GENERAL CATALOGUE

HPMT

THE FUTURE OF PRECISION MACHINING

Material Groups		Endmill													Drilling							
M02	Aluminium commercial pure Al-Alloys wrought	P	●	●											O				●			●
M03	Copper pure	P	●	●											O				●			●
M04	Zinc-Alloys, Magnesium alloys	P	●	●											O				●			●
M05	Aluminium-Slilicon Alloys Cast, below 10% Si	P	●	●											O				●			●
M06	Aluminium-Slilicon Alloys Cast, 10%-14% Si	P	●	●										●	O				●			●
M07	Aluminium-Slilicon Alloys Cast, more than 14% Si	P	●	●										●	O				●			●
M08	Brass	P	●	●										●	O				●			●
M09	Bronze	P	●	●										●	O				●			●
M10	Cast iron GG 10 ... GG 20 Cobalt Chrome		●	●	P									●		O		●				●
M11	Cast iron GG 25 ... GG 35		●	●	P									●		O		●				●
M12	Nodular iron (SG-iron) GGG40-GGG50		●	●	P									●		O		●				●
M13	Nodular iron (SG-iron) GGG60-GGG90		●	●	P									●		O		●				●
M14	Malleable iron		●	●	P									●		O		●				●
M15	Steel and Cast Steel up to 700 N/mm²-210 HB		●	●	P									●	O	O		●				●
M18	Steel and Cast Steel from 700 N/mm² up to 1000 N/mm² ~ 30 HRC-210-295 HB		●	●	P									●		O		●				●
M22	Steel from 1300 N/mm² to 1600 N/mm² spring steel - hard wearing resistant steel ~40 HRc - 360 - 440 HB						●	●	P					●		O		●				●
M25	Steel from 1000 N/mm² to 1300 N/mm² ~35 HRC - 295 - 360 HB		●	●	P									●		O		●				●
M31	Heat-Resistant Steel						●	●	P					●		O		●				●
M16	Stainless Steel up to 35 HRC		●	●	P									●		O		●				●
M20	Stainless Steel more than 35 HRC						●	●	P					●		O		●				●
M17	Titanium commercial Titanium alloys up to 35 HRC		●	●	P										O			O		●		●
M19	Ni and Co Alloys up to 900 N/mm² - 266 HB		●	●	P										O			O		●		●
M21	Titanium commercial Titanium alloys over 35 HRC						●	●	P									O		●		●
M23	Ni and Co Alloys up to 1200 N/mm² ~ 35 HRC - 266 - 352 HB		●	●	P									●				O		●		●
M24	Ni and Co Alloys more than 1200 N/mm² ~ 45 HRC-> 352 HB						●	●	P					●				O		●		●
M32	Nickel base alloys pre-hardened (e.g INCONEL 718)						●	●	P									●				●
M26	Hardened Steel ~ 52 HRC								●	O	O	P		●			●					●
M27	Chilled cast iron									●	●	P		●			●					●
M28	Hardened Steel ~ 52 - 65 HRC									●	●	P					●					●
M33	Hardened Steel ~ 63 - 68 HRC									●	●	P					●					●
M01	Thermoplastics without fillers	●													O				●			●
M29	Plastic, reinforced with organic fillers	●													O				●			●
M30	Graphite												●	●						O		
	Page	101	171	303	475	515	197	311	519	259	343	529	297	371	377	404	415	423	441	425	433	457	391
		ALU LINE	SE30	BN30	NiTiCo	Plunge Mill	SE45	BN45	NOVIANO	SE60	BN60	HI-FEED	SEGR	BNGR	TE45	DR30	DR45	DR60	DR VA	DR ALU	DR NiTiCo	DR 45SB	REAMER

For Plunging and Milling Application

For Better Straightness and Finishing Application

● Best General Choice
O Second Choice
P High Performance

	Materialgruppen	材质主类	Groupes matiére	Gruppi materiali
M02	Aluminiumlegierungen, rein	铝（商业等级纯度）、 精炼铝合金	Alliages d'aluminium, pures	Leghe di alluminio
M03	Reinkupfer	纯铜	Cuivres non alliés	Rame senza leghe
M04	Zink-Legierungen	锌合金	Allianges de zinc	Leghe di zinco
M05	Al-Si Legierungen Alu-Guß < 10% Si	铝－硅合金铸件, 硅含量小于10%	Alliages d'aluminium avec < 10% Si	Leghe di alluminio-silicio con < 10% Si
M06	Al-Si Legierungen Alu-Guß 10% bis 14% Si	铝－硅合金铸件, 硅含量10% ~ 14%	Alliages d'aluminium avec Si entre 10% et 14%	Leghe di alluminio-silicio con Si tra 10% e 14%
M07	Al-Si Legierungen Alu-Guß mit mehr als 14% Si	铝－硅合金铸件, 硅含量大于14%	Alliages d'aluminium avec plus de 14% de Si	Leghe di alluminio-silicio con più di 14% di Si
M08	Messing	黄铜	Laitons	Ottone
M09	Bronze	青铜	Bronzes	Bronzi
M10	Gußeisen, weich GG 10 ... GG 20	软质铸铁 GG10.....GG20	Fontes, douces GG 10 ... GG 20	Ghise, dolci GG 10 ... GG 20
M11	Gußeisen GG 25 ... GG 35	铸铁 GG25.....GG35	Fontes GG 25 ... GG 35	Ghise GG 25 ... GG 35
M12	Gußeisen mit Kugelgraphit GGG40 - GGG50	球墨铸铁 GGG40 ~ GGG50	Fontes nodulaires GGG40 - GGG50	Ghise sferoidali GGG40 - GGG50
M13	Gußeisen mit Kugelgraphit GGG60 - GGG90	球墨铸铁 GGG60 ~ GGG90	Fontes nodulaires GGG60 - GGG90	Ghise sferoidali GGG60 - GGG90
M14	Temperguß	可锻铸铁	Fontes malléables	Ghise speciali
M15	Stahl und Stahlguß bis 700 N/mm² - 210 HB	钢材或铸钢, 抗拉强度 <700N/mm², 布氏强度 <210HB	Aciers et aciers coulés jusqu'à 700 N/mm²	Acciai ed acciai fusi fino a 700 N/mm² - 210 HB
M18	Stahl und Stahlguß von 700 N/mm² bis 1000 N/mm² ~ 30 HRC - 210 - 295 HB	钢材或铸钢, 抗拉强度 700 ~ 1000N/mm², 洛氏硬度 <30 HRC, 布氏强度 210 ~ 295HB	Aciers et aciers coulés de 700 N/mm² à 1000 N/mm² ~ 30 HRC - 210 - 295 HB	Acciai ed acciai fusi da 700 N/mm² a 1000 N/mm² ~ 30 HRC - 210 - 295 HB
M22	Stähle von 1300 N/mm² bis 1600 N/mm² Federbandstahl - hart ~ 40 HRC - 360 - 440 HB	钢材或铸钢, 抗拉强度 1300 ~ 1600N/mm², 硬质弹簧钢; 耐磨钢, 洛氏硬度 <40 HRC, 布氏强度 360 ~ 440HB	Aciers de 1000 N/mm² à 1600 N/mm² aciers à ressort - dur aciers résistants à l'usure ~ 40 HRC - 360 - 440 HB	Acciai da 1300 N/mm² a 1600 N/mm² acciai a molla - duri acciai resistenti all'usura ~ 40 HRC - 360 - 440 HB
M25	Stähle von 1000 N/mm² bis 1300 N/mm² ~ 35 HRC - 295 - 360 HB	钢材或铸钢, 抗拉强度达 1300N/mm², 洛氏硬度 <35 HRC, 布氏强度 295 ~ 360HB	Aciers de 1000 N/mm2 à 1300 N/mm² ~ 35 HRC - 295 - 360 HB	Acciai da 1000 N/mm2 a 1300 N/mm² ~ 35 HRC - 295 - 360 HB
M31	Hitzebeständige Stähle	耐热钢	Acier résistant à la chaleur	Acciai refrattari
M16	Rostfreie Stähle	不锈钢,沃斯田铁系SUS300	Aciers inoxydables	Acciai inossidabili
M20	Rostfreie Stähle (≤ 2% Ni)	不锈钢,麻田散铁系SUS400	Aciers inoxydables, ferritiques	Acciai inossidabili, ferritici
M17	Titanium, rein Titanium Legierungen bis 700 N/mm²	钛（商业等级）、钛合金, 抗拉强度 <700N/mm², 布氏强度 <210HB	Titane, pure Allliages de titane jusquà 700 N/mm²	Titanio Leghe di titanio fino a 700 N/mm²
M19	Ni- und Co-Legierungen bis 900 N/mm² - 266 HB	镍、钴基合金钢, 抗拉强度 <900N/mm², 布氏强度 <266HB	Alliages de Ni et Co jusqu'à 900 N/mm² - 266 HB	Leghe al Ni e Co fino a 900 N/mm² - 266 HB
M21	Titanium, rein Titanium Legierungen über 700 N/mm²	钛-商业等级、钛合金,抗拉强度 >于700N/mm², 布氏强度 <210HB	Titane, pure Allliages de titane > 700 N/mm²	Titanio Leghe di titanio oltre 700 N/mm²
M23	Ni- und Co-Legierungen bis 1200 N/mm² ~ 35 HRC - 266 - 352 HB	镍、钴基合金钢, 抗拉强度 <1200N/mm², 洛氏硬度 <35 HRC, 布氏强度 266 ~ 352HB	Alliages de Ni et Co jusqu'à 1200 N/mm² ~ 35 HRC - 266 - 352 HB	Leghe al Ni e Co fino a 1200 N/mm² ~ 35 HRC - 266 - 352 HB
M24	Ni- und Co-Legierungen über 1200 N/mm² ~ 45 HRC - > 352 HB	镍、钴基合金钢, 抗拉强度 >1200N/mm², 洛氏硬度 <45 HRC, 布氏强度 >352HB	Alliages de Ni et Co au delas de1200 N/mm² ~ 45 HRC - > 352 HB	Leghe al Ni e Co oltre 1200 N/mm² ~ 45 HRC- > 352 HB
M32	Nickel Legierungen (z.B. INCONEL 718)	预硬镍基合金 (例: 铬镍基合金 718)	Alliages à base de nickel pré-durcis (e.g INCONEL 718)	Leghe al Ni pretrattate (p.es. INCONEL 718)
M26	Gehärtete Stähle ~ 52 HRC	预硬钢, 洛氏硬度 <52HRC	Aciers trempés ~ 52 HRC	Acciai temperati ~ 52 HRC
M27	Hartguß	冷硬铸铁	Fontes dures	Ghise dure
M28	Gehärtete Stähle ~ 52 - 65 HRC	预硬钢, 洛氏硬度 52 ~ 65HRC	Aciers trempés ~ 52 - 65 HRC	Acciai temperati ~ 52 - 65 HRC
M33	Gehärtete Stähle ~ 63 - 68 HRC	高硬度钢 ~ 63 - 68 HRC	Aciers trempés ~ 63 - 68 HRC	Acciai temperati ~ 63 - 68 HRC
M01	Thermoplaste	热塑性塑料（无纤维）	Thermoplastiques	Termoplastici
M29	Kunststoffe mit organischer Füllung	塑料（生化纤维加劲）	Matières plastiques avec composants organiques	Materiali plastici con fibre organiche
M30	Grafit	石墨	Graphite	Grafite

Certificate

Standard **ISO 9001:2008**

Certificate Registr. No. 01 100 053515

TÜV Rheinland Cert GmbH certifies:

Certificate Holder:

HPMT Industries Sdn. Bhd. (405005-X)
No. 5, Jalan Sungai Kayu Ara 32/39, Taman Berjaya,
Seksyen 32, 40460 Shah Alam, Selangor Darul Ehsan,
Malaysia

Scope: Manufacturing of Standard and Custom-made Metal Removing Cutting Tools

An audit was performed, Report No. 053515. Proof has been furnished that the requirements according to ISO 9001:2008 are fulfilled.
The due date for all future audits is 24-05 (dd.mm).

Validity: The certificate is valid from 2012-08-15 until 2015-08-14.
First certification 2005

2012-06-26

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

IAF

DGA-ZM-58-95-00

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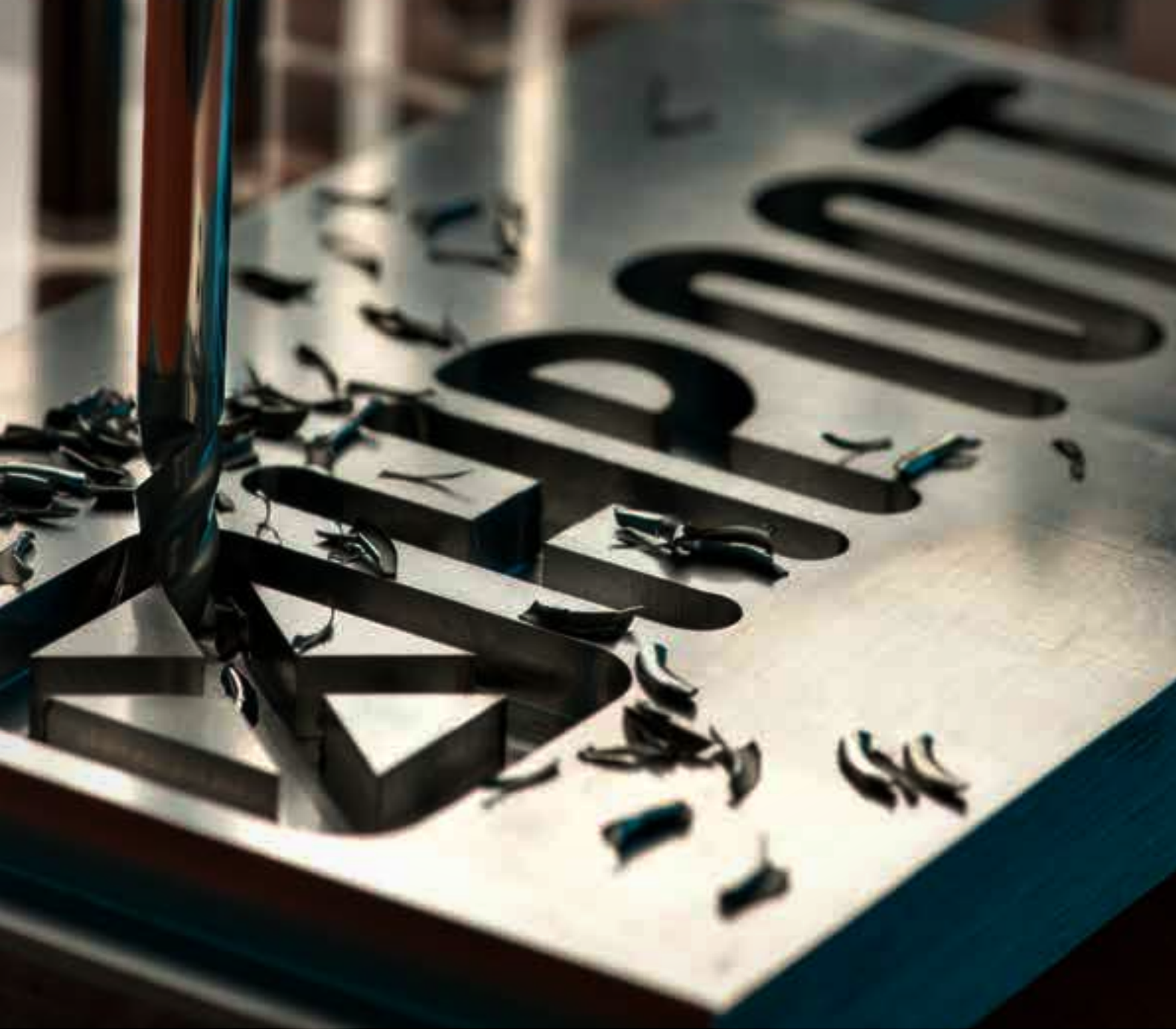

COMPANY PROFILE

HPMT Industries Sdn. Bhd. started operations in 1999 with an aim to become a leading cutting tools manufacturing company in South-East-Asia. With the latest production machinery and in house R & D facilities, HPMT is progressively developing new tools to serve the ever demanding industrial market. Implementing ISO 9001:2008 and working towards ISO/TS 16949:2002 will not only ensure consistent quality but also built customers' confidence.

Thus HPMT will progressively grow, producing high quality cutting tools to meet your stringent requirements. Whether special or standard cutting tools, you can always depend on us.

HPMT Industries Sdn. Bhd. hat ihre Tätigkeit 1999 aufgenommen mit dem Ziel ein führendes Unternehmen in der Herstellung von Zerspanungswerkzeugen in Südostasien zu werden. Mit modernen Produktionsmaschinen und eigener F & E Abteilung entwickelt HPMT weiter neue Werkzeuge, um den immer höheren Anforderungen der Kunden in der Industrie gerecht zu werden. Mit der ISO 9001:2008 Zertifizierung und dem Zugehen auf die ISO/TS 16949:2002 Zertifizierung, sichert HPMT eine konstante Qualität und setzt damit auf das Vertrauen der Kunden.

HPMT wird kontinuierlich wachsen, weiterhin Werkzeuge hoher Qualität herstellen und den großen Anforderungen unserer Kunden entsprechen. Sei es für Sonder- oder Standardwerkzeuge, Sie können immer mit uns rechnen.

HPMT Industries Sdn. Bhd. a débuté son activité en 1999 dans le but de devenir un producteur leader d'outils coupants au Sud-Est-Asiatique. Avec un parc machine de dernière technologie et un département interne R & D (recherche et développement) HPMT développe progressivement de nouveaux outils pour un marché industriel toujours plus exigeant. En appliquant l'ISO 9001:2008 et en travaillant pour obtenir l'ISO/TS 16949:2002, HPMT non seulement assure une qualité constante de ses produits, mais développe aussi la confiance des clients dans ses produits.

Par conséquence, HPMT se développera progressivement en fabriquant des outils de haute qualité pour faire face à vos demandes. Que ce soit pour des outils spéciaux ou standards, vous pouvez compter sur nous.

La HPMT Industries Sdn. Bhd. ha cominciato a produrre utensili nel 1999 con l'intenzione di diventare un produttore leader di utensili da taglio nel Sud-Est-Asiatico. Con macchinari di produzione di punta ed un reparto di R & D (ricerca e sviluppo), la HPMT sta progressivamente sviluppando nuovi utensili al fine di servire il mercato industriale sempre più esigente. Con il certificato ISO 9001:2008 e muovendosi ad ottenere il certificato ISO/TS 16949:2002, la HPMT non solo assicura una qualità costante, ma aumenta la fiducia del cliente nel prodotto.

Pertanto, la HPMT continuerà a crescere producendo degli utensili da taglio di alta qualità per rispondere alle richieste esigenti dei clienti. Che sia per utensili speciali o standard, potete sempre contare su di noi.

HPMT 股份有限公司设立于 1999 年，目标是成为亚洲一流的切削工具制造厂。拥有最先进的制造机台及自主研发设备，HPMT 不断制造出符合市场严格要求的工具。通过 ISO 9001:2008 认证，并且朝通过 ISO/TS 16949:2002 努力，让您可以更加信赖我们工件的品质。

HPMT 将持续不断的成长，并以能制造出通过最严格要求的工件为目标，无论是标准或特殊工件， HPMT 都值得您信濑。

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112 *	4	40°	●									179		SE 30 STD	- / -
113 *	4	40°			●							229		SE 45 LR L	- / -
114 *	4	40°			●						√	229		SE 45 LR L	- / -
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116 *	2	40°	●									202		SE 45 STD	- / -
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120 *	4	40°	●									203		SE 45 STD	- / -
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- / -															143 * ~ 733 *
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149 *	4	40°	●								√	226		SE 45 STD	- / -
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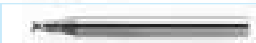
156 *	2	40°	●									209		SE 45 MINI	- / -
- / -															158 * ~ 883 *
159 *	2	40°	●									210		SE 45 MINI LN	- / -
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162 *	2	40°			●							210		SE 45 MINI LN	- / -
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250 *	2	40°	●								√	234		SE 45R LR L	- / -
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- / -															266 * ~ 272 *
271 *	4	40°	●									230		SE 45 LR XL	- / -
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285 *	4	40°	●									237		SE 45R LR XL	- / -
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291 *	4	40°			●							237		SE 45R LR XL	- / -
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303 *	3	50°	●									107		AL SE STD	- / -
305 *	4	40°	●									231		SE 45R STD	- / -
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- / -															319 * ~ 824 *
320 *	4	40°	●									180		SE 30 L	- / -
- / -															322 * ~ 824 *
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- / -															324 * ~ 816 *
- / -															325 * ~ 828 *
326 *	4	40°			●							181		SE 30 XL	- / -
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341 *	4	40°	●									204		SE 45 L	- / -
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345 *	4	45°	●									270		SE 60R STD RC WE	- / -
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353 *	6/8	50°	●									238		SE 45 MF	- / -
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355 *	6/8	50°	●								√	238		SE 45 MF	- / -
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358 *	4	40°	●									206		SE 45R STD	- / -
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- / -															362 * ~ 243 *
- / -															364 * ~ 244 *
365 *	6/8	50°			●						√	238		SE 45 MF	- / -
- / -															366 * ~ 820 *
367 *	2	50°	●									239		SE 45 MF - L	- / -
- / -															368 * ~ 824 *
369 *	6/8	50°	●								√	239		SE 45 MF - L	- / -
370 *	4	40°	●									261		SE 60 L	- / -
372 *	4	40°		●								261		SE 60 L	- / -
- / -															374 * ~ 824 *
- / -															375 * ~ B73 *
376 *	4	40°	●									262		SE 60 XL	- / -
378 *	4	40°		●								262		SE 60 XL	- / -
- / -															380 * ~ 828 *
382 *	4	40°	●									260		SE 60 STD	- / -
383 *	6/8	50°	●									240		SE 45 MF XL	- / -
384 *	4	40°		●								260		SE 60 STD	- / -
385 *	6/8	50°	●									240		SE 45 MF XL	- / -
- / -															386 * ~ 828 *
- / -															388 * ~ C46 *

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- / -															390 * ~ C46 *
- / -															391 * ~ B78 *
- / -															392 * ~ 834 *
- / -															394 * ~ 836 *
395 *	6/8	50°			●							239		SE 45 MF L	- / -
- / -															396* ~ 838 *
397 *	6/8	50°			●						√	239		SE 45 MF L	- / -
398 *	4	40°		●								185		MG MINI 1/4 CORNER	- / -
399 *	6/8	50°	●									265		SE 60 MF	- / -
400 *	2	30°		●								198		SE 45 STD	- / -
401 *	6/8	50°	●								√	265		SE 60 MF	- / -
402 *	4	40°	●									263		SE 60 LR L	- / -
- / -															403 * ~ 450 *
404 *	4	40°		●								263		SE 60 LR L	- / -
406 *	4	40°	●									264		SE 60 LR XL	- / -
408 *	4	40°		●								264		SE 60 LR XL	- / -
- / -															410 * ~ 863 *
411 *	6/8	50°	●									266		SE 60 MF L	- / -
- / -															412 * ~ 243 *
413 *	6/8	50°	●									266		SE 60 MF L	- / -
- / -															414 * ~ 244 *
- / -															415 * ~ 452 *
- / -															416 * ~ 895 *
- / -															418 * ~ 897 *
- / -															420 * ~ 899 *
- / -															422 * ~ 901 *
423 *	6/8	50°	●									267		SE 60 MF XL	- / -
- / -															424 * ~ 271 *
425 *	6/8	50°	●								√	267		SE 60 MF XL	- / -
- / -															426 * ~ 899 *
- / -															427 * ~ 459 *
- / -															428 * ~ 901 *
- / -															430 * ~ 271 *
431 *	6/8	50°			●							240		SE 45 MF XL	- / -
- / -															432 * ~ 272 *
433 *	6/8	50°			●						√	240		SE 45 MF XL	- / -
- / -															434 * ~ 353 *

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435 *	4	-		●								185		MG MINI 1/4 CORNER	- / -
- / -															440 * ~ 355 *
- / -															441 * ~ 367 *
- / -															442 * ~ 369 *
															443* ~ 383 *
- / -															444* ~ 385 *
															445* ~ C47 *
															446* ~ C16 *
															448* ~ 861 *
449 *	4	40°		●							√	263		SE 60 LR L	- / -
450 *	6/8	50°		●								265		SE 60 MF	- / -
451 *	6/8	50°		●							√	265		SE 60 MF	- / -
452 *	6/8	50°		●								266		SE 60 MF L	- / -
453 *	6/8	50°		●							√	266		SE 60 MF L	- / -
454 *	4	40°	●									274		SE 60R LR L	- / -
455 *	4	40°		●								274		SE 60R LR L	- / -
- / -															456 * ~ 196 *
457 *	4	40°	●								√	274		SE 60R LR L	- / -
458 *	4	40°		●							√	274		SE 60R LR L	- / -
459 *	6/8	50°		●								267		SE 60 MF XL	- / -
~~**460 ***~~															- / -
~~**461 ***~~															- / -
- / -															463 * ~ 929 *
~~**464 ***~~															- / -
															466 * ~ B82 *
~~**467 ***~~															- / -
~~**468 ***~~															- / -
- / -															471 * ~ 940 *
473 *	2	30°			○							316		BN 45 STD	- / -
~~**475 ***~~															- / -
- / -															476 * ~ 931 *
- / -															477 * ~ 939 *
~~**479 ***~~															- / -
483 *	4	30°		●								315		BN 45 STD	- / -
485 *	4	30°			○							317		BN 45 STD	- / -
~~**487 ***~~															- / -
~~**488 ***~~															- / -

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- / -															491 * ~ 942 *
493 *	2	30°			○							318		BN 45 L	- / -
~~495 *~~															- / -
499 *	4	30°		○								319		BN 45 L	- / -
501 *	4	30°			○							319		BN 45 L	- / -
~~503 *~~															- / -
~~504 *~~															- / -
- / -															507 * ~ 944 *
509 *	2	30°			○							320		BN 45 XL	- / -
~~519 *~~															- / -
~~520 *~~															- / -
- / -															521 * ~ 657 *
~~525 *~~															527 * ~ 886 *
- / -															- / -
529 *	4	30°		●								345		BN 60 STD	- / -
~~533 *~~															- / -
~~534 *~~															- / -
535 *	3	40°			○							224		SE 45 STD SF	- / -
- / -															537 * ~ 790 *
~~541 *~~															- / -
543 *	4	40°			○							226		SE 45 STD	- / -
545 *	4	30°		●								347		BN 60 L	- / -
~~549 *~~															- / -
~~550 *~~															- / -
- / -															551 * ~ 797 *
- / -															557 * ~ B31 *
558 *	6/8	50°		●							√	267		SE 60 MF XL	- / -
~~563 *~~															- / -
- / -															565 * ~ 935 *
566 *	2	30°			○							321		BN 45 MINI	- / -
- / -															567 * ~ 733 *
- / -															569 * ~ 937 *
- / -															570 * ~ 937 *
~~571 *~~															- / -
- / -															572 * ~ 936 *
574 *	2	30°	●									304		BN 30 STD	- / -
575 *	4	45°			●						√	269		SE 60R SF	- / -

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- / -															576 * ~ 923 *
577 *	2	30°	●									305		BN 30 L	- / -
578 *	2	40°			O							225		SE 45 STD	- / -
- / -															579 * ~ 925 *
580 *	2	30°	●									306		BN 30 XL	- / -
- / -															582 * ~ 927 *
583 *	3/4	40°	●									378		TE 45 0.5° inclination	- / -
587 *	3/4	40°	●									379		TE 45 1° inclination	- / -
591 *	3/4	40°	●									380		TE 45 1.5° inclination	- / -
595 *	3/4	40°	●									381		TE 45 2° inclination	- / -
599 *	3/4	40°	●									382		TE 45 2.5° inclination	- / -
603 *	3/4	40°	●									383		TE 45 3° inclination	- / -
607 *	3/4	40°	●									384		TE 45 4° inclination	- / -
611 *	3/4	40°	●									385		TE 45 5° inclination	- / -
612 *	2	40°			●							220		SE 45R MINI LN Ø d2 : 6	- / -
615 *	3/4	40°	●									386		TE 45 7° inclination	- / -
618 *	3/4	40°	●									387		TE 45 10° inclination	- / -
621 *	4/6	-	●									392		RE 45 SHORT	- / -
~~**622 ***~~															- / -
623 *	4/6	12°	●									393		RE 45 L.H. / R.H. SHORT	- / -
- / -															624 * ~ 933 *
625 *	4/6	-	●									394		RE 45 R.H. DIN 212	- / -
- / -															626 * ~ 895 *
627 *	4/6	12°	●									395		RE 45 L.H. / R.H. DIN 212	- / -
- / -															628 * ~ 897 *
629 *	3/4/6	60°	●									398		RE 45 HIGH L.H. / R.H. DIN 212	- / -
630 *	3	40°		●							√	224		SE 45 STD SF	- / -
631 *	4	40°		●							√	264		SE 60 LR XL	- / -
- / -															- / -
- / -															- / -
- / -															633 * ~ 750 *
- / -															634 * ~ 751 *
635 *	4	40°		●							√	226		SE 45 STD	- / -
637 *	4	40°	●									275		SE 60R LR XL	- / -
639 *	4	40°								●	√	298		SE GR STD	- / -
640 *	4	40°	●								√	275		SE 60R LR XL	- / -
641 *	2	40°								●		299		SE GR LN	- / -

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- / -															642 * ~ 923 *
- / -															643 * ~ 925 *
644 *	2	30°	●									407		DR 30 DIN 6539 - 3xØ	- / -
- / -															645 * ~ 927 *
- / -															646 * ~ 929 *
- / -															647 * ~ G32 *
- / -															648 * ~ C14 *
- / -															649 * ~ B71 *
- / -															650 * ~ C14 *
651 *	4	40°	●								√	263		SE 60 LR L	- / -
															652 * ~ B73 *
															653 * ~ C15 *
654 *	4	40°	●								√	264		SE 60 LR XL	- / -
															655 * ~ G20 *
656 *	4	45°	●								√	269		SE 60R SF	- / -
657 *	2	30°		●								344		BN 60 STD	- / -
658 *	2	30°		●							√	344		BN 60 STD	- / -
661 *	2	30°	●									172		SE 30 STD	- / -
662 *	2	30°	●									404		DR 30 NC 60°	- / -
664 *	2	30°	●									405		DR 30 NC 90°	- / -
666 *	2	30°	●									406		DR 30 NC 120°	- / -
668 *	2	40°	●									182		SE 30 Multi Purpose 60°	- / -
670 *	2	40°	●									183		SE 30 Multi Purpose 90°	- / -
672 *	2	40°	●									184		SE 30 Multi Purpose 120°	- / -
- / -															675 * ~ 798 *
677 *	4	30°	●									174		SE 30 STD	- / -
- / -															679 * ~ 802 *
- / -															680 * ~ 320 *
- / -															681 * ~ 824 *
682 *	4	30°	●									175		SE 30 L	- / -
- / -															683 * ~ 806 *
- / -															684 * ~ 326 *
- / -															685 * ~ 828 *
686 *	4	30°	●									176		SE 30 XL	- / -
- / -															690 * ~ H47 *
- / -															691 * ~ 810 *
692 *	2	30°	●									198		SE 45 STD	- / -

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- / -															693 * ~ 400 *
694 *	4	30°	●									199		SE 45 STD	- / -
- / -															695 * ~ 851 *
- / -															696 * ~ 180 *
- / -															697 * ~ C47 *
- / -															700 * ~ C47 *
703 *	2	40°	●								√	225		SE 45 STD	- / -
- / -															719 * ~ 889 *
720 *	4	30°	●									200		SE 45 L	- / -
- / -															721 * ~ 855 *
722 *	2	40°	●									212		SE 45 MINI LN	- / -
- / -															723 * ~ 885 *
724 *	2	40°			●							212		SE 45 MINI LN	- / -
~~**727 ***~~															- / -
729 *	2	30°	●									411		DR 30 5xØ	- / -
~~**733 ***~~															- / -
- / -															736 * ~ C45 *
- / -															739 * ~ C45 *
- / -															748 * ~ 750 *
- / -															749 * ~ 751 *
750 *	4	40°						●				298		SE GR STD	- / -
751 *	4	40°						●			√	298		SE GR STD	- / -
752 *	2	40°						●				299		SE GR LN	- / -
753 *	4	40°						●				300		SE GR LN	- / -
754 *	2	30°						●				372		BN GR STD	- / -
755 *	2	30°						●			√	372		BN GR STD	- / -
756 *	2	30°						●				373		BN GR L	- / -
- / -															757 * ~ 859 *
- / -															758 * ~ 759 *
759 *	4	45°		●								270		SE 60R STD RC WE	- / -
- / -															760 * ~ C47 *
- / -															761 * ~ C47 *
- / -															762 * ~ C47 *
763 *	4	40°							●		√	298		SE GR STD	- / -
764 *	2	40°							●		√	299		SE GR STD	- / -
765 *	4	40°							●		√	300		SE GR L	- / -
- / -															766 * ~ 818 *

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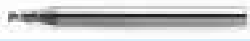
- / -															768 * ~ 844 *
- / -															769 * ~ 811 *
- / -															770 * ~ C32 *
- / -															771 * ~ C45 *
- / -															772 * ~ C46 *
- / -															773 * ~ C45 *
- / -															774 * ~ C46 *
775 *	3	40°	●									178		SE 30 STD	- / -
- / -															- / -
- / -															778 * ~ 800 *
- / -															779 * ~ 100 *
780 *	2	30°							●			372		BN GR STD	- / -
781 *	2	30°							●		√	372		BN GR STD	- / -
- / -															782 * ~ 775 *
784 *	2	30°							●			373		BN GR L	- / -
- / -															785 * ~ 112 *
786 *	2	40°		●							√	234		SE 45R LR L	- / -
787 *	4	40°			●						√	216		SE 45R MINI LN	- / -
788*	1	25°	●									102		AL SE SINGLE	- / -
789 *	4	45°			●							269		SE 45R MINI LN	- / -
790*	2	30°						●				346		SE GR STD	- / -
791 *	2	30°						●			√	346		SE GR STD	- / -
- / -															792 * ~ 196 *
- / -															793 * ~ 891 *
794 *	4	40°	●									205		SE 45 XL	- / -
- / -															795 * ~ 871 *
- / -															796 * ~ 891 *
797 *	2	30°		●								348		BN 60 XL	- / -
798 *	2	30°		●								172		SE 30 STD	- / -
799 *	2	40°			●							209		SE 45 MINI	- / -
800 *	3	30°		●								173		SE 30 STD	- / -
- / -															801 * ~ G14 *
802 *	4	30°		●								174		SE 30 STD	- / -
- / -															803 * ~ G32 *
- / -															804 * ~ 824 *
- / -															805 * ~ G20 *
806 *	4	30°		●								175		SE 30 L	- / -

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- / -															807 * ~ 763 *
- / -															808 * ~ 828 *
809 *	2	30°							●		√	373		BN GR L	- / -
810 *	4	30°		●								176		SE 30 STD	- / -
811 *	4	30°							●		√	301		SE GR STD R	- / -
- / -															812 * ~ 103 *
813 *	2	40°		●							√	235		SE 45R LR L	- / -
- / -															814 * ~ C32 *
816 *	2	40°		●								177		SE 30 STD	- / -
818 *	3	40°		●								178		SE 30 STD	- / -
820 *	4	40°		●								179		SE 30 STD	- / -
- / -															822 * ~ 824 *
824 *	4	40°		●								180		SE 30 L	- / -
- / -															826 * ~ 828 *
828 *	4	40°		●								181		SE 30 XL	- / -
- / -															830 * ~ C46 *
- / -															832 * ~ C46 *
834 *	2	40°		●								182		SE 30 Multi Purpose 60°	- / -
836*	2	40°		●								183		SE 30 Multi Purpose 90°	- / -
838 *	2	40°		●								184		SE 30 Multi Purpose 120°	- / -
840*	4	45°		●								241		SE 45 RF FINISHING	- / -
- / -															841 * ~ 820 *
- / -															843 * ~ 818 *
- / -															844 * ~ 103 *
- / -															845 * ~ 820 *
- / -															846 * ~ C46 *
- / -															847 * ~ C46 *
848 *	2	30°			●							198		SE 30 STD	- / -
850 *	4	30°			●							199		SE 30 STD	- / -
851 *	4	40°		●								199		SE 30 STD	- / -
- / -															852 * ~ 889 *
- / -															853 * ~ 889 *
854 *	4	30°			●							200		SE 45 L	- / -
855 *	4	30°		●								200		SE 45 L	- / -
- / -															856 * ~ 202 *
- / -															857 * ~ 891 *
858 *	4	30°			●							201		SE 45 XL	- / -

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859 *	4	30°		●								201		SE 45 XL	- / -
860 *	2	40°			●							202		SE 45 STD	- / -
861 *	2	40°		●								202		SE 45 STD	- / -
862 *	4	40°			●							203		SE 45 STD	- / -
863 *	4	40°		●								203		SE 45 STD	- / -
- / -															864 * ~ 889 *
- / -															865 * ~ 889 *
866 *	4	40°			●							204		SE 45 L	- / -
867 *	4	40°		●								204		SE 45 L	- / -
- / -															868 * ~ 202 *
- / -															869 * ~ 891 *
870 *	4	40°			●							205		SE 45 XL	- / -
871 *	4	40°		●								205		SE 45 XL	- / -
- / -															872 * ~ 895 *
- / -															873 * ~ 897 *
874 *	4	40°								○		300		SE GR LN	- / -
875 *	4	40°								○		298		SE GR STD	- / -
- / -															876 * ~ 899 *
- / -															877 * ~ 901 *
- / -															878 * ~ 899 *
- / -															879 * ~ 901 *
- / -															880 * ~ B71 *
- / -															881 * ~ B73 *
- / -															882 * ~ B78 *
883 *	2	40°		●								209		SE 45 MIN	- / -
884 *	2	40°		●								210		SE 45 MIN LN	- / -
885 *	2	40°		●								212		SE 45 MIN LN	- / -
886 *	2	40°		●								225		SE 45 STD	- / -
887 *	2	40°		●								226		SE 45 STD	- / -
- / -															888 * ~ 899 *
889 *	4	40°		●								227		SE 45 L	- / -
- / -															890 * ~ 891 *
891 *	4	40°		●								228		SE 45 XL	- / -
- / -															892 * ~ 886 *
893 *	3	40°		●								224		SE 45 STD SF	- / -
- / -															894 * ~ 895 *
895 *	4	40°		●								229		SE 45 LR L	- / -

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- / -															896 * ~ 897 *
897 *		40°		●							√	229		SE 45 LR L	- / -
- / -															898 * ~ 899 *
899 *	4	40°		●								230		SE 45 LR XL	- / -
															900 * ~ 901 *
901 *	4	40°		●							√	230		SE 45 LR XL	- / -
902 *	2	40°		●								220		SE 45R MINI LN Ø d2 : 6	- / -
903 *	2	40°		●								223		SE 45R TN	- / -
904 *	4	40°		●								231		SE 45R STD	- / -
- / -															905 * ~ 904 *
906 *	2	40°		●								234		SE 45 LR L	- / -
907 *	4	40°		●								235		SE 45 LR L	- / -
908 *	2	40°		●								236		SE 45 LR XL	- / -
909 *	4	40°		●								237		SE 45 LR XL	- / -
910 *	4	45°		●								268		SE 60 STD SF	- / -
911 *	2	30°		●							√	348		BN 60 XL	- / -
912 *	2	30°								○		372		BN GR STD	- / -
913 *	2	30°								○	√	372		BN GR STD	- / -
914 *	2	30°								○		373		BN GR L	- / -
- / -															915 * ~ B37 *
- / -															916 * ~ B37 *
920 *	4	40°		●								271		SE 60R STD	- / -
- / -															881 * ~ B73 *
- / -															882 * ~ B78 *
923 *	2	30°		●								304		BN 30 STD	- / -
925 *	2	30°		●								305		BN 30 L	- / -
927 *	2	30°		●								306		BN 30 XL	- / -
929 *	2	30°		●								312		BN 45 STD	- / -
931 *	2	30°		●								314		BN 45 L	- / -
933 *	2	30°		●								316		BN 45 XL	- / -
935 *	2	40°		●								321		BN 45 MINI	- / -
936 *	2	30°		●								322		BN 45 MINI LN	- / -
937 *	2	30°		●								323		BN 45 MINI LN	- / -
- / -															938 * ~ 937 *
939 *	2	30°		●								326		BN 45 TN	- / -
940 *	2	30°		●								316		BN 45 STD	- / -
941 *	2	30°		●							√	316		BN 45 STD	- / -

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942 *	2	30°		●								318		BN 45 L	- / -
943 *	2	30°		●							√	318		BN 45 L	- / -
944 *	2	30°		●								320		BN 45 XL	- / -
945 *	2	30°		●							√	320		BN 45 XL	- / -
951 *	4	40°			●							478		NiTiCo 30 DP	- / -
- / -															952 * ~ 953 *
953 *	2	30°		●								404		DR 30 NC 60°	- / -
- / -															954 * ~ 955 *
955 *	2	30°		●								405		DR 30 NC 90°	- / -
- / -															956 * ~ 957 *
957 *	2	30°		●								406		DR 30 NC 120°	- / -
958 *	2	20°		●								407		DR 30 DIN 6539 - 3xØ	- / -
- / -															959 * ~ 958 *
960 *	2	30°		●								411		DR 30 5xØ	- / -
- / -															961 * ~ 960 *
- / -															963 * ~ 965 *
965 *	2	30°		●								415		DR 45 DIN 6537 - 3xØ	- / -
- / -															966 * ~ 967 *
967 *	2	30°		●								453		DR 45 OF DIN 6537L - 5xØ	- / -
969 *	2	30°					●					453		DR 45 OF DIN 6537L - 5xØ	- / -
- / -															970 * ~ F33 *
- / -															971 * ~ F32 *
972 *	4	40°			●							478		NiTiCo 30 DP WE	- / -
- / -															973 * ~ 935 *
- / -															975 * ~ 937 *
976 *	2	40°	●									277		SE 60 MINI LN	- / -
977 *	2	40°		●								277		SE 60 MINI LN	- / -
~~983 *~~															- / -
984 *	2	30°		●								353		BN 60 TN	- / -
987 *	4	30°	●									201		SE 45 XL	- / -
- / -															988 * ~ 818 *
- / -															989 * ~ 103 *
- / -															990 * ~ 895 *
- / -															991 * ~ 897 *
~~992 *~~															- / -
993 *	2	30°		●								349		BN 60 MINI	- / -
994 *	4	45°			●							241		SE 45 RF FINISHING	- / -

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- / -															995 * ~ C47 *
~~996 *~~															- / -
997 *	2	30°		●								350		BN 60 MINI LN	- / -
- / -															999 * ~ C46 *
A01 *	2	40°				●						209		SE 45 MINI	- / -
A02 *	2	40°				●						210		SE 45 MINI LN	- / -
A03 *	2	40°				●						212		SE 45 MINI LN	- / -
A04 *	2	40°				●						225		SE 45 STD	- / -
A05 *	2	40°				●					√	225		SE 45 STD	- / -
A06 *	4	40°				●						226		SE 45 STD	- / -
A07 *	4	40°				●					√	226		SE 45 STD	- / -
- / -															A08 * ~ A09 *
A09 *	4	40°				●						227		SE 45 L	- / -
- / -															A10 * ~ A11 *
A11 *	4	40°				●						228		SE 45 XL	- / -
- / -															A12 * ~ A04 *
- / -															A13 * ~ A05 *
A14 *	3	40°				●						224		SE 45 STD SF	- / -
A15 *	3	40°				●					√	224		SE 45 STD SF	- / -
- / -															A16 * ~ A18 *
- / -															A17 * ~ A19 *
A18 *	4	40°				●						229		SE 45 LR L	- / -
A19 *	4	40°				●					√	229		SE 45 LR L	- / -
- / -															A20 * ~ A22 *
- / -															A21 * ~ A23 *
A22 *	4	40°				●						230		SE 45 LR XL	- / -
A23 *	4	40°				●					√	230		SE 45 LR XL	- / -
A24 *	2	40°				●						220		SE 45R MINI LN Ø d2:6	- / -
A25 *	2	40°				●						223		SE 45R TN	- / -
A26 *	4	40°				●						231		SE 45R STD	- / -
- / -															A27 * ~ A26 *
A28 *	2	40°				●						234		SE 45R LR L	- / -
A29 *	4	40°				●					√	235		SE 45R LR L	- / -
A30 *	2	40°				●						236		SE 45R LR XL	- / -
A31 *	2	40°				●					√	236		SE 45R LR XL	- / -
A32 *	4	40°				●						237		SE 45R LR XL	- / -
A33 *	4	40°				●					√	237		SE 45R LR XL	- / -

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A34 *	4	45°				●						268		SE 60 STD SF	- / -
A35 *	4	40°				●						260		SE 60 STD	- / -
A36 *	4	40°				●						261		SE 60 L	- / -
A37 *	4	40°				●						262		SE 60 XL	- / -
A38 *	4	40°				●						263		SE 60 LR L	- / -
A39 *	4	40°				●					√	263		SE 60 LR L	- / -
A40 *	4	40°				●						264		SE 60 LR XL	- / -
A41 *	4	40°				●					√	264		SE 60 LR XL	- / -
A42 *	6/8	50°				●						265		SE 60 MF	- / -
A43 *	6/8	50°				●					√	265		SE 60 MF	- / -
A44 *	6/8	50°				●						266		SE 60 MF L	- / -
A45 *	6/8	50°				●					√	266		SE 60 MF L	- / -
A46 *	6/8	50°				●						267		SE 60 MF XL	- / -
A47 *	6/8	50°				●					√	267		SE 60 MF XL	- / -
A48 *	4	45°				●						269		SE 60R SF	- / -
A49 *	4	45°				●					√	269		SE 60R SF	- / -
A50 *	4	40°				●						271		SE 60R STD	- / -
A51 *	4	40°				●						274		SE 60R LR L	- / -
A52 *	4	40°				●					√	274		SE 60R LR L	- / -
A53 *	4	40°				●						275		SE 60R LR XL	- / -
A54 *	4	40°				●					√	275		SE 60R LR XL	- / -
A55 *	2	40°				●						276		SE 60 MINI	- / -
A56 *	2	40°				●						277		SE 60 MINI LN	- / -
A57 *	2	30°				●						316		BN 45 L	- / -
A58 *	2	30°				●					√	316		SE 45 STD SF	- / -
A59 *	2	30°				●						318		SE 45 LR XL	- / -
A60 *	2	30°				●					√	318		BN 45 L	- / -
A61 *	2	30°				●					√	320		BN 45 XL	- / -
A62 *	2	30°				●						320		BN 45 XL	- / -
A63 *	2	30°				●						321		BN 45 MINI	- / -
- / -															A64 * ~ A63 *
A65 *	2	30°				●						322		BN 45 MINI LN	- / -
A66 *	2	30°				●						323		BN 45 MINI LN	- / -
- / -															A67 * ~ A66 *
- / -															A68 * ~ A66 *
A69 *	2	30°				●						344		BN 45 STD	- / -
A70 *	2	30°				●					√	344		BN 45 STD	- / -

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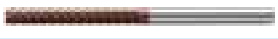
A71 *	2	30°				●						346		BN 60 L	- / -
A72 *	2	30°				●					√	346		BN 60 L	- / -
A73 *	2	30°				●						348		BN 60 XL	- / -
A74 *	2	30°				●					√	348		BN 60 XL	- / -
A75 *	2	30°				●						349		BN 60 MINI	- / -
A76 *	2	30°				●						350		BN 60 MINI LN	- / -
A77 *	2	30°				●						353		BN 60 TN	- / -
A78 *	2	30°				●						326		BN 45 TN	- / -
A79 *	2	40°				●						216		SE 45R MINI LN	- / -
A80 *	2	40°				●						281		SE 60R MINI LN	- / -
- / -															A81 * ~ A50 *
A82 *	4	45°				●						241		SE 45 RF FINISHING	- / -
- / -															A83 * ~ G33 *
- / -															A84 * ~ G21 *
- / -															A85 * ~ A51 *
- / -															A86 * ~ A51 *
- / -															A87 * ~ A53 *
- / -															A88 * ~ G15 *
A89 *	6/8	50°				●						238		SE 45 MF	- / -
A90 *	6/8	50°				●						239		SE 45 MF L	- / -
A91 *	6/8	50°				●						240		SE 45 MF XL	- / -
- / -															A92 * ~ A75 *
- / -															A93 * ~ A76 *
A94 *	6/8	50°				●					√	238		SE 45 MF	- / -
A95 *	6/8	50°				●					√	239		SE 45 MF L	- / -
A96 *	6/8	50°				●					√	240		SE 45 MFXL	- / -
A98 *	2	25°				●						533		BN 60 HF DOUBLE R	- / -
A99 *	2	40°				●					√	234		SE 45R LR L	- / -
- / -															A1A * ~ A54 *
A1B *	4	40°				●					√	235		SE 45R LR L	- / -
A1N *	4	35°/38°				●						484		NiTiCo 30 DP/DH	- / -
A1R *	4	35°/38°				●						485		NiTiCo 30R DP/DH	- / -
A1S *	4	35°/38°				●						484		NiTiCo 30 DP/DH WE	- / -
A1T *	4	35°/38°				●						485		NiTiCo 30R DP/DH WE	- / -
- / -															B01 * ~ B38 *
- / -															B02 * ~ B38 *
- / -															B03 * ~ B39 *

