 260	110 - 120	250 - 260	110 - 120	250 - 260	110 - 120	250 - 260
Alluminio Si < 6% si < 6% aluminium	70 - 80	170 - 180	70 - 80	170 - 180	70 - 80	170 - 180	70 - 80	170 - 180
Materiali termoplastici Thermoplastic materials	130 - 140	270 - 280	130 - 140	270 - 280	130 - 140	270 - 280	130 - 140	270 - 280
Rame/Ottone Copper/Brass	30 - 35	75 - 80	30 - 35	75 - 80	30 - 35	75 - 80	30 - 35	75 - 80

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz	fz	fz
	3	0,007	0,007	0,007	0,007
	4	0,008	0,010	0,008	0,010
	5	0,010	0,016	0,010	0,016
	6	0,012	0,020	0,012	0,020
	8	0,016	0,032	0,016	0,030
	10	0,022	0,045	0,022	0,040
	12	0,030	0,060	0,024	0,050
	16	0,036	0,100	0,030	0,080
	20	0,045	0,120	0,036	0,105

* series **12120** **fz** consigliato | *RECOMMENDED* -50%

Materiali - Materials		14105 14120 * 14135 **		14505 14520 *		14505 14520 *	
		Contornatura Shouldering **ap = 1,5ø** **ae = 0,15ø**		**Contornatura Shouldering** **ap = 1,5ø** **ae = 0,15ø**		**Contornatura Shouldering** **ap = 1,5ø** **ae = 0,5ø**	
							
	Gruppo e descrizione Group and description	Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)	
		X-85 NON RIVESTITA UNCOATED	**X-85** **SKIN** *UOP COATING*	**X-85** NON RIVESTITA UNCOATED	**X-85** **SKIN** *UOP COATING*	**X-85** NON RIVESTITA UNCOATED	**X-85** **SKIN** *UOP COATING*
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	20 - 25	45 - 50	20 - 25	45 - 50	20 - 25	45 - 50
Acciaio *Steel*	Basso contenuto di C Low carbon content	30 - 35	60 - 70	30 - 35	60 - 70	30 - 35	60 - 70
	Medio contenuto di C Medium carbon content	25 - 30	50 - 60	25 - 30	50 - 60	25 - 30	50 - 60
	Basso legato Low alloyed	25 - 30	50 - 60	25 - 30	50 - 60	25 - 30	50 - 60
	Alto legato High alloyed	20 - 25	40 - 50	20 - 25	40 - 50	20 - 25	40 - 50
	Acciaio da stampi e utensili Die/tool steel	15 - 20	30 - 40	15 - 20	30 - 40	15 - 20	30 - 40
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	–	–	–	–	–	–
	Alluminio Si < 6% si < 6% aluminium	–	–	–	–	–	–
	Materiali termoplastici Thermoplastic materials	–	–	–	–	–	–
	Rame/Ottone Copper/Brass	30 - 35	75 - 80	30 - 35	75 - 80	30 - 35	75 - 80

AVANZAMENTO fz mm/tagliente **FEED mm/tooth**	D	fz	fz
	3	0,010	0,010
	4	0,015	0,015
	5	0,020	0,020
	6	0,025	0,023
	8	0,035	0,024
*	10	0,045	0,030
series **14120**; series **14120** **fz** consigliato | *RECOMMENDED* -30%	12	0,056	0,035
**	16	0,090	0,054
series **14135** **fz** consigliato | *RECOMMENDED* -50%	20	0,120	0,070

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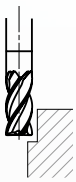
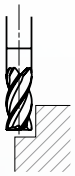
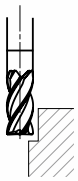
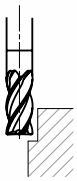
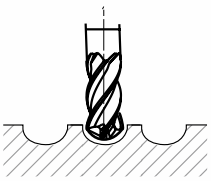
Materiali - Materials		14805 14820 * Cava Slotting ap = 1ø ae = 1ø		14805 14820 * Contornatura Shouldering ap = 1,5ø ae = 0,15ø		14805 14820 * Contornatura Shouldering ap = 1,5ø ae = 0,5ø	
							
