

High Performance

Haute Performance

Alto Rendimiento

Hochleistungs-Werkzeuge

Alte Performance



Minicut
International

Leader in Cutting Tool Technology



METRIC EDITION • ÉDITION MÉTRIQUE • EDICIÓN MÉTRICO • METRISCH AUSGABE • EDIZIONE METRICA



Minicut International is a Canadian company specialized in the manufacturing of high performance cutting tools for the aerospace and metalworking industries. For over 40 years Minicut's reputation for engineering some of the most innovative and performance driven cutting tools has been unquestionable, making it a leading North American manufacturer in cutting tool technology.

Much of the success attained by Minicut in this highly technological and most competitive field of activity is its historical and continued commitment into research and product technology, resulting in the development of innovative, ultra-performing products that effectively machine titanium, stainless steel, aluminum and other exotic alloys. These advanced technologies have enabled Minicut to export its products to more than 30 countries worldwide.

Minicut International est une société Canadienne spécialisée dans la fabrication d'outils coupants de haute performance pour les industries Aéronautiques et Mécaniques. Depuis plus de 40 ans, la réputation de Minicut a été forgée pour ses développements technologiques, innovateurs et performants de ses produits. Faisant de Minicut un leader Nord Américain dans la technologie des outils coupants.

Les succès obtenus par Minicut International dans ce domaine hautement technologique et mondialement compétitif sont attribuables aux efforts soutenus en recherches, résultant au développements de produits ultra performants et innovateurs pouvant usiner efficacement le titan, aluminium, aciers inox et autres matériau exotiques.

Cette technologie avancée permet à Minicut International d'exporter ses produits dans plus de 30 pays à travers le monde.



Minicut International es una sociedad Canadiense especializada en la fabricacion de herramientas de corte de alta calidad y rendimiento superior para la industria aeronautica y mecanica. Durante mas de 40 anos, Minicut ha sabido crearse una reputation enviable por el desarrollo tecnologico e innovaciones de sus productos. En Norte America, Minicut, es un lider reconocido en la tecnologia de fabricacion de herramientas de corte.

El sucesso de Minicut, en esta industria de alta tecnologia, es debido a la busqueda continua a la cual se dedica la compania. El resultado son utiles y herramientas ultra perfomantes e innovadores, capaces de mecanizar eficazmente el titanio, aluminio, acero inoxidable y otras materias exoticas.

Esta alta tecnologia permite a Minicut de exportar sus productos a mas de 30 paises a traves del mundo.

MINICUT International ist ein kanadisches Unternehmen das sich in der Herstellung hochqualifizierter Werkzeuge für die Luftraum- und Werkzeugmaschinenindustrie spezialisiert hat. Über 40 Jahre ständige technologische Entwicklungen äusserst innovativer, hochleistungsvoller Schneidwerkzeuge machten MINICUT International zu einem der führenden Werkzeughersteller am nordamerikanischen Markt.

Eindeutigen Erfolg konnte MINICUT International auf diesem höchst technologischen und weltweit wettbewerbsumstrittenen Gebiet durch unermüdliche Forschung und Entwicklung von innovativen, ultra-leistungsfähigen Werkzeugen zur Bearbeitung von Titan, Inox, Aluminium und vielen andern, schwer zu bearbeitenden „Exoten“, verbuchen.

Die avantgardistische Technologie der MINICUT Produkte ermöglicht es, sie weltweit in über 30 Länder zu exportieren.

Minicut Intrnational è una società canadese specializzata nella costruzione di utensili da taglio High Performance specifica nel settore aeronautico e nell'industria metalmeccanica generale.

Da oltre 40 anni, dall'esperienza acquisita, gli ingegneri della Minicut hanno messo a punto degli utensili volti a migliorare le prestazioni, riconosciute inequivocabilmente da tutti gli specialisti del settore facendo, di Minicut un leader nel nord America nella tecnologia degli utensili da taglio.

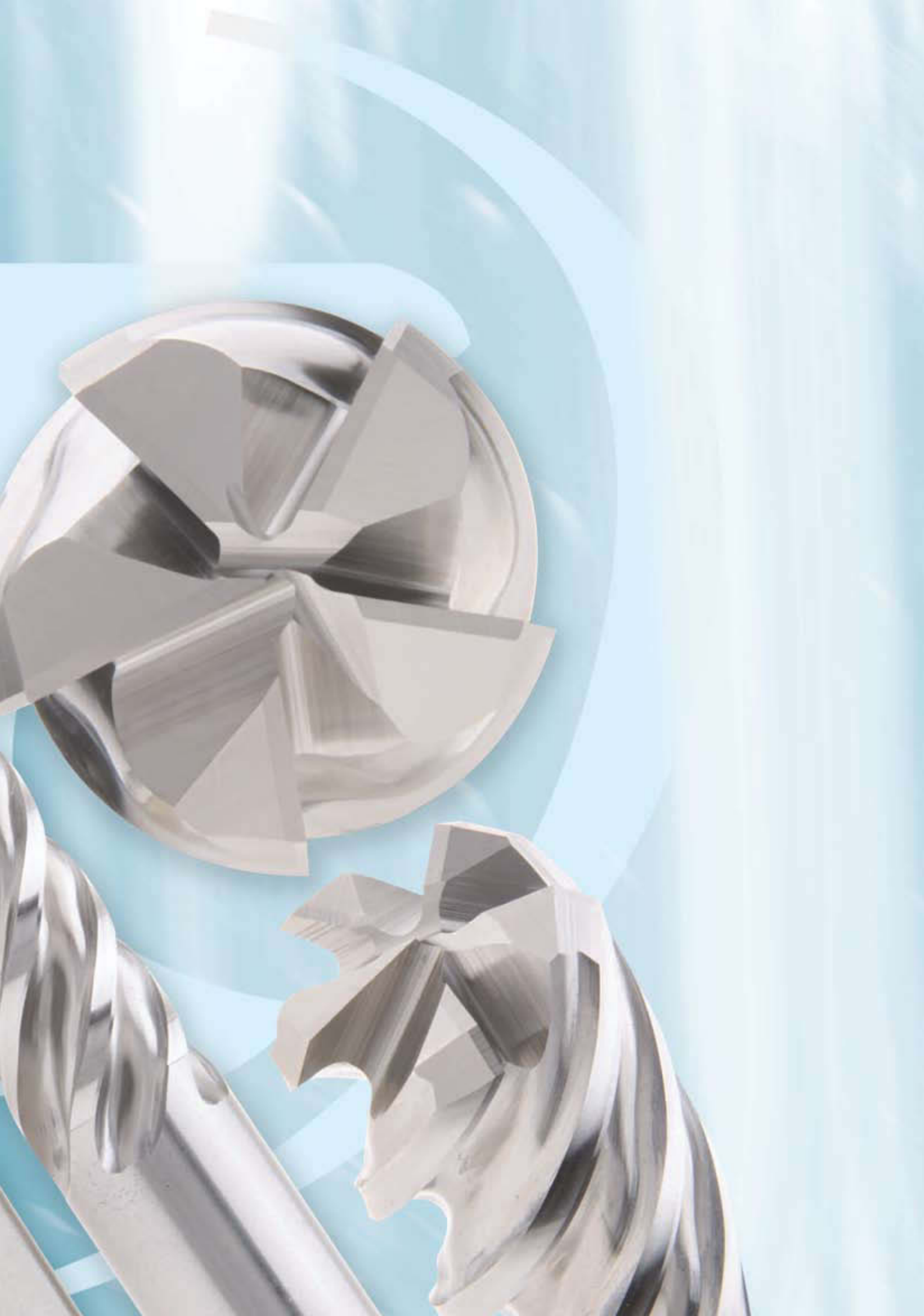
Il successo ottenuto da Minicut International nella tecnologia di taglio è risultato estremamente competitivo in campo internazionale. Gli enormi sforzi sostenuti nella ricerca hanno prodotto risultati di successo dando altissima resa produttiva, lavorando efficacemente il titanio, alluminio, acciai inossidabili ed altri materiali tra cui gli esotici.

Questa alta tecnologia ha permesso alla Minicut International di esportare con successo i suoi prodotti in più di 30 paesi in tutto il mondo.



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International
Leader in Cutting Tool Technology





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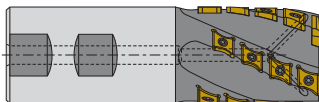
Fresas Esfericos Megamill Plaqueta de Metal Duro Doble Corte

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The Only Helical Positive Indexable Cutter

L'unique Fraise Hélicoïdale avec Coupe Positive

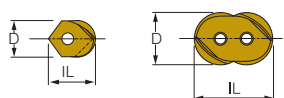
La Unica Fresa Hélicoïdal con Corte Positivo

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The most advanced PVD surface coating technology

With its constant research in PVD coatings, Minicut International has developed and engineered state-of-the-art technology to maximize tool life. The advanced processes in TiAlN and SUPREME (TiAlN₂) coatings have generated extraordinary performances when machining titanium and other types of exotic materials.

La plus récente technologie en matière de revêtement de surfaces PVD

La recherche constante en optimisation de nos procédés de revêtements, a permis à Minicut International le développement de nouveaux procédés pour maximiser la vie de ses outils. L'optimisation de ses revêtements TiAlN et SUPREME (TiAlN₂) ont générés des performances accentuées sur l'usinage du titan et les autres matériaux exotiques.

La tecnología de capa de la superficie más avanzada de PVD

Con su investigación constante en capas de PVD, Minicut International se ha desarrollado una tecnología avanzada dirigida para maximizar vida de la herramienta. Los procesos avanzados en TiAlN y SUPREMO (TiAlN₂) ha generado funcionamientos extraordinarios al mecanizar el titanio y otros tipos de materiales exóticos.

PVD Beschichtungs-Verfahren auf den neuesten Stand gebracht

Fortlaufende Forschungen des PVD-Beschichtungsprozesses führten MINICUT International zur Entwicklung eines absolut einzigartigen high-tech Beschichtungs-Verfahren. Folge dieser neu entwickelten Prozesse der TiAlN- und SUPREME (TiAlN₂)-Beschichtung ist eine drastische Steigerung in der Titanbearbeitung sowie andere, schwer zu bearbeitender exotischen Materien.

Le più recenti tecnologie di processi del rivestimento "PVD"

La costante ricerca nei rivestimenti ha permesso l'ottimizzazione dei nuovi processi in PVD per aumentare il rendimento produttivo. Il rivestimento in TiAlN e "TiAlN SUPREME", ha permesso di aumentare le prestazioni principalmente nelle lavorazioni di titanio e altri tipi di materiali esotici.



TiN

TiCN

TiAlN II



Minicut[®] Super Cobalt

PATENTED GEOMETRY – POWDERED METAL - SUPER COBALT

The advanced concept in metal cutting

La maîtrise de la technologie du fraisage

Domina la tecnologia del fresado

Meisterhafte technologie der spanabhebung

Il concetto tecnologico in fresatura

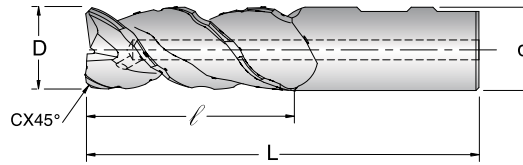


LIST RPM

**High Speed
Machining of Aluminium**

Directional coolant holes

**Polished Flutes
PM Super Cobalt**



**Usinage Grande
Vitesse de L'Aluminium**

**Trous d'arrosage
directionnels**

**Goujures Polies
Acier fritté Super Cobalt**

**Para Fresar el Aluminio
a Alta Velocidad**

**Agujeros de
lubricación dirigidos**

**Cuchillos Pulidos
Acero Sinterizado
Super Cobalto**

**Zum Aluminiumfräsen mit
hohen Umdrehungen**

mit Innenkühlung

**Polierte Schneiden
Pulverisierten Stahl
Super Kobalt**

**Alta Velocita' per
Lavorazione di Alluminio**

**Fori di refrigerazione
direzionali**

**Taglienti Lucidati
Acciaio Sinterizzato
Super Cobalto**

TOOL NO.	D	d	l	L	Z	Uncoated EDP NO.	TiCN EDP NO.
RPM-1016	10	10	16	66	3	29000	29125
RPM-1022	10	10	22	72	3	29005	29130
RPM-1226	12	12	26	83	3	29010	29135
RPM-1253	12	12	53	110	3	29015	29140
RPM-1426	14	12	26	83	3	29020	29145
RPM-1453	14	12	53	110	3	29025	29150
RPM-1632	16	16	32	92	3	29030	29155
RPM-1663	16	16	63	123	3	29035	29160
RPM-1832	18	16	32	92	3	29040	29165
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RPM-2038	20	20	38	104	3	29050	29175
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RPM-3275	32	32	75	155	3	29085	29210
RPM-3210	32	32	106	186	3	29090	29215
RPM-4056-32	40	32	56	136	3	29095	29220
RPM-4075-32	40	32	75	155	3	29100	29225
RPM-4010-32	40	32	106	186	3	29105	29230
RPM-5050-32	50	32	50	152	3	29110	29235
RPM-5075-32	50	32	75	177	3	29115	29240
RPM-5075	50	50	75	177	3	29120	29245

Suggested feeds and speeds for HSM – slotting operation

Vitesse de coupe et avances pour UGV – operation rainurage

Velocidades y avances para alta velocidad – operación de ranurados

Empfohlene schneid-und vorschubgeschwindigkeiten – nutenfräs arbeitsvorgang

Velocita' di taglio e avanzamenti per alta velocita' – operazione scannelatura

DIA (mm)	n (RPM)	V_t (SMM)	c (mm/tooth)	f_n (mm/min)	Q cm ₃ /min
10	22000	691	0.038	2500	250
12	21200	799	0.051	3230	465
14	20550	903	0.063	3888	762
16	19900	1000	0.076	4547	1164
18	17900	1012	0.082	4394	1424
20	15900	999	0.089	4240	1696
25	12730	999	0.102	3880	2425
32	9950	1000	0.127	3790	3881
40	7950	999	0.151	3600	5760
50	6400	1005	0.164	3155	7888

LIST 930MP

**Optimum Performance
Roughing Aluminium**

**Polished Flutes
Super Cobalt M-42**

**Performances Optimum
Ebauche de l'Aluminium**

**Goujures Polies
Super Cobalt M-42**

**Alto Rendimiento Desbastes
en Aluminio**

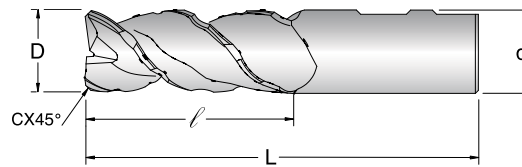
**Cuchillos Pulidos
Super Cobalto M-42**

