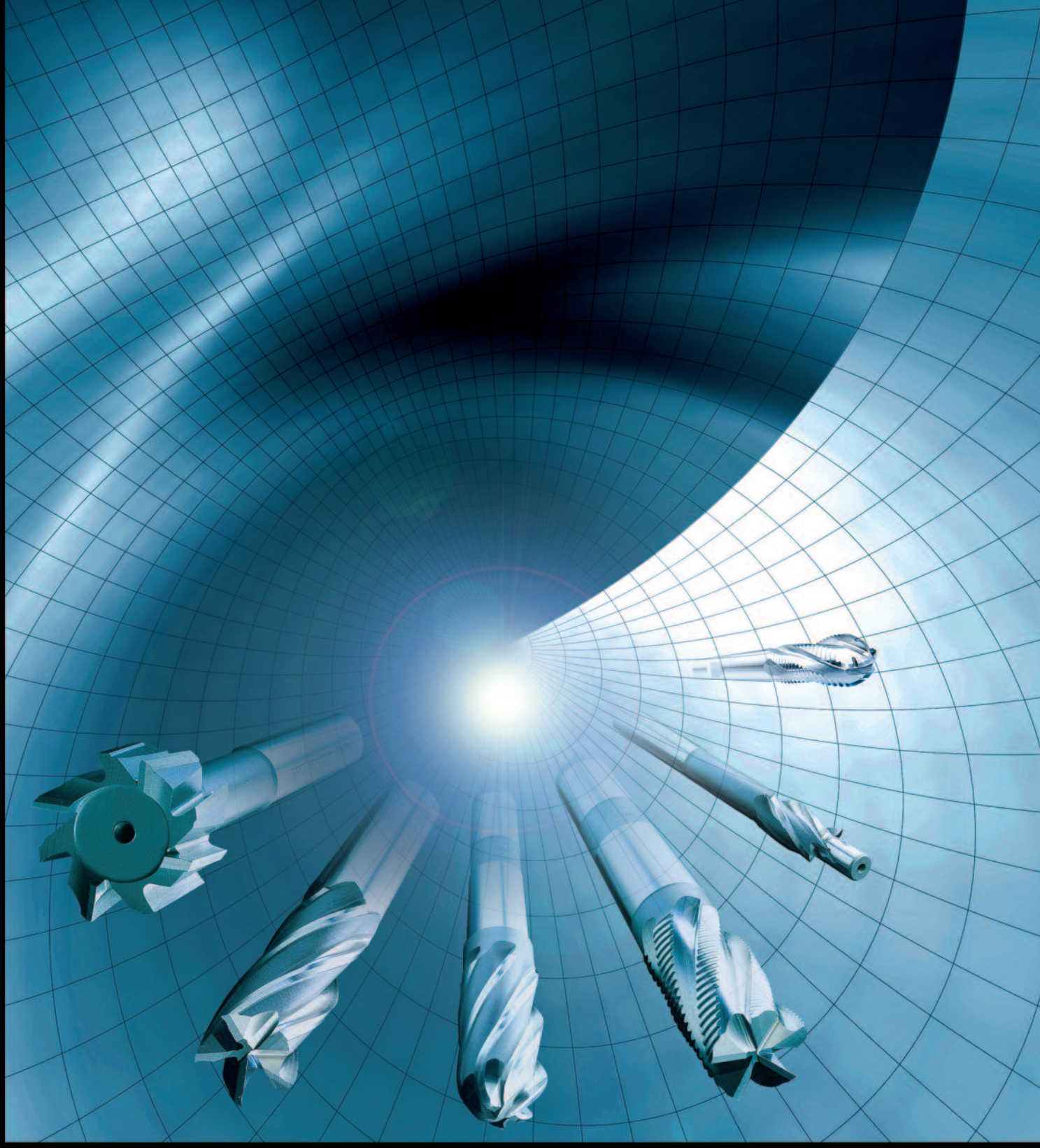
RHSSI4-01



Rime

Frese e alesatori in HSS-E & PM

HSS-E & PM cutting mills and reamers

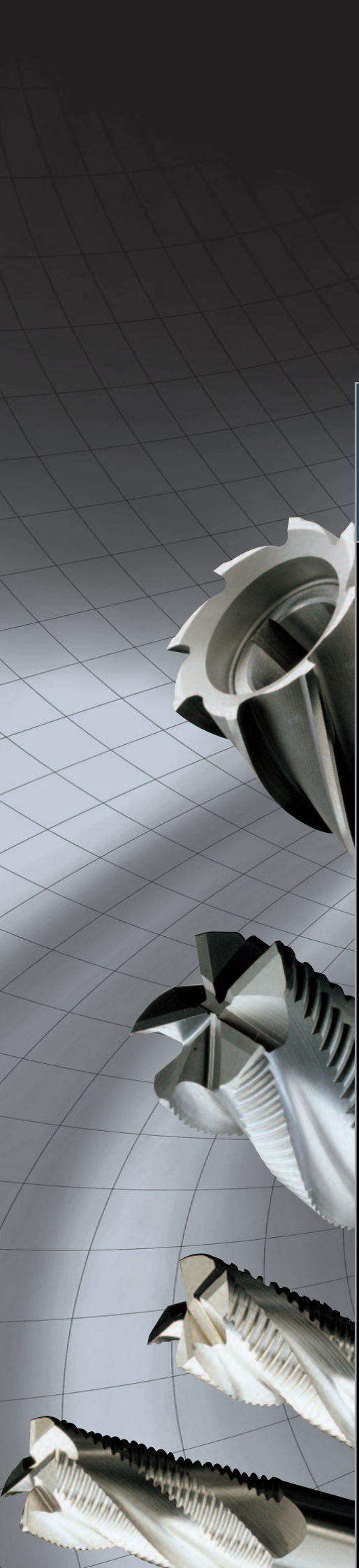
CONDIZIONI DI VENDITA - SALES CONDITIONS

PREZZI: sono indicativi e non impegnativi. In ogni caso avranno valore quelli vigenti al momento della spedizione.
SPEDIZIONI: la merce, salvo espressa pattuizione contraria, viene fornita franco nostro stabilimento o deposito; essa viaggia sempre in ogni caso ad esclusivo rischio e pericolo del Committente.
Per esigenze di costi di magazzino e di fatturazione, non consegnamo merce per importi inferiori a € 160 .
TERMINI DI CONSEGNA: sono approssimativi e comunque mai impegnativi. Essi sono inoltre subordinati al normale rifornimento delle materie prime nonché ad impedimenti di produzione per cause di forza maggiore. I giorni si intendono lavorativi e decorrenti dalla data della nostra accettazione dell'ordine.
RECLAMI: dovranno pervenire per iscritto entro gli otto giorni dal ricevimento della merce.
GARANZIA: in normale uso. Provvederemo a sostituire gratuitamente gli utensili da noi riconosciuti difettosi. La stessa non si estende agli utensili che presentino una normale usura, segni di manomissione o di errato impiego.
FORO COMPETENTE: per ogni controversia viene riconosciuta la esclusiva competenza del Foro di Brescia.

PRICES: are indicative and not binding. In any case the rate will be the one commonly in use at the sending time.
SHIPMENTS: the goods, except different agreement, is provided ex our works and is transported at risk and danger of the purchaser. We don't deliver order less than € 160 because of the invoicing and stock costs.
DELIVERY CONDITIONS: are approximated and not binding. The delivery is subjected to usual raw materials supplying and unforeseen event during the production.
COMPLAINTS: it must be written and sent withing 8 days since the goods receiving.
GUARANTEE: normally in use. Free replacement when the tool is acknowledged defective. The guarantee doesn't apply in case of usual wear, wrong use and proof of tampering.
JURISDICTION: any controversy is subjected to the Court of Brescia's jurisdiction.

LOCATION

via Ripe, 35
25069 PREGNO DI VILLA CARCINA (Brescia) - Italy
tel. +39 0308981693 - fax +39 0308981471
www.rime.net - info@rime.net



Catalogo HSS-E e PM

FRESE E ALESATORI IN HSS-Co8
E ACCIAI DA POLVERI

HSS-Co8 AND POWDER-STEEL
CUTTING MILLS AND REAMERS

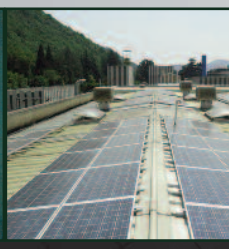
FRAISES ET ALÉSOIRS EN HSS-Co8
ET ACIERS POUDRES

FRÄSER UND REIBAHLEN AUS
HSS-Co8 UND PULVERSTAHL

Rime

L'AZIENDA

Dal 1962, una storia di qualità



- Utilizzo delle migliori materie prime
- Costante innovazione di prodotto
- Produzioni di serie e a disegno
- Standard di qualità altissimi
- Tecnologie produttive d'avanguardia
- Prodotti sempre disponibili a magazzino
- Assistenza costante e dialogo con il cliente

- *The best raw material*
- *Continuous product innovation*
- *Standard and on drawing production*
- *Highest standard levels*
- *Highest technologies*
- *Big stock*
- *Assistance post-sales*

Rime nasce nel 1962 per iniziativa di Massimiliano Ettori.

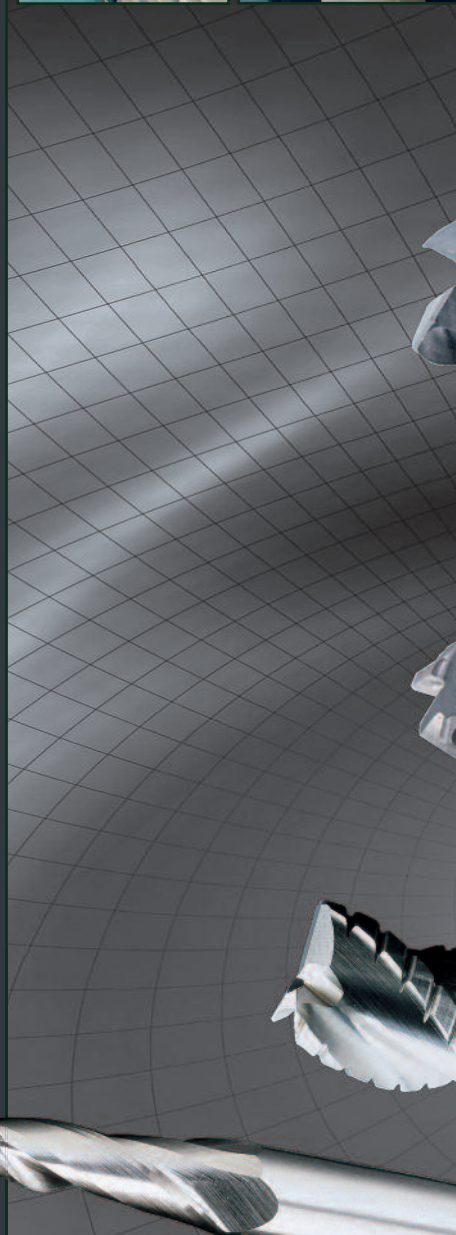
Durante i primi anni l'attività si sviluppa nella costruzione di frese speciali per il settore armiero, per poi evolversi nei primi anni '70 nella produzione di frese ed alesatori in HSS e HSS-Co.

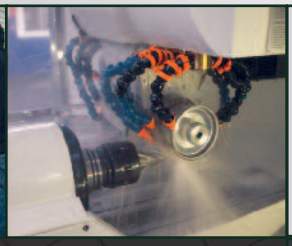
E' dei primi anni '80 il primo catalogo Rime di frese ed alesatori HSS e HSS-Co ed acciaio sinterizzato (ASP).

Con gli anni 90 inizia la produzione di frese in metallo duro con i rivestimenti Tin, Ticn, Tialn, Supreme e Prodige.
E' in quegli anni che Rime si insedia nell'attuale stabilimento produttivo. La nuova struttura ha permesso una migliore razionalizzazione del ciclo produttivo, per soddisfare le sempre crescenti esigenze del mercato.

L'esperienza acquisita in più di 50 anni di attività e le più avanzate e sofisticate tecnologie, consentono alla nostra azienda di farsi apprezzare in tutti quei settori della meccanica di precisione dove è necessario l'utilizzo di utensili di alta qualità.

La Rime è oggi guidata da Andrea Ettori, figlio di Massimiliano, che sostiene e rafforza costantemente la *mission* aziendale: fornire prodotti innovativi con standard produttivi di alto livello, mirando sempre a soddisfare le esigenze della clientela.





The factory

Made in Italy

RIME srl was established in 1962 in Italy by Mr. Massimiliano Ettori, who thanks to his personal experience matured abroad in companies specialised in cutting tools' manufacturing, starts to produce special cutting tools for army sector and then in 70's begins to manufacture HSS and HSS-Co end mills.

During the 80's Rime issued its own first catalogue of end mills and reamers in HSS, HSS-Co5, HSS-Co8 and end mills in syntherized steel (ASP).

In 90's begins the production of end mills in solid carbide with Tin, Ticn, TiaIn, Supreme and Prodige coatings.
In those years Rime builds the new and current factory with the highest world know how CNC & greatest robot centres which allow manufacturing cutting tools according to the highest and most innovated & sophisticated technology applications.

Nowadays Rime's structure is made of a 100% technology advanced quality control through its own specialized and experienced professional working staff.

The company is today leaded by Andrea Ettori, son of Massimiliano, who following the teaching of his father is everyday strongly engagement to improve the production towards new technologies solutions and new markets.

Tutti i nostri prodotti sono progettati e realizzati in Italia.

All our products are designed and manufactured in Italy.

Rime

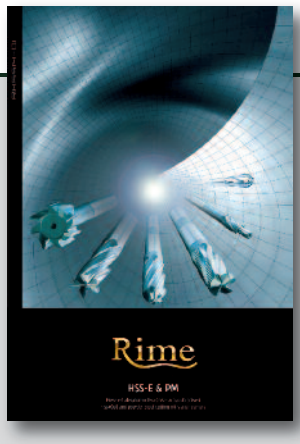
LA PRODUZIONE *THE PRODUCT*

La nostra produzione di utensili standard e speciali è molto ricca e articolata, e fornisce soluzioni di qualità assoluta in tutti i settori delle lavorazioni meccaniche con asportazione di truciolo in cui sono richieste elevate prestazioni.
La nostra produzione di utensili standard si riepiloga su 3 cataloghi.

- **frese e alesatori in HSS Co-PM**
- **frese e alesatori in Metallo Duro**
- **frese per il settore Stampo**

We manufacture standard and special end mills and reamers for all those sectors of mechanical workings with chip removal where highest performances are a "must"
Our standard production range is divided on three catalogues:

- ***end mills and reamers in HSSCo-PM***
- ***end mills and reamers in Solid Carbide***
- ***Solid Carbide end mills for Moulds***



Fresa e alesatori in HSS Co-PM
HSS Co-PM end mills and reamers

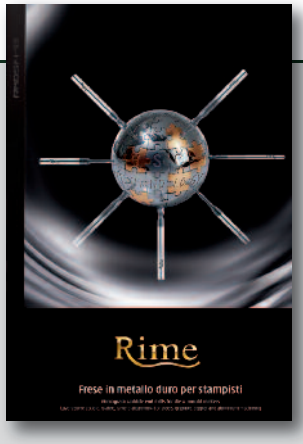
Il catalogo di utensili in HSS-E e PM è ad oggi uno dei più completi per numero di articoli e per la gamma offerta. L'ottima qualità dei prodotti abbinata ad una elevata disponibilità di articoli a magazzino ci consente di poter offrire un eccellente servizio alla nostra clientela.

Our HSSCo-PM catalogue offers a very wide range of end mills and reamers. High quality and wide stock allow us to offer an excellent service to our customers.

Frese e alesatori in Metallo Duro
Solid Carbide end mills and reamers

Il catalogo di utensili in Metallo Duro si arricchisce in continuazione sia per tipologia di utensili che per misure. La vasta gamma di prodotti, la consegna immediata e l'elevata qualità sono le caratteristiche che i nostri clienti ci riconoscono.

Our catalogue of solid carbide cutting tools is constantly updated both for new end mills and diameters. The key elements of our success are the wide range, the prompt delivery and the excellent quality of our cutting tools: these are the strengths that we strive daily to keep to the highest level.



Frese per stampisti
End mills for mould makers

Il catalogo dedicato a chi lavora stampi è un condensato di utensili specifici per questo settore. Si possono trovare frese per acciai bonificati e temprati, frese per lavorazione di rame e alluminio e frese rivestite diamante per la lavorazione della grafite.

Years of experience, research and application allowed us to achieve a full range of end mills for mould makers. You can find end mills for machining quenched and tempered steels, for hardened steels, for aluminium and copper, and diamant coating end mill for graphite machining.
Top performance is guaranteed by a perfect mixture of solid carbide type, geometry and coating.

Frese Speciali
Special Milling Cutters

Mezzo secolo di esperienza e molte collaborazioni con aziende nazionali e internazionali di rilievo ci hanno permesso di raggiungere un elevato standard qualitativo.
Oggi progettiamo utensili per dare soluzioni innovative in applicazioni dove sono richieste un elevato grado di specializzazione, qualità e affidabilità. Grazie ad un moderno e sempre aggiornato parco macchine siamo in grado di realizzare utensili di ogni tipo per vari settori, sia in piccole sia in grandi serie. Realizziamo utensili partendo da materie prime diverse, Metallo Duro, HSS-Co e ASP (acciaio sinterizzato da polveri). Tra gli utensili prodotti troviamo frese a candela, frese di forma, frese a manicotto, frese a disco, frese a "T", microfrese, punte cilindriche, punte a gradino, punte coniche, alesatori di forma, frese e alesatori in Metallo Duro saldo brasati, allargatori, stozzatori, lamatori, piccole brocce, punzoni, bulini, ecc.
Negli anni la nostra azienda si è specializzata in alcuni ambiti e in particolare:

- **Settore Energia**
- **Settore Automotive**
- **Settore Armiero**
- **Settore Aeronautico**
- **Settore Stampi e Matrici**

Years of experience and a lot of collaborations with national and international companies have enabled Rime of achieving a very high level of quality of its products.
Today, thanks to a very modern and updated park machines, we are capable of manufacturing cutting tools of each type for various sectors, both in small and large series, designed to meet solutions where it is required a high degree of specialization, quality and reliability.
We manufacture cutting tools in HSS-Co, ASP (sintered powder steel) and in Solid Carbide as well.
We produce milling cutters, form cutters, milling cutters sleeve, disc cutters, conical spot facers, "T" shape cutters, micro-end mills, step drills, taper drills, reamers shape cutters and reamers brazed, countersinks, shaper, small broaches, punches, chisels, etc..
Over the years, Rime has specialized in certain sectors, in particular:

- **Energy**
- **Automotive**
- **Army**
- **Aeronautical**
- **Moulds and Dies**

MATERIALI DI BASE - RAW MATERIAL

Materiali utilizzati per la costruzione delle frese RIME

* **HSS/Co5 AISI M35**
Acciaio ad elevato rendimento, permette una buona elasticità di lavorazione.
Adatto per utensili soggetti ad urti.

HSS/Co8 AISI M42
Acciaio più utilizzato nella costruzione di frese; la sua elevata durezza, unita ad una buona tenacità e resilienza, consente la lavorazione degli acciai ad alta resistenza.
Ottimo impiego nelle lavorazioni difficili con i rivestimenti TICN, TIALN e SUPREME di nuova generazione.

EMP3 PM Co8,5
Acciaio super rapido ottenuto con la metallurgia delle polveri; la struttura molto sottile di questo acciaio offre elevata tenacità ed elevata resistenza all'usura. Ottimo rendimento con i rivestimenti TICN, TIALN e SUPREME di nuova generazione.

EMP6 PM
Acciaio super rapido ottenuto con la metallurgia delle polveri con ottime caratteristiche di resistenza all'usura e durezza a caldo.
Il suo altissimo tenore di leghe gli consente prestazioni eccellenti nelle lavorazioni più difficili.
Associato ai rivestimenti TICN, TIALN e SUPREME dà il massimo del rendimento.

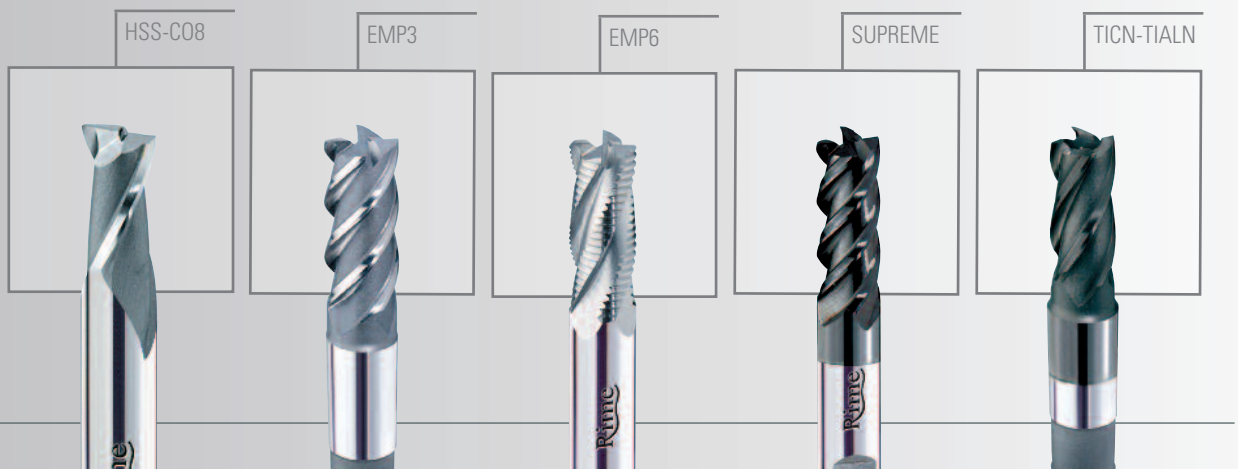
Raw material used to manufacture RIME end mills

* **HSS/Co5 AISI M35**
High-efficiency steel allowing a good cutting speed and a good machining elasticity. Suitable for tools subjected to shocks.

HSS/Co8 AISI M42
Steel mainly used in manufacturing of end mills. Its great hardness along with its good toughness and impact resistance allows to machine high-resistance steels.Very good efficiency with TICN, TIALN and SUPREME coatings of the new generation.

EMP3 PM-Co8,5
PM sintered high-speed steel. Its very thin shape offers a great toughness and wear resistance. Very good efficiency with TICN, TIALN and SUPREME coatings of the new generation.

EMP6 PM
High-speed steel got by powder metallurgy. Characteristic of very good wear resistance and hot hardness. Its very high alloy content allows very good performances in the most difficult machinings.
When TICN, TIALN and SUPREME coated, it gives the top performances.



RIVESTIMENTI - COATINGS - REVÊTEMENTS

Particolare attenzione riserviamo ai rivestimenti che oggi proponiamo alla nostra clientela.
Tali processi rappresentano il massimo dell'espressione evolutiva della nuova generazione.

A particular care is paid to those coatings proposed to our customers. Our working "processes" represent the highest evolution in the field of coatings of the last generation.

Nous réservons une particulière attention aux revêtements que nous proposons aujourd'hui à notre clientèle.
Ce principe représente le maximum de l'expression évolutive de la nouvelle génération des revêtements pour tous les outils que nous produisons.

SUPREME

Rivestimento di nuova generazione adatto alla lavorazione di tutti i tipi di acciai legati e non, con o senza adduzione di lubrorefrigerante nelle operazioni di finitura e sgrossatura anche con velocità di taglio elevate.
Conferisce all'utensile ottima resistenza all'usura grazie alla sua durezza superficiale elevata 3200HV e al suo basso coefficiente d'attrito. Resiste a temperature fino a 1100°C.

SUPREME

This is a new generation coating, suitable for any kind of steel and different machining condition: finishing or roughing, with or without coolant, and high speed cutting.
The surface hardness 3200 HV and low friction coefficient that the mill has with the SUPREME coating permit to get an excellent wear protection. It can bear very high working temperatures, till 1100°C.

SUPREME

Revêtement de nouvelle génération approprié et très valable à tous les types d'acier allié ou non allié, avec ou sans adduction de lubroréfrigérant dans les opérations de finition et de dégrossissage même avec une vitesse de coupe très élevée. Il donne à l'outil une excellente résistance à l'usure grâce à sa dureté superficiel élevée à 3200HV et à son bas coefficient de friction. Il résiste à des températures jusqu'à 1100°C

ALU SUPREME

Rivestimento adatto alla lavorazione di alluminio e leghe leggere con o senza adduzione di lubrorefrigerante, che abbina alla resistenza all'usura un'ottima capacità di scorrevolezza e distacco del truciolo.

ALU SUPREME

The suitable coating to machining alluminium and light alloys with or without coolant. This new evolution coating matches a good wear resistance and low friction coefficient.

ALU SUPREME

Revêtement très approprié aux travaux d'aluminium et d'alliages légers avec ou sans adduction de lubroréfrigérant, qu'il jumelle à la résistance et à l'usure une excellente capacité de fluidité et un détachement du copeaux.

TICN

(Disponibile solo su richiesta)
CARBONITRURO DI TITANIO

Ottimo rivestimento per la fresatura di acciai e di materiali abrasivi a media velocità di taglio con uso di liquidi refrigeranti. La durezza è di 3000 HV con un coefficiente di attrito particolarmente basso.
La temperatura massima di utilizzo degli utensili è di circa 450°C.

TICN

(available only upon requirements)
TITANIUM CARBONITRIDE

Excellent coating to mill steels and abrasive materials at an average cut speed and using coolants. Hardness is 3000 HV having a very low friction coefficient.
Max. working temperature of the tools is about 450°C.

TICN

CARBONITRURE DE TITANE ET ALUMINIUM

C'est l'évolution naturelle du revêtement TIN. L'idéal dans les travaux de fraisage humide d'aciers et de matériels abrasif sur les centres de travail avec des paramètres élevés. La dureté est de 3000 HV avec un coefficient de friction particulièrement bas. La température la plus grande d'utilisation des outils est d'environ 450°C.

TIALN

(Disponibile solo su richiesta)
NITRURO DI TITANIO E ALLUMINIO

Gli utensili con questo rivestimento possono essere utilizzati ad elevate velocità di taglio ed elevati avanzamenti.
La durezza superficiale è di 2700 HV; consigliato per lavorazioni con forte sviluppo di calore al tagliente. Sopporta temperature di lavoro fino a 900°C.

TIALN

(available only upon requirements)
TITANIUM AND ALUMINIUM NITRIDE

The tools with such a coating can be used at high cut speed and quick progressing. Surface hardness is 2700 HV, particularly suggested for machinings with high heat degree at the cutting edge. The max working temperature is 900 °C.

TIALN

NITRURE DE TITANE ET ALUMINIUM

Les outils avec ce revêtement peuvent être utilisés à vitesse de coupe et d'avances très élevées. La dureté superficielle est de 2700 HV; conseillé pour des travaux avec fort développement de chaleur au coupant. Il supporte des températures de travail très hautes: 900°C. Particulièrement conseillé pour le fraisage à sec

Condizioni di lavoro consigliato / *Suggested machining conditions / Conditions de travail conseilée*

- Scarsità di refrigerante o refrigerazione con nebulizzatore (aria+olio).
- *Low rate of coolant or with spray mixed (air+oil).*
- *Peu de lubrification, conseillons pulvérisation (air+huile).*

- Presenza di lubrorefrigerante (lavorazione a umido).
- *With coolant.*
- *Avec lubrification (humide).*

INDEX

Materiali lavorabili consigliati - Suggested workpiece material

ACCIAI STEELS | GHISE CAST IRON | ACCIAI INOSSIDABILI STAINLESS STEELS | SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM | LEGHE LEGGERE LIGHT ALLOYS | MATERIALI NON FERROSI NON FERROUS MATERIAL

CONSIGLIATO RECOMMENDED ▲
ACCETTABILE ACCEPTABLE ►
SCONSIGLIATO NOT RECOMMENDED ▼

SERIE A

- **Frese in HSS Co8 a due tagli per cave. Ideali per lavorazioni di acciai e ghise**
- HSS Co8 slotting two flutes end mills. For steel and cast iron machining

SERIE B

- **Frese in HSS Co8 a tre tagli Per lavorazioni di acciai e ghise**
- HSS Co8 three flutes end mills. For steel and cast iron machining

SERIE C

- **Frese in HSS Co5-Co8 a disco, a manicotto, prismatiche per lavorazioni di acciai e ghise**
- HSS Co5-Co8 shell end mills, side and face milling cutters, angular cutters. For steel and cast iron machining

new Nuovo prodotto/ New product

new Ampliamento di gamma/ Widening range

		COD.	PAG.
Co5 *		C13	49
Co5 *		C14	50

SERIE E-F

- Frese in HSS Co8 per sgrossatura e semifinitura. Ideali per lavorazioni di acciai e ghise
- HSS Co8 roughing and semifinishing end mills. For steel and cast iron machining

		COD.	PAG.
		E0	53
		E1	53
		E2	54
		E4	55
		E5	55
		E6	56
		E7	57
		E8	58
		E10	59
		E11	60
		E12	61
		E13	62

		COD.	PAG.
		E14	62
		E15	63
		E16	64
		E17	65
		E18	66
		F0	67
		F1	68
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CONSIGLIATO RECOMMENDED ▲
ACCETTABILE ACCEPTABLE ►
SCONSIGLIATO NOT RECOMMENDED ▼

SERIE G

- **Frese in HSS Co8 per finitura. Ideali per lavorazioni di acciai e ghise**
- HSS Co8 finishing end mills. For steel and cast iron machining

SERIE UMAX

- **Frese in HSS Co8 a 45° divisione irregolare per sgrossatura e finitura**
- HSS Co8 end mills, helix 45° with irregular division, for roughing and finishing

SERIE R-S

- **Frese in HSS Co5-Co8 a "T", lamatori, svasatori e frese coniche**
- HSS Co5-Co8 "T" slot cutters, woodruff and conical cutters

SERIE AL

- **Alesatori a mano e a macchina in HSS Co5-Co8**
- HSS Co5-Co8% cylinder reamers

SERIE L

- **Frese in HSS Co8 e HSS CoPM per leghe leggere, rame, bronzo, ottone e materiali plastici**
- HSS Co8 and HSS CoPM end mills for light alloys, copper, brass, bronze and plastic material

INDEX

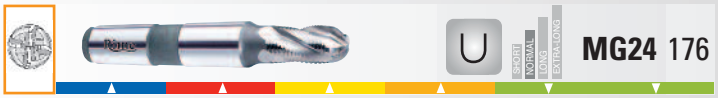
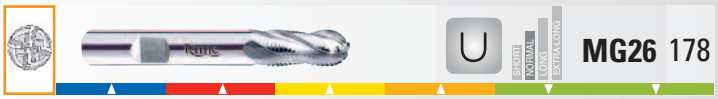
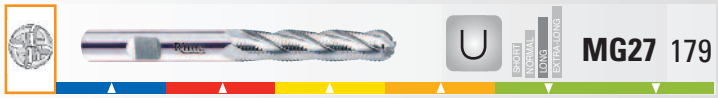
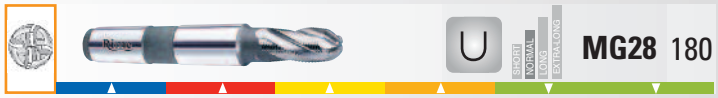
Materiali lavorabili consigliati - Suggested workpiece material

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL

CONSIGLIATO RECOMMENDED ▲
ACCETTABILE ACCEPTABLE ►
SCONSIGLIATO NOT RECOMMENDED ▼

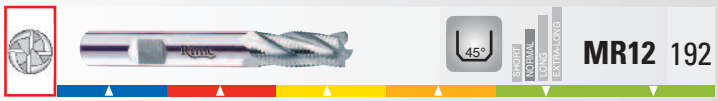
SERIE MG EMP3

- Frese in EMP3 (PM-Co8,5) per cave, per finitura, semi-finitura e sgrossatura
- EMP3 (PM-Co8,5) end mills for slotting, for roughing, semifinishing and finishing

	COD.	PAG.
	MG24	176
	MG25	177
	MG26	178
	MG27	179
	MG28	180
	MG29	181
	MG30	182
	MG31	183
	MG32	184

SERIE MR EMP6

- **Frese in EMP6 (PM-Co8,5) per cave, per finitura, semifinitura e sgrossatura**
- EMP6 (PM-Co8,5) end mills for slotting, for roughing, semifinishing and finishing

	COD.	PAG.
	MR1	187
	MR2	188
	MR3	189
	MR4	190
	MR8	191
	MR12	192

SOMMARIO - SUMMARY

Catalogo HSS-E e PM

SERIE A

FRESE A DUE DENTI PER CAVE

TWO-FLUTES SLOT END MILLS

Rime
UTENSILERIA

INDEX

SERIE A

FRESE A DUE DENTI PER CAVE
TWO-FLUTES SLOT END MILLS

FRESE A DUE DENTI PER CAVE • SERIE CORTA

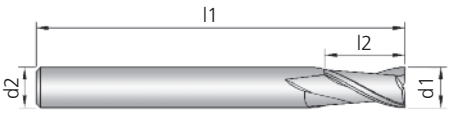
A1

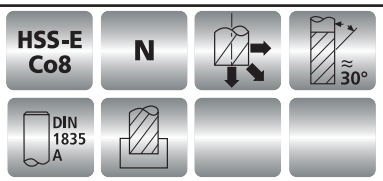
Un dente frontale tagliente fino al centro - Codolo cilindrico
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Straight shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango cilindrico
FRESAS DE DUAS NAVALHAS - Encabadouro cilindrico
Фреза 2-х зубая. Режущий торец. Цилиндрический хвостовик. Короткая серия

SERIE A

NORM.

UNI 8254
DIN 327B
ISO 1641/I





CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
A1/01	1	3	47	6	2	•
A1/02	1.5	3	47	6	2	•
A1/03	2	4	48	6	2	•
A1/04	2.5	5	49	6	2	•
A1/05	3	5	49	6	2	•
A1/06	3.5	6	50	6	2	•
A1/07	4	7	51	6	2	•
A1/08	4.5	7	51	6	2	•
A1/09	5	8	52	6	2	•
A1/10	5.5	8	52	6	2	•
A1/11	6	8	52	6	2	•
A1/12	6.5	10	60	10	2	•
A1/13	7	10	60	10	2	•
A1/14	7.5	10	60	10	2	•
A1/15	8	11	61	10	2	•
A1/16	8.5	11	61	10	2	•
A1/17	9	11	61	10	2	•
A1/18	9.5	13	63	10	2	•
A1/19	10	13	63	10	2	•
A1/20	10.5	13	70	12	2	•
A1/21	11	13	70	12	2	•
A1/21/1	11.5	16	73	12	2	•
A1/22	12	16	73	12	2	•
A1/22/1	12.5	16	73	12	2	•
A1/23	13	16	73	12	2	•
A1/24	14	16	73	12	2	•
A1/25	15	19	79	16	2	•
A1/26	16	19	79	16	2	•
A1/27	17	19	79	16	2	•
A1/28	18	19	79	16	2	•
A1/29	19	22	88	20	2	•
A1/30	20	22	88	20	2	•
A1/31	21	22	88	20	2	•
A1/32	22	22	88	20	2	•
A1/33	23	22	98	25	2	•
A1/34	24	26	102	25	2	•
A1/35	25	26	102	25	2	•
A1/36	26	26	102	25	2	•
A1/37	28	26	102	25	2	•
A1/38	30	26	102	25	2	•
A1/39	32	32	112	32	2	•
A1/40	34	32	112	32	2	•
A1/41	35	32	112	32	2	•
A1/42	36	32	112	32	2	•
A1/43	38	38	118	32	2	•
A1/44	40	38	118	32	2	•

Ulteriori diametri a richiesta
Other diameters on demand

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A DUE DENTI PER CAVE - TOLL. H7 • SERIE CORTA

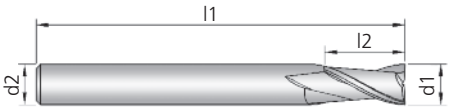
SERIE A

A1H7

Un dente frontale tagliente fino al centro - Codolo cilindrico - Tolleranza H7
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Straight shank - Tol H7
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique - Tol H7
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zylinderschaft - Tol H7
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango cilindrico - Tol H7
FRESAS DE DUAS NAVALHAS - Encabadouro cilindrico - Tol H7
Фреза 2-х зубая. Режущий торец. Цилиндрический хвостовик. Короткая серия - Tol H7

SHORT NORMAL LONG EXTRA-LONG

Z2



HSS-E Co8 | N | ≈ 30° | DIN 1835 A

NORM.

CODE	d1 mm H7	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
A1/03/H7	2	4	48	6	2	•	•
A1/05/H7	3	5	49	6	2	•	•
A1/07/H7	4	7	51	6	2	•	•
A1/09/H7	5	8	52	6	2	•	•
A1/11/H7	6	8	52	6	2	•	•
A1/13/H7	7	10	60	10	2	•	•
A1/15/H7	8	11	61	10	2	•	•
A1/17/H7	9	11	61	10	2	•	•
A1/19/H7	10	13	63	10	2	•	•
A1/21/H7	11	13	70	12	2	•	•
A1/22/H7	12	16	73	12	2	•	•
A1/23/H7	13	16	73	12	2	•	•
A1/24/H7	14	16	73	12	2	•	•
A1/26/H7	16	19	79	16	2	•	•

Ulteriori diametri a richiesta
Other diameters on demand

CONSIGLIATO RECOMMENDED
ACCETTABILE ACCEPTABLE
SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE A DUE DENTI PER CAVE • SERIE CORTA

A2

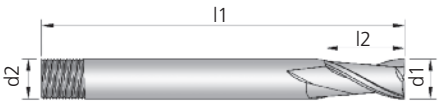
Un dente frontale tagliente fino al centro - Codolo cilindrico filettato
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Threaded shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique filetée
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango cilindrico roscado
FRESAS DE DUAS NAVALHAS - Encabadouro cilindrico roscado
Фреза 2-х зубая. Режущий торец. Цилиндрический хвостовик с резьбой. Короткая серия

SERIE A

NORM.

UNI 8256
DIN 327H
ISO 1641/I

Z2



HSS-E Co8 | N | ≈ 30° | DIN 1835-D

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
A2/00	2	4	48	6	2	•
A2/01	2.5	5	49	6	2	•
A2/02	3	5	49	6	2	•
A2/03	3.5	6	50	6	2	•
A2/04	4	7	51	6	2	•
A2/05	4.5	7	51	6	2	•
A2/06	5	8	52	6	2	•
A2/07	5.5	8	52	6	2	•
A2/08	6	8	52	6	2	•
A2/09	6.5	10	60	10	2	•
A2/10	7	10	60	10	2	•
A2/11	7.5	10	60	10	2	•
A2/12	8	11	61	10	2	•
A2/13	8.5	11	61	10	2	•
A2/14	9	11	61	10	2	•
A2/15	9.5	13	63	10	2	•
A2/16	10	13	63	10	2	•
A2/17	10.5	13	70	12	2	•
A2/18	11	13	70	12	2	•
A2/18/1	11.5	16	73	12	2	•
A2/19	12	16	73	12	2	•
A2/19/1	12.5	16	73	12	2	•
A2/20	13	16	73	12	2	•
A2/21	14	16	73	12	2	•
A2/22	15	19	79	16	2	•
A2/23	16	19	79	16	2	•
A2/24	17	19	79	16	2	•
A2/25	18	19	79	16	2	•
A2/26	19	22	82	16	2	•
A2/27	20	22	82	16	2	•
A2/28	21	22	88	20	2	•
A2/29	22	22	88	20	2	•
A2/30	23	22	98	25	2	•
A2/31	24	26	102	25	2	•
A2/32	25	26	102	25	2	•
A2/33	26	26	102	25	2	•
A2/34	28	26	102	25	2	•
A2/35	30	26	102	25	2	•
A2/36	32	32	112	32	2	•
A2/37	34	32	112	32	2	•
A2/38	35	32	112	32	2	•
A2/39	36	32	112	32	2	•
A2/40	38	38	118	32	2	•
A2/41	40	38	118	32	2	•

Ulteriori diametri a richiesta
Other diameters on demand

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A DUE DENTI PER CAVE • SERIE CORTA

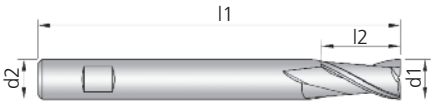
SERIE A

A3

Un dente frontale tagliente fino al centro - Attacco Weldon
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Weldon shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre -Queue cylindrique Weldon
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango Weldon
FRESAS DE DUAS NAVALHAS - Encabadouro Weldon
Фреза 2-х зубая. Режущий торец. Хвостовик Weldon. Короткая серия

SHORT NORMAL LONG EXTRA-LONG

Z2



HSS-E Co8 | N | ≈ 30° | DIN 1835 B

NORM.

UNI 8258
DIN 327D
ISO 1641/I

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
A3/00	2	4	48	6	2	•	•
A3/01	2.5	5	49	6	2	•	•
A3/02	3	5	49	6	2	•	•
A3/03	3.5	6	50	6	2	•	•
A3/04	4	7	51	6	2	•	•
A3/05	4.5	7	51	6	2	•	•
A3/06	5	8	52	6	2	•	•
A3/07	5.5	8	52	6	2	•	•
A3/08	6	8	52	6	2	•	•
A3/09	6.5	10	60	10	2	•	•
A3/10	7	10	60	10	2	•	•
A3/11	7.5	10	60	10	2	•	•
A3/12	8	11	61	10	2	•	•
A3/13	8.5	11	61	10	2	•	•
A3/14	9	11	61	10	2	•	•
A3/15	9.5	13	63	10	2	•	•
A3/16	10	13	63	10	2	•	•
A3/17	10.5	13	70	12	2	•	•
A3/18	11	13	70	12	2	•	•
A3/18/1	11.5	16	73	12	2	•	•
A3/19	12	16	73	12	2	•	•
A3/19/1	12.5	16	73	12	2	•	•
A3/20	13	16	73	12	2	•	•
A3/21	14	16	73	12	2	•	•
A3/22	15	19	79	16	2	•	•
A3/23	16	19	79	16	2	•	•
A3/24	17	19	79	16	2	•	•
A3/25	18	19	79	16	2	•	•
A3/26	19	22	88	20	2	•	•
A3/27	20	22	88	20	2	•	•
A3/28	21	22	88	20	2	•	•
A3/29	22	22	88	20	2	•	•
A3/30	23	22	98	25	2	•	•
A3/31	24	26	102	25	2	•	•
A3/32	25	26	102	25	2	•	•
A3/33	26	26	102	25	2	•	•
A3/34	28	26	102	25	2	•	•
A3/35	30	26	102	25	2	•	•
A3/36	32	32	112	32	2	•	•
A3/37	34	32	112	32	2	•	•
A3/38	35	32	112	32	2	•	•
A3/39	36	32	112	32	2	•	•
A3/40	38	38	118	32	2	•	•
A3/41	40	38	118	32	2	•	•

Ulteriori diametri a richiesta
Other diameters on demand

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE A DUE DENTI PER CAVE • SERIE LUNGA

A5

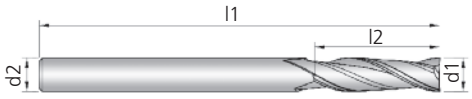
Un dente frontale tagliente fino al centro - Codolo cilindrico
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Straight shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango cilindrico
FRESAS DE DUAS NAVALHAS - Encabadouro cilindrico
Фреза 2-х зубая. Режущий торец. Цилиндрический хвостовик. Удлиненная серия

SERIE A

NORM.