Gruppo e descrizione Group and description		Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)	
		X-85 NON RIVESTITA UNCOATED	X-85 SKIN Alu UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN Alu UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN Alu UOP COATING
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	110 - 120	250 - 260	110 - 120	250 - 260	110 - 120	250 - 260
	Alluminio Si < 6% si < 6% aluminium	70 - 80	170 - 180	70 - 80	170 - 180	70 - 80	170 - 180
	Materiali termoplastici Thermoplastic materials	130 - 140	270 - 280	130 - 140	270 - 280	130 - 140	270 - 280
	Rame/Ottone Copper/Brass	30 - 35	75 - 80	30 - 35	75 - 80	30 - 35	75 - 80

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz	fz
	3	0,007	0,007	0,007
	4	0,008	0,008	0,010
	5	0,010	0,010	0,016
	6	0,012	0,012	0,020
	8	0,016	0,016	0,030
	10	0,022	0,022	0,040
	12	0,030	0,024	0,050
	16	0,036	0,030	0,080
	20	0,045	0,036	0,105

* series **14820**
fz consigliato | *RECOMMENDED* -50%

Materiali - Materials		17105 17120 * 17135 ** 17305 17320		18105		17505 17520 *	
		Contornatura Shouldering ap = 1,5ø ae = 0,15ø		**Contornatura Shouldering** ap = 1,5ø ae = 0,15ø		**Sgrossatura Roughing** ap = 0,4ø ae = 0,9ø	
							
		Vc (mt /min.)		Vc (mt /min.)			
Gruppo e descrizione Group and description		**X-85** NON RIVESTITA UNCOATED	**X-85** **SKIN** *UOP COATING*	**X-85** NON RIVESTITA UNCOATED	**X-85** **SKIN** *UOP COATING*	**X-85** NON RIVESTITA UNCOATED	**X-85** **SKIN** *UOP COATING*
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	20 - 25	45 - 50	20 - 25	45 - 50	20 - 25	45 - 50
Acciaio *Steel*	Basso contenuto di C Low carbon content	30 - 35	60 - 70	30 - 35	60 - 70	30 - 35	60 - 70
	Medio contenuto di C Medium carbon content	25 - 30	50 - 60	25 - 30	50 - 60	25 - 30	50 - 60
	Basso legato Low alloyed	25 - 30	50 - 60	25 - 30	50 - 60	25 - 30	50 - 60
	Alto legato High alloyed	20 - 25	40 - 50	20 - 25	40 - 50	20 - 25	40 - 50
	Acciaio da stampi e utensili Die/tool steel	15 - 20	30 - 40	15 - 20	30 - 40	15 - 20	30 - 40
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	–	–	–	15 - 20	–	–
	AISI 316 - 440	–	–	–	15 - 20	–	–
	17-4 PH 15-5 PH	–	–	–	10 - 15	–	–
	Leghe Cr - Co Cr - Co alloys	–	–	–	10 - 15	–	–
	Duplex F51	–	–	–	5 - 10	–	–
	Super Duplex F55	–	–	–	5 - 10	–	–
HRSA	HRSA Hastelloy	–	–	–	5 - 10	–	–
	HRSA Inconel 625						
	HRSA Inconel 718						
	HRSA Nimonic						
Ti	Titanio - Titanium	–	–	–	10 - 15	–	–
	Leghe di titanio Titanium alloys						

AVANZAMENTO fz mm/tagliente **FEED mm/tooth**	D	fz	fz
	3	0,010	0,007
	4	0,015	0,009
	5	0,020	0,012
	6	0,025	0,014
	8	0,035	0,021
	10	0,045	0,028
	12	0,056	0,038
	16	0,090	0,065
	20	0,120	0,090