**Höchstleistungs-
Schruppfräser für Aluminium**

**Polierte Schneiden
Super Kobalt M-42**

**Alte Prestazioni
Sgrossatura Alluminio**

**Taglienti Lucidati
Super Cobalto M-42**



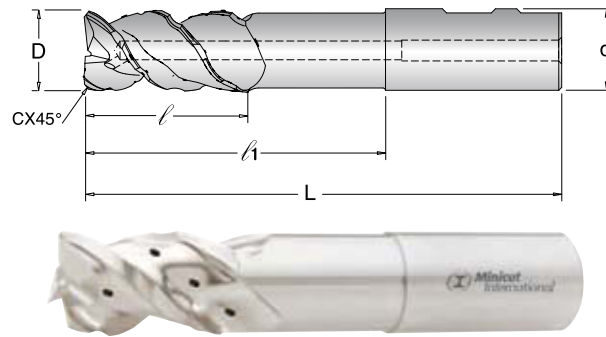
TOOL NO.	D	d	l	L	Z	Uncoated EDP NO.	TiCN EDP NO.
930MP-1016	10	10	16	66	3	29260	29395
930MP-1022	10	10	22	72	3	29265	29400
930MP-1226	12	12	26	83	3	29270	29405
930MP-1253	12	12	53	110	3	29275	29410
930MP-1426	14	12	26	83	3	29280	29415
930MP-1453	14	12	53	110	3	29285	29420
930MP-1632	16	16	32	92	3	29290	29425
930MP-1663	16	16	63	123	3	29295	29430
930MP-1832	18	16	32	92	3	29300	29435
930MP-1863	18	16	63	123	3	29305	29440
930MP-2038	20	20	38	104	3	29310	29445
930MP-2075	20	20	75	141	3	29315	29450
930MP-2238	22	20	38	104	3	29320	29455
930MP-2275	22	20	75	141	3	29325	29460
930MP-2545	25	25	45	121	3	29330	29465
930MP-2590	25	25	90	166	3	29335	29470
930MP-2845	28	25	45	121	3	29340	29475
930MP-3045	30	25	45	121	3	29345	29480
930MP-3090	30	25	90	166	3	29350	29485
930MP-3253	32	32	53	133	3	29355	29490
930MP-3210	32	32	106	186	3	29360	29495
930MP-4063-32	40	32	63	143	3	29365	29500
930MP-4012-32	40	32	125	205	3	29370	29505
930MP-5075-32	50	32	75	155	3	29375	29510
930MP-5010	50	50	106	208	3	29380	29515
930MP-5010-32	50	32	106	186	3	29385	29520
930MP-50105	50	50	150	252	3	29390	29525

LIST X930MP

For Roughing Deep Pockets in Aluminium

Directional Coolant Holes

Polished Flutes - Extra Long Super Cobalt M-42



Pour Ébauche de Cavités Profondes de l'Aluminium

Trous d'Arrosage Directionnels

Goujures polies - Extra Long Super Cobalt M-42

Para Desbastes de Canales Profundo en Aluminio

Agujeros de lubricación dirigidos

Cuchillos Polidos Extra Larga Super Cobalto M-42

Schruppfräser für tiefe Taschen in Aluminium

mit Innenkühlung

Polierte Schneiden Extra Lang Super Kobalt M-42

Per sgrossatura di tasche profonde per Alluminio

Fori di refrigerazione direzionali

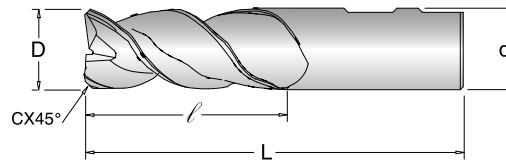
Taglienti Lucidati Extra Lunga Super Cobalto M-42

TOOL NO.	D	d	l	l ₁	L	C	Z	Uncoated EDP NO.	TiCN EDP NO.
X930MP-20125	20	20	35	50	125	1.5	3	29540	29580
X930MP-20150	20	20	35	83	150	1.5	3	29545	29585
X930MP-25125	25	25	40	125	200	1.5	3	29550	29590
X930MP-22150	25	25	40	150	226	1.5	3	29555	29595
X930MP-32150	32	32	50	150	230	2.0	3	29560	29600
X930MP-23200	32	32	50	200	280	2.0	3	29565	29605
X930MP-40200	40	32	50	200	280	2.0	3	29570	29610
X930MP-40210	40	40	50	210	305	2.0	3	29575	29615

LIST SF930M

**Super Finisher End
Mills for Aluminium**

**Polished Flutes
Super Cobalt M-42**



**Fraises de Superfinition
pour Aluminium**

**Goujures Polies
Super Cobalt M-42**

**Fresas para
Superacabado
el Aluminio**

**Cuchillos Pulidos
Super Cobalto M-42**

**Feinschlichtfräser
in Aluminium**

**Polierte Schneiden
Super Kobalt M-42**

**Frese Super Finitura
per Alluminio**

**Taglienti Lucidati
Super Cobalto M-42**

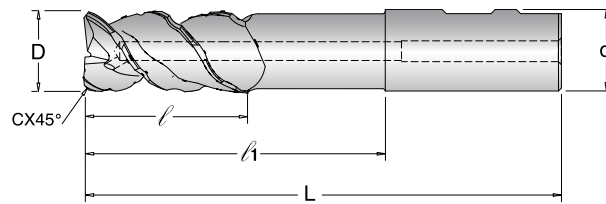
TOOL NO.	D	d	l	L	Z	Uncoated EDP NO.	TiCN EDP NO.
SF930M-1016	10	10	16	66	3	29630	29740
SF930M-1022	10	10	22	72	3	29635	29745
SF930M-1226	12	12	26	83	3	29640	29750
SF930M-1253	12	12	53	110	3	29645	29755
SF930M-1426	14	12	26	83	3	29650	29760
SF930M-1453	14	12	53	110	3	29655	29765
SF930M-1632	16	16	32	92	3	29660	29770
SF930M-1663	16	16	63	123	3	29665	29775
SF930M-1832	18	16	32	92	3	29670	29780
SF930M-1863	18	16	63	123	3	29675	29785
SF930M-2038	20	20	38	104	3	29680	29790
SF930M-2075	20	20	75	141	3	29685	29795
SF930M-2238	22	20	38	104	3	29690	29800
SF930M-2275	22	20	75	141	3	29695	29805
SF930M-2545	25	25	45	121	3	29700	29810
SF930M-2590	25	25	90	166	3	29705	29815
SF930M-3045	30	25	45	121	3	29710	29820
SF930M-3090	30	25	90	166	3	29715	29825
SF930M-3253	32	32	53	133	3	29720	29830
SF930M-3210	32	32	106	186	3	29725	29835
SF930M-4063-32	40	32	63	143	3	29730	29840
SF930M-4012-32	40	32	125	205	3	29735	29845

LIST XSF930M

**For Deep Pocket
finishing in Aluminium**

Directional Coolant Holes

**Polished Flutes
Extra Long
Super Cobalt M-42**



**Pour Finition de Cavités
Profondes de l'Aluminium**

**Trous d'Arrosage
Directionnels**

**Goujures polies
Extra Long
Super Cobalt M-42**

**Para Superacabado
de Canales Profundo
en Aluminio**

**Agujeros de
lubricación dirigidos**

**Cuchillos Polidos
Extra Larga
Super Cobalto M-42**

**Superschichtenfräser für
tiefe Taschen in Aluminium**

mit Innenkühlung

**Polierte Schneiden
Extra Lang
Super Kobalt M-42**

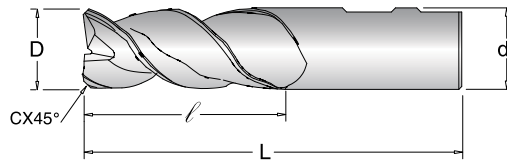
**Superfinitura di tasche
profonde per Alluminio**

**Fori di refrigerazione
direzionali**

**Taglienti Lucidati
Extra Lunga
Super Cobalto M-42**

TOOL NO.	D	d	l	l ₁	L	C	Z	Uncoated EDP NO.	TiCN EDP NO.
XSF930M-20125	20	20	35	50	125	1.5	3	29860	29900
XSF930M-20150	20	20	35	83	150	1.5	3	29865	29905
XSF930M-25125	25	25	40	125	200	1.5	3	29870	29910
XSF930M-22150	25	25	40	150	226	1.5	3	29875	29915
XSF930M-32150	32	32	50	150	230	2.0	3	29880	29920
XSF930M-23200	32	32	50	200	280	2.0	3	29885	29925
XSF930M-40200	40	32	50	200	280	2.0	3	29890	29930
XSF930M-40210	40	40	50	210	305	2.0	3	29895	29935

**LIST SC999M
SUPERCUT
TA-XXX**



**High Performance
in all Materials**

**Polished Flutes
TA-XXX Coating
Super Cobalt M-42**



**Haute Performance
pour tous Matériaux**

**Goujures Polies
Revêtement TA-XXX
Super Cobalt M-42**

**En Alto rendimiento
todos los Materiales**

**Cuchillos Pulidos
Capas TA-XXX
Super Cobalto M-42**

**Bestleistungen in der
Bearbeitung aller Werkstoffe**

**Polierte Schneiden
Überzug TA-XXX
Super Kobalt M-42**

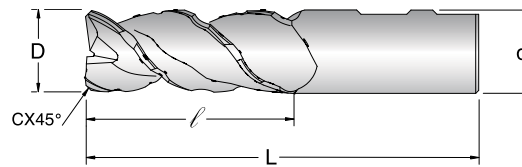
**Alte performance in
tutti i Materiali**

**Taglienti Lucidati
Rivestimento TA-XXX
Super Cobalto M-42**

TOOL NO.	D	d	l	L	Z	TA - XXX
						EDP NO.
SC999M-1016	10	10	16	66	3	34000
SC999M-1022	10	10	22	72	3	34005
SC999M-1226	12	12	26	83	3	34010
SC999M-1253	12	12	53	110	3	34015
SC999M-1426	14	12	26	83	3	34020
SC999M-1453	14	12	53	110	3	34025
SC999M-1632	16	16	32	92	3	34030
SC999M-1663	16	16	63	123	3	34035
SC999M-1832	18	16	32	92	3	34040
SC999M-1863	18	16	63	123	3	34045
SC999M-2038	20	20	38	104	3	34050
SC999M-2075	20	20	75	141	3	34055
SC999M-2238	22	20	38	104	3	34060
SC999M-2275	22	20	75	141	3	34065
SC999M-2545	25	25	45	121	3	34070
SC999M-2590	25	25	90	166	3	34075
SC999M-3253	32	32	53	133	3	34080
SC999M-3210	32	32	106	186	3	34085
SC999M-4063-32	40	32	63	143	3	34090
SC999M-4012-32	40	32	125	205	3	34095

LIST 930M

**Optimum Performance
Roughing Aluminium
Super Cobalt M-42**



**Performance Optimum
Ebauche Aluminium
Super Cobalt M-42**



**Optimo Rendimiento
Desbastes Aluminio
Super Cobalto M-42**

**Optimale Leistung beim
Schruppen in Aluminium
Super Kobalt-M-42**

**Ottima Prestazione
Sgrossatura per Alluminio
Super Cobalto M-42**

TOOL NO.	D	d	l	L	Z	Uncoated EDP NO.	TiCN EDP NO.
930M-1016	10	10	16	66	3	34100	34260
930M-1022	10	10	22	72	3	34105	34265
930M-1226	12	12	26	83	3	34110	34270
930M-1253	12	12	53	110	3	34115	34275
930M-1426	14	12	26	83	3	34120	34280
930M-1453	14	12	53	110	3	34125	34285
930M-1632	16	16	32	92	3	34130	34290
930M-1663	16	16	63	123	3	34135	34295
930M-1832	18	16	32	92	3	34140	34300
930M-1863	18	16	63	123	3	34145	34305
930M-2038	20	20	38	104	3	34150	34310
930M-2075	20	20	75	141	3	34155	34315
930M-2238	22	20	38	104	3	34160	34320
930M-2275	22	20	75	141	3	34165	34325
930M-2545	25	25	45	121	3	34170	34330
930M-2590	25	25	90	166	3	34175	34335
930M-2845	28	25	45	121	3	34180	34340
930M-2890	28	25	90	166	3	34185	34345
930M-3045	30	25	45	121	3	34190	34350
930M-3090	30	25	90	166	3	34195	34355
930M-3253	32	32	53	133	3	34200	34360
930M-3210	32	32	106	186	3	34205	34360
930M-3653	36	32	53	133	3	34210	34370
930M-3610	36	32	106	186	3	34215	34375
930M-4063	40	40	63	155	3	34220	34380
930M-4063-32	40	32	63	143	3	34225	34385
930M-4012	40	40	125	217	3	34230	34390
930M-4012-32	40	32	125	205	3	34235	34395
930M-5075-32	50	32	75	155	3	34240	34400
930M-5010	50	50	106	208	3	34245	34405
930M-5010-32	50	32	106	186	3	34250	34410
930M-5015	50	50	150	252	3	34255	34415

LIST 940MP



**Heavy Duty Roughing Milling of Aluminium
Polished Flutes - M42**

**Fraise Ebauche à Haute Puissance pour Aluminium
Goujures Polies - M42**

**Fresas Desbastes con Fuerza Superior por Aluminio
Cuchillos Pulidos - M42**

**Hochleistungs-Schrupfräser für Aluminium Polierte
Schneiden - M42**

**Fresa a sgrossare ad alta potenza per alluminio
Taglienti lucidati - M42**

TOOL NO.	D	d	ℓ	L	Z	Uncoated EDP NO.	TiCN EDP NO.
940MP-6350	63	40	50	142	4	38800	38830
940MP-6375	63	40	75	167	4	38805	38835
940MP-6310	63	40	100	192	4	38810	38840
940MP-7563	75	50	63	165	4	38815	38845
940MP-7590	75	50	90	192	4	38820	38850
940MP-7512	75	50	125	227	4	38825	38855

LIST 950MP

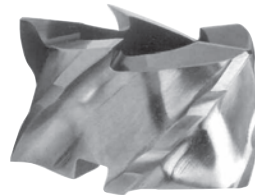
**Shell Mill for Face Milling of Aluminium
Polished Flutes - M42**

**Fraise à Surfacer pour l'Aluminium
Goujures Polies - M42**

**Fresas Frontales para Planear el Aluminio
Cuchillos Pulidos - M42**

**Walzenstirnfräser zum Planfräsen von Aluminium
Polierte Schneiden - M42**

**Fresa frontale per spianare l'alluminio.
Taglienti lucidati - M42**



TOOL NO.	D	d	ℓ	L	Uncoated EDP NO.	TiCN EDP NO.
950MP-SM63	63	40	27	4	34420	34435
950MP-SM80	80	45	27	5	34425	34440
950MP-SM100	100	50	32	6	34430	34445

LIST 955M

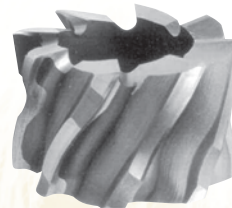
Shell Mill for Face Milling of titanium - M42

Fraise à Surfacer pour Titanium - M42

Fresas Frontales para Planar el Titanio - M42

Walzenstirnfräser zum Planfräsen von Titan - M42

Fresa frontale per spianare il titanio, acciai - M42

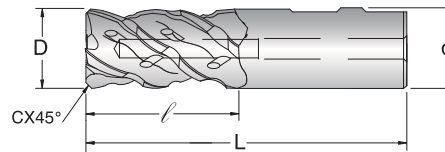


TOOL NO.	D	d	ℓ	L	Uncoated EDP NO.	TiCN EDP NO.
955M-SM63	63	40	27	8	34450	34465
955M-SM80	80	45	27	10	34455	34470
955M-SM100	100	50	32	12	34460	34475

