

PROGRAMMA DI FRESATURA

in metallo duro integrale



SOLID CARBIDE END MILLS



VHM FRÄSER



FRAISES CARBURE MONOBLOC



FRESAS EN METAL DURO



2015

Talicarb

Talicarb



Angelo Ghezzi & C SpA

Talicarb

TALICARB - La nostra storia

OUR HISTORY
UNSERE GESCHICHTE
NOTRE HISTOIRE
NUESTRA HISTORIA

 **TALICARB**, società appartenente dal 1990 al gruppo Angleo Ghezzi & C. S.p.A., è specializzata nella progettazione e realizzazione di utensili in metallo duro saldobrasato ed integrale. Produce dal 1962 frese per cave, frese per sgrossatura e finitura, alesatori, utensili monotaglianti secondo le normative ISO e ha intensificato in questi ultimi anni il suo programma di prodotti per stampisti ad alto rendimento e di utensili speciali a disegno. A seguito di continui investimenti in nuove tecnologie, ha ulteriormente arricchito il proprio assortimento di frese "POWER" con l'aumento della gamma di diametri e di molte nuove tipologie di utensili particolarmente adatti al settore stampista e per l'alta velocità. Sono utensili realizzati dopo un'accurata ricerca e uno studio particolare, finalizzati a proporre all'utilizzatore finale una scelta tecnicamente idonea al tipo di lavorazione da eseguire e alle caratteristiche del materiale da lavorare. La Talicarb, infatti, da sempre si impegna ad indirizzare il proprio consumatore verso la giusta scelta dell'utensile. Per lavorazioni particolari ricordiamo la presenza nel catalogo delle sezioni relative alle frese Power Graphite con rivestimento Diamond e frese Power PKD - PCD con riporto in policristallino.

 **TALICARB**, which is part of Angleo Ghezzi & C. S.p.A. group since 1990, is specialized in designing and manufacturing of solid carbide and carbide tipped tools. Since 1962 the company has been producing slot milling cutters, roughing and finishing end mills, reamers and turning tools in accordance with ISO standards. During the last few years, Talicarb has intensified its range of products in diesinking field and special tools according to drawing. After constant investments in new technologies, Talicarb has increased its range of POWER end mills with more diameters and lots of new types of tools that are especially suitable in diesinking and high speed fields. Thanks to a careful research and study, these tools are meant to be the best technical choice for the kind of machining and material the customer

has to work: Talicarb has always been leading its customer to the correct choice of the tool. For less ordinary machinings we point out the section of Power Graphite end mills with Diamond coating and Power PKD - PCD with polycrystalline diamond.

 Die Firma **TALICARB**, die seit 1990 zur Gruppe Angleo Ghezzi & C. S.p.A. gehört, ist auf die Entwicklung und Herstellung von Werkzeugen in Vollhartmetall sowie Hartmetall-bestückt spezialisiert. Seit 1962 stellt sie Nutenfräser, Schrupp- und Schlichtfräser, Reibahlen, einschneidige Werkzeuge nach ISO Normen her und hat in den letzten Jahren ihre Palette von Hochleistungsformenfräser sowie Sonderwerkzeuge nach Zeichnung ziemlich verbreitet. Infolge ständiger Investitionen in neuen Technologien hat Talicarb ihre Palette von „POWER“ Fräser mit weiteren Durchmessern sowie mit vielen neuen Werkzeugen verbreitet, die besonders geeignet für den Formenbereich und für die Hochgeschwindigkeitsbearbeitungen sind. Diese Werkzeuge werden nach einer sorgfältigen und vertieften Forschung hergestellt so dass der Endbenutzer die geeignetsten Werkzeuge für seine Bearbeitung und für das entsprechende Material zur Verfügung hat. Talicarb verpflichtet sich seit immer dem Benutzer das passende Werkzeug zu empfehlen. Für besondere Bearbeitungen bitte schauen Sie in den Kapiteln über Graphite Powerfräser mit Diamond Beschichtung und PKD Powerfräser mit Polykristallinauflage nach



TALICARB - La nostra storia

OUR HISTORY
UNSERE GESCHICHTE
NOTRE HISTOIRE
NUESTRA HISTORIA

 **TALICARB**, società qui fait partie depuis le 1990 du group Angleo Ghezzi & C. S.p.A., est spécialisée dans le projet et réalisation d'outils en carbure monobloc, carbure brasé. Talicarb produise depuis le 1962 fraises à rainurer, fraises à ébaucher et à finir, alesiors, outils monocoups suivant les normatives ISO et elle a augmenté dans ces derniers années sa gamme de produits pour moulistes à haute performance et d'outils spéciaux sur plan. Grâce à l'engagement soutenu dans les nouvelles technologies, Talicarb a de plus en plus enrichi sa gamme de fraises "POWER" avec l'introduction d'autres diamètres et de nouvelles typologies d'outils particulièrement indiqués dans le secteur mouleur et pour l'haute vitesse.

Ils sont des outils réalisés, après une recherche soignée et un étude particulier, finalisés à proposer à l'utilisateur final un choix techniquement approprié au type d'usinage à réaliser et aux caractéristiques de la matière à travailler.

En effet Talicarb depuis toujours s'engage à adresser ses consommateurs pour un bon choix de l'outil. Pour usinages paticuliers nous vous rappelons la présence dans le catalogue des sessions qui correspondent aux fraises Power Graphite avec revêtement Diamond et fraises Power PKD - PCD avec rechargement en polycristallin.

 **TALICARB**, empresa del grupo Angleo Ghezzi y C. S.p. A. desde 1990, está especializada en el diseño y la fabricación de herramientas en metal duro soldado e integral. Desde 1962 la compañía de produce fresas de ranurado, desbaste y acabado, escariadores y herramientas de torno conformes a normas ISO. Durante los últimos años Talicarb ha intensificado su gama de productos para moldes de alto rendimiento y herramientas especiales según plano. A través de constantes inversiones en investigación y nuevas tecnologías, Talicarb ha llegado aumentar su gama de fresado POWER con más diámetros y muchas nuevas tipologías de fresas particularmente adaptadas al sector del molde de alta velocidad.

Después de una investigación cuidadosa y los estudios realizados, proponemos al cliente final estas herramientas como la opción técnica más conveniente para el tipo de trabajo a realizar y el material a trabajar: Talicarb siempre guía a su cliente cerca de la elección correcta de la herramienta. Para trabajos particulares subrayamos de las secciones del catálogo relativas a las fresas Power Grafito con recubrimiento de diamante y las fresas Power PKD - PCD en policristalino.



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FRESE A CANDELA CON TESTA SEMISFERICA

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FRESE CONICHE CON TESTA PIANA

Taper mills - Kegelige gesenkfräser - Fraises coniques - Fresas cónicas



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FRESE CONICHE CON TESTA RAGGIATA

Taper mills with ball nose - Kegelige gesenkfräser mit radius - Fraises coniques bout hémisphérique - Fresas cónicas de cabeza esférica



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FRESE A CANDELA CON TESTA PIANA E TORICHE

End mills for special applications, flat head or with radius - Fräser für spezielle anwendungen mit flacher stirnschneide oder mit radius - Fraises pour applications spécifiques à bout plat ou avec rayon hémisphérique - Fresas para aplicaciones específicas de cabeza llana o tóricas



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FRESE A CANDELA POWER CON TESTA PIANA E TORICHE

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Micro power hpm-hcm - Micro power hpm-hcm - Fraises micro power hpm-hcm - Fresas power micro hpm-hcm



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Solid carbide rods / engraving cutter - Vhm - werkzeuge / gravierstichel - Outils en carbure monobloc / fraises à graver - Herramientas de metal duro integral / fresas de gravar



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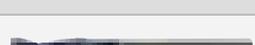
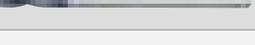
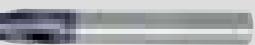
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	1012	Talcarb Norm.	3-25	2	35°	
	1212TF	Normale Normal	1,5-20	2	35°	
	1032	Lunga Long	3-20	2	35°	
	1042	Extralunga Extra-Long	3-20	2	35°	
	1013	Talcarb Norm.	3-25	3	35°	
	1213TF	Normale Normal	1,5-20	3	45°	
	1033	Lunga Long	3-20	3	35°	
	1043	Extralunga Extra-Long	3-20	3	35°	
	1273	Normale Normal	3-20	3	45°	
	1053	Talcarb Norm.	3-20	3	60°	
	1014	Talcarb Norm.	3-25	4	35°	
	1214TF	Normale Normal	1,5-20	4	35°	
	1034	Lunga Long	3-20	4	35°	
	1044	Extralunga Extra-Long	3-20	4	35°	
	1012R	Talcarb Norm.	3-20	2	35°	
	212RTF	Normale Normal	1.5-20	2	35°	
	1032R	Lunga Long	3-20	2	35°	
	1042R	Extralunga Extra-Long	3-20	2	35°	
	1013R	Talcarb Norm.	3-20	3	30°	
	213RTF	Talcarb Norm.	1.5-20	3	35°	

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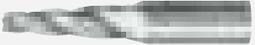
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RACCOMANDATO - Suggested - Empfohlen - Conseillé - Aconsejado: ●
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	1043R	Extralunga Extra-Long	3-20	3	35°	
	1014R	Talcarb Norm.	3-20	4	35°	
	214RTF	Normale Normal	1,5-20	4	45°	
	1034R	Lunga Long	3-20	4	35°	
	1044R	Extralunga Extra-Long	3-20	4	35°	
	1505	Talcarb Norm.	2.5-16	3/4	*30'	
	1510	Talcarb Norm.	2.5-16	3/4	*1°	
	1515	Talcarb Norm.	2.5-12	3/4	*1° 30'	
	1520	Talcarb Norm.	2.5-12	3/4	*2°	
	1530	Talcarb Norm.	2.5-12	3/4	*3°	
	1540	Talcarb Norm.	2.5-12	3/4	*4°	
	1550	Talcarb Norm.	2.5-12	3/4	*5°	
	1505R	Talcarb Norm.	2.5-12	3/4	*30'	
	1510R	Talcarb Norm.	2.5-12	3/4	*1°	
	1515R	Talcarb Norm.	2.5-12	3/4	*1° 30'	
	1520R	Talcarb Norm.	2.5-12	3/4	*2°	
	1530R	Talcarb Norm.	2.5-12	3/4	*3°	
	1540R	Talcarb Norm.	2.5-12	3/4	*4°	
	1550R	Talcarb Norm.	2.5-12	3/4	*5°	

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		1282	Talcarb Norm.	6-16	2	50°	
		1263	Normale Normal	3-20	2	50°	TFNEW COATING
NEW		1265	Talcarb Norm.	6-20	3	40°	
NEW		1266	Talcarb Norm.	3-20	3	42/45°	
NEW		1318TF	Talcarb Norm.	3-20	4	36/41°	TFNEW COATING
		1320TF	Talcarb Norm.	3-20	4	38/41°	TFNEW COATING
		1321TF	Talcarb Norm.	3-20	4	38/41°	TFNEW COATING
		1374	Normale Normal	6-18	4	45°	
		1376	Normale Normal	6-18	4	45°	
		1314R	Normale Normal	8,12	4	30°	
		1060	Talcarb Norm.	6-20	4/6	30°	TFNEW COATING
		1061TF	Talcarb Norm.	6-20	4	30°	TFNEW COATING
		1062TF	Talcarb Norm.	6-20	3	38°	TFNEW COATING
		1330TF	Talcarb Norm.	3-20	3	40°	TFNEW COATING
		1331TF	Talcarb Norm.	3-20	3	40°	TFNEW COATING
		1340XT	Normale Normal	3-20	6	45°	XT
		1341XT	Normale Normal	3-20	6	45°	XT
		1351XT	Talcarb Norm.	3-20	6	45°	XT
		1352XT	Normale Normal	3-20	6	45°	XT

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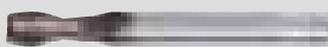
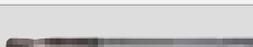
RACCOMANDATO - Suggested - Empfohlen - Conseillé - Aconsejado: ●
 POSSIBILE - Possible - Möglich - Possible - Possible: ○



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	CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	NUMERO ELICHE Flute Number	ANGOLO ELICA Flute Angle	RIVISTI- MENTI Coatings
	1350XT	Normale Normal	3-20	4/6	50°	XT
	1360XT	Lunga Long	3-20	4/6	50°	XT

	CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	NUMERO ELICHE Flute Number	ANGOLO ELICA Flute Angle	RIVISTI- MENTI Coatings
	1417XT	Normale Normal	0.3-3	2	30°	XT
	1412XT	Normale Normal	1-25	2	35°	XT
	1432XT	Normale Normal	3-25	2	35°	XT
	1422XT	Lunga Long	3-12	2	30°	XT
	1414XT	Normale Normal	1-25	4	35°	XT
	1434XT	Normale Normal	3-20	4	35°	XT
	1424XT	Lunga Long	3-12	4	30°	XT
	1452XT	Normale Normal	3-20	4	45°	XT
	1451XT	Lunga Long	4-20	4	50°	XT
	417RXT	Normale Normal	0.4-3	2	30°	XT
	412RXT	Normale Normal	1-25	2	35°	XT
	432RXT	Lunga Long	1-10	2	35°	XT
	402RXT	Lunga Long	1-12	2	30°	XT
	497RXT	Normale Normal	3-25	2	35°	XT

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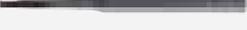
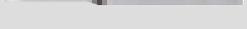
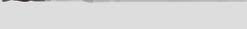
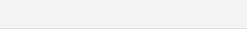
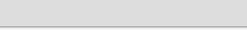
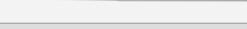
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	■	■	■			●		●			●	118
	■	■	■			●		●			●	119
	■	■	■			●		●			●	121
	■	■	■			●		●			●	122
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			■	■		●		●			●	130
			■	■		●		●			●	131

RACCOMANDATO - Suggested - Empfohlen - Conseillé - Aconsejado: ●
POSSIBILE - Possible - Möglich - Possible - Possible: ○

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	CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	NUMERO ELICHE Flute Number	ANGOLO ELICA Flute Angle	RIVESTI- MENTI Coatings
	416RXT	Normale Normal	1-25	2	30°	XT
	130RXT	Normale Normal	3-12	2	0°	XT
	302RXT	Lunga Long	3-10	2	0°	XT
	493RXT	Normale Normal	2-20	3	30°	XT
	414RXT	Normale Normal	1-25	4	35°	XT
	491HXT	Normale Normal	2-16	3/4	0°	XT
	1450XT	Normale Normal	6-20	6	50°	XT
	1460XT	Lunga Long	6-20	6	50°	XT
	1410XT	Normale Normal	0,5-2,5	2	30°	XT
	1430XT	Normale Normal	0,4-3,0	2	30°	XT
NEW 	1431XT	Normale Normal	0,2-6,0	2	30°	XT
NEW 	1433XT	Normale Normal	0,5-4,0	2	30°	XT
	1411XT	Normale Normal	3-6	4	30°	XT
	1415XT	Normale Normal	3-6	4	30°	XT
	419RXT	Lunga Long	0,5-6	2	30°	XT
NEW 	431RXT	Normale Normal	0,3-5	2	30°	XT
	433RXT	Normale Normal	0,2-6	2	30°	XT
	413RXT	Normale Normal	0,3-6	3	30°	XT

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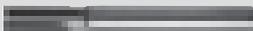
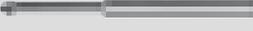
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RACCOMANDATO - Suggested - Empfohlen - Conseillé - Aconsejado: ●

POSSIBILE - Possible - Möglich - Possible - Posible: ○

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	CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	NUMERO ELICHE Flute Number	ANGOLO ELICA Flute Angle	RIVESTI- MENTI Coatings
	1436D	Extralunga Extra-Long	2-12	4	35°	
	1420RD	Lunga Long	1-12	2	30°	
	1421RD	Extralunga Extra-Long	2-12	2	30°	
	1425RD	Lunga Long	3-10	4	35°	
	1437D	Normale Normal	0,2-6,0	2	35°	
	1434RD	Normale Normal	0,2-6,0	2	35°	
	1601DT	Normale Normal	4-10	1	-	
	1602DT	Normale Normal	6-20	2	-	
	602RDT	Normale Normal	4-20	2	-	
	603RDT	Normale Normal	4-20	2	-	

	CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	NUMERO ELICHE Flute Number	MATERIALE Material	RIVESTI- MENTI Coatings
	1100	DIN 6539	0,5-20	2	Metallo Duro Solid Carbide	
	1101	Norm	0,5-16	2	Metallo Duro Solid Carbide	
	1099	Norm	1,25-6,3	2	Metallo Duro Solid Carbide	

* PCD (Con riporto in policristallino) / (Solid carbide with polycrystalline diamond)

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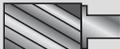
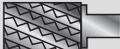
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						●	●	○	●	●		202

RACCOMANDATO - Suggested - Empfohlen - Conseillé - Aconsejado: ●
POSSIBILE - Possible - Möglich - Possible - Possible: ○

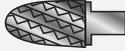
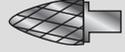
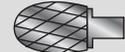
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			CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	PAGINA Page
	②		1092	Norm.	1-12	207
	①		1091	Norm.	1-12	207
	②		2400	Norm.	3-12	208
	②		2401	Norm.	2-12	208
	②		2402	Norm.	2-12	209
	②		2403	Norm.	2-12	209
	①		2001	Norm.	1.5-25	210
	②		2002	Norm.	1.5-25	210
	③		2003	Norm.	1.5-25	210
	④		2004	Norm.	1.5-25	210
	⑤		2005	Norm.	1.5-25	210
	⑥		2006	Norm.	1.5-25	210
	①		2001F	Norm.	1.5-25	210
	②		2002F	Norm.	1.5-25	210
	③		2003F	Norm.	1.5-25	210
	①		2011	Norm.	2.5-19	211
	②		2012	Norm.	2.5-19	211
	③		2013	Norm.	2.5-19	211
	④		2014	Norm.	2.5-19	211
	⑤		2015	Norm.	2.5-19	211

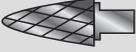
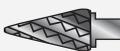
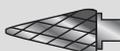
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			CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	PAGINA Page
	6	2016	Norm.	2.5-19	211	
	1	2021	Norm.	3-19	212	
	2	2022	Norm.	3-19	212	
	3	2023	Norm.	3-19	212	
	4	2024	Norm.	3-19	212	
	5	2025	Norm.	3-19	212	
	6	2026	Norm.	3-19	212	
	1	2031	Norm.	3-19	213	
	2	2032	Norm.	3-19	213	
	3	2033	Norm.	3-19	213	
	4	2034	Norm.	3-19	213	
	5	2035	Norm.	3-19	213	
	6	2036	Norm.	3-19	213	
	1	2041	Norm.	3-19	214	
	2	2042	Norm.	3-19	214	
	3	2043	Norm.	3-19	214	
	4	2044	Norm.	3-19	214	
	5	2045	Norm.	3-19	214	
	6	2046	Norm.	3-19	214	
	1	2051	Norm.	2,3-25,4	215	

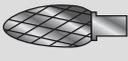
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			CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	PAGINA Page															
																					
	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	3	1	
	2052	2053	2054	2055	2056	2061	2062	2063	2064	2065	2066	2071	2072	2073	2074	2075	2076	2501	2503	2511	
	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.	Norm.
	2,3-25	2,3-25	2,3-25,4	2,3-25,4	2,3-25,4	3-19	3-19	3-19	3-19	3-19	3-19	3-16	3-16	3-16	3-16	3-16	3-16	3-25,4	3-25,4	3-25,4	
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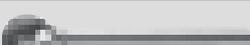
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			CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	PAGINA Page
	3		2513	Norm.	3-25,4	218
	1		2081	Norm.	2,3-19	219
	2		2082	Norm.	2,3-19	219
	3		2083	Norm.	2,5-19	219
	4		2084	Norm.	2,3-19	219
	5		2085	Norm.	2,3-19	219
	6		2086	Norm.	2,3-19	219
	1		2081F	Norm.	2,3-19	219
	2		2082F	Norm.	2,3-19	219
	1		2091	Norm.	3-19	220
	2		2092	Norm.	6-19	220
	3		2093	Norm.	3-19	220
	4		2094	Norm.	3-19	220
	5		2095	Norm.	3-19	220
	6		2096	Norm.	3-19	220
	7		2300	Norm.	6-19	221
	7		2310	Norm.	6-19	221
	7		2320	Norm.	6-19	221
	7		2330	Norm.	6-19	222
	7		2340	Norm.	6-19	222

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			CODICE Item no.	SERIE Series	GAMMA DIAMETRI Diameter Range	PAGINA Page
			2350	Norm.	6-19	222
			2101	Lunga/Extralunga Long/Extralong	3-12,7	223
			2201	Lunga/Extralunga Long/Extralong	3-12,7	223
			2101F	Lunga/Extralunga Long/Extralong	3-12,7	223
			2201F	Lunga/Extralunga Long/Extralong	2,3-19	223
			2111	Lunga/Extralunga Long/Extralong	3-12,7	224
			2211	Lunga/Extralunga Long/Extralong	3-12,7	224
			2121	Lunga/Extralunga Long/Extralong	3-12,7	225
			2221	Lunga/Extralunga Long/Extralong	3-12,7	225
			2131	Lunga/Extralunga Long/Extralong	3-12,7	226
			2231	Lunga/Extralunga Long/Extralong	3-12,7	226
			2141	Lunga/Extralunga Long/Extralong	3-12,7	227
			2241	Lunga/Extralunga Long/Extralong	3-12,7	227
			2151	Lunga/Extralunga Long/Extralong	3-12,7	228
			2251	Lunga/Extralunga Long/Extralong	3-12,7	228
			2161	Lunga/Extralunga Long/Extralong	3-12,7	229
			2261	Lunga/Extralunga Long/Extralong	3-12,7	229
			2191	Lunga/Extralunga Long/Extralong	3-12,7	230
			2291	Lunga/Extralunga Long/Extralong	3-12,7	230

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Item no.

SERIE
Series

**GAMMA
DIAMETRI**
Diameter
Range

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Norm.

1,5-20

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1086

Norm.

3-20

235



1098

Norm

2-12

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angeloghezzi.it

ISTRUZIONI PER L'USO E LA CONSULTAZIONE DEL LISTINO

PRICE LIST INSTRUCTIONS
PREIS LISTE ANWEISUNGEN
INSTRUCTIONS POUR L'UTILISATION DU TARIF
INSTRUCCIONES PARA EL USO DE LA LISTA PRECIOS



01 DESCRIZIONE PRODOTTO:

Product description
Produkt Beschreibung
Description produit
Descripción producto

02 NORMATIVA

Norm
Norm
Norme
Norma

03 ICONE DESCRITTIVE

Descriptive icons
Beschreibende Symbolen
Icones descriptives
Iconos descriptivoi



04 CODICE PRODOTTO

Item code
Katalognummer
Reference produit
Código referencia

05 TIPO ATTACCO

Shank type
Schaft-typologie
Typologie de attachement
Tipo de mango

06 DIMENSIONI

Dimensions
Abmessungen
Dimensions
Dimensiones



07 GRUPPO MATERIALI LAVORABILI

Group of working material
Bearbeitungsmaterialien Gruppe
Groupe de matériaux a usiner
Grupo de materiales a mecanizar

08 ESEMPLI DI APPLICAZIONE

Application examples
Anwendungsbeispiele
Exemple d'application
Ejemplos de aplicaciones

09 DISEGNO

Drawing
Zeichnung
Plano
Plan

LEGENDA

KEY TO SYMBOLS
ZEICHENERKLÄRUNG
LÉGENDE
LEYENDA



SERIE CORTA

Short series
Kurze Ausführung
Série courte
Serie corta



SERIE NORMALE

Normal series
Normale Ausführung
Série normale
Serie normal



SERIE NORMALE

"codolo scaricato"
Normal series
"tapered shank"
Normale Ausführung
"Verjungter schaft"
Série normale
"Queue fuselée"
Serie normal
"Mango rabajadi"



SERIE LUNGA

Long series
Lange Ausführung
Série longue
Serie larga



SERIE EXTRALUNGA

Extralong series
Extralange Ausführung
Série extralongue
Serie extralarga



N°1 TAGLIENTE

Number of flute
Zähnezahl
Nombre de dent
Número de Labio



N°2 TAGLIENTI

Number of flutes
Zähnezahl
Nombre de dents
Número de Labios



N°3 TAGLIENTI

Number of flutes
Zähnezahl
Nombre de dents
Número de Labios



N°4 TAGLIENTI

Number of flutes
Zähnezahl
Nombre de dents
Número de Labios



N°6 TAGLIENTI

Number of flutes
Zähnezahl
Nombre de dents
Número de Labios



FRESA MULTITAGLIO

Multi-flutes end mills
Fräser Multi-Schneiden
Fraises Multi-dents
Fresas Multi-Labios



FRESE CILINDRICHE

End mills with cylindrical shank
Schaftfräser mit zylinderschaft
Fraise à queue cylindrique
Fresas de mango cilíndrico



FRESE TORICHE

Toric end mills
Torusfräser
Fraises toriques
Fresas tóricas



FRESE SEMISFERICHE

Ball nose end mills
Radiusfräser
Fraises hémisphériques
Fresas de cabeza esférica



FRESE CONICHE

Taper mills
Kegelige Gesenkfräser
Fraises coniques
Fresas cónicas



FRESE CONICHE "con testa raggiata"

Taper mills with ball nose
Kegelige Gesenkfräser mit Radius
Fraises coniques à bout hémisphérique
Fresas cónicas de cabeza esférica



POSSIBILITÀ DI PENETRAZIONE

Penetration possibility
Senkrechteindringung Möglichkeit
Possibilité de pénétration
Posibilidad de penetración



TRASLAZIONE LATERALE

Lateral Translation
Seitlichverschiebung
Translation latérale
Traslado lateral



TRASLAZIONE IN 3D

Tridimensional Translation
3-D Verschiebung
Translation en 3D
Traslado en 3D



TAGLIO AL CENTRO -Z1

Center Cutting - Z1
Zentrumschnitt - Z1
Coupe au centre - Z1
Corte al centro - Z1



TAGLIO AL CENTRO -Z2

Center Cutting - Z2
Zentrumschnitt - Z2
Coupe au centre - Z2
Corte al centro - Z2



TAGLIO AL CENTRO -Z3

Center Cutting - Z3
Zentrumschnitt - Z3
Coupe au centre - Z3
Corte al centro - Z3



TAGLIO AL CENTRO -Z4

Center Cutting - Z4
Zentrumschnitt - Z4
Coupe au centre - Z4
Corte al centro - Z4



TAGLIO AL CENTRO -Z6

Center Cutting - Z6
Zentrumschnitt - Z6
Coupe au centre - Z6
Corte al centro - Z6



ANGOLO ELICA

Helix angle
Drallwinkel
Angle d'hélice
Ángulo de hélice



ATTACCO DIN 6535 HA

Shank DIN 6535 HA
Schaft DIN 6535 HA
Queue DIN 6535 HA
Mango DIN 6535 HA



ATTACCO DIN 6535 HB

Shank DIN 6535 HB
Schaft DIN 6535 HB
Queue DIN 6535 HB
Mango DIN 6535 HB



INFORMAZIONI TECNICHE

Technical instructions
Technische Hinweise
Instructions technique
Informaciones técnicas



ANGOLO DI INCLINAZIONE

Angle of inclination
Neigungswinkel
Angles d'inclinaison
Ángulo de inclinación

TF

RIVESTIMENTO TiAlN

Coating TiAlN
Beschichtung TiAlN
Revetement TiAlN
Recubrimiento TiAlN

XT

RIVESTIMENTO X-TREME

Coating X-Treme
Beschichtung X-Treme
Revetement X-Treme
Recubrimiento X-Treme

CR

RIVESTIMENTO CrN

Coating CrN
Beschichtung CrN
Revetement CrN
Recubrimiento CrN

GRUPPO DI MATERIALI

Material Groups
Material-Beispiele
Groupes de Matériaux
Grupos de Materiales



ACCIAI
Steel
Stahl
Acier
Acero



ACC. INOSSIDABILI
Stainless steel
Rostbeständiger Stahl
Acier inoxydable
Acero inoxidable



GHISA
Cast iron
Guß
Fonte
Fundición



NON FERROSI
Non ferrous materials
Nichteisenmetall
Métaux non ferreux
Materiales no férricos



SUPERLEGHE
Superalloys
Superlegierung
Superalliages
Speraleaciones



ACCIAI TEMPRATI
Hardened steel
Gehärtete Stahl
Acier trempé
Acero templado

ESEMPI D'APPLICAZIONE

Application examples
Bearbeitungsbeispiele
Exemple d'application
Ejemplos de aplicaciones



SGROSSATURA
Roughing
Schruppen
Ebauche
Desbaste



FINITURA
Finishing
Schlichten
Finition
Acabado



CAVA
Slotting
Schlitz-Bearbeitung
Rainurage
Ranura



COPIATURA
Copying
Kopieren
Copiage
Copia

LEGENDA

KEY TO SYMBOLS
ZEICHENERKLÄRUNG
LÉGENDE
LEYENDA



SERIE CORTA

Short series
Kurze Ausführung
Série courte
Serie corta



SERIE NORMALE

Normal series
Normale Ausführung
Série normale
Serie normal



SERIE LUNGA

Long series
Lange Ausführung
Série longue
Serie larga



SERIE EXTRALUNGA

Extralong series
Extralange Ausführung
Série extralongue
Serie extralarga



N°1 TAGLIENTE

Number of flute
Zähnezahl
Nombre de dent
Número de Labio



N°2 TAGLIENTI

Number of flutes
Zähnezahl
Nombre de dents
Número de Labios



N°3 TAGLIENTI

Number of flutes
Zähnezahl
Nombre de dents
Número de Labios



N°4 TAGLIENTI

Number of flutes
Zähnezahl
Nombre de dents
Número de Labios



N°6 TAGLIENTI

Number of flutes
Zähnezahl
Nombre de dents
Número de Labios



FRESA MULTITAGLIO

Multi-flutes end mills
Fräser Multi-Schneiden
Fraises Multi-dents
Fresas Multi-Labios



FRESE CILINDRICHE

End mills with cylindrical shank
Schafffräser mit zylinderschaft
Fraise à queue cylindrique
Fresas de mango cilíndrico



FRESE TORICHE

Toric end mills
Torusfräser
Fraises toriques
Fresas tóricas



FRESE SEMISFERICHE

Ball nose end mills
Radiusfräser
Fraises hémisphériques
Fresas de cabeza esférica



FRESE SEMISFERICHE 220° E 250°

Ball nose end mills 220° and 250°
Power Radiusfräser 220° und 250°
Fraises Power hémisphériques 220° et 250°
Fresas Power esféricas 220° y 250°



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Tridimensional Translation
3-D Verschiebung
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TAGLIO AL CENTRO -Z1

Center Cutting - Z1
Zentrumschnitt - Z1
Coupe au centre - Z1
Corte al centro - Z1



TAGLIO AL CENTRO -Z2

Center Cutting - Z2
Zentrumschnitt - Z2
Coupe au centre - Z2
Corte al centro - Z2



TAGLIO AL CENTRO -Z3

Center Cutting - Z3
Zentrumschnitt - Z3
Coupe au centre - Z3
Corte al centro - Z3



TAGLIO AL CENTRO -Z4

Center Cutting - Z4
Zentrumschnitt - Z4
Coupe au centre - Z4
Corte al centro - Z4



TAGLIO AL CENTRO -Z3/Z4

Center Cutting - Z3/Z4
Zentrumschnitt - Z3/Z4
Coupe au centre - Z3/Z4
Corte al centro - Z3/Z4



ANGOLO ELICA

Helix angle
Drallwinkel
Angle d'hélice
Ángulo de hélice



ATTACCO DIN 6535 HA

Shank DIN 6535 HA
Schaft DIN 6535 HA
Queue DIN 6535 HA
Mango DIN 6535 HA



ATTACCO DIN 6535 HB

Shank DIN 6535 HB
Schaft DIN 6535 HB
Queue DIN 6535 HB
Mango DIN 6535 HB



RIVESTIMENTO DIAMOND

Diamond coating
Beschichtung Diamond
Revêtement Diamond
Recubrimiento Diamante



RIVESTIMENTO X-TREME

X-Treme Coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

GRUPPO DI MATERIALI

Material Groups
Material-Beispiele
Groupes de Matériaux
Grupos de Materiales



ACCIAI
Steel
Stahl
Acier
Acero



ACC. INOSSIDABILI
Stainless steel
Rostbeständiger Stahl
Acier inoxydable
Acero inoxidable



GHISA
Cast iron
Guß
Fonte
Fundición



NON FERROSI
Non ferrous
materials
Nichteisenmetall
Métaux non ferreux
Materiales no
ferricos



SUPERLEGHE
Superalloys
Superlegierung
Superalliajes
Superaleaciones



ACCIAI TEMPRATI
Hardened steel
Gehärtete Stahl
Acier trempé
Acero templado

ESEMPI D'APPLICAZIONE

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SGROSSATURA
Roughing
Schruppen
Ebauche
Desbaste



FINITURA
Finishing
Schlichten
Finition
Acabado



CAVA
Slotting
Schlitz-Bearbeitung
Rainurage
Ranura



COPIATURA
Copying
Kopieren
Copiage
Copia



Technicaad

FRESE A CANDELA

per impieghi generici



GENERAL PURPOSE END MILLS



UNIVERSELLEN SCHAFTFRÄSER FÜR ALLGEMEINE ANWENDUNGEN



FRAISE À QUEUE UNIVERSELS



FRESAS DE MANGO CILÍNDRICO PARA EMPLEOS GENERALES



FRESE A CANDELA

A 2 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 2 FLUTES
 VOLLHARTMETALL FRÄSER - 2 SCHNEIDEN
 FRAISES EN CARBURE MONOBLOC - 2 DENTS
 FRESAS DE METAL DURO INTEGRAL - 2 LABIOS

TALICARB NORM.

TALICARB NORM.
 TALICARB NORM.
 TALICARB NORM.
 TALICARB NORM.

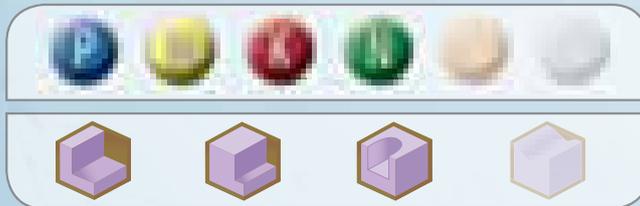


1012 - 1012TF

TF^{NEW}
 COATING



Ø mm e8	L mm	L ₁ mm	d mm	Z	1012 €	1012TF €
3	38	12	3	2	8,11	12,33
3.5	50	14	4	2	13,92	19,35
4	50	14	4	2	12,11	17,55
4.5	50	15	5	2	17,20	22,65
5	63	15	5	2	14,94	22,65
6	63	19	6	2	16,10	23,85
7	63	19	7	2	19,80	28,75
8	63	20	8	2	20,60	29,55
9	63	22	9	2	24,10	33,95
10	63	25	10	2	34,20	42,70
11	76	25	11	2	38,60	54,70
12	76	25	12	2	42,70	59,00
14	88	31	14	2	73,50	90,10
16	88	31	16	2	83,80	106,00
18	100	38	18	2	133,00	156,00
20	100	38	20	2	166,50	193,00
22	100	38	22	2	177,00	207,00
25	100	38	25	2	215,00	263,00





SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE A CANDELA
A 2 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 2 FLUTES
VOLLHARTMETALL FRÄSER - 2 SCHNEIDEN
FRAISES EN CARBURE MONOBLOC - 2 DENTS
FRESAS DE METAL DURO INTEGRAL - 2 LABIOS

1212TF



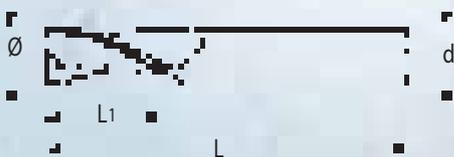
Ø mm e8	L mm	L ₁ mm	d mm	Z	1212TF €
1.5	50	4	6	2	18,40
*1.5A	50	4	4	2	12,56
2	50	6	6	2	18,40
*2A	50	6	4	2	12,56
2.5	50	8	6	2	18,40
*2.5A	50	8	4	2	12,56
3	50	8	6	2	18,40
*3A	50	8	4	2	12,56
3.5	50	10	6	2	18,40
4	50	11	6	2	18,40
*4A	50	11	4	2	14,02
4.5	50	11	6	2	14,73
5	50	13	6	2	14,73
5.5	50	13	6	2	16,35
6	50	16	6	2	16,35
6.5	60	16	8	2	26,40
7	60	16	8	2	26,40
7.5	60	19	8	2	26,40
8	60	20	8	2	26,40
8.5	75	20	10	2	39,85
9	75	20	10	2	39,85
9.5	75	25	10	2	39,85
10	75	25	10	2	39,85
11	75	25	12	2	54,50
12	75	30	12	2	54,50
13	83	40	14	2	71,30
14	83	40	14	2	71,30

*A d=4

→1-2

Ø mm e8	L mm	L ₁ mm	d mm	Z	1212TF €
15	92	40	16	2	93,70
16	92	40	16	2	93,70
18	92	40	18	2	140,50
20	104	45	20	2	160,50

→2-2



FRESE A CANDELA A 2 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 2 FLUTES
VOLLHARTMETALL FRÄSER - 2 SCHNEIDEN
FRAISES EN CARBURE MONOBLOC - 2 DENTS
FRESAS DE METAL DURO INTEGRAL - 2 LABIOS

SERIE LUNGA ED EXTRALUNGA

LONG SERIES, EXTRALONG SERIES
LANGE AUSFÜHRUNG, EXTRALANGE AUSFÜHRUNG
SÉRIE LONGUE, SÉRIE EXTRALONGUE
SERIE LARGA, SERIE EXTRALARGA

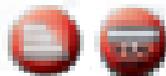


1032-1032TF

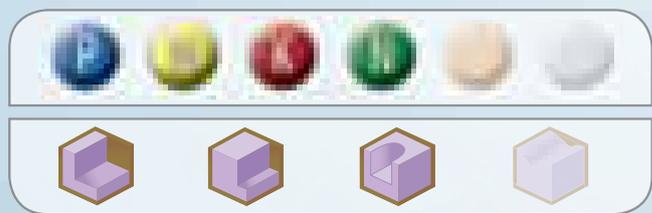
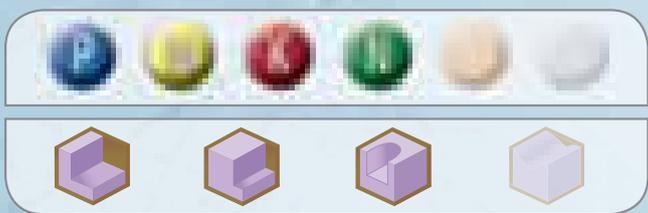


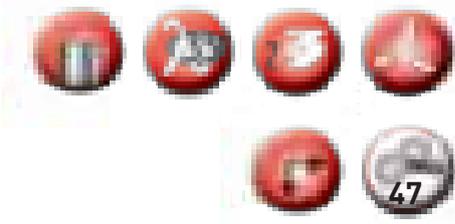
Ø mm e8	L mm	L ₁ mm	d mm	Z	1032 €	1032TF €
3	60	19	3	2	13,39	16,75
4	63	19	4	2	15,20	19,00
5	63	19	5	2	19,85	24,80
6	76	31	6	2	21,90	27,40
8	76	31	8	2	26,85	29,50
10	76	31	10	2	45,00	49,60
12	100	50	12	2	59,20	65,20
14	125	57	14	2	110,00	115,50
16	125	57	16	2	125,50	131,50
18	125	57	18	2	197,50	207,00
20	125	57	20	2	220,50	231,50

1042-1042TF



Ø mm e8	L mm	L ₁ mm	d mm	Z	1042 €	1042TF €
3	75	25	3	2	16,15	19,20
4	75	31	4	2	18,10	21,55
5	100	31	5	2	23,95	28,55
6	100	38	6	2	27,00	32,15
8	100	41	8	2	33,30	34,90
10	100	45	10	2	45,00	47,20
12	150	75	12	2	92,60	97,00
14	150	75	14	2	132,00	132,00
16	150	75	16	2	150,50	150,50
18	150	75	18	2	224,00	224,00
20	150	75	20	2	236,00	236,00





TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESE A CANDELA

A 3 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 3 FLUTES
VOLLHARTMETALL FRÄSER - 3 SCHNEIDEN
FRAISES EN CARBURE MONOBLOC - 3 DENTS
FRESAS DE METAL DURO INTEGRAL - 3 LABIOS

1013 - 1013TF

TF^{NEW}
COATING



\emptyset mm e8	L mm	L ₁ mm	d mm	Z	1013 €	1013TF €
3	38	12	3	3	8,11	12,33
3.5	50	14	4	3	13,92	19,35
4	50	14	4	3	12,11	17,55
4.5	50	15	5	3	17,20	22,65
5	63	15	5	3	14,94	22,65
6	63	19	6	3	16,10	23,85
7	63	19	7	3	19,80	28,75
8	63	20	8	3	20,60	29,55
9	63	22	9	3	24,10	33,95
10	63	25	10	3	34,20	42,70
11	76	25	11	3	38,60	54,70
12	76	25	12	3	42,70	59,00
14	88	31	14	3	73,50	90,10
16	88	31	16	3	83,80	106,00
18	100	38	18	3	133,00	156,00
20	100	38	20	3	166,50	193,00
22	100	38	22	3	177,00	207,00
25	100	38	25	3	215,00	263,00



FRESE A CANDELA

A 3 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 3 FLUTES
 VOLLHARTMETALL FRÄSER - 3 SCHNEIDEN
 FRAISES EN CARBURE MONOBLOC - 3 DENTS
 FRESAS DE METAL DURO INTEGRAL - 3 LABIOS

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1213TF

TF^{NEW}
 COATING

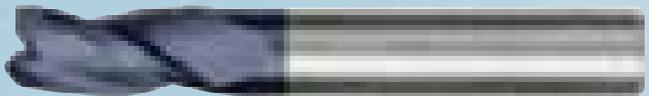


Ø mm e8	L mm	L ₁ mm	d mm	Z	1213TF €
1.5	50	4	6	3	18,40
*1.5A	50	4	4	3	12,56
2	50	6	6	3	18,40
*2A	50	6	4	3	12,56
2.5	50	8	6	3	18,40
*2.5A	50	8	4	3	12,56
3	50	8	6	3	18,40
*3A	50	8	4	3	12,56
3.5	50	10	6	3	18,40
4	50	11	6	3	18,40
*4A	50	11	4	3	14,02
4.5	50	11	6	3	14,73
5	50	13	6	3	14,73
5.5	50	13	6	3	16,35
6	50	16	6	3	16,35
6.5	60	16	8	3	26,40
7	60	16	8	3	26,40
7.5	60	19	8	3	26,40
8	60	20	8	3	26,40
8.5	75	20	10	3	39,85
9	75	20	10	3	39,85
9.5	75	25	10	3	39,85
10	75	25	10	3	39,85
11	75	25	12	3	54,50
12	75	30	12	3	54,50
13	83	40	14	3	71,30
14	83	40	14	3	71,30

Ø mm e8	L mm	L ₁ mm	d mm	Z	1213TF €
15	92	40	16	3	93,70
16	92	40	16	3	93,70
18	92	40	18	3	140,50
20	104	45	20	3	160,50

*A d=4 →1-2

→2-2





SERIE LUNGA ED EXTRALUNGA

LONG SERIES, EXTRALONG SERIES
 LANGE AUSFÜHRUNG, EXTRALANGE AUSFÜHRUNG
 SÉRIE LONGUE, SÉRIE EXTRALONGUE
 SERIE LARGA, SERIE EXTRALARGA

FRESE A CANDELA A 3 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 3 FLUTES
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 FRAISES EN CARBURE MONOBLOC - 3 DENTS
 FRESAS DE METAL DURO INTEGRAL - 3 LABIOS

1033 - 1033TF

TFNEW
 COATING



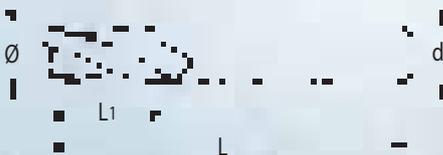
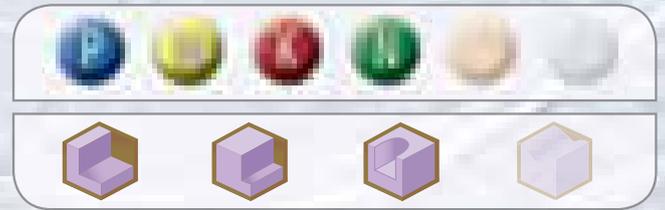
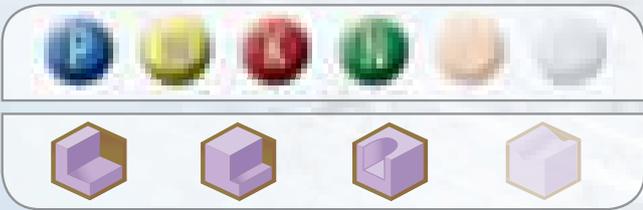
\emptyset mm e8	L mm	L ₁ mm	d mm	Z	1033 €	1033TF €
3	60	19	3	3	13,39	16,75
4	63	19	4	3	15,20	19,00
5	63	19	5	3	19,85	24,80
6	76	31	6	3	21,90	27,40
8	76	31	8	3	26,85	29,50
10	76	31	10	3	45,00	49,60
12	100	50	12	3	59,20	65,20
14	125	57	14	3	110,00	115,50
16	125	57	16	3	125,50	131,50
18	125	57	18	3	197,50	207,00
20	125	57	20	3	220,50	231,50

1043-1043TF

TFNEW
 COATING



\emptyset mm e8	L mm	L ₁ mm	d mm	Z	1043 €	1043TF €
3	75	25	3	3	16,15	19,20
4	75	31	4	3	18,10	21,55
5	100	31	5	3	23,95	28,55
6	100	38	6	3	27,00	32,15
8	100	41	8	3	33,30	34,90
10	100	45	10	3	45,00	47,20
12	150	75	12	3	92,60	97,00
14	150	75	14	3	132,00	132,00
16	150	75	16	3	150,50	150,50
18	150	75	18	3	224,00	224,00
20	150	75	20	3	236,00	236,00



Talpac

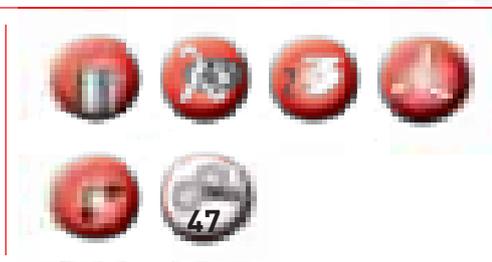
FRESE A CANDELA

A 3 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 3 FLUTES
 VOLLHARTMETALL FRÄSER - 3 SCHNEIDEN
 FRAISES EN CARBURE MONOBLOC - 3 DENTS
 FRESAS DE METAL DURO INTEGRAL - 3 LABIOS

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1273 - 1273TF

TF NEW
 COATING



Ø mm h10	L mm	L ₁ mm	d mm	Z	1273 €	1273TF €
3	57	7	6	3	22,10	26,30
3.5	57	7	6	3	22,10	26,30
4	57	8	6	3	22,10	26,30
4.5	57	8	6	3	22,10	26,30
4.8	57	6	6	3	22,10	26,30
5	57	10	6	3	22,10	26,30
5.5	57	10	6	3	22,10	26,30
5.75	57	7	6	3	22,10	26,30
6	57	10	6	3	22,10	26,30
6.5	63	13	8	3	30,55	32,00
7	63	13	8	3	30,55	32,00
7.5	63	16	8	3	30,55	32,00
7.75	63	9	8	3	30,55	32,00
8	63	16	8	3	30,55	32,00
8.5	72	16	10	3	52,50	55,00
9	72	16	10	3	52,50	55,00
9.5	72	19	10	3	52,50	55,00
9.75	72	11	10	3	52,50	55,00
10	72	19	10	3	47,20	49,50
11	83	22	12	3	70,50	73,90
11.7	83	12	12	3	70,50	73,90
12	83	22	12	3	64,40	67,50
13	83	22	14	3	113,00	113,00
13.7	83	14	14	3	113,00	113,00
14	83	22	14	3	102,50	102,50
15	92	26	16	3	139,50	139,50
15.7	92	16	16	3	139,50	139,50

→1-2

Ø mm h10	L mm	L ₁ mm	d mm	Z	1273 €	1273TF €
16	92	26	16	3	126,50	126,50
17.7	92	18	18	3	215,50	215,50
18	92	26	18	3	196,50	196,50
19.7	104	20	20	3	249,00	249,00
20	104	32	20	3	227,00	227,00

→2-2





TALICARB NORM.