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- / -															B04 * ~ B39 *
- / -															B05 * ~ B40 *
- / -															B06 * ~ B40 *
- / -															B07 * ~ B41 *
- / -															B08 * ~ B41 *
- / -															B09 * ~ B42 *
- / -															B10 * ~ B42 *
- / -															B11 * ~ B43 *
- / -															B12 * ~ B43 *
- / -															B13 * ~ B44 *
- / -															B14 * ~ B44 *
- / -															B15 * ~ B45 *
- / -															B16 * ~ B45 *
- / -															B17 * ~ B46 *
- / -															B18 * ~ B46 *
- / -															B21 * ~ F33 *
- / -															B22 * ~ B78 *
- / -															B26 * ~ 895 *
- / -															B27 * ~ 897 *
- / -															B28 * ~ B78 *
- / -															B29 * ~ C16 *
B30 *	4	40°		●								206		SE 45R STD	- / -
B31 *	2	40°		●							√	225		SE 45 STD	- / -
B32 *	2	40°		●							√	236		SE 45R LR XL	- / -
B33 *	4	40°		●							√	237		SE 45R LR XL	- / -
B34 *	2	40°		●								275		SE 60R LR XL	- / -
B35 *	2	40°		●							√	275		SE 60R LR XL	- / -
B36 *	2	40°		●							√	276		SE 60 MINI	- / -
B37 *	3/4	40°		●								378		TE 45 0.5° inclination	- / -
B38 *	3/4	40°		●								379		TE 45 1° inclination	- / -
B39 *	3/4	40°		●								380		TE 45 1.5° inclination	- / -
B40 *	3/4	40°		●								381		TE 45 2° inclination	- / -
B41 *	3/4	40°		●								382		TE 45 2.5° inclination	- / -
B42 *	3/4	40°		●								383		TE 45 3° inclination	- / -
B43 *	3/4	40°		●								384		TE 45 4° inclination	- / -
B44 *	3/4	40°		●								385		TE 45 5° inclination	- / -
B45 *	3/4	40°		●								386		TE 45 7° inclination	- / -

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B46 *	3	40°		●								387		TE 45 10° inclination	- / -
B47 *	2	30°		●								419		DR 45 DIN 6537L - 5xØ	- / -
B48 *	2	30°		●								449		DR 45 OF DIN 6537LK- 3xØ	- / -
B52 *	2	30°					●					449		DR 45 OF DIN 6537LK- 3xØ	- / -
- / -															B55 * ~ 272 *
B56 *	2	40°	●									276		SE 60 MINI	- / -
- / -															B57 * ~ B69 *
- / -															B58 * ~ 920 *
B59 *	4	40°		●								206		SE 45R STD	- / -
- / -															B63 * ~ 895 *
- / -															B64 * ~ 897 *
B65 *	4	40°	●									216		SE 45R MINI LN	- / -
B66 *	2	40°		●								216		SE 45R MINI LN	- / -
B67 *	2	40°	●									281		SE 60R MINI LN	- / -
B68 *	2	40°		●								281		SE 60R MINI LN	- / -
B69 *	4	40°	●									271		SE 60R STD	- / -
- / -															B70 * ~ C16 *
B71 *	6/8	50°		●								238		SE 45 MF	- / -
- / -															B72 * ~ 818 *
B73 *	6/8	50°		●								239		SE 45 MF L	- / -
B78 *	6/8	50°		●								240		SE 45 MF XL	- / -
- / -															B79 * ~ B82 *
B82 *	4	30°		●								313		BN 45 STD	- / -
- / -															B83 * ~ C47 *
- / -															B84 * ~ C47 *
B85 *	2	30°								●		373		BN GR XL	- / -
- / -															B99 * ~ 454 *
- / -															C01 * ~ 455 *
- / -															C02 * ~ 454 *
- / -															C03 * ~ 455 *
- / -															C04 * ~ 637 *
- / -															C05 * ~ B34 *
- / -															C06 * ~ G13 *
- / -															C07 * ~ C08 *
C08 *	4	30°								●		301		SE GR STD	- / -
C09 *	2	30°								●		373		BN GR XL	- / -
- / -															C10 * ~ 992 *

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- / -															C11 * ~ 993 *
- / -															C12 * ~ 996 *
- / -															C13 * ~ 997 *
C14 *	6/8	50°		●								238		SE 45 MF	- / -
C15 *	6/8	50°		●								239		SE 45 MF L	- / -
C16 *	6/8	50°		●								240		SE 45 MF XL	- / -
- / -															C23 * ~ B35 *
- / -															C24 * ~ H47 *
C30 *	2	40°			●							476		NiTiCo 30 STD	- / -
C31 *	3	40°			●							476		NiTiCo 30 STD	B63 * ~ 895 *
C32 *	4	40°			●							476		NiTiCo 30 STD	B64 * ~ 897 *
C36 *	2	30°			●							312		BN 45 STD	- / -
C42 *	2	40°			●							477		NiTiCo 30 STD WE	- / -
C43 *	3	40°			●							477		NiTiCo 30 STD WE	- / -
C44 *	4	40°			●							477		NiTiCo 30 STD WE	- / -
C45 *	4	40°	●									480		NiTiCo 30 DPR	- / -
C46 *	4	40°			●							480		NiTiCo 30 DPR	- / -
C47 *	4	50°			●							479		NiTiCo 30 DP ROUGHING	- / -
C48 *	4	35°/38°			●							485		NiTiCo 30R DP/DH	- / -
C49 *	4	35°/38°			●							484		NiTiCo 30R DP/DH WE	- / -
C50 *	4	35°/38°			●							485		NiTiCo 30R DP/DH WE	- / -
C51 *	4	50°	●									480		NiTiCo 30 DPR WE	- / -
C52 *	4	30°			●							480		NiTiCo 30 DPR WE	- / -
- / -															C56 * ~ 566 *
C57 *	2	30°			●							322		BN 45 MINI LN	- / -
- / -															C58 * ~ 937 *
C59 *	2	30°			●							326		BN 45 TN	- / -
C64 *	4	40°			●							479		NiTiCo 30 DP ROUGHING WE	- / -
C65 *	2	30°			●							314		BN 45 L	- / -
C73 *	2	30°			●							441		DR VA DIN 6537K - 3xØ	- / -
C77 *	2	30°			●							445		DR VA DIN 6537L - 5xØ	- / -
C95 *	2	30°			●							449		DR 45 OF DIN 6537K - 3xØ	- / -
C96 *	2	30°			●							453		DR 45 OF DIN 6537L - 5xØ	- / -
- / -															C97 * ~ F33 *
C98 *	2	30°			●							407		DR 30 DIN 6539 - 3xØ	- / -
C99 *	2	30°			●							411		DR 30 - 5xØ	- / -
D01 *	2	30°			○							415		DR 45 DIN 6537K - 3xØ	- / -

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D02 *	2	30°			○							419		DR 45 DIN 6537L - 5xØ	- / -
D07 *	2	30°			●							433		DR NiTiCo OF DIN 6537K - 3xØ	- / -
D08 *	2	30°			●							437		DR NiTiCo OF DIN 6537L - 5xØ	- / -
D09 *	2	30°	●									425		DR ALU OF DIN 6537K - 3xØ	- / -
D10 *	2	30°	●									429		DR ALU OF DIN 6537L - 5xØ	- / -
F27 *	2	30°					○					461		DR SB OF DIN 6537K - 3xØ	- / -
F28 *	2	30°		○								461		DR SB OF DIN 6537K - 3xØ	- / -
F29 *	2	30°					○					465		DR SB OF DIN 6537L - 5xØ	- / -
F30 *	2	30°			○							465		DR SB OF DIN 6537L - 5xØ	- / -
F32 *	2	30°					○					469		DR SB OF HPMT STD - 8xØ	- / -
F33 *	2	30°			○							469		DR SB OF HPMT STD - 8xØ	- / -
F34 *	2	30°		○								457		DR SB DIN 6537K - 3xØ	- / -
- / -															F35 * ~ H47 *
G10 *	3	45°			●							516		SE 30 NOVIANO PLUNGE-MILL	- / -
G12 *	3	45°			●						√	516		SE 30 NOVIANO PLUNGE-MILL	- / -
G14 *	4	40°			●							520		SE 45 NOVIANO DP STD	- / -
G15 *	4	40°				●						520		SE 45 NOVIANO DP STD	- / -
G17 *	4	40°			●						√	520		SE 45 NOVIANO DP STD	- / -
G18 *	4	40°				●					√	520		SE 45 NOVIANO DP STD	- / -
G20 *	4	40°			●							520		SE 45 NOVIANO DP STD WE	- / -
G21 *	4	40°				●						520		SE 45 NOVIANO DP STD WE	- / -
G23 *	4	40°			●						√	520		SE 45 NOVIANO DP STD WE	- / -
G24 *	4	40°				●					√	520		SE 45 NOVIANO DP STD WE	- / -
G26 *	4	40°			●							521		SE 45 NOVIANO DP TORUS	- / -
G27 *	4	40°				●						521		SE 45 NOVIANO DP TORUS	- / -
G29 *	4	40°			●						√	521		SE 45 NOVIANO DP TORUS	- / -
G30 *	4	40°				●					√	521		SE 45 NOVIANO DP TORUS	- / -
G32 *	4	40°			●							521		SE 45 NOVIANO DP TORUS WE	- / -
G33 *	4	40°				●						521		SE 45 NOVIANO DP TORUS WE	- / -
G35 *	4	40°			●						√	521		SE 45 NOVIANO DP TORUS WE	- / -
G36 *	4	40°				●					√	521		SE 45 NOVIANO DP TORUS WE	- / -
G38 *	4	40°			●							523		SE 45 NOVIANO DP ROUGHING	- / -
G39 *	4	40°				●						523		SE 45 NOVIANO DP ROUGHING	- / -
G41 *	4	40°			●						√	523		SE 45 NOVIANO DP ROUGHING	- / -
G42 *	4	40°				●					√	523		SE 45 NOVIANO DP ROUGHING	- / -
G44 *	4	40°			●							523		SE 45 NOVIANO DP ROUGHING WE	- / -
G45 *	4	40°				●						523		SE 45 NOVIANO DP ROUGHING WE	- / -

No. Index General Catalogue 2013

List - No.	N° Z	Helix Angle	T ... n	B0819	G6110	B0909	D0120	DCT01	DCT02	D0700	RC	Page / Seite 页		Type / Typ / Type / Tipo / 系列	List - Edition B equivalent
G47 *	4	40°			●						√	523		SE 45 NOVIANO DP ROUGHING WE	- / -
G48 *	4	40°				●					√	523		SE 45 NOVIANO DP ROUGHING WE	- / -
G49 *	2	40°	●									103		AL SE STD	- / -
G50 *	3	40°	●									104		AL SE STD	- / -
G51 *	3	40°	●									105		AL SE L	- / -
G52 *	2	30°	●									108		AL SE STD TORUS	- / -
G53 *	2	30°	●								√	108		AL SE STD TORUS	- / -
G54 *	2	30°	●									108		AL SE STD TORUS	- / -
G55 *	2	30°	●								√	108		AL SE STD TORUS	- / -
G56 *	2	30°	●									109		AL SE L TORUS	- / -
G57*	2	30°	●								√	109		AL SE L TORUS	- / -
G58 *	2	30°	●									109		AL SE L TORUS	- / -
G59 *	2	30°	●								√	109		AL SE L TORUS	- / -
G60 *	6/8	50°	●									115		AL SE MF	- / -
G61 *	6/8	50°	●								√	115		AL SE MF	- / -
G62 *	6/8	50°	●									115		AL SE MF	- / -
G63 *	6/8	50°	●								√	115		AL SE MF	- / -
G64 *	6/8	50°	●									116		AL SE MF L	- / -
G65 *	6/8	50°	●								√	116		AL SE MF L	- / -
G66 *	6/8	50°	●									116		AL SE MF L	- / -
G67 *	6/8	50°	●								√	116		AL SE MF L	- / -
G68 *	2	40°	●									118		AL SE MINI LN	- / -
G69 *	3	30°	●									110		AL SE DP STD TORUS	- / -
G70 *	3	30°	●									110		AL SE DP STD TORUS	- / -
G71 *	2	30°	●									111		AL SE REDUCE SHANK	- / -
G72 *	3	40°	●									117		AL SE DP TORUS ROUGHING	- / -
G73 *	3	40°	●								√	117		AL SE DP TORUS ROUGHING	- / -
G74 *	2	30°	●									122		AL BN STD	- / -
G75 *	2	30°	●								√	122		AL BN STD	- / -
G76 *	2	30°	●									123		AL BN MINI LN	- / -
G78 *	4/6	25°				●						530		SE 60 HF FM TORUS STD	- / -
G80 *	4/6	25°				●					√	530		SE 60 HF FM TORUS STD	- / -
G82 *	4/6	25°				●						531		SE 60 HF FM TORUS L	- / -
G84 *	4/6	25°				●					√	531		SE 60 HF FM TORUS L	- / -
G86 *	4/6	3°				●					√	532		SE 60 HF SW TORUS	- / -
G87 *	2	40°			●							487		NiTiCo 30 MINI LN	- / -
G88 *	2	30°			●							491		NiTiCo 30 MINI LN	- / -

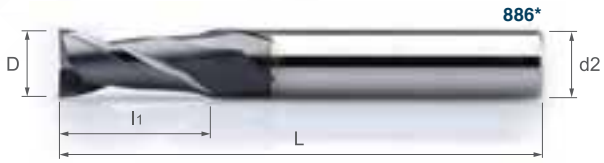
HOW TO ORDER

SE 45 STANDARD ENDMILLS 1

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

2

Solid Carbide SE 45 Standard Endmills, 2 Flutes
Fraises 2 tailles SE 45 Standard en carbure monobloc, 2 dents
整体硬质合金 SE 45 系列 立铣刀 2 刃 – 标准长度
VHM SE 45 Standard Fräser, 2 Zähne
Frese standard SE 45 in metallo duro integrale, 2 taglienti



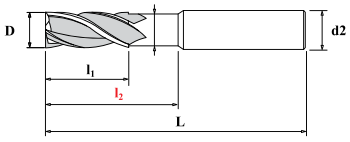
2

VHM		1°	λ = 40°	G6110 HPT	B0819 HPT	B0909 HSC		DIN 6535 HA HB HE

EDPNo./EDV-Nr./ CODEusine/CodiceEDP 5 =*+Ødata	Dimension (mm)					124*	578*	886*	A04* 3
	D	l1	l2	L	d2 (h6)	T ... n	G6110	B0819	B0909
0100 040 03	1	3		40	3	●	○	●	●
0100 040 04	1	3		40	4	●	○	●	●
0150 040 03	1.5	4.5		40	3	●	○	●	●
0150 040 04	1.5	4.5		40	4	●	○	●	●
0200 040 03	2	6.5		40	3	●	○	●	●
0200 040 04	2	6.5		40	4	●	○	●	●
0250 040 03	2.5	6.5		40	3	●	○	●	●
0250 040 04	2.5	6.5		40	4	●	○	●	●
0300	3	9	15	40	3	●	○	●	●
0300 050 06	3	9	15	50	6	●	○	●	●
0350 050 06	3.5	12	20	50	6	●	○	●	●
0400	4	12	20	50	4	●	○	●	●
0400 050 06	4	12	20	50	6	●	○	●	●
0450 050 06	4.5	15	20	50	6	●	○	●	●
0500	5	15	20	50	5	●	○	●	●
0500 050 06	5	15	20	50	6	●	○	●	●
0550 050 06	5.5	15	20	50	6	●	○	●	●
0600 050	6	16	20	50	6	●	○	●	●
0600 060	6	20	30	60	6	●	○	●	●
0700 064 08	7	20	30	64	8	●	○	●	●
0800	8	20	30	64	8	●	○	●	●
0900 070 10	9	22	32	70	10	●	○	●	●
1000 070	10	22	32	70	10	●	○	●	●
1000 075	10	22	32	75	10	●	○	●	●
1100 075 12	11	25	37	75	12	●	○	●	●
1200	12	25	37	75	12	●	○	●	●
1400	14	32	44	90	14	●	○	●	●
1600	16	32	46	90	16	●	○	●	●
1800	18	38	53	100	18	●	○	●	●
2000	20	38	58	100	20	●	○	●	●
2200	22	40	58	100	22	●	○	●	●
2500	25	40	58	100	25	●	○	●	●
						703*		B31*	A05* 4

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Recess



A B

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
107	61

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

A	Not on stock	Nicht auf Lager	Pas en stock	Non a magazzino	无库存
B	Ex stock	Ab Lager	De stock	Da magazzino	有库存

HOW TO ORDER

Please define the style 1 and carbide grade 2 you want to use.

Then please state catalogue number for the selected coating for tools without recess 3 or for tools with recess 4 and the diameter / EDP No. 5 (please always state the data mentioned in the diameter line) you want to order.

Example based on page 150 :
SE 45 Short FLutes Long Reach Endmills - Long with MG Carbide Grade and Recess
B0819 coating = 873 4 - Ø 10mm L 075mm 5 = **order line** 873 1000 075

Wie bestellen
Bitte wählen Sie die Ausführung 1 und VHM Qualität 2 die Sie benutzen möchten.

Danach geben Sie bitte die Katalog-Nummer für die ausgewählte Beschichtung für Werkzeuge ohne Freistellung 3 oder für Werkzeuge mit Freistellung 4 und die Abmessung / EDV-Nr. 5 (bitte alle Werte der Durchmesserposition mitangeben) an.

Beispiel gemäß Seite 150 :
VHM SE45 lange Long Reach Fräser mit kurzen Nuten und Freistelleung
B0819 Beschichtung = 873 4 – Ø 10mm L 075 5 = **Bestellzeile**: 873 1000 075

Comment commander
Prière de sélectionner l'exécution 1 et la qualité carbure 2 que vous aimeriez employer.

Après veuillez s.v.p. indiquer le numéro de référence pour le revêtement choisi pour l'outil sans dégagement 3 ou outil avec dégagement 4 ainsi que le diamètre / CODE usine 5 (prière de mentionner toutes les valeurs de la ligne diamère).

Example suivant page 150 :
Fraises 2 tailles SE 45 Long Reach longues à hélice courtes et dégagement
Revêtement B0819 = 873 4 – Ø 10mm L 075 5 = **ligne de commande** : 873 1000 075

Come ordinare
Selezionate p.f. la tipologia 1 e la qualità di metallo duro 2 che desiderate impiegare.

Dopo indicate il numero di catalogo per il rivestimento scelto per l'utensile senza riduzione del gambo 3 o con riduzione del gambo 4 come pure il diametro / Codice EDP 5 (p.f. riprendere tutti i valori della riga diametro) che volete ordinare.

Esempio basato sulla pagina 150 :
Frese SE 45 Long Reach in metallo duro integrale con gole corte e riduzione del gambo
Rivestimento B0819 = 873 4 – Ø 10mm L 075 5 = **linea di ordine**: 873 1000 075

定货指南
首先确定您需要的型号 1 和材质 2 ,

然后根据样本选择您需要订购刀具的涂层，带RC 3 或不带RC 4 以及直径/编号 5（编号与直径同行）。

例如第150页：
SE45 短刃加长圆鼻立铣刀，材质 MG 带 RC
B0819 涂层=873 4 -φ10mm L075mm 5 =**订货号** 873 1000 075

ALSE

N

For material application eg:
Aluminium & non-ferrous materials.

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			788*	

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			924*	

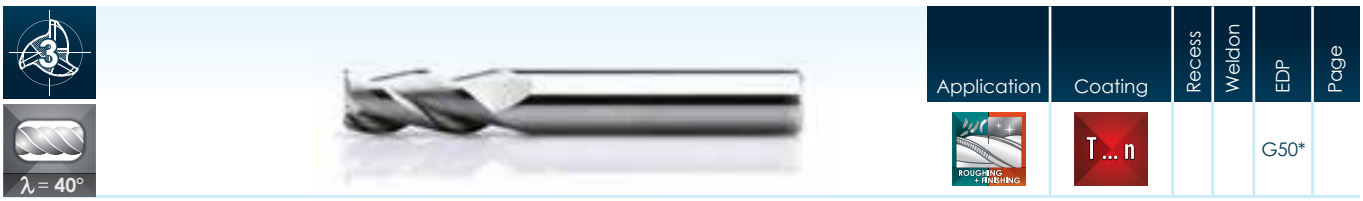
AL SE Single Flute Endmills | AL SE Einzahn Fräser | Fraises AL SE à une dent

Frese AL SE 1 tagliente | AL SE 系列 立铣刀 – 1 刃

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			301*	

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G49*	

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			303*	



Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G50*	

AL SE Standard Endmills | Standard AL SE Fräser | Fraises AL SE Standard

Frese AL SE Standard | AL SE 系列 立铣刀标准长度

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G51*	

AL SE Endmills - Long | AL SE Fräser, lang | Fraises 2 tailles AL SE longues

Frese AL SE lunghe | AL SE 系列 立铣刀 3 刃 – 中长

ALSE

N

For material application eg:
Aluminium & non-ferrous materials.

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G54*	
ROUGHING + FINISHING	T...n	•		G55*	

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G52*	
ROUGHING + FINISHING	T...n	•		G53*	

AL SE Standard Torus Endmills | Standard AL SE Torusfräser | Fraises 2 tailles AL SE toriques Standard

Frese AL SE toroidali Standard | AL SE 系列 立铣刀标准长度

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G58*	
ROUGHING + FINISHING	T...n	•		G59*	

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G56*	
ROUGHING + FINISHING	T...n	•		G57*	

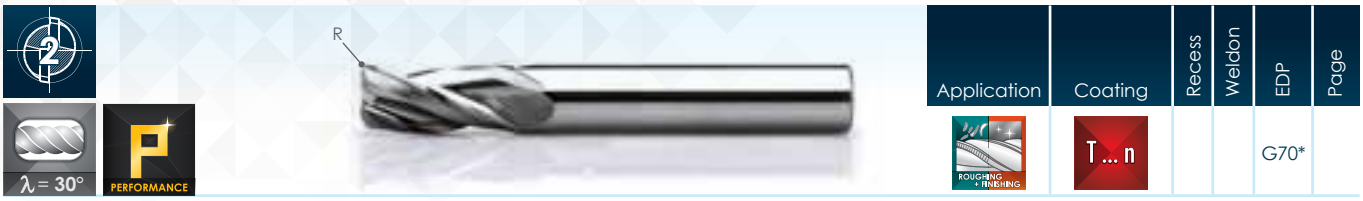
AL SE Torus Endmills - Long | AL SE Torusfräser, lang | Fraises 2 tailles AL SE toriques longues

Frese AL SE toroidali lunghe | AL SE 系列 立铣刀 – 中长

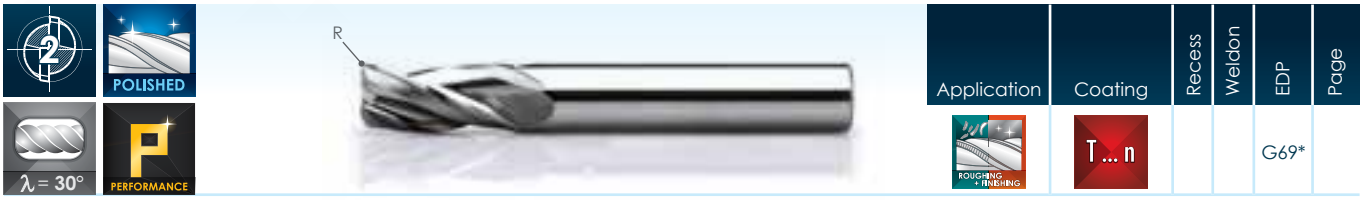
ALSE

N

For material application eg:
Aluminium & non-ferrous materials.

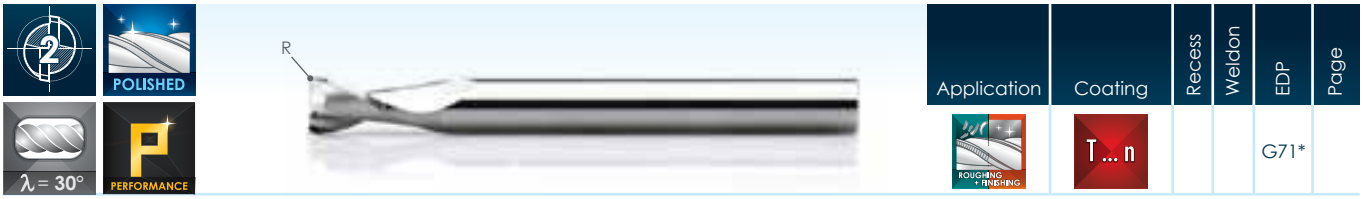


Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G70*	



Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G69*	

AL SE DP Standard Torus Endmills
AL SE Einzahn Fräser
Fraises 2 tailles AL SE DP toriques Standard
Frese AL SE DP toroidali Standard
AL SE DP 系列 立铣刀 – 标准长度



Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G71*	

AL SE Endmills
AL SE Fräser
Fraises 2 tailles AL SE
Frese AL SE
AL SE 系列 立铣刀 – 标准长度

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			S42*	

AL SE DP Standard Endmills, with Differential Pitch
AL SE DP Standard Fräser mit ungleicher Teilung
Fraises 2 tailles AL SE DP Standard à pas décalés
Frese AL SE DP Standard in metallo duro, passo differenziale
AL SE DP 系列 立铣刀 标准长度

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G45*	
ROUGHING + FINISHING	T...n		√	G51*	

AL SE DPR Torus Endmills with differential pitch
SE AL SE DPR Torusfräser mit ungleicher Teilung
Fraises 2 tailles AL SE DPR toriques à pas décalés
Frese AL SE DPR toriche, in metallo duro integrale, passo differenziale
AL SE DPR 系列 圆鼻立铣刀

ALSE

N

For material application eg:
Aluminium & non-ferrous materials.

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G62*	
ROUGHING + FINISHING	T...n	•		G63*	

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G60*	
ROUGHING + FINISHING	T...n	•		G61*	

ALU Multi-Flute End Mills Standard | ALU Mehrzahnfräser - Standard | Fraises ALU multi-dents - Standard

Frese ALU multi-taglienti Standard | ALU 系列 密齿 立铣刀

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G66*	
ROUGHING + FINISHING	T...n	•		G67*	

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G64*	
ROUGHING + FINISHING	T...n	•		G65*	

AL SE Torus Endmills - Long | AL SE Torusfräser, lang | Fraises 2 tailles AL SE toriques longues

Frese AL SE toroidali lunghe | AL SE 系列 立铣刀 – 中长

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			G72*	
ROUGHING + FINISHING	T...n	•		G73*	

AL SE DP Torus Roughing Endmills | AL SE DP Torus Schruppfräser, | Fraises ébauches 2 tailles AL SE DP toriques

Frese per sgrossare AL SE DP toroidali | AL SE DP 系列 粗皮 立铣刀 – 标准长度

ALSE

N

For material application eg:
Aluminium & non-ferrous materials.

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T ... n			G68*	

AL SE Miniature Endmills with long neck

AL SE Kleinstfräser mit langem Hals

Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long

Micro-frese AL SE in metallo duro integrale con collo lungo

AL SE 系列 长颈短刃 立铣刀

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T ... n			G72*	
ROUGHING + FINISHING	T ... n	•		G73*	

AL BN Ballnose Cutters Standard

AL BN Radiusschaftfräser Standard

Fraises à bout hémisphérique AL BN - standard

Frese cilindriche a raggio AL BN standard

AL BN 系列 球头 立铣刀

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T ... n			G76*	

AL BN Miniature Ballnose Cutters with long neck

Kleinst-Radiusfräser AL BN mit langem Hals

Micro-fraises AL BN en carbure monobloc avec bout hémisphérique et cou long

Micro-frese cilindriche AL BN a raggio con collo lungo

AL BN 系列 长颈短刃 球头 立铣刀

SE 30

P M K N S

For material application (≤ 35 HRC)

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			100*	177
FINISHING	B0819 HPT			816*	177

3

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			775*	178
FINISHING	B0819 HPT			818*	178

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			112*	179
FINISHING	B0819 HPT			820*	179

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			661*	172
FINISHING	B0819 HPT			798*	172
ROUGHING	G6110 HPT			C34*	172

3

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			777*	173
FINISHING	B0819 HPT			800*	173
ROUGHING	G6110 HPT			C35*	173

SE 30

P M K N S

For material application (≤ 35 HRC)

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			677*	174
FINISHING	B0819 HPT			802*	174
ROUGHING	G6110 HPT			C37*	174

SE 30 End Mills - Standard | SE 30 Fräser - Standard | Fraises SE 30 - Standard

Frese SE 30 - Standard | SE 30 系列 立铣刀

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			320*	180
FINISHING	B0819 HPT			824*	180

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			682*	175
FINISHING	B0819 HPT			806*	175

SE 30 End Mills - Long | SE 30 Fräser - lang | Fraises SE 30 - longues

Frese SE 30 - lunghe | SE 30 系列 立铣刀 - 中长

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			326*	181
FINISHING	B0819 HPT			828*	181

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			686*	176
FINISHING	B0819 HPT			810*	176

SE 30 End Mills - Extra-Long | SE 30 Fräser - extra-lang | Fraises SE 30 - longues

Frese SE 30 - lunghe | SE 30 系列 立铣刀 - 加长

SE 30

P M K N S

For material application (≤ 35 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			668*	182
FINISHING	B0819 HPT			834*	182

SE 30 Multi-Purpose Endmills with 60° point angle
SE 30 VHM Mehrzweck Spitzenwinkel 60°
Fraises SE 30 multiple usage angle de pointe 60°
Fresa SE 30 multiplo impiego angolo di punta 60°
SE 30 系列 多功能立铣刀 - 倒角 60°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			670*	183
FINISHING	B0819 HPT			836*	183

SE 30 Multi-Purpose Endmills with 90° point angle
SE 30 VHM Mehrzweck Spitzenwinkel 90°
Fraises SE 30 multiple usage angle de pointe 90°
Fresa SE 30 multiplo impiego angolo di punta 90°
SE 30 系列 多功能立铣刀 - 倒角 90°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			672*	184
FINISHING	B0819 HPT			838*	184

SE 30 Multi-Purpose Endmills with 120° point angle
SE 30 VHM Mehrzweck Spitzenwinkel 120°
Fraises SE 30 multiple usage angle de pointe 120°
Fresa SE 30 multiplo impiego angolo di punta 120°
SE 30 系列 多功能立铣刀 - 倒角 120°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			435*	185
FINISHING	B0819 HPT			398*	185

Miniature Round Corner Milling cutters
Viertelrund Profilfräser
Fraises 1/4 de cercle
Frese 1/4 circolare
圆弧倒角刀

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			116*	202
ROUGHING	G6110 HPT			860*	202
FINISHING	B0819 HPT			861*	202

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			120*	203
ROUGHING	G6110 HPT			862*	203
FINISHING	B0819 HPT			863*	203

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			692*	198
ROUGHING	G6110 HPT			848*	198
FINISHING	B0819 HPT			400*	198

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			694*	199
ROUGHING	G6110 HPT			850*	199
FINISHING	B0819 HPT			851*	199

SE 45 End Mills - Standard

SE 45 Fräser - Standard

Fraises SE 45 - Standard

Frese SE 45 - Standard

SE 45 系列 立铣刀

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			341*	204
ROUGHING	G6110 HPT			866*	204
FINISHING	B0819 HPT			867*	204

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			720*	200
ROUGHING	G6110 HPT			854*	200
FINISHING	B0819 HPT			855*	200

SE 45 End Mills - Long | SE 45 Fräser - lang | Fraises SE 45 - longues

Frese SE 45 - lunghe | SE 45 系列 立铣刀 - 中长

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			794*	205
ROUGHING	G6110 HPT			870*	205
FINISHING	B0819 HPT			871*	205

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			987*	201
ROUGHING	G6110 HPT			858*	201
FINISHING	B0819 HPT			859*	201

SE 45 End Mills - Extra-Long | SE 45 Fräser - extra-lang | Fraises SE 45 - extra-longues

Frese SE 45 - extra-lunghe | SE 45 系列 立铣刀 - 加长

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			124*	225
ROUGHING	T...n	•		703*	225
FINISHING	B0819 HPT			886*	225
FINISHING	B0819 HPT	•		B31*	225
ROUGHING	G6110 HPT			578*	225
HI-SPEED	B0909 HSC			A04*	225
HI-SPEED	B0909 HSC			A05*	225

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			148*	226
ROUGHING	T...n	•		149*	226
FINISHING	B0819 HPT			887*	226
FINISHING	B0819 HPT	•		635*	226
ROUGHING	G6110 HPT			543*	226
HI-SPEED	B0909 HSC			A06*	226
HI-SPEED	B0909 HSC	•		A07*	226

SE 45 End Mills - Standard

SE 45 Fräser - Standard

Fraises SE 45 - Standard

Frese SE 45 - Standard

SE 45 系列 立铣刀

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			180*	227
FINISHING	B0819 HPT			889*	227
ROUGHING	G6110 HPT			186*	227
HI-SPEED	B0909 HSC			A09*	227

SE 45 End Mills - Long

SE 45 Fräser - lang

Fraises SE 45 - longues

Frese SE 45 - lunghe

SE 45 系列 立铣刀 - 中长

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			196*	228
FINISHING	B0819 HPT			891*	228
ROUGHING	G6110 HPT			202*	228
HI-SPEED	B0909 HSC			A11*	228

SE 45 End Mills - Extra-Long

SE 45 Fräser - extra-lang

Fraises SE 45 - extra-longues

Frese SE 45 - extra-lunghe

SE 45 系列 立铣刀 - 加长

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

3

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			140*	224
ROUGHING	T...n	•		141*	224
FINISHING	B0819 HPT			893*	224
FINISHING	B0819 HPT	•		630*	224
ROUGHING	G6110 HPT			535*	224
HI-SPEED	B0909 HSC			A14*	224
HI-SPEED	B0909 HSC	•		A15*	224

SE 45 Short Flutes End Mills

SE 45 Fräser mit kurzen Nuten

Fraises SE 45 avec goujures

Frese SE 45 con gole corte

SE 45 系列 立铣刀 - 短刃

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			243*	229
ROUGHING	T...n	•		244*	229
FINISHING	B0819 HPT			895*	229
FINISHING	B0819 HPT	•		897*	229
ROUGHING	G6110 HPT			113*	229
ROUGHING	G6110 HPT	•		114*	229
HI-SPEED	B0909 HSC			A18*	229
HI-SPEED	B0909 HSC	•		A19*	229

SE 45 Short Flutes LONG REACH End Mills Long

SE 45 LONG-REACH Fräser lang - mit kurzen Nuten

Fraises SE 45 LONG REACH longues avec goujures courtes

Frese SE 45 LONG-REACH lunghe con gole corte

SE 45 系列 短刃立铣刀 - 中长

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			271*	230
ROUGHING	T...n	•		272*	230
FINISHING	B0819 HPT			899*	230
FINISHING	B0819 HPT	•		901*	230
ROUGHING	G6110 HPT			121*	230
ROUGHING	G6110 HPT	•		122*	230
HI-SPEED	B0909 HSC			A22*	230
HI-SPEED	B0909 HSC	•		A23*	230

SE 45 Short Flutes LONG REACH End Mills - extra-long

SE 45 LONG-REACH Fräser extra-lang - mit kurzen Nuten Fraises SE 45 LONG REACH

Fraises SE 45 LONG REACH extra-longues avec goujures courtes

Frese SE 45 LONG-REACH extra- lunghe con gole corte

SE 45 系列 短刃立铣刀 - 加长

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			156*	209
ROUGHING	G6110 HPT			883*	209
FINISHING	B0819 HPT			799*	209
HI-SPEED	B0909 HSC			A01*	209

SE 45 Miniature End Mills

SE 45 Kleinstfräser

Micro-fraises SE 45

Micro-frese SE 45

SE 45 系列 微型 立铣刀

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			722*	212
ROUGHING	G6110 HPT			724*	212
FINISHING	B0819 HPT			885*	212
HI-SPEED	B0909 HSC			A03*	212

SE 45 Miniature End Mills with long neck | SE 45 Kleinstfräser mit langem Hals | Micro-fraises SE 45 avec cou long

Micro-frese SE 45 con collo lungo | SE 45 系列 长颈短刃 立铣刀

6

8

λ = 50°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			353*	238
ROUGHING	T...n	•		355*	238
ROUGHING	G6110 HPT			125*	238
ROUGHING	G6110 HPT	•		365*	238
FINISHING	B0819 HPT			B71*	238
FINISHING	B0819 HPT	•		C14*	238
HI-SPEED	B0909 HSC			A89*	238
HI-SPEED	B0909 HSC	•		A94*	238

SE 45 Multi-Flute Endmills | SE 45 Mehrzahnfräser | Fraises SE 45 multi-dents

Frese SE 45 multi-taglienti | SE 45 系列 密齿 立铣刀

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			367*	239
ROUGHING	T...n	•		369*	239
ROUGHING	G6110 HPT			395*	239
ROUGHING	G6110 HPT	•		397*	239
FINISHING	B0819 HPT			B73*	239
FINISHING	B0819 HPT	•		C15*	239
HI-SPEED	B0909 HSC			A90*	239
HI-SPEED	B0909 HSC	•		A95*	239

SE 45 Multi-Flute Endmills - long | SE 45 Mehrzahnfräser - Lang | Fraises SE 45 multidents - long

Frese SE 60 multi-taglienti Lunghe | SE 45 系列 密齿 立铣刀 - 中长

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			383*	240
ROUGHING	T...n	•		385*	240
ROUGHING	G6110 HPT			431*	240
ROUGHING	G6110 HPT	•		433*	240
FINISHING	B0819 HPT			B78*	240
FINISHING	B0819 HPT	•		C16*	240
HI-SPEED	B0909 HSC			A91*	240
HI-SPEED	B0909 HSC	•		A96*	240

SE 45 Multi-Flute Endmills - Extra-Long | SE 45 Mehrzahnfräser - Extra-Lang | Fraises SE 45 multidents Extra-Longues

Frese SE 45 multi-taglienti Extra-Lunghe | SE 45 系列 密齿 立铣刀 - 加长

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

4

λ = 45°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	G6110 HPT		•	994*	241
FINISHING	B0819 HPT		•	840*	241
HI-SPEED	B0909 HSC		•	A82*	241

SE 45 RF Roughing - Finishing Endmills

SE 45 RF Schlicht- Schruppfräser

Fraises ébauches et finitions SE 45 RF

Frese per sgrossare e tinitura SE 45 RF a passo fine finitura

SE 45 系列 粗皮 立铣刀

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			358*	206
ROUGHING	G6110 HPT			B59*	206
FINISHING	B0819 HPT			B30*	206

SE 45R Torus End Mills

SE 45R Torusfräser

Fraises toriques SE 45R

Frese toroidali SE 45R

SE 45R 系列 圆鼻 立铣刀

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			B65*	216
ROUGHING	G6110 HPT			787*	216
FINISHING	B0819 HPT			B66*	216
HI-SPEED	B0909 HSC			A79*	216

SE 45R Miniature Torus End Mills with long neck

SE 45R Toruskleinstfräser mit langem Hals

Micro-fraises toriques SE 45R avec cou long

Micro-frese toroidali SE 45R con collo lungo

SE 45R 系列 圆鼻长颈短刃 立铣刀

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

2 flutes

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			163*	220
ROUGHING	G6110 HPT			612*	220
FINISHING	B0819 HPT			902*	220
HI-SPEED	B0909 HSC			A24*	220

SE 45R Miniature Torus End Mills with long neck

SE 45R Toruskleinstfräser mit langem Hals

Micro-Fraises toriques SE 45R avec cou long

Micro-frese toroidali SE 45R con collo lungo

SE 45R 系列 圆鼻长颈短刃 立铣刀

2 flutes

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			210*	223
ROUGHING	G6110 HPT			214*	223
FINISHING	B0819 HPT			903*	223
HI-SPEED	B0909 HSC			A25*	223

SE 45R Torus Endmills with taper neck

SE 45R Toruskleinstfräser mit langem Hals

Fraises toriques SE 45R avec cou long

Frese toroidali SE 45R con collo lungo

SE 45R 系列 圆鼻锥颈位 立铣刀

4 flutes

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			305*	231
ROUGHING	G6110 HPT			311*	231
FINISHING	B0819 HPT			904*	231
HI-SPEED	B0909 HSC			A26*	231

SE 45R Torus End Mills

SE 45R Torusfräser

Fraises toriques SE 45R

Frese toroidali SE 45R

SE 45R 系列 圆鼻 立铣刀

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			249*	234
ROUGHING	T ... n	•		250*	234
FINISHING	B0819 HPT			255*	234
FINISHING	B0819 HPT	•		256*	234
ROUGHING	G6110 HPT			906*	234
ROUGHING	G6110 HPT	•		786*	234
HI-SPEED	B0909 HSC			A28*	234
HI-SPEED	B0909 HSC	•		A99*	234

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			257*	235
ROUGHING	T ... n	•		25*	235
FINISHING	B0819 HPT			263*	235
FINISHING	B0819 HPT	•		264*	235
ROUGHING	G6110 HPT			907*	235
ROUGHING	G6110 HPT	•		262*	235
HI-SPEED	B0909 HSC			A29*	235
HI-SPEED	B0909 HSC	•		A1B*	235

SE 45R Short Flutes LONG REACH long Torus End Mills

SE 45R LONG-REACH Torusfräser lang mit kurzen Nuten

Fraises toriques SE 45 LONG REACH longues avec goujures courtes

Frese SE 45R LONG-REACH toroidali lunghe con gole corte

SE 45 系列 圆鼻短刃 立铣刀 - 中长

SE 45

P M S H

For material application (35 HRC ~ 55 HRC)

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			277*	236
ROUGHING	T...n	•		278*	236
FINISHING	B0819 HPT			283*	236
FINISHING	B0819 HPT	•		284*	236
ROUGHING	G6110 HPT			908*	236
ROUGHING	G6110 HPT	•		B32*	236
HI-SPEED	B0909 HSC			A30*	236
HI-SPEED	B0909 HSC	•		A31*	236

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			285*	237
ROUGHING	T...n	•		286*	237
FINISHING	B0819 HPT			291*	237
FINISHING	B0819 HPT	•		292*	237
ROUGHING	G6110 HPT			909*	237
ROUGHING	G6110 HPT	•		B33*	237
HI-SPEED	B0909 HSC			A32*	237
HI-SPEED	B0909 HSC	•		A33*	237

SE 45R Short Flutes LONG REACH extra-long Torus End Mills

SE 45R LONG-REACH extra-langTorusfräser mit kurzen Nuten

Fraises toriques SE 45 LONG REACH extra-longues avec goujures courtes

Frese SE 45R LONG-REACH toroidali extra-lunghe con gole corte

SE 45 系列 圆鼻短刃 立铣刀 - 加长

SE 60

H

For material application (55 HRC ~ 68 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			329*	268
FINISHING	B0819 HPT			910*	268
HI-SPEED	B0909 HSC			A34*	268

SE 60 Short Flutes End Mills
Frese SE 60 con gole corte
SE 60 Fräser mit kurzen Nuten
SE 60 系列 立铣刀 - 短刃
Fraises SE 60 - standard

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			382*	260
FINISHING	B0819 HPT			384*	260
HI-SPEED	B0909 HSC			A35*	260

SE 60 End Mills - Standard
Frese SE 60 - Standard
SE 60 Fräser - Standard Nuten
SE 60 系列 立铣刀
Fraises 2 tailles SE 60 standard

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			370*	261
FINISHING	B0819 HPT			372*	261
HI-SPEED	B0909 HSC			A36*	261

SE 60 End Mills - long
Frese SE 60 - lunghe
SE 60 Fräser - lang
SE 60 系列 密齿 立铣刀 - 中长
Fraises longues

SE 60

H

For material application (55 HRC ~ 68 HRC)

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			376*	262
FINISHING	B0819 HPT			378*	262
HI-SPEED	B0909 HSC			A37*	262

SE 60 End Mills extra-long

SE 60 Fräser - extra-lang

Fraises SE 60 extra-longues

Frese SE 60 - extra-lunghe

SE 60 系列 密齿 立铣刀 - 加长

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			402*	263
ROUGHING	T...n	•		651*	263
FINISHING	B0819 HPT			404*	263
FINISHING	B0819 HPT	•		449*	263
HI-SPEED	B0909 HSC			A38*	263
HI-SPEED	B0909 HSC	•		A39*	263

SE 60 Short-Flutes LONG REACH End Mills Long

SE 60 LONG REACH Fräser lang - mit kurzen Nuten

Fraises SE 60 LONG REACH longues avec goujures courtes

Frese SE 60 LONG REACH lunghe con gole corte

SE 60 系列 短刃 立铣刀 - 中长

SE 60

H

For material application (55 HRC ~ 68 HRC)

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			406*	264
ROUGHING	T...n	•		654*	264
FINISHING	B0819 HPT			408*	264
FINISHING	B0819 HPT	•		631*	264
HI-SPEED	B0909 HSC			A40*	264
HI-SPEED	B0909 HSC	•		A41*	264

SE 60 Short-Flutes LONG REACH End Mills, extra-long

SE 60 LONG REACH Fräser extra-lang - mit kurzen Nuten

Fraises SE 60 LONG REACH extra-longues avec goujures courtes

Frese SE 60 LONG REACH extra-lunghe con gole corte

SE 60 系列 短刃 立铣刀 - 加长

6

8

λ = 50°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			399*	265
ROUGHING	T...n	•		401*	265
FINISHING	B0819 HPT			450*	265
FINISHING	B0819 HPT	•		451*	265
HI-SPEED	B0909 HSC			A42*	265
HI-SPEED	B0909 HSC	•		A43*	265

SE 60 Multi-Flute End Mills Standard

SE 60 Mehrzahnfräser - Standard

Fraises SE 60 multi-dents - Standard

Frese SE 60 multi-taglienti Standard

SE 60 系列 密齿 立铣刀

SE 60

H

For material application (55 HRC ~ 68 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			411*	266
ROUGHING	T...n	•		413*	266
FINISHING	B0819 HPT			452*	266
FINISHING	B0819 HPT	•		453*	266
HI-SPEED	B0909 HSC			A44*	266
HI-SPEED	B0909 HSC	•		A45*	266

SE 60 Multi-Flute End Mills long
SE 60 Mehrzahnfräser - lang
Fraises SE 60 multi-dents - longues
Frese SE 60 multi-taglienti lunghe
SE 60 系列 密齿 立铣刀 - 中长

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			423*	267
ROUGHING	T...n	•		425*	267
FINISHING	B0819 HPT			459*	267
FINISHING	B0819 HPT	•		558*	267
HI-SPEED	B0909 HSC			A46*	267
HI-SPEED	B0909 HSC	•		A47*	267

SE 60 Multi-Flute End Mills extra-long
SE 60 Mehrzahnfräser - extra-lang
Fraises SE 60 multi-dents - extra-longues
Frese SE 60 multi-taglienti extra-lunghe
SE 60 系列 密齿 立铣刀 - 加长

SE 60

H

For material application (55 HRC ~ 68 HRC)

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			976*	277
FINISHING	B0819 HPT			977*	277
HI-SPEED	B0909 HSC			A56*	277

SE 60 Miniature Endmills with long neck | SE 60 Kleinstfräser mit langem Hals | Micro-fraises SE 60

Micro-frese SE 60 con collo lungo | SE 60 系列 长颈短刃 立铣刀 - 加长

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			B56*	276
FINISHING	B0819 HPT			B36*	276
HI-SPEED	B0909 HSC			A55*	276

SE 60 Miniature End Mills | SE 60 Kleinstfräser | Micro-fraises SE 60

Micro-frese SE 60 | SE 60 系列 微型 立铣刀

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			370*	261
FINISHING	B0819 HPT			372*	261
HI-SPEED	B0909 HSC			A36*	261

SE 60 End Mills - long | SE 60 Fräser - lang | Fraises longues

Frese SE 60 - lunghe | SE 60 系列 密齿 立铣刀 - 中长

SE 60

H

For material application (55 HRC ~ 68 HRC)

4

λ = 45°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			332*	260
ROUGHING	T...n	•		656*	260
FINISHING	B0819 HPT			789*	260
FINISHING	B0819 HPT	•		575*	260
HI-SPEED	B0909 HSC			A48*	260
HI-SPEED	B0909 HSC	•		A49*	260

SE 60R Short Flutes Torus End Mills Standard

Frese SE 60R toroidali Standard, gole corte

SE 60R Standard Torusfräser - mit kurzen Nuten

SE 60R 系列 圆鼻 立铣刀

Fraises toriques SE 60R - Standard, goujure courtes

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			B69*	271
FINISHING	B0819 HPT			920*	271
HI-SPEED	B0909 HSC			A50*	271

SE 60R Torus - End Mills Standard

Frese SE 60R toroidali Standard

SE 60R Standard Torusfräser

SE 60R 系列 圆鼻 立铣刀

Fraises toriques SE 60R - Standard

4

λ = 45°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n		•	345*	270
FINISHING	B0819 HPT		•	759*	270

SE 60R Torus Endmills

Frese toroidali SE 60R

SE 60R Torusfräser

SE 60R 系列 圆鼻 立铣刀 - 标准长度

Fraises toriques SE 60R

SE 60

H

For material application (55 HRC ~ 68 HRC)

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			454*	274
ROUGHING	T...n	•		457*	274
FINISHING	B0819 HPT			455*	274
FINISHING	B0819 HPT	•		458*	274
HI-SPEED	B0909 HSC			A51*	274
HI-SPEED	B0909 HSC	•		A52*	274

SE 60R Short Flutes LONG-REACH long Torus End Mills

SE 60R LONG-REACH lange Torusfräser mit kurzen Nuten

Fraises toriques SE 60R LONG-REACH longues avec goujures courtes

Frese toroidali SE 60R LONG-REACH lunghe con gole corte

SE 60R 系列 圆鼻短刃 立铣刀 - 中长

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			637*	275
ROUGHING	T...n	•		640*	275
FINISHING	B0819 HPT			B34*	275
FINISHING	B0819 HPT	•		B35*	275
HI-SPEED	B0909 HSC			A53*	275
HI-SPEED	B0909 HSC	•		A54*	275

SE 60R Short Flutes LONG-REACH extra-long Torus End Mills

SE 60R LONG-REACH extra-langge Torusfräser mit kurzen Nuten

Fraises toriques SE 60R LONG-REACH extra-longues avec goujures courtes

Frese toroidali SE 60R LONG-REACH extra-lunghe con gole corte

SE 60R 系列 圆鼻短刃 立铣刀 - 加长

SE 60

H

For material application (55 HRC ~ 68 HRC)

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			B67*	281
FINISHING	B0819 HPT			B68*	281
HI-SPEED	B0909 HSC			A80*	281

SE 60R Miniature Endmills with long neck

SE 60R Kleinstfräser mit langem Hals

Micro-fraises SE 60R avec cou long

Micro-frese SE 60R con collo lungo

SE 60R 系列 长颈短刃 立铣刀 - 加长

SE GR

Solid carbide milling cutters with DIAMOND or T:AC (DLC) PVD coating.
For material application eg: graphite.