LIST CY996M

**High performance for
roughing and finishing
of titanium coolant holes**

**polished flutes
PM super cobalt**



**Haute performance pour
ébauche et finition du titan
trous de refroidissement**

**goujures polies
acier Fritté super cobalt**

**Alto rendimiento- desbastes
y acabados el titanio
agujeros de lubricación**

**cuchillos pulidos acero
sinterizado super cobalto**

**Hochleistungs-werkzeuge
für schrappen und schlitzen
in titan – mit innenkühlung**

**polierte schneiden
pulverisierten stahl
super kobalt**

**Alta performance – per
sgrossatura e finitura del
titanio – fori di refrigerazione**

**taglienti lucidati
acciaio sinterizzato super
Super cobalto**

TOOL NO.	D	d	l	L	Z	Uncoated EDP NO.	TiAIN EDP NO.
CY996M-1016	10	10	16	66	4	34500	34675
CY996M-1022	10	10	22	72	4	34505	34680
CY996M-1226	12	12	26	83	4	34510	34685
CY996M-1253	12	12	53	110	4	34515	34690
CY996M-1426	14	12	26	83	4	34520	34695
CY996M-1453	14	12	53	110	4	34525	34700
CY996M-1632	16	16	32	92	4	34530	34705
CY996M-1663	16	16	63	123	4	34535	34710
CY996M-1832	18	16	32	92	4	34540	34715
CY996M-1863	18	16	63	123	4	34545	34720
CY996M-2038	20	20	38	104	4	34550	34725
CY996M-2075	20	20	75	141	4	34555	34730
CY996M-2545	25	25	45	121	5	34560	34735
CY996M-2545-A	25	25	45	121	6	34565	34740
CY996M-2590	25	25	90	166	5	34570	34745
CY996M-2590-A	25	25	90	166	6	34575	34750
CY996M-3045	30	25	45	121	5	34580	34755
CY996M-3045-A	30	25	45	121	6	34585	34760
CY996M-3090	30	25	90	166	5	34590	34765
CY996M-3090-A	30	25	90	166	6	34595	34770
CY996M-3253	32	32	53	133	5	34600	34775
CY996M-3253-A	32	32	53	133	6	34605	34780
CY996M-3210	32	32	106	186	5	34610	34785
CY996M-3210-A	32	32	106	186	6	34515	34790
CY996M-4063-32	40	32	63	143	5	34620	34795
CY996M-4063-A	40	32	63	143	6	34625	34800
CY996M-4012-32-A	40	32	125	205	6	34630	34805
CY996M-5075-A	50	50	75	177	6	34635	34810
CY996M-5075-32-A	50	32	75	155	6	34640	34815
CY996M-5010-A	50	50	106	208	6	34645	34820
CY996M-5010-32-A	50	32	106	186	6	34650	34825
CY996M-5010-B	50	50	106	208	8	34655	34830
CY996M-5010-32-B	50	32	106	186	8	34660	34835
CY996M-5015-A	50	50	150	252	6	34665	34840
CY996M-5015-B	50	50	150	252	8	34670	34845

LIST CY997M Rougher
&
LIST CY998M Superfinisher

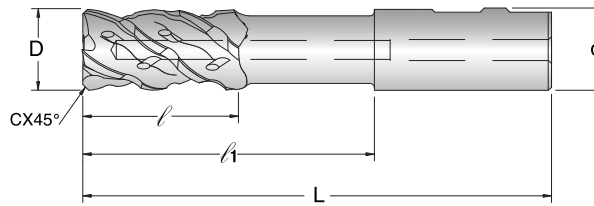
For roughing and finishing deep pockets of titanium coolant holes polished flutes - extra long PM super cobalt

Pour ébauche et finition de cavités profondes du titan - trous d'arrosage goujures polies - extra long Acier Fritté super cobalt

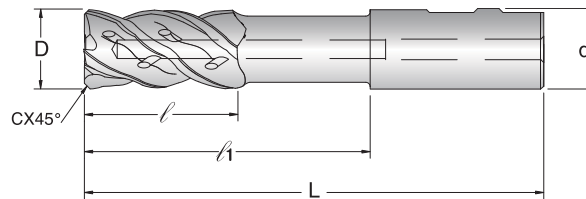
Para desbastes y acabado canales profundo en titanio agujeros de lubricación cuchillos pulidos - extra larga acero Sinterizado super cobalto

Für schrappen und schlitzen tiefe Taschen in Titan Innenkühlung polierte Schneiden pulverisierten stahl Super Kobalt extra lang

Per sgrossatura / finitura di tasche profonde per titanio fori di refrigerazione taglienti lucidati - extra lunga acciaio Sinterizzato super cobalto



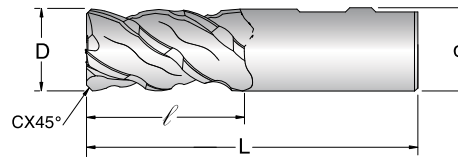
TOOL NO.	D	d	l	l ₁	L	C	Z	Uncoated EDP NO.	TIAlN EDP NO.
CY997M-12100	12	12	18	100	150	0.75	4	34860	34900
CY997M-16125	16	16	24	125	150	1.00	4	34865	34905
CY997M-20150	20	20	30	150	175	1.00	4	34870	34910
CY997M-25150	25	25	40	150	213	1.00	6	34875	34915
CY997M-32175	32	32	50	175	238	1.50	6	34880	34920
CY997M-40175	40	32	50	175	238	1.50	6	34885	34925
CY997M-50150	50	50	63	150	252	1.50	6	34890	34930
CY997M-50200	50	50	63	200	302	1.50	8	34895	34935



TOOL NO.	D	d	l	l ₁	L	C	Z	Uncoated EDP NO.	TIAlN EDP NO.
CY998M-12100	12	12	32	100	150	0.75	4	34940	34980
CY998M-16125	16	16	50	125	150	1.00	4	34945	34985
CY998M-20150	20	20	50	150	175	1.00	4	34950	34990
CY998M-25150	25	25	63	150	213	1.00	6	34955	34995
CY998M-32175	32	32	75	175	238	1.50	6	34960	35000
CY998M-40175	40	32	75	175	238	1.50	6	34965	35005
CY998M-50150	50	50	75	150	252	1.50	6	34970	35010
CY998M-50200	50	50	75	200	302	1.50	8	34975	35015

LIST 995M

**High performance roughing
end mills for titanium
super cobalt M-42**



**Fraises haute performance
pour ébauche du titan
super cobalt M-42**



**Fresas alto rendimiento
para desbastes el titanio
super cobalto M-42**

**Hochleistungs-werkzeuge
schruppen fräser in titan
super kobalt M-42**

**Frese alta performance
per sgrossatura del titanio
super cobalto M-42**

TOOL NO.	D	d	l	L	Z	Uncoated EDP NO.	TiAlN EDP NO.
995M-1016	10	10	16	66	4	38000	38175
995M-1022	10	10	22	72	4	38005	38180
995M-1226	12	12	26	83	4	38010	38185
995M-1253	12	12	53	110	4	38015	38190
995M-1426	14	12	26	83	4	38020	38195
995M-1453	14	12	53	110	4	38025	38200
995M-1632	16	16	32	92	4	38030	38205
995M-1663	16	16	63	123	4	38035	38210
995M-1832	18	16	32	92	4	38040	38215
995M-1863	18	16	63	123	4	38045	38220
995M-2038	20	20	38	104	4	38050	38225
995M-2075	20	20	75	141	4	38055	38230
995M-2545	25	25	45	121	5	38060	38235
995M-2545-A	25	25	45	121	6	38065	38240
995M-2590	25	25	90	166	5	38070	38245
995M-2590-A	25	25	90	166	6	38075	38250
995M-3045	30	25	45	121	5	38080	38255
995M-3045-A	30	25	45	121	6	38085	38260
995M-3090	30	25	90	166	5	38090	38265
995M-3090-A	30	25	90	166	6	38095	38270
995M-3253	32	32	53	133	5	38100	38275
995M-3253-A	32	32	53	133	6	38105	38280
995M-3210	32	32	106	186	5	38110	38285
995M-3210-A	32	32	106	186	6	38115	38290
995M-4063-32	40	32	63	143	5	38120	38295
995M-4063-A	40	32	63	143	6	38125	38300
995M-4012-32-A	40	32	125	205	6	38130	38305
995M-5075-A	50	50	75	177	6	38135	38310
995M-5075-32-A	50	32	75	155	6	38140	38315
995M-5010-A	50	50	106	208	6	38145	38320
995M-5010-32-A	50	32	106	186	6	38150	38325
995M-5010-B	50	50	106	208	8	38155	38330
995M-5010-32-B	50	32	106	186	8	38160	38335
995M-5015-A	50	50	150	252	6	38165	38340
995M-5015-B	50	50	150	252	8	38170	38345

LIST 985M

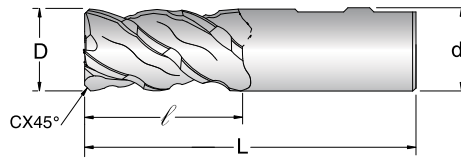
**High performance roughing
end mills for inconel
and stainless steels
super cobalt M-42**

**Fraises haute performance
pour ébauche inconel
et aciers inoxydables
super cobalt M-42**

**Fresas alto rendimiento
para desbastes inconel
y aceros inoxidables
super cobalto M-42**

**Hochleistungs-werkzeuge
schruppen fräser in inconel
und inox super kobalt M-42**

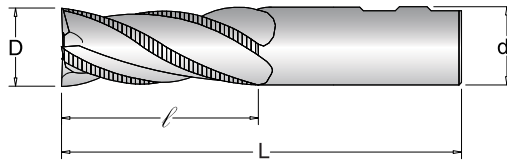
**Frese alta performance
per sgrossatura inconel
e acciai inossidabili
super cobalto M-42**



TOOL NO.	D	d	l	L	Z	Uncoated EDP NO.	TiAIN EDP NO.
985M-1016	10	10	16	66	4	38360	38535
985M-1022	10	10	22	72	4	38365	38540
985M-1226	12	12	26	83	4	38370	38545
985M-1253	12	12	53	110	4	38375	38550
985M-1426	14	12	26	83	4	38380	38555
985M-1453	14	12	53	110	4	38385	38560
985M-1632	16	16	32	92	4	38390	38565
985M-1663	16	16	63	123	4	38395	38570
985M-1832	18	16	32	92	4	38400	38575
985M-1863	18	16	63	123	4	38405	38580
985M-2038	20	20	38	104	4	38410	38585
985M-2075	20	20	75	141	4	38415	38590
985M-2545	25	25	45	121	5	38420	38595
985M-2545-A	25	25	45	121	6	38425	38600
985M-2590	25	25	90	166	5	38430	38605
985M-2590-A	25	25	90	166	6	38435	38610
985M-3045	30	25	45	121	5	38440	38615
985M-3045-A	30	25	45	121	6	38445	38620
985M-3090	30	25	90	166	5	38450	38625
985M-3090-A	30	25	90	166	6	38455	38630
985M-3253	32	32	53	133	5	38460	38635
985M-3253-A	32	32	53	133	6	38465	38640
985M-3210	32	32	106	186	5	38470	38645
985M-3210-A	32	32	106	186	6	38475	38650
985M-4063-32	40	32	63	143	5	38480	38655
985M-4063-A	40	32	63	143	6	38485	38660
985M-4012-32-A	40	32	125	205	6	38490	38665
985M-5075-A	50	50	75	177	6	38495	38670
985M-5075-32-A	50	32	75	155	6	38500	38675
985M-5010-A	50	50	106	208	6	38505	38680
985M-5010-32-A	50	32	106	186	6	38510	38685
985M-5010-B	50	50	106	208	8	38515	38690
985M-5010-32-B	50	32	106	186	8	38520	38695
985M-5015-A	50	50	150	252	6	38525	38700
985M-5015-B	50	50	150	252	8	38530	38705

LIST 816M

Fine Pitch Rougher
HSS PM
30° Helix
Center Cutting



Fraises Ébauche
Pas Fin-HSS PM
30° Hélice
Coupe au Centre



Fresas de Desbaste
Passo Fino-HSS PM
30° Hélice
Corte al Centro

Schruppfräser mit feiner
Schruppverzahnung
HSSK-PM
30° drallwinkell
zentrumschneidend

Frese a Sgrossare
Passo Fino - HSS-PM
Elica a 30°
Taglio al Centro

TOOL NO.	D	d	l	L	Z	Uncoated EDP NO.	TiAIN EDP NO.
816M-0613	6	6	13	57	3	38710	38760
816M-0819	8	10	19	59	3	38715	38765
816M-1022	10	10	22	72	4	38720	38770
816M-1226	12	12	26	83	4	38725	38775
816M-1426	14	12	26	83	4	38730	38780
816M-1632	16	16	32	92	4	38735	38785
816M-1832	18	16	32	92	4	38740	38790
816M-2038	20	20	38	104	4	38745	38795
816M-2545	25	25	45	121	5	38750	38800
816M-3253	32	32	53	133	6	38755	38805



SUPER SPEED SERIES
CARBIDE

High Performance Solid Carbide End Mills
Fraises Carbure Monobloc Haute Performance
Fresas Metal Duro Integral Alto Rendimiento
VHM-Schaftfräser Hochleistungs-werkzeuge
Frese Metallo Duro Alte Prestazioni

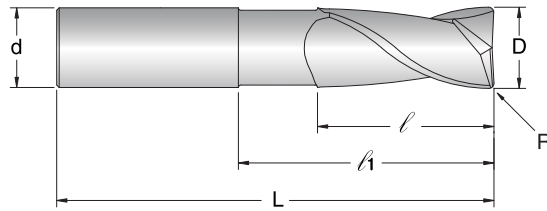


LIST 2030M

For Deep Pocket High Speed Machining of Aluminum

Extra-fine micrograin Solid Carbide End Mills

2 Flute - Center Cutting 37° Helix



Pour L'Usinage de L'Aluminium à Grande Vitesse de Cavités profondes

Fraises Carbure Monobloc Micrograin extra-fin

2 Dents - Coupe au Centre 37° Hélice

Para Fresar el Aluminio a Alta Velocidad de Canales profundo

Fresas de Metal Duro Grano extrafino

2 Labios - Corte al Centro 37° Hélice

Feinstkorn Voll-HM Fräser Hochgeschwindigkeits Tiefentaschen in Aluminium

2 Schneiden zur Mitte 37° Drallwinkel

Fresa integrale in metallo duro Micrograna extra fine

Per lavorazioni su alluminio ad alta velocità "Tasche Profonde"

2 Taglienti – Taglio al Centro Elica a 37°

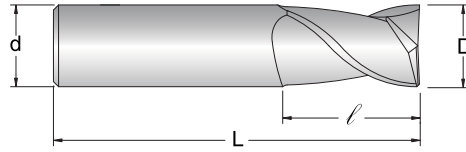
D	d	l	l ₁	L	R	Uncoated	TiN	TiCN	TiAlN SUPREME
						EDP	EDP	EDP	EDP
6	6	10	57	100	0.50	28185	28240	28295	28350
8	8	12	57	100	0.50	28190	28245	28300	28355
10	10	14	57	100	0.50	28195	28250	28305	28360
12	12	16	83	150	0.76	28200	28255	28310	28365
12	12	16	102	150	0.76	28205	28260	28315	28370
16	16	20	57	125	1.00	28215	28270	28325	28380
16	16	20	83	150	1.00	28220	28275	28330	28385
20	20	25	57	125	1.00	28225	28280	28335	28390
20	20	25	83	150	1.00	28230	28285	28340	28395
25	25	30	83	150	1.00	28235	28290	28345	28400

LIST 2045M

**For High Speed
Machining
of Aluminum**

**Extra-fine micrograin
Solid Carbide End Mills**

**2 Flute - Center Cutting
45° Helix**



**Pour L'Usinage
de l'Aluminium
à Grande Vitesse**

**Fraises Carbure Monobloc
Micrograin extra-fin**

**2 Dents - Coupe au Centre
45° Hélice**

D	d	l	L	Uncoated	TiCN	TIALN SUPREME
				EDP	EDP	EDP
6	6	13	57	31000	31040	31080
8	8	16	63	31005	31045	31085
10	10	22	72	31010	31050	31090
12	12	26	83	31015	31055	31095
14	14	26	83	31020	31060	31100
16	16	32	92	31025	31065	31105
18	18	32	92	31030	31070	31110
20	20	38	104	31035	31075	31115