*
series **17120**; series **17520**
fz consigliato | *RECOMMENDED* -30%

**
series **17135**
fz consigliato | *RECOMMENDED* -50%

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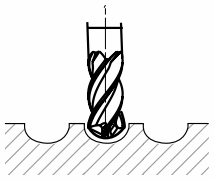
Materiali - Materials		15105 15120 * WF		15105 15120 * WF		21105 21120 * NF NR		20105 20120 * 19105 21105 21120 * NF NR	
		Cava Slotting ap = 1ø ae = 1ø		**Sgrossatura Roughing** ap = 1,5ø ae = 0,5ø		**Cava Slotting** ap = 1ø ae = 1ø		**Sgrossatura Roughing** ap = 1,5ø ae = 0,5ø	
		Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)	
Gruppo e descrizione Group and description		**X-85** NON RIVESTITA UNCOATED	**X-85 SKIN Alu** UOP COATING	**X-85** NON RIVESTITA UNCOATED	**X-85 SKIN Alu** UOP COATING	**X-85** NON RIVESTITA UNCOATED	**X-85 SKIN** UOP COATING	**X-85** NON RIVESTITA UNCOATED	**X-85 SKIN** UOP COATING
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	–	–	–	–	20 - 25	45 - 50	20 - 25	45 - 50
Acciaio *Steel*	Basso contenuto di C Low carbon content	–	–	–	–	30 - 35	60 - 70	30 - 35	60 - 70
	Medio contenuto di C Medium carbon content	–	–	–	–	30 - 35	50 - 60	30 - 35	50 - 60
	Basso legato Low alloyed	–	–	–	–	25 - 30	50 - 60	25 - 30	50 - 60
	Alto legato High alloyed	–	–	–	–	20 - 30	40 - 50	20 - 30	40 - 50
	Acciaio da stampi e utensili Die/tool steel	–	–	–	–	15 - 20	30 - 40	15 - 20	30 - 40
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	–	–	–	–	–	15 - 20	–	15 - 20
	AISI 316 - 440	–	–	–	–	–	15 - 20	–	15 - 20
	17-4 PH 15-5 PH	–	–	–	–	–	10 - 15	–	10 - 15
	Leghe Cr - Co Cr - Co alloys	–	–	–	–	–	10 - 15	–	10 - 15
	Duplex F51	–	–	–	–	–	5 - 10	–	5 - 10
	Super Duplex F55	–	–	–	–	–	5 - 10	–	5 - 10
HRSA	HRSA Hastelloy	–	–	–	–	–	5 - 10	–	5 - 10
	HRSA Inconel 625								
	HRSA Inconel 718								
	HRSA Nimonic								
Ti	Titanio - Titanium	–	–	–	–	–	10 - 15	–	10 - 15
	Leghe di titanio Titanium alloys								
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	110 - 120	250 - 260	110 - 120	250 - 260	–	–	–	–
	Alluminio Si < 6% si < 6% aluminium	70 - 80	170 - 180	70 - 80	170 - 180	–	–	–	–
	Materiali termoplastici Thermoplastic materials	130 - 140	270 - 280	130 - 140	270 - 280	–	–	–	–
	Rame/Ottone Copper/Brass	30 - 35	75 - 80	30 - 35	75 - 80	–	–	–	–

AVANZAMENTO fz mm/tagliente **FEED mm/tooth**	D	fz	fz	fz	fz
	6	0,012	0,025	0,012	0,020
	8	0,016	0,035	0,016	0,026
	10	0,022	0,045	0,022	0,030
	12	0,026	0,055	0,026	0,040
*	16	0,036	0,070	0,036	0,060
fz consigliato | *RECOMMENDED* -50%	20	0,045	0,085	0,045	0,080

Materiali - Materials		21305 NR Cava Slotting ap = 1ø ae = 1ø		21305 NR Sgrossatura Roughing ap = 1,5ø ae = 0,5ø		21505 NF / 21520 * NR Sgrossatura Roughing ap = 0,4ø ae = 0,9ø	
							