STANDARD Rime

Z2



HSS-E Co8 | N | ≈ 30° | DIN 1835 A

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
A5/00	2	9	54	6	2	•
A5/01	3	9	60	6	2	•
A5/02	3.5	13	67	6	2	•
A5/03	4	13	67	6	2	•
A5/04	4.5	13	68	6	2	•
A5/05	5	16	70	6	2	•
A5/06	5.5	16	76	6	2	•
A5/07	6	16	76	6	2	•
A5/08	6.5	16	76	10	2	•
A5/09	7	19	79	10	2	•
A5/10	7.5	19	79	10	2	•
A5/11	8	19	79	10	2	•
A5/12	8.5	22	83	10	2	•
A5/13	9	22	83	10	2	•
A5/14	9.5	22	83	10	2	•
A5/15	10	22	83	10	2	•
A5/16	10.5	25	95	12	2	•
A5/17	11	25	95	12	2	•
A5/18	12	28	98	12	2	•
A5/19	13	28	98	12	2	•
A5/20	14	32	102	12	2	•
A5/21	15	32	108	16	2	•
A5/22	16	32	108	16	2	•
A5/23	17	35	114	16	2	•
A5/24	18	35	114	16	2	•
A5/25	19	38	132	20	2	•
A5/26	20	38	132	20	2	•
A5/27	21	38	132	20	2	•
A5/28	22	41	141	25	2	•
A5/29	23	41	141	25	2	•
A5/30	24	41	152	25	2	•
A5/31	25	44	159	25	2	•
A5/32	26	44	159	25	2	•
A5/33	28	44	159	25	2	•
A5/34	30	50	159	25	2	•
A5/35	32	52	165	32	2	•

Ulteriori diametri a richiesta
Other diameters on demand

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A DUE DENTI PER CAVE • SERIE LUNGA

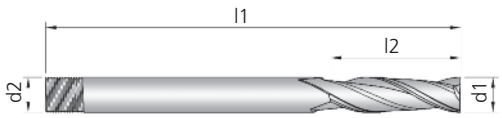
SERIE A

A6

Un dente frontale tagliente fino al centro - Codolo cilindrico filettato
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Threaded shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique filetée
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango cilindrico roscado
FRESAS DE DUAS NAVALHAS - Encabadouro cilindrico roscado
Фреза 2–х зубая. Режущий торец. Цилиндрический хвостовик с резьбой. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z2



HSS-E Co8 | N | ≈ 30° | DIN 1835-D

NORM. STANDARD Rime

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
A6/01	3	9	60	6	2	•
A6/02	3.5	13	67	6	2	•
A6/03	4	13	67	6	2	•
A6/04	4.5	13	68	6	2	•
A6/05	5	16	70	6	2	•
A6/06	5.5	16	76	6	2	•
A6/07	6	16	76	6	2	•
A6/08	6.5	16	76	10	2	•
A6/09	7	19	79	10	2	•
A6/10	7.5	19	79	10	2	•
A6/11	8	19	79	10	2	•
A6/12	8.5	22	83	10	2	•
A6/13	9	22	83	10	2	•
A6/14	9.5	22	83	10	2	•
A6/15	10	22	83	10	2	•
A6/16	10.5	25	95	12	2	•
A6/17	11	25	95	12	2	•
A6/18	12	28	98	12	2	•
A6/19	13	28	98	12	2	•
A6/20	14	32	102	12	2	•
A6/21	15	32	108	16	2	•
A6/22	16	32	108	16	2	•
A6/23	17	35	114	16	2	•
A6/24	18	35	114	16	2	•
A6/25	19	38	132	20	2	•
A6/26	20	38	132	20	2	•
A6/27	21	38	132	20	2	•
A6/28	22	41	141	25	2	•
A6/29	23	41	141	25	2	•
A6/30	24	41	152	25	2	•
A6/31	25	44	159	25	2	•
A6/32	26	44	159	25	2	•
A6/33	28	44	159	25	2	•
A6/34	30	50	159	25	2	•
A6/35	32	52	165	32	2	•

Ulteriori diametri a richiesta
Other diameters on demand

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE A DUE DENTI PER CAVE • SERIE LUNGA

A7

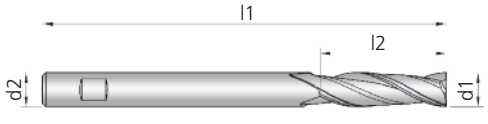
Un dente frontale tagliente fino al centro - Attacco Weldon
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Weldon shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango Weldon
FRESAS DE DUAS NAVALHAS - Encabadouro Weldon
Фреза 2-х зубая. Режущий торец. Хвостовик Weldon. Удлиненная серия

SERIE A

NORM.

STANDARD Rime

Z2



HSS-E Co8 | N | ≈ 30° | DIN 1835 B

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
A7/00	2	9	54	6	2	•	•
A7/01	3	9	60	6	2	•	•
A7/02	3.5	13	67	6	2	•	•
A7/03	4	13	67	6	2	•	•
A7/04	4.5	13	68	6	2	•	•
A7/05	5	16	70	6	2	•	•
A7/06	5.5	16	76	6	2	•	•
A7/07	6	16	76	6	2	•	•
A7/08	6.5	16	76	10	2	•	•
A7/09	7	19	79	10	2	•	•
A7/10	7.5	19	79	10	2	•	•
A7/11	8	19	79	10	2	•	•
A7/12	8.5	22	83	10	2	•	•
A7/13	9	22	83	10	2	•	•
A7/14	9.5	22	83	10	2	•	•
A7/15	10	22	83	10	2	•	•
A7/16	10.5	25	95	12	2	•	•
A7/17	11	25	95	12	2	•	•
A7/18	12	28	98	12	2	•	•
A7/19	13	28	98	12	2	•	•
A7/20	14	32	102	12	2	•	•
A7/21	15	32	108	16	2	•	•
A7/22	16	32	108	16	2	•	•
A7/23	17	35	114	16	2	•	•
A7/24	18	35	114	16	2	•	•
A7/25	19	38	132	20	2	•	•
A7/26	20	38	132	20	2	•	•
A7/27	21	38	132	20	2	•	•
A7/28	22	41	141	25	2	•	•
A7/29	23	41	141	25	2	•	•
A7/30	24	41	152	25	2	•	•
A7/31	25	44	159	25	2	•	•
A7/32	26	44	159	25	2	•	•
A7/33	28	44	159	25	2	•	•
A7/34	30	50	159	25	2	•	•
A7/35	32	52	165	32	2	•	•

Ulteriori diametri a richiesta
Other diameters on demand

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A DUE DENTI PER CAVE • SERIE NORMALE

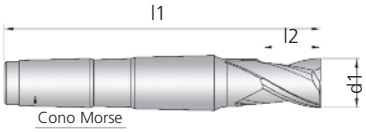
SERIE A

A8

Un dente frontale tagliente fino al centro - Codolo conico Morse con foro filettato
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Morse taper shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue au cône Morse à trou fileté
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango conico Morse con taladro roscado
FRESAS DE DUAS NAVALHAS - Encabadouro cone Morse
Фреза 2-х зубая. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

Z2



HSS-E Co8 | N | ≈ 30° | DIN 228-A

NORM.

UNI 8260A
DIN 326D
ISO 1641/II

CODE	d1 mm e8	l2 mm	l1 mm	CM-MK	Z	Co 8% €
A8/01	16	19	104	2	2	•
A8/02	18	19	104	2	2	•
A8/03	20	22	124	3	2	•
A8/04	22	22	124	3	2	•
A8/05	24	26	128	3	2	•
A8/06	25	26	128	3	2	•
A8/07	26	26	128	3	2	•
A8/08	28	26	128	3	2	•
A8/09	30	32	134	3	2	•
A8/10	32	32	157	4	2	•
A8/11	34	32	157	4	2	•
A8/12	35	32	157	4	2	•
A8/13	36	32	157	4	2	•
A8/14	38	38	163	4	2	•
A8/15	40	38	163	4	2	•

Ulteriori diametri a richiesta
Other diameters on demand

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE A DUE DENTI A TESTA SEMISFERICA • SERIE NORMALE

A9

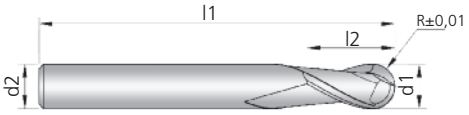
Due denti frontali taglienti fino al centro - Codolo cilindrico
BALL-NOSED TWO-FLUTES END MILLS - Two end teeth cutting up to the centre - Straight shank
FRAISES DEUX DENTS RADIÉES À BOUT HÉMISPHÉRIQUE - Deux dents bout coupantes jusq'au centre - Queue cylindrique
HALBRUNDKOPFFRÄSER, ZWEISCHNEIDER - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS DE DOS LABIOS - Cabeza semiesférica - Dos labios que cortan hasta el centro - Mango cilindrico
FRESAS BOLEADA DE DUAS NAVALHAS - Encabadouro cilindrico
Фреза 2-х зубая. Сферический торец. Цилиндрический хвостовик. Средняя серия

SERIE A

NORM.

UNI
DIN
ISO 1641/I

Z2



HSS-E Co8 | N | DIN 1835 A | ≈ 30°

SHORT · NORMAL · LONG · EXTRA-LONG

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
A9/00	1	3	47	6	2	•
A9/00/1	1.5	3	47	6	2	•
A9/01	2	4	48	6	2	•
A9/02	3	5	49	6	2	•
A9/03	4	7	51	6	2	•
A9/04	5	8	52	6	2	•
A9/05	6	8	52	6	2	•
A9/06	7	10	60	10	2	•
A9/07	8	11	61	10	2	•
A9/08	9	11	61	10	2	•
A9/09	10	13	63	10	2	•
A9/10	11	13	70	12	2	•
A9/11	12	16	73	12	2	•
A9/12	13	16	73	12	2	•
A9/13	14	16	73	12	2	•
A9/14	15	19	79	16	2	•
A9/15	16	19	79	16	2	•
A9/15/1	17	19	79	16	2	•
A9/16	18	19	79	16	2	•
A9/17	20	22	88	20	2	•
A9/18	22	22	88	20	2	•

Ulteriori diametri a richiesta
Other diameters on demand

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A DUE DENTI A TESTA SEMISFERICA • SERIE LUNGA

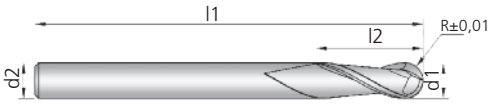
SERIE A

A10

Due denti frontali taglienti fino al centro - Codolo cilindrico
BALL-NOSED TWO-FLUTES END MILLS - Two end teeth cutting up to the centre - Straight shank
FRAISES DEUX DENTS RADIÉES À BOUT HÉMISPHÉRIQUE - Deux dents bout coupantes jusq'au centre - Queue cylindrique
HALBRUNDKOPFFRÄSER, ZWEISCHNEIDER - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS DE DOS LABIOS - Cabeza semiesférica - Dos labios que cortan hasta el centro - Mango cilindrico
FRESAS BOLEADA DE DUAS NAVALHAS - Encabadouro cilindrico
Фреза 2-х зубая. Сферический торец. Цилиндрический хвостовик. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z2



HSS-E Co8 | N | ≈30° | DIN 1835 A

NORM. STANDARD Rime

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
A10/00	2	9	54	6	2	•
A10/01	3	9	60	6	2	•
A10/03	4	13	67	6	2	•
A10/05	5	16	70	6	2	•
A10/07	6	16	76	6	2	•
A10/09	7	19	79	10	2	•
A10/11	8	19	79	10	2	•
A10/13	9	22	83	10	2	•
A10/15	10	22	83	10	2	•
A10/17	11	25	95	12	2	•
A10/18	12	28	98	12	2	•
A10/19	13	28	98	12	2	•
A10/20	14	32	102	12	2	•
A10/21	15	32	108	16	2	•
A10/22	16	32	108	16	2	•
A10/24	18	35	114	16	2	•
A10/26	20	38	132	20	2	•
A10/28	22	41	141	25	2	•

Ulteriori diametri a richiesta
Other diameters on demand

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER MACCHINE A COPIARE • SERIE EXTRA-LUNGA

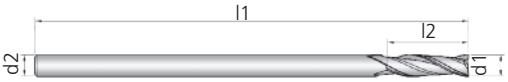
SERIE A

A11

Un dente frontale tagliente fino al centro - Codolo cilindrico
COPY MILLING CUTTERS - One end tooth cutting up to the centre - Straight shank
FRAISES POUR MACHINES À COPIER - Une dent bout coupante jusq'au centre - Queue cylindrique
NACHFORMFRÄSER - Eine Schneide mit Zentrumschnitt - Zylinderschaft
FRESAS EN COPIADO - Un labio que corta hasta el centro - Mango cilindrico
FRESAS DE COPIA - Encabadouro cilindrico
Фреза 2-х зубая. Режущий торец. Цилиндрический хвостовик. Ультрадлинная серия

SHORT NORMAL LONG EXTRA-LONG

Z2



HSS-E Co8 | N | ≈30° | DIN 1835 A

NORM. STANDARD Rime

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
A11/01	6	25	180	6	2	•
A11/02	8	25	180	8	2	•
A11/03	10	30	200	10	2	•
A11/04	12	30	200	12	2	•
A11/05	16	35	200	16	2	•
A11/06	20	35	200	20	2	•

Ulteriori diametri a richiesta
Other diameters on demand

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

Catalogo HSS-E e PM

SERIE B

FRESE A TRE DENTI

THREE-FLUTES END MILLS

Rime
UTENSILERIA

INDEX

SERIE B

FRESE A TRE DENTI
THREE-FLUTES END MILLS

FRESE A TRE DENTI • SERIE NORMALE

B0

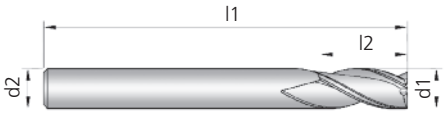
Un dente frontale tagliente fino al centro - Codolo cilindrico
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Straight shank
FRAISES À CYLINDRES FRONTALES À TROIS TAILLES - Une dent bout coupante jusq'au centre - Queue cylindrique
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS DE TRÉS LABIOS - Un labio que corta hasta el centro - Mango cilindrico
FRESAS DE TRÊS NAVALHAS - Encabadouro cilindrico
Фреза 3-х зубая. Режущий торец. Цилиндрический хвостовик. Средняя серия

SERIE B

NORM.

UNI 8244
DIN 844A
ISO 1641/I

Z3



HSS-E Co8 | N | ≈30° | DIN 1835 A

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
B0/01	2	7	51	6	3	•
B0/02	2.5	8	52	6	3	•
B0/03	3	8	52	6	3	•
B0/04	3.5	10	54	6	3	•
B0/05	4	11	55	6	3	•
B0/06	4.5	11	55	6	3	•
B0/07	5	13	57	6	3	•
B0/08	5.5	13	57	6	3	•
B0/09	6	13	57	6	3	•
B0/10	6.5	16	66	10	3	•
B0/11	7	16	66	10	3	•
B0/11/1	7.5	19	69	10	3	•
B0/12	8	19	69	10	3	•
B0/12/1	8.5	19	69	10	3	•
B0/13	9	19	69	10	3	•
B0/13/1	9.5	22	72	10	3	•
B0/14	10	22	72	10	3	•
B0/14/1	10.5	22	79	12	3	•
B0/15	11	22	79	12	3	•
B0/16	12	26	83	12	3	•
B0/17	13	26	83	12	3	•
B0/18	14	26	83	12	3	•
B0/19	15	32	92	16	3	•
B0/20	16	32	92	16	3	•
B0/21	17	32	92	16	3	•
B0/22	18	32	92	16	3	•
B0/23	19	38	104	20	3	•
B0/24	20	38	104	20	3	•
B0/25	22	38	104	20	3	•
B0/26	24	45	121	25	3	•
B0/27	25	45	121	25	3	•
B0/28	26	45	121	25	3	•
B0/29	28	45	121	25	3	•
B0/30	30	45	121	25	3	•
B0/31	32	53	133	32	3	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A TRE DENTI • SERIE NORMALE

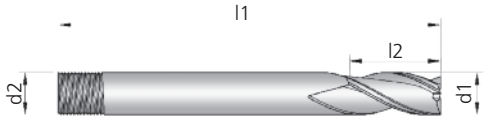
SERIE B

B1

Un dente frontale tagliente fino al centro - Codolo cilindrico filettato
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Threaded shank
FRAISES À CYLINDRES FRONTALES À TROIS TAILLES - Une dent bout coupante jusq'au centre - Queue cylindrique filetée
SCHAFTFRÄSER - Eine Schneide mit Zentrumschnitt - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS DE TRÉS LABIOS - Un labio que corta hasta el centro - Mango cilindrico roscado
FRESAS DE TRÊS NAVALHAS - Encabadouro cilindrico roscado
Фреза 3–х зубая. Режущий торец. Цилиндрический хвостовик с резьбой. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

Z3



HSS-E Co8 | N | ≅ 30° | DIN 1835-D

NORM.

UNI 8246
DIN 844D
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
B1/01	2	7	51	6	3	•
B1/02	2.5	8	52	6	3	•
B1/03	3	8	52	6	3	•
B1/04	3.5	10	54	6	3	•
B1/05	4	11	55	6	3	•
B1/06	4.5	11	55	6	3	•
B1/07	5	13	57	6	3	•
B1/08	5.5	13	57	6	3	•
B1/09	6	13	57	6	3	•
B1/10	6.5	16	66	10	3	•
B1/11	7	16	66	10	3	•
B1/11/1	7.5	19	69	10	3	•
B1/12	8	19	69	10	3	•
B1/12/1	8.5	19	69	10	3	•
B1/13	9	19	69	10	3	•
B1/13/1	9.5	22	72	10	3	•
B1/14	10	22	72	10	3	•
B1/14/1	10.5	22	79	12	3	•
B1/15	11	22	79	12	3	•
B1/16	12	26	83	12	3	•
B1/17	13	26	83	12	3	•
B1/18	14	26	83	12	3	•
B1/19	15	32	92	16	3	•
B1/20	16	32	92	16	3	•
B1/21	17	32	92	16	3	•
B1/22	18	32	92	16	3	•
B1/23	19	38	98	16	3	•
B1/24	20	38	104	20	3	•
B1/25	22	38	114	25	3	•
B1/26	24	45	121	25	3	•
B1/27	25	45	121	25	3	•
B1/28	26	45	121	25	3	•
B1/29	28	45	121	25	3	•
B1/30	30	45	121	25	3	•
B1/31	32	53	133	32	3	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A TRE DENTI • SERIE NORMALE

B2

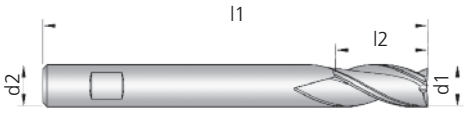
Un dente frontale tagliente fino al centro - Attacco Weldon
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Weldon shank
FRAISES À CYLINDRES FRONTALES À TROIS TAILLES - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS DE TRÉS LABIOS - Un labio que corta hasta el centro - Mango Weldon
FRESAS DE TRÊS NAVALHAS - Encabadouro Weldon
Фреза 3-х зубая. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE B

NORM.

UNI 8248
DIN 844B
ISO 1641/I

Z3



HSS-E Co8 | N | ≈ 30° | DIN 1835 B

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
B2/01	2	7	51	6	3	•	•
B2/02	2.5	8	52	6	3	•	•
B2/03	3	8	52	6	3	•	•
B2/04	3.5	10	54	6	3	•	•
B2/05	4	11	55	6	3	•	•
B2/06	4.5	11	55	6	3	•	•
B2/07	5	13	57	6	3	•	•
B2/08	5.5	13	57	6	3	•	•
B2/09	6	13	57	6	3	•	•
B2/10	6.5	16	66	10	3	•	•
B2/11	7	16	66	10	3	•	•
B2/11/1	7.5	19	69	10	3	•	•
B2/12	8	19	69	10	3	•	•
B2/12/1	8.5	19	69	10	3	•	•
B2/13	9	19	69	10	3	•	•
B2/13/1	9.5	22	72	10	3	•	•
B2/14	10	22	72	10	3	•	•
B2/14/1	10.5	22	79	12	3	•	•
B2/15	11	22	79	12	3	•	•
B2/16	12	26	83	12	3	•	•
B2/17	13	26	83	12	3	•	•
B2/18	14	26	83	12	3	•	•
B2/19	15	32	92	16	3	•	•
B2/20	16	32	92	16	3	•	•
B2/21	17	32	92	16	3	•	•
B2/22	18	32	92	16	3	•	•
B2/23	19	38	104	20	3	•	•
B2/24	20	38	104	20	3	•	•
B2/25	22	38	104	20	3	•	•
B2/26	24	45	121	25	3	•	•
B2/27	25	45	121	25	3	•	•
B2/28	26	45	121	25	3	•	•
B2/29	28	45	121	25	3	•	•
B2/30	30	45	121	25	3	•	•
B2/31	32	53	133	32	3	•	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A TRE DENTI • SERIE LUNGA

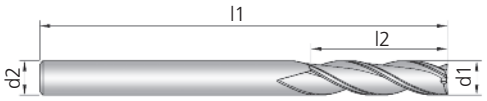
SERIE B

B3

Un dente frontale tagliente fino al centro - Codolo cilindrico
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Straight shank
FRAISES À CYLINDRES FRONTALES À TROIS TAILLES - Une dent bout coupante jusq'au centre - Queue cylindrique
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS DE TRÉS LABIOS - Un labio que corta hasta el centro - Mango cilindrico
FRESAS DE TRÊS NAVALHAS - Encabadouro cilindrico
Фреза 3–х зубая. Режущий торец. Цилиндрический хвостовик. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z3



HSS-E Co8 | N | ≈30° | DIN 1835 A

NORM.

UNI 8245
DIN 844A
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
B3/01	2	10	54	6	3	•
B3/02	3	12	56	6	3	•
B3/03	4	19	63	6	3	•
B3/04	5	24	68	6	3	•
B3/05	6	24	68	6	3	•
B3/06	7	30	80	10	3	•
B3/07	8	38	88	10	3	•
B3/08	10	45	95	10	3	•
B3/09	12	53	110	12	3	•
B3/10	14	53	110	12	3	•
B3/11	16	63	123	16	3	•
B3/12	18	63	123	16	3	•
B3/13	20	75	141	20	3	•
B3/14	22	75	141	20	3	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE A TRE DENTI • SERIE LUNGA

B4

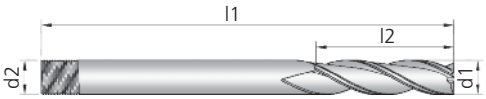
Un dente frontale tagliente fino al centro - Codolo cilindrico filettato
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Threaded shank
FRAISES À CYLINDRES FRONTALES À TROIS TAILLES - Une dent bout coupante jusq'au centre - Queue cylindrique filetée
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS DE TRÉS LABIOS - Un labio que corta hasta el centro - Mango cilindrico roscado
FRESAS DE TRÊS NAVALHAS - Encabadouro cilindrico roscado
Фреза 3-х зубая. Режущий торец. Цилиндрический хвостовик с резьбой. Удлиненная серия

SERIE B

NORM.

UNI 8247
DIN 844D
ISO 1641/I

Z3



HSS-E Co8 | N | 30° | DIN 1835-D

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
B4/01	2	10	54	6	3	•
B4/02	3	12	56	6	3	•
B4/03	4	19	63	6	3	•
B4/04	5	24	68	6	3	•
B4/05	6	24	68	6	3	•
B4/06	7	30	80	10	3	•
B4/07	8	38	88	10	3	•
B4/08	10	45	95	10	3	•
B4/09	12	53	110	12	3	•
B4/10	14	53	110	12	3	•
B4/11	16	63	123	16	3	•
B4/12	18	63	123	16	3	•
B4/13	20	75	141	20	3	•
B4/14	22	75	141	20	3	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

FRESE A TRE DENTI • SERIE LUNGA

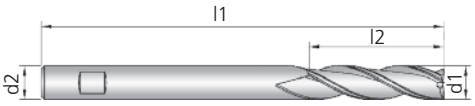
SERIE B

B5

Un dente frontale tagliente fino al centro - Attacco Weldon
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Weldon shank
FRAISES À CYLINDRES FRONTALES À TROIS TAILLES - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS DE TRÉS LABIOS - Un labio que corta hasta el centro - Mango Weldon
FRESAS DE TRÊS NAVALHAS - Encabadouro Weldon
Фреза 3–х зубая. Режущий торец. Хвостовик Weldon. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z3



HSS-E Co8 | N | ≈ 30° | DIN 1835 B

NORM.

UNI 8249
DIN 844B
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
B5/01	2	10	54	6	3	•
B5/02	3	12	56	6	3	•
B5/03	4	19	63	6	3	•
B5/04	5	24	68	6	3	•
B5/05	6	24	68	6	3	•
B5/06	7	30	80	10	3	•
B5/07	8	38	88	10	3	•
B5/07/1	9	45	95	10	3	•
B5/08	10	45	95	10	3	•
B5/08/1	11	53	110	12	3	•
B5/09	12	53	110	12	3	•
B5/09/1	13	53	110	12	3	•
B5/10	14	53	110	12	3	•
B5/10/1	15	63	123	16	3	•
B5/11	16	63	123	16	3	•
B5/12	18	63	123	16	3	•
B5/13	20	75	141	20	3	•
B5/14	22	75	141	20	3	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE A TRE DENTI • SERIE NORMALE

B10

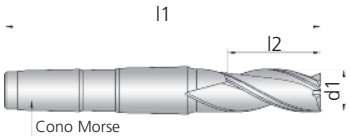
Un dente frontale tagliente fino al centro - Codolo conico Morse con foro filettato
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Morse taper shank
FRAISES À CYLINDRES FRONTALES À TROIS TAILLES - Une dent bout coupante jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS DE TRÉS LABIOS - Un labio que corta hasta el centro - Mango conico Morse con taladro roscado
FRESAS DE TRÊS NAVALHAS - Encabadouro cone Morse con taladro roscado
Фреза 3-х зубая. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SERIE B

NORM.

UNI 8250
DIN 845B
ISO 1641/II

Z3



HSS-E Co8 | N | ≈30° | DIN 228-A

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
B10/01	16	32	117	2	3	•
B10/02	18	32	117	2	3	•
B10/03	20	38	140	3	3	•
B10/04	22	38	140	3	3	•
B10/05	24	45	147	3	3	•
B10/06	25	45	147	3	3	•
B10/07	26	45	147	3	3	•
B10/08	28	45	147	3	3	•
B10/09	30	53	155	3	3	•
B10/10	32	53	178	4	3	•
B10/11	34	53	178	4	3	•
B10/12	35	53	178	4	3	•
B10/13	36	53	178	4	3	•
B10/14	38	63	188	4	3	•
B10/15	40	63	188	4	3	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A TRE DENTI • SERIE LUNGA

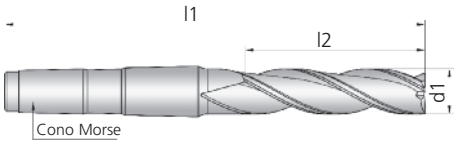
SERIE B

B11

Un dente frontale tagliente fino al centro - Codolo conico Morse con foro filettato
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Morse taper shank
FRAISES À CYLINDRES FRONTALES À TROIS TAILLES - Une dent bout coupante jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS DE TRÉS LABIOS - Un labio que corta hasta el centro - Mango conico Morse con taladro roscado
FRESAS DE TRÊS NAVALHAS - Cone Morse con taladro roscado
Фреза 3–х зубая. Режущий торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z3



HSS-E Co8 | N | 30° | DIN 228-A

NORM.

UNI 8251
DIN 845B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
B11/01	16	63	148	2	3	•
B11/02	18	63	148	2	3	•
B11/03	20	75	177	3	3	•
B11/04	22	75	177	3	3	•
B11/05	24	90	192	3	3	•
B11/06	25	90	192	3	3	•
B11/07	26	90	192	3	3	•
B11/08	28	90	192	3	3	•
B11/09	30	90	192	3	3	•
B11/10	32	106	231	4	3	•

Ulteriori diametri a richiesta
Other diameters on demand

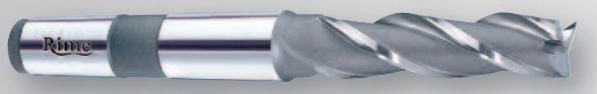
Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►



Catalogo HSS-E e PM

SERIE C

FRESE A MANICOTTO, A DISCO A TRE TAGLI, AD ANGOLO

SHELL END MILLS, SIDE AND FACE MILLING CUTTERS, ANGULAR CUTTERS

Rime
UTENSILERIA

INDEX

SERIE C

FRESE A MANICOTTO, A DISCO A TRE TAGLI, AD ANGOLO
SHELL END MILLS, SIDE AND FACE MILLING CUTTERS, ANGULAR CUTTERS

FRESE FRONTALI

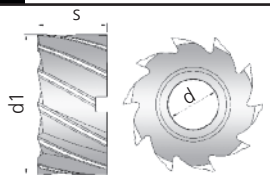
C2

Denti elicoidali rinforzati - Cava trascinamento trasversale
SHELL END MILLS - Reinforced helical teeth - Slot for transverse dragging
FRAISES À CYLINDRES FRONTALES - Denture hélicoïdale renforcée - Fente de traînement transversal
WALZENSTIRNFRÄSER - Verstärkte Spiralzähne - Mitnehmerquernut Schlitz
FRESAS CILINDRICAS FRONTALES - Labios helicoidales reforzados - Agujero condiucimiento trasversal
FRESAS CILINDRICAS FRONTAIS
Фреза торцевая с усиленным зубом

SERIE C

NORM.

UNI 3903
DIN 841-1880
ISO 2586



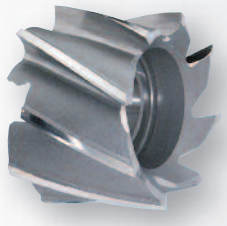
HSS-E Co5 | N

CODE	d1 mm js16	s mm k16	d mm H7	Z	Co 5% €
C2/01	40	32	16	8	•
C2/02	50	36	22	8	•
C2/03	63	40	27	8	•
C2/04	80	45	27	10	•
C2/05	100	50	32	12	•
C2/06	125	56	40	14	•

Toll. reale sul Ø
Real Tol. on Ø
+0,05 -0

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED



FRESE FRONTALI

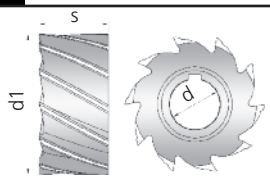
C3

Denti elicoidali rinforzati - Spacco longitudinale
SHELL END MILLS - Reinforced helical teeth - Longitudinal slot
FRAISES À CYLINDRES FRONTALES - Denture hélicoïdale renforcée - Fente longitudinale
WALZENSTIRNFRÄSER - Verstärkte Spiralzähne - Mitnehmerlängsnut
FRESAS CILINDRICAS FRONTALES - Labios helicoidales reforzados - Hendidura longitudinal
FRESAS CILINDRICAS FRONTAIS
Фреза торцевая с усиленным зубом. Шпоночный паз

SERIE C

NORM.

UNI 3903
DIN 841-1880
ISO 2586



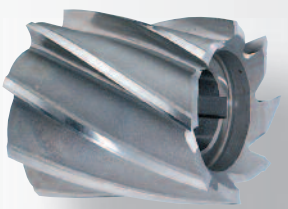
HSS-E Co5 | N

CODE	d1 mm js16	s mm k16	d mm H7	Z	Co 5% €
C3/01	30	30	13	8	•
C3/02	35	35	16	8	•
C3/03	40	20	16	8	•
C3/04	40	40	16	8	•
C3/05	50	25	22	8	•
C3/06	50	50	22	8	•
C3/07	60	30	27	8	•
C3/08	60	60	27	8	•
C3/09	75	35	27	10	•
C3/10	75	75	27	10	•
C3/11	90	35	27	12	•
C3/12	110	35	32	14	•

Toll. reale sul Ø
Real Tol. on Ø
+0,05 -0

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

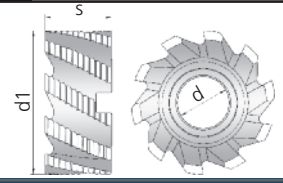


FRESE FRONTALI

SERIE C

C5/A

Denti elicoidali con rompitruciolo spogliato completamente rettificato. Esecuzione per semifinitura - Cava trascinamento trasversale
SHELL END MILLS - Helical teeth with form relieved entirely ground chip-breaker. Semifinishing type -Slot for transverse dragging
FRAISES À CYLINDRES FRONTALES - Denture hélicoïdale avec brise-copeaux dépouillé entièrement rectifié. Exécution pour demi-fini - Fente de traînement transversal
WALZENSTIRNFRÄSER - Schrägschneiden mit voll eingeschliffenem Mitnehmerquernut. Ausführung zur Halbbearbeitung - Querbetriebs Schlitz
FRESAS CILINDRICAS FRONTALES - Labios helicoidal con arranca de viruta completamente rectificado para semiacabado - Agujero conducimiento trasversal
FRESAS CILINDRICAS FRONTAIS - Fresa concha com navalha reforçada normal
Фреза торцевая для получистовой обработки со стружколомом, с усиленным зубом



HSS-E Co8 | NF

NORM.
UNI 3903
DIN 841-1880
ISO 2586

CODE	d1 mm js16	s mm k16	d mm H7	Z	Co 8% €
C5/01/A	40	32	16	6	•
C5/02/A	50	36	22	6	•
C5/03/A	63	40	27	8	•
C5/04/A	80	45	27	8	•
C5/05/A	100	50	32	10	•
C5/06/A	125	56	40	12	•

Toll. reale sul Ø *Real Tol. on Ø* ±0,05

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

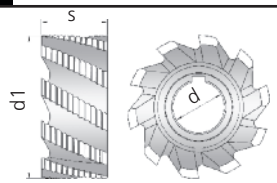
ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE FRONTALI

SERIE C

C6/A

Denti elicoidali con rompitruciolo spogliato completamente rettificato. Esecuzione per semifinitura - Spacco longitudinale
SHELL END MILLS - Helical teeth with form relieved entirely ground chip-breaker. Semifinishing type - Longitudinal slot
FRAISES À CYLINDRES FRONTALES- Denture hélicoïdale avec brise-copeaux dépouillé entièrement rectifié. Exécution pour demi-fini - Fente longitudinale
WALZENSTIRNFRÄSER - Schrägschneiden mit voll eingeschliffenem Mitnehmerlängsnut. Ausführung zur Halbbearbeitung - Longitudinaler Schlitz
FRESAS CILINDRICAS FRONTALES - Labios helicoidal con arranca de viruta completamente rectificado para semiacabado - Hendidura longitudinal
FRESAS CILINDRICAS FRONTAIS - Ripa fina
Фреза торцевая для получистовой обработки со стружколомом, с усиленным зубом. Шпоночный паз



HSS-E Co8 | NF

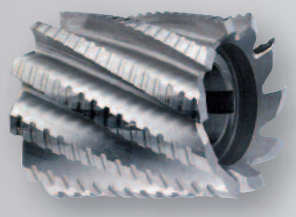
NORM.
UNI 3903
DIN 841-1880
ISO 2586

CODE	d1 mm js16	s mm k16	d mm H7	Z	Co 8% €
C6/01/A	30	30	13	6	•
C6/02/A	35	35	16	6	•
C6/03/A	40	20	16	8	•
C6/04/A	40	40	16	6	•
C6/05/A	50	25	22	8	•
C6/06/A	50	50	22	8	•
C6/07/A	60	30	27	10	•
C6/08/A	60	60	27	10	•
C6/09/A	75	35	27	10	•
C6/10/A	75	75	27	10	•

Toll. reale sul Ø *Real Tol. on Ø* ±0,05

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼



FRESE FRONTALI

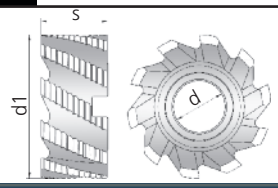
C5/B

Denti elicoidali con rompitruciolo spogliato completamente rettificato. Esecuzione per sgrossatura - Cava trascinamento trasversale
SHELL END MILLS - Helical teeth with form relieved entirely ground chip-breaker. Roughing type - Slot for transverse dragging
FRAISES À CYLINDRES FRONTALES - Denture hélicoïdale avec brise-copeaux dépouillé entièrement rectifié. Exécution pour dégrossir - Fente de traînement transversal
WALZENSTIRNFRÄSER - Schrägschneiden mit voll eingeschliffenem Mitnehmerquernut. Ausführung zum Schruppen - Querbetriebs Schlitz
FRESAS CILINDRICAS FRONTALES - Labios helicoidal con arranca de viruta completamente rectificado para desbaste - Agujero conducimiento trasversal
FRESAS CILINDRICAS FRONTAIS - Fresa concha com quebra-apara normal
Фреза торцевая для черновой обработки

SERIE C

NORM.

UNI 3903
DIN 841-1880
ISO 2586



HSS-E Co8 | NR

CODE	d1 mm js16	s mm k16	d mm H7	Z	Co 8% €
C5/01/B	40	32	16	6	•
C5/02/B	50	36	22	6	•
C5/03/B	63	40	27	8	•
C5/04/B	80	45	27	8	•
C5/05/B	100	50	32	10	•
C5/06/B	125	56	40	12	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE FRONTALI

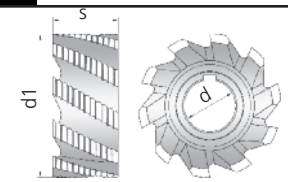
C6/B

Denti elicoidali con rompitruciolo spogliato completamente rettificato. Esecuzione per sgrossatura - Spacco longitudinale
SHELL END MILLS - Helical teeth with form relieved entirely ground chip-breaker. Roughing type - Longitudinal slot
FRAISES À CYLINDRES FRONTALES - Denture hélicoïdale avec brise-copeaux dépouillé entièrement rectifié. Exécution pour dégrossir - Fente longitudinale
WALZENSTIRNFRÄSER - Schrägschneiden mit voll eingeschliffenem Mitnehmerlängsnut. Ausführung zum Schruppen - Longitudinaler Schlitz
FRESAS CILINDRICAS FRONTALES - Labios helicoidal con arranca de viruta completamente rectificado para desbaste - Hendidura longitudinal
FRESAS CILINDRICAS FRONTAIS - Fresa concha com quebra-apara normal
Фреза торцевая для черновой обработки. Шпоночный паз

SERIE C

NORM.

UNI 3903
DIN 841-1880
ISO 2586



HSS-E Co8 | NR

CODE	d1 mm js16	s mm k16	d mm H7	Z	Co 8% €
C6/01/B	30	30	13	6	•
C6/02/B	35	35	16	6	•
C6/03/B	40	20	16	8	•
C6/04/B	40	40	16	6	•
C6/05/B	50	25	22	8	•
C6/06/B	50	50	22	8	•
C6/07/B	60	30	27	10	•
C6/08/B	60	60	27	10	•
C6/09/B	75	35	27	10	•
C6/10/B	75	75	27	10	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

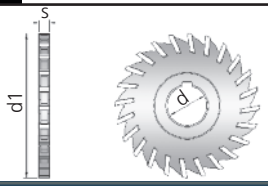
▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A DISCO A TRE TAGLI

SERIE C

C7

Denti dritti
SIDE AND FACE MILLING CUTTERS – Straight teeth
FRAISSES EN DISQUE À TROIS TAILLES – Denture droite
SCHEIBENFRÄSER – Geradeverzhant
FRESAS A DISCO DE TRES LABIOS – Labios derechos
FRESAS DE TRÊS NAVALHAS – Topo direito
Фреза дисковая прямозубая с тремя режущими гранями



HSS-E Co5 | N

NORM.
UNI 3905B
DIN 885B
ISO 2587

Toll. reale sul Ø
Real Tol. on Ø
+0,05 -0

CODE	d1 mm js16	s mm k11	d mm H7	Z	Co 5% €
C7/01	50	4	16	20	•
C7/02	50	5	16	20	•
C7/03	50	6	16	20	•
C7/04	50	7	16	18	•
C7/05	50	8	16	18	•
C7/06	50	9	16	18	•
C7/07	50	10	16	18	•
C7/08	63	4	22	20	•
C7/09	63	5	22	20	•
C7/10	63	6	22	20	•
C7/11	63	7	22	20	•
C7/12	63	8	22	20	•
C7/13	63	9	22	20	•
C7/14	63	10	22	18	•
C7/15	63	12	22	18	•
C7/16	63	14	22	18	•
C7/17	63	16	22	18	•
C7/18	63	18	22	18	•
C7/19	63	20	22	18	•
C7/20	80	4	22	24	•
C7/20/1	80	4	27	24	•
C7/21	80	5	22	24	•
C7/21/1	80	5	27	24	•
C7/22	80	6	22	24	•
C7/22/1	80	6	27	24	•
C7/23	80	7	22	22	•
C7/23/1	80	7	27	22	•
C7/24	80	8	22	22	•
C7/24/1	80	8	27	22	•
C7/25	80	9	22	22	•
C7/25/1	80	9	27	22	•
C7/26	80	10	22	20	•
C7/26/1	80	10	27	20	•
C7/27	80	12	22	20	•
C7/27/1	80	12	27	20	•
C7/28	80	14	22	20	•
C7/28/1	80	14	27	20	•
C7/29	80	16	22	20	•
C7/29/1	80	16	27	20	•
C7/30	80	18	22	20	•
C7/30/1	80	18	27	20	•
C7/31	80	20	22	20	•
C7/31/1	80	20	27	20	•

FRESE A DISCO A TRE TAGLI

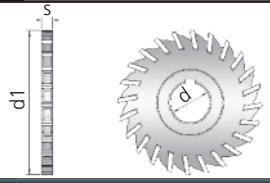
C7

Denti dritti
SIDE AND FACE MILLING CUTTERS – Straight teeth
FRAISSES EN DISQUE À TROIS TAILLES – Denture droite
SCHEIBENFRÄSER – Geradeverzhant
FRESAS A DISCO DE TRES LABIOS – Labios derechos
FRESAS DE TRÊS NAVALHAS – Topo direito
Фреза дисковая прямозубая с тремя режущими гранями

SERIE C

NORM.

UNI 3905B
DIN 885B
ISO 2587



HSS-E Co5 | N

CODE	d1 mm js16	s mm k11	d mm H7	Z	Co 5% €
C7/32	100	4	27	26	•
C7/32/1	100	4	32	26	•
C7/33	100	5	27	26	•
C7/33/1	100	5	32	26	•
C7/34	100	6	27	24	•
C7/34/1	100	6	32	24	•
C7/35	100	7	27	24	•
C7/35/1	100	7	32	24	•
C7/36	100	8	27	22	•
C7/36/1	100	8	32	22	•
C7/37	100	9	27	22	•
C7/37/1	100	9	32	22	•
C7/38	100	10	27	22	•
C7/38/1	100	10	32	22	•
C7/39	100	12	27	22	•
C7/39/1	100	12	32	22	•
C7/40	100	14	27	22	•
C7/40/1	100	14	32	22	•
C7/41	100	15	27	22	•
C7/41/1	100	15	32	22	•
C7/42	100	16	27	22	•
C7/42/1	100	16	32	22	•
C7/43	100	18	27	22	•
C7/43/1	100	18	32	22	•
C7/44	100	20	27	20	•
C7/44/1	100	20	32	20	•
C7/45	100	22	27	20	•
C7/45/1	100	22	32	20	•
C7/46	100	25	27	20	•
C7/46/1	100	25	32	20	•
C7/47	125	5	32	30	•
C7/48	125	6	32	30	•
C7/49	125	8	32	28	•
C7/50	125	10	32	28	•
C7/51	125	12	32	28	•
C7/52	125	14	32	26	•
C7/53	125	16	32	26	•
C7/54	125	18	32	26	•
C7/55	125	20	32	26	•

Toll. reale sul Ø
Real Tol. on Ø
+0,05 -0

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

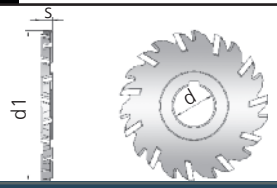
▲ CONSIGLIATO
RECOMMENDED
► ACCETTABILE
ACCEPTABLE
▼ SCONSIGLIATO
NOT RECOMMENDED

FRESE A DISCO A TRE TAGLI

SERIE C

C8

Denti alternati
SIDE AND FACE MILLING CUTTERS - Staggered teeth
FRAISSES EN DISQUE À TROIS TAILLES - Denture alternée
SCHEIBENFRÄSER - Kreuzverzahnt
FRESAS A DISCO DE TRÉS LABIOS - Labios alternados
FRESAS DE TRÊS NAVALHAS - Topo alternado
Фреза дисковая с тремя режущими гранями с разнонаправленными зубьями



HSS-E Co5 | N

NORM.
UNI 3905A
DIN 885A
ISO 2587

Toll. reale sul Ø
Real Tol. on Ø
+0,05 -0

CODE	d1 mm js16	s mm k11	d mm H7	Z	Co 5% €
C8/01	50	4	16	18	•
C8/02	50	5	16	18	•
C8/03	50	6	16	18	•
C8/04	50	7	16	18	•
C8/05	50	8	16	18	•
C8/06	50	9	16	16	•
C8/07	50	10	16	16	•
C8/08	63	4	22	22	•
C8/09	63	5	22	20	•
C8/10	63	6	22	20	•
C8/11	63	7	22	20	•
C8/12	63	8	22	20	•
C8/13	63	9	22	18	•
C8/14	63	10	22	18	•
C8/15	63	12	22	18	•
C8/16	63	14	22	18	•
C8/17	63	16	22	16	•
C8/18	63	18	22	16	•
C8/19	63	20	22	14	•
C8/20	80	4	22	24	•
C8/20/1	80	4	27	24	•
C8/21	80	5	22	22	•
C8/21/1	80	5	27	22	•
C8/22	80	6	22	22	•
C8/22/1	80	6	27	22	•
C8/23	80	7	22	20	•
C8/23/1	80	7	27	20	•
C8/24	80	8	22	20	•
C8/24/1	80	8	27	20	•
C8/25	80	9	22	20	•
C8/25/1	80	9	27	20	•
C8/26	80	10	22	18	•
C8/26/1	80	10	27	18	•
C8/27	80	12	22	18	•
C8/27/1	80	12	27	18	•
C8/28	80	14	22	18	•
C8/28/1	80	14	27	18	•
C8/29	80	16	22	16	•
C8/29/1	80	16	27	16	•
C8/30	80	18	22	16	•
C8/30/1	80	18	27	16	•
C8/31	80	20	22	16	•
C8/31/1	80	20	27	16	•
C8/32	100	4	27	26	•
C8/32/1	100	4	32	26	•
C8/33	100	5	27	26	•
C8/33/1	100	5	32	26	•
C8/34	100	6	27	24	•
C8/34/1	100	6	32	24	•
C8/35	100	7	27	24	•
C8/35/1	100	7	32	24	•
C8/36	100	8	27	22	•
C8/36/1	100	8	32	22	•
C8/37	100	9	27	22	•
C8/37/1	100	9	32	22	•
C8/38	100	10	27	22	•
C8/38/1	100	10	32	22	•

FRESE A DISCO A TRE TAGLI

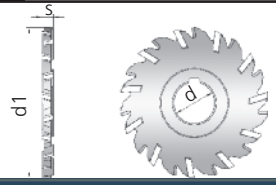
C8

Denti alternati
SIDE AND FACE MILLING CUTTERS - Staggered teeth
FRAISSES EN DISQUE À TROIS TAILLES - Denture alternée
SCHEIBENFRÄSER - Kreuzverzahnt
FRESAS A DISCO DE TRÉS LABIOS - Labios alternados
FRESAS DE TRÊS NAVALHAS - Topo alternado
Фреза дисковая с тремя режущими гранями с разнонаправленными зубьями

SERIE C

NORM.