**Lista 2045 – Para Fresar el
Aluminio a Alta Velocidad**

**Fresas de Metal Duro
Grano extrafino**

**2 Labios - Corte al Centro
45° Hélice**

Feinstkorn Voll-HM Fräser

**Höchstgeschwindigkeitsfräsen
in Aluminium**

**2 Schneiden zur Mitte
45° Drallwinkel**

**Fresa integrale metallo duro.
Micrograna extra fine**

**Per lavorazioni di Alluminio
ad Alta velocità**

**2 Taglienti – Taglio al Centro
Elica a 45°**

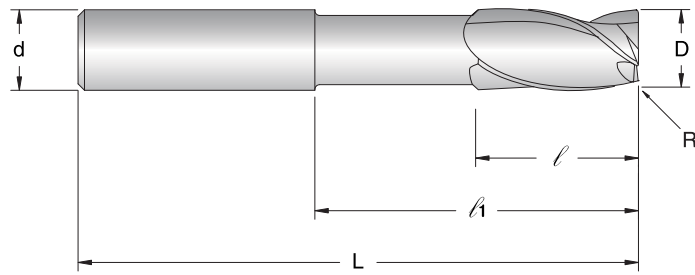


LIST 3030M

For Deep Pocket High Speed Machining of Aluminum

Extra-fine micrograin Solid Carbide End Mills

3 Flute - Center Cutting 37° Helix



Pour L'Usinage de L'Aluminium à Grande Vitesse de Cavités profondes

Fraises Carbure Monobloc Micrograin extra-fin

3 Dents - Coupe au Centre 37° Hélice

Para Fresar el Aluminio a Alta Velocidad de Canales profundo

Fresas de Metal Duro Grano extrafino

3 Labios - Corte al Centro 37° Hélice

Feinstkorn Voll-HM Fräser

Hochgeschwindigkeits Tiefetaschen in Aluminium

3 Schneiden zur Mitte 37° Drallwinkel

Fresa integrale in metallo duro, Micrograna extra fine

Per la Lavorazione di Alluminio Ad Alta Velocita' "Tasche Profonde"

3 Taglienti - Taglio al Centro Elica a 37°

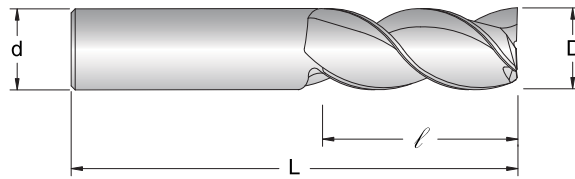
D	d	l	l ₁	L	R	Uncoated	TiN	TiCN	TiAlN SUPREME
						EDP	EDP	EDP	EDP
6	6	10	57	100	0.50	28405	28460	28515	28570
8	8	12	57	100	0.50	28410	28465	28520	28575
10	10	14	57	100	0.50	28415	28470	28525	28580
12	12	16	83	150	0.76	28420	28475	28530	28585
12	12	16	102	150	0.76	28425	28480	28535	28590
16	16	20	57	125	1.00	28430	28485	28540	28595
16	16	20	83	150	1.00	28435	28490	28545	28600
20	20	25	57	125	1.00	28440	28495	28550	28605
20	20	25	83	150	1.00	28445	28500	28555	28610
25	25	30	83	150	1.00	28450	28505	28560	28615

LIST 3045M

**For High Speed
Machining
of Aluminum**

**Extra-fine micrograin
Solid Carbide End Mills**

**3 Flute - Center Cutting
45° Helix**



**Pour L'Usinage
de l'Aluminium
à Grande Vitesse**

**Fraises Carbure Monobloc
Micrograin extra-fin**

**3 Dents - Coupe au Centre
45° Hélice**

**Para Fresar el Aluminio
a Alta Velocidad**

**Fresas de Metal Duro
Grano extrafino**

**3 Labios - Corte al Centro
45° Hélice**

Feinstkorn Voll-HM-Fräser

**Hochgeschwindigkeits-
Fräsen in Aluminium**

**3 Schneiden zur Mitte
45° Drallwinkel**

**Fresa integrale in metallo duro,
Micrograna extra fine**

**Per la Lavorazione di Alluminio
Ad Alta Velocita'**

**3 Taglienti – Taglio al Centro
Elica a 45°**

D	d	l	L	Uncoated	TiN	TiCN	TiAlN SUPREME
				EDP	EDP	EDP	EDP
6	6	13	57	32000	32040	32080	32120
8	8	16	63	32005	32045	32085	32125
10	10	22	72	32010	32050	32090	32130
12	12	26	83	32015	32055	32095	32135
14	14	26	83	32020	32060	32100	32140
16	16	32	92	32025	32065	32105	32145
18	18	32	92	32030	32070	32110	32150
20	20	38	104	32035	32075	32115	32155

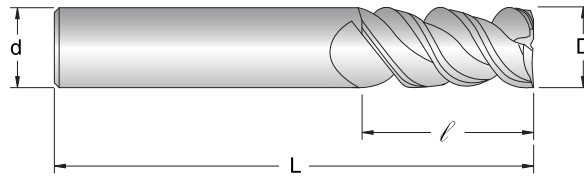


LIST 3060M

High Helix Solid Carbide End Mills

For Roughing and Finishing Titanium, Inconel, Stainless and High Tensile Alloys

**3 Flute – Center Cutting
Extra-fine micrograin
60° Helix**



Fraises Carbure Monobloc à angle d'hélice prononcé

Pour Ébauche et Finition du Titanium, Inconel, Aciers Inoxydable et Aciers Traités

**3 Dents – Coupe au Centre
Micrograin extra-fin
60° Hélice**

Fresas de Metal Duro con hélice muy inclinada

Para Desbastes y Acabados en Titanium, Inconel, Aceros Inoxidables y Aceros Templados

**3 Labios - Corte al Centro
Grano extrafino 60° Hélice**

D	d	l	L	Uncoated	TiN	TiCN	TiAlN SUPREME
				EDP	EDP	EDP	EDP
3.0	3	12	38	33515	33600	33685	33770
3.5	4	12	50	33520	33605	33690	33775
4.0	4	14	50	33525	33610	33695	33780
4.5	6	16	50	33530	33615	33700	33785
5.0	6	16	50	33535	33620	33705	33790
6.0	6	19	50	33540	33625	33710	33795
7.0	8	19	63	33545	33630	33715	33800
8.0	8	20	63	33550	33635	33720	33805
9.0	10	22	75	33555	33640	33725	33810
10.0	10	22	75	33560	33645	33730	33815
11.0	12	25	75	33565	33650	33735	33820
12.0	12	25	75	33570	33655	33740	33825
14.0	14	32	89	33575	33660	33745	33830
16.0	16	32	89	33580	33665	33750	33840
18.0	18	38	100	33585	33670	33755	33845
20.0	20	38	100	33590	33675	33760	33850
25.0	25	38	100	33595	33680	33765	33855

Feinstkorn-Voll HM-Fräser mit starkem Eckenradius

Schruppen und Schlichten in Titan, Inconel, Inox und in hochfeste Werkstoffe

**3 Schneiden zur Mitte
60° Drallwinkel**

Fresa integrale in metallo duro. Angolo di spoglia positivo

**Estremamente silenziosa.
Micrograna extra fine**

Per Sgrossatura e Finitura del Titanio, Inconel, Acciaio Inossidabile e Acciaio ad Alta Resistenza

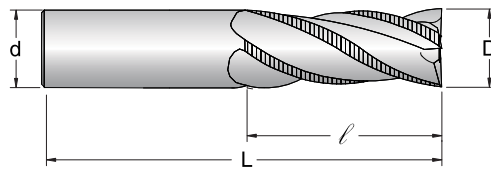
**3 Taglienti – Taglio al Centro
Elica a 60°**

LIST 4035M

**Solid Carbide, Fine Pitch
Roughing End Mills**

**For Slotting and Profiling,
Stainless Steels, Titanium,
Inconel & High Strength Steels**

**Extra-fine micrograin
4 Flute – 35° Helix**



**Fraises Ravageuses Pas
Fin en Carbure Monobloc**

**Pour Ébauche d'Aciers
Traités, Aciers Inoxydable,
Titanium et Inconel**

**Micrograin extra-fin
4 Dents – 35° Hélice**

**Fresas de Desbaste
Paso Fino de Metal Duro**

**Para Desbastes de Aceros
Templados, Aceros
Inoxidables, Titanium y Inconel**

**Micrograna extra fine
4 Labios – 35° Hélice**

D	d	l	L	Uncoated	TiN	TiCN	TiAlN SUPREME
				EDP	EDP	EDP	EDP
3.0	3	12	32	33860	34945	35030	35115
3.5	4	12	50	33865	34950	35035	35120
4.0	4	14	50	33870	34955	35040	35125
4.5	6	16	50	33875	34960	35045	35130
5.0	6	16	50	33880	34965	35050	35135
6.0	6	19	50	33885	34970	35055	35140
7.0	8	19	63	33890	34975	35060	35145
8.0	8	20	63	33895	34980	35065	35150
9.0	10	22	75	34900	34985	35070	35155
10.0	10	22	75	34905	34990	35075	35160
11.0	12	25	75	34910	34995	35080	35165
12.0	12	25	75	34915	35000	35085	35170
14.0	14	32	89	34920	35005	35090	35175
16.0	16	32	89	34925	35010	35095	35180
18.0	18	38	100	34930	35015	35100	35185
20.0	20	38	100	34935	35020	35105	35190
25.0	25	38	100	34940	35025	35110	35195

**Vollhartmetall Schruppfräser
mit feine Verzahnung**

**Zum Nut-und Konturfräsen in
Inox, Titan, Inconel &
Hochfeste Werkstoffe**

**Feinstkorn
4 Schneiden, 35° Drallwinkel**

**Fresa integrale in metallo duro
Micrograna extra fine**

**Per lavorazioni di
sgrossatura profilo
rompitrucciolo a passo fine**

**Per Scanalare e Contornare
Acciai Trattato, Inossidabile
Titanio e Inconel**

**4 Taglienti – Taglio al Centro
Elica a 35°**



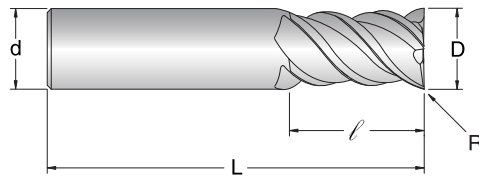
LIST 4650M

**High Performance
Superfinishing End Mills**

**For Profile Milling
of High Tensile Materials**

**Extra-fine micrograin
Solid Carbide**

**6 & 8 Flute Center Cutting
50° Helix**



**Fraises de Superfinition
a Haute Performance**

**Pour Fraisage de
Contournage Matériaux
Exotiques**

**Carbure Monobloc
Micrograin extra-fin**

**6 et 8 Dents Coupe au Centre
50° Hélice**

**Fresas Para Superacabado
de Alto Rendimiento**

**Para operaciones de
Perfilados Materiales
Esóticos**

Metal Duro Grano extrafino

**6 y 8 Labios Corte al Centro
50° Hélice**

D	d	l	L	Z	R	Uncoated	TiCN	TiAlN SUPREME
						EDP	EDP	EDP
4	4	14	50	6	0.38	33000	33105	33210
6	6	19	50	6	0.50	33005	33110	33215
6	6	25	65	6	0.50	33010	33115	33220
8	8	20	63	6	0.50	33015	33120	33225
8	8	32	80	6	0.50	33020	33125	33230
10	10	22	75	6	0.50	33035	33140	33245
10	10	32	80	6	0.50	33040	33145	33250
12	12	25	75	6	0.76	33045	33150	33255
12	12	50	100	6	0.76	33050	33155	33260
14	14	32	89	6	0.76	33055	33160	33265
14	14	50	100	6	0.76	33060	33165	33270
16	16	32	89	6	1.00	33065	33170	33275
16	16	50	100	6	1.00	33070	33175	33280
18	18	38	100	6	1.00	33075	33180	33285
18	18	50	100	6	1.00	33080	33185	33290
20	20	38	100	6	1.00	33085	33190	33295
20	20	50	100	6	1.00	33090	33195	33300
25	25	38	100	8	1.00	33095	33200	33305
25	25	75	150	8	1.00	33100	33205	33310

Feinstkorn-Voll HM

**Hochgeschwindigkeits
Superschichten**

**Konturfrasen von hochfesten
Werkstoffen**

**6 & 8 Schneiden zur Mitte
50° Drallwinkel**

**Frese per superfinitura
ad alte prestazioni
Per contornatura
di materiali esotici**

**Metallo duro
Micrograna extra fine**

**6 e 8 taglienti al centro
Elica a 50°**

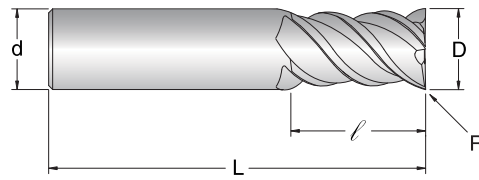
LIST 5045M

**High Performance
Finishing End Mills**

**For Milling of Titanium,
Inconel, Stainless and
High Tensile Alloys**

**Extra-fine micrograin
Solid Carbide**

**5 Flute - Center Cutting
45° Helix**



**Fraises de Finition
à Haute Performance**

**Pour L'Usinage efficace
du Titanium, Inconel, Aciers
Inoxydable et Matériaux
Exotiques**

**Carbure Monobloc
Micrograin extra-fin**

**5 Dents - Coupe au Centre
45° Hélice**

**Fresas Para Acabado
de Alto Rendimiento**

**Para Fresar Eficazmente
Titanio, Inconel, y Materiales
Esoticos**

Metal Duro Grano extrafino

**5 Labios - Corte al Centro
45° Hélice**

Feinstkorn-Voll HM

**Hochgeschwindigkeits
Schlichtfraser zum Titan,
Inconel und hochfesten
Werkstoffen**

**5 Schneiden zur Mitte
45° Drallwinkel**

**Frese per finitura ad alte
prestazioni Efficace per
Lavorazione del Titanio,
Inconel, Acciaio Inossidabile
e Materiali Esotici**

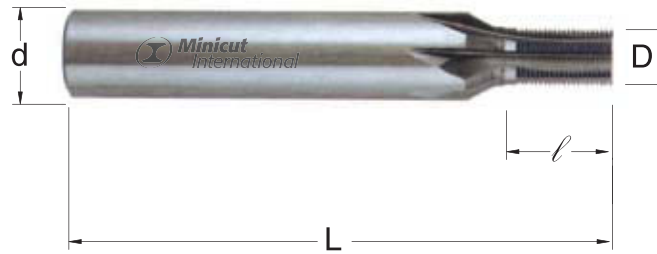
**Metallo Duro
Micrograna extra fine**

**5 taglianti al centro.
Elica a 45°**

D	d	l	L	R	Uncoated	TiN	TiCN	TiAlN SUPREME
					EDP	EDP	EDP	EDP
10	10	22	75	0.50	33315	33365	33415	33465
10	10	32	80	0.50	33320	33370	33420	33470
12	12	25	75	0.76	33325	33375	33425	33475
12	12	50	100	0.76	33330	33380	33430	33480
16	16	32	89	1.00	33335	33385	33435	33485
16	16	50	100	1.00	33340	33390	33440	33490
20	20	38	100	1.00	33345	33395	33445	33495
20	20	50	100	1.00	33350	33400	33450	33500
25	25	38	100	1.00	33355	33405	33455	33505
25	25	75	150	1.00	33360	33410	33460	33510



Thread Mills ISO
Solid Carbide



Fraises à Fileter ISO
Carbure Monobloc

Fresas Para Roscas
ISO Metal Duro

Gewindebohrfräser
Voll-HM ISO

Frese a filettare in
metallo duro ISO

TOLL NO.	Ø - PITCH	D	l	L	d
CTMM-32050	M5-0.5	3.2	6	60	6
CTMM-32080	M5-0.8	3.2	6	60	6
CTMM-42050	M6-0.5	4.2	12	60	6
CTMM-42175	M6-0.75	4.2	12	60	6
CTMM-42100	M6-1.00	4.2	12	60	6
CTMM-60075	M8-0.75	6.0	16	60	8
CTMM-60100	M8-1.00	6.0	16	60	8
CTMM-60125	M8-1.25	6.0	16	60	8
CTMM-75100	M10-1.00	7.5	20	75	8
CTMM-75125	M10-1.25	7.5	20	75	8
CTMM-75150	M10-1.50	7.5	20	75	8
CTMM-95100	M12-1.00	9.5	20	89	10
CTMM-95125	M12-1.25	9.5	20	89	10
CTMM-95150	M12-1.50	9.5	20	89	10
CTMM-95175	M12-1.75	9.5	20	89	10
CTMM-11200	M14-2.00	11.0	20	100	12
CTMM-12150	M16-1.50	12.0	25	100	20
CTMM-1220	M16-2.00	12.0	25	100	20
CTMM-14100	M18-1.00	14.0	25	150	20
CTMM-14250	M18-2.50	14.0	25	150	20
CTMM-15150	M20-2.50	15.8	25	150	20
CTMM-15250	M20-2.50	15.8	25	150	20