	Gruppo e descrizione Group and description	Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)	
		X-85 NON RIVESTITA UNCOATED	X-85 SKIN inox UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN inox UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN UOP COATING
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	20 - 25	45 - 50	20 - 25	45 - 50	20 - 25	45 - 50
Acciaio Steel	Basso contenuto di C Low carbon content	30 - 35	60 - 70	30 - 35	60 - 70	30 - 35	60 - 70
	Medio contenuto di C Medium carbon content	30 - 35	50 - 60	30 - 35	50 - 60	30 - 35	50 - 60
	Basso legato Low alloyed	25 - 30	50 - 60	25 - 30	50 - 60	25 - 30	50 - 60
	Alto legato High alloyed	20 - 30	40 - 50	20 - 30	40 - 50	20 - 30	40 - 50
	Acciaio da stampi e utensili Die/tool steel	15 - 20	30 - 40	15 - 20	30 - 40	15 - 20	30 - 40
Acciaio inossidabile leghe speciali Stainless steel - special alloys	AISI 304 - 416 - 420	–	15 - 20	–	15 - 20	–	15 - 20
	AISI 316 - 440	–	15 - 20	–	15 - 20	–	15 - 20
	17-4 PH 15-5 PH	–	10 - 15	–	10 - 15	–	10 - 15
	Leghe Cr - Co Cr - Co alloys	–	10 - 15	–	10 - 15	–	10 - 15
	Duplex F51	–	5 - 10	–	5 - 10	–	5 - 10
	Super Duplex F55	–	5 - 10	–	5 - 10	–	5 - 10
HRSA	HRSA Hastelloy	–	–	–	–	–	5 - 10
	HRSA Inconel 625						
	HRSA Inconel 718						
	HRSA Nimonic						
Ti	Titanio - Titanium	–	–	–	–	–	10 - 15
	Leghe di titanio Titanium alloys						
Materiali non ferrosi Leghe leggere Non ferrous materials - Light alloys	Alluminio non legato Unalloyed aluminium	–	–	–	–	–	–
	Alluminio Si < 6% si < 6% aluminium	–	–	–	–	–	–
	Materiali termoplastici Thermoplastic materials	–	–	–	–	–	–
	Rame/Ottone Copper/Brass	–	–	–	–	–	–

AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz	fz
	6	0,013	0,022	0,014
	8	0,016	0,028	0,020
	10	0,022	0,035	0,030
	12	0,026	0,045	0,040
*	16	0,038	0,070	0,065
fz consigliato | *RECOMMENDED* -50%	20	0,050	0,090	0,090

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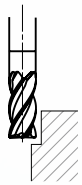
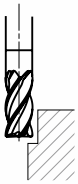
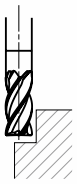
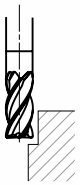
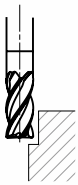
Materiali - Materials		10110	14105	14505	14505
		Cava Slotting ap = 0,5ø ae = 1ø	**Contornatura Shouldering** ap = 1,5ø ae = 0,15ø	**Contornatura Shouldering** ap = 1,5ø ae = 0,15ø	**Contornatura Shouldering** ap = 1,5ø ae = 0,5ø
					
		Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)	Vc (mt /min.)
	Gruppo e descrizione Group and description	**X-105 SKIN** UOP COATING	**X-105 SKIN** UOP COATING	**X-105 SKIN** UOP COATING	**X-105 SKIN** UOP COATING
Ghisa *CAST IRON*	Grigia/Sferoidale GREY/SPHEROIDAL	45 - 50	45 - 50	45 - 50	45 - 50
Acciaio *Steel*	Basso contenuto di C Low carbon content	70 - 80	70 - 80	70 - 80	70 - 80
	Medio contenuto di C Medium carbon content	70 - 80	70 - 80	70 - 80	70 - 80
	Basso legato Low alloyed	65 - 75	65 - 75	65 - 75	65 - 75
	Alto legato High alloyed	50 - 60	50 - 60	50 - 60	50 - 60
	Acciai da stampi e utensili Die/tool steel	30 - 40	30 - 40	30 - 40	30 - 40
Acciaio inossidabile leghe speciali *Stainless steel - special alloys*	AISI 304 - 416 - 420	15 - 20	15 - 20	15 - 20	15 - 20
	AISI 316 - 440	15 - 20	15 - 20	15 - 20	15 - 20
	17-4 PH 15-5 PH	10 - 15	10 - 15	10 - 15	10 - 15
	Leghe Cr - Co Cr - Co alloys	10 - 15	10 - 15	10 - 15	10 - 15
	Duplex F51	5 - 10	5 - 10	5 - 10	5 - 10
	Super Duplex F55	5 - 10	5 - 10	5 - 10	5 - 10
HRSA	HRSA Hastelloy	5 - 10	5 - 10	5 - 10	5 - 10
	HRSA Inconel 625				
	HRSA Inconel 718				
	HRSA Nimonic				
Ti	Titanio - Titanium	15 - 20	15 - 20	15 - 20	15 - 20
	Leghe di titanio Titanium alloys				
Materiali non ferrosi Leghe leggere *Non ferrous materials - Light alloys*	Alluminio non legato Unalloyed aluminium	–	–	–	–
	Alluminio Si < 6% si < 6% aluminium	–	–	–	–
	Materiali termoplastici Thermoplastic materials	–	–	–	–
	Rame/Ottone Copper/Brass	75 - 85	75 - 85	75 - 85	75 - 85