UNI 3905A
DIN 885A
ISO 2587



HSS-E Co5 | N

CODE	d1 mm js16	s mm k11	d mm H7	Z	Co 5% €
C8/39	100	12	27	20	•
C8/39/1	100	12	32	20	•
C8/40	100	14	27	18	•
C8/40/1	100	14	32	18	•
C8/41	100	15	27	18	•
C8/41/1	100	15	32	18	•
C8/42	100	16	27	18	•
C8/42/1	100	16	32	18	•
C8/43	100	18	27	18	•
C8/43/1	100	18	32	18	•
C8/44	100	20	27	18	•
C8/44/1	100	20	32	18	•
C8/45	100	22	27	18	•
C8/45/1	100	22	32	18	•
C8/46	100	25	27	18	•
C8/46/1	100	25	32	18	•
C8/47	125	5	32	30	•
C8/48	125	6	32	30	•
C8/48/1	125	7	32	28	•
C8/49	125	8	32	28	•
C8/49/1	125	9	32	24	•
C8/50	125	10	32	24	•
C8/51	125	12	32	22	•
C8/52	125	14	32	22	•
C8/53	125	16	32	20	•
C8/54	125	18	32	20	•
C8/55	125	20	32	20	•
C8/56	125	22	32	20	•
C8/57	125	25	32	18	•
C8/58	160	6	32	30	•
C8/59	160	8	32	28	•
C8/60	160	10	32	26	•
C8/61	160	12	32	26	•
C8/62	160	14	32	24	•
C8/63	160	16	32	24	•
C8/64	160	18	32	22	•
C8/65	160	20	32	22	•
C8/66	160	22	32	22	•
C8/67	160	25	32	22	•
C8/68	200	8	40	34	•
C8/69	200	10	40	32	•
C8/70	200	12	40	30	•
C8/71	200	14	40	30	•
C8/72	200	16	40	28	•
C8/73	200	18	40	28	•
C8/74	200	20	40	26	•
C8/75	200	22	40	26	•
C8/76	200	25	40	24	•
C8/77	200	28	40	24	•
C8/78	200	32	40	22	•
C8/79	250	20	50	34	•
C8/80	250	30	50	26	•

Toll. reale sul Ø
Real Tol. on Ø
+0,05 -0

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

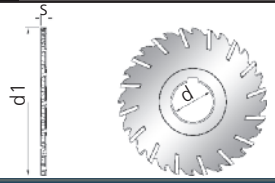
▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

SEGHE CIRCOLARI A TRE TAGLI

SERIE C

C9

Denti elicoidali alternati
THREE-FLUTED CIRCULAR SAWS - Staggered teeth
SCIES CIRCULAIRES TROIS TAILLES - Denture alternée
KREISSÄGEN - Schräg-Kreuzverzahnt
SIERRA CIRCULAR DE TRÉS LABIOS - Labios helicoidales alternados
SERRA CIRCULAR DE TRÊS NAVALHAS - Navalhas helicoidales alternada
Фреза дисковая с тремя режущими гранями с разнонаправленными зубьями



HSS-E Co5 | N

NORM.

Toll. reale sul Ø
Real Tol. on Ø
+0,05 -0

CODE	d1 mm js16	s mm k11	d mm H7	Z	Co 5% €
C9/01	63	1.6	22	32	•
C9/02	63	2	22	32	•
C9/03	63	2.5	22	32	•
C9/04	63	3	22	28	•
C9/05	63	3.5	22	28	•
C9/06	80	2	22	32	•
C9/07	80	2.5	22	32	•
C9/08	80	3	22	32	•
C9/09	80	3.5	22	32	•
C9/10	100	2	27	40	•
C9/11	100	2.5	27	40	•
C9/12	100	3	27	40	•
C9/13	100	3.5	27	40	•
C9/14	125	2	32	44	•
C9/15	125	2.5	32	44	•
C9/16	125	3	32	44	•
C9/17	125	3.5	32	40	•
C9/18	125	4	32	40	•
C9/19	160	3	32	50	•
C9/19/1	160	3.5	32	50	•
C9/20	160	4	32	50	•
C9/21	160	5	32	50	•

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI *STEELS*	GHISE *CAST IRON*	ACCIAI INOSSIDABILI *STAINLESS STEELS*	SUPER LEGHE - TITANIO *SUPERALLOYS - TITANIUM*	LEGHE LEGGERE *LIGHT ALLOYS*	MATERIALI NON FERROSI *NON FERROUS MATERIAL*
▲	▲	►	►	▼	▼

FRESE AD ANGOLO PRISMATICHE

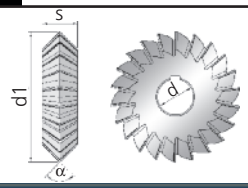
C13

Frese ad angolo prismatiche
DOUBLE EQUAL-ANGLE CUTTERS
FRAISES D'ANGLE PRISMATIQUES
PRISMENFRÄSER
FRESAS DE ANGULO PRISMATICO
FRESAS DE ANGULO PRISMATICO
Фреза дисковая угловая

SERIE C

NORM.

UNI 3907
DIN 847
ISO 6108



HSS-E Co5 | N

CODE	d1 mm js16	α 0°+1°	s mm k11	d mm H7	Z	Co 5% €
C13/01	56		10	16	24	•
C13/02	63	45°	12	22	22	•
C13/03	80		16	22	26	•
C13/04	100		18	27	30	•
C13/05	56		12	16	22	•
C13/06	63	60°	16	22	20	•
C13/07	80		20	22	24	•
C13/08	100		25	27	26	•
C13/09	56		14	16	22	•
C13/10	63	90°	18	22	20	•
C13/11	80		22	22	22	•
C13/12	100		28	27	24	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

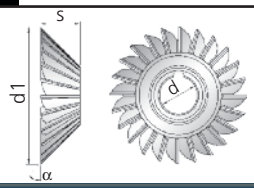
▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE FRONTALI AD ANGOLO

SERIE C

C14

Frese frontali ad angolo
SINGLE ANGLE CUTTERS
FRAISES FRONTALES D'ANGLE
WINKELSTIRNFRÄSER
FRESAS FRONTALES D'ANGULO
FRESAS DE ANGULO FRONTAIS
ФРЕЗА ТОРЦЕВАЯ С ОБРАТНЫМ КОНУСОМ



HSS-E Co5 | N

NORM.
UNI 3908
DIN 842A

CODE	d1 mm js16	α ±25'	s mm k16	d mm H7	Z	Co 5% €
C14/01	40		12	10	18	•
C14/02	50		15	13	20	•
C14/03	63	45°	18	16	20	•
C14/04	80		23	22	24	•
C14/05	100		30	27	24	•
C14/08	40		13	10	16	•
C14/09	50		16	13	18	•
C14/10	63	50°	20	16	20	•
C14/11	80		25	22	22	•
C14/12	100		32	27	26	•
C14/15	40		13	10	18	•
C14/16	50		16	13	18	•
C14/17	63	60°	20	16	18	•
C14/18	80		25	22	20	•
C14/19	100		32	27	22	•

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

Catalogo HSS-E e PM

SERIE E-F

FRESE PER SGROSSATURA E SEMIFINITURA

ROUGHING AND SEMIFINISHING END MILLS

Rime
UTENSILERIA

INDEX

SERIE E-F

FRESE PER SGROSSATURA E SEMIFINITURA
ROUGHING AND SEMIFINISHING END MILLS

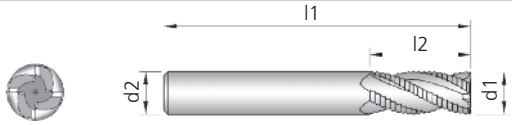
FRESE PER SGROSSATURA • SERIE NORMALE

E0

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo cilindrico
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Straight shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Queue cylindrique
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Mango cilindrico
FRESAS DE DESBASTE FRONTAL - Fresa cilindrica sem corte ao centro com quebra-apara - Encabadouro cilindrico
Фреза концевая для черновой обработки. Цилиндрический хвостовик. Средняя серия

SERIE E-F

NORM.



HSS-E Co8 | NR | ≈ 30° | DIN 1835 A

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E0/01	6	16	60	6	3	•
E0/02	8	22	64	10	4	•
E0/03	10	28	70	10	4	•
E0/04	12	32	80	12	4	•
E0/05	14	32	80	12	4	•
E0/06	15	36	90	16	4	•
E0/07	16	36	90	16	4	•
E0/08	18	40	100	16	4	•
E0/09	20	45	110	20	4	•
E0/10	22	45	110	20	4	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

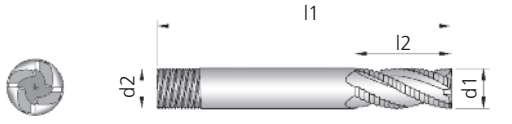
FRESE PER SGROSSATURA • SERIE NORMALE

E1

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo cilindrico filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Threaded shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Queue cylindrique filetée
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Mango cilindrico roscado
FRESAS DE DESBASTE FRONTAL - Fresa cilindrica sem corte ao centro com quebra-apar - Encabadouro cilindrico roscado
Фреза концевая для черновой обработки. Цилиндрический хвостовик с резьбой. Средняя серия

SERIE E-F

NORM.



HSS-E Co8 | NR | ≈ 30° | DIN 1835-D

SHORT NORMAL LONG EXTRA-LONG

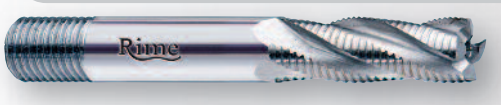
CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E1/01	6	16	60	6	3	•
E1/02	8	22	64	10	4	•
E1/03	10	28	70	10	4	•
E1/04	12	32	80	12	4	•
E1/05	14	32	80	12	4	•
E1/06	15	36	90	16	4	•
E1/07	16	36	90	16	4	•
E1/08	18	40	100	16	4	•
E1/09	20	45	110	20	4	•
E1/10	22	45	110	20	4	•
E1/11	24	45	120	25	5	•
E1/12	25	50	125	25	5	•
E1/13	26	50	125	25	5	•
E1/14	28	50	125	25	5	•
E1/15	30	63	135	25	5	•
E1/16	32	63	145	32	5	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED



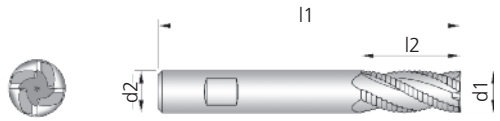
FRESE PER SGROSSATURA • SERIE NORMALE

SERIE E-F

E2

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Attacco Weldon
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Weldon shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Weldon
FRESAS FRONTAIS PARA DESBASTE - Fresa sem corte ao centro com quebra-apara - Encabadouro Weldon
Фреза концевая для черновой обработки. Хвостовик Weldon. Средняя серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | NR | ≈30° | DIN 1835 B

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E2/01	6	16	60	6	3	•
E2/02	8	22	64	10	4	•
E2/03	10	28	70	10	4	•
E2/04	12	32	80	12	4	•
E2/05	14	32	80	12	4	•
E2/06	15	36	90	16	4	•
E2/07	16	36	90	16	4	•
E2/08	18	40	100	16	4	•
E2/09	20	45	110	20	4	•
E2/10	22	45	110	20	4	•
E2/11	24	45	120	25	5	•
E2/12	25	50	125	25	5	•
E2/13	26	50	125	25	5	•
E2/14	28	50	125	25	5	•
E2/15	30	63	135	25	5	•
E2/16	32	63	145	32	5	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SGROSSATURA • SERIE LUNGA

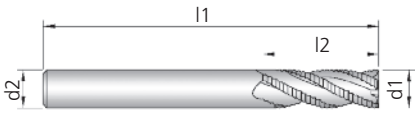
E4

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo cilindrico
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Straight shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Queue cylindrique
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zylinderschaft
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Mango cilindrico
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa sem corte ao centro com quebra-apara - Encabadouro cilindrico
Фреза концевая для черновой обработки. Цилиндрический хвостовик. Удлиненная серия

SERIE E-F

NORM.

STANDARD Rime



HSS-E Co8 | NR | ≈ 30° | DIN 1835 A | ~0,3xd

SHORT NORMAL LONG EXTRA-LONG

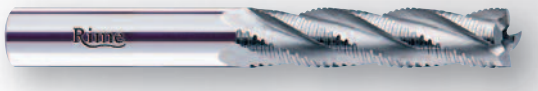
CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E4/01	8	35	85	10	4	•
E4/02	10	42	90	10	4	•
E4/03	12	48	95	12	4	•
E4/04	14	48	100	12	4	•
E4/05	15	54	104	16	4	•
E4/06	16	54	104	16	4	•
E4/07	18	60	120	16	4	•
E4/08	20	62	128	20	4	•
E4/09	22	64	130	20	4	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED



FRESE PER SGROSSATURA • SERIE LUNGA

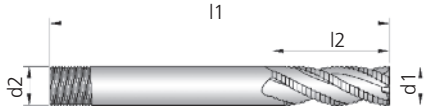
E5

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo cilindrico filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Threaded shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Queue cylindrique filetée
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa sem corte ao centro com quebra-apara - Encabadouro cilindrico roscado
Фреза концевая для черновой обработки. Цилиндрический хвостовик с резьбой. Удлиненная серия

SERIE E-F

NORM.

STANDARD Rime



HSS-E Co8 | NR | ≈ 30° | DIN 1835-D | ~0,3xd

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E5/01	8	35	85	10	4	•
E5/02	10	42	90	10	4	•
E5/03	12	48	95	12	4	•
E5/04	14	48	100	12	4	•
E5/05	15	54	104	16	4	•
E5/06	16	54	104	16	4	•
E5/07	18	60	120	16	4	•
E5/08	20	62	128	20	4	•
E5/09	22	64	130	20	4	•
E5/10	24	66	135	25	5	•
E5/11	25	70	145	25	5	•
E5/12	28	70	145	25	5	•
E5/13	30	80	155	25	5	•
E5/14	32	80	160	32	5	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

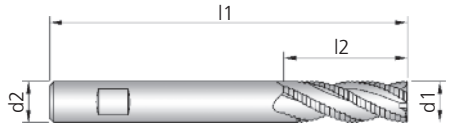
FRESE PER SGROSSATURA • SERIE LUNGA

SERIE E-F

E6

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Attacco Weldon
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Weldon shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Weldon
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa sem corte ao centro com quebra-apara - Weldon
Фреза концевая для черновой обработки. Хвостовик Weldon. Удлиненная серия

SHORT · NORMAL · LONG · EXTRA-LONG



HSS-E Co8 · NR · ≈30° · DIN 1835 B · ~0,3xd

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E6/01	8	35	85	10	4	•
E6/02	10	42	90	10	4	•
E6/03	12	48	95	12	4	•
E6/04	14	48	100	12	4	•
E6/05	15	54	104	16	4	•
E6/06	16	54	104	16	4	•
E6/07	18	60	120	16	4	•
E6/08	20	62	128	20	4	•
E6/09	22	64	130	20	4	•
E6/10	24	66	135	25	5	•
E6/11	25	70	145	25	5	•
E6/12	28	70	145	25	5	•
E6/13	30	80	155	25	5	•
E6/14	32	80	160	32	5	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SGROSSATURA • SERIE NORMALE

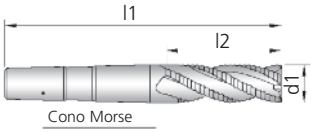
E7

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa sem corte ao centro com quebra-apara - Encabadouro cone Morse con taladro roscado
Фреза концевая для черновой обработки. Хвостовик конус Морзе с резьбой. Средняя серия

SERIE E-F

NORM.

STANDARD Rime



HSS-E Co8 | NR | ≈30° | DIN 228-A

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
E7/01	16	36	115	2	4	•
E7/02	18	40	120	2	4	•
E7/03	20	45	125	2	4	•
E7/04	22	45	125	2	4	•
E7/05	24	50	150	3	5	•
E7/06	25	50	150	3	5	•
E7/07	26	56	155	3	5	•
E7/08	28	56	155	3	5	•
E7/09	30	63	165	3	5	•
E7/10	32	63	188	4	5	•
E7/11	34	70	195	4	5	•
E7/12	35	70	195	4	6	•
E7/13	36	70	195	4	6	•
E7/14	38	70	195	4	6	•
E7/15	40	70	195	4	6	•
E7/16	45	80	205	4	6	•
E7/17	50	90	215	4	7	•
E7/18	50	90	250	5	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

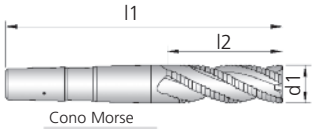
FRESE PER SGROSSATURA • SERIE LUNGA

SERIE E-F

E8

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa sem corte ao centro com quebra-apara - Encabadouro cone Morse
Фреза концевая для черновой обработки. Хвостовик конус Морзе с резьбой. Удлиненная серия

SHORT · NORMAL · LONG · EXTRA-LONG



HSS-E Co8 · NR · ≈ 30° · DIN 228-A · ~0,3xd

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
E8/01	16	55	140	2	4	•
E8/02	18	60	145	2	4	•
E8/03	20	65	148	2	4	•
E8/04	22	65	166	3	4	•
E8/05	24	70	171	3	5	•
E8/06	25	70	171	3	5	•
E8/07	26	70	176	3	5	•
E8/08	28	80	186	3	5	•
E8/09	30	85	210	4	5	•
E8/10	32	90	215	4	5	•
E8/11	34	90	215	4	5	•
E8/12	35	90	215	4	6	•
E8/13	36	90	215	4	6	•
E8/14	38	95	220	4	6	•
E8/15	40	95	220	4	6	•
E8/16	45	100	225	4	6	•
E8/17	50	110	235	4	7	•
E8/18	50	120	275	5	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SGROSSATURA • SERIE NORMALE

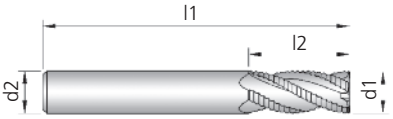
E10

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo cilindrico
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Straight shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue cylindrique
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango cilindrico
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa com corte ao centro com quebra-apara - Encabadouro cilindrico
Фреза концевая для черновой обработки. Режущий торец. Цилиндрический хвостовик. Средняя серия

SERIE **E-F**

NORM.	
UNI	8244
DIN	844A
ISO	1641/I

Z4



HSS-E Co8 | NR | ≅ 30° | DIN 1835 A

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E10/01	6	13	57	6	3	•
E10/02	8	19	69	10	4	•
E10/03	10	22	72	10	4	•
E10/04	12	26	83	12	4	•
E10/05	14	26	83	12	4	•
E10/06	15	32	92	16	4	•
E10/07	16	32	92	16	4	•
E10/08	18	32	92	16	4	•
E10/09	20	38	104	20	4	•
E10/10	22	38	104	20	4	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

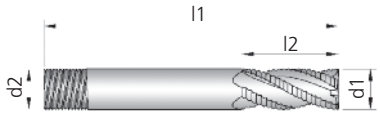
FRESE PER SGROSSATURA • SERIE NORMALE

SERIE E-F

E11

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo cilindrico filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Threaded shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue cylindrique filetée
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa com corte ao centro com quebra-apara - Encabadouro cilindrico roscado
Фреза концевая для черновой обработки. Режущий торец. Цилиндрический хвостовик с резьбой. Средняя серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | NR | ≈30° | DIN 1835-D

NORM.

UNI	8244
DIN	844D
ISO	1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E11/01	6	13	57	6	3	•
E11/02	8	19	69	10	4	•
E11/03	10	22	72	10	4	•
E11/04	12	26	83	12	4	•
E11/05	14	26	83	12	4	•
E11/06	15	32	92	16	4	•
E11/07	16	32	92	16	4	•
E11/08	18	32	92	16	4	•
E11/09	20	38	104	20	4	•
E11/10	22	38	104	20	4	•
E11/11	24	45	121	25	5	•
E11/12	25	45	121	25	5	•
E11/13	26	45	121	25	5	•
E11/14	28	45	121	25	5	•
E11/15	30	45	121	25	5	•
E11/16	32	53	133	32	5	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SGROSSATURA • SERIE NORMALE

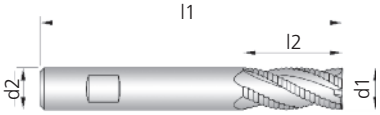
E12

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon-Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa com corte ao centro com quebra-apara - Encabadouro Weldon
Фреза концевая для черновой обработки. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE E-F

NORM.

UNI 8244
DIN 844B
ISO 1641/I



HSS-E Co8 | NR | 30° | DIN 1835 B

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
E12/00	5	13	57	6	3	26,92	•
E12/01	6	13	57	6	3	25,75	•
E12/02	7	16	66	10	3	39,31	•
E12/03	8	19	69	10	4	38,02	•
E12/04	9	19	69	10	4	39,31	•
E12/05	10	22	72	10	4	38,02	•
E12/06	11	22	79	12	4	44,11	•
E12/07	12	26	83	12	4	42,32	•
E12/08	13	26	83	12	4	49,59	•
E12/09	14	26	83	12	4	47,66	•
E12/10	15	32	92	16	4	58,44	•
E12/11	16	32	92	16	4	55,48	•
E12/12	17	32	92	16	4	60,64	•
E12/13	18	32	92	16	4	58,72	•
E12/13/1	19	38	104	20	4	76,40	•
E12/14	20	38	104	20	4	72,52	•
E12/15	22	38	104	20	4	81,38	•
E12/16	24	45	121	25	5	120,67	•
E12/17	25	45	121	25	5	117,23	•
E12/18	26	45	121	25	5	127,32	•
E12/19	28	45	121	25	5	133,80	•
E12/20	30	45	121	25	5	144,48	•
E12/21	32	53	133	32	5	168,10	•
E12/22	36	53	133	32	6	199,59	•
E12/23	40	63	143	32	6	235,43	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER SGROSSATURA • SERIE LUNGA

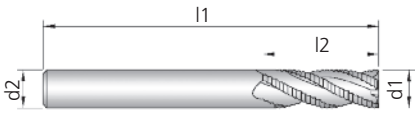
SERIE E-F

E13

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo cilindrico
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Straight shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue cylindrique
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango cilíndrico
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa com corte ao centro com quebra-apara - Encabadouro cilindrico
Фреза концевая для черновой обработки. Режущий торец. Цилиндрический хвостовик. Удлиненная серия

SHORT · NORMAL · LONG · EXTRA-LONG

Z4



HSS-E Co8 · NR · ≈30° · DIN 1835 A · ~0,3xd

NORM.

UNI	8245
DIN	844A
ISO	1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E13/01	8	38	88	10	4	•
E13/02	10	45	95	10	4	•
E13/03	12	53	110	12	4	•
E13/04	14	53	110	12	4	•
E13/05	15	63	123	16	4	•
E13/06	16	63	123	16	4	•
E13/07	18	63	123	16	4	•
E13/08	20	75	141	20	4	•
E13/09	22	75	141	20	4	•
						•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

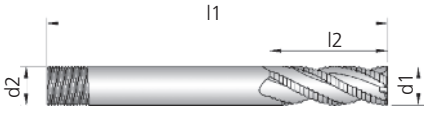
FRESE PER SGROSSATURA • SERIE LUNGA

SERIE E-F

E14

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo cilindrico fielttato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Threaded shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue cylindrique filetée
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa com corte ao centro com quebra-apara - Encabadouro roscado
Фреза концевая для черновой обработки. Режущий торец. Цилиндрический хвостовик с резьбой. Удлиненная серия.

SHORT · NORMAL · LONG · EXTRA-LONG



HSS-E Co8 · NR · ≈30° · DIN 1835-D · ~0,3xd

NORM.

UNI	8245
DIN	844D
ISO	1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
E14/01	8	38	88	10	4	•
E14/02	10	45	95	10	4	•
E14/03	12	53	110	12	4	•
E14/04	14	53	110	12	4	•
E14/05	15	63	123	16	4	•
E14/06	16	63	123	16	4	•
E14/07	18	63	123	16	4	•
E14/08	20	75	141	20	4	•
E14/09	22	75	141	20	4	•
E14/10	24	90	166	25	5	•
E14/11	25	90	166	25	5	•
E14/12	28	90	166	25	5	•
E14/13	30	90	166	25	5	•
E14/14	32	106	186	32	5	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SGROSSATURA • SERIE LUNGA

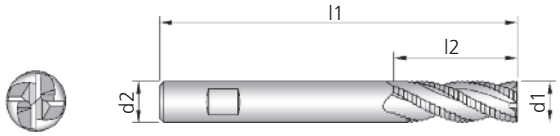
E15

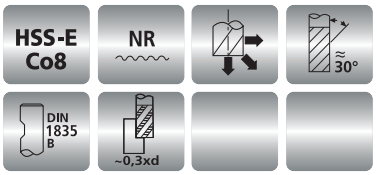
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa com corte ao centro com quebra-apara - Encabadouro Weldon
Фреза концевая для черновой обработки. Режущий торец. Хвостовик Weldon. Удлиненная серия

SERIE E-F

NORM.

UNI 8245
DIN 844B
ISO 1641/II



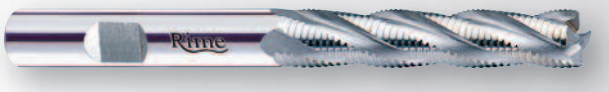


CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
E15/00	6	24	68	6	3	36,24	•
E15/00/1	7	30	80	10	3	53,65	•
E15/01	8	38	88	10	4	51,73	•
E15/01/1	9	45	95	10	4	54,96	•
E15/02	10	45	95	10	4	52,33	•
E15/02/1	11	53	110	12	4	65,22	•
E15/03	12	53	110	12	4	61,97	•
E15/03/1	13	53	110	12	4	68,51	•
E15/04	14	53	110	12	4	64,51	•
E15/05	15	63	123	16	4	75,07	•
E15/06	16	63	123	16	4	75,07	•
E15/06/1	17	63	123	16	4	86,98	•
E15/07	18	63	123	16	4	82,37	•
E15/08	20	75	141	20	4	96,78	•
E15/09	22	75	141	20	4	114,76	•
E15/10	24	90	166	25	5	159,29	•
E15/11	25	90	166	25	5	159,29	•
E15/12	28	90	166	25	5	180,72	•
E15/13	30	90	166	25	5	202,02	•
E15/14	32	106	186	32	5	246,86	•
E15/15	36	106	186	32	6	294,02	•
E15/16	40	125	205	32	6	354,35	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED



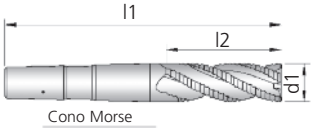
FRESE PER SGROSSATURA • SERIE NORMALE

SERIE E-F

E16

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Fresa com corte ao centro com quebra-apara - Encabadouro cone Morse
Фреза концевая для черновой обработки. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT · NORMAL · LONG · EXTRA-LONG



HSS-E Co8 · NR · ≈30° · DIN 228-A

NORM.

UNI 8250-8251
DIN 845B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €	SUPREME €
E16/01	16	32	117	2	4	•	•
E16/02	18	32	117	2	4	•	•
E16/03	20	38	140	3	4	•	•
E16/04	22	38	140	3	4	•	•
E16/05	24	45	147	3	5	•	•
E16/06	25	45	147	3	5	•	•
E16/07	26	45	147	3	5	•	•
E16/08	28	45	147	3	5	•	•
E16/09	30	53	155	3	5	•	•
E16/10	32	53	178	4	5	•	•
E16/11	34	53	178	4	5	•	•
E16/12	35	53	178	4	6	•	•
E16/13	36	53	178	4	6	•	•
E16/14	38	63	188	4	6	•	•
E16/15	40	63	188	4	6	•	•
E16/16	45	63	188	4	6	•	•
E16/17	50	75	200	4	7	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO / RECOMMENDED
► ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SGROSSATURA • SERIE LUNGA

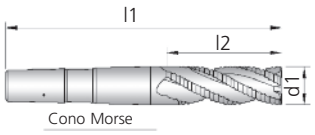
E17

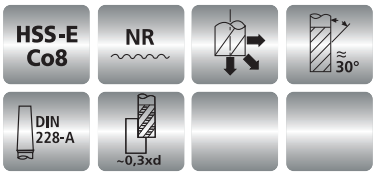
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Fresa com corte ao centro com quebra-apara - Encabadouro cone Morse
Фреза концевая для черновой обработки. Режущий торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SERIE E-F

NORM.

UNI 8250-8251
DIN 845B
ISO 1641/II





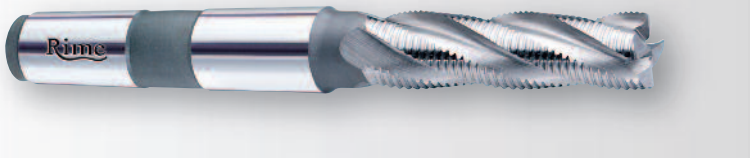
CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €	SUPREME €
E17/01	16	63	148	2	4	•	•
E17/02	18	63	148	2	4	•	•
E17/03	20	75	177	3	4	•	•
E17/04	22	75	177	3	4	•	•
E17/05	24	90	192	3	5	•	•
E17/06	25	90	192	3	5	•	•
E17/07	26	90	192	3	5	•	•
E17/08	28	90	192	3	5	•	•
E17/09	30	90	192	3	5	•	•
E17/10	32	106	231	4	5	•	•
E17/11	34	106	231	4	5	•	•
E17/12	35	106	231	4	6	•	•
E17/13	36	106	231	4	6	•	•
E17/14	38	125	250	4	6	•	•
E17/15	40	125	250	4	6	•	•
E17/16	45	125	250	4	6	•	•
E17/17	50	150	275	4	7	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED



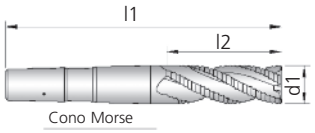
FRESE PER SGROSSATURA • SERIE EXTRA-LUNGA

SERIE E-F

E18

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Fresa com corte ao centro com quebra-apara - Encabadouro cone Morse con taladro roscado
Фреза концевая для черновой обработки. Режущий торец. Хвостовик конус Морзе с резьбой. Ультрадлинная серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | NR | DIN 228-A | ~0,3xd | ≈30°

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
E18/03	20	110	212	3	4	•
E18/04	22	110	212	3	4	•
E18/05	24	125	227	3	5	•
E18/06	25	125	250	4	5	•
E18/07	26	125	250	4	5	•
E18/08	28	135	260	4	5	•
E18/09	30	140	265	4	5	•
E18/10	32	150	275	4	6	•
E18/11	34	150	275	4	6	•
E18/12	35	150	275	4	6	•
E18/13	36	150	275	4	6	•
E18/14	38	180	305	4	6	•
E18/15	40	180	305	4	6	•
E18/16	45	190	315	4	7	•
E18/17	50	200	360	5	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO / RECOMMENDED
► ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SEMIFINITURA • SERIE NORMALE

F0

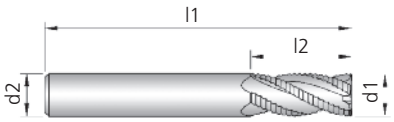
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo cilindrico
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Straight shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Queue cylindrique
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zylinderschaft
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Mango cilindrico
FRESAS CILINDRICAS FRONTAIS PARA SEMI ACABAMENTO - Fresa sem corte ao centro com quebra-apara - Encabadouro cilindrico
Фреза для получистовой обработки со стружколомом. Цилиндрический хвостовик. Средняя серия

SERIE **E-F**

NORM.

STANDARD Rime

Z4



HSS-E Co8 | NF | ≈ 30° | DIN 1835 A

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F0/01	6	16	60	6	3	•
F0/02	8	22	64	10	4	•
F0/03	10	28	70	10	4	•
F0/04	12	32	80	12	4	•
F0/05	14	32	80	12	4	•
F0/06	15	36	90	16	4	•
F0/07	16	36	90	16	4	•
F0/08	18	40	100	16	4	•
F0/09	20	45	110	20	4	•
F0/10	22	45	110	20	4	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

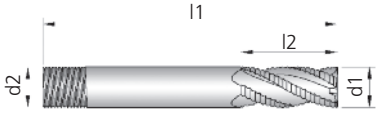
FRESE PER SEMIFINITURA • SERIE NORMALE

SERIE E-F

F1

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo cilindrico filettato
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Threaded shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Queue cylindrique filetée
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS PARA SEMI ACABAMENTO - Fresa sem corte ao centro com quebra-apara - Encabadouro cilindrico roscado
Фреза для получистовой обработки со стружколомом. Цилиндрический хвостовик с резьбой. Средняя серия

SHORT · NORMAL · LONG · EXTRA-LONG



HSS-E Co8 · NF · ≅ 30° · DIN 1835-D

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F1/01	6	16	60	6	3	•
F1/02	8	22	64	10	4	•
F1/03	10	28	70	10	4	•
F1/04	12	32	80	12	4	•
F1/05	14	32	80	12	4	•
F1/06	15	36	90	16	4	•
F1/07	16	36	90	16	4	•
F1/08	18	40	100	16	4	•
F1/09	20	45	110	20	4	•
F1/10	22	45	110	20	4	•
F1/11	24	45	120	25	5	•
F1/12	25	50	125	25	5	•
F1/13	26	50	125	25	5	•
F1/14	28	50	125	25	5	•
F1/15	30	63	135	25	5	•
F1/16	32	63	145	32	5	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SEMIFINITURA • SERIE NORMALE

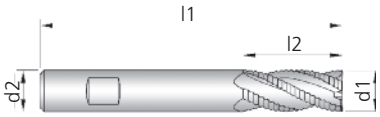
F2

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Attacco Weldon
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Weldon shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Mango Weldon
FRESAS CILINDRICAS FRONTAIS PARA SEMI ACABAMENTO - Fresa sem corte ao centro com quebra-apara - Encabadouro Weldon
Фреза для получистовой обработки со стружколомом. Хвостовик Weldon. Средняя серия

SERIE E-F

NORM.

STANDARD Rime



HSS-E Co8 | NF | 30° | DIN 1835 B

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F2/01	6	16	60	6	3	•
F2/02	8	22	64	10	4	•
F2/03	10	28	70	10	4	•
F2/04	12	32	80	12	4	•
F2/05	14	32	80	12	4	•
F2/06	15	36	90	16	4	•
F2/07	16	36	90	16	4	•
F2/08	18	40	100	16	4	•
F2/09	20	45	110	20	4	•
F2/10	22	45	110	20	4	•
F2/11	24	45	120	25	5	•
F2/12	25	50	125	25	5	•
F2/13	26	50	125	25	5	•
F2/14	28	50	125	25	5	•
F2/15	30	63	135	25	5	•
F2/16	32	63	145	32	5	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER SEMIFINITURA • SERIE LUNGA

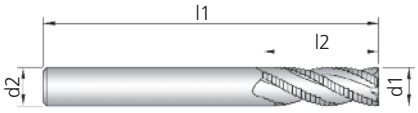
SERIE E-F

F4

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo cilindrico
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Straight shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Queue cylindrique
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zylinderschaft
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Mango cilindrico
FRESAS CILINDRICAS FRONTAIS PARA SEMI ACABAMENTO - Fresa sem corte ao centro com quebra-apara - Encabadouro cilindrico
Фреза для получистовой обработки со стружколомом. Цилиндрический хвостовик. Удлиненная серия

SHORT · NORMAL · LONG · EXTRA-LONG

Z4



HSS-E Co8 · NF · 30° · DIN 1835 A · ~0,3xd

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F4/01	8	35	85	10	4	•
F4/02	10	42	90	10	4	•
F4/03	12	48	95	12	4	•
F4/04	14	48	100	12	4	•
F4/05	15	54	104	16	4	•
F4/06	16	54	104	16	4	•
F4/07	18	60	120	16	4	•
F4/08	20	62	128	20	4	•
F4/09	22	64	130	20	4	•

Toll. reale sul Ø *Real Tol. on Ø* ±0,05

CONSIGLIATO RECOMMENDED · ACCETTABILE ACCEPTABLE · SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SEMIFINITURA • SERIE LUNGA

SERIE E-F

F5

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo cilindrico filettato
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Straight shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Queue cylindrique
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zylinderschaft
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS PARA SEMI ACABAMENTO - Fresa sem corte ao centro com quebra-apara - Encabadouro cilindrico roscado
Фреза для получистовой обработки со стружколомом. Цилиндрический хвостовик с резьбой. Удлиненная серия

SHORT · NORMAL · LONG · EXTRA-LONG

HSS-E Co8 · NF · 30° · DIN 1835-D · ~0,3xd

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F5/01	8	35	85	10	4	•
F5/02	10	42	90	10	4	•
F5/03	12	48	95	12	4	•
F5/04	14	48	100	12	4	•
F5/05	15	54	104	16	4	•
F5/06	16	54	104	16	4	•
F5/07	18	60	120	16	4	•
F5/08	20	62	128	20	4	•
F5/09	22	64	130	20	4	•
F5/10	24	66	135	25	5	•
F5/11	25	70	145	25	5	•
F5/12	28	70	145	25	5	•
F5/13	30	80	155	25	5	•
F5/14	32	80	160	32	5	•

Toll. reale sul Ø *Real Tol. on Ø* ±0,05

CONSIGLIATO RECOMMENDED · ACCETTABILE ACCEPTABLE · SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SEMIFINITURA • SERIE LUNGA

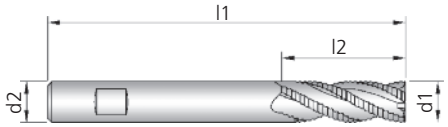
F6

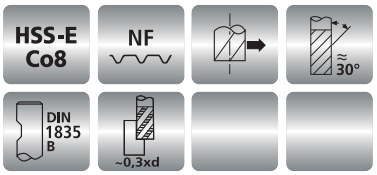
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Attacco Weldon
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Weldon shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat -Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Mango Weldon
FRESAS CILINDRICAS FRONTAIS PARA SEMI ACABAMENTO - Fresa sem corte ao centro com quebra-apara - Encabadouro Weldon
Фреза для получистовой обработки со стружколомом. Хвостовик Weldon. Удлиненная серия

SERIE E-F

NORM.

STANDARD Rime





SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F6/01	8	35	85	10	4	•
F6/02	10	42	90	10	4	•
F6/03	12	48	95	12	4	•
F6/04	14	48	100	12	4	•
F6/05	15	54	104	16	4	•
F6/06	16	54	104	16	4	•
F6/07	18	60	120	16	4	•
F6/08	20	62	128	20	4	•
F6/09	22	64	130	20	4	•
F6/10	24	66	135	25	5	•
F6/11	25	70	145	25	5	•
F6/12	28	70	145	25	5	•
F6/13	30	80	155	25	5	•
F6/14	32	80	160	32	5	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

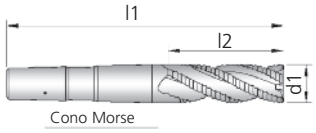
FRESE PER SEMIFINITURA • SERIE NORMALE

SERIE E-F

F7

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo conico Morse con foro filettato
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA SEMI ACABAMENTO - Fresa sem corte ao centro com quebra-apara - Encabadouro cone Morse con taladro roscado
Фреза для получистовой обработки со стружколомом. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT · NORMAL · LONG · EXTRA-LONG



HSS-E Co8 · NF · ≈30° · DIN 228-A

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
F7/01	16	36	115	2	4	•
F7/02	18	40	120	2	4	•
F7/03	20	45	125	2	4	•
F7/04	22	45	125	2	4	•
F7/05	24	50	150	3	5	•
F7/06	25	50	150	3	5	•
F7/07	26	56	155	3	5	•
F7/08	28	56	155	3	5	•
F7/09	30	63	165	3	5	•
F7/10	32	63	188	4	5	•
F7/11	34	70	195	4	5	•
F7/12	35	70	195	4	6	•
F7/13	36	70	195	4	6	•
F7/14	38	70	195	4	6	•
F7/15	40	70	195	4	6	•
F7/16	45	80	205	4	6	•
F7/17	50	90	215	4	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SEMIFINITURA • SERIE LUNGA

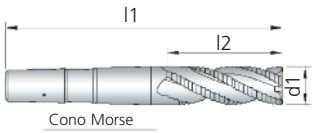
F8

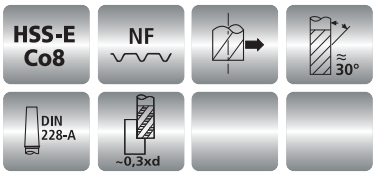
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo conico Morse con foro filettato
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Mango conico Morse taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA SEMIACABAMENTO - Fresa sem corte ao centro com quebra-apara - Encabadouro cone Morse roscado
Фреза для получистовой обработки со стружколомом. Хвостовик конус Морзе с резьбой. Удлиненная серия

SERIE E-F

NORM.

STANDARD Rime





SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
F8/01	16	55	140	2	4	•
F8/02	18	60	145	2	4	•
F8/03	20	65	148	2	4	•
F8/04	22	65	166	3	4	•
F8/05	24	70	171	3	5	•
F8/06	25	70	171	3	5	•
F8/07	26	70	176	3	5	•
F8/08	28	80	186	3	5	•
F8/09	30	85	210	4	5	•
F8/10	32	90	215	4	5	•
F8/11	34	90	215	4	5	•
F8/12	35	90	215	4	6	•
F8/13	36	90	215	4	6	•
F8/14	38	95	220	4	6	•
F8/15	40	95	220	4	6	•
F8/16	45	100	225	4	6	•
F8/17	50	110	235	4	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER SEMIFINITURA • SERIE NORMALE

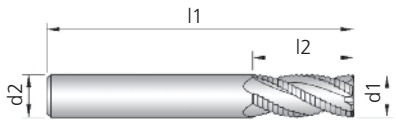
SERIE E-F

F10

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo cilindrico
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Straight shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Deux dents bout coupantes jusq'au centre - Queue cylindrique
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango cilindrico
FRESAS CILINDRICAS FRONTALES PARA SEMIACABAMENTO - Fresa com corte ao centro com quebra-apara - Encabadouro cilindrico
Фреза для получистовой обработки со стружколомом. Режущий торец. Цилиндрический хвостовик. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

Z4



HSS-E Co8 | NF | ≈ 30° | DIN 1835 A

NORM.

UNI	8244
DIN	844A
ISO	1641/II

Toll. reale sul Ø
Real Tol. on Ø
±0,05

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F10/01	6	13	57	6	3	•
F10/02	8	19	69	10	4	•
F10/03	10	22	72	10	4	•
F10/04	12	26	83	12	4	•
F10/05	14	26	83	12	4	•
F10/06	15	32	92	16	4	•
F10/07	16	32	92	16	4	•
F10/08	18	32	92	16	4	•
F10/09	20	38	104	20	4	•
F10/10	22	38	104	20	4	•

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER SEMIFINITURA • SERIE NORMALE

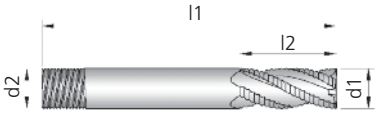
F11

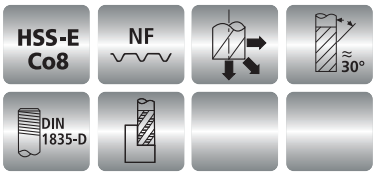
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo cilindrico filettato
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre -Threaded shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat -Deux dents bout coupantes jusq'au centre - Queue cylindrique filetée
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS PARA SEMIACABAMENTO - Fresa com corte ao centro com quebra-apara - Encabadouro cilindrico roscado
Фреза для получистовой обработки со стружколомом. Режущий торец. Цилиндрический хвостовик с резьбой. Средняя серия

SERIE E-F

NORM.