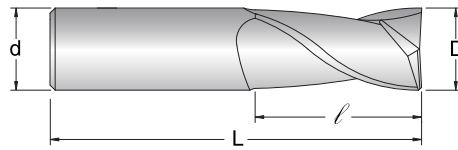
**GENERAL PURPOSE
CARBIDE**



LIST 2000M

Micrograin Solid Carbide End Mills

**2 Flute Center Cutting
30° Helix**



Fraises Carbure Monobloc, Micrograin

**2 Dents Coupe au Centre
30° Hélice**

Fresas de Metal Duro, Micrograno

**2 Labios Corte al Centro
30° Hélice**

Voll-HM Fräser

**2 Schneiden zur Mitte
30° Drallwinkel**

Frese in Metallo Duro Micrograna

**2 taglienti al centro.
Elica a 30°**

D	d	l	L	Uncoated	TiN	TiCN	TIALN SUPREME
				EDP	EDP	EDP	EDP
3.0	3	12	38	35200	35285	35370	35455
3.5	4	12	50	35205	35290	35375	35460
4.0	4	14	50	35210	35295	35380	35465
4.5	6	16	50	35215	35300	35385	35470
5.0	6	16	50	35220	35305	35390	35475
6.0	6	19	50	35225	35310	35395	35480
7.0	8	19	63	35230	35315	35400	35485
8.0	8	20	63	35235	35320	35405	35490
9.0	10	22	75	35240	35325	35410	35495
10.0	10	22	75	35245	35330	35415	35500
11.0	12	25	75	35250	35335	35420	35505
12.0	12	25	75	35255	35340	35425	35510
14.0	14	32	89	35260	35345	35430	35515
16.0	16	32	89	35265	35350	35435	35520
18.0	18	38	100	35270	35355	35440	35525
20.0	20	38	100	35275	35360	35445	35530
25.0	25	38	100	35280	35365	35450	35535

LIST 2050M

**Ball Nose Micrograin
Solid Carbide End Mills**

**2 Flute Center Cutting
30° Helix**

**Fraises Hémisphérique
Carbure Monobloc, Micrograin
2 Dents Coupe au Centre
30° Hélice**

**Fresas Punta Esférica
Metal Duro, Micrograno**

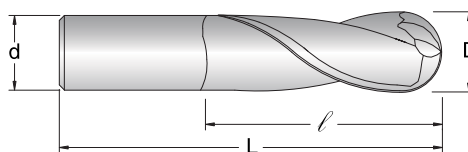
**2 Labios Corte al Centro
30° Hélice**

Voll-HM Radiusfräser

**2 Schneiden zur Mitte
30° Drallwinkel**

**Frese raggiate, sferiche in
metallo duro micrograna**

**2 taglienti al centro
Elica a 30°**

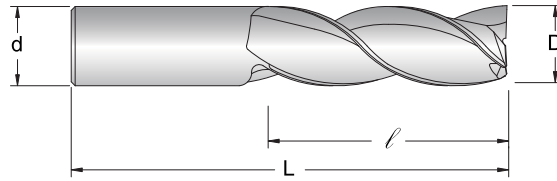


D	d	l	L	Uncoated	TiN	TiCN	TiAlN SUPREME
				EDP	EDP	EDP	EDP
3.0	3	12	38	35540	35625	35710	35795
3.5	4	12	50	35545	35630	35715	35800
4.0	4	14	50	35550	35635	35720	35805
4.5	6	16	50	35555	35640	35725	35810
5.0	6	16	50	35560	35645	35730	35815
6.0	6	19	50	35565	35650	35735	35820
7.0	8	19	63	35570	35655	35740	35825
8.0	8	20	63	35575	35660	35745	35830
9.0	10	22	75	35580	35665	35750	35835
10.0	10	22	75	35585	35670	35755	35840
11.0	12	25	75	35590	35675	35760	35845
12.0	12	25	75	35595	35680	35765	35850
14.0	14	32	89	35600	35685	35770	35855
16.0	16	32	89	35605	35690	35775	35860
18.0	18	38	100	35610	35695	35780	35865
20.0	20	38	100	35615	35700	35785	35870
25.0	25	38	100	35620	35705	35790	35875

LIST 3000M

Micrograin Solid Carbide End Mills

**3 Flute Center Cutting
30° Helix**



Fraises Carbure Monobloc, Micrograin

**3 Dents Coupe au Centre
30° Hélice**

Fresas de Metal Duro, Micrograno

**3 Labios Corte al Centro
30° Hélice**

Feinkorn Voll-HM Fräser

**3 Schneiden zur Mitte
30° Drallwinkel**

Frese in Metallo Duro Micrograna

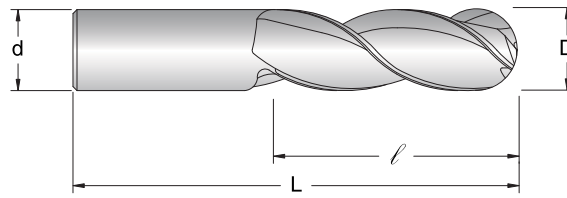
**3 taglienti al centro.
Elica a 30°**

D	d	l	L	Uncoated	TiN	TiCN	TiAlN SUPREME
				EDP	EDP	EDP	EDP
3.0	3	12	38	35880	35965	36050	36135
3.5	4	12	50	35885	35970	36055	36140
4.0	4	14	50	35890	35975	36060	36145
4.5	6	16	50	35895	35980	36065	36150
5.0	6	16	50	35900	35985	36070	36155
6.0	6	19	50	35905	35990	36075	36160
7.0	8	19	63	35910	35995	36080	36165
8.0	8	20	63	35915	36000	36085	36170
9.0	10	22	75	35920	36005	36090	36175
10.0	10	22	75	35925	36010	36095	36180
11.0	12	25	75	35930	36015	36100	36185
12.0	12	25	75	35935	36020	36105	36190
14.0	14	32	89	35940	36025	36110	36195
16.0	16	32	89	35945	36030	36115	36200
18.0	18	38	100	35950	36035	36120	36205
20.0	20	38	100	35955	36040	36125	36210
25.0	25	38	100	35960	36045	36130	36215

LIST 3050M

**Ball Nose Micrograin
Solid Carbide End Mills**

**3 Flute Center Cutting
30° Helix**



**Fraises Hémisphérique
Carbure Monobloc,
Micrograin**

**3 Dents Coupe au Centre
30° Hélice**

**Fresas Punta Esférica
Metal Duro, Micrograno**

**3 Labios Corte al Centro
30° Hélice**

Voll-HM Radiusfräser

3 Schneiden zur Mitte

30° Drallwinkel

**Frese raggiate, sferiche in
metallo duro micrograna**

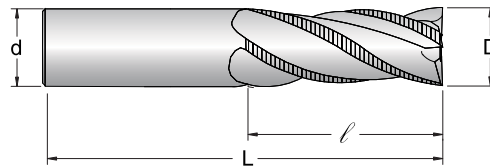
**3 taglienti al centro
Elica a 37°**

D	d	l	L	Uncoated	TiN	TiCN	TIALN SUPREME
				EDP	EDP	EDP	EDP
3.0	3	12	38	36220	36305	36390	36475
3.5	4	12	50	36225	36310	36395	36480
4.0	4	14	50	36230	36315	36400	36485
4.5	6	16	50	36235	36320	36405	36490
5.0	6	16	50	36240	36325	36410	36495
6.0	6	19	50	36245	36330	36415	36500
7.0	8	19	63	36250	36335	36420	36505
8.0	8	20	63	35255	36340	36425	36510
9.0	10	22	75	36260	36345	36430	36515
10.0	10	22	75	36265	36350	36435	36520
11.0	12	25	75	36270	36355	36440	36525
12.0	12	25	75	36275	36360	36445	36530
14.0	14	32	89	36280	36365	36450	36535
16.0	16	32	89	36285	36370	36455	36540
18.0	18	38	100	36290	36375	36460	36545
20.0	20	38	100	36295	36380	36465	36550
25.0	25	38	100	36300	36385	36470	36555

LIST 4000M

Micrograin Solid Carbide End Mills

**4 Flute Center Cutting
30° Helix**



**Fraises Carbure Monobloc,
Micrograin**

**4 Dents Coupe au Centre
30° Hélice**

**Fresas de Metal Duro,
Micrograno**

**4 Labios Corte al Centro
30° Hélice**

Feinkorn Voll-HM Fräser

**4 Schneiden zur Mitte
30° Drallwinkel**

**Frese in Metallo Duro
Micrograna**

**4 taglienti al centro.
Elica a 30°**

D	d	l	L	Uncoated	TiN	TiCN	TiAlN SUPREME
				EDP	EDP	EDP	EDP
3.0	3	12	38	36560	36645	36730	36815
3.5	4	12	50	36565	36650	36735	36820
4.0	4	14	50	36570	36655	36740	36825
4.5	6	16	50	36575	36660	36745	36830
5.0	6	16	50	36580	36665	36750	36835
6.0	6	19	50	36585	36670	36755	36840
7.0	8	19	63	36590	36675	36750	36845
8.0	8	20	63	36595	36680	36765	36850
9.0	10	22	75	36600	36685	36770	36855
10.0	10	22	75	36605	36690	36775	36860
11.0	12	25	75	36610	36695	36780	36865
12.0	12	25	75	36615	36700	36785	36870
14.0	14	32	89	36620	36705	36790	36875
16.0	16	32	89	36625	36710	36795	36880
18.0	18	38	100	36630	36715	36800	36885
20.0	20	38	100	36635	36720	36805	36890
25.0	25	38	100	36640	36725	36810	36845

LIST 4050M

**Ball Nose Micrograin
Solid Carbide End Mills**

**4 Flute Center Cutting
30° Helix**

**Fraises Hémisphérique
Carbure Monobloc,
Micrograin**

**4 Dents Coupe au Centre
30° Hélice**

**Fresas Punta Esférica
Metal Duro, Micrograno**

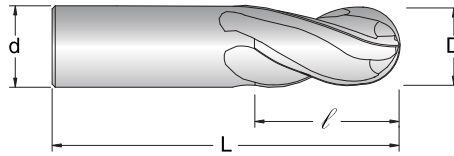
**4 Labios Corte al Centro
30° Hélice**

**Feinkorn Voll-HM
Radiusfräser**

**4 Schneiden zur Mitte
30° Drallwinkel**

**Frese raggiate, sferiche in
metallo duro, micrograna**

**4 taglienti al centro
Elica a 30°**



D	d	l	L	Uncoated	TiN	TiCN	TiAlN SUPREME
				EDP	EDP	EDP	EDP
3.0	3	12	38	36900	36985	37070	37155
3.5	4	12	50	36905	36990	37075	37160
4.0	4	14	50	36910	36995	37080	37165
4.5	6	16	50	36915	37000	37085	37170
5.0	6	16	50	36920	37005	37090	37175
6.0	6	19	50	36925	37010	37095	37180
7.0	8	19	63	36930	37015	37100	37185
8.0	8	20	63	36935	37020	37105	37190
9.0	10	22	75	36940	37025	37110	37195
10.0	10	22	75	36945	37030	37115	37200
11.0	12	25	75	36950	37035	37120	37205
12.0	12	25	75	36955	37040	37125	37210
14.0	14	32	89	36960	37045	37130	37215
16.0	16	32	89	36965	37050	37135	37220
18.0	18	38	100	36970	37055	37140	37225
20.0	20	38	100	36975	37060	37145	37230
25.0	25	38	100	36980	37065	37150	37235

THE NEW DIMENSION IN METAL REMOVAL

THE TRUE HELICAL POSITIVE INDEXABLE CUTTER

- Patented Sinusoidal Carbide Insert Design
- Positive Variable Rake Angle
- Tangential Insert Position
- Helicoidal Concave Cutting Edges for lowest possible cutting forces
- Central Coolant Holes

LA NOUVELLE DIMENSION

EN FRAISAGE

L'UNIQUE FRAISE HÉLICOÏDALE AVEC COUPE POSITIVE

- Forme Sinusoidale de Plaquettes Carbure Brevetées
- Angle de Coupe Variable Positif
- Positionnement Tangentiel en Hélice des Plaquettes
- Arêtes Tranchantes Concaves en Hélice permettant d'absorber moins de puissance
- Arrosage Central

LA NUEVA DIMENSION DE FRESAJE

LA UNICA FRESA HELICOIDAL CON CORTE POSITIVO

- Forma Sinusoidale de Plaqueta Brevetados
- Ángulo de Ataque Positivo Variables
- Posicionamiento Tangenciales en Hélice de Plaqueta
- Aristas Concavos en una Posición Hélicoïdal permite de utilizar menos fuerza en el mandril
- El Riego Central

FRÄSEN HAT EINE NEUE DIMENSION

DER EINZIGE SPIRALSCHNEIDEN- PLATTENFRÄSER MIT POSITIVEM SCHNITT

- Sinusförmige Wendeplatten Patentiertes Hartmetall
- Positiver, veränderlicher Anschnittwinkel
- Schneckenförmige Anordnung der Wendeplatten
- Spiralförmige Schneidkanten für einen niedrigeren Kraftverbrauch
- Richtungsbestimmte innere

NUOVA DIMENSIONE ASPORTAZIONE DEI TRUCIOLI

L'UNICA FRESA POSITIVA ELICOIDALE A FISSAGGIO MECCANICO

- Geometria dell'Inserto Sinusoidale Brevettato
- Inclinazione dell'elica positiva variabile
- Posizionamento dell'inserto in tangente
- Taglienti Concavi Elicoidali Permettono di Assorbire meno Potenza
- Frese con Fori di Riferazione Acqua – Aria





THE Next Generation

Megamill is a new innovation in cutting tool technology as applied to Indexable milling cutters. Developed and patented by Minicut International, this innovation reduces the deficiencies inherent with regular Indexable milling cutters. Minicut International has tackled these deficiencies by specifically developing a special geometrical shape in the insert and the helical arrangement along the flute of the cutter. This unique insert geometry is comprised of a spiral cutting face which undulates sinusoidally, thus creating a spoon effect cutting action. This action facilitates the chip formation and ejection from the work area while the positive helical rake configuration of the insert succeeds in creating a high shear cutting effect. The sinusoidal shaped insert with its unique swarf cutting face geometry incorporates both concave and convex radii with uneven spaced flute design, coupled with central directional coolant holes emerging at the end of every flute, allows the Megamill to substantially reduce machine horsepower requirements. Consequently, the Megamill will generate a smoother cutting action while eliminating cyclical vibrations allowing greater feeds and speeds with longer spindle life.

LA Nouvelle Génération

Megamill est une innovation technologique appliquée aux outils à plaquettes réversibles. Développé et breveté par Minicut International, la présente innovation vise à réduire les déficiences inhérentes aux fraises classiques hérisson en s'attaquant spécifiquement au développement d'une forme spéciale de la géométrie des plaquettes et leur positionnement en hélice le long de la dent de l'outil. Cette géométrie unique des plaquettes consiste en arête tranchante en spirale de la face avant qui ondule en sinussoïde, formant une coupe cuiller pour faciliter la formation et l'éjection des copeaux de l'aire de travail. L'angle d'attaque positif, variant continuellement le long de l'hélice, crée un effet de cisaillement. La combinaison d'arcs convexes et concaves intégrés à un positionnement en hélice le long de la partie coupante, de l'espacement inégale de goujures et de l'arrosage central débouchant au bout de chaque dent, permettent au Megamill d'absorber moins de puissance à la broche, d'effectuer une coupe sans à-coups, d'éliminer les vibrations cycliques, permettant ainsi d'augmenter avantageusement les vitesses et les avances de coupe et d'accroître la longévité de la broche.