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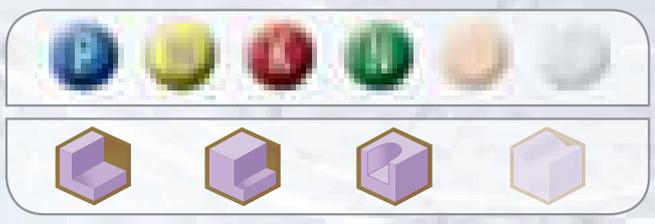
**FRESE A CANDELA
 A 3 TAGLI** IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 3 FLUTES
 VOLLHARTMETALL FRÄSER - 3 SCHNEIDEN
 FRAISES EN CARBURE MONOBLOC - 3 DENTS
 FRESAS DE METAL DURO INTEGRAL - 3 LABIOS

1053-1053TF



Ø mm e8	L mm	L ₁ mm	d mm	Z	1053 €	1053TF €
3	38	12	3	3	12,62	17,20
4	50	14	4	3	12,62	17,20
5	50	15	5	3	19,65	23,95
6	63	19	6	3	22,50	26,70
8	63	20	8	3	30,90	36,00
10	63	25	10	3	45,60	51,10
12	76	25	12	3	56,30	62,60
14	88	32	14	3	98,80	104,50
16	88	32	16	3	102,50	121,50
18	100	38	18	3	171,50	196,50
20	100	38	20	3	198,00	224,00



FRESE A CANDELA A 4 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 4 FLUTES
VOLLHARTMETALL FRÄSER - 4 SCHNEIDEN
FRAISES EN CARBURE MONOBLOC - 4 DENTS
FRESAS DE METAL DURO INTEGRAL - 4 LABIOS

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

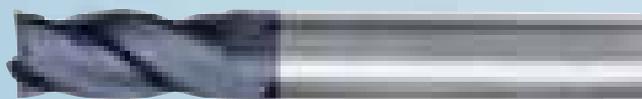
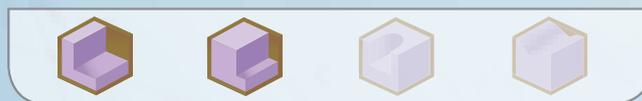


1014 - 1014TF

TF^{NEW}
COATING



∅ mm e8	L mm	L ₁ mm	d mm	Z	1014 €	1014TF €
3	38	12	3	4	8,11	12,33
3.5	50	14	4	4	13,92	19,35
4	50	14	4	4	12,11	17,55
4.5	50	15	5	4	17,20	22,65
5	63	15	5	4	14,94	22,65
6	63	19	6	4	16,10	23,85
7	63	19	7	4	19,80	28,75
8	63	20	8	4	20,60	29,55
9	63	22	9	4	24,10	33,95
10	63	25	10	4	34,20	42,70
11	76	25	11	4	38,60	54,70
12	76	25	12	4	42,70	59,00
14	88	31	14	4	73,50	90,10
16	88	31	16	4	83,80	106,00
18	100	38	18	4	133,00	156,00
20	100	38	20	4	166,50	193,00
22	100	38	22	4	177,00	207,00
25	100	38	25	4	215,00	263,00





SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE A CANDELA A 4 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 4 FLUTES
VOLLHARTMETALL FRÄSER - 4 SCHNEIDEN
FRAISES EN CARBURE MONOBLOC - 4 DENTS
FRESAS DE METAL DURO INTEGRAL - 4 LABIOS

1214TF

TFNEW
COATING



Ø mm e8	L mm	L ₁ mm	d mm	Z	1214TF €
1.5	50	4	6	4	18,40
*1.5A	50	4	4	4	12,56
2	50	6	6	4	18,40
*2A	50	6	4	4	12,56
2.5	50	8	6	4	18,40
*2.5A	50	8	4	4	12,56
3	50	8	6	4	18,40
*3A	50	8	4	4	12,56
3.5	50	10	6	4	18,40
4	50	11	6	4	18,40
*4A	50	11	4	4	14,02
4.5	50	11	6	4	14,73
5	50	13	6	4	14,73
5.5	50	13	6	4	16,35
6	50	16	6	4	16,35
6.5	60	16	8	4	26,40
7	60	16	8	4	26,40
7.5	60	19	8	4	26,40
8	60	20	8	4	26,40
8.5	75	20	10	4	39,85
9	75	20	10	4	39,85
9.5	75	25	10	4	39,85
10	75	25	10	4	39,85
11	75	25	12	4	54,50
12	75	30	12	4	54,50
13	83	40	14	4	71,30
14	83	40	14	4	71,30

*A d=4

→1-2

Ø mm e8	L mm	L ₁ mm	d mm	Z	1214TF €
15	92	40	16	4	93,70
16	92	40	16	4	93,70
18	92	40	18	4	140,50
20	104	45	20	4	160,50

→2-2



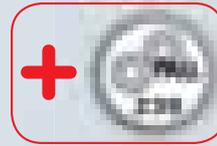
FATTORE DI CORREZIONE FRESE*

End mills correction factor - Fräser Berichtigungsfaktor
Facteur de correction fraises - Factor de corrección fresas

PER FRESE SENZA RIVESTIMENTO = V_c e F_z x 0,8

For end mill without coating - Für Fräser ohne Beschichtung
Pour fraises sans revêtement - Para fresas sin recubrimiento

PARAMETRI DI TAGLIO



CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE

FRESE A CANDELA: 2/3/4 Tagli

Solid carbide end mills - Vollhartmetall fräser - Schneiden fraises en carbure monobloc - Fresas de metal duro integral:
2/3/4 Flutes - Schneiden - Dents - Labios

1032* = V_c e F_z x 0,8

1042* = V_c e F_z x 0,7

CAVA DAL PIENO: V_c e F_z - 20%

Slotting: V_c e F_z - 20%

Bohrnuten: V_c e F_z - 20%

Rainurage: V_c e F_z - 20%

Ranura: V_c e F_z - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales			VC m/min														
	ap	ae		ap	Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al Labios												
					2	4	6	8	10	12	14	16	18	20	22	25	
< 800 N/mm ²	1x∅	0,5x∅	0,5x∅	80 - 110	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	0,22 0,25	
< 1100 N/mm ²	1x∅	0,5x∅	0,5x∅	70 - 100	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	0,22 0,25	
< 1300 N/mm ²	1x∅	0,5x∅	0,5x∅	60 - 90	0,003 0,005	0,005 0,020	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	
> 800 N/mm ²	1x∅	0,5x∅	0,5x∅	40 - 60	0,01 0,03	0,03 0,05	0,05 0,07	0,07 0,09	0,09 0,11	0,11 0,13	0,13 0,15	0,15 0,17	0,17 0,19	0,19 0,21	0,21 0,23	0,23 0,25	
GG	1x∅	0,5x∅	0,5x∅	100 - 140	0,03 0,05	0,05 0,07	0,07 0,09	0,09 0,11	0,11 0,13	0,13 0,15	0,17 0,19	0,19 0,21	0,21 0,23	0,23 0,25	0,25 0,27	0,27 0,30	
GGG	1x∅	0,5x∅	0,5x∅	80 - 110	0,005 0,01	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	0,22 0,25	
Alluminio	1x∅	0,5x∅	0,5x∅	110 - 150	0,03 0,05	0,05 0,07	0,07 0,09	0,09 0,11	0,11 0,13	0,13 0,15	0,17 0,19	0,19 0,21	0,21 0,23	0,23 0,25	0,25 0,27	0,27 0,30	
Non metalli	1x∅	0,5x∅	0,5x∅	110 - 150	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	0,22 0,25	
Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Temprati 38 / 48 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Temprati 48 / 58 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Technicaad

FRESE A CANDELA

con testa
SEMISFERICA
per lavorazioni di
copiatura



BALL NOSE COPY END MILLS



RADIUSKOPIER FRÄSER



FRAISE HÉMISPHERIQUE POUR COPIAGE



FRESAS ÉSFERICAS DE COPIADO



FRESE SEMISFERICHE A 2 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE BALL-NOSE END MILLS - 2 FLUTES
VOLLHARTMETALL RADIUSKOPIERFRÄSERR - 2 SCHNEIDEN
FRAISES HÉMISPHERIQUES EN CARBURE MONOBLOC - 2 DENTS
FRESAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - 2 LABIOS

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.



1012R - 012RTF

TF^{NEW}
COATING



Ø mm e8	L mm	L ₁ mm	d mm	Z	1012R €	012RTF €
3	38	12	3	2	9,22	14,73
3.5	50	14	4	2	16,65	22,05
4	50	14	4	2	14,48	19,90
4.5	50	15	5	2	18,80	24,25
5	63	15	5	2	16,35	24,10
6	63	19	6	2	18,50	26,15
7	63	19	7	2	22,80	31,90
8	63	20	8	2	23,85	32,75
9	63	22	9	2	29,25	37,65
10	63	25	10	2	40,00	48,50
11	76	25	11	2	42,70	60,80
12	76	25	12	2	49,10	65,50
14	88	31	14	2	84,50	101,50
16	88	31	16	2	96,10	118,00
18	100	38	18	2	154,00	176,00
20	100	38	20	2	191,50	217,00





SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE SEMISFERICHE A 2 TAGLI IN METALLO DURO INTEGRALE

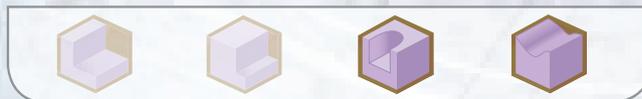
SOLID CARBIDE BALL-NOSE END MILLS - 2 FLUTES
VOLLHARTMETALL RADIUSKOPIERFRÄSER - 2 SCHNEIDEN
FRAISES HÉMISPHERIQUES EN CARBURE MONOBLOC - 2 DENTS
FRESAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - 2 LABIOS

212RTF

TF^{NEW}
COATING



Ø mm h10	L mm	L ₁ mm	d mm	Z	212RTF €
1.5	50	3	4	2	15,60
2	50	4	4	2	15,60
2.5	50	5	4	2	15,60
3	50	6	4	2	15,60
3.5	50	7	4	2	16,65
4	50	8	4	2	16,65
4.5	50	9	6	2	17,65
5	50	10	6	2	17,65
5.5	50	11	6	2	19,50
6	50	12	6	2	19,50
7	60	14	8	2	30,25
8	60	16	8	2	29,30
9	75	18	10	2	48,30
10	75	20	10	2	48,30
11	75	22	12	2	62,10
12	75	24	12	2	62,10
13	83	24	14	2	103,00
14	83	28	14	2	103,00
15	92	30	16	2	130,00
16	92	32	16	2	130,00
18	92	36	18	2	195,00
20	104	40	20	2	222,00



Talpac

FRESE SEMISFERICHE

A 2 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE BALL-NOSE END MILLS - 2 FLUTES
 VOLLHARTMETALL RADIUSKOPIERFRÄSER - 2 SCHNEIDEN
 FRAISES HÉMISPHERIQUES EN CARBURE MONOBLOC - 2 DENTS
 FRESAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - 2 LABIOS

SERIE LUNGA ED EXTRALUNGA

LONG SERIES, EXTRALONG SERIES
 LANGE AUSFÜHRUNG, EXTRALANGE AUSFÜHRUNG
 SÉRIE LONGUE, SÉRIE EXTRALONGUE
 SERIE LARGA, SERIE EXTRALARGA



1032R-032RTF

TF^{NEW} COATING



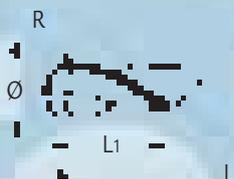
Ø mm e8	L mm	L ₁ mm	d mm	Z	1032R €	032RTF €
3	60	19	3	2	14,80	21,20
4	63	19	4	2	17,55	25,30
5	63	19	5	2	22,90	29,55
6	76	31	6	2	25,00	36,20
8	76	31	8	2	34,35	43,80
10	76	31	10	2	51,80	65,50
12	100	50	12	2	76,30	90,80
14	125	57	14	2	131,50	142,00
16	125	57	16	2	144,50	168,50
18	125	57	18	2	230,00	254,50
20	125	57	20	2	259,00	282,00

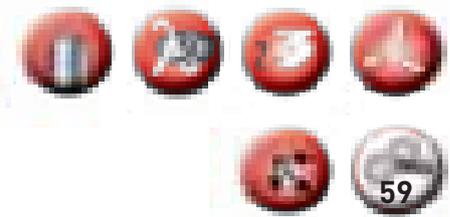
1042R-042RTF

TF^{NEW} COATING



Ø mm e8	L mm	L ₁ mm	d mm	Z	1042R €	042RTF €
3	75	25	3	2	18,55	22,10
4	75	31	4	2	21,85	26,00
5	100	31	5	2	28,90	34,40
6	100	38	5	2	32,85	39,15
8	100	41	8	2	40,00	41,90
10	100	45	10	2	58,50	61,20
12	150	75	12	2	114,00	119,50
14	150	75	14	2	162,00	162,00
16	150	75	16	2	174,50	174,50
18	150	75	18	2	256,50	256,50
20	150	75	20	2	301,00	301,00





TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESE SEMISFERICHE A 3 TAGLI IN METALLO DURO INTEGRALE

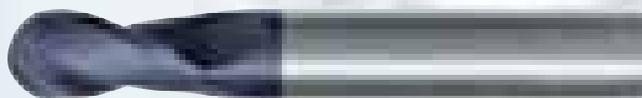
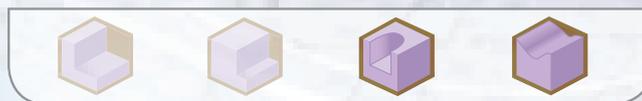
SOLID CARBIDE BALL-NOSE END MILLS - 3 FLUTES
VOLLHARTMETALL RADIUSKOPIERFRÄSER - 3 SCHNEIDEN
FRAISES HÉMISPÉRIQUES EN CARBURE MONOBLOC - 3 DENTS
FRESAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - 3 LABIOS

1013R-013RTF

TF^{NEW}
COATING



∅ mm e8	L mm	L ₁ mm	d mm	Z	1013R €	013RTF €
3	38	12	3	3	9,22	14,73
3.5	50	14	4	3	16,65	22,05
4	50	14	4	3	14,48	19,90
4.5	50	15	5	3	18,80	24,25
5	63	15	5	3	16,35	24,10
6	63	19	6	3	18,50	26,15
7	63	19	7	3	22,80	31,90
8	63	20	8	3	23,85	32,75
9	63	22	9	3	29,25	37,65
10	63	25	10	3	40,00	48,50
11	76	25	11	3	42,70	60,80
12	76	25	12	3	49,10	65,50
14	88	31	14	3	84,50	101,50
16	88	31	16	3	96,10	118,00
18	100	38	18	3	154,00	176,00
20	100	38	20	3	191,50	217,00



FRESE SEMISFERICHE A 3 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE BALL-NOSE END MILLS - 3 FLUTES
VOLLHARTMETALL RADIUSKOPIERFRÄSER - 3 SCHNEIDEN
FRAISES HÉMISPÉRIQUES EN CARBURE MONOBLOC - 3 DENTS
FRESAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - 3 LABIOS

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

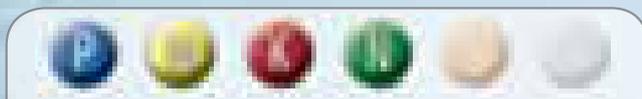


213RTF

TF^{NEW}
COATING



Ø mm h10	L mm	L ₁ mm	d mm	Z	213RTF €
1.5	50	3	4	3	15,60
2	50	4	4	3	15,60
2.5	50	5	4	3	15,60
3	50	6	4	3	15,60
3.5	50	7	4	3	16,65
4	50	8	4	3	16,65
4.5	50	9	6	3	17,65
5	50	10	6	3	17,65
5.5	50	11	6	3	19,50
6	50	12	6	3	19,50
7	60	14	8	3	30,25
8	60	16	8	3	29,30
9	75	18	10	3	48,30
10	75	20	10	3	48,30
11	75	22	12	3	62,10
12	75	24	12	3	62,10
13	83	24	14	3	103,00
14	83	28	14	3	103,00
15	92	30	16	3	130,00
16	92	32	16	3	130,00
18	92	36	18	3	195,00
20	104	40	20	3	222,00





SERIE LUNGA ED EXTRALUNGA

LONG SERIES, EXTRALONG SERIES
 LANGE AUSFÜHRUNG, EXTRALANGE AUSFÜHRUNG
 SÉRIE LONGUE, SÉRIE EXTRALONGUE
 SERIE LARGA, SERIE EXTRALARGA

FRESE SEMISFERICHE A 3 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE BALL-NOSE END MILLS - 3 FLUTES
 VOLLHARTMETALL RADIUSKOPIERFRÄSER - 3 SCHNEIDEN
 FRAISES HÉMISPÉRIQUES EN CARBURE MONOBLOC - 3 DENTS
 FRESAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - 3 LABIOS

1033R-033RTF

TF^{NEW}
COATING



1043R-043RTF

TF^{NEW}
COATING



Ø mm e8	L mm	L ₁ mm	d mm	Z	1033R €	033RTF €
3	60	19	3	3	14,80	21,20
4	63	19	4	3	17,55	25,30
5	63	19	5	3	22,90	29,55
6	76	31	6	3	25,00	36,20
8	76	31	8	3	34,35	43,80
10	76	31	10	3	51,80	65,50
12	100	50	12	3	76,30	90,80
14	125	57	14	3	131,50	142,00
16	125	57	16	3	144,50	168,50
18	125	57	18	3	230,00	254,50
20	125	57	20	3	259,00	282,00

Ø mm e8	L mm	L ₁ mm	d mm	Z	1043R €	043RTF €
3	75	25	3	3	18,55	22,10
4	75	31	4	3	21,85	26,00
5	100	31	5	3	28,90	34,40
6	100	38	5	3	32,85	39,15
8	100	41	8	3	40,00	41,90
10	100	45	10	3	58,50	61,20
12	150	75	12	3	114,00	119,50
14	150	75	14	3	162,00	162,00
16	150	75	16	3	174,50	174,50
18	150	75	18	3	256,50	256,50
20	150	75	20	3	301,00	301,00



FRESE SEMISFERICHE A 4 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE BALL-NOSE END MILLS - 4 FLUTES
VOLLHARTMETALL RADIUSKOPIERFRÄSER - 4 SCHNEIDEN
FRAISES HÉMISPÉRIQUES EN CARBURE MONOBLOC - 4 DENTS
FRESAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - 4 LABIOS

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.



1014R-014RTF

TFNEW
COATING



∅ mm e8	L mm	L ₁ mm	d mm	Z	1014R €	014RTF €
3	38	12	3	4	9,22	14,73
3.5	50	14	4	4	16,65	22,05
4	50	14	4	4	14,48	19,90
4.5	50	15	5	4	18,80	24,25
5	63	15	5	4	16,35	24,10
6	63	19	6	4	18,50	26,15
7	63	19	7	4	22,80	31,90
8	63	20	8	4	23,85	32,75
9	63	22	9	4	29,25	37,65
10	63	25	10	4	40,00	48,50
11	76	25	11	4	42,70	60,80
12	76	25	12	4	49,10	65,50
14	88	31	14	4	84,50	101,50
16	88	31	16	4	96,10	118,00
18	100	38	18	4	154,00	176,00
20	100	38	20	4	191,50	217,00





SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL

FRESE SEMISFERICHE A 4 TAGLI IN METALLO DURO INTEGRALE

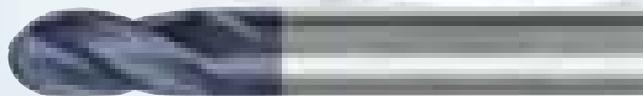
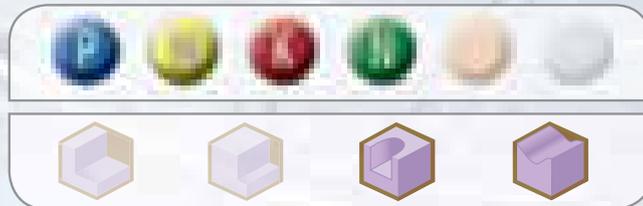
SOLID CARBIDE BALL-NOSE END MILLS - 4 FLUTES
 VOLLHARTMETALL RADIUSKOPIERFRÄSER - 4 SCHNEIDEN
 FRAISES HÉMISPÉRIQUES EN CARBURE MONOBLOC - 4 DENTS
 FRESAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - 4 LABIOS

214RTF

TF^{NEW}
 COATING



Ø mm h10	L mm	L ₁ mm	d mm	Z	214RTF €
1.5	50	3	4	4	15,60
2	50	4	4	4	15,60
2.5	50	5	4	4	15,60
3	50	6	4	4	15,60
3.5	50	7	4	4	16,65
4	50	8	4	4	16,65
4.5	50	9	6	4	17,65
5	50	10	6	4	17,65
5.5	50	11	6	4	19,50
6	50	12	6	4	19,50
7	60	14	8	4	30,25
8	60	16	8	4	29,30
9	75	18	10	4	48,30
10	75	20	10	4	48,30
11	75	22	12	4	62,10
12	75	24	12	4	62,10
13	83	24	14	4	103,00
14	83	28	14	4	103,00
15	92	30	16	4	130,00
16	92	32	16	4	130,00
18	92	36	18	4	195,00
20	104	40	20	4	222,00



FRESE SEMISFERICHE A 4 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE BALL-NOSE END MILLS - 4 FLUTES
VOLLHARTMETALL RADIUSKOPIERFRÄSER - 4 SCHNEIDEN
FRAISES HÉMISPHERIQUES EN CARBURE MONOBLOC - 4 DENTS
FRESAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - 4 LABIOS

SERIE LUNGA ED EXTRALUNGA

LONG SERIES, EXTRALONG SERIES
LANGE AUSFÜHRUNG, EXTRALANGE AUSFÜHRUNG
SÉRIE LONGUE, SÉRIE EXTRALONGUE
SERIE LARGA, SERIE EXTRALARGA



1034R-034RTF

TF^{NEW}
COATING



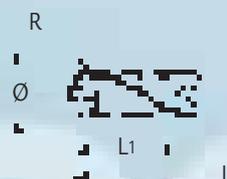
Ø mm e8	L mm	L ₁ mm	d mm	Z	1034R €	034RTF €
3	60	19	3	4	14,80	21,20
4	63	19	4	4	17,55	25,30
5	63	19	5	4	22,90	29,55
6	76	31	6	4	25,00	36,20
8	76	31	8	4	32,50	43,80
10	76	31	10	4	51,80	65,50
12	100	50	12	4	76,30	90,80
14	125	57	14	4	131,50	142,00
16	125	57	16	4	144,50	168,50
18	125	57	18	4	230,00	254,50
20	125	57	20	4	259,00	282,00

1044R-044RTF

TF^{NEW}
COATING



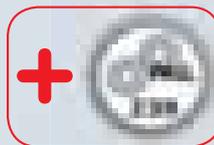
Ø mm h10	L mm	L ₁ mm	d mm	Z	1044R €	044RTF €
3	75	25	3	4	18,55	22,10
4	75	31	4	4	21,85	26,00
5	100	31	5	4	28,90	34,40
6	100	38	6	4	32,85	39,15
8	100	41	8	4	40,00	41,90
10	100	45	10	4	58,50	61,20
12	150	75	12	4	114,00	119,50
14	150	75	14	4	162,00	162,00
16	150	75	16	4	174,50	174,50
18	150	75	18	4	256,50	256,50
20	150	75	20	4	301,00	301,00



PARAMETRI DI TAGLIO

PER FRESE SENZA RIVESTIMENTO = V_c e F_z x 0,8

For end mill without coating - Für Fräser ohne Beschichtung
 Pour fraises sans revêtement - Para fresas sin recubrimiento



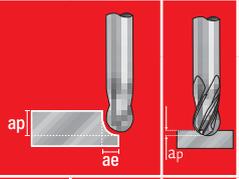
CUTTING PARAMETERS
 SCHNITTDATEN
 PARAMÈTRES DE COUPE
 PARAMETROS DE CORTE

FRESE SEMISFERICHE: 2/3/4 Tagli

Solid carbide ball-nose end mills - Vollhartmetall radiuskopierfräser - Fraises hémisphériques en carbure monobloc - Fresas de cabeza esférica de metal duro integral: 2/3/4 Flutes - Schneiden - Dents - Labios

CAVA DAL PIENO: V_c e F_z - 20%

Slotting: V_c e F_z - 20%
 Bohrnuten: V_c e F_z - 20%
 Rainurage: V_c e F_z - 20%
 Ranura: V_c e F_z - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales				VC m/min	 Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio												
	ap	ae	ap		2	4	6	8	10	12	14	16	18	20	22	25	
	P < 800 N/mm ²	0,03 0,05 xØ	0,2xØ		-	90 - 130	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,10	0,10 0,12	0,12 0,14	-
P < 1100 N/mm ²	0,03 0,05 xØ	0,2xØ	-	80 - 120	0,010 0,015	0,015 0,020	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,09	0,09 0,10	-	-	
P < 1300 N/mm ²	0,03 0,05 xØ	0,2xØ	-	70 - 110	0,005 0,010	0,010 0,015	0,015 0,020	0,02 0,03	0,03 0,04	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,09	0,09 0,10	-	-	
M > 800 N/mm ²	0,03 0,05 xØ	0,2xØ	-	50 - 80	0,010 0,015	0,015 0,020	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,09	0,09 0,10	-	-	
K GG	0,03 0,05 xØ	0,2xØ	-	110 - 150	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	-	-	
K GGG	0,03 0,05 xØ	0,2xØ	-	90 - 130	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,10	0,10 0,12	0,12 0,14	-	-	
N Alluminio	0,03 0,05 xØ	0,2xØ	-	110 - 150	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	-	-	
N Non metalli	0,03 0,05 xØ	0,2xØ	-	120 - 160	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,10	0,10 0,12	0,12 0,14	-	-	
S Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
S Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H Temprati 38 / 48 HRC	0,03 0,05 xØ	0,2xØ	-	40 - 60	0,005 0,010	0,010 0,015	0,015 0,020	0,02 0,03	0,03 0,04	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,09	0,09 0,10	-	-	
H Temprati 48 / 58 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Technica**db**

FRESE CONICHE

con Testa Piana



TAPER MILLS



KEGELIGE GESENKFRÄSER



FRAISES CONIQUES



FRESAS CÓNICAS



FRESE CONICHE

IN METALLO DURO INTEGRALE

CONICITÀ $(\alpha/2 = 30^\circ$ e $\alpha/2 = 1^\circ$)

SOLID CARBIDE TAPER MILLS - INCLINATION*

VHM KEGELIG GESENKFRÄSER - NEIGUNG*

FRAISES CONIQUES POUR MATRICES EN CARBURE MONOBLOC - INCLINAISON*

FRESAS CÓNICAS DE METAL DURO INTEGRAL - INCLINACIÓN*

TALICARB NORM.

TALICARB NORM.

TALICARB NORM.

TALICARB NORM.

TALICARB NORM.



1505

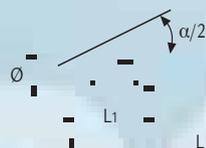
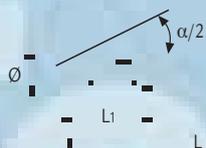
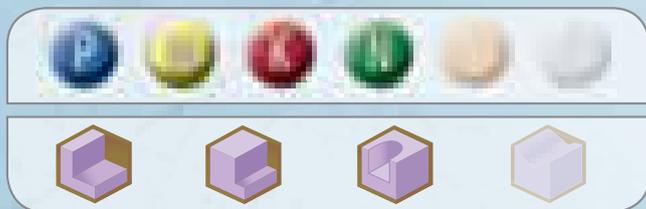


\varnothing mm	L mm	L ₁ mm	d mm	Z	1505 €
2.5	63	20	4	3	23,65
3	63	20	4	3	23,65
3.5	63	20	5	3	27,95
4	63	20	5	3	27,95
5	75	30	6	3	33,70
6	75	30	8	3	53,90
8	75	30	10	4	69,00
10	75	30	12	4	85,10
12	100	50	14	4	168,50
16	100	60	18	4	282,00

1510



\varnothing mm	L mm	L ₁ mm	d mm	Z	1510 €
2.5	63	20	4	3	23,65
3	63	20	4	3	23,65
3.5	63	20	5	3	27,95
4	63	20	5	3	27,95
5	75	30	6	3	34,00
6	75	30	8	3	53,90
8	75	30	10	4	69,00
10	75	30	12	4	85,10
12	100	50	14	4	168,50
16	100	60	18	4	282,00





TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESE CONICHE

IN METALLO DURO INTEGRALE
CONICITÀ $(\alpha/2 = 1^\circ 30'$ e $\alpha/2 = 2^\circ)$

SOLID CARBIDE TAPER MILLS - INCLINATION *
VHM KEGELIG GESENKFRÄSER - NEIGUNG *
FRAISES CONIQUES POUR MATRICES EN CARBURE MONOBLOC - INCLINAISON *
FRESAS CÓNICAS DE METAL DURO INTEGRAL - INCLINACIÓN *

1515

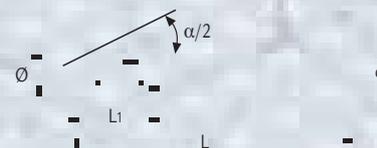
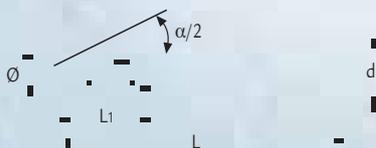
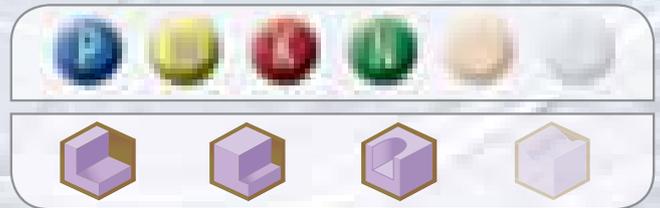


\emptyset mm	L mm	L ₁ mm	d mm	Z	1515 €
2.5	63	20	4	3	23,65
3	63	20	4	3	23,65
3.5	63	20	5	3	27,95
4	63	20	5	3	27,95
5	75	30	6	3	53,90
6	75	30	8	3	53,90
8	75	30	10	4	69,00
10	75	30	12	4	85,10
12	100	30	14	4	168,50

1520



\emptyset mm	L mm	L ₁ mm	d mm	Z	1520 €
2.5	63	20	4	3	23,65
3	63	20	5	3	27,95
3.5	63	20	5	3	27,95
4	63	20	6	3	29,10
5	75	30	8	3	53,90
6	75	30	8	3	53,90
8	75	30	10	4	69,00
10	75	30	12	4	85,10
12	100	50	16	4	185,00



FRESE CONICHE

IN METALLO DURO INTEGRALE

CONICITÀ $*(\alpha/2=3^\circ \text{ e } \alpha/2=4^\circ)$

SOLID CARBIDE TAPER MILLS - INCLINATION*

VHM KEGLIG GESENKFRÄSER - NEIGUNG*

FRAISES CONIQUES POUR MATRICES EN CARBURE MONOBLOC - INCLINAISON*

FRESAS CÓNICAS DE METAL DURO INTEGRAL - INCLINACIÓN*

TALICARB NORM.

TALICARB NORM.

TALICARB NORM.

TALICARB NORM.

TALICARB NORM.



1530

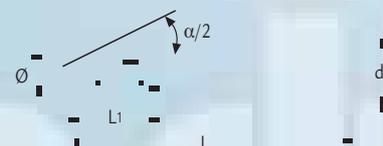
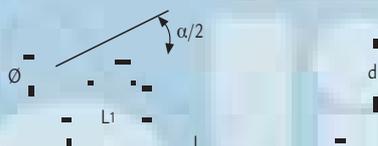
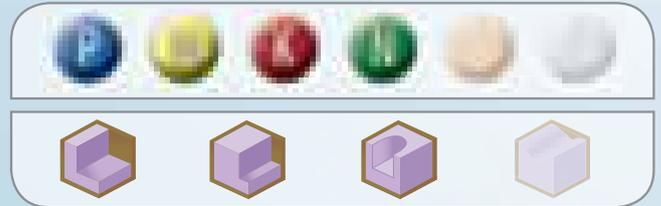
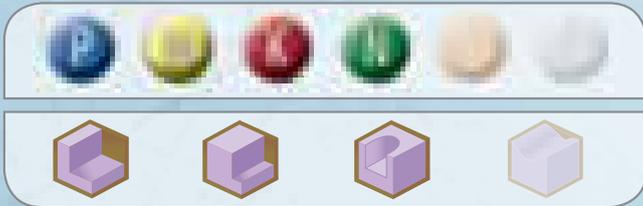


Ø mm	L mm	L ₁ mm	d mm	Z	1530 €
2.5	63	20	6	3	27,95
3	63	25	6	3	27,95
3.5	75	30	8	3	53,90
4	75	30	8	3	53,90
5	75	40	10	3	69,00
6	100	50	12	3	115,00
8	100	50	14	4	168,50
10	100	50	16	4	185,00
12	100	50	18	4	282,00

1540



Ø mm	L mm	L ₁ mm	d mm	Z	1540 €
2.5	63	20	4	3	29,10
3	63	20	4	3	29,10
3.5	63	20	5	3	38,45
4	63	20	5	3	69,00
5	75	30	6	3	115,00
6	75	30	8	3	185,00
8	75	30	10	4	282,00
10	75	30	12	4	305,00
12	100	50	14	4	428,00





TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESE CONICHE

IN METALLO DURO INTEGRALE

CONICITÀ $*(\alpha/2 = 5^\circ)$

SOLID CARBIDE TAPER MILLS - INCLINATION*

VHM KEGELIG GESENKFRÄSER - NEIGUNG*

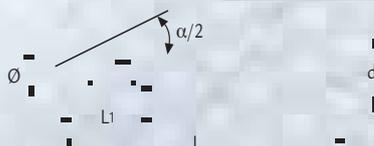
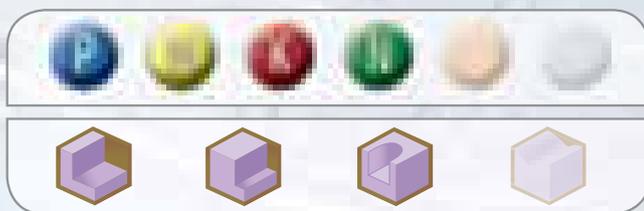
FRAISES CONIQUES POUR MATRICES EN CARBURE MONOBLOC - INCLINAISON*

FRESAS CÓNICAS DE METAL DURO INTEGRAL - INCLINACIÓN*

1550



\emptyset mm	L mm	L ₁ mm	d mm	Z	1550 €
2.5	63	20	6	3	29,10
3	63	25	8	3	38,45
3.5	75	30	10	3	69,00
4	75	30	10	3	69,00
5	100	40	12	3	115,00
6	100	50	16	3	185,00
8	100	50	18	4	282,00
10	100	50	20	4	305,00
12	100	45	20	4	305,00



PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE



PER FRESE SENZA RIVESTIMENTO = V_c e F_z x 0,8

For end mill without coating - Für Fräser ohne Beschichtung
Pour fraises sans revêtement - Para fresas sin recubrimiento

FRESE CONICHE CON TESTA PIANA : 2/3/4 Tagli

Taper mills - Kegelige gesenkfräser - Fraises coniques - Fresas cónicas:
2/3/4 Flutes - Schneiden - Dents - Labios

CAVA DAL PIENO: V_c e F_z - 20%

Slotting: V_c e F_z - 20%

Bohrnuten: V_c e F_z - 20%

Rainurage: V_c e F_z - 20%

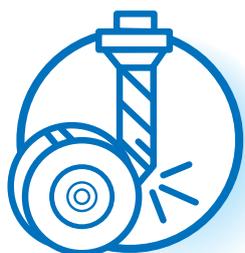
Ranura: V_c e F_z - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales	ap		ae	VC m/min	Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio													
	ap	ae	ap		2	4	6	8	10	12	14	16	18	20	22	25		
	P	< 800 N/mm ²	1xØ		0,5xØ	0,5xØ	80 - 110	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	-	0,14 0,16	-	-	-
P	< 1100 N/mm ²	1xØ	0,5xØ	0,5xØ	70 - 100	0,005 0,01	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	-	0,14 0,16	-	-	-	-	
P	< 1300 N/mm ²	1xØ	0,5xØ	0,5xØ	60 - 90	0,003 0,005	0,005 0,020	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	-	0,12 0,14	-	-	-	-	
M	> 800 N/mm ²	1xØ	0,5xØ	0,5xØ	40 - 60	0,01 0,03	0,03 0,05	0,05 0,07	0,07 0,09	0,09 0,11	0,11 0,13	-	0,15 0,17	-	-	-	-	
K	GG	1xØ	0,5xØ	0,5xØ	100 - 140	0,03 0,05	0,05 0,07	0,07 0,09	0,09 0,11	0,11 0,13	0,13 0,15	-	0,19 0,21	-	-	-	-	
K	GGG	1xØ	0,5xØ	0,5xØ	80 - 110	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	-	0,14 0,16	-	-	-	-	
N	Alluminio	1xØ	0,5xØ	0,5xØ	110 - 150	0,03 0,05	0,05 0,07	0,07 0,09	0,09 0,11	0,11 0,13	0,13 0,15	-	0,19 0,21	-	-	-	-	
N	Non metalli	1xØ	0,5xØ	0,5xØ	110 - 150	0,005 0,01	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	-	0,14 0,16	-	-	-	-	
S	Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H	Temprati 38 / 48 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H	Temprati 48 / 58 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H	Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



SERVIZIO DI RIAFFILATURA E RIVESTIMENTO

Re-sharpening and coating service
Nachschleif - und beschichtungservice
Service de affûtage à nouveau et revêtement
Servicio de afilado y recubrimiento



UTENSILI SPECIALI

Special tools department
Abteilung für Sonderwerkzeuge
Outils spéciaux
Herramientas especiales

I NOSTRI SERVIZI SEMPRE A DISPOSIZIONE

Our prompt services always ready for you
Unser prompter Service ist immer für Sie da
Nos services toujours à votre Disposition
Nuestro rápido servicio siempre listo para usted



Technicaad

FRESE CONICHE

con Testa Raggiata



TAPER MILLS WITH BALL NOSE



KEGELIGE GESENKFRÄSER MIT RADIUS



FRAISES CONIQUES BOUT HÉMISPHERIQUE



FRESAS CÓNICAS DE CABEZA ESFÉRICA



FRESE CONICHE CON TESTA RAGGIATA

IN METALLO DURO INTEGRALE CONICITÀ* ($\alpha/2 = 30'$ e $\alpha/2 = 1^\circ$)

SOLID CARBIDE TAPER MILLS WITH BALL-NOSE - INCLINATION*
 VHM-KEGELIG GESENKFRÄSER MIT RADIUS - NEIGUNG*
 FRAISES CONIQUES BOUT HÉMISPHERIQUE EN CARBURE MONOBLOC - INCLINAISON*
 FRESAS CÓNICAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - INCLINACIÓN*

TALICARB NORM.

TALICARB NORM.
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 TALICARB NORM.
 TALICARB NORM.



1505R

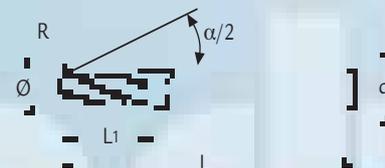
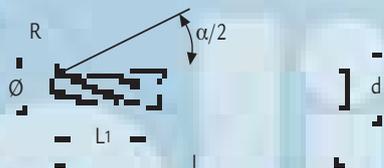
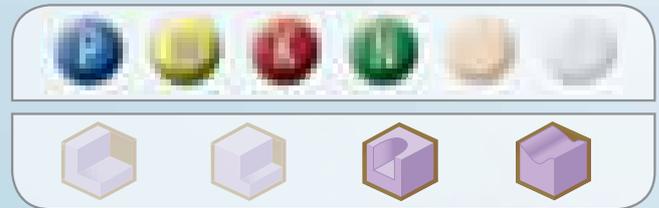
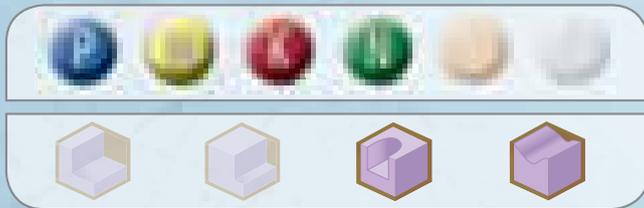


Ø mm	L mm	L ₁ mm	d mm	Z	1505R €
2.5	63	20	4	3	27,30
3	63	20	4	3	27,30
3.5	63	20	5	3	32,15
4	63	20	5	3	32,15
5	75	30	6	3	39,10
6	75	30	8	3	62,30
8	75	30	10	4	79,20
10	75	30	12	4	97,40
12	100	50	14	4	196,50
16	100	60	18	4	322,00

1510R



Ø mm	L mm	L ₁ mm	d mm	Z	1510R €
2.5	63	20	4	3	27,30
3	63	20	4	3	27,30
3.5	63	20	5	3	32,15
4	63	20	5	3	32,15
5	75	30	6	3	39,10
6	75	30	8	3	62,30
8	75	30	10	4	79,20
10	75	30	12	4	97,40
12	100	50	14	4	196,50
16	100	60	18	4	322,00





TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESE CONICHE CON TESTA RAGGIATA

IN METALLO DURO INTEGRALE CONICITÀ* ($\alpha/2 = 1^\circ 30'$ e $\alpha/2 = 2^\circ$)

SOLID CARBIDE TAPER MILLS WITH BALL-NOSE - INCLINATION*

VHM-KEGELIG GESENKFRÄSER MIT RADIUS - NEIGUNG*

FRAISES CONIQUES BOUT HÉMISPHERIQUE EN CARBURE MONOBLOC - INCLINAISON*

FRESAS CÓNICAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - INCLINACIÓN*

1515R

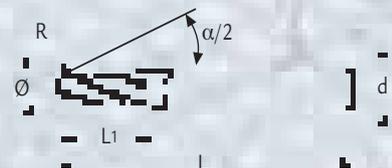
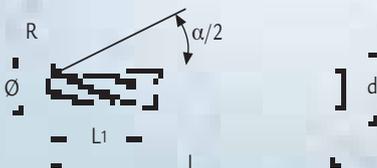


Ø mm	L mm	L ₁ mm	d mm	Z	1515R €
2.5	63	20	4	3	27,30
3	63	20	4	3	27,30
3.5	63	20	5	3	32,15
4	63	20	5	3	32,15
5	75	30	6	3	62,30
6	75	30	10	3	62,30
8	75	30	10	4	79,20
10	75	30	12	4	97,40
12	100	30	14	4	196,50

1520R



Ø mm	L mm	L ₁ mm	d mm	Z	1520R €
2.5	63	20	4	3	27,30
3	63	20	4	3	32,15
3.5	63	20	5	3	32,15
4	63	20	5	3	33,30
5	75	30	6	3	62,30
6	75	30	8	3	62,30
8	75	30	10	4	79,20
10	75	30	12	4	97,40
12	100	50	14	4	212,00



FRESE CONICHE CON TESTA RAGGIATA

IN METALLO DURO INTEGRALE CONICITÀ* ($\alpha/2 = 3^\circ$ e $\alpha/2 = 4^\circ$)

SOLID CARBIDE TAPER MILLS WITH BALL-NOSE - INCLINATION*
 VHM-KEGELIG GESENKFRÄSER MIT RADIUS - NEIGUNG*
 FRAISES CONIQUES BOUT HÉMISPHERIQUE EN CARBURE MONOBLOC - INCLINAISON*
 FRESAS CÓNICAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - INCLINACIÓN*

TALICARB NORM.

TALICARB NORM.
 TALICARB NORM.
 TALICARB NORM.
 TALICARB NORM.

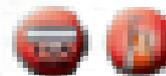


1530R

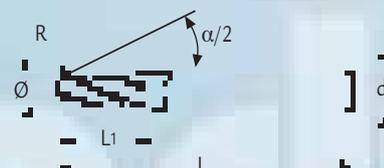
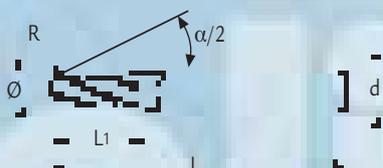


\emptyset mm	L mm	L ₁ mm	d mm	Z	1530R €
2.5	63	20	6	3	32,15
3	63	25	6	3	32,15
3.5	75	30	8	3	62,30
4	75	30	8	3	62,30
5	75	40	10	3	79,20
6	100	50	12	3	132,50
8	100	50	14	4	196,50
10	100	50	16	4	212,00
12	100	50	18	4	322,00

1540R



\emptyset mm	L mm	L ₁ mm	d mm	Z	1540R €
2.5	63	20	6	3	33,30
3	63	20	6	3	33,30
3.5	63	25	8	3	43,80
4	75	30	10	3	79,20
5	100	40	12	3	132,50
6	100	50	16	3	212,00
8	100	50	18	4	322,00
10	100	50	20	4	351,00
12	150	60	20	4	496,00





TALICARB NORM.

TALICARB NORM.
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TALICARB NORM.
TALICARB NORM.

FRESE CONICHE CON TESTA RAGGIATA

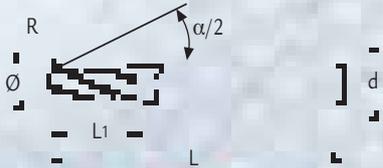
IN METALLO DURO INTEGRALE CONICITÀ* ($\alpha/2 = 5^\circ$)

SOLID CARBIDE TAPER MILLS WITH BALL-NOSE - INCLINATION*
VHM-KEGELIG GESENKFRÄSER MIT RADIUS - NEIGUNG*
FRAISES CONIQUES BOUT HÉMISPHERIQUE EN CARBURE MONOBLOC - INCLINAISON*
FRESAS CÓNICAS DE CABEZA ESFÉRICA DE METAL DURO INTEGRAL - INCLINACIÓN*

1550R



Ø mm	L mm	L ₁ mm	d mm	Z	1550R €
2.5	63	20	6	3	33,30
3	63	25	8	3	43,80
3.5	75	30	10	3	79,20
4	75	30	10	3	79,20
5	100	40	12	3	132,50
6	100	50	16	3	212,00
8	100	50	18	4	322,00
10	100	50	20	4	351,00
12	100	45	20	4	351,00



PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE



PER FRESE SENZA RIVESTIMENTO = Vc e Fz x 0,8

For end mill without coating - Für Fräser ohne Beschichtung
Pour fraises sans revêtement - Para fresas sin recubrimiento

FRESE CONICHE CON TESTA RAGIATA : 2/3/4 Tagli

Taper mills with ball nose - Kegelige gesenkfräser mit radius - Fraises coniques bout hémisphérique
Fresas cónicas de cabeza esférica: 2/3/4 Flutes - Schneiden - Dents - Labios

CAVA DAL PIENO: Vc e Fz: - 20%

Slotting: Vc e Fz: - 20%

Bohrnuten: Vc e Fz: - 20%

Rainurage: Vc e Fz: - 20%

Ranura: Vc e Fz: - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales			VC m/min														
	ap	ae		ap	Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio												
					2	4	6	8	10	12	14	16	18	20	22	25	
P < 800 N/mm ²	0,03 0,05 xØ	0,2xØ	90 - 130	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	-	0,08 0,10	-	-	-	-		
P < 1100 N/mm ²	0,03 0,05 xØ	0,2xØ	80 - 120	0,010 0,015	0,015 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	-	0,07 0,08	-	-	-	-		
P < 1300 N/mm ²	0,03 0,05 xØ	0,2xØ	70 - 110	0,005 0,010	0,010 0,015	0,015 0,02	0,02 0,03	0,03 0,04	0,05 0,06	-	0,07 0,08	-	-	-	-		
M > 800 N/mm ²	0,03 0,05 xØ	0,2xØ	50 - 80	0,010 0,015	0,015 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	-	0,07 0,08	-	-	-	-		
K GG	0,03 0,05 xØ	0,2xØ	110 - 150	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	-	0,14 0,16	-	-	-	-		
K GGG	0,03 0,05 xØ	0,2xØ	90 - 130	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	-	0,08 0,10	-	-	-	-		
N Alluminio	0,03 0,05 xØ	0,2xØ	110 - 150	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	-	0,16 0,18	-	-	-	-		
N Non metalli	0,03 0,05 xØ	0,2xØ	120 - 160	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	-	0,08 0,10	-	-	-	-		
S Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
S Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
H Temprati 38 / 48 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
H Temprati 48 / 58 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
H Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		



SERVIZIO TECNICO

Technical Help
Technische Hilfe
Service technique
Ayuda técnica



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Unser prompter Service ist immer für Sie da
Nos services toujours à votre Disposition
Nuestro rápido servicio siempre listo para usted



Technicaad

FRESE A CANDELA

specifiche per

ALLUMINIO



END MILLS FOR ALUMINIUM



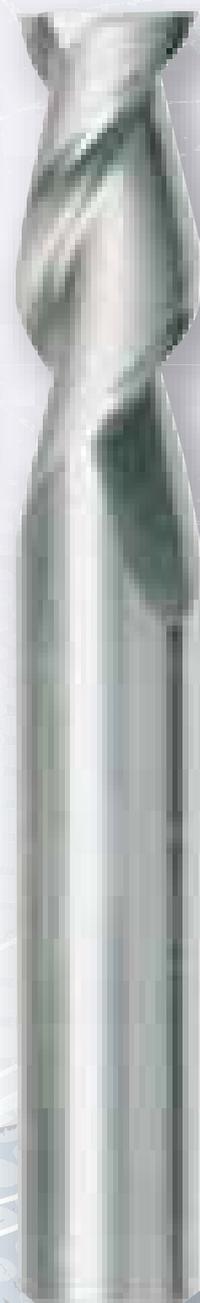
FRÄSER FÜR ALUMINIUM



FRAISES POUR L'USINAGE DE L' ALUMINIUM



FRESAS PARA ALUMINIO



FRESE A CANDELA

MONO TAGLIO IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 1 FLUTE
 VOLLHARTMETALL FRÄSER - 1 SCHNEID
 FRAISES EN CARBURE MONOBLOC - 1 DENT
 FRESAS DE METAL DURO INTEGRAL - 1 LABIO

TALICARB NORM.

TALICARB NORM.
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 TALICARB NORM.

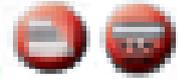


1011

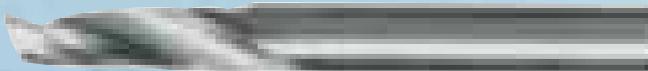
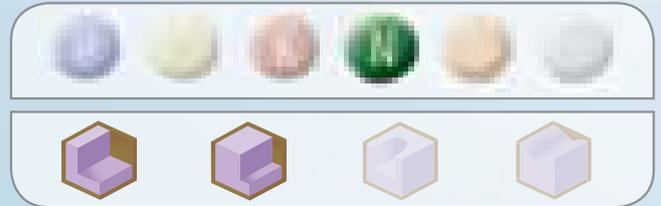
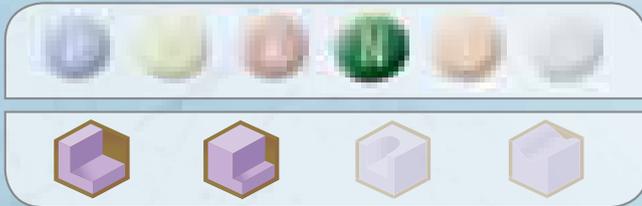


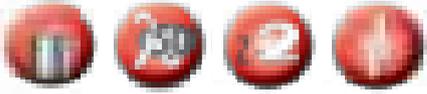
∅ mm h10	L mm	L ₁ mm	d mm	Z	1011 €
3	40	12	3	1	19,55
4	40	15	4	1	22,85
5	50	16	5	1	25,25
6	60	20	6	1	28,05
8	63	22	8	1	43,90
10	72	25	10	1	64,30
12	83	30	12	1	87,30

1011CR



∅ mm h10	L mm	L ₁ mm	d mm	Z	1011CR €
3	40	12	3	1	28,70
4	40	15	4	1	34,00
5	50	16	5	1	34,70
6	60	20	6	1	38,45
8	63	22	8	1	56,60
10	72	25	10	1	81,30
12	83	30	12	1	106,50





TALICARB NORM.

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TALICARB NORM.
TALICARB NORM.



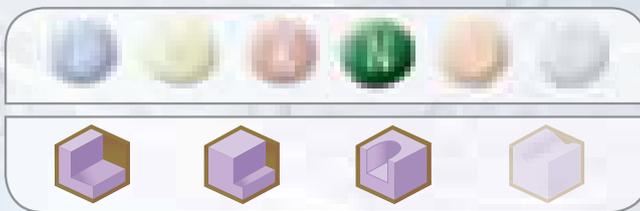
FRESE A CANDELA A 2 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 2 FLUTES
VOLLHARTMETALL FRÄSER - 2 SCHNEIDEN
FRAISES EN CARBURE MONOBLOC - 2 DENTS
FRESAS DE METAL DURO INTEGRAL - 2 LABIOS

1282



Ø mm	L mm	L ₁ mm	d mm	Z	1282 €
6	63	19	6	2	47,90
8	63	21	8	2	47,70
10	70	25	10	2	55,60
12	76	26	12	2	91,20
16	89	32	16	2	136,00



FRESE A CANDELA

A 2 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 2 FLUTES
 VOLLHARTMETALL FRÄSER - 2 SCHNEIDEN
 FRAISES EN CARBURE MONOBLOC - 2 DENTS
 FRESAS DE METAL DURO INTEGRAL - 2 LABIOS

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1263-1263TF

TFNEW
 COATING



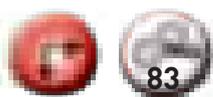
Ø mm h10	L mm	L ₁ mm	d mm	Z	1263 €	1263TF €
3	57	7	6	2	22,10	27,60
3.5	57	7	6	2	22,10	27,60
4	57	8	6	2	22,10	27,60
4.5	57	8	6	2	22,10	27,60
4.8	57	6	6	2	22,10	27,60
5	57	10	6	2	22,10	27,60
5.5	57	10	6	2	22,10	27,60
5.75	57	7	6	2	22,10	27,60
6	57	10	6	2	22,10	27,60
6.5	63	13	8	2	30,55	33,60
7	63	13	8	2	30,55	33,60
7.5	63	16	8	2	30,55	33,60
7.75	63	9	8	2	30,55	33,60
8	63	16	8	2	30,55	33,60
8.5	72	16	10	2	52,50	57,70
9	72	16	10	2	52,50	57,70
9.5	72	19	10	2	52,50	57,70
9.75	72	11	10	2	52,50	57,70
10	72	19	10	2	47,20	52,00
11	83	22	12	2	70,50	77,60
11.7	83	12	12	2	70,50	77,60
12	83	22	12	2	64,40	70,80
13	83	22	14	2	113,00	118,50
13.7	83	14	14	2	113,00	118,50
14	83	22	14	2	102,50	108,00
15	92	26	16	2	139,50	146,50
15.7	92	16	16	2	139,50	146,50

→1-2

Ø mm h10	L mm	L ₁ mm	d mm	Z	1263 €	1263TF €
16	92	26	16	2	126,50	133,00
17.7	92	18	18	2	215,50	226,50
18	92	26	18	2	196,50	206,50
19.7	104	20	20	2	249,00	262,00
20	104	32	20	2	227,00	238,50

→2-2





TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESE A CANDELA A 3 TAGLI CON ROMPITRUCIOLO IN MET. DURO INTEG.