UNI	8244
DIN	844D
ISO	1641/II





CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F11/01	6	13	57	6	3	•
F11/02	8	19	69	10	4	•
F11/03	10	22	72	10	4	•
F11/04	12	26	83	12	4	•
F11/05	14	26	83	12	4	•
F11/06	15	32	92	16	4	•
F11/07	16	32	92	16	4	•
F11/08	18	32	92	16	4	•
F11/09	20	38	104	20	4	•
F11/10	22	38	104	20	4	•
F11/11	24	45	121	25	5	•
F11/12	25	45	121	25	5	•
F11/13	26	45	121	25	5	•
F11/14	28	45	121	25	5	•
F11/15	30	45	121	25	5	•
F11/16	32	53	133	32	5	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

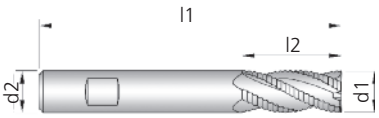
FRESE PER SEMIFINITURA • SERIE NORMALE

SERIE E-F

F12

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS PARA SEMIACABAMENTO - Fresa com corte ao centro com quebra-apara - Encabadouro Weldon
Фреза для получистовой обработки со стружколомом. Режущий торец. Хвостовик Weldon. Средняя серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | NF | 30° | DIN 1835 B

NORM.

UNI 8244
DIN 844B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
F12/01	6	13	57	6	3	•	•
F12/02	7	16	66	10	3	•	•
F12/03	8	19	69	10	4	•	•
F12/04	9	19	69	10	4	•	•
F12/05	10	22	72	10	4	•	•
F12/06	11	22	79	12	4	•	•
F12/07	12	26	83	12	4	•	•
F12/08	13	26	83	12	4	•	•
F12/09	14	26	83	12	4	•	•
F12/10	15	32	92	16	4	•	•
F12/11	16	32	92	16	4	•	•
F12/12	17	32	92	16	4	•	•
F12/13	18	32	92	16	4	•	•
F12/13/1	19	38	104	20	4	•	•
F12/14	20	38	104	20	4	•	•
F12/15	22	38	104	20	4	•	•
F12/16	24	45	121	25	5	•	•
F12/17	25	45	121	25	5	•	•
F12/18	26	45	121	25	5	•	•
F12/19	28	45	121	25	5	•	•
F12/20	30	45	121	25	5	•	•
F12/21	32	53	133	32	5	•	•
F12/22	36	53	133	32	6	•	•
F12/23	40	63	143	32	6	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

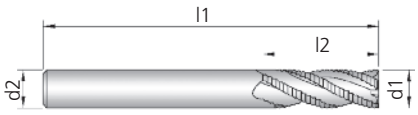
FRESE PER SEMIFINITURA • SERIE LUNGA

F13

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo cilindrico
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Straight shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Deux dents bout coupantes jusq'au centre - Queue cylindrique
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango cilindrico
FRESAS CILINDRICAS FRONTAIS PARA SEMIACABAMENTO - Fresa com corte ao centro com quebra-apara - Encabadouro cilindrico
Фреза для получистовой обработки со стружколомом. Режущий торец. Цилиндрический хвостовик. Удлиненная серия

SERIE E-F

NORM.	
UNI	8254
DIN	844A
ISO	1641/I



HSS-E Co8 | NF | ≈30° | DIN 1835 A | ~0,3xd

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F13/01	8	38	88	10	4	•
F13/02	10	45	95	10	4	•
F13/03	12	53	110	12	4	•
F13/04	14	53	110	12	4	•
F13/05	15	63	123	16	4	•
F13/06	16	63	123	16	4	•
F13/07	18	63	123	16	4	•
F13/08	20	75	141	20	4	•
F13/09	22	75	141	20	4	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABILE
▼ SCONSIGLIATO NOT RECOMMENDED

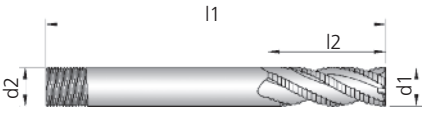
FRESE PER SEMIFINITURA • SERIE LUNGA

F14

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo cilindrico filettato
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Threaded shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat -Deux dents bout coupantes jusq'au centre - Queue cylindrique filetée
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS PARA SEMIACABAMENTO - Fresa com corte ao centro com quebra-apara - Encabadouro cilindrico roscado
Фреза для получистовой обработки со стружколомом. Режущий торец. Цилиндрический хвостовик с резьбой. Удлиненная серия

SERIE E-F

NORM.	
UNI	8254
DIN	844D
ISO	1641/I



HSS-E Co8 | NF | ≈30° | DIN 1835-D | ~0,3xd

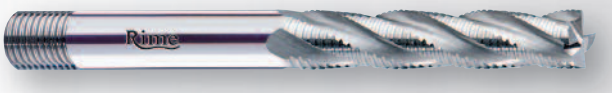
SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
F14/01	8	38	88	10	4	•
F14/02	10	45	95	10	4	•
F14/03	12	53	110	12	4	•
F14/04	14	53	110	12	4	•
F14/05	15	63	123	16	4	•
F14/06	16	63	123	16	4	•
F14/07	18	63	123	16	4	•
F14/08	20	75	141	20	4	•
F14/09	22	75	141	20	4	•
F14/10	24	90	166	25	5	•
F14/11	25	90	166	25	5	•
F14/12	28	90	166	25	5	•
F14/13	30	90	166	25	5	•
F14/14	32	106	186	32	5	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABILE
▼ SCONSIGLIATO NOT RECOMMENDED



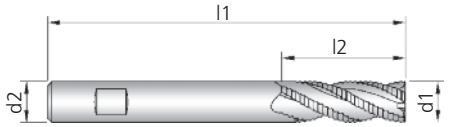
FRESE PER SEMIFINITURA • SERIE LUNGA

SERIE E-F

F15

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS PARA SEMIACABAMENTO - Fresa com corte ao centro com quebra-apara - Encabadouro Weldon
Фреза для получистовой обработки со стружколомом. Режущий торец. Хвостовик Weldon. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | NF | ≈ 30° | DIN 1835 B | ~0,3xd

NORM.

UNI 8245
DIN 844B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
F15/00	6	24	68	6	3	•	•
F15/00/1	7	30	80	10	3	•	•
F15/01	8	38	88	10	4	•	•
F15/01/1	9	45	95	10	4	•	•
F15/02	10	45	95	10	4	•	•
F15/02/1	11	53	110	12	4	•	•
F15/03	12	53	110	12	4	•	•
F15/03/1	13	53	110	12	4	•	•
F15/04	14	53	110	12	4	•	•
F15/05	15	63	123	16	4	•	•
F15/06	16	63	123	16	4	•	•
F15/06/1	17	63	123	16	4	•	•
F15/07	18	63	123	16	4	•	•
F15/08	20	75	141	20	4	•	•
F15/09	22	75	141	20	4	•	•
F15/10	24	90	166	25	5	•	•
F15/11	25	90	166	25	5	•	•
F15/12	28	90	166	25	5	•	•
F15/13	30	90	166	25	5	•	•
F15/14	32	106	186	32	5	•	•
F15/15	36	106	186	32	6	•	•
F15/16	40	125	205	32	6	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI *STEELS*	GHISE *CAST IRON*	ACCIAI INOSSIDABILI *STAINLESS STEELS*	SUPER LEGHE - TITANIO *SUPERALLOYS - TITANIUM*	LEGHE LEGGERE *LIGHT ALLOYS*	MATERIALI NON FERROSI *NON FERROUS MATERIAL*
▲	▲	►	►	▼	▼

FRESE PER SEMIFINITURA • SERIE NORMALE

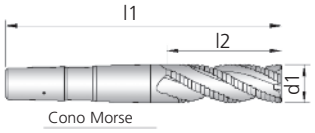
F16

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat -Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA SEMIACABAMENTO - Fresa com corte ao centro com quebra-apara - Encabadouro cone Morse con taladro roscado
Фреза для получистовой обработки со стружколомом. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SERIE E-F

NORM.

UNI 8250-8251
DIN 845B
ISO 1641/II



HSS-E Co8 | NF | ≈30° | DIN 228-A

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €	SUPREME €
F16/01	16	32	117	2	4	•	•
F16/02	18	32	117	2	4	•	•
F16/03	20	38	140	3	4	•	•
F16/04	22	38	140	3	4	•	•
F16/05	24	45	147	3	5	•	•
F16/06	25	45	147	3	5	•	•
F16/07	26	45	147	3	5	•	•
F16/08	28	45	147	3	5	•	•
F16/09	30	53	155	3	5	•	•
F16/10	32	53	178	4	5	•	•
F16/11	34	53	178	4	5	•	•
F16/12	35	53	178	4	6	•	•
F16/13	36	53	178	4	6	•	•
F16/14	38	63	188	4	6	•	•
F16/15	40	63	188	4	6	•	•
F16/16	45	63	188	4	6	•	•
F16/17	50	75	200	4	7	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

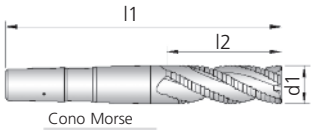
FRESE PER SEMIFINITURA • SERIE LUNGA

SERIE E-F

F17

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat -Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA SEMIACABAMENTO - Fresa com corte ao centro com quebra-apara - Encabadouro cone Morse con taladro roscado
Фреза для получистовой обработки со стружколомом. Режущий торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | NF | ≈30° | DIN 228-A | ~0,3xd

NORM.

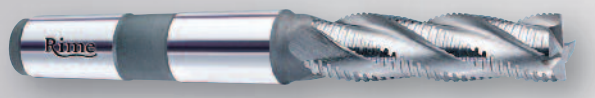
UNI 8250-8251
DIN 845B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €	SUPREME €
F17/01	16	63	148	2	4	•	•
F17/02	18	63	148	2	4	•	•
F17/03	20	75	177	3	4	•	•
F17/04	22	75	177	3	4	•	•
F17/05	24	90	192	3	5	•	•
F17/06	25	90	192	3	5	•	•
F17/07	26	90	192	3	5	•	•
F17/08	28	90	192	3	5	•	•
F17/09	30	90	192	3	5	•	•
F17/10	32	106	231	4	5	•	•
F17/11	34	106	231	4	5	•	•
F17/12	35	106	231	4	6	•	•
F17/13	36	106	231	4	6	•	•
F17/14	38	125	250	4	6	•	•
F17/15	40	125	250	4	6	•	•
F17/16	45	125	250	4	6	•	•
F17/17	50	150	275	4	7	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼



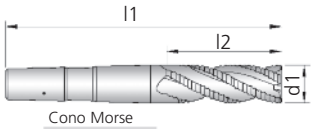
FRESE PER SEMIFINITURA • SERIE EXTRA-LUNGA

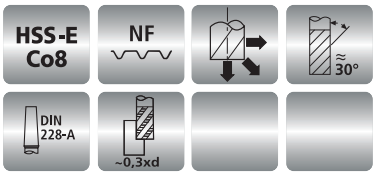
F18

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING AND SEMIFINISHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES ÉBAUCHE - SEMI FINITION - Denture hélicoïdale avec brise-copeaux profil plat -Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA SEMIACABADO - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA SEMIACABAMENTO - Fresa com corte ao centro com quebra-apara - Encabadouro cone Morse con taladro roscado
Фреза для получистовой обработки со стружколомом. Режущий торец. Хвостовик конус Морзе с резьбой. Ультрадлинная серия

SERIE E-F

NORM.





CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
F18/03	20	110	212	3	4	•
F18/04	22	110	212	3	4	•
F18/05	24	125	227	3	5	•
F18/06	25	125	250	4	5	•
F18/07	26	125	250	4	5	•
F18/08	28	135	260	4	5	•
F18/09	30	140	265	4	5	•
F18/10	32	150	275	4	6	•
F18/11	34	150	275	4	6	•
F18/12	35	150	275	4	6	•
F18/13	36	150	275	4	6	•
F18/14	38	180	305	4	6	•
F18/15	40	180	305	4	6	•
F18/16	45	190	315	4	7	•
F18/17	50	200	360	5	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

Catalogo HSS-E e PM

SERIE G

FRESE PER FINITURA

FINISHING END MILLS

Rime
UTENSILERIA

INDEX

SERIE G

FRESE PER FINITURA
FINISHING END MILLS

FRESE PER FINITURA • SERIE NORMALE

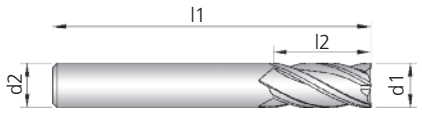
G0

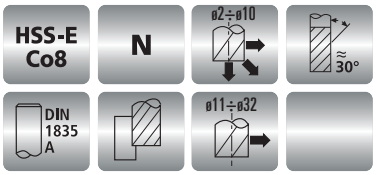
Codolo cilindrico
END MILLS - Straight shank
FRAISES À CYLINDRES - Queue cylindrique
SCHAFTFRÄSER - Zylinderschaft
FRESAS CILINDRICAS FRONTALES - Mango cilindrico
FRESAS FRONTAIS - Encabadouro cilindrico
Фреза концевая для чистовой обработки. Цилиндрический хвостовик. Средняя серия

SERIE G

NORM.

UNI 8244
DIN 844A
ISO 1641/I

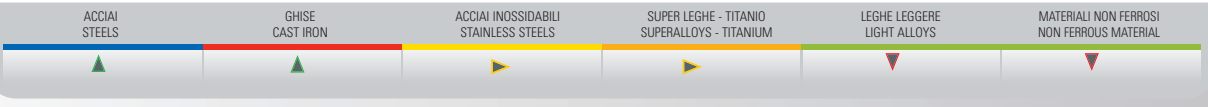




CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
G0/01	2	7	51	6	4	•
G0/02	2.5	8	52	6	4	•
G0/03	3	8	52	6	4	•
G0/04	3.5	10	54	6	4	•
G0/05	4	11	55	6	4	•
G0/06	4.5	11	55	6	4	•
G0/07	5	13	57	6	4	•
G0/08	5.5	13	57	6	4	•
G0/09	6	13	57	6	4	•
G0/10	6.5	16	66	10	4	•
G0/11	7	16	66	10	4	•
G0/12	8	19	69	10	4	•
G0/13	9	19	69	10	4	•
G0/14	10	22	72	10	4	•
G0/15	11	22	79	12	4	•
G0/16	12	26	83	12	4	•
G0/17	13	26	83	12	4	•
G0/18	14	26	83	12	4	•
G0/19	15	32	92	16	4	•
G0/20	16	32	92	16	4	•
G0/21	17	32	92	16	4	•
G0/22	18	32	92	16	4	•
G0/23	19	38	104	20	4	•
G0/24	20	38	104	20	4	•
G0/25	22	38	104	20	4	•
G0/26	24	45	121	25	5	•
G0/27	25	45	121	25	5	•
G0/28	26	45	121	25	5	•
G0/29	28	45	121	25	5	•
G0/30	30	45	121	25	6	•
G0/31	32	53	133	32	6	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03



▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER FINITURA • SERIE NORMALE

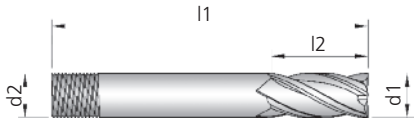
SERIE G

G1

Codolo cilindrico filettato
END MILLS - Threaded shank
FRAISES À CYLINDRES - Queue cylindrique filetée
SCHAFTFRÄSER - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES - Mango cilindrico roscado
FRESAS FRONTAIS - Encabadouro cilindrico roscado
Фреза концевая для чистовой обработки. Цилиндрический хвостовик с резьбой. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

ø2÷ø10
ø11÷ø32



HSS-E Co8 | N | ø2÷ø10 | ≈30° | DIN 1835-D | ø11÷ø32

NORM.

UNI 8246
DIN 844D
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
G1/01	2	7	51	6	4	•
G1/02	2.5	8	52	6	4	•
G1/03	3	8	52	6	4	•
G1/04	3.5	10	54	6	4	•
G1/05	4	11	55	6	4	•
G1/06	4.5	11	55	6	4	•
G1/07	5	13	57	6	4	•
G1/08	5.5	13	57	6	4	•
G1/09	6	13	57	6	4	•
G1/10	6.5	16	66	10	4	•
G1/11	7	16	66	10	4	•
G1/12	8	19	69	10	4	•
G1/13	9	19	69	10	4	•
G1/14	10	22	72	10	4	•
G1/15	11	22	79	12	4	•
G1/16	12	26	83	12	4	•
G1/17	13	26	83	12	4	•
G1/18	14	26	83	12	4	•
G1/19	15	32	92	16	4	•
G1/20	16	32	92	16	4	•
G1/21	17	32	92	16	4	•
G1/22	18	32	92	16	4	•
G1/23	19	38	98	16	4	•
G1/24	20	38	98	16	4	•
G1/25	22	38	104	20	4	•
G1/26	24	45	121	25	5	•
G1/27	25	45	121	25	5	•
G1/28	26	45	121	25	5	•
G1/29	28	45	121	25	5	•
G1/30	30	45	121	25	6	•
G1/31	32	53	133	32	6	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER FINITURA • SERIE NORMALE

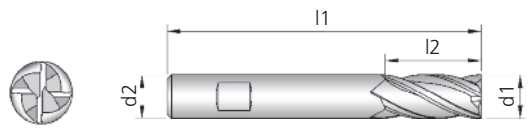
G2

Due denti frontali taglienti fino al centro - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - Weldon shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS FRONTAIS - Duas navalhas que cortam ao centro - Encabadouro Weldon
Фреза концевая для чистовой обработки. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE G

NORM.

UNI 8248
DIN 844B
ISO 1641/I



HSS-E Co8 | N | DIN 1835 B | ≈ 30°

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
G2/01	2	7	51	6	4	•	•
G2/02	2.5	8	52	6	4	•	•
G2/03	3	8	52	6	4	•	•
G2/04	3.5	10	54	6	4	•	•
G2/05	4	11	55	6	4	•	•
G2/06	4.5	11	55	6	4	•	•
G2/07	5	13	57	6	4	•	•
G2/08	5.5	13	57	6	4	•	•
G2/09	6	13	57	6	4	•	•
G2/10	6.5	16	66	10	4	•	•
G2/11	7	16	66	10	4	•	•
G2/12	8	19	69	10	4	•	•
G2/12/1	8.5	19	69	10	4	•	•
G2/13	9	19	69	10	4	•	•
G2/14	10	22	72	10	4	•	•
G2/14/1	10.5	22	79	12	4	•	•
G2/15	11	22	79	12	4	•	•
G2/16	12	26	83	12	4	•	•
G2/17	13	26	83	12	4	•	•
G2/18	14	26	83	12	4	•	•
G2/19	15	32	92	16	4	•	•
G2/20	16	32	92	16	4	•	•
G2/21	17	32	92	16	4	•	•
G2/22	18	32	92	16	4	•	•
G2/23	19	38	104	20	4	•	•
G2/24	20	38	104	20	4	•	•
G2/25	22	38	104	20	4	•	•
G2/26	24	45	121	25	5	•	•
G2/27	25	45	121	25	5	•	•
G2/28	26	45	121	25	5	•	•
G2/29	28	45	121	25	5	•	•
G2/30	30	45	121	25	6	•	•
G2/31	32	53	133	32	6	•	•
G2/32	36	53	133	32	6	•	•
G2/33	40	63	143	32	8	•	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER FINITURA • SERIE LUNGA

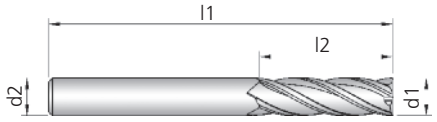
SERIE G

G3

Codolo cilindrico
END MILLS - Straight shank
FRAISES À CYLINDRES - Queue cylindrique
SCHAFTFRÄSER - Zylinderschaft
FRESAS CILINDRICAS FRONTALES - Mango cilindrico
FRESAS CILINDRICAS FRONTAIS - Encabadouro cilindrico
Фреза концевая для чистовой обработки. Цилиндрический хвостовик. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

ø2÷ø10
ø11÷ø32



HSS-E Co8 | N | ø2÷ø10 | ≈30° | DIN 1835 A | | ø11÷ø32 |

NORM.

UNI 8245
DIN 844A
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
G3/01	2	10	54	6	4	•
G3/02	3	12	56	6	4	•
G3/03	4	19	63	6	4	•
G3/04	5	24	68	6	4	•
G3/05	6	24	68	6	4	•
G3/06	7	30	80	10	4	•
G3/07	8	38	88	10	4	•
G3/08	10	45	95	10	4	•
G3/09	12	53	110	12	4	•
G3/10	14	53	110	12	4	•
G3/10/1	15	63	123	16	4	•
G3/11	16	63	123	16	4	•
G3/12	18	63	123	16	4	•
G3/13	20	75	141	20	4	•
G3/14	22	75	141	20	4	•
G3/15	24	90	166	25	5	•
G3/16	25	90	166	25	5	•
G3/17	26	90	166	25	5	•
G3/18	28	90	166	25	5	•
G3/19	30	90	166	25	6	•
G3/20	32	106	186	32	6	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER FINITURA • SERIE LUNGA

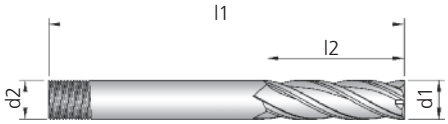
G4

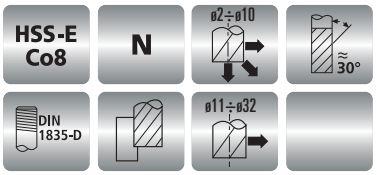
Codolo cilindrico filettato
END MILLS - Threaded shank
FRAISES À CYLINDRES - Queue cylindrique filetée
SCHAFTFRÄSER - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS - Encabadouro cilindrico roscado
Фреза концевая для чистовой обработки. Цилиндрический хвостовик с резьбой. Удлиненная серия

SERIE G

NORM.

UNI 8247
DIN 844D
ISO 1641/I





CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
G4/01	2	10	54	6	4	•
G4/02	3	12	56	6	4	•
G4/03	4	19	63	6	4	•
G4/04	5	24	68	6	4	•
G4/05	6	24	68	6	4	•
G4/06	7	30	80	10	4	•
G4/07	8	38	88	10	4	•
G4/08	10	45	95	10	4	•
G4/09	12	53	110	12	4	•
G4/10	14	53	110	12	4	•
G4/10/1	15	63	123	16	4	•
G4/11	16	63	123	16	4	•
G4/12	18	63	123	16	4	•
G4/13	20	75	141	20	4	•
G4/14	22	75	141	20	4	•
G4/15	24	90	166	25	5	•
G4/16	25	90	166	25	5	•
G4/17	26	90	166	25	5	•
G4/18	28	90	166	25	5	•
G4/19	30	90	166	25	6	•
G4/20	32	106	186	32	6	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

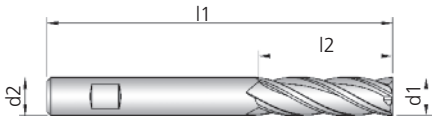
FRESE PER FINITURA • SERIE LUNGA

SERIE G

G5

Due denti frontali taglienti fino al centro - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - Weldon shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas que cortam ao centro longa - Encabadouro Weldon
Фреза концевая для чистовой обработки. Режущий торец. Хвостовик Weldon. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | N | ≈30° | DIN 1835 B

NORM.

UNI	8249
DIN	844B
ISO	1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
G5/01	2	10	54	6	4	•	•
G5/02	3	12	56	6	4	•	•
G5/03	4	19	63	6	4	•	•
G5/04	5	24	68	6	4	•	•
G5/05	6	24	68	6	4	•	•
G5/06	7	30	80	10	4	•	•
G5/07	8	38	88	10	4	•	•
G5/07/1	9	45	95	10	4	•	•
G5/08	10	45	95	10	4	•	•
G5/08/1	11	53	110	12	4	•	•
G5/09	12	53	110	12	4	•	•
G5/09/1	13	53	110	12	4	•	•
G5/10	14	53	110	12	4	•	•
G5/10/1	15	63	123	16	4	•	•
G5/11	16	63	123	16	4	•	•
G5/11/1	17	63	123	16	4	•	•
G5/12	18	63	123	16	4	•	•
G5/13	20	75	141	20	4	•	•
G5/14	22	75	141	20	4	•	•
G5/15	24	90	166	25	5	•	•
G5/16	25	90	166	25	5	•	•
G5/17	26	90	166	25	5	•	•
G5/18	28	90	166	25	5	•	•
G5/19	30	90	166	25	6	•	•
G5/20	32	106	186	32	6	•	•

Ulteriori diametri a richiesta
Other diameters on demand

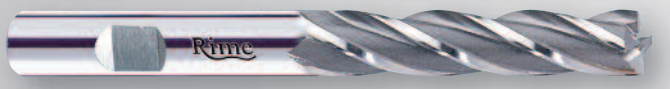
Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼



FRESE PER FINITURA • SERIE EXTRA-LUNGA

G6

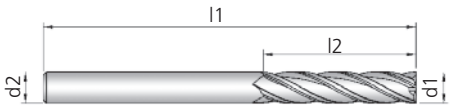
Due denti frontali taglienti fino al centro - Codolo cilindrico
END MILLS - Two end teeth cutting up to the centre - Straight shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Queue cylindrique
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Mango cilindrico
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas que cortam ao centro extra longa - Encabadouro cilindrico
Фреза концевая для чистовой обработки. Режущий торец. Цилиндрический хвостовик. Ультрадлинная серия

SERIE G

NORM.

STANDARD Rime

Z4



HSS-E Co8 | N | ≈ 30° | DIN 1835 A

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
G6/01	6	56	106	10	4	•
G6/02	8	63	113	10	4	•
G6/03	10	70	120	10	4	•
G6/04	12	80	137	12	4	•
G6/05	14	80	137	12	4	•
G6/06	16	90	150	16	4	•
G6/07	18	100	166	20	4	•
G6/08	20	110	176	20	4	•
G6/09	22	110	176	20	4	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER FINITURA • SERIE EXTRA-LUNGA

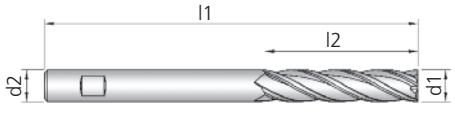
SERIE G

G7

Due denti frontali tagienti fino al centro - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - Weldon shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas que cortam ao centro extra longa - Encabadouro Weldon
Фреза концевая для чистовой обработки. Режущий торец. Хвостовик Weldon. Ультрадлинная серия

SHORT NORMAL LONG EXTRA-LONG

Z4



HSS-E Co8 | N | ≈30° | DIN 1835 B

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
G7/01	6	56	106	10	4	•
G7/02	8	63	113	10	4	•
G7/03	10	70	120	10	4	•
G7/04	12	80	137	12	4	•
G7/05	14	80	137	12	4	•
G7/06	16	90	150	16	4	•
G7/07	18	100	166	20	4	•
G7/08	20	110	176	20	4	•
G7/09	22	110	176	20	4	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO
RECOMMENDED

▶ ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▶	▶	▼	▼

FRESE PER FINITURA • SERIE NORMALE

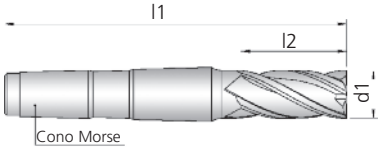
G8

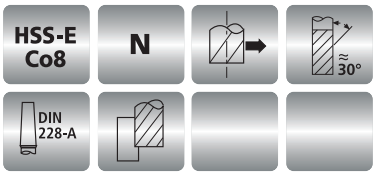
Codolo conico Morse con foro filettato
END MILLS - Morse taper shank
FRAISES À CYLINDRES - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas sem corte ao centro normal - Encabadouro Morse con taladro roscado
Фреза концевая для чистовой обработки. Хвостовик конус Морзе с резьбой. Средняя серия

SERIE G

NORM.

UNI 8250
DIN 845B
ISO 1641/II

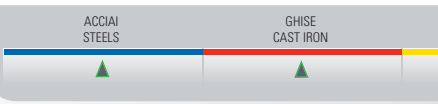




CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €	SUPREME €
G8/01	16	32	117	2	4	•	•
G8/02	18	32	117	2	4	•	•
G8/03	20	38	140	3	4	•	•
G8/04	22	38	140	3	4	•	•
G8/05	24	45	147	3	5	•	•
G8/06	25	45	147	3	5	•	•
G8/07	26	45	147	3	5	•	•
G8/08	28	45	147	3	5	•	•
G8/09	30	53	155	3	6	•	•
G8/10	32	53	178	4	6	•	•
G8/11	34	53	178	4	6	•	•
G8/12	35	53	178	4	6	•	•
G8/13	36	53	178	4	6	•	•
G8/14	38	63	188	4	6	•	•
G8/15	40	63	188	4	8	•	•
G8/16	45	63	188	4	8	•	•
G8/17	50	75	233	5	8	•	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03



▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

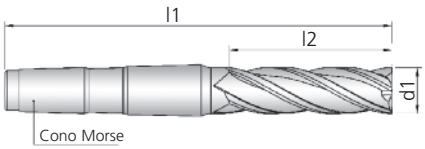
FRESE PER FINITURA • SERIE LUNGA

SERIE G

G9

Codolo conico Morse con foro filettato
END MILLS - Morse taper shank
FRAISES À CYLINDRES - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas sem corte ao centro longa - Encabadouro Morse
Фреза концевая для чистовой обработки. Хвостовик конус Морзе с резьбой. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | N | 30° | DIN 228-A

NORM.

UNI 8251
DIN 845B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €	SUPREME €
G9/01	16	63	148	2	4	•	•
G9/02	18	63	148	2	4	•	•
G9/03	20	75	177	3	4	•	•
G9/04	22	75	177	3	4	•	•
G9/05	24	90	192	3	5	•	•
G9/06	25	90	192	3	5	•	•
G9/07	26	90	192	3	5	•	•
G9/08	28	90	192	3	5	•	•
G9/09	30	90	192	3	6	•	•
G9/10	32	106	231	4	6	•	•
G9/11	34	106	231	4	6	•	•
G9/12	35	106	231	4	6	•	•
G9/13	36	106	231	4	6	•	•
G9/14	38	125	250	4	6	•	•
G9/15	40	125	250	4	8	•	•
G9/16	45	125	250	4	8	•	•
G9/17	50	150	308	5	8	•	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER FINITURA • SERIE EXTRA-LUNGA

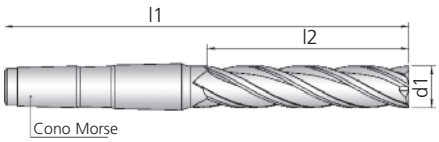
G10

Codolo conico Morse con foro filettato
END MILLS - Morse taper shank
FRAISES À CYLINDRES - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas sem corte ao centro extra longa - Encabadouro Morse con taladro roscado
Фреза концевая для чистовой обработки. Хвостовик конус Морзе с резьбой. Ультрадлинная серия

SERIE G

NORM.

STANDARD Rime



HSS-E Co8 | N | 30° | DIN 228-A

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
G10/01	16	90	175	2	4	•
G10/02	18	100	202	3	4	•
G10/03	20	110	212	3	4	•
G10/04	22	110	212	3	4	•
G10/05	25	125	250	4	5	•
G10/06	28	135	260	4	5	•
G10/07	30	140	265	4	6	•
G10/08	32	150	275	4	6	•
G10/09	35	150	275	4	6	•
G10/10	36	150	275	4	6	•
G10/11	38	180	305	4	6	•
G10/12	40	180	305	4	8	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

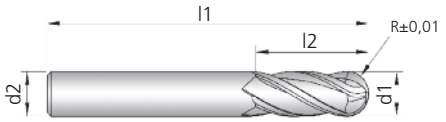
FRESE PER FINITURA A TESTA SEMISFERICA • SERIE NORMALE

SERIE G

G11

Due denti frontali taglienti fino al centro - Codolo cilindrico
BALL-NOSED END MILLS - Two end teeth cutting up to the centre - Straight shank
FRAISES À CYLINDRES À BOUT HÉMISPHERÏQUE - Deux dents bout coupantes jusq'au centre - Queue cylindrique
HALBRUNDKOPFFRÄSER - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA - Dos labios que cortan hasta el centro - Mango cilindrico
FRESAS CILINDRICAS FRONTAIS BOLEADAS - Quatro navalhas que cortam ao centro normal - Encabadouro cilindrico
Фреза концевая для чистовой обработки. Сферический торец. Цилиндрический хвостовик. Средняя серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | N | ≈30° | DIN 1835 A

NORM.
UNI
DIN
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
G11/03	4	11	55	6	4	•
G11/04	5	13	57	6	4	•
G11/05	6	13	57	6	4	•
G11/06	8	19	69	10	4	•
G11/07	10	22	72	10	4	•
G11/08	12	26	83	12	4	•
G11/09	14	26	83	12	4	•
G11/10	15	32	92	16	4	•
G11/11	16	32	92	16	4	•
G11/12	18	32	92	16	4	•
G11/13	20	38	104	20	4	•
G11/14	22	38	104	20	4	•
G11/15	24	45	121	25	5	•
G11/16	25	45	121	25	5	•
G11/17	26	45	121	25	5	•
G11/18	28	45	121	25	5	•
G11/19	30	45	121	25	6	•
G11/20	32	53	133	32	6	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

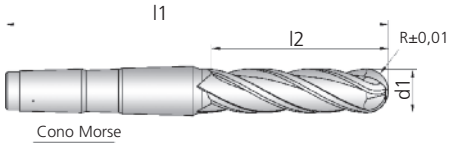
FRESE PER FINITURA A TESTA SEMISFERICA • SERIE NORMALE

SERIE G

G12

Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
BALL-NOSED END MILLS - Two end teeth cutting up to the centre - Morse taper shank
FRAISES À CYLINDRES À BOUT HÉMISPHERÏQUE - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
HALBRUNDKOPFFRÄSER - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA - Dos labios que cortan hasta el centro - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS BOLEADAS - Quatro navalhas que cortam ao centro normal - Encabadouro cone Morse con taladro roscado
Фреза концевая для чистовой обработки. Сферический торец. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | N | ≈30° | DIN 228-A

NORM.
UNI
DIN
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
G12/01	16	32	117	2	4	•
G12/01/1	18	32	117	2	4	•
G12/02	20	38	140	3	4	•
G12/03	22	38	140	3	4	•
G12/04	24	45	147	3	5	•
G12/05	25	45	147	3	5	•
G12/05/1	26	45	147	3	5	•
G12/06	28	45	147	3	5	•
G12/07	30	53	155	3	6	•
G12/08	32	53	178	4	6	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

FRESE PER FINITURA A TESTA SEMISFERICA • SERIE LUNGA

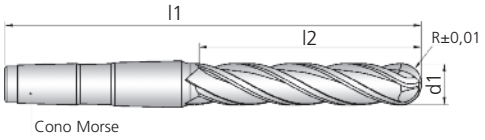
G13

Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
BALL-NOSED END MILLS - Two end teeth cutting up to the centre - Morse taper shank
FRAISES À CYLINDRES À BOUT HÉMISPHERÏQUE - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
HALBRUNDKOPFFRÄSER - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA - Dos labios que cortan hasta el centro - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS BOLEADAS LONGAS DE QUATRO NAVALHAS QUE CORTAM AO CENTRO - Encabadouro cone Morse con taladro roscado
Фреза концевая для чистовой обработки. Сферический торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SERIE G

NORM.

UNI
DIN
ISO 1641/I



HSS-E Co8 | N | ≈ 30° | DIN 228-A

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
G13/01	16	63	148	2	4	•
G13/01/1	18	63	148	2	4	•
G13/02	20	75	177	3	4	•
G13/03	22	75	177	3	4	•
G13/04	24	90	192	3	5	•
G13/05	25	90	192	3	5	•
G13/05/1	26	90	192	3	5	•
G13/06	28	90	192	3	5	•
G13/07	30	90	192	3	6	•
G13/08	32	106	231	4	6	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

FRESE PER MACCHINE A COPIARE • SERIE EXTRA-LUNGA

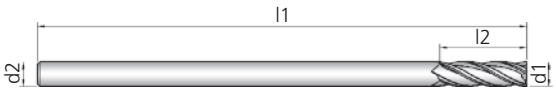
SERIE G

G14

Due denti frontali taglienti fino al centro - Codolo cilindrico
COPY MILLING CUTTERS - Two end teeth cutting up to the centre -Straight shank
FRAISES POUR MACHINES À COPIER - Deux dents bout coupantes jusq'au centre - Queue cylindrique
NACHFORMFRÄSER - Zwei Schneiden mit Zentrumschnitt - Zylinderschaft
FRESAS EN COPIADO - Dos labios que cortan hasta el centro - Mango cilindrico
FRESAS DE COPIA - Quatro navalhas que cortam ao centro - Encabadouro cilindrico
Фреза концевая с режущим торцем. Цилиндрический хвостовик. Ультрадлинная серия

SHORT NORMAL LONG EXTRA-LONG

Z4



HSS-E Co8 | N | ≈30° | DIN 1835 A

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
G14/01	6	25	180	6	4	•
G14/02	8	25	180	8	4	•
G14/03	10	30	200	10	4	•
G14/04	12	30	200	12	4	•
G14/06	16	35	200	16	4	•
G14/08	20	35	200	20	4	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

Catalogo HSS-E e PM

SERIE UMAX

FRESE SERIE UMAX ELICA 45°

SERIES “UMAX” END MILLS 45° HELIX FLUTE

Rime
UTENSILERIA

INDEX

SERIE UMAX

FRESE SERIE UMAX ELICA 45°
SERIES "UMAX" END MILLS 45° HELIX FLUTE

Serie UMAX

La fresa **UMAX** è una fresa universale pertanto può eseguire lavori sia di sgrossatura sia di finitura.
Principali caratteristiche della fresa **UMAX**:
1) grande capacità di asportazione di truciolo anche da materiali molto difficili
2) con la stessa fresa si ottiene un'ottima finitura.

UMAX Series

UMAX end mills are universal mills, which can carry out different roughing and finishing workings.
The main characteristics of **UMAX** end mills are as follows:
1) they can easily remove shaving also from very difficult materials
2) a very good finishing degree can be granted by using the same end mill.

UMAX Série

La fraise **UMAX** est une fraise universelle, en effet elle peut faire des travails de dégrossissage et de finissage.
Les principales caractéristiques sont comme suite:
1) grande capacité d'enlèvement de copeaux, aussi de matériaux très difficiles
2) la même fraise peut donner une finissage excellente.

UMAX Serie

Die **UMAX** Fräser sind universelle Fräser, die verschiedenen Schrupp- bzw.
Feinbearbeitungen durchführen können.
Die Haupteigenschaften der **UMAX** Fräser sind:
1) sehr gute Spanabhebungsfähigkeit, auch aus sehr schwierigen Metallen
2) eine sehr gute Feinbearbeitung mit gleichem Fräser.

FRESE CILINDRICHE FRONTALI • SERIE NORMALE

UM0

Due denti frontali taglienti fino al centro - Elica destra 45° - Divisione irregolare - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Weldon shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irréguliere - Queue cylindrique Weldon
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Unregelmäßige Teilung - Weldon-Spannfläche
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Hélice derecha - División irregular - Mango Weldon
FRESAS CILINDRICAS FRONTAIS - Duas navalhas de corte ao centro normal - Encabadouro Weldon
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик Weldon. Средняя серия

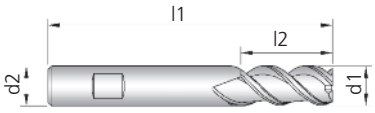
SERIE Umax

NORM.

STANDARD Rime

Z3 ø4÷ø16

Z4 ø17÷ø40



HSS-E Co8 | N | 45° | DIN 1835 B | 0,05-0,15 45°

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
UM0/01	4	11	55	6	3	•	•
UM0/02	5	13	57	6	3	•	•
UM0/03	6	13	57	6	3	•	•
UM0/04	7	16	66	10	3	•	•
UM0/05	8	20	69	10	3	•	•
UM0/06	9	20	69	10	3	•	•
UM0/07	10	22	72	10	3	•	•
UM0/08	11	26	83	12	3	•	•
UM0/09	12	26	83	12	3	•	•
UM0/10	13	26	83	12	3	•	•
UM0/11	14	26	83	12	3	•	•
UM0/12	15	36	92	16	3	•	•
UM0/13	16	36	92	16	3	•	•
UM0/14	17	40	100	16	4	•	•
UM0/15	18	40	100	16	4	•	•
UM0/15/1	19	40	100	16	4	•	•
UM0/16	20	45	110	20	4	•	•
UM0/17	22	45	110	20	4	•	•
UM0/18	25	50	125	25	4	•	•
UM0/19	28	56	125	25	4	•	•
UM0/20	30	63	140	25	4	•	•
UM0/21	32	63	140	32	4	•	•
UM0/22	35	70	160	32	4	•	•
UM0/23	38	70	160	32	4	•	•
UM0/24	40	70	160	32	4	•	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE CILINDRICHE FRONTALI • SERIE LUNGA

SERIE Umax

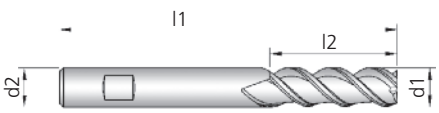
UM1

Due denti frontali taglienti fino al centro - Elica destra 45° - Divisione irregolare - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Weldon shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irréguliere - Queue cylindrique Weldon
SCHAFTFRÄSER - Zwei Schneides mit Zentrumschnitt - 45° rechts spiralgenutet - Unregelmäßige Teilung - Weldon - Spannfläche
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Hélice derecha 45° - División irregular - Mango Weldon
FRESAS CILINDRICAS FRONTAIS - Três navalhas de corte ao centro longa - Encabadouro Weldon
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик Weldon. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z3 ø6÷ø16

Z4 ø18÷ø32



HSS-E Co8 | N | 45° | DIN 1835 B | 0,05-0,15 45°

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
UM1/01	6	26	68	6	3	•	•
UM1/02	8	38	88	10	3	•	•
UM1/03	10	45	95	10	3	•	•
UM1/04	12	50	100	12	3	•	•
UM1/05	14	50	100	12	3	•	•
UM1/06	16	56	110	16	3	•	•
UM1/07	18	63	125	16	4	•	•
UM1/08	20	70	140	20	4	•	•
UM1/09	22	70	140	20	4	•	•
UM1/10	25	80	156	25	4	•	•
UM1/11	28	90	166	25	4	•	•
UM1/12	30	90	166	25	4	•	•
UM1/13	32	90	166	32	4	•	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS		ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE CILINDRICHE FRONTALI • SERIE NORMALE

UM2

Due denti frontali taglienti fino al centro - Elica destra 45° - Divisione irregolare - Codolo cilindrico filettato
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Threaded shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irréguliere - Queue cylindrique filetée
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Unregelmäßige Teilung - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Hélice derecha 45° - División irregular - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS - Duas navalhas de corte ao centro normal - Encabadouro cilindrico roscado
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Цилиндрический хвостовик с резьбой. Средняя серия

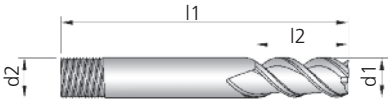
SERIE Umax

NORM.