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	D0700 HSC			875*	298
HI-SPEED	D0700 HSC	•		639*	298
HI-SPEED	DCT01 HSC			750*	298
HI-SPEED	DCT01 HSC	•		751*	298
HI-SPEED	DCT02 HSC			212*	298
HI-SPEED	DCT02 HSC	•		763*	298

SE GR Standard End Mills Diamond / DLC coated | SE GR VHM Fräser Diamant / DLC beschichtet | Fraises 2 tailles revêtues diamant / DLC

Frese SE GR rivestite diamante / DLC | SE GR 系列 立铣刀 - 石墨操作 DLC 钻石涂层

2

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	D0700 HSC	•		641*	299
HI-SPEED	DCT01 HSC	•		752*	299
HI-SPEED	DCT02 HSC	•		764*	299

SE GR Standard End Mills Diamond / DLC coated | SE GR VHM Fräser Diamant / DLC beschichtet | Fraises 2 tailles revêtues diamant / DLC

Frese SE GR rivestite diamante / DLC | SE GR 系列 立铣刀 - 石墨操作 DLC 钻石涂层

SE GR

Solid carbide milling cutters with DIAMOND or T:AC (DLC) PVD coating.
For material application eg: graphite.

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	D0700 HSC	•		874*	300
HI-SPEED	DCT01 HSC	•		753*	300
HI-SPEED	DCT02 HSC	•		765*	300

SE GR Long End Mills Diamond / DLC coated with recess

SE GR lange VHM Fräser Diamant / DLC beschichtet, mit Freistellung

Fraises 2 tailles SE GR longues revêtues diamant / DLC et dégagement

Frese lunghe SE GR in metallo duro integrale, rivestite diamante / DLC con diminuzione del collo

SE GR 系列 立铣刀 - 石墨操作 DLC 钻石涂层 - 中长，带颈位

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	D0700 HSC			C08*	301
HI-SPEED	DCT01 HSC			142*	301
HI-SPEED	DCT02 HSC			811*	301

SE GR Torus - End Mills Standard Diamond / DLC coated

SE GR Standard Torusfräser Diamant / DLC beschichtet

Fraises 2 tailles toriques SE GR - Standard diamant / DLC

Frese SE GR toroidali standard diamante / DLC

SE GR 系列 圆鼻 DLC 钻石涂层 立铣刀

BN 30

P M K N S

For material application (≤ 35 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			574*	304
FINISHING	B0819 HPT			923*	304

BN 30 Ballnose Cutters Standard | BN 30 Radiusschaftfräser Standard | Fraises à bout hémisphérique BN 30 - standard

Frese cilindriche a raggio BN 30 standard | BN 30 系列 球头 立铣刀

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			577*	305
FINISHING	B0819 HPT			925*	305

BN 30 Ballnose Cutters long | BN 30 Radiusschaftfräser lang | Fraises à bout hémisphérique BN 30 - longues

Frese cilindriche a raggio BN 30 lunghe | BN 30 系列 球头 立铣刀 - 中长

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	T...n			580*	306
FINISHING	B0819 HPT			927*	306

BN 30 Ballnose Cutters extra-long | BN 30 Radiusschaftfräser extra-lang | Fraises à bout hémisphérique BN 30 - extra-longues

Frese cilindriche a raggio BN 30 - extra-lunghe | BN 30 系列 球头 立铣刀 - 加长

BN 45

P M S H

For material application (35 HRC ~ 55 HRC)

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			929*	312
ROUGHING	G6110 HPT			C36*	312

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			B82*	313

BN 45 Ballnose Cutters Standard | BN 45 Radiusschaftfräser Standard | Fraises à bout hémisphérique BN 45 - standard

Frese cilindriche a raggio BN 45 standard | BN 45 系列 球头 立铣刀

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			931*	314
ROUGHING	G6110 HPT			C65*	314

BN 45 Ballnose Cutters long | BN 45 Radiusschaftfräser lang | Fraises à bout hémisphérique BN 45 - longues

Frese cilindriche a raggio BN 45 - lunghe | BN 45 系列 球头 立铣刀 - 中长

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			933*	315

BN 45 Ballnose Cutters extra-long | BN 45 Radiusschaftfräser extra-lang | Fraises à bout hémisphérique BN 45 extra-longues

Frese cilindriche a raggio BN 45 - extra-lunghe | BN 45 系列 球头 立铣刀 - 加长

BN 45

P M S H

For material application (35 HRC ~ 55 HRC)

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			940*	316
FINISHING	B0819 HPT	•		941*	316
ROUGHING	G6110 HPT			473*	316
HI-SPEED	B0909 HSC			A57*	316
HI-SPEED	B0909 HSC	•		A58*	316

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	G6110 HPT			485*	317

BN 45 Ballnose Cutters Standard | BN 45 Radiusschaftfräser Standard | Fraises à bout hémisphérique BN 45 - standard

Frese cilindriche a raggio BN 45 standard | BN 45 系列 球头 立铣刀

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			942*	318
FINISHING	B0819 HPT	•		943*	318
ROUGHING	G6110 HPT			493*	318
HI-SPEED	B0909 HSC			A59*	318
HI-SPEED	B0909 HSC	•		A60*	318

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			499*	319
ROUGHING	G6110 HPT			501*	319

BN 45 Ballnose Cutters long | BN 45 Radiusschaftfräser lang | Fraises à bout hémisphérique BN 45 - longues

Frese cilindriche a raggio BN 45 - lunghe | BN 45 系列 球头 立铣刀 - 中长

BN 45

P M S H

For material application (35 HRC ~ 55 HRC)

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			944*	320
FINISHING	B0819 HPT	•		945*	320
ROUGHING	G6110 HPT			509*	320
HI-SPEED	B0909 HSC			A61*	320
HI-SPEED	B0909 HSC	•		A62*	320

BN 45 Ballnose Cutters extra-long

Frese cilindriche a raggio BN 45 - extra-lunghe

BN 45 Radiusschaftfräser extra-lang

BN 45 系列 球头 立铣刀 - 加长

Fraises à bout hémisphérique BN 45 extra-longues

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			935*	321
ROUGHING	G6110 HPT			566*	321
HI-SPEED	B0909 HSC			A63*	321

BN 45 Miniature Ballnose Cutters

Micro-frese cilindriche a raggio BN 45

BN 45 Kleinst-Radiusschaftfräser

BN 45 系列 微型球头 立铣刀

Micro-fraises à bout hémisphérique BN 45

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			936*	322
ROUGHING	G6110 HPT			C57*	322
HI-SPEED	B0909 HSC			A65*	322

BN 45 Kleinst-Radiusschaftfräser mit langem

Micro-frese cilindriche a raggio BN 45 con collo lungo

BN 45 Kleinst-Radiusschaftfräser mit langem Hals

BN 45 系列 长颈短刃 球头 立铣刀

Micro-fraises à bout hémisphérique BN 45 avec cou

BN 45

P M S H

For material application (35 HRC ~ 55 HRC)

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			937*	323
HI-SPEED	B0909 HSC			A66*	323

BN 45 Kleinst-Radiusschaftfräser mit langem Hals

BN 45 Kleinst-Radiusschaftfräser mit langem Hals

Micro-fraises à bout hémisphérique BN 45 avec cou

Micro-frese cilindriche a raggio BN 45 con collo lungo

BN 45 系列 长颈短刃 球头 立铣刀

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			939*	326
ROUGHING	G6110 HPT			C59*	326
HI-SPEED	B0909 HSC			A78*	326

BN 45P Miniature Ballnose Cutters with long neck

BN 45P Kleinst-Radiusschaftfräser mit langem Hals

Micro-fraises à bout hémisphérique BN 45P avec cou

Micro-frese cilindriche a raggio BN 45P con collo lungo

BN 45P 系列 长颈短刃 球头 立铣刀

BN 60

H

For material application (55 HRC ~ 68 HRC)

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			657*	344
FINISHING	B0819 HPT	•		658*	344
HI-SPEED	B0909 HSC			A69*	344
HI-SPEED	B0909 HSC	•		A70*	344

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			529*	345
HI-SPEED	B0909 HSC			A1L*	345

BN 60 Ballnose Cutters Standard

BN 60 Radiusschaftfräser Standard

Fraises à bout hémisphérique BN 60 - standard

Frese cilindriche a raggio BN 60 standard

BN 60 系列 球头 立铣刀

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			790*	346
FINISHING	B0819 HPT	•		791*	346
HI-SPEED	B0909 HSC			A71*	346
HI-SPEED	B0909 HSC	•		A72*	346

4

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			545*	347

BN 60 Ballnose Cutters long

BN 60 Radiusschaftfräser lang

Fraises à bout hémisphérique BN 60 - longues

Frese cilindriche a raggio BN 60 - lunghe

BN 60 系列 球头 立铣刀 - 中长

BN 60

H

For material application (55 HRC ~ 68 HRC)

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			797*	348
FINISHING	B0819 HPT	•		911*	348
HI-SPEED	B0909 HSC			A73*	348
HI-SPEED	B0909 HSC	•		A74*	348

BN 60 Ballnose Cutters extra-long

Frese cilindriche a raggio BN 60 - extra-lunghe

BN 60 Radiusschaftfräser extra-lang

BN 60 系列 球头 立铣刀 - 加长

Fraises à bout hémisphérique BN 60 extra-longues

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			933*	349
HI-SPEED	B0909 HSC			A75*	349

BN 60 Miniature Ballnose Cutters

Micro-frese cilindriche a raggio BN 60

BN 60 Kleinst-Radiusschaftfräser

BN 60 系列 微型球头 立铣刀

Micro-fraises à bout hémisphérique BN 60

BN 60

H

For material application (55 HRC ~ 68 HRC)

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			997*	340
HI-SPEED	B0909 HSC			A76*	340

BN 60 Miniature Ballnose Cutters with long neck

BN 60 Kleinst-Radiusschaftfräser mit langem Hals

Micro-fraises à bout hémisphérique BN 60 avec cou

Micro-frese cilindriche a raggio BN 60 con collo lungo

BN 60 系列 长颈短刃 球头 立铣刀

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HPT			984*	353
HI-SPEED	B0909 HSC			A77*	353

BN 60 Miniature Ballnose Cutters with taper neck

BN 60 Kleinst-Radiusschaftfräser mit kegeligem Hals

Micro-fraises à bout hémisphérique BN 60 avec cou

Micro-frese cilindriche a raggio BN 60 con collo

BN 60 系列 锥颈位 球头 立铣刀

BN GR

Solid carbide milling cutters with DIAMOND or T:AC (DLC) PVD coating.
For material application eg: graphite.

Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	D0700 HSC			912*	372
HI-SPEED	D0700 HSC	•		913*	372
HI-SPEED	DCT01 HSC			754*	372
HI-SPEED	DCT01 HSC	•		755*	372
HI-SPEED	DCT02 HSC			781*	372
HI-SPEED	DCT02 HSC	•		780*	372

BN GR Standard Ballnose Cutters - Diamond / DLC coated

BN GR Standard Radius- Fräser, Diamant / DLC beschichtet

Fraises BN GR standard à bout hémisphérique, revêtue diamant / DLC

Frese cilindriche BN GR standard a raggio rivestite diamante / DLC

BN GR 系列 球头 立铣刀 石墨操作 DLC 钻石涂层

Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	D0700 HSC	•		914*	373
HI-SPEED	DCT01 HSC	•		756*	373
HI-SPEED	DCT02 HSC	•		809*	373

BN GR Long Ballnose Cutters - Diamond / DLC coated

BN GR lange VHM Radius- Fräser Diamant / DLC beschichtet

Fraises SE BN longues à bout hémisphérique, revêtue diamant / DLC BN GR lange VHM Radius-

Frese cilindriche lunghe a a raggio rivestite diamante / DLC

BN GR 系列 球头 立铣刀 - 石墨操作 DLC 钻石涂层 - 中长

Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	D0700 HSC	•		C09*	374
HI-SPEED	DCT01 HSC	•		B85*	374
HI-SPEED	DCT02 HSC	•		784*	374

BN GR Extra-Long Ballnose Cutters Diamond / DLC coated

BN GR extra-lange Radius-Fräser Diamant / DLC beschichtet

Fraises SE BN extra-longues à bout hémisphérique, revêtue diamant / DLC

Frese cilindriche extra-lunghe a raggio rivestite diamante / DLC

BN GR 系列 球头 立铣刀 - 石墨操作 DLC 钻石涂层 - 加长

TE 45

P M K S H

Solid Carbide Tapered End Mills
For material application is up to 55 HRC.

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n			583*	378
FINISHING	B0819 HPT			B37*	378

TE 45 Die Sinking Cutters with 0,5° inclination
TE 45 Gesenkfräser mit einem Winkel von 0,5°
Fraises pour matrices avec 0,5° d'inclinaison
Frese coniche con un angolo di 0,5°
TE 45 系列 锥度 立铣刀 - 锥度 0.5°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n			587*	379
FINISHING	B0819 HPT			B38*	379

TE 45 Die Sinking Cutters with 1° inclination
TE 45 Gesenkfräser mit einem Winkel von 1°
Fraises pour matrices avec 1° d'inclinaison
Frese coniche con un angolo di 1°
TE 45 系列 锥度 立铣刀 - 锥度 1°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n			591*	380
FINISHING	B0819 HPT			B39*	380

TE 45 Die Sinking Cutters with 1.5° inclination
TE 45 Gesenkfräser mit einem Winkel von 1.5°
Fraises pour matrices avec 1.5° d'inclinaison
Frese coniche con un angolo di 1.5°
TE 45 系列 锥度 立铣刀 - 锥度 1.5°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n			595*	381
FINISHING	B0819 HPT			B40*	381

TE 45 Die Sinking Cutters with 2° inclination
TE 45 Gesenkfräser mit einem Winkel von 2°
Fraises pour matrices avec 2° d'inclinaison
Frese coniche con un angolo di 2°
TE 45 系列 锥度 立铣刀 - 锥度 2°

TE 45

P M K S H

Solid Carbide Tapered End Mills
For material application is up to 55 HRC.

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n			599*	382
FINISHING	B0819 HPT			B41*	382

TE 45 Die Sinking Cutters with 2.5° inclination
TE 45 Gesenkfräser mit einem Winkel von 2.5°
Fraises pour matrices avec 2.5° d'inclinaison
Frese coniche con un angolo di 2.5°
TE 45 系列 锥度 立铣刀 - 锥度 2.5°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n			603*	383
FINISHING	B0819 HPT			B42*	383

TE 45 Die Sinking Cutters with 3° inclination
TE 45 Gesenkfräser mit einem Winkel von 3°
Fraises pour matrices avec 3° d'inclinaison
Frese coniche con un angolo di 3°
TE 45 系列 锥度 立铣刀 - 锥度 3°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n			607*	384
FINISHING	B0819 HPT			B43*	384

TE 45 Die Sinking Cutters with 4° inclination
TE 45 Gesenkfräser mit einem Winkel von 4°
Fraises pour matrices avec 4° d'inclinaison
Frese coniche con un angolo di 4°
TE 45 系列 锥度 立铣刀 - 锥度 4°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n			611*	385
FINISHING	B0819 HPT			B44*	385

TE 45 Die Sinking Cutters with 5° inclination
TE 45 Gesenkfräser mit einem Winkel von 5°
Fraises pour matrices avec 5° d'inclinaison
Frese coniche con un angolo di 5°
TE 45 系列 锥度 立铣刀 - 锥度 5°

TE 45

P M K S H

Solid Carbide Tapered End Mills
For material application is up to 55 HRC.

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T ... n			615*	386
FINISHING	B0819 HPT			B45*	386

TE 45 Die Sinking Cutters with 7° inclination

TE 45 Gesenkfräser mit einem Winkel von 7°

Fraises pour matrices avec 7° d'inclinaison

Frese coniche con un angolo di 7°

TE 45 系列 锥度 立铣刀 - 锥度 7°

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T ... n			618*	387
FINISHING	B0819 HPT			B46*	387

TE 45 Die Sinking Cutters with 10° inclination

TE 45 Gesenkfräser mit einem Winkel von 10°

Fraises pour matrices avec 10° d'inclinaison

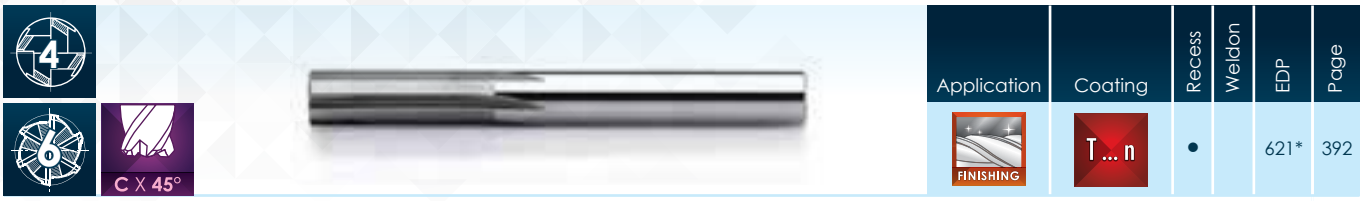
Frese coniche con un angolo di 10°

TE 45 系列 锥度 立铣刀 - 锥度 10°

RE 45

P M K N S H

Solid carbide
For material application is up to 68 HRC.



Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n	•		621*	392

RE 45 Short Reamers Straight Flutes, r.h. cut
Alesatori macchina corti, gole diritte
RE 45 kurze Maschinenreibahlen, gerade Nuten
RE 45 系列 直槽 铰刀
Alésoirs machine courts, goujures droites

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n	•		623*	393

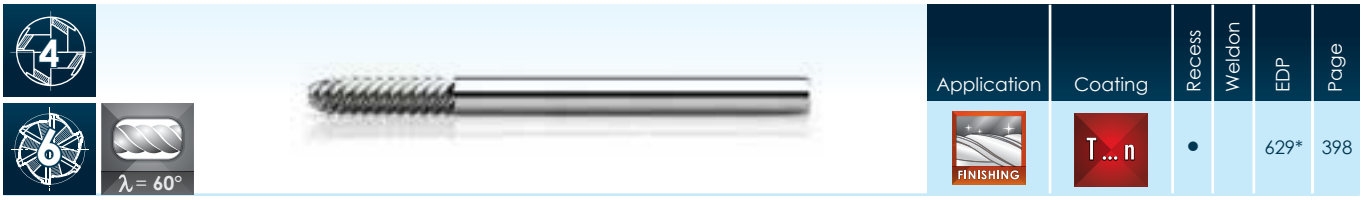
RE 45 Short Reamers 12° l.h. Helix, r.h. cut double, lead entrance
Alesatori macchina corti, eliche 12° a sinistra, taglio a destra doppio imbocco
RE 45 kurze Maschinenreibahlen, 12° Linksdrall, rechtsschneidend doppelter
RE 45 系列 螺旋 铰刀
Alésoirs machine courts, hélices à gauche 12°, coupe à droite double entrée

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n	•		625*	394

RE 45 DIN 212 Reamers Straight Flutes, r.h.
Alesatori macchina DIN 212 gole diritte
RE 45 DIN 212 Maschinenreibahlen, gerade Nuten,
RE 45 系列 直槽 铰刀 - DIN 212
Alésoirs machine DIN 212, goujures droites

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n	•		627*	395

RE 45 DIN 212 Reamers 12° l.h. Helix, r.h. cut double lead entrance
Alesatori macchina DIN 212 eliche 12° a sinistra, taglio a destra, doppio imbocco
RE 45 DIN 212 Maschinenreibahlen, 12° Linksdrall, rechtsschneidend, doppelter Anschnitt
RE 45 系列 螺旋 铰刀 - DIN 212
Alésoirs machine DIN 212, hélices à gauche 12°, coupe à droite, double entrée



Application	Coating	Recess	Weldon	EDP	Page
FINISHING	T...n	•		629*	398

RE 45 Machine Reamers 60° l.h. Helix, r.h. cut special lead entrance
Alesatori macchina con eliche 60° a sinistra, taglio a destra, imbocco speciale
RE 45 Maschinenreibahlen 60° Linksdrall, rechtsschneidend, Sonderanschnitt
RE 45 系列 高螺旋 铰刀
Alésoirs machine , hélices à gauche 60°, coupe à droite, entrée spéciale

TWIST DRILLS

P M K N S H

For material application is up to 68 HRC.

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
	T...n			662*	404
	B0819 HPT			953*	404

NC Spotting Drills 60° point angle
NC-Positionierungsbohrer 60° Spitzenwinkel
Forets NC de pointage 60° angle de pointe
Punte NC di posizionamento, 60° angolo di punta
中心钻 - 倒角 60°

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
	T...n			664*	405
	B0819 HPT			955*	405

NC Spotting Drills 90° point angle
NC-Positionierungsbohrer 90° Spitzenwinkel
Forets NC de pointage 90° angle de pointe
Punte NC di posizionamento, 90° angolo di punta
中心钻 - 倒角 90°

2

λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
	T...n			666*	406
	B0819 HPT			957*	406

NC Spotting Drills 120° point angle
NC-Positionierungsbohrer 120° Spitzenwinkel
Forets NC de pointage 120° angle de pointe
Punte NC di posizionamento, 120° angolo di punta
中心钻 - 倒角 120°

2

λ = 30°

3 x Ø

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			644*	407
ROUGHING	B0819 HPT			958*	407
ROUGHING	G6110 HPT			C98*	407

DR 30Twist Drills similar to DIN 6539 140° point angle
DR 30Spiralbohrer ähnlich DIN 6539 140° Spitzenwinkel
DR 30 Forets semblable à DIN 6539 140° angle de pointe
DR 30 Punte simili a DIN 6539 140° angolo di punta
DR 30 外冷却 钻头 - 相等于 DIN 6539 140°

TWIST DRILLS

P M K N S H

For material application is up to 68 HRC.

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T...n			729*	411
ROUGHING	B0819 HPT			960*	411
ROUGHING	G6110 HPT			C99*	411

DR 30 Twist Drills with 140° point angle

DR 30 Spiralbohrer mit 140° Spitzenwinkel

DR 30 Forets hélicoïdal avec 140° angle de pointe

DR 30 Punte ellicoidali con 140° angolo di punta

DR 30 外冷却 钻头 - 柄部标准 140°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	B0819 HPT			965*	415
ROUGHING	G6110 HPT			D01*	415

DR 45 Twist Drills DIN 6537K 140° point angle, shank acc. DIN 6535HA

DR 45 Spiralbohrer nach DIN 6537K140° Spitzenwinkel, Schaft nach DIN 6535HA

DR 45 Forets hélicoïdaux en carbure DIN 6537K, 140° angle de pointe queue selon DIN 6535HA

DR 45 Punte elicoidali in metallo duro integrale normazione sec. DIN 6537K, 140° angolo di punta, codolo sec. DIN 6535HA

DR 45 钻头 - 相等于 DIN 6537K 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	B0819 HPT			B47*	419
ROUGHING	G6110 HPT			D02*	419

DR 45 Twist Drills DIN 6537L 140° point angle, shank acc. DIN 6535HA

DR 45 Spiralbohrer nach DIN 6537L 140° Spitzenwinkel, Schaft nach DIN 6535HA

DR 45 Forets hélicoïdaux en carbure DIN 6537L, 140° angle de pointe queue selon DIN 6535HA

DR 45 Punte elicoidali in metallo duro integrale normazione sec. DIN 6537L, 140° angolo di punta, codolo sec. DIN 6535HA

DR 45 钻头 - 相等于 DIN 6537L 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	D0120 HSC			823*	423

DR 60Twist Drills DIN 6537K 140° point angle

DR 60 Spiralbohrer ähnlich DIN 6537K 140° Spitzenwinkel

DR 60 Forets semblable à DIN 6537K 140° angle de pointe

DR 60 Punte DIN 6537K 140° angolo di punta

DR 60 钻头 DIN 6537K 140°

TWIST DRILLS

P M K N S H

For material application is up to 68 HRC.

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	D0120 HSC			821*	424

DR 60Twist Drills DIN 6537L 140° point angle

DR 60 Spiralbohrer ähnlich DIN 6537L 140° Spitzenwinkel

DR 60 Forets semblable à DIN 6537L 140° angle de pointe

DR 60 Punte DIN 6537L 140° angolo di punta

DR 60 钻头 DIN 6537L 140°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			D09*	425

DR ALUOil Feed Twist Drills DIN 6537K 140°point angle, shank acc. DIN 6535HA

DR ALU Kühlkanalbohrer DIN 6537K Spitzenwinkel 140°, Schaft nach DIN 6535HA

DR ALU Forets à trous d'huile selon DIN 6537K, 140° angle de pointe queue selon DIN 6535HA

DR ALU Punte con fori di lubrifica zione sec. DIN 6537K, angolo di punta 140°, codolo sec. DIN 6535HA

DR ALU 内冷却 钻头 - 相等于 DIN 6537K 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	T ... n			D10*	429

DR ALU Oil Feed Twist Drills DIN 6537L 140° point angle, shank acc. DIN 6535HA

DR ALU Kühlkanalbohrer DIN 6537L 140° Spitzenwinkel, Schaft nach DIN 6535HA

DR ALU Forets à trous d'huile selon DIN 6537L, 140° angle de pointe queue selon DIN 6535HA

DR ALU Punte con fori di lubrifica zione sec. DIN 6537L, 140° angolo di punta, codolo sec. DIN 6535HA

DR ALU 内冷却 钻头 - 相等于 DIN 6537L 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	G6110 HPT			D07*	433

DR NiTiCoOil Feed Twist Drills DIN 6537K 140°point angle, shank acc. DIN 6535HA

DR NiTiCo Kühlkanalbohrer DIN 6537K Spitzenwinkel 140°, Schaft nach DIN 6535HA

DR NiTiCo Forets à trous d'huile selon DIN 6537K, 140° angle de pointe queue selon DIN 6535HA

DR NiTiCo Punte con fori di lubrifica zione sec. DIN 6537K, angolo di punta 140°, codolo sec. DIN 6535HA

DR NiTiCo 内冷却 钻头 - 相等于 DIN 6537K 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	G6110 HPT			D08*	437

DR NiTiCo Oil Feed Twist Drills DIN 6537L 140° point angle, shank acc. DIN 6535HA

DR NiTiCo Kühlkanalbohrer DIN 6537L 140° Spitzenwinkel, Schaft nach DIN 6535HA

DR NiTiCo Forets à trous d'huile selon DIN 6537L, 140° angle de pointe queue selon DIN 6535HA

DR NiTiCo Punte con fori di lubrifica zione sec. DIN 6537L, 140° angolo di punta, codolo sec. DIN 6535HA

DR NiTiCo 内冷却 钻头 - 相等于 DIN 6537L 柄部标准 DIN 6535HA

TWIST DRILLS

P M K N S H

For material application is up to 68 HRC.

Application	Coating	Recess	Weldon	EDP	
ROUGHING	G6110 HPT			C73*	441

DR VAOil Feed Twist Drills DIN 6537K 140°point angle, shank acc. DIN 6535HA

DR VA Kühlkanalbohrer DIN 6537K Spitzenwinkel 140°, Schaft nach DIN 6535HA

DR VA Forets à trous d'huile selon DIN 6537K, 140° angle de pointe queue selon DIN 6535HA

DR VA Punte con fori di lubrifica zione sec. DIN 6537K, angolo di punta 140°, codolo sec. DIN 6535HA

DR VA 内冷却 钻头 - 相等于 DIN 6537K 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	G6110 HPT			C77*	445

DR VA Oil Feed Twist Drills DIN 6537L 140° point angle, shank acc. DIN 6535HA

DR VA Kühlkanalbohrer DIN 6537L 140° Spitzenwinkel, Schaft nach DIN 6535HA

DR VA Forets à trous d'huile selon DIN 6537L, 140° angle de pointe queue selon DIN 6535HA

DR VA Punte con fori di lubrifica zione sec. DIN 6537L, 140° angolo di punta, codolo sec. DIN 6535HA

DR VA 内冷却 钻头 - 相等于 DIN 6537L 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	B0819 HPT			B48*	449
ROUGHING	D0120 HSC			B52*	449
ROUGHING	G6110 HPT			C95*	449

DR 45 Oil Feed Twist Drills DIN 6537K 140°point angle, shank acc. DIN 6535HA

DR 45 Kühlkanalbohrer DIN 6537K Spitzenwinkel 140°, Schaft nach DIN 6535HA

DR 45 Forets à trous d'huile selon DIN 6537K, 140° angle de pointe queue selon DIN 6535HA

DR 45 Punte con fori di lubrifica zione sec. DIN 6537K, angolo di punta 140°, codolo sec. DIN 6535HA

DR 45 内冷却 钻头 - 相等于 DIN 6537K 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	B0819 HPT			967*	453
ROUGHING	D0120 HSC			969*	453
ROUGHING	G6110 HPT			C96*	453

DR 45 Oil Feed Twist Drills DIN 6537L 140° point angle, shank acc. DIN 6535HA

DR 45 Kühlkanalbohrer DIN 6537L 140° Spitzenwinkel, Schaft nach DIN 6535HA

DR 45 Forets à trous d'huile selon DIN 6537L, 140° angle de pointe queue selon DIN 6535HA

DR 45 Punte con fori di lubrifica zione sec. DIN 6537L, 140° angolo di punta, codolo sec. DIN 6535HA

DR 45 内冷却 钻头 - 相等于 DIN 6537L 柄部标准 DIN 6535HA

TWIST DRILLS

P M K N S H

For material application is up to 68 HRC.

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	B0819 HPT			F34*	457

DR 45 SB Twist Drills DIN 6537K 140° point angle

DR 45 SB Spiralbohrer ähnlich DIN 6537K 140° Spitzenwinkel

DR 45 SB DR 45 SB Foret hélicoïdal double listel DIN 6537K 140° angle de pointe

DR 45 SB Punte DIN 6537K 140° angolo di punta

DR 45 SB 钻头 - DIN 6537K 顶角140° 柄部标准

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	D0120 HSC			F27*	461
ROUGHING	G6110 HPT			F28*	461

DR 45 SBOil Feed Twist Drills DIN 6537K 140°point angle, shank acc. DIN 6535HA

DR 45 SB Kühlkanalbohrer DIN 6537K Spitzenwinkel 140°, Schaft nach DIN 6535HA

DR 45 SB Forets à trous d'huile selon DIN 6537K, 140° angle de pointe queue selon DIN 6535HA

DR 45 SB Punte con fori di lubrifica zione sec. DIN 6537K, angolo di punta 140°, codolo sec. DIN 6535HA

DR 45 SB 内冷却 钻头 - 相等于 DIN 6537K 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	D0120 HSC			F29*	465
ROUGHING	G6110 HPT			F30*	465

DR 45 SB Oil Feed Twist Drills DIN 6537L 140° point angle, shank acc. DIN 6535HA

DR 45 SB Kühlkanalbohrer DIN 6537L 140° Spitzenwinkel, Schaft nach DIN 6535HA

DR 45 SB Forets à trous d'huile selon DIN 6537L, 140° angle de pointe queue selon DIN 6535HA

DR 45 SB Punte con fori di lubrifica zione sec. DIN 6537L, 140° angolo di punta, codolo sec. DIN 6535HA

DR 45 SB 内冷却 钻头 - 相等于 DIN 6537L 柄部标准 DIN 6535HA

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	D0120 HSC			F32*	469
ROUGHING	G6110 HPT			F33*	469

DR 45 SB Oil Feed Twist Drills DIN 6537L 140° point angle, shank acc. DIN 6535HA

DR 45 SB Kühlkanalbohrer DIN 6537L 140° Spitzenwinkel, Schaft nach DIN 6535HA

DR 45 SB Forets à trous d'huile selon DIN 6537L, 140° angle de pointe queue selon DIN 6535HA

DR 45 SB Punte con fori di lubrifica zione sec. DIN 6537L, 140° angolo di punta, codolo sec. DIN 6535HA

DR 45 SB 内冷却 钻头 - 相等于 DIN 6537L 柄部标准 DIN 6535HA

NiTiCo 30

P M K S

NITICO
For material application (≤ 35 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			C30*	476

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			C31*	476

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			C32*	476

NiTiCo 30 Standard Endmills | Fraises 2 tailles NiTiCo 30 Standard | NiTiCo 30 Standard Fräser

Frese NiTiCo 30 Standard | NiTiCo 30 系列 立铣刀 标准长度

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT		•	C42*	477

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT		•	C43*	477

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT		•	C44*	477

NiTiCo 30 Standard Endmills | Fraises 2 tailles NiTiCo 30 Standard | NiTiCo 30 Standard Fräser

Frese NiTiCo 30 Standard | NiTiCo 30 系列 立铣刀 标准长度

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			951*	478
ROUGHING + FINISHING	G6110 HPT		•	972*	478

NiTiCo 30 DP Standard Endmills, with Differential Pitch | NiTiCo 30 DP Standard Fräser mit ungleicher Teilung, | Fraises 2 tailles NiTiCo 30 DP Standard à pas décalés

Frese NiTiCo 30 DP Standard in metallo duro, passo differenziale | NiTiCo 30 DP 系列 立铣刀 标准长度

NiTiCo 30

P M K S

NITICO
For material application (≤ 35 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			C47*	479
ROUGHING + FINISHING	G6110 HPT		•	C64*	479

Roughing Endmills NiTiCo 30 DP with differential pitch

DP Schruppfräser NiTiCo 30 mit ungleicher Teilung

Fraises ébauches 2 tailles NiTiCo 30 DP à pas décalés

Frese per sgrossare NiTiCo 30 DP in metallo duro, passo differenziale

NiTiCo 30 DP 系列 粗皮 标准长度

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			C45*	480
ROUGHING + FINISHING	G6110 HPT		•	C51*	480
ROUGHING + FINISHING	G6110 HPT			C46*	480
ROUGHING + FINISHING	G6110 HPT		•	C52*	480

NiTiCo 30 DPR Torus Endmills with differential pitch

SE NiTiCo 30 DPR Torusfräser mit ungleicher Teilung

Fraises 2 tailles NiTiCo 30 DPR toriques à pas décalés

Frese NiTiCo 30 DPR toriche, in metallo duro integrale, passo differenziale

NiTiCo 30 DPR 系列 圆鼻 立铣刀

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			949*	484
ROUGHING + FINISHING	G6110 HPT		•	C49*	484
HI-SPEED	B0909 HSC			A1N*	484
HI-SPEED	B0909 HSC		•	A1S*	484

NiTiCo 30 DP/DH Endmills with differential pitch and differential helix angles

NiTiCo 30 DP/DH Fräser mit ungleicher Teilung und ungleichen Drallwinkeln

Fraises 2 tailles NiTiCo 30 DP/DH à pas décalés et hélices différentes

Frese NiTiCo 30R DP/DH in metallo duro integrale a passo ed eliche variabili

NiTiCo 30 系列 不等分 割及 不等份 螺族角 立铣刀

NiTiCo 30

P M K S

NITICO
For material application (≤ 35 HRC)

4 | λ=35°/38°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			C48*	485
ROUGHING + FINISHING	G6110 HPT		•	C50*	485
HI-SPEED	B0909 HSC			A1R*	485
HI-SPEED	B0909 HSC		•	A1T*	485

NiTiCo 30R DP/DH Endmills with differential pitch and differential helix angles

Frese NiTiCo 30R DP/DH in metallo duro integrale a passo ed eliche variabili

NiTiCo 30R DP/DH Fräser mit ungleicher Teilung und ungleichen Drallwinkeln

NiTiCo 30R 系列 不等分 割及 不等份 螺族角 立铣刀

Fraises 2 tailles NiTiCo 30R DP/DH toriques à pas décalés et hélices différentes,

2 | λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			G87*	487

NiTiCo 30 Miniature Endmills with long neck

Micro-frese NiTiCo 30 in metallo duro integrale con collo lungo

NiTiCo 30 Kleinstfräser mit langem Hals

NiTiCo 30 系列 长颈短刃 立铣刀

Micro-fraises NiTiCo 30 2 tailles en carbure monobloc avec cou long

2 | λ = 30°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING + FINISHING	G6110 HPT			G88*	491

NiTiCo 30 Miniature Ballnose Cutters with long neck

Micro-frese cilindriche NiTiCo 30 a raggio con collo lungo

Kleinst-Radiusfräser NiTiCo 30 mit langem Hals

NiTiCo 30 系列 长颈短刃 球头 立铣刀

Micro-fraises NiTiCo 30 en carbure monobloc avec bout hémisphérique et cou long

PLUNGE-MILL

P M K N

For material application (≤ 35 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	G6110 HPT			G10*	516
ROUGHING	G6110 HPT	•		G12*	516

Solid Carbide Endmills, 3 flutes, For Plunging + Slotting + Milling

Frese in metallo duro, 3 taglienti, Per lavorazioni a Tuffo, dal pieno e contornature

VHM Schaftfräser, 3 Schneiden, zum Bohren, Nuten- und Umfangsfräsen

整体硬质合金 SE30 NOVIANO 系列.立铣刀3刃, 适用于开槽.侧铣.插铣

Fraises 2 tailles SE 30 Noviano Plongée, 3 dents, en carbure monobloc, pour usinages en plongée, rainurage

NOVIANO

P M S H

For material application (35 HRC ~ 55 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	G6110 HPT			G14*	520
ROUGHING	G6110 HPT	•		G17*	520
HI-SPEED	B0909 HSC			G15*	520
HI-SPEED	B0909 HSC	•		G18*	520
ROUGHING	G6110 HPT		•	G20*	520
ROUGHING	G6110 HPT	•	•	G23*	520
HI-SPEED	B0909 HSC		•	G21*	520*
HI-SPEED	B0909 HSC	•	•	G24*	520

SE 45 NOVIANO DP Standard Endmills, with Differential Pitch

Frese SE 45 NOVIANO DP Standard in metallo duro, passo differenziale

SE 45 NOVIANO DP Standard Fräser mit ungleicher Teilung

整体硬质合金 SE 45 NOVIANO DP 系列 立铣刀 标准长度

Fraises 2 tailles SE 45 NOVIANO DP Standard à pas décalés, en carbure monobloc

NOVIANO

P M S H

For material application (35 HRC ~ 55 HRC)

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	G6110 HPT			G26*	521
ROUGHING	G6110 HPT	•		G29*	521
HI-SPEED	B0909 HSC			G27*	521
HI-SPEED	B0909 HSC	•		G30*	521
ROUGHING	G6110 HPT		•	G32*	521
ROUGHING	G6110 HPT	•	•	G35*	521
HI-SPEED	B0909 HSC		•	G33*	521
HI-SPEED	B0909 HSC	•	•	G36*	521

E 45 NOVIANO DP Torus Endmills with differential pitch,

Frese SE 45 NOVIANO DP toriche, in metallo duro integrale, passo differenziale,

SE SE 45 NOVIANO DP Torusfräser mit ungleicher Teilung

整体硬质合金 SE 45 NOVIANO DP 系列 圆鼻 立铣刀

Fraises 2 tailles SE 45 NOVIANO DP toriques à pas décalés en carbure monobloc,

NOVIANO

P M S H

For material application (35 HRC ~ 55 HRC)

4

λ = 40°

Application	Coating	Recess	Weldon	EDP	Page
ROUGHING	G6110 HPT			G38*	523
ROUGHING	G6110 HPT	•		G41*	523
HI-SPEED	B0909 HSC			G39*	523
HI-SPEED	B0909 HSC	•		G42*	523
ROUGHING	G6110 HPT		•	G44*	523
ROUGHING	G6110 HPT	•	•	G47*	523
HI-SPEED	B0909 HSC		•	G45*	523
HI-SPEED	B0909 HSC	•	•	G48*	523

Roughing Endmills SE 45 NOVIANO DP with differential pitch

DP Schruppfräser SE 45 NOVIANO mit ungleicher Teilung

raises ébauches 2 tailles SE 45 NOVIANO DP à pas décalés

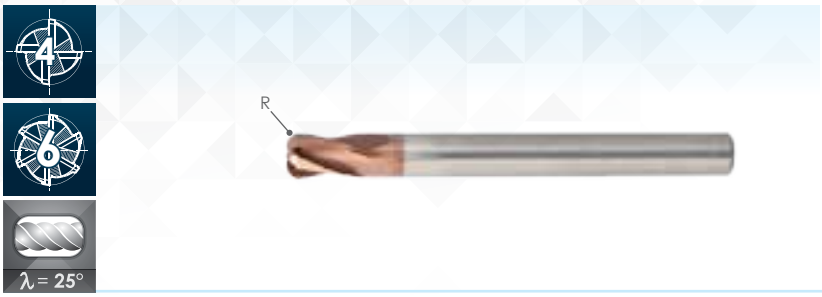
Frese per sgrossare SE 45 NOVIANO DP in metallo duro, passo differenziale, 4 taglienti

整体硬质合金 SE 45 NOVIANO DP 系列 粗皮 立铣刀 标准长度

HI-FEED

H

For material application (55 HRC ~ 68 HRC)



Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	B0909 HSC			G78*	530
HI-SPEED	B0909 HSC	•		G80*	530

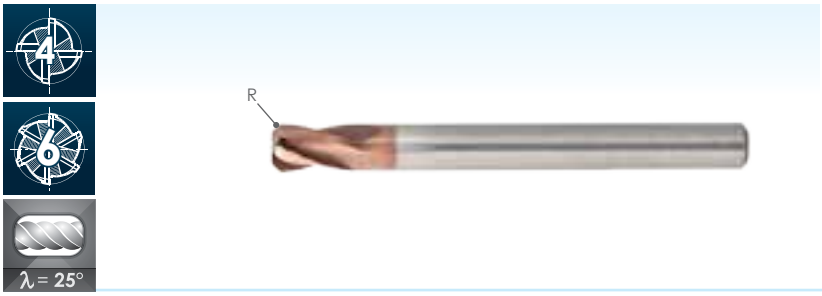
SE 60 Hi-Feed Fin-mill Torus Endmills - Standard

Frese SE 60 Hi-Feed Fin-mill toroidali, in metallo duro integrale - Standard

SE 60 Hi-Feed Fin-mill Torusfräser, - Standard

SE 60 Hi-Feed Fin-mill 系列 圆鼻 立铣刀 4 刃 - 标准长度

Fraises 2 tailles SE 60 Hi-Feed Fin-mill toriques Standard



Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	B0909 HSC			G82*	531
HI-SPEED	B0909 HSC	•		G84*	531

SE 60 Hi-Feed Fin-mill Torus Endmills - Long,

Frese SE 60 Hi-Feed Fin-mill toroidali lunghe, in metallo duro integrale

SE 60 Hi-Feed Fin-mill Langer Torusfräser,

SE 60 Hi-Feed Fin-mill 系列 圆鼻 立铣刀 中长度

Fraises 2 tailles SE 60 Hi-Feed Fin-mill toriques longues

Application	Coating	Recess	Weldon	EDP	Page
HI-SPEED	B0909 HSC	•		G86	532

SE 60 Hi-Feed Sweep-Mill Torus Endmills

Frese Toroidali in metallo duro SE 60R

SE 60R Torusfräser

SE 60R 系列 圆鼻立铣刀

Fraises 2 tailles toriques SE 60 Hi-Feed Sweep -Mill

Application	Coating	Recess	Weldon	EDP	Page
FINISHING	B0819 HSC			815*	533
HI-SPEED	B0909 HSC			A98*	533

BN 60 HI-Feed Double R Ballnose Cutters

Frese cilindriche a raggio in metallo duro integrale, tipo BN HI-Feed Double R

BN 60 HI-Feed Double R Radiusschaft-, fräser

BN 60 BN 60 HI-Feed Double R 系列 球头 立铣刀

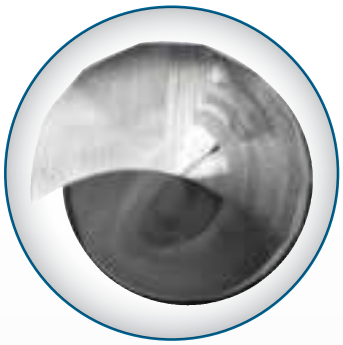
Fraises BN 60 BN 60 HI-Feed Double R

FEATURES & BENEFITS

ALSE Single Flute

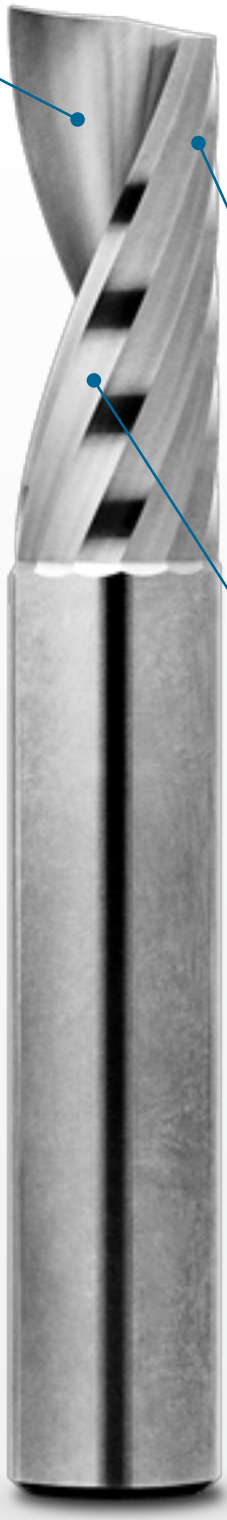
Excellent chip space

- reduces the heat generated during the machining process by allowing lager chips to evacuate easily



Extreme material removal rate for Aluminium

- enables more work done in less time



Highly polished flutes for improved chip evacuation and tool life

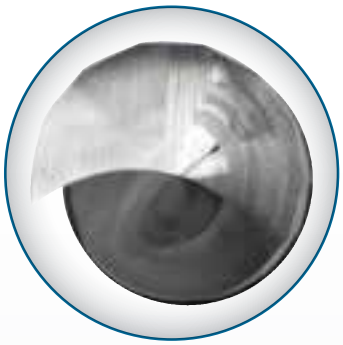
- reduces the coefficient of friction between the surface of the tool and the chips produced during the milling operation, making for fast, efficient chip evacuation

FEATURES & BENEFITS

ALSE Single Flute

Excellent chip space

- reduces the heat generated during the machining process by allowing lager chips to evacuate easily