LA Proxima Generación

Megamill es el resultado de la nueva tecnología para el fresado con plaquitas reversibles. Desarrollado y patentado por Minicut International El objetivo del Megamill es reducir las imperfecciones inherentes a las fresas clásicas de tipo erizo. Lo cual ha sido conseguido gracias a la aplicación y el estudio de una geometría específica y de la posición especial en hélice de las plaquitas todo lo largo de la herramienta. Minicut International ha desarrollado una geometría única de las plaquitas consistiendo en una arista en espiral de la cara delantera que ondula en senoide creando el doble corte. El ángulo de ataque positivo varía continuamente lo largo de la hélice, creando un efecto de cizallamiento. La combinación de radios convexos y concavos intergrados en una posición helicoidal lo largo de la arista de corte, los espacios desiguales entre las espirales, el riego central con desembocaduras en cada diente permite al Megamill de utilizar menos fuerza en el mandril consiguiendo un corte mas regular y a la eliminación de las vibraciones ciclicas. Todos estos factores reunidos, dan como resultado, velocidades y avances de corte superiores y aumentar la vida del cabezal de la maquina.

DIE neue Generation

Megamill bedeutet technische Neuheit im Bereich der „Wendeplatten“-Frästechnologie. Von MINICUT entwickelt und patentiert, hat man sich bei diesem neuen Konzept das Ziel gesetzt, die Beschränkungen der herkömmlichen Systeme der plattenbestückten Igelfräser weitgehendst auszuschliessen indem man eine neue, exklusive Wendeplatten-Geometrie und spiralförmig verlaufende Schneidkanten, entwickelte. Diese exklusive Plattengeometrie von unterbrochenen, spiralförmigen Schneidkanten die sich sinusförmig wellen, ergeben einen schälenden, kraftsparenden Schneideffekt. Ein positiver, der Spirale entlang ständig veränderlicher Anschnittwinkel löst vorteilhaft die Spanbildung und deren Abwurf von der Arbeitsfläche. Spiralförmige Anordnung von gewölbten und bogenförmigen Segmenten von einem End des Schneidpunktes bis zum anderen auf der gesamten Länge, eine ungleiche Zahnteilung sowie richtungsbestimmte innere Kühlmittenzufuhr führen beim MEGAMILL zu einem signifikant niedrigeren Kraftverbrauch mit ruhigem, vibrationsfreiem Schnitt, was nicht nur höhere Schnitt- und Vorschubwerte, sondern zusätzlich noch eine längere Lebensdauer der Spindel zur Folge hat.

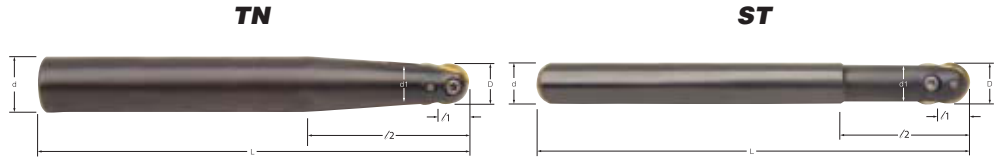
LA Nuova Generazione

Megamill e' una innovazione tecnologica applicata alle frese ad inserti a fissaggio meccanico. Sviluppata e brevettata da Minicut International, questa innovazione mira a ridurre le deficienze rispetto alle frese classiche. L'inserto è stato progettato con un taglio elicoidale e un petto ondulato sinusoidalmente cosiddetto "cucchiaio". Tutto ciò per facilitare la formazione e l'allontanamento del truciolo dall'area di lavoro. Questo fa sì che il truciolo si formi esattamente con la geometria dell'inserto scorrendo lungo la sua superficie liscia. Nella rotazione dell'utensile varia continuamente l'angolo positivo di taglio lungo l'elica del tagliente creando un effetto cesoia. La combinazione geometrica fra archi convessi e concavi ed il posizionamento elicoidale del tagliente e la sua differente posizione degli inserti, e in più la possibilità di refrigerare lungo tutta l'elica di ogni tagliente, permettono a Megamill di assorbire meno potenza al mandrino, effettuare un taglio dolce senza colpi, eliminare le vibrazioni cicliche che rendono critica la vita dell'inserto. Tutto ciò permette di aumentare sostanzialmente velocità di taglio e avanzamenti, ma non ultimo aumentare la vita del mandrino della macchina utensile.

Patented, Breveté, Patentado, Patentierter, Brevettato

MEGAMILL

Megamill Indexable Ball Nose
Double Side Carbide Inserts



Fraises Hémisphérique
Megamill

Plaquettes Carbure
à Double Tranchants

Fresas Esfericos Megamill



Plaqueta de Metal Duro
Doble Corte

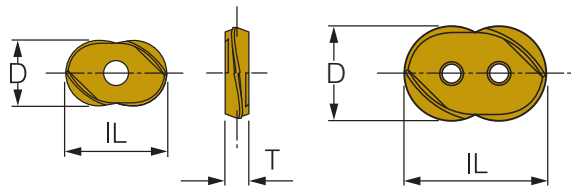
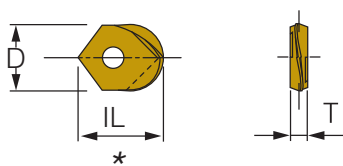
Wendeplatten Radiusfräser

Doppelseitige HM
Wendeplatten

Frese ad inserti di
copiatura sferici megamill

Inserti in Metallo Duro
Doppio Tagliente

CATALOG NO.	D	l ₁	l ₂	L	d	d ₁	INSERT SCREWS		DRIVER
									
BNMM-06125-12TN	6	5.71	58	125	12	5.23	SCS-6L	-	LT-7
BNMM-08125-12TN	8	6.35	58	125	12	5.59	SCS-8L	-	
BNMM-10150-12TN	10	6.00	35.0	150	12	8.50	SCS-10L	-	FT-10
BNMM-12130-12SN	12	8.50	32.0	130	12	10.50	SCS-12L	-	
BNMM-12150-12SN		8.50	46.0	150	12	10.50	SCS-12L	-	
BNMM-12160-16TN		8.50	58.5	160	16	10.50	SCS-12L	-	
BNMM-16140-16SN	16	10.00	36.0	140	16	14.50	SCS-16L	SCS-16S	FT-20
BNMM-16160-16SN		10.00	53.0	160	16	14.50	SCS-16L	SCS-16S	
BNMM-16175-20TN		10.00	65.0	175	20	14.50	SCS-16L	SCS-16S	
BNMM-20160-20SN	20	13.00	45.0	160	20	18.25	SCS-20L	SCS-20S	FT-20
BNMM-20175-20SN		13.00	61.0	175	20	18.25	SCS-20L	SCS-20S	
BNMM-20190-25TN		13.00	76.0	190	25	18.25	SCS-20L	SCS-20S	
BNMM-25160-25SN	25	16.30	45.0	160	25	22.90	SCS-25L	SCS-25S	FT-20
BNMM-25190-25SN		16.30	70.0	190	25	22.90	SCS-25L	SCS-25S	
BNMM-25210-32TN		16.30	98.0	210	32	22.90	SCS-25L	SCS-25S	
BNMM-30175-32SN	30	20.00	56.0	175	32	27.20	SCS-32L	SCS-32S	FT-30
BNMM-30210-32SN		20.00	80.0	210	32	27.20	SCS-32L	SCS-32S	
BNMM-30240-40TN		20.00	121.0	240	40	27.20	SCS-32L	SCS-32S	
BNMM-32175-32SN	32	21.00	56.0	175	32	29.00	SCS-32L	SCS-32S	FT-30
BNMM-32210-32SN		21.00	80.0	210	32	29.00	SCS-32L	SCS-32S	
BNMM-32240-40TN		21.00	121.0	240	40	29.00	SCS-32L	SCS-32S	



ORDERING EXAMPLE

BNSM-010 TI K20

INSERT DESIGNATION COATING GRADE

Ti = TiN
TC = TiCN
TA = TiAlN
SU = TiAlN
SUPREME

**MEGAMILL
INSERTS**

Double Cut Ball Nose Inserts

Plaquettes Carbure Double
Tranchants

Plaqueta de Metal Duro
Doble Corte

Doppelseitige HM
Wendeplatten

Inserti Metallo Duro
Doppio Tagliente

MEGAMILL BALL NOSE INSERTS

INSERT NO.	D	IL	T	COATING			GRADES		
				TiN	TiCN	TiAlN	K-10	K-20	P30
BNSM-060*	6	10.92	2.184	Ti	TC	TA	K-10	K-20	P30
BNSM-080*	8	12.12	2.184	Ti	TC	TA	K-10	K-20	P30
BNSM-010	10	13.20	3	Ti	TC	TA	K-10	K-20	P30
BNSM-012	12	18.25	3	Ti	TC	TA	K-10	K-20	P30
BNSM-016	16	24.00	4	Ti	TC	TA	K-10	K-20	P30
BNSM-020	20	30.00	5	Ti	TC	TA	K-10	K-20	P30
BNSM-025	25	37.00	6	Ti	TC	TA	K-10	K-20	P30
BNSM-030	30	45.50	7	Ti	TC	TA	K-10	K-20	P30
BNSM-032	32	47.50	7	Ti	TC	TA	K-10	K-20	P30

Patented, Breveté, Patentado, Patentierter, Brevettato

MEGAMILL

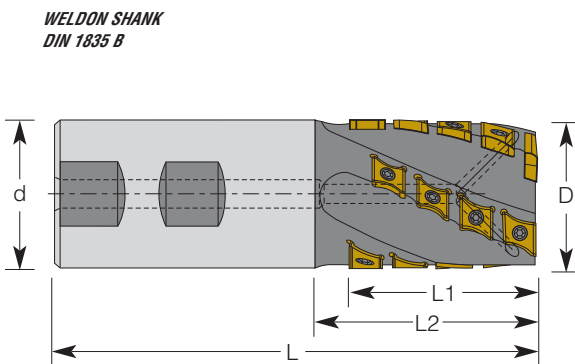
The Only Helical Positive Indexable Cutter



L'unique Fraise Hélicoidale avec Coupe Positive

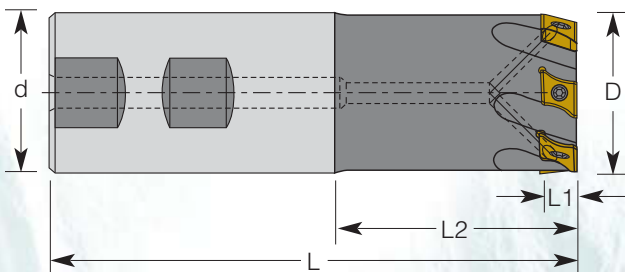
La Unica Fresa Hélicoidal con Corte Positivo


Der einzige Spiralschneider - mit positivem Ansnchnittwinkel

L'unica Fresa Positiva Elicoidale



TOOL NO.	DIMENSIONS IN MM						NO. OF FLUTES	INSERTS NO.			
	D	d	L1	L2	L	Z		Side Insert 	Qty	End Insert 	Qty
MM-25293-W 25	25	25	29	32	95	3	CMSI-387	8	—	—	
MM-25443-W 25	25	25	44	50	115	3	CMSI-387	12	—	—	
MM-32474-W 32	32	32	47	60	120	4	CMSI-450	12	—	—	
MM-32624-W 32	32	32	62	79	140	4	CMSI-450	16	—	—	
MM-40474-W 32	40	32	47	54	120	4	CMSI-450	12	—	—	
MM-40624-W 32	40	32	62	73	140	4	CMSI-450	16	—	—	
MM-50514-W 32	50	32	50	60	124	4	CMSI-465	12	CMEI-687W	2	
MM-50814-W 50	50	50	81	107	190	4	CMSI-465	20		2	
MM-501014-W 50	50	50	101	127	210	4	CMSI-465	26	CMEI-687C	2	
MM-63724-W 50	63	50	72	82	178	4	CMSI-620	14		2	
MM-631014-W 50	63	50	101	111	206	4	CMSI-620	20	2		



TOOL NO.	DIMENSIONS IN MM						NO. OF FLUTES	INSERTS NO. 
	D	d	L1	L2	L	Z		
MME-209002-W 20	20	20	9	34	95	2	CMSI-387	
MME-259003-W 25	25	25	9	38	95	3	CMSI-387	
MMEE-259003-W 25	25	25	9	89	150	3	CMSI-387	
MME-329004-W 25	32	25	11	34	100	4	CMSI-450	
MME-329003-W 32	32	32	11	38	108	3	CMSI-450	
MME-409005-W 25	40	25	11	34	102	5	CMSI-450	
MME-409004-W 32	40	32	11	38	114	4	CMSI-450	
MMEE-329004-W 32	32	32	11	102	165	4	CMSI-450	
MMEE-409005-W 40	40	40	11	127	197	5	CMSI-450	
MME-509004-W 25	50	25	12	57	114	5	CMSI-465	
MME-509004-W 32	50	32	12	57	114	5	CMSI-465	
MME-639004-W 32	63	32	16	57	114	5	CMSI-620	
MME-639004-W 50	63	50	16	57	152	5	CMSI-620	

Patented, Breveté, Patentado, Patentierter, Brevettato

MEGAMILL

The Only Helical Positive Indexable Cutter

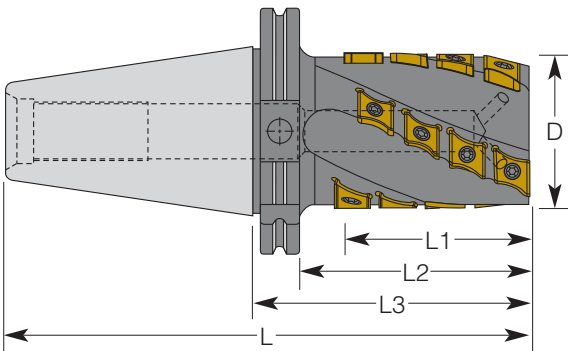
L'unique Fraise Hélicoidale avec Coupe Positive

La Unica Fresa Hélicoidal con Corte Positivo

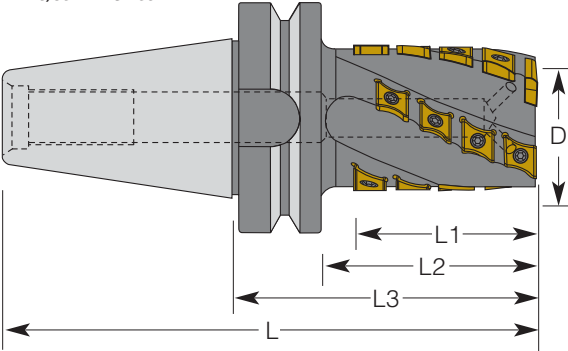
Der einzige Spiralschneider - mit positivem Anschnittwinkel