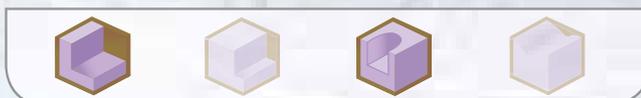
SOLID CARBIDE END MILLS WITH CHIPBREAKER- 3 FLUTES
VOLLHARTMETALL FRÄSER UND SPANBRECHER - 3 SCHNEIDEN
FRAISES EN CARBURE MONOBLOC AVEC BRISE COPEAUX - 3 DENTS
FRESAS DE METAL DURO INTEGRAL CON ROMPEVIRUTAS - 3 LABIOS



1265



Ø mm h10	L mm	L ₁ mm	d mm	Z	1265 €
6	57	13	6	3	33,35
8	63	19	8	3	51,10
10	72	22	10	3	79,20
12	83	26	12	3	107,50
16	92	32	16	3	203,50
20	104	38	20	3	323,00



FRESE A CANDELA A 3 TAGLI

PASSO VARIABILE IN METALLO DURO INTEGRALE

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

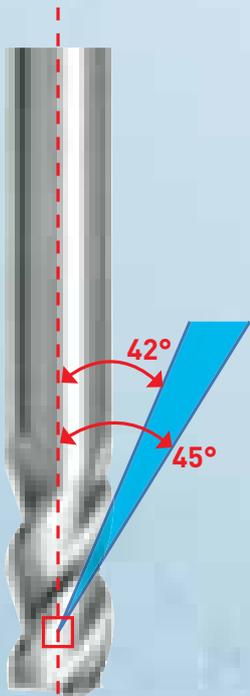


SOLID CARBIDE VARIABLE PITCH END MILLS - 3 FLUTES
VHM FRÄSER MIT VARIABLER STEIGUNG - 3 SCHNEIDEN
FRAISES CARBURE À PAS VARIABLE - 3 DENTS
FRESAS DE METAL DURO INTEGRAL HÉLICE VARIABLE - 3 LABIOS



1266

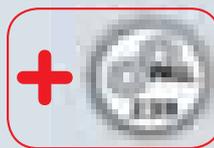
\emptyset mm h10	L mm	L ₁ mm	d mm	Z	1266 €
3	57	8	6	3	25,40
4	57	11	6	3	25,40
5	57	13	6	3	25,40
6	57	13	6	3	25,40
8	63	19	8	3	37,60
10	72	22	10	3	62,20
12	83	26	12	3	86,80
16	92	32	16	3	167,00
20	104	38	20	3	269,00



PARAMETRI DI TAGLIO

PER FRESE SENZA RIVESTIMENTO = V_c e $F_z \times 0,8$

For end mill without coating - Für Fräser ohne Beschichtung
 Pour fraises sans revêtement - Para fresas sin recubrimiento



CUTTING PARAMETERS
 SCHNITTDATEN
 PARAMÈTRES DE COUPE
 PARAMETROS DE CORTE

FRESE A CANDELA SPECIFICHE PER ALLUMINIO : 1/2/3 Tagli

End mills for aluminium - Fräser für aluminium - Fraises pour l'usinage de l'aluminium
 Fresas para aluminio: 1/2/3 Flutes - Schneiden - Dents - Labios

CAVA DAL PIENO: V_c e F_z : - 20%

Slotting: V_c e F_z : - 20%

Bohrnuten: V_c e F_z : - 20%

Rainurage: V_c e F_z : - 20%

Ranura: V_c e F_z : - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales	ap		VC m/min	Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio												
	ap	ae		ap	2	4	6	8	10	12	14	16	18	20	22	25



1011CR-1263TF

	Alluminio	1,5xØ	0,5xØ	1xØ	110 - 140	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	-	-
	Non metalli	1,5xØ	0,5xØ	1xØ	80 - 120	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,10	0,10 0,12	0,12 0,14	-	-



1265

	Alluminio	1,5xØ	0,5xØ	1xØ	180 - 250	-	-	0,08 0,10	0,10 0,13	0,13 0,16	0,16 0,19	-	0,22 0,25	-	0,20 0,22	-	-
	Non metalli	1,5xØ	0,5xØ	1xØ	140 - 200	-	-	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	-	0,14 0,16	-	0,12 0,14	-	-



1266

	Alluminio	1,5xØ	0,5xØ	1xØ	300 - 400	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,1	0,1 0,12	0,12 0,14	-	0,16 0,18	-	0,20 0,22	-	-
	Non metalli	1,5xØ	0,5xØ	1xØ	200 - 300	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	-	0,08 0,10	-	0,12 0,14	-	-



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Ayuda técnica

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FRESE A PASSO VARIABILE

VARIABLE PITCH END MILLS
FRÄSER MIT VARIABLE STEIGUNG
FRAISES À PAS VARIABLE
FRESAS DE HÉLICE VARIABLE

FRESE A PASSO VARIABILE

Le frese a passo variabile, dedicate alle lavorazioni senza vibrazioni e ad alte prestazioni, consentono un ottimo rendimento e possono essere usate su una vasta gamma di materiali.

VARIABLE PITCH END MILLS

Variable pitch end mills, dedicated to vibration free and high performance works, lead on good results and can be used on a great variety of materials.

FRÄSER MIT VARIABLE STEIGUNG

Die ungleiche Schneidreihenteilung Fräser, für Vibrationsfreie- und Hochleistungsbearbeitungen verwendet, erlauben hohe Leistungen und für eine ganze Reihe von Materialien anwendet.

FRAISES À PAS VARIABLE

Les fraises a pas variable, utilises pour usinages sans vibrations et hautes performances, permettent une tres bonne performance et on peut les utiliser sur une vaste gamme de materiaux.

FRESAS DE HÉLICE VARIABLE

Las fresas de hélice variable, dedicadas a los trabajos sin vibraciones y de alto rendimiento, permiten conseguir resultados excelentes y pueden utilizarse con una gran variedad de materiales.



FRESE A CANDELA A 4 TAGLI PASSO VARIABILE IN METALLO DURO INTEGRALE

SOLID CARBIDE VARIABLE PITCH END MILLS - 4 FLUTES
VHM FRÄSER MIT VARIABLE STEIGUNG - 4 SCHNEIDEN
FRAISES CARBURE À PAS VARIABLE - 4 DENTS
FRESAS DE METAL DURO INTEGRAL HÉLICE VARIABLE - 4 LABIOS

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

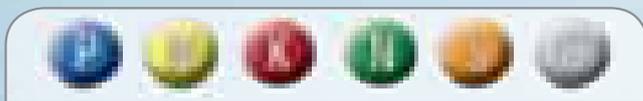
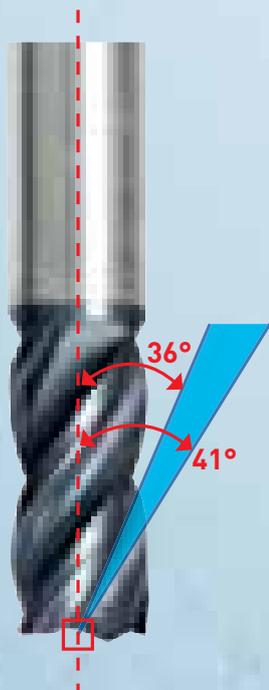


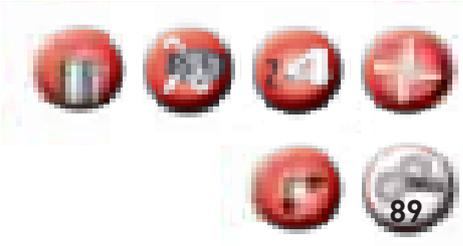
1318TF

TFNEW
COATING



Ø mm h10	L mm	L ₁ mm	d mm	Z	1318TF €
3	50	8	6	4	16,30
4	50	11	6	4	16,30
5	50	13	6	4	16,30
6	50	16	6	4	16,30
8	60	20	8	4	28,65
10	72	22	10	4	42,70
12	75	26	12	4	59,40
16	100	36	16	4	119,00
20	100	38	20	4	206,50





SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL

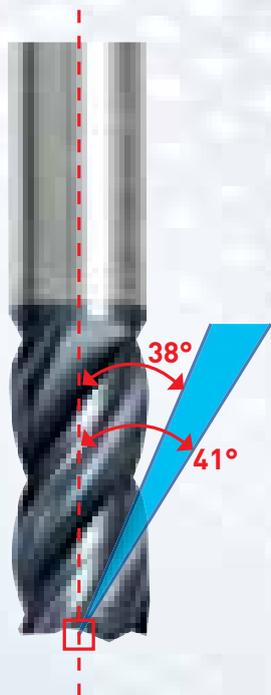
FRESE A CANDELA A 4 TAGLI
PASSO VARIABILE IN METALLO DURO INTEGRALE

SOLID CARBIDE VARIABLE PITCH END MILLS - 4 FLUTES
 VHM FRÄSER MIT VARIABLER STEIGUNG - 4 SCHNEIDEN
 FRAISES CARBURE À PAS VARIABLE - 4 DENTS
 FRESAS DE METAL DURO INTEGRAL HÉLICE VARIABLE - 4 LABIOS

1320TF



\emptyset mm h10	L mm	L ₁ mm	d mm	Z	1320TF €
3	38	8	3	4	23,45
4	50	11	4	4	32,50
5	50	13	5	4	34,30
6	57	13	6	4	41,50
8	63	19	8	4	51,90
10	72	22	10	4	65,20
12	83	26	12	4	102,50
16	92	32	16	4	214,50
20	104	38	20	4	306,00



FRESE TORICHE A 4 TAGLI

PASSO VARIABILE IN METALLO DURO INTEGRALE

TORIC VARIABLE PITCH END MILLS - 4 FLUTES
 VHM TORUSFRÄSER MIT VARIABLE STEIGUNG - 4 SCHNEIDEN
 FRAISES TORIQUES HELICOIDALES À PAS VARIABLE - 4 DENTS
 FRESAS TÓRICAS DE METAL DURO INTEGRAL HÉLICE VARIABLE - 4 LABIOS

SERIE NORMALE

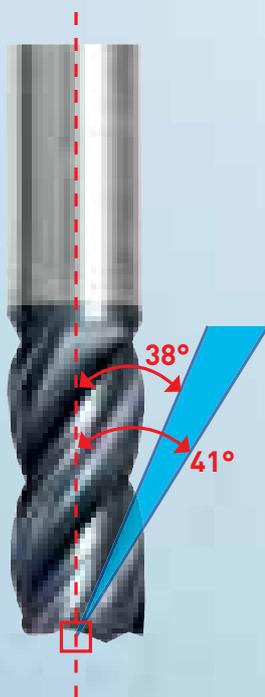
NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



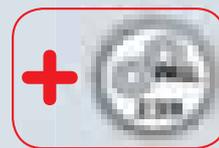
1321TF



Ø mm h10	d mm	L mm	L ₁ mm	R	Z	1321TF €
3	3	38	8	0.3	4	23,95
4	4	50	11	0.3	4	33,60
5	5	50	13	0.3	4	35,25
6	6	57	13	0.3	4	43,30
8	8	63	19	0.5	4	54,30
10	10	72	22	0.5	4	68,10
12	12	83	26	1.0	4	107,00
16	16	92	32	1.0	4	223,50
20	20	104	38	1.0	4	318,00



PARAMETRI DI TAGLIO



CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE

PER FRESE SENZA RIVESTIMENTO = V_c e F_z x 0,8

For end mill without coating - Für Fräser ohne Beschichtung
Pour fraises sans revêtement - Para fresas sin recubrimiento

FRESE A PASSO VARIABILE:

Variable pitch end mills - Fräser mit variabler steigung - Fraises à pas variable - Fresas hélice variable

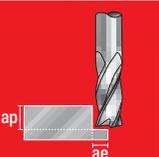
CAVA DAL PIENO: V_c e F_z : - 20%

Slotting: V_c e F_z : - 20%

Bohrnuten: V_c e F_z : - 20%

Rainurage: V_c e F_z : - 20%

Ranura: V_c e F_z : - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales			VC m/min	 Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio												
	ap	ae		ap	3	4	6	8	10	12	14	16	18	20	22	25
	P < 800 N/mm ²	1,5 x Ø		0,5xØ	-	100 - 150	0,015	0,015 0,030	0,03 0,04	0,05 0,06	0,07 0,08	0,08 0,09	-	0,10 0,12	-	0,14 0,15
P < 1100 N/mm ²	1,5 x Ø	0,5xØ	0,5xØ	90 - 140	0,015	0,015 0,030	0,03 0,04	0,05 0,06	0,07 0,08	0,08 0,09	-	0,10 0,12	-	0,14 0,15	-	-
P < 1300 N/mm ²	1,5 x Ø	0,5xØ	0,5xØ	80 - 130	0,01	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	-	0,08 0,09	-	0,11 0,12	-	-
M > 800 N/mm ²	1,5 x Ø	0,3xØ	0,3xØ	80 - 120	0,015	0,015 0,030	0,03 0,04	0,05 0,06	0,07 0,08	0,08 0,09	-	0,10 0,12	-	0,14 0,15	-	-
K GG	1,5 x Ø	0,5xØ	0,5xØ	110 - 170	0,03	0,03 0,05	0,05 0,07	0,07 0,09	0,09 0,11	0,11 0,13	-	0,17 0,19	-	0,21 0,22	-	-
K GGG	1,5 x Ø	0,5xØ	0,5xØ	90 - 140	0,01	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	-	0,08 0,09	-	0,11 0,12	0,14 0,16	0,16 0,18
N Alluminio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N Non metalli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S Titanio	1,5 x Ø	0,3xØ	0,3xØ	50 - 60	0,01	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	-	0,08 0,09	0,09 0,10	0,11 0,12	-	-
S Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H Temprati 38 / 48 HRC	1,5 x Ø	0,2xØ	0,2xØ	20 - 35	0,015	0,015 0,030	0,03 0,04	0,05 0,06	0,07 0,08	0,08 0,09	-	0,10 0,12	0,12 0,14	0,14 0,15	-	-
H Temprati 48 / 58 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

FRESE A CANDELA

A 4 TAGLI IN CERMET

CERMET END MILLS - 4 FLUTES
CERMET-FRÄSER - 4 SCHNEIDEN
FRAISES CERMET - 4 DENTS
FRESAS DE CERMET - 4 LABIOS

SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL



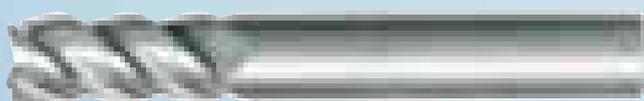
CERMET

1374



Ø mm e8	L mm	L ₁ mm	d mm	Z	1374 €
6	57	13	6	4	56,70 ■
8	63	19	8	4	73,00 ■
12	83	26	12	4	137,00 ■
18	92	32	18	4	296,00 ■

■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock





SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL

FRESE A CANDELA

MULTITAGLIENTE CERMET

CERMET END MILLS - MULTI-FLUTES
 CERMET FRÄSER - MULTI-SCHNEIDEN
 FRAISES CERMET - MULTI-DENTS
 FRESAS DE CERMET - LABIOS MÚLTIPLES

1376



CERMET

Ø mm e8	L mm	L ₁ mm	d h6	Z	1376 €
6	57	13	6	6	56,70 ■
8	63	19	8	6	73,00 ■
9	72	19	10	6	106,00 ■
12	83	26	12	6	137,00 ■
18	92	32	18	8	296,00 ■

■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



FRESE A CANDELA A 4 TAGLI IN CERMET

CERMET END MILLS - 4 FLUTES
CERMET-FRÄSER - 4 SCHNEIDEN
FRAISES CERMET - 4 DENTS
FRESAS DE CERMET - 4 LABIOS

SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL



1314R



CERMET

Ø mm e8	L mm	L ₁ mm	d mm	R	Z	1314R €
8	58	12	8	4	4	145,00 ■
12	73	16	12	6	4	193,50 ■

■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



FRESE A CANDELA "CON ROMPITRUCIOLO" A SGROSSARE

ROUGHING END MILLS WITH CHEAP BREAKER
SCHRUPPFRÄSER MIT SPANBRECHER
FRAISES D'EBAUCHE AVEC BRISE-COPEAUX
FRESAS PARA DESBASTE CON ROMPEVIRUTAS



FRESE CON ROMPITRUCIOLO A SGROSSARE

Le frese di sgrossatura sono progettate per asportare un elevato volume di truciolo.



ROUGHING END MILLS WITH CHEAP BREAKER

Roughing end mills are designed for removing a big cheap volume.



SCHRUPPFRÄSER MIT SPANBRECHER

Die Schrumpfräser entworfen für die Entfernung von einer großen Menge von Span.



FRAISES D'EBAUCHE AVEC BRISE-COPEAUX

Fraises d'ébauche projetées pour enlèvement d'un volume élevé de copeau.



FRESAS PARA DESBASTE CON ROMPEVIRUTAS

Fresas para desbaste proyectadas para quitar una elevada cantidad de viruta.



FRESE A CANDELA CON ROMPIRUCIOLO IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS WITH CHIP BREAKER
VHM FRAESER MIT SPANBRECHER
FRAISES AVEC BRISE-COPEAU EN CARBURE MONOBLOC
FRESAS DE METAL DURO INTEGRAL CON ROMPEVIRUTAS

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.



1060 - 1060TF

TF^{NEW}
COATING



Ø mm h10	L mm	L ₁ mm	d mm	Z	1060 €	1060TF €
6	50	19	6	4	50,60	55,60
8	63	20	8	4	58,40	64,30
10	63	19	10	6	70,30	77,40
12	75	25	12	6	84,10	92,50
16	88	32	16	6	128,00	134,50
18	100	38	18	6	186,50	196,00
20	100	38	20	6	226,50	237,50





TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESE A CANDELA
CON ROMPITRUCIOLO IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS WITH CHIP BREAKER
VHM FRAESER MIT SPANBRECHER
FRAISES AVEC BRISE-COPEAU EN CARBURE MONOBLOC
FRESAS DE METAL DURO INTEGRAL CON ROMPEVIRUTAS

1061TF



Ø mm h10	L mm	L ₁ mm	d mm	Z	1061TF €
6	57	13	6	4	101,00
8	63	19	8	4	125,50
10	72	22	10	4	137,50
12	83	26	12	4	180,50
14	83	26	14	4	287,00
16	92	32	16	4	289,00
18	92	32	18	4	393,00
20	104	38	20	4	406,00

1062TF



Ø mm h10	L mm	L ₁ mm	d mm	Z	1062TF €
6	57	13	6	3	101,00
8	63	19	8	3	125,50
10	72	22	10	3	137,50
12	72	22	10	3	180,50
14	83	26	12	3	287,00
16	92	32	16	3	289,00
18	92	32	16	3	393,00
20	104	38	20	3	406,00



PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE



PER FRESE SENZA RIVESTIMENTO = V_c e F_z x 0,8

For end mill without coating - Für Fräser ohne Beschichtung
Pour fraises sans revêtement - Para fresas sin recubrimiento

FRESE A SGROSSARE CON ROMPI TRUCIOLO:

Roughing end mills with cheap breaker - Schruppfräser mit Spanbrecher - Fraises d'ébauche avec brise-copeaux - Fresas para desbaste con rompevirutas

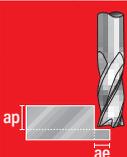
CAVA DAL PIENO: V_c e F_z : - 20%

Slotting: V_c e F_z : - 20%

Bohrnuten: V_c e F_z : - 20%

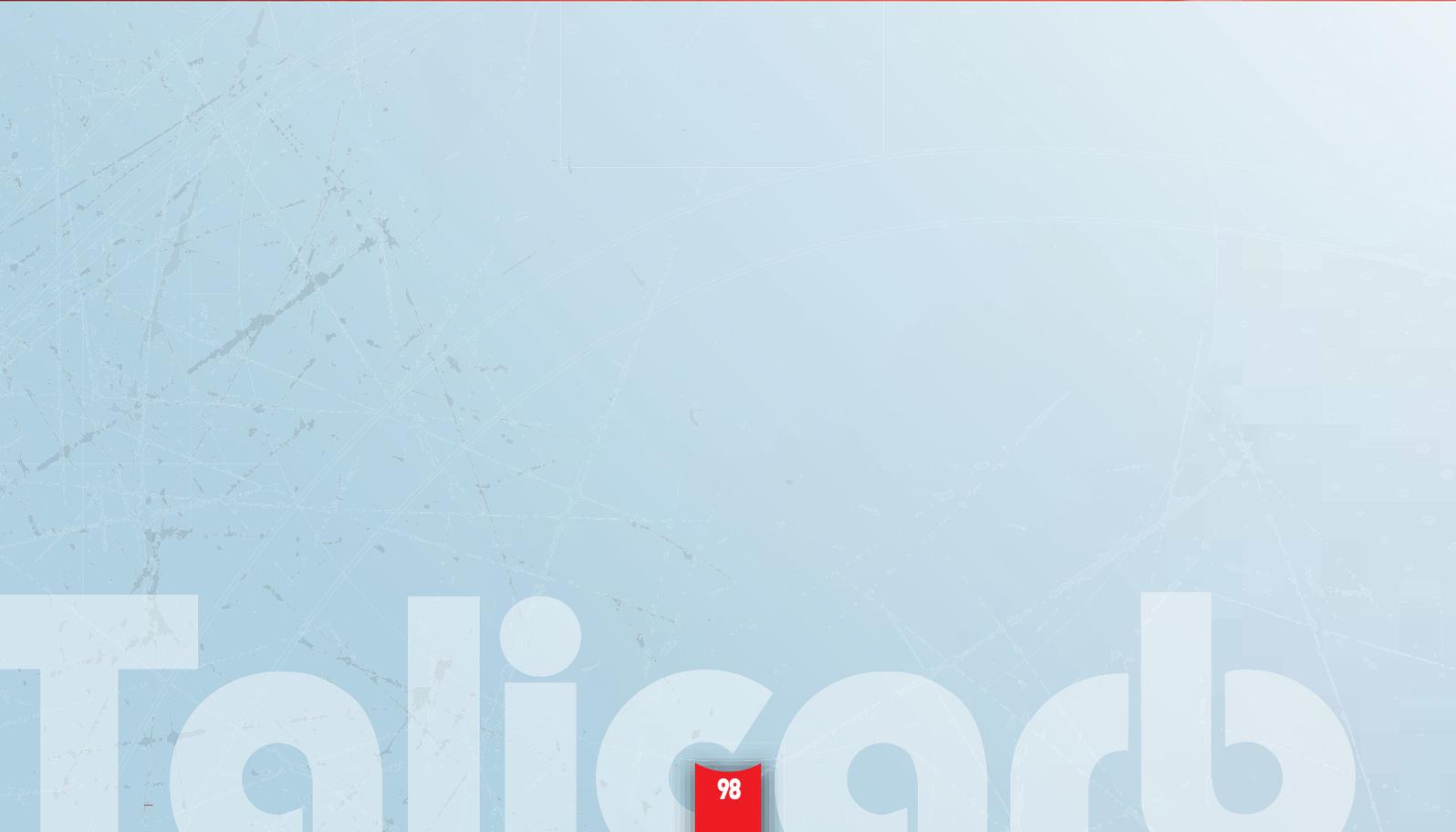
Rainurage: V_c e F_z : - 20%

Ranura: V_c e F_z : - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales			VC m/min		Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio												
	ap	ae			ap	2	4	6	8	10	12	14	16	18	20	22	25
	P < 800 N/mm ²	1,5xØ			0,2xØ	-	90 - 130	-	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,10	0,10 0,12	0,12 0,14
P < 1100 N/mm ²	1,5xØ	0,2xØ	-	80 - 120	-	0,015 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,09	0,09 0,10	-	-	
P < 1300 N/mm ²	1,0xØ	0,2xØ	-	70 - 110	-	0,010 0,015	0,015 0,02	0,02 0,03	0,03 0,04	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,09	0,09 0,10	-	-	
M > 800 N/mm ²	1,0xØ	0,2xØ	-	50 - 80	-	0,015 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,09	0,09 0,10	-	-	
K GG	1,0xØ	0,2xØ	-	110 - 150	-	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	-	-	
K GGG	1,0xØ	0,2xØ	-	90 - 130	-	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,08 0,10	0,10 0,12	0,12 0,14	-	-	
N Alluminio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
N Non metalli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
S Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
S Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H Temprati 38 / 48 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H Temprati 48 / 58 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



angeloghezzi.it



Technicaad

FRESE A CANDELA

con Testa Piana e Toriche



END MILLS FOR SPECIAL APPLICATIONS, FLAT HEAD OR WITH RADIUS



FRÄSER FÜR SPEZIELLE ANWENDUNGEN MIT FLACHER STIRNSCHNEIDE
ODER MIT RADIUS



FRAISES POUR APPLICATIONS SPÉCIFIQUES À BOUT PLAT OU AVEC RAYON
HEMISPHERIQUE



FRESAS PARA APLICACIONES ESPECÍFICAS DE CABEZA LLANA O TÓRICAS



FRESE DI FINITURA IN METALLO DURO A ELEVATE PRESTAZIONI

SOLID CARBIDE END MILLS FOR FINISHING WITH HIGH PERFORMANCES

HOCHLEISTUNGS-SCHLICHTFRÄSER

FRAISES CARBURE MONOBLOC, HAUTE PERFORMANCES POUR LA FINITION

FRESAS DE ACABADO DE METAL DURO INTEGRAL, ALTO RENDIMIENTO

FRESE DI FINITURA IN METALLO DURO A ELEVATE PRESTAZIONI

Le frese a candela e le frese toriche Talicarb in metallo duro offrono prestazioni superiori, affidabili e mirate.

- Geometrie specifiche per acciaio, acciaio inossidabile, leghe resistenti al calore.
- Tagliante standard, lungo, extra lungo ed extra corto per lavorazioni su fondo tasche.
- Design specifici con elevato numero di taglianti per applicazioni di finitura eccellenti.

SOLID CARBIDE END MILLS FOR FINISHING WITH HIGH PERFORMANCES

Talicarb solid carbide end mills and toric end mills offer advanced, reliable and focused performances.

- Specific geometries for steel, stainless steel, high-temperature alloys.
- Standard cutting edge, long and extra-long series, stub length series for pocketing.
- Special design with a high number of flutes for excellent finishing applications.

HOCHLEISTUNGS-SCHLICHTFRÄSER

Die Talicarb vhm und torusfräser bieten höhere, zuverlässige und genaue Leistungen.

- Bestimme Geometrie für Stahl, rostbeständiger Stahl, wärmebeständige Legierungen.
- Standard Schneiden, lange und extra-lange Ausführung. Extra-kurze Ausführung für Taschenfräsen.

FRAISES CARBURE MONOBLOC, HAUTE PERFORMANCES POUR LA FINITION

Les fraises carbure monobloc et fraises toriques Talicarb presentent d'excellentes performances de façon fiable et reguliere.

- Geometries spécifiques pour l'acier, l'inox, les alliages réfractaires.
- Taille standard, disponibles en série longue, extra-longue. Extra courte pour usinage en poche.
- Design spécifiques avec un élevé numero de tailles pour applications de finition.

FRESAS DE ACABADO DE METAL DURO INTEGRAL, ALTO RENDIMIENTO

Las fresas de metal duro integral y fresas tóricas de Talicarb ofrecen un rendimiento superior, específico y fiable.

- Geometrías específicas diseñadas para aceros, aceros inoxidables, aleaciones a altas temperaturas.
- Longitud estándar, larga, extralarga y extra corta para fresado de cajera.
- Diseños especiales con más labios para un acabado perfecto.





TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESE A CANDELA A 3 TAGLI IN METALLO DURO INTEGRALE

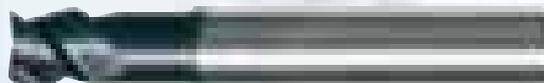
SOLID CARBIDE END MILLS - 3 FLUTES
VOLLHARTMETALL FRÄSER - 3 SCHNEIDEN
FRAISES EN CARBURE MONOBLOC - 3 DENTS
FRESAS DE METAL DURO INTEGRAL - 3 LABIOS

1330TF



Ø mm h10	d mm	L mm	L ₁ mm	L ₂ mm	d ₂ mm	Z	1330TF €
3	3	38	6	12	2.8	3	29,60
4	4	50	7	13	3.8	3	32,95
5	5	50	8	14	4.7	3	33,10
6	6	57	9	20	5.4	3	38,75
8	8	63	11	26	7.2	3	50,90
10	10	72	13	31	9.0	3	61,90
12	12	83	15	37	10.8	3	88,50
16	16	92	20	41	14.4	3	169,00 ■
20	20	104	24	47	18.0	3	251,00 ■

■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



Talpac

FRESE TORICHE

A 3 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE TORIC END MILLS - 3 FLUTES
 VOLLHARTMETALL TORUSFRÄSER - 3 SCHNEIDEN
 FRAISES TORIQUES EN CARBURE MONOBLOC - 3 DENTS
 FRESAS TÓRICAS DE METAL DURO INTEGRAL - 3 LABIOS

TALICARB NORM.

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 TALICARB NORM.

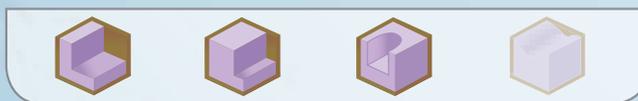


1331TF



Ø mm h10	d mm	L mm	L ₁ mm	L ₂ mm	d ₂ mm	R	Z	1331TF €
3	3	38	6	12	2.8	0.3	3	33,55
4	4	50	7	13	3.8	0.3	3	36,75
5	5	50	8	14	4.7	0.3	3	36,90
6	6	57	9	20	5.4	0.3	3	43,40
8	8	63	11	26	7.2	0.5	3	56,10
10	10	72	13	31	9.0	0.3	3	61,50 ■
10	10	72	13	31	9.0	0.5	3	67,70
12	12	83	15	37	10.8	1.0	3	97,00
16	16	92	20	41	14.4	1.0	3	182,00 ■
20	20	104	24	47	18.0	1.0	3	270,00 ■

■ Ad esaurimento scorte - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'á Épuisement de stock - Hasta agotamiento del stock





SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL

FRESE A CANDELA

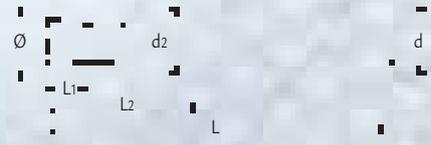
A 6 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 6 FLUTES
 VOLLHARTMETALL FRÄSER - 6 SCHNEIDEN
 FRAISES EN CARBURE MONOBLOC - 6 DENTS
 FRESAS DE METAL DURO INTEGRAL - 6 LABIOS

1340XT



Ø mm f8	L mm	L ₁ mm	L ₂ mm	d mm	d ₂	Z	1340XT €
3	38	6	12	3	2.8	6	35,05
4	50	7	13	4	3.8	6	38,60
5	50	8	14	5	4.7	6	39,10
6	57	9	20	6	5.4	6	45,30
8	63	11	26	8	7.2	6	57,80
10	72	13	31	10	9.0	6	66,40
12	83	15	37	12	10.8	6	93,70
16	92	20	41	16	14.4	6	186,00
20	104	24	47	20	18.0	6	277,00



FRESE TORICHE

A 6 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE TORIC END MILLS - 6 FLUTES
 VOLLHARTMETALL TORUSFRÄSER - 6 SCHNEIDEN
 FRAISES TORIQUES EN CARBURE MONOBLOC - 6 DENTS
 FRESAS TÓRICAS DE METAL DURO INTEGRAL - 6 LABIOS

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1341XT



Ø mm f8	L mm	L ₁ mm	L ₂ mm	d mm	d ₂	R	Z	1341XT €
3	38	6	12	3	2.8	0.3	6	39,70
4	50	7	13	4	3.8	0.3	6	43,30
5	50	8	14	5	4.7	0.3	6	43,70
6	57	9	20	6	5.4	0.5	6	51,00
8	63	11	26	8	7.2	0.5	6	64,30
10	72	13	31	10	9.0	0.5	6	73,50
12	83	15	37	12	10.8	1.0	6	104,00
16	92	20	41	16	14.4	1.0	6	203,50
20	104	24	47	20	18.0	1.0	6	303,00





SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

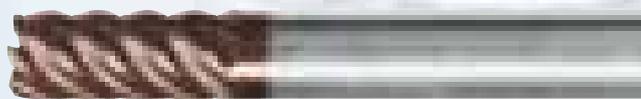
FRESE A CANDELA A 6 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - 6 FLUTES
VOLLHARTMETALL FRÄSER - 6 SCHNEIDEN
FRAISES EN CARBURE MONOBLOC - 6 DENTS
FRESAS DE METAL DURO INTEGRAL - 6 LABIOS

1351XT



\emptyset mm f8	L mm	L ₁ mm	d mm	Z	1351XT €
3	57	8	6	6	43,40
4	57	11	6	6	43,40
5	57	13	6	6	40,20
6	57	13	6	6	45,70
8	63	19	8	6	52,40
10	72	22	10	6	89,90
12	83	26	12	6	122,00
16	92	32	16	6	217,50
20	104	38	20	6	317,00



FRESE TORICHE

A 6 TAGLI IN METALLO DURO INTEGRALE

SOLID CARBIDE TORIC END MILLS - 6 FLUTES
 VOLLHARTMETALL TORUSFRÄSER - 6 SCHNEIDEN
 FRAISES TORIQUES EN CARBURE MONOBLOC - 6 DENTS
 FRESAS TÓRICAS DE METAL DURO INTEGRAL - 6 LABIOS

SERIE NORMALE

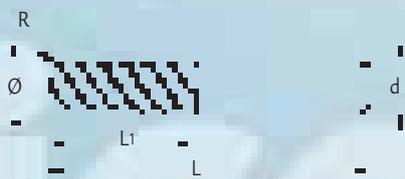
NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1352XT



Ø mm f8	L mm	L ₁ mm	d mm	R	Z	1352XT €
3	57	8	6	0.3	6	49,90
4	57	11	6	0.3	6	49,90
5	57	13	6	0.3	6	46,20
6	57	13	6	0.5	6	52,50
8	63	19	8	0.5	6	60,30
10	72	22	10	0.5	6	103,50
12	83	26	12	1.0	6	140,50
16	92	32	16	1.0	6	250,00
20	104	38	20	1.0	6	364,00





SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL

FRESE A CANDELA MULTITAGLIENTE IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - MULTI-FLUTES
 VOLLHARTMETALL FRÄSER - MULTI-SCHNEIDEN
 FRAISES EN CARBURE MONOBLOC - MULTI-DENTS
 FRESAS DE METAL DURO INTEGRAL - LABIOS MÚLTIPLES

1350XT



\emptyset mm f8	L mm	L ₂ mm	d mm	Z	1350XT €
3	57	8	6	6	45,40
4	57	11	6	6	45,40
5	57	13	6	6	42,10
6	57	13	6	6	47,70
8	63	19	8	6	54,80
10	72	22	10	6	94,00
12	83	26	12	6	127,50
14	83	26	14	6	166,00
16	92	32	16	8	227,00
18	92	32	18	8	255,50
20	104	38	20	8	332,00



FRESE A CANDELA

MULTITAGLIENTE IN METALLO DURO INTEGRALE

SOLID CARBIDE END MILLS - MULTI-FLUTES
 VOLLHARTMETALL FRÄSER - MULTI-SCHNEIDEN
 FRAISES EN CARBURE MONOBLOC - MULTI-DENTS
 FRESAS DE METAL DURO INTEGRAL - LABIOS MÚLTIPLES

SERIE LUNGA

LONG SERIES
 LANGE AUSFÜHRUNG
 SÉRIE LONGUE
 SERIE LARGA/SERIE LUNGA



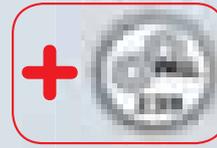
1360XT



\emptyset mm f8	L mm	L ₂ mm	d mm	Z	1360XT €
3	62	12	6	6	49,10
4	62	16	6	6	49,10
5	62	18	6	6	47,40
6	62	18	6	6	52,70
8	68	24	8	6	59,50
10	80	30	10	6	106,00
12	93	36	12	6	144,00
14	99	42	14	6	200,50
16	108	48	16	8	275,00
18	114	54	18	8	321,00
20	126	60	20	8	414,00



PARAMETRI DI TAGLIO



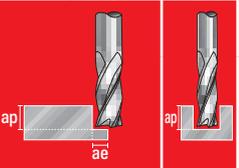
CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE

PER FRESE SENZA RIVESTIMENTO = V_c e $F_z \times 0,8$

For end mill without coating - Für Fräser ohne Beschichtung
Pour fraises sans revêtement - Para fresas sin recubrimiento

FRESE A CANDELA CON TESTA PIANA E TORICHE: 3/6 TAGLI

End mills with flat head and with radius - Fräser mit flacher Stirnschneide oder mit Radius - Fraises à bout plat ou avec rayon semisphérique
Fresas de cabeza llana o tóricas: 3/6 Flutes - Schneiden - Dents - Labios

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales			VC m/min	 Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio												
	ap	ae		ap	2	4	6	8	10	12	14	16	18	20	22	25
	< 800 N/mm ²	1,25xØ		0,3xØ	-	90 - 130	0,015	0,015 0,030	0,03 0,04	0,05 0,06	0,07 0,08	0,08 0,09	0,09 0,10	0,10 0,12	0,12 0,14	0,14 0,15
< 1100 N/mm ²	1,25xØ	0,2xØ	-	80 - 120	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	-	-
< 1300 N/mm ²	1,25xØ	0,2xØ	-	70 - 100	0,003 0,005	0,005 0,020	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	-	-
> 800 N/mm ²	1xØ	0,25xØ	-	60 - 80	0,01	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,07 0,08	0,08 0,09	0,09 0,10	0,11 0,12	-	-
GG	1,5xØ	0,3xØ	-	90 - 130	0,015	0,015 0,030	0,03 0,04	0,05 0,06	0,07 0,08	0,08 0,09	0,09 0,1	0,10 0,12	0,12 0,14	0,14 0,15	-	-
GGG	1,25xØ	0,3xØ	-	80 - 110	0,01	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,07 0,08	0,08 0,09	0,09 0,10	0,11 0,12	-	-
Alluminio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non metalli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanio	1xØ	0,25xØ	-	40 - 60	0,01	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,07 0,08	0,08 0,09	0,09 0,1	0,11 0,12	-	-
Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Temprati 38 / 48 HRC	1xd	0,25xd	-	15 - 40	0,005 0,01	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,1	0,1 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,2	-	-
Temprati 48 / 58 HRC	1,5xd	0,2xd	-	20 - 50	0,01	0,01	0,02	0,03	0,04	0,05	0,07	0,08	0,09	0,11	-	-
Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

FRESE POWER:

- Ridurre il numero di utensili necessari
- Offrire un'eccellente evacuazione dei trucioli
- Ottenere la massima produttività
- Aumentare i volumi di trucioli asportati
- Aumentare la velocità di taglio
- Garantire precisione
- Ridurre i costi di produzione
- Fornire una lunga durata dell'utensile

POWER END MILLS:

- Reducing the number of necessary tools
- Offering an excellent chip evacuation
- Obtaining maximum productivity
- Increasing the volumes of eliminated chips
- Increasing cutting speed
- Guaranteeing precision
- Reducing production costs
- Allowing a long tool life

POWER FRÄSER:

- Reduziert die Anzahl der benötigten Werkzeuge
- Bietet eine ausgezeichnete Spababfuhr
- Erhalten Sie die maximale Produktivität
- Erhöhung die Volumens der Spababfuhr
- Erhöhung der Schnittgeschwindigkeit
- Gewährleistung der Genauigkeit
- Reduzierung der Produktionskosten
- Ermöglichen eine lange Lebensdauer

FRAISES POWER:

- Réduire le numéro des outils pas nécessaires
- Offrir une très bonne évacuation du copeau
- Obtenir la meilleure productivité
- Augmenter les volumes du copeau évacué
- Augmenter la vitesse de coupe

- Assurer précision
- Réduire le coût de production
- Permettre une longue durée de vie l'outil

FRESAS POWER:

- Reducir el número de herramientas innecesarias
- Ofrecer una excelente evacuación de virutas
- Obtener la máxima productividad
- Incrementar el volumen de evacuación de virutas
- Incrementar (aumentando) la velocidad de corte
- Asegurar precisión
- Reducir los costes de producción
- Permitir una larga vida de herramienta

Frese Power



2015



FRESE A CANDELA POWER con testa Piana e Toriche



POWER END MILLS WITH FLAT HEAD OR TORIC



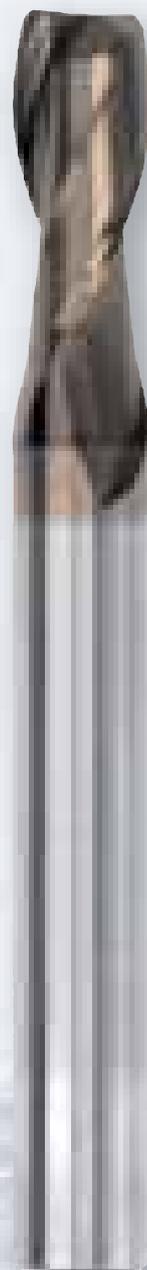
POWER FRÄSER MIT FLACHER STIRNSCHNEIDE ODER TORUS



FRAISES POWER À BOUT PLAT OU TORIQUES



FRESAS POWER DE CABEZA LLANA O TÓRICAS



FRESE POWER A CANDELA

A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER END MILLS - 2 FLUTES - SUB-MICROGRAIN
 POWER FRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER - 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1417XT



Ø mm	L mm	L ₁ mm	d mm	Z	1417XT €
0.3	38	1	3	2	23,65
0.4	38	2.5	3	2	23,65
0.5	38	2.5	3	2	23,65
0.6	38	3	3	2	23,65
0.8	38	4	3	2	23,65
1	38	5	3	2	23,65
1.2	38	5	3	2	23,65
1.5	38	5	3	2	23,65
1.6	38	6	3	2	23,65
1.8	38	6	3	2	23,65
2	38	9	3	2	23,65
2.4	38	10	3	2	23,65
2.5	38	10	3	2	23,65
2.8	38	10	3	2	23,65
3	38	12	3	2	23,65

1412XT



Ø mm	L mm	L ₁ mm	d mm	Z	1412XT €
1	39	3	3	2	18,85
1.5	39	5	3	2	17,40
2	39	7	3	2	17,40
2.5	39	8	3	2	17,40
3	39	10	3	2	17,40
4	51	14	6	2	23,20
5	51	16	6	2	25,60
6	64	19	6	2	33,45
7	64	19	8	2	43,10
8	64	21	8	2	47,20
9	70	22	10	2	64,70
10	70	25	10	2	64,70
12	76	25	12	2	89,40
14	89	30	14	2	121,50
16	89	32	16	2	140,00
18	102	35	18	2	198,00
20	102	38	20	2	238,50
22	102	38	22	2	301,00
25	102	38	25	2	347,00



Rivestimento X-Treme
 X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 1 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm
da 4 mm a 25 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm



SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE POWER TORICHE

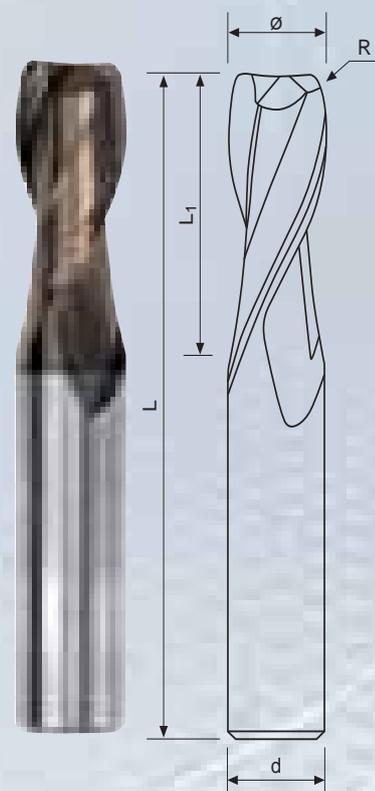
A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER TORIQUE À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER TÓRICAS - 2 LABIOS - SUB-MICROGRANO

1432XT



Ø mm	R	L mm	L ₁ mm	d mm	Z	1432XT €
3	0.2	39	10	3	2	23,25
3	0.5	39	10	3	2	23,25
4	0.2	51	14	6	2	30,95
4	0.5	51	14	6	2	30,95
4	1	51	14	6	2	30,95
5	0.2	51	16	6	2	34,15
5	0.5	51	16	6	2	34,15
5	1	51	16	6	2	34,15
6	0.2	64	19	6	2	44,50
6	0.5	64	19	6	2	44,50
6	1	64	19	6	2	44,50
6	1.5	64	19	6	2	44,50
6	2	64	19	6	2	44,50
8	0.5	64	21	8	2	62,90
8	1	64	21	8	2	62,90
8	1.5	64	21	8	2	62,90
8	2	64	21	8	2	62,90
10	0.5	70	25	10	2	86,20
10	1	70	25	10	2	86,20
10	1.5	70	25	10	2	86,20
10	2	70	25	10	2	86,20
10	3	70	25	10	2	86,20
12	0.5	76	25	12	2	119,50
12	1	76	25	12	2	119,50
12	1.5	76	25	12	2	119,50
12	2	76	25	12	2	119,50



→1-2



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 25 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

FRESE POWER TORICHE

A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
 POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER TORIQUE À 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER TÓRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL

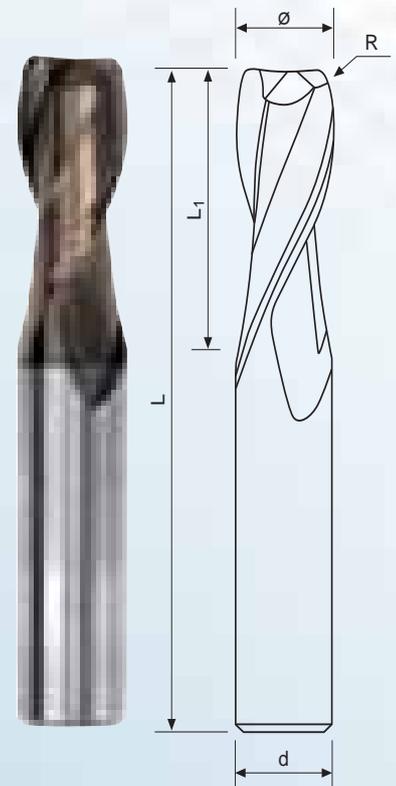


1432XT



Ø mm	R	L mm	L ₁ mm	d mm	Z	1432XT €
12	3	76	25	12	2	119,50
14	0.5	89	30	14	2	162,00
14	1	89	30	14	2	162,00
14	1.5	89	30	14	2	162,00
14	2	89	30	14	2	162,00
16	0.5	89	32	16	2	186,50
16	1	89	32	16	2	186,50
16	1.5	89	32	16	2	186,50
16	2	89	32	16	2	186,50
18	0.5	102	35	18	2	264,00
18	1	102	35	18	2	264,00
18	1.5	102	35	18	2	264,00
18	2	102	35	18	2	264,00
20	0.5	102	38	20	2	318,00
20	1	102	38	20	2	318,00
20	1.5	102	38	20	2	318,00
20	2	102	38	20	2	318,00
22	0.5	102	38	22	2	400,00
22	1	102	38	22	2	400,00
22	1.5	102	38	22	2	400,00
22	2	102	38	22	2	400,00
25	0.5	102	38	25	2	463,00
25	1	102	38	25	2	463,00
25	1.5	102	38	25	2	463,00
25	2	102	38	25	2	463,00

→2-2



Rivestimento X-Treme

X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 25 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm



SERIE LUNGA

LONG SERIES
LANGE AUSFÜHRUNG
SÉRIE LONGUE
SERIE LARGA

FRESE POWER TORICHE

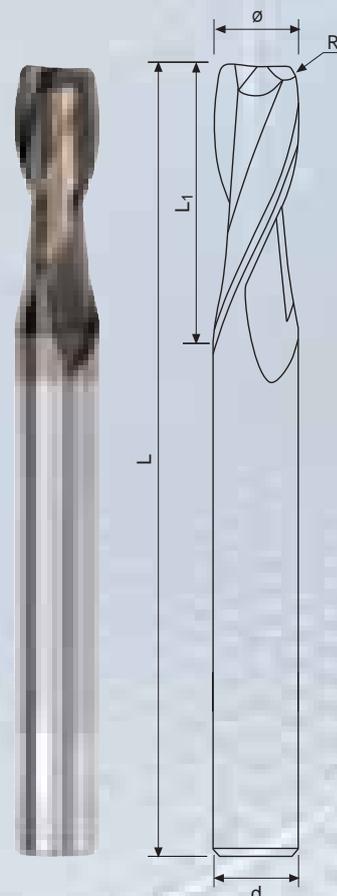
A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER TORIQUE À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER TÓRICAS - 2 LABIOS - SUB-MICROGRANO

1422XT



Ø mm	R	L mm	L ₁ mm	d mm	Z	1422XT €
3	0.2	60	8	6	2	26,25
3	0.5	60	8	6	2	26,25
4	0.2	70	11	6	2	33,95
4	0.5	70	11	6	2	33,95
4	1	70	11	6	2	33,95
5	0.2	80	13	6	2	37,80
5	0.5	80	13	6	2	37,80
5	1	80	13	6	2	37,80
6	0.2	90	20	6	2	48,20
6	0.5	90	20	6	2	48,20
6	1	90	20	6	2	48,20
6	1.5	90	20	6	2	48,20
6	2	90	20	6	2	48,20
8	0.5	100	28	8	2	68,80
8	1	100	28	8	2	68,80
8	1.5	100	28	8	2	68,80
8	2	100	28	8	2	68,80
10	0.5	100	34	10	2	94,00
10	1	100	34	10	2	94,00
10	1.5	100	34	10	2	94,00
10	2	100	34	10	2	94,00
12	0.5	110	40	12	2	128,00
12	1	110	40	12	2	128,00
12	1.5	110	40	12	2	128,00
12	2	110	40	12	2	128,00
12	3	110	40	12	2	128,00



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 12 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

FRESE POWER A CANDELA

A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER END MILLS - 4 FLUTES - SUB-MICROGRAIN
 POWER FRÄSER - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER - 4 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER - 4 LABIOS - SUB-MICROGRANO

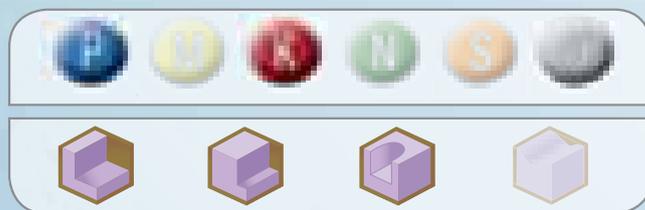
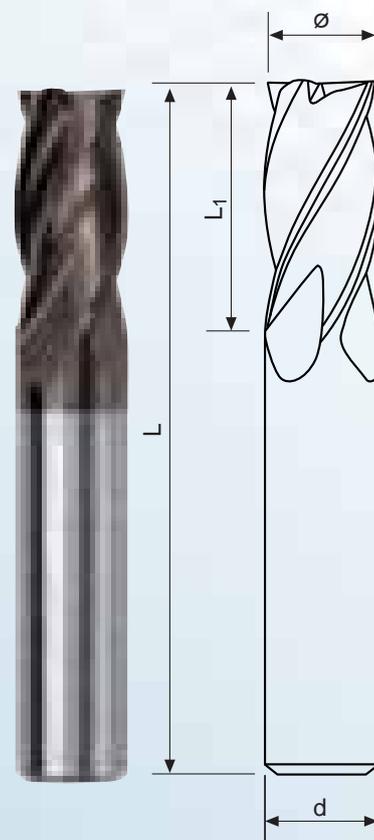
SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1414XT

Ø mm	L mm	L ₁ mm	d mm	Z	1414XT €
1	39	3	3	4	18,85
2	39	7	3	4	17,40
3	39	10	3	4	17,40
4	51	14	6	4	23,20
5	51	16	6	4	25,60
6	64	19	6	4	33,45
7	64	19	8	4	43,10
8	64	21	8	4	47,20
9	70	22	10	4	64,70
10	70	25	10	4	64,70
12	76	25	12	4	89,40
14	89	30	14	4	121,50
16	89	32	16	4	140,00
18	102	35	18	4	198,00
20	102	38	20	4	238,50
22	102	38	22	4	301,00
25	102	38	25	4	347,00



Rivestimento X-Treme

X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 1 mm a 3 mm	+ .000 mm - .025 mm	+ .000 mm - .013 mm
da 4 mm a 25 mm	+ .000 mm - .038 mm	+ .000 mm - .013 mm



SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE POWER TORICHE

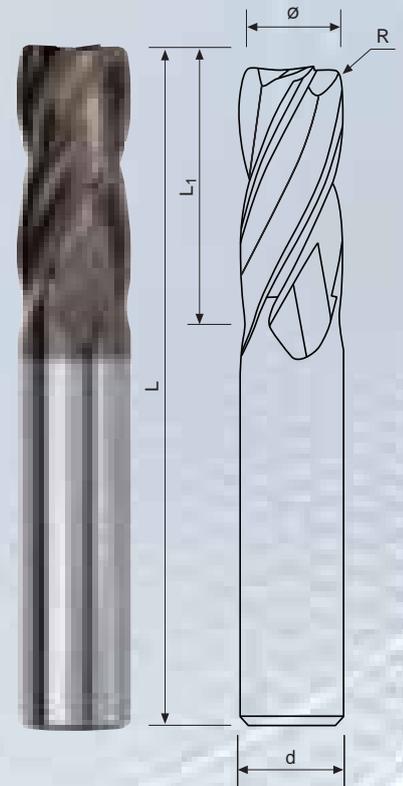
A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER TORIC END MILLS - 4 FLUTES - SUB-MICROGRAIN
POWER TORUSFRÄSER - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER TORIQUE À 4 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER TÓRICAS - 4 LABIOS - SUB-MICROGRANO