STANDARD Rime

Z3 ø6÷ø16

Z4 ø18÷ø40



HSS-E Co8 | N | 45° | DIN 1835-D | 0,05-0,15 45°

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm h14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
UM2/01	6	13	57	6	3	•
UM2/02	8	20	69	10	3	•
UM2/03	10	22	72	10	3	•
UM2/04	12	26	83	12	3	•
UM2/05	14	26	83	12	3	•
UM2/06	16	36	92	16	3	•
UM2/07	18	40	100	16	4	•
UM2/08	20	45	110	20	4	•
UM2/09	22	45	110	20	4	•
UM2/10	25	50	125	25	4	•
UM2/11	28	56	125	25	4	•
UM2/12	30	63	140	25	4	•
UM2/13	32	63	140	32	4	•
UM2/14	35	70	160	32	4	•
UM2/15	38	70	160	32	4	•
UM2/16	40	70	160	32	4	•

Ulteriori diametri a richiesta
Other diameters on demand

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE CILINDRICHE FRONTALI • SERIE LUNGA

SERIE Umax

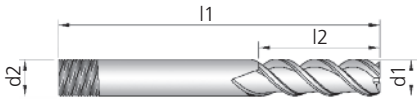
UM3

Due denti frontali taglienti fino al centro - Elica destra 45° - Divisione irregolare - Codolo cilindrico filettato
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Threaded shank
FRAISES À CYLINDRES Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irréguliere - Queue cylindrique filetée
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Unregelmäßige Teilung - Zylinderschaft mit Gewinde
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Hélice derecha 45° - División irregular - Mango cilindrico roscado
FRESAS CILINDRICAS FRONTAIS - Duas navalhas de corte ao centro longa- Encabadouro cilindrico roscado
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Цилиндрический хвостовик с резьбой. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z3 ø10÷ø16

Z4 ø18÷ø30



HSS-E Co8 | N | 45° | DIN 1835-D | 0,05-0,15 45°

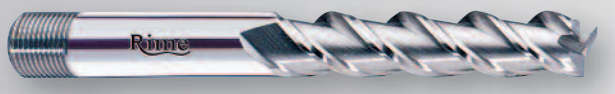
NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
UM3/01	10	45	95	10	3	•
UM3/02	12	50	100	12	3	•
UM3/03	14	50	100	12	3	•
UM3/04	16	56	110	16	3	•
UM3/05	18	63	125	16	4	•
UM3/06	20	70	140	20	4	•
UM3/07	22	70	140	20	4	•
UM3/08	25	80	156	25	4	•
UM3/09	28	90	166	25	4	•
UM3/10	30	90	166	25	4	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►



FRESE CILINDRICHE FRONTALI PER SGROSSATURA • SERIE NORMALE

UM4

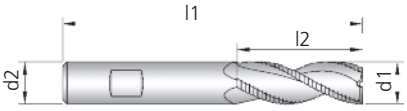
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Un dente frontale tagliente fino al centro - Elica destra 45° - Attacco Weldon
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - One end tooth cutting up to the centre - 45° right hand spiral - Weldon shank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Une dent bout coupante jusq'au centre - Hélice 45° à droite - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spanbrecher - Eine Schneide mit Zentrumschnitt - 45° rechts spiralgenutet - Weldon-Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta - Un labio que corta hasta el centro - Hélice derecha 45°- Mango Weldon
FRESAS DE TRÊS NAVALHAS COM QUEBRA APARA E CORTE AO CENTRO NORMAL - Encabadouro Weldon
Фреза концевая для черновой обработки с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE Umax

NORM.

STANDARD Rime

Z3



HSS-E Co8 | NR | 45° | DIN 1835 B | 0,05-0,15 45°

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €	SUPREME €
UM4/00	5	13	57	6	3	•	•
UM4/01	6	13	57	6	3	•	•
UM4/02	7	16	66	10	3	•	•
UM4/03	8	19	69	10	3	•	•
UM4/04	9	19	69	10	3	•	•
UM4/05	10	22	72	10	3	•	•
UM4/06	11	22	79	12	3	•	•
UM4/07	12	26	83	12	3	•	•
UM4/08	13	26	83	12	3	•	•
UM4/09	14	26	83	12	3	•	•
UM4/10	15	32	92	16	3	•	•
UM4/11	16	32	92	16	3	•	•
UM4/12	17	32	92	16	3	•	•
UM4/13	18	32	92	16	3	•	•
UM4/14	20	38	104	20	3	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE CILINDRICHE FRONTALI • SERIE NORMALE

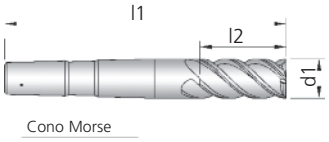
SERIE Umax

UM5

Due denti frontali taglienti fino al centro - Elica destra 45° Divisione irregolare - Codolo conico Morse con foro filettato
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Morse taper shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irréguliere - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Unregelmäßige Teilung - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Hélice derecha 45° - División irregular - Mango cónico Morse con taladro roscado
FRESAS DE TRÊS NAVALHAS - Corte ao centro normal - Encabadouro cone Morse con taladro roscado
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT · NORMAL · LONG · EXTRA-LONG

Z4



HSS-E Co8 · N · 45° · DIN 228-A · 0,05-0,15 45°

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €	SUPREME €
UM5/01	16	36	115	2	3	•	•
UM5/02	18	40	120	2	4	•	•
UM5/03	20	45	145	3	4	•	•
UM5/04	22	45	145	3	4	•	•
UM5/05	24	50	150	3	4	•	•
UM5/06	25	50	150	3	4	•	•
UM5/07	26	56	155	3	4	•	•
UM5/08	28	56	155	3	4	•	•
UM5/09	30	63	165	3	4	•	•
UM5/10	32	63	185	4	4	•	•
UM5/11	34	70	195	4	4	•	•
UM5/12	35	70	195	4	4	•	•
UM5/13	36	70	195	4	4	•	•
UM5/14	38	70	195	4	4	•	•
UM5/15	40	70	195	4	4	•	•
UM5/16	45	80	205	4	4	•	•
UM5/17	50	90	215	4	4	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

CONSIGLIATO
RECOMMENDED

ACCETTABILE
ACCEPTABLE

SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	▼

IRREGULAR DIVISION

FRESE CILINDRICHE FRONTALI • SERIE LUNGA

UM7

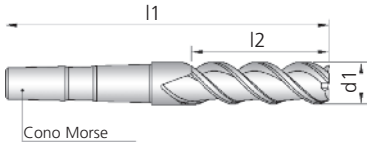
Due denti frontali taglienti fino al centro - Elica destra 45° - Divisione irregolare - Codolo conico Morse con foro filettato
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Morse taper shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irréguliere - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Unregelmäßige Teilung - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Hélice derecha 45° - División irregular - Mango cónico Morse taladro roscado
FRESAS DE TRÊS NAVALHAS - Corte ao centro longa - Encabadouro cone Morse con taladro roscado
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SERIE Umax

NORM.

STANDARD Rime

Z4



HSS-E Co8 | N | 45° | DIN 228-A | 0,05-0,15 45°

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
UM7/01	16	56	135	2	3	•
UM7/02	18	63	145	2	4	•
UM7/03	20	70	170	3	4	•
UM7/04	22	70	170	3	4	•
UM7/05	24	80	180	3	4	•
UM7/06	25	80	180	3	4	•
UM7/07	26	80	180	3	4	•
UM7/08	28	90	215	4	4	•
UM7/09	30	90	215	4	4	•
UM7/10	32	100	225	4	4	•
UM7/11	34	110	235	4	4	•
UM7/12	35	110	235	4	4	•
UM7/13	36	110	235	4	4	•
UM7/14	38	110	235	4	4	•
UM7/15	40	110	235	4	4	•
UM7/16	45	120	245	4	4	•
UM7/17	50	140	265	4	4	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

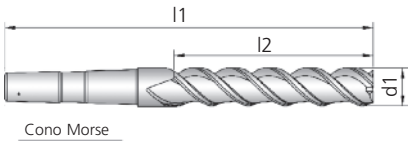
FRESE CILINDRICHE FRONTALI • SERIE EXTRA-LUNGA

SERIE Umax

UM8

Due denti frontali taglienti fino al centro - Elica destra 45° Divisione irregolare - Codolo conico Morse con foro filettato
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Morse taper shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irréguliere - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Unregelmäßige Teilung - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Hélice derecha 45° - División irregular - Mango cónico Morse con taladro roscado
FRESAS DE TRÊS NAVALHAS - Corte ao centro extra longa - Encabadouro cone Morse con taladro roscado
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик конус Морзе с резьбой. Ультрадлинная серия

SHORT NORMAL LONG EXTRA-LONG



HSS-E Co8 | N | DIN 228-A | 0,05-0,15 45° | 45°

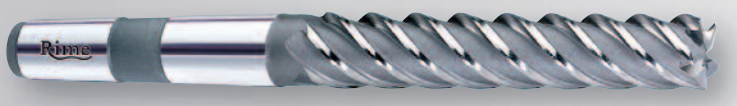
NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	Co 8% €
UM8/01	16	90	170	2	4	•
UM8/02	18	100	200	3	4	•
UM8/03	20	110	210	3	4	•
UM8/04	22	110	210	3	4	•
UM8/05	25	125	225	3	5	•
UM8/06	28	140	265	4	5	•
UM8/07	30	140	265	4	5	•
UM8/08	32	160	285	4	5	•
UM8/09	35	180	305	4	5	•
UM8/10	40	200	335	4	5	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

CONSIGLIATO *RECOMMENDED*
ACCETTABILE *ACCEPTABLE*
SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	▼



Catalogo HSS-E e PM

SERIE R-S

FRESE A "T" E DI FORMA

"T" SLOT CUTTERS, WOODRUFF CUTTERS AND FORM CUTTERS

Rime
UTENSILERIA

INDEX

SERIE R-S

FRESE A "T" E DI FORMA
"T" SLOT CUTTERS, WOODRUFF CUTTERS AND FORM CUTTERS

FRESE PER SEDI DI LINGUETTE AMERICANE

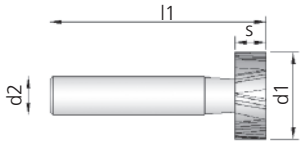
R0

Denti elicoidali alternati - Codolo cilindrico
WOODRUFF KEYSEAT CUTTERS - Staggered helical teeth - Straight shank
FRAISES POUR CLAVETTES WOODRUFF - Denture hélicoïdale alternée - Queue cylindrique
SCHLITZFRÄSER FÜR SCHEIBENFEDERNUTEN - Kreuzverzahnt - Zylinderschaft
FRESAS WOODRUFF - Labios helicoidales alternados - Mango cilindrico
FRESAS WOODRUFF - Oito navalhas helicoidales alternados - Encabadouro cilindrico
Фреза "Т-образная" с разнонаправленными зубьями. Цилиндрический хвостовик

SERIE R-S

NORM.

UNI 8263
DIN 850B
ISO



HSS-E Co8 | N | DIN 1835 A

CODE	d1 x s mm	l1 mm	d2 mm h6	Z	Co 8% €
R0/01	10.5x2	50	6	8	•
R0/02	10.5x2.5	50	6	8	•
R0/03	10.5x3	50	6	8	•
R0/04	13.5x2	56	10	8	•
R0/05	13.5x3	56	10	8	•
R0/06	13.5x4	56	10	8	•
R0/07	16.5x3	56	10	8	•
R0/08	16.5x4	56	10	8	•
R0/09	16.5x5	56	10	8	•
R0/10	16.5x6	56	10	8	•
R0/11	19.5x3	63	10	8	•
R0/12	19.5x4	63	10	8	•
R0/13	19.5x5	63	10	8	•
R0/14	19.5x6	63	10	8	•
R0/15	22.5x4	63	10	10	•
R0/16	22.5x5	63	10	10	•
R0/17	22.5x6	63	10	10	•
R0/18	22.5x8	63	10	10	•
R0/19	25.5x5	63	10	10	•
R0/20	25.5x6	63	10	10	•
R0/21	25.5x7	63	10	10	•
R0/22	25.5x8	63	10	10	•
R0/23	28.5x6	63	10	10	•
R0/24	28.5x7	63	10	10	•
R0/25	28.5x8	63	10	10	•
R0/26	28.5x10	71	12	10	•
R0/27	32.5x6	71	12	10	•
R0/28	32.5x7	71	12	10	•
R0/29	32.5x8	71	12	10	•
R0/30	32.5x10	71	12	10	•
R0/31	45.5x10	71	12	12	•

Toll. reale sullo spessore *Real Tol. on thickness*
+0 -0,02

Toll. reale sul Ø *Real Tol. on Ø*
+0,05 -0

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER SCANALATURE A "T"

SERIE R-S

R1

Denti elicoidali alternati - Codolo cilindrico
"T"-SLOT CUTTERS - Staggered helical teeth - Straight shank
FRAISES POUR RAINURES À "T" - Denture hélicoïdale alternée - Queue cylindrique
SCHAFTFRÄSER FÜR T-NUTEN - Kreuzverzahnt - Zylinderschaft
FRESAS EN "T"- Labios helicoidales alternados - Mango cilindrico
FRESAS EN "T" - Oito navalhas helicoidales alternados - Encabadouro cilindrico
Фреза "Т-образная" с разнонаправленными зубьями. Цилиндрический хвостовик

HSS-E Co8 | N | DIN 1835 A

NORM.

UNI 7339A
DIN 851AA
ISO 3337

CODE	d1 x s mm	l1 mm	d2 mm h6	Z	Co 8% €
R1/01	12.5x6	57	10	8	•
R1/02	16x8	62	10	8	•
R1/03	18x8	70	12	8	•
R1/04	19x9	70	12	8	•
R1/05	21x9	74	12	8	•
R1/06	22x10	74	12	8	•
R1/07	25x11	82	16	8	•
R1/08	28x12	85	16	8	•
R1/09	32x14	90	16	8	•

Toll. reale sullo spessore *Real Tol. on thickness*
+0 -0,02

Toll. reale sul Ø *Real Tol. on Ø*
-0 +0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER SCANALATURE A "T" PER SGROSSATURA

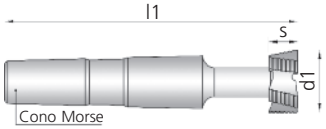
R2

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Codolo conico Morse con foro filettato
"T"-SLOT ROUGHING CUTTERS - Helical teeth with form relieved entirely ground chip-breaker - Morse taper shank
FRAISES POUR RAINURES À "T" À DEGROSSIR - Denture hélicoïdale avec brise-copeaux dépouillé entièrement rectifié - Queue au cône Morse à trou fileté
SCHAFTSCHRUPPFRÄSER FÜR T-NUTEN - Schrägschneiden mit voll eingeschliffenem Spanbrecher - Morsekegelschaft und Anzugsgewinde
FRESAS PARA RANURAS EN "T" PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Mango cónico Morse taladro roscado
FRESAS PARA RANHURAS EM "T" PARA DESBASTE - Cinco navalhas helicoidal com quebra apara - Encabadouro cone Morse con taladro roscado
Фреза "Т-образная" для черновой обработки. Хвостовик конус Морзе с резьбой

SERIE R-S

NORM.

UNI
DIN 851B
ISO 3337



HSS-E Co8 | NR | DIN 228-A

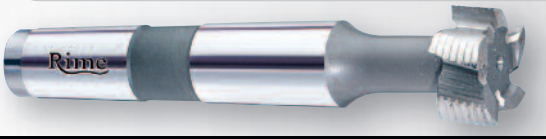
CODE	d1 x s mm	l1 mm	CM-MK	Z	Co 8% €
R2/03	18x8	82	1	5	•
R2/04	19x9	82	1	5	•
R2/05	21x9	102	2	5	•
R2/06	22x10	102	2	5	•
R2/07	25x11	104	2	5	•
R2/08	28x12	106	2	6	•
R2/09	32x14	111	2	6	•
R2/10	36x16	133	3	8	•
R2/11	40x18	140	3	8	•
R2/12	45x20	143	3	8	•
R2/13	50x22	177	4	8	•
R2/14	56x24	182	4	10	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	▼

Toll. reale sullo spessore *Real Tol. on thickness* ±0 -0,02

Toll. reale sul Ø *Real Tol. on Ø* ±0,05

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED



FRESE PER SCANALATURE A "T" PER SGROSSATURA

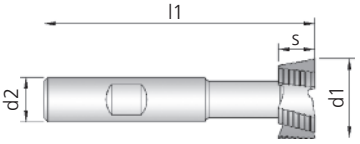
R4

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Attacco Weldon
"T"-SLOT ROUGHING CUTTERS - Helical teeth with form relieved entirely ground chip-breaker - Weldon shank
FRAISES POUR RAINURES À "T" À DEGROSSIR - Denture hélicoïdale avec brise-copeaux dépouillé entièrement rectifié - Queue cylindrique Weldon
SCHAFTSCHRUPPFRÄSER FÜR T-NUTEN - Schrägschneiden mit voll eingeschliffenem Spanbrecher - Weldon-Spannfläche
FRESAS PARA RANURAS EN "T" PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Mango Weldon
FRESAS PARA RANHURAS EM "T" PARA DESBASTE - Cinco navalhas helicoidal com quebra apara - Encabadouro Weldon
Фреза "Т-образная" для черновой обработки. Хвостовик Weldon

SERIE R-S

NORM.

UNI
DIN 851B
ISO 3337



HSS-E Co8 | NR | DIN 1835 B

CODE	d1 x s mm	l1 mm	d2 mm h6	Z	Co 8% €
R4/01	12.5x6	57	10	4	•
R4/02	16x8	62	10	5	•
R4/03	18x8	70	12	5	•
R4/04	19x9	70	12	5	•
R4/05	21x9	74	12	5	•
R4/06	22x10	74	12	5	•
R4/07	25x11	82	16	5	•
R4/08	28x12	85	16	6	•
R4/09	32x14	90	16	6	•
R4/10	36x16	108	25	6	•
R4/11	40x18	108	25	8	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	▼

Toll. reale sullo spessore *Real Tol. on thickness* ±0 -0,02

Toll. reale sul Ø *Real Tol. on Ø* ±0,05

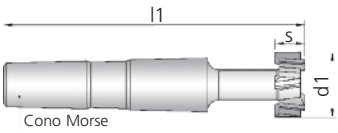
▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER SCANALATURE A "T"

SERIE R-S

R3

Denti elicoidali alternati - Codolo conico Morse con foro filettato
"T"-SLOT CUTTERS - Stagged helical teeth - Morse taper shank
FRAISES POUR RAINURES À "T" - Denture hélicoïdale alternée - Queue au cône Morse à trou fileté
SCHAFTFRÄSER FÜR T-NUTEN - Kreuzverzahnt - Morsekegelschaft und Anzugsgewinde
FRESAS PARA RANURAS EN "T" - Labios helicoidales alternados - Mango cónico Morse con taladro roscado
FRESAS PARA RANHURAS EN "T" - Oito navalhas helicoidales alternados - Encabadouro cone Morse con taladro roscado
Фреза "Т-образная" с разнонаправленными зубьями. Хвостовик конус Морзе с резьбой



HSS-E Co8 | N | DIN 228-A

NORM.

UNI 7339B
DIN 851B
ISO 3337

CODE	d1 x s mm	l1 mm	CM-MK	Z	Co 8% €
R3/01	12.5x6	72	1	8	•
R3/02	16x8	77	1	8	•
R3/03	18x8	82	1	8	•
R3/04	19x9	82	1	8	•
R3/05	21x9	102	2	8	•
R3/06	22x10	102	2	8	•
R3/07	25x11	104	2	8	•
R3/08	28x12	106	2	8	•
R3/09	32x14	111	2	8	•
R3/10	36x16	133	3	8	•
R3/11	40x18	140	3	8	•
R3/12	45x20	143	3	8	•
R3/13	50x22	177	4	10	•
R3/14	56x24	182	4	10	•

Toll. reale sullo spessore *Real Tol. on thickness*: +0 -0,02

Toll. reale sul Ø *Real Tol. on Ø*: +0,05 -0

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE AD ANGOLO DIVERGENTE

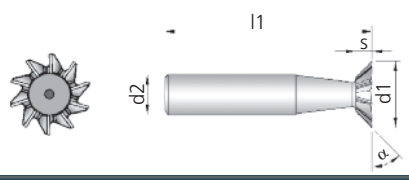
R5/A

Forma "A" divergente - Codolo cilindrico
ANGLE CUTTER - Straight shank
FRAISES D'ANGLE - Queue cylindrique
WINKELFRÄSER - Zylinderschaft
FRESAS EN ANGULO - Mango cilindrico
FRESAS EN ANGULO - Encabadouro cilindrico
Фреза с обратным конусом. Цилиндрический хвостовик

SERIE R-S

NORM.

UNI 8262-A
DIN 1833-A
ISO 3859



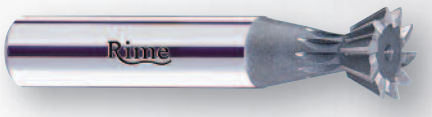
HSS-E Co5 | N | DIN 1835 A

CODE	d1 mm js16	α ±30'	s mm	l1 mm	d2 mm h6	Z	Co 5% €
R5A/01	16		4	60	12	10	•
R5A/02	20	45°	5	63	12	10	•
R5A/03	25		6.3	67	16	10	•
R5A/04	32		8	71	16	12	•
R5A/05	16		6.3	60	12	10	•
R5A/06	20	60°	8	63	12	10	•
R5A/07	25		10	67	16	10	•
R5A/08	32		12.5	71	16	12	•

Toll. reale sull'angolo *Real Tol. on angle* ±20'

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED



FRESE AD ANGOLO CONVERGENTE

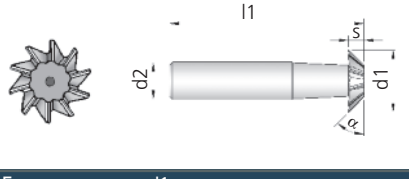
R5/B

Forma "B" convergente - Codolo cilindrico
ANGLE CUTTER - Straight shank
FRAISES D'ANGLE - Queue cylindrique
WINKELFRÄSER - Zylinderschaft
FRESAS EN ANGULO - Mango cilindrico
FRESAS EN ANGULO - Encabadouro cilindrico
Фреза с прямым конусом. Цилиндрический хвостовик

SERIE R-S

NORM.

UNI 8262-B
DIN 1833-B
ISO 3859



HSS-E Co5 | N | DIN 1835 A

CODE	d1 mm js16	α ±30'	s mm	l1 mm	d2 mm h6	Z	Co 5% €
R5B/01	16		4	60	12	10	•
R5B/02	20	45°	5	63	12	10	•
R5B/03	25		6.3	67	16	10	•
R5B/04	32		8	71	16	12	•
R5B/05	16		6.3	60	12	10	•
R5B/06	20	60°	8	63	12	10	•
R5B/07	25		10	67	16	10	•
R5B/08	32		12.5	71	16	12	•

Toll. reale sull'angolo *Real Tol. on angle* ±20'

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

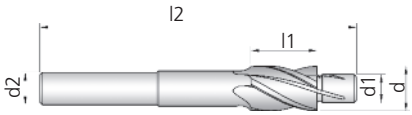
FRESE PER SEDI DI VITI

SERIE R-S

S2

Per viti a testa cilindrica con esagono incassato - Denti elicoidali con guida - Codolo cilindrico
COUNTERBORES WITH SOLID PILOT - For screws with cylindrical head - Helical teeth - Straight shank
FRAISES À PIVOT FIXE - Pour vis tête cylindrique - Denture hélicoïdale avec guide - Queue cylindrique
FLACHSENKER - Für Zylinderschrauben mit Innensechskant - Schrägverzahnt mit Führung - Zylinderschaft
FRESAS ALOJAMIENTO TORNILLOS - Para tornillos cabeza cilíndrica con hexágono encajado - Labios helicoidales con guía - Mango cilindrico
FRESAS PARA PARAFUSOS DE CABEÇA CILINDRICA (TIPO UMBRAKO) - Encabadouro cilindrico
Зенкер с направляющей. Цилиндрический хвостовик

Z4



HSS-E Co5 | N | ≅30° | DIN 1835 A | DIN 375

NORM.

UNI 6841
DIN
ISO

CODE	d vite	D vite	h vite	d mm h8	d1 mm h8	l1 mm	l2 mm	d2 mm h6	Z	Co 5% €
S2/01	M3	5.5	3	5.9	3.2	12	70	6	4	•
S2/02	M4	7	4	7.4	4.3	12	70	8	4	•
S2/03	M5	9	5	9.4	5.3	14	90	10	4	•
S2/04	M6	10	6	10.4	6.4	16	100	10	4	•
S2/05	M8	13	8	13.5	8.4	20	115	12	4	•
S2/06	M10	16	10	16.5	10.5	25	120	12	4	•
S2/07	M12	18	12	19	13	25	120	16	4	•
S2/08	M14	22	14	23	15	30	130	16	4	•
S2/09	M16	24	16	25	17	35	155	20	4	•
S2/10	M18	27	18	28	19	40	160	20	4	•
S2/11	M20	30	20	31	21	50	180	20	4	•
S2/12	M22	33	22	34	23	50	185	22	4	•
S2/13	M24	36	24	37	25	50	200	22	4	•

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE PER SEDI DI VITI

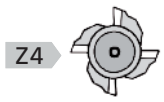
S3

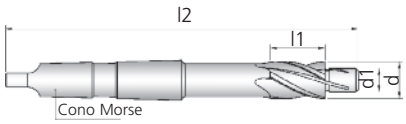
Per viti a testa cilindrica con esagono incassato - Denti elicoidali con guida - Codolo conico Morse con tenone
COUNTERBORES WITH SOLID PILOT - For screws with cylindrical head - Helical teeth - Straight shank
FRAISES À PIVOT FIXE - Pour vis tête cylindrique - Denture hélicoïdale avec guide - Queue au cône Morse avec tenon
FLACHSENKER - Für Zylinderschrauben mit Innensechskant - Schrägverzahnt mit Führung - Morsekegelschaft mit Austreiblappen
FRESAS ALOJAMIENTO TORNILLOS - Para tornillos cabeza cilíndrica con hexágono encajado - Labios helicoidales con guía - Mango cónico Morse con tentona
FRESAS PARA PARAFUSOS DE CABEÇA CILINDRICA (TIPO UMBRAKO) - Encabadouro Morse
Зенкер с направляющей. Хвостовик конус Морзе

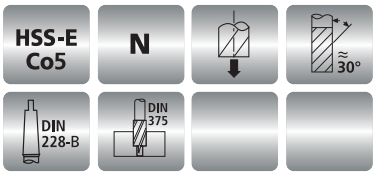
SERIE R-S

NORM.

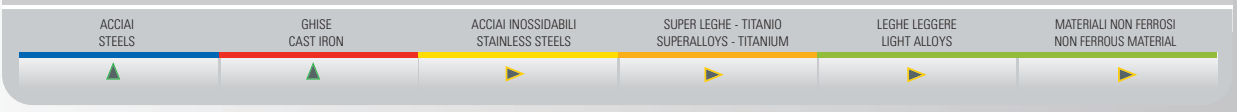
UNI 6842







CODE	d vite	D vite	h vite	d mm h8	d1 mm h8	l1 mm	l2 mm	CM-MK	Z	Co 5% €
S3/01	M3	5.5	3	5.9	3.2	12	105	1	4	•
S3/02	M4	7	4	7.4	4.3	12	105	1	4	•
S3/03	M5	9	5	9.4	5.3	14	118	1	4	•
S3/04	M6	10	6	10.4	6.4	16	125	1	4	•
S3/05	M8	13	8	13.5	8.4	20	140	1	4	•
S3/06	M10	16	10	16.5	10.5	25	160	2	4	•
S3/07	M12	18	12	19	13	25	160	2	4	•
S3/08	M14	22	14	23	15	30	170	2	4	•
S3/09	M16	24	16	25	17	35	180	2	4	•
S3/10	M18	27	18	28	19	40	180	2	4	•
S3/11	M20	30	20	31	21	50	215	3	4	•
S3/12	M22	33	22	34	23	50	220	3	4	•
S3/13	M24	36	24	37	25	50	230	3	4	•



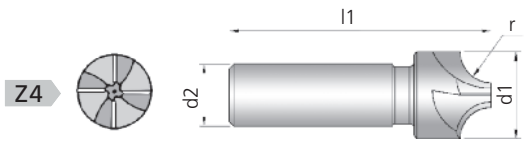
CONSIGLIATO RECOMMENDED
ACCETTABILE ACCEPTABLE
SCONSIGLIATO NOT RECOMMENDED

FRESE DI FORMA A QUARTO DI CERCHIO CONCAVO

SERIE R-S

S4

Denti dritti - Codolo cilindrico
CORNER ROUNDING END MILLS - Straight toothing - Straight shank
FRAISES CONCAVES 1/4 DE CERCLE - Denture droite - Queue cylindrique
VIERTELRUND - PROFILIFRÄSER - Geradverzahnt - Zylinderschaft
FRESAS DE FORMAS DE UN CUARTO DE CIRCULO - Labios derechos - Mango cilindrico
FRESAS UM QUARTO DE CIRCULO - Quatro navalhas direitas - Encabadouro cilindrico
Фреза для снятия радиусных фасок. Цилиндрический хвостовик



HSS-E Co8 | N | DIN 1835 A | WELDON ON REQUEST SU RICHIESTA

NORM.

UNI 8264
DIN 6518A
ISO

CODE	r mm H11	d1 max mm	l1 mm	d2 mm h6	Z	Co 8% €
S4/01	1	10	60	10	4	•
S4/02	1.5	10	60	10	4	•
S4/03	2	10	60	10	4	•
S4/04	2.5	10	60	10	4	•
S4/05	3	12	60	12	4	•
S4/05/1	3.5	15	60	12	4	•
S4/06	4	15	60	12	4	•
S4/06/1	4.5	18	70	12	4	•
S4/07	5	18	70	16	4	•
S4/07/1	5.5	21	70	16	4	•
S4/08	6	21	70	16	4	•
S4/08/1	6.5	24	70	16	4	•
S4/09	7	24	70	16	4	•
S4/09/1	7.5	24	70	16	4	•
S4/10	8	24	70	16	4	•
S4/11	9	28	85	20	4	•
S4/12	10	28	85	20	4	•
S4/13	11	35	90	20	4	•
S4/14	12	35	100	20	4	•
S4/15	12.5	35	100	20	4	•
S4/16	13	42	100	25	4	•
S4/17	14	42	100	25	4	•
S4/18	15	48	105	25	5	•
S4/19	16	48	105	25	5	•
S4/20	18	52	115	32	5	•
S4/21	20	60	115	32	6	•

Ulteriori raggi su richiesta
Other radius on requirements

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	►	►

FRESE CONICHE PER STAMPI

SC1

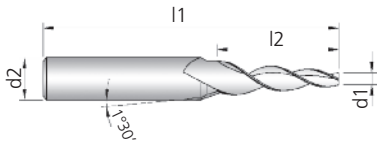
Conicità 1°30' laterali - Tre denti elicoidali - Codolo cilindrico
TAPER END MILLS - Taper 1°30' - Three helical flutes - Straight shank
FRAISES CONIQUES - Conicité 1°30' - Denture hélicoïdale trois dents - Queue cylindrique
KONISCHE FRÄSER - Kegel 1°30' - Dreischneider - Zylinderschaft
FRESAS CONICAS PARA MOLDES - Cónico 1°30' lateral - Tres labios helicoidales - Mango cilindrico
FRESAS CONICAS PARA MOLDES - Cónico 1°30' lateral - Três navalhas helicoidales - Encabadouro cilindrico
Фреза 3-зубая коническая для штампов и прессформ. Цилиндрический хвостовик

SERIE **R-S**

NORM.

STANDARD Rime

Z3



HSS-E Co8 | N | ≈30° | DIN 1835 A

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
SC1/01	2.5	30	70	6	3	•
SC1/02	2.5	40	80	8	3	•
SC1/03	3	30	75	8	3	•
SC1/04	3	40	85	8	3	•
SC1/05	3	50	95	10	3	•
SC1/06	3.5	30	75	8	3	•
SC1/07	3.5	40	85	8	3	•
SC1/08	4.5	30	75	8	3	•
SC1/09	4.5	40	85	10	3	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

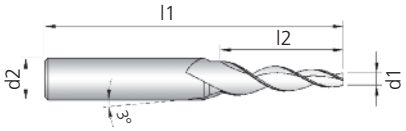
FRESE CONICHE PER STAMPI

SERIE R-S

SC2

Conicità 3° laterali- Tre denti elicoidali - Codolo cilindrico
TAPER END MILLS - Taper 3° - Three helical flutes - - Straight shank
FRAISES CONIQUES - Conicité 3° - Denture hélicoïdale trois dents - Queue cylindrique
KONISCHE FRÄSER - Kegel 3° - Dreischneider - Zylinderschaft
FRESAS CONICAS PARA MOLDES - Cónico 3° lateral - Tres labios helicoidales - Mango cilindrico
FRESAS CONICAS PARA MOLDES - Conico 3° lateral - Três navalhas helicoidales - Encabadouro cilindrico
Фреза 3-зубая коническая для штампов и прессформ. Цилиндрический хвостовик

Z3



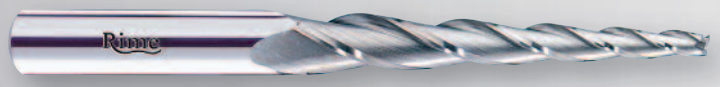
HSS-E Co8 | N | ≈30° | DIN 1835 A

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
SC2/01	2.5	20	65	6	3	•
SC2/02	2.5	25	70	8	3	•
SC2/03	2.5	30	75	8	3	•
SC2/04	2.5	40	85	8	3	•
SC2/05	3	20	65	8	3	•
SC2/06	3	25	70	8	3	•
SC2/07	3	30	75	8	3	•
SC2/08	3	40	85	8	3	•
SC2/09	3	50	95	10	3	•
SC2/10	3.5	20	65	8	3	•
SC2/11	3.5	25	70	8	3	•
SC2/12	3.5	30	75	8	3	•
SC2/13	3.5	40	85	10	3	•
SC2/14	3.5	50	100	10	3	•
SC2/15	4	30	75	10	3	•
SC2/16	4.5	20	65	8	3	•
SC2/17	4.5	25	70	10	3	•
SC2/18	4.5	30	75	10	3	•
SC2/19	4.5	40	85	10	3	•
SC2/20	4.5	70	120	12	3	•
SC2/21	4.5	80	140	14	3	•
SC2/22	6.5	70	125	14	3	•
SC2/23	6.5	100	165	20	3	•

▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▶	▶	▼	▼



FRESE CONICHE PER STAMPI

SC3

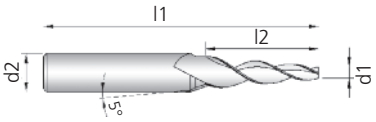
Conicità 5° laterali - Tre denti elicoidali - Codolo cilindrico
TAPER END MILIS - Taper 5° - Three helical flutes - Straight shank
FRAISES CONIQUES - Conicité 5° - Denture hélicoïdale trois dents - Queue cylindrique
KONISCHE FRÄSER - Kegel 5° - Dreischneider - Zylinderschaft
FRESAS CONICAS PARA MOLDES - Conico 5° lateral - Tres labios helicoidales - Mango cilindrico
FRESAS CONICAS PARA MOLDES - Conico 5° lateral - Três navalhas helicoidales - Encabadouro cilindrico
Фреза 3-зубая коническая для штампов и прессформ. Цилиндрический хвостовик

SERIE **R-S**

NORM.

STANDARD Rime

Z3



HSS-E Co8 | N | ≈ 30° | DIN 1835 A

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
SC3/01	2.5	20	65	8	3	•
SC3/02	2.5	25	70	8	3	•
SC3/03	2.5	30	75	10	3	•
SC3/04	2.5	40	85	10	3	•
SC3/05	2.5	50	100	12	3	•
SC3/06	3	20	65	8	3	•
SC3/07	3	25	70	8	3	•
SC3/08	3	30	75	10	3	•
SC3/09	3	40	85	10	3	•
SC3/10	3	50	95	12	3	•
SC3/11	3.5	20	65	8	3	•
SC3/12	3.5	25	70	8	3	•
SC3/13	3.5	30	75	10	3	•
SC3/14	3.5	40	90	12	3	•
SC3/15	3.5	50	100	14	3	•
SC3/16	4	35	85	12	3	•
SC3/17	4.5	20	65	10	3	•
SC3/18	4.5	25	70	10	3	•
SC3/19	4.5	30	80	12	3	•
SC3/20	4.5	40	90	12	3	•
SC3/21	4.5	50	105	16	3	•
SC3/22	4.5	60	115	16	3	•
SC3/23	4.5	66	125	16	3	•
SC3/24	4.5	85	145	20	3	•
SC3/25	5.5	20	65	10	3	•
SC3/26	5.5	25	70	12	3	•
SC3/27	5.5	30	80	12	3	•
SC3/28	5.5	40	90	14	3	•
SC3/29	5.5	50	105	16	3	•
SC3/30	5.5	60	115	16	3	•
SC3/31	6.5	40	90	14	3	•
SC3/32	6.5	54	110	16	3	•
SC3/33	6.5	60	115	16	3	•
SC3/34	6.5	70	125	20	3	•
SC3/35	6.5	77	140	20	3	•
SC3/36	6.5	77	165	20	3	•
SC3/37	6.5	77	215	20	3	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	►	►	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

Catalogo HSS-E e PM

SERIE AL

ALESATORI CILINDRICI A MANO E A MACCHINA

CYLINDER REAMERS

Rime
UTENSILERIA

INDEX

SERIE AL

ALESATORI CILINDRICI A MANO E A MACCHINA
CYLINDER REAMERS

ALESATORI CILINDRICI • SERIE NORMALE

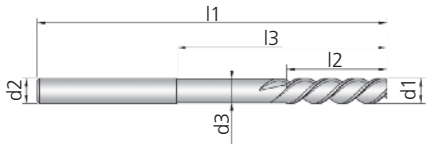
AL0

Taglio discendente elica 45° sinistra - Codolo cilindrico
CYLINDER REAMERS - Left-hand 45° helical teeth - Straight shank
ALÉSOIRS À CYLINDRES - Denture hélicoïdale à 45° à gauche - Queue cylindrique
MASCHINEN - REIBAHLEN - 45° links schrägverzahnt - Zylinderschaft
ESCARIADORES CILÍNDRICOS - Labios hélice izquierda 45° - Mango cilindrico
ESCARIADORES CILINDRICOS - Três navalhas hélice ezquerdea 45° - Encabadouro cilindrico
Развертка. Левая спираль 45°. Цилиндрический хвостовик. Средняя серия

SERIE AL

NORM.

DIN 212E
ISO 521



HSS-E Co8 | N | 45° | DIN 1835 A

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm H7	l2 mm	l1 mm	l3 mm	d2 mm h6	d3 mm	Z	Co 8% €
AL0/01	2	11	49	24	2	1.9	3	•
AL0/02	2.5	14	57	29	2.5	2.4	3	•
AL0/03	3	15	61	33	3	2.9	3	•
AL0/04	3.5	18	70	40	3.5	3.4	3	•
AL0/05	4	19	75	43	4	3.7	3	•
AL0/06	4.5	21	80	45	4.5	4.2	3	•
AL0/07	5	23	86	51	5	4.7	3	•
AL0/08	5.5	26	93	55	5.5	5.2	3	•
AL0/09	6	26	93	55	6	5.6	3	•
AL0/10	6.5	28	101	61	6.5	6.1	3	•
AL0/11	7	31	109	67	7	6.6	3	•
AL0/12	8	33	117	72	8	7.6	3	•
AL0/13	9	36	125	75	9	8.4	3	•
AL0/14	10	38	133	83	10	9.4	4	•
AL0/15	11	41	142	90	11	10.3	4	•
AL0/16	12	44	151	96	12	11.3	4	•
AL0/17	13	44	151	96	13	12.2	4	•
AL0/18	14	47	160	100	14	12.8	4	•
AL0/19	15	50	162	102	15	13.8	4	•
AL0/20	16	52	170	107	16	14.8	4	•

Diametri decimali e tolleranze diverse da H7 si forniscono a richiesta
Decimal diameter and different tolerance from H7 upon requirements

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

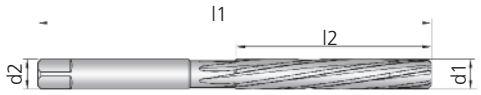
ALESATORI A MANO • SERIE NORMALE

SERIE AL

AL6

Denti elicoidali sinistri taglio destro - Codolo cilindrico con quadro - Per fori cilindrici
HAND REAMERS - Left-hand helical teeth, right-hand cutting - Straight shank with square - For parallel holes
ALÉSOIRS À MAIN - Denture hélicoïdale à gauche, coupe à droite - Queue cylindrique carrée - Pour trous cylindriques
HAND - REIBAHLEN - Spiralgenutet, rechtsschneidend, Linksdrall Zylinderschaft mit Vierkantmitnehmer - Für zylindrische Bohrungen
ESCARIADORES A MANO - Labios helicoidales izquierda, cortante derecho - Mango cilindrico con cuadro - Para agujeros cilíndricos
ESCARIADORES A MANO - Navalhas helicodiales esquerda, cortante dereito - Encabadouro cilindrico con cuadro -Para agujeros cilíndricos
Развертка ручная. Левая спираль, правое вращение. Средняя серия

SHORT · NORMAL · LONG · EXTRA-LONG



HSS-E Co5 | N | ≈10 | DIN 10

NORM.

UNI 6852
DIN 206B
ISO 236/I

CODE	d1 mm H7	l2 mm	l1 mm	d2 mm h6	Z	Co 5% €
AL6/00	2	25	50	2	4	•
AL6/01	3	31	62	3	4	•
AL6/02	4	38	76	4	5	•
AL6/03	5	44	87	5	5	•
AL6/04	6	47	93	6	5	•
AL6/05	7	54	107	7	6	•
AL6/06	8	58	115	8	6	•
AL6/07	9	62	124	9	6	•
AL6/08	10	66	133	10	6	•
AL6/09	11	71	142	11	8	•
AL6/10	12	76	152	12	8	•
AL6/11	13	76	152	13	8	•
AL6/12	14	81	163	14	8	•
AL6/13	15	81	163	15	8	•
AL6/14	16	87	175	16	8	•
AL6/15	17	87	175	17	8	•
AL6/16	18	93	188	18	8	•
AL6/17	19	93	188	19	8	•
AL6/18	20	100	201	20	8	•

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

ALESATORI A MACCHINA • SERIE EXTRA-LUNGA

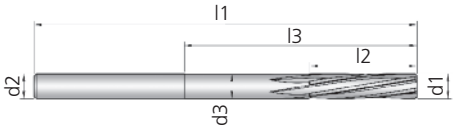
AL7

Denti elicoidali sinistri taglio destro - Codolo cilindrico
MACHINE REAMERS, EXTRA-LONG TYPE - Left-hand helical teeth, right-hand cutting - Straight shank
ALESOIRS POUR MACHINES, TYP EXTRA LONG - Denture hélicoïdale à gauche, coupe à droite - Queue cylindrique
MASCHINEN - REIBAHLEN, EXTRA LANGE AUSFÜHRUNG - Spiralgenutet, rechtsschneidend, Linksdrall - Zylinderschaft
ESCARIADORES A MAQUINA - Labios helicoidales izquierda, cortante derecho - Mango cilindrico
ESCARIADORES A MANO - Navalhas helicoidais esquerda, cortante dereito - Encabadouro cilindrico
Развертка машинная. Левая спираль, правое вращение. Цилиндрический хвостовик. Ультрадлинная серия

SERIE AL

NORM.

UNI
DIN 212D
ISO 521



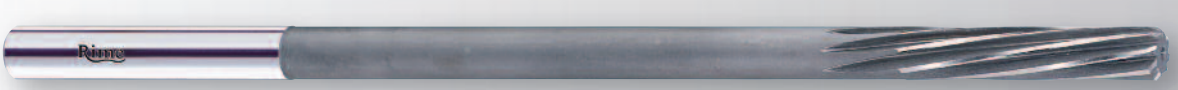
HSS-E Co8 | N | ≈ 10 | DIN 1835 A

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm H7	l2 mm	l1 mm	l3 mm	d2 mm h6	d3 mm	Z	Co 8% €
AL7/01	2	18	110	75	2	1.9	4	•
AL7/02	2.5	20	120	80	2.5	2.4	4	•
AL7/03	3	20	120	80	3	2.9	4	•
AL7/04	3.5	30	150	110	3.5	3.4	6	•
AL7/05	4	30	150	110	4	3.9	6	•
AL7/06	4.5	35	180	135	4.5	4.4	6	•
AL7/07	5	35	180	135	5	4.9	6	•
AL7/08	5.5	40	200	150	5.5	5.4	6	•
AL7/09	6	40	200	150	6	5.9	6	•
AL7/10	6.5	45	200	150	6.5	6.4	6	•
AL7/11	7	45	200	150	7	6.9	6	•
AL7/12	8	45	200	150	8	7.9	6	•
AL7/13	9	50	220	160	9	8.9	6	•
AL7/14	10	50	220	160	10	9.8	6	•
AL7/15	11	55	250	190	11	10.8	6	•
AL7/16	12	55	250	190	12	11.8	6	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

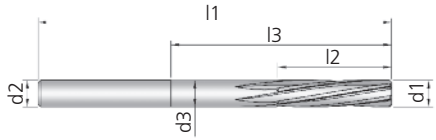


ALESATORI A MACCHINA • SERIE NORMALE

SERIE AL

AL8

Denti elicoidali sinistri taglio destro - Codolo cilindrico - Per fori cilindrici
MACHINE REAMERS - Left-hand helical teeth, right-hand cutting - Straight shank. For parallel holes
ALÉSOIRS POUR MACHINES - Denture hélicoïdale à gauche, coupe à droite - Queue cylindrique. Pour trous cylindriques
MASCHINEN - REIBAHLEN - Spiralgenutet, rechtsschneidend, Linksdrall - Zylinderschaft. Für zylindrische Bohrungen
ESCARIADORES A MÁQUINA - Labios helicoidales izquierda, cortante derecho - Mango cilindrico - Para agujeros cilíndricos
ESCARIADORES Á MAQUINA - Quatro navalhas helicoidais esquerda, cortante dereito - Encabadouro cilindrico - Para agujeros cilindricos
Развертка машинная. Левая спираль, правое вращение. Цилиндрический хвостовик. Средняя серия



HSS-E Co8 | N | DIN 1835 A | ≈ 10

NORM.