Extreme material removal rate for Aluminium

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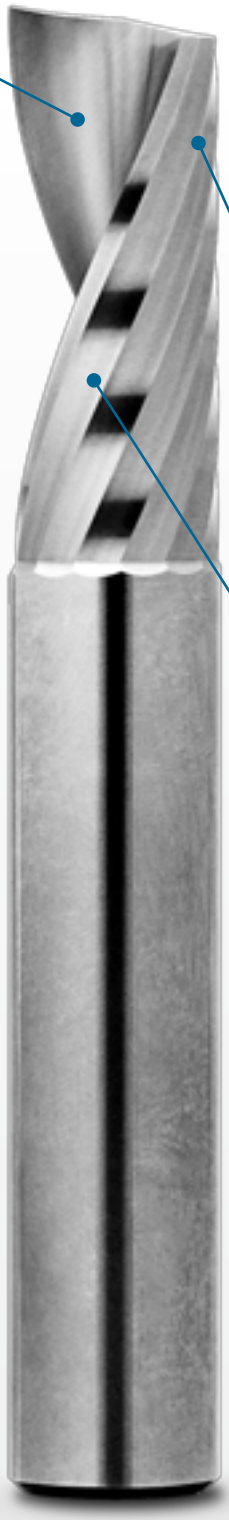


Highly polished flutes for improved chip evacuation and tool life

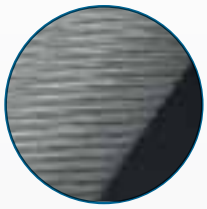
- reduces the coefficient of friction between the surface of the tool and the chips produced during the milling operation, making for fast, efficient chip evacuation

FEATURES & BENEFITS

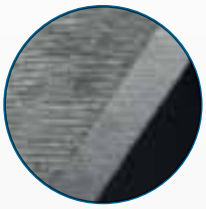
ALSE Standard - 2 Flute

Fine margin for improved machined surface finish

- tightly controlled during manufacturing for consistent performance



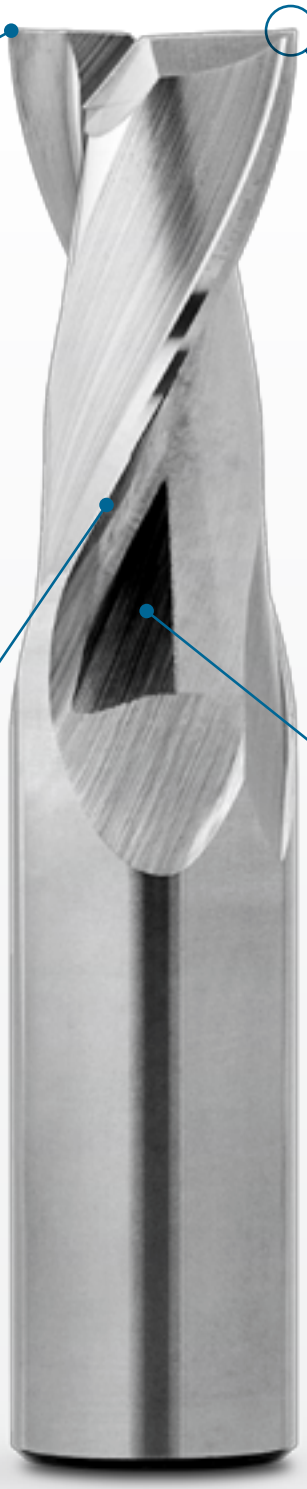
Eccentric Grinding



Perfect Edge Grinding

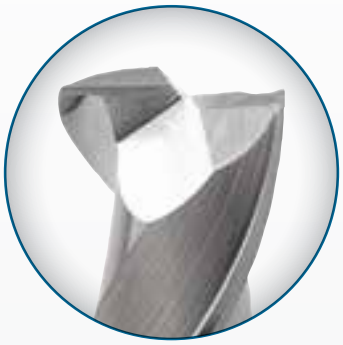
Special edge treatment for stable machining

- quiet operation during the machining process



Small Radius

- increases edge strength during machining



Highly polished flutes for improved chip evacuation and tool life

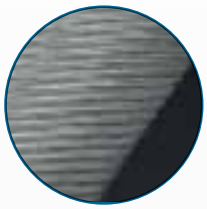
- reduces the coefficient of friction between the surface of the tool and the chips produced during the milling operation, making for fast, efficient chip evacuation

FEATURES & BENEFITS

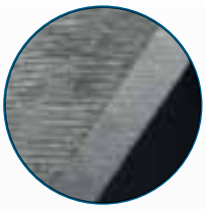
ALSE Standard - 3 Flute

Fine margin for improved machined surface finish

- tightly controlled during manufacturing for consistent performance



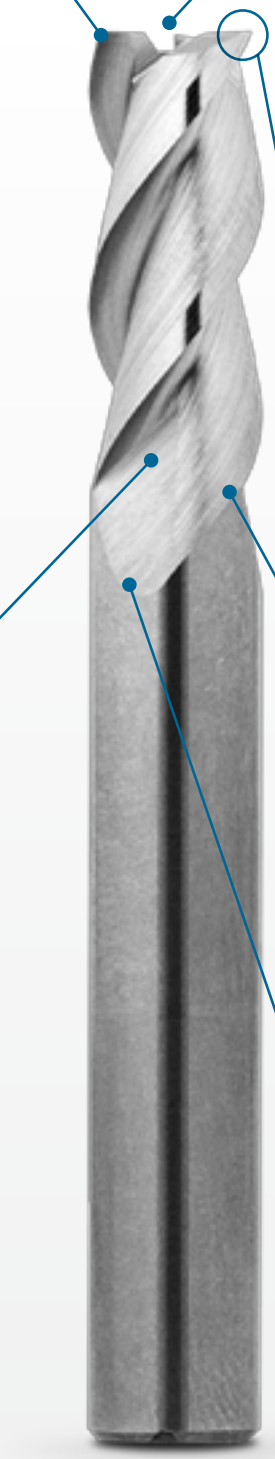
Eccentric Grinding



Perfect Edge Grinding

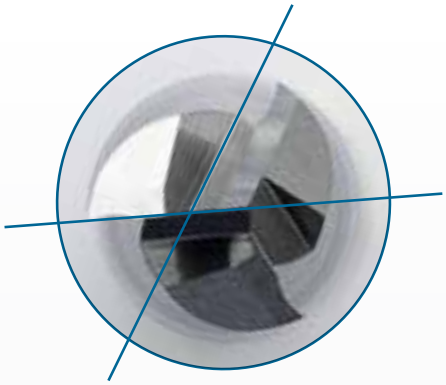
Extreme material removal rates for Aluminium

- enables more work done in less time



Differential Pitch (DP)

- reduces noise and vibrations during machining



Small Radius

- increases edge strength during machining

Highly Polished flutes for improved chip evacuation and tool life

- reduces the coefficient of friction between the surface of the tool and the chips produced during the milling operation, making for fast, efficient chip evacuation

High strength carbide grade for heavy feed applications

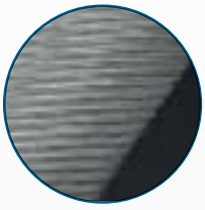
- fine grain carbide with low cobalt content improves toughness for deeper cuts

FEATURES & BENEFITS

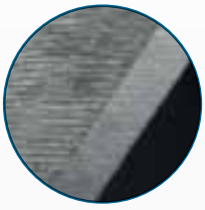
ALSE Standard - 4 Flute

Fine margin for improved machined surface finish

- tightly controlled during manufacturing for consistent performance



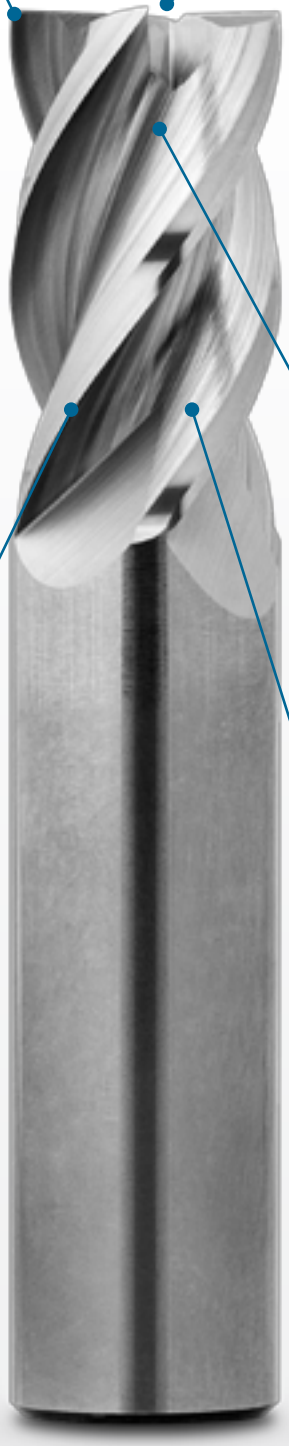
Eccentric Grinding



Perfect Edge Grinding

Special edge treatment for stable machining

- quiet operation during the machining process



Differential Pitch (DP)

- reduces noise and vibrations during machining

Effective chip removal at high feed rates

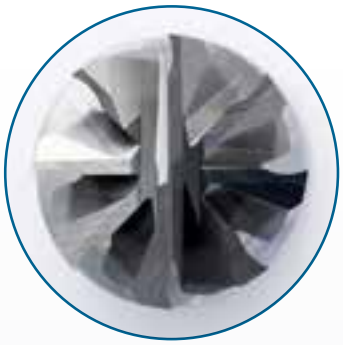
- the shape and strength of the cutting edges have been optimized to provide for high feed rates and efficient chip removal capabilities during the machining process

Highly Polished flutes for improved chip evacuation and tool life

- reduces the coefficient of friction between the surface of the tool and the chips produced during the milling operation, making for fast, efficient chip evacuation

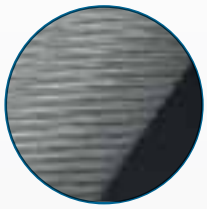
FEATURES & BENEFITS

ALSE Multiflute - 6 / 8 Flute

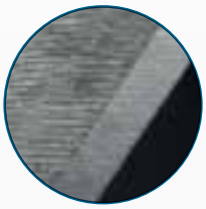


Fine margin for improved machined surface finish

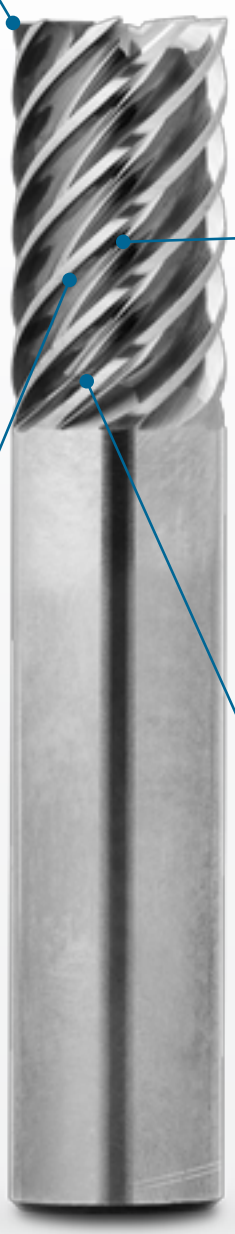
- tightly controlled during manufacturing for consistent performance



Eccentric Grinding



Perfect Edge Grinding



High Helix angle for improved work piece surface finish

- 50° High Helix angle keeps the cutting edges constantly engaged in the workpiece reducing cutting load variations. The result is a clean efficient cutting action with decreased cutting resistance and excellent surface finish on the work piece

Multi flutes capable of high feed rates for finishing

- enabled by greater core strength for reduced tool deflection

Highly Polished flutes for improved chip evacuation and tool life

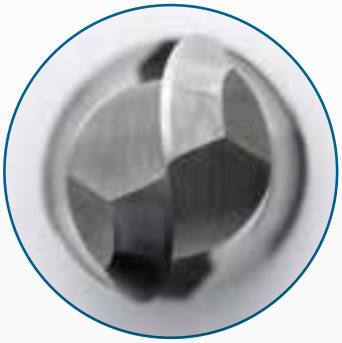
- reduces the coefficient of friction between the surface of the tool and the chips produced during the milling operation, making for fast, efficient chip evacuation

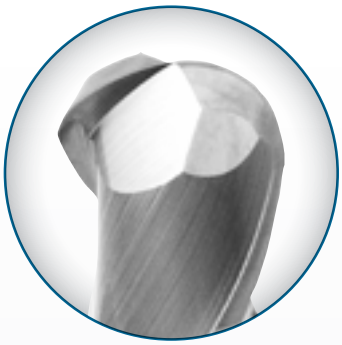
FEATURES & BENEFITS

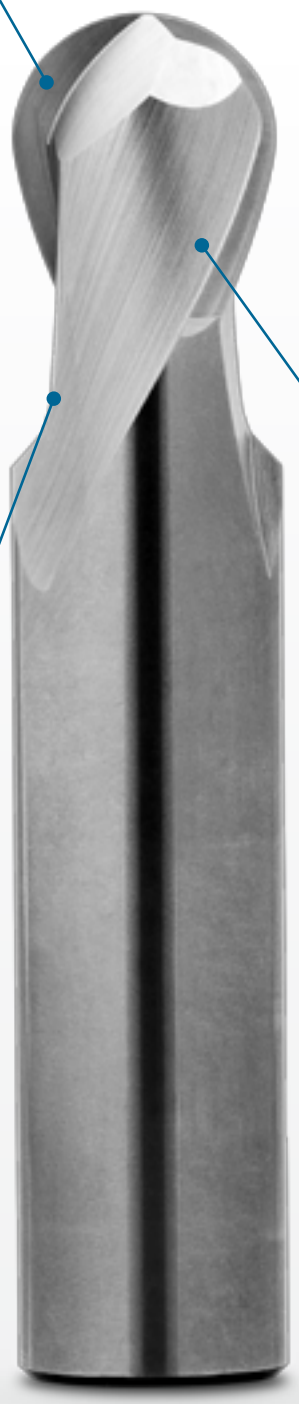
AL BN Standard - 2 Flute

2 flute high positive rake design for High Performance milling

- increased metal removal rates for Aluminium machining







Special edge treatment for stable machining

- quiet operation during the machining process

Single tool for both semi-finishing and finishing operations for fewer setups

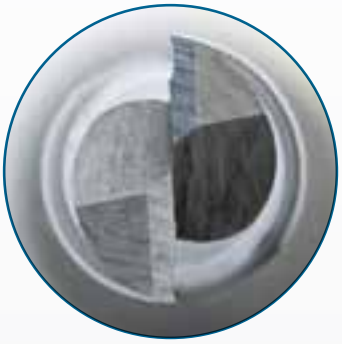
- enables to increase productivity by decreaseing costs and machining cycle time

FEATURES & BENEFITS

AL SE & AL SE BN Miniature Long Neck - 2 Flute

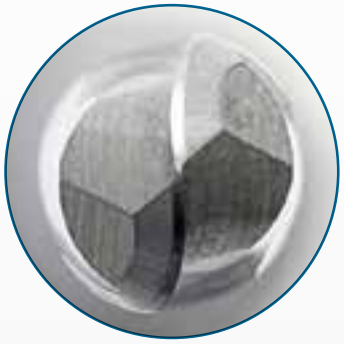
Long neck style for deep pocket machining

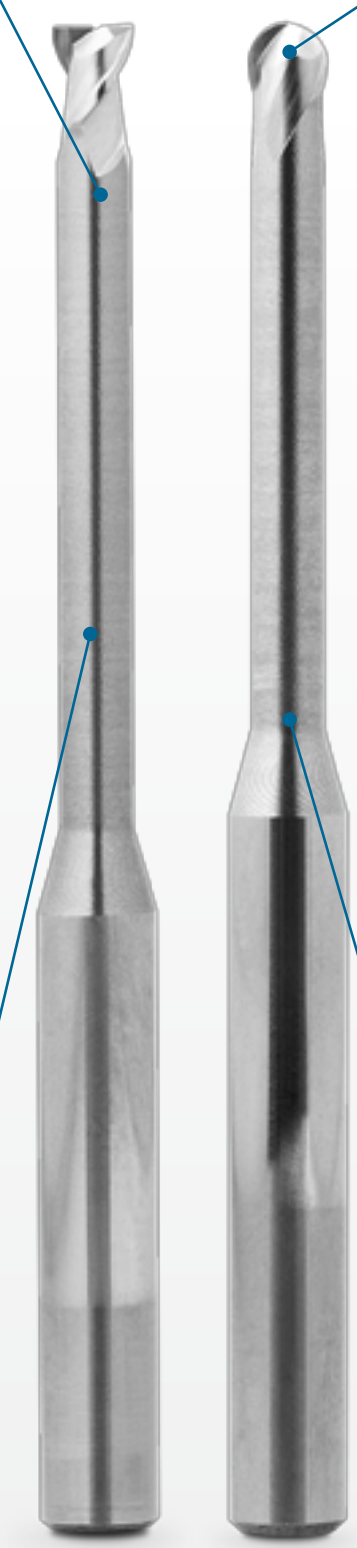
- very suitable for machining narrow and deep ribs and hard to reach areas



2 flute high positive rake design

- increased metal removal rates for Aluminium machining





Reinforced neck design for better stability

- performs high precision roughing and finishing without the deflection

Reduced neck diameter to avoid heeling

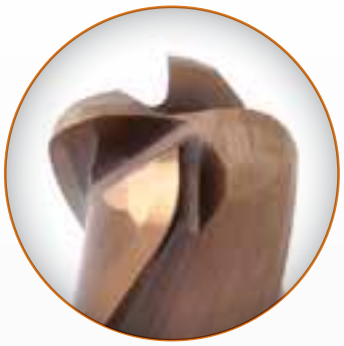
- improved performance in Off Center Contour Milling and deep machining applications

FEATURES & BENEFITS

HI-FEED FIN-MILL

4/ 6 flutes

- 2x or 3x feed rate in comparison with conventional 2 flutes cutter



Double outer diameter

- Suppresses chattering

Double dish angle

- Reduce cutting force
- Enable higher cutting feed

Tough PVD Silicon based coating

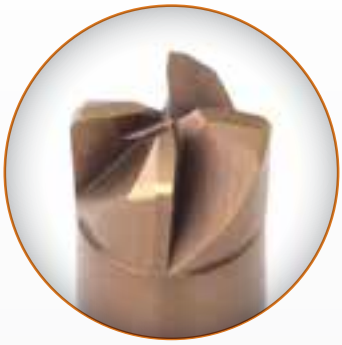
- Prolong the tool life
- Enables higher cutting speeds
- Increase heat resistance hence very suitable for dry machining

FEATURES & BENEFITS

HI-FEED SWEEP-MILL

4/ 6 short flutes

- 2x or 3x feed rate in comparison with conventional 2 flutes cutter
- Increase toughness by having short flute
- Prolong tool life by having more flutes



Very large radius

- Increase stock removal rate
- Enables higher cutting feed

Tough PVD Silicon based coating

- Prolong the tool life
- Enables higher cutting speeds
- Increase heat resistance hence very suitable for dry machining

Strong back taper

- Suppresses chattering

FEATURES & BENEFITS

HI-FEED DOUBLE R

Very large radius with center cutting

- Increase stock removal rate
- Enables higher cutting feed
- Suitable for both roughing and finishing

Short flutes with corner radius

- Increase toughness by having short flute
- Prolong tool life with reinforce large corner radius

Tough PVD Silicon based coating

- Prolong the tool life
- Enables higher cutting speeds
- Increase heat resistance hence very suitable for dry machining

FEATURES & BENEFITS

NiTiCo DP

4 flutes design

• For Slotting and Side Milling

Positive rake angle

• Enables smooth chip evacuation due to small size chips generated

Differential Pitch design

• For chatter free machining and excellent surface finishes

Stable cutting edge

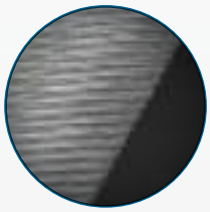
• Allows for high speeds and feed rates greatly improving productivity

Optimized tool geometry

• Allows for improved shearing and decreased spindle loads

The perfect edge design

• Provides a stable cutting edge with much reduced possibility of chipping while prolonging the tool life



Eccentric Grinding

Perfect Edge Grinding

FEATURES & BENEFITS

NiTiCo DPR

4 flutes design

• For Slotting and Side Milling

Differential Pitch design

• For chatter free machining and excellent surface finishes

Corner Radius

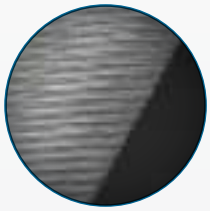
• For for more precise finishing and superior corner protection

Stable cutting edge

• Allows for high speeds and feed rates greatly improving productivity

The perfect edge design

• Provides a stable cutting edge with much reduced possibility of chipping while prolonging the tool life



Eccentric Grinding

Perfect Edge Grinding

FEATURES & BENEFITS

NiTiCo DP/DH

Differential Helix design

• To reduce the cutting forces and improve machining performance

Differential Pitch design

• For chatter free machining and excellent surface finishes

Corner Radius

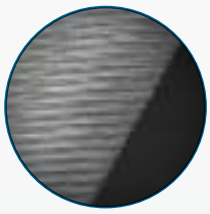
• Available for more precise finishing and superior corner protection

Hair line margin

• Enables high CNC repeatability within 0.010 mm

Stable cutting edge

• Allows for high speeds and feed rates greatly improving productivity

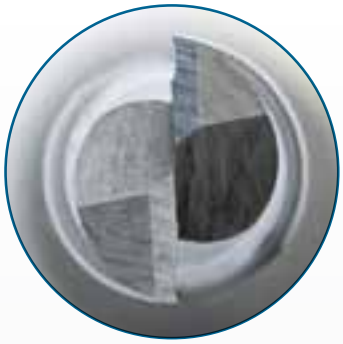


Eccentric Grinding

Perfect Edge Grinding

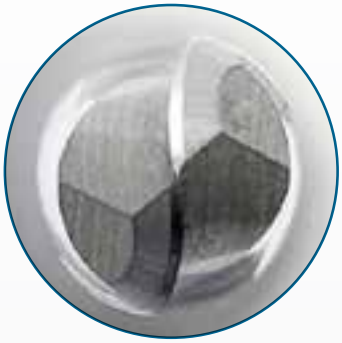
FEATURES & BENEFITS

NiTiCo MINIATURE



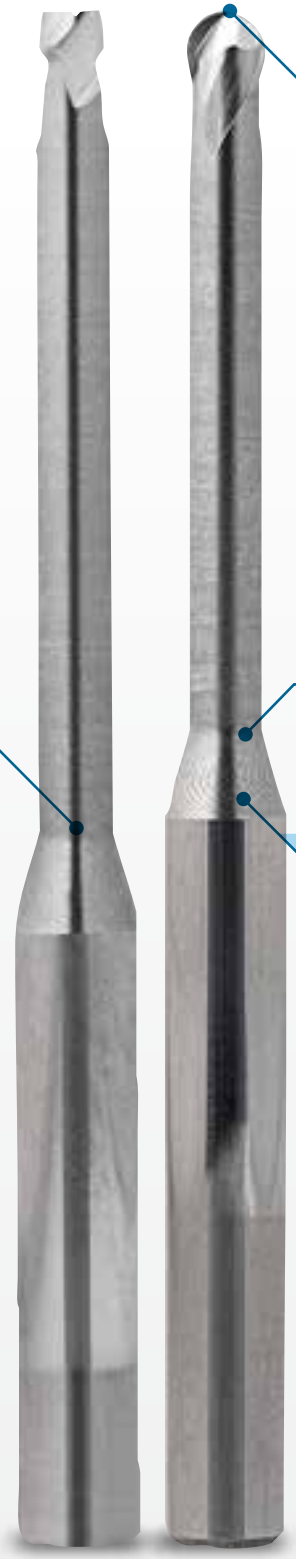
2 flute high positive rake design

- Increased metal removal rates improves productivity



Reinforced neck design for better stability

- Performs high precision roughing and finishing without the deflection



Reduced neck diameter to avoid heeling

- Improves Performance in Off Center Contour Milling applications

Tough PVD coating plus carbide selection

- Superior wear and chipping resistance, prolongs tool life and enables higher cutting feeds and speeds

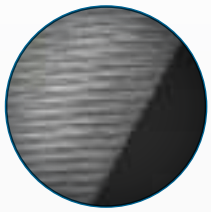
FEATURES & BENEFITS

NOVIANO SE45DP

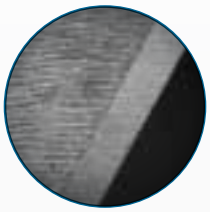
NOVIANO
(No VIbration And NOise)

Perfect Edge Grinding

- Improves surface finishing
- Enables higher cutting speeds
- High CNC repeatability within 0.010mm



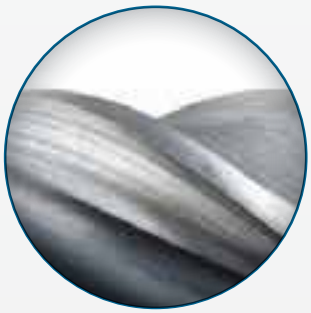
Eccentric Grinding



Perfect Edge Grinding

PVD coating + carbide selection

- Superior wear and chipping resistance due to optimally matched coating and carbite material
- Prolong the tool life
- Enables higher cutting speeds



Variable index

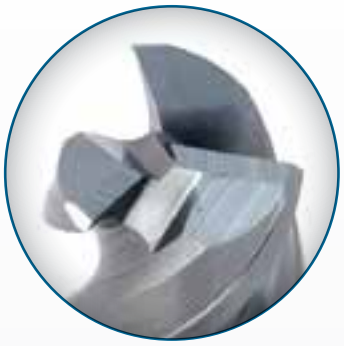
- Anti vibration design

FEATURES & BENEFITS

PLUNGEMILL

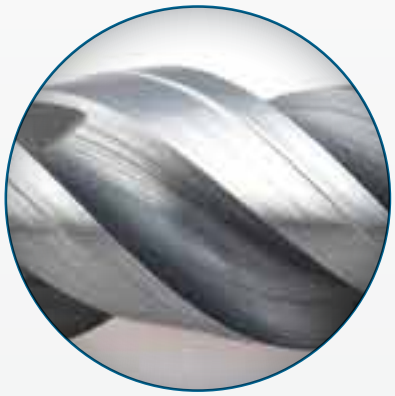
Special end-face gashing

- Improves chip formation and flow
- Enables plunging on inclined surface
- Designed to prevent chipping at corner



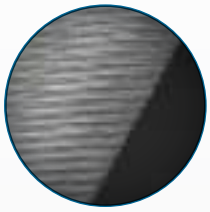
Superior “drill” like fluting

- Improves chip evacuation
- Reduce vibration during slotting/milling

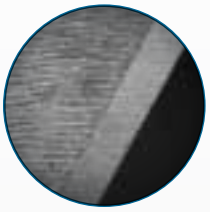


Perfect Edge Grinding

- Improves surface finishing
- Enables higher cutting speeds
- High CNC repeatability within 0.010mm



Eccentric Grinding



Perfect Edge Grinding

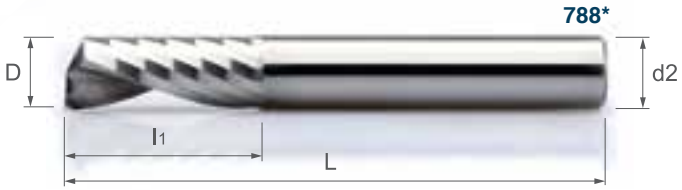
Smooth PVD AlCrN coating

- Prolong the tool life
- Reduce friction
- Improves chip flow
- Enables higher cutting speeds

ALSE

AL SE SINGLE FLUTE ENDMILLS for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE Single Flute Endmills
Fraises AL SE en carbure monobloc à une dent
整体硬质合金 AL SE 系列 立铣刀 1 刃 – 标准长度
VHM AL SE Einzahn Fräser
Frese AL SE in metallo duro integrale ad 1 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					788* Normal	924* Flute Polished
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	T ... n
0200	2	10		40	2	●	○
0300	3	12		40	3	●	○
0400	4	15		50	4	●	○
0500	5	16		50	5	●	○
0600	6	20		60	6	●	○
0800	8	22		63	8	●	○
1000	10	25		72	10	●	○
1200	12	30		83	12	●	○

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	126

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

AL SE STANDARD ENDMILLS for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE Standard Endmills, 2 flutes
Fraises 2 tailles AL SE Standard - 2 dents, en carbure monobloc
整体硬质合金 AL SE 系列 立铣刀 2 刃 – 标准长度
VHM Standard AL SE Fräser, 2 Zähne
Frese AL SE Standard in metallo duro integrale - 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	G49* T ... n
0100 040 04	1	3		40	4	●
0150 040 04	1.5	4.5		40	4	●
0200 040 04	2	6.5		40	4	●
0250 040 04	2.5	6.5		40	4	●
0300	3	9		40	3	●
0300 050 06	3	9		50	6	●
0400	4	12		50	4	●
0400 050 06	4	12		50	6	●
0500 050 06	5	15		50	6	●
0600 050	6	16		50	6	●
0600 060	6	20		60	6	●
0800	8	20		64	8	●
1000 070	10	22		70	10	●
1000 075	10	31		75	10	●
1200	12	25		75	12	●
1400	14	32		90	14	●
1600	16	32		90	16	●
2000	20	38		100	20	●

Ø mm	Tol. µm
0.1 ~ 2.9	-0 / -20
3.0 ~ 6.0	-0 / -25
6.0 ~ 30.0	-0 / -30

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

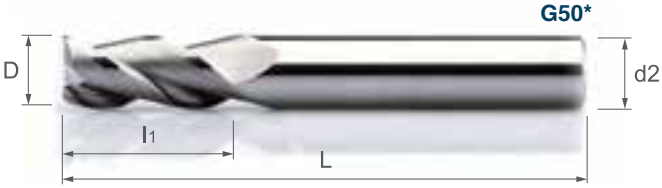
M26	M27	M28	M33	M01	M29	M30
				●	●	

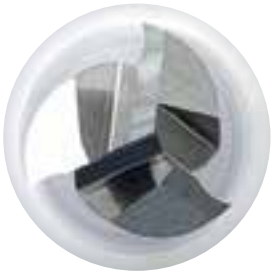
Working Material	Cutting Parameter
564	128

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

AL SE STANDARD ENDMILLS for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE Standard Endmills, 3 flutes
Fraises 2 tailles AL SE Standard - 3 dents, en carbure monobloc
整体硬质合金 AL SE 系列 立铣刀 3 刃 – 标准长度
VHM Standard AL SE Fräser, 3 Zähne
Frese AL SE Standard in metallo duro integrale - 3 taglienti





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	G50* T ... n
0100 040 04	1	3		40	4	●
0150 040 04	1.5	4.5		40	4	●
0200 040 04	2	6.5		40	4	●
0250 040 04	2.5	6.5		40	4	●
0300	3	9		40	3	●
0300 050 06	3	9		50	6	●
0400	4	12		50	4	●
0400 050 06	4	12		50	6	●
0500 050 06	5	15		50	6	●
0600 050	6	16		50	6	●
0600 060	6	20		60	6	●
0800	8	20		64	8	●
1000 070	10	22		70	10	●
1000 075	10	31		75	10	●
1200	12	25		75	12	●
1400	14	32		90	14	●
1600	16	32		90	16	●
2000	20	38		100	20	●

Ø mm	Tol. µm
0.1 ~ 2.9	-0 / -20
3.0 ~ 6.0	-0 / -25
6.0 ~ 30.0	-0 / -30

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

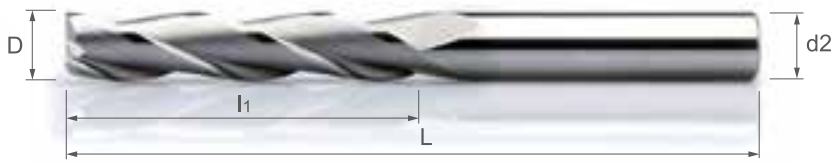
M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	130

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

AL SE ENDMILLS - Long for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE Endmills - Long, 3 flutes
Fraises 2 tailles AL SE longues - 3 dents, en carbure monobloc
整体硬质合金 AL SE 系列 立铣刀 3 刃 – 中长
VHM AL SE Fräser, lang, 3 Zähne
Frese AL SE lunghe in metallo duro integrale - 3 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	G51* T ... n
0300	3	19		60	3	●
0300 075 06	3	19		75	6	●
0400	4	19		60	4	●
0400 075 06	4	19		75	6	●
0500 0706	5	19		75	6	●
0600 075	6	31		75	6	●
0600 100	6	38		100	6	●
0800 075	8	31		75	8	●
0800 100	8	41		100	8	●
1000 100	10	50		100	10	●
1000 125	10	57		125	10	●
1200 100	12	50		100	12	●
1200 150	12	75		150	12	●
1400	14	57		125	14	●
1600	16	57		125	16	●

Ø mm	Tol. µm
0.1 ~ 2.9	-0 / -20
3.0 ~ 6.0	-0 / -25
6.0 ~ 30.0	-0 / -30

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	132

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

AL SE STANDARD ENDMILLS

Solid Carbide AL SE Standard Endmills, 2 flutes
Fraises 2 tailles AL SE Standard - 2 dents, en carbure monobloc
整体硬质合金 AL SE 系列 立铣刀 2 刃 – 标准长度

VHM Standard AL SE Fräser, 2 Zähne
Frese AL SE Standard in metallo duro integrale - 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	301* T ... n
0100 040 03	1	3		40	3	●
0100 040 04	1	3		40	4	●
0150 040 03	1.5	4.5		40	3	●
0150 040 04	1.5	4.5		40	4	●
0200 040 03	2	6.5		40	3	●
0200 040 04	2	6.5		40	4	●
0250 040 03	2.5	6.5		40	3	●
0250 040 04	2.5	6.5		40	4	●
0300	3	9		40	3	●
0300 050 06	3	9		50	6	●
0400	4	12		50	4	●
0400 050 06	4	12		50	6	●
0500	5	15		50	5	●
0500 050 06	5	15		50	6	●
0600 050	6	16		50	6	●
0600 060	6	20		60	6	●
0800	8	20		64	8	●
1000 070	10	22		70	10	●
1000 075	10	22		75	10	●
1200	12	25		75	12	●
1400	14	32		90	14	●
1600	16	32		90	16	●
1800	18	38		100	18	●
2000	20	38		100	20	●

CNC Repeatability
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	134

若有技术规格变更，恕不事先通知

AL SE STANDARD ENDMILLS

Solid Carbide AL SE Standard Endmills, 3 flutes
Fraises 2 tailles AL SE Standard - 3 dents, en carbure monobloc
整体硬质合金 AL SE 系列 立铣刀 3 刃 – 标准长度
VHM Standard AL SE Fräser, 3 Zähne
Frese AL SE Standard in metallo duro integrale - 3 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	303* T ... n
0100 040 03	1	3		40	3	●
0100 040 04	1	3		40	4	●
0150 040 03	1.5	4.5		40	3	●
0150 040 04	1.5	4.5		40	4	●
0200 040 03	2	6.5		40	3	●
0200 040 04	2	6.5		40	4	●
0250 040 03	2.5	6.5		40	3	●
0250 040 04	2.5	6.5		40	4	●
0300	3	9		40	3	●
0300 050 06	3	9		50	6	●
0400	4	12		50	4	●
0400 050 06	4	12		50	6	●
0500	5	15		50	5	●
0500 050 06	5	15		50	6	●
0600 050	6	16		50	6	●
0600 060	6	20		60	6	●
0800	8	20		64	8	●
1000 070	10	22		70	10	●
1000 075	10	22		75	10	●
1200	12	25		75	12	●
1400	14	32		90	14	●
1600	16	32		90	16	●
1800	18	38		100	18	●
2000	20	38		100	20	●

CNC Repeatability
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

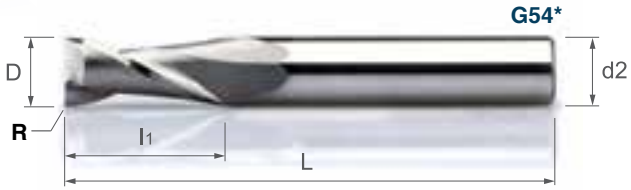
Working Material	Cutting Parameter
564	137

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

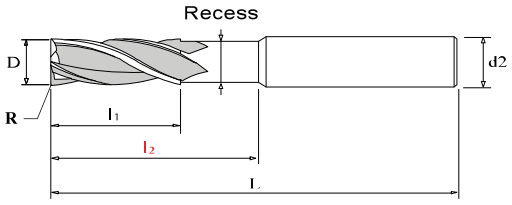
AL SE STANDARD TORUS ENDMILLS for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE Standard Torus Endmills, 2 flutes
Fraises 2 tailles AL SE toriques Standard 2 dents, en carbure monobloc
整体硬质合金 AL SE 系列 立铣刀 2 刃 – 标准长度

VHM Standard AL SE Torusfräser, 2 Zähne
Frese AL SE toroidali Standard in metallo duro integrale - 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							G54* Normal	G52* Flute Polished
=*+Ødata	D	l 1	l 2	d3	L	d2 (h6)	R	T ... n	T ... n
0200	2	6.5		2.8	40	4	0.1	●	○
0200 050 06	2	6.5		2.8	50	6	0.1	●	○
0300	3	9	15	2.8	40	3	0.1	●	○
0300 050 06	3	9	15	2.8	50	6	0.1	●	○
0400	4	12	20	3.7	50	4	0.1	○	○
0400 050 06 06	4	6	12	3.7	50	6	0.1	●	○
0400 050 06	4	12	20	3.7	50	6	0.1	●	○
0500 050 06	5	15	20	4.6	50	6	0.1	●	○
0600 060 09	6	9	18	5.5	60	6	0.1	○	○
0600 060	6	20	30	5.5	60	6	0.1	●	○
0800 12	8	12	24	7.4	64	8	0.1	○	○
0800	8	20	30	7.4	64	8	0.1	●	○
1000 15	10	15	32	9.2	75	10	0.1	○	○
1000	10	22	32	9.2	75	10	0.1	●	○
1200 18	12	18	37	11	75	12	0.1	○	○
1200	12	25	37	11	75	12	0.1	●	○
1400	14	32	44	13	90	14	0.1	●	○
1600 24	16	24	40	15	90	16	0.1	○	○
1600	16	32	46	15	90	16	0.1	●	○
2000	20	30	60	15	100	20	0.1	○	○
								G55*	G53*



CNC Repeatability
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

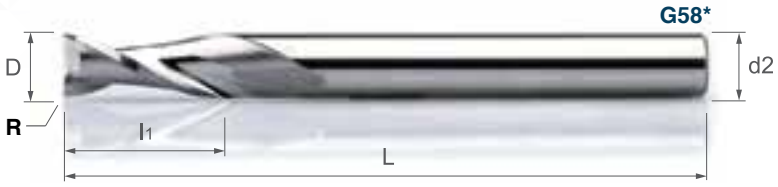
M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	134

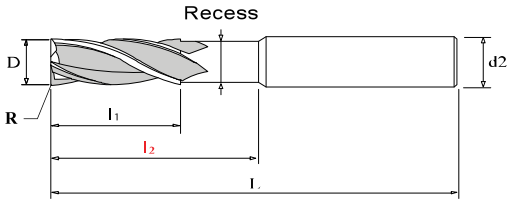
TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

AL SE TORUS ENDMILLS - LONG for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE Torus Endmills - Long, 2 flutes
Fraises 2 tailles AL SE toriques longues 2 dents, en carbure monobloc
整体硬质合金 AL SE 系列 立铣刀 2 刃 – 中长
VHM AL SE Torusfräser, lang, 2 Zähne
Frese AL SE toroidali lunghe in metallo duro integrale - 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							G58* Normal	G56* Flute Polished
=*+Ødata	D	l 1	l 2	d3	L	d2 (h6)	R	T ... n	T ... n
0600	6	16	40	5.5	80	6	0.1	●	○
0800	8	20	40	7.4	80	8	0.1	●	○
1000	10	22	60	9.2	100	10	0.1	●	○
1200	12	25	60	11	100	12	0.1	●	○
1400	14	32	75	13	125	14	0.1	●	○
1600	16	32	75	15	125	16	0.1	●	○
2000	20	38	75	19	125	20	0.1	●	○
								G59*	G57*



Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

CNC Repeatalibility
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

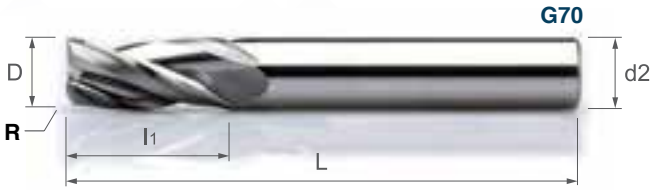
Working Material	Cutting Parameter
564	140

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

AL SE DP STANDARD TORUS ENDMILLS for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE DP Standard Torus Endmills, 3 flutes
Fraises 2 tailles AL SE DP toriques Standard 3 dents, en carbure monobloc
整体硬质合金 AL SE DP 系列 立铣刀 3 刃 – 标准长度

VHM Standard AL SE DP Torusfräser, 3 Zähne
Frese AL SE DP toroidali Standard in metallo duro integrale - 3 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						G70* Normal	G69* Flute Polished
=*+Ødata	D	l 1	l 2	L	d2 (h6)	R	T ... n	T ... n
0200	2	6.5		40	4	0.1	●	○
0200 050 06	2	6.5		50	6	0.1	●	○
0300	3	9		40	3	0.1	●	○
0300 050 06	3	9		50	6	0.1	●	○
0400	4	12		50	4	0.1	●	○
0400 050 06	4	12		50	6	0.1	●	○
0500 050 06	5	15		50	6	0.1	●	○
0600 060	6	20		60	6	0.1	●	○
0800	8	20		64	8	0.1	●	○
1000	10	22		75	10	0.1	●	○
1200	12	25		75	12	0.1	●	○
1400	14	32		90	14	0.1	●	○
1600	16	32		90	16	0.1	●	○

CNC Repeatalibility
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

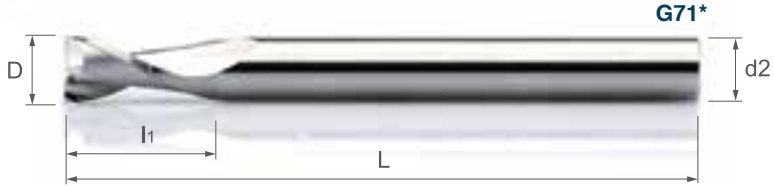
Working Material	Cutting Parameter
564	146

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

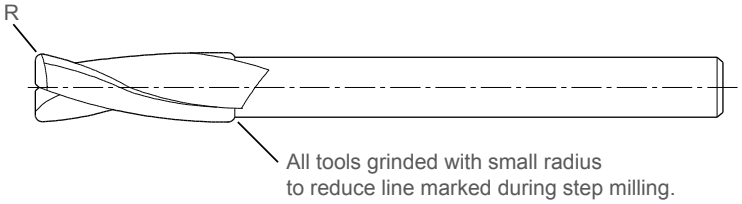
AL SE ENDMILLS with Reduce Shank for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE Endmills, 2 flutes
Fraises 2 tailles AL SE - 2 dents, en carbure monobloc
整体硬质合金 AL SE 系列 立铣刀 2 刃 – 标准长度

VHM AL SE Fräser, 2 Zähne,
Frese AL SE in metallo duro integrale - 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						G71* Flute Polished
=*+Ødata	D	l 1	l 2	L	d2 (h6)	R	T ... n
0320 075	3.2	4		75	3	0.1	○
0420 075	4.2	5		75	4	0.1	○
0520 075	5.5	6		75	5	0.1	○
0620 075	6.2	8		75	6	0.1	●
0620 100	6.2	8		100	6	0.1	●
0820 075	8.2	10		75	8	0.1	●
0820 100	8.2	10		100	8	0.1	●
1030 100	10.3	14		100	10	0.1	●
1030 125	10.3	14		125	10	0.1	●
1230 100	12.3	16		100	12	0.1	●
1230 125	12.3	16		125	12	0.1	●
1630 125	16.3	20		125	16	0.1	●
2030 125	20.3	25		125	20	0.1	●



All tools grinded with small radius
to reduce line marked during step milling.