AVANZAMENTO fz mm/tagliente **FEED mm/tooth**	D	fz	fz	fz	fz
	6	0,018	0,025	0,025	0,020
	8	0,024	0,035	0,035	0,026
	10	0,030	0,045	0,045	0,030
	12	0,040	0,060	0,060	0,040
	16	0,066	0,090	0,090	0,060
	20	0,090	0,120	0,120	0,080

Materiali - Materials		17305	18105	21105 NR	21105 NR	22105 NRF
		Contornatura Shouldering ap = 1,5ø ae = 0,15ø	**Contornatura Shouldering** ap = 1,5ø ae = 0,15ø	**Cava Slotting** ap = 1ø ae = 1ø	**Sgrossatura Roughing** ap = 1,5ø ae = 0,5ø	**Cava Slotting** ap = 1ø ae = 1ø
						
	Gruppo e descrizione Group and description	Vc (mt /min.) **X-105 SKIN** UOP COATING	Vc (mt /min.) **X-105 SKIN** UOP COATING	Vc (mt /min.) **X-105 SKIN** UOP COATING	Vc (mt /min.) **X-105 SKIN** UOP COATING	Vc (mt /min.) **X-105 SKIN** UOP COATING
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	45 - 50	45 - 50	45 - 50	45 - 50	45 - 50
Acciaio Steel	Basso contenuto di C Low carbon content	70 - 80	70 - 80	70 - 80	70 - 80	70 - 80
	Medio contenuto di C Medium carbon content	70 - 80	70 - 80	70 - 80	70 - 80	70 - 80
	Basso legato Low alloyed	65 - 75	65 - 75	65 - 75	65 - 75	65 - 75
	Alto legato High alloyed	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60
	Acciaio da stampi e utensili Die/tool steel	30 - 40	30 - 40	30 - 40	30 - 40	30 - 40
Acciaio inossidabile leghe speciali Stainless steel - special alloys	AISI 304 - 416 - 420	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
	AISI 316 - 440	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
	17-4 PH 15-5 PH	10 - 15	10 - 15	10 - 15	10 - 15	10 - 15
	Leghe Cr - Co Cr - Co alloys	10 - 15	10 - 15	10 - 15	10 - 15	10 - 15
	Duplex F51	5 - 10	5 - 10	5 - 10	5 - 10	5 - 10
	Super Duplex F55	5 - 10	5 - 10	5 - 10	5 - 10	5 - 10
HRSA	HRSA Hastelloy	5 - 10	5 - 10	5 - 10	5 - 10	5 - 10
	HRSA Inconel 625					
	HRSA Inconel 718					
	HRSA Nimonic					
Ti	Titanio - Titanium	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
	Leghe di titanio Titanium alloys					
Materiali non ferrosi Leghe leggere Non ferrous materials - Light alloys	Alluminio non legato Unalloyed aluminium	–	–	–	–	–
	Alluminio Si < 6% si < 6% aluminium	–	–	–	–	–
	Materiali termoplastici Thermoplastic materials	–	–	–	–	–
	Rame/Ottone Copper/Brass	75 - 85	75 - 85	75 - 85	75 - 85	75 - 85
AVANZAMENTO fz mm/tagliente FEED mm/tooth	D	fz	fz	fz	fz	fz
	6	0,025	0,025	0,012	0,025	0,015
	8	0,035	0,035	0,016	0,035	0,020
	10	0,045	0,045	0,022	0,045	0,025
	12	0,060	0,060	0,026	0,055	0,030
	16	0,090	0,090	0,036	0,070	0,040
	20	0,120	0,120	0,045	0,085	0,050