UNI 6853
DIN 212D
ISO 521

CODE	d1 mm H7	l2 mm	l1 mm	l3 mm	d2 mm h6	d3 mm	Z	Co 8% €
AL8/01	2	11	49	24	2	1.9	5	•
AL8/02	2.5	14	57	29	2.5	2.4	5	•
AL8/03	3	15	61	33	3	2.9	5	•
AL8/04	3.5	18	70	39	3.5	3.4	5	•
AL8/05	4	19	75	43	4	3.7	5	•
AL8/06	4.5	21	80	45	4.5	4.2	5	•
AL8/07	5	23	86	51	5	4.7	5	•
AL8/08	5.5	26	93	55	5.5	5.2	6	•
AL8/09	6	26	93	55	6	5.6	6	•
AL8/10	6.5	28	101	61	6.5	6.1	6	•
AL8/11	7	31	109	67	7	6.6	6	•
AL8/12	8	33	117	72	8	7.6	6	•
AL8/13	9	36	125	75	9	8.4	6	•
AL8/14	10	38	133	83	10	9.4	6	•
AL8/15	11	41	142	90	11	10.3	8	•
AL8/16	12	44	151	96	12	11.3	8	•
AL8/17	13	44	151	96	13	12.2	8	•
AL8/18	14	47	160	100	14	12.8	8	•
AL8/19	15	50	162	102	15	13.8	8	•
AL8/20	16	52	170	107	16	14.8	8	•

Diametri decimali e tolleranze diverse da H7 si forniscono a richiesta
Decimal diameter and different tolerance from H7 upon requirements

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

ALESATORI A MACCHINA TIPO MANICOTTO

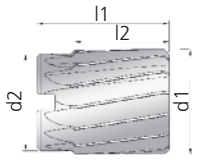
AL9

Foro conico 1:30 - Dentatura elicoidale 10°
SHELL MACHINE REAMERS - 1:30 taper hole - 10° helical teeth
ALÉSOIRS CREUX - Alésage conique 1:30 - Denture hélicoïdale 10°
AUFSTECK - REIBAHLEN - Kegelbohrung 1:30 - 10° schrägverzahnt
ESCARIADORES A MÁQUINA TIPO MANICOTTO - Agujero cónico 1:30 - Labios helicoidales 10°
ESCARIADORES A MAQUINA TIPO MANICOTTO - Agujero conico 1:30 - Navalhas helicoidales 10°
Развертка насадная

SERIE AL

NORM.

UNI 6855
DIN 219B
ISO 2402



HSS-E Co5 | N | ≈ 10

CODE	d1 mm H7	l2 mm	l1 mm	d2 mm	d foro mm conicità 1:30	Z	Co 5% €
AL9/01	24	32	45	22	13	10	•
AL9/02	25	32	45	23	13	10	•
AL9/03	26	32	45	24	13	10	•
AL9/04	27	32	45	25	13	10	•
AL9/05	28	32	45	26	13	10	•
AL9/06	29	32	45	27	13	10	•
AL9/07	30	32	45	28	13	10	•
AL9/08	31	36	50	28	16	10	•
AL9/09	32	36	50	29	16	10	•
AL9/10	33	36	50	30	16	10	•
AL9/11	34	36	50	31	16	10	•
AL9/12	35	36	50	32	16	10	•
AL9/13	36	40	56	33	19	12	•
AL9/14	37	40	56	34	19	12	•
AL9/15	38	40	56	35	19	12	•
AL9/16	39	40	56	36	19	12	•
AL9/17	40	40	56	37	19	12	•
AL9/18	42	40	56	39	19	12	•
AL9/19	44	45	63	40	22	12	•
AL9/20	45	45	63	41	22	12	•
AL9/21	46	45	63	42	22	14	•
AL9/22	48	45	63	44	22	14	•
AL9/23	49	45	63	45	22	14	•
AL9/24	50	45	63	46	22	14	•
AL9/25	52	50	71	48	27	14	•
AL9/26	55	50	71	51	27	14	•
AL9/27	58	50	71	54	27	14	•
AL9/28	60	50	71	56	27	16	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

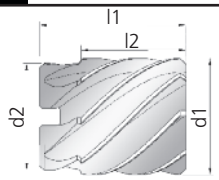
▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ALESATORI A MACCHINA TIPO MANICOTTO

SERIE AL

AL10

Foro conico 1:30 - Dentatura elicoidale discendente 45°
SHELL MACHINE REAMERS - 1:30 taper hole - 45° helical teeth
ALÉSOIRS CREUX - Alésage conique 1:30 - Denture hélicoïdale 45°
AUFSTECK - REIBAHLEN - Kegelbohrung 1:30 - 45° schrägverzahnt
ESCARIADORES A MÁQUINA TIPO MANICOTTO - Agujero conico 1:30 - Labios 45°
ESCARIADORES A MAQUINA TIPO MANICOTTO - Agujero conico 1:30 - Labios 45
Развертка насадная с углом винтовой канавки 45°



HSS-E Co5 | N | 45°

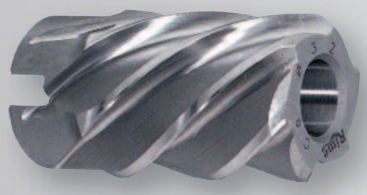
NORM.
UNI 6855
DIN 219
ISO 2402

Diametri decimali e tolleranze diverse da H7 si forniscono a richiesta
Decimal diameter and different tolerance from H7 upon requirements

CODE	d1 mm H7	l2 mm	l1 mm	d2 mm	d foro mm conicità 1:30	Z	Co 5% €
AL10/01	24	32	45	22	13	5	•
AL10/02	25	32	45	23	13	5	•
AL10/03	26	32	45	24	13	5	•
AL10/04	27	32	45	25	13	5	•
AL10/05	28	32	45	26	13	5	•
AL10/06	29	32	45	27	13	6	•
AL10/07	30	32	45	28	13	6	•
AL10/08	31	36	50	28	16	6	•
AL10/09	32	36	50	29	16	6	•
AL10/10	33	36	50	30	16	7	•
AL10/11	34	36	50	31	16	7	•
AL10/12	35	36	50	32	16	7	•
AL10/13	36	40	56	33	19	8	•
AL10/14	37	40	56	34	19	8	•
AL10/15	38	40	56	35	19	8	•
AL10/16	39	40	56	36	19	8	•
AL10/17	40	40	56	37	19	8	•
AL10/18	42	40	56	39	19	8	•
AL10/19	44	45	63	40	22	8	•
AL10/20	45	45	63	41	22	8	•
AL10/21	46	45	63	42	22	8	•
AL10/22	48	45	63	44	22	8	•
AL10/23	49	45	63	45	22	8	•
AL10/24	50	45	63	46	22	8	•
AL10/25	52	50	71	48	27	8	•
AL10/26	55	50	71	51	27	8	•
AL10/27	58	50	71	54	27	10	•
AL10/28	60	50	71	56	27	10	•

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►



Catalogo HSS-E e PM

SERIE L

FRESE PER ALLUMINIO E LEGHE LEGGERE

END MILLS FOR ALUMINIUM AND LIGHT ALLOYS

Rime
UTENSILERIA

INDEX

SERIE L

FRESE PER ALLUMINIO E LEGHE LEGGERE
END MILLS FOR ALUMINIUM AND LIGHT ALLOYS

FRESE A DUE DENTI • SERIE NORMALE

L1

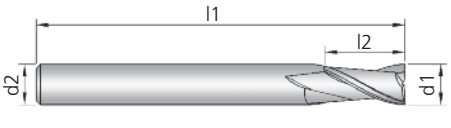
Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Codolo cilindrico
TWO-FLUTES END MILLS - One end tooth cutting up to the centre - To machine aluminium, light alloys - Straight shank
FRAISES À CYLINDRES DEUX DENTS - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queque cylindrique
SCHAFTFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Zylinderschaft
FRESAS CILINDRICAS DOS LABIOS - Un labio que cortan hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango cilindrico
FRESAS CILINDRICAS DUAS NAVALHAS - Um naval que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Encabadouro cilindrico
Фреза 2-х зубая для работ по алюминию, легким сплавам, хрупким и пластичным материалам. Режущий торец. Цилиндрический хвостовик. Средняя серия

SERIE L

NORM.

UNI 8244-8245
DIN 844A
ISO 1641/I

Z2



HSS-E Co8 | W | 40° | DIN 1835 A

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
L1/01	2	7	51	6	2	•
L1/01/1	2.5	8	52	6	2	•
L1/02	3	8	52	6	2	•
L1/03	4	11	55	6	2	•
L1/04	5	13	57	6	2	•
L1/05	6	13	57	6	2	•
L1/06	7	16	66	10	2	•
L1/07	8	19	69	10	2	•
L1/08	9	19	69	10	2	•
L1/09	10	22	72	10	2	•
L1/10	11	22	79	12	2	•
L1/11	12	26	83	12	2	•
L1/12	13	26	83	12	2	•
L1/13	14	26	83	12	2	•
L1/14	15	32	92	16	2	•
L1/15	16	32	92	16	2	•
L1/16	18	32	92	16	2	•
L1/17	20	38	104	20	2	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▼	▼	►	►	▲	▲

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A DUE DENTI • SERIE LUNGA

SERIE L

L2

Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Codolo cilindrico
TWO-FLUTES END MILLS - One end tooth cutting up to the centre - To machine aluminium, light alloys - Straight shank
FRAISES À CYLINDRES DEUX DENTS - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique
SCHAFTFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Zylinderschaft
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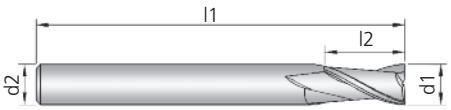
Фреза 2-х зубая для работ по алюминию, легким сплавам, хрупким и пластичным материалам. Режущий торец. Цилиндрический хвостовик. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z2



HSS-E Co8 | W | 40° | DIN 1835 A

NORM.

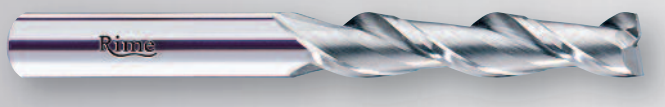
UNI 8244-8245
DIN 844A
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	Co 8% €
L2/01	3	12	56	6	2	•
L2/02	4	19	63	6	2	•
L2/03	5	24	68	6	2	•
L2/04	6	24	68	6	2	•
L2/05	7	30	80	10	2	•
L2/06	8	38	88	10	2	•
L2/07	9	38	88	10	2	•
L2/08	10	45	95	10	2	•
L2/09	11	45	102	12	2	•
L2/10	12	53	110	12	2	•
L2/11	13	53	110	12	2	•
L2/12	14	53	110	12	2	•
L2/13	15	63	123	16	2	•
L2/14	16	63	123	16	2	•
L2/15	18	63	123	16	2	•
L2/16	20	75	141	20	2	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO / RECOMMENDED
► ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI / STEELS	GHISE / CAST IRON	ACCIAI INOSSIDABILI / STAINLESS STEELS	SUPER LEGHE - TITANIO / SUPERALLOYS - TITANIUM	LEGHE LEGGERE / LIGHT ALLOYS	MATERIALI NON FERROSI / NON FERROUS MATERIAL
▼	▼	►	►	▲	▲



FRESE A DUE DENTI • SERIE NORMALE

L3

Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Codolo cilindrico
TWO-FLUTES END MILLS - One end tooth cutting up to the centre - To machine aluminium, light alloys - Straight shank
FRAISES À CYLINDRES DEUX DENTS - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique
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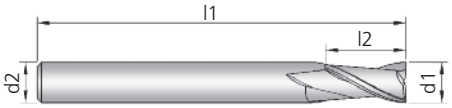
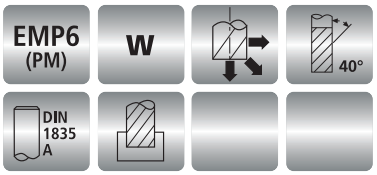
SERIE L

NORM.

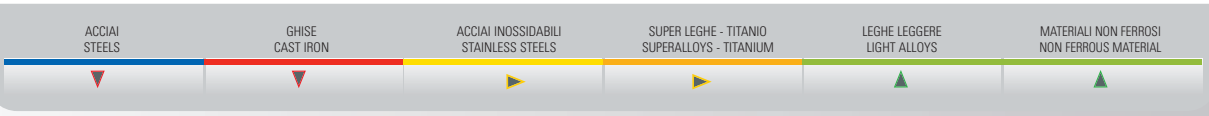
UNI 8244
DIN 844A
ISO 1641/I





CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP6 €
L3/03	4	11	55	6	2	•
L3/04	5	13	57	6	2	•
L3/05	6	13	57	6	2	•
L3/06	7	16	66	10	2	•
L3/07	8	19	69	10	2	•
L3/08	9	19	69	10	2	•
L3/09	10	22	72	10	2	•
L3/10	11	22	79	12	2	•
L3/11	12	26	83	12	2	•
L3/12	13	26	83	12	2	•
L3/13	14	26	83	12	2	•
L3/14	15	32	92	16	2	•
L3/15	16	32	92	16	2	•
L3/16	18	32	92	16	2	•
L3/17	20	38	104	20	2	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03



▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

FRESE A DUE DENTI • SERIE NORMALE

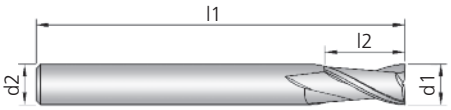
SERIE L

L4

Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Codolo cilindrico
TWO-FLUTES END MILLS - One end tooth cutting up to the centre - To machine aluminium, light alloys - Straight shank
FRAISES À CYLINDRES DEUX DENTS - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique
SCHAFTFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Zylinderschaft
FRESAS CILINDRICAS DOS LABIOS - Un labio que cortan hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango cilindrico
FRESAS CILINDRICAS DUAS NAVALHAS - Um naval que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Encabadouro cilindrico
Фреза 2-х зубая для работ по алюминию, легким сплавам, хрупким и пластичным материалам. Режущий торец. Цилиндрический хвостовик. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

Z2



EMP3 (PM) | W | 40° | DIN 1835 A

NORM.

UNI 8244
DIN 844A
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
L4/01	2	7	51	6	2	•
L4/02	3	8	52	6	2	•
L4/03	4	11	55	6	2	•
L4/04	5	13	57	6	2	•
L4/05	6	13	57	6	2	•
L4/06	7	16	66	10	2	•
L4/07	8	19	69	10	2	•
L4/08	9	19	69	10	2	•
L4/09	10	22	72	10	2	•
L4/10	11	22	79	12	2	•
L4/11	12	26	83	12	2	•
L4/12	13	26	83	12	2	•
L4/13	14	26	83	12	2	•
L4/14	15	32	92	16	2	•
L4/15	16	32	92	16	2	•
L4/16	18	32	92	16	2	•
L4/17	20	38	104	20	2	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO / RECOMMENDED
► ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI / STEELS	GHISE / CAST IRON	ACCIAI INOSSIDABILI / STAINLESS STEELS	SUPER LEGHE - TITANIO / SUPERALLOYS - TITANIUM	LEGHE LEGGERE / LIGHT ALLOYS	MATERIALI NON FERROSI / NON FERROUS MATERIAL
▼	▼	►	►	▲	▲

FRESE A DUE DENTI • SERIE LUNGA

L5

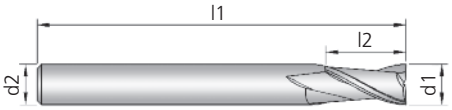
Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Codolo cilindrico
TWO-FLUTES END MILLS - One end tooth cutting up to the centre - To machine aluminium, light alloys - Straight shank
FRAISES À CYLINDRES DEUX DENTS - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique
SCHAFTFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Zylinderschaft
FRESAS CILINDRICAS DOS LABIOS - Un labio que cortan hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango cilindrico
FRESAS CILINDRICAS DUAS NAVALHAS - Um naval que corta hasta el centro -Para mecanizar el aluminio y ligas ligeras - Encabadouro cilindrico
Фреза 2-х зубая для работ по алюминию, легким сплавам, хрупким и пластичным материалам. Режущий торец. Цилиндрический хвостовик. Удлиненная серия

SERIE L

NORM.

UNI 8244-8245
DIN 844A
ISO 1641/I

Z2



EMP3 (PM) | W | 40° | DIN 1835 A

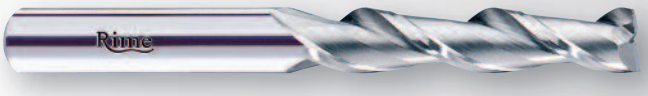
SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
L5/01	3	12	56	6	2	•
L5/02	4	19	63	6	2	•
L5/03	5	24	68	6	2	•
L5/04	6	24	68	6	2	•
L5/05	7	30	80	10	2	•
L5/06	8	38	88	10	2	•
L5/07	9	38	88	10	2	•
L5/08	10	45	95	10	2	•
L5/09	11	45	102	12	2	•
L5/10	12	53	110	12	2	•
L5/11	13	53	110	12	2	•
L5/12	14	53	110	12	2	•
L5/13	15	63	123	16	2	•
L5/14	16	63	123	16	2	•
L5/15	18	63	123	16	2	•
L5/16	20	75	141	20	2	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▼	▼	►	►	▲	▲

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED



FRESE A DUE DENTI A TESTA SEMISFERICA • SERIE NORMALE

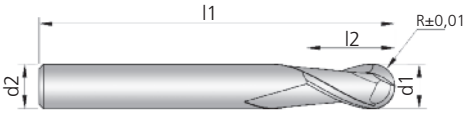
SERIE L

L6

Due denti frontali taglienti fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Codolo cilindrico
BALL-NOSED TWO-FLUTES END MILLS - Two end teeth cutting up to the centre - To machine aluminium, light alloys - Straight shank
FRAISES À CYLINDRES DEUX DENTS À BOUT HÉMISPHERIQUE - Deux dents bout coupantes jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique
HALBRUNDKOPFFRÄSER, ZWEISCHNEIDER - Zwei Schneiden mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Zylinderschaft
FRESAS CILINDRICAS DOS LABIOS CABEZA SEMIESFÉRICA - Dos labios que cortan hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango cilindrico
FRESAS CILINDRICAS BOLEADA DUAS NAVALHAS - Um naval que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Encabadouro cilindrico
Фреза 2-х зубая для работ по алюминию, легким сплавам, хрупким и пластичным материалам. Сферический торец. Цилиндрический хвостовик. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

Z2



EMP3 (PM) | W | 40° | DIN 1835 A

NORM.

ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
L6/00	2	11	51	6	2	•
L6/00/1	3	11	52	6	2	•
L6/01	4	11	55	6	2	•
L6/02	5	13	57	6	2	•
L6/03	6	13	57	6	2	•
L6/04	7	16	66	10	2	•
L6/05	8	19	69	10	2	•
L6/06	9	19	69	10	2	•
L6/07	10	22	72	10	2	•
L6/08	11	22	79	12	2	•
L6/09	12	26	83	12	2	•
L6/10	13	26	83	12	2	•
L6/11	14	26	83	12	2	•
L6/12	15	32	92	16	2	•
L6/13	16	32	92	16	2	•
L6/14	18	32	92	16	2	•
L6/15	20	38	104	20	2	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▼	▼	►	►	▲	▲

FRESE A DUE DENTI A TESTA SEMISFERICA • SERIE LUNGA

L7

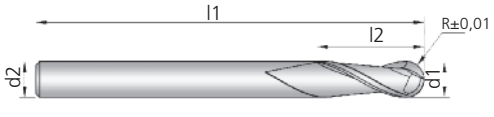
Due denti frontali taglienti fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Codolo cilindrico
BALL-NOSED TWO-FLUTES END MILLS - Two end teeth cutting up to the centre - To machine aluminium, light alloys - Straight shank
FRAISES À CYLINDRES DEUX DENTS À BOUT HÉMISPHERIQUE - Deux dents bout coupantes jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique
HALBRUNDKOPFFRÄSER, ZWEISCHNEIDER - Zwei Schneiden mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Zylinderschaft
FRESAS CILINDRICAS DOS LABIOS CABEZA SEMIESFÉRICA - Dos labios que cortan hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango cilindrico
FRESAS CILINDRICAS BOLEADA DUAS NAVALHAS - Duas navalhas que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Encabadouro cilindrico
Фреза 2-х зубая для работ по алюминию, легким сплавам, хрупким и пластичным материалам. Сферический торец. Цилиндрический хвостовик. Удлиненная серия

SERIE L

NORM.

ISO 1641/I

Z2



EMP3 (PM) | W | 40° | DIN 1835 A

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
L7/00	2	11	54	6	2	•
L7/00/1	3	12	56	6	2	•
L7/01	4	19	63	6	2	•
L7/02	5	24	68	6	2	•
L7/03	6	24	68	6	2	•
L7/04	7	30	80	10	2	•
L7/05	8	38	88	10	2	•
L7/06	9	38	88	10	2	•
L7/07	10	45	95	10	2	•
L7/08	11	45	102	12	2	•
L7/09	12	53	110	12	2	•
L7/10	13	53	110	12	2	•
L7/11	14	53	110	12	2	•
L7/12	15	63	123	16	2	•
L7/13	16	63	123	16	2	•
L7/14	18	63	123	16	2	•
L7/15	20	75	141	20	2	•

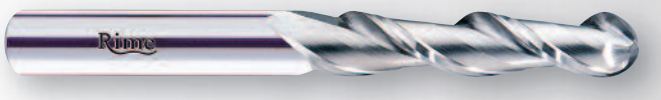
Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▼	▼	►	►	▲	▲

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED



FRESE A TRE DENTI • SERIE NORMALE

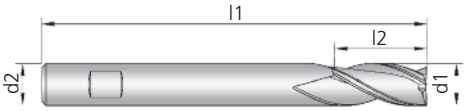
SERIE L

L8

Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Attacco Weldon
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - To machine aluminium, light alloys - Weldon shank
FRAISES À CYLINDRES TROIS DENTS - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique Weldon
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Weldon-Spannfläche
FRESAS CILINDRICAS FRONTALES TRES LABIOS - Un labio que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango Weldon
FRESAS CILINDRICAS FRONTALES TRES NAVALHAS - Um naval que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Encabadouro Weldon
Фреза 3-х зубая для работ по алюминию, легким сплавам, хрупким и пластичным материалам. Режущий торец. Хвостовик Weldon. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

Z3



EMP3 (PM) | W | 40° | DIN 1835 B

NORM.

STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	ALU SUPREME €
L8/00	2	7	51	6	3	•	•
L8/01	3	14	58	6	3	•	•
L8/02	4	18	62	6	3	•	•
L8/03	5	20	64	6	3	•	•
L8/04	6	22	66	6	3	•	•
L8/05	7	22	72	10	3	•	•
L8/06	8	25	75	10	3	•	•
L8/07	9	25	75	10	3	•	•
L8/08	10	28	78	10	3	•	•
L8/09	12	32	89	12	3	•	•
L8/10	14	32	89	12	3	•	•
L8/11	16	36	96	16	3	•	•
L8/12	18	40	100	16	3	•	•
L8/13	20	45	110	20	3	•	•
L8/14	22	45	110	20	3	•	•
L8/15	25	50	125	25	3	•	•
L8/16	28	56	132	25	3	•	•
L8/17	30	63	140	25	3	•	•
L8/18	32	63	143	32	3	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO / RECOMMENDED
► ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI / STEELS	GHISE / CAST IRON	ACCIAI INOSSIDABILI / STAINLESS STEELS	SUPER LEGHE - TITANIO / SUPERALLOYS - TITANIUM	LEGHE LEGGERE / LIGHT ALLOYS	MATERIALI NON FERROSI / NON FERROUS MATERIAL
►	▼	►	►	▲	▲

FRESE A TRE DENTI • SERIE LUNGA

L9

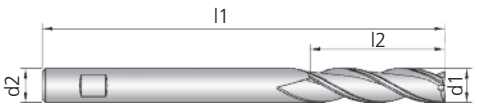
Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Attacco Weldon
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - To machine aluminium, light alloys - Weldon shank
FRAISES À CYLINDRES TROIS DENTS - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique Weldon
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Weldon-Spannfläche
FRESAS CILINDRICAS FRONTALES TRES LABIOS - Un labio que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango Weldon
FRESAS CILINDRICAS FRONTALES TRÉS NAVALHAS - Um naval que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Encabadouro Weldon
Фреза 3-х зубая для работ по алюминию, легким сплавам, хрупким и пластичным материалам. Режущий торец. Хвостовик Weldon. Удлиненная серия

SERIE L

NORM.

STANDARD Rime

Z3



EMP3 (PM) | W | 40° | DIN 1835 B

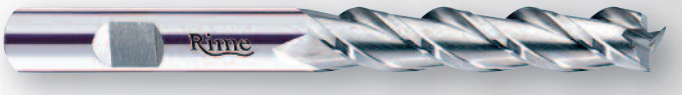
SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
L9/00	2	12	54	6	3	•
L9/01	3	18	62	6	3	•
L9/02	4	22	65	6	3	•
L9/03	5	26	70	6	3	•
L9/04	6	30	75	6	3	•
L9/05	7	34	84	10	3	•
L9/06	8	34	84	10	3	•
L9/07	9	40	90	10	3	•
L9/08	10	40	90	10	3	•
L9/09	12	56	113	12	3	•
L9/10	14	63	120	12	3	•
L9/11	16	63	123	16	3	•
L9/12	18	71	131	16	3	•
L9/13	20	71	137	20	3	•
L9/14	22	80	146	20	3	•
L9/15	25	80	156	25	3	•
L9/16	28	90	166	25	3	•
L9/17	30	90	166	25	3	•
L9/18	32	90	170	32	3	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▶	▼	▶	▶	▲	▲

▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED



FRESE A TRE DENTI • SERIE NORMALE

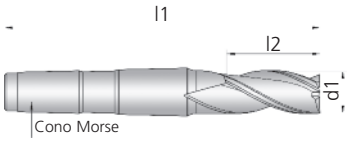
SERIE L

L10

Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Codolo conico Morse con foro filettato
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - To machine aluminium, light alloys - Morse taper shank
FRAISES À CYLINDRES TROIS DENTS - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue au cône Morse à trou fileté
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES TRES LABIOS - Un labio que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango cónico Morse con taladro roscado
FRESAS CILINDRICAS FRONTALES TRÉS NAVALHAS - Um naval que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Encabadouro conico Morse taladro roscado
Фреза 3-х зубая для работ по алюминию, легким сплавам, хрупким и пластичным материалам. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT · NORMAL · LONG · EXTRA-LONG

Z3



EMP6 (PM) · W · 40° · DIN 228-A

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP6 €
L10/01	14	32	117	2	3	•
L10/02	15	35	120	2	3	•
L10/03	16	35	120	2	3	•
L10/04	18	40	125	2	3	•
L10/05	20	45	147	3	3	•
L10/06	22	45	147	3	3	•
L10/07	24	50	152	3	3	•
L10/08	25	50	152	3	3	•
L10/09	26	56	158	3	3	•
L10/10	28	56	158	3	3	•
L10/11	30	56	165	3	3	•
L10/12	32	63	188	4	3	•
L10/13	34	70	195	4	3	•
L10/14	35	70	195	4	3	•
L10/15	36	70	195	4	3	•
L10/16	38	70	195	4	3	•
L10/17	40	70	195	4	3	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO / RECOMMENDED
▶ ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▶	▼	▶	▶	▲	▲

FRESE PER SGROSSATURA • SERIE NORMALE

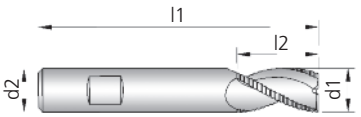
L12

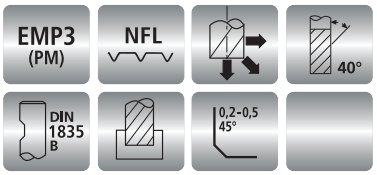
Denti elicoidali con taglio interrotto - Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Attacco Weldon
ROUGHING END MILLS - Helical teeth with chip-breaker - One end tooth cutting up to the centre - To machine aluminium, light alloys - Weldon shank
FRAISES À CYLINDRES À DÉGROSSIR - Denture hélicoïdale avec brise-copeaux - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique Weldon
SCHAFTFRÄSER DREISCHNEIDER - Schrägschneiden mit Spanbrecher - Eine Schneide mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta - Un labio que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango cónico Weldon
FRESAS CILINDRICAS FRONTALES PARA DESTASTE - Navalhas helicoidal com quebra apara - Um navalha que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Encabadouro Weldon
Фреза 3-х зубая для черновой обработки алюминия, легких сплавов, хрупких и пластичных материалов. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE L

NORM.

UNI 8248
DIN 844B
ISO 1641/I





CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	ALU SUPREME €
L12/01	6	13	57	6	3	•	•
L12/02	7	16	66	10	3	•	•
L12/03	8	19	69	10	3	•	•
L12/04	9	19	69	10	3	•	•
L12/05	10	22	72	10	3	•	•
L12/06	12	26	83	12	3	•	•
L12/07	14	26	83	12	3	•	•
L12/08	15	32	92	16	3	•	•
L12/09	16	32	92	16	3	•	•
L12/10	18	32	92	16	3	•	•
L12/11	20	38	104	20	3	•	•
L12/12	22	38	104	20	3	•	•
L12/13	25	45	121	25	3	•	•
L12/14	28	45	121	25	3	•	•
L12/15	30	45	121	25	3	•	•
L12/16	32	53	133	32	3	•	•
L12/17	36	53	133	32	3	•	•
L12/18	40	53	143	32	3	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
►	▼	►	►	▲	▲

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

FRESE PER SGROSSATURA • SERIE LUNGA

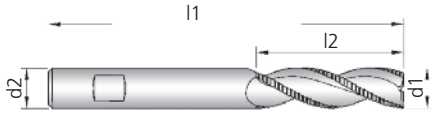
SERIE L

L13

Denti elicoidali con taglio interrotto - Un dente frontale tagliente fino al centro - Lavorazione di alluminio, leghe leggere, materiali teneri e malleabili - Attacco Weldon
ROUGHING END MILLS - Helical teeth with chip-breaker - One end tooth cutting up to the centre - To machine aluminium, light alloys - Weldon shank
FRAISES À CYLINDRES À DÉGROSSIR - Denture hélicoïdale avec brise-copeaux - Une dent bout coupante jusq'au centre - Pour l'usinage de aluminium, aliages légers - Queue cylindrique Weldon
SCHAFTFRÄSER DREISCHNEIDER - Schrägschneiden mit Spanbrecher - Eine Schneide mit Zentrumschnitt - Zur Bearbeitung von Aluminium, Leichtlegierungen - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta - Un labio que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Mango cónico Weldon
FRESAS CILINDRICAS FRONTALES PARA DESTASTE - Navalhas helicoidal com quebra apara - Um navalha que corta hasta el centro - Para mecanizar el aluminio y ligas ligeras - Encabadouro Weldon
Фреза 3-х зубая для черновой обработки алюминия, легких сплавов, хрупких и пластичных материалов. Режущий торец. Хвостовик Weldon. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z3



EMP3 (PM) | NFL | 40° | DIN 1835 B | 0,2-0,5 45°

NORM.

UNI 8249
DIN 844B
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	ALU SUPREME €
L13/01	6	24	68	6	3	•	•
L13/02	8	38	88	10	3	•	•
L13/03	10	45	95	10	3	•	•
L13/04	12	53	110	12	3	•	•
L13/05	14	53	110	12	3	•	•
L13/06	15	63	123	16	3	•	•
L13/07	16	63	123	16	3	•	•
L13/08	18	63	123	16	3	•	•
L13/09	20	75	141	20	3	•	•
L13/10	22	75	141	20	3	•	•
L13/11	25	90	166	25	3	•	•
L13/12	28	90	166	25	3	•	•
L13/13	30	90	166	25	3	•	•
L13/14	32	106	186	32	3	•	•
L13/15	36	106	186	32	3	•	•
L13/16	40	125	205	32	3	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
►	▼	►	►	▲	▲

FRESE PER SGROSSATURA • SERIE NORMALE

L14

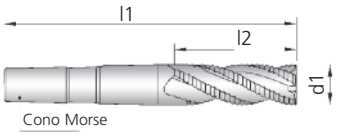
Denti elicoidali con rompitruciolo tondo a passo grosso - Un dente frontale tagliente fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with big rounded chip-breaker - One end tooth cutting up to the centre - Morse taper shank
FRAISES À CYLINDRES À DÉGROSSIR - Denture hélicoïdale avec brise-copeaux à pas grosse - Une dent bout coupante jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER DREISCHNEIDER - Schrägschneiden mit Spanbrecher - Eine Schneide mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta redondo paso grande - Un labio que corta hasta el centro - mango cónico Morse taladro roscado
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Navalhas helicoidais com quebra- apara paso grande - Um navalha que corta hasta el centro - Encabadouro conico Morse taladro roscado
Фреза 3-х зубая для черновой обработки алюминия, легких сплавов, хрупких и пластичных материалов. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SERIE L

NORM.

DIN 845B
ISO 1641/II

Z3



EMP3 (PM) | NRAL | 40° | DIN 228-A

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €	ALU SUPREME €
L14/03	20	38	140	3	3	•	•
L14/04	22	38	140	3	3	•	•
L14/06	25	45	147	3	3	•	•
L14/08	28	45	147	3	3	•	•
L14/09	30	45	147	3	3	•	•
L14/10	32	53	178	4	4	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▶	▼	▼	▼	▲	▲

▲ CONSIGLIATO
RECOMMENDED

▶ ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

FRESE PER SGROSSATURA • SERIE LUNGA

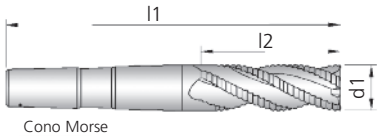
SERIE L

L15

Denti elicoidali con rompitruciolo tondo a passo grosso - Un dente frontale tagliente fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with big rounded chip-breaker - One end tooth cutting up to the centre - Morse taper shank
FRAISES À CYLINDRES À DÉGROSSIR - Denture hélicoïdale avec brise-copeaux à pas grosse - Une dent bout coupante jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER DREISCHNEIDER - Schrägschneiden mit holer Spannbrecher - Eine Schneide mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta redondo paso grande - Un labio que corta hasta el centro - mango cónico Morse taladro roscado
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Navalhas helicoidais com quebra- apara paso grande - Um navalha que corta hasta el centro - Encabadouro conico Morse taladro roscado
Фреза 3-х зубая для черновой обработки алюминия, легких сплавов, хрупких и пластичных материалов. Режущий торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SHORT · NORMAL · LONG · EXTRA-LONG

Z3



EMP3 (PM) · NRAL · 40° · DIN 228-A · ~0,3xd

NORM.
DIN 845B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €	ALU SUPREME €
L15/03	20	75	177	3	3	•	•
L15/04	22	75	177	3	3	•	•
L15/06	25	90	192	3	3	•	•
L15/08	28	90	192	3	3	•	•
L15/09	30	90	192	3	3	•	•
L15/10	32	95	220	4	3	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

CONSIGLIATO
RECOMMENDED

ACCETTABILE
ACCEPTABLE

SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▶	▼	▼	▼	▲	▲

FRESE MONOTAGLIENTE PER LEGHE LEGGERE

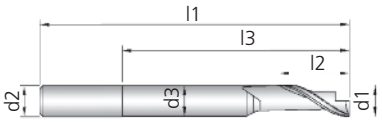
L17

Codolo cilindrico
SINGLE-FLUTES END MILLS TO MACHINE LIGHT ALLOYS - Straight shank
FRAISES À UNE TAILLE POUR L'USINAGE D'ALIAGES LÉGERS - Queue cylindrique
EINSCHNEIDEFRÄSER ZUR BEARBEITUNG VON LEICHTMETALLE - Zylinderschaft
FRESAS MONO CORTANTE PARA LIGAS LIGERAS - Mango cilindrico
FRESAS MONO CORTANTES PARA LIGAS LIGERAS - Encabadouro cilindrico
Фреза однозубая для обработки легких сплавов. Цилиндрический хвостовик

SERIE L

NORM.

STANDARD Rime



HSS-E Co8 | W | ≈ 35° | DIN 1835 A

CODE	d1 mm js14	l1 mm	l2 mm	l3 mm	d2 mm h6	d3 mm	Co 8 €	ALU SUPREME €
L17/01	8	100	15	80	8	7.9	•	•
L17/02	8	120	15	100	8	7.9	•	•
L17/03	10	100	15	75	8	9.0	•	•
L17/04	10	100	15	75	10	9.9	•	•

Ulteriori diametri su richiesta
Other diameters on requirements

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▼	▼	▼	▼	▲	►

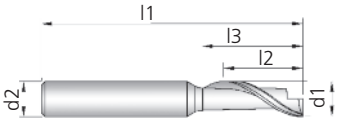
▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE MONOTAGLIENTE PER LEGHE LEGGERE

SERIE L

L18

Codolo cilindrico
SINGLE-FLUTES END MILLS TO MACHINE LIGHT ALLOYS - Straight shank
FRAISES À UNE TAILLE POUR L'USINAGE D'ALIAGES LÉGERS - Queue cylindrique
EINSCHNEIDEFRÄSER ZUR BEARBEITUNG VON LEICHTMETALLE - Zylinderschaft
FRESAS MONO CORTANTE PARA LIGAS LIGERAS - Mango cilindrico
FRESAS MONO CORTANTES PARA LIGAS LIGEIRAS - Encabadouro cilindrico
Фреза однозубая для обработки легких сплавов. Цилиндрический хвостовик



EMP3 (PM) | W | ≈ 35° | DIN 1835 A

NORM. STANDARD Rime

CODE	d1 mm js14	l1 mm	l2 mm	d2 mm h6	EMP3 €	ALU SUPREME €
L18/01	4	55	11	6	•	•
L18/02	5	60	13	6	•	•
L18/03	6	57	13	6	•	•
L18/04	7	65	16	10	•	•
L18/05	8	70	19	10	•	•
L18/06	10	75	22	10	•	•
L18/07	12	80	25	12	•	•

▲ CONSIGLIATO / RECOMMENDED
► ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

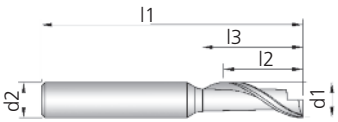
ACCIAI / STEELS	GHISE / CAST IRON	ACCIAI INOSSIDABILI / STAINLESS STEELS	SUPER LEGHE - TITANIO / SUPERALLOYS - TITANIUM	LEGHE LEGGERE / LIGHT ALLOYS	MATERIALI NON FERROSI / NON FERROUS MATERIAL
▼	▼	▼	▼	▲	►

FRESE MONOTAGLIENTE PER LEGHE LEGGERE

SERIE L

L19

Codolo cilindrico
SINGLE-FLUTED END MILLS TO MACHINE LIGHT ALLOYS - Straight shank
FRAISES À UNE TAILLE POUR L'USINAGE D'ALIAGES LÉGERS - Queue cylindrique
EINSCHNEIDEFRÄSER ZUR BEARBEITUNG VON LEICHTMETALLE - Zylinderschaft
FRESAS MONO CORTANTE PARA LIGAS LIGERAS - Mango cilindrico
FRESAS MONO CORTANTES PARA LIGAS LIGEIRAS - Encabadouro cilindrico
Фреза однозубая для обработки легких сплавов. Цилиндрический хвостовик



HSS-E Co8 | W | ≈ 35° | DIN 1835 A

NORM. STANDARD Rime

CODE	d1 mm js14	l1 mm	l2 mm	l3 mm	d2 mm h6	Co8% €	ALU SUPREME €
L19/02	3	68	12	20	8	•	•
L19/03	4	68	12	20	8	•	•
L19/04	5	62	15	20	6	•	•
L19/05	5	68	15	23	8	•	•
L19/06	5	68	15	23	10	•	•
L19/07	6	68	15	23	8	•	•
L19/08	8	80	15	60	8	•	•

▲ CONSIGLIATO / RECOMMENDED
► ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI / STEELS	GHISE / CAST IRON	ACCIAI INOSSIDABILI / STAINLESS STEELS	SUPER LEGHE - TITANIO / SUPERALLOYS - TITANIUM	LEGHE LEGGERE / LIGHT ALLOYS	MATERIALI NON FERROSI / NON FERROUS MATERIAL
▼	▼	▼	▼	▲	►

FRESE PER FORARE A DUE DIAMETRI

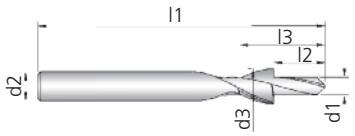
L20

Due denti per lavorazione leghe leggere - Codolo cilindrico
TWO-FLUTES END MILLS BORING TWO DIFFERENT DIAMETRES TO MACHINE LIGHT ALLOYS - Straight shank
FRAISES À DEUX TAILLES À FORER DEUX DIAMÈTRES POUR L'USINAGE D'ALIAGES LÉGERS - Queue cylindrique
ZWEISCHNEIDEN-STUFENFRÄSER ZUR BEARBEITUNG VON LEICHTMETALLE - Zylinderschaft
FRESAS PARA TALADRAR CON DOS DIÁMETROS - Dos labios para mecanizar ligas ligeras - Mango cilindrico
FRESAS PARA TALADRAR COM DOIS DIAMETROS - Duas navalhas para mecanizar ligas ligeiras - Encabadouro cilindrico
Фреза-сверло ступенчатое для обработки легких сплавов. Цилиндрический хвостовик

SERIE L

NORM.

STANDARD Rime



HSS | W | ≈ 30° | DIN 1835 A

CODE	d1 mm js14	d3 mm	l1 mm	l2 mm	l3 mm	d2 mm h6	HSS €
L20/01	6	12	85	18	30	10	•
L20/02	6.5	13.5	85	18	30	10	•
L20/03	5.5	11.5	100	18	30	10	•
L20/04	6	11.5	100	18	30	10	•
L20/05	6	12	100	18	30	12	•
L20/06	6.5	13.5	100	18	30	10	•
L20/07	7	13	100	18	30	12	•
L20/08	7	15	100	18	30	12	•
L20/09	7	18.5	100	18	30	12	•

Ulteriori diametri su richiesta
Other diameters on requirements

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▼	▼	▼	▼	▲	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

Catalogo HSS-E e PM

SERIE MG

FRESE IN EMP3 (HSS-CoPM)

END MILLS IN EMP3 (HSS-CoPM)

Rime
UTENSILERIA

INDEX

SERIE MG

FRESE IN EMP3 (HSS-CoPM)
END MILLS IN EMP3 (HSS-CoPM)

INDEX

SERIE MG

FRESE A DUE DENTI PER CAVE • SERIE NORMALE

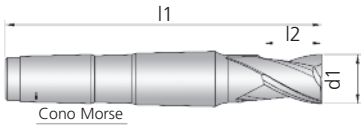
SERIE MG

MG0

Un dente frontale tagliente fino al centro - Codolo conico Morse con foro filettato
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Morse taper shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue au cône Morse à trou fileté
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango cónico Morse con taladro roscado
FRESAS CILINDRICAS DE DUAS NAVALHAS - Encabadouro cone Morse con taladro roscado
Фреза 2-х зубая. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

Z2



EMP3 (PM) | N | DIN 228-A | ≈30°

NORM.