CNC Repeatalibility
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	151

若有技术规格变更，恕不事先通知

AL SE DP STANDARD ENDMILLS for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE DP Standard Endmills, with Differential Pitch, 4 flutes

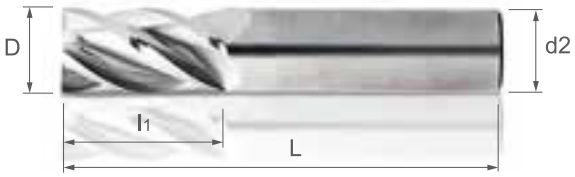
Fraises 2 tailles AL SE DP Standard à pas décalés, 4 dents, en carbure monobloc

整体硬质合金 AL SE DP 系列 立铣刀 4 刃 – 标准长度

VHM AL SE DP Standard Fräser mit ungleicher Teilung, 4 Zähne

Frese AL SE DP Standard in metallo duro, passo differenziale, 4 taglienti

S42 *



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	S42* T ... n
0300 057 06	3	9		57	6	●
0400 057 06	4	12		57	6	●
0500 057 06	5	13		57	6	●
0600 057	6	13		57	6	●
0800 064	8	20		64	8	●
1000 072	10	22		72	10	●
1200 083	12	26		83	12	●
1400 090	14	32		90	14	●
1600 092	16	32		92	16	●
2000 104	20	38		104	20	●

CNC Repeatability

Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	154

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

AL SE DPR TORUS ENDMILLS, also with Weldon Shank

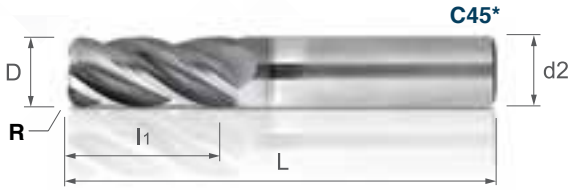
Solid Carbide AL SE DPR Torus
Endmills with differential pitch, 4 flutess

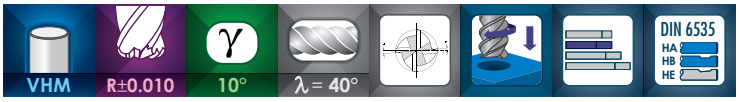
Fraises 2 tailles AL SE DPR toriques
à pas décalés en carbure monobloc, 4 dents

整体硬质合金 AL SE DPR 系列 圆鼻
立铣刀 4 刃

VHM AL SE DPR Torusfräser mit
ungleicher Teilung, 4 Zähne

Frese AL SE DPR toriche, in metallo
duro integrale, passo differenziale, 4 taglienti





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						C45* HA T ... n	C51* HB T ... n
	D	l 1	l 2	L	d2 (h6)	R		
0300 057 0600 030	3	9		57	6	0.3	●	●
0300 057 0600 050	3	9		57	6	0.5	●	●
0400 057 0600 030	4	12		57	6	0.3	●	●
0400 057 0600 050	4	12		57	6	0.5	●	●
0500 057 0600 030	5	15		57	6	0.3	●	●
0500 057 0600 050	5	15		57	6	0.5	●	●
0600 057 0600 030	6	16		57	6	0.3	●	●
0600 057 0600 050	6	16		57	6	0.5	●	●
0600 057 0600 100	6	16		57	6	1	●	●
0800 064 0800 030	8	20		64	8	0.3	●	●
0800 064 0800 050	8	20		64	8	0.5	●	●
0800 064 0800 100	8	20		64	8	1	●	●
0800 064 0800 150	8	20		64	8	1.5	●	●
0800 064 0800 200	8	20		64	8	2	●	●
1000 072 1000 030	10	22		72	10	0.3	●	●
1000 072 1000 050	10	22		72	10	0.5	●	●
1000 072 1000 100	10	22		72	10	1	●	●
1200 083 1200 030	12	26		83	12	0.3	●	●
1200 083 1200 050	12	26		83	12	0.5	●	●
1200 083 1200 100	12	26		83	12	1	●	●
1200 083 1200 200	12	26		83	12	2	●	●
1200 083 1200 250	12	26		83	12	2.5	●	●
1200 083 1200 300	12	26		83	12	3	●	●
1400 083 1400 050	14	32		90	14	0.5	●	●
1400 083 1400 100	14	32		90	14	1	●	●
1400 083 1400 150	14	32		90	14	1.5	●	●
1400 083 1400 200	14	32		90	14	2	●	●
1400 083 1400 300	14	32		90	14	3	●	●
1600 092 1600 030	16	32		92	16	0.3	●	●
1600 092 1600 050	16	32		92	16	0.5	●	●

cont'd ►

CNC Repeatability

Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	154

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

AL SE DPR TORUS ENDMILLS, also with Weldon Shank

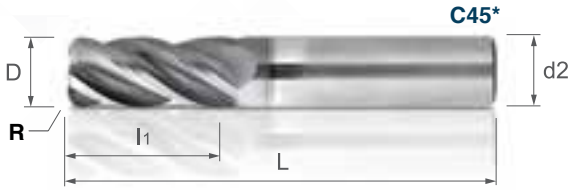
Solid Carbide AL SE DPR Torus
Endmills with differential pitch, 4 flutes

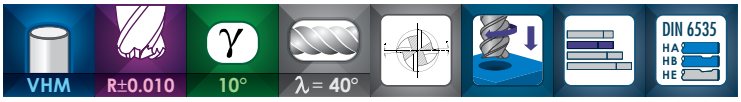
Fraises 2 tailles AL SE DPR toriques
à pas décalés en carbure monobloc, 4 dents

整体硬质合金 AL SE DPR 系列 圆鼻
立铣刀 4 刃

VHM AL SE DPR Torusfräser mit
ungleicher Teilung, 4 Zähne

Frese AL SE DPR toriche, in metallo
duro integrale, passo differenziale, 4 taglienti





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	R	C45* HA T ... n	C51* HB T ... n
1600 092 1600 100	16	32		92	16	1	●	●
1600 092 1600 200	16	32		92	16	2	●	●
1600 092 1600 250	16	32		92	16	2.5	●	●
1600 092 1600 300	16	32		92	16	3	●	●
1600 092 1600 400	16	32		92	16	4	●	●
2000 104 2000 030	20	38		104	20	0.3	●	●
2000 104 2000 050	20	38		104	20	0.5	●	●
2000 104 2000 100	20	38		104	20	1	●	●
2000 104 2000 200	20	38		104	20	2	●	●
2000 104 2000 250	20	38		104	20	2.5	●	●
2000 104 2000 300	20	38		104	20	3	●	●
2000 104 2000 400	20	38		104	20	4	●	●

CNC Repeatability

Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	154

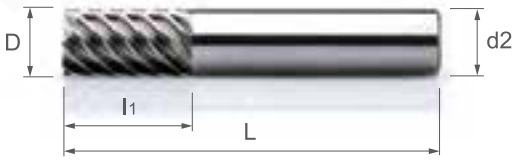
SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

ALU MULTIFLUTE ENDMILLS

Solid Carbide ALU Multiflute Endmills, 6 respectively 8 Flutes
Fraises 2 tailles Multidents ALU en carbure monobloc, 6 respectivement 8 dents,
整体硬质合金 ALU 系列 密齿 立铣刀 6 – 8 刃 – 标准长度

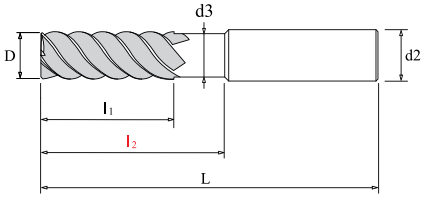
VHM Mehrzahnfräser ALU- 6 bzw. 8 Zähne,
Frese multi-taglienti ALU in metallo duro integrale, 6 respettivamente 8 taglienti

G62*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						G62* Normal	G60* Flute Polished
=*+Ødata	D	l 1	l 2	d 3	L	d2 (h6)	T ... n	T ... n
0600	6	15	20	5.5	57	6	●	○
0800	8	20	30	7.4	64	8	●	○
1000	10	22	32	9.2	75	10	●	○
1200	12	25	35	11	75	10	●	○

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						G62* Normal	G60* Flute Polished
=*+Ødata	D	l 1	l 2	d 3	L	d2 (h6)	T ... n	T ... n
1600	16	30	45	15	90	16	●	○
2000	20	38	60	19	104	20	●	○
							G63*	G61*



Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

CNC Repeatalibility
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	149

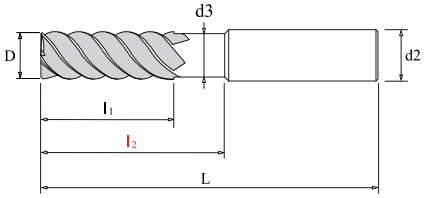
MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

ALU MULTIFLUTE ENDMILLS - LONG

Solid Carbide ALU Long Multiflute Endmills, 6 respectively 8 Flutes
Fraises 2 tailles Multidents ALU longues en carbure monobloc, 6 respectivement 8 dents
整体硬质合金 ALU 系列 密齿 立铣刀 6 – 8 刃 – 中长
VHM lange Mehrzahnfräser ALU -6 bzw. 8 Zähne
Frese multi-taglienti ALU lunghe in metallo duro integrale, 6 respettivamente 8 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						G66* Normal	G64* Flute Polished
=*+Ødata	D	l 1	l 2	d 3	L	d2 (h6)	T ... n	T ... n
0600	6	31	45	5.5	80	6	●	○
0800	8	31	60	7.4	100	8	●	○
1000	10	45	60	9.2	100	10	●	○
1200	12	50	75	11	125	10	●	○

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						G62* Normal	G60* Flute Polished
=*+Ødata	D	l 1	l 2	d 3	L	d2 (h6)	T ... n	T ... n
1600	16	57	100	15	150	16	●	○
2000	20	57	100	19	150	20	●	○
							G67*	G65*



Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

CNC Repeatalibility
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	150

若有技术规格变更，恕不事先通知

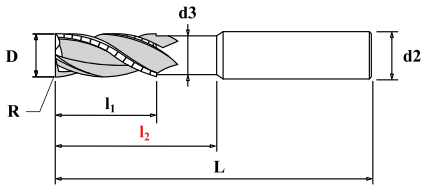
AL SE DP TORUS ROUGHING ENDMILLS for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL SE DP Torus Roughing Endmills, 3 Flutes
Fraises ébauches 2 tailles AL SE DP toriques 3 dents
整体硬质合金 AL SE DP 系列 粗皮 立铣刀 3 刃 – 标准长度
VHM AL SE DP Torus Schruppfräser, 3 Zähne
Frese per sgrossare AL SE DP toroidali metallo, duro integrale, 3 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							G72*
=*+Ødata	D	l 1	l 2	d 3	L	d2 (h6)	R	T ... n
0600	6	13	24	5.5	60	6	0.1	●
0600 075	6	13	40	5.5	75	6	0.1	●
0800	8	20	28	7.4	64	8	0.1	●
0800 075	8	20	40	7.4	75	8	0.1	●
1000 075	10	22	35	9.2	75	10	0.1	●
1000 100	10	22	60	9.2	100	10	0.1	●
1200 075	12	26	40	11	75	12	0.12	●
1200 100	12	26	60	11	100	12	0.12	●
1600 090	16	32	40	15	90	16	0.16	●
1600 125	16	32	75	15	125	16	0.16	●
2000 100	20	40	50	19	100	20	0.2	●
2000 150	20	40	100	19	150	20	0.2	●

G73*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	143

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

AL SE MINIATURE ENDMILLS - with Long Neck

Solid Carbide AL SE Miniature Endmills with long neck, 2 flutes

Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 AL SE 系列 长颈短刃 立铣刀 2 刃

VHM AL SE Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese AL SE in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d1	d2 (h6)	G68 * T ... n
0020 050 0400 005	0.2	0.3	0.5	50	0.16	4	●
0020 050 0400 010	0.2	0.3	1	50	0.16	4	●
0020 050 0400 015	0.2	0.3	1.5	50	0.16	4	●
0030 050 0400 010	0.3	0.4	1	50	0.26	4	●
0030 050 0400 020	0.3	0.4	2	50	0.26	4	●
0030 050 0400 030	0.3	0.4	3	50	0.26	4	●
0040 050 0400 020	0.4	0.6	2	50	0.37	4	●
0040 050 0400 030	0.4	0.6	3	50	0.37	4	●
0040 050 0400 040	0.4	0.6	4	50	0.37	4	●
0040 050 0400 050	0.4	0.6	5	50	0.37	4	●
0050 050 0400 020	0.5	0.7	2	50	0.45	4	●
0050 050 0400 040	0.5	0.7	4	50	0.45	4	●
0050 050 0400 060	0.5	0.7	6	50	0.45	4	●
0050 050 0400 080	0.5	0.7	8	50	0.45	4	●
0060 050 0400 020	0.6	0.9	2	50	0.55	4	●
0060 050 0400 040	0.6	0.9	4	50	0.55	4	●
0060 050 0400 060	0.6	0.9	6	50	0.55	4	●
0060 050 0400 080	0.6	0.9	8	50	0.55	4	●
0060 050 0400 100	0.6	0.9	10	50	0.55	4	●
0070 050 0400 020	0.7	1	2	50	0.65	4	●
0070 050 0400 040	0.7	1	4	50	0.65	4	●
0070 050 0400 060	0.7	1	6	50	0.65	4	●
0070 050 0400 080	0.7	1	8	50	0.65	4	●
0070 050 0400 100	0.7	1	10	50	0.65	4	●
0080 050 0400 040	0.8	1.2	4	50	0.75	4	●
0080 050 0400 060	0.8	1.2	6	50	0.75	4	●
0080 050 0400 080	0.8	1.2	8	50	0.75	4	●
0080 050 0400 100	0.8	1.2	10	50	0.75	4	●
0080 050 0400 120	0.8	1.2	12	50	0.75	4	●
0090 050 0400 060	0.9	1.2	6	50	0.85	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	158

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

AL SE MINIATURE ENDMILLS - with Long Neck

Solid Carbide AL SE Miniature Endmills with long neck, 2 flutes

Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 AL SE 系列 长颈短刃 立铣刀 2 刃

VHM AL SE Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese AL SE in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d1	d2 (h6)	G68 * G6110
0090 050 0400 080	0.9	1.4	8.0	50	0.85	4	●
0090 050 0400 100	0.9	1.4	10.0	50	0.85	4	●
0090 050 0400 150	0.9	1.4	15.0	50	0.85	4	●
0100 050 0400 060	1.0	1.5	6.0	50	0.95	4	●
0100 050 0400 080	1.0	1.5	8.0	50	0.95	4	●
0100 050 0400 100	1.0	1.5	10.0	50	0.95	4	●
0100 050 0400 120	1.0	1.5	12.0	50	0.95	4	●
0100 050 0400 140	1.0	1.5	14.0	50	0.95	4	●
0100 050 0400 160	1.0	1.5	16.0	50	0.95	4	●
0120 050 0400 060	1.2	1.8	6.0	50	1.15	4	●
0120 050 0400 080	1.2	1.8	8.0	50	1.15	4	●
0120 050 0400 100	1.2	1.8	10.0	50	1.15	4	●
0120 050 0400 120	1.2	1.8	12.0	50	1.15	4	●
0140 050 0400 060	1.4	2.1	6.0	50	1.35	4	●
0140 050 0400 080	1.4	2.1	8.0	50	1.35	4	●
0140 050 0400 100	1.4	2.1	10.0	50	1.35	4	●
0140 050 0400 120	1.4	2.1	12.0	50	1.35	4	●
0140 050 0400 140	1.4	2.1	14.0	50	1.35	4	●
0140 050 0400 160	1.4	2.1	16.0	50	1.35	4	●
0150 050 0400 060	1.5	2.3	6.0	50	1.45	4	●
0150 050 0400 080	1.5	2.3	8.0	50	1.45	4	●
0150 050 0400 100	1.5	2.3	10.0	50	1.45	4	●
0150 050 0400 120	1.5	2.3	12.0	50	1.45	4	●
0150 050 0400 140	1.5	2.3	14.0	50	1.45	4	●
0150 050 0400 160	1.5	2.3	16.0	50	1.45	4	●
0150 060 0400 180	1.5	2.3	18.0	60	1.45	4	●
0150 060 0400 200	1.5	2.3	20.0	60	1.45	4	●
0160 050 0400 060	1.6	2.4	6.0	50	1.55	4	●
0160 050 0400 080	1.6	2.4	8.0	50	1.55	4	●
0160 050 0400 100	1.6	2.4	10.0	50	1.55	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	158

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

AL SE MINIATURE ENDMILLS - with Long Neck

Solid Carbide AL SE Miniature Endmills with long neck, 2 flutes

Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 AL SE 系列 长颈短刃 立铣刀 2 刃

VHM AL SE Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese AL SE in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d1	d2 (h6)	G68 * G6110
0160 050 0400 120	1.6	2.4	12.0	50	1.55	4	●
0160 050 0400 140	1.6	2.4	14.0	50	1.55	4	●
0160 050 0400 160	1.6	2.4	16.0	50	1.55	4	●
0160 060 0400 180	1.6	2.4	18.0	60	1.55	4	●
0160 060 0400 200	1.6	2.4	20.0	60	1.55	4	●
0180 050 0400 060	1.8	2.7	6.0	50	1.75	4	●
0180 050 0400 080	1.8	2.7	8.0	50	1.75	4	●
0180 050 0400 100	1.8	2.7	10.0	50	1.75	4	●
0180 050 0400 120	1.8	2.7	12.0	50	1.75	4	●
0180 050 0400 140	1.8	2.7	14.0	50	1.75	4	●
0180 050 0400 160	1.8	2.7	16.0	50	1.75	4	●
0180 060 0400 180	1.8	2.7	18.0	60	1.75	4	●
0180 060 0400 200	1.8	2.7	20.0	60	1.75	4	●
0200 050 0400 060	2	3	6.0	50	1.95	4	●
0200 050 0400 080	2	3	8.0	50	1.95	4	●
0200 050 0400 100	2	3	10.0	50	1.95	4	●
0200 050 0400 120	2	3	12.0	50	1.95	4	●
0200 050 0400 140	2	3	14.0	50	1.95	4	●
0200 050 0400 160	2	3	16.0	50	1.95	4	●
0200 060 0400 180	2	3	18.0	60	1.95	4	●
0200 060 0400 200	2	3	20.0	60	1.95	4	●
0200 075 0400 250	2	3	25.0	75	1.95	4	●
0200 075 0400 300	2	3	30.0	75	1.95	4	●
0250 050 0400 080	2.5	3.7	8.0	50	2.4	4	●
0250 050 0400 100	2.5	3.7	10.0	50	2.4	4	●
0250 050 0400 120	2.5	3.7	12.0	50	2.4	4	●
0250 050 0400 140	2.5	3.7	14.0	50	2.4	4	●
0250 050 0400 160	2.5	3.7	16.0	50	2.4	4	●
0250 060 0400 180	2.5	3.7	18.0	60	2.4	4	●
0250 060 0400 200	2.5	3.7	20.0	60	2.4	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	158

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

AL SE MINIATURE ENDMILLS - with Long Neck

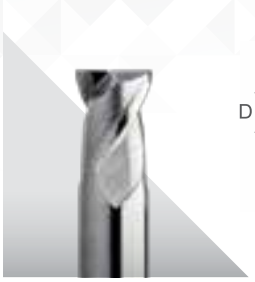
Solid Carbide AL SE Miniature Endmills with long neck, 2 flutes

Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 AL SE 系列 长颈短刃 立铣刀 2 刃

VHM AL SE Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese AL SE in metallo duro integrale con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d1	d2 (h6)	G68 * G6110
0250 060 0400 250	2.5	3.7	25.0	60	2.4	4	●
0250 075 0400 300	2.5	3.7	30.0	75	2.4	4	●
0300 050 0600 080	3	4.5	8.0	50	2.85	6	●
0300 050 0600 100	3	4.5	10.0	50	2.85	6	●
0300 050 0600 120	3	4.5	12.0	50	2.85	6	●
0300 050 0600 140	3	4.5	14.0	50	2.85	6	●
0300 060 0600 160	3	4.5	16.0	60	2.85	6	●
0300 060 0600 180	3	4.5	18.0	60	2.85	6	●
0300 060 0600 200	3	4.5	20.0	60	2.85	6	●
0300 075 0600 250	3	4.5	25.0	75	2.85	6	●
0400 060 0600 100	4	4.5	10.0	60	3.85	6	●
0400 060 0600 150	4	4.5	15.0	60	3.85	6	●
0400 060 0600 200	4	4.5	20.0	60	3.85	6	●
0400 075 0600 250	4	4.5	25.0	75	3.85	6	●
0400 075 0600 300	4	4.5	30.0	75	3.85	6	●
0400 075 0600 400	4	4.5	40.0	75	3.85	6	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	158

若有技术规格变更，恕不事先通知

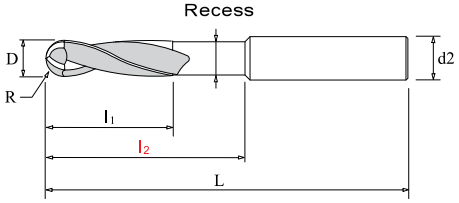
AL BN STANDARD BALLNOSE CUTTERS for Aluminium-Alloys & Copper Eletrodes

Solid Carbide AL-BN Standard Ballnose Cutters, 2 flutes
Fraises AL-BN Standard en carbure monobloc, à bout hémisphérique,2 dents
整体硬质合金 AL-BN 系列 球头 立铣刀 2 刃 - 标准长度
VHM Standard AL-BN Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo AL-BN Standard, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							G74*
=*+Ødata	D	R	l 1	l 2	d 3	L	d2 (h6)	T ... n
0300	3	1.5	5	20	2.8	57	6	●
0400	4	2	6	20	3.7	57	6	●
0500	5	2.5	7	20	4.6	57	6	●
0600	6	3	8	20	5.5	57	6	●
0800	8	4	10	25	7.4	64	8	●
1000	10	5	12	35	9.2	75	10	●
1200	12	6	14	35	11	75	12	●
1600	16	8	18	45	15	90	16	●
2000	20	10	22	50	19	100	20	●

G75*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求



Ø mm	Tol. µm
~ Ø 2.5	+ 0 -0.020
Ø 3 ~ Ø 6	+0 -0.025
> Ø 6	+0 -0.030

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	156

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

AL BN MINIATURE BALLNOSE CUTTERS - with Long Neck

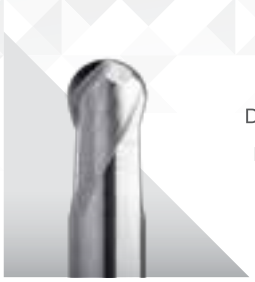
Solid Carbide AL BN Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises AL BN en carbure monobloc avec bout hémisphérique et cou long, 2 dents

整体硬质合金 AL BN 系列 长颈短刃 球头 立铣刀 2 刃

VHM Kleinst-Radiusfräser AL BN mit langem Hals, 2 Zähne

Micro-frese cilindriche AL BN a raggio con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)							G76*
	D	l 1	l 2	l 2	L	d1	d2 (h6)	G6110
0020 050 0400 005	0.2	0.10	0.2	0.5	50	0.15	4	●
0020 050 0400 010	0.2	0.10	0.2	1.0	50	0.15	4	●
0020 050 0400 015	0.2	0.10	0.2	1.5	50	0.15	4	●
0030 050 0400 010	0.3	0.15	0.3	1.0	50	0.25	4	●
0030 050 0400 020	0.3	0.15	0.3	2.0	50	0.25	4	●
0030 050 0400 030	0.3	0.15	0.3	3.0	50	0.25	4	●
0040 050 0400 010	0.4	0.20	0.4	1.0	50	0.35	4	●
0040 050 0400 020	0.4	0.20	0.4	2.0	50	0.35	4	●
0040 050 0400 030	0.4	0.20	0.4	3.0	50	0.35	4	●
0040 050 0400 040	0.4	0.20	0.4	4.0	50	0.35	4	●
0040 050 0400 050	0.4	0.20	0.4	5.0	50	0.35	4	●
0050 050 0400 020	0.5	0.25	0.4	2.0	50	0.45	4	●
0050 050 0400 030	0.5	0.25	0.4	3.0	50	0.45	4	●
0050 050 0400 040	0.5	0.25	0.4	4.0	50	0.45	4	●
0050 050 0400 050	0.5	0.25	0.4	5.0	50	0.45	4	●
0050 050 0400 060	0.5	0.25	0.4	6.0	50	0.45	4	●
0050 050 0400 080	0.5	0.25	0.4	8.0	50	0.45	4	●
0060 050 0400 020	0.6	0.3	0.5	2.0	50	0.55	4	●
0060 050 0400 030	0.6	0.3	0.5	3.0	50	0.55	4	●
0060 050 0400 040	0.6	0.3	0.5	4.0	50	0.55	4	●
0060 050 0400 050	0.6	0.3	0.5	5.0	50	0.55	4	●
0060 050 0400 060	0.6	0.3	0.5	6.0	50	0.55	4	●
0060 050 0400 080	0.6	0.3	0.5	8.0	50	0.55	4	●
0080 050 0400 020	0.8	0.4	0.6	2.0	50	0.75	4	●
0080 050 0400 040	0.8	0.4	0.6	4.0	50	0.75	4	●
0080 050 0400 050	0.8	0.4	0.6	5.0	50	0.75	4	●
0080 050 0400 060	0.8	0.4	0.6	6.0	50	0.75	4	●
0080 050 0400 070	0.8	0.4	0.6	7.0	50	0.75	4	●
0080 050 0400 080	0.8	0.4	0.6	8.0	50	0.75	4	●
0080 050 0400 100	0.8	0.4	0.6	10.0	50	0.75	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	164

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

AL BN MINIATURE BALLNOSE CUTTERS - with Long Neck

Solid Carbide AL BN Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises AL BN en carbure monobloc avec bout hémisphérique et cou long, 2 dents

整体硬质合金 AL BN 系列 长颈短刃 球头 立铣刀 2 刃

VHM Kleinst-Radiusfräser AL BN mit langem Hals, 2 Zähne

Micro-frese cilindriche AL BN a raggio con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	l2	L	d1	d2 (h6)	GGG* G6110
0100 050 0400 030	1.0	0.5	0.8	3.0	50	0.95	4	●
0100 050 0400 040	1.0	0.5	0.8	4.0	50	0.95	4	●
0100 050 0400 050	1.0	0.5	0.8	5.0	50	0.95	4	●
0100 050 0400 060	1.0	0.5	0.8	6.0	50	0.95	4	●
0100 050 0400 070	1.0	0.5	0.8	7.0	50	0.95	4	●
0100 050 0400 080	1.0	0.5	0.8	8.0	50	0.95	4	●
0100 050 0400 090	1.0	0.5	0.8	9.0	50	0.95	4	●
0100 050 0400 100	1.0	0.5	0.8	10.0	50	0.95	4	●
0100 050 0400 120	1.0	0.5	0.8	12.0	50	0.95	4	●
0100 050 0400 140	1.0	0.5	0.8	14.0	50	0.95	4	●
0100 050 0400 160	1.0	0.5	0.8	20.0	50	0.95	4	●
0100 060 0400 200	1.2	0.6	1.0	6.0	50	1.15	4	●
0120 050 0400 060	1.2	0.6	1.0	8.0	50	1.15	4	●
0120 050 0400 080	1.2	0.6	1.0	10.0	50	1.15	4	●
0120 050 0400 100	1.2	0.6	1.0	12.0	50	1.15	4	●
0120 050 0400 120	1.4	0.7	1.1	8.0	50	1.35	4	●
0140 050 0400 080	1.4	0.7	1.1	12.0	50	1.35	4	●
0140 050 0400 120	1.4	0.7	1.1	16.0	50	1.35	4	●
0140 050 0400 160	1.5	0.75	1.2	8.0	50	1.45	4	●
0150 050 0400 080	1.5	0.75	1.2	12.0	50	1.45	4	●
0150 050 0400 120	1.5	0.75	1.2	16.0	50	1.45	4	●
0150 050 0400 160	1.5	0.75	1.2	18.0	60	1.45	4	●
0150 060 0400 180	1.6	0.8	1.3	8.0	50	1.55	4	●
0160 050 0400 080	1.6	0.8	1.3	12.0	50	1.55	4	●
0160 050 0400 120	1.6	0.8	1.3	16.0	50	1.55	4	●
0160 050 0400 160	1.6	0.8	1.3	20.0	60	1.55	4	●
0160 060 0400 200	1.8	0.9	1.4	8.0	50	1.75	4	●
0180 050 0400 080	1.8	0.9	1.4	12.0	50	1.75	4	●
0180 050 0400 120	1.8	0.9	1.4	16.0	50	1.75	4	●
0180 050 0400 160	1.8	0.9	1.4	20.0	60	1.75	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	164

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

AL BN MINIATURE BALLNOSE CUTTERS - with Long Neck

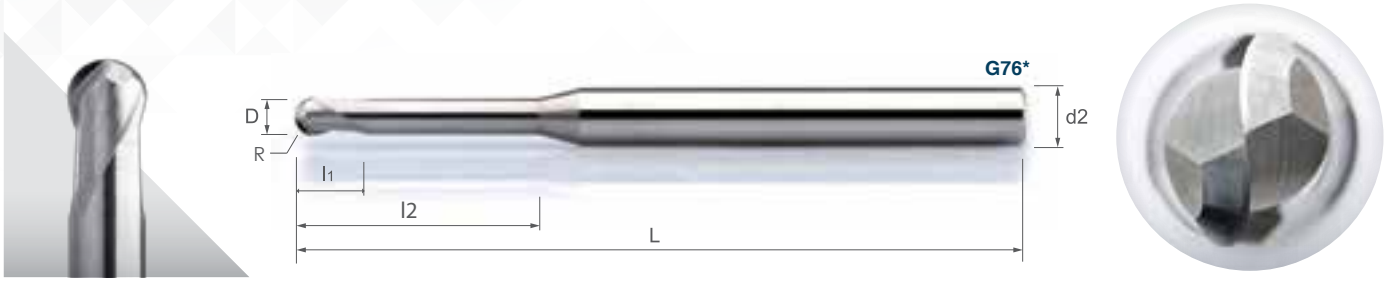
Solid Carbide AL BN Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises AL BN en carbure monobloc avec bout hémisphérique et cou long, 2 dents

整体硬质合金 AL BN 系列 长颈短刃 球头 立铣刀 2 刃

VHM Kleinst-Radiusfräser AL BN mit langem Hals, 2 Zähne

Micro-frese cilindriche AL BN a raggio con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	l 2	L	d1	d2 (h6)	G76* T ... n
0200 050 0400 040	2	1.0	1.6	4.0	50	1.95	4	●
0200 050 0400 060	2	1.0	1.6	6.0	50	1.95	4	●
0200 050 0400 080	2	1.0	1.6	8.0	50	1.95	4	●
0200 050 0400 100	2	1.0	1.6	10.0	50	1.95	4	●
0200 050 0400 120	2	1.0	1.6	12.0	50	1.95	4	●
0200 050 0400 140	2	1.0	1.6	14.0	50	1.95	4	●
0200 050 0400 160	2	1.0	1.6	16.0	50	1.95	4	●
0200 060 0400 180	2	1.0	1.6	18.0	60	1.95	4	●
0200 060 0400 200	2	1.0	1.6	20.0	60	1.95	4	●
0200 060 0400 220	2	1.0	1.6	22.0	60	1.95	4	●
0200 075 0400 250	2	1.0	1.6	25.0	75	1.95	4	●
0200 075 0400 300	2	1.0	1.6	30.0	75	1.95	4	●
0300 050 0600 080	3	1.5	2.4	8.0	50	2.85	6	●
0300 050 0600 100	3	1.5	2.4	10.0	50	2.85	6	●
0300 060 0600 160	3	1.5	2.4	16.0	60	2.85	6	●
0300 060 0600 200	3	1.5	2.4	20.0	60	2.85	6	●
0300 075 0600 250	3	1.5	2.4	25.0	75	2.85	6	●
0300 075 0600 300	3	1.5	2.4	30.0	75	2.85	6	●
0300 075 0600 350	3	1.5	2.4	35.0	75	2.85	6	●
0400 050 0600 100	4	2.0	3.2	10.0	50	3.85	6	●
0400 060 0600 160	4	2.0	3.2	16.0	60	3.85	6	●
0400 060 0600 200	4	2.0	3.2	20.0	60	3.85	6	●
0400 075 0600 250	4	2.0	3.2	25.0	75	3.85	6	●
0400 075 0600 300	4	2.0	3.2	30.0	75	3.85	6	●
0400 075 0600 350	4	2.0	3.2	35.0	75	3.85	6	●
0400 100 0600 400	4	2.0	3.2	40.0	100	3.85	6	●
0400 100 0600 450	4	2.0	3.2	45.0	100	3.85	6	●
0400 100 0600 500	4	2.0	3.2	50.0	100	3.85	6	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

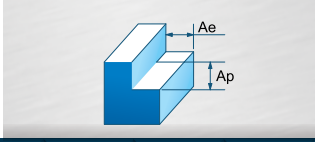
M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	164

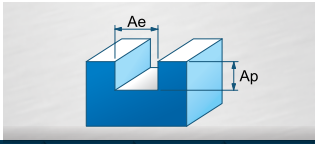
MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

AL SE Single Flute Series Endmills



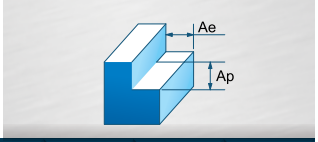
1 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	2	1	251	0.041 ~ 0.048	≤1.0D	≤0.25D	40000	1640 ~ 1920
		3	1	377	0.067 ~ 0.076	≤1.0D	≤0.25D	40000	2680 ~ 3040
		4	1	500 ~ 503	0.092 ~ 0.103	≤1.0D	≤0.5D	39790	3660 ~ 4120
		5	1	500 ~ 600	0.118 ~ 0.131	≤1.0D	≤0.5D	31830 ~ 38200	3760 ~ 5000
		6	1	500 ~ 600	0.144 ~ 0.158	≤1.0D	≤0.5D	26530 ~ 31830	3820 ~ 5030
		8	1	500 ~ 600	0.179 ~ 0.197	≤1.0D	≤0.5D	19890 ~ 23870	3560 ~ 4700
		10	1	500 ~ 600	0.215 ~ 0.236	≤1.0D	≤0.5D	15920 ~ 19100	3420 ~ 4510
		12	1	500 ~ 600	0.250 ~ 0.275	≤1.0D	≤0.5D	13260 ~ 15920	3320 ~ 4380
ALUMINIUM ALLOYS SI <8%	M04, M05, M06, M07	2	1	251	0.035 ~ 0.042	≤1.0D	≤0.25D	40000	1400 ~ 1680
		3	1	350 ~ 377	0.058 ~ 0.066	≤1.0D	≤0.25D	37140 ~ 40000	2150 ~ 2640
		4	1	350 ~ 400	0.080 ~ 0.090	≤1.0D	≤0.5D	27850 ~ 31830	2230 ~ 2860
		5	1	350 ~ 400	0.103 ~ 0.114	≤1.0D	≤0.5D	22280 ~ 25460	2290 ~ 2900
		6	1	350 ~ 400	0.126 ~ 0.139	≤1.0D	≤0.5D	18570 ~ 21220	2340 ~ 2950
		8	1	350 ~ 400	0.157 ~ 0.173	≤1.0D	≤0.5D	13930 ~ 15920	2190 ~ 2750
		10	1	350 ~ 400	0.188 ~ 0.207	≤1.0D	≤0.5D	11140 ~ 12730	2090 ~ 2640
		12	1	350 ~ 400	0.219 ~ 0.241	≤1.0D	≤0.5D	9280 ~ 10610	2030 ~ 2560
COPPER	M03	2	1	251	0.035 ~ 0.042	≤1.0D	≤0.25D	40000	1400 ~ 1680
		3	1	300 ~ 350	0.058 ~ 0.066	≤1.0D	≤0.25D	31830 ~ 37140	1850 ~ 2450
		4	1	300 ~ 350	0.080 ~ 0.090	≤1.0D	≤0.5D	23870 ~ 27850	1910 ~ 2510
		5	1	300 ~ 350	0.103 ~ 0.114	≤1.0D	≤0.5D	19100 ~ 22280	1970 ~ 2540
		6	1	300 ~ 350	0.126 ~ 0.139	≤1.0D	≤0.5D	15920 ~ 18570	2010 ~ 2580
		8	1	300 ~ 350	0.157 ~ 0.173	≤1.0D	≤0.5D	11940 ~ 13930	1870 ~ 2410
		10	1	300 ~ 350	0.188 ~ 0.207	≤1.0D	≤0.5D	9550 ~ 11140	1800 ~ 2310
		12	1	300 ~ 350	0.219 ~ 0.241	≤1.0D	≤0.5D	7960 ~ 9280	1740 ~ 2240
BRASS, BRONZE	M08, M09	2	1	200 ~ 250	0.035 ~ 0.042	≤1.0D	≤0.25D	31830 ~ 39790	1110 ~ 1670
		3	1	200 ~ 250	0.058 ~ 0.066	≤1.0D	≤0.25D	21220 ~ 26530	1230 ~ 1750
		4	1	200 ~ 250	0.080 ~ 0.090	≤1.0D	≤0.5D	15920 ~ 19890	1270 ~ 1790
		5	1	200 ~ 250	0.103 ~ 0.114	≤1.0D	≤0.5D	12730 ~ 15920	1310 ~ 1810
		6	1	200 ~ 250	0.126 ~ 0.139	≤1.0D	≤0.5D	10610 ~ 13260	1340 ~ 1840
		8	1	200 ~ 250	0.157 ~ 0.173	≤1.0D	≤0.5D	7960 ~ 9950	1250 ~ 1720
		10	1	200 ~ 250	0.188 ~ 0.207	≤1.0D	≤0.5D	6370 ~ 7960	1200 ~ 1650
		12	1	200 ~ 250	0.219 ~ 0.241	≤1.0D	≤0.5D	5310 ~ 6630	1160 ~ 1600
THERMOPLASTICS	M01	2	1	251	0.056 ~ 0.065	≤1.0D	≤0.25D	40000	2240 ~ 2600
		3	1	377	0.092 ~ 0.103	≤1.0D	≤0.25D	40000	3680 ~ 4120
		4	1	503	0.127 ~ 0.141	≤1.0D	≤0.5D	40000	5080 ~ 5640
		5	1	628	0.163 ~ 0.180	≤1.0D	≤0.5D	40000	6520 ~ 7200
		6	1	754	0.198 ~ 0.218	≤1.0D	≤0.5D	40000	7920 ~ 8720
		8	1	800 ~ 850	0.247 ~ 0.271	≤1.0D	≤0.5D	31830 ~ 33820	7860 ~ 9170
		10	1	800 ~ 850	0.295 ~ 0.325	≤1.0D	≤0.5D	25460 ~ 27060	7510 ~ 8790
		12	1	800 ~ 850	0.344 ~ 0.378	≤1.0D	≤0.5D	21220 ~ 22550	7300 ~ 8520

AL SE Single Flute Series Endmills



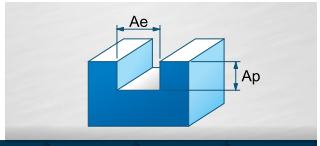
1 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	2	1	251	0.033 ~ 0.039	≤0.75D	≤1.0D	40000	1320 ~ 1560
		3	1	377	0.053 ~ 0.061	≤0.75D	≤1.0D	40000	2120 ~ 2440
		4	1	500 ~ 503	0.074 ~ 0.083	≤1.0D	≤1.0D	39790 ~ 40000	2940 ~ 3320
		5	1	500 ~ 600	0.095 ~ 0.105	≤1.0D	≤1.0D	31830 ~ 38200	3020 ~ 4010
		6	1	500 ~ 600	0.115 ~ 0.127	≤1.0D	≤1.0D	26530 ~ 31830	3050 ~ 4040
		8	1	500 ~ 600	0.143 ~ 0.158	≤1.0D	≤1.0D	19890 ~ 23870	2840 ~ 3770
		10	1	500 ~ 600	0.172 ~ 0.189	≤1.0D	≤1.0D	15920 ~ 19100	2740 ~ 3610
		12	1	500 ~ 600	0.200 ~ 0.220	≤1.0D	≤1.0D	13260 ~ 15920	2650 ~ 3500
ALUMINIUM ALLOYS SI <8%	M04, M05, M06, M07	2	1	251	0.028 ~ 0.034	≤0.75D	≤1.0D	40000	1120 ~ 1360
		3	1	350 ~ 377	0.046 ~ 0.053	≤0.75D	≤1.0D	37140 ~ 40000	1710 ~ 2120
		4	1	350 ~ 400	0.064 ~ 0.072	≤1.0D	≤1.0D	27850 ~ 31830	1780 ~ 2290
		5	1	350 ~ 400	0.083 ~ 0.092	≤1.0D	≤1.0D	22280 ~ 25460	1850 ~ 2340
		6	1	350 ~ 400	0.101 ~ 0.111	≤1.0D	≤1.0D	18570 ~ 21220	1880 ~ 2360
		8	1	350 ~ 400	0.126 ~ 0.138	≤1.0D	≤1.0D	13930 ~ 15920	1760 ~ 2200
		10	1	350 ~ 400	0.150 ~ 0.165	≤1.0D	≤1.0D	11140 ~ 12730	1670 ~ 2100
		12	1	350 ~ 400	0.175 ~ 0.193	≤1.0D	≤1.0D	9280 ~ 10610	1620 ~ 2050
COPPER	M03	2	1	251	0.028 ~ 0.034	≤0.75D	≤1.0D	40000	1120 ~ 1360
		3	1	300 ~ 350	0.046 ~ 0.053	≤0.75D	≤1.0D	31830 ~ 37140	1460 ~ 1970
		4	1	300 ~ 350	0.064 ~ 0.072	≤1.0D	≤1.0D	23870 ~ 27850	1530 ~ 2010
		5	1	300 ~ 350	0.083 ~ 0.092	≤1.0D	≤1.0D	19100 ~ 22280	1590 ~ 2050
		6	1	300 ~ 350	0.101 ~ 0.111	≤1.0D	≤1.0D	15920 ~ 18570	1610 ~ 2060
		8	1	300 ~ 350	0.126 ~ 0.138	≤1.0D	≤1.0D	11940 ~ 13930	1500 ~ 1920
		10	1	300 ~ 350	0.150 ~ 0.165	≤1.0D	≤1.0D	9550 ~ 11140	1430 ~ 1840
		12	1	300 ~ 350	0.175 ~ 0.193	≤1.0D	≤1.0D	7960 ~ 9280	1390 ~ 1790
BRASS, BRONZE	M08, M09	2	1	200 ~ 250	0.028 ~ 0.034	≤0.75D	≤1.0D	31830 ~ 39790	890 ~ 1350
		3	1	200 ~ 250	0.046 ~ 0.053	≤0.75D	≤1.0D	21220 ~ 26530	980 ~ 1410
		4	1	200 ~ 250	0.064 ~ 0.072	≤1.0D	≤1.0D	15920 ~ 19890	1020 ~ 1430
		5	1	200 ~ 250	0.083 ~ 0.092	≤1.0D	≤1.0D	12730 ~ 15920	1060 ~ 1460
		6	1	200 ~ 250	0.101 ~ 0.111	≤1.0D	≤1.0D	10610 ~ 13260	1070 ~ 1470
		8	1	200 ~ 250	0.126 ~ 0.138	≤1.0D	≤1.0D	7960 ~ 9950	1000 ~ 1370
		10	1	200 ~ 250	0.150 ~ 0.165	≤1.0D	≤1.0D	6370 ~ 7960	960 ~ 1310
		12	1	200 ~ 250	0.175 ~ 0.193	≤1.0D	≤1.0D	5310 ~ 6630	930 ~ 1280
THERMOPLASTICS	M01	2	1	251	0.045 ~ 0.052	≤0.75D	≤1.0D	40000	1800 ~ 2080
		3	1	377	0.073 ~ 0.083	≤0.75D	≤1.0D	40000	2920 ~ 3320
		4	1	503	0.102 ~ 0.113	≤1.0D	≤1.0D	40000	4080 ~ 4520
		5	1	628	0.130 ~ 0.144	≤1.0D	≤1.0D	40000	5200 ~ 5760
		6	1	754	0.158 ~ 0.174	≤1.0D	≤1.0D	40000	6320 ~ 6960
		8	1	800 ~ 850	0.197 ~ 0.217	≤1.0D	≤1.0D	31830 ~ 33820	6270 ~ 7340
		10	1	800 ~ 850	0.236 ~ 0.260	≤1.0D	≤1.0D	25460 ~ 27060	6010 ~ 7040
		12	1	800 ~ 850	0.275 ~ 0.303	≤1.0D	≤1.0D	21220 ~ 22550	5840 ~ 6830

AL SE Standard Series Endmills



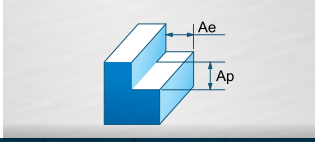
2 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	2	126	0.012 ~ 0.017	≤1.5D	≤0.3D	40000	960 ~ 1360
		2	2	251	0.033 ~ 0.039	≤1.5D	≤0.3D	40000	2640 ~ 3120
		3	2	377	0.053 ~ 0.061	≤1.5D	≤0.3D	40000	4240 ~ 4880
		4	2	500 ~ 503	0.074 ~ 0.083	≤1.5D	≤0.5D	39790 ~ 40000	5890 ~ 6640
		5	2	500 ~ 600	0.095 ~ 0.105	≤1.5D	≤0.5D	31830 ~ 38200	6050 ~ 8020
		6	2	500 ~ 600	0.115 ~ 0.127	≤1.5D	≤0.5D	26530 ~ 31830	6100 ~ 8080
		8	2	500 ~ 600	0.143 ~ 0.158	≤1.5D	≤0.5D	19890 ~ 23870	5690 ~ 7540
		10	2	500 ~ 600	0.172 ~ 0.189	≤1.5D	≤0.5D	15920 ~ 19100	5480 ~ 7220
		12	2	500 ~ 600	0.200 ~ 0.220	≤1.5D	≤0.5D	13260 ~ 15920	5300 ~ 7000
		14	2	500 ~ 600	0.228 ~ 0.251	≤1.5D	≤0.5D	11370 ~ 13640	5180 ~ 6850
		16	2	500 ~ 600	0.257 ~ 0.282	≤1.5D	≤0.5D	9950 ~ 11940	5110 ~ 6730
		18	2	500 ~ 600	0.285 ~ 0.313	≤1.5D	≤0.5D	8840 ~ 10610	5040 ~ 6640
		20	2	500 ~ 600	0.313 ~ 0.345	≤1.5D	≤0.5D	7960 ~ 9550	4980 ~ 6590
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	2	126	0.010 ~ 0.014	≤1.5D	≤0.3D	40000	800 ~ 1120
		2	2	251	0.028 ~ 0.034	≤1.5D	≤0.3D	40000	2240 ~ 2720
		3	2	350 ~ 377	0.046 ~ 0.053	≤1.5D	≤0.3D	37140 ~ 40000	3420 ~ 4240
		4	2	350 ~ 400	0.064 ~ 0.072	≤1.5D	≤0.5D	27850 ~ 31830	3560 ~ 4580
		5	2	350 ~ 400	0.083 ~ 0.092	≤1.5D	≤0.5D	22280 ~ 25460	3700 ~ 4680
		6	2	350 ~ 400	0.101 ~ 0.111	≤1.5D	≤0.5D	18570 ~ 21220	3750 ~ 4710
		8	2	350 ~ 400	0.126 ~ 0.138	≤1.5D	≤0.5D	13930 ~ 15920	3510 ~ 4390
		10	2	350 ~ 400	0.150 ~ 0.165	≤1.5D	≤0.5D	11140 ~ 12730	3340 ~ 4200
		12	2	350 ~ 400	0.175 ~ 0.193	≤1.5D	≤0.5D	9280 ~ 10610	3250 ~ 4100
		14	2	350 ~ 400	0.200 ~ 0.220	≤1.5D	≤0.5D	7960 ~ 9090	3180 ~ 4000
		16	2	350 ~ 400	0.225 ~ 0.247	≤1.5D	≤0.5D	6960 ~ 7960	3130 ~ 3930
		18	2	350 ~ 400	0.249 ~ 0.274	≤1.5D	≤0.5D	6190 ~ 7070	3080 ~ 3870
		20	2	350 ~ 400	0.274 ~ 0.302	≤1.5D	≤0.5D	5570 ~ 6370	3050 ~ 3850
COPPER	M03	1	2	126	0.010 ~ 0.014	≤1.5D	≤0.3D	40000	800 ~ 1120
		2	2	251	0.028 ~ 0.034	≤1.5D	≤0.3D	40000	2240 ~ 2720
		3	2	300 ~ 350	0.046 ~ 0.053	≤1.5D	≤0.3D	31830 ~ 37140	2930 ~ 3940
		4	2	300 ~ 350	0.064 ~ 0.072	≤1.5D	≤0.5D	23870 ~ 27850	3060 ~ 4010
		5	2	300 ~ 350	0.083 ~ 0.092	≤1.5D	≤0.5D	19100 ~ 22280	3170 ~ 4100
		6	2	300 ~ 350	0.101 ~ 0.111	≤1.5D	≤0.5D	15920 ~ 18570	3220 ~ 4120
		8	2	300 ~ 350	0.126 ~ 0.138	≤1.5D	≤0.5D	11940 ~ 13930	3010 ~ 3840
		10	2	300 ~ 350	0.150 ~ 0.165	≤1.5D	≤0.5D	9550 ~ 11140	2870 ~ 3680
		12	2	300 ~ 350	0.175 ~ 0.193	≤1.5D	≤0.5D	7960 ~ 9280	2790 ~ 3580
		14	2	300 ~ 350	0.200 ~ 0.220	≤1.5D	≤0.5D	6820 ~ 7960	2730 ~ 3500
		16	2	300 ~ 350	0.225 ~ 0.247	≤1.5D	≤0.5D	5970 ~ 6960	2690 ~ 3440
		18	2	300 ~ 350	0.249 ~ 0.274	≤1.5D	≤0.5D	5310 ~ 6190	2640 ~ 3390
		20	2	300 ~ 350	0.274 ~ 0.302	≤1.5D	≤0.5D	4770 ~ 5570	2610 ~ 3360
BRASS, BRONZE	M08, M09	1	2	126	0.010 ~ 0.014	≤1.5D	≤0.3D	40000	800 ~ 1120
		2	2	200 ~ 250	0.028 ~ 0.034	≤1.5D	≤0.3D	31830 ~ 39790	1780 ~ 2710
		3	2	200 ~ 250	0.046 ~ 0.053	≤1.5D	≤0.3D	21220 ~ 26530	1950 ~ 2810
		4	2	200 ~ 250	0.064 ~ 0.072	≤1.5D	≤0.5D	15920 ~ 19890	2040 ~ 2860
		5	2	200 ~ 250	0.083 ~ 0.092	≤1.5D	≤0.5D	12730 ~ 15920	2110 ~ 2930
		6	2	200 ~ 250	0.101 ~ 0.111	≤1.5D	≤0.5D	10610 ~ 13260	2140 ~ 2940
		8	2	200 ~ 250	0.126 ~ 0.138	≤1.5D	≤0.5D	7960 ~ 9950	2010 ~ 2750
		10	2	200 ~ 250	0.150 ~ 0.165	≤1.5D	≤0.5D	6370 ~ 7960	1910 ~ 2630
		12	2	200 ~ 250	0.175 ~ 0.193	≤1.5D	≤0.5D	5310 ~ 6630	1860 ~ 2560
		14	2	200 ~ 250	0.200 ~ 0.220	≤1.5D	≤0.5D	4550 ~ 5680	1820 ~ 2500
		16	2	200 ~ 250	0.225 ~ 0.247	≤1.5D	≤0.5D	3980 ~ 4970	1790 ~ 2460
		18	2	200 ~ 250	0.249 ~ 0.274	≤1.5D	≤0.5D	3540 ~ 4420	1760 ~ 2420
		20	2	200 ~ 250	0.274 ~ 0.302	≤1.5D	≤0.5D	3180 ~ 3980	1740 ~ 2400
THERMOPLASTICS	M01	1	2	126	0.017 ~ 0.022	≤1.5D	≤0.3D	40000	1360 ~ 1760
		2	2	251	0.045 ~ 0.052	≤1.5D	≤0.3D	40000	3600 ~ 4160
		3	2	377	0.073 ~ 0.083	≤1.5D	≤0.3D	40000	5840 ~ 6640
		4	2	503	0.102 ~ 0.113	≤1.5D	≤0.5D	40000	8160 ~ 9040
		5	2	628	0.130 ~ 0.144	≤1.5D	≤0.5D	40000	10400 ~ 11520
		6	2	754	0.158 ~ 0.174	≤1.5D	≤0.5D	40000	12640 ~ 13920
		8	2	800 ~ 850	0.197 ~ 0.217	≤1.5D	≤0.5D	31830 ~ 33820	12540 ~ 14680
		10	2	800 ~ 850	0.236 ~ 0.260	≤1.5D	≤0.5D	25460 ~ 27060	12020 ~ 14070
		12	2	800 ~ 850	0.275 ~ 0.303	≤1.5D	≤0.5D	21220 ~ 22550	11670 ~ 13670
		14	2	800 ~ 850	0.314 ~ 0.345	≤1.5D	≤0.5D	18190 ~ 19330	11420 ~ 13340
		16	2	800 ~ 850	0.353 ~ 0.388	≤1.5D	≤0.5D	15920 ~ 16910	11240 ~ 13120
		18	2	800 ~ 850	0.392 ~ 0.431	≤1.5D	≤0.5D	14150 ~ 15030	11090 ~ 12960
		20	2	800 ~ 850	0.431 ~ 0.474	≤1.5D	≤0.5D	12730 ~ 13530	10970 ~ 12830