L'unica Fresa Positiva Elicoidale

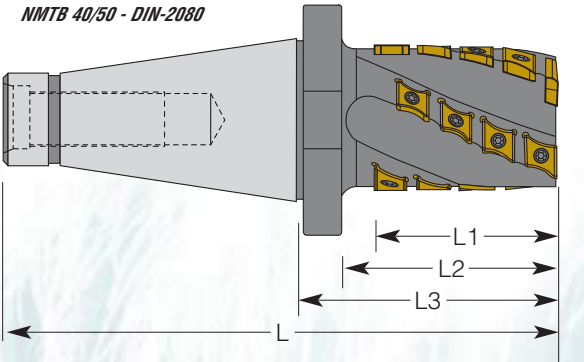
CAT 40/50V - DIN-69871A



BT 40/50 - MAS 403BT



NMTB 40/50 - DIN-2080



TOOL NO.	DIMENSIONS IN MM						NO. OF FLUTES	INSERTS NO.			
	D	L1	L2	L3	L	Z		Side Insert 	Qty	End Insert 	Qty
MM-32474 CAT40V	32	47	67	86	154	4	CMSI-450	12	—	—	
MM-32474 BT40	32	47	67	94	159	4	CMSI-450	12	—	—	
MM-32474 ISO40	32	47	67	86	171	4	CMSI-450	12	—	—	
MM-32624 CAT40V	32	62	82	101	169	4	CMSI-450	16	—	—	
MM-32624 BT40	32	62	82	109	174	4	CMSI-450	16	—	—	
MM-32624 ISO40	32	62	82	101	194	4	CMSI-450	16	—	—	
MM-40474 CAT40V	40	47	67	86	154	4	CMSI-450	12	—	—	
MM-40474 BT40	40	47	67	94	159	4	CMSI-450	12	—	—	
MM-40474 ISO40	40	47	67	86	171	4	CMSI-450	12	—	—	
MM-40624 CAT40V	40	62	82	101	169	4	CMSI-450	16	—	—	
MM-40624 BT40	40	62	82	109	174	4	CMSI-450	16	—	—	
MM-40624 ISO40	40	62	82	101	194	4	CMSI-450	16	—	—	
MM-40624 CAT50V	40	62	82	101	202	4	CMSI-450	16	—	—	
MM-40624 BT50	40	62	82	120	221	4	CMSI-450	16	—	—	
MM-40624 ISO50	40	62	82	101	227	4	CMSI-450	16	—	—	
MM-50814 CAT50V	50	81	100	119	221	4	CMSI-465	20	CMEI-687W	2	
MM-50814 BT50	50	81	100	138	240	4	CMSI-465	20		2	
MM-50814 ISO50	50	81	100	119	246	4	CMSI-465	20		2	
MM-501024 CAT50V	50	102	121	140	242	4	CMSI-465	26	CMEI-687C	2	
MM-501024 BT50	50	102	121	159	261	4	CMSI-465	26		2	
MM-501024 ISO50	50	102	121	140	267	4	CMSI-465	26		2	
MM-63824 CAT50V	63	82	121	120	222	4	CMSI-620	16	CMEI-687C	2	
MM-63824 BT50	63	82	121	139	241	4	CMSI-620	16		2	
MM-63824 ISO50	63	82	121	120	247	4	CMSI-620	16		2	
MM-631014 CAT50V	63	101	120	139	241	4	CMSI-620	20	CMEI-687C	2	
MM-631014 BT50	63	101	120	158	260	4	CMSI-620	20		2	
MM-631014 ISO50	63	101	120	139	266	4	CMSI-620	20		2	

Patented, Breveté, Patentado, Patentierter, Brevettato

MEGAMILL

The Only Helical Positive Indexable Cutter

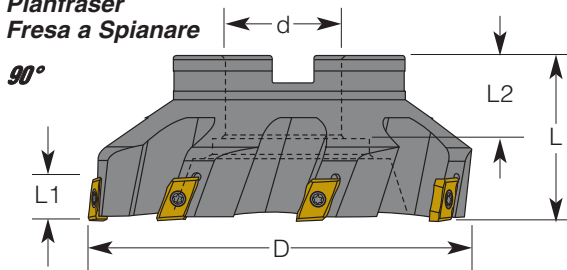
L'unique Fraise Hélicoidale avec Coupe Positive


La Unica Fresa Hélicoidal con Corte Positivo

Der einzige Spiralschneider - mit positivem Anschnittwinkel

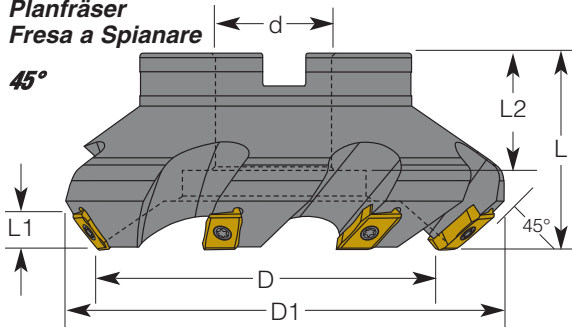
L'unica Fresa Positiva Elicoidale

Face Mill
Fraise à Surface
Fresa de Planear
Planfräser
Fresa a Spianare

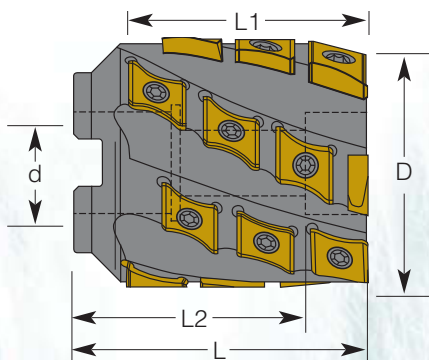




TOOL NO.	DIMENSIONS IN MM						NO. OF FLUTES	INSERTS NO. 
	D	d	L1	L2	L	Z		
MMF-50900422	50	22	11.5	22	50	5	CMSI-465	
MMF-63900522	63	22	15.5	22	50	5	CMSI-620	
MMF-80900627	80	27	15.5	22	50	6	CMSI-620	
MMF-100900732	100	32	15.5	32	63	7	CMSI-620	
MMF-125900840	125	40	15.5	38	63	8	CMSI-620	
MMF-160900940	160	40	15.5	38	63	9	CMSI-620	
MMF-200901360	200	60	15.5	35	63	13	CMSI-620	
MMF-250901760	250	60	15.5	35	63	17	CMSI-620	

Face Mill
Fraise à Surface
Fresa de Planear
Planfräser
Fresa a Spianare

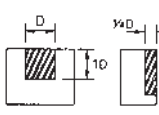
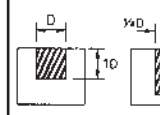
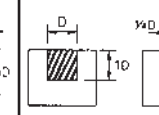
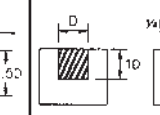
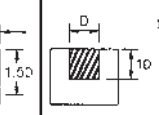
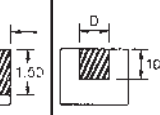


TOOL NO.	DIMENSIONS IN MM							NO. OF FLUTES	INSERTS NO. 
	D	d	L1	L2	L	D1	Z		
MMF-63450522	63	22	7.5	22	50	80	5	CMSI-465	
MMF-80450627	80	27	7.5	22	50	100	6	CMSI-465	
MMF-100450732	100	32	10.0	32	63	125	7	CMSI-620	
MMF-125450840	125	40	10.0	38	63	150	8	CMSI-620	
MMF-160450940	160	40	10.0	38	63	185	10	CMSI-620	
MMF-200451360	200	60	10.0	35	63	224	12	CMSI-620	
MMF-250451760	250	60	10.0	35	63	274	16	CMSI-620	



TOOL NO.	DIMENSIONS IN MM						NO. OF FLUTES	INSERTS NO.			
	D	d	L1	L2	L	Z		Side Insert 		End Insert 	
								Qty		Qty	
MMS-63534	63	27	53	55	73	4	CMSI-620	10		CMEI-687W	2
MMS-80726	80	32	72	60	92	6	CMSI-620	18		CMEI-687C	3
MMS-100826	100	40	82	66	102	6	CMSI-620	24		CMEI-687C	3

MINICUT - SUPER COBALT END MILL
Recommended Feeds & Speeds - Vitesses et avances Sugérées
Velocidades y Avances Recomendados - Empfohlene Schnittwerte
Velocità e Avanzamenti di Taglio Suggesti

MATERIALS SPEEDS LIST NO.		Titanium Titan Titanio	Titanium Titan Titanio	Inconel Stainless Steels Inox Aceros Inoxidables Acciai inossidabili	Steels-Aciars Acero - Stähle Acciai	ALUMINIUM ALUMINIO ALLUMINIO	HSM-UGV Alta Velocidad Alta Velocità ALUMINIUM ALUMINIO ALLUMINIO						
		6AL4V	5553		105 - 140 kg								
		15-24 M/mi.	9-17 M/min.	9-17 M/min.	18-24 M/min.	300-600 M/min.	600-1200 M/min.						
		995M CY996M CY997M CY998M	CY996M CY997M CY998M	985M 816M	985M 816M	930M /930MP X930MP / SF930M XSF930M / SC999M 940MP	RPM						
Ø MM	n / v _f												
10	n v _f	570 58	570 75	510 51	510 66	477 48	477 62	640 64	640 83	12730 1940	12730 2520	22000 2500	22000 3250
12	n v _f	478 56	478 73	424 50	424 65	398 46	398 60	480 70	480 92	10600 2420	10600 3150	21200 3230	21200 4200
16	n v _f	318 71	318 92	284 64	284 83	298 59	298 76	384 77	384 100	7950 2425	7950 3150	19900 4547	19900 5900
20	n v _f	286 81	286 105	255 72	255 94	238 67	238 87	320 96	320 125	6360 2430	6360 3160	15900 4240	159000 5510
25	n v _f	230 103	230 134	205 92	205 120	191 86	191 112	240 108	240 140	5100 2720	5100 3540	12730 3880	12730 5645
32	n v _f	180 120	180 156	160 108	160 140	150 100	150 130	192 115	192 150	3970 2720	3970 3540	9950 3790	9950 4925
40	n v _f	144 95	144 124	128 85	128 110	120 80	120 104	160 115	160 150	3180 2665	3180 3465	7950 3600	7950 4680
50	n v _f	115 76	115 100	102 68	102 90	98 63	98 82	120 90	120 117	2540 2320	2540 3015	6400 3155	6400 4100

- 6 FLUTES ARE RECOMMENDED FOR PROFILING
INCREASE FEEDS BY 30% ON TIALN2 COATED TOOLS

- POUR DÉTOURAGE, 6 DENTS SONT RECOMMANDÉ
AUGMENTER LES AVANCES DE 30% SUR OUTILS REVÊTUS TIALN2

- 6 LIBIOS RECOMENDADOS PARA EL PERFILADOS
AUMENTAR AVANCES 30% POR FRESAS IN TIALN2

- 6 SCHNEIDEN SIND EMPFOHLEN FÜR KONTURFRÄSEN
ZUNAHME VORSCHUB30% FÜR TIALN2 BESCHICHTETE FRÄSWERKZEUGE

- PER CONTORNARE, SI CONSIGLIA 6 TAGLIANTI
INCREMENTARE DEL 30% GLI AVANZAMENTI PER FRESE RIVESTITE TIALN2

FEEDS: REDUCTION FACTORS FOR LONG LENGTH TOOLS

AVANCES : FACTEURS DE RÉDUCTION POUR SÉRIES LONGUES

AVANCES : FACTORES DE REDUCCIÒN PARA SERIA LARGA

VORSCHUB : REDUKTION BERÜCKSICHTIGT FÜR LANG SERIES

AVANZAMENTI : FATTORI DI RIDUZIONE PER SERIE LUNGA

3 X Ø	-	75%
4 X Ø	-	45%
5 X Ø	-	35%
6 X Ø	-	25%

SUPER SPEED CARBIDE SERIES

Recommended Feeds & Speeds - Vitesses et Avances Suggestées

Velocidades y Avances Recomendados - Empfohlene Schnittwerte

Velocità e Avanzamenti di Taglio Suggestiti

MATERIALS SPEEDS LIST NO. Ø MM	Cast iron Fontes Fumidicion Guss Ghisa		Steels Aciers Aceros Stahl Acciai			Stainless Steels Aciers Inoxydable Aceros Inossidable Inox Stahle Acciai Inossidabile		Inconel Waspalloy Hastalloy	Titanium Titan Titanio	Aluminium Aluminio Alluminio
	Grey Gris Grauguss Grigia	Ductile Dure Ductile	240 HB	240-300 HB	300-400 HB	300 SERIES 304, 316	400 SERIES 15-5 PH 17-4 PH		6AL 4 V	6061 T6 7075 T6
	45-120 M/min	30-120 M/min	30-90 M/min	24-75 M/min	15-75 M/min	45-75 M/min	20-45 M/min	20-30 M/min	40-80 M/min	300-1500 M/min
	4650M 3060M 5045M	4650M 3060M 5045M	4650M 3060M 5045M	4650M 3060M 5045M	4650M 3060M 5045M	4650M 3060M 5045M	4650M 3060M 5045M	4650M 3060M 5045M	4650M 3060M 5045M	2030M 3030M 2045M 3045M
CHIP LOAD PER TOOTH - AVANCE PAR DENT - AVANCE PER LABIOS - VORSCHUB PROZAHN - AVANZA PER DENTE										
3-5	0,01 - 0,02	0,01 - 0,02	0,01 - 0,02	0,01 - 0,17	0,01 - 0,17	0,005 - 0,007	0,005 - 0,007	0,01 - 0,17	0,01 - 0,17	0,02 - 0,05
6-8	0,03 - 0,05	0,03 - 0,05	0,02 - 0,05	0,02 - 0,03	0,02 - 0,03	0,01 - 0,17	0,01 - 0,17	0,01 - 0,02	0,01 - 0,17	0,02 - 0,07
9-10	0,05 - 0,07	0,05 - 0,07	0,02 - 0,07	0,02 - 0,03	0,02 - 0,03	0,01 - 0,02	0,02 - 0,03	0,02 - 0,03	0,02 - 0,03	0,07 - 0,12
12-14	0,07 - 0,11	0,06 - 0,10	0,07 - 0,10	0,02 - 0,05	0,02 - 0,05	0,02 - 0,03	0,02 - 0,05	0,02 - 0,05	0,02 - 0,05	0,12 - 0,18
16-18	0,10 - 0,15	0,07 - 0,10	0,10 - 0,12	0,03 - 0,06	0,03 - 0,06	0,02 - 0,05	0,05 - 0,07	0,02 - 0,07	0,05 - 0,07	0,12 - 0,20
19-20	0,12 - 0,17	0,10 - 0,15	0,10 - 0,17	0,05 - 0,07	0,05 - 0,07	0,07 - 0,10	0,07 - 0,10	0,02 - 0,10	0,05 - 0,10	0,15 - 0,28
25	0,12 - 0,22	0,15 - 0,20	0,15 - 0,20	0,10 - 0,15	0,10 - 0,15	0,10 - 0,12	0,10 - 0,12	0,10 - 0,15	0,10 - 0,15	0,25 - 0,31

MEGAMILL - INDEXABLE CUTTERS
Recommended Feeds & Speeds - Vitesses et Avances Sugerées
Velocidades y Avances Recomendados - Empfohlene Schnittwerte
Velocità e Avanzamenti di Taglio Sugeriti

MATERIALS SPEEDS INSERT GRADES		Cast Iron Fontes Fundición Guss Ghisa		Steels Aciers Aceros Stahl Acciai			Stainless Steels Aciers Inoxydable Aceros Inoxidable Acciai Inossidabile		Inconel Waspalloy Hastalloy	Titanium	Aluminium Aluminio Alluminio
		Grey Gris Grauguss Griggla	Nodular	up to: 240 BHN 80 kg / mm ²	240-300 BHN 80-105 kg / mm ²	300-400 BHN 105-140 kg / mm ²	300 Series 304,316	400 Series 15-5 PH 17-4 PH			
		150-300 M/min	120-240 M/min	150-300 M/min	120-240 M/min	90-180 M/min	90-210 M/min	120-240 M/min			
Ø MM	n / v _f	K-15 K-30	K-15 K-30	P-25 P-40	P-40 P-25	P-40 P-25	P-25 P-40	K-15 K-30	K-30	K-15 K-30	K-15
20	n v_f	2910 380 → 635	2425 280 → 518	2290 380 → 635	2425 280 → 510	2185 280 → 485	1940 255 → 295	2185 280 → 510	730 125 → 205	1115 150 → 355	9700 2540 → 4790
25	n v_f	2290 230 → 460	1910 180 → 380	2290 230 → 460	1910 180 → 380	1720 180 → 360	1525 150 → 305	1910 180 → 380	575 75 → 150	880 100 → 250	7640 1525 → 3050
32	n v_f	1830 250 → 500	1528 150 → 330	1830 250 → 500	1528 150 → 330	1375 130 → 305	1220 180 → 360	1528 150 → 330	460 75 → 150	705 100 → 250	6115 1525 → 3050
40	n v_f	1525 300 → 560	1275 250 → 500	1,525 300 → 560	1275 250 → 500	1145 200 → 410	1015 200 → 410	1275 250 → 500	385 75 → 180	858 100 → 275	5095 1525 → 3050
50	n v_f	1145 250 → 560	955 200 → 460	1145 250 → 560	955 200 → 460	860 150 → 360	765 180 → 360	955 200 → 460	290 100 → 200	440 130 → 300	3820 1525 → 3080
63	n v_f	915 280 → 460	764 255 → 500	915 280 → 460	764 255 → 500	690 200 → 380	610 180 → 360	764 250 → 500	230 75 → 180	35 150 → 300	3055 1525 → 5080
80	n v_f	765 355 → 600	635 280 → 530	765 355 → 600	635 280 → 530	575 200 → 400	508 180 → 380	635 280 → 530	190 75 → 200	295 150 → 355	—
100	n v_f	575 250 → 500	475 230 → 460	575 250 → 500	475 230 → 460	430 180 → 360	380 180 → 305	475 230 → 460	145 75 → 200	220 130 → 300	—

If machine speeds are lower than speeds suggested the chip load per tooth should prevail.