1434XT



Ø mm	R	L mm	L ₁ mm	d mm	Z	1434XT €
3	0.2	39	10	3	4	23,25
3	0.5	39	10	3	4	23,25
4	0.2	51	14	6	4	30,95
4	0.5	51	14	6	4	30,95
4	1	51	14	6	4	30,95
5	0.2	51	16	6	4	34,15
5	0.5	51	16	6	4	34,15
5	1	51	16	6	4	34,15
6	0.2	64	19	6	4	44,50
6	0.5	64	19	6	4	44,50
6	1	64	19	6	4	44,50
6	1.5	64	19	6	4	44,50
6	2	64	19	6	4	44,50
8	0.5	64	21	8	4	62,90
8	1	64	21	8	4	62,90
8	1.5	64	21	8	4	62,90
8	2	64	21	8	4	62,90
10	0.5	70	25	10	4	86,20
10	1	70	25	10	4	86,20
10	1.5	70	25	10	4	86,20
10	2	70	25	10	4	86,20
10	3	70	25	10	4	86,20
12	0.5	76	25	12	4	119,50
12	1	76	25	12	4	119,50
12	1.5	76	25	12	4	119,50
12	2	76	25	12	4	119,50



→1-2



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 25 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

FRESE POWER TORICHE

A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER TORIC END MILLS - 4 FLUTES - SUB-MICROGRAIN
 POWER TORUSFRÄSER - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER TORIQUE À 4 DENTS - MICRO-GRAIN ULTRAFFIN
 FRESAS POWER TÓRICAS - 4 LABIOS - SUB-MICROGRANO

SERIE NORMALE

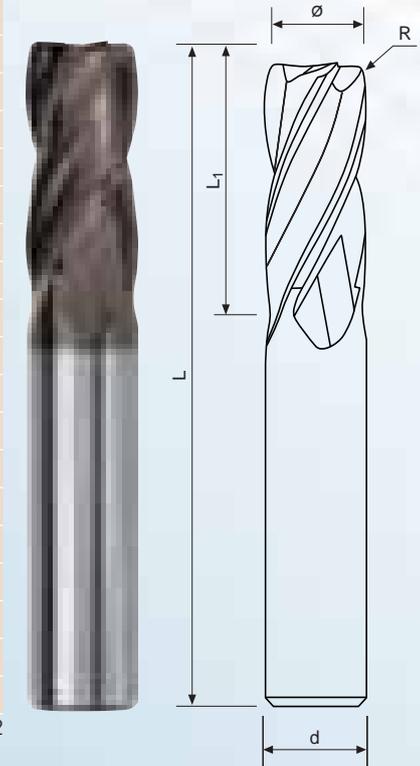
NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



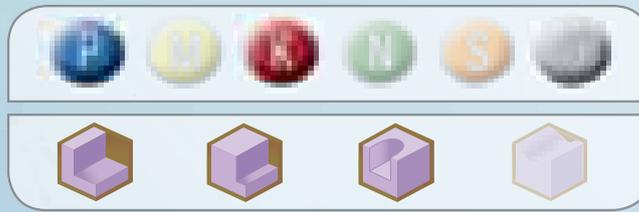
1434XT



∅ mm	R	L mm	L ₁ mm	d mm	Z	1434XT €
12	3	76	25	12	4	119,50
14	0.5	89	30	14	4	162,00
14	1	89	30	14	4	162,00
14	1.5	89	30	14	4	162,00
14	2	89	30	14	4	162,00
16	0.5	89	32	16	4	186,50
16	1	89	32	16	4	186,50
16	1.5	89	32	16	4	186,50
16	2	89	32	16	4	186,50
18	0.5	102	35	18	4	264,00
18	1	102	35	18	4	264,00
18	1.5	102	35	18	4	264,00
18	2	102	35	18	4	264,00
20	0.5	102	38	20	4	318,00
20	1	102	38	20	4	318,00
20	1.5	102	38	20	4	318,00
20	2	102	38	20	4	318,00



→2-2



Rivestimento X-Treme
 X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 25 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm



SERIE LUNGA

EXTENDED LENGTH
SÉRIE LONGUE
ÜBERLÄNGE
SERIE LARGA

FRESE POWER TORICHE

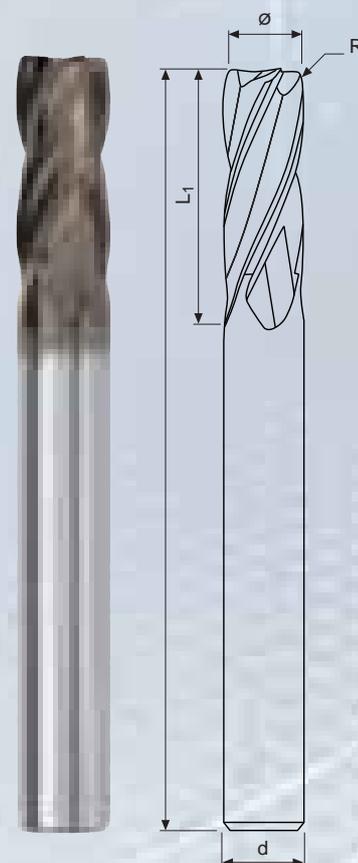
A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER TORIC END MILLS - 4 FLUTES - SUB-MICROGRAIN
POWER TORUSFRÄSER - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER TORIQUE À 4 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER TÓRICAS - 4 LABIOS - SUB-MICROGRANO

1424XT



Ø mm	R	L mm	L ₁ mm	d mm	Z	1424XT €
3	0.2	60	8	6	4	26,25
3	0.5	60	8	6	4	26,25
4	0.2	70	11	6	4	33,95
4	0.5	70	11	6	4	33,95
4	1	70	11	6	4	33,95
5	0.2	80	13	6	4	37,80
5	0.5	80	13	6	4	37,80
5	1	80	13	6	4	37,80
6	0.2	90	20	6	4	47,50
6	0.5	90	20	6	4	47,50
6	1	90	20	6	4	47,50
6	1.5	90	20	6	4	47,50
6	2	90	20	6	4	47,50
8	0.5	100	28	8	4	68,80
8	1	100	28	8	4	68,80
8	1.5	100	28	8	4	68,80
8	2	100	28	8	4	68,80
10	0.5	100	34	10	4	94,00
10	1	100	34	10	4	94,00
10	1.5	100	34	10	4	94,00
10	2	100	34	10	4	94,00
10	3	100	34	10	4	94,00
12	0.5	110	40	12	4	128,00
12	1	110	40	12	4	122,00
12	1.5	110	40	12	4	128,00
12	2	110	40	12	4	128,00
12	3	110	40	12	4	128,00



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 12 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

FRESE POWER TORICHE

A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER TORIC END MILLS - 4 FLUTES - SUB-MICROGRAIN
 POWER TORUSFRÄSER - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER TORIQUE À 4 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER TÓRICAS - 4 LABIOS - SUB-MICROGRANO

SERIE LUNGA

LONG SERIES
 LANGE AUSFÜHRUNG
 SÉRIE LONGUE
 SERIE LARGA

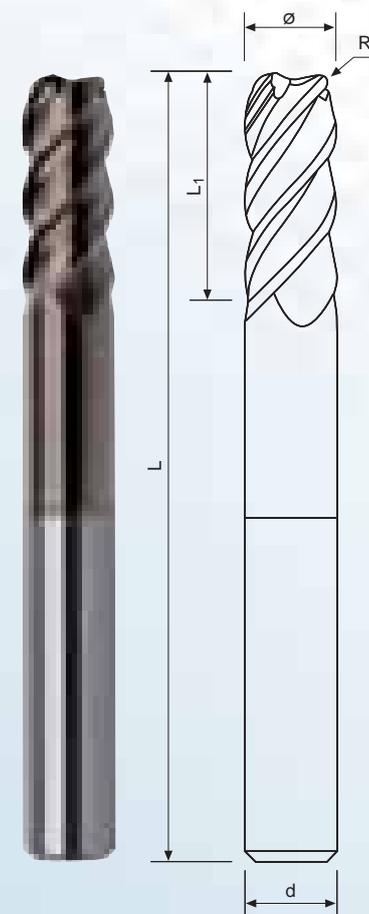


1452XT



Ø mm	R	L mm	L ₁ mm	d mm	Z	1452XT €
3	0.2	60	8	6	4	77,70
3	0.5	60	8	6	4	77,70
4	0.2	60	11	6	4	77,40
4	0.5	60	11	6	4	77,70
4	1	60	11	6	4	77,70
5	0.2	60	13	6	4	77,70
5	0.5	60	13	6	4	77,70
5	1	60	13	6	4	77,70
6	0.3	60	13	6	4	77,70
6	0.5	60	13	6	4	77,40
6	1	60	13	6	4	77,70
8	0.3	80	19	8	4	105,00
8	0.5	80	19	8	4	105,00
8	1	80	19	8	4	105,00
8	1.5	80	19	8	4	105,00
8	2	80	19	8	4	105,00
10	0.3	80	22	10	4	143,00
10	0.5	80	22	10	4	143,00
10	1	80	22	10	4	143,00
10	1.5	80	22	10	4	143,00
10	2	80	22	10	4	143,00
10	3	80	22	10	4	143,00
12	0.5	100	26	12	4	190,00
12	1	100	26	12	4	190,00
12	1.5	100	26	12	4	190,00

→1-2



Rivestimento X-Treme

X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 20 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm



SERIE LUNGA

LONG SERIES
LANGE AUSFÜHRUNG
SÉRIE LONGUE
SERIE LARGA

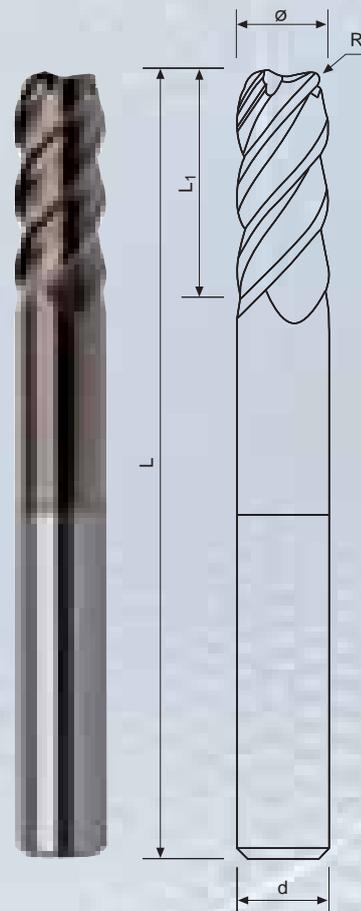
FRESE POWER TORICHE A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER TORIC END MILLS - 4 FLUTES - SUB-MICROGRAIN
POWER TORUSFRÄSER - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER TORIQUE À 4 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER TÓRICAS - 4 LABIOS - SUB-MICROGRANO

1452XT



Ø mm	R	L mm	L ₁ mm	d mm	Z	1452XT €
12	2	100	26	12	4	190,00
12	3	100	26	12	4	190,00
16	1	115	32	16	4	280,00
16	1.5	115	32	16	4	280,00
16	2	115	32	16	4	280,00
16	3	115	32	16	4	280,00
20	1	125	38	20	4	412,00
20	1.5	125	38	20	4	412,00
20	2	125	38	20	4	412,00
20	3	125	38	20	4	412,00



→2-2



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 20 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

FRESE POWER A CANDELA

A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER END MILLS - 4 FLUTES - SUB-MICROGRAIN
 POWER FRÄSER - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER À 4 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER - 4 LABIOS - SUB-MICROGRANO

SERIE LUNGA

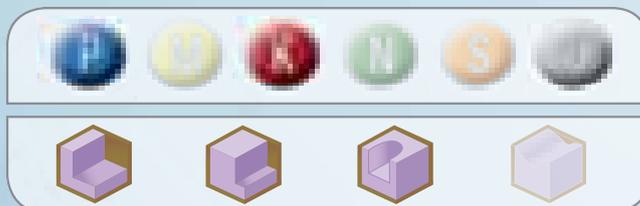
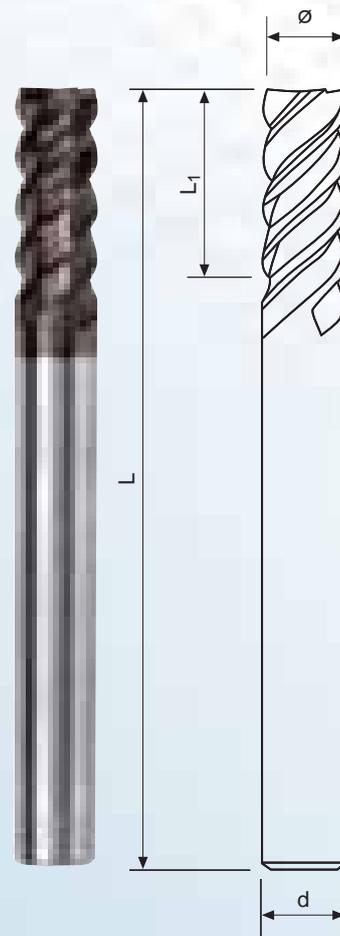
EXTENDED LENGTH
 SÉRIE LONGUE
 ÜBERLÄNGE
 SERIE LARGA



1451XT



Ø mm	L mm	L ₁ mm	d mm	Z	1451XT €
4	60	12	6	4	59,70
6	60	15	6	4	62,70
8	75	20	8	4	72,50
10	80	25	10	4	123,50
12	102	30	12	4	168,00
16	110	40	16	4	314,00
20	125	45	20	4	464,00



Rivestimento X-Treme

X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 4 mm a 20 mm	+0.00 mm -0.038 mm	+0.00 mm -0.013 mm

PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE



FRESE POWER A CANDELA CON TESTA PIANA E TORICHE: 2/4 TAGLI

Power end mills with flat head or toric - Power fräser mit flacher stirnschneide oder torus - Fraises power à bout plat ou toriques - Fresas power de cabeza llana o tóricas: 2/4 Flutes - Schneiden - Dents - Labios

CAVA DAL PIENO: Vc e Fz: - 20%

Slotting: Vc e Fz: - 20%

Bohrnuten: Vc e Fz: - 20%

Rainurage: Vc e Fz: - 20%

Ranura: Vc e Fz: - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales				VC m/min	 Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio													
	ap	ae	ap		1	2	4	6	8	10	12	14	16	18	20	22	25	
	P < 800 N/mm ²	1xØ	0,5xØ		0,5xØ	100 - 130	0,003 0,005	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22
P < 1100 N/mm ²	1xØ	0,5xØ	0,5xØ	100 - 130	0,003 0,005	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	0,22 0,25	
P < 1300 N/mm ²	1xØ	0,5xØ	0,5xØ	80 - 100	0,0015 0,0030	0,003 0,005	0,005 0,020	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	
M > 800 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K GG	1xØ	0,5xØ	0,5xØ	120 - 150	-	0,03 0,05	0,05 0,07	0,07 0,09	0,09 0,11	0,11 0,13	0,13 0,15	0,17 0,19	0,19 0,21	0,21 0,23	0,23 0,25	0,25 0,27	0,27 0,3	
K GGG	1xØ	0,5xØ	0,5xØ	100 - 130	-	0,005 0,010	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	0,22 0,25	
N Alluminio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
N Non metalli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
S Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
S Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H Temprati 38 / 48 HRC	1xØ	0,2xØ	-	40 - 60	0,0015 0,0030	0,003 0,005	0,005 0,02	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	
H Temprati 48 / 58 HRC	1xØ	0,2xØ	-	25 - 40	0,0015 0,0030	0,003 0,005	0,005 0,020	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22	
H Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



FRESE POWER SEMISFERICHE



POWER BALL NOSE END MILLS



POWER RADIUSFRÄSER



FRAISES POWER HÉMISPHERIQUES



FRESAS POWER ESFÉRICAS



FRESE POWER SEMISFERICHE

A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
 POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER HÉMISPÉRIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE & LUNGA

NORMAL/LONG SERIES
 NORMAL/LANGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE
 SERIE NORMAL/LARGA



417RXT

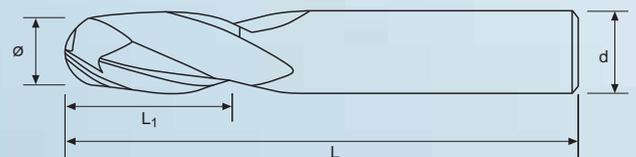
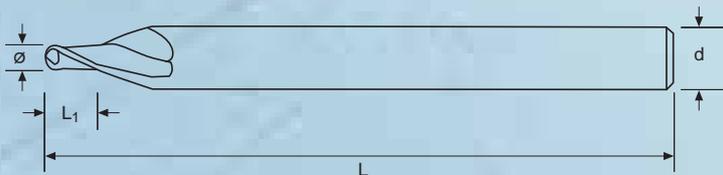


Ø mm	L mm	L ₁ mm	d mm	Z	417RXT €
0.4	38	2	3	2	47,90
0.5	38	2	3	2	41,50
0.6	38	2	3	2	41,50
0.8	38	2	3	2	41,50
1	38	3	3	2	38,85
1.5	38	3	3	2	38,85
2	57	3	6	2	45,20
2.5	57	3	6	2	45,20
3	57	4	6	2	45,20

412RXT



Ø mm	L mm	L ₁ mm	d mm	Z	412RXT €
1	39	3	3	2	24,05
1.5	39	5	3	2	22,20
2	39	7	3	2	22,20
2.5	39	8	3	2	22,20
3	39	10	3	2	22,20
4	51	14	6	2	29,60
5	51	16	6	2	32,80
6	64	19	6	2	42,80
7	64	19	8	2	55,10
8	64	21	8	2	60,30
9	70	22	10	2	82,70
10	70	25	10	2	82,70
12	76	25	12	2	114,50
14	89	30	14	2	155,50
16	89	32	16	2	179,00
18	102	35	18	2	252,50
20	102	38	20	2	305,00
22	102	38	22	2	394,00
25	102	38	25	2	455,00



Rivestimento X-Treme
 X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 1 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm
da 4 mm a 25 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm



SERIE LUNGA

EXTENDED LENGTH
SÉRIE LONGUE
ÜBERLÄNGE
SERIE LARGA

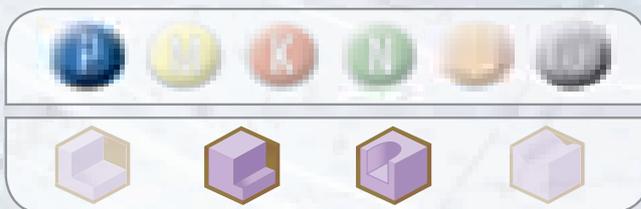
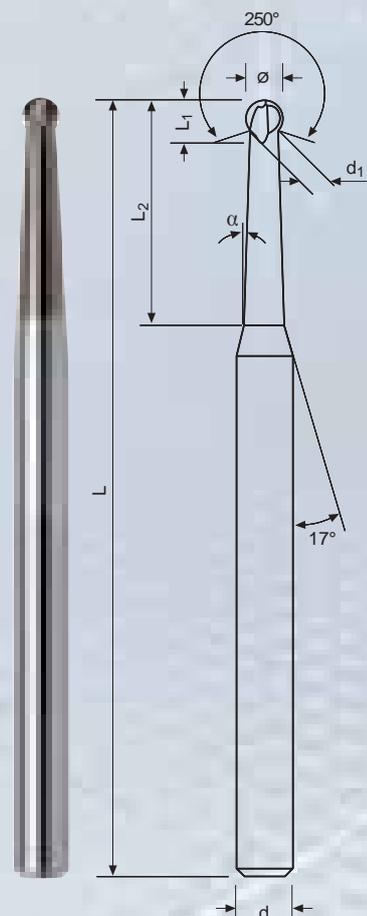
FRESE POWER SEMISFERICHE 250° A 2 TAGLI IN MICROGRANA ULTRAFINE

BALL NOSE 250° POWER END MILLS - 2 FLUTES - SUB-MICROGRAIN
POWER RADIUSFRÄSER 250° - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER HÉMISPÉRIQUES 250° À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER ESFÉRICAS 250° - 2 LABIOS - SUB-MICROGRANO

432RXT



∅ mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	α	d mm	Z	432RXT €
1	0.7	80	0.7	20	1°30'	6	2	87,50
2	1.4	80	1.35	20	1°30'	6	2	85,80
3	2.1	80	2	30	1°30'	6	2	85,80
4	3.3	80	2.7	30	3°	6	2	84,50
5	4.1	90	3.4	40	1°	6	2	87,50
6	4.7	100	4.05	45	-	6	2	93,60
8	6.5	100	5.4	45	1°	8	2	128,50
10	8.2	100	6.75	45	1°	10	2	175,00



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 1 mm a 10 mm	f8	h6

FRESE POWER SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

BALL NOSE POWER END MILLS - 2 FLUTES - SUB-MICROGRAIN
POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

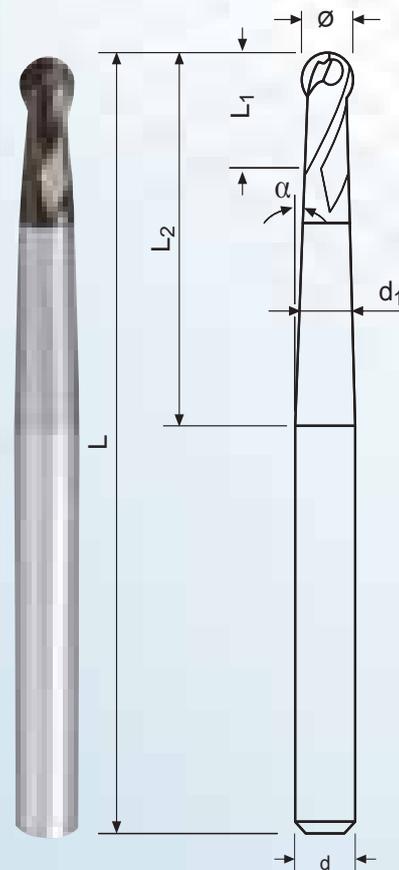
SERIE LUNGA & EXTRA LUNGA

LONG/EXTRALONG SERIES
LANGE/EXTRALANGE AUSFÜHRUNG
SÉRIE LONGUE/EXTRALONGUE
SERIE LARGA/EXTRALARGA



402RXT

Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	α	d mm	Z	402RXT €
1	3.8	60	2.5	20	5°	6	2	51,10
1	4.8	80	2.5	40	3°	6	2	54,40
2	4.3	60	5	20	5°	6	2	51,10
2	5.5	80	5	40	3°	6	2	54,40
3	5	70	8	30	3°	6	2	52,70
3	5.1	90	8	50	1°30'	6	2	55,90
4	6	70	8	28	3°	6	2	52,50
4	6	90	8	48	1°30'	6	2	55,80
5	8	90	10	40	3°	8	2	67,20
5	7.5	110	10	60	1°30'	8	2	71,00
6	8	90	12	33.5	3°	8	2	70,30
6	8	110	12	52	1°30'	8	2	74,20
8	10	100	14	35.5	3°	10	2	91,20
8	10	120	14	54.5	1°30'	10	2	97,20
10	12	110	18	39.5	3°	12	2	113,00
10	12	130	18	58.5	1°30'	12	2	119,00
12	16	140	22	60	3°	16	2	169,00
12	14.9	160	22	80	1°30'	16	2	184,50



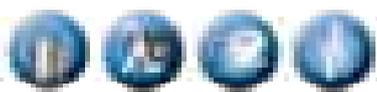
Rivestimento X-Treme

X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 1 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm
da 4 mm a 12 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm



SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL



FRESE POWER SEMISFERICHE

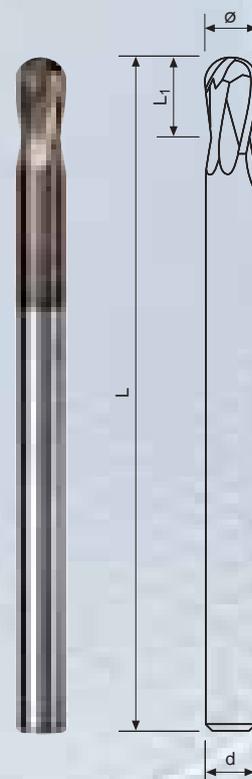
A 2 TAGLI IN MICROGRANA ULTRAFINE

BALL NOSE POWER END MILLS 2 FLUTES - SUB-MICROGRAIN
POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER HÉMISPÉRIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

497RXT



Ø mm	L mm	L ₁ mm	d mm	Z	497RXT €
3	64	4.5	3	2	34,85
4	64	6	4	2	45,80
5	64	7.5	5	2	51,40
6	102	9	6	2	58,00
8	102	12	8	2	80,60
10	102	15	10	2	94,30
11	127	16.5	11	2	158,50
12	127	18	12	2	190,50
14	127	21	14	2	257,50
16	153	24	16	2	311,00
18	153	27	18	2	352,00
20	153	30	20	2	390,00
22	153	33	22	2	441,00
25	153	37.5	25	2	568,00



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 25 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

FRESE POWER SEMISFERICHE

A 2 TAGLI IN MICROGRANA ULTRAFINE

BALL NOSE POWER END MILLS - 2 FLUTES - SUB-MICROGRAIN
 POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE LUNGA

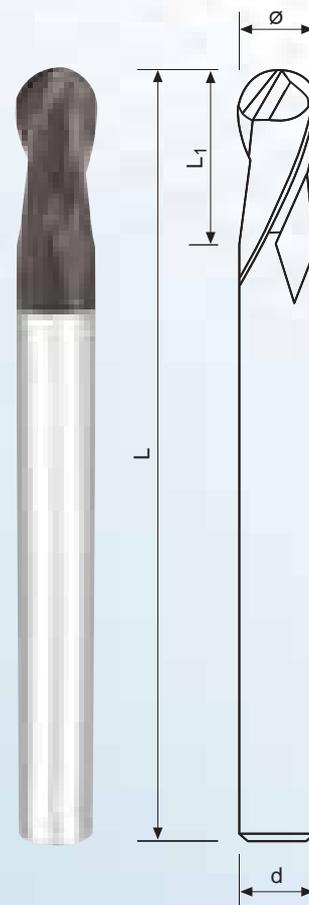
LONG SERIES
 LANGE AUSFÜHRUNG
 SÉRIE LONGUE
 SERIE LARGA



416RXT



Ø mm	L mm	L ₁ mm	d mm	Z	416RXT €
1	50	2.5	4	2	46,00
1.2	50	3	4	2	48,90
1.4	50	3.5	4	2	48,90
1.5	50	4	4	2	48,90
1.6	50	4	4	2	48,90
1.8	50	4.5	4	2	48,90
2	50	5	6	2	43,90
2.5	60	6	6	2	53,50
3	60	8	6	2	44,80
4	60	8	4	2	44,50
4	70	8	6	2	44,80
5	80	10	6	2	52,30
6	90	12	6	2	50,60
7	90	14	6	2	67,40
8	100	14	8	2	66,20
9	100	18	10	2	96,10
10	100	18	10	2	83,80
12	110	22	12	2	109,00
13	110	26	12	2	133,50
14	110	26	12	2	186,50
15	110	30	12	2	190,50
16	140	30	16	2	243,00
18	140	34	16	2	304,00
20	160	38	20	2	380,00
25	180	50	25	2	705,00



Rivestimento X-Treme
 X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 1 mm a 3 mm	+0.00 mm -0.025 mm	+0.00 mm -0.013 mm
da 4 mm a 25 mm	+0.00 mm -0.038 mm	+0.00 mm -0.013 mm



SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE POWER SEMISFERICHE

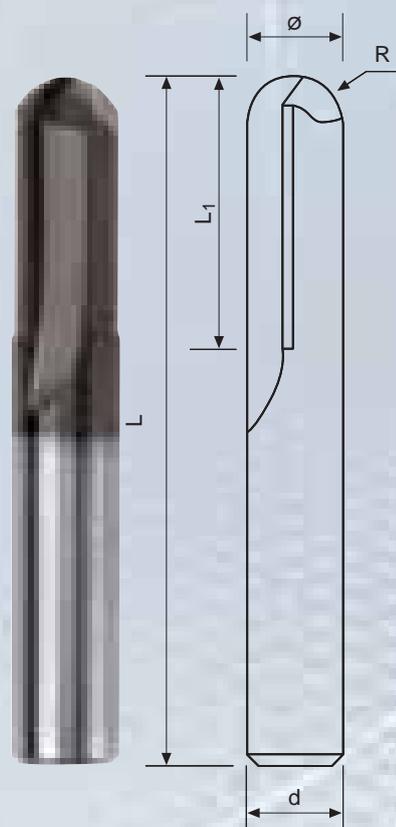
A 2 TAGLI PER COPIATURA IN MICROGRANA ULTRAFINE

POWER BALL NOSE COPY END MILLS - 2 FLUTES - SUB-MICROGRAIN
POWER RADIUSKOPIERFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER HÉMISPHERIQUES À 2 DENTS POUR COPIAGE - MICRO-GRAIN ULTRAFIN
FRESAS POWER ESFÉRICAS DE COPIADO - 2 LABIOS - SUB-MICROGRANO

130RXT



∅ mm	R	L mm	L ₁ mm	d mm	Z	130RXT €
3	1.5	50	8	6	2	66,90
4	2	50	10	6	2	66,90
5	2.5	50	12	6	2	66,90
6	3	50	18	6	2	58,30
8	4	60	22	8	2	71,00
10	5	60	26	10	2	86,90
12	6	70	30	12	2	123,50



Rivestimento X-Treme

X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 6 mm	+0.010 mm -0.028 mm	+0.000 mm -0.008 mm
da 6 mm a 12 mm	+0.013 mm -0.035 mm	+0.000 mm -0.009 mm

FRESE POWER SEMISFERICHE A 2 TAGLI PER COPIATURA IN MICROGRANA ULTRAFINE

POWER BALL NOSE COPY END MILLS - 2 FLUTES - SUB-MICROGRAIN
POWER RADIUSKOPIERFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER HÉMISPHERIQUES À 2 DENTS POUR COPIAGE - MICRO-GRAIN ULTRAFIN
FRESAS POWER ESFÉRICAS DE COPIADO - 2 LABIOS - SUB-MICROGRANO

SERIE LUNGA & EXTRA LUNGA

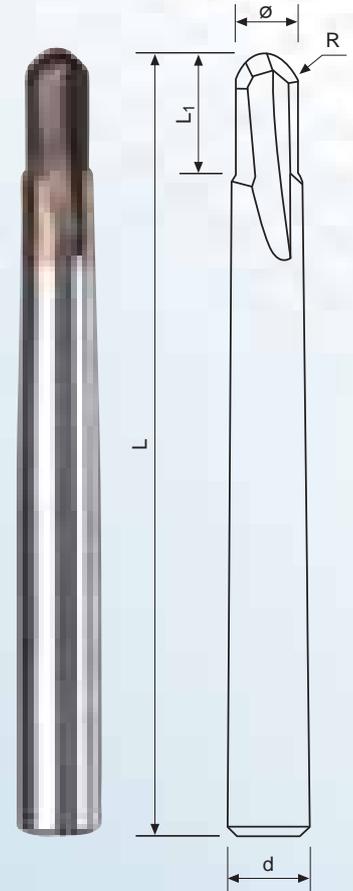
LONG/EXTRALONG SERIES
LANGE/EXTRALANGE AUSFÜHRUNG
SÉRIE LONGUE/EXTRALONGUE
SERIE LARGA/EXTRALARGA



302RXT



∅ mm	R	L mm	L ₁ mm	d mm	Z	302RXT €
3	1.5	75	4	6	2	86,90
3	1.5	100	4	6	2	90,80
4	2	75	5	6	2	86,90
4	2	100	6	6	2	90,80
5	2.5	75	6	6	2	86,90
5	2.5	100	6	6	2	90,80
6	3	75	8	10	2	106,50
6	3	100	8	10	2	111,00
8	4	85	12	10	2	114,50
8	4	110	12	10	2	127,50
8	4	140	12	10	2	139,00
10	5	110	15	12	2	141,50
10	5	150	15	12	2	155,50



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 6 mm	+0.000 mm -0.018 mm	+0.000 mm -0.008 mm
da 6 mm a 10 mm	+0.000 mm -0.035 mm	+0.000 mm -0.009 mm



SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE POWER SEMISFERICHE

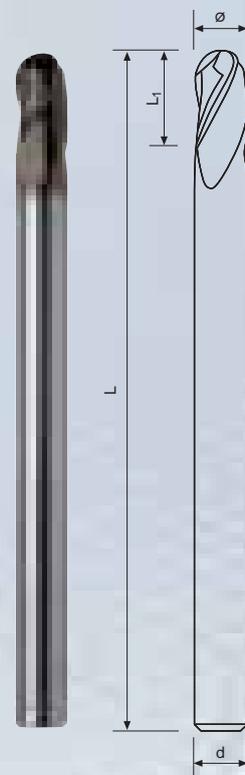
A 3 TAGLI IN MICROGRANA ULTRAFINE

POWER BALL NOSE END MILLS - 3 FLUTES - SUB-MICROGRAIN
POWER RADIUSFRÄSER - 3 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER HÉMISPHERIQUES À 3 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER ESFÉRICAS - 3 LABIOS - SUB-MICROGRANO

493RXT



Ø mm	L mm	L ₁ mm	d mm	Z	493RXT €
2	50	5	6	3	47,50
3	60	8	6	3	47,50
4	70	8	6	3	47,50
5	80	10	6	3	50,80
6	90	12	6	3	50,80
6	140	12	6	3	80,40
8	100	14	8	3	68,30
8	160	14	8	3	112,50
10	100	18	10	3	91,20
10	180	18	10	3	153,00
12	110	22	12	3	119,50
12	200	22	12	3	200,00
16	140	30	16	3	230,50
16	220	30	16	3	288,00
20	160	38	20	3	282,00
20	250	38	20	3	383,00



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 2 mm a 20 mm	f8	h6

FRESE POWER SEMISFERICHE

A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER BALL NOSE END MILLS - 4 FLUTES - SUB-MICROGRAIN
 POWER RADIUSFRÄSER - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER HÉMISPHERIQUES À 4 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER ESFÉRICAS - 4 LABIOS - SUB-MICROGRANO

SERIE NORMALE

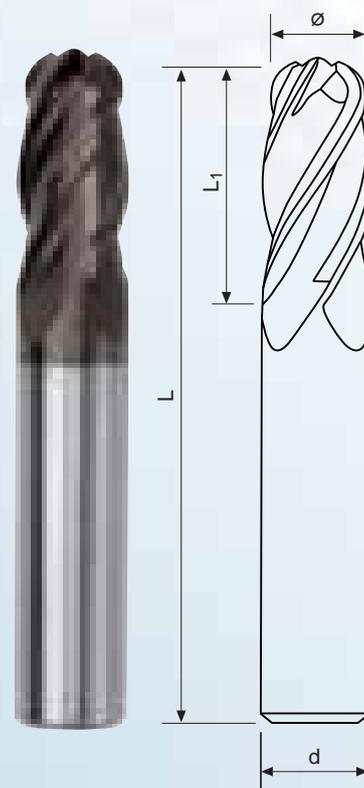
NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



414RXT



Ø mm	L mm	L ₁ mm	d mm	Z	414RXT €
1	39	3	3	4	24,05
2	39	7	3	4	22,20
3	39	10	3	4	22,20
4	51	14	6	4	29,60
5	51	16	6	4	32,80
6	64	19	6	4	42,80
7	64	19	8	4	55,10
8	64	21	8	4	60,30
9	70	22	10	4	82,70
10	70	25	10	4	82,70
12	76	25	12	4	114,50
14	89	30	14	4	155,50
16	89	32	16	4	179,00
18	102	35	18	4	252,50
20	102	38	20	4	305,00
22	102	38	22	4	394,00
25	102	38	25	4	455,00



Rivestimento X-Treme
 X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 1 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm
da 4 mm a 25 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm



SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL



FRESE POWER TORICHE

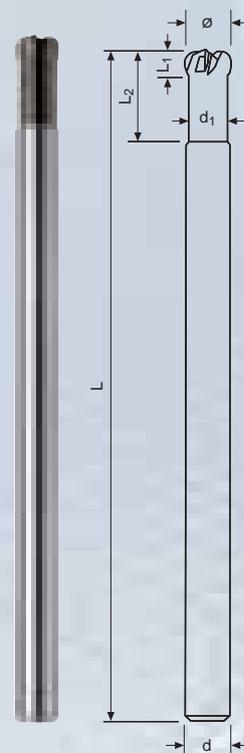
A 3/4 TAGLI IN MICROGRANA ULTRAFINE

POWER TORIC END MILLS 3/4 FLUTES - SUB-MICROGRAIN
POWER TORUSFRÄSER 3/4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER TORIQUES À 3/4 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER TÓRICAS - 3/4 LABIOS - SUB-MICROGRANO

491HXT



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	491HXT €
2/0.5	1.8	60	0.8	5	6	3	64,90
3/0.75	2.7	60	1.2	7.5	6	4	64,90
4/1	3.6	70	1.6	10	6	4	66,90
5/1.2	4.5	80	2	12.5	6	4	66,90
6/1.5	5.4	90	2.5	12	6	4	92,50
7/1.5	—	90	3	—	6	4	101,00
8/2	7.2	104	3.5	32	8	4	108,50
9/2	—	104	4	—	8	4	123,50
10/2	9	104	4	40	10	4	134,00
11/2	—	104	4.5	—	10	4	149,00
12/3	11	104	5	48	12	4	159,50
13/3	—	104	5.5	—	12	4	176,00
16/4	14	104	6.5	28	16	4	217,00



Rivestimento X-Treme

X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 2 mm a 16 mm	e8	h6

PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE



FRESE POWER SEMISFERICHE: 2/3/4 TAGLI

Power ball nose end mills - Power radiusfräser - Fraises power hémisphériques -
Fresas power esféricas: 2/3/4 Flutes - Schneiden - Dents - Labios

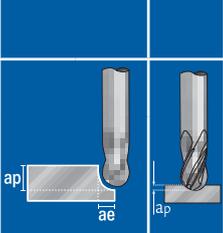
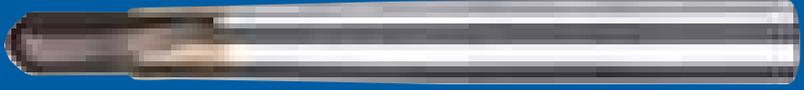
CAVA DAL PIENO: Vc e Fz: - 20%

Slotting: Vc e Fz: - 20%

Bohrnuten: Vc e Fz: - 20%

Rainurage: Vc e Fz: - 20%

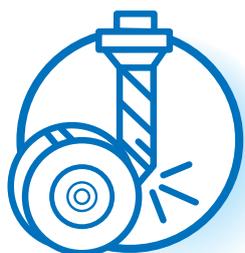
Ranura: Vc e Fz: - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales				VC m/min	 Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio													
	ap	ae	ap		1	2	4	6	8	10	12	14	16	18	20	22	25	
	P	< 800 N/mm ²	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
P	< 1100 N/mm ²	0,03xd	0,2xd	0,2xd	100 - 140	0,02 0,03	0,05 0,06	0,07 0,08	0,08 0,09	0,09 0,10	0,11 0,12	0,13 0,14	0,15 0,17	0,17 0,18	0,18 0,19	0,20 0,21	0,21 0,22	0,22 0,25
P	< 1300 N/mm ²	-	-	-	80 - 120	0,02 0,03	0,05 0,06	0,07 0,08	0,08 0,09	0,09 0,10	0,11 0,12	0,13 0,14	0,15 0,17	0,17 0,18	0,18 0,19	0,20 0,21	-	-
M	> 800 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K	GG	0,03xd	0,2xd	0,2xd	120 - 160	0,03 0,04	0,06 0,08	0,10 0,12	0,14 0,16	0,18 0,19	0,20 0,21	0,22 0,23	0,23 0,24	0,24 0,25	0,26 0,27	0,27 0,28	0,29 0,30	0,31 0,32
K	GGG	0,03xd	0,2xd	0,2xd	80 - 120	0,02 0,03	0,05 0,06	0,07 0,08	0,08 0,09	0,09 0,10	0,11 0,12	0,13 0,14	0,15 0,17	0,17 0,18	0,18 0,19	0,20 0,21	0,22 0,23	0,24 0,25
N	Alluminio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	Non metalli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	Temprati 38 / 48 HRC	0,03xd	0,2 X d	0,2xd	60 - 100	0,01 0,02	0,02 0,03	0,03 0,04	0,04 0,05	0,05 0,06	0,06 0,07	0,07 0,08	0,09 0,10	0,11 0,12	0,12 0,13	0,14 0,15	0,16 0,17	0,18 0,19
H	Temprati 48 / 58 HRC	1xØ	0,2xØ	-	25 - 40	0,0015 0,0030	0,003 0,005	0,005 0,020	0,02 0,04	0,04 0,06	0,06 0,08	0,08 0,10	0,10 0,12	0,12 0,14	0,14 0,16	0,16 0,18	0,18 0,20	0,20 0,22
H	Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



SERVIZIO DI RIAFFILATURA E RIVESTIMENTO

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Nachschleif - und beschichtungservice
Service de affûtage à nouveau et revêtement
Servicio de afilado y recubrimiento



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Abteilung für Sonderwerkzeuge
Outils spéciaux
Herramientas especiales

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Unser prompter Service ist immer für Sie da
Nos services toujours à votre Disposition
Nuestro rápido servicio siempre listo para usted



FRESE POWER TORICHE

-  POWER TORIC MULTI-FLUTES END MILLS
-  POWER TORUSFRÄSER MEHRSCHEIDEN
-  FRAISES POWER TORIQUES MULTICOUPES
-  FRESAS POWER TÓRICAS MULTILABIO

Multitagli



FRESE POWER TORICHE

MULTITAGLI IN MICROGRANA ULTRAFINE

POWER MULTI-FLUTES TORIC END MILLS - SUB-MICROGRAIN
 POWER MEHRNÜTIGE TORUSFRÄSER - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER TORIQUES MULTICOUPEES - MICRO-GRAIN ULTRAFIN
 FRESAS POWER TÓRICAS MULTILABIOS - SUB-MICROGRANO

SERIE NORMALE

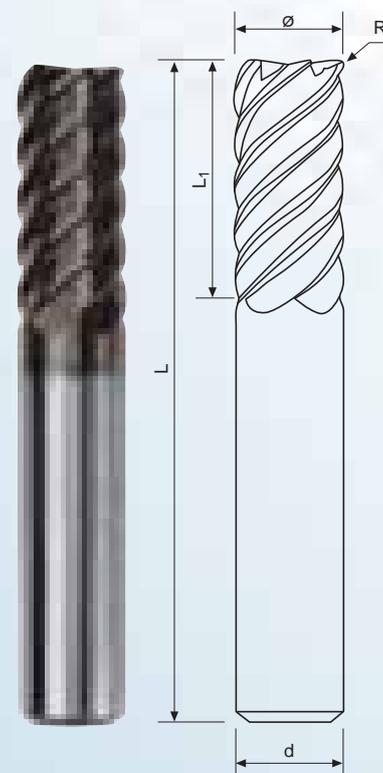
NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1450XT



Ø mm	R	L mm	L ₁ mm	d mm	Z	1450XT €
6	0.5	57	13	6	6	51,50
6	1	57	13	6	6	51,50
8	0.5	63	19	8	6	71,40
8	1	63	19	8	6	71,40
10	0.5	72	22	10	6	108,50
10	1	72	22	10	6	108,50
10	1.5	72	22	10	6	108,50
12	0.5	83	26	12	6	137,50
12	1	83	26	12	6	137,50
12	1.5	83	26	12	6	137,50
14	1	83	26	14	6	179,00
14	2	83	26	14	6	179,00
16	1	92	32	16	6	239,00
16	2	92	32	16	6	239,00
20	1	104	38	20	6	349,00
20	2	104	38	20	6	349,00



Rivestimento X-Treme
 X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 6 mm a 10 mm	+0.000 mm -0.022 mm	+0.000 mm -0.009 mm
da 10 mm a 18 mm	+0.000 mm -0.027 mm	+0.000 mm -0.011 mm
da 18 mm a 20 mm	+0.000 mm -0.033 mm	+0.000 mm -0.013 mm



SERIE LUNGA

EXTENDED LENGTH
SÉRIE LONGUE
ÜBERLÄNGE
SERIE LARGA

FRESE POWER TORICHE

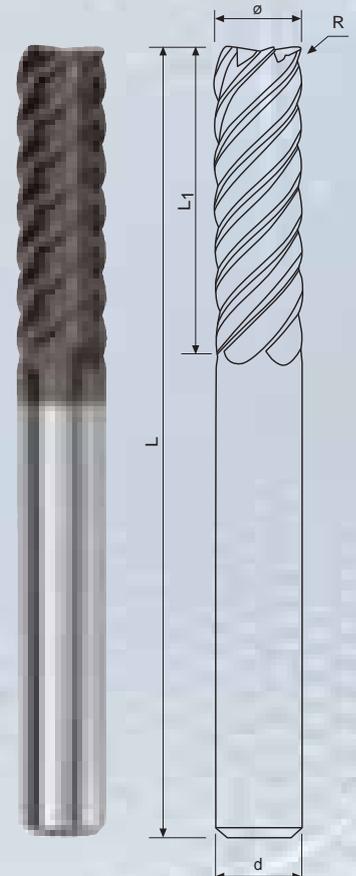
MULTITAGLI IN MICROGRANA ULTRAFINE

POWER MULTI-FLUTES TORIC END MILLS - SUB-MICROGRAIN
POWER MEHRNUTIGE TORUSFRÄSER - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER TORIQUES MULTICOUPES - MICRO-GRAIN ULTRAFIN
FRESAS POWER TÓRICAS MULTILABIOS - SUB-MICROGRANO

1460XT



Ø mm	R	L mm	L ₁ mm	d mm	Z	1460XT €
6	0.5	62	18	6	6	57,80
6	1	62	18	6	6	57,80
8	0.5	68	24	8	6	79,80
8	1	68	24	8	6	79,80
10	0.5	80	30	10	6	116,00
10	1	80	30	10	6	116,00
10	1.5	80	30	10	6	116,00
12	0.5	93	36	12	6	161,00
12	1	93	36	12	6	161,00
12	1.5	93	36	12	6	161,00
14	1	99	42	14	6	221,00
14	2	99	42	14	6	221,00
16	1	108	48	16	6	286,00
16	2	108	48	16	6	286,00
18	1	114	54	18	6	356,00
18	2	114	54	18	6	356,00
20	1	125	60	20	6	449,00
20	2	125	60	20	6	449,00



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 6 mm a 10 mm	+0.00 mm -0.022 mm	+0.00 mm -0.009 mm
da 10 mm a 18 mm	+0.00 mm -0.027 mm	+0.00 mm -0.011 mm
da 18 mm a 20 mm	+0.00 mm -0.033 mm	+0.00 mm -0.013 mm

PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE



FRESE POWER CON TESTA TORICHE: MULTITAGLI

Power end mills multi flutes with flat head and toric - Power mehrnutige fräser mit flacher stirnschneide oder torus - Fraises power multicoupes à bout plat ou toriques - Fresas power multilabios de cabeza llana o tóricas: Multi flutes - Mehrnutige - Multicoupes - Multilabios

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales			VC m/min														
	ap	ae		ap	Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio												
	ap	ae	ap	3	4	6	8	10	12	14	16	18	20	22	24	26	
P < 800 N/mm ²	1xØ	0,5xØ	0,5xØ	100 - 130	-	-	-	-	-	-	-	-	-	-	-	-	
P < 1100 N/mm ²	1xØ	0,5xØ	0,5xØ	100 - 130	-	-	-	-	-	-	-	-	-	-	-	-	
P < 1300 N/mm ²	0,03xd	0,2xd	-	90 - 100	-	-	0,05 0,06	0,07 0,08	0,09 0,10	0,10 0,11	0,12 0,13	0,14 0,15	0,12 0,14	0,14 0,16	-	-	-
M > 800 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K GG	0,03xd	0,2xd	-	120 - 180	-	-	0,05 0,06	0,06 0,07	0,08 0,09	0,09 0,10	0,11 0,12	0,12 0,13	0,19 0,21	0,21 0,23	-	-	-
K GGG	0,03xd	0,2xd	-	90 - 110	-	-	0,05 0,06	0,07 0,08	0,09 0,10	0,10 0,11	0,12 0,13	0,14 0,15	0,14 0,16	0,16 0,18	-	-	-
N Alluminio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N Non metalli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H Temprati 38 / 48 HRC	0,03xd	0,2 X d	-	60 - 100	-	-	0,05 0,06	0,07 0,08	0,09 0,10	0,10 0,11	0,12 0,13	0,14 0,15	0,12 0,14	0,14 0,16	-	-	-
H Temprati 48 / 58 HRC	0,03xd	0,2xd	-	60 - 100	-	-	0,05 0,06	0,07 0,08	0,09 0,10	0,10 0,11	0,12 0,13	0,14 0,15	0,12 0,14	0,14 0,16	-	-	-
H Temprati 58 / 68 HRC	0,02xd	0,2xd	-	30 - 60	-	-	0,007 0,009	0,009 0,010	0,010 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,020 0,022	-	-	-



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Frese Power



FRESE POWER:

- Ridurre il numero di utensili necessari
- Offrire un'eccellente evacuazione dei trucioli
- Ottenere la massima produttività
- Aumentare i volumi di trucioli asportati
- Aumentare la velocità di taglio
- Garantire precisione
- Ridurre i costi di produzione
- Fornire una lunga durata dell'utensile

POWER END MILLS:

- Reducing the number of necessary tools
- Offering an excellent chip evacuation
- Obtaining maximum productivity
- Increasing the volumes of eliminated chips
- Increasing cutting speed
- Guaranteeing precision
- Reducing production costs
- Allowing a long tool life

POWER FRÄSER:

- Reduziert die Anzahl der benötigten Werkzeuge
- Bietet eine ausgezeichnete Spabfuhr
- Erhalten Sie die maximale Produktivität
- Erhöhung die Volumens der Spabfuhr
- Erhöhung der Schnittgeschwindigkeit
- Gewährleistung der Genauigkeit
- Reduzierung der Produktionskosten
- Ermöglichen eine lange Lebensdauer

FRAISES POWER:

- Réduire le numéro des outils pas nécessaires
- Offrir une très bonne évacuation du copeau
- Obtenir la meilleure productivité
- Augmenter les volumes du copeau évacué
- Augmenter la vitesse de coupe

- Assurer précision
- Réduire le coût de production
- Permettre une longue durée de vie l'outil

FRESAS POWER:

- Reducir el numero de herramientas innecesarias
- Ofrecer una excelente evacuación de viruta
- Obtener la máxima productividad
- Incrementar el volumen de evacuación de virutas
- Incrementar (aumentando) la velocidad de corte
- Asegurar precisión
- Reducir los costes de producción
- Permitir una larga vida de herramienta



SERVIZIO TECNICO

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Technische Hilfe
Service technique
Ayuda técnica



E-COMMERCE

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MICRO POWER HPM-HCM

-  MICRO POWER HPM-HCM
-  MICRO POWER HPM-HCM
-  FRAISES MICRO POWER HPM-HCM
-  FRESAS POWER MICRO HPM-HCM



FRESE MICRO POWER A CANDELA A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER FRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER - 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER MICRO - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1410XT



∅ mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1410XT €
0.5	0.45	60	0.7	2.5	6	2	35,00
0.6	0.55	60	0.9	3	6	2	35,00
0.8	0.75	60	1.2	4	6	2	34,50
1	0.95	60	1.5	5	6	2	30,25
1.2	1.15	60	1.8	6	6	2	33,95
1.4	1.35	60	2.1	7	6	2	34,35
1.5	1.45	60	2.3	7.5	6	2	30,45
1.6	1.55	60	2.4	8	6	2	34,35
1.8	1.75	60	2.7	9	6	2	34,35
2	1.95	60	3	10	6	2	28,25
2.5	2.4	60	3.7	12.5	6	2	28,80