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Materiali - Materials		04110		04105		04105	
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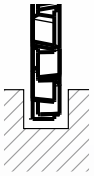
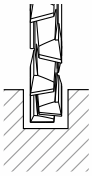
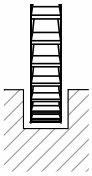
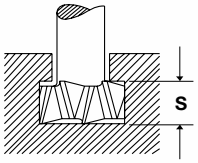
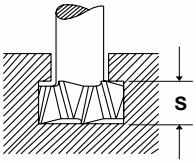
							
	Gruppo e descrizione Group and description	Vc (mt /min.)		Vc (mt /min.)		Vc (mt /min.)	
		X-85 NON RIVESTITA UNCOATED	X-85 SKIN UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN UOP COATING
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	20 - 25	45 - 50	20 - 25	45 - 50	20 - 25	45 - 50
Acciaio Steel	Basso contenuto di C Low carbon content	30 - 35	70 - 80	30 - 35	70 - 80	30 - 35	70 - 80
	Medio contenuto di C Medium carbon content	30 - 35	70 - 80	30 - 35	70 - 80	30 - 35	70 - 80
	Basso legato Low alloyed	25 - 30	70 - 75	25 - 30	70 - 75	25 - 30	70 - 75
	Alto legato High alloyed	20 - 30	60 - 70	20 - 30	60 - 70	20 - 30	60 - 70
	Acciaio da stampi e utensili Die/tool steel	15 - 20	30 - 40	15 - 20	30 - 40	15 - 20	30 - 40
Acciaio inossidabile leghe speciali Stainless steel - special alloys	AISI 304 - 416 - 420	–	15 - 20	–	15 - 20	–	15 - 20
	AISI 316 - 440	–	15 - 20	–	15 - 20	–	15 - 20
	17-4 PH 15-5 PH	–	10 - 15	–	10 - 15	–	10 - 15
	Leghe Cr - Co Cr - Co alloys	–	10 - 15	–	10 - 15	–	10 - 15
	Duplex F51	–	5 - 10	–	5 - 10	–	5 - 10
	Super Duplex F55	–	5 - 10	–	5 - 10	–	5 - 10

AVANZAMENTO fz mm/tagliente
FEED mm/tooth

D	S	fz	fz	fz	fz	fz	fz
63	**1,6 ÷ 3,5**	0,035 ÷ 0,038	0,035 ÷ 0,038	–	–	–	–
80	**2 ÷ 3,5**	0,041 ÷ 0,044	0,041 ÷ 0,044	–	–	–	–
100	**2 ÷ 3,5**	0,047 ÷ 0,050	0,047 ÷ 0,050	–	–	–	–
125	**2 ÷ 4**	0,055 ÷ 0,060	0,055 ÷ 0,060	–	–	–	–
160	**3 ÷ 5**	0,065	0,065	–	–	–	–
200	**4 ÷ 6**	0,070	0,070	–	–	–	–
250	**6 ÷ 12**	0,075	0,075	–	–	–	–
50	**4 ÷ 10**	–	–	0,040	0,040	0,025 ÷ 0,030	0,025 ÷ 0,030
63	**4 ÷ 20**	–	–	0,050 ÷ 0,060	0,050 ÷ 0,060	0,035 ÷ 0,040	0,035 ÷ 0,040
80	**4 ÷ 20**	–	–	0,065 ÷ 0,070	0,065 ÷ 0,070	0,042 ÷ 0,046	0,042 ÷ 0,046
100	**4 ÷ 25**	–	–	0,075 ÷ 0,085	0,075 ÷ 0,085	0,048 ÷ 0,054	0,048 ÷ 0,054
125	**5 ÷ 28**	–	–	0,090 ÷ 0,100	0,090 ÷ 0,100	0,056 ÷ 0,060	0,056 ÷ 0,060
160	**6 ÷ 32**	–	–	0,105 ÷ 0,115	0,105 ÷ 0,115	0,066 ÷ 0,078	0,066 ÷ 0,078
200	**8 ÷ 32**	–	–	0,120 ÷ 0,125	0,120 ÷ 0,125	0,084 ÷ 0,096	0,084 ÷ 0,096
250	**14 ÷ 32**	–	–	0,128 ÷ 0,140	0,128 ÷ 0,140	0,105	0,105