WARNING: Any cutting tool may break or shatter. The wearing of safety glasses is required by law. Grinding of this product may produce potentially hazardous dust. Use adequate ventilation.

Si les vitesses des machines sont inférieures aux vitesses de coupe suggérées, l'avance par dent prévaut.

AVERTISSEMENT: Tout outil peut briser ou éclater. La loi oblige le port de lunettes protectrices. Meuler ce produit peut causer des poussières dangereuses. S'assurer d'une ventilation adéquate.

Si las velocidad de la máquina inferior a las velocidades recomendados, l'avance per libios prevaler

ADVERTENCIA: Todo utensil se posible romperse. Usar lentes de seguridad. Afilar esto producto se posible producir peligroso polvo. Usar adecuado ventilación.

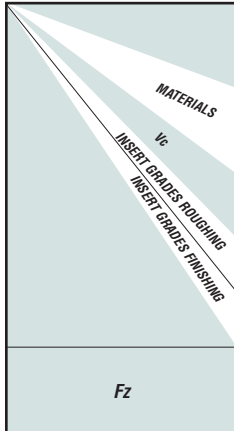
Sollte die Maschinenkapazität niedriger als die empfohlenen Schnittgeschwindigkeiten sein, so ist der Vorschubwert pro Zahn vorzuziehen.

ACHTUNG! Jedes Werkzeug kann brechen oder zerspringen. Gesetzesgemäß Sicherheitsbrillen bei der Arbeit getragen werden. Der beim Nachschleifen entstehende Staub dieser Werkzeuge kann gesundheitsschädlichen sein. Es sollte daher in einem ausreichend gelüfteten Raum geschliffen werden.

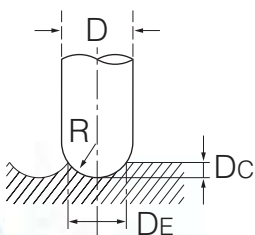
Se la velocità di lavorazione è minore rispetto alla velocità consigliata, l'avanza per dente prevale

ATTENZIONE: Ogni fresa può rompersi o frantumarsi. E' obbligatorio indossare occhiali di sicurezza a norma di legge. Il deteriorarsi di questi utensili potrebbe generare polveri nocive. Usare una ventilazione adeguata.

MEGAMILL BALL APPLICATION DATA

 MATERIALS Vc INSERT GRADES: PUSHING INSERT GRADES: FINISHING	Cast iron - Fontes Fundicion - Guss Ghisa		Steels - Aciers Aceros - Stähle - Acciai			Stainless Steels Aciers Inoxydable Aceros Inoxidable Acciai Inossidabile		Nickel Based Alloys	Titanium Titan Titano	Aluminium Aluminio Aluminium Alluminio
	Grey Gris Gris Grauguss	Nodular	Low Carbon up to: 240 BHN 80 Kg / mm ²	High Carbon Medium TeNsile 240-300 BHN80- 105 Kg / mm ²	High Alloy Tool Steel 300-400 BHN 105 -140 Kg / mm ²	300 SERIES 304, 316	400 Series 15-5 PH 17-4 PH	Inconel Waspalloy Hastalloy	6AL 4 V	6061 T6 7075 T6
	150-300 M/min	120-240 M/min	150-300 M/min	120-240 M/min	90-180 M/min	90-210 M/min	120-240 M/min	30-60 M/min	60-90 M/min	450-1515 M/min
	K-20	K-20	P-30	P-30	P-30	P-30	K-20	K-20	K-20	K-10
	K-10/K-20		K-10/K-20			K-10/K-20		K-10/K-20	K-10/K-20	K-10
Fz	.15 / .25	.15 / .25	15 / .25	.15 / .25	.15 / .25	.15 / .25	.10 / .22	.10 / .22	.13 / .25	.38 / .76

Insert Dia.	6	8	10	12	16	20	25	30	32
"DC" Depth of cut	"DE"								
0.25	2.41	2.79	3.10	3.50	4.00	4.45	5.00	5.45	5.65
0.38	2.92	3.40	3.80	4.20	4.90	5.45	6.10	6.70	6.95
0.5	3.35	3.91	4.35	4.80	5.55	6.25	7.00	7.70	7.95
1.25	4.90	5.84	6.60	7.30	8.60	9.70	10.90	12.00	12.40
2	5.59	6.80	8.00	8.90	10.60	12.00	13.60	15.00	15.50
2.5	5.92	7.44	8.65	9.75	11.60	13.20	15.00	16.60	17.20
3.2	6.0	7.82	9.30	10.60	12.80	14.70	16.70	18.50	19.20
4	—	8.00	9.80	11.30	13.85	16.00	18.30	20.40	21.15
5	—	—	10.00	11.80	14.80	17.30	20.00	22.35	23.25
6	—	—	—	12.00	15.50	18.30	21.35	24.00	25.00
7	—	—	—	—	15.90	19.10	22.45	25.40	26.45
8	—	—	—	—	16.00	19.60	23.30	26.55	27.70
10	—	—	—	—	—	20.00	24.50	28.30	29.65
12.5	—	—	—	—	—	—	25.00	29.60	31.22
15	—	—	—	—	—	—	—	30.00	31.60
16	—	—	—	—	—	—	—	—	32.00



- D** = CUTTER DIA.
DE = EFFECTIVE CUTTING DIA.
DC = DEPTH OF CUT
 $DE = \sqrt{D^2 - (D - 2DC)^2}$
RPM = $\frac{SFM \times 3.82}{DE \text{ (INCHES)}}$
RPM = $\frac{SMM \times 323.4}{DE \text{ (MM)}}$

EFFECTIVE CUTTING DIAMETER
 DIAMÈTRE DE COUPE EFFECTIF
 SOBRE EL DIAMETRO EFFECTIVE DE CORTE
 EFFEKTIVE SCHNITT-DURCHMESSER
 INFORMAZIONI UTILI DI TAGLIO

HOW TO MOUNT THE TWO-HOLE TYPE INSERT

- Place the insert in the holder slot.
- Tighten the bottom screw (A).
- Tighten the top screw (B).

COMMENT MONTER UNE PLAQUETTE À DEUX TROUS

- Inserez la plaquette dans l'ouverture.
- Serrez la vis du bas (A).
- Serrez la vis du haut (B).

CÓMO MONTAR UNA PLAQUITA DE DOS AGUJERO

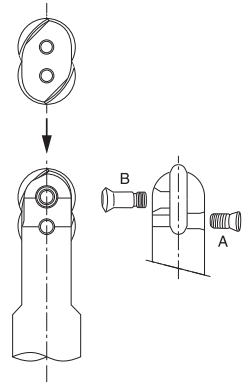
- Plazar la plaquita en la caja de la fresa.
- Apreta el tornillo de abajo primero.
- Apretar el tornillo de arriba.

FIXIEREN DER ZWEI-LOCH-WENDEPLATTEN

- Platzieren Sie die Wendeplatte in den Halterschlitz.
- Ziehen Sie zuerst die untere Schraube (A) fest.
- Ziehen Sie nun die obere Schraube (B) fest an.


COME MONTARE GLI INSERTI NEI DUE FORI

- Inserire l'inserto nella scanalatura.
- Avvitare la vite in basso (A).
- Avvitare la vite superiore (B).





MEGAMILL - INSERTS


CAST IRON - STEELS
 HIGH TENSILE MATERIALS

SIDE INSERT 	R	GRADES : K-15 / K-30 / P-25 / P-40	
		RADIUS	
		in.	mm
CMSI-387	*	.031	.75
CMSI-450	X	.062	1.5
CMSI-450	Y	.093	2.5
CMSI-450	Z	.125	3.0
CMSI-465	X	.062	1.5
CMSI-465	Y	.093	2.5
CMSI-465	Z	.125	3
CMSI-620	X	.062	1.5
CMSI-620	Y	.093	2.5
CMSI-620	Z	.125	3

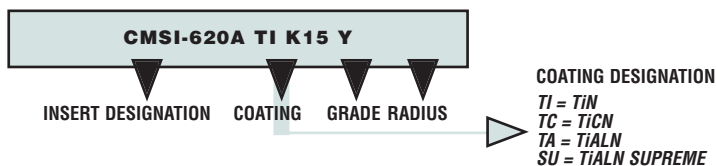
ALUMINIUM - TITANIUM

SIDE INSERT 	R	GRADES : K-15 / K-30	
		RADIUS	
		in.	mm
CMSI-387 A	*	.031	.75
CMSI-450 A	X	.062	1.5
CMSI-450 A	Y	.093	2.5
CMSI-450 A	Z	.125	3.0
CMSI-465 A	X	.062	1.5
CMSI-465 A	Y	.093	2.5
CMSI-465 A	Z	.125	3
CMSI-620 A	X	.062	1.5
CMSI-620 A	Y	.093	2.5
CMSI-620 A	Z	.125	3

END INSERT 	R	GRADES : K-15 / K-30 / P-25 / P-40	
		RADIUS	
		in.	mm
CMEI-687 W	X	.062	1.5
CMEI-687 W	Y	.093	2.5
CMEI-687 W	Z	.125	3

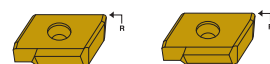
END INSERT 	R	GRADES : K-15 / K-30	
		RADIUS	
		in.	mm
CMEI-687 C	X	.062	1.5
CMEI-687 C	Y	.093	2.5
CMEI-687 C	Z	.125	3



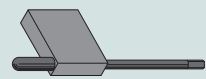
ORDERING EXAMPLE



END INSERTS

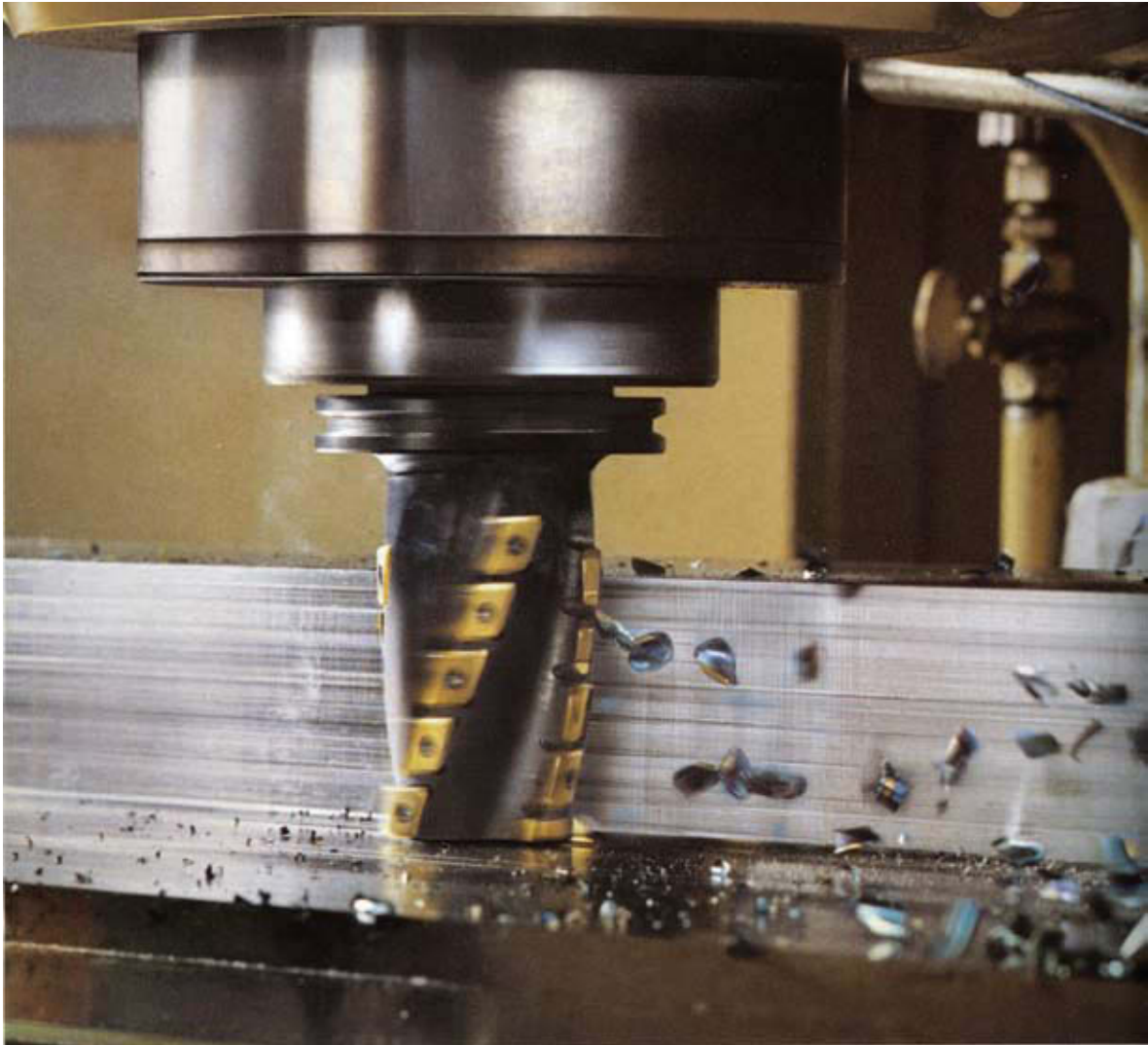
CMEI-687C CMEI-687W



	NO.		NO.		NO.
	SCS-30		ST-10		FT-08
	SCS-35		ST-15		FT-10
	SCS-45				FT-15

Notes:

- When ordering Megamill End Inserts (CMEI-687), please make sure the Side Inserts (CMSI-465 & 620) which are on the end of the cutter are also ordered with the same exact radius.
- Packaging: Inserts are sold in boxes of 10.
- Lors d'une commande de Plaquettes d'extrémités (CMEI-687), assurez-vous que les Plaquettes Latérales (CMSI-465 & 620) localisées au bout de l'outil, soient commandées avec le même rayon.
- Emballage : Les plaquettes sont vendus en paquets de dix.
- Cuando pide Megamill con radio en las plaquitas de punta (CMEI-687), las plaquitas de punta de lato (CMSI-465 & 620) tiennen que ser perdidas juntas.
- Embalaje: Las plaquitas estan vendidas en paquetes de 10.
- Bitte beachten Sie beim Bestellen der Stirn-Wendeplatten (CMEI-687) dass auch die letzten seitlichen Wendeplatten (CMSI-465 & 620) genau den selben Radius haben.
Wendeplatten kommen zu je 10 Stück pro Packung.
- Le frese e gli inserti CMSI-465, CMSI-620, dovranno essere ordinati insieme agli inserti CMEI-687C o CMEI-687W.
- Insetti sinistri disponibili su richiesta.
- Imballaggio: gli inserti sono venduti in confezioni da 10 pezzi.







 **Minicut**
International



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