Rivestimento X-Treme
 X-Treme coating
 Revêtement X-Treme
 X-Treme-Beschichtung
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.5 mm a 2.5 mm	+0.00 mm -0.025 mm	+0.00 mm -0.013 mm



SERIE NORMALE & LUNGA

NORMAL/EXTENDED SERIES
 NORMAL/ÜBERLÄNGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE
 SERIE NORMAL/LARGA

FRESE MICRO POWER A CANDELA A 2 TAGLI IN MICROGRANA ULTRAFINE

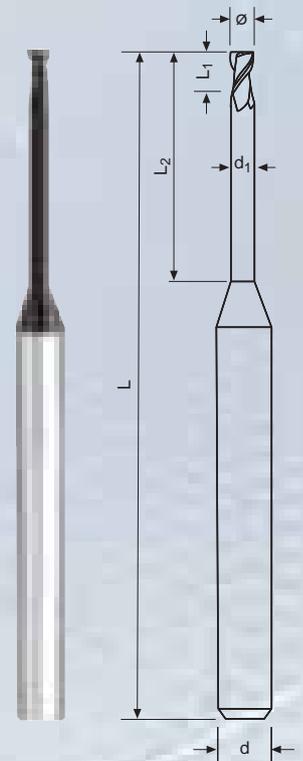
MICRO POWER END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER FRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER - 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER MICRO - 2 LABIOS - SUB-MICROGRANO

1430XT



Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1430XT €
0.4	0.36	35	0.6	4	3	2	48,30
0.5	0.45	35	0.7	6	3	2	45,20
0.6	0.55	35	0.9	6	3	2	45,20
0.7	0.65	45	1	6	4	2	45,20
0.8	0.75	45	1.2	8	4	2	45,20
0.9	0.85	45	1.35	10	4	2	45,20
1	0.97	45	1.5	6	4	2	45,20
1	0.95	45	1.5	8	4	2	45,20
1	0.93	45	1.5	12	4	2	45,20
1.2	1.15	45	1.8	8	4	2	45,20
1.2	1.13	45	1.8	12	4	2	45,20
1.4	1.33	45	2.1	12	4	2	45,20
1.4	1.31	50	2.1	16	4	2	45,20
1.5	1.45	45	2.3	8	4	2	45,20
1.5	1.45	45	2.3	10	4	2	45,20
1.5	1.43	45	2.3	12	4	2	45,20
1.5	1.41	50	2.3	16	4	2	45,20
1.5	1.39	55	2.3	20	4	2	45,20
1.6	1.53	45	2.4	12	4	2	45,20
1.6	1.49	55	2.4	20	4	2	45,20
1.7	1.64	45	2.6	8	4	2	45,20
1.7	1.63	45	2.6	12	4	2	45,20
1.7	1.59	55	2.6	20	4	2	45,20
1.8	1.73	45	2.7	12	4	2	45,20
1.8	1.69	55	2.7	20	4	2	45,20
1.9	1.85	45	2.8	8	4	2	45,20

→1-2



Rivestimento X-Treme

X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.4 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm

FRESE MICRO POWER A CANDELA A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER END MILLS - 2 FLUTES - SUB-MICROGRAIN
MICRO POWER FRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES MICRO POWER - 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER MICRO - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE & LUNGA

NORMAL/EXTENDED SERIES
NORMAL/ÜBERLÄNGE AUSFÜHRUNG
SÉRIE NORMALE/LONGUE
SERIE NORMAL/ LARGA

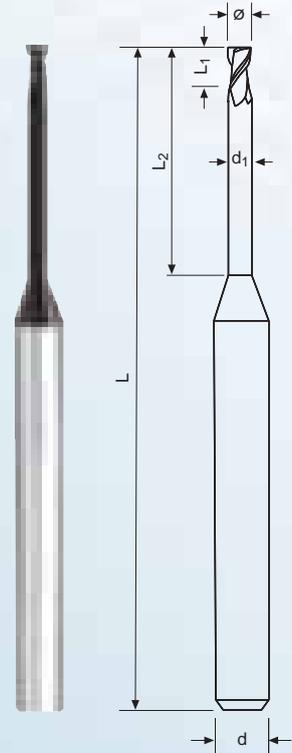


1430XT



∅ mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1430XT €
1.9	1.81	50	2.8	16	4	2	45,20
1.9	1.79	55	2.8	20	4	2	45,20
2	1.95	45	3	8	4	2	45,20
2	1.93	45	3	12	4	2	45,20
2	1.91	50	3	16	4	2	45,20
2	1.89	70	3	30	4	2	47,90
2.5	2.4	45	3.7	8	4	2	45,20
2.5	2.4	45	3.7	12	4	2	45,20
2.5	2.4	50	3.7	14	4	2	45,20
2.5	2.4	55	3.7	16	4	2	45,20
2.5	2.4	80	3.7	30	4	2	47,90
3	2.85	45	4.5	8	6	2	53,90
3	2.85	50	4.5	14	6	2	53,90
3	2.85	55	4.5	18	6	2	53,90
3	2.85	90	4.5	40	6	2	59,40

→2-2



Rivestimento X-Treme

X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLERANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.4 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm



SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE MICRO POWER TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
MICRO POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES MICRO POWER TORIQUES - 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER MICRO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

1431XT

NEW Ø



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1431XT €
0.2/0.05	0.18	45	0.3	0.5	4	2	70,70
0.2/0.05	0.18	45	0.3	1	4	2	70,70 ■
0.2/0.05	0.18	45	0.3	1.5	4	2	70,70
0.3/0.05	0.28	45	0.45	1	4	2	70,70
0.3/0.05	0.28	45	0.45	2	4	2	70,70 ■
0.3/0.05	0.28	45	0.45	3	4	2	70,70
0.4/0.05	0.37	45	0.6	2	4	2	70,70 ■
0.4/0.1	0.37	45	0.6	2	4	2	70,70
0.4/0.1	0.37	45	0.6	3	4	2	70,70

>>1-6

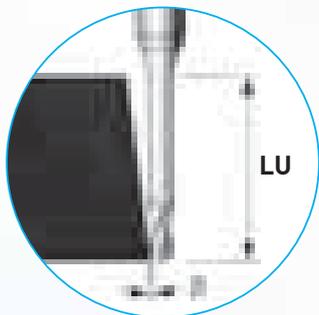
Ø/R mm	L ₂ mm	β					
		0.5°	1°	1° 30'	2°	2° 30'	3°
LU							
0.2/0.05	0.5	1.09	1.27	1.45	1.62	1.8	1.97
0.2/0.05	1	1.52	1.79	2.02	2.24	2.45	2.65
0.2/0.05	1.5	1.93	2.3	2.59	2.84	3.07	3.30
0.3/0.05	1	1.58	1.83	2.06	2.27	2.48	2.68
0.3/0.05	2	2.42	2.86	3.18	3.46	3.71	3.95
0.3/0.05	3	2.72	3.88	4.29	4.62	4.91	5.18
0.4/0.05	2	2.57	2.94	3.24	3.51	3.76	3.99
0.4/0.1	2	2.60	2.96	3.25	3.51	3.76	3.99
0.4/0.1	3	3.44	3.98	4.35	4.67	4.95	5.22

→1-6

INFORMAZIONI TECNICHE

ANGOLO DI COLLISIONE β

TECHNICAL DATA - INCLINED ANGLE β
TECHNISCHE HILFE - NEIGUNGSWINKEL β
SERVICE TECHNIQUE - ANGLE DE COLLISION β
INFORMACIÓN TÉCNICA - ANGULO INCLINADO β



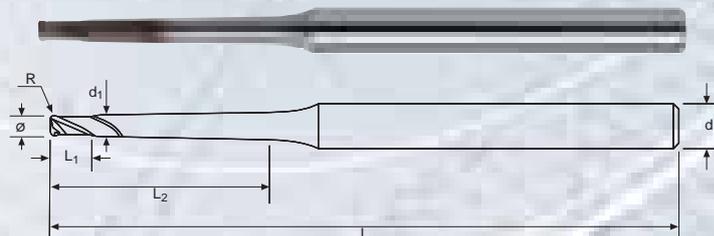
Effettiva lunghezza utile di lavoro legata all'inclinazione β del pezzo da lavorare

Effective machining depth depending on inclined angle β of workpiece
Die effektive Arbeitstiefe hängt vom Neigungswinkel β des Werkstückes ab
Longueur utile effective d'usinage liée à l'inclinaison β de la pièce à usiner
Largo útil de trabajo depende del ángulo de inclinación de la pieza



■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock

GAMBO RASTREMATO
TAPERED SHANK
VERJÜNGTER SCHAFT
QUEUE FUSELÉE
MANGO REBAJADO



L2 = LUNGHEZZA UTILE DI LAVORO
L2 = MACHINING DEPTH
L2 = ARBEITSTIEFE
L2 = LONGUEUR UTILE
L2 = LARGO ÚTIL DE TRABAJO



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.2 mm a 6 mm	+0.000 mm -0.001 mm	h6

FRESE MICRO POWER TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER TORIQUES - 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER MICRO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1431XT

NEW Ø



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1431XT €
0.4/0.1	0.37	45	0.6	4	4	2	70,70
0.5/0.05	0.45	45	0.7	2	4	2	70,70 ■
0.5/0.1	0.45	45	0.7	2	4	2	70,70
0.5/0.1	0.45	45	0.7	4	4	2	70,70
0.5/0.1	0.45	45	0.7	6	4	2	70,70
0.5/0.1	0.45	45	0.7	8	4	2	70,70
0.6/0.06	0.55	45	0.9	2	4	2	70,70 ■
0.6/0.1	0.55	45	0.9	2	4	2	70,70
0.6/0.1	0.55	45	0.9	4	4	2	70,70
0.6/0.1	0.55	45	0.9	6	4	2	70,70
0.6/0.1	0.55	45	0.9	8	4	2	70,70
0.6/0.1	0.55	45	0.9	10	4	2	70,70
0.7/0.07	0.65	45	1	2	4	2	70,70 ■
0.7/0.1	0.65	45	1	2	4	2	70,70
0.7/0.1	0.65	45	1	4	4	2	70,70
0.7/0.1	0.65	45	1	6	4	2	70,70
0.7/0.1	0.65	45	1	8	4	2	70,70
0.7/0.1	0.65	45	1	10	4	2	70,70
0.8/0.08	0.75	45	1.2	4	4	2	70,70 ■
0.8/0.1	0.75	45	1.2	4	4	2	70,70
0.8/0.1	0.75	45	1.2	6	4	2	70,70
0.8/0.1	0.75	45	1.2	8	4	2	70,70
0.8/0.1	0.75	45	1.2	10	4	2	70,70
0.8/0.1	0.75	45	1.2	12	4	2	70,70
0.9/0.2	0.85	45	1.35	6	4	2	70,70
0.9/0.2	0.85	45	1.35	8	4	2	70,70
0.9/0.2	0.85	45	1.35	10	4	2	70,70
0.9/0.2	0.85	50	1.35	15	4	2	70,70
1.0/0.2	0.95	45	1.5	6	4	2	65,00
1.0/0.1	0.95	45	1.5	8	4	2	65,00 ■
1.0/0.1	0.95	45	1.5	10	4	2	65,00 ■
1.0/0.2	0.95	45	1.5	8	4	2	65,00
1.0/0.2	0.95	45	1.5	10	4	2	65,00
1.0/0.2	0.95	45	1.5	12	4	2	65,00
1.0/0.2	0.95	50	1.5	14	4	2	65,00
1.0/0.1	0.95	50	1.5	16	4	2	65,00 ■

→2-6

Ø/R mm	L ₂ mm	β					
		0.5°	1°	1° 30'	2°	2° 30'	3°
LU							
0.4/0.1	4	3.82	5	5.44	5.8	6.12	6.41
0.5/0.05	2	2.79	3.1	3.37	3.62	3.86	4.08
0.5/0.1	2	2.81	3.11	3.38	3.62	3.85	4.07
0.5/0.1	4	4.58	5.15	5.55	5.89	6.2	6.48
0.5/0.1	6	5.71	7.18	7.7	8.12	8.48	8.81
0.5/0.1	8	5.71	9.22	9.84	10.32	10.73	11.1
0.6/0.06	2	2.84	3.14	3.4	3.64	3.88	4.1
0.6/0.1	2	2.85	3.14	3.4	3.64	3.87	4.09
0.6/0.1	4	4.64	5.18	5.57	5.91	6.21	6.49
0.6/0.1	6	6.26	7.21	7.72	8.13	8.49	8.82
0.6/0.1	8	6.16	9.24	9.86	10.33	10.74	11.11
0.6/0.1	10	6.16	11.28	11.98	12.51	12.96	13.36
0.7/0.07	2	2.88	3.17	3.43	3.67	3.9	4.12
0.7/0.1	2	2.89	3.17	3.43	3.67	3.9	4.11
0.7/0.1	4	4.7	5.21	5.6	5.93	6.23	6.51
0.7/0.1	6	6.39	7.24	7.74	8.15	8.51	8.84
0.7/0.1	8	6.61	9.27	9.87	10.35	10.75	11.12
0.7/0.1	10	6.61	11.3	12	12.52	12.97	13.37
0.8/0.08	4	4.68	5.2	5.2	5.93	6.23	6.51
0.8/0.1	4	4.73	5.22	5.6	5.93	6.22	6.5
0.8/0.1	6	6.46	7.25	7.75	8.15	8.5	8.83
0.8/0.1	8	6.93	9.29	9.88	10.34	10.75	11.11
0.8/0.1	10	6.93	11.32	12	12.52	12.97	13.36
0.8/0.1	12	6.93	13.35	14.11	14.69	15.17	15.59
0.9/0.2	6	6.53	7.28	7.77	8.16	8.52	8.84
0.9/0.2	8	7.38	9.31	9.9	10.36	10.76	11.12
0.9/0.2	10	7.38	11.34	12.02	12.54	12.98	13.37
0.9/0.2	15	7.38	16.42	17.29	17.92	18.45	18.92
1.0/0.2	6	6.6	7.31	7.79	8.18	8.53	8.85
1.1/0.1	8	6.76	9.26	9.26	10.34	10.75	11.12
1.1/0.1	10	6.76	11.26	11.26	12.5	12.96	13.36
1.0/0.2	8	7.83	9.34	9.92	10.37	10.77	11.13
1.0/0.2	10	7.83	11.37	12.03	12.55	12.99	13.38
1.0/0.2	12	7.83	13.4	14.15	14.71	15.19	15.61
1.0/0.2	14	7.83	15.43	16.25	16.86	17.37	17.82
1.1/0.1	16	6.76	17.26	18.25	18.93	19.49	19.97

→2-6

■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE MICRO POWER TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
MICRO POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES MICRO POWER TORIQUES - 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER MICRO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

1431XT

NEW Ø



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1431XT €
1.0/0.2	0.95	50	1.5	16	4	2	65,00
1.2/0.2	1.15	45	1.8	6	4	2	65,00
1.2/0.2	1.15	45	1.8	8	4	2	65,00
1.2/0.2	1.15	45	1.8	10	4	2	65,00
1.2/0.2	1.15	45	1.8	12	4	2	65,00
1.4/0.14	1.35	45	2.1	6	4	2	65,00 ■
1.4/0.2	1.35	45	2.1	6	4	2	65,00
1.4/0.2	1.35	45	2.1	8	4	2	65,00
1.4/0.2	1.35	45	2.1	10	4	2	65,00
1.4/0.2	1.35	45	2.1	12	4	2	65,00
1.4/0.2	1.35	50	2.1	14	4	2	65,00
1.4/0.2	1.35	50	2.1	16	4	2	65,00
1.5/0.2	1.45	45	2.3	6	4	2	65,00
1.5/0.2	1.45	45	2.3	8	4	2	65,00
1.5/0.15	1.45	45	2.3	10	4	2	65,00 ■
1.5/0.15	1.45	45	2.3	12	4	2	65,00 ■
1.5/0.2	1.45	45	2.3	10	4	2	65,00
1.5/0.2	1.45	45	2.3	12	4	2	65,00
1.5/0.2	1.45	50	2.3	14	4	2	65,00
1.5/0.15	1.45	50	2.3	16	4	2	65,00 ■
1.5/0.2	1.45	50	2.3	16	4	2	65,00
1.5/0.2	1.45	55	2.3	18	4	2	65,00
1.5/0.15	1.45	55	2.3	20	4	2	65,00 ■
1.6/0.15	1.55	45	2.4	6	4	2	65,00 ■
1.5/0.2	1.45	55	2.3	20	4	2	65,00
1.6/0.2	1.55	45	2.4	6	4	2	65,00
1.6/0.2	1.55	45	2.4	8	4	2	65,00
1.6/0.2	1.55	45	2.4	10	4	2	65,00
1.6/0.2	1.55	45	2.4	12	4	2	65,00
1.6/0.2	1.55	50	2.4	14	4	2	65,00
1.6/0.2	1.55	50	2.4	16	4	2	65,00
1.6/0.2	1.55	55	2.4	18	4	2	65,00
1.6/0.2	1.55	55	2.4	20	4	2	65,00
1.6/0.18	1.75	45	2.7	6	4	2	65,00 ■
1.8/0.2	1.75	45	2.7	6	4	2	65,00
1.8/0.2	1.75	45	2.7	8	4	2	65,00

→3-6

■ Ad esaurimento scorte - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock

Ø/R mm	L ₂ mm	R					
		0.5°	1°	1° 30'	2°	2° 30'	3°
LU							
1.0/0.2	16	7.83	17.45	18.35	19	19.55	20.02
1.2/0.2	6	6.71	7.36	7.83	8.31	8.56	8.88
1.2/0.2	8	8.42	9.39	9.95	10.4	10.8	11.16
1.2/0.2	10	8.73	11.42	12.07	12.58	13.01	13.38
1.2/0.2	12	8.73	13.45	14.18	14.74	15.21	15.63
1.4/0.14	6	6.73	7.38	7.84	8.23	8.58	8.89
1.4/0.2	6	6.8	7.42	7.86	8.25	8.59	8.9
1.4/0.2	8	8.57	9.44	9.99	10.43	10.82	11.18
1.4/0.2	10	9.63	11.47	12.1	12.6	13.04	13.43
1.4/0.2	12	9.63	13.5	14.21	14.76	15.23	15.65
1.4/0.2	14	9.63	15.52	16.31	16.91	17.41	17.86
1.4/0.2	16	9.63	17.55	18.41	19.05	19.58	20.05
1.5/0.2	6	6.85	7.44	7.88	8.26	8.6	8.92
1.5/0.2	8	8.63	9.47	10.01	10.45	10.84	11.19
1.5/0.15	10	8.71	11.41	12.06	12.57	13.01	13.4
1.5/0.15	12	8.71	13.41	14.15	14.72	15.2	15.62
1.5/0.2	10	10.22	11.49	12.12	12.62	13.05	13.44
1.5/0.2	12	10.08	13.52	14.23	14.77	15.24	15.66
1.5/0.2	14	10.08	15.54	16.33	16.92	17.42	17.87
1.5/0.15	16	8.71	17.41	18.32	18.98	19.53	20.01
1.5/0.2	16	10.08	17.57	18.42	19.06	19.59	20.06
1.5/0.2	18	10.08	19.59	20.51	21.19	21.75	22.24
1.5/0.15	20	8.71	21.41	22.48	23.22	23.83	-
1.6/0.16	6	6.83	7.43	7.88	8.26	8.6	8.92
1.5/0.2	20	10.08	21.62	22.6	23.31	23.9	-
1.6/0.2	6	6.89	7.46	7.9	8.28	8.62	8.93
1.6/0.2	8	8.69	9.49	10.02	10.46	10.85	11.2
1.6/0.2	10	10.37	11.52	12.14	12.63	13.06	13.45
1.6/0.2	12	10.53	13.54	14.24	14.79	15.25	15.67
1.6/0.2	14	10.53	15.57	16.34	16.93	17.43	17.88
1.6/0.2	16	10.53	17.59	18.44	19.07	19.6	20.07
1.6/0.2	18	10.53	19.62	20.53	21.2	21.76	22.25
1.6/0.2	20	10.53	21.64	22.62	23.32	23.91	-
1.8/0.18	6	6.91	7.48	7.92	8.29	8.63	8.94
1.8/0.2	6	6.96	7.51	7.94	8.31	8.64	8.95
1.8/0.2	8	8.78	9.54	10.06	10.49	10.87	11.22

→3-6

FRESE MICRO POWER TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER TORIQUES - 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER MICRO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1431XT

NEW Ø



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1431XT €
1.8/0.2	1.75	45	2.7	10	4	2	65,00
1.8/0.2	1.75	45	2.7	12	4	2	65,00
1.8/0.2	1.75	50	2.7	14	4	2	65,00
1.8/0.2	1.75	50	2.7	16	4	2	65,00
1.8/0.2	1.75	55	2.7	18	4	2	65,00
1.8/0.2	1.75	55	2.7	20	4	2	65,00
2.0/0.2	1.95	45	3	6	4	2	60,50 ■
2.0/0.2	1.95	45	3	8	4	2	60,50 ■
2.0/0.2	1.95	45	3	10	4	2	60,50 ■
2.0/0.2	1.95	45	3	12	4	2	60,50 ■
2.0/0.2	1.95	50	3	14	4	2	60,50 ■
2.0/0.2	1.95	50	3	16	4	2	60,50
2.0/0.2	1.95	55	3	18	4	2	60,50
2.0/0.2	1.95	55	3	20	4	2	60,50 ■
2.0/0.2	1.95	60	3	25	4	2	60,50
2.0/0.2	1.95	70	3	30	4	2	60,50 ■
2.0/0.5	1.95	45	3	6	4	2	60,50
2.0/0.5	1.95	45	3	8	4	2	60,50
2.0/0.5	1.95	45	3	10	4	2	60,50
2.0/0.5	1.95	45	3	12	4	2	60,50
2.0/0.5	1.95	50	3	14	4	2	60,50
2.0/0.5	1.95	50	3	16	4	2	60,50
2.0/0.5	1.95	55	3	18	4	2	60,50
2.0/0.5	1.95	55	3	20	4	2	60,50
2.0/0.5	1.95	60	3	25	4	2	60,50
2.0/0.5	1.95	70	3	30	4	2	60,50
2.5/0.25	2.4	45	3.7	8	4	2	60,50 ■
2.5/0.25	2.4	45	1.2	10	4	2	60,50
2.5/0.25	2.4	45	1.2	12	4	2	60,50
2.5/0.25	2.4	50	1.2	14	4	2	60,50
2.5/0.25	2.4	55	1.35	16	4	2	60,50
2.5/0.25	2.4	55	1.35	18	4	2	60,50
2.5/0.25	2.4	60	1.35	20	4	2	60,50
2.5/0.25	2.4	70	1.35	25	4	2	60,50
2.5/0.25	2.4	80	1.5	30	4	2	60,50
3.0/0.2	2.85	45	4.5	8	6	2	60,50

→4-6

Ø/R mm	L ₂ mm	β					
		0.5°	1°	1° 30'	2°	2° 30'	3°
LU							
1.8/0.2	10	10.54	11.56	12.17	12.66	13.08	13.47
1.8/0.2	12	11.43	13.59	14.27	14.81	15.27	15.69
1.8/0.2	14	11.43	15.61	16.37	16.96	17.45	17.89
1.8/0.2	16	11.43	17.63	18.46	19.09	19.62	20.08
1.8/0.2	18	11.43	19.66	20.55	21.22	21.78	-
1.8/0.2	20	11.43	21.68	22.64	23.4	23.93	-
2.0/0.2	6	7.03	7.56	7.98	8.34	8.67	8.98
2.0/0.2	8	8.87	9.58	10.09	10.52	10.9	11.24
2.0/0.2	10	10.66	11.61	12.2	12.68	13.1	13.49
2.0/0.2	12	12.32	13.63	14.3	14.84	15.29	15.71
2.0/0.2	14	12.33	15.65	16.4	16.98	17.47	17.91
2.0/0.2	16	12.33	17.68	18.49	19.11	19.64	-
2.0/0.2	18	12.33	19.7	20.58	21.24	21.79	-
2.0/0.2	20	12.33	21.72	22.67	23.36	-	-
2.0/0.2	25	12.33	26.78	27.87	28.65	-	-
2.0/0.2	30	12.33	31.83	33.05	-	-	-
2.0/0.5	6	7	7.52	7.93	8.29	8.61	8.92
2.0/0.5	8	8.83	9.54	10.05	10.47	10.85	11.19
2.0/0.5	10	10.62	11.57	12.16	12.64	13.06	13.44
2.0/0.5	12	12.12	13.59	14.26	14.79	15.25	15.66
2.0/0.5	14	11.95	15.62	16.36	16.94	17.43	17.87
2.0/0.5	16	11.95	17.64	18.46	19.08	19.6	-
2.0/0.5	18	11.95	19.67	20.55	21.21	21.76	-
2.0/0.5	20	11.95	21.69	22.63	23.33	-	-
2.0/0.5	25	12.33	26.78	27.87	28.65	-	-
2.0/0.5	30	12.33	31.83	33.05	-	-	-
2.5/0.25	8	9.28	9.84	10.29	10.69	11.04	11.37
2.5/0.25	10	11.15	11.86	12.39	12.84	13.24	13.6
2.5/0.25	12	13.01	13.88	14.48	14.98	15.42	-
2.5/0.25	14	14.85	15.9	16.57	17.12	-	-
2.5/0.25	16	16.64	17.92	18.66	19.24	-	-
2.5/0.25	18	18.23	19.94	20.74	21.36	-	-
2.5/0.25	20	18.1	21.96	22.82	-	-	-
2.5/0.25	25	18.1	27	28.01	-	-	-
2.5/0.25	30	18.1	32.05	-	-	-	-
3.0/0.2	8	9.58	10.07	10.48	10.85	11.19	11.51

→4-6

■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE MICRO POWER TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
MICRO POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES MICRO POWER TORIQUES - 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER MICRO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

1431XT

NEW Ø



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1431XT €
3.0/0.2	2.85	45	4.5	10	6	2	60,50
3.0/0.2	2.85	45	4.5	12	6	2	60,50
3.0/0.2	2.85	50	4.5	14	6	2	60,50
3.0/0.3	2.85	55	4.5	16	6	2	60,50 ■
3.0/0.2	2.85	55	4.5	16	6	2	60,50
3.0/0.2	2.85	55	4.5	18	6	2	60,50
3.0/0.3	2.85	60	4.5	20	6	2	60,50 ■
3.0/0.2	2.85	60	4.5	20	6	2	60,50
3.0/0.2	2.85	65	4.5	25	6	2	60,50
3.0/0.2	2.85	80	4.5	30	6	2	60,50
3.0/0.2	2.85	90	4.5	35	6	2	60,50
3.0/0.2	2.85	90	4.5	40	6	2	60,50
3.0/0.5	2.85	45	4.5	8	6	2	60,50
3.0/0.5	2.85	45	4.5	10	6	2	60,50
3.0/0.5	2.85	45	4.5	12	6	2	60,50
3.0/0.5	2.85	45	4.5	14	6	2	60,50
3.0/0.5	2.85	50	4.5	16	6	2	60,50
3.0/0.5	2.85	55	4.5	18	6	2	60,50
3.0/0.5	2.85	55	4.5	20	6	2	60,50
3.0/0.5	2.85	60	4.5	25	6	2	60,50
3.0/0.5	2.85	65	4.5	30	6	2	60,50
3.0/0.5	2.85	80	4.5	35	6	2	60,50
3.0/0.5	2.85	90	4.5	40	6	2	60,50
4.0/0.5	3.85	50	6	12	6	2	65,00
4.0/0.5	3.85	60	6	16	6	2	65,00
4.0/0.5	3.85	60	6	20	6	2	65,00
4.0/0.5	3.85	70	6	25	6	2	65,00
4.0/0.5	3.85	80	6	30	6	2	65,00
4.0/0.5	3.85	90	6	35	6	2	65,00
4.0/0.5	3.85	90	6	40	6	2	65,00
4.0/0.5	3.85	100	6	45	6	2	65,00
4.0/0.5	3.85	100	6	50	6	2	65,00
5.0/0.5	4.85	60	7,5	16	6	2	65,00
5.0/0.5	4.85	70	7,5	25	6	2	65,00 ■
5.0/0.5	4.85	90	7,5	35	6	2	65,00 ■
5.0/0.5	4.85	110	7,5	50	6	2	65,00

→5-6

Ø/R mm	L ₂ mm	R					
		0.5°	1°	1° 30'	2°	2° 30'	3°
LU							
3.0/0.2	10	11.48	12.08	12.57	12.99	13.38	13.73
3.0/0.2	12	13.38	14.1	14.66	15.13	15.55	15.93
3.0/0.2	14	15.27	16.12	16.74	17.26	17.71	18.12
3.0/0.3	16	16.94	18.02	18.72	19.29	19.78	20.22
3.0/0.2	16	17.15	18.14	18.82	19.38	19.86	20.3
3.0/0.2	18	19	20.15	20.9	21.49	22.01	22.47
3.0/0.3	20	20.24	22.02	22.85	23.5	24.06	24.54
3.0/0.2	20	20.84	22.17	22.97	23.6	24.15	24.63
3.0/0.2	25	23.99	27.21	28.15	28.87	29.47	-
3.0/0.2	30	23.99	32.25	33.31	34.11	-	-
3.0/0.2	35	23.99	37.3	38.47	39.33	-	-
3.0/0.2	40	23.99	42.33	43.62	-	-	-
3.0/0.5	8	9.56	10.04	10.45	10.81	11.15	11.46
3.0/0.5	10	11.46	12.06	12.54	12.96	13.34	13.64
3.0/0.5	12	13.36	14.08	14.62	15.09	15.51	15.89
3.0/0.5	14	15.25	16.09	16.71	17.22	17.67	18.08
3.0/0.5	16	17.12	18.11	18.79	19.34	19.83	20.26
3.0/0.5	18	18.95	20.13	20.87	21.46	21.98	22.43
3.0/0.5	20	20.08	22.15	22.94	23.57	24.12	24.59
3.0/0.5	25	23.62	27.19	28.12	28.84	29.44	-
3.0/0.5	30	23.62	32.23	33.29	34.08	34.74	-
3.0/0.5	35	23.62	37.27	38.45	39.31	-	-
3.0/0.5	40	23.62	42.31	43.6	-	-	-
4.0/0.5	12	13.58	14.23	14.75	15.2	15.6	15.97
4.0/0.5	16	17.39	18.26	18.91	19.44	19.91	-
4.0/0.5	20	21.15	22.3	23.05	23.66	-	-
4.0/0.5	25	25.75	27.33	28.22	22.92	-	-
4.0/0.5	30	28.12	32.37	33.39	-	-	-
4.0/0.5	35	28.12	37.41	38.54	-	-	-
4.0/0.5	40	28.12	42.45	-	-	-	-
4.0/0.5	45	28.12	47.49	-	-	-	-
4.0/0.5	50	28.12	52.52	-	-	-	-
5.0/0.5	16	17.61	18.4	19.02	-	-	-
5.0/0.5	25	26.12	27.47	-	-	-	-
5.0/0.5	35	32.61	-	-	-	-	-
5.0/0.5	50	32.61	-	-	-	-	-

→5-6

■ Ad esaurimento scorte - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock

FRESE MICRO POWER TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER TORIQUES - 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER MICRO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE

NORMAL SERIES
 NORMAL AUSFÜHRUNG
 SÉRIE NORMALE
 SERIE NORMAL



1431XT

NEW Ø



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1431XT €
6.0/0.5	5,9	65	8,5	10	6	2	65,00
6.0/0.5	5,9	65	8,5	20	6	2	65,00
6.0/0.5	5,9	75	8,5	30	6	2	65,00
6.0/0.5	5,9	90	8,5	40	6	2	65,00
6.0/0.5	5,9	110	8,5	50	6	2	65,00

Ø/R mm	L ₂ mm	β					
		0.5°	1°	1° 30'	2°	2° 30'	3°
LU							
6.0/0.5	10	-	-	-	-	-	-
6.0/0.5	20	-	-	-	-	-	-
6.0/0.5	30	-	-	-	-	-	-
6.0/0.5	40	-	-	-	-	-	-
6.0/0.5	50	-	-	-	-	-	-

→6-6

→6-6



SERIE NORMALE & LUNGA

NORMAL/EXTENDED SERIES
 NORMAL/ÜBERLÄNGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE
 SERIE NORMAL/LARGA



FRESE MICRO POWER TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER TORIQUES - 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER MICRO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

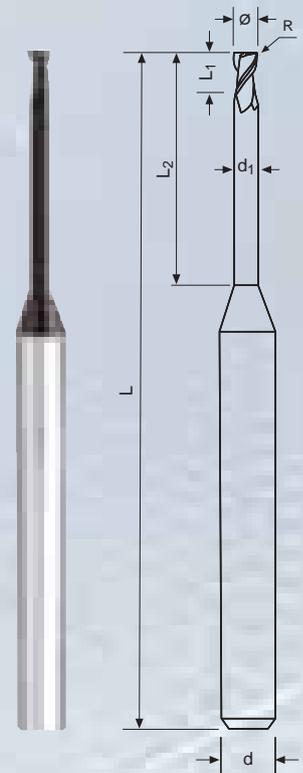


1433XT



∅/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1433XT €
0.5/0.1	0.45	50	0.4	2	4	2	37,50
0.5/0.1	0.45	50	0.4	4	4	2	37,50
0.5/0.1	0.45	50	0.4	6	4	2	37,50
0.6/0.1	0.55	50	0.5	2	4	2	37,50
0.6/0.1	0.55	50	0.5	4	4	2	37,50
0.6/0.1	0.55	50	0.5	6	4	2	37,50
0.8/0.1	0.75	50	0.65	4	4	2	37,50
0.8/0.1	0.75	50	0.65	6	4	2	37,50
0.8/0.1	0.75	50	0.65	8	4	2	29,15
1.0/0.2	0.95	50	0.8	4	4	2	29,15
1.0/0.2	0.95	50	0.8	6	4	2	29,15
1.0/0.2	0.95	50	0.8	8	4	2	29,15
1.0/0.2	0.95	50	0.8	10	4	2	29,15
1.0/0.2	0.95	50	0.8	12	4	2	29,15
1.2/0.2	1.15	50	1	6	4	2	29,15
1.2/0.2	1.15	50	1	10	4	2	29,15
1.5/0.2	1.45	50	1.2	4	4	2	29,15
1.5/0.2	1.45	50	1.2	6	4	2	29,15
1.5/0.2	1.45	50	1.2	8	4	2	29,15
1.5/0.2	1.45	50	1.2	10	4	2	29,15
1.5/0.2	1.45	50	1.2	12	4	2	29,15
1.5/0.2	1.45	50	1.2	16	4	2	29,15
2.0/0.2	1.95	50	1.6	6	4	2	29,15
2.0/0.2	1.95	50	1.6	8	4	2	29,15
2.0/0.2	1.95	50	1.6	10	4	2	29,15
2.0/0.2	1.95	50	1.6	12	4	2	29,15

→1-3



Rivestimento X-Treme
 X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.4 mm a 4 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm



FRESE MICRO POWER TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER TORIQUES - 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER MICRO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE & LUNGA

NORMAL/EXTENDED SERIES
 NORMAL/ÜBERLÄNGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE
 SERIE NORMAL/ LARGA

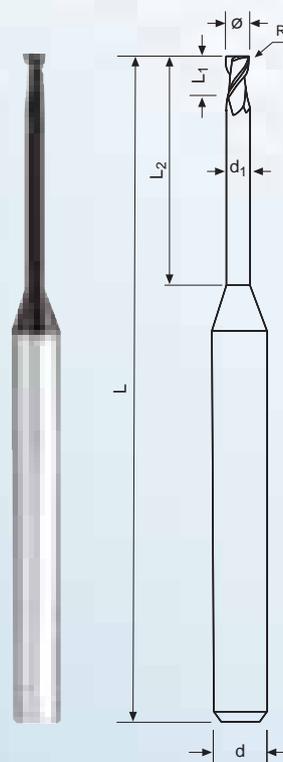


1433XT



Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1433XT €
2.0/0.2	1.95	50	1.6	16	4	2	29,15
2.0/0.2	1.95	60	1.6	20	4	2	33,35
2.0/0.5	1.95	50	1.6	6	4	2	29,15
2.0/0.5	1.95	50	1.6	8	4	2	29,15
2.0/0.5	1.95	50	1.6	10	4	2	29,15
2.0/0.5	1.95	50	1.6	12	4	2	29,15
2.0/0.5	1.95	50	1.6	16	4	2	29,15
2.0/0.5	2.85	60	1.6	20	4	2	33,35
3.0/0.2	2.85	50	2.5	8	6	2	37,50
3.0/0.2	2.85	50	2.5	12	6	2	37,50
3.0/0.2	2.85	60	2.5	16	6	2	39,60
3.0/0.2	2.85	60	2.5	20	6	2	39,60
3.0/0.2	2.85	70	2.5	25	6	2	43,80
3.0/0.2	2.85	70	2.5	30	6	2	43,80
3.0/0.5	2.85	50	2.5	8	6	2	37,50
3.0/0.5	2.85	50	2.5	12	6	2	37,50
3.0/0.5	2.85	60	2.5	16	6	2	39,60
3.0/0.5	2.85	60	2.5	20	6	2	39,60
3.0/0.5	2.85	70	2.5	25	6	2	43,80
3.0/0.5	2.85	70	2.5	30	6	2	43,80
4.0/0.2	3.85	60	4	12	6	2	39,60
4.0/0.2	3.85	60	4	16	6	2	39,60
4.0/0.2	3.85	70	4	20	6	2	43,80
4.0/0.2	3.85	70	4	25	6	2	43,80
4.0/0.2	3.85	80	4	30	6	2	47,90
4.0/0.2	3.85	90	4	40	6	2	56,30

→2-3



Rivestimento X-Treme

X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.4 mm a 4 mm	+0.00 mm -0.025 mm	+0.00 mm -0.013 mm



SERIE NORMALE & LUNGA

NORMAL/EXTENDED SERIES
 NORMAL/ÜBERLÄNGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE
 SERIE NORMAL/LARGA

FRESE MICRO POWER TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

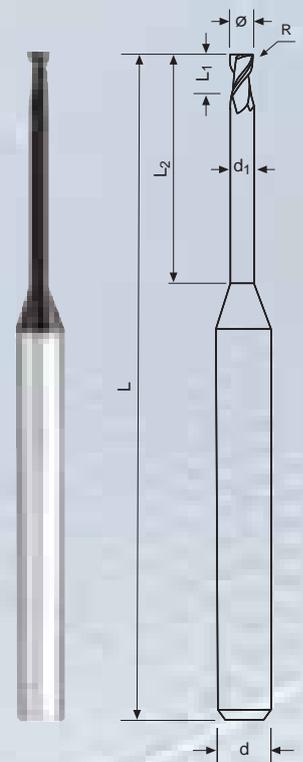
MICRO POWER TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER TORIQUES - 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER MICRO TÓRICAS - 2 LABIOS - SUB-MICROGRANO



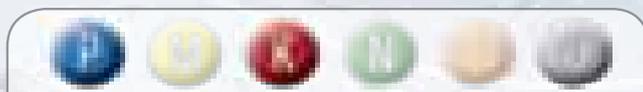
1433XT



∅ mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1433XT €
4.0/0.5	3.85	60	4	12	6	2	39,60
4.0/0.5	3.85	60	4	16	6	2	39,60
4.0/0.5	3.85	70	4	20	6	2	43,80
4.0/0.5	3.85	70	4	25	6	2	43,80
4.0/0.5	3.85	80	4	30	6	2	47,90
4.0/0.5	3.85	90	4	40	6	2	56,30
4.0/1.0	3.85	60	4	12	6	2	39,60
4.0/1.0	3.85	60	4	16	6	2	39,60
4.0/1.0	3.85	70	4	20	6	2	43,80
4.0/1.0	3.85	70	4	25	6	2	43,80
4.0/1.0	3.85	80	4	30	6	2	47,90
4.0/1.0	3.85	90	4	40	6	2	56,30



→3-3



Rivestimento X-Treme
 X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.4 mm a 4 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm

FRESE POWER A CANDELA E TORICHE A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER TWIST AND TORIC END MILLS - 4 FLUTES - SUB-MICROGRAIN
POWER DRALLNUTIGE UND TORUS-FRÄSER - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER HÉLICOÏDALES ET TORIQUES À 4 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER HELICOIDALES Y TÓRICAS - 4 LABIOS - SUB-MICROGRANO

SERIE NORMALE

NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL



1411XT



Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1411XT €
3	2.85	70	4.5	15	6	4	39,45
3.5	3.35	70	5.3	17.5	6	4	41,60
4	3.85	70	6	20	6	4	40,80
5	4.85	80	7.5	25	6	4	43,90
6	5.85	90	9	30	6	4	45,80



1411XT



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 6 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm

1415XT



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

1415XT



Ø mm	R	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1415XT €
3	0.5	2.85	70	4.5	15	6	4	42,60
3.5	0.5	3.35	70	5.3	17.5	6	4	45,00
4	0.5	3.85	70	6	20	6	4	44,10
5	0.5	4.85	80	7.5	25	6	4	47,40
6	0.5	5.85	90	9	30	6	4	49,40



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 6 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm



SERIE LUNGA

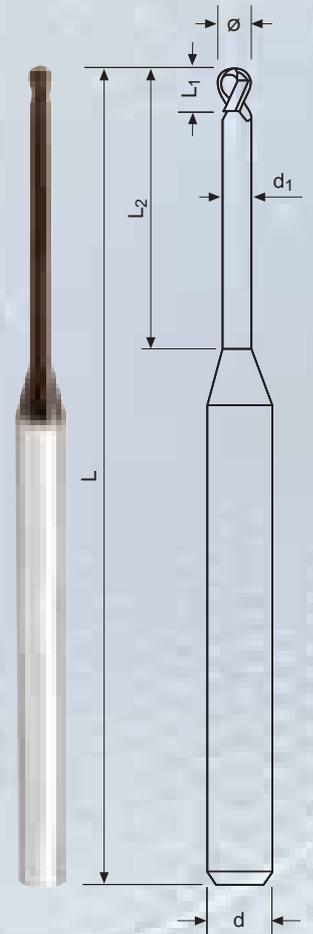
EXTENDED LENGTH
SÉRIE LONGUE
ÜBERLÄNGE
SERIE LARGA

FRESE MICRO POWER SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
MICRO POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES MICRO POWER HÉMISPÉRIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS MICRO POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

419RXT

Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	419RXT €
0.5	0.45	60	0.5	2.5	6	2	45,80
0.6	0.55	60	0.6	3	6	2	45,80
0.8	0.75	60	0.8	4	6	2	45,80
1	0.95	60	1	5	6	2	41,60
1.2	1.15	60	1.2	6	6	2	41,60
1.4	1.35	60	1.4	7	6	2	49,00
1.5	1.45	60	1.5	7.5	6	2	51,50
1.6	1.55	60	1.6	8	6	2	49,00
1.8	1.75	60	1.8	9	6	2	49,00
2	1.95	60	2	10	6	2	43,70
2.5	2.4	60	2.5	12.5	6	2	46,80
3	2.85	70	3	15	6	2	46,80
3.5	3.35	70	3.5	17.5	6	2	51,60
4	3.85	70	4	20	6	2	46,80
5	4.85	80	5	25	6	2	49,80
6	5.85	90	6	30	6	2	52,80



Rivestimento X-Treme

X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.5 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm
da 3.5 mm a 6 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

FRESE MICRO POWER SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS MICRO POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE LUNGA & EXTRA L.

NORMAL/LONG/EXTRALONG SERIES
 NORMAL/LANGE/EXTRALANGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE/EXTRALONGUE
 SERIE NORMAL/LARGA/EXTRALARGA



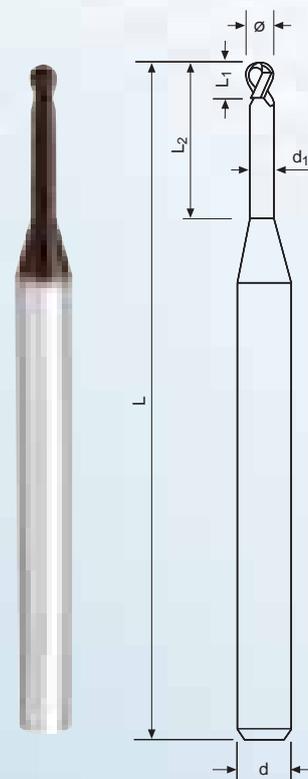
431RXT

NEW Ø



Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	431RXT €
0.3	0.27	50	0.24	1	4	2	71,00
0.3	0.27	50	0.24	2	4	2	71,00
0.3	0.27	50	0.24	3	4	2	71,00
0.4	0.37	50	0.3	1	4	2	62,10
0.4	0.37	50	0.3	2	4	2	62,10
0.4	0.37	50	0.3	3	4	2	62,10
0.4	0.37	50	0.3	4	4	2	62,10
0.4	0.37	50	0.3	5	4	2	73,90
0.5	0.45	50	0.4	2	4	2	50,30
0.5	0.45	50	0.4	3	4	2	50,30
0.5	0.45	50	0.4	4	4	2	50,30
0.5	0.45	50	0.4	5	4	2	50,30
0.5	0.45	50	0.4	6	4	2	50,30
0.5	0.45	50	0.4	8	4	2	62,10
0.6	0.55	50	0.5	2	4	2	50,30
0.6	0.55	50	0.5	3	4	2	50,30
0.6	0.55	50	0.5	4	4	2	50,30
0.6	0.55	50	0.5	5	4	2	50,30
0.6	0.55	50	0.5	6	4	2	50,30
0.6	0.55	50	0.5	8	4	2	62,10
0.8	0.75	50	0.6	2	4	2	50,30
0.8	0.75	50	0.6	3	4	2	50,30
0.8	0.75	50	0.6	4	4	2	50,30
0.8	0.75	50	0.6	5	4	2	50,30
0.8	0.75	50	0.6	6	4	2	50,30
0.8	0.75	50	0.6	8	4	2	50,30

→1-3



Rivestimento X-Treme

X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.3 mm a 3 mm	+ .000 mm - .025 mm	+ .000 mm - .013 mm
da 3.5 mm a 6 mm	+ .000 mm - .038 mm	+ .000 mm - .013 mm



SERIE NORMALE LUNGA & EXTRA L.

NORMAL/LONG/EXTRALONG SERIES
NORMAL/LANGE/EXTRALANGE AUSFÜHRUNG
SÉRIE NORMALE/LONGUE/EXTRALONGUE
SERIE NORMAL/LARGA/EXTRALARGA

FRESE MICRO POWER SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
MICRO POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES MICRO POWER HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS MICRO POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

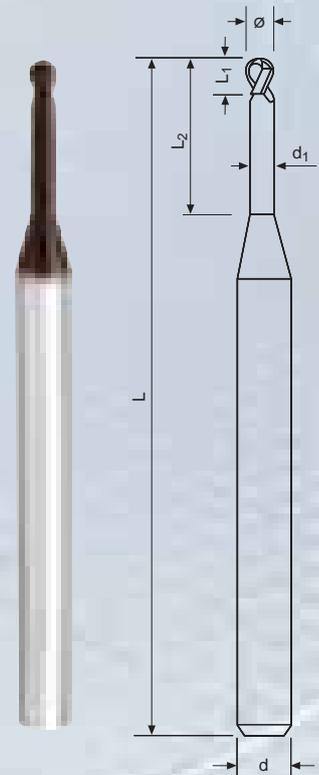
431RXT

NEW Ø



Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	431RXT €
0.8	0.75	50	0.6	10	4	2	62,10
1.0	0.95	50	0.8	3	4	2	50,30
1.0	0.95	50	0.8	4	4	2	50,30
1.0	0.95	50	0.8	5	4	2	50,30
1.0	0.95	50	0.8	6	4	2	50,30
1.0	0.95	50	0.8	8	4	2	50,30
1.0	0.95	50	0.8	10	4	2	50,30
1.0	0.95	50	0.8	12	4	2	50,30
1.0	0.95	50	0.8	16	4	2	62,80
1.0	0.95	60	0.8	20	4	2	83,70
1.2	1.15	50	1.0	4	4	2	50,30
1.2	1.15	50	1.0	6	4	2	50,30
1.2	1.15	50	1.0	8	4	2	50,30
1.2	1.15	50	1.0	10	4	2	50,30
1.2	1.15	50	1.0	12	4	2	50,30
1.4	1.33	45	2.1	12	4	2	50,30
1.5	1.45	50	1.2	4	4	2	50,30
1.5	1.45	50	1.2	6	4	2	50,30
1.5	1.45	50	1.2	8	4	2	50,30
1.5	1.45	50	1.2	10	4	2	50,30
1.5	1.45	50	1.2	12	4	2	50,30
1.5	1.45	50	1.2	16	4	2	50,30
1.5	1.45	60	1.2	20	4	2	50,30
1.6	1.51	50	2.4	16	4	2	63,90
1.8	2.71	50	2.7	16	4	2	73,50
2.0	1.95	50	1.6	4	4	2	62,80

→2-3



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.3 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm
da 3.5 mm a 6 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

FRESE MICRO POWER SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS MICRO POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE LUNGA & EXTRA L.