AL SE Standard Series Endmills



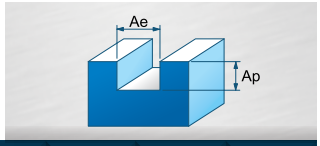
2 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	2	126	0.010 ~ 0.013	≤0.75D	≤1.0D	40000	800 ~ 1040
		2	2	251	0.026 ~ 0.031	≤0.75D	≤1.0D	40000	2080 ~ 2480
		3	2	377	0.043 ~ 0.049	≤1.0D	≤1.0D	40000	3440 ~ 3920
		4	2	500 ~ 503	0.059 ~ 0.066	≤1.0D	≤1.0D	39790 ~ 40000	4700 ~ 5280
		5	2	500 ~ 600	0.076 ~ 0.084	≤1.0D	≤1.0D	31830 ~ 38200	4840 ~ 6420
		6	2	500 ~ 600	0.092 ~ 0.101	≤1.0D	≤1.0D	26530 ~ 31830	4880 ~ 6430
		8	2	500 ~ 600	0.115 ~ 0.126	≤1.0D	≤1.0D	19890 ~ 23870	4570 ~ 6020
		10	2	500 ~ 600	0.137 ~ 0.151	≤1.0D	≤1.0D	15920 ~ 19100	4360 ~ 5770
		12	2	500 ~ 600	0.160 ~ 0.176	≤1.0D	≤1.0D	13260 ~ 15920	4240 ~ 5600
		14	2	500 ~ 600	0.183 ~ 0.201	≤1.0D	≤1.0D	11370 ~ 13640	4160 ~ 5480
		16	2	500 ~ 600	0.205 ~ 0.226	≤1.0D	≤1.0D	9950 ~ 11940	4080 ~ 5400
		18	2	500 ~ 600	0.228 ~ 0.251	≤1.0D	≤1.0D	8840 ~ 10610	4030 ~ 5330
		20	2	500 ~ 600	0.251 ~ 0.276	≤1.0D	≤1.0D	7960 ~ 9550	4000 ~ 5270
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	2	126	0.008 ~ 0.012	≤0.75D	≤1.0D	40000	640 ~ 960
		2	2	251	0.022 ~ 0.027	≤0.75D	≤1.0D	40000	1760 ~ 2160
		3	2	350 ~ 377	0.037 ~ 0.042	≤1.0D	≤1.0D	37140 ~ 40000	2750 ~ 3360
		4	2	350 ~ 400	0.051 ~ 0.058	≤1.0D	≤1.0D	27850 ~ 31830	2840 ~ 3690
		5	2	350 ~ 400	0.066 ~ 0.073	≤1.0D	≤1.0D	22280 ~ 25460	2940 ~ 3720
		6	2	350 ~ 400	0.081 ~ 0.089	≤1.0D	≤1.0D	18570 ~ 21220	3010 ~ 3780
		8	2	350 ~ 400	0.100 ~ 0.110	≤1.0D	≤1.0D	13930 ~ 15920	2790 ~ 3500
		10	2	350 ~ 400	0.120 ~ 0.132	≤1.0D	≤1.0D	11140 ~ 12730	2670 ~ 3360
		12	2	350 ~ 400	0.140 ~ 0.154	≤1.0D	≤1.0D	9280 ~ 10610	2600 ~ 3270
		14	2	350 ~ 400	0.160 ~ 0.176	≤1.0D	≤1.0D	7960 ~ 9090	2550 ~ 3200
		16	2	350 ~ 400	0.180 ~ 0.198	≤1.0D	≤1.0D	6960 ~ 7960	2510 ~ 3150
		18	2	350 ~ 400	0.199 ~ 0.219	≤1.0D	≤1.0D	6190 ~ 7070	2460 ~ 3100
		20	2	350 ~ 400	0.219 ~ 0.241	≤1.0D	≤1.0D	5570 ~ 6370	2440 ~ 3070
COPPER	M03	1	2	126	0.008 ~ 0.012	≤0.75D	≤1.0D	40000	640 ~ 960
		2	2	251	0.022 ~ 0.027	≤0.75D	≤1.0D	40000	1760 ~ 2160
		3	2	300 ~ 350	0.037 ~ 0.042	≤1.0D	≤1.0D	31830 ~ 37140	2360 ~ 3120
		4	2	300 ~ 350	0.051 ~ 0.058	≤1.0D	≤1.0D	23870 ~ 27850	2430 ~ 3230
		5	2	300 ~ 350	0.066 ~ 0.073	≤1.0D	≤1.0D	19100 ~ 22280	2520 ~ 3250
		6	2	300 ~ 350	0.081 ~ 0.089	≤1.0D	≤1.0D	15920 ~ 18570	2580 ~ 3310
		8	2	300 ~ 350	0.100 ~ 0.110	≤1.0D	≤1.0D	11940 ~ 13930	2390 ~ 3060
		10	2	300 ~ 350	0.120 ~ 0.132	≤1.0D	≤1.0D	9550 ~ 11140	2290 ~ 2940
		12	2	300 ~ 350	0.140 ~ 0.154	≤1.0D	≤1.0D	7960 ~ 9280	2230 ~ 2860
		14	2	300 ~ 350	0.160 ~ 0.176	≤1.0D	≤1.0D	6820 ~ 7960	2180 ~ 2800
		16	2	300 ~ 350	0.180 ~ 0.198	≤1.0D	≤1.0D	5970 ~ 6960	2150 ~ 2760
		18	2	300 ~ 350	0.199 ~ 0.219	≤1.0D	≤1.0D	5310 ~ 6190	2110 ~ 2710
		20	2	300 ~ 350	0.219 ~ 0.241	≤1.0D	≤1.0D	4770 ~ 5570	2090 ~ 2680
BRASS, BRONZE	M08, M09	1	2	126	0.008 ~ 0.012	≤0.75D	≤1.0D	40000	640 ~ 960
		2	2	200 ~ 250	0.022 ~ 0.027	≤0.75D	≤1.0D	31830 ~ 39790	1400 ~ 2150
		3	2	200 ~ 250	0.037 ~ 0.042	≤1.0D	≤1.0D	21220 ~ 26530	1570 ~ 2230
		4	2	200 ~ 250	0.051 ~ 0.058	≤1.0D	≤1.0D	15920 ~ 19890	1620 ~ 2310
		5	2	200 ~ 250	0.066 ~ 0.073	≤1.0D	≤1.0D	12730 ~ 15920	1680 ~ 2320
		6	2	200 ~ 250	0.081 ~ 0.089	≤1.0D	≤1.0D	10610 ~ 13260	1720 ~ 2360
		8	2	200 ~ 250	0.100 ~ 0.110	≤1.0D	≤1.0D	7960 ~ 9950	1590 ~ 2190
		10	2	200 ~ 250	0.120 ~ 0.132	≤1.0D	≤1.0D	6370 ~ 7960	1530 ~ 2100
		12	2	200 ~ 250	0.140 ~ 0.154	≤1.0D	≤1.0D	5310 ~ 6630	1490 ~ 2040
		14	2	200 ~ 250	0.160 ~ 0.176	≤1.0D	≤1.0D	4550 ~ 5680	1460 ~ 2000
		16	2	200 ~ 250	0.180 ~ 0.198	≤1.0D	≤1.0D	3980 ~ 4970	1430 ~ 1970
		18	2	200 ~ 250	0.199 ~ 0.219	≤1.0D	≤1.0D	3540 ~ 4420	1410 ~ 1940
		20	2	200 ~ 250	0.219 ~ 0.241	≤1.0D	≤1.0D	3180 ~ 3980	1390 ~ 1920
THERMOPLASTICS	M01	1	2	126	0.013 ~ 0.017	≤0.75D	≤1.0D	40000	1040 ~ 1360
		2	2	251	0.036 ~ 0.042	≤0.75D	≤1.0D	40000	2880 ~ 3360
		3	2	377	0.059 ~ 0.066	≤1.0D	≤1.0D	40000	4720 ~ 5280
		4	2	503	0.081 ~ 0.091	≤1.0D	≤1.0D	40000	6480 ~ 7280
		5	2	628	0.104 ~ 0.115	≤1.0D	≤1.0D	40000	8320 ~ 9200
		6	2	754	0.127 ~ 0.139	≤1.0D	≤1.0D	40000	10160 ~ 11120
		8	2	800 ~ 850	0.158 ~ 0.174	≤1.0D	≤1.0D	31830 ~ 33820	10060 ~ 11770
		10	2	800 ~ 850	0.189 ~ 0.208	≤1.0D	≤1.0D	25460 ~ 27060	9620 ~ 11260
		12	2	800 ~ 850	0.220 ~ 0.242	≤1.0D	≤1.0D	21220 ~ 22550	9340 ~ 10910
		14	2	800 ~ 850	0.251 ~ 0.276	≤1.0D	≤1.0D	18190 ~ 19330	9130 ~ 10670
		16	2	800 ~ 850	0.282 ~ 0.311	≤1.0D	≤1.0D	15920 ~ 16910	8980 ~ 10520
		18	2	800 ~ 850	0.313 ~ 0.345	≤1.0D	≤1.0D	14150 ~ 15030	8860 ~ 10370
		20	2	800 ~ 850	0.345 ~ 0.379	≤1.0D	≤1.0D	12730 ~ 13530	8780 ~ 10260

AL SE Standard Series Endmills



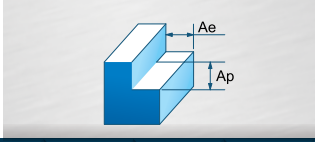
3 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	3	126	0.010 ~ 0.014	≤1.5D	≤0.3D	40000	1200 ~ 1680
		2	3	251	0.027 ~ 0.032	≤1.5D	≤0.3D	40000	3240 ~ 3840
		3	3	377	0.044 ~ 0.051	≤1.5D	≤0.3D	40000	5280 ~ 6120
		4	3	500 ~ 503	0.062 ~ 0.069	≤1.5D	≤0.5D	39790 ~ 40000	7400 ~ 8280
		5	3	500 ~ 600	0.079 ~ 0.087	≤1.5D	≤0.5D	31830 ~ 38200	7540 ~ 9970
		6	3	500 ~ 600	0.096 ~ 0.106	≤1.5D	≤0.5D	26530 ~ 31830	7640 ~ 10120
		8	3	500 ~ 600	0.120 ~ 0.132	≤1.5D	≤0.5D	19890 ~ 23870	7160 ~ 9450
		10	3	500 ~ 600	0.143 ~ 0.157	≤1.5D	≤0.5D	15920 ~ 19100	6830 ~ 9000
		12	3	500 ~ 600	0.167 ~ 0.183	≤1.5D	≤0.5D	13260 ~ 15920	6640 ~ 8740
		14	3	500 ~ 600	0.190 ~ 0.209	≤1.5D	≤0.5D	11370 ~ 13640	6480 ~ 8550
		16	3	500 ~ 600	0.214 ~ 0.235	≤1.5D	≤0.5D	9950 ~ 11940	6390 ~ 8420
		18	3	500 ~ 600	0.237 ~ 0.261	≤1.5D	≤0.5D	8840 ~ 10610	6290 ~ 8310
		20	3	500 ~ 600	0.261 ~ 0.287	≤1.5D	≤0.5D	7960 ~ 9550	6230 ~ 8220
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	3	126	0.008 ~ 0.012	≤1.5D	≤0.3D	40000	960 ~ 1440
		2	3	251	0.023 ~ 0.028	≤1.5D	≤0.3D	40000	2760 ~ 3360
		3	3	350 ~ 377	0.038 ~ 0.044	≤1.5D	≤0.3D	37140 ~ 40000	4230 ~ 5280
		4	3	350 ~ 400	0.054 ~ 0.060	≤1.5D	≤0.5D	27850 ~ 31830	4510 ~ 5730
		5	3	350 ~ 400	0.069 ~ 0.076	≤1.5D	≤0.5D	22280 ~ 25460	4610 ~ 5800
		6	3	350 ~ 400	0.084 ~ 0.092	≤1.5D	≤0.5D	18570 ~ 21220	4680 ~ 5860
		8	3	350 ~ 400	0.105 ~ 0.115	≤1.5D	≤0.5D	13930 ~ 15920	4390 ~ 5490
		10	3	350 ~ 400	0.125 ~ 0.138	≤1.5D	≤0.5D	11140 ~ 12730	4180 ~ 5270
		12	3	350 ~ 400	0.146 ~ 0.160	≤1.5D	≤0.5D	9280 ~ 10610	4060 ~ 5090
		14	3	350 ~ 400	0.167 ~ 0.183	≤1.5D	≤0.5D	7960 ~ 9090	3990 ~ 4990
		16	3	350 ~ 400	0.187 ~ 0.206	≤1.5D	≤0.5D	6960 ~ 7960	3900 ~ 4920
		18	3	350 ~ 400	0.208 ~ 0.229	≤1.5D	≤0.5D	6190 ~ 7070	3860 ~ 4860
		20	3	350 ~ 400	0.228 ~ 0.251	≤1.5D	≤0.5D	5570 ~ 6370	3810 ~ 4800
COPPER	M03	1	3	126	0.008 ~ 0.012	≤1.5D	≤0.3D	40000	960 ~ 1440
		2	3	251	0.023 ~ 0.028	≤1.5D	≤0.3D	40000	2760 ~ 3360
		3	3	300 ~ 350	0.038 ~ 0.044	≤1.5D	≤0.3D	31830 ~ 37140	3630 ~ 4900
		4	3	300 ~ 350	0.054 ~ 0.060	≤1.5D	≤0.5D	23870 ~ 27850	3870 ~ 5010
		5	3	300 ~ 350	0.069 ~ 0.076	≤1.5D	≤0.5D	19100 ~ 22280	3950 ~ 5080
		6	3	300 ~ 350	0.084 ~ 0.092	≤1.5D	≤0.5D	15920 ~ 18570	4010 ~ 5130
		8	3	300 ~ 350	0.105 ~ 0.115	≤1.5D	≤0.5D	11940 ~ 13930	3760 ~ 4810
		10	3	300 ~ 350	0.125 ~ 0.138	≤1.5D	≤0.5D	9550 ~ 11140	3580 ~ 4610
		12	3	300 ~ 350	0.146 ~ 0.160	≤1.5D	≤0.5D	7960 ~ 9280	3490 ~ 4450
		14	3	300 ~ 350	0.167 ~ 0.183	≤1.5D	≤0.5D	6820 ~ 7960	3420 ~ 4370
		16	3	300 ~ 350	0.187 ~ 0.206	≤1.5D	≤0.5D	5970 ~ 6960	3350 ~ 4300
		18	3	300 ~ 350	0.208 ~ 0.229	≤1.5D	≤0.5D	5310 ~ 6190	3310 ~ 4250
		20	3	300 ~ 350	0.228 ~ 0.251	≤1.5D	≤0.5D	4770 ~ 5570	3260 ~ 4190
BRASS, BRONZE	M08, M09	1	3	126	0.008 ~ 0.012	≤1.5D	≤0.3D	40000	960 ~ 1440
		2	3	200 ~ 250	0.023 ~ 0.028	≤1.5D	≤0.3D	31830 ~ 39790	2200 ~ 3340
		3	3	200 ~ 250	0.038 ~ 0.044	≤1.5D	≤0.3D	21220 ~ 26530	2420 ~ 3500
		4	3	200 ~ 250	0.054 ~ 0.060	≤1.5D	≤0.5D	15920 ~ 19890	2580 ~ 3580
		5	3	200 ~ 250	0.069 ~ 0.076	≤1.5D	≤0.5D	12730 ~ 15920	2640 ~ 3630
		6	3	200 ~ 250	0.084 ~ 0.092	≤1.5D	≤0.5D	10610 ~ 13260	2670 ~ 3660
		8	3	200 ~ 250	0.105 ~ 0.115	≤1.5D	≤0.5D	7960 ~ 9950	2510 ~ 3430
		10	3	200 ~ 250	0.125 ~ 0.138	≤1.5D	≤0.5D	6370 ~ 7960	2390 ~ 3300
		12	3	200 ~ 250	0.146 ~ 0.160	≤1.5D	≤0.5D	5310 ~ 6630	2330 ~ 3180
		14	3	200 ~ 250	0.167 ~ 0.183	≤1.5D	≤0.5D	4550 ~ 5680	2280 ~ 3120
		16	3	200 ~ 250	0.187 ~ 0.206	≤1.5D	≤0.5D	3980 ~ 4970	2230 ~ 3070
		18	3	200 ~ 250	0.208 ~ 0.229	≤1.5D	≤0.5D	3540 ~ 4420	2210 ~ 3040
		20	3	200 ~ 250	0.228 ~ 0.251	≤1.5D	≤0.5D	3180 ~ 3980	2180 ~ 3000
THERMOPLASTICS	M01	1	3	126	0.014 ~ 0.018	≤1.5D	≤0.3D	40000	1680 ~ 2160
		2	3	251	0.038 ~ 0.043	≤1.5D	≤0.3D	40000	4560 ~ 5160
		3	3	377	0.061 ~ 0.069	≤1.5D	≤0.3D	40000	7320 ~ 8280
		4	3	503	0.085 ~ 0.094	≤1.5D	≤0.5D	40000	10200 ~ 11280
		5	3	628	0.108 ~ 0.120	≤1.5D	≤0.5D	40000	12960 ~ 14400
		6	3	754	0.132 ~ 0.145	≤1.5D	≤0.5D	40000	15840 ~ 17400
		8	3	800 ~ 850	0.164 ~ 0.181	≤1.5D	≤0.5D	31830 ~ 33820	15660 ~ 18360
		10	3	800 ~ 850	0.197 ~ 0.217	≤1.5D	≤0.5D	25460 ~ 27060	15050 ~ 17620
		12	3	800 ~ 850	0.229 ~ 0.252	≤1.5D	≤0.5D	21220 ~ 22550	14580 ~ 17050
		14	3	800 ~ 850	0.262 ~ 0.288	≤1.5D	≤0.5D	18190 ~ 19330	14300 ~ 16700
		16	3	800 ~ 850	0.294 ~ 0.324	≤1.5D	≤0.5D	15920 ~ 16910	14040 ~ 16440
		18	3	800 ~ 850	0.327 ~ 0.359	≤1.5D	≤0.5D	14150 ~ 15030	13880 ~ 16190
		20	3	800 ~ 850	0.359 ~ 0.395	≤1.5D	≤0.5D	12730 ~ 13530	13710 ~ 16030

AL SE Standard Series Endmills



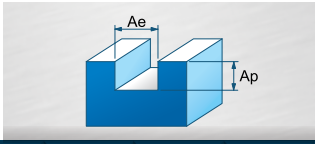
3 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	3	126	0.008 ~ 0.011	≤0.75D	≤1.0D	40000	960 ~ 1320
		2	3	251	0.022 ~ 0.026	≤0.75D	≤1.0D	40000	2640 ~ 3120
		3	3	377	0.036 ~ 0.041	≤0.75D	≤1.0D	40000	4320 ~ 4920
		4	3	500 ~ 503	0.049 ~ 0.055	≤1.0D	≤1.0D	39790 ~ 40000	5850 ~ 6600
		5	3	500 ~ 600	0.063 ~ 0.070	≤1.0D	≤1.0D	31830 ~ 38200	6020 ~ 8020
		6	3	500 ~ 600	0.077 ~ 0.084	≤1.0D	≤1.0D	26530 ~ 31830	6130 ~ 8020
		8	3	500 ~ 600	0.096 ~ 0.105	≤1.0D	≤1.0D	19890 ~ 23870	5730 ~ 7520
		10	3	500 ~ 600	0.115 ~ 0.126	≤1.0D	≤1.0D	15920 ~ 19100	5490 ~ 7220
		12	3	500 ~ 600	0.133 ~ 0.147	≤1.0D	≤1.0D	13260 ~ 15920	5290 ~ 7020
		14	3	500 ~ 600	0.152 ~ 0.167	≤1.0D	≤1.0D	11370 ~ 13640	5180 ~ 6830
		16	3	500 ~ 600	0.171 ~ 0.188	≤1.0D	≤1.0D	9950 ~ 11940	5100 ~ 6730
		18	3	500 ~ 600	0.190 ~ 0.209	≤1.0D	≤1.0D	8840 ~ 10610	5040 ~ 6650
		20	3	500 ~ 600	0.209 ~ 0.230	≤1.0D	≤1.0D	7960 ~ 9550	4990 ~ 6590
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	3	126	0.006 ~ 0.010	≤0.75D	≤1.0D	40000	720 ~ 1200
		2	3	251	0.019 ~ 0.022	≤0.75D	≤1.0D	40000	2280 ~ 2640
		3	3	350 ~ 377	0.031 ~ 0.035	≤1.0D	≤1.0D	37140 ~ 40000	3450 ~ 4200
		4	3	350 ~ 400	0.043 ~ 0.048	≤1.0D	≤1.0D	27850 ~ 31830	3590 ~ 4580
		5	3	350 ~ 400	0.055 ~ 0.061	≤1.0D	≤1.0D	22280 ~ 25460	3680 ~ 4660
		6	3	350 ~ 400	0.067 ~ 0.074	≤1.0D	≤1.0D	18570 ~ 21220	3730 ~ 4710
		8	3	350 ~ 400	0.084 ~ 0.092	≤1.0D	≤1.0D	13930 ~ 15920	3510 ~ 4390
		10	3	350 ~ 400	0.100 ~ 0.110	≤1.0D	≤1.0D	11140 ~ 12730	3340 ~ 4200
		12	3	350 ~ 400	0.117 ~ 0.128	≤1.0D	≤1.0D	9280 ~ 10610	3260 ~ 4070
		14	3	350 ~ 400	0.133 ~ 0.147	≤1.0D	≤1.0D	7960 ~ 9090	3180 ~ 4010
		16	3	350 ~ 400	0.150 ~ 0.165	≤1.0D	≤1.0D	6960 ~ 7960	3130 ~ 3940
		18	3	350 ~ 400	0.166 ~ 0.183	≤1.0D	≤1.0D	6190 ~ 7070	3080 ~ 3880
		20	3	350 ~ 400	0.183 ~ 0.201	≤1.0D	≤1.0D	5570 ~ 6370	3060 ~ 3840
COPPER	M03	1	3	126	0.006 ~ 0.010	≤0.75D	≤1.0D	40000	720 ~ 1200
		2	3	251	0.019 ~ 0.022	≤0.75D	≤1.0D	40000	2280 ~ 2640
		3	3	300 ~ 350	0.031 ~ 0.035	≤1.0D	≤1.0D	31830 ~ 37140	2960 ~ 3900
		4	3	300 ~ 350	0.043 ~ 0.048	≤1.0D	≤1.0D	23870 ~ 27850	3080 ~ 4010
		5	3	300 ~ 350	0.055 ~ 0.061	≤1.0D	≤1.0D	19100 ~ 22280	3150 ~ 4080
		6	3	300 ~ 350	0.067 ~ 0.074	≤1.0D	≤1.0D	15920 ~ 18570	3200 ~ 4120
		8	3	300 ~ 350	0.084 ~ 0.092	≤1.0D	≤1.0D	11940 ~ 13930	3010 ~ 3840
		10	3	300 ~ 350	0.100 ~ 0.110	≤1.0D	≤1.0D	9550 ~ 11140	2870 ~ 3680
		12	3	300 ~ 350	0.117 ~ 0.128	≤1.0D	≤1.0D	7960 ~ 9280	2790 ~ 3560
		14	3	300 ~ 350	0.133 ~ 0.147	≤1.0D	≤1.0D	6820 ~ 7960	2720 ~ 3510
		16	3	300 ~ 350	0.150 ~ 0.165	≤1.0D	≤1.0D	5970 ~ 6960	2690 ~ 3450
		18	3	300 ~ 350	0.166 ~ 0.183	≤1.0D	≤1.0D	5310 ~ 6190	2640 ~ 3400
		20	3	300 ~ 350	0.183 ~ 0.201	≤1.0D	≤1.0D	4770 ~ 5570	2620 ~ 3360
BRASS, BRONZE	M08, M09	1	3	126	0.006 ~ 0.010	≤0.75D	≤1.0D	40000	720 ~ 1200
		2	3	200 ~ 250	0.019 ~ 0.022	≤0.75D	≤1.0D	31830 ~ 39790	1810 ~ 2630
		3	3	200 ~ 250	0.031 ~ 0.035	≤1.0D	≤1.0D	21220 ~ 26530	1970 ~ 2790
		4	3	200 ~ 250	0.043 ~ 0.048	≤1.0D	≤1.0D	15920 ~ 19890	2050 ~ 2860
		5	3	200 ~ 250	0.055 ~ 0.061	≤1.0D	≤1.0D	12730 ~ 15920	2100 ~ 2910
		6	3	200 ~ 250	0.067 ~ 0.074	≤1.0D	≤1.0D	10610 ~ 13260	2130 ~ 2940
		8	3	200 ~ 250	0.084 ~ 0.092	≤1.0D	≤1.0D	7960 ~ 9950	2010 ~ 2750
		10	3	200 ~ 250	0.100 ~ 0.110	≤1.0D	≤1.0D	6370 ~ 7960	1910 ~ 2630
		12	3	200 ~ 250	0.117 ~ 0.128	≤1.0D	≤1.0D	5310 ~ 6630	1860 ~ 2550
		14	3	200 ~ 250	0.133 ~ 0.147	≤1.0D	≤1.0D	4550 ~ 5680	1820 ~ 2500
		16	3	200 ~ 250	0.150 ~ 0.165	≤1.0D	≤1.0D	3980 ~ 4970	1790 ~ 2460
		18	3	200 ~ 250	0.166 ~ 0.183	≤1.0D	≤1.0D	3540 ~ 4420	1760 ~ 2430
		20	3	200 ~ 250	0.183 ~ 0.201	≤1.0D	≤1.0D	3180 ~ 3980	1750 ~ 2400
THERMOPLASTICS	M01	1	3	126	0.011 ~ 0.014	≤0.75D	≤1.0D	40000	1320 ~ 1680
		2	3	251	0.030 ~ 0.035	≤0.75D	≤1.0D	40000	3600 ~ 4200
		3	3	377	0.049 ~ 0.055	≤1.0D	≤1.0D	40000	5880 ~ 6600
		4	3	503	0.068 ~ 0.075	≤1.0D	≤1.0D	40000	8160 ~ 9000
		5	3	628	0.087 ~ 0.096	≤1.0D	≤1.0D	40000	10440 ~ 11520
		6	3	754	0.106 ~ 0.116	≤1.0D	≤1.0D	40000	12720 ~ 13920
		8	3	800 ~ 850	0.132 ~ 0.145	≤1.0D	≤1.0D	31830 ~ 33820	12600 ~ 14710
		10	3	800 ~ 850	0.157 ~ 0.173	≤1.0D	≤1.0D	25460 ~ 27060	11990 ~ 14040
		12	3	800 ~ 850	0.183 ~ 0.202	≤1.0D	≤1.0D	21220 ~ 22550	11650 ~ 13670
		14	3	800 ~ 850	0.209 ~ 0.230	≤1.0D	≤1.0D	18190 ~ 19330	11410 ~ 13340
		16	3	800 ~ 850	0.235 ~ 0.259	≤1.0D	≤1.0D	15920 ~ 16910	11220 ~ 13140
		18	3	800 ~ 850	0.261 ~ 0.287	≤1.0D	≤1.0D	14150 ~ 15030	11080 ~ 12940
		20	3	800 ~ 850	0.287 ~ 0.316	≤1.0D	≤1.0D	12730 ~ 13530	10960 ~ 12830

AL SE Long Series Endmills



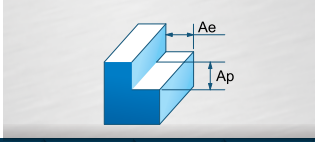
3 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	3	3	377	0.044 ~ 0.051	≤1.5D	≤0.3D	40000	5280 ~ 6120
		4	3	400 ~ 480	0.062 ~ 0.069	≤1.5D	≤0.5D	31830 ~ 38200	5920 ~ 7910
		5	3	400 ~ 480	0.079 ~ 0.087	≤1.5D	≤0.5D	25460 ~ 30560	6030 ~ 7980
		6	3	400 ~ 480	0.096 ~ 0.106	≤1.5D	≤0.5D	21220 ~ 25460	6110 ~ 8100
		8	3	400 ~ 480	0.120 ~ 0.132	≤1.5D	≤0.5D	15920 ~ 19100	5730 ~ 7560
		10	3	400 ~ 480	0.143 ~ 0.157	≤1.5D	≤0.5D	12730 ~ 15280	5460 ~ 7200
		12	3	400 ~ 480	0.167 ~ 0.183	≤1.5D	≤0.5D	10610 ~ 12730	5320 ~ 6990
		14	3	400 ~ 480	0.190 ~ 0.209	≤1.5D	≤0.5D	9090 ~ 10910	5180 ~ 6840
		16	3	400 ~ 480	0.214 ~ 0.235	≤1.5D	≤0.5D	7960 ~ 9550	5110 ~ 6730
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	3	3	280 ~ 320	0.038 ~ 0.044	≤1.5D	≤0.3D	29710 ~ 33950	3390 ~ 4480
		4	3	280 ~ 320	0.054 ~ 0.060	≤1.5D	≤0.5D	22280 ~ 25460	3610 ~ 4580
		5	3	280 ~ 320	0.069 ~ 0.076	≤1.5D	≤0.5D	17830 ~ 20370	3690 ~ 4640
		6	3	280 ~ 320	0.084 ~ 0.092	≤1.5D	≤0.5D	14850 ~ 16980	3740 ~ 4690
		8	3	280 ~ 320	0.105 ~ 0.115	≤1.5D	≤0.5D	11140 ~ 12730	3510 ~ 4390
		10	3	280 ~ 320	0.125 ~ 0.138	≤1.5D	≤0.5D	8910 ~ 10190	3340 ~ 4220
		12	3	280 ~ 320	0.146 ~ 0.160	≤1.5D	≤0.5D	7430 ~ 8490	3250 ~ 4080
		14	3	280 ~ 320	0.167 ~ 0.183	≤1.5D	≤0.5D	6370 ~ 7280	3190 ~ 4000
		16	3	280 ~ 320	0.187 ~ 0.206	≤1.5D	≤0.5D	5570 ~ 6370	3120 ~ 3940
COPPER	M03	3	3	240 ~ 280	0.038 ~ 0.044	≤1.5D	≤0.3D	25460 ~ 29710	2900 ~ 3920
		4	3	240 ~ 280	0.054 ~ 0.060	≤1.5D	≤0.5D	19100 ~ 22280	3090 ~ 4010
		5	3	240 ~ 280	0.069 ~ 0.076	≤1.5D	≤0.5D	15280 ~ 17830	3160 ~ 4070
		6	3	240 ~ 280	0.084 ~ 0.092	≤1.5D	≤0.5D	12730 ~ 14850	3210 ~ 4100
		8	3	240 ~ 280	0.105 ~ 0.115	≤1.5D	≤0.5D	9550 ~ 11140	3010 ~ 3840
		10	3	240 ~ 280	0.125 ~ 0.138	≤1.5D	≤0.5D	7640 ~ 8910	2870 ~ 3690
		12	3	240 ~ 280	0.146 ~ 0.160	≤1.5D	≤0.5D	6370 ~ 7430	2790 ~ 3570
		14	3	240 ~ 280	0.167 ~ 0.183	≤1.5D	≤0.5D	5460 ~ 6370	2740 ~ 3500
		16	3	240 ~ 280	0.187 ~ 0.206	≤1.5D	≤0.5D	4770 ~ 5570	2680 ~ 3440
BRASS, BRONZE	M08, M09	3	3	160 ~ 200	0.038 ~ 0.044	≤1.5D	≤0.3D	16980 ~ 21220	1940 ~ 2800
		4	3	160 ~ 200	0.054 ~ 0.060	≤1.5D	≤0.5D	12730 ~ 15920	2060 ~ 2870
		5	3	160 ~ 200	0.069 ~ 0.076	≤1.5D	≤0.5D	10190 ~ 12730	2110 ~ 2900
		6	3	160 ~ 200	0.084 ~ 0.092	≤1.5D	≤0.5D	8490 ~ 10610	2140 ~ 2930
		8	3	160 ~ 200	0.105 ~ 0.115	≤1.5D	≤0.5D	6370 ~ 7960	2010 ~ 2750
		10	3	160 ~ 200	0.125 ~ 0.138	≤1.5D	≤0.5D	5090 ~ 6370	1910 ~ 2640
		12	3	160 ~ 200	0.146 ~ 0.160	≤1.5D	≤0.5D	4240 ~ 5310	1860 ~ 2550
		14	3	160 ~ 200	0.167 ~ 0.183	≤1.5D	≤0.5D	3640 ~ 4550	1820 ~ 2500
		16	3	160 ~ 200	0.187 ~ 0.206	≤1.5D	≤0.5D	3180 ~ 3980	1780 ~ 2460
THERMOPLASTICS	M01	3	3	377	0.061 ~ 0.069	≤1.5D	≤0.3D	40000	7320 ~ 8280
		4	3	503	0.085 ~ 0.094	≤1.5D	≤0.5D	40000	10200 ~ 11280
		5	3	628	0.108 ~ 0.120	≤1.5D	≤0.5D	40000	12960 ~ 14400
		6	3	640 ~ 680	0.132 ~ 0.145	≤1.5D	≤0.5D	33950 ~ 36080	13440 ~ 15690
		8	3	640 ~ 680	0.164 ~ 0.181	≤1.5D	≤0.5D	25460 ~ 27060	12530 ~ 14690
		10	3	640 ~ 680	0.197 ~ 0.217	≤1.5D	≤0.5D	20370 ~ 21650	12040 ~ 14090
		12	3	640 ~ 680	0.229 ~ 0.252	≤1.5D	≤0.5D	16980 ~ 18040	11670 ~ 13640
		14	3	640 ~ 680	0.262 ~ 0.288	≤1.5D	≤0.5D	14550 ~ 15460	11440 ~ 13360
		16	3	640 ~ 680	0.294 ~ 0.324	≤1.5D	≤0.5D	12730 ~ 13530	11230 ~ 13150

AL SE Long Series Endmills



3 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	3	3	377	0.036 ~ 0.041	≤0.05D	≤0.1D	440000	4320 ~ 4920
		4	3	400 ~ 480	0.049 ~ 0.055	≤0.05D	≤0.1D	31830 ~ 38200	4680 ~ 6300
		5	3	400 ~ 480	0.063 ~ 0.070	≤0.05D	≤0.1D	25460 ~ 30560	4810 ~ 6420
		6	3	400 ~ 480	0.077 ~ 0.084	≤0.05D	≤0.1D	21220 ~ 25460	4900 ~ 6420
		8	3	400 ~ 480	0.096 ~ 0.105	≤0.05D	≤0.2D	15920 ~ 19100	4580 ~ 6020
		10	3	400 ~ 480	0.115 ~ 0.126	≤0.05D	≤0.2D	12730 ~ 15280	4390 ~ 5780
		12	3	400 ~ 480	0.133 ~ 0.147	≤0.05D	≤0.2D	10610 ~ 12730	4230 ~ 5610
		14	3	400 ~ 480	0.152 ~ 0.167	≤0.05D	≤0.2D	9090 ~ 10910	4150 ~ 5470
		16	3	400 ~ 480	0.171 ~ 0.188	≤0.05D	≤0.2D	7960 ~ 9550	4080 ~ 5390
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	3	3	280 ~ 320	0.031 ~ 0.035	≤0.75D	≤0.1D	29710 ~ 33950	2760 ~ 3560
		4	3	280 ~ 320	0.043 ~ 0.048	≤1.0D	≤0.1D	22280 ~ 25460	2870 ~ 3670
		5	3	280 ~ 320	0.055 ~ 0.061	≤1.0D	≤0.1D	17830 ~ 20370	2940 ~ 3730
		6	3	280 ~ 320	0.067 ~ 0.074	≤1.0D	≤0.1D	14850 ~ 16980	2980 ~ 3770
		8	3	280 ~ 320	0.084 ~ 0.092	≤1.0D	≤0.2D	11140 ~ 12730	2810 ~ 3510
		10	3	280 ~ 320	0.100 ~ 0.110	≤1.0D	≤0.2D	8910 ~ 10190	2670 ~ 3360
		12	3	280 ~ 320	0.117 ~ 0.128	≤1.0D	≤0.2D	7430 ~ 8490	2610 ~ 3260
		14	3	280 ~ 320	0.133 ~ 0.147	≤1.0D	≤0.2D	6370 ~ 7280	2540 ~ 3210
		16	3	280 ~ 320	0.150 ~ 0.165	≤1.0D	≤0.2D	5570 ~ 6370	2510 ~ 3150
COPPER	M03	3	3	240 ~ 280	0.031 ~ 0.035	≤0.75D	≤0.1D	25460 ~ 29710	2370 ~ 3120
		4	3	240 ~ 280	0.043 ~ 0.048	≤1.0D	≤0.1D	19100 ~ 22280	2460 ~ 3210
		5	3	240 ~ 280	0.055 ~ 0.061	≤1.0D	≤0.1D	15280 ~ 17830	2520 ~ 3260
		6	3	240 ~ 280	0.067 ~ 0.074	≤1.0D	≤0.1D	12730 ~ 14850	2560 ~ 3300
		8	3	240 ~ 280	0.084 ~ 0.092	≤1.0D	≤0.2D	9550 ~ 11140	2410 ~ 3070
		10	3	240 ~ 280	0.100 ~ 0.110	≤1.0D	≤0.2D	7640 ~ 8910	2290 ~ 2940
		12	3	240 ~ 280	0.117 ~ 0.128	≤1.0D	≤0.2D	6370 ~ 7430	2240 ~ 2850
		14	3	240 ~ 280	0.133 ~ 0.147	≤1.0D	≤0.2D	5460 ~ 6370	2180 ~ 2810
		16	3	240 ~ 280	0.150 ~ 0.165	≤1.0D	≤0.2D	4770 ~ 5570	2150 ~ 2760
BRASS, BRONZE	M08, M09	3	3	160 ~ 200	0.031 ~ 0.035	≤0.75D	≤0.1D	16980 ~ 21220	1580 ~ 2230
		4	3	160 ~ 200	0.043 ~ 0.048	≤1.0D	≤0.1D	12730 ~ 15920	1640 ~ 2290
		5	3	160 ~ 200	0.055 ~ 0.061	≤1.0D	≤0.1D	10190 ~ 12730	1680 ~ 2330
		6	3	160 ~ 200	0.067 ~ 0.074	≤1.0D	≤0.1D	8490 ~ 10610	1710 ~ 2360
		8	3	160 ~ 200	0.084 ~ 0.092	≤1.0D	≤0.2D	6370 ~ 7960	1610 ~ 2200
		10	3	160 ~ 200	0.100 ~ 0.110	≤1.0D	≤0.2D	5090 ~ 6370	1530 ~ 2100
		12	3	160 ~ 200	0.117 ~ 0.128	≤1.0D	≤0.2D	4240 ~ 5310	1490 ~ 2040
		14	3	160 ~ 200	0.133 ~ 0.147	≤1.0D	≤0.2D	3640 ~ 4550	1450 ~ 2010
		16	3	160 ~ 200	0.150 ~ 0.165	≤1.0D	≤0.2D	3180 ~ 3980	1430 ~ 1970
THERMOPLASTICS	M01	3	3	377	0.049 ~ 0.055	≤0.75D	≤0.1D	40000	5880 ~ 6600
		4	3	503	0.068 ~ 0.075	≤1.0D	≤0.1D	40000	8160 ~ 9000
		5	3	628	0.087 ~ 0.096	≤1.0D	≤0.1D	40000	10440 ~ 11520
		6	3	640 ~ 680	0.106 ~ 0.116	≤1.0D	≤0.1D	33950 ~ 36080	10800 ~ 12560
		8	3	640 ~ 680	0.132 ~ 0.145	≤1.0D	≤0.2D	25460 ~ 27060	10080 ~ 11770
		10	3	640 ~ 680	0.157 ~ 0.173	≤1.0D	≤0.2D	20370 ~ 21650	9590 ~ 11240
		12	3	640 ~ 680	0.183 ~ 0.202	≤1.0D	≤0.2D	16980 ~ 18040	9320 ~ 10930
		14	3	640 ~ 680	0.209 ~ 0.230	≤1.0D	≤0.2D	14550 ~ 15460	9120 ~ 10670
		16	3	640 ~ 680	0.235 ~ 0.259	≤1.0D	≤0.2D	12730 ~ 13530	8970 ~ 10510

AL SE Standard Series Endmills - High Performance



2 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	2	126	0.012 ~ 0.017	≤1.5D	≤0.3D	40000	960 ~ 1360
		2	2	251	0.033 ~ 0.039	≤1.5D	≤0.3D	40000	2640 ~ 3120
		3	2	377	0.053 ~ 0.061	≤1.5D	≤0.3D	40000	4240 ~ 4880
		4	2	500 ~ 503	0.074 ~ 0.083	≤1.5D	≤0.5D	39790 ~ 40000	5890 ~ 6640
		5	2	500 ~ 600	0.095 ~ 0.105	≤1.5D	≤0.5D	31830 ~ 38200	6050 ~ 8020
		6	2	500 ~ 600	0.115 ~ 0.127	≤1.5D	≤0.5D	26530 ~ 31830	6100 ~ 8080
		8	2	500 ~ 600	0.143 ~ 0.158	≤1.5D	≤0.5D	19890 ~ 23870	5690 ~ 7540
		10	2	500 ~ 600	0.172 ~ 0.189	≤1.5D	≤0.5D	15920 ~ 19100	5480 ~ 7220
		12	2	500 ~ 600	0.200 ~ 0.220	≤1.5D	≤0.5D	13260 ~ 15920	5300 ~ 7000
		14	2	500 ~ 600	0.228 ~ 0.251	≤1.5D	≤0.5D	11370 ~ 13640	5180 ~ 6850
		16	2	500 ~ 600	0.257 ~ 0.282	≤1.5D	≤0.5D	9950 ~ 11940	5110 ~ 6730
		18	2	500 ~ 600	0.285 ~ 0.313	≤1.5D	≤0.5D	8840 ~ 10610	5040 ~ 6640
		20	2	500 ~ 600	0.313 ~ 0.345	≤1.5D	≤0.5D	7960 ~ 9550	4980 ~ 6590
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	2	126	0.010 ~ 0.014	≤1.5D	≤0.3D	40000	800 ~ 1120
		2	2	251	0.028 ~ 0.034	≤1.5D	≤0.3D	40000	2240 ~ 2720
		3	2	350 ~ 377	0.046 ~ 0.053	≤1.5D	≤0.3D	37140 ~ 40000	3420 ~ 4240
		4	2	350 ~ 400	0.064 ~ 0.072	≤1.5D	≤0.5D	27850 ~ 31830	3560 ~ 4580
		5	2	350 ~ 400	0.083 ~ 0.092	≤1.5D	≤0.5D	22280 ~ 25460	3700 ~ 4680
		6	2	350 ~ 400	0.101 ~ 0.111	≤1.5D	≤0.5D	18570 ~ 21220	3750 ~ 4710
		8	2	350 ~ 400	0.126 ~ 0.138	≤1.5D	≤0.5D	13930 ~ 15920	3510 ~ 4390
		10	2	350 ~ 400	0.150 ~ 0.165	≤1.5D	≤0.5D	11140 ~ 12730	3340 ~ 4200
		12	2	350 ~ 400	0.175 ~ 0.193	≤1.5D	≤0.5D	9280 ~ 10610	3250 ~ 4100
		14	2	350 ~ 400	0.200 ~ 0.220	≤1.5D	≤0.5D	7960 ~ 9090	3180 ~ 4000
		16	2	350 ~ 400	0.225 ~ 0.247	≤1.5D	≤0.5D	6960 ~ 7960	3130 ~ 3930
		18	2	350 ~ 400	0.249 ~ 0.274	≤1.5D	≤0.5D	6190 ~ 7070	3080 ~ 3870
		20	2	350 ~ 400	0.274 ~ 0.302	≤1.5D	≤0.5D	5570 ~ 6370	3050 ~ 3850
COPPER	M03	1	2	126	0.010 ~ 0.014	≤1.5D	≤0.3D	40000	800 ~ 1120
		2	2	251	0.028 ~ 0.034	≤1.5D	≤0.3D	40000	2240 ~ 2720
		3	2	300 ~ 350	0.046 ~ 0.053	≤1.5D	≤0.3D	31830 ~ 37140	2930 ~ 3940
		4	2	300 ~ 350	0.064 ~ 0.072	≤1.5D	≤0.5D	23870 ~ 27850	3060 ~ 4010
		5	2	300 ~ 350	0.083 ~ 0.092	≤1.5D	≤0.5D	19100 ~ 22280	3170 ~ 4100
		6	2	300 ~ 350	0.101 ~ 0.111	≤1.5D	≤0.5D	15920 ~ 18570	3220 ~ 4120
		8	2	300 ~ 350	0.126 ~ 0.138	≤1.5D	≤0.5D	11940 ~ 13930	3010 ~ 3840
		10	2	300 ~ 350	0.150 ~ 0.165	≤1.5D	≤0.5D	9550 ~ 11140	2870 ~ 3680
		12	2	300 ~ 350	0.175 ~ 0.193	≤1.5D	≤0.5D	7960 ~ 9280	2790 ~ 3580
		14	2	300 ~ 350	0.200 ~ 0.220	≤1.5D	≤0.5D	6820 ~ 7960	2730 ~ 3500
		16	2	300 ~ 350	0.225 ~ 0.247	≤1.5D	≤0.5D	5970 ~ 6960	2690 ~ 3440
		18	2	300 ~ 350	0.249 ~ 0.274	≤1.5D	≤0.5D	5310 ~ 6190	2640 ~ 3390
		20	2	300 ~ 350	0.274 ~ 0.302	≤1.5D	≤0.5D	4770 ~ 5570	2610 ~ 3360
BRASS, BRONZE	M08, M09	1	2	126	0.010 ~ 0.014	≤1.5D	≤0.3D	40000	800 ~ 1120
		2	2	200 ~ 250	0.028 ~ 0.034	≤1.5D	≤0.3D	31830 ~ 39790	1780 ~ 2710
		3	2	200 ~ 250	0.046 ~ 0.053	≤1.5D	≤0.3D	21220 ~ 26530	1950 ~ 2810
		4	2	200 ~ 250	0.064 ~ 0.072	≤1.5D	≤0.5D	15920 ~ 19890	2040 ~ 2860
		5	2	200 ~ 250	0.083 ~ 0.092	≤1.5D	≤0.5D	12730 ~ 15920	2110 ~ 2930
		6	2	200 ~ 250	0.101 ~ 0.111	≤1.5D	≤0.5D	10610 ~ 13260	2140 ~ 2940
		8	2	200 ~ 250	0.126 ~ 0.138	≤1.5D	≤0.5D	7960 ~ 9950	2010 ~ 2750
		10	2	200 ~ 250	0.150 ~ 0.165	≤1.5D	≤0.5D	6370 ~ 7960	1910 ~ 2630
		12	2	200 ~ 250	0.175 ~ 0.193	≤1.5D	≤0.5D	5310 ~ 6630	1860 ~ 2560
		14	2	200 ~ 250	0.200 ~ 0.220	≤1.5D	≤0.5D	4550 ~ 5680	1820 ~ 2500
		16	2	200 ~ 250	0.225 ~ 0.247	≤1.5D	≤0.5D	3980 ~ 4970	1790 ~ 2460
		18	2	200 ~ 250	0.249 ~ 0.274	≤1.5D	≤0.5D	3540 ~ 4420	1760 ~ 2420
		20	2	200 ~ 250	0.274 ~ 0.302	≤1.5D	≤0.5D	3180 ~ 3980	1740 ~ 2400
THERMOPLASTICS	M01	1	2	126	0.017 ~ 0.022	≤1.5D	≤0.3D	40000	1360 ~ 1760
		2	2	251	0.045 ~ 0.052	≤1.5D	≤0.3D	40000	3600 ~ 4160
		3	2	377	0.073 ~ 0.083	≤1.5D	≤0.3D	40000	5840 ~ 6640
		4	2	503	0.102 ~ 0.113	≤1.5D	≤0.5D	40000	8160 ~ 9040
		5	2	628	0.130 ~ 0.144	≤1.5D	≤0.5D	40000	10400 ~ 11520
		6	2	754	0.158 ~ 0.174	≤1.5D	≤0.5D	40000	12640 ~ 13920
		8	2	800 ~ 850	0.197 ~ 0.217	≤1.5D	≤0.5D	31830 ~ 33820	12540 ~ 14680
		10	2	800 ~ 850	0.236 ~ 0.260	≤1.5D	≤0.5D	25460 ~ 27060	12020 ~ 14070
		12	2	800 ~ 850	0.275 ~ 0.303	≤1.5D	≤0.5D	21220 ~ 22550	11670 ~ 13670
		14	2	800 ~ 850	0.314 ~ 0.345	≤1.5D	≤0.5D	18190 ~ 19330	11420 ~ 13340
		16	2	800 ~ 850	0.353 ~ 0.388	≤1.5D	≤0.5D	15920 ~ 16910	11240 ~ 13120
		18	2	800 ~ 850	0.392 ~ 0.431	≤1.5D	≤0.5D	14150 ~ 15030	11090 ~ 12960
		20	2	800 ~ 850	0.431 ~ 0.474	≤1.5D	≤0.5D	12730 ~ 13530	10970 ~ 12830