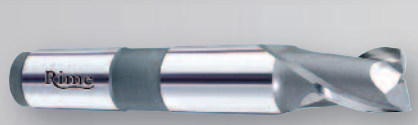
UNI 8260A
DIN 326D
ISO 1641/II

CODE	d1 mm e8	l2 mm	l1 mm	CM-MK	Z	EMP3 €
MG0/01	16	19	104	2	2	•
MG0/03	18	19	104	2	2	•
MG0/05	20	22	124	3	2	•
MG0/06	21	22	124	3	2	•
MG0/07	22	22	124	3	2	•
MG0/08	23	22	124	3	2	•
MG0/09	24	26	128	3	2	•
MG0/10	25	26	128	3	2	•
MG0/11	26	26	128	3	2	•
MG0/12	27	26	128	3	2	•
MG0/13	28	26	128	3	2	•
MG0/14	29	26	128	3	2	•
MG0/15	30	32	134	3	2	•
MG0/16	32	32	157	4	2	•
MG0/17	34	32	157	4	2	•
MG0/18	35	32	157	4	2	•
MG0/19	36	32	157	4	2	•
MG0/20	38	38	163	4	2	•
MG0/21	40	38	163	4	2	•
MG0/22	45	38	163	4	2	•
MG0/23	50	45	170	4	2	•

Ulteriori diametri su richiesta
Other diameters on requirements

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►



FRESE A DUE DENTI PER CAVE • SERIE NORMALE

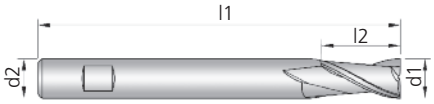
MG1

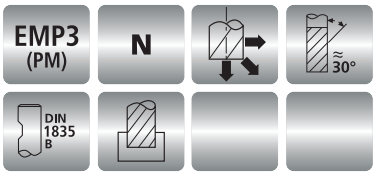
Un dente frontale tagliente fino al centro - Attacco Weldon
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Weldon shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango Weldon
FRESAS CILINDRICAS DE DUAS NAVALHAS - Encabadouro Weldon
Фреза 2-х зубая. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE MG

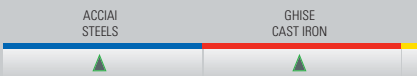
NORM.

UNI 8258
DIN 327D
ISO 1641/I





CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG1/00	2	4	48	6	2	•	•
MG1/01	3	5	49	6	2	•	•
MG1/02	3.5	6	50	6	2	•	•
MG1/03	4	7	51	6	2	•	•
MG1/04	4.5	7	51	6	2	•	•
MG1/05	5	8	52	6	2	•	•
MG1/06	5.5	8	52	6	2	•	•
MG1/07	6	8	52	6	2	•	•
MG1/08	6.5	10	60	10	2	•	•
MG1/09	7	10	60	10	2	•	•
MG1/10	7.5	10	60	10	2	•	•
MG1/11	8	11	61	10	2	•	•
MG1/12	8.5	11	61	10	2	•	•
MG1/13	9	11	61	10	2	•	•
MG1/14	9.5	13	63	10	2	•	•
MG1/15	10	13	63	10	2	•	•
MG1/16	10.5	13	70	12	2	•	•
MG1/17	11	13	70	12	2	•	•
MG1/18	12	16	73	12	2	•	•
MG1/19	13	16	73	12	2	•	•
MG1/20	14	16	73	12	2	•	•
MG1/21	15	19	79	16	2	•	•
MG1/22	16	19	79	16	2	•	•
MG1/23	17	19	79	16	2	•	•
MG1/24	18	19	79	16	2	•	•
MG1/25	19	22	88	20	2	•	•
MG1/26	20	22	88	20	2	•	•
MG1/27	22	22	88	20	2	•	•
MG1/28	23	22	98	25	2	•	•
MG1/29	24	26	102	25	2	•	•
MG1/30	25	26	102	25	2	•	•
MG1/31	26	26	102	25	2	•	•
MG1/32	28	26	102	25	2	•	•
MG1/33	30	26	102	25	2	•	•
MG1/34	32	32	112	32	2	•	•



▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

FRESE A DUE DENTI PER CAVE • SERIE LUNGA

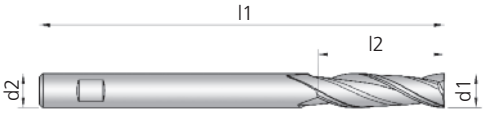
SERIE MG

MG3

Un dente frontale tagliente fino al centro - Attacco Weldon
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Weldon shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS DE DOS LABIOS - Un labio que corta hasta el centro - Mango Weldon
FRESAS CILINDRICAS DE DUAS NAVALHAS - Encabadouro Weldon
Фреза 2-х зубая. Режущий торец. Хвостовик Weldon. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z2



EMP3 (PM) | N | ≈30° | DIN 1835 B

NORM. STANDARD Rime

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG3/01	3	9	58	6	2	•	•
MG3/02	3.5	13	67	6	2	•	•
MG3/03	4	13	67	6	2	•	•
MG3/04	4.5	13	68	6	2	•	•
MG3/05	5	16	70	6	2	•	•
MG3/06	5.5	16	76	6	2	•	•
MG3/07	6	16	76	6	2	•	•
MG3/08	6.5	16	76	10	2	•	•
MG3/09	7	19	79	10	2	•	•
MG3/10	7.5	19	79	10	2	•	•
MG3/11	8	19	79	10	2	•	•
MG3/12	8.5	22	83	10	2	•	•
MG3/13	9	22	83	10	2	•	•
MG3/14	9.5	22	83	10	2	•	•
MG3/15	10	22	83	10	2	•	•
MG3/16	10.5	25	95	12	2	•	•
MG3/17	11	25	95	12	2	•	•
MG3/18	12	28	98	12	2	•	•
MG3/19	13	28	98	12	2	•	•
MG3/20	14	32	102	12	2	•	•
MG3/21	15	32	108	16	2	•	•
MG3/22	16	32	108	16	2	•	•
MG3/23	17	35	114	16	2	•	•
MG3/24	18	35	114	16	2	•	•
MG3/25	19	38	132	20	2	•	•
MG3/26	20	38	132	20	2	•	•
MG3/27	21	38	132	20	2	•	•
MG3/28	22	41	141	25	2	•	•
MG3/29	23	41	141	25	2	•	•
MG3/30	24	41	152	25	2	•	•
MG3/31	25	44	159	25	2	•	•
MG3/32	26	44	159	25	2	•	•
MG3/33	28	44	159	25	2	•	•
MG3/34	30	50	159	25	2	•	•
MG3/35	32	52	165	32	2	•	•

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

FRESE A TRE DENTI • SERIE NORMALE

MG4

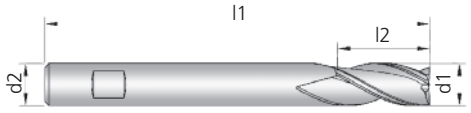
Un dente frontale tagliente fino al centro - Attacco Weldon
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Weldon shank
FRAISES À CYLINDRES TROIS DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES DE TRES LABIOS - Un labio que corta hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS DE TRÊS NAVALHAS - Encabadouro Weldon
Фреза 3-х зубая. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE MG

NORM.

UNI 8248
DIN 844B
ISO 1641/I

Z3



EMP3 (PM) | N | ≈ 30° | DIN 1835 B

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG4/01	2	7	51	6	3	•	•
MG4/02	2,5	8	52	6	3	•	•
MG4/03	3	8	52	6	3	•	•
MG4/04	3,5	10	54	6	3	•	•
MG4/05	4	11	55	6	3	•	•
MG4/06	4,5	11	55	6	3	•	•
MG4/07	5	13	57	6	3	•	•
MG4/08	5,5	13	57	6	3	•	•
MG4/09	6	13	57	6	3	•	•
MG4/10	6,5	16	66	10	3	•	•
MG4/11	7	16	66	10	3	•	•
MG4/11/1	7,5	19	69	10	3	•	•
MG4/12	8	19	69	10	3	•	•
MG4/12/1	8,5	19	69	10	3	•	•
MG4/13	9	19	69	10	3	•	•
MG4/13/1	9,5	22	72	10	3	•	•
MG4/14	10	22	72	10	3	•	•
MG4/15	11	22	79	12	3	•	•
MG4/16	12	26	83	12	3	•	•
MG4/17	13	26	83	12	3	•	•
MG4/18	14	26	83	12	3	•	•
MG4/19	15	32	92	16	3	•	•
MG4/20	16	32	92	16	3	•	•
MG4/21	17	32	92	16	3	•	•
MG4/22	18	32	92	16	3	•	•
MG4/23	19	38	104	20	3	•	•
MG4/24	20	38	104	20	3	•	•
MG4/25	22	38	104	20	3	•	•
MG4/26	24	45	121	25	3	•	•
MG4/27	25	45	121	25	3	•	•
MG4/28	26	45	121	25	3	•	•
MG4/29	28	45	121	25	3	•	•
MG4/30	30	45	121	25	3	•	•
MG4/31	32	53	133	32	3	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A TRE DENTI • SERIE LUNGA

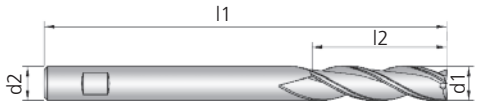
SERIE MG

MG5

Un dente frontale tagliente fino al centro - Attacco Weldon
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Weldon shank
FRAISES À CYLINDRES TROIS DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES DE TRES LABIOS - Un labio que corta hasta el centro, mango Weldon
FRESAS CILINDRICAS FRONTAIS DE TRÊS NAVALHAS - Encabadouro Weldon
Фреза 3-х зубая. Режущий торец. Хвостовик Weldon. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z3



EMP3 (PM) | N | ≈30° | DIN 1835 B

NORM.

UNI 8249
DIN 844B
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
MG5/01	2	10	54	6	3	•
MG5/02	3	12	56	6	3	•
MG5/03	4	19	63	6	3	•
MG5/04	5	24	68	6	3	•
MG5/05	6	24	68	6	3	•
MG5/06	7	30	80	10	3	•
MG5/07	8	38	88	10	3	•
MG5/08	10	45	95	10	3	•
MG5/09	12	53	110	12	3	•
MG5/10	14	53	110	12	3	•
MG5/11	16	63	123	16	3	•
MG5/12	18	63	123	16	3	•
MG5/13	20	75	141	20	3	•
MG5/14	22	75	141	20	3	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI *STEELS*	GHISE *CAST IRON*	ACCIAI INOSSIDABILI *STAINLESS STEELS*	SUPER LEGHE - TITANIO *SUPERALLOYS - TITANIUM*	LEGHE LEGGERE *LIGHT ALLOYS*	MATERIALI NON FERROSI *NON FERROUS MATERIAL*
▲	▲	▲	▲	►	►

FRESE FRONTALI

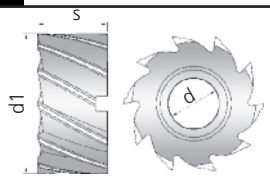
MG6

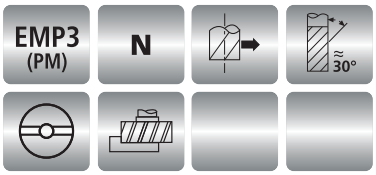
Denti elicoidali rinforzati - Cava trascinamento trasversale
SHELL END MILLS - Reinforced helical teeth
FRAISES À CYLINDRES FRONTALES - Denture hélicoïdale renforcée
WALZENFRÄSER MIT QUERNUT - Verstärkte Spiralzähne
FRESAS CILINDRICAS FRONTALES - Labios helicoidales reforzados
FRESAS CILINDRICAS FRONTAIS - Oito navalhas helicoidais
Фреза торцевая с усиленным зубом

SERIE MG

NORM.

UNI 3903
DIN 1880
ISO 2586





CODE	d1 mm js6	s mm k16	d mm H7	Z	EMP3 €
MG6/01	40	32	16	8	•
MG6/02	50	36	22	8	•
MG6/03	63	40	27	8	•
MG6/04	80	45	27	10	•
MG6/05	100	50	32	12	•
MG6/06	125	56	40	14	•

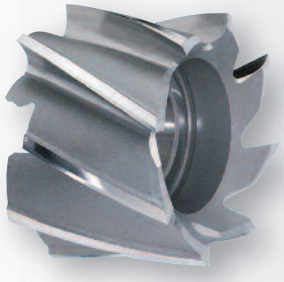
ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

Toll. reale sul Ø
Real Tol. on Ø
-0 +0,05

▲ CONSIGLIATO
RECOMMENDED

▶ ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

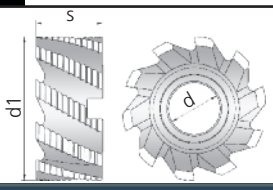


FRESE FRONTALI

SERIE MG

MG7

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Cava trascinamento trasversale
SHELL END MILLS - Helical teeth with form relieved entirely ground chip-breaker
FRAISES À CYLINDRES FRONTALES - Denture hélicoïdale avec brise-copeaux dépouillé entièrement rectifié
WALZENFRÄSER MIT QUERNUT - Schrägschneiden mit voll eingeschliffenem Spanbrecher
FRESAS CILINDRICAS FRONTALES - Labios helicoidales con arranca de viruta completamente rectificado
FRESAS CILINDRICAS FRONTAIS - Seis navalhas helicoidais com quebra apara
Фреза торцевая со стружколомом



EMP3 (PM) | NR | ≈30°

NORM.

UNI 3903
DIN 1880
ISO 2586

CODE	d1 mm js6	s mm k16	d mm H7	Z	EMP3 €
MG7/01	40	32	16	6	•
MG7/02	50	36	22	6	•
MG7/03	63	40	27	8	•
MG7/04	80	45	27	8	•
MG7/05	100	50	32	10	•
MG7/06	125	56	40	12	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO
RECOMMENDED

▶ ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE PER FINITURA • SERIE NORMALE

MG8

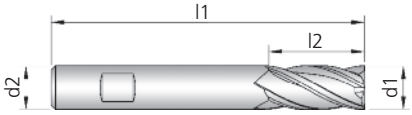
Due denti frontali taglienti fino al centro - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - Weldon shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas normais com corte ao centro - Encabadouro Weldon
Фреза концевая для чистовой обработки. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE MG

NORM.

UNI 8248
DIN 844B
ISO 1641/I

Z4



EMP3 (PM) | N | ≈30° | DIN 1835 B

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG8/01	2	7	51	6	4	•	•
MG8/01/1	2,5	8	52	6	4	•	•
MG8/02	3	8	52	6	4	•	•
MG8/02/1	3,5	10	54	6	4	•	•
MG8/03	4	11	55	6	4	•	•
MG8/03/1	4,5	11	55	6	4	•	•
MG8/04	5	13	57	6	4	•	•
MG8/04/1	5,5	13	57	6	4	•	•
MG8/05	6	13	57	6	4	•	•
MG8/05/1	6,5	16	66	10	4	•	•
MG8/06	7	16	66	10	4	•	•
MG8/06/1	7,5	19	69	10	4	•	•
MG8/07	8	19	69	10	4	•	•
MG8/07/1	8,5	19	69	10	4	•	•
MG8/08	9	19	69	10	4	•	•
MG8/09	10	22	72	10	4	•	•
MG8/10	11	22	79	12	4	•	•
MG8/11	12	26	83	12	4	•	•
MG8/12	13	26	83	12	4	•	•
MG8/13	14	26	83	12	4	•	•
MG8/14	15	32	92	16	4	•	•
MG8/15	16	32	92	16	4	•	•
MG8/16	17	32	92	16	4	•	•
MG8/17	18	32	92	16	4	•	•
MG8/18	19	38	104	20	4	•	•
MG8/19	20	38	104	20	4	•	•
MG8/20	22	38	104	20	4	•	•
MG8/21	24	45	121	25	5	•	•
MG8/22	25	45	121	25	5	•	•
MG8/23	26	45	121	25	5	•	•
MG8/24	28	45	121	25	5	•	•
MG8/25	30	45	121	25	6	•	•
MG8/26	32	53	133	32	6	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE PER FINITURA • SERIE LUNGA

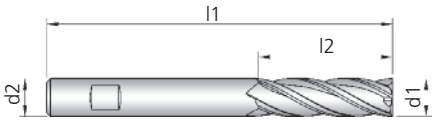
SERIE MG

MG9

Due denti frontali taglienti fino al centro - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - Weldon shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre -Queue cylindrique Weldon
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
Fresas cilindricas frontales - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas longas com corte ao centro - Encabadouro Weldon
Фреза концевая для чистовой обработки. Режущий торец. Хвостовик Weldon. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG

Z4



EMP3 (PM) | N | ≈30° | DIN 1835 B

NORM.

UNI 8249
DIN 844B
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
MG9/01	2	10	54	6	4	•
MG9/02	3	12	56	6	4	•
MG9/03	4	19	63	6	4	•
MG9/04	5	24	68	6	4	•
MG9/05	6	24	68	6	4	•
MG9/06	7	30	80	10	4	•
MG9/07	8	38	88	10	4	•
MG9/08	10	45	95	10	4	•
MG9/09	12	53	110	12	4	•
MG9/10	14	53	110	12	4	•
MG9/11	16	63	123	16	4	•
MG9/12	18	63	123	16	4	•
MG9/13	20	75	141	20	4	•
MG9/14	22	75	141	20	4	•
MG9/15	24	90	166	25	5	•
MG9/16	25	90	166	25	5	•
MG9/17	26	90	166	25	5	•
MG9/18	28	90	166	25	5	•
MG9/19	30	90	166	25	6	•
MG9/20	32	106	186	32	6	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO *RECOMMENDED*
▶ ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE PER FINITURA • SERIE NORMALE

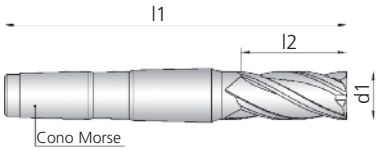
MG10

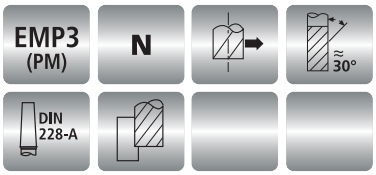
Codolo conico Morse con foro filettato
END MILLS - Morse taper shank
FRAISES À CYLINDRES FRONTALES - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES - Mango cónico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas normais - Encabadouro cone Morse con taladro roscado
Фреза концевая для чистовой обработки. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SERIE MG

NORM.

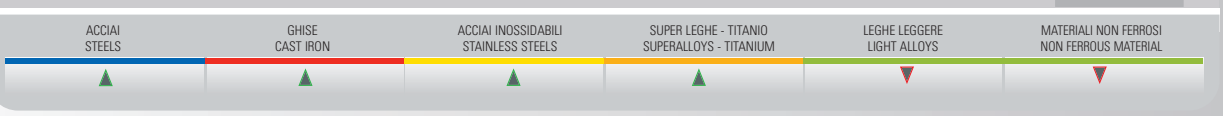
UNI 8250
DIN 845B
ISO 1641/II





CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €	SUPREME €
MG10/01	16	32	117	2	4	•	•
MG10/02	18	32	117	2	4	•	•
MG10/03	20	38	140	3	4	•	•
MG10/04	22	38	140	3	4	•	•
MG10/05	24	45	147	3	5	•	•
MG10/06	25	45	147	3	5	•	•
MG10/07	26	45	147	3	5	•	•
MG10/08	28	45	147	3	5	•	•
MG10/09	30	53	155	3	6	•	•
MG10/10	32	53	178	4	6	•	•
MG10/11	34	53	178	4	6	•	•
MG10/12	35	53	178	4	6	•	•
MG10/13	36	53	178	4	6	•	•
MG10/14	38	63	188	4	6	•	•
MG10/15	40	63	188	4	8	•	•
MG10/16	45	63	188	4	8	•	•
MG10/17	50	75	233	5	8	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03



▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

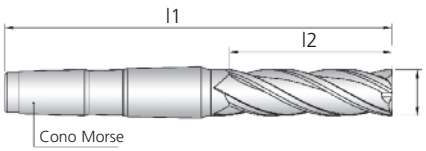
FRESE PER FINITURA • SERIE LUNGA

SERIE MG

MG11

Codolo conico Morse con foro filettato
END MILLS - Morse taper shank
FRAISES À CYLINDRES FRONTALES - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES - Mango cónico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS - Quatro navalhas longas - Encabadouro cone Morse con taladro roscado
Фреза концевая для чистовой обработки. Режущий торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG



EMP3 (PM) | N | ≈ 30° | DIN 228-A

NORM.
UNI 8251
DIN 845B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €
MG11/01	16	63	148	2	4	•
MG11/02	18	63	148	2	4	•
MG11/03	20	75	177	3	4	•
MG11/04	22	75	177	3	4	•
MG11/05	24	90	192	3	5	•
MG11/06	25	90	192	3	5	•
MG11/07	26	90	192	3	5	•
MG11/08	28	90	192	3	5	•
MG11/09	30	90	192	3	6	•
MG11/10	32	106	231	4	6	•
MG11/11	34	106	231	4	6	•
MG11/12	35	106	231	4	6	•
MG11/13	36	106	231	4	6	•
MG11/14	38	125	250	4	6	•
MG11/15	40	125	250	4	8	•
MG11/16	45	125	250	4	8	•
MG11/17	50	150	308	5	8	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO / RECOMMENDED
▶ ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE CILINDRICHE FRONTALI • SERIE NORMALE

MG12

Due denti frontali taglienti fino al centro - Elica destra 45° - Divisione irregolare - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Weldon shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irrégulier - Queue cylindrique Weldon
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Ungleiche schneidenteilung - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Hélice derecha 45° - División irregular - Mango Weldon
FRESAS CILINDRICAS FRONTAIS - Três navalhas normais com corte ao centro - Hélice direita 45° - Divisão irregular - Encabadouro Weldon
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик Weldon. Средняя серия

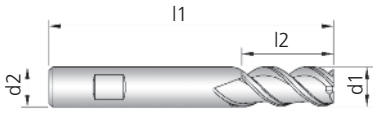
SERIE MG

NORM.

STANDARD Rime

Z3 ø4÷ø16

Z4 ø17÷ø32



EMP3 (PM) | N | 45° | DIN 1835 B | 0,05-0,15 45°

SHORT NORMAL LONG EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG12/03	4	11	55	6	3	•	•
MG12/04	5	13	57	6	3	•	•
MG12/05	6	13	57	6	3	•	•
MG12/06	7	16	66	10	3	•	•
MG12/07	8	20	69	10	3	•	•
MG12/08	9	20	69	10	3	•	•
MG12/09	10	22	72	10	3	•	•
MG12/10	11	26	83	12	3	•	•
MG12/11	12	26	83	12	3	•	•
MG12/12	13	26	83	12	3	•	•
MG12/13	14	26	83	12	3	•	•
MG12/14	15	36	92	16	3	•	•
MG12/15	16	36	92	16	3	•	•
MG12/16	17	40	100	16	4	•	•
MG12/17	18	40	100	16	4	•	•
MG12/18	20	45	110	20	4	•	•
MG12/19	22	45	110	20	4	•	•
MG12/20	25	50	125	25	4	•	•
MG12/21	28	56	125	25	4	•	•
MG12/22	30	63	140	25	4	•	•
MG12/23	32	63	140	32	4	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE CILINDRICHE FRONTALI • SERIE NORMALE

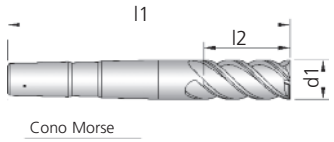
SERIE MG

MG13

Due denti frontali taglienti fino al centro - Elica destra 45° - Divisione irregolare - Codolo conico Morse con foro filettato
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Morse taper shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irrégulier - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Ungleiche schneidenteilung -Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Hélice derecha 45° - División irregular - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTAIS - Três navalhas normais com corte ao centro - Hélice direita 45° - Divisão irregular - Encabadouro cone Morse con taladro roscado
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

Z4



EMP3 (PM) | N | 45° | DIN 228-A | 0,05-0,15 45°

NORM. STANDARD Rime

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €	SUPREME €
MG13/01	16	36	115	2	3	•	•
MG13/02	18	40	120	2	4	•	•
MG13/03	20	45	145	3	4	•	•
MG13/04	22	45	145	3	4	•	•
MG13/05	24	50	150	3	4	•	•
MG13/06	25	50	150	3	4	•	•
MG13/07	26	56	155	3	4	•	•
MG13/08	28	56	155	3	4	•	•
MG13/09	30	63	165	3	4	•	•
MG13/10	32	63	185	4	4	•	•
MG13/11	34	70	195	4	4	•	•
MG13/12	35	70	195	4	4	•	•
MG13/13	36	70	195	4	4	•	•
MG13/14	38	70	195	4	4	•	•
MG13/15	40	70	195	4	4	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

CONSIGLIATO
RECOMMENDED
ACCETTABILE
ACCEPTABLE
SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

FRESE PER SGROSSATURA • SERIE NORMALE

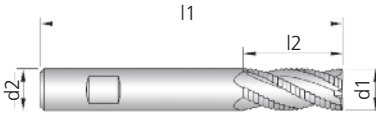
MG14

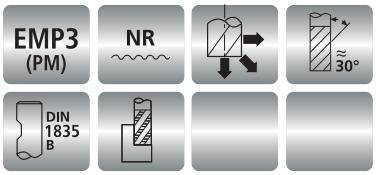
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING END MILLS -Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spanbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon-Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Três navalhas normais com quebra apara com corte ao centro - Encabadouro Weldon
Фреза концевая для черновой обработки. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE MG

NORM.

UNI 8248
DIN 844B
ISO 1641/I





CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG14/01	6	13	57	6	3	•	•
MG14/02	7	16	66	10	3	•	•
MG14/03	8	19	69	10	4	•	•
MG14/04	9	19	69	10	4	•	•
MG14/05	10	22	72	10	4	•	•
MG14/06	11	22	79	12	4	•	•
MG14/07	12	26	83	12	4	•	•
MG14/08	13	26	83	12	4	•	•
MG14/09	14	26	83	12	4	•	•
MG14/10	15	32	92	16	4	•	•
MG14/11	16	32	92	16	4	•	•
MG14/12	17	32	92	16	4	•	•
MG14/13	18	32	92	16	4	•	•
MG14/14	20	38	104	20	4	•	•
MG14/15	22	38	104	20	4	•	•
MG14/16	24	45	121	25	5	•	•
MG14/17	25	45	121	25	5	•	•
MG14/18	26	45	121	25	5	•	•
MG14/19	28	45	121	25	5	•	•
MG14/20	30	45	121	25	5	•	•
MG14/21	32	53	133	32	5	•	•
MG14/22	36	53	133	32	6	•	•
MG14/23	40	63	143	32	6	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

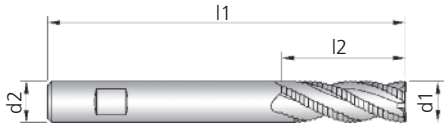
FRESE PER SGROSSATURA • SERIE LUNGA

SERIE MG

MG15

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spanbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Quatro navalhas longas quebra apara com corte ao centro - Encabadouro Weldon
Фреза концевая для черновой обработки. Режущий торец. Хвостовик Weldon. Удлиненная серия

SHORT · NORMAL · LONG · EXTRA-LONG



EMP3 (PM) · NR · ≈30° · DIN 1835 B · ~0,3xd

NORM.

UNI 8249
DIN 844B
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG15/01	8	38	88	10	4	•	•
MG15/02	10	45	95	10	4	•	•
MG15/03	12	53	110	12	4	•	•
MG15/04	14	53	110	12	4	•	•
MG15/05	15	63	123	16	4	•	•
MG15/06	16	63	123	16	4	•	•
MG15/07	18	63	123	16	4	•	•
MG15/08	20	75	141	20	4	•	•
MG15/09	22	75	141	20	4	•	•
MG15/10	24	90	166	25	5	•	•
MG15/11	25	90	166	25	5	•	•
MG15/12	28	90	166	25	5	•	•
MG15/13	30	90	166	25	5	•	•
MG15/14	32	106	186	32	5	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO / RECOMMENDED
▶ ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE PER SGROSSATURA • SERIE NORMALE

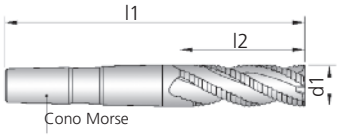
MG16

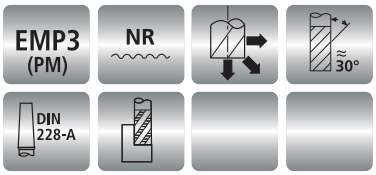
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango conico Morse taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Quatro navalhas normais quebra apara com corte ao centro - Encabadouro cone Morse con taladro roscado
Фреза концевая для черновой обработки. Режущий торец. Хвостовик конус Морзе с резьбой. Средняя серия

SERIE MG

NORM.

UNI 8250-8251
DIN 845B
ISO 1641/II





CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €	SUPREME €
MG16/01	16	32	117	2	4	•	•
MG16/02	18	32	117	2	4	•	•
MG16/03	20	38	140	3	4	•	•
MG16/04	22	38	140	3	4	•	•
MG16/05	24	45	147	3	5	•	•
MG16/06	25	45	147	3	5	•	•
MG16/07	26	45	147	3	5	•	•
MG16/08	28	45	147	3	5	•	•
MG16/09	30	53	155	3	5	•	•
MG16/10	32	53	178	4	5	•	•
MG16/11	34	53	178	4	5	•	•
MG16/12	35	53	178	4	6	•	•
MG16/13	36	53	178	4	6	•	•
MG16/14	38	63	188	4	6	•	•
MG16/15	40	63	188	4	6	•	•
MG16/16	45	63	188	4	6	•	•
MG16/17	50	75	200	4	7	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

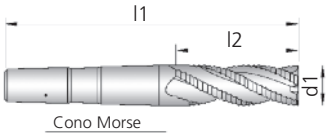
FRESE PER SGROSSATURA • SERIE LUNGA

SERIE MG

MG17

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango conico Morse taladro roscado
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Quatro navalhas longas quebra apara com corte ao centro - Encabadouro cone Morse con taladro roscado
Фреза концевая для черновой обработки. Режущий торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SHORT NORMAL LONG EXTRA-LONG



EMP3 (PM) | NR | ≈30° | DIN 228-A | ~0,3xd

NORM.

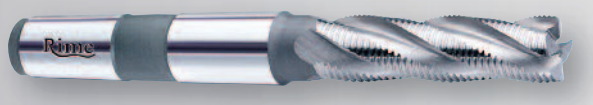
UNI 8250-8251
DIN 845B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €
MG17/01	16	63	148	2	4	•
MG17/02	18	63	148	2	4	•
MG17/03	20	75	177	3	4	•
MG17/04	22	75	177	3	4	•
MG17/05	24	90	192	3	5	•
MG17/06	25	90	192	3	5	•
MG17/07	26	90	192	3	5	•
MG17/08	28	90	192	3	5	•
MG17/09	30	90	192	3	5	•
MG17/10	32	106	231	4	5	•
MG17/11	34	106	231	4	5	•
MG17/12	35	106	231	4	6	•
MG17/13	36	106	231	4	6	•
MG17/14	38	125	250	4	6	•
MG17/15	40	125	250	4	6	•
MG17/16	45	125	250	4	6	•
MG17/17	50	150	275	4	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO / RECOMMENDED
▶ ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼



FRESE PER SGROSSATURA • SERIE CORTA

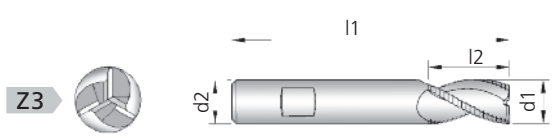
MG18

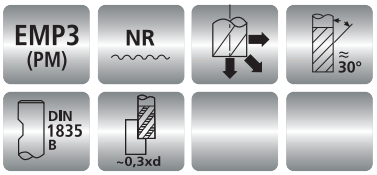
Denti elicoidali con rompitruciolo spogliato completamenterettificato - Un dente frontale tagliente fino al centro - Attacco Weldon
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - One end tooth cutting up to the centre - Weldon shank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
LANGLOCHFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Eine Schneide mit Zentrumschnitt Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta - Un labio que corta hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS PARA DESBASTE - Três navalhas curtas quebra apara com corte ao centro - Encabadouro Weldon
Фреза концевая для черновой обработки. Режущий торец. Хвостовик Weldon. Короткая серия

SERIE MG

NORM.

ISO 1641/I





CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG18/01	6	8	52	6	3	•	•
MG18/02	8	11	61	10	3	•	•
MG18/03	10	13	63	10	3	•	•
MG18/04	12	13	73	12	3	•	•
MG18/05	14	16	73	12	3	•	•
MG18/06	15	19	79	16	3	•	•
MG18/07	16	19	79	16	3	•	•
MG18/08	18	19	79	16	3	•	•
MG18/09	20	22	88	20	3	•	•
MG18/10	22	22	88	20	3	•	•
MG18/11	25	26	102	25	3	•	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

FRESE PER MACCHINE A COPIARE • SERIE EXTRA-LUNGA

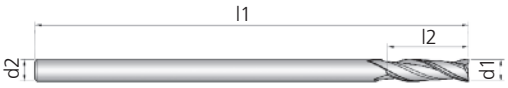
SERIE MG

MG19

Un dente frontale tagliente fino al centro - Codolo cilindrico
COPY MILLING CUTTERS - One end tooth cutting up to the centre - Straight shank
FRAISES POUR MACHINES À COPIER - Une dent bout coupante jusq'au centre - Queue cylindrique
NACHFORMFRÄSER - Eine Schneide mit Zentrumschnitt - Zylinderschaft
FRESAS EN COPIADO - Un labio que corta hasta el centro - Mango cilindrico
FRESAS DE COPIA EXTRA LONGAS - Um naval com corte ao centro - Encabadouro cilindrico
Фреза концевая. Режущий торец. Цилиндрический хвостовик. Ультрадлинная серия

SHORT NORMAL LONG EXTRA-LONG

Z2



EMP3 (PM) | N | ≈30° | DIN 1835 A

NORM. STANDARD Rime

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
MG19/00	6	25	180	6	2	•
MG19/00/1	8	25	180	8	2	•
MG19/01	10	30	200	10	2	•
MG19/02	12	30	200	12	2	•
MG19/03	16	35	200	16	2	•
MG19/04	20	35	200	20	2	•
MG19/05	25	40	200	25	2	•

▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▶	▶

FRESE PER MACCHINE A COPIARE • SERIE EXTRA-LUNGA

SERIE MG

MG20

Due denti elicoidali testa semisferica - Codolo cilindrico
COPY MILLING CUTTERS - Two ball-nosed helical teeth - Straight shank
FRAISES POUR MACHINES À COPIER - Deux dents hélicoïdales à bout hémisferïque - Queue cylindrique
NACHFORMFRÄSER - Zwei Halbrundkopf-Schrägzähne - Zylinderschaft
FRESAS EN COPIADO - Dos labios helicoidales cabeza hemisférica - Mango cilindrico
FRESAS DE COPIA EXTRA LONGAS - Duas navalhas helicoidais cabeça boleada - Encabadouro cilindrico
Фреза концевая. Сферический торец. Цилиндрический хвостовик. Ультрадлинная серия.

SHORT NORMAL LONG EXTRA-LONG

Z2

EMP3 (PM) | N | ≈30° | DIN 1835 A

NORM. STANDARD Rime

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
MG20/00	6	25	180	6	2	•
MG20/00/1	8	25	180	8	2	•
MG20/01	10	30	200	10	2	•
MG20/02	12	30	200	12	2	•
MG20/03	16	35	200	16	2	•
MG20/04	20	35	200	20	2	•
MG20/05	25	40	200	25	2	•

▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▶	▶

FRESE PER MACCHINE A COPIARE A TESTA SEMISFERICA • SERIE EXTRA-LUNGA

MG21

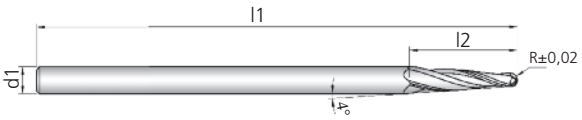
Due denti taglienti elicoidali - Conicità 4° laterali - Codolo cilindrico
BALL-NOSED COPY MILLING CUTTERS - Two helical cutting edges - 4° side taper - Straight shank
FRAISES POUR MACHINES À COPIER À BOUT HÉMISPHERIQUE - Deux tailles hélicoïdales - Cône 4° lateral - Queue cylindrique
HALBRUNDKOPF-NACHFORMFRÄSER - Zwei Schrägschneide - 4° Schneiden konisch - Zylinderschaft
FRESAS EN COPIADO, CABEZA SEMIESFÉRICA - Dos labios cortantes helicoidales - cónico 4° lateral - Mango cilindrico
FRESAS DE COPIA EXTRA LONGA BOLEADA - Duas navalhas cortantes - Cone 4° lateral - Encabadouro cilindrico
Фреза концевая с конический режущей частью. Сферический торец. Цилиндрический хвостовик. Ультрадлинная серия

SERIE MG

NORM.

STANDARD Rime

Z2



EMP3 (PM) | N | DIN 1835 A

SHORT NORMAL LONG EXTRA-LONG

CODE	R mm	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
MG21/01	1.5	50	180	10	2	•
MG21/02	2	45	180	10	2	•
MG21/03	2.5	38	180	10	2	•
MG21/04	3	45	200	12	2	•
MG21/05	3.5	40	200	12	2	•
MG21/06	4	47	200	14	2	•
MG21/07	5	47	200	16	2	•
MG21/08	6	63	200	20	2	•
MG21/09	8	72	200	25	2	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

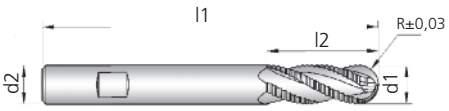
FRESE A TESTA SEMISFERICA PER SGROSSATURA E SEMIFINITURA • SERIE NORMALE

SERIE MG

MG22

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING AND SEMIFINISHING BALL-NOSED END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES À CYLINDRES À BOUT HÉMISPHERIQUE À DEGROSSIR ET DEMIFINIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
HALBRUNDKOPFFRÄSER - Schrägschneiden mit voll eingeschliffenem Spanbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA PARA DESBASTE Y SEMI ACABAR - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS BOLEADAS PARA DESBASTE E SEMI ACABAMENTO - Três navalhas normais quebra apara com corte ao centro - Encabadouro Weldon
Фреза для черновой и получистовой обработки со стружколомом. Сферический торец. Хвостовик Weldon. Средняя серия

SHORT · NORMAL · LONG · EXTRA-LONG



EMP3 (PM) · NF · ≈30° · DIN 1835 B

NORM.

ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
MG22/01	6	13	57	6	3	•
MG22/02	7	16	66	10	3	•
MG22/03	8	19	69	10	4	•
MG22/04	9	19	69	10	4	•
MG22/05	10	22	72	10	4	•
MG22/06	11	22	79	12	4	•
MG22/07	12	26	83	12	4	•
MG22/08	13	26	83	12	4	•
MG22/09	14	26	83	12	4	•
MG22/10	15	32	92	16	4	•
MG22/11	16	32	92	16	4	•
MG22/12	17	32	92	16	4	•
MG22/13	18	32	92	16	4	•
MG22/14	20	38	104	20	4	•
MG22/15	22	38	104	20	4	•
MG22/16	24	45	121	25	5	•
MG22/17	25	45	121	25	5	•
MG22/18	26	45	121	25	5	•
MG22/19	28	45	121	25	5	•
MG22/20	30	45	121	25	5	•
MG22/21	32	53	133	32	5	•
MG22/22	36	53	133	32	6	•
MG22/23	40	63	143	32	6	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE A TESTA SEMISFERICA PER SGROSSATURA E SEMIFINITURA • SERIE LUNGA

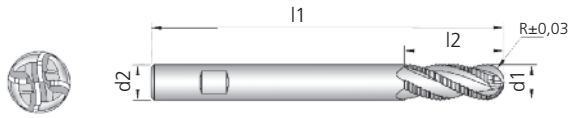
MG23

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING AND SEMIFINISHING BALL-NOSED END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES À CYLINDRES À BOUT HÉMISPHERIQUE À DEGROSSIR ET DEMIFINIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
HALBRUNDKOPFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA PARA DESBASTE Y SEMI ACABAR - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTAIS BOLEADAS PARA DESBASTE E SEMI ACABAMENTO - Quatro navalhas longas quebra apara com corte ao centro - Encabadouro Weldon
Фреза для черновой и получистовой обработки со стружколомом. Сферический торец. Хвостовик Weldon. Удлиненная серия

SERIE MG

NORM.

ISO 1641/I



EMP3 (PM) | NF | ≈ 30° | DIN 1835 B

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
MG23/01	8	38	88	10	4	•
MG23/02	10	45	95	10	4	•
MG23/03	12	53	110	12	4	•
MG23/04	14	53	110	12	4	•
MG23/05	15	63	123	16	4	•
MG23/06	16	63	123	16	4	•
MG23/07	18	63	123	16	4	•
MG23/08	20	75	141	20	4	•
MG23/09	22	75	141	20	4	•
MG23/10	24	90	166	25	5	•
MG23/11	25	90	166	25	5	•
MG23/12	28	90	166	25	5	•
MG23/13	30	90	166	25	5	•
MG23/14	32	106	186	32	5	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

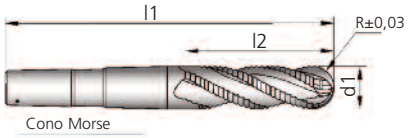
FRESE A TESTA SEMISFERICA PER SGROSSATURA E SEMIFINITURA • SERIE NORMALE

SERIE MG

MG24

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper hank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA PARA DESBASTE Y SEMI ACABAR - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango cónico Morse taladro roscado
FRESAS CILINDRICAS FRONTALES BOLEADA PARA DESBASTE E SEMI ACABAMENTO - Navalhas helicoidal com quebra apara - Duas navalhas que cortan hasta el centro - Encabadouro conico - Morse taladro roscado
Фреза для черновой и получистовой обработки со стружколомом. Сферический торец. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT · NORMAL · LONG · EXTRA-LONG



EMP3 (PM) · NF · ≈30° · DIN 228-A

NORM.

ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €
MG24/01	16	32	117	2	4	•
MG24/02	18	32	117	2	4	•
MG24/03	20	38	140	3	4	•
MG24/04	22	38	140	3	4	•
MG24/05	24	45	147	3	5	•
MG24/06	25	45	147	3	5	•
MG24/07	26	45	147	3	5	•
MG24/08	28	45	147	3	5	•
MG24/09	30	53	155	3	5	•
MG24/10	32	53	178	4	5	•
MG24/11	34	53	178	4	5	•
MG24/12	35	53	178	4	6	•
MG24/13	36	53	178	4	6	•
MG24/14	38	63	188	4	6	•
MG24/15	40	63	188	4	6	•
MG24/16	45	63	188	4	6	•
MG24/17	50	75	200	4	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO / RECOMMENDED
▶ ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE A TESTA SEMISFERICA PER SGROSSATURA E SEMIFINITURA • SERIE LUNGA

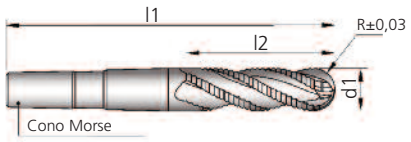
MG25

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA PARA DESBASTE Y SEMI ACABAR - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango conico Morse taladro roscado
FRESAS CILINDRICAS FRONTALES BOLEADA PARA DESBASTE E SEMI ACABAMENTO - Navalhas helicoidal com quebra apara - Duas navalhas que cortan hasta el centro - Encabadouro conico - Morse taladro roscado
Фреза для черновой и получистовой обработки со стружколомом. Сферический торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SERIE MG

NORM.

ISO 1641/II



EMP3 (PM) | NF | DIN 228-A | ≈30°

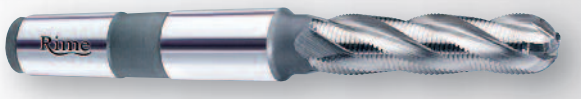
SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €
MG25/01	16	63	148	2	4	•
MG25/02	18	63	148	2	4	•
MG25/03	20	75	177	3	4	•
MG25/04	22	75	177	3	4	•
MG25/05	24	90	192	3	5	•
MG25/06	25	90	192	3	5	•
MG25/07	26	90	192	3	5	•
MG25/08	28	90	192	3	5	•
MG25/09	30	90	192	3	5	•
MG25/10	32	106	231	4	5	•
MG25/11	34	106	231	4	5	•
MG25/12	35	106	231	4	6	•
MG25/13	36	106	231	4	6	•
MG25/14	38	125	250	4	6	•
MG25/15	40	125	250	4	6	•
MG25/16	45	125	250	4	6	•
MG25/18	50	150	275	4	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED



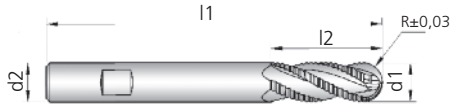
FRESE A TESTA SEMISFERICA PER SGROSSATURA • SERIE NORMALE

SERIE MG

MG26

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING BALL-NOSED END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES À CYLINDRES À BOUT HÉMISPHERIQUE À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
HALBRUNDKOPFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA PARA DESBASTE - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTALES BOLEADA PARA DESBASTE - Navalhas helicoidal com quebra apara - Duas navalhas que cortan hasta el centro - Encabadouro Weldon
Фреза для черновой обработки. Сферический торец. Хвостовик Weldon. Средняя серия

SHORT NORMAL LONG EXTRA-LONG



EMP3 (PM) | NR | ≈30° | DIN 1835 B

NORM. ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
MG26/01	6	13	57	6	3	•
MG26/02	7	16	66	10	3	•
MG26/03	8	19	69	10	4	•
MG26/04	9	19	69	10	4	•
MG26/05	10	22	72	10	4	•
MG26/06	11	22	79	12	4	•
MG26/07	12	26	83	12	4	•
MG26/08	13	26	83	12	4	•
MG26/09	14	26	83	12	4	•
MG26/10	15	32	92	16	4	•
MG26/11	16	32	92	16	4	•
MG26/12	17	32	92	16	4	•
MG26/13	18	32	92	16	4	•
MG26/14	20	38	104	20	4	•
MG26/15	22	38	104	20	4	•
MG26/16	24	45	121	25	5	•
MG26/17	25	45	121	25	5	•
MG26/18	26	45	121	25	5	•
MG26/19	28	45	121	25	5	•
MG26/20	30	45	121	25	5	•
MG26/21	32	53	133	32	5	•
MG26/22	36	53	133	32	6	•
MG26/23	40	63	143	32	6	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO
RECOMMENDED

▶ ACCETTABILE
ACCEPTABILE

▼ SCONSIGLIATO
NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE A TESTA SEMISFERICA PER SGROSSATURA • SERIE LUNGA

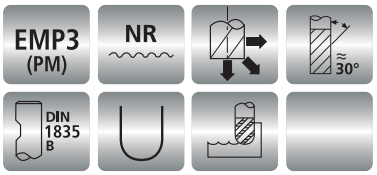
MG27

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING BALL-NOSED END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES À CYLINDRES À BOUT HÉMISPHERIQUE À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
HALBRUNDKOPFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon-Spannfläche
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA PARA DESBASTE - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTALES BOLEADA PARA DESBASTE - Navalhas helicoidal com quebra apara - Duas navalhas que cortan hasta el centro - Encabadouro Weldon
Фреза для черновой обработки. Сферический торец. Хвостовик Weldon. Удлиненная серия

SERIE MG

NORM.