NORMAL/LONG/EXTRALONG SERIES
 NORMAL/LANGE/EXTRALANGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE/EXTRALONGUE
 SERIE NORMAL/LARGA/EXTRALARGA



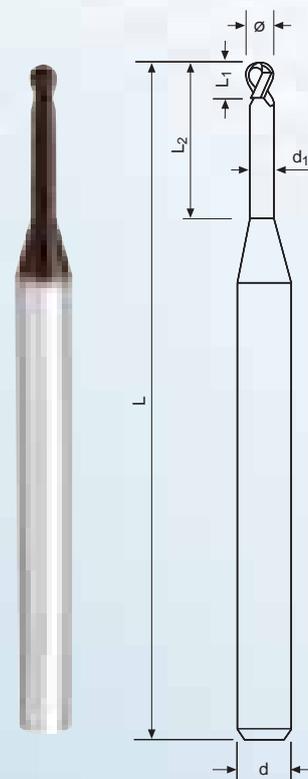
431RXT

NEW Ø



Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	431RXT €
2.0	1.95	50	1.6	6	4	2	50,30
2.0	1.95	50	1.6	8	4	2	50,30
2.0	1.95	50	1.6	10	4	2	50,30
2.0	1.95	50	1.6	12	4	2	50,30
2.0	1.95	50	1.6	16	4	2	50,30
2.0	1.95	60	1.6	20	4	2	50,30
2.0	1.95	60	1.6	25	4	2	50,30
2.0	1.95	70	1.6	30	4	2	50,30
3.0	2.85	50	2.4	6	6	2	48,00
3.0	2.85	50	2.4	8	6	2	51,20
3.0	2.85	50	2.4	10	6	2	54,40
3.0	2.85	50	2.4	12	6	2	54,40
3.0	2.85	60	2.4	16	6	2	54,40
3.0	2.85	60	2.4	20	6	2	54,40
3.0	2.85	70	2.4	25	6	2	57,60
3.0	2.85	70	2.4	30	6	2	57,60
3.0	2.85	80	2.4	35	6	2	63,90
4.0	3.85	60	3.2	8	6	2	57,60
4.0	3.85	60	3.2	10	6	2	57,60
4.0	3.85	60	3.2	12	6	2	57,60
4.0	3.85	60	3.2	16	6	2	57,60
4.0	3.85	70	3.2	20	6	2	57,60
4.0	3.85	70	3.2	25	6	2	57,60
4.0	3.85	80	3.2	30	6	2	73,50
4.0	3.85	80	3.2	35	6	2	73,50
4.0	3.85	90	3.2	40	6	2	83,10
4.0	3.85	100	3.2	45	6	2	99,10
4.0	3.85	100	3.2	50	6	2	99,10
5.0	4.85	70	5	25	6	2	137,00

→3-3



Rivestimento X-Treme

X-Treme coating
 X-Treme-Beschichtung
 Revêtement X-Treme
 Recubrimiento X-Treme



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.3 mm a 3 mm	+ .000 mm - .025 mm	+ .000 mm - .013 mm
da 3.5 mm a 6 mm	+ .000 mm - .038 mm	+ .000 mm - .013 mm



SERIE CORTA NORMALE & LUNGA

SHORT /NORMAL/LONG SERIES
KURZE /NORMAL/LANGE AUSFÜHRUNG
SÉRIE COURTE /NORMALE/LONGUE
SERIE CORTA /NORMAL/LARGA



FRESE MICRO POWER SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
MICRO POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES MICRO POWER HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS MICRO POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

433RXT



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	433RXT €
0.2	0.18	45	0.16	0.5	4	2	62,60
0.2	0.18	45	0.16	1	4	2	62,60
0.2	0.18	45	0.16	1.5	4	2	62,60
0.3	0.28	45	0.24	1	4	2	62,60
0.3	0.28	45	0.24	1.5	4	2	62,60
0.3	0.28	45	0.24	2	4	2	62,60
0.4	0.37	45	0.3	1	4	2	62,60
0.4	0.37	45	0.3	1.5	4	2	62,60
0.4	0.37	45	0.3	2	4	2	62,60

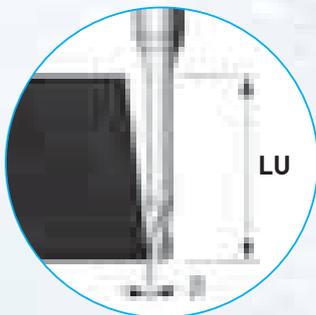
→1-4

Ø/R mm	L ₂ mm	β					
		0.5°	1°	1°30'	2°	2°30'	3°
0.2	0.5	1.08	1.25	1.43	1.6	1.77	1.94
0.2	1	1.48	1.75	1.99	2.21	2.41	2.62
0.2	1.5	1.85	2.25	2.55	2.8	3.04	3.26
0.3	1	1.55	1.8	2.02	2.23	2.43	2.62
0.3	1.5	1.95	2.3	2.57	2.82	3.05	3.27
0.3	2	2.29	2.8	3.12	3.41	3.66	3.9
0.4	1	1.70	1.91	2.11	2.30	2.49	2.67
0.4	1.5	2.13	2.41	2.66	2.89	3.10	3.31
0.4	2	2.54	2.91	3.2	3.47	3.71	3.94

→1-4

INFORMAZIONI TECNICHE ANGOLO DI COLLISIONE β

TECHNICAL DATA - INCLINED ANGLE β
TECHNISCHE HILFE - NEIGUNGSWINKEL β
SERVICE TECHNIQUE - ANGLE DE COLLISION β
INFORMACIÓN TÉCNICA - ANGULO INCLINADO β

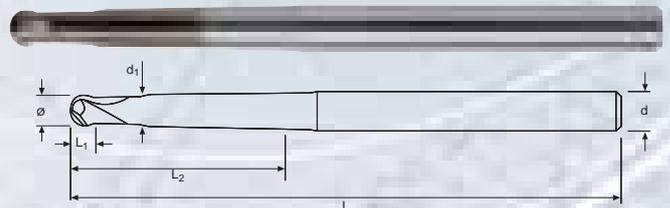


Effettiva lunghezza utile di lavoro legata all'inclinazione β del pezzo da lavorare

Effective machining depth depending on inclined angle β of workpiece
Die effektive Arbeitstiefe hängt vom Neigungswinkel β des Werkstückes ab
Longueur utile effective d'usinage liée à l'inclinaison β de la pièce à usiner
Largo útil de trabajo depende del ángulo de inclinación de la pieza



GAMBO RASTREMATO
TAPERED SHANK
VERJÜNGTER SCHAFT
QUEUE FUSÉLÉE
MANGO REBAJADO



L2 = LUNGHEZZA UTILE DI LAVORO
L2 = MACHINING DEPTH
L2 = ARBEITSTIEFE
L2 = LONGUEUR UTILE
L2 = LARGO ÚTIL DE TRABAJO



Rivestimento X-Treme
X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.2 mm a 6 mm	+0.000 mm -0.001 mm	h6

FRESE MICRO POWER SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
 MICRO POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES MICRO POWER HÉMISPÉRIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
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SERIE CORTA NORMALE & LUNGA

SHORT /NORMAL/LONG SERIES
 KURZE /NORMAL/LANGE AUSFÜHRUNG
 SÉRIE COURTE /NORMALE/LONGUE
 SERIE CORTA /NORMAL/LARGA



433RXT



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	433RXT €
0.4	0.37	45	0.3	2.5	4	2	62,60
0.4	0.37	45	0.3	3	4	2	62,60
0.5	0.45	45	0.4	2	4	2	62,60
0.5	0.45	45	0.4	3	4	2	62,60
0.5	0.45	45	0.4	4	4	2	62,60
0.5	0.45	45	0.4	5	4	2	62,60
0.5	0.45	45	0.4	6	4	2	62,60
0.5	0.45	45	0.4	8	4	2	62,60
0.6	0.55	45	0.5	2	4	2	62,60
0.6	0.55	45	0.5	3	4	2	62,60
0.6	0.55	45	0.5	4	4	2	62,60
0.6	0.55	45	0.5	5	4	2	62,60
0.6	0.55	45	0.5	6	4	2	62,60
0.6	0.55	45	0.5	8	4	2	62,60
0.8	0.75	45	0.6	2	4	2	62,60
0.8	0.75	45	0.6	4	4	2	62,60
0.8	0.75	45	0.6	5	4	2	62,60
0.8	0.75	45	0.6	6	4	2	62,60
0.8	0.75	45	0.6	7	4	2	62,60
0.8	0.75	45	0.6	8	4	2	62,60
0.8	0.75	45	0.6	10	4	2	62,60
1	0.95	45	0.8	3	4	2	57,80
1	0.85	45	0.8	4	4	2	57,80
1	0.95	45	0.8	5	4	2	57,80
1	0.95	45	0.8	6	4	2	57,80
1	0.95	45	0.8	7	4	2	57,80
1	0.95	45	0.8	8	4	2	57,80
1	0.95	45	0.8	9	4	2	57,80
1	0.95	45	0.8	10	4	2	57,80
1	0.95	45	0.8	12	4	2	57,80
1	0.95	50	0.8	14	4	2	57,80
1	0.95	50	0.8	16	4	2	57,80
1	0.95	55	0.8	20	4	2	57,80
1.2	1.15	45	1	6	4	2	57,80
1.2	1.15	45	1	8	4	2	57,80
1.2	1.15	45	1	10	4	2	57,80

→2-4

Ø/R mm	L ₂ mm	β					
		0.5°	1°	1°30'	2°	2°30'	3°
LU							
0.4	2.5	2.93	3.41	3.75	4.04	4.31	4.56
0.4	3	3.26	3.91	4.29	4.61	4.9	5.16
0.5	2	2.77	3.06	3.32	3.57	3.79	4.01
0.5	3	3.62	4.06	4.4	4.7	4.97	5.23
0.5	4	4.43	5.06	5.48	5.82	6.13	6.51
0.5	5	4.61	6.06	6.54	6.93	7.27	7.75
0.5	6	4.61	7.06	7.61	8.04	8.41	8.99
0.5	8	4.61	9.06	9.73	10.23	10.65	11.23
0.6	2	2.81	3.09	3.34	3.58	3.8	4.02
0.6	3	3.68	4.09	4.42	4.71	4.98	5.23
0.6	4	4.51	5.09	5.49	5.83	6.14	6.42
0.6	5	5.12	6.09	6.56	6.94	7.28	7.59
0.6	6	4.96	7.09	7.63	8.05	8.41	8.74
0.6	8	4.96	9.09	9.75	10.24	10.65	11.02
0.8	2	2.89	3.15	3.38	3.61	3.82	4.03
0.8	4	4.63	5.15	5.53	5.86	6.15	6.43
0.8	5	5.44	6.15	6.59	6.96	7.29	7.6
0.8	6	5.66	7.15	7.66	8.07	8.43	8.75
0.8	7	5.66	8.15	8.72	9.16	9.55	9.9
0.8	8	5.66	9.15	9.77	10.25	10.66	11.03
0.8	10	5.66	11.15	11.88	12.42	12.88	13.28
1	3	3.86	4.2	4.49	4.76	5.01	5.25
1	4	4.74	5.2	5.56	5.88	6.17	6.44
1	5	5.58	6.2	6.63	6.93	7.31	7.6
1	6	6.35	7.2	7.69	7.99	8.44	8.76
1	7	6.36	8.2	8.75	8.99	9.56	9.9
1	8	6.36	9.2	9.8	9.9	10.68	11.04
1	9	6.36	10.2	10.86	10.86	11.78	12.17
1	10	6.36	11.2	11.91	11.91	12.89	13.29
1	12	6.36	13.2	14.01	14.01	15.08	15.51
1	14	6.36	15.2	16.11	16.11	17.26	17.72
1	16	6.36	17.2	18.2	18.2	19.43	19.91
1	20	6.36	21.2	22.36	22.36	23.74	24.27
1.2	6	6.53	7.25	7.72	7.72	8.45	8.77
1.2	8	7.06	9.25	9.83	9.83	10.69	11.04
1.2	10	7.06	11.25	11.94	11.94	12.9	13.29

→2-4



SERIE CORTA NORMALE & LUNGA

SHORT /NORMAL/LONG SERIES
KURZE /NORMAL/LANGE AUSFÜHRUNG
SÉRIE COURTE /NORMALE/LONGUE
SERIE CORTA /NORMAL/LARGA

FRESE MICRO POWER SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
MICRO POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES MICRO POWER HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS MICRO POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

433RXT



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	433RXT €
1.2	1.15	45	1	12	4	2	57,80
1.4	1.35	45	1.1	8	4	2	57,80
1.4	1.35	45	1.1	12	4	2	57,80
1.4	1.35	50	1.1	16	4	2	57,80
1.5	1.45	45	1.2	8	4	2	57,80
1.5	1.45	45	1.2	12	4	2	57,80
1.5	1.45	50	1.2	16	4	2	57,80
1.5	1.45	55	1.2	20	4	2	57,80
1.6	1.55	45	1.3	8	4	2	57,80
1.6	1.55	45	1.3	12	4	2	57,80
1.6	1.55	50	1.3	16	4	2	57,80
1.6	1.55	55	1.3	20	4	2	57,80
1.8	1.75	45	1.4	8	4	2	57,80
1.8	1.75	45	1.4	12	4	2	57,80
1.8	1.75	50	1.4	16	4	2	57,80
1.8	1.95	55	1.4	20	4	2	57,80
2	1.95	45	1.6	6	4	2	55,40
2	1.95	45	1.6	8	4	2	55,40
2	1.95	45	1.6	10	4	2	55,40
2	1.95	45	1.6	12	4	2	55,40
2	1.95	50	1.6	14	4	2	55,40
2	1.95	50	1.6	16	4	2	55,40
2	1.95	55	1.6	18	4	2	55,40
2	1.95	55	1.6	20	4	2	55,40
2	1.95	60	1.6	22	4	2	55,40
2	1.95	65	1.6	25	4	2	55,40
2	1.95	70	1.6	30	4	2	55,40
3	2.85	50	2.4	8	6	2	55,40
3	2.85	50	2.4	10	6	2	55,40
3	2.85	55	2.4	16	6	2	55,40
3	2.85	60	2.4	20	6	2	55,40
3	2.85	65	2.4	25	6	2	55,40
3	2.85	70	2.4	30	6	2	55,40
3	2.85	80	2.4	35	6	2	55,40
4	3.85	60	3.2	10	6	2	57,80
4	3.85	60	3.2	16	6	2	57,80

→3-4

Ø/R mm	L ₂ mm	R					
		0.5°	1°	1°30'	2°	2°30'	3°
LU							
1.2	12	7.06	13.25	14.03	14.61	15.09	15.52
1.4	8	7.76	9.3	9.86	10.31	10.7	11.05
1.4	12	7.76	13.3	14.06	14.63	15.1	15.52
1.4	16	7.76	17.3	18.24	18.9	19.45	19.92
1.5	8	8.25	9.32	9.87	10.32	10.7	11.05
1.5	12	8.11	13.32	14.07	14.63	15.11	15.53
1.5	16	8.11	17.32	18.25	18.91	19.45	19.93
1.5	20	8.11	21.32	22.41	23.15	23.76	24.38
1.6	8	8.38	9.34	9.88	10.32	10.71	11.06
1.6	12	8.46	13.34	14.08	14.64	15.11	15.53
1.6	16	8.46	17.34	18.26	18.91	19.46	19.93
1.6	20	8.46	21.34	22.42	23.16	23.76	-
1.8	8	8.55	9.38	9.91	10.34	10.72	11.06
1.8	12	9.16	13.38	14.11	14.65	15.12	15.53
1.8	16	9.16	17.38	18.28	18.93	19.46	19.93
1.8	20	9.16	21.38	22.44	23.17	23.77	-
2	6	6.91	7.43	7.83	8.18	8.5	8.8
2	8	8.66	9.43	9.94	10.36	10.73	11.07
2	10	9.86	11.43	12.03	12.52	12.94	13.32
2	12	9.86	13.43	14.13	14.67	15.13	15.54
2	14	9.86	15.43	16.22	16.81	17.31	17.75
2	16	9.86	17.43	18.3	18.94	19.47	19.94
2	18	9.86	19.43	20.38	21.07	21.63	-
2	20	9.86	21.43	22.46	23.18	23.78	-
2	22	9.86	23.43	24.54	25.3	-	-
2	25	9.86	26.43	27.65	28.46	-	-
2	30	9.86	31.43	32.81	-	-	-
3	8	9.48	9.93	10.31	10.66	10.98	11.28
3	10	11.35	11.93	12.39	12.8	13.17	13.5
3	16	16.83	17.93	18.62	19.18	19.66	20.09
3	20	19.09	21.93	22.76	23.4	23.94	24.42
3	25	19.09	26.93	27.92	28.65	29.27	29.8
3	30	19.09	31.93	33.07	33.89	34.56	-
3	35	19.09	36.93	38.21	39.11	-	-
4	10	11.57	12.07	12.49	12.87	13.21	13.53
4	16	17.16	18.07	18.7	19.23	19.7	20.11

→3-4



SERIE NORMALE

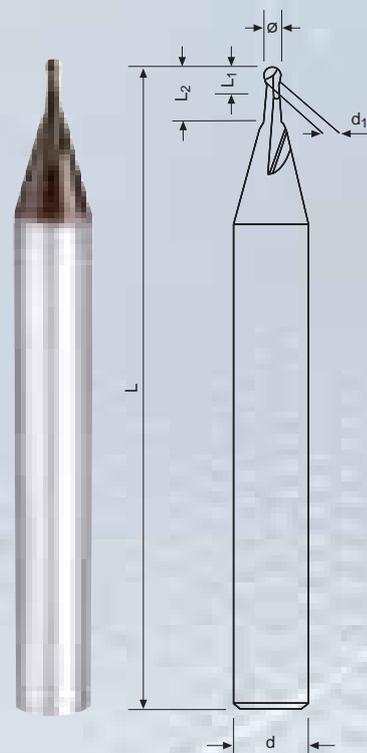
NORMAL SERIES
NORMAL AUSFÜHRUNG
SÉRIE NORMALE
SERIE NORMAL

FRESE MICRO POWER SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

MICRO POWER BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
MICRO POWER RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES MICRO POWER HÉMISPÉRIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS MICRO POWER ESFÉRICAS - 2 LABIOS - SUB-MICROGRANO

413RXT

Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	413RXT €
0.3	~ 0.1	50	0.3	0.6	6	2	51,40
0.4	~ 0.1	50	0.4	0.8	6	2	51,40
0.6	~ 0.1	50	0.6	1.2	6	2	51,40
0.8	~ 0.1	50	0.8	1.6	6	2	51,40
1	0.95	50	1	2.5	6	2	42,00
1.2	1.15	50	1.2	3	6	2	42,00
1.4	1.35	50	1.4	7	6	2	49,10
1.5	1.45	50	1.6	3.8	6	2	43,90
1.6	1.55	50	1.8	4	6	2	49,10
1.8	1.75	50	2	4.5	6	2	49,10
2	1.95	50	2.5	5	6	2	43,90
2.5	2.4	50	3	5	6	2	46,90
3	2.85	50	4	6	6	2	46,90
3.5	3.35	50	5	6	6	2	51,80
4	3.85	50	6	6	6	2	46,80
5	4.85	50	5	7.5	6	2	50,00
6	5.85	50	6	9	6	2	53,00



Rivestimento X-Treme

X-Treme coating
X-Treme-Beschichtung
Revêtement X-Treme
Recubrimiento X-Treme

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.3 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm
da 3.5 mm a 6 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE



FRESE MICRO POWER A CANDELA: 2/4 TAGLI

Micro power end mills, Micro power Fräser, Fraises micro power, Fresas power micro: 2/4 Flutes - Schneiden - Dents - Labios

CAVA DAL PIENO: Vc e Fz: - 20%
Slotting: Vc e Fz: - 20%
Bohrnuten: Vc e Fz: - 20%
Rainurage: Vc e Fz: - 20%
Ranura: Vc e Fz: - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales	ap		ae	VC m/min	Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio												
	ap	ae	ap		0.5	1	1.5	2	2.5	3	3.5	4	5	6			
	P < 800 N/mm ²	1xD	0,5xD	0,2	60 - 80	0,005 0,007	0,007 0,009	0,009 0,011	0,011 0,013	0,013 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,20 0,22	0,22 0,24	-	-
P < 1100 N/mm ²	1xD	0,5xD	0,2	60-80	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,010	0,010 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,18 0,20	0,20 0,22	-	-	-
P < 1300 N/mm ²	1xD	0,5xD	0,2	50- 60	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,010	0,010 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,18 0,20	0,20 0,22	-	-	-
M > 800 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K GG	1xD	0,5xD	0,2	-	0,005 0,007	0,007 0,009	0,009 0,011	0,011 0,013	0,013 0,014	0,014 0,016	0,016 0,018	0,018 0,02	0,020 0,022	0,022 0,024	-	-	-
K GGG	1xD	0,5xD	0,2	80 - 100	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,010	0,010 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,020 0,024	-	-	-
N Alluminio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N Non metalli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H Temprati 38 / 48 HRC	0,5xD	0,2 X d	0,2	40 - 50	0,005 0,007	0,007 0,009	0,009 0,011	0,011 0,013	0,013 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,020 0,022	0,022 0,024	-	-	-
H Temprati 48 / 58 HRC	0,5xD	0,2xD	0,2	30 - 50	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,010	0,010 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,020 0,022	-	-	-
H Temprati 58 / 68 HRC	0,5xD	0,2xD	0,2	30 - 40	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,010	0,010 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,020 0,022	-	-	-

PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE

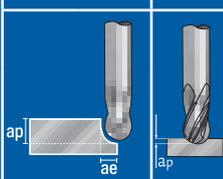


FRESE MICRO POWER SEMISFERICHE: 2/4 TAGLI

Micro power ball nose end mills, Micro power Radiusfräser, Fraises micro power HÉMISPHERIQUES, Fresas micro power esféricas: 2/4 Flutes - Schneiden - Dents - Labios

CAVA DAL PIENO: Vc e Fz: - 20%

Slotting: Vc e Fz: - 20%
Bohrnuten: Vc e Fz: - 20%
Rainurage: Vc e Fz: - 20%
Ranura: Vc e Fz: - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales				VC m/min	 Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio												
	ap	ae	ap		0.5	1	1.5	2	2.5	3	3.5	4	5	6			
	P < 800 N/mm ²	0,03xd	0,2xd		0,2xd	50 - 60	0,005 0,007	0,007 0,009	0,009 0,011	0,011 0,013	0,013 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,20 0,22	0,22 0,24	-
P < 1100 N/mm ²	0,03xd	0,2xd	0,2xd	50 - 60	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,010	0,010 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,18 0,20	0,20 0,22	-	-	-
P < 1300 N/mm ²	0,03xd	0,2xd	0,2xd	40 - 60	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,010	0,010 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,18 0,20	0,20 0,22	-	-	-
M > 800 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K GG	0,03xd	0,2xd	0,2xd	50 - 60	0,005 0,007	0,007 0,009	0,009 0,011	0,011 0,013	0,013 0,014	0,014 0,016	0,016 0,018	0,018 0,02	0,020 0,022	0,022 0,024	-	-	-
K GGG	0,03xd	0,2xd	0,2xd	40 - 60	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,01	0,01 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,020 0,022	-	-	-
N Alluminio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N Non metalli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S Leghe speciali a base Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H Temprati 38 / 48 HRC	0,03xd	0,2 X d	0,2xd	40 - 50	0,005 0,007	0,007 0,009	0,009 0,011	0,011 0,013	0,013 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,020 0,022	0,022 0,024	-	-	-
H Temprati 48 / 58 HRC	0,03xd	0,2xd	0,2xd	30 - 50	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,01	0,01 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,020 0,022	-	-	-
H Temprati 58 / 68 HRC	0,02xd	0,2xd	0,2xd	30 - 40	0,003 0,005	0,005 0,007	0,007 0,009	0,009 0,01	0,01 0,012	0,012 0,014	0,014 0,016	0,016 0,018	0,018 0,020	0,020 0,022	-	-	-



FRESE POWER GRAPHITE



POWER GRAPHITE END MILLS



POWER GRAPHIT FRÄSER



FRAISES POWER GRAPHITE



FRESAS POWER GRAFITO



FRESE POWER GRAPHITE TORICHE A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER GRAPHITE TORIC END MILLS - 4 FLUTES - SUB-MICROGRAIN
 POWER GRAPHIT TORUSFRÄSER - 4 NJUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER GRAPHITE TORIQUES À 4 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER GRAFITO TÓRICAS - 4 LABIOS - SUB-MICROGRANO

SERIE EXTRALUNGA

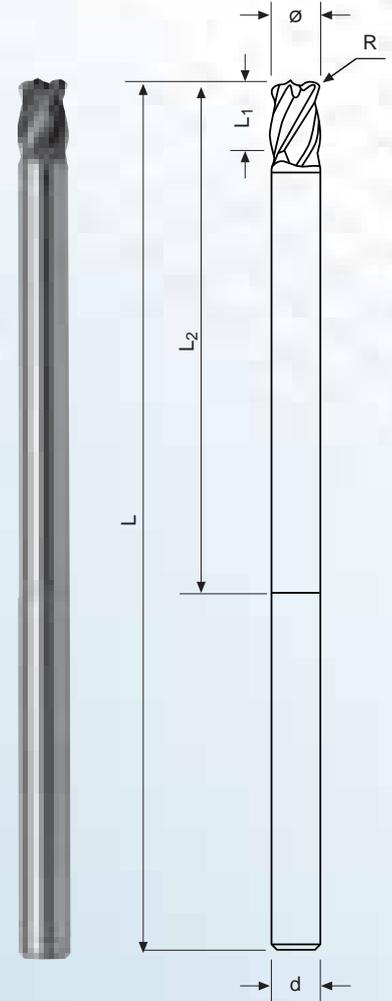
EXTRALONG SERIES
 EXTRALANGE AUSFÜHRUNG
 SÉRIE EXTRALONGUE
 SERIE EXTRALARGA



1436D



ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1436D €
2/0.2	1.92	65	3	30	4	4	98,60
2/0.5	1.92	65	3	30	4	4	98,60
3/0.3	2.9	65	4	40	4	4	95,20
3/0.5	2.9	65	4	40	4	4	95,20
4/0.3	3.9	80	5	50	4	4	105,50
4/0.5	3.9	80	5	50	4	4	105,50
6/0.3	5.8	100	8	60	6	4	125,00
6/0.5	5.8	100	8	60	6	4	125,00
6/1	5.8	100	8	60	6	4	125,00
8/1	7.8	120	10	84	8	4	219,00
8/2	7.8	120	10	84	8	4	219,00
10/1	9.8	130	12	88	10	4	255,00
10/2	9.8	130	12	88	10	4	255,00
12/1	11.8	140	15	93	12	4	309,00
12/2	11.8	140	15	93	12	4	309,00
12/3	11.8	140	15	93	12	4	309,00



Rivestimento Diamond
 Diamond coating
 Beschichtung Diamond
 Revêtement Diamond
 Recubrimiento Diamante

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 2 mm a 12 mm	+0.000 mm -0.01 mm	h6



SERIE LUNGA

LONG SERIES
LANGE AUSFÜHRUNG
SÉRIE LONGUE
SERIE LARGA

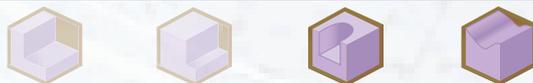
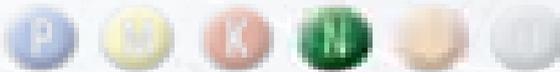
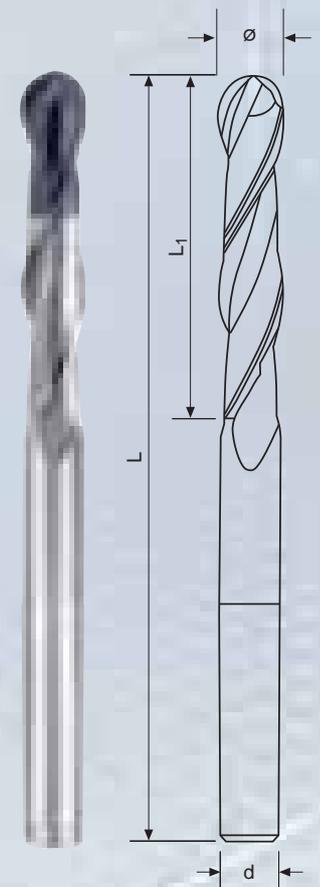
FRESE POWER GRAPHITE SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER GRAPHITE BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
POWER GRAPHIT RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER GRAPHITE HÉMI-SPHÉRIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER GRAFITO ESFÉRICA 2 LABIOS - SUB-MICROGRANO

1420RD



\varnothing mm	L mm	L ₁ mm	d mm	Z	1420RD €
1	39	3	3	2	98,90
1.5	39	5	3	2	98,90
2	39	7	3	2	98,90
2.5	39	7	3	2	98,90
3	39	9	3	2	98,90
4	51	14	4	2	106,00
5	51	16	5	2	113,00
6	64	19	6	2	119,50
8	64	21	8	2	129,50
10	70	22	10	2	147,00
12	76	25	12	2	174,00



Rivestimento Diamond

Diamond coating
Beschichtung Diamond
Revêtement Diamond
Recubrimiento Diamante

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 1 mm a 3 mm	+0.000 mm -0.025 mm	+0.000 mm -0.013 mm
da 4 mm a 12 mm	+0.000 mm -0.038 mm	+0.000 mm -0.013 mm

FRESE POWER GRAPHITE SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER GRAPHITE BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
 POWER GRAPHIT RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER GRAPHITE HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER GRAFITO ESFÉRICA 2 LABIOS - SUB-MICROGRANO

SERIE EXTRALUNGA

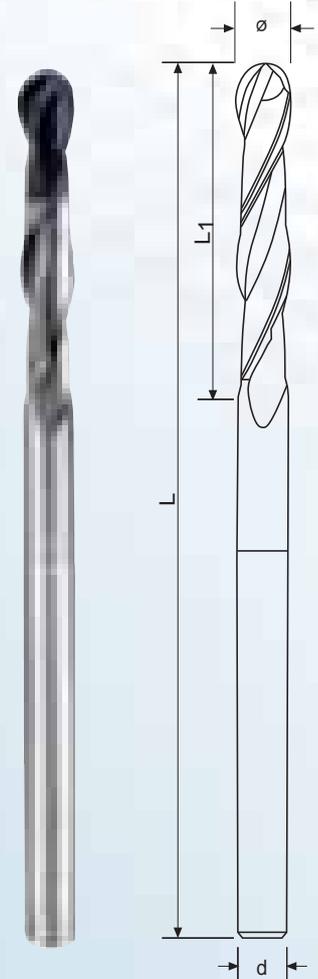
EXTRALONG SERIES
 EXTRALANGE AUSFÜHRUNG
 SÉRIE EXTRALONGUE
 SERIE EXTRALARGA



1421RD



Ø mm	L mm	L ₁ mm	d mm	Z	1421RD €
2	75	10	4	2	105,00
3	75	15	4	2	105,00
4	75	20	4	2	113,00
5	100	25	6	2	114,00
6	100	30	6	2	124,00
7	110	35	6	2	139,00
8	110	40	8	2	149,50
9	120	45	8	2	169,00
10	120	50	10	2	186,00
11	130	55	10	2	198,00
12	130	65	12	2	217,00



Rivestimento Diamond

Diamond coating
 Beschichtung Diamond
 Revêtement Diamond
 Recubrimiento Diamante



TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 2 mm a 3 mm	+ .000 mm - .025 mm	+ .000 mm - .013 mm
da 4 mm a 12 mm	+ .000 mm - .038 mm	+ .000 mm - .013 mm



SERIE LUNGA

LONG SERIES
LANGE AUSFÜHRUNG
SÉRIE LONGUE
SERIE LARGA

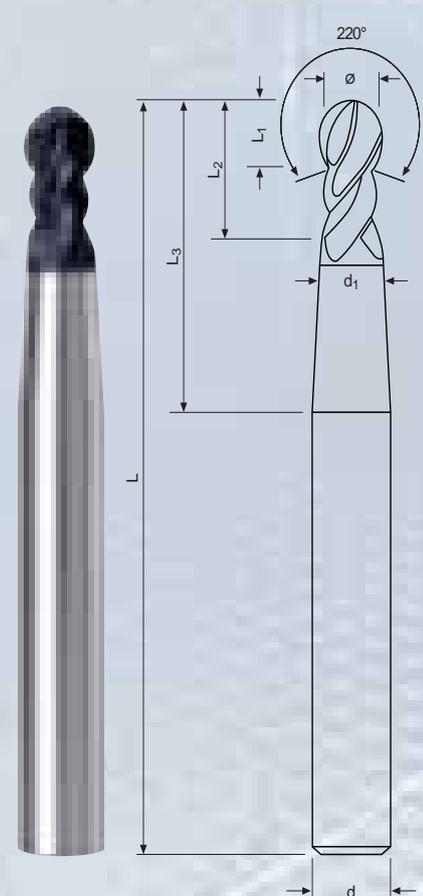
FRESE POWER GRAPHITE SEMISFERICHE A 4 TAGLI IN MICROGRANA ULTRAFINE

POWER GRAPHITE BALL NOSE 220° - 4 FLUTES - SUB-MICROGRAIN
POWER GRAPHITE RADIUSFRÄSER 220° - 4 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER GRAPHITE HÉMISPÉRIQUES 220° À 4 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER GRAFITO ESFÉRICAS 220° - 4 LABIOS - SUB-MICROGRANO

1425RD



Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	L ₃ mm	d mm	Z	1425RD €
3	2.5	80	2	20	40	4	4	110,00
4	3.3	80	2.7	25	50	4	4	118,50
5	4.1	90	3.4	30	60	6	4	135,00
6	4.7	100	4.05	30	60	6	4	140,00
8	6.6	130	5.37	30	60	8	4	222,00
10	8.2	150	6.71	30	60	10	4	264,00



Rivestimento Diamond
Diamond coating
Beschichtung Diamond
Revêtement Diamond
Recubrimiento Diamante

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 3 mm a 10 mm	+0.000 mm -0.01 mm	h6



FRESE POWER GRAPHITE TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER GRAPHITE TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
 POWER GRAPHIT TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER GRAPHITE TORIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER GRAFITO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE LUNGA & EXTRA L.

NORMAL/LONG/EXTRALONG SERIES
 NORMAL/LANGE/EXTRALANGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE/EXTRALONGUE
 SERIE NORMAL/LARGA/EXTRALARGA



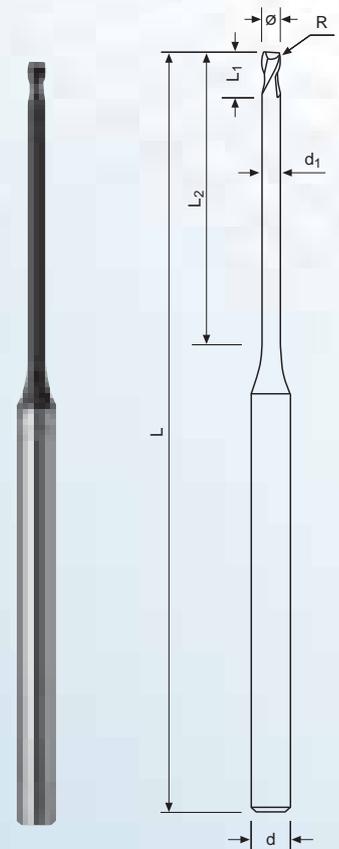
1437D

NEW Ø



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1437D €
0.2/0.05	0.18	55	0.3	0.5	4	2	101,00
0.2/0.05	0.18	55	0.3	1	4	2	101,00
0.2/0.05	0.18	55	0.3	1.5	4	2	101,00
0.3/0.05	0.28	55	0.45	1	4	2	101,00
0.3/0.05	0.28	55	0.45	2	4	2	101,00
0.3/0.05	0.28	55	0.45	2	4	2	101,00
0.4/0.1	0.37	55	0.6	2	4	2	101,00
0.4/0.1	0.37	55	0.6	3	4	2	101,00
0.4/0.1	0.37	55	0.6	4	4	2	101,00
0.5/0.1	0.47	55	0.7	3	4	2	101,00
0.5/0.1	0.47	55	0.7	5	4	2	101,00
0.5/0.1	0.47	55	0.7	8	4	2	101,00
0.6/0.1	0.57	55	0.9	3	4	2	101,00
0.6/0.1	0.57	55	0.9	5	4	2	101,00
0.6/0.1	0.57	55	0.9	8	4	2	101,00
0.8/0.2	0.76	55	1.1	4	4	2	101,00
0.8/0.2	0.76	55	1.1	6	4	2	101,00
0.8/0.2	0.76	55	1.1	8	4	2	101,00
0.8/0.2	0.76	55	1.1	10	4	2	101,00
1/0.1	0.95	55	1.5	18	4	2	101,00
1/0.2	0.95	55	1.5	6	4	2	101,00
1/0.2	0.95	55	1.5	10	4	2	101,00
1/0.2	0.95	55	1.5	14	4	2	101,00
1/0.2	0.95	55	1.5	18	4	2	101,00
1/0.2	0.95	60	1.5	24	4	2	101,00
1.2/0.2	1.15	55	1.6	6	4	2	101,00

→1-3



Rivestimento Diamond

Diamond coating
 Beschichtung Diamond
 Revêtement Diamond
 Recubrimiento Diamante

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.2 mm a 6.0 mm	+0.000 mm -0.01 mm	h6



SERIE NORMALE LUNGA & EXTRA L.

NORMAL/LONG/EXTRALONG SERIES
NORMAL/LANGE/EXTRALANGE AUSFÜHRUNG
SÉRIE NORMALE/LONGUE/EXTRALONGUE
SERIE NORMAL/LARGA/EXTRALARGA

FRESE POWER GRAPHITE TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

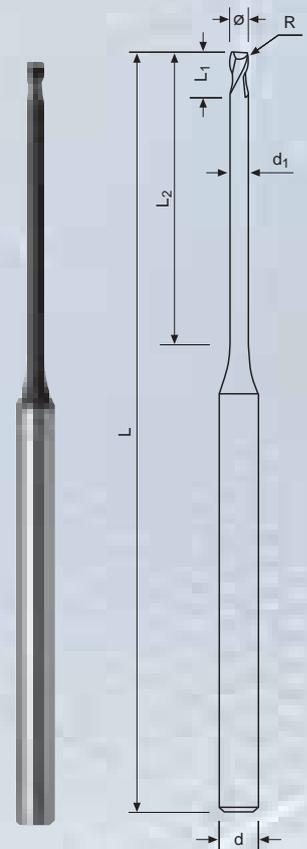
POWER GRAPHITE TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
POWER GRAPHIT TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER GRAPHITE TORIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER GRAFITO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

1437D

NEW Ø



Ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1437D €
1.2/0.2	1.15	55	1.6	10	4	2	101,00
1.2/0.2	1.15	55	1.6	14	4	2	101,00
1.2/0.2	1.15	55	1.6	18	4	2	101,00
1.2/0.2	1.15	60	1.6	24	4	2	101,00
1.2/0.2	1.44	55	2	6	4	2	101,00
1.5/0.2	1.44	55	2	10	4	2	101,00
1.5/0.2	1.44	55	2	14	4	2	101,00
1.5/0.2	1.44	55	2	18	4	2	101,00
1.5/0.2	1.44	60	2	24	4	2	101,00
2/0.2	1.92	65	2.5	6	4	2	101,00
2/0.2	1.92	65	2.5	10	4	2	101,00
2/0.2	1.92	65	2.5	14	4	2	101,00
2/0.2	1.92	65	2.5	18	4	2	101,00
2/0.2	1.92	75	2.5	24	4	2	101,00
2/0.2	1.92	75	2.5	30	4	2	101,00
2/0.5	1.92	65	2.5	6	4	2	101,00
2/0.5	1.92	65	2.5	10	4	2	101,00
2/0.5	1.92	65	2.5	14	4	2	101,00
2/0.5	1.92	65	2.5	18	4	2	101,00
2/0.5	1.92	75	2.5	24	4	2	101,00
2/0.5	1.92	75	2.5	30	4	2	101,00
2.5/0.25	2.4	65	3.5	10	4	2	101,00
2.5/0.25	2.4	65	3.5	20	4	2	101,00
2.5/0.25	2.4	75	3.5	30	4	2	101,00
3/0.2	2.9	65	5	6	4	2	101,00
3/0.2	2.9	65	5	10	4	2	101,00
3/0.2	2.9	65	5	14	4	2	101,00
3/0.2	2.9	65	5	18	4	2	101,00
3/0.2	2.9	75	5	24	4	2	101,00
3/0.2	2.9	75	5	30	4	2	101,00
3.0/0.5	2.9	65	5	6	4	2	101,00
3.0/0.5	2.9	65	5	10	4	2	101,00
3.0/0.5	2.9	65	5	14	4	2	101,00
3.0/0.5	2.9	65	5	18	4	2	101,00
3.0/0.5	2.9	75	5	24	4	2	101,00
3.0/0.5	2.9	75	5	30	4	2	101,00
4/0.5	3.9	65	6	10	4	2	108,50



→2-3

FRESE POWER GRAPHITE TORICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER GRAPHITE TORIC END MILLS - 2 FLUTES - SUB-MICROGRAIN
 POWER GRAPHIT TORUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER GRAPHITE TORIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER GRAFITO TÓRICAS - 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE LUNGA & EXTRA L.

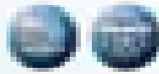
NORMAL/LONG/EXTRALONG SERIES
 NORMAL/LANGE/EXTRALANGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE/EXTRALONGUE
 SERIE NORMAL/LARGA/EXTRALARGA



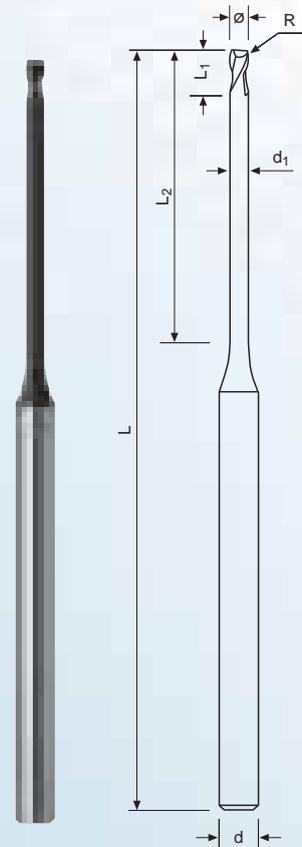
186

1437D

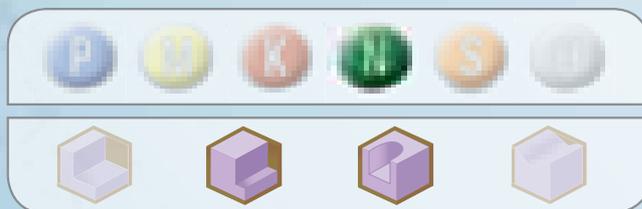
NEW



ø/R mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1437D €
4/0.5	3.9	65	6	14	6	2	108,50
4/0.5	3.9	65	6	18	6	2	108,50
4/0.5	3.9	75	6	24	6	2	108,50
4/0.5	3.9	75	6	30	6	2	108,50
5/0.5	4.9	65	7.5	10	6	2	119,50
5/0.5	4.9	65	7.6	20	6	2	119,50
5/0.5	4.9	75	7.7	30	6	2	119,50
5/0.5	4.9	90	7.8	40	6	2	119,50
6/0.5	5.9	65	10	10	6	2	117,00
6/0.5	5.9	65	10	20	6	2	123,50
6/0.5	5.9	75	10	30	6	2	123,50
6/0.5	5.9	90	10	40	6	2	123,50
6/0.5	5.9	90	10	50	6	2	123,50



→3-3



Rivestimento Diamond

Diamond coating
 Beschichtung Diamond
 Revêtement Diamond
 Recubrimiento Diamante

TOLLERANZA - TOLERANCE - TOLERANZ - TOLERANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.2 mm a 6.0 mm	+0.000 mm -0.01 mm	h6



angeloghezzi.it

FRESE POWER GRAPHITE SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER GRAPHITE BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
 POWER GRAPHIT RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
 FRAISES POWER GRAPHITE HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
 FRESAS POWER GRAFITO ESFÉRICA 2 LABIOS - SUB-MICROGRANO

SERIE NORMALE LUNGA & EXTRA L.

NORMAL/LONG/EXTRALONG SERIES
 NORMAL/LANGE/EXTRALANGE AUSFÜHRUNG
 SÉRIE NORMALE/LONGUE/EXTRALONGUE
 SERIE NORMAL/LARGA/EXTRALARGA

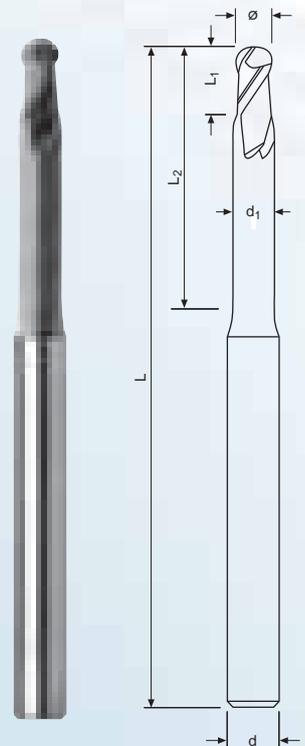


1434RD



Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1434RD €
0.2	0.18	55	0.3	0.5	4	2	121,50
0.2	0.18	55	0.3	1	4	2	121,50
0.2	0.18	55	0.3	1.5	4	2	121,50
0.3	0.28	55	0.45	1	4	2	121,50
0.3	0.28	55	0.45	2	4	2	121,50
0.3	0.28	55	0.45	3	4	2	121,50
0.4	0.37	55	0.6	2	4	2	121,50
0.4	0.37	55	0.6	3	4	2	121,50
0.4	0.37	55	0.6	4	4	2	121,50
0.5	0.47	55	0.7	3	4	2	121,50
0.5	0.47	55	0.7	5	4	2	121,50
0.5	0.47	55	0.7	8	4	2	121,50
0.6	0.57	55	0.9	3	4	2	121,50
0.6	0.57	55	0.9	5	4	2	121,50
0.6	0.57	55	0.9	8	4	2	121,50
0.8	0.76	55	1.1	4	4	2	121,50
0.8	0.76	55	1.1	6	4	2	121,50
0.8	0.76	55	1.1	8	4	2	121,50
0.8	0.76	55	1.1	10	4	2	121,50
1	0.95	55	1.5	6	4	2	121,50
1	0.95	55	1.5	10	4	2	121,50
1	0.95	55	1.5	14	4	2	121,50
1	0.95	55	1.5	18	4	2	121,50
1	0.95	60	1.5	24	4	2	121,50
1.2	1.15	55	1.6	6	4	2	121,50
1.2	1.15	55	1.6	10	4	2	121,50

→1-2



Rivestimento Diamond

Diamond coating
 Beschichtung Diamond
 Revêtement Diamond
 Recubrimiento Diamante

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 0.2 mm a 6.0 mm	+0.000 mm -0.010 mm	h6



SERIE NORMALE LUNGA & EXTRA L.

NORMAL/LONG/EXTRALONG SERIES
NORMAL/LANGE/EXTRALANGE AUSFÜHRUNG
SÉRIE NORMALE/LONGUE/EXTRALONGUE
SERIE NORMAL/LARGA/EXTRALARGA

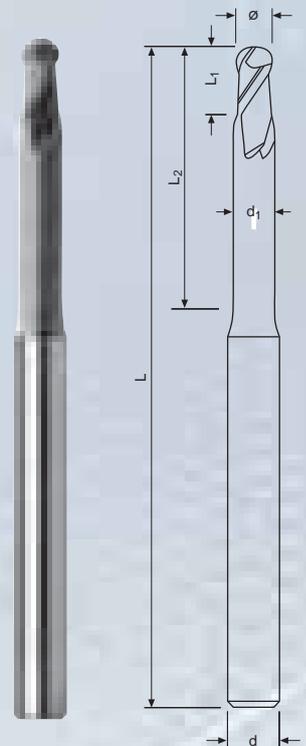
FRESE POWER GRAPHITE SEMISFERICHE A 2 TAGLI IN MICROGRANA ULTRAFINE

POWER GRAPHITE BALL NOSE END MILLS - 2 FLUTES - SUB-MICROGRAIN
POWER GRAPHIT RADIUSFRÄSER - 2 NUTEN - HARTMETALLQUALITÄT: ULTRA-FEINSTKORN
FRAISES POWER GRAPHITE HÉMISPHERIQUES À 2 DENTS - MICRO-GRAIN ULTRAFIN
FRESAS POWER GRAFITO ESFÉRICA 2 LABIOS - SUB-MICROGRANO

1434RD



Ø mm	d ₁ mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	1434RD €
1.2	1.15	55	1.6	14	4	2	121,50
1.2	1.15	55	1.6	18	4	2	121,50
1.2	1.15	60	1.6	24	4	2	121,50
1.5	1.44	55	2	6	4	2	121,50
1.5	1.44	55	2	10	4	2	121,50
1.5	1.44	55	2	14	4	2	121,50
1.5	1.44	55	2	18	4	2	121,50
1.5	1.44	60	2	24	4	2	121,50
2	1.92	65	2.5	6	4	2	121,50
2	1.92	65	2.5	10	4	2	121,50
2	1.92	65	2.5	14	4	2	121,50
2	1.92	65	2.5	18	4	2	121,50
2	1.92	75	2.5	24	4	2	121,50
2	1.92	75	2.5	30	4	2	121,50
2.5	2.4	65	3.5	10	4	2	121,50
2.5	2.4	65	3.5	20	4	2	121,50
2.5	2.4	75	3.5	30	4	2	121,50
3	2.9	65	5	6	4	2	121,50
3	2.9	65	5	10	4	2	121,50
3	2.9	65	5	14	4	2	121,50
3	2.9	65	5	18	4	2	121,50
3	2.9	75	5	24	4	2	121,50
3	2.9	75	5	30	4	2	121,50
4	3.9	65	6	10	6	2	130,50
4	3.9	65	6	14	6	2	130,50
4	3.9	65	6	18	6	2	130,50
4	3.9	75	6	24	6	2	130,50
4	3.9	75	6	30	6	2	130,50
5	4.9	65	7.5	10	6	2	143,00
5	4.9	65	7.5	20	6	2	143,00
5	4.9	75	7.5	30	6	2	143,00
5	4.9	90	7.5	40	6	2	143,00
6	5.9	65	10	10	6	2	148,00
6	5.9	65	10	20	6	2	148,00
6	5.9	75	10	30	6	2	148,00
6	5.9	90	10	40	6	2	148,00
6	5.9	90	10	50	6	2	148,00



→2-2

PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE



FRESE POWER GRAPHITE: 2/4 TAGLI

Power graphite end mills - Power graphit fräser - Fraises power graphite - Fresas power grafito:
2/4 Flutes - Schneiden - Dents - Labios

CAVA DAL PIENO: Vc e Fz: - 20%
Slotting: Vc e Fz: - 20%
Bohrnuten: Vc e Fz: - 20%
Rainurage: Vc e Fz: - 20%
Ranura: Vc e Fz: - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales				VC m/min														
					Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio													
	ap	ae	ap		1	2	3	4	6	8	10	12						
< 800 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
< 1100 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
< 1300 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
> 800 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
GG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
GGG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Si >12%	1,2xØ	0,5 X Ø	1 X Ø	400-750	0,010	0,013	0,015	0,020	0,029	0,039	0,049	0,059	-	-	-	-		
Si >14%	1,2xØ	0,5 X Ø	1 X Ø	750-1200	0,015	0,018	0,021	0,028	0,042	0,056	0,070	0,084	-	-	-	-		
Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Leghe speciali a base NI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Temprati 38 / 48 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Temprati 48 / 58 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		



SERVIZIO TECNICO

Technical Help
Technische Hilfe
Service technique
Ayuda técnica

PER ULTERIORI INFORMAZIONI CONTATTATECI

For more information please contact us
Für weitere Informationen bitten wir um Kontaktaufnahme
Pour tout renseignement contactez-nous
Para más informaciones llámenos



FRESE POWER BRASATE in PCD

-  PCD BRAZED POWER END MILLS
-  PKD BESTÜCKTE POWER FRÄSER
-  FRAISES POWER PCD BRASÉES
-  FRESAS POWER DE PCD SOLDADO



FRESE POWER PCD

MONO TAGLIO

POWER PCD END MILLS - 1 FLUTE
POWER PCD FRÄSER MIT - 1 NUTE
FRAISES POWER PKD MONO - 1 DENT
FRESAS POWER PCD - 1 LABIO

CON RIPORTO IN POLICRISTALLINO

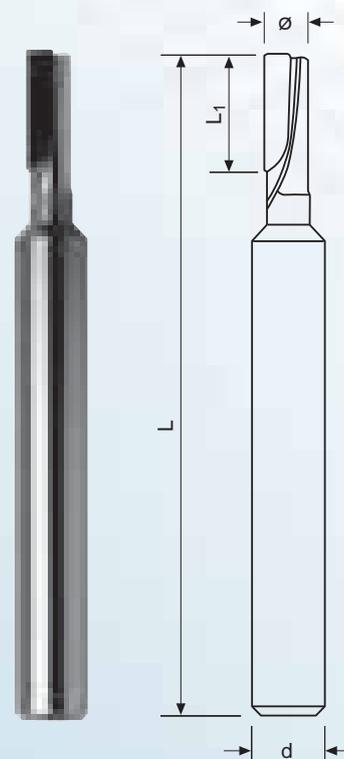
SOLID CARBIDE WITH POLYCRYSTALLINE DIAMOND
VOLLHARTMETALL PKD
AVEC RECHARGEMENT EN POLYCRISTALLIN
METAL DURO PCD



1601DT



\varnothing mm	L mm	L ₁ mm	d mm	Z	1601DT €
4	54	5	6	1	306,00
4	54	10	6	1	354,00
5	54	5	6	1	308,00
5	54	10	6	1	357,00
6	54	7	6	1	325,00
6	54	15	6	1	405,00
8	58	7	8	1	329,00
8	58	15	8	1	407,00
10	66	7	10	1	353,00
10	66	15	10	1	440,00



CORPO IN MICROGRANA ULTRAFINE
SUB-MICROGRAIN BODY
ULTRA FEINSTKORN KÖRPER
CORPS EN MICRO-GRAIN ULTRAFIN
CUERPO DE SUB-MICROGRANO

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 4 mm a 20 mm	h10	h6



CON RIPORTO IN POLICRISTALLINO

SOLID CARBIDE WITH POLYCRYSTALLINE DIAMOND
VOLLHARTMETALL PKD
AVEC RECHARGEMENT EN POLYCRISTALLIN
METAL DURO PCD

186

FRESE POWER PCD

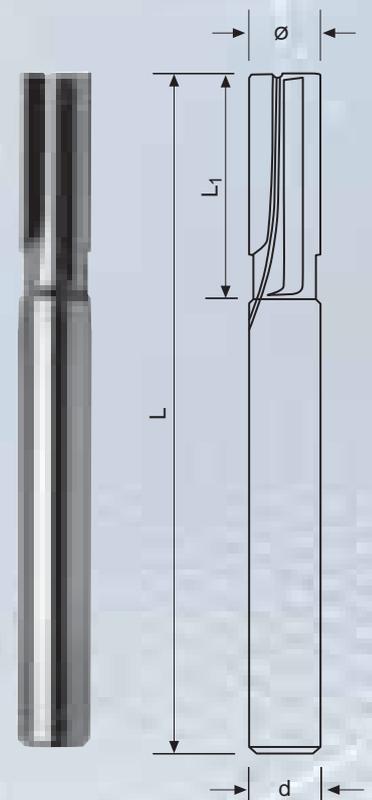
A 2 TAGLI

POWER PCD END MILLS - 2 FLUTES
POWER PCD FRÄSER - 2 NUTEN
FRAISES POWER PKD - 2 DENTS
FRESAS POWER PCD - 2 LABIOS

1602DT



Ø mm	L mm	L ₁ mm	d mm	Z	1602DT €
6	54	7	6	2	424,00
6	54	15	6	2	584,00
6	54	20	6	2	684,00
8	58	7	8	2	440,00
8	58	15	8	2	601,00
8	58	20	8	2	708,00
10	66	7	10	2	481,00
10	66	15	10	2	652,00
10	66	20	10	2	765,00
12	73	7	12	2	506,00
12	73	15	12	2	673,00
12	73	20	12	2	796,00
14	75	15	14	2	730,00
14	75	20	14	2	864,00
16	82	15	16	2	757,00
16	82	20	16	2	897,00
18	88	15	18	2	818,00
18	88	20	18	2	956,00
20	92	15	20	2	845,00
20	92	20	20	2	995,00