AL SE Standard Series Endmills - High Performance

2 Z Plunging							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	2	50	0.002	15,920	60
		2	2	80	0.006	12,730	140
		3	2	100	0.011	10,610	230
		4	2	100	0.014	7,960	230
		5	2	100	0.024	6,370	310
		6	2	100	0.032	5,310	340
		8	2	100	0.042	3,980	330
		10	2	100	0.052	3,180	330
		12	2	100	0.055	2,650	290
		14	2	100	0.055	2,270	250
		16	2	100	0.077	1,990	310
		18	2	100	0.099	1,770	350
		20	2	100	0.121	1,590	380
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	2	50	0.002	15,920	60
		2	2	70	0.005	11,140	110
		3	2	90	0.010	9,550	190
		4	2	90	0.013	7,160	180
		5	2	90	0.022	5,730	250
		6	2	90	0.029	4,770	270
		8	2	90	0.038	3,580	270
		10	2	90	0.047	2,850	270
		12	2	90	0.050	2,390	240
		14	2	90	0.050	2,050	200
		16	2	90	0.069	1,790	250
		18	2	90	0.089	1,590	280
		20	2	90	0.109	1,430	310
COPPER	M03	1	2	50	0.002	15,920	60
		2	2	60	0.005	9,550	90
		3	2	80	0.010	8,490	170
		4	2	80	0.013	6,370	160
		5	2	80	0.022	5,090	220
		6	2	80	0.029	4,240	240
		8	2	80	0.038	3,180	240
		10	2	80	0.047	2,550	240
		12	2	80	0.050	2,120	210
		14	2	80	0.050	1,820	180
		16	2	80	0.069	1,590	220
		18	2	80	0.089	1,410	250
		20	2	80	0.109	1,270	280
BRASS, BRONZE	M08, M09	1	2	50	0.002	15,920	50
		2	2	50	0.004	7,960	70
		3	2	70	0.009	7,430	130
		4	2	70	0.012	5,570	130
		5	2	70	0.020	4,460	170
		6	2	70	0.026	3,710	190
		8	2	70	0.034	2,790	190
		10	2	70	0.042	2,230	190
		12	2	70	0.045	1,860	170
		14	2	70	0.045	1,590	140
		16	2	70	0.062	1,390	170
		18	2	70	0.080	1,240	200
		20	2	70	0.098	1,110	220
THERMOPLASTICS	M01	1	2	70	0.002	22,280	90
		2	2	100	0.006	15,920	180
		3	2	120	0.011	12,730	280
		4	2	120	0.014	9,550	270
		5	2	120	0.024	7,640	370
		6	2	120	0.032	6,370	410
		8	2	120	0.042	4,770	400
		10	2	120	0.052	3,820	390
		12	2	120	0.055	3,180	350
		14	2	120	0.055	2,730	300
		16	2	120	0.077	2,390	370
		18	2	120	0.099	2,120	420
		20	2	120	0.121	1,910	460

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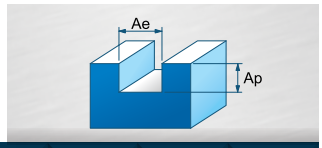

2 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	2	126	0.010 ~ 0.013	≤0.75D	≤1.0D	40000	800 ~ 1040
		2	2	251	0.026 ~ 0.031	≤0.75D	≤1.0D	40000	2080 ~ 2480
		3	2	377	0.043 ~ 0.049	≤1.0D	≤1.0D	40000	3440 ~ 3920
		4	2	500 ~ 503	0.059 ~ 0.066	≤1.0D	≤1.0D	39790 ~ 40000	4700 ~ 5280
		5	2	500 ~ 600	0.076 ~ 0.084	≤1.0D	≤1.0D	31830 ~ 38200	4840 ~ 6420
		6	2	500 ~ 600	0.092 ~ 0.101	≤1.0D	≤1.0D	26530 ~ 31830	4880 ~ 6430
		8	2	500 ~ 600	0.115 ~ 0.126	≤1.0D	≤1.0D	19890 ~ 23870	4570 ~ 6020
		10	2	500 ~ 600	0.137 ~ 0.151	≤1.0D	≤1.0D	15920 ~ 19100	4360 ~ 5770
		12	2	500 ~ 600	0.160 ~ 0.176	≤1.0D	≤1.0D	13260 ~ 15920	4240 ~ 5600
		14	2	500 ~ 600	0.183 ~ 0.201	≤1.0D	≤1.0D	11370 ~ 13640	4160 ~ 5480
		16	2	500 ~ 600	0.205 ~ 0.226	≤1.0D	≤1.0D	9950 ~ 11940	4080 ~ 5400
		18	2	500 ~ 600	0.228 ~ 0.251	≤1.0D	≤1.0D	8840 ~ 10610	4030 ~ 5330
		20	2	500 ~ 600	0.251 ~ 0.276	≤1.0D	≤1.0D	7960 ~ 9550	4000 ~ 5270
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	2	126	0.008 ~ 0.012	≤0.75D	≤1.0D	40000	640 ~ 960
		2	2	251	0.022 ~ 0.027	≤0.75D	≤1.0D	40000	1760 ~ 2160
		3	2	350 ~ 377	0.037 ~ 0.042	≤1.0D	≤1.0D	37140 ~ 40000	2750 ~ 3360
		4	2	350 ~ 400	0.051 ~ 0.058	≤1.0D	≤1.0D	27850 ~ 31830	2840 ~ 3690
		5	2	350 ~ 400	0.066 ~ 0.073	≤1.0D	≤1.0D	22280 ~ 25460	2940 ~ 3720
		6	2	350 ~ 400	0.081 ~ 0.089	≤1.0D	≤1.0D	18570 ~ 21220	3010 ~ 3780
		8	2	350 ~ 400	0.100 ~ 0.110	≤1.0D	≤1.0D	13930 ~ 15920	2790 ~ 3500
		10	2	350 ~ 400	0.120 ~ 0.132	≤1.0D	≤1.0D	11140 ~ 12730	2670 ~ 3360
		12	2	350 ~ 400	0.140 ~ 0.154	≤1.0D	≤1.0D	9280 ~ 10610	2600 ~ 3270
		14	2	350 ~ 400	0.160 ~ 0.176	≤1.0D	≤1.0D	7960 ~ 9090	2550 ~ 3200
		16	2	350 ~ 400	0.180 ~ 0.198	≤1.0D	≤1.0D	6960 ~ 7960	2510 ~ 3150
		18	2	350 ~ 400	0.199 ~ 0.219	≤1.0D	≤1.0D	6190 ~ 7070	2460 ~ 3100
		20	2	350 ~ 400	0.219 ~ 0.241	≤1.0D	≤1.0D	5570 ~ 6370	2440 ~ 3070
COPPER	M03	1	2	126	0.008 ~ 0.012	≤0.75D	≤1.0D	40000	640 ~ 960
		2	2	251	0.022 ~ 0.027	≤0.75D	≤1.0D	40000	1760 ~ 2160
		3	2	300 ~ 350	0.037 ~ 0.042	≤1.0D	≤1.0D	31830 ~ 37140	2360 ~ 3120
		4	2	300 ~ 350	0.051 ~ 0.058	≤1.0D	≤1.0D	23870 ~ 27850	2430 ~ 3230
		5	2	300 ~ 350	0.066 ~ 0.073	≤1.0D	≤1.0D	19100 ~ 22280	2520 ~ 3250
		6	2	300 ~ 350	0.081 ~ 0.089	≤1.0D	≤1.0D	15920 ~ 18570	2580 ~ 3310
		8	2	300 ~ 350	0.100 ~ 0.110	≤1.0D	≤1.0D	11940 ~ 13930	2390 ~ 3060
		10	2	300 ~ 350	0.120 ~ 0.132	≤1.0D	≤1.0D	9550 ~ 11140	2290 ~ 2940
		12	2	300 ~ 350	0.140 ~ 0.154	≤1.0D	≤1.0D	7960 ~ 9280	2230 ~ 2860
		14	2	300 ~ 350	0.160 ~ 0.176	≤1.0D	≤1.0D	6820 ~ 7960	2180 ~ 2800
		16	2	300 ~ 350	0.180 ~ 0.198	≤1.0D	≤1.0D	5970 ~ 6960	2150 ~ 2760
		18	2	300 ~ 350	0.199 ~ 0.219	≤1.0D	≤1.0D	5310 ~ 6190	2110 ~ 2710
		20	2	300 ~ 350	0.219 ~ 0.241	≤1.0D	≤1.0D	4770 ~ 5570	2090 ~ 2680
BRASS, BRONZE	M08, M09	1	2	126	0.008 ~ 0.012	≤0.75D	≤1.0D	40000	640 ~ 960
		2	2	200 ~ 250	0.022 ~ 0.027	≤0.75D	≤1.0D	31830 ~ 39790	1400 ~ 2150
		3	2	200 ~ 250	0.037 ~ 0.042	≤1.0D	≤1.0D	21220 ~ 26530	1570 ~ 2230
		4	2	200 ~ 250	0.051 ~ 0.058	≤1.0D	≤1.0D	15920 ~ 19890	1620 ~ 2310
		5	2	200 ~ 250	0.066 ~ 0.073	≤1.0D	≤1.0D	12730 ~ 15920	1680 ~ 2320
		6	2	200 ~ 250	0.081 ~ 0.089	≤1.0D	≤1.0D	10610 ~ 13260	1720 ~ 2360
		8	2	200 ~ 250	0.100 ~ 0.110	≤1.0D	≤1.0D	7960 ~ 9950	1590 ~ 2190
		10	2	200 ~ 250	0.120 ~ 0.132	≤1.0D	≤1.0D	6370 ~ 7960	1530 ~ 2100
		12	2	200 ~ 250	0.140 ~ 0.154	≤1.0D	≤1.0D	5310 ~ 6630	1490 ~ 2040
		14	2	200 ~ 250	0.160 ~ 0.176	≤1.0D	≤1.0D	4550 ~ 5680	1460 ~ 2000
		16	2	200 ~ 250	0.180 ~ 0.198	≤1.0D	≤1.0D	3980 ~ 4970	1430 ~ 1970
		18	2	200 ~ 250	0.199 ~ 0.219	≤1.0D	≤1.0D	3540 ~ 4420	1410 ~ 1940
		20	2	200 ~ 250	0.219 ~ 0.241	≤1.0D	≤1.0D	3180 ~ 3980	1390 ~ 1920
THERMOPLASTICS	M01	1	2	126	0.013 ~ 0.017	≤0.75D	≤1.0D	40000	1040 ~ 1360
		2	2	251	0.036 ~ 0.042	≤0.75D	≤1.0D	40000	2880 ~ 3360
		3	2	377	0.059 ~ 0.066	≤1.0D	≤1.0D	40000	4720 ~ 5280
		4	2	503	0.081 ~ 0.091	≤1.0D	≤1.0D	40000	6480 ~ 7280
		5	2	628	0.104 ~ 0.115	≤1.0D	≤1.0D	40000	8320 ~ 9200
		6	2	754	0.127 ~ 0.139	≤1.0D	≤1.0D	40000	10160 ~ 11120
		8	2	800 ~ 850	0.158 ~ 0.174	≤1.0D	≤1.0D	31830 ~ 33820	10060 ~ 11770
		10	2	800 ~ 850	0.189 ~ 0.208	≤1.0D	≤1.0D	25460 ~ 27060	9620 ~ 11260
		12	2	800 ~ 850	0.220 ~ 0.242	≤1.0D	≤1.0D	21220 ~ 22550	9340 ~ 10910
		14	2	800 ~ 850	0.251 ~ 0.276	≤1.0D	≤1.0D	18190 ~ 19330	9130 ~ 10670
		16	2	800 ~ 850	0.282 ~ 0.311	≤1.0D	≤1.0D	15920 ~ 16910	8980 ~ 10520
		18	2	800 ~ 850	0.313 ~ 0.345	≤1.0D	≤1.0D	14150 ~ 15030	8860 ~ 10370
		20	2	800 ~ 850	0.345 ~ 0.379	≤1.0D	≤1.0D	12730 ~ 13530	8780 ~ 10260

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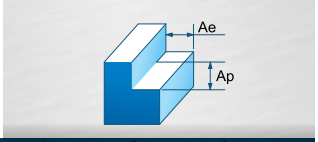

3 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	3	126	0.010 ~ 0.014	≤1.5D	≤0.3D	40000	1200 ~ 1680
		2	3	251	0.027 ~ 0.032	≤1.5D	≤0.3D	40000	3240 ~ 3840
		3	3	377	0.044 ~ 0.051	≤1.5D	≤0.3D	40000	5280 ~ 6120
		4	3	500 ~ 503	0.062 ~ 0.069	≤1.5D	≤0.5D	39790 ~ 40000	7400 ~ 8280
		5	3	500 ~ 600	0.079 ~ 0.087	≤1.5D	≤0.5D	31830 ~ 38200	7540 ~ 9970
		6	3	500 ~ 600	0.096 ~ 0.106	≤1.5D	≤0.5D	26530 ~ 31830	7640 ~ 10120
		8	3	500 ~ 600	0.120 ~ 0.132	≤1.5D	≤0.5D	19890 ~ 23870	7160 ~ 9450
		10	3	500 ~ 600	0.143 ~ 0.157	≤1.5D	≤0.5D	15920 ~ 19100	6830 ~ 9000
		12	3	500 ~ 600	0.167 ~ 0.183	≤1.5D	≤0.5D	13260 ~ 15920	6640 ~ 8740
		14	3	500 ~ 600	0.190 ~ 0.209	≤1.5D	≤0.5D	11370 ~ 13640	6480 ~ 8550
		16	3	500 ~ 600	0.214 ~ 0.235	≤1.5D	≤0.5D	9950 ~ 11940	6390 ~ 8420
		18	3	500 ~ 600	0.237 ~ 0.261	≤1.5D	≤0.5D	8840 ~ 10610	6290 ~ 8310
		20	3	500 ~ 600	0.261 ~ 0.287	≤1.5D	≤0.5D	7960 ~ 9550	6230 ~ 8220
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	3	126	0.008 ~ 0.012	≤1.5D	≤0.3D	40000	960 ~ 1440
		2	3	251	0.023 ~ 0.028	≤1.5D	≤0.3D	40000	2760 ~ 3360
		3	3	350 ~ 377	0.038 ~ 0.044	≤1.5D	≤0.3D	37140 ~ 40000	4230 ~ 5280
		4	3	350 ~ 400	0.054 ~ 0.060	≤1.5D	≤0.5D	27850 ~ 31830	4510 ~ 5730
		5	3	350 ~ 400	0.069 ~ 0.076	≤1.5D	≤0.5D	22280 ~ 25460	4610 ~ 5800
		6	3	350 ~ 400	0.084 ~ 0.092	≤1.5D	≤0.5D	18570 ~ 21220	4680 ~ 5860
		8	3	350 ~ 400	0.105 ~ 0.115	≤1.5D	≤0.5D	13930 ~ 15920	4390 ~ 5490
		10	3	350 ~ 400	0.125 ~ 0.138	≤1.5D	≤0.5D	11140 ~ 12730	4180 ~ 5270
		12	3	350 ~ 400	0.146 ~ 0.160	≤1.5D	≤0.5D	9280 ~ 10610	4060 ~ 5090
		14	3	350 ~ 400	0.167 ~ 0.183	≤1.5D	≤0.5D	7960 ~ 9090	3990 ~ 4990
		16	3	350 ~ 400	0.187 ~ 0.206	≤1.5D	≤0.5D	6960 ~ 7960	3900 ~ 4920
		18	3	350 ~ 400	0.208 ~ 0.229	≤1.5D	≤0.5D	6190 ~ 7070	3860 ~ 4860
		20	3	350 ~ 400	0.228 ~ 0.251	≤1.5D	≤0.5D	5570 ~ 6370	3810 ~ 4800
COPPER	M03	1	3	126	0.008 ~ 0.012	≤1.5D	≤0.3D	40000	960 ~ 1440
		2	3	251	0.023 ~ 0.028	≤1.5D	≤0.3D	40000	2760 ~ 3360
		3	3	300 ~ 350	0.038 ~ 0.044	≤1.5D	≤0.3D	31830 ~ 37140	3630 ~ 4900
		4	3	300 ~ 350	0.054 ~ 0.060	≤1.5D	≤0.5D	23870 ~ 27850	3870 ~ 5010
		5	3	300 ~ 350	0.069 ~ 0.076	≤1.5D	≤0.5D	19100 ~ 22280	3950 ~ 5080
		6	3	300 ~ 350	0.084 ~ 0.092	≤1.5D	≤0.5D	15920 ~ 18570	4010 ~ 5130
		8	3	300 ~ 350	0.105 ~ 0.115	≤1.5D	≤0.5D	11940 ~ 13930	3760 ~ 4810
		10	3	300 ~ 350	0.125 ~ 0.138	≤1.5D	≤0.5D	9550 ~ 11140	3580 ~ 4610
		12	3	300 ~ 350	0.146 ~ 0.160	≤1.5D	≤0.5D	7960 ~ 9280	3490 ~ 4450
		14	3	300 ~ 350	0.167 ~ 0.183	≤1.5D	≤0.5D	6820 ~ 7960	3420 ~ 4370
		16	3	300 ~ 350	0.187 ~ 0.206	≤1.5D	≤0.5D	5970 ~ 6960	3350 ~ 4300
		18	3	300 ~ 350	0.208 ~ 0.229	≤1.5D	≤0.5D	5310 ~ 6190	3310 ~ 4250
		20	3	300 ~ 350	0.228 ~ 0.251	≤1.5D	≤0.5D	4770 ~ 5570	3260 ~ 4190
BRASS, BRONZE	M08, M09	1	3	126	0.008 ~ 0.012	≤1.5D	≤0.3D	40000	960 ~ 1440
		2	3	200 ~ 250	0.023 ~ 0.028	≤1.5D	≤0.3D	31830 ~ 39790	2200 ~ 3340
		3	3	200 ~ 250	0.038 ~ 0.044	≤1.5D	≤0.3D	21220 ~ 26530	2420 ~ 3500
		4	3	200 ~ 250	0.054 ~ 0.060	≤1.5D	≤0.5D	15920 ~ 19890	2580 ~ 3580
		5	3	200 ~ 250	0.069 ~ 0.076	≤1.5D	≤0.5D	12730 ~ 15920	2640 ~ 3630
		6	3	200 ~ 250	0.084 ~ 0.092	≤1.5D	≤0.5D	10610 ~ 13260	2670 ~ 3660
		8	3	200 ~ 250	0.105 ~ 0.115	≤1.5D	≤0.5D	7960 ~ 9950	2510 ~ 3430
		10	3	200 ~ 250	0.125 ~ 0.138	≤1.5D	≤0.5D	6370 ~ 7960	2390 ~ 3300
		12	3	200 ~ 250	0.146 ~ 0.160	≤1.5D	≤0.5D	5310 ~ 6630	2330 ~ 3180
		14	3	200 ~ 250	0.167 ~ 0.183	≤1.5D	≤0.5D	4550 ~ 5680	2280 ~ 3120
		16	3	200 ~ 250	0.187 ~ 0.206	≤1.5D	≤0.5D	3980 ~ 4970	2230 ~ 3070
		18	3	200 ~ 250	0.208 ~ 0.229	≤1.5D	≤0.5D	3540 ~ 4420	2210 ~ 3040
		20	3	200 ~ 250	0.228 ~ 0.251	≤1.5D	≤0.5D	3180 ~ 3980	2180 ~ 3000
THERMOPLASTICS	M01	1	3	126	0.014 ~ 0.018	≤1.5D	≤0.3D	40000	1680 ~ 2160
		2	3	251	0.038 ~ 0.043	≤1.5D	≤0.3D	40000	4560 ~ 5160
		3	3	377	0.061 ~ 0.069	≤1.5D	≤0.3D	40000	7320 ~ 8280
		4	3	503	0.085 ~ 0.094	≤1.5D	≤0.5D	40000	10200 ~ 11280
		5	3	628	0.108 ~ 0.120	≤1.5D	≤0.5D	40000	12960 ~ 14400
		6	3	754	0.132 ~ 0.145	≤1.5D	≤0.5D	40000	15840 ~ 17400
		8	3	800 ~ 850	0.164 ~ 0.181	≤1.5D	≤0.5D	31830 ~ 33820	15660 ~ 18360
		10	3	800 ~ 850	0.197 ~ 0.217	≤1.5D	≤0.5D	25460 ~ 27060	15050 ~ 17620
		12	3	800 ~ 850	0.229 ~ 0.252	≤1.5D	≤0.5D	21220 ~ 22550	14580 ~ 17050
		14	3	800 ~ 850	0.262 ~ 0.288	≤1.5D	≤0.5D	18190 ~ 19330	14300 ~ 16700
		16	3	800 ~ 850	0.294 ~ 0.324	≤1.5D	≤0.5D	15920 ~ 16910	14040 ~ 16440
		18	3	800 ~ 850	0.327 ~ 0.359	≤1.5D	≤0.5D	14150 ~ 15030	13880 ~ 16190
		20	3	800 ~ 850	0.359 ~ 0.395	≤1.5D	≤0.5D	12730 ~ 13530	13710 ~ 16030

AL SE Standard Series Endmills - High Performance

3 Z Plunging							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	3	60	0.002	19,100	140
		2	3	80	0.005	12,730	180
		3	3	100	0.010	10,610	310
		4	3	100	0.013	7,960	320
		5	3	100	0.022	6,370	410
		6	3	100	0.029	5,310	460
		8	3	100	0.038	3,980	460
		10	3	100	0.047	3,180	450
		12	3	100	0.050	2,650	400
		14	3	100	0.050	2,270	340
		16	3	100	0.070	1,990	420
		18	3	100	0.090	1,770	480
		20	3	100	0.110	1,590	520
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	3	50	0.002	15,920	80
		2	3	70	0.004	11,140	120
		3	3	90	0.008	9,550	230
		4	3	90	0.011	7,160	240
		5	3	90	0.018	5,730	310
		6	3	90	0.024	4,770	350
		8	3	90	0.032	3,580	350
		10	3	90	0.039	2,850	330
		12	3	90	0.042	2,390	300
		14	3	90	0.042	2,050	260
		16	3	90	0.056	1,790	300
		18	3	90	0.072	1,590	340
		20	3	90	0.088	1,430	380
COPPER	M03	1	3	50	0.002	15,920	80
		2	3	60	0.004	9,550	100
		3	3	80	0.008	8,490	200
		4	3	80	0.011	6,370	210
		5	3	80	0.018	5,090	270
		6	3	80	0.024	4,240	310
		8	3	80	0.032	3,180	310
		10	3	80	0.039	2,550	300
		12	3	80	0.042	2,120	270
		14	3	80	0.042	1,820	230
		16	3	80	0.056	1,590	270
		18	3	80	0.072	1,410	300
		20	3	80	0.088	1,270	340
BRASS, BRONZE	M08, M09	1	3	50	0.002	15,920	90
		2	3	50	0.004	7,960	90
		3	3	70	0.007	7,430	160
		4	3	70	0.010	5,570	170
		5	3	70	0.016	4,460	220
		6	3	70	0.022	3,710	240
		8	3	70	0.029	2,790	240
		10	3	70	0.035	2,230	230
		12	3	70	0.038	1,860	210
		14	3	70	0.038	1,590	180
		16	3	70	0.050	1,390	210
		18	3	70	0.065	1,240	240
		20	3	70	0.079	1,110	260
THERMOPLASTICS	M01	1	3	70	0.002	22,280	160
		2	3	100	0.005	15,920	230
		3	3	120	0.010	12,730	370
		4	3	120	0.013	9,550	380
		5	3	120	0.022	7,640	500
		6	3	120	0.029	6,370	550
		8	3	120	0.038	4,770	550
		10	3	120	0.047	3,820	540
		12	3	120	0.050	3,180	480
		14	3	120	0.050	2,730	410
		16	3	120	0.070	2,390	500
		18	3	120	0.090	2,120	570
		20	3	120	0.110	1,910	630

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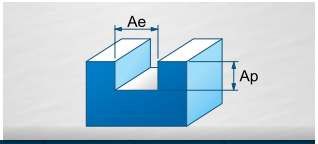

3 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	3	126	0.008 ~ 0.011	≤0.75D	≤1.0D	40000	960 ~ 1320
		2	3	251	0.022 ~ 0.026	≤0.75D	≤1.0D	40000	2640 ~ 3120
		3	3	377	0.036 ~ 0.041	≤0.75D	≤1.0D	40000	4320 ~ 4920
		4	3	500 ~ 503	0.049 ~ 0.055	≤1.0D	≤1.0D	39790 ~ 40000	5850 ~ 6600
		5	3	500 ~ 600	0.063 ~ 0.070	≤1.0D	≤1.0D	31830 ~ 38200	6020 ~ 8020
		6	3	500 ~ 600	0.077 ~ 0.084	≤1.0D	≤1.0D	26530 ~ 31830	6130 ~ 8020
		8	3	500 ~ 600	0.096 ~ 0.105	≤1.0D	≤1.0D	19890 ~ 23870	5730 ~ 7520
		10	3	500 ~ 600	0.115 ~ 0.126	≤1.0D	≤1.0D	15920 ~ 19100	5490 ~ 7220
		12	3	500 ~ 600	0.133 ~ 0.147	≤1.0D	≤1.0D	13260 ~ 15920	5290 ~ 7020
		14	3	500 ~ 600	0.152 ~ 0.167	≤1.0D	≤1.0D	11370 ~ 13640	5180 ~ 6830
		16	3	500 ~ 600	0.171 ~ 0.188	≤1.0D	≤1.0D	9950 ~ 11940	5100 ~ 6730
		18	3	500 ~ 600	0.190 ~ 0.209	≤1.0D	≤1.0D	8840 ~ 10610	5040 ~ 6650
		20	3	500 ~ 600	0.209 ~ 0.230	≤1.0D	≤1.0D	7960 ~ 9550	4990 ~ 6590
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	3	126	0.006 ~ 0.010	≤0.75D	≤1.0D	40000	720 ~ 1200
		2	3	251	0.019 ~ 0.022	≤0.75D	≤1.0D	40000	2280 ~ 2640
		3	3	350 ~ 377	0.031 ~ 0.035	≤1.0D	≤1.0D	37140 ~ 40000	3450 ~ 4200
		4	3	350 ~ 400	0.043 ~ 0.048	≤1.0D	≤1.0D	27850 ~ 31830	3590 ~ 4580
		5	3	350 ~ 400	0.055 ~ 0.061	≤1.0D	≤1.0D	22280 ~ 25460	3680 ~ 4660
		6	3	350 ~ 400	0.067 ~ 0.074	≤1.0D	≤1.0D	18570 ~ 21220	3730 ~ 4710
		8	3	350 ~ 400	0.084 ~ 0.092	≤1.0D	≤1.0D	13930 ~ 15920	3510 ~ 4390
		10	3	350 ~ 400	0.100 ~ 0.110	≤1.0D	≤1.0D	11140 ~ 12730	3340 ~ 4200
		12	3	350 ~ 400	0.117 ~ 0.128	≤1.0D	≤1.0D	9280 ~ 10610	3260 ~ 4070
		14	3	350 ~ 400	0.133 ~ 0.147	≤1.0D	≤1.0D	7960 ~ 9090	3180 ~ 4010
		16	3	350 ~ 400	0.150 ~ 0.165	≤1.0D	≤1.0D	6960 ~ 7960	3130 ~ 3940
		18	3	350 ~ 400	0.166 ~ 0.183	≤1.0D	≤1.0D	6190 ~ 7070	3080 ~ 3880
		20	3	350 ~ 400	0.183 ~ 0.201	≤1.0D	≤1.0D	5570 ~ 6370	3060 ~ 3840
COPPER	M03	1	3	126	0.006 ~ 0.010	≤0.75D	≤1.0D	40000	720 ~ 1200
		2	3	251	0.019 ~ 0.022	≤0.75D	≤1.0D	40000	2280 ~ 2640
		3	3	300 ~ 350	0.031 ~ 0.035	≤1.0D	≤1.0D	31830 ~ 37140	2960 ~ 3900
		4	3	300 ~ 350	0.043 ~ 0.048	≤1.0D	≤1.0D	23870 ~ 27850	3080 ~ 4010
		5	3	300 ~ 350	0.055 ~ 0.061	≤1.0D	≤1.0D	19100 ~ 22280	3150 ~ 4080
		6	3	300 ~ 350	0.067 ~ 0.074	≤1.0D	≤1.0D	15920 ~ 18570	3200 ~ 4120
		8	3	300 ~ 350	0.084 ~ 0.092	≤1.0D	≤1.0D	11940 ~ 13930	3010 ~ 3840
		10	3	300 ~ 350	0.100 ~ 0.110	≤1.0D	≤1.0D	9550 ~ 11140	2870 ~ 3680
		12	3	300 ~ 350	0.117 ~ 0.128	≤1.0D	≤1.0D	7960 ~ 9280	2790 ~ 3560
		14	3	300 ~ 350	0.133 ~ 0.147	≤1.0D	≤1.0D	6820 ~ 7960	2720 ~ 3510
		16	3	300 ~ 350	0.150 ~ 0.165	≤1.0D	≤1.0D	5970 ~ 6960	2690 ~ 3450
		18	3	300 ~ 350	0.166 ~ 0.183	≤1.0D	≤1.0D	5310 ~ 6190	2640 ~ 3400
		20	3	300 ~ 350	0.183 ~ 0.201	≤1.0D	≤1.0D	4770 ~ 5570	2620 ~ 3360
BRASS, BRONZE	M08, M09	1	3	126	0.006 ~ 0.010	≤0.75D	≤1.0D	40000	720 ~ 1200
		2	3	200 ~ 250	0.019 ~ 0.022	≤0.75D	≤1.0D	31830 ~ 39790	1810 ~ 2630
		3	3	200 ~ 250	0.031 ~ 0.035	≤1.0D	≤1.0D	21220 ~ 26530	1970 ~ 2790
		4	3	200 ~ 250	0.043 ~ 0.048	≤1.0D	≤1.0D	15920 ~ 19890	2050 ~ 2860
		5	3	200 ~ 250	0.055 ~ 0.061	≤1.0D	≤1.0D	12730 ~ 15920	2100 ~ 2910
		6	3	200 ~ 250	0.067 ~ 0.074	≤1.0D	≤1.0D	10610 ~ 13260	2130 ~ 2940
		8	3	200 ~ 250	0.084 ~ 0.092	≤1.0D	≤1.0D	7960 ~ 9950	2010 ~ 2750
		10	3	200 ~ 250	0.100 ~ 0.110	≤1.0D	≤1.0D	6370 ~ 7960	1910 ~ 2630
		12	3	200 ~ 250	0.117 ~ 0.128	≤1.0D	≤1.0D	5310 ~ 6630	1860 ~ 2550
		14	3	200 ~ 250	0.133 ~ 0.147	≤1.0D	≤1.0D	4550 ~ 5680	1820 ~ 2500
		16	3	200 ~ 250	0.150 ~ 0.165	≤1.0D	≤1.0D	3980 ~ 4970	1790 ~ 2460
		18	3	200 ~ 250	0.166 ~ 0.183	≤1.0D	≤1.0D	3540 ~ 4420	1760 ~ 2430
		20	3	200 ~ 250	0.183 ~ 0.201	≤1.0D	≤1.0D	3180 ~ 3980	1750 ~ 2400
THERMOPLASTICS	M01	1	3	126	0.011 ~ 0.014	≤0.75D	≤1.0D	40000	1320 ~ 1680
		2	3	251	0.030 ~ 0.035	≤0.75D	≤1.0D	40000	3600 ~ 4200
		3	3	377	0.049 ~ 0.055	≤1.0D	≤1.0D	40000	5880 ~ 6600
		4	3	503	0.068 ~ 0.075	≤1.0D	≤1.0D	40000	8160 ~ 9000
		5	3	628	0.087 ~ 0.096	≤1.0D	≤1.0D	40000	10440 ~ 11520
		6	3	754	0.106 ~ 0.116	≤1.0D	≤1.0D	40000	12720 ~ 13920
		8	3	800 ~ 850	0.132 ~ 0.145	≤1.0D	≤1.0D	31830 ~ 33820	12600 ~ 14710
		10	3	800 ~ 850	0.157 ~ 0.173	≤1.0D	≤1.0D	25460 ~ 27060	11990 ~ 14040
		12	3	800 ~ 850	0.183 ~ 0.202	≤1.0D	≤1.0D	21220 ~ 22550	11650 ~ 13670
		14	3	800 ~ 850	0.209 ~ 0.230	≤1.0D	≤1.0D	18190 ~ 19330	11410 ~ 13340
		16	3	800 ~ 850	0.235 ~ 0.259	≤1.0D	≤1.0D	15920 ~ 16910	11220 ~ 13140
		18	3	800 ~ 850	0.261 ~ 0.287	≤1.0D	≤1.0D	14150 ~ 15030	11080 ~ 12940
		20	3	800 ~ 850	0.287 ~ 0.316	≤1.0D	≤1.0D	12730 ~ 13530	10960 ~ 12830

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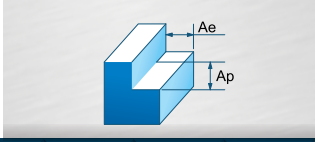
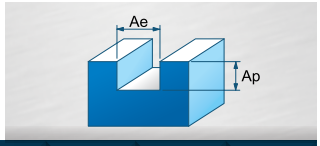


2 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	2	400 ~ 480	0.115 ~ 0.127	≤1.5D	≤0.5D	21220 ~ 25460	4880 ~ 6470
		8	2	400 ~ 480	0.143 ~ 0.158	≤1.5D	≤0.5D	15920 ~ 19100	4550 ~ 6040
		10	2	400 ~ 480	0.172 ~ 0.189	≤1.5D	≤0.5D	12730 ~ 15280	4380 ~ 5780
		12	2	400 ~ 480	0.200 ~ 0.220	≤1.5D	≤0.5D	10610 ~ 12730	4240 ~ 5600
		16	2	400 ~ 480	0.257 ~ 0.282	≤1.5D	≤0.5D	7960 ~ 9550	4090 ~ 5390
		20	2	400 ~ 480	0.313 ~ 0.345	≤1.5D	≤0.5D	6370 ~ 7640	3990 ~ 5270
ALUMINIUM ALLOYS SI < 8%	M04, M05 M06, M07	6	2	280 ~ 320	0.101 ~ 0.111	≤1.5D	≤0.5D	14850 ~ 16980	3000 ~ 3770
		8	2	280 ~ 320	0.126 ~ 0.138	≤1.5D	≤0.5D	11140 ~ 12730	2810 ~ 3510
		10	2	280 ~ 320	0.150 ~ 0.165	≤1.5D	≤0.5D	8910 ~ 10190	2670 ~ 3360
		12	2	280 ~ 320	0.175 ~ 0.193	≤1.5D	≤0.5D	7430 ~ 8490	2600 ~ 3280
		16	2	280 ~ 320	0.225 ~ 0.247	≤1.5D	≤0.5D	5570 ~ 6370	2510 ~ 3150
		20	2	280 ~ 320	0.274 ~ 0.302	≤1.5D	≤0.5D	4460 ~ 5090	2440 ~ 3070
COPPER	M03	6	2	240 ~ 280	0.101 ~ 0.111	≤1.5D	≤0.5D	12730 ~ 14850	2570 ~ 3300
		8	2	240 ~ 280	0.126 ~ 0.138	≤1.5D	≤0.5D	9550 ~ 11140	2410 ~ 3070
		10	2	240 ~ 280	0.150 ~ 0.165	≤1.5D	≤0.5D	7640 ~ 8910	2290 ~ 2940
		12	2	240 ~ 280	0.175 ~ 0.193	≤1.5D	≤0.5D	6370 ~ 7430	2230 ~ 2870
		16	2	240 ~ 280	0.225 ~ 0.247	≤1.5D	≤0.5D	4770 ~ 5570	2150 ~ 2750
		20	2	240 ~ 280	0.274 ~ 0.302	≤1.5D	≤0.5D	3820 ~ 4460	2090 ~ 2690
BRASS, BRONZE	M08, M09	6	2	160 ~ 200	0.101 ~ 0.111	≤1.5D	≤0.5D	8490 ~ 10610	1710 ~ 2360
		8	2	160 ~ 200	0.126 ~ 0.138	≤1.5D	≤0.5D	6370 ~ 7960	1610 ~ 2200
		10	2	160 ~ 200	0.150 ~ 0.165	≤1.5D	≤0.5D	5090 ~ 6370	1530 ~ 2100
		12	2	160 ~ 200	0.175 ~ 0.193	≤1.5D	≤0.5D	4240 ~ 5310	1480 ~ 2050
		16	2	160 ~ 200	0.225 ~ 0.247	≤1.5D	≤0.5D	3180 ~ 3980	1430 ~ 1970
		20	2	160 ~ 200	0.274 ~ 0.302	≤1.5D	≤0.5D	2550 ~ 3180	1400 ~ 1920
THERMOPLASTICS	M01	6	2	640 ~ 680	0.158 ~ 0.174	≤1.5D	≤0.5D	33950 ~ 36080	10730 ~ 12560
		8	2	640 ~ 680	0.197 ~ 0.217	≤1.5D	≤0.5D	25460 ~ 27060	10030 ~ 11740
		10	2	640 ~ 680	0.236 ~ 0.260	≤1.5D	≤0.5D	20370 ~ 21650	9610 ~ 11260
		12	2	640 ~ 680	0.275 ~ 0.303	≤1.5D	≤0.5D	16980 ~ 18040	9340 ~ 10930
		16	2	640 ~ 680	0.353 ~ 0.388	≤1.5D	≤0.5D	12730 ~ 13530	8990 ~ 10500
		20	2	640 ~ 680	0.431 ~ 0.474	≤1.5D	≤0.5D	10190 ~ 10820	8780 ~ 10260

AL SE Torus Long Endmills - High Performance

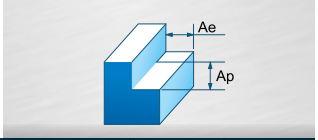
2 Z Plunging							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	2	90	0.032	4,770	300
		8	2	90	0.042	3,580	300
		10	2	90	0.052	2,860	300
		12	2	90	0.055	2,390	260
		16	2	90	0.077	1,790	280
		20	2	90	0.121	1,430	350
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	6	2	80	0.029	4,240	240
		8	2	80	0.038	3,180	240
		10	2	80	0.047	2,550	240
		12	2	80	0.050	2,120	210
		16	2	80	0.069	1,590	220
		20	2	80	0.109	1,270	280
COPPER	M03	6	2	70	0.029	3,710	210
		8	2	70	0.038	2,790	210
		10	2	70	0.047	2,230	210
		12	2	70	0.050	1,860	180
		16	2	70	0.069	1,390	190
		20	2	70	0.109	1,110	240
BRASS, BRONZE	M08, M09	6	2	60	0.026	3,180	160
		8	2	60	0.034	2,390	160
		10	2	60	0.042	1,910	160
		12	2	60	0.045	1,590	140
		16	2	60	0.062	1,190	150
		20	2	60	0.098	950	190
THERMOPLASTICS	M01	6	2	110	0.032	5,840	370
		8	2	110	0.042	4,380	370
		10	2	110	0.052	3,500	360
		12	2	110	0.055	2,920	320
		16	2	110	0.077	2,190	340
		20	2	110	0.121	1,750	420

AL SE Torus Long Endmills - High Performance



2 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	2	400 ~ 480	0.092 ~ 0.101	≤1.0D	≤1.0D	21220 ~ 25460	3900 ~ 5140
		8	2	400 ~ 480	0.115 ~ 0.126	≤1.0D	≤1.0D	15920 ~ 19100	3660 ~ 4810
		10	2	400 ~ 480	0.137 ~ 0.151	≤1.0D	≤1.0D	12730 ~ 15280	3490 ~ 4610
		12	2	400 ~ 480	0.160 ~ 0.176	≤1.0D	≤1.0D	10610 ~ 12730	3400 ~ 4480
		16	2	400 ~ 480	0.205 ~ 0.226	≤1.0D	≤1.0D	7960 ~ 9550	3260 ~ 4320
		20	2	400 ~ 480	0.251 ~ 0.276	≤1.0D	≤1.0D	6370 ~ 7640	3200 ~ 4220
ALUMINIUM ALLOYS SI < 8%	M04, M05 M06, M07	6	2	280 ~ 320	0.081 ~ 0.089	≤1.0D	≤1.0D	14850 ~ 16980	2410 ~ 3020
		8	2	280 ~ 320	0.100 ~ 0.110	≤1.0D	≤1.0D	11140 ~ 12730	2230 ~ 2800
		10	2	280 ~ 320	0.120 ~ 0.132	≤1.0D	≤1.0D	8910 ~ 10190	2140 ~ 2690
		12	2	280 ~ 320	0.140 ~ 0.154	≤1.0D	≤1.0D	7430 ~ 8490	2080 ~ 2610
		16	2	280 ~ 320	0.180 ~ 0.198	≤1.0D	≤1.0D	5570 ~ 6370	2010 ~ 2520
		20	2	280 ~ 320	0.219 ~ 0.241	≤1.0D	≤1.0D	4460 ~ 5090	1950 ~ 2450
COPPER	M03	6	2	240 ~ 280	0.081 ~ 0.089	≤1.0D	≤1.0D	12730 ~ 14850	2060 ~ 2640
		8	2	240 ~ 280	0.100 ~ 0.110	≤1.0D	≤1.0D	9550 ~ 11140	1910 ~ 2450
		10	2	240 ~ 280	0.120 ~ 0.132	≤1.0D	≤1.0D	7640 ~ 8910	1830 ~ 2350
		12	2	240 ~ 280	0.140 ~ 0.154	≤1.0D	≤1.0D	6370 ~ 7430	1780 ~ 2290
		16	2	240 ~ 280	0.180 ~ 0.198	≤1.0D	≤1.0D	4770 ~ 5570	1720 ~ 2210
		20	2	240 ~ 280	0.219 ~ 0.241	≤1.0D	≤1.0D	3820 ~ 4460	1670 ~ 2150
BRASS, BRONZE	M08, M09	6	2	160 ~ 200	0.081 ~ 0.089	≤1.0D	≤1.0D	8490 ~ 10610	1380 ~ 1890
		8	2	160 ~ 200	0.100 ~ 0.110	≤1.0D	≤1.0D	6370 ~ 7960	1270 ~ 1750
		10	2	160 ~ 200	0.120 ~ 0.132	≤1.0D	≤1.0D	5090 ~ 6370	1220 ~ 1680
		12	2	160 ~ 200	0.140 ~ 0.154	≤1.0D	≤1.0D	4240 ~ 5310	1190 ~ 1640
		16	2	160 ~ 200	0.180 ~ 0.198	≤1.0D	≤1.0D	3180 ~ 3980	1140 ~ 1580
		20	2	160 ~ 200	0.219 ~ 0.241	≤1.0D	≤1.0D	2550 ~ 3180	1120 ~ 1530
THERMOPLASTICS	M01	6	2	640 ~ 680	0.127 ~ 0.139	≤1.0D	≤1.0D	33950 ~ 36080	8620 ~ 10030
		8	2	640 ~ 680	0.158 ~ 0.174	≤1.0D	≤1.0D	25460 ~ 27060	8050 ~ 9420
		10	2	640 ~ 680	0.189 ~ 0.208	≤1.0D	≤1.0D	20370 ~ 21650	7700 ~ 9010
		12	2	640 ~ 680	0.220 ~ 0.242	≤1.0D	≤1.0D	16980 ~ 18040	7470 ~ 8730
		16	2	640 ~ 680	0.282 ~ 0.311	≤1.0D	≤1.0D	12730 ~ 13530	7180 ~ 8420
		20	2	640 ~ 680	0.345 ~ 0.379	≤1.0D	≤1.0D	10190 ~ 10820	7030 ~ 8200

AL SE DP Torus Roughing Endmills - High Performance

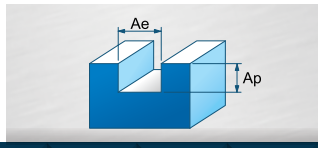


3 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	3	550 ~ 660	0.106 ~ 0.116	≤1.5D	≤0.5D	29180 ~ 35010	9280 ~ 12180
		8	3	550 ~ 660	0.132 ~ 0.145	≤1.5D	≤0.5D	21880 ~ 26260	8660 ~ 11420
		10	3	550 ~ 660	0.157 ~ 0.173	≤1.5D	≤0.5D	17510 ~ 21010	8250 ~ 10900
		12	3	550 ~ 660	0.183 ~ 0.202	≤1.5D	≤0.5D	14590 ~ 17510	8010 ~ 10610
		16	3	550 ~ 660	0.235 ~ 0.259	≤1.5D	≤0.5D	10940 ~ 13130	7710 ~ 10200
		20	3	550 ~ 660	0.287 ~ 0.316	≤1.5D	≤0.5D	8750 ~ 10500	7530 ~ 9950
ALUMINIUM ALLOYS SI < 8%	M04, M05 M06, M07	6	3	385 ~ 440	0.092 ~ 0.102	≤1.5D	≤0.5D	20420 ~ 23340	5640 ~ 7140
		8	3	385 ~ 440	0.115 ~ 0.127	≤1.5D	≤0.5D	15320 ~ 17510	5290 ~ 6670
		10	3	385 ~ 440	0.138 ~ 0.152	≤1.5D	≤0.5D	12250 ~ 14010	5070 ~ 6390
		12	3	385 ~ 440	0.160 ~ 0.177	≤1.5D	≤0.5D	10210 ~ 11670	4900 ~ 6200
		16	3	385 ~ 440	0.206 ~ 0.226	≤1.5D	≤0.5D	7660 ~ 8750	4730 ~ 5930
		20	3	385 ~ 440	0.251 ~ 0.276	≤1.5D	≤0.5D	6130 ~ 7000	4620 ~ 5800
COPPER	M03	6	3	330 ~ 385	0.092 ~ 0.102	≤1.5D	≤0.5D	17510 ~ 20420	4830 ~ 6250
		8	3	330 ~ 385	0.115 ~ 0.127	≤1.5D	≤0.5D	13130 ~ 15320	4530 ~ 5840
		10	3	330 ~ 385	0.138 ~ 0.152	≤1.5D	≤0.5D	10500 ~ 12250	4350 ~ 5590
		12	3	330 ~ 385	0.160 ~ 0.177	≤1.5D	≤0.5D	8750 ~ 10210	4200 ~ 5420
		16	3	330 ~ 385	0.206 ~ 0.226	≤1.5D	≤0.5D	6570 ~ 7660	4060 ~ 5190
		20	3	330 ~ 385	0.251 ~ 0.276	≤1.5D	≤0.5D	5250 ~ 6130	3950 ~ 5080
BRASS, BRONZE	M08, M09	6	3	220 ~ 275	0.092 ~ 0.102	≤1.5D	≤0.5D	11670 ~ 14590	3220 ~ 4460
		8	3	220 ~ 275	0.115 ~ 0.127	≤1.5D	≤0.5D	8750 ~ 10940	3020 ~ 4170
		10	3	220 ~ 275	0.138 ~ 0.152	≤1.5D	≤0.5D	7000 ~ 8750	2900 ~ 3990
		12	3	220 ~ 275	0.160 ~ 0.177	≤1.5D	≤0.5D	5840 ~ 7290	2800 ~ 3870
		16	3	220 ~ 275	0.206 ~ 0.226	≤1.5D	≤0.5D	4380 ~ 5470	2710 ~ 3710
		20	3	220 ~ 275	0.251 ~ 0.276	≤1.5D	≤0.5D	3500 ~ 4380	2640 ~ 3630
THERMOPLASTICS	M01	6	3	754	0.145 ~ 0.160	≤1.5D	≤0.5D	40000	17400 ~ 19200
		8	3	880 ~ 935	0.181 ~ 0.199	≤1.5D	≤0.5D	35010 ~ 37200	19010 ~ 22210
		10	3	880 ~ 935	0.217 ~ 0.238	≤1.5D	≤0.5D	28010 ~ 29760	18230 ~ 21250
		12	3	880 ~ 935	0.252 ~ 0.277	≤1.5D	≤0.5D	23340 ~ 24800	17650 ~ 20610
		16	3	880 ~ 935	0.324 ~ 0.356	≤1.5D	≤0.5D	17510 ~ 18600	17020 ~ 19860
		20	3	880 ~ 935	0.395 ~ 0.434	≤1.5D	≤0.5D	14010 ~ 14880	16600 ~ 19370