ISO 1641/I



CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €
MG27/01	8	38	88	10	4	•
MG27/02	10	45	95	10	4	•
MG27/03	12	53	110	12	4	•
MG27/04	14	53	110	12	4	•
MG27/05	15	63	123	16	4	•
MG27/06	16	63	123	16	4	•
MG27/07	18	63	123	16	4	•
MG27/08	20	75	141	20	4	•
MG27/09	22	75	141	20	4	•
MG27/10	24	90	166	25	5	•
MG27/11	25	90	166	25	5	•
MG27/12	28	90	166	25	5	•
MG27/13	30	90	166	25	5	•
MG27/14	32	106	186	32	5	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

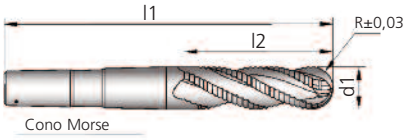
FRESE A TESTA SEMISFERICA PER SGROSSATURA • SERIE NORMALE

SERIE MG

MG28

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA PARA DESBASTE - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango cónico Morse con taladro roscado
FRESAS CILINDRICAS FRONTALES BOLEADA PARA DESBASTE - Navalhas helicoidal com quebra apara - Duas navalhas que cortan hasta el centro - Encabadouro conico - Morse taladro roscado
Фреза для черновой обработки. Сферический торец. Хвостовик конус Морзе с резьбой. Средняя серия

SHORT · NORMAL · LONG · EXTRA-LONG



EMP3 (PM) · NR · ≈30° · DIN 228-A

NORM.

UNI 8250-8251
DIN 845B
ISO 1641/II

CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €
MG28/01	16	32	117	2	4	•
MG28/02	18	32	117	2	4	•
MG28/03	20	38	140	3	4	•
MG28/04	22	38	140	3	4	•
MG28/05	24	45	147	3	5	•
MG28/06	25	45	147	3	5	•
MG28/07	26	45	147	3	5	•
MG28/08	28	45	147	3	5	•
MG28/09	30	53	155	3	5	•
MG28/10	32	53	178	4	5	•
MG28/11	34	53	178	4	5	•
MG28/12	35	53	178	4	6	•
MG28/13	36	53	178	4	6	•
MG28/14	38	63	188	4	6	•
MG28/15	40	63	188	4	6	•
MG28/16	45	63	188	4	6	•
MG28/17	50	75	200	4	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

▲ CONSIGLIATO / RECOMMENDED
▶ ACCETTABILE / ACCEPTABLE
▼ SCONSIGLIATO / NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE A TESTA SEMISFERICA PER SGROSSATURA • SERIE LUNGA

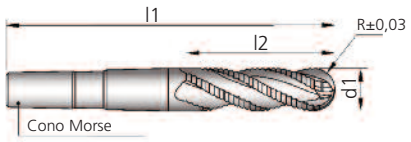
MG29

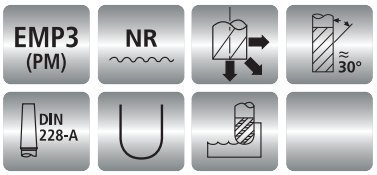
Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Codolo conico Morse con foro filettato
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Morse taper shank
FRAISES FRONTALES À CYLINDRES À DEGROSSIR - Denture hélicoïdale avec brise-copeaux - Deux dents bout coupantes jusq'au centre - Queue au cône Morse à trou fileté
SCHAFTFRÄSER - Schrägschneiden mit voll eingeschliffenem Spannbrecher - Zwei Schneiden mit Zentrumschnitt - Morsekegelschaft und Anzugsgewinde
FRESAS CILINDRICAS FRONTALES CABEZA SEMIESFÉRICA PARA DESBASTE - Labios helicoidal con arranca de viruta - Dos labios que cortan hasta el centro - Mango conico Morse con taladro roscado
FRESAS CILINDRICAS FRONTALES BOLEADA PARA DESBASTE - Navalhas helicoidal com quebra apara - duas navalhas que cortan hasta el centro - Encabadouro cónico - Morse taladro roscado
Фреза для черновой обработки. Сферический торец. Хвостовик конус Морзе с резьбой. Удлиненная серия

SERIE MG

NORM.

UNI 8250-8251
DIN 845B
ISO 1641/II





CODE	d1 mm js14	l2 mm	l1 mm	CM-MK	Z	EMP3 €
MG29/01	16	63	148	2	4	•
MG29/02	18	63	148	2	4	•
MG29/03	20	75	177	3	4	•
MG29/04	22	75	177	3	4	•
MG29/05	24	90	192	3	5	•
MG29/06	25	90	192	3	5	•
MG29/07	26	90	192	3	5	•
MG29/08	28	90	192	3	5	•
MG29/09	30	90	192	3	5	•
MG29/10	32	106	231	4	5	•
MG29/11	34	106	231	4	5	•
MG29/12	35	106	231	4	6	•
MG29/13	36	106	231	4	6	•
MG29/14	38	125	250	4	6	•
MG29/15	40	125	250	4	6	•
MG29/16	45	125	250	4	6	•
MG29/17	50	150	275	4	7	•

Toll. reale sul Ø
Real Tol. on Ø
±0,05

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

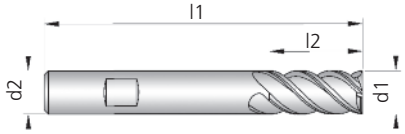
FRESE CILINDRICHE FRONTALI • SERIE NORMALE

SERIE MG

MG30

Due denti frontali taglienti fino al centro - Elica destra 45° - Divisione irregolare - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Weldon shank
FRAISES À CYLINDRES - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irreguliere - Queue cylindrique Weldon
SCHAFTFRÄSER MIT SPANBRECHER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Ungleiche schneidenteilung - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES, DOS LABIOS QUE CORTAN HASTA EL CENTRO - Hélice derecha 45° - División irregular - Mango Weldon
FRESAS CILINDRICAS FRONTALES - Duas navalhas que cortan hasta el centro - Hélice dereita 45° - Divisão irregular - Encabadouro Weldon
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик Weldon. Средняя серия

SHORT NORMAL LONG EXTRA-LONG



EMP3 (PM) | N | 45° | DIN 1835 B | 0,05-0,15 45°

NORM.

UNI 8248
DIN 844B
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG30/01	6	13	57	6	3	•	•
MG30/02	8	19	69	10	4	•	•
MG30/03	10	22	72	10	4	•	•
MG30/04	12	26	83	12	4	•	•
MG30/05	14	26	83	12	4	•	•
MG30/06	16	32	92	16	4	•	•
MG30/07	18	32	92	16	4	•	•
MG30/08	20	38	104	20	4	•	•
MG30/09	22	38	104	20	4	•	•
MG30/10	25	45	121	25	4	•	•
MG30/11	28	45	121	25	6	•	•
MG30/12	30	45	121	25	6	•	•
MG30/13	32	53	133	32	6	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO *RECOMMENDED*
▶ ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE A TAGLIO INTERROTTO • SERIE NORMALE

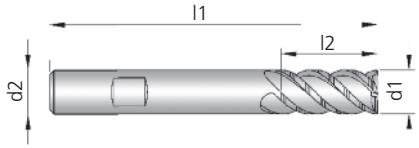
MG31

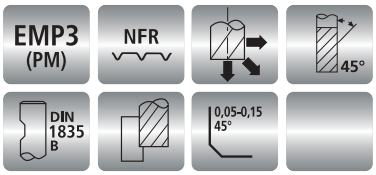
Due denti frontali taglienti fino al centro - Elica destra 45° - Divisione irregolare - Attacco Weldon
END MILLS WITH CHIP-BREAKER - Two end teeth cutting up to the centre - 45° right hand spiral - Irregular division - Weldon shank
FRAISES CYLINDRES AVEC BRISE-COPEAUX - Deux dents bout coupantes jusq'au centre - Hélice 45° à droite - Division irreguliere - Queue cylindrique Weldon
SCHAFTFRÄSER MIT SPANNBRECHER - Zwei Schneiden mit Zentrumschnitt - 45° rechts spiralgenutet - Ungleiche schneidenteilung- Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES CON ARRANCA DE VIRUTA - Dos labios que cortan hasta el centro- Hélice derecha 45° - División irregular - Mango Weldon
FRESAS CILINDRICAS FRONTALES COM QUEBRA APARA - Duas navalhas que cortan hasta el centro - Hélice dereita 45° - Divisão irregular - Encabadouro Weldon
Фреза концевая со стружколомом. Угол винтовой канавки 45°. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE MG

NORM.

UNI 8248
DIN 844B
ISO 1641/I





CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP3 €	SUPREME €
MG31/01	6	13	57	6	3	•	•
MG31/02	8	19	69	10	4	•	•
MG31/03	10	22	72	10	4	•	•
MG31/04	12	26	83	12	4	•	•
MG31/05	14	26	83	12	4	•	•
MG31/06	16	32	92	16	4	•	•
MG31/07	18	32	92	16	4	•	•
MG31/08	20	38	104	20	4	•	•
MG31/09	22	38	104	20	4	•	•
MG31/10	25	45	121	25	4	•	•
MG31/11	28	45	121	25	6	•	•
MG31/12	30	45	121	25	6	•	•
MG31/13	32	53	133	32	6	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

▲ CONSIGLIATO
RECOMMENDED

► ACCETTABILE
ACCEPTABLE

▼ SCONSIGLIATO
NOT RECOMMENDED

BARRETTE TRATTATE PER TORNITURA - BARENATURA - FRESATURA

SERIE MG

MG32

Barrette tonde
TOOL BITS TREATED TO BE TURNED, BORED, MILLED - Round
BARREAUX TRAITÉS POUR TOURNAGE, ALÉSAGE, FRAISAGE - Forme ronde
DREHLINGE ZUM DREHEN, AUSBOHREN, FRÄSEN - Rund
BARRETAS TRACTADAS PARA TORNITURA - Barenatura - Fresadora
BURIS TRACTADAS PARA TORNITURA - Barenatura - Fresadora
Заготовка-цилиндр

EMP3 (PM)

NORM.
UNI 3868
DIN
ISO

CODE	d h8	l j16	EMP3 €
MG32/01	4	100	•
MG32/02	6	100	•
MG32/03	6	200	•
MG32/04	8	100	•
MG32/05	8	200	•
MG32/06	10	100	•
MG32/07	10	200	•
MG32/08	12	100	•
MG32/09	12	200	•
MG32/10	14	200	•
MG32/11	16	200	•
MG32/12	18	200	•
MG32/13	20	200	•

Catalogo HSS-E e PM

SERIE MR

FRESE IN EMP6 (HSS-CoPM)

END MILLS IN EMP6 (HSS-CoPM)

Rime
UTENSILERIA

INDEX

SERIE MR

FRESE IN EMP6 (HSS-CoPM)
END MILLS IN EMP6 (HSS-CoPM)

FRESE A DUE DENTI PER CAVE • SERIE NORMALE

MR1

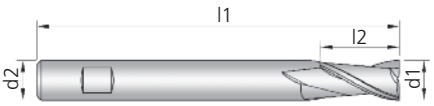
Un dente frontale tagliente fino al centro - Attacco Weldon
TWO-FLUTES SLOT CUTTERS - One end tooth cutting up to the centre - Weldon shank
FRAISES À RAINURES DEUX DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
LANGLOCHFRÄSER, ZWEISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES DE DOS LABIOS - Un labio que corta hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTALES DE DUAS NAVALHAS - Um naval que corta hasta el centro - Encabadouro Weldon
Фреза 2-х зубая. Режущий торец. Хвостовик Weldon. Средняя серия

SERIE MR

NORM.

UNI 8258
DIN 327D
ISO 1641/I

Z2



EMP6 (PM) | N | 30° | DIN 1835 B

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm e8	l2 mm	l1 mm	d2 mm h6	Z	EMP6 €	SUPREME €
MR1/02	4	7	51	6	2	•	•
MR1/03	5	8	52	6	2	•	•
MR1/04	6	8	52	6	2	•	•
MR1/05	7	10	60	10	2	•	•
MR1/06	8	11	61	10	2	•	•
MR1/07	9	11	61	10	2	•	•
MR1/08	10	13	63	10	2	•	•
MR1/09	11	13	70	12	2	•	•
MR1/10	12	16	73	12	2	•	•
MR1/11	13	16	73	12	2	•	•
MR1/12	14	16	73	12	2	•	•
MR1/13	15	19	79	16	2	•	•
MR1/14	16	19	79	16	2	•	•
MR1/15	17	19	79	16	2	•	•
MR1/16	18	19	79	16	2	•	•
MR1/17	19	22	88	20	2	•	•
MR1/18	20	22	88	20	2	•	•
MR1/19	22	22	88	20	2	•	•

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

FRESE A TRE DENTI • SERIE NORMALE

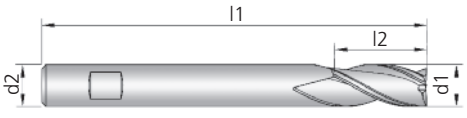
SERIE MR

MR2

Un dente frontale tagliente fino al centro - Attacco Weldon
THREE-FLUTES END MILLS - One end tooth cutting up to the centre - Weldon shank
FRAISES CYLINDRES TROIS DENTS - Une dent bout coupante jusq'au centre - Queue cylindrique Weldon
SCHATFRÄSER, DREISCHNEIDER - Eine Schneide mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES DE TRES LABIOS - Un labio que corta hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTALES DE TRÉS NAVALHAS - Um naval que corta hasta el centro - Encabadouro Weldon
Фреза 3-х зубая. Режущий торец. Хвостовик Weldon. Средняя серия

SHORT NORMAL LONG EXTRA-LONG

Z3



EMP6 (PM) | N | ≈30° | DIN 1835 B

NORM.

UNI 8248
DIN 844B
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP6 €	SUPREME €
MR2/03	4	11	55	6	3	•	•
MR2/04	5	13	57	6	3	•	•
MR2/05	6	13	57	6	3	•	•
MR2/06	7	16	66	10	3	•	•
MR2/07	8	19	69	10	3	•	•
MR2/08	10	22	72	10	3	•	•
MR2/09	12	26	83	12	3	•	•
MR2/10	14	26	83	12	3	•	•
MR2/11	16	32	92	16	3	•	•
MR2/12	18	32	92	16	3	•	•
MR2/13	20	38	104	20	3	•	•
MR2/14	22	38	104	20	3	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 -0,03

▲ CONSIGLIATO *RECOMMENDED*
► ACCETTABILE *ACCEPTABLE*
▼ SCONSIGLIATO *NOT RECOMMENDED*

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

FRESE A TAGLIO INTERROTTO • SERIE NORMALE

MR3

Un dente frontale tagliente fino al centro - Elica destra 45° - Divisione irregolare - Attacco Weldon
END MILLS WITH CHIP-BREAKER - One end tooth cutting up to the centre - 45° right hand spiral - Irregular division -Weldon shank
FRAISES CYLINDRES AVEC BRISE-COPEAUX - Une dent bout coupante jusq'au centre - Hélice 45° à droite - Division irreguliere - Queue cylindrique Weldon
SCHATFRÄSER, LANGLOCH - Eine Schneide mit Zentrumschnitt - 45° rechts spiralgenutet - Unregelmäßige- Teilung - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES CORTE INTERRUMPO - Un labio que corta hasta el centro, Hélice derecha 45° - División irregular - Mango Weldon
FRESAS CILINDRICAS FRONTAIS CORTE INTERRUMPIDO - Um naval que corta ao centro - Hélice dereita 45° - Divisão irregular - Encabadouro Weldon
Фреза концевая со стружколомом с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик Weldon. Средняя серия

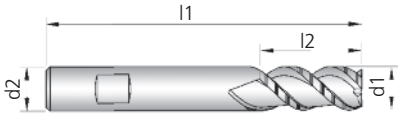
SERIE MR

NORM.

STANDARD Rime

Z3 ø6÷ø16

Z4 ø18÷ø32



EMP6 (PM) | NFR | 45° | DIN 1835 B | 0,05-0,15 45°

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP6 €	SUPREME €
MR3/03	6	13	57	6	3	•	•
MR3/04	8	20	69	10	3	•	•
MR3/05	10	22	72	10	3	•	•
MR3/06	12	26	83	12	3	•	•
MR3/07	14	26	83	12	3	•	•
MR3/08	16	36	90	16	3	•	•
MR3/09	18	40	100	16	4	•	•
MR3/10	20	45	110	20	4	•	•
MR3/12	25	50	125	25	4	•	•
MR3/14	30	63	140	25	4	•	•
MR3/15	32	63	140	32	4	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

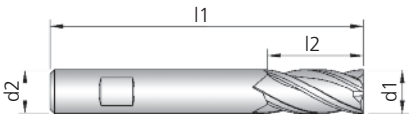
FRESE PER FINITURA • SERIE NORMALE

SERIE MR

MR4

Due denti frontali taglienti fino al centro - Attacco Weldon
END MILLS - Two end teeth cutting up to the centre - Weldon shank
FRAISES CYLINDRES - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Zwei Schneiden mit Zentrumschnitt - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTALES - Duas navalhas que corta ao centro - Encabadouro Weldon
Фреза для чистовой обработки. Режущий торец. Хвостовик Weldon. Средняя серия

SHORT NORMAL LONG EXTRA-LONG



EMP6 (PM) | N | ≈ 30° | DIN 1835 B

NORM.

UNI 8248
DIN 844B
ISO 1641/I

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP6 €	SUPREME €
MR4/01	6	13	57	6	4	•	•
MR4/02	7	16	66	10	4	•	•
MR4/03	8	19	69	10	4	•	•
MR4/04	9	19	69	10	4	•	•
MR4/05	10	22	72	10	4	•	•
MR4/06	12	26	83	12	4	•	•
MR4/07	14	26	83	12	4	•	•
MR4/07/1	15	32	92	16	4	•	•
MR4/08	16	32	92	16	4	•	•
MR4/09	18	32	92	16	4	•	•
MR4/10	20	38	104	20	4	•	•
MR4/11	22	38	104	20	4	•	•
MR4/12	25	45	121	25	5	•	•
MR4/13	28	45	121	25	5	•	•
MR4/14	30	45	121	25	6	•	•
MR4/15	32	53	133	32	6	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

FRESE CILINDRICHE FRONTALI • SERIE NORMALE

MR8

Un dente frontale tagliente fino al centro - Elica destra 45° - Divisione irregolare - Attacco Weldon
END MILLS - One end tooth cutting up to the centre - 45° right hand spiral - Irregular division -Weldon shank
FRAISES CYLINDRES - Une dent bout coupante jusq'au centre - Hélice 45° à droite - Division irreguliere - Queue cylindrique Weldon
SCHAFTFRÄSER - Eine Schneide mit Zentrumschnitt - 45° rechts spiralgenutet - Unregelmäßige - Teilung - Weldon Spannfläche
FRESAS CILINDRICAS FRONTALES - Un labio que corta hasta el centro - Hélice derecha 45° - División irregular - Mango Weldon
FRESAS CILINDRICAS FRONTALES - Um naval que corta ao centro - Hélice dereita - Divisão irregular - Encabadouro Weldon
Фреза концевая с непостоянным шагом зуба. Угол винтовой канавки 45°. Режущий торец. Хвостовик Weldon. Средняя серия

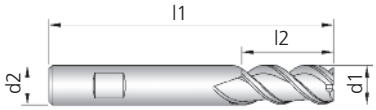
SERIE MR

NORM.

STANDARD Rime

Z3 ø6÷ø16

Z4 ø18÷ø32



EMP6 (PM) | N | 45° | DIN 1835 B | 0,05-0,15 45°

SHORT | NORMAL | LONG | EXTRA-LONG

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP6 €	SUPREME €
MR8/01	6	13	57	6	3	•	•
MR8/02	8	20	69	10	3	•	•
MR8/03	10	22	72	10	3	•	•
MR8/04	12	26	83	12	3	•	•
MR8/04/1	14	26	83	12	3	•	•
MR8/05	16	36	92	16	3	•	•
MR8/05/1	18	40	100	16	4	•	•
MR8/06	20	45	110	20	4	•	•
MR8/07	25	50	125	25	4	•	•
MR8/08	30	63	140	25	4	•	•
MR8/09	32	63	140	32	4	•	•

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	►	►

▲ CONSIGLIATO RECOMMENDED
► ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

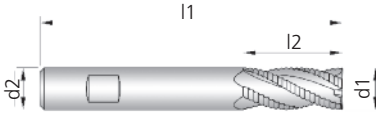
FRESE PER SGROSSATURA • SERIE NORMALE

SERIE MR

MR12

Denti elicoidali con rompitruciolo spogliato completamente rettificato - Due denti frontali taglienti fino al centro - Attacco Weldon
ROUGHING END MILLS - Helical teeth with form relieved entirely ground chip-breaker - Two end teeth cutting up to the centre - Weldon shank
FRAISES FRONTALES ÉBAUCHE - Denture hélicoïdale avec brise-copeaux profil rond - Deux dents bout coupantes jusq'au centre - Queue cylindrique Weldon
SCHAFTFRÄSER - Schrägschneiden mit volleingeschliffenem Spanbrecher - Zwei Schneiden mit Zentrumschnitt - Weldon-Spannfläche
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Labios helicoidal con arranca de viruta completamente rectificado - Dos labios que cortan hasta el centro - Mango Weldon
FRESAS CILINDRICAS FRONTALES PARA DESBASTE - Navalhas helicoidal com quebra apara - Duas navalhas corta ao centro - Encabadouro Weldon
Фреза для черновой обработки. Режущий торец. Хвостовик Weldon. Средняя серия

SHORT NORMAL LONG EXTRA-LONG



EMP6 (PM) | NR | ≈ 30° | DIN 1835 B

NORM.

UNI 8248
DIN 844B
ISO 1641/I

Toll. reale sul Ø
Real Tol. on Ø
+0 +0,03

CODE	d1 mm js14	l2 mm	l1 mm	d2 mm h6	Z	EMP6 €	SUPREME €
MR12/01	6	13	57	6	3	•	•
MR12/03	8	19	69	10	4	•	•
MR12/05	10	22	72	10	4	•	•
MR12/07	12	26	83	12	4	•	•
MR12/09	14	26	83	12	4	•	•
MR12/10	15	32	92	16	4	•	•
MR12/11	16	32	92	16	4	•	•
MR12/13	18	32	92	16	4	•	•
MR12/14	20	38	104	20	4	•	•
MR12/15	22	38	104	20	4	•	•
MR12/17	25	45	121	25	5	•	•
MR12/19	28	45	121	25	5	•	•
MR12/20	30	45	121	25	5	•	•
MR12/21	32	53	133	32	5	•	•

▲ CONSIGLIATO RECOMMENDED
▶ ACCETTABILE ACCEPTABLE
▼ SCONSIGLIATO NOT RECOMMENDED

ACCIAI STEELS	GHISE CAST IRON	ACCIAI INOSSIDABILI STAINLESS STEELS	SUPER LEGHE - TITANIO SUPERALLOYS - TITANIUM	LEGHE LEGGERE LIGHT ALLOYS	MATERIALI NON FERROSI NON FERROUS MATERIAL
▲	▲	▲	▲	▼	▼

SIMBOLI - SYMBOLS

Materiale di Base
Raw material

HSS — Acciaio Super Rapido (AISI M2)
High Speed Steel (AISI M2)

HSS-E Co5 — Acciaio Super Rapido 5% Co (AISI M35)
High Speed Steel 5% Co (AISI M35)

HSS-E Co8 — Acciaio Super Rapido 8% Co (AISI M42)
High Speed Steel 8% Co (AISI M42)

EMP3 (PM) — Acciaio Super Rapido 8.5% Co (EMP3 PM)
High Speed Steel 8.5% Co (EMP3 PM)

EMP6 (PM) — Acciaio Super Rapido (EMP6 PM)
High Speed Steel (EMP6 PM)

Forme costruttive / Geometrie
Geometry and types of cutting edges

N — Tagliente a finire.
Finishing cutting edge profile.

W — Geometria per lavorazione di materiali particolarmente teneri e malleabili.
Geometry for light alloys.

NR — Tagliente a sgrossare.
Roughing cutting edge profile.

NF — Tagliente a semifinire.
Semifinishing cutting edge.

NFR — Tagliente interrotto a sgrossare o semifinire.
Interrupted cutting edge for roughing or semifinishing.

NFL — Tagliente interrotto a sgrossare o semifinire per lavorazione di alluminio e leghe leggere.
Interrupted cutting edge for roughing or semifinishing alluminium and light alloy.

NRAL — Tagliente per sgrossatura alluminio.
Roughing cutting edge profile for aluminium.

Direzione di lavorazione
Machining direction


Adatto per lavorazione radiale, diagonale ed assiale.
Suitable for radial, diagonal and axial machining.


Adatto per lavorazione radiale e diagonale.
Suitable for radial and diagonal machining.


Adatto solo per lavorazione assiale.
Suitable only for axial machining.


Adatto solo per lavorazione radiale.
Suitable only for radial machining.

Angolo dell'elica
Spiral angle

Angolo dell'elica: 30° dx
Spiral angle: 30° right

Angolo dell'elica: 35° dx
Spiral angle: 35° right

Angolo dell'elica: 40° dx
Spiral angle: 40° right

Angolo dell'elica: 45° dx
Spiral angle: 45° right

Angolo dell'elica: 10° sx
Spiral angle: 10° left

Angolo dell'elica: 45° sx
Spiral angle: 45° left

SIMBOLI - SYMBOLS

Tipo di attacco
Type of connection

Foro cilindrico con cava di trascinamento trasversale DIN 138
Cylindrical hole and frontal tenon drive DIN 138

Codolo conico Morse con dente DIN 228B
Morse taper shank DIN 228B

Codolo conico Morse con foro filettato DIN 228A
Morse taper shank DIN 228A

Foro cilindrico con linguetta DIN 138
Cylindrical Hole with parallel key DIN 138

Codolo cilindrico filettato DIN 1835D
Threaded shank DIN 1835D

Codolo cilindrico DIN 1835A
Straight shank DIN 1835A

Codolo cilindrico con attacco Weldon DIN 1835B
Weldon shank DIN 1835B

Codolo cilindrico con quadro DIN 10
Shank with flat quare DIN 10

Forma dei taglienti
Type of cutters

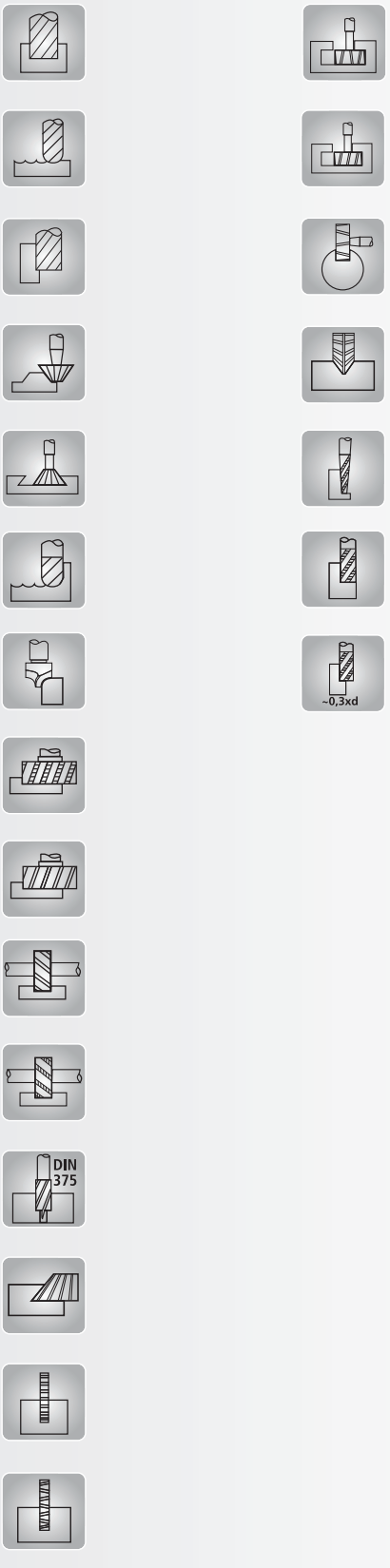
Utensile cilindrico.
Square end cutters.

Utensile a testa sferica.
Ball-nose cutters.

Forma dello spigolo tagliente
Type of cutters

Utensile con smusso a 45° sullo spigolo tagliente (la dimensione dello smusso varia a seconda del diametro).
Chanfered end cutters 45°.

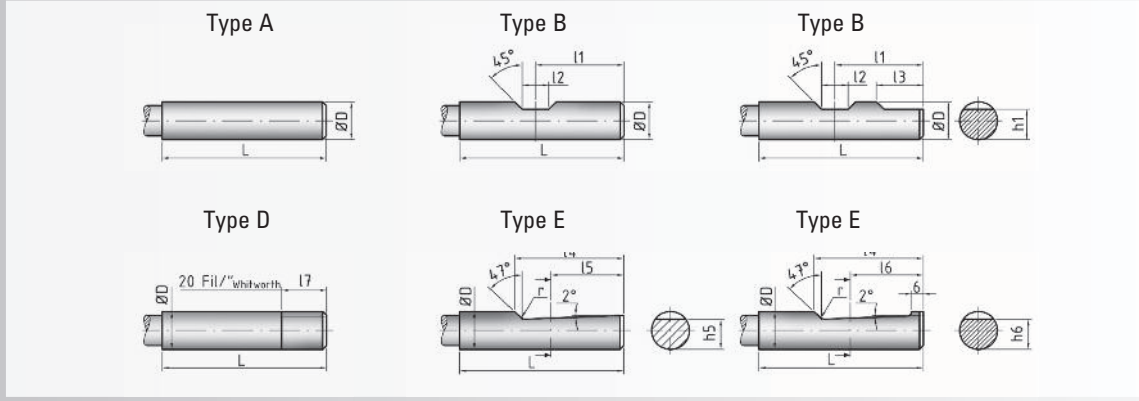
Utilizzo / Applicazione
Application



CLASSIFICAZIONE MATERIALI - *CLASSIFICATION OF MATERIALS*

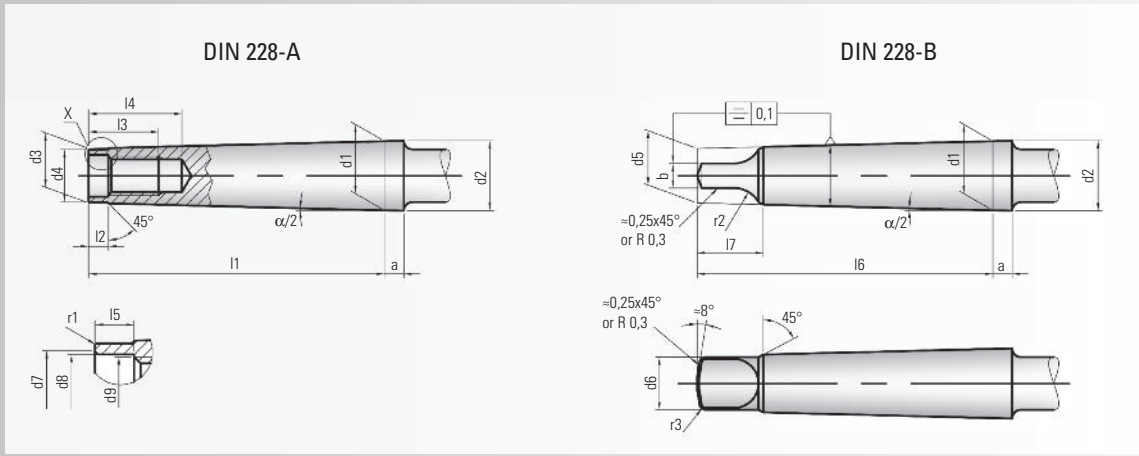
		DESCRIZIONE MATERIALI	*MATERIALS DESCRIPTION*	Rm (N/mm^2)	Durezza Hardness (HB)	Esempi - Example
		Acciai, acciai inossidabili ferritici e martensitici	**Steels, ferritic and martensitic stainless steels**			
P	1	Acciai molto teneri al carbonio. Acciai ferritici. Acciai non legati.	Soft carbon steel	<450	<120	S235JR; S275J2G3; C10; C15; C20; C22; 11 Mn 4Si
P	2	Acciai automatici. Acciai debolmente legati.	Free-machining steel Low alloys steel	400 <700	<200	10SPb2; 11 SMn30; 15 SMn13; 11SMnPb37; C15Pb; C22Pb
P	3	Acciai da costruzione. Acciai al carbonio con tenore di carbonio basso-medio (C <0,5%). Acciaio debolmente legati.	Constructions steels Carbon steel (low/medium carbon C<0,5%) Low alloys steel	450 < 850	<250	S355JR; C30E; C35E C40E; C50E; C55E
P	4	Acciai con tenore di carbonio medio-alto (C>0,5%). Acciai medio-duri per trattamenti termici. Acciai legati.	Carbon steel (medium/high carbon C>0,5%) Medium/High steel for heat treatment Alloys steel	550 <850	<350 <450	13CrMo4-5; 17CrNiMo6 42CrMo4; 50CrV4; 34CrNiMo6; C60; C75
P	5	Acciai da utensili. Acciai inossidabili ferritici, martensitici.	Tools steel Ferritic and martensitic stainless steel	700 <900	<250 <350	X18CrN28; X12Cr13(AISI 410); X38CrMo16; X17CrNi16-2; AISI 403; AISI 405; AISI 416; AISI 430; AISI 434; AISI 439
P	6	Acciai da utensili di difficile lavorabilità. Acciai con elevata durezza. Acciai inossidabili ferritici, martensitici.	Tools steel of hard machinability High hardness steel Ferritic and martensitic stainless steel	900 <1500	>350	X40CrMoV5-1; X105CrMo17 (AISI 440C); X20Cr13(AISI 420); AISI 431; AISI 440A; AISI 440B; AISI 446; X210Cr12; HS 6-5-2; HS 2-10-1-8; HS 18-0-1
		Acciaio temprato e ghisa fusa	**Hardened steel and chilled iron**			
H	1	Acciai temprati, ghisa fusa in conchiglia.	Hardened steel, chilled cast iron	<1600	<49 HRC	X38CrMo16; X40CrMoV5-1; G-X300CrMo15-3
H	2	Acciai temprati, ghisa fusa in conchiglia.	Hardened steel, chilled cast iron	>1620	>49 <55 HRC	C35E;GX200CrNiMo14-1
H	3	Acciai temprati, ghisa fusa in conchiglia.	Hardened steel, chilled cast iron	>1980	>55 <60 HRC	C40E; C50E; 42CrMo4; 34CrNiMo6; X105CrMo17 (AISI 440C)
H	4	Acciai temprati, ghisa fusa in conchiglia.	Hardened steel, chilled cast iron		>60 HRC	C55E; C60; G-X 300 CrMo 15 3
		Acciai inossidabili automatici, austenitici e duplex	**Free-machining, austenitic and Duplex stainless steel**			
M	1	Acciai inossidabili di facile lavorabilità. Acciai inossidabili austenitici.	Stainless steel of easy machinability Austenitic stainless steel	<850	<250	AISI 301; AISI 303; AISI 304 AISI 305; AISI 308
M	2	Acciai inossidabili di media lavorabilità. Acciai inossidabili austenitici e Duplex.	Stainless steel of medium machinability Austenitic stainless steel and Duplex	<1100	<320	AISI 304L; AISI 309; AISI 310S AISI 316; AISI 321; AISI 347 H
M	3	Acciai inossidabili di difficile lavorabilità. Duplex, Super Duplex e acciai inox PH	Hard machinability stainless steel Duplex, Super Duplex, inox PH	<900	<200 <275	17-7 PH; AISI 630; 15-5PH AISI 330; AISI 316LN; AISI 329 LN
		Ghisa	**Cast iron**			
K	1	Ghise malleabili. Ghise grigie.	Malleable cast iron. Grey cast iron	>500	<250	GJL-100; GJL-150; GJL-200
K	2	Ghise debolmente legate. Ghise nodulari.	Low alloys cast iron. Nodular cast iron	>500 <1000	>150 <300	GJL-250; GJL-300; GJL-350
K	3	Ghise a grafite compatta.	Compacted-graphite cast iron	<700	<250	GJS-600-3; GJMB-650-2; GJS-700-2
K	4	Ghise altamente legate di difficile lavorabilità. Ghise nodulari austemperate.	High alloys cast iron (hard to machine)	>700 <1000	>300 <450	GJS-800-2; GJSA-XNiCr30-3 GJSA-XNi35; GMB 65
		Superleghe - Titanio	**Super alloys - Titanium**			
S	1	Leghe a base di ferro resistente al calore	Iron alloys heat-resistant	>500 <1200	<280	Discalloy; Lapelloy; Incoloy 800; Incoloy 909; Custom 455
S	2	Leghe di nichel e leghe di cobalto resistenti al calore	Nichel alloys and cobalt alloys heat-resistant	>1000 <1450	>250 <450	Hastelloy X; Ninomic 75 Inconel 600; Inconel 718; Inconel 625; Waspalloy; Nimocast 713; Udimet 500; Rene 41; Stellite 31
S	3	Titanio, leghe di titanio a media durezza	Titanium, titanium alloys with medium hardness	<1100	<320	TiCu2; Ti4; TiAl3V2,5
S	4	Leghe di titanio a durezza elevata	Titanium alloys with high hardness	>1100 <1400	>300 <400	TiAl6V4; TiAl5Fe2 5; TiAl6Sn2Zr4Mo2; TiAl4Mo4Sn2
		Leghe leggere / Materiali non ferrosi	**Light alloys / Non ferrous material**			
N	1	Leghe di alluminio: Si <0,5%	Aluminium alloys (Si<0,5%)	<500	<90	Al99,9; AlMg1; AlMg5; AlCuMgPb
N	2	Leghe di alluminio: Si >0,5% <10%	Aluminium alloys (Si>0,5% <10%)	<400	>70 <100	AlSi9Mg; AlSi17Cu5; AlSi10Mg; AlSi7Mg
N	3	Leghe di alluminio: ad alto contenuto di Si >10%	Aluminium alloys (Si >10%)	>200 <320	>60 <120	AlSi17Cu4Mg; AlSi18CuNiMg; AlSi21CuNiMg
N	4	Rame e leghe di rame	Copper and copper alloys	>200 <650	>60 <200	CuZn36Pb1,5; CuSn20; CuSn2 CuNi18Zn19Pb; CuZn40Al2
N	5	Materiali plastici	Plastics materials			
		Grafite	**Graphite**			
O		Grafite	Graphite	<100		

Codolo delle frese - Estratto Tab. DIN 1835
Mill shank according DIN 1835



D h6	L +2 -0	l1 +0 -1	h1 h13	l2 +0,05 -0	l3 +1 -0	l4 +0 -1	l5 nom.	h5 h11	l6 nom.	h6 h13	r min	l7 +2 -0
4	28	-	-	-	-	-	-	-	-	-	-	4
6	36	18	4,8	4,2	-	25	18	4,8	18	5,3	1,2	10
8	36	18	6,6	5,5	-	25	18	6,6	18	7,1	1,2	10
10	40	20	8,4	7	-	28	20	8,4	20	8,9	1,2	10
12	45	22,5	10,4	8	-	33	22,5	10,4	22,5	10,9	1,2	10
14	45	-	-	-	-	33	22,5	-	22,5	12,4	1,2	-
16	48	24	14,2	10	-	36	24	14,2	24	14,5	1,6	10
18	48	-	-	-	-	36	24	-	24	16,2	1,6	-
20	50	25	18,2	11	-	38	25	18,2	25	18,2	1,6	15
25	56	32	23	12	17	44	32	23	32	23	1,6	15
32	60	36	30	14	19	48	35	30	35	30	1,6	15

Attacchi per utensili - Codolo secondo DIN 228
Mill shank according DIN 228



Mk	α/2	a	b	d1	d2	d3	d4	d5	d6	d7	d8	d9	l1	l2	l3	l4	l5	l6	l7	r1	r2	r3
0	1°29'27"	3,0	3,9	9,045	9,2	6,4	6,0	6,1	6,0	-	-	-	50,0	4	-	-	-	56,5	10,5	0,2	4	1,0
1	1°25'43"	3,5	5,2	12,065	12,2	9,4	9,0	9,0	8,7	8,5	6,4	M6	53,0	5	16	22,0	4,0	62,0	13,5	0,2	5	1,2
2	1°25'50"	5,0	6,3	17,780	18,0	14,6	14,0	14,0	13,5	13,2	10,5	M10	64,0	5	24	31,5	5,0	75,0	16,0	0,2	6	1,6
3	1°26'16"	5,0	7,9	23,825	24,1	19,8	19,0	19,1	18,5	16,0	13,0	M12	81,0	7	24	33,5	5,5	94,0	20,0	0,6	7	2,0
4	1°29'15"	6,5	11,9	31,267	31,6	25,9	25,0	25,2	24,5	21,5	17,0	M16	102,5	9	32	42,5	8,2	117,5	24,0	1,0	8	2,5
5	1°30'26"	6,5	15,9	44,399	44,7	37,6	35,7	36,5	35,7	26,0	21,0	M20	129,5	10	40	52,5	10,0	149,5	29,0	2,5	10	3,0

Scostamenti previsti dalle norme UNI per le frese - valori in mm 0,001
Deviations in end mills and cutters fore seen by uni norms values in mm 0,001

Ø	mm	H7	H11	d9	d11	e8	h6	h8	h11	h12	js12	js16	k11	k16
oltre	1,6	0	0	-20	-20	-14	0	0	0	0	+125	+300	+60	+600
fino	3	+9	+60	-45	-80	-28	-7	-14	-60	-100	-125	-300	0	0
oltre	3	0	0	-30	-30	-20	-0	0	0	0	+150	+375	+75	+750
fino	6	+12	+75	-60	-105	-38	-8	-19	-75	-120	-150	-375	0	0
oltre	6	0	0	-40	-40	-25	0	0	0	0	+180	+450	+90	+900
fino	10	+15	+90	-76	-130	-47	-9	-22	-90	-150	-180	-450	0	0
oltre	10	0	0	-50	-50	-32	0	0	0	0	+215	+550	+110	+1100
fino	18	+18	+110	-93	-160	-59	-11	-27	-110	-180	-215	-550	0	0
oltre	18	0	0	-65	-65	-40	0	0	0	0	+260	+650	+130	+1300
fino	30	+21	+130	-117	-195	-73	-13	-33	-130	-210	-260	-650	0	0
oltre	30	0	0	-80	-80	-50	0	0	0	0	+310	+800	+160	+1600
fino	50	+25	+160	-142	-240	-89	-16	-39	-160	-250	-310	-800	0	0
oltre	50	0	0	-100	-100	-60	0	0	0	0	+370	+950	+190	+1900
fino	80	+30	+190	-174	-290	-106	-19	-46	-190	-300	-370	-950	0	0
oltre	80	0	0	-120	-120	-72	0	0	0	0	+435	+1100	+220	+2200
fino	120	+35	+220	-207	+304	-126	-22	-54	-220	-350	-435	-1100	0	0
oltre	120	0	0	-145	-145	-85	0	0	0	0	+500	+1250	+250	+2500
fino	180	+40	+250	-243	-395	-148	-25	-63	-250	-400	-500	-1250	0	0
oltre											+575	+1450		
fino											-575	-1450		