CORPO IN MICROGRANA ULTRAFINE
SUB-MICROGRAIN BODY
ULTRA FEINSTKORN KÖRPER
CORPS EN MICRO-GRAIN ULTRAFIN
CUERPO DE SUB-MICROGRANO

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 4 mm a 20 mm	h10	h6

FRESE POWER PCD TORICHE A 2 TAGLI

POWER TORIC PCD END MILLS 2 FLUTES
POWER PCD TORUSFRÄSER - 2 NUTEN
FRAISES POWER PDK TORIQUES À 2 DENTS
FRESAS POWER TÓRICAS PCD - 2 LABIOS

CON RIPORTO IN
POLICRISTALLINO

SOLID CARBIDE WITH POLYCRYSTALLINE DIAMOND
AVEC RECHARGEMENT EN POLYCRISTALLIN
VOLLHARTMETALL PCD
METAL DURO PCD



602RDT



Ø / R mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	602RDT €
4/0.3	75	2.5	12	6	2	431,00
4/0.3	75	2.5	20	6	2	431,00
4/0.3	75	2.5	28	6	2	431,00
4/0.3	75	2.5	35	6	2	431,00
4/0.5	75	2.5	20	6	2	431,00
5/0.3	75	3	15	6	2	431,00
5/0.3	75	3	25	6	2	431,00
5/0.3	75	3	35	6	2	431,00
5/0.5	75	3	25	6	2	431,00
6/0.5	100	6	18	6	2	431,00
6/0.5	100	6	30	6	2	431,00
6/0.5	100	6	42	6	2	431,00
6/1	100	6	18	6	2	431,00
8/0.5	100	7	24	8	2	481,00
8/0.5	100	7	40	8	2	481,00
8/1	100	7	24	8	2	481,00
8/1	100	7	40	8	2	481,00
8/2	100	7	40	8	2	481,00
10/0.5	100	8	30	10	2	541,00
10/0.5	100	8	50	10	2	541,00
10/1	100	8	30	10	2	541,00
10/1	100	8	50	10	2	541,00
10/1.5	100	8	30	10	2	541,00
10/1.5	100	8	50	10	2	541,00
10/2	100	8	30	10	2	541,00

→1-2



CORPO IN MICROGRANA ULTRAFINE
SUB-MICROGRAIN BODY
ULTRA FEINSTKORN KÖRPER
CORPS EN MICRO-GRAIN ULTRAFIN
CUERPO DE SUB-MICROGRANO

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 4 mm a 20 mm	f8	h6

FRESE POWER PCD SEMISFERICHE A 2 TAGLI

POWER BALL NOSE PCD END MILLS - 2 FLUTES
POWER PKD RADIUSFRÄSER - 2 NUTEN
FRAISES POWER PCD HÉMISPÉRIQUES À 2 DENTS
FRESAS POWER ESFÉRICAS PCD - 2 LABIOS

CON RIPORTO IN
POLICRISTALLINO

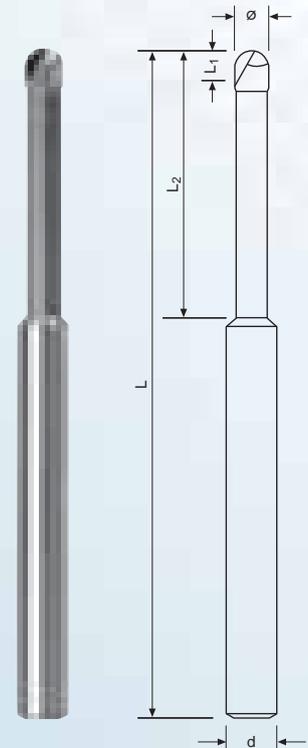
SOLID CARBIDE WITH POLYCRYSTALLINE DIAMOND
AVEC RECHARGEMENT EN POLYCRISTALLIN
VOLLHARTMETALL PCD
METAL DURO PCD



603RDT



Ø mm	L mm	L ₁ mm	L ₂ mm	d mm	Z	603RDT €
4	75	2.5	12	6	2	431,00
4	75	2.5	20	6	2	431,00
4	75	2.5	28	6	2	431,00
4	75	2.5	35	6	2	431,00
5	75	3	15	6	2	431,00
5	75	3	25	6	2	431,00
5	75	3	35	6	2	431,00
6	100	6	18	6	2	431,00
6	100	6	30	6	2	431,00
6	100	6	42	6	2	431,00
8	100	7	24	8	2	481,00
8	100	7	40	8	2	481,00
10	100	8	30	10	2	541,00
10	100	8	50	10	2	541,00
12	105	9	36	12	2	607,00
12	105	9	60	12	2	607,00
16	130	11	50	16	2	744,00
20	160	13	60	20	2	923,00



CORPO IN MICROGRANA ULTRAFINE
SUB-MICROGRAIN BODY
ULTRA FEINSTKORN KÖRPER
CORPS EN MICRO-GRAIN ULTRAFIN
CUERPO DE SUB-MICROGRANO

TOLLERANZA - TOLERANCE - TOLERANZ - TOLÉRANCE - TOLERANCIA

Diametri Diameters	Tolleranza del diametro Diameter tolerance	Tolleranza del gambo Shank tolerance
da 4 mm a 20 mm	f8	h6

PARAMETRI DI TAGLIO

CUTTING PARAMETERS
SCHNITTDATEN
PARAMÈTRES DE COUPE
PARAMETROS DE CORTE



FRESE POWER PKD: 1/2 TAGLI

Pcd brazed power end mills - Pkd bestückte power fräser - Fraises power pcd brasées - Fresas power de pcd soldado: 1/2 Flutes - Schneiden - Dents - Labios

CAVA DAL PIENO: Vc e Fz: - 20%

Slotting: Vc e Fz: - 20%

Bohrnuten: Vc e Fz: - 20%

Rainurage: Vc e Fz: - 20%

Ranura: Vc e Fz: - 20%

GRUPPO MATERIALI Material Groups Material-Beispiele Groupes de Matériaux Grupos de Materiales			VC m/min													
	Fz [mm] AVANZAMENTO AL DENTE Tooth Feed - Zahnvorschub - Avancement au dent - Avance al labio			3	4	6	8	10	12	16	20					
	ap	ae														ap
P < 800 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P < 1100 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P < 1300 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M > 800 N/mm ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K GG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K GGG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N Si >12%	1xØ	0,5 X Ø	0,7 X Ø	500-3000	0,055	0,075	0,095	0,100	0,130	0,150	0,180	0,200	-	-	-	-
N Si >14%	1xØ	0,5 X Ø	0,7 X Ø	400-800	0,055	0,075	0,095	0,100	0,130	0,150	0,180	0,200	-	-	-	-
S Titanio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S Leghe speciali a base NI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H Temprati 38 / 48 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H Temprati 48 / 58 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H Temprati 58 / 68 HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



PUNTE ELICOIDALI TIPO N in metallo duro integrale



SOLID CARBIDE TWIST DRILLS - TYPE N



HARTMETALL SPIRALBOHRER - TYP N



FORETS HÉLICOÏDAUX EN CARBURE MONOBLOC - TYPE N



BROCAS HELICOIDALES DE METAL DURO INTEGRAL - TIPOLOGIA N



PUNTE ELICOIDALI

IN METALLO DURO INTEGRALE

SOLID CARBIDE TWIST DRILLS
VHM SPIRALBOHRER
FORETS HÉLICOÏDAUX EN CARBURE MONOBLOC
BROCAS HELICOIDALES DE METAL DURO INTEGRAL

DIN 6539

SIMILARE A 1897 - SERIE EXTRA CORTA

DIN 6539 - SIMILAR TO DIN 1897 - EXTRA SHORT SERIES
DIN 6539 - ÄHNLICH DIN 1897 - EXTRA KURZE AUSFÜHRUNG
DIN 6539 - SIMILAIRE DIN 1897 - SÉRIE EXTRA COURTE
DIN 6539 - SIMILAR A DIN 1897 - SERIE EXTRA CORTA

1100 - 1100TN - 1100TF



Ø mm h7	L mm	L ₁ mm	d mm h6	1100 €	1100TN €	1100TF €
0.5	20	3	0.5	4,91	8,33*	9,68*
0.6	21	3.5	0.6	4,91	8,33*	9,68*
0.7	23	4.5	0.7	4,91	8,33*	9,68*
0.8	24	5	0.8	4,91	8,33*	9,68*
0.9	25	5.5	0.9	4,91	8,33*	9,68*
1.0	26	6	1.0	4,91	8,33*	9,68*
1.1	28	7	1.1	4,91	8,33*	9,68*
1.2	30	8	1.2	4,91	8,33*	9,68*
1.3	30	8	1.3	4,91	8,33*	9,68*
1.4	32	9	1.4	4,91	8,33*	9,68*
1.5	32	9	1.5	4,91	8,33*	9,68*
1.6	34	10	1.6	4,91	8,33*	9,68*
1.7	34	10	1.7	4,91	8,33*	9,68*
1.8	36	11	1.8	4,91	8,33*	9,68*
1.9	36	11	1.9	4,91	8,33*	9,68*
2.0	38	12	2.0	4,91	7,31*	8,29*
2.1	38	12	2.1	5,44	7,85*	8,80*
2.2	40	13	2.2	5,44	7,85*	8,80*
2.3	40	13	2.3	5,44	7,85*	8,80*
2.4	43	14	2.4	5,44	7,85*	8,80*
2.5	43	14	2.5	5,44	7,85*	8,80*
2.6	43	14	2.6	5,44	7,85*	8,80*
2.7	46	16	2.7	7,25	9,68*	10,67*
2.8	46	16	2.8	7,25	9,68*	10,67*
2.9	46	16	2.9	7,25	9,68*	10,67*
3.0	46	16	3.0	7,25	9,68*	10,67*
3.1	49	18	3.1	8,29	10,74*	11,70*

Ø mm h7	L mm	L ₁ mm	d mm h6	1100 €	1100TN €	1100TF €
3.2	49	18	3.2	8,29	10,74*	11,70*
3.3	49	18	3.3	8,29	11,46*	12,69*
3.4	52	20	3.4	8,89	12,01*	13,28*
3.5	52	20	3.5	8,89	12,01*	13,28*
3.6	52	20	3.6	9,80	12,97*	14,20*
3.7	52	20	3.7	9,80	12,97*	14,20*
3.8	55	22	3.8	10,60	13,72*	14,99*
3.9	55	22	3.9	10,60	13,72*	14,99*
4.0	55	22	4.0	10,64	13,76*	14,99*
4.1	55	22	4.1	11,18	14,48*	15,80*
4.2	55	22	4.2	11,18	14,48*	15,80*
4.3	58	24	4.3	11,84	15,15*	16,50*
4.4	58	24	4.4	11,84	15,15*	16,50*
4.5	58	24	4.5	11,84	15,15*	16,50*
4.6	58	24	4.6	11,84	15,15*	16,50*
4.7	58	24	4.7	12,76	16,05*	17,40*
4.8	62	26	4.8	12,76	16,05*	17,40*
4.9	62	26	4.9	12,76	16,05*	17,40*
5.0	62	26	5.0	12,76	16,05*	17,40*
5.1	62	26	5.1	12,76	16,05*	17,40*
5.2	62	26	5.2	16,65	19,90*	21,25*
5.3	62	26	5.3	16,65	19,90*	21,25*
5.4	66	28	5.4	16,65	19,90*	21,25*
5.5	66	28	5.5	16,65	19,90*	21,25*
5.6	66	28	5.6	17,70	21,00*	22,30*
5.7	66	28	5.7	17,70	21,00*	22,30*
5.8	66	28	5.8	17,70	21,00*	22,30*

* A richiesta - On Request - Auf Anfrage - Sur Demande - A Pedido

→1-4

→2-4



DIN 6539

SIMILARE A 1897 - SERIE EXTRA CORTA
 DIN 6539 - SIMILAR TO DIN 1897 - EXTRA SHORT SERIES
 DIN 6539 - ÄHNLICH DIN 1897 - EXTRA KURZE AUSFÜHRUNG
 DIN 6539 - SIMILAIRE DIN 1897 - SÉRIE EXTRA COURTE
 DIN 6539 - SIMILAR A DIN 1897 - SERIE EXTRA CORTA

PUNTE ELICOIDALI IN METALLO DURO INTEGRALE

SOLID CARBIDE TWIST DRILLS
 VHM SPIRALBOHRER
 FORETS HÉLICOÏDAUX EN CARBURE MONOBLOC
 BROCAS HELICOIDALES DE METAL DURO INTEGRAL

1100 - 1100TN - 1100TF

Ø mm h7	L mm	L ₁ mm	d mm h6	1100 €	1100TN €	1100TF €
5.9	66	28	5.9	17,70	21,00*	22,30*
6.0	66	28	6.0	17,70	21,00*	22,30*
6.1	70	31	6.1	22,05	26,50*	28,25*
6.2	70	31	6.2	22,05	26,50*	28,25*
6.3	70	31	6.3	22,05	26,50*	28,25*
6.4	70	31	6.4	22,05	26,50*	28,25*
6.5	70	31	6.5	21,40	25,80*	27,55*
6.6	70	31	6.6	26,05	30,40*	32,30*
6.7	70	31	6.7	26,05	30,40*	32,30*
6.8	74	34	6.8	26,05	30,40*	32,30*
6.9	74	34	6.9	26,05	30,40*	32,30*
7.0	74	34	7.0	25,75	30,30*	31,95*
7.1	74	34	7.1	31,20	35,65*	37,65*
7.2	74	34	7.2	31,20	35,65*	37,65*
7.3	74	34	7.3	31,20	35,65*	37,65*
7.4	74	34	7.4	31,20	35,65*	37,65*
7.5	74	34	7.5	31,05	35,45*	37,30*
7.6	79	37	7.6	35,25	40,30*	42,10*
7.7	79	37	7.7	35,25	40,30*	42,10*
7.8	79	37	7.8	35,25	40,30*	42,10*
7.9	79	37	7.9	35,25	40,30*	42,10*
8.0	79	37	8.0	34,70	39,90*	41,70*
8.1	79	37	8.1	43,20	48,70*	51,00*
8.2	79	37	8.2	43,20	48,70*	51,00*
8.3	79	37	8.3	43,20	48,70*	51,00*
8.4	79	37	8.4	43,20	48,70*	51,00*
8.5	79	37	8.5	44,00	49,50*	51,60*

Ø mm h7	L mm	L ₁ mm	d mm h6	1100 €	1100TN €	1100TF €
8.6	84	40	8.6	46,90	52,40*	54,60*
8.7	84	40	8.7	46,90	52,40*	54,60*
8.8	84	40	8.8	46,90	52,40*	54,60*
8.9	84	40	8.9	46,90	52,40*	54,60*
9.0	84	40	9.0	44,30	49,80*	52,10*
9.1	84	40	9.1	51,30	56,80*	59,10*
9.2	84	40	9.2	51,30	56,80*	59,10*
9.3	84	40	9.3	51,30	56,80*	59,10*
9.4	84	40	9.4	51,30	56,80*	59,10*
9.5	84	40	9.5	49,10	54,60*	56,80*
9.6	89	43	9.6	52,70	58,30*	60,50*
9.7	89	43	9.7	52,70	58,30*	60,50*
9.8	89	43	9.8	52,70	58,30*	60,50*
9.9	89	43	9.9	52,70	58,30*	60,50*
10.0	89	43	10.0	50,60	56,10*	58,30*
10.2	89	43	10.2	59,80	66,40*	69,00*
10.5	89	43	10.5	59,80	66,40*	69,00*
11.0	95	47	11.0	66,40	73,10*	75,90*
11.5	95	47	11.5	77,90	84,40*	87,20*
12.0	102	51	12.0	77,90	84,40*	87,20*
13.0	102	51	13.0	94,40	102,00*	104,00*
14.0	107	54	14.0	125,50	132,50*	135,00*
15.0	111	56	15.0	137,00	145,50*	148,50*
16.0	115	58	16.0	155,50	163,50*	167,00*
18.0	123	62	18.0	214,50	226,00*	230,00*
20.0	131	66	20.0	287,00	300,00*	304,00*

* A richiesta - On Request - Auf Anfrage - Sur Demande - A Pedido

→3-4

→4-4



PUNTE ELICOIDALI

IN METALLO DURO INTEGRALE

SOLID CARBIDE TWIST DRILLS
VHM SPIRALBOHRER
FORETS HÉLICOÏDAUX EN CARBURE MONOBLOC
BROCAS HELICOIDALES DE METAL DURO INTEGRAL

TALICARB NORM

SIMILARE A DIN 338 - SERIE CORTA

TALICARB NORM - SIMILAR TO DIN 338 - SHORT SERIES
TALICARB NORM - ÄHNLICH DIN 338 - KURZE AUSFÜHRUNG
TALICARB NORM - SIMILAIRE DIN 338 - SERIE COURTE
TALICARB NORM - SIMILAR A DIN 338 - SERIE CORTA

1101 - 1101 TN - 1101 TF

Ø mm h7	L mm	L ₁ mm	d mm h6	1101 €	1101TN €	1101TF €
0.5	22	6	0.5	4,63	8,07*	9,42*
0.6	24	7	0.6	4,63	8,07*	9,42*
0.7	28	9	0.7	4,63	8,07*	9,42*
0.8	30	10	0.8	4,63	8,07*	9,42*
0.9	32	11	0.9	4,63	8,07*	9,42*
1.0	34	12	1.0	4,63	8,07*	9,42*
1.1	36	14	1.1	5,28	8,41*	9,66*
1.2	38	16	1.2	5,28	8,41*	9,66*
1.3	38	16	1.3	5,28	8,41*	9,66*
1.4	40	18	1.4	5,28	8,41*	9,66*
1.5	40	18	1.5	5,28	8,41*	9,66*
1.6	43	20	1.6	5,28	8,41*	9,66*
1.7	43	20	1.7	5,92	8,89*	9,33*
1.8	46	22	1.8	6,42	9,36*	9,80*
1.9	46	22	1.9	6,42	9,36*	9,80*
2.0	49	24	2.0	6,42	9,36*	9,80*
2.1	49	24	2.1	7,55	10,50*	10,91*
2.2	53	27	2.2	8,21	10,88*	11,94*
2.3	53	27	2.3	8,21	10,88*	11,94*
2.4	57	30	2.4	8,21	10,88*	11,94*
2.5	57	30	2.5	8,07	10,74*	11,80*
2.6	57	30	2.6	9,33	11,97*	13,04*
2.7	61	33	2.7	10,84	13,48*	14,58*
2.8	61	33	2.8	11,46	14,10*	15,15*
2.9	61	33	2.9	11,46	14,10*	15,15*
3.0	61	33	3.0	10,53	13,21*	14,27*
3.1	65	36	3.1	11,94	14,62*	15,70*

Ø mm h7	L mm	L ₁ mm	d mm h6	1101 €	1101TN €	1101TF €
3.2	65	36	3.2	11,94	14,62*	15,70*
3.3	65	36	3.3	12,11	15,25*	16,55*
3.4	70	39	3.4	13,41	16,55*	17,85*
3.5	70	39	3.5	13,17	16,30*	17,55*
3.6	70	39	3.6	14,17	17,30*	18,55*
3.7	70	39	3.7	14,17	17,30*	18,55*
3.8	75	43	3.8	14,99	18,80*	19,40*
3.9	75	43	3.9	14,99	18,80*	19,40*
4.0	75	43	4.0	14,86	18,65*	19,25*
4.1	75	43	4.1	15,35	18,60*	19,90*
4.2	75	43	4.2	15,35	18,60*	19,90*
4.3	80	47	4.3	20,25	24,20*	25,75*
4.4	80	47	4.4	20,25	24,20*	25,75*
4.5	80	47	4.5	18,40	22,35*	23,95*
4.6	80	47	4.6	21,05	25,00*	26,55*
4.7	80	47	4.7	21,05	25,00*	26,55*
4.8	86	52	4.8	21,70	25,65*	27,25*
4.9	86	52	4.9	21,70	25,65*	27,25*
5.0	86	52	5.0	20,20	24,15*	25,70*
5.1	86	52	5.1	24,40	28,45*	30,10*
5.2	86	52	5.2	24,40	28,45*	30,10*
5.3	86	52	5.3	24,40	28,45*	30,10*
5.4	93	57	5.4	27,90	31,95*	33,60*
5.5	93	57	5.5	26,70	30,65*	32,30*
5.6	93	57	5.6	29,20	33,25*	34,70*
5.7	93	57	5.7	29,20	33,25*	34,70*
5.8	93	57	5.8	29,20	33,25*	34,70*

* A richiesta - On Request - Auf Anfrage - Sur Demande - A Pedido

→1-4

→2-4



TALICARB NORM SIMILARE A DIN 338 - SERIE CORTA

TALICARB NORM - SIMILAR TO DIN 338 - SHORT SERIES
TALICARB NORM - ÄHNLICH DIN 338 - KURZE AUSFÜHRUNG
TALICARB NORM - SIMILAIRE DIN 338 - SERIE COURTE
TALICARB NORM - SIMILAR A DIN 338 - SERIE CORTA

PUNTE ELICOIDALI IN METALLO DURO INTEGRALE

SOLID CARBIDE TWIST DRILLS
VHM SPIRALBOHRER
FORETS HÉLICOÏDAUX EN CARBURE MONOBLOC
BROCAS HELICOIDALES DE METAL DURO INTEGRAL

1101 - 1101 TN - 1101 TF

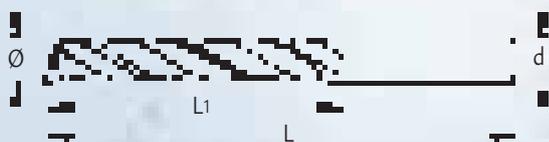
Ø mm h7	L mm	L ₁ mm	d mm h6	1101 €	1101TN €	1101TF €
5.9	93	57	5.9	29,20	33,25*	34,70*
6.0	93	57	6.0	28,45	32,50*	34,15*
6.1	101	63	6.1	36,20	42,50*	44,70*
6.2	101	63	6.2	36,20	42,50*	44,70*
6.3	101	63	6.3	36,20	42,50*	44,70*
6.4	101	63	6.4	36,20	42,50*	44,70*
6.5	101	63	6.5	35,10	41,40*	43,60*
6.6	101	63	6.6	42,50	48,70*	51,00*
6.7	101	63	6.7	42,50	48,70*	51,00*
6.8	109	69	6.8	42,50	48,70*	51,00*
6.9	109	69	6.9	42,10	48,40*	50,60*
7.0	109	69	7.0	42,10	48,40*	50,60*
7.1	109	69	7.1	44,70	51,00*	53,20*
7.2	109	69	7.2	44,70	51,00*	53,20*
7.3	109	69	7.3	44,70	51,00*	53,20*
7.4	109	69	7.4	44,70	51,00*	53,20*
7.5	109	69	7.5	44,70	51,00*	53,20*
7.6	117	75	7.6	49,80	56,10*	58,30*
7.7	117	75	7.7	49,80	56,10*	58,30*
7.8	117	75	7.8	49,80	56,10*	58,30*
7.9	117	75	7.9	49,80	56,10*	58,30*
8.0	117	75	8.0	49,80	56,10*	58,30*
8.1	117	75	8.1	58,30	64,60*	67,20*
8.2	117	75	8.2	58,30	64,60*	67,20*
8.3	117	75	8.3	58,30	64,60*	67,20*
8.4	117	75	8.4	58,30	64,60*	67,20*
8.5	117	75	8.5	58,30	64,60*	67,20*

Ø mm h7	L mm	L ₁ mm	d mm h6	1101 €	1101TN €	1101TF €
8.6	125	81	8.6	62,70	71,40*	74,50*
8.7	125	81	8.7	62,70	71,40*	74,50*
8.8	125	81	8.8	62,70	71,40*	74,50*
8.9	125	81	8.9	62,70	71,40*	74,50*
9.0	125	81	9.0	62,70	71,40*	74,50*
9.1	125	81	9.1	69,70	78,30*	81,70*
9.2	125	81	9.2	69,70	78,30*	81,70*
9.3	125	81	9.3	69,70	78,30*	81,70*
9.4	125	81	9.4	69,70	78,30*	81,70*
9.5	125	81	9.5	69,70	78,30*	81,70*
9.6	133	87	9.6	73,50	82,00*	85,50*
9.7	133	87	9.7	73,50	82,00*	85,50*
9.8	133	87	9.8	73,50	82,00*	85,50*
9.9	133	87	9.9	73,50	82,00*	85,50*
10.0	133	87	10.0	73,50	82,00*	85,50*
10.2	133	87	10.2	88,90	97,10*	101,00*
10.5	133	87	10.5	89,30	97,50*	101,00*
10.8	142	94	10.8	110,50	119,50*	123,50*
11.0	142	94	11.0	110,50	119,50*	123,50*
11.2	142	94	11.2	118,50	128,00*	131,50*
11.5	142	94	11.5	118,50	128,00*	131,50*
11.8	142	94	11.8	128,00	137,00*	141,00*
12.0	151	101	12.0	128,00	137,00*	141,00*
13.0	151	101	13.0	153,50	163,00*	167,50*
14.0	160	108	14.0	165,00	174,50*	178,50*
16.0	178	120	16.0	225,50	240,50*	246,00*

* A richiesta - On Request - Auf Anfrage - Sur Demande - A Pedido

→3-4

→4-4



PUNTE A CENTRARE

IN METALLO DURO INTEGRALE

SOLID CARBIDE CENTER DRILLS
 VOLLHARTMETALL - ZENTRIERBOHRER
 FORETS À CENTRER EN CARBURE MONOBLOC
 BROCAS DE CENTRAR DE METAL DURO INTEGRAL

TALICARB NORM

SERIE NORMALE - DIN 6333

TALICARB NORM - NORMAL SERIES - DIN 6333
 TALICARB NORM - NORMALE AUSFÜHRUNG - DIN 6333
 TALICARB NORM - SÉRIE NORMALE - DIN 6333
 TALICARB NORM - SERIE NORMAL - DIN 6333

1099

\emptyset mm	L mm	L ₁ mm	d mm	1099 €
1.25	38	1.9	3.15	22,75
1.6	50	2.4	4	34,55
2.0	50	2.9	5	36,25
2.5	50	3.6	6.3	38,75
3.15	50	4.4	8	50,60
4.0	60	8.6	10	100,00
5.0	75	6.9	12.5	109,50
6.3	82	8.6	16	237,00





angeloghezzi.it



LIME ROTATIVE

in metallo duro integrale



CARBIDE BURRS



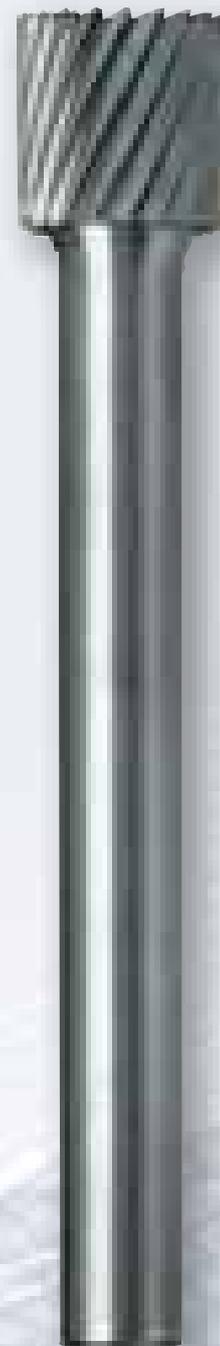
HARTMETALL-ROTIERFRÄSER



FRAISES ROTATIVES EN CARBURE



LIMAS ROTATIVAS DE METAL DURO INTEGRAL



LEGENDA

KEY TO SYMBOLS
ZEICHENERKLÄRUNG
LÉGENDE
LEYENDA

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.



1

Taglio 1 - Standard

La geometria del tagliente è adatta per lavorazioni di ferro, ferro saldato, acciaio comune. E' la lima di uso universale.

Cut # 1 - Standard

The geometry of this flute pattern is designed for use on iron, wrought iron and steel. It is a worldwide burr.

Schnitt # 1 - Standard

Die Schneidegeometrie ist für die Bearbeitung vom Eisen, Luppeneisen und Massenstein geeignet. Das ist den Allzweckbenutzung Rotierfräser.

Coupe # 1 - Standard

La géométrie du coupant est conseillé pour usinages du fer, fer soudé, acier commun. Elle est la lime d'emploi universel.

Dentado 1 - Estándar

Esta geometría de labio se utiliza para trabajar hierro, hierro soldado y acero común. Es una lima rotativa de uso universal



2

Taglio 2 - Diamante

L'utensile è specifico per lavorazioni di acciaio altamente legato, acciaio al cromo-nichel, acciaio inossidabile, ghise grigie e sferoidali.

Cut # 2 - Diamond

This type of tool is recommended for use on steel, highly alloyed steel, chrome-nickel steel, stainless steel, grey and spheroidal cast iron.

Schnitt # 2 - Diamant

Das Werkzeug ist für die Bearbeitung der hochlegierter Stahl, Chromonickelstahl, rostfreier Stahl, Grauguss und Sphäroguss geeignet.

Coupe # 2 - Diamant

Cet outil est spécifique pour usinages d'acier hautement lié, acier au chrome-nickel, acier inoxydable, fonte grise et sphéroïdale

Dentado 2 - Diamante

Esta herramienta es específica para trabajar acero muy aleado, acero al cromo-nichel, acero inoxidable, fusión gris y nodular



3

Taglio 3 - Incrociato

E' il tagliente idoneo ad un vasto campo di materiali, ferrosi e non ferrosi. La particolare affilatura evita l'incollamento del materiale.

Cut # 3 - Double cut

The double cut is suitable for a wide range of ferrous and non-ferrous materials. The flute geometry avoids the sticking of chips to the cutting edge.

Schnitt # 3 - Kreuzhieb

Das ist der geeignete Schnitt an einem weiten Eisen und Nichteisen Werkstoffbereich. Die eigene Anschliff vermeidet den Festfressen dem Span auf dem Schneidteil.

Coupe # 3 - Croisé

Le coupe croisé est adaptable à une très vaste gamme de matériaux, ferreux et non ferreux. L'affutage particulier permet de éviter le collage du matériel.

Dentado 3 - Cruzado

Este labio es idoneo para varios tipos de materiales, ferrosos y no ferrosos. Su particular picadura evita el encolamiento de material.



4

Taglio 4 - Rompitruciolo

L'esecuzione del rompitruciolo consente di produrre trucioli più corti con un miglior controllo dell'utensile.

Cut # 4 - Chip breaker

The chip breaker cut produce small chips allowing easier tool handling and good finishing quality.

Schnitt # 4 - Spanbrecher

Die Spanbrecherschnitt Ausführung erlaubt Kurzspan zusammen mit ein besser Werkzeugsteuerung.

Coupe # 4 - Brise-copeau

L'utilisation du brise-copeau permet de produire copeaux plus courts avec une meilleure maîtrise de l'outil.

Dentado 4 - Rompevirutas

Esta ejecución de rompevirutas permite de producir virutas más cortas y un mejor control de la lima



5

Taglio 5 - Fine

Il taglio fine è specifico per materiali temprati, per acciaio altamente legato, in fusioni, stampato. E' idoneo per ghise dure e saldature di materiali tecnici.

Cut # 5 - Fine cut

The fine cut is specifically designed for use on hardened materials, highly alloyed steel, cast steel and pressed steel. It is also suitable to machine hard cast iron and welds on tough materials.

Schnitt # 5 - Fein

Das Feinschnitt ist für die gehärtete Werkstoffen, für hochlegierter Stahl, Stahlguss und Gesenkstahl gezeichnet. Es ist fuer Starkguss und technische Werkstoff-Schweißen geeignet.

Coupe # 5 - Mince

Le coupe mince est spécifique pour aciers trempés, pour acier hautement liés, en fusions, imprimé. Il est conseillé pour fontes dures et soudages de matériaux.

Dentado 5 - Fin

El labio fin es específico para materiales templados, para acero altamente aleado, en fusión y moldeado. Es idóneo para fundición duras y soldaduras de materiales técnicos



6

Taglio 6 - Grosso

E' la fresa intermedia tra il taglio tipo Alluminio e Standard. Ha un'ottima evacuazione del truciolo dovuta alle gole ampie ed un maggior rendimento ad un numero di giri elevato.

Cut # 6 - Coarse Cut

It is the intermediate burr between Aluminium and Standard cut burrs. Thanks to the deep flutes, quick chip removal is achieved.

Schnitt # 6 - Groß

Das ist den Zwischen-Aluminium und Standard Schnitt Fräser. Dank an dem breiten Nuten, es hat ein gut Späneentsorgung und höhere Leistung zu höhere Drehzahl.

Coupe # 6 - Coupe gros

Est la fraise intermédiaire parmi le coupe Aluminium et Standard. Elle a une très bonne évacuation du copeau due aux vastes rainures et une remarquable performance à nr de tours élevés.

Dentado 6 - Grueso

Es una fresa intermedia entre el labio de tipo aluminio y estándar. Tiene una perfecta evacuación de la viruta gracias a ranuras anchas y permite un mayor rendimiento a número de vueltas elevado.



7

Taglio - Alluminio

E' la fresa specifica per lavorazioni su materiali con truciolo molto lungo come alluminio dolce, zama, magnesio, plastiche, gomme dure, legno.

Aluminium Cut

The Aluminium cut burr is indicated to machine materials that produce long chips such as soft aluminium, zinc-aluminium alloys, magnesium, plastics, hard rubber, wood.

Aluminium Schnitt

Das ist den geeignete Fräser für die Bearbeitung auf Werkstoffen die sehr lange Span erzeugt wie Weichaluminium, Zamak, Magnesium, Kunststoffen, hart Acrylkautschuk, Holz.

Coupe Aluminium

Cette fraise est spécifique pour usinages sur matériaux avec un copeau très long tel que aluminium doux, zamak, magnésium, plastiques, gomme dure, bois.

Dentado - Aluminio

Es una fresa específica para empleos sobre materiales con viruta muy larga como aluminio dulce, aleación de cinc, aluminio, magnesio y cobre, plásticas, magnesio, gomas duras y madera.



Con taglienti in testa

Burr End Cut
Stirverzahnung
Denture en bout
Con labios frontales



Fresa a forare con 2 taglienti in testa

End Mill End Cut
Mit Stirnschneiden
Taille de fraise en bout
Fresas para taladrar con 2 labios



Fresa a forare con angolo 135°

135° Drill Point
135° Bohrspitze
Poite de foret de 135°
Fresas para taladrar con ángulo de 135°

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESA PER RETTIFICA DI INTERNI IN METALLO DURO

SOLID CARBIDE GRINDING-IN TOOLS
VOLLHARTMETALL-INNENSCHLEIFFRÄSER
FRAISES POUR RECTIFICATION INTÉRIEURE EN CARBURE MONOBLOC
FRESAS PARA RECTIFICADO INTERIOR DE METAL DURO INTEGRAL

1092



Ø mm	L ₁ mm	L mm	L ₂ mm	d mm	1092 €
1x3x3	3	38	9.5	3	20,15 ■
4x4x6	4	50	19	6	29,50 ■
5x5x6	5	50	19	6	32,80 ■
6x6x6	6	50	19	6	25,75 ■
7x7x6	7	63	-	6	43,10 ■
9x9x6	9	63	-	6	54,90 ■
10x10x6	10	63	-	6	62,90 ■
11x11x6	11	63	-	6	73,00 ■
12x12x6	12	63	-	6	90,50 ■



■ **Ad esaurimento scorte** - Subject to availability until sold out -
Solange der vorrat reicht - Jusqu'à Épuisement de stock -
Hasta agotamiento del stock

A richiesta
On Request
Auf Anfrage
Sur Demande
A Pedido



1091 □



FRESA PER FIBRE DI VETRO

IN METALLO DURO INTEGRALE

SOLIDE CARBIDE FIBERGLASS ROUTERS
FRÄSER FÜR GFK
FRAISES POUR USINAGE DE LA FIBRE DE VERRE
FRESAS DE METAL DURO INTEGRAL PARA FIBRA DE VIDRIO

TALICARB NORM.

TALICARB NORM.
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TALICARB NORM.
TALICARB NORM.

2400



Ø mm	L ₁ mm	L mm	d mm	2400 €
3x12x3	12	38	3	9,44
4x16x4	16	50	4	15,20
6x25x6	25	63	6	17,35
6x25x6	25	76	6	22,05
8x25x8	25	63	8	34,15
10x25x10	25	70	10	42,40
12x25x12	25	76	12	59,70

2401



Ø mm	L ₁ mm	L mm	d mm	2401 €
2x6x3	6	38	3	10,97 ■
3x12x3	12	38	3	10,49
4x16x4	16	50	4	16,80
6x25x6	25	63	6	19,65
6x25x6	25	76	6	23,95
8x25x8	25	63	8	36,40
10x25x10	25	70	10	46,20
12x25x12	25	76	12	65,70

■ Ad esaurimento scorte - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESA PER FIBRE DI VETRO

IN METALLO DURO INTEGRALE

SOLIDE CARBIDE FIBERGLASS ROUTERS
FRÄSER FÜR GFK
FRAISES POUR USINAGE DE LA FIBRE DE VERRE
FRESAS DE METAL DURO INTEGRAL PARA FIBRA DE VIDRIO

2402



Ø mm	L ₁ mm	L mm	d mm	2402 €
2x6x3	6	38	3	11,87
3x12x3	12	38	3	11,44
4x16x4	16	50	4	18,35
6x25x6	25	63	6	20,70
6x25x6	25	76	6	25,10
8x25x8	25	63	8	37,75
10x25x10	25	70	10	47,90
12x25x12	25	76	12	68,80

■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



2403



Ø mm	L ₁ mm	L mm	d mm	2403 €
2x6x3	6	38	3	12,55
3x12x3	12	38	3	12,11
4x16x4	16	50	4	19,05
6x25x6	25	63	6	21,45
6x25x6	25	76	6	25,95
8x25x8	25	63	8	38,85
10x25x10	25	70	10	49,80
12x25x12	25	76	12	72,10

■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



FRESA CILINDRICA

IN METALLO DURO

CARBIDE CYLINDRICAL BURRS
HARTMETALLZYLINDERFRÄSER
FRAISE CYLINDRIQUE EN CARBURE
FRESAS CILÍNDRICA DE METAL DURO

TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

2001



Ø mm	L ₁ mm	L mm	d mm	2001 €
1.5X6X3	6	38	3	7,65
2.5X11X3	11	38	3	7,65
3X14X3	14	38	3	7,65
4.7x16x6	16	50	6	14,13
6x16x6	16	50	6	14,13
8x20x6	20	63	6	17,80
9.5x19x6	19	63	6	18,55
12.7X25X6	25	68	6	28,40
16X25X6	25	68	6	37,25
16X25X8	25	76	8	41,40
19X25X6	25	68	6	55,40
19X25X8	25	76	8	56,40
25X25X6	25	68	6	78,10
25X25X8	25	76	8	77,70

2002



Ø mm	L ₁ mm	L mm	d mm	2002 €
1.5X6X3	6	38	3	9,19
2.5X11X3	11	38	3	9,19
3X14X3	14	38	3	9,19
4.7x16x6	16	50	6	17,00
6.3x12x3	12	50	3	15,30
6x16x6	16	50	6	17,00
8x20x6	20	63	6	21,35
9.5x19x6	19	63	6	22,20
12.7X25X6	25	68	6	34,20
16X25X6	25	68	6	44,80
16X25X8	25	76	8	47,10
19X25X6	25	68	6	63,30
19X25X8	25	76	8	67,30
25X25X6	25	68	6	89,20
25X25X8	25	76	8	93,60

2003



Ø mm	L ₁ mm	L mm	d mm	2003 €
1.5X6X3	6	38	3	7,65
2.5X11X3	11	38	3	7,65
3X14X3	14	38	3	7,65
4.7x16x6	16	50	6	14,13
6.3X5X3	5	43	3	10,21
6.3x12.7x3	12.7	50	3	12,71
6x16x6	16	50	6	14,13
8x20x6	20	63	6	17,80
9.5x19x6	19	63	6	18,55
12.7X25X6	25	68	6	28,40
16X25X6	25	68	6	37,25
16X25X8	25	76	8	39,45
19X25X6	25	68	6	55,40
19X25X8	25	76	8	56,40
25.4x25x6	25	68	6	78,10
25X25X8	25	76	8	77,70

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2004



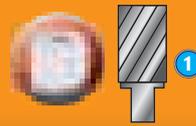
2005



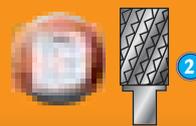
2006

A richiesta

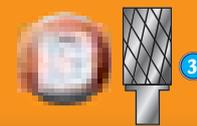
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2001F



2002F



2003F

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TALICARB NORM.

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FRESA CILINDRICA

IN METALLO DURO

CARBIDE CYLINDRICAL BURRS
HARTMETALLZYLINDERFRÄSER
FRAISE CYLINDRIQUE EN CARBURE
FRESAS CILINDRICA DE METAL DURO

2011



Ø mm	L ₁ mm	L mm	d mm	2011	
				€	
2.5X11X3	11	38	3	7,65	
3X14X3	14	38	3	7,65	
4.7X16X6	16	50	6	16,10	
6.3X12.7X3	12.7	50	3	12,71	
6X16X6	16	50	6	16,10	
8X20X6	20	63	6	20,45	
9.5X19X6	19	63	6	21,00	
12.7X25X6	25	68	6	32,85	
16X25X6	25	68	6	42,20	
16X25X8	25	76	8	45,60	
19X25X6	25	68	6	61,10	
19X25X8	25	76	8	61,90	■

2012



Ø mm	L ₁ mm	L mm	d mm	2012	
				€	
2.5X11X3	11	38	3	9,19	
3X14X3	14	38	3	9,19	
4.7X16X6	16	50	6	19,25	
6.3X12.7X3	12.7	50	3	15,30	
6X16X6	16	50	6	19,25	
8X20X6	20	63	6	24,55	
9.5X19X6	19	63	6	25,15	
12.7X25X6	25	68	6	39,50	
19X25X6	25	68	6	73,50	
19X25X8	25	76	8	74,00	■

2013



Ø mm	L ₁ mm	L mm	d mm	2013	
				€	
2.5X11X3	11	38	3	7,65	
3X14X3	14	38	3	7,65	
4.7X16X6	16	50	6	16,10	
6.3X12.7X3	12.7	50	3	12,71	
6X16X6	16	50	6	16,10	
8X20X6	20	63	6	20,45	
9.5X19X6	19	63	6	21,00	
12.7X25X6	25	68	6	32,85	
16X25X6	25	68	6	42,20	
16X25X8	25	76	8	43,40	■
19X25X6	25	68	6	61,10	
19X25X8	25	76	8	61,90	■

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2014



2015



2016

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FRESA OGIVA

CON TESTA SFERICA IN METALLO DURO

CARBIDE OGIVAL BURR - BALL NOSE
 HARTMETALLSPITZBOGENFRÄSER - STIRNRADIUS
 FRAISE OGIVE EN CARBURE - BOUT HÉMISPHERIQUE
 FRESAS EN FORMA DE ÁRBOL CON CABEZA ESFÉRICA DE METAL DURO

TALICARB NORM.

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 TALICARB NORM.

2021



2021
€

Ø mm	L ₁ mm	L mm	d mm	2021 €
3X6.3X3	6.3	38	3	7,65
3X13X3	13	38	3	7,65
6.3X13X3	13	50	3	12,71
6X19X6	19	50	6	17,30
9.5X19X6	19	63	6	19,75
12.7X25X6	25	68	6	30,05
16X25X6	25	68	6	44,10
16X25X8	25	76	8	45,30
19X32X6	32	76	6	69,60
19X32X8	32	82	8	71,00 ■
19X38X6	38	82	6	82,30
19X38X8	38	89	8	81,40 ■

2022



2022
€

Ø mm	L ₁ mm	L mm	d mm	2022 €
3X12X3	13	38	3	9,19
6.3X13X3	13	50	3	15,30
6X19X6	19	50	6	20,70
9.5X19X6	19	63	6	23,70
12.7X25X6	25	68	6	35,90
16X25X6	25	68	6	52,80
16X25X8	25	76	8	54,60 ■
19X32X6	32	76	6	80,10 ■
19X32X8	32	82	8	85,50 ■
19X38X6	38	82	6	93,60 ■
19X38X8	38	89	8	102,50

2023



2023
€

Ø mm	L ₁ mm	L mm	d mm	2023 €
3X6.3X3	6.3	38	3	7,65
3X13X3	13	38	3	7,65
6.3X13X3	13	50	3	12,71
6X19X6	19	50	6	17,30
9.5X19X6	19	63	6	19,75
12.7X25X6	25	68	6	30,05
16X25X6	25	68	6	44,10
16X25X8	25	76	8	45,30 ■
19X32X6	32	76	6	69,60
19X32X8	32	82	8	71,00 ■
19X38X6	38	82	6	82,30
19X38X8	38	89	8	85,50

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2024 ■



2025



2026

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TALICARB NORM.

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TALICARB NORM.

FRESA OGIVA

A PUNTA IN METALLO DURO

CARBIDE OGIVAL BURR - POINTED NOSE
HARTMETALLSPITZBOGENFRÄSER - STIRNRADIUS
FRAISE OGIVE EN CARBURE - BOUT POINTU
FRESAS DE FORMA OJIVAL DE METAL DURO

2031



Ø mm	L ₁ mm	L mm	d mm	2031 €
3x6.3x3	6.3	38	3	7,65
3x9.5x3	9.5	38	3	7,65
3x13x3	13	38	3	7,65
6.3x13x3	13	50	3	12,71
6x19x6	19	50	6	17,30
8X19X6	19	63	6	19,00
9.5x19x6	19	63	6	20,30
12.7X25X6	25	68	6	30,05
16X25X6	25	68	6	41,80
16X25X8	25	76	8	43,10
19X38X6	38	82	6	82,30
19X38X8	38	89	8	81,40

2032



Ø mm	L ₁ mm	L mm	d mm	2032 €
3x6.3x3	6.3	38	3	9,19
3x9.5x3	9.5	38	3	9,19
3x13x3	13	38	3	8,75
6.3x13x3	13	50	3	15,30
6x19x6	19	50	6	20,70
8X19X6	19	63	6	22,85
9.5x19x6	19	63	6	24,35
12.7X25X6	25	68	6	35,90
16X25X6	25	68	6	50,10
19X38X6	38	82	6	93,60
19X38X8	38	89	8	97,30

2033



Ø mm	L ₁ mm	L mm	d mm	2033 €
3x6.3x3	6.3	38	3	7,65
3x9.5x3	9.5	38	3	7,65
3x13x3	13	38	3	7,65
6.3x13x3	13	50	3	12,71
6x19x6	19	50	6	17,30
8x19x6	19	63	6	19,00
9.5x19x6	19	63	6	20,30
12.7x25x6	25	68	6	30,05
16X25X6	25	68	6	41,80
16X25X8	25	76	8	43,10
19X38X6	38	82	6	82,30
19X38X8	38	89	8	81,40

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2034



2035



2036

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FRESA OVALE

IN METALLO DURO

CARBIDE OVAL BURR
HARTMETALLTROPFENFRÄSER
FRAISE OVALE EN CARBURE
FRESAS DE FORMA OVALADA DE METAL DURO

TALICARB NORM.

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TALICARB NORM.

2041



Ø mm	L ₁ mm	L mm	d mm	2041 €
3X5X3	5	38	3	7,65
6.3X9.5X3	9.5	47	3	12,71
6X10X6	10	50	6	18,45
9.5X16X6	16	60	6	21,00
12.7X22X6	22	66	6	30,75
16X25X6	25	68	6	41,80
16X25X8	25	76	8	43,40 ■
19X25X6	25	68	6	56,60
19X25X8	25	76	8	57,50 ■

2042



Ø mm	L ₁ mm	L mm	d mm	2042 €
3X5X3	5	38	3	9,19
6.3X9.5X3	9.5	47	3	15,30
6X10X6	10	50	6	22,15
9.5X16X6	16	60	6	25,15
12.7X22X6	22	66	6	37,05
16X25X6	25	68	6	50,10
16X25X8	25	76	8	51,70 ■
19X25X6	25	68	6	64,80 ■
19X25X8	25	76	8	69,30 ■

2043



Ø mm	L ₁ mm	L mm	d mm	2043 €
3X5X3	5	38	3	7,65
6.3X9.5X3	9.5	47	3	12,71
6X10X6	10	50	6	18,45
9.5X16X6	16	60	6	21,00
12.7X22X6	22	66	6	30,75
16X25X6	25	68	6	41,80
16X25X8	25	76	8	44,20 ■
19X25X6	25	68	6	56,60
19X25X8	25	76	8	58,30 ■

A richiesta
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2044 ■

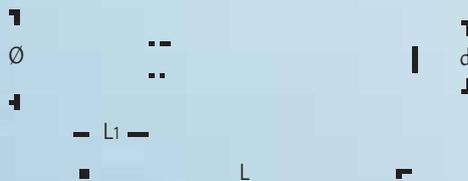


2045



2046

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TALICARB NORM.

TALICARB NORM.
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TALICARB NORM.
TALICARB NORM.

FRESA SFERICA

IN METALLO DURO

CARBIDE BALL BURR
VHM KUGELFRÄSER
FRAISE CARBURE À BOUT SPHÉRIQUE
FRESAS ESFÉRICA DE METAL DURO

2051



∅ mm	L ₁ mm	L mm	d mm	2051 €
2.3X2X3	2	38	3	7,65
3X2X3	2	38	3	7,65
4.7X4.5X6	4.5	50	6	14,94
6.3X5X3	5	43	3	12,71
6x5x6	5	50	6	14,94
8x7x6	7	50	6	15,70
9.5x8x6	8	52	6	17,30
12.7x11x6	11	54	6	22,50
16x14x6	14	58	6	28,40
16x14x8	14	66	8	32,30
19x16x6	16	60	6	40,70
19x17x8	17	70	8	44,10
25.4x24x6	24	68	6	66,40

2052



∅ mm	L ₁ mm	L mm	d mm	2052 €
2.3X2X3	2	38	3	9,19
3X2X3	2	38	3	9,19
4.7X4.5X6	4.5	50	6	17,95
6.3X5X3	5	45	3	15,30
6x5x6	5	50	6	17,95
8x7x6	7	50	6	18,85
9.5x8x6	8	52	6	20,70
12.7X11X6	11	54	6	26,95
16X14X6	14	58	6	34,20
16X14X8	14	66	8	36,90
25X24X8	24	76	8	80,40

2053



∅ mm	L ₁ mm	L mm	d mm	2053 €
2.3X2X3	2	38	3	7,65
3X3X3	2	38	3	7,65
4.7X4.5X6	4.5	50	6	14,94
6.3X5X3	5	45	3	12,71
6x5x6	5	50	6	14,94
8x7x6	7	50	6	15,70
9.5x8x6	8	52	6	17,30
12.7X11X6	11	54	6	22,50
16X14X6	14	58	6	28,40
16X14X8	14	66	8	30,75
19X17X6	16	60	6	40,70
19X17X8	17	70	8	42,00
25X24X6	24	68	6	66,40

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2054



2055



2056

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FRESA CONICA A 14°

CON TESTA SFERICA IN METALLO DURO

CARBIDE 14° TAPER BURR - BALL NOSE
 14° VHM FRÄSER - STIRNRADIUS
 FRAISE CONIQUE 14° EN CARBURE - BOUT SPHÉRIQUE
 FRESAS CÓNICA A 14° CON CABEZA ESFÉRICA DE METAL DURO

TALICARB NORM.

TALICARB NORM.
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 TALICARB NORM.