* frese a disco a 3 tagli **elicoidali alternati** | *SIDE AND FACE MILLING CUTTERS* ***STAGGERED TEETH***
** frese a disco a 3 tagli **diritti** | *SIDE AND FACE MILLING CUTTERS* ***STRAIGH TEETH***

Materiali - Materials		27120 Cava Slotting ap = S ae = 1ø		27135 NF Cava Slotting ap = S ae = 1ø	
					
	Gruppo e descrizione Group and description	Vc (mt /min.)		Vc (mt /min.)	
		X-85 NON RIVESTITA UNCOATED	X-85 SKIN UOP COATING	X-85 NON RIVESTITA UNCOATED	X-85 SKIN UOP COATING
Ghisa CAST IRON	Grigia/Sferoidale GREY/SPHEROIDAL	20 - 25	45 - 50	20 - 25	45 - 50
Acciaio Steel	Basso contenuto di C Low carbon content	30 - 35	70 - 80	30 - 35	70 - 80
	Medio contenuto di C Medium carbon content	30 - 35	70 - 80	30 - 35	70 - 80
	Basso legato Low alloyed	25 - 30	70 - 75	25 - 30	70 - 75
	Alto legato High alloyed	20 - 30	60 - 70	20 - 30	60 - 70
	Acciaio da stampi e utensili Die/tool steel	15 - 20	30 - 40	15 - 20	30 - 40
Acciaio inossidabile leghe speciali Stainless steel - special alloys	AISI 304 - 416 - 420	–	15 - 20	–	15 - 20
	AISI 316 - 440	–	15 - 20	–	15 - 20
	17-4 PH 15-5 PH	–	10 - 15	–	10 - 15
	Leghe Cr - Co Cr - Co alloys	–	10 - 15	–	10 - 15
	Duplex F51	–	5 - 10	–	5 - 10
	Super Duplex F55	–	5 - 10	–	5 - 10

AVANZAMENTO fz mm/tagliente FEED mm/tooth

D	S	fz	fz	fz	fz
12,5	6	0,035	0,035	0,039	0,039
16	8	0,040	0,040	0,045	0,045
18	8	0,045	0,045	0,050	0,050
19	9	0,050	0,050	0,056	0,056
21	9	0,055	0,055	0,062	0,062
22	10	0,060	0,060	0,067	0,067
25	11	0,064	0,064	0,072	0,072
28	12	0,068	0,068	0,076	0,076
32	14	0,072	0,072	0,081	0,081
36	16	0,076	0,076	0,085	0,085
40	18	0,080	0,080	0,090	0,090
45	20	0,083	0,083	0,093	0,093
50	22	0,086	0,086	0,096	0,096
56	24	0,090	0,090	0,101	0,101

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Condizioni di fornitura e spedizione

SUPPLY AND SHIPMENT CONDITIONS

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Gli utensili sono confezionati in contenitori in P.P. singoli o multipli, o mediante l'impiego di materiale plastico termoindurente. Le spedizioni vengono effettuate in scatole di cartone atte a preservare l'integrità dei prodotti durante il trasporto.

Tools are packed in individual or multiple polypropylene containers, or using thermoset plastic. Shipments are made in cardboard boxes designed to protect the products against damage in transit.

Lieferungs - und Transportbedingungen

Die Werkzeuge werden ineinzelne oder mehrfache Behälter aus Polypropylen oder mit Hilfe von wärmehärtendem Plastikmaterial verpackt. Die Beförderung erfolgt mit Kartons, die das Produkt während des Transports vor Schäden schützen.

Conditions de fourniture et d'expédition

Les outils sont conditionnés en emballages individuels ou multiples en polypropylène ou sous plastique thermodurcissable. Les expéditions son effectuées en boîtes en carton à même de préserver l'intégrité des produit pendant le transport.

Condiciones de suministro y de envío

Las herramientas son embaladas en contenedores de polietileno individuales o múltiples, o en plástico termofraguante. Los envíos se efectúan en cajas de cartón aptas a preservar la integridad de los productos durante el transporte.

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