2061



2061
€

Ø mm	L ₁ mm	L mm	d mm	2061 €
3X12X3	12	38	3	7,65
6x16x6	16	50	6	17,30
8X22X6	22	66	6	21,95
9.5x27x6	27	71	6	24,95
12.7X28X6	28	72	6	33,10
16x30x6	30	76	6	58,90
16X33X8	33	84	8	59,30 ■
19X38X6	38	82	6	84,10
19X38X8	38	89	8	83,80 ■

2062



2062
€

Ø mm	L ₁ mm	L mm	d mm	2062 €
3X12X3	12	38	3	9,19
6x16x6	16	50	6	20,70
8X22X6	22	66	6	26,35
9.5x27x6	27	71	6	30,05
12.7X28X6	28	72	6	39,50
16X33X6	30	76	6	66,90 ■
16x33x8	33	84	8	71,40 ■
19X38X6	38	82	6	95,90 ■
19X38X8	38	89	8	100,50 ■

2063



2063
€

Ø mm	L ₁ mm	L mm	d mm	2063 €
3X12X3	12	38	3	7,65
6x16x6	16	50	6	17,30
8X22X6	22	66	6	21,95
9.5x27x6	27	71	6	24,95
12.7X28X6	28	72	6	33,10
16x30x6	30	76	6	58,90
16X33X8	33	84	8	59,30 ■
19X38X6	38	82	6	84,10
19X38X8	38	89	8	83,80 ■

A richiesta
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 Auf Anfrage
 Sur Demande
 A Pedido



2064 ■

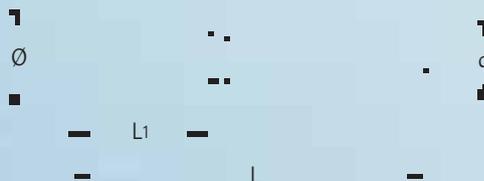


2065



2066

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TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

FRESA SFERICA

IN METALLO DURO

CARBIDE BALL BURR
VHM KUGELFRÄSER
FRAISE CARBURE À BOUT SPHÉRIQUE
FRESAS ESFÉRICA DE METAL DURO

2071



2071
€

Ø mm	L ₁ mm	L mm	d mm	2071 €
3X8.7X3	8.7	38	3	7,65
3X11X3	11	38	3	7,65
3X16X3	16	38	3	7,65
6.3X12.7X3	12.7	50	3	12,71
6X12.7X6	12.7	50	6	16,65
6X18X6	18	50	6	17,60
6X25X6	25	50	6	18,75
9.5X16X6	16	60	6	23,15
12.7X22X6	22	66	6	30,05
16X25X6	25	68	6	43,70
16X25X8	25	76	8	45,30 ■

2072



2072
€

Ø mm	L ₁ mm	L mm	d mm	2072 €
3X8.7X3	8.7	38	3	9,19
3X11X3	11	38	3	9,19
3X16X3	16	38	3	9,19
6.3X12.7X3	12.7	50	3	15,30
6X12.7X6	12.7	50	6	19,95
6X18X6	18	50	6	21,10
6X25X6	25	50	6	22,50
9.5X16X6	16	60	6	27,70
12.7X22X6	22	66	6	35,90
16X25X6	25	68	6	52,50
16X25X8	25	76	8	54,30 ■

2073



2073
€

Ø mm	L ₁ mm	L mm	d mm	2073 €
3X8.7X3	8.7	38	3	7,65
3X11X3	11	38	3	7,65
3X16X3	16	38	3	7,65
6.3X12.7X3	12.7	50	3	12,71
6X12.7X6	12.7	50	6	16,65
6X18X6	18	50	6	17,60
6X25X6	25	50	6	18,75
9.5X16X6	16	60	6	23,15
12.7X22X6	22	66	6	30,05
16X25X6	25	68	6	43,70
16X25X8	25	76	8	45,30 ■

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2074 ■



2075



2076

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FRESA CONICA A 14°

CON TESTA SFERICA IN METALLO DURO

CARBIDE 14° TAPER BURR - BALL NOSE
 14° VHM FRÄSER - STIRNRADIUS
 FRAISE CONIQUE 14° EN CARBURE - BOUT SPHÉRIQUE
 FRESAS CÓNICA A 14° CON CABEZA ESFÉRICA DE METAL DURO

TALICARB NORM.

TALICARB NORM.
 TALICARB NORM.
 TALICARB NORM.
 TALICARB NORM.

2501/2503



Ø mm	L ₁ mm	L mm	d mm	d ₃ mm	60°	
					2501 €	2503 €
3x2x3	2	38	3	To point	7,65	7,65
6x5x6	5	50	6	To point	15,20	15,20
9.5x8x6	8	55	6	1	18,45	18,45
12.7x11x6	11	58	6	1	24,80	24,80
16x14x6	14	60	6	1.5	32,30	32,30
19x16x6	16	64	6	1.5	41,00	41,00
25.4x23x6	23	68	6	3	66,10	66,10

2511/2513



Ø mm	L ₁ mm	L mm	d mm	d ₃ mm	90°	
					2511 €	2513 €
3x1x3	1	38	3	To point	7,65	7,65
6x3x6	3	50	6	To point	15,20	15,20
9.5x4.7x6	4.7	52	6	1	18,45	18,45
12.7x6.3x6	6.3	52	6	1	24,80	24,80
16x8x6	8	56	6	1.5	32,30	32,30
19x9x6	9	58	6	1.5	41,00	41,00
25.4x12.7x6	12.7	60	6	3	66,10	66,10



TALICARB NORM.

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TALICARB NORM.

FRESE A CONO INVERTITO

IN METALLO DURO

CARBIDE INVERTED CONE BURR
VERKEHRT KONISCHE VHM FRÄSER
FRAISE À CONE INVERSÉ EN CARBURE
FRESAS CÓNICA INVERTIDA DE METAL DURO

2081



Ø mm	L ₁ mm	L mm	d mm	Angolo Angle Winkel Angle Ángulo	2081 €
2.3X3X3	3	38	3	10	7,65
3X5X3	5	38	3	10	7,65
6.3X6.3X6	6.3	44	3	10	12,71
6X8X6	8	50	6	10	15,50
9.5X9.5X6	9.5	52	6	13	23,35
12.7X12.7X6	12.7	56	6	16	29,60
16X16X6	16	60	6	19	39,15
16X16X8	16	70	8	19	41,30
19X19X6	19	63	6	21	50,60
19X19X8	19	66	8	21	51,40

2082



Ø mm	L ₁ mm	L mm	d mm	Angolo Angle Winkel Angle Ángulo	2082 €
2.5X3X3	3	38	3	10	8,75
3X5X3	5	38	3	10	9,19
6.3x6.3x6	6	44	6	10	15,30
6x8x6	8	50	6	10	18,55
9.5x9.5x6	9.5	52	6	13	23,70
12.7x12.7x6	12.7	56	6	16	33,80
16X16X8	16	70	8	19	49,20
19X19X6	19	63	6	21	57,50
19X19X8	19	66	8	21	61,90

2083



Ø mm	L ₁ mm	L mm	d mm	Angolo Angle Winkel Angle Ángulo	2083 €
2.5X3X3	3	38	3	10	7,65
3X5X3	5	38	3	10	7,65
6.3x6.3x6	6.3	44	3	10	12,71
6.3X8X6	8	50	6	10	15,50
9.5x9.5x6	9.5	52	6	13	19,75
12.7x12.7x6	12.7	56	6	16	29,60
16x16x6	16	60	6	19	39,15
16x16x8	16	70	8	19	41,30
19X19X6	19	63	6	21	50,60
19X19X8	19	66	8	21	51,40

A richiesta
On Request
Auf Anfrage
Sur Demande
A Pedido



2084



2085



2086

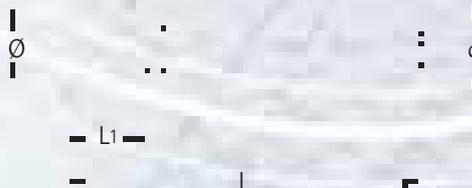


2081F



2082F

Ad esaurimento scorte - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'á Épuisement de stock - Hasta agotamiento del stock



FRESE A FIAMMA

IN METALLO DURO

CARBIDE BURR FLAME SHAPE
 FLAMMEFORME VHM FRÄSER
 FRAISE FORME DE FLAMME CARBURE MONOBLOC
 FRESAS EN FORMA DE LLAMA DE METAL DURO

TALICARB NORM.

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 TALICARB NORM.

2091



2091
€

Ø mm	L ₁ mm	L mm	d mm	2091 €
3X6X3	6	38	3	7,65
6X16X6	16	50	6	18,55
8X19X6	19	63	6	19,90
12.7X32X6	32	75	6	43,30
16X36X6	36	79	6	61,90
16X36X8	36	87	8	62,60
19X41X6	41	84	6	84,80
19X41X8	41	92	8	84,50

2092



2092
€

Ø mm	L ₁ mm	L mm	d mm	2092 €
6X16X6	16	50	6	21,15
8X19X6	19	63	6	23,95
12.7X32X6	32	75	6	52,00
16X36X6	36	79	6	71,00
16X36X8	36	87	8	75,10
19X41X6	41	84	6	96,60
19X41X8	41	92	8	101,00

2093



2093
€

Ø mm	L ₁ mm	L mm	d mm	2093 €
3X6X3	6	38	3	7,65
6X16X6	16	50	6	18,55
8X19X6	19	63	6	19,90
12.7X32X6	32	75	6	43,30
16X36X6	36	79	6	61,90
16X36X8	36	84	8	62,60
19X41X6	41	86	6	84,80
19X41X8	41	92	8	84,50

A richiesta
 On Request
 Auf Anfrage
 Sur Demande
 A Pedido



2094



2095



2096

Ad esaurimento scorte - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



TALICARB NORM.

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FRESE PER LEGHE LEGGERE

IN METALLO DURO

CARBIDE BURR FOR LIGHT ALLOYS
VHM FRÄSER FÜR LEICHTMETALL
FRAISES EN CARBURE POUR ALLIAGES LÉGERS
FRESAS PARA ALEACIONES LIGERAS

2300



Ø mm	L ₁ mm	L mm	d mm	2300 €
6X19X6	19	50	6	18,55
9.5X19X6	19	63	6	27,70
12.7X25X6	25	68	6	40,60
16X25X6	25	68	6	49,90
19X25X6	25	68	6	68,40

2310



Ø mm	L ₁ mm	L mm	d mm	2310 €
6X19X6	19	50	6	18,85
9.5X19X6	19	63	6	25,25
12.7X25X6	25	68	6	37,25
16X25X6	25	68	6	57,00
19X25X6	25	68	6	77,70

2320



Ø mm	L ₁ mm	L mm	d mm	2320 €
6X19X6	19	50	6	21,40
9.5X19X6	19	63	6	26,70
12.7X25X6	25	68	6	37,60
16X25X6	25	68	6	53,90
19X25X6	32	68	6	75,60

FRESA CILINDRICA

CYLINDRICAL BURR
ZYLINDERFRÄSER
FRAISE CYLINDRIQUE
FRESA CILÍNDRICA

FRESA CILINDRICA CON TESTA SFERICA

CYLINDRICAL BURR - BALL NOSE
ZYLINDERFRÄSER - STIRNRADIUS
FRAISE CYLINDRIQUE - BOUT HÉMISPHERIQUE
FRESA CILÍNDRICA CON CABEZA ESFÉRICA

FRESA OGIVA CON TESTA SFERICA

OGIVAL BURR - BALL NOSE
SPITZBOGENFRÄSER - STIRNRADIUS
FRAISE OGIVE - BOUT HÉMISPHERIQUE
FRESA EN FORMA DE ÁRBOL CON CABEZA ESFÉRICA



FRESA PER LEGHE LEGGERE

IN METALLO DURO

CARBIDE BURRS - LIGHT ALLOYS
HARTMETALLFRÄSER - LEICHTMETALL
FRAISES EN CARBURE POUR ALLIAGES LÉGERS
FRESAS DE METAL DURO PARA ALEACIONES LIGERAS

TALICARB NORM.

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2330



2330
€

Ø mm	L ₁ mm	L mm	d mm	2330 €
6X10X6	10	50	6	24,45
9.5X16X6	16	60	6	27,35
12.7X22X6	22	66	6	33,80
16X25X6	25	68	6	60,80
19X25X6	25	68	6	81,30

2340



2340
€

Ø mm	L ₁ mm	L mm	d mm	2340 €
6X5X6	5	50	6	18,65
9.5X8X6	8	52	6	20,75
12.7X11X6	11	54	6	29,85
16X14X6	14	58	6	53,90
19X16X6	16	60	6	91,20

2350



2350
€

Ø mm	L ₁ mm	L mm	d mm	2350 €
6X16X6	16	50	6	22,20
9.5X27X6	27	71	6	34,40
12.7X28X6	28	72	6	47,50
16X30X6	30	76	6	78,10
19X38X6	38	82	6	101,50

FRESA OVALE

OVAL BURR
TROPFFENFRÄSER
FRAISE OVALE
FRESA DE FORMA OVALADA

FRESA SFERICA

BALL BURR
KUGELFRÄSER
FRAISE Á BOUT SPHÉRIQUE
FRESA ESFÉRICA

FRESA CONICA A 14° CON TESTA SFERICA

14° TAPER BURR - BALL NOSE
14° KONISCHFRÄSER - STIRNRADIUS
FRAISE CONIQUE 14°- BOUT SPHÉRIQUE
FRESA CÓNICA A 14° CON CABEZA ESFÉRICA



TALICARB NORM.

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TALICARB NORM.

FRESE SERIE LUNGA ed EXTRALUNGA IN METALLO DURO

CARBIDE BURRS - LONG AND EXTRALONG SEIRES
HARTMETALLFRÄSER LANGE - EXTRALANGE AUSFÜHRUNG
FRAISES EN CARBURE - SÉRIE LONGUE - EXTRALONGUE
FRESAS DE METAL DURO - SERIE LARGA - EXTRALARGA

2101

Ø mm	L ₁ mm	L mm	d mm	2101 €
3X14X3	14	50	3	10,19
6X12.7X6	12.7	114	6	16,60
9.5X19X6	19	120	6	23,35
12.7X25X6	25	127	6	37,25

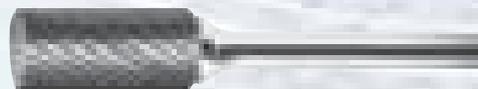
2201

Ø mm	L ₁ mm	L mm	d mm	2201 €
3X14X3	14	76	3	12,71
6X12.7X6	12.7	163	6	20,25
9.5X19X6	19	171	6	28,25
12.7X25X6	25	177	6	39,50

A richiesta
On Request
Auf Anfrage
Sur Demande
A Pedido

**2101F****2201F****FRESA CILINDRICA**

CYLINDRICAL BURR - ZYLINDERFRÄSER
FRAISE CYLINDRIQUE - FRESA CILÍNDRICA



FRESE SERIE LUNGA ed EXTRALUNGA IN METALLO DURO

CARBIDE BURRS - LONG AND EXTRALONG SEIRES
VHM FRÄSER LANGE - EXTRALANGE AUSFÜHRUNG
FRAISES EN CARBURE - SÉRIE LONGUE - EXTRALONGUE
FRESAS DE METAL DURO - SERIE LARGA - EXTRALARGA

TALICARB NORM.

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TALICARB NORM.

2111



\emptyset mm	L ₁ mm	L mm	d mm	 2111 €
3X14X3	14	50	3	10,19
6.3X12.7X6	12.7	114	6	16,60
9.5X19X6	19	120	6	27,35
12.7X25X6	25	127	6	43,70

2211



\emptyset mm	L ₁ mm	L mm	d mm	 2211 €
3X14X3	14	76	3	12,71
6.3X12.7X6	12.7	165	6	19,65
9.5X19X6	19	171	6	28,85
12.7X25X6	25	177	6	42,60

FRESA CILINDRICA CON TESTA SFERICA

CYLINDRICAL BURR - BALL NOSE - ZYLINDERFRÄSER - STIRNRADIUS
FRAISE CYLINDRIQUE - BOUT HÉMISPHERIQUE - FRESA CILÍNDRICA CON CABEZA ESFÉRICA



TALICARB NORM.

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FRESE SERIE LUNGA ed EXTRALUNGA IN METALLO DURO

CARBIDE BURRS - LONG AND EXTRALONG SEIRES
VHM FRÄSER LANGE - EXTRALANGE AUSFÜHRUNG
FRAISES EN CARBURE - SÉRIE LONGUE - EXTRALONGUE
FRESAS DE METAL DURO - SERIE LARGA - EXTRALARGA

2121



Ø mm	L ₁ mm	L mm	d mm	2121 €
3X13X3	13	50	3	10,19
6X13X6	13	114	6	16,60
9.5X19X6	19	120	6	25,80
12.7X25X6	25	127	6	37,25

2221



Ø mm	L ₁ mm	L mm	d mm	2221 €
3X13X3	13	76	3	12,71
6X13X6	13	163	6	20,25
9.5X19X6	19	171	6	29,85
12.7X25X6	25	177	6	46,00

FRESA OGIVA CON TESTA SFERICA

CARBIDE OGIVAL BURR - BALL NOSE - VHM SPITZBOGENFRÄSER - STIRNRADIUS
FRAISE OGIVE EN CARBURE - BOUT HÉMISPHERIQUE - FRESA EN FORMA DE LLAMA DE METAL DURO



FRESE SERIE LUNGA ed EXTRALUNGA IN METALLO DURO

CARBIDE BURRS - LONG AND EXTRALONG SEIRES
 VHM FRÄSER LANGE - EXTRALANGE AUSFÜHRUNG
 FRAISES EN CARBURE - SÉRIE LONGUE - EXTRALONGUE
 FRESAS DE METAL DURO - SERIE LARGA - EXTRALARGA

TALICARB NORM.

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 TALICARB NORM.

2131



Ø mm	L ₁ mm	L mm	d mm	2131 €
3X13X3	13	50	3	10,19
6X13X6	13	114	6	16,60
9.5X19X6	19	120	6	25,80
12.7X25X6	25	127	6	37,25

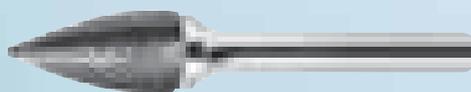
2231



Ø mm	L ₁ mm	L mm	d mm	2231 €
3X13X3	13	76	3	12,71
6X13X6	13	163	6	20,25
9.5X19X6	19	171	6	28,25
12.7X25X6	25	177	6	39,50

FRESA OGIVA A PUNTA

OGIVAL BURR - POINTED NOSE - SPITZBOGENFRÄSER - STIRNRADIUS
 FRAISE OGIVE - BOUT POINTU - FRESA DE FORMA OJIVAL



TALICARB NORM.

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TALICARB NORM.
TALICARB NORM.

FRESE SERIE LUNGA ed EXTRALUNGA IN METALLO DURO

CARBIDE BURRS - LONG AND EXTRALONG SEIRES
VHM FRÄSER LANGE - EXTRALANGE AUSFÜHRUNG
FRAISES EN CARBURE - SÉRIE LONGUE - EXTRALONGUE
FRESAS DE METAL DURO - SERIE LARGA - EXTRALARGA

2141



				
Ø mm	L ₁ mm	L mm	d mm	2141 €
3X5X3	5	50	3	10,19
6.3X10X6	10	111	6	16,60
9.5X16X6	16	117	6	25,95
12.7X22X6	22	123	6	38,75

2241



				
Ø mm	L ₁ mm	L mm	d mm	2241 €
3X5X3	5	76	3	12,71
6.3X10X6	10	163	6	20,25
9.5X16X6	16	168	6	28,40
12.7X22X6	22	177	6	41,40

FRESA OVALE

OVAL BURR - TROPFENFRÄSER
FRAISE OVALE - FRESA DE FORMA OVALADA



FRESE SERIE LUNGA ed EXTRALUNGA IN METALLO DURO

CARBIDE BURRS - LONG AND EXTRALONG SEIRES
VHM FRÄSER LANGE - EXTRALANGE AUSFÜHRUNG
FRAISES EN CARBURE - SÉRIE LONGUE - EXTRALONGUE
FRESAS DE METAL DURO - SERIE LARGA - EXTRALARGA

TALICARB NORM.

TALICARB NORM.
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TALICARB NORM.

2151



Ø mm	L ₁ mm	L mm	d mm	2151 €
3X2X3	2	50	3	10,19
6.3X5X6	5	107	6	16,60
9.5X8X6	8	108	6	21,00
12.7X11X6	11	111	6	28,50

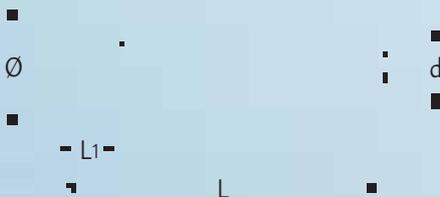
2251



Ø mm	L ₁ mm	L mm	d mm	2251 €
3X2X3	2	76	3	12,71
6.3X5X6	5	157	6	20,25
9.5X8X6	8	161	6	23,45
12.7X11X6	11	164	6	31,20

FRESA SFERICA

BALL BURR - KUGELFRÄSER
FRAISE À BOUT SPHÉRIQUE - FRESA ESFÉRICA



TALICARB NORM.

TALICARB NORM.
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FRESE SERIE LUNGA ed EXTRALUNGA IN METALLO DURO

CARBIDE BURRS - LONG AND EXTRALONG SEIRES
VHM FRÄSER LANGE - EXTRALANGE AUSFÜHRUNG
FRAISES EN CARBURE - SÉRIE LONGUE - EXTRALONGUE
FRESAS DE METAL DURO - SERIE LARGA - EXTRALARGA

2161



Ø mm	L ₁ mm	L mm	d mm	 2161 €
3X12X3	12	50	3	10,19
6X16X6	16	117	6	16,60
9.5X27X6	9.5	127	6	34,80
12.7X28X6	28	125	6	41,40

2261



Ø mm	L ₁ mm	L mm	d mm	 2261 €
3X12X3	12	76	3	12,71
6X16X6	16	168	6	20,25
9.5X27X6	27	179	6	37,25
12.7X28X6	28	180	6	43,70

FRESA CONICA A 14° CON TESTA SFERICA

14° TAPER BURR - BALL NOSE - 14° KONISCHFRÄSER - STIRNRADIUS
FRAISE CONIQUE 14° - BOUT HÉMISPHERIQUE - FRESA CÓNICA A 14° CON CABEZA ESFÉRICA



FRESE SERIE LUNGA ed EXTRALUNGA IN METALLO DURO

CARBIDE BURRS - LONG AND EXTRALONG SEIRES
 VHM FRÄSER LANGE - EXTRALANGE AUSFÜHRUNG
 FRAISES EN CARBURE - SÉRIE LONGUE - EXTRALONGUE
 FRESAS DE METAL DURO - SERIE LARGA - EXTRALARGA

TALICARB NORM.

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 TALICARB NORM.

2191



Ø mm	L ₁ mm	L mm	d mm	2191 €
3X6X3	6	50	3	10,19
8X19X6	19	120	6	27,20
12.7X31X6	31	132	6	57,30

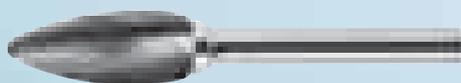
2291



Ø mm	L ₁ mm	L mm	d mm	2291 €
3X6X3	6	76	3	12,71
8X19X6	19	171	6	29,60
12.7X31X6	31	183	6	59,70

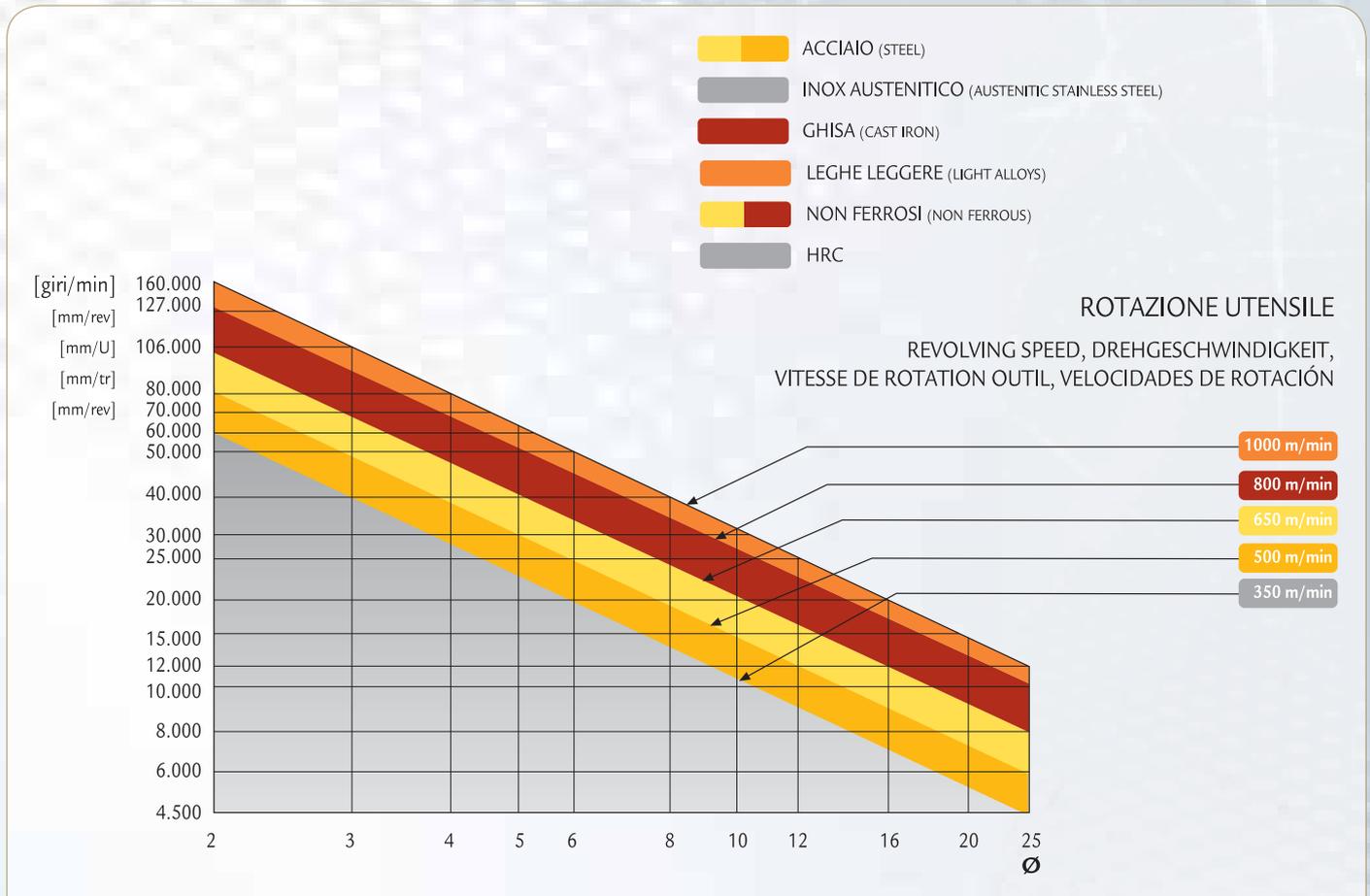
FRESA A FIAMMA

CARBIDE BURR FLAME SHAPE - FLAMMEFORME VHM FRÄSER
 FRAISE FORME DE FLAMME EN CARBURE MONOBLOC - FRESA EN FORMA DE LLAMA DE METAL DURO



INFORMAZIONI TECNICHE:

Technical instructions
 Instructions techniques
 Technische Hinweise
 Informaciones técnicas



TAGLIO Vc (m/min)

Cut, schnitt, coupe, dentado

	TAGLIO - Alluminio Aluminium Cut Aluminium Schnitt Coupe Aluminium Dentado - Aluminio	800 ÷ 1000
	TAGLIO 6 - Grosso Cut # 6 - Coarse Cut Schnitt # 6 - Groß Coupe # 6 - Coupe gros Dentado 6 - Grueso	650 ÷ 800
	TAGLIO 1 - Standard Cut # 1 - Standard Schnitt # 1 - Standard Coupe # 1 - Standard Dentado 1 - Estandar	500 ÷ 650
	TAGLIO 4 - Rompitruciolo Cut # 4 - Chip breaker Schnitt # 4 - Spanbrecher Coupe # 4 - Brise-copeau Dentado 4 - Rompevirutas	
	TAGLIO 5 - Fine Cut # 5 - Fine cut Schnitt # 5 - Fein Coupe # 5 - Mince Dentado 5 - Fin	500 ÷ 650
	TAGLIO 2 - Diamante Cut # 2 - Diamond Schnitt # 2 - Diamant Coupe # 2 - Diamant Dentado 2 - Diamante	500 ÷ 800
	TAGLIO 3 - Incrociato Cut # 3 - Double cut Schnitt # 3 - Kreuzhieb Coupe # 3 - Croisé Dentado 3 - Cruzado	



BARRETTE RETTIFICATE/BULINO

in metallo duro integrale



SOLID CARBIDE RODS / ENGRAVING CUTTER



VHM - WERKZEUGE / GRAVIERSTICHEL



OUTILS EN CARBURE MONOBLOC / FRAISES À GRAVER



HERRAMIENTAS DE METAL DURO INTEGRAL / FRESAS DE GRABADO



BARRETTE RETTIFICATE

IN METALLO DURO

SOLID CARBIDE RODS
VHM-RUNDSTÄBE
BARREAUX CYLINDRIQUES EN CARBURE MONOBLOC
BARRAS DE METAL DURO INTEGRAL

TALICARB NORM.

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TALICARB NORM.
TALICARB NORM.

1085



Ø mm h7	L mm	1085 €
1.5	100	5,76
1.5	200	11,55
1.5	320	14,70 ■
1.5	330	17,35
2.0	100	6,06
2.2	200	12,15
2.0	320	15,40 ■
2.0	330	18,30
2.5	100	7,16
2.5	200	14,30
2.5	320	18,35 ■
2.5	330	21,50
3.0	100	7,69
3.0	200	15,40
3.0	330	23,10
3.5	100	8,58
3.5	200	17,15
3.5	320	16,35 ■
3.5	330	25,75
4.0	100	9,48
4.0	200	18,90
4.0	330	28,35
4.5	100	10,81
4.5	200	21,55
4.5	310	27,10 ■
4.5	330	32,50

Ø mm h7	L mm	1085 €
5.0	100	11,83
5.0	200	23,70
5.0	330	35,50
6.0	100	15,15
6.0	200	30,40
6.0	330	45,60
7.0	100	18,90
7.0	200	37,80
7.0	330	57,00
8.0	100	22,20
8.0	200	44,80
8.0	330	67,20
9.0	100	26,45
9.0	200	53,20
10.0	100	30,75
10.0	200	61,60
10.0	330	92,20
11.0	100	36,25
11.0	200	72,80
12.0	100	42,20
12.0	200	84,10
12.0	330	126,00
13.0	100	49,80
13.0	200	99,30
14.0	100	57,30
14.0	200	114,50

Ø mm h7	L mm	1085 €
15.0	100	64,20
15.0	200	129,00
16.0	100	73,50
16.0	200	146,50
17.0	100	81,60
17.0	200	163,00
18.0	100	90,80
18.0	200	181,50
19.0	100	102,50
19.0	200	208,00
20.0	100	113,50
20.0	200	229,00

■ **Ad esaurimento scorte** - Subject to availability until sold out - Solange der vorrat reicht - Jusqu'à Épuisement de stock - Hasta agotamiento del stock



TALICARB NORM.

TALICARB NORM.
TALICARB NORM.
TALICARB NORM.
TALICARB NORM.

BARRETTE RETTIFICATE

1 TAGLIENTE IN METALLO DURO

SOLID CARBIDE RODS - 1 FLUTE
VHM-RUNDSTÄBE - 1 NUTE
BARREAUX CYLINDRIQUES EN CARBURE MONOBLOC - 1 DENT
BARRAS DE METAL DURO INTEGRAL - 1 LABIO

1086



\emptyset mm h7	L mm	L ₁ mm	1086 €
3.0	40	4.5	6,35
3.0	100	4.5	9,97
4.0	50	6	8,58
4.0	60	6	9,48
4.0	80	6	11,37
4.0	100	6	11,83
5.0	100	7.5	14,30
6.0	80	9	17,10
6.0	100	9	19,55
8.0	80	12	24,05
8.0	100	12	26,15
10.0	100	15	35,35
10.0	150	15	53,90
12.0	100	18	47,90
12.0	150	18	73,20
14.0	150	21	98,60
16.0	150	24	125,50
18.0	150	27	155,50
20.0	150	30	194,00



BULINO

Engraving cutter
Gravierstichel
Fraise à graver
Fresa de grabado

TALICARB NORM

SERIE NORMALE - DIN 6333

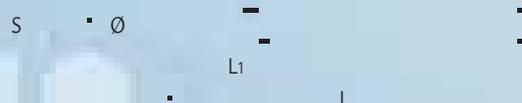
TALICARB NORM - NORMAL SERIES - DIN 6333
TALICARB NORM - NORMALE AUSFÜHRUNG - DIN 6333
TALICARB NORM - SÉRIE NORMALE - DIN 6333
TALICARB NORM - SERIE NORMAL - DIN 6333

1098



∅ mm	L mm	L ₁ mm	S	Angolo spoglia Rake angle Freiwinkel Angle dépoille Ángulo de incidencia	1098 €
2	38	10	0.25	10°	12,28 ■
5	50	17	0.73	18°	18,85 ■
6	50	17	0.73	18°	23,55 ■
7	50	20	0.96	18°	30,25 ■
8	55	22	1.01	18°	33,25 ■
9	55	28	1.06	18°	39,10 ■
10	55	28	1.19	18°	44,20 ■
11	55	30	1.26	20°	51,70 ■
12	55	30	1.52	20°	55,80 ■

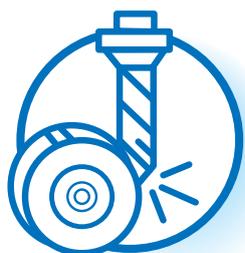
■ **Ad esaurimento scorte** - Subject to availability until sold out
Solange der vorrat reicht - Jusqu'à Épuisement de stock
Hasta agotamiento del stock





SERVIZIO DI RIAFFILATURA E RIVESTIMENTO

Re-sharpening and coating service
Nachschleif - und beschichtungservice
Service de affûtage à nouveau et revêtement
Servicio de afilado y recubrimiento



UTENSILI SPECIALI

Special tools department
Abteilung für Sonderwerkzeuge
Outils spéciaux
Herramientas especiales

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Our prompt services always ready for you
Unser prompter Service ist immer für Sie da
Nos services toujours à votre Disposition
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INFORMAZIONI TECNICHE



TECHNICAL INSTRUCTIONS



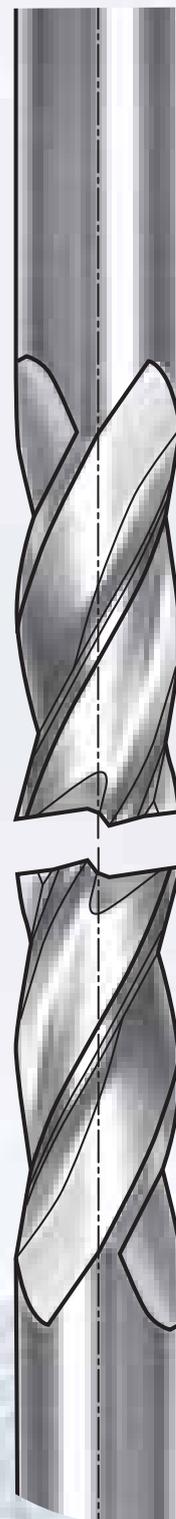
TECHNISCHE HINWEISE



INSTRUCTIONS TECHNIQUES



INFORMACIONES TÉCNICAS





SERVIZIO TECNICO

Technical Help
Technische Hilfe
Service technique
Ayuda técnica



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Our prompt services always ready for you
Unser prompter Service ist immer für Sie da
Nos services toujours à votre Disposition
Nuestro rápido servicio siempre listo para usted

Vc

VELOCITÀ DI TAGLIO [M/MIN]

Cutting speed [m/min]
Schnittgeschwindigkeit [m/min]
Vitesse de coupe [m/min]
Velocidad de corte [m/min]

f

AVANZAMENTO AL GIRO [MM/GIRO]

Feed [mm/rev]
Vorschub [mm/U]
Avance [mm/tr]
Avances [mm/rev]

Fz [mm]

AVANZAMENTO AL DENTE

Tooth Feed
Zahnvorschub
Avancement au dent
Avance al LABIOS

Vf [mm]

VELOCITÀ DI AVANZAMENTO

Feed rate
Vorschubgeschwindigkeit
Vitesse d'avance
Factor de avance

Vfm [mm/min]

VELOCITÀ DI AVANZAMENTO MODIFICATA

Modified feed rate
Veraenderte
Vorschubgeschwindigkeit
Vitesse d'avance modifiée
Factor de avance modificado

FCF

FATTORE DI CORREZIONE AVANZAMENTO

Correction Feed Factor
Vorschubberichtigungsfaktor
Facteur de correction
avancement
Factor de corrección avance

N/mm² [R]

RESISTENZA ALLA TRAZIONE

Resistance to Tensile Stress
Antriebsstandfestigkeit
Resistance à la traction
Resistencia a la tracción

Øe

DIAMETRO EFFETTIVO DI LAVORO

Actual Working Diameter
Tatsächliche
Arbeitsdurchmesser
Diamètre effectif de usinage
Diámetro efectivo de trabajo

HB

DUREZZA BRINELL

Brinell Hardness
Brinellhärte
Dureté Brinell
Dureza Brinell

Z

NUMERO DEI TAGLIENTI

Cutting Edges Number
Schneidenzahl
Numéros des coupants
Número de los labios

Ø

DIAMETRO UTENSILE

Tool's diameter
Werkzeugsdurchmesser
Diamètre de l'outil
Diámetro herramienta

VcF

FATTORE DI CORREZIONE VELOCITÀ DI TAGLIO RIVESTIMENTI

Coating correction cutting speed factor
Berichtigungsfaktor der Schnittgeschwindigkeit Beschichtungen
Facteur de correction vitesse de coupe revêtements
Factor de corrección des corte de recubrimientos

ap

PROFONDITÀ ASSIALE

Axial Depth
Axiale Tiefe
Profondeur axial
Profundidad axiall

ae

PROFONDITÀ RADIALE

Radial Depth
Radiale Tiefe
Profondeur radiale
Profundidad radial

PARAMETRI DI TAGLIO

FRESATURA CILINDRICA FRONTALE

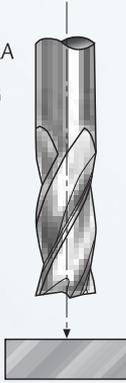
CUTTING PARAMETER - FACE MILLING
 SCHNITTEDATEN - WALZSTIRNFRÄSEN
 PARAMÈTRES DE COUPE - FRAISAGE CYLINDRIQUE FRONTALE
 PARÁMETROS DE CORTE - FRESADO CILÍNDRICO FRONTAL

INFORMAZIONI

Technical instructions
 Instructions techniques

FCF

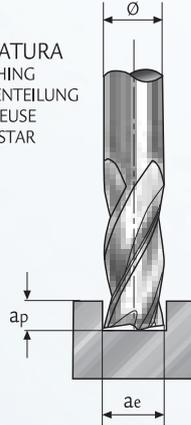
FORATURA
 DRILLING
 BOHRUNG
 PERCER
 TALADRO



$$[FCF] = 0,3$$

$$f_{zFCF} = 0,3 \times f_z$$

SGROSSATURA
 ROUGHING
 GROBE RILLENTILUNG
 RAVAGEUSE
 DESBASTAR



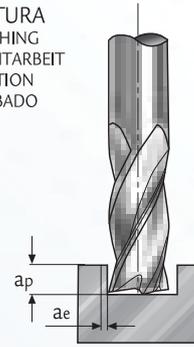
$$ae = 1,0 \times \varnothing$$

$$ap = 0,5 \times \varnothing$$

$$[FCF] = 1,0$$

$$f_{zFCF} = 1,0 \times f_z$$

FINITURA
 FINISHING
 SCHLICHTARBEIT
 FINITION
 ACABADO



$$ae = 0,1 \times \varnothing$$

$$ap = 0,5 \times \varnothing$$

$$[FCF] = 2,0$$

$$f_{zFCF} = 2,0 \times f_z$$

FATTORE DI CORREZIONE:

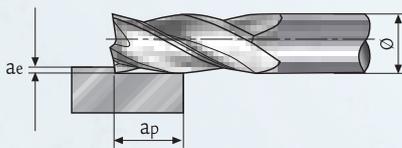
End mills correction factor - Fräser Berichtigungsfaktor - Facteur de correction fraises - Factor de corrección fresas

$$ae = 0,1 \text{ mm}$$

$$ap = 1,5 \times \varnothing$$

$$[FCF] = 2,0$$

$$f_{zFCF} = 2,0 \times f_z$$

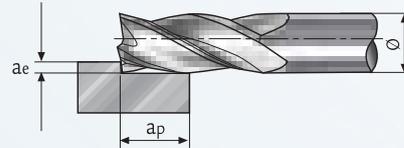


$$ae = 0,15 \times \varnothing$$

$$ap = 1,5 \times \varnothing$$

$$[FCF] = 1,5$$

$$f_{zFCF} = 1,5 \times f_z$$

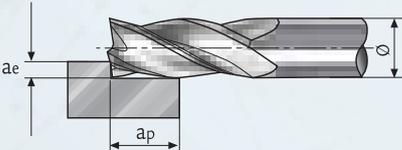


$$ae = 0,2 \times \varnothing$$

$$ap = 1,0 \times \varnothing$$

$$[FCF] = 1,0$$

$$f_{zFCF} = 1,0 \times f_z$$

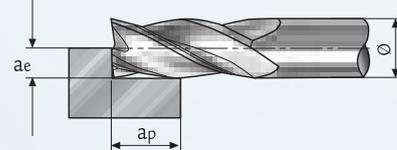


$$ae = 0,3 \times \varnothing$$

$$ap = 1,0 \times \varnothing$$

$$[FCF] = 0,7$$

$$f_{zFCF} = 0,7 \times f_z$$



FATTORE DI CORREZIONE:

End mills correction factor - Fräser Berichtigungsfaktor - Facteur de correction fraises - Factor de corrección fresas

TECNICHE:

Technische Hinweise
Informaciones técnicas

PARAMETRI DI TAGLIO FRESE CILINDRICHE FRONTALI - MATERIALI DURI

CUTTING PARAMETER - STRAIGHT END MILLS - SOLID CARBIDE
SCHNITTEDATEN - ZYLINDRISCHEN SCHAFTFRÄSERN - VHM
PARAMÈTRES DE COUPE - FRAISES CYLINDRIQUES FRONTALES - CARBURE MONOBLOC
PARÁMETROS DE CORTE - FRESAS FRONTALES DE MANGO CILÍNDRICO - METAL DURO INTEGRAL

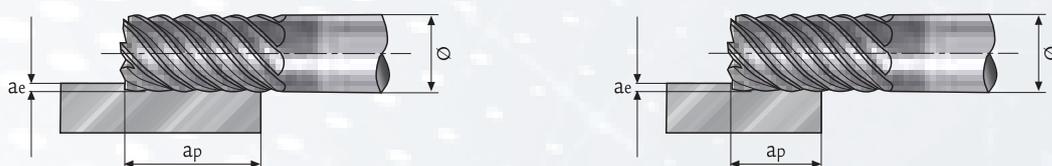
Impegno utensile per fresatura laterale (ae)

Operating conditions of the tools when extent milling (ae)

Einsatzbedingungen der Werkzeuge beim Umfangfräsen (ae)

Engagement outil pour fraisage latéral (ae)

Empeño herramienta para fresadura lateral (ae)



	~35HRc	~45HRc	~55HRc	~65HRc
ae =	0,08 x Ø	0,05 x Ø	0,02 x Ø	0,01 x Ø
ap =	1,5 x Ø	1,0 x Ø	1,0 x Ø	1,0 x Ø

FRESATURA LATERALE:

Extent milling, umfangsfräsen, fraisage latéral, fresado lateral

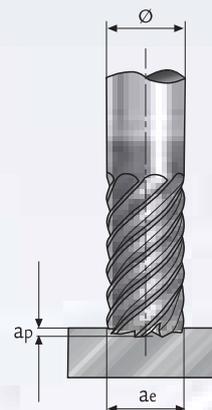
Impegno utensile per fresatura frontale

Operating conditions of the tools with front milling

Einsatzbedingungen der Werkzeuge beim Stirnfräsen

Engagement outil pour fraisage en bout

Empeño herramienta para fresadura frontal



	45 ~ 65HRc
ae =	1,0 x Ø
ap =	0,05 x Ø

FRESATURA FRONTALE:

Front milling, Stirnfräsen, fraisage en bout, fresado frontal

PARAMETRI DI TAGLIO

Frese semisferiche e toriche - MATERIALI DURI

CUTTING PARAMETERS - Ball-nose and toric end mills - Hard materials
 SCHNITTDATEN - Radiuskopierfräser und torusfräser - Hartstoffe
 PARAMÈTRES DE COUPE - Fraise hémisphérique et fraise torique - Matières dures
 PARÁMETROS DE CORTE - Fresas hemisféricas y tóricas - Materiales duros

INFORMAZIONI

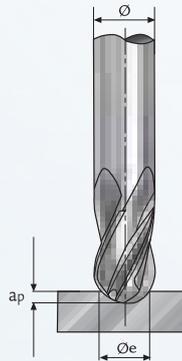
Technical instructions Instructions techniques

Valori per frese ragiate per operazioni standard

Values for taper mills with ball nose for standard applications
 Anfangswert für Radiusfräser bei Standard Anwendungen
 Valeurs pour fraises avec rayon pour opérations standard
 Valores para fresas de cabeza esférica para empleos estándar



Z2 $a_p = < 0,03 \times \varnothing$
 Z3 $a_p = < 0,02 \times \varnothing$
 Z4 $a_p = < 0,015 \times \varnothing$



CALCOLO DEL DIAMETRO EFFETTIVO (Øe) FRESA SEMISFERICA

$$\varnothing_e = 2 \sqrt{a_p (\varnothing - a_p)}$$

Calculation of the effective cutting diameter (Øe) for ball-nose end mill
 Berechnung des effektiven Schneidendurchmessers (Øe) für Radiuskopierfräser
 Estimation du diamètre effectif (Øe) fraise hémisphérique
 Cálculo de diámetro efectivo (Øe) para fresa hemisférica

FRESATURA CON TESTA SEMISFERICA:

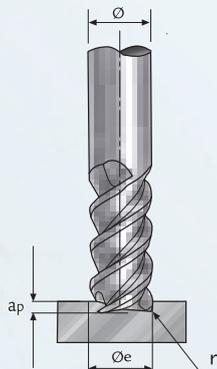
Front milling with ball-nose end mill, Stirnfräsen für Radiuskopierfräser, fraise en bout fraise hémisphérique, fresado frontal de fresa esférica

Valori per frese toriche per operazioni standard

Values for toric end mills for standard applications
 Anfangswert für Torusfräser bei Standard Anwendungen
 Valeurs pour fraises torique pour opérations standard
 Valores para fresas tóricas para empleos estándar

$a_p = 0,02 \times \varnothing$

r = Raggio fresa
 End mill radius
 \varnothing = Diametro fresa
 End mill diameter
 \varnothing_e = Diametro effettivo fresa
 Real end mill diameter



CALCOLO DEL DIAMETRO EFFETTIVO (Øe) FRESA TORICA

$$\varnothing_e = (\varnothing - 2r) + 2 \sqrt{a_p (2r - a_p)}$$

Calculation of the effective cutting diameter (Øe) for end mills with corner radius
 Berechnung des effektiven Schneidendurchmessers (Øe) für Schafffräser mit Eckenradius
 Estimation du diamètre effectif (Øe) fraise torique
 Cálculo de diámetro efectivo (Øe) para fresa tórica

FRESATURA CON TESTA TORICA:

Front milling with toric end mills, Stirnfräsen für Torusfräser, fraise en bout fraise torique, fresado frontal con fresa tórica

TECNICHE:

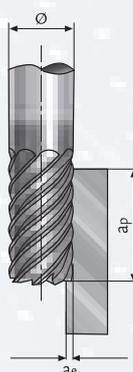
Technische Hinweise
Informaciones técnicas

PARAMETRI DI TAGLIO CERMET

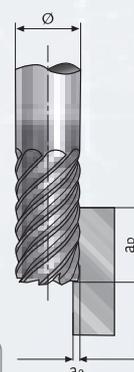
CUTTING PARAMETERS - CERMET
SCHNITTDATEN - CERMET
PARAMÈTRES DE COUPE - CERMET
PARAMETROS DE CORTE - CERMET

Impegno utensile per fresatura laterale

Operating conditions of the tools when extent milling
Einsatzbedingungen der Werkzeuge beim Umfangfräsen
Engagement outil pour fraisage latéral
Empeño herramienta para fresadura lateral



$$\text{multi} \quad \begin{array}{l} a_e = 0,25 \text{ mm} \\ a_p = 1,5 \times \varnothing \end{array}$$



$$\text{Z4} \quad \begin{array}{l} a_e = 0,05 \text{ mm} \times \varnothing \\ a_p = 1,5 \times \varnothing \end{array}$$

FRESATURA LATERALE:

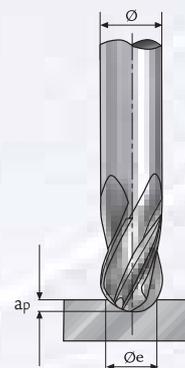
Extent milling, Umfangfräsen, fraisage latéral, fresado lateral

Impegno utensile per fresatura frontale

Operating conditions of the tools with front milling
Einsatzbedingungen der Werkzeuge beim Stirnfräsen
Engagement outil pour fraisage en bout
Empeño herramienta para fresadura frontal

$$\text{Z4} \quad a_p < 0,15 \times \varnothing$$

$$\varnothing_e = 2 \sqrt{a_p (\varnothing - a_p)}$$



FRESATURA CON TESTA SEMISFERICA:

Front milling with ball-nose end mill, Stirnfräsen für Radiuskopierfräser, fraisage en bout fraise hémisphérique, fresado frontal de fresa esférica

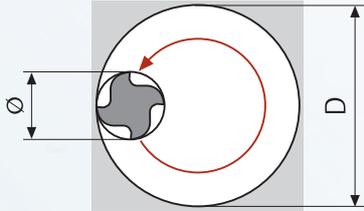
PARAMETRI DI TAGLIO

INFORMAZIONI GENERALI

CUTTING PARAMETERS - General Information
 SCHNITTDATEN - Allgemeine Informationen
 PARAMÈTRES DE COUPE - Informations générales
 PARAMETROS DE CORTE - Informaciones generales

INFORMAZIONI

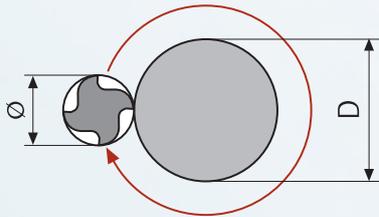
Technical instructions
 Instructions techniques



$$V_{fM} = \frac{V_f \times (D - \varnothing)}{D} \text{ [mm/min]}$$

CONTORNATURA INTERNA:

Internal contour, Innenkontour, contournage intérieur, interpolación interior



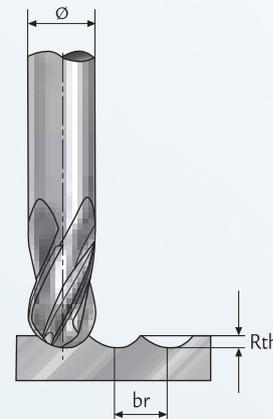
$$V_{fM} = \frac{V_f \times (D + \varnothing)}{D} \text{ [mm/min]}$$

CONTORNATURA ESTERNA:

External contour, Außenkontour, contournage extérieur, interpolación exterior

$$R_{th} = \frac{\varnothing}{2} \sqrt{\frac{\varnothing^2 - br^2}{4}}$$

$$br = 2 \sqrt{R_{th} (\varnothing - R_{th})}$$



[Rth] = rugosità ottenuta in mm
 Depth of roughness (mm), Rautiefe in mm, rugosité obtenue en mm, rugosidad obtenida en mm

[br] = passo o ampiezza tra i solchi
 Line offset (mm), Zeilensprung in mm, pas ou amplitude entre les rainures, división o amplitud entre las ranuras

CALCOLO DELLA RUGOSITÀ [RTH]:

Calculation of roughness depth, Berechnung der Rautiefe, calcul de la rugosité (Rth), cálculo de la rugosidad

TECNICHE:

Technische Hinweise
Informaciones tècnicas

NOTE

NOTES
NOTIZEN
NOTES
NOTAS

Lined area for technical notes and information.

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