AL SE Torus Roughing Endmills - High Performance

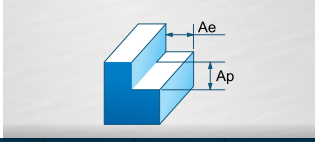
3 Z Plunging							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	3	140	0.032	7,430	710
		8	3	140	0.042	5,570	700
		10	3	140	0.052	4,460	690
		12	3	140	0.055	3,710	610
		16	3	140	0.077	2,790	640
		20	3	140	0.121	2,230	810
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	6	3	130	0.029	6,900	590
		8	3	130	0.038	5,170	580
		10	3	130	0.047	4,140	580
		12	3	130	0.050	3,450	510
		16	3	130	0.069	2,590	540
		20	3	130	0.109	2,070	680
COPPER	M03	6	3	120	0.029	6,370	550
		8	3	120	0.038	4,770	540
		10	3	120	0.047	3,820	530
		12	3	120	0.050	3,180	470
		16	3	120	0.069	2,390	500
		20	3	120	0.109	1,910	620
BRASS, BRONZE	M08, M09	6	3	110	0.026	5,840	450
		8	3	110	0.034	4,380	440
		10	3	110	0.042	3,500	440
		12	3	110	0.045	2,920	390
		16	3	110	0.062	2,190	410
		20	3	110	0.098	1,750	510
THERMOPLASTICS	M01	6	3	170	0.032	9,020	860
		8	3	170	0.042	6,760	850
		10	3	170	0.052	5,410	840
		12	3	170	0.055	4,510	740
		16	3	170	0.077	3,380	780
		20	3	170	0.121	2,710	980

AL SE Torus Roughing Endmills - High Performance



2 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	2	550 ~ 660	0.084 ~ 0.093	≤1.0D	≤1.0D	29180 ~ 35010	7350 ~ 9770
		8	2	550 ~ 660	0.105 ~ 0.116	≤1.0D	≤1.0D	21880 ~ 26260	6890 ~ 9140
		10	2	550 ~ 660	0.126 ~ 0.139	≤1.0D	≤1.0D	17510 ~ 21010	6620 ~ 8760
		12	2	550 ~ 660	0.147 ~ 0.161	≤1.0D	≤1.0D	14590 ~ 17510	6430 ~ 8460
		16	2	550 ~ 660	0.188 ~ 0.207	≤1.0D	≤1.0D	10940 ~ 13130	6170 ~ 8150
		20	2	550 ~ 660	0.230 ~ 0.253	≤1.0D	≤1.0D	8750 ~ 10500	6040 ~ 7970
ALUMINIUM ALLOYS SI < 8%	M04, M05 M06, M07	6	2	385 ~ 440	0.074 ~ 0.081	≤1.0D	≤1.0D	20420 ~ 23340	4530 ~ 5670
		8	2	385 ~ 440	0.092 ~ 0.101	≤1.0D	≤1.0D	15320 ~ 17510	4230 ~ 5310
		10	2	385 ~ 440	0.110 ~ 0.121	≤1.0D	≤1.0D	12250 ~ 14010	4040 ~ 5090
		12	2	385 ~ 440	0.128 ~ 0.141	≤1.0D	≤1.0D	10210 ~ 11670	3920 ~ 4940
		16	2	385 ~ 440	0.165 ~ 0.181	≤1.0D	≤1.0D	7660 ~ 8750	3790 ~ 4750
		20	2	385 ~ 440	0.201 ~ 0.221	≤1.0D	≤1.0D	6130 ~ 7000	3700 ~ 4640
COPPER	M03	6	2	330 ~ 385	0.074 ~ 0.081	≤1.0D	≤1.0D	17510 ~ 20420	23890 ~ 4960
		8	2	330 ~ 385	0.092 ~ 0.101	≤1.0D	≤1.0D	13130 ~ 15320	3620 ~ 4640
		10	2	330 ~ 385	0.110 ~ 0.121	≤1.0D	≤1.0D	10500 ~ 12250	3470 ~ 4450
		12	2	330 ~ 385	0.128 ~ 0.141	≤1.0D	≤1.0D	8750 ~ 10210	3360 ~ 4320
		16	2	330 ~ 385	0.165 ~ 0.181	≤1.0D	≤1.0D	6570 ~ 7660	3250 ~ 4160
		20	2	330 ~ 385	0.201 ~ 0.221	≤1.0D	≤1.0D	5250 ~ 6130	3170 ~ 4060
BRASS, BRONZE	M08, M09	6	2	220 ~ 275	0.074 ~ 0.081	≤1.0D	≤1.0D	11670 ~ 14590	2590 ~ 3550
		8	2	220 ~ 275	0.092 ~ 0.101	≤1.0D	≤1.0D	8750 ~ 10940	2420 ~ 3310
		10	2	220 ~ 275	0.110 ~ 0.121	≤1.0D	≤1.0D	7000 ~ 8750	2310 ~ 3180
		12	2	220 ~ 275	0.128 ~ 0.141	≤1.0D	≤1.0D	5840 ~ 7290	2240 ~ 3080
		16	2	220 ~ 275	0.165 ~ 0.181	≤1.0D	≤1.0D	4380 ~ 5470	2170 ~ 2970
		20	2	220 ~ 275	0.201 ~ 0.221	≤1.0D	≤1.0D	3500 ~ 4380	2110 ~ 2900
THERMOPLASTICS	M01	6	2	754	0.116 ~ 0.128	≤1.0D	≤1.0D	40000	13920 ~ 15360
		8	2	880 ~ 935	0.145 ~ 0.159	≤1.0D	≤1.0D	35010 ~ 37200	15230 ~ 17740
		10	2	880 ~ 935	0.173 ~ 0.191	≤1.0D	≤1.0D	28010 ~ 29760	14540 ~ 17050
		12	2	880 ~ 935	0.202 ~ 0.222	≤1.0D	≤1.0D	23340 ~ 24800	14140 ~ 16520
		16	2	880 ~ 935	0.259 ~ 0.285	≤1.0D	≤1.0D	17510 ~ 18600	13610 ~ 15900
		20	2	880 ~ 935	0.316 ~ 0.347	≤1.0D	≤1.0D	14010 ~ 14880	13280 ~ 15490

AL SE DP Standard Torus Endmills - High Performance



3 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	3	126	0.010 ~ 0.014	≤1.5D	≤0.3D	40000	1200 ~ 1680
		2	3	251	0.027 ~ 0.032	≤1.5D	≤0.3D	40000	3240 ~ 3840
		3	3	377	0.044 ~ 0.051	≤1.5D	≤0.3D	40000	5280 ~ 6120
		4	3	503	0.062 ~ 0.069	≤1.5D	≤0.5D	40000	7440 ~ 8280
		5	3	575 ~ 628	0.079 ~ 0.087	≤1.5D	≤0.5D	36610 ~ 40000	8680 ~ 10440
		6	3	575 ~ 690	0.096 ~ 0.106	≤1.5D	≤0.5D	30500 ~ 36610	8780 ~ 11640
		8	3	575 ~ 690	0.120 ~ 0.132	≤1.5D	≤0.5D	22880 ~ 27450	8240 ~ 10870
		10	3	575 ~ 690	0.143 ~ 0.157	≤1.5D	≤0.5D	18300 ~ 21960	7850 ~ 10340
		12	3	575 ~ 690	0.167 ~ 0.183	≤1.5D	≤0.5D	15250 ~ 18300	7640 ~ 10050
		14	3	575 ~ 690	0.190 ~ 0.209	≤1.5D	≤0.5D	13070 ~ 15690	7450 ~ 9840
		16	3	575 ~ 690	0.214 ~ 0.235	≤1.5D	≤0.5D	11440 ~ 13730	7340 ~ 9680
		18	3	575 ~ 690	0.237 ~ 0.261	≤1.5D	≤0.5D	10170 ~ 12200	7230 ~ 9550
		20	3	575 ~ 690	0.261 ~ 0.287	≤1.5D	≤0.5D	9150 ~ 10980	7160 ~ 9450
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	3	126	0.008 ~ 0.012	≤1.5D	≤0.3D	40000	960 ~ 1440
		2	3	251	0.023 ~ 0.028	≤1.5D	≤0.3D	40000	2760 ~ 3360
		3	3	377	0.038 ~ 0.044	≤1.5D	≤0.3D	40000	4560 ~ 5280
		4	3	403 ~ 460	0.054 ~ 0.060	≤1.5D	≤0.5D	32030 ~ 36610	5190 ~ 6590
		5	3	402 ~ 460	0.069 ~ 0.076	≤1.5D	≤0.5D	25620 ~ 29280	5300 ~ 6680
		6	3	402 ~ 460	0.084 ~ 0.092	≤1.5D	≤0.5D	21350 ~ 24400	5380 ~ 6730
		8	3	402 ~ 460	0.105 ~ 0.115	≤1.5D	≤0.5D	16010 ~ 18300	5040 ~ 6310
		10	3	402 ~ 460	0.125 ~ 0.138	≤1.5D	≤0.5D	12810 ~ 14640	4800 ~ 6060
		12	3	403 ~ 460	0.146 ~ 0.160	≤1.5D	≤0.5D	10680 ~ 12200	4680 ~ 5860
		14	3	402 ~ 460	0.167 ~ 0.183	≤1.5D	≤0.5D	9150 ~ 10460	4580 ~ 5740
		16	3	403 ~ 460	0.187 ~ 0.206	≤1.5D	≤0.5D	8010 ~ 9150	4490 ~ 5650
		18	3	403 ~ 460	0.208 ~ 0.229	≤1.5D	≤0.5D	7120 ~ 8130	4440 ~ 5590
		20	3	403 ~ 460	0.228 ~ 0.251	≤1.5D	≤0.5D	6410 ~ 7320	4380 ~ 5510
COPPER	M03	1	3	126	0.008 ~ 0.012	≤1.5D	≤0.3D	40000	960 ~ 1440
		2	3	251	0.023 ~ 0.028	≤1.5D	≤0.3D	40000	2760 ~ 3360
		3	3	345 ~ 377	0.038 ~ 0.044	≤1.5D	≤0.3D	36610 ~ 40000	4170 ~ 5280
		4	3	345 ~ 403	0.054 ~ 0.060	≤1.5D	≤0.5D	27450 ~ 32030	4450 ~ 5770
		5	3	345 ~ 402	0.069 ~ 0.076	≤1.5D	≤0.5D	21960 ~ 25620	4550 ~ 5840
		6	3	345 ~ 402	0.084 ~ 0.092	≤1.5D	≤0.5D	18300 ~ 21350	4610 ~ 5890
		8	3	345 ~ 402	0.105 ~ 0.115	≤1.5D	≤0.5D	13730 ~ 16010	4320 ~ 5520
		10	3	345 ~ 402	0.125 ~ 0.138	≤1.5D	≤0.5D	10980 ~ 12810	4120 ~ 5300
		12	3	345 ~ 403	0.146 ~ 0.160	≤1.5D	≤0.5D	9150 ~ 10680	4010 ~ 5130
		14	3	345 ~ 402	0.167 ~ 0.183	≤1.5D	≤0.5D	7840 ~ 9150	3930 ~ 5020
		16	3	345 ~ 403	0.187 ~ 0.206	≤1.5D	≤0.5D	6860 ~ 8010	3850 ~ 4950
		18	3	345 ~ 403	0.208 ~ 0.229	≤1.5D	≤0.5D	6100 ~ 7120	3810 ~ 4890
		20	3	345 ~ 403	0.228 ~ 0.251	≤1.5D	≤0.5D	5490 ~ 6410	3760 ~ 4830
BRASS, BRONZE	M08, M09	1	3	126	0.008 ~ 0.012	≤1.5D	≤0.3D	40000	960 ~ 1440
		2	3	230 ~ 251	0.023 ~ 0.028	≤1.5D	≤0.3D	36610 ~ 40000	2530 ~ 3360
		3	3	230 ~ 287	0.038 ~ 0.044	≤1.5D	≤0.3D	24400 ~ 30500	2780 ~ 4030
		4	3	230 ~ 288	0.054 ~ 0.060	≤1.5D	≤0.5D	18300 ~ 22880	2960 ~ 4120
		5	3	230 ~ 287	0.069 ~ 0.076	≤1.5D	≤0.5D	14640 ~ 18300	3030 ~ 4170
		6	3	230 ~ 287	0.084 ~ 0.092	≤1.5D	≤0.5D	12200 ~ 15250	3070 ~ 4210
		8	3	230 ~ 288	0.105 ~ 0.115	≤1.5D	≤0.5D	9150 ~ 11440	2880 ~ 3950
		10	3	230 ~ 287	0.125 ~ 0.138	≤1.5D	≤0.5D	7320 ~ 9150	2750 ~ 3790
		12	3	230 ~ 288	0.146 ~ 0.160	≤1.5D	≤0.5D	6100 ~ 7630	2670 ~ 3660
		14	3	230 ~ 288	0.167 ~ 0.183	≤1.5D	≤0.5D	5230 ~ 6540	2620 ~ 3590
		16	3	230 ~ 288	0.187 ~ 0.206	≤1.5D	≤0.5D	4580 ~ 5720	2570 ~ 3530
		18	3	230 ~ 287	0.208 ~ 0.229	≤1.5D	≤0.5D	4070 ~ 5080	2540 ~ 3490
		20	3	230 ~ 288	0.228 ~ 0.251	≤1.5D	≤0.5D	3660 ~ 4580	2500 ~ 3450
THERMOPLASTICS	M01	1	3	126	0.014 ~ 0.018	≤1.5D	≤0.3D	40000	1680 ~ 2160
		2	3	251	0.038 ~ 0.043	≤1.5D	≤0.3D	40000	4560 ~ 5160
		3	3	377	0.061 ~ 0.069	≤1.5D	≤0.3D	40000	7320 ~ 8280
		4	3	503	0.085 ~ 0.094	≤1.5D	≤0.5D	40000	10200 ~ 11280
		5	3	628	0.108 ~ 0.120	≤1.5D	≤0.5D	40000	12960 ~ 14400
		6	3	754	0.132 ~ 0.145	≤1.5D	≤0.5D	40000	15840 ~ 17400
		8	3	920 ~ 977	0.164 ~ 0.181	≤1.5D	≤0.5D	36610 ~ 38890	18010 ~ 21120
		10	3	920 ~ 977	0.197 ~ 0.217	≤1.5D	≤0.5D	29280 ~ 31110	17300 ~ 20250
		12	3	920 ~ 978	0.229 ~ 0.252	≤1.5D	≤0.5D	24400 ~ 25930	16760 ~ 19600
		14	3	920 ~ 977	0.262 ~ 0.288	≤1.5D	≤0.5D	20920 ~ 22220	16440 ~ 19200
		16	3	920 ~ 978	0.294 ~ 0.324	≤1.5D	≤0.5D	18300 ~ 19450	16140 ~ 18910
		18	3	920 ~ 978	0.327 ~ 0.359	≤1.5D	≤0.5D	16270 ~ 17290	15960 ~ 18620
		20	3	920 ~ 978	0.359 ~ 0.395	≤1.5D	≤0.5D	14640 ~ 15560	15770 ~ 18440

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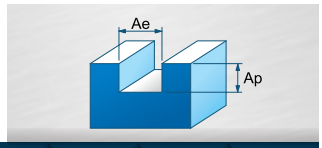
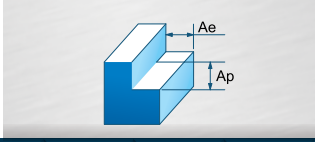
3 Z Plunging							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	3	70	0.002	22,280	160
		2	3	90	0.005	14,320	210
		3	3	120	0.010	12,730	370
		4	3	120	0.013	9,550	380
		5	3	120	0.022	7,640	500
		6	3	120	0.029	6,370	550
		8	3	120	0.038	4,770	550
		10	3	120	0.047	3,820	540
		12	3	120	0.050	3,180	480
		14	3	120	0.050	2,730	410
		16	3	120	0.070	2,390	500
		18	3	120	0.090	2,120	570
		20	3	120	0.110	1,910	630
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	3	60	0.002	19,100	90
		2	3	80	0.004	12,730	130
		3	3	110	0.008	11,670	280
		4	3	110	0.011	8,750	290
		5	3	110	0.018	7,000	370
		6	3	110	0.024	5,840	420
		8	3	110	0.032	4,380	420
		10	3	110	0.039	3,500	410
		12	3	110	0.042	2,920	370
		14	3	110	0.042	2,500	320
		16	3	110	0.056	2,190	370
		18	3	110	0.072	1,950	420
		20	3	110	0.088	1,750	460
COPPER	M03	1	3	60	0.002	19,100	90
		2	3	80	0.004	12,730	130
		3	3	100	0.008	10,610	260
		4	3	100	0.011	7,960	270
		5	3	100	0.018	6,370	340
		6	3	100	0.024	5,310	380
		8	3	100	0.032	3,980	380
		10	3	100	0.039	3,180	370
		12	3	100	0.042	2,650	330
		14	3	100	0.042	2,270	290
		16	3	100	0.056	1,990	330
		18	3	100	0.072	1,770	380
		20	3	100	0.088	1,590	420
BRASS, BRONZE	M08, M09	1	3	50	0.002	15,920	90
		2	3	70	0.004	11,140	120
		3	3	90	0.007	9,550	210
		4	3	90	0.010	7,160	210
		5	3	90	0.016	5,730	280
		6	3	90	0.022	4,770	310
		8	3	90	0.029	3,580	310
		10	3	90	0.035	2,860	300
		12	3	90	0.038	2,390	270
		14	3	90	0.038	2,050	230
		16	3	90	0.050	1,790	270
		18	3	90	0.065	1,590	310
		20	3	90	0.079	1,430	340
THERMOPLASTICS	M01	1	3	90	0.002	28,650	210
		2	3	120	0.005	19,100	280
		3	3	150	0.010	15,920	460
		4	3	150	0.013	11,940	470
		5	3	150	0.022	9,550	620
		6	3	150	0.029	7,960	690
		8	3	150	0.038	5,970	690
		10	3	150	0.047	4,770	670
		12	3	150	0.050	3,980	600
		14	3	150	0.050	3,410	520
		16	3	150	0.070	2,980	630
		18	3	150	0.090	2,650	720
		20	3	150	0.110	2,390	790

AL SE DP Standard Torus Endmills - High Performance



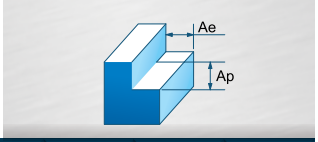
3 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	3	126	0.008 ~ 0.011	≤0.75D	≤1.0D	40000	960 ~ 1320
		2	3	251	0.022 ~ 0.026	≤0.75D	≤1.0D	40000	2640 ~ 3120
		3	3	377	0.036 ~ 0.041	≤0.75D	≤1.0D	40000	4320 ~ 4920
		4	3	503	0.049 ~ 0.055	≤1.0D	≤1.0D	40000	5880 ~ 6600
		5	3	575 ~ 628	0.063 ~ 0.070	≤1.0D	≤1.0D	36610 ~ 40000	6920 ~ 8400
		6	3	575 ~ 690	0.077 ~ 0.084	≤1.0D	≤1.0D	30500 ~ 36610	7050 ~ 9230
		8	3	575 ~ 690	0.096 ~ 0.105	≤1.0D	≤1.0D	22880 ~ 27450	6590 ~ 8650
		10	3	575 ~ 690	0.115 ~ 0.126	≤1.0D	≤1.0D	18300 ~ 21960	6310 ~ 8300
		12	3	575 ~ 690	0.133 ~ 0.147	≤1.0D	≤1.0D	15250 ~ 18300	6080 ~ 8070
		14	3	575 ~ 690	0.152 ~ 0.167	≤1.0D	≤1.0D	13070 ~ 15690	5960 ~ 7860
		16	3	575 ~ 690	0.171 ~ 0.188	≤1.0D	≤1.0D	11440 ~ 13730	5870 ~ 7740
		18	3	575 ~ 690	0.190 ~ 0.209	≤1.0D	≤1.0D	10170 ~ 12200	5800 ~ 7650
		20	3	575 ~ 690	0.209 ~ 0.230	≤1.0D	≤1.0D	9150 ~ 10980	5740 ~ 7580
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	3	126	0.006 ~ 0.010	≤0.75D	≤1.0D	40000	720 ~ 1200
		2	3	251	0.019 ~ 0.022	≤0.75D	≤1.0D	40000	2280 ~ 2640
		3	3	377	0.031 ~ 0.035	≤0.75D	≤1.0D	40000	3720 ~ 4200
		4	3	403 ~ 460	0.043 ~ 0.048	≤1.0D	≤1.0D	32030 ~ 36610	4130 ~ 5270
		5	3	402 ~ 460	0.055 ~ 0.061	≤1.0D	≤1.0D	25620 ~ 29280	4230 ~ 5360
		6	3	402 ~ 460	0.067 ~ 0.074	≤1.0D	≤1.0D	21350 ~ 24400	4290 ~ 5420
		8	3	402 ~ 460	0.084 ~ 0.092	≤1.0D	≤1.0D	16010 ~ 18300	4030 ~ 5050
		10	3	402 ~ 460	0.100 ~ 0.110	≤1.0D	≤1.0D	12810 ~ 14640	3840 ~ 4830
		12	3	403 ~ 460	0.117 ~ 0.128	≤1.0D	≤1.0D	10680 ~ 12200	3750 ~ 4680
		14	3	402 ~ 460	0.133 ~ 0.147	≤1.0D	≤1.0D	9150 ~ 10460	3650 ~ 4610
		16	3	403 ~ 460	0.150 ~ 0.165	≤1.0D	≤1.0D	8010 ~ 9150	3600 ~ 4530
		18	3	403 ~ 460	0.166 ~ 0.183	≤1.0D	≤1.0D	7120 ~ 8130	3550 ~ 4460
		20	3	403 ~ 460	0.183 ~ 0.201	≤1.0D	≤1.0D	6410 ~ 7320	3520 ~ 4410
COPPER	M03	1	3	126	0.006 ~ 0.010	≤0.75D	≤1.0D	40000	720 ~ 1200
		2	3	251	0.019 ~ 0.022	≤0.75D	≤1.0D	40000	2280 ~ 2640
		3	3	345 ~ 377	0.031 ~ 0.035	≤0.75D	≤1.0D	36610 ~ 40000	3400 ~ 4200
		4	3	345 ~ 403	0.043 ~ 0.048	≤1.0D	≤1.0D	27450 ~ 32030	3540 ~ 4610
		5	3	345 ~ 402	0.055 ~ 0.061	≤1.0D	≤1.0D	21960 ~ 25620	3620 ~ 4690
		6	3	345 ~ 402	0.067 ~ 0.074	≤1.0D	≤1.0D	18300 ~ 21350	3680 ~ 4740
		8	3	345 ~ 402	0.084 ~ 0.092	≤1.0D	≤1.0D	13730 ~ 16010	3460 ~ 4420
		10	3	345 ~ 402	0.100 ~ 0.110	≤1.0D	≤1.0D	10980 ~ 12810	3290 ~ 4230
		12	3	345 ~ 403	0.117 ~ 0.128	≤1.0D	≤1.0D	9150 ~ 10680	3210 ~ 4100
		14	3	345 ~ 402	0.133 ~ 0.147	≤1.0D	≤1.0D	7840 ~ 9150	3130 ~ 4040
		16	3	345 ~ 403	0.150 ~ 0.165	≤1.0D	≤1.0D	6860 ~ 8010	3090 ~ 3960
		18	3	345 ~ 403	0.166 ~ 0.183	≤1.0D	≤1.0D	6100 ~ 7120	3040 ~ 3910
		20	3	345 ~ 403	0.183 ~ 0.201	≤1.0D	≤1.0D	5490 ~ 6410	3010 ~ 3870
BRASS, BRONZE	M08, M09	1	3	126	0.006 ~ 0.010	≤0.75D	≤1.0D	40000	720 ~ 1200
		2	3	230 ~ 251	0.019 ~ 0.022	≤0.75D	≤1.0D	36610 ~ 40000	2090 ~ 2640
		3	3	230 ~ 287	0.031 ~ 0.035	≤0.75D	≤1.0D	24400 ~ 30500	2270 ~ 3200
		4	3	230 ~ 288	0.043 ~ 0.048	≤1.0D	≤1.0D	18300 ~ 22880	2360 ~ 3290
		5	3	230 ~ 287	0.055 ~ 0.061	≤1.0D	≤1.0D	14640 ~ 18300	2420 ~ 3350
		6	3	230 ~ 287	0.067 ~ 0.074	≤1.0D	≤1.0D	12200 ~ 15250	2450 ~ 3390
		8	3	230 ~ 288	0.084 ~ 0.092	≤1.0D	≤1.0D	9150 ~ 11440	2310 ~ 3160
		10	3	230 ~ 287	0.100 ~ 0.110	≤1.0D	≤1.0D	7320 ~ 9150	2200 ~ 3020
		12	3	230 ~ 288	0.117 ~ 0.128	≤1.0D	≤1.0D	6100 ~ 7630	2140 ~ 2930
		14	3	230 ~ 288	0.133 ~ 0.147	≤1.0D	≤1.0D	5230 ~ 6540	2090 ~ 2880
		16	3	230 ~ 288	0.150 ~ 0.165	≤1.0D	≤1.0D	4580 ~ 5720	2060 ~ 2830
		18	3	230 ~ 287	0.166 ~ 0.183	≤1.0D	≤1.0D	4070 ~ 5080	2030 ~ 2790
		20	3	230 ~ 288	0.183 ~ 0.201	≤1.0D	≤1.0D	3660 ~ 4580	2010 ~ 2760
THERMOPLASTICS	M01	1	3	126	0.011 ~ 0.014	≤0.75D	≤1.0D	40000	1320 ~ 1680
		2	3	251	0.030 ~ 0.035	≤0.75D	≤1.0D	40000	3600 ~ 4200
		3	3	377	0.049 ~ 0.055	≤0.75D	≤1.0D	40000	5880 ~ 6600
		4	3	503	0.068 ~ 0.075	≤1.0D	≤1.0D	40000	8160 ~ 9000
		5	3	628	0.087 ~ 0.096	≤1.0D	≤1.0D	40000	10440 ~ 11520
		6	3	754	0.106 ~ 0.116	≤1.0D	≤1.0D	40000	12720 ~ 13920
		8	3	920 ~ 977	0.132 ~ 0.145	≤1.0D	≤1.0D	36610 ~ 38890	14500 ~ 16920
		10	3	920 ~ 977	0.157 ~ 0.173	≤1.0D	≤1.0D	29280 ~ 31110	13790 ~ 16150
		12	3	920 ~ 978	0.183 ~ 0.202	≤1.0D	≤1.0D	24400 ~ 25930	13400 ~ 15710
		14	3	920 ~ 977	0.209 ~ 0.230	≤1.0D	≤1.0D	20920 ~ 22220	13120 ~ 15330
		16	3	920 ~ 978	0.235 ~ 0.259	≤1.0D	≤1.0D	18300 ~ 19450	12900 ~ 15110
		18	3	920 ~ 978	0.261 ~ 0.287	≤1.0D	≤1.0D	16270 ~ 17290	12740 ~ 14890
		20	3	920 ~ 978	0.287 ~ 0.316	≤1.0D	≤1.0D	14640 ~ 15560	12610 ~ 14750

ALU Multiflute Standard Endmills - High Performance



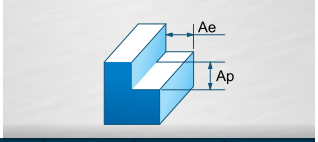
6 / 8 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	6	500 ~ 600	0.077 ~ 0.084	≤1.5D	≤0.5D	26530 ~ 31830	12260 ~ 16040
		8	6	500 ~ 600	0.096 ~ 0.105	≤1.5D	≤0.5D	19890 ~ 23870	11460 ~ 15040
		10	6	500 ~ 600	0.115 ~ 0.126	≤1.5D	≤0.5D	15920 ~ 19100	10980 ~ 14440
		12	6	500 ~ 600	0.133 ~ 0.147	≤1.5D	≤0.5D	13260 ~ 15920	10580 ~ 14040
		16	8	500 ~ 600	0.171 ~ 0.188	≤1.5D	≤0.5D	9950 ~ 11940	13610 ~ 17960
		20	8	500 ~ 600	0.209 ~ 0.230	≤1.5D	≤0.5D	7960 ~ 9550	13310 ~ 17570
ALUMINIUM ALLOYS SI < 8%	M04, M05 M06, M07	6	6	350 ~ 400	0.067 ~ 0.074	≤1.5D	≤0.5D	18570 ~ 21220	7470 ~ 9420
		8	6	350 ~ 400	0.084 ~ 0.092	≤1.5D	≤0.5D	13930 ~ 15920	7020 ~ 8790
		10	6	350 ~ 400	0.100 ~ 0.110	≤1.5D	≤0.5D	11140 ~ 12730	6680 ~ 8400
		12	6	350 ~ 400	0.117 ~ 0.128	≤1.5D	≤0.5D	9280 ~ 10610	6510 ~ 8150
		16	8	350 ~ 400	0.150 ~ 0.165	≤1.5D	≤0.5D	6960 ~ 7960	6260 ~ 7880
		20	8	350 ~ 400	0.183 ~ 0.201	≤1.5D	≤0.5D	5570 ~ 6370	6120 ~ 7680
COPPER	M03	6	6	300 ~ 350	0.067 ~ 0.074	≤1.5D	≤0.5D	15920 ~ 18570	6400 ~ 8250
		8	6	300 ~ 350	0.084 ~ 0.092	≤1.5D	≤0.5D	11940 ~ 13930	6020 ~ 7690
		10	6	300 ~ 350	0.100 ~ 0.110	≤1.5D	≤0.5D	9550 ~ 11140	5730 ~ 7350
		12	6	300 ~ 350	0.117 ~ 0.128	≤1.5D	≤0.5D	7960 ~ 9280	5590 ~ 7130
		16	8	300 ~ 350	0.150 ~ 0.165	≤1.5D	≤0.5D	5970 ~ 6960	5370 ~ 6890
		20	8	300 ~ 350	0.183 ~ 0.201	≤1.5D	≤0.5D	4770 ~ 5570	5240 ~ 6720
BRASS, BRONZE	M08, M09	6	6	200 ~ 250	0.067 ~ 0.074	≤1.5D	≤0.5D	10610 ~ 13260	4270 ~ 5890
		8	6	200 ~ 250	0.084 ~ 0.092	≤1.5D	≤0.5D	7960 ~ 9950	4010 ~ 5490
		10	6	200 ~ 250	0.100 ~ 0.110	≤1.5D	≤0.5D	6370 ~ 7960	3820 ~ 5250
		12	6	200 ~ 250	0.117 ~ 0.128	≤1.5D	≤0.5D	5310 ~ 6630	3730 ~ 5090
		16	8	200 ~ 250	0.150 ~ 0.165	≤1.5D	≤0.5D	3980 ~ 4970	3580 ~ 4920
		20	8	200 ~ 250	0.183 ~ 0.201	≤1.5D	≤0.5D	3180 ~ 3980	3490 ~ 4800
THERMOPLASTICS	M01	6	6	754	0.106 ~ 0.116	≤1.5D	≤0.5D	40000	25440 ~ 27840
		8	6	800 ~ 850	0.132 ~ 0.145	≤1.5D	≤0.5D	31830 ~ 33820	25210 ~ 29420
		10	6	800 ~ 850	0.157 ~ 0.173	≤1.5D	≤0.5D	25460 ~ 27060	23980 ~ 28090
		12	6	800 ~ 850	0.183 ~ 0.202	≤1.5D	≤0.5D	21220 ~ 22550	23300 ~ 27330
		16	8	800 ~ 850	0.235 ~ 0.259	≤1.5D	≤0.5D	15920 ~ 16910	22450 ~ 26280
		20	8	800 ~ 850	0.287 ~ 0.316	≤1.5D	≤0.5D	12730 ~ 13530	21920 ~ 25650

ALU Multiflute Long Endmills - High Performance



6 / 8 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	6	400 ~ 480	0.077 ~ 0.084	≤1.5D	≤0.5D	21220 ~ 25460	9800 ~ 12830
		8	6	400 ~ 480	0.096 ~ 0.105	≤1.5D	≤0.5D	15920 ~ 19100	9170 ~ 12030
		10	6	400 ~ 480	0.115 ~ 0.126	≤1.5D	≤0.5D	12730 ~ 15280	8780 ~ 11550
		12	6	400 ~ 480	0.133 ~ 0.147	≤1.5D	≤0.5D	10610 ~ 12730	8470 ~ 11230
		16	8	400 ~ 480	0.171 ~ 0.188	≤1.5D	≤0.5D	7960 ~ 9550	8170 ~ 10770
		20	8	400 ~ 480	0.209 ~ 0.230	≤1.5D	≤0.5D	6370 ~ 7640	7990 ~ 10540
ALUMINIUM ALLOYS SI < 8%	M04, M05 M06, M07	6	6	280 ~ 320	0.067 ~ 0.074	≤1.5D	≤0.5D	14850 ~ 16980	5970 ~ 7540
		8	6	280 ~ 320	0.084 ~ 0.092	≤1.5D	≤0.5D	11140 ~ 12730	5610 ~ 7030
		10	6	280 ~ 320	0.100 ~ 0.110	≤1.5D	≤0.5D	8910 ~ 10190	5350 ~ 6730
		12	6	280 ~ 320	0.117 ~ 0.128	≤1.5D	≤0.5D	7430 ~ 8490	5220 ~ 6520
		16	8	280 ~ 320	0.150 ~ 0.165	≤1.5D	≤0.5D	5570 ~ 6370	5010 ~ 6310
		20	8	280 ~ 320	0.183 ~ 0.201	≤1.5D	≤0.5D	4460 ~ 5090	4900 ~ 6140
COPPER	M03	6	6	240 ~ 280	0.067 ~ 0.074	≤1.5D	≤0.5D	12730 ~ 14850	5120 ~ 6590
		8	6	240 ~ 280	0.084 ~ 0.092	≤1.5D	≤0.5D	9550 ~ 11140	4810 ~ 6150
		10	6	240 ~ 280	0.100 ~ 0.110	≤1.5D	≤0.5D	7640 ~ 8910	4580 ~ 5880
		12	6	240 ~ 280	0.117 ~ 0.128	≤1.5D	≤0.5D	6370 ~ 7430	4470 ~ 5710
		16	8	240 ~ 280	0.150 ~ 0.165	≤1.5D	≤0.5D	4770 ~ 5570	4290 ~ 5510
		20	8	240 ~ 280	0.183 ~ 0.201	≤1.5D	≤0.5D	3820 ~ 4460	4190 ~ 5380
BRASS, BRONZE	M08, M09	6	6	160 ~ 200	0.067 ~ 0.074	≤1.5D	≤0.5D	8490 ~ 10610	3410 ~ 4710
		8	6	160 ~ 200	0.084 ~ 0.092	≤1.5D	≤0.5D	6370 ~ 7960	3210 ~ 4390
		10	6	160 ~ 200	0.100 ~ 0.110	≤1.5D	≤0.5D	5090 ~ 6370	3050 ~ 4200
		12	6	160 ~ 200	0.117 ~ 0.128	≤1.5D	≤0.5D	4240 ~ 5310	2980 ~ 4080
		16	8	160 ~ 200	0.150 ~ 0.165	≤1.5D	≤0.5D	3180 ~ 3980	2860 ~ 3940
		20	8	160 ~ 200	0.183 ~ 0.201	≤1.5D	≤0.5D	2550 ~ 3180	2800 ~ 3840
THERMOPLASTICS	M01	6	6	640 ~ 680	0.106 ~ 0.116	≤1.5D	≤0.5D	33950 ~ 36080	21590 ~ 25110
		8	6	640 ~ 680	0.132 ~ 0.145	≤1.5D	≤0.5D	25460 ~ 27060	20160 ~ 23540
		10	6	640 ~ 680	0.157 ~ 0.173	≤1.5D	≤0.5D	20370 ~ 21650	19190 ~ 22470
		12	6	640 ~ 680	0.183 ~ 0.202	≤1.5D	≤0.5D	16980 ~ 18040	18640 ~ 21860
		16	8	640 ~ 680	0.235 ~ 0.259	≤1.5D	≤0.5D	12730 ~ 13530	17950 ~ 21030
		20	8	640 ~ 680	0.287 ~ 0.316	≤1.5D	≤0.5D	10190 ~ 10820	17550 ~ 20510

AL SE with Reduce Shank Endmills - High Performance

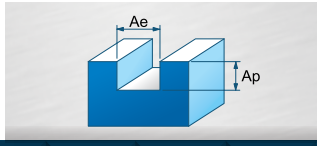


2 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	2	575 ~ 690	0.115 ~ 0.127	≤1.0D	≤0.5D	30500 ~ 36610	7020 ~ 9300
		8	2	575 ~ 690	0.143 ~ 0.158	≤1.0D	≤0.5D	22880 ~ 27450	6540 ~ 8670
		10	2	575 ~ 690	0.172 ~ 0.189	≤1.0D	≤0.5D	18300 ~ 21960	6300 ~ 8300
		12	2	575 ~ 690	0.200 ~ 0.220	≤1.0D	≤0.5D	15250 ~ 18300	6100 ~ 8050
		16	2	575 ~ 690	0.257 ~ 0.282	≤1.0D	≤0.5D	11440 ~ 13730	5880 ~ 7740
		20	2	575 ~ 690	0.313 ~ 0.345	≤1.0D	≤0.5D	9150 ~ 10980	5730 ~ 7580
ALUMINIUM ALLOYS SI < 8%	M04, M05 M06, M07	6	2	402 ~ 460	0.101 ~ 0.111	≤1.0D	≤0.5D	21350 ~ 24400	4310 ~ 5420
		8	2	402 ~ 460	0.126 ~ 0.138	≤1.0D	≤0.5D	16010 ~ 18300	4030 ~ 5050
		10	2	402 ~ 460	0.150 ~ 0.165	≤1.0D	≤0.5D	12810 ~ 14640	3840 ~ 4830
		12	2	403 ~ 460	0.175 ~ 0.193	≤1.0D	≤0.5D	10680 ~ 12200	3740 ~ 4710
		16	2	403 ~ 460	0.225 ~ 0.247	≤1.0D	≤0.5D	8010 ~ 9150	3600 ~ 4520
		20	2	403 ~ 460	0.274 ~ 0.302	≤1.0D	≤0.5D	6410 ~ 7320	3510 ~ 4420
COPPER	M03	6	2	345 ~ 402	0.101 ~ 0.111	≤1.0D	≤0.5D	18300 ~ 21350	3700 ~ 4740
		8	2	345 ~ 402	0.126 ~ 0.138	≤1.0D	≤0.5D	13730 ~ 16010	3460 ~ 4420
		10	2	345 ~ 402	0.150 ~ 0.165	≤1.0D	≤0.5D	10980 ~ 12810	3290 ~ 4230
		12	2	345 ~ 403	0.175 ~ 0.193	≤1.0D	≤0.5D	9150 ~ 10680	3200 ~ 4120
		16	2	345 ~ 403	0.225 ~ 0.247	≤1.0D	≤0.5D	6860 ~ 8010	3090 ~ 3960
		20	2	345 ~ 403	0.274 ~ 0.302	≤1.0D	≤0.5D	5490 ~ 6410	3010 ~ 3870
BRASS, BRONZE	M08, M09	6	2	230 ~ 287	0.101 ~ 0.111	≤1.0D	≤0.5D	12200 ~ 15250	2460 ~ 3390
		8	2	230 ~ 288	0.126 ~ 0.138	≤1.0D	≤0.5D	9150 ~ 11440	2310 ~ 3160
		10	2	230 ~ 287	0.150 ~ 0.165	≤1.0D	≤0.5D	7320 ~ 9150	2200 ~ 3020
		12	2	230 ~ 288	0.175 ~ 0.193	≤1.0D	≤0.5D	6100 ~ 7630	2140 ~ 2950
		16	2	230 ~ 288	0.225 ~ 0.247	≤1.0D	≤0.5D	4580 ~ 5720	2060 ~ 2830
		20	2	230 ~ 288	0.274 ~ 0.302	≤1.0D	≤0.5D	3660 ~ 4580	2010 ~ 2770
THERMOPLASTICS	M01	6	2	754	0.158 ~ 0.174	≤1.0D	≤0.5D	40000	12640 ~ 13920
		8	2	920 ~ 977	0.197 ~ 0.217	≤1.0D	≤0.5D	36610 ~ 38890	14420 ~ 16880
		10	2	920 ~ 977	0.236 ~ 0.260	≤1.0D	≤0.5D	29280 ~ 31110	13820 ~ 16180
		12	2	920 ~ 978	0.275 ~ 0.303	≤1.0D	≤0.5D	24400 ~ 25930	13420 ~ 15710
		16	2	920 ~ 978	0.353 ~ 0.388	≤1.0D	≤0.5D	18300 ~ 19450	12920 ~ 15090
		20	2	920 ~ 978	0.431 ~ 0.474	≤1.0D	≤0.5D	14640 ~ 15560	12620 ~ 14750

AL SE with Redece Shank Endmills - High Performance

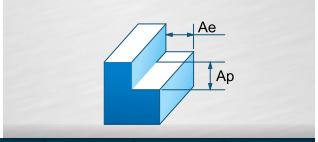
2 Z Plunging							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	1	2	50	0.002	15,920	60
		2	2	80	0.006	12,730	140
		3	2	100	0.011	10,610	230
		4	2	100	0.014	7,960	230
		5	2	100	0.024	6,370	310
		6	2	100	0.032	5,310	340
		8	2	100	0.042	3,980	330
		10	2	100	0.052	3,180	330
		12	2	100	0.055	2,650	290
		14	2	100	0.055	2,270	250
		16	2	100	0.077	1,990	310
		18	2	100	0.099	1,770	350
		20	2	100	0.121	1,590	380
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	1	2	50	0.002	15,920	60
		2	2	70	0.005	11,140	110
		3	2	90	0.010	9,550	190
		4	2	90	0.013	7,160	180
		5	2	90	0.022	5,730	250
		6	2	90	0.029	4,770	270
		8	2	90	0.038	3,580	270
		10	2	90	0.047	2,860	270
		12	2	90	0.050	2,390	240
		14	2	90	0.050	2,050	200
		16	2	90	0.069	1,790	250
		18	2	90	0.089	1,590	280
		20	2	90	0.109	1,430	310
COPPER	M03	1	2	40	0.002	12,730	50
		2	2	60	0.005	9,550	90
		3	2	80	0.010	8,490	170
		4	2	80	0.013	6,370	160
		5	2	80	0.022	5,090	220
		6	2	80	0.029	4,240	240
		8	2	80	0.038	3,180	240
		10	2	80	0.047	2,550	240
		12	2	80	0.050	2,120	210
		14	2	80	0.050	1,820	180
		16	2	80	0.069	1,590	220
		18	2	80	0.089	1,410	250
		20	2	80	0.109	1,270	280
BRASS, BRONZE	M08, M09	1	2	40	0.002	12,730	40
		2	2	60	0.004	9,550	90
		3	2	70	0.009	7,430	130
		4	2	70	0.012	5,570	130
		5	2	70	0.020	4,460	170
		6	2	70	0.026	3,710	190
		8	2	70	0.034	2,790	190
		10	2	70	0.042	2,230	190
		12	2	70	0.045	1,860	170
		14	2	70	0.045	1,590	140
		16	2	70	0.062	1,390	170
		18	2	70	0.080	1,240	200
		20	2	70	0.098	1,110	220
THERMOPLASTICS	M01	1	2	70	0.002	19,100	80
		2	2	100	0.006	15,920	180
		3	2	120	0.011	12,730	280
		4	2	120	0.014	9,550	270
		5	2	120	0.024	7,640	370
		6	2	120	0.032	6,370	410
		8	2	120	0.042	4,770	400
		10	2	120	0.052	3,820	390
		12	2	120	0.055	3,180	350
		14	2	120	0.055	2,730	300
		16	2	120	0.077	2,390	370
		18	2	120	0.099	2,120	420
		20	2	120	0.121	1,910	460

AL SE with Reduce Shank Endmills - High Performance



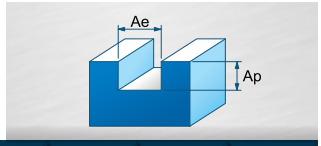
2 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	6	2	575 ~ 690	0.092 ~ 0.101	≤1.0D	≤1.0D	30500 ~ 36610	5610 ~ 7400
		8	2	575 ~ 690	0.115 ~ 0.126	≤1.0D	≤1.0D	22880 ~ 27450	5260 ~ 6920
		10	2	575 ~ 690	0.137 ~ 0.151	≤1.0D	≤1.0D	18300 ~ 21960	5010 ~ 6630
		12	2	575 ~ 690	0.160 ~ 0.176	≤1.0D	≤1.0D	15250 ~ 18300	4880 ~ 6440
		16	2	575 ~ 690	0.205 ~ 0.226	≤1.0D	≤1.0D	11440 ~ 13730	4690 ~ 6210
		20	2	575 ~ 690	0.251 ~ 0.276	≤1.0D	≤1.0D	9150 ~ 10980	4590 ~ 6060
ALUMINIUM ALLOYS SI < 8%	M04, M05 M06, M07	6	2	402 ~ 460	0.081 ~ 0.089	≤1.0D	≤1.0D	21350 ~ 24400	3460 ~ 4340
		8	2	402 ~ 460	0.100 ~ 0.110	≤1.0D	≤1.0D	16010 ~ 18300	3200 ~ 4030
		10	2	402 ~ 460	0.120 ~ 0.132	≤1.0D	≤1.0D	12810 ~ 14640	3070 ~ 3860
		12	2	403 ~ 460	0.140 ~ 0.154	≤1.0D	≤1.0D	10680 ~ 12200	2990 ~ 3760
		16	2	403 ~ 460	0.180 ~ 0.198	≤1.0D	≤1.0D	8010 ~ 9150	2880 ~ 3620
		20	2	403 ~ 460	0.219 ~ 0.241	≤1.0D	≤1.0D	6410 ~ 7320	2810 ~ 3530
COPPER	M03	6	2	345 ~ 402	0.081 ~ 0.089	≤1.0D	≤1.0D	18300 ~ 21350	2960 ~ 3800
		8	2	345 ~ 402	0.100 ~ 0.110	≤1.0D	≤1.0D	13730 ~ 16010	2750 ~ 3520
		10	2	345 ~ 402	0.120 ~ 0.132	≤1.0D	≤1.0D	10980 ~ 12810	2640 ~ 3380
		12	2	345 ~ 403	0.140 ~ 0.154	≤1.0D	≤1.0D	9150 ~ 10680	2560 ~ 3290
		16	2	345 ~ 403	0.180 ~ 0.198	≤1.0D	≤1.0D	6860 ~ 8010	2470 ~ 3170
		20	2	345 ~ 403	0.219 ~ 0.241	≤1.0D	≤1.0D	5490 ~ 6410	2400 ~ 3090
BRASS, BRONZE	M08, M09	6	2	230 ~ 287	0.081 ~ 0.089	≤1.0D	≤1.0D	12200 ~ 15250	1980 ~ 2710
		8	2	230 ~ 288	0.100 ~ 0.110	≤1.0D	≤1.0D	9150 ~ 11440	1830 ~ 2520
		10	2	230 ~ 287	0.120 ~ 0.132	≤1.0D	≤1.0D	7320 ~ 9150	1760 ~ 2420
		12	2	230 ~ 288	0.140 ~ 0.154	≤1.0D	≤1.0D	6100 ~ 7630	1710 ~ 2350
		16	2	230 ~ 288	0.180 ~ 0.198	≤1.0D	≤1.0D	4580 ~ 5720	1650 ~ 2270
		20	2	230 ~ 288	0.219 ~ 0.241	≤1.0D	≤1.0D	3660 ~ 4580	1600 ~ 2210
THERMOPLASTICS	M01	6	2	754	0.127 ~ 0.139	≤1.0D	≤1.0D	40000	10160 ~ 11120
		8	2	920 ~ 977	0.158 ~ 0.174	≤1.0D	≤1.0D	36610 ~ 38890	11570 ~ 13530
		10	2	920 ~ 977	0.189 ~ 0.208	≤1.0D	≤1.0D	29280 ~ 31110	11070 ~ 12940
		12	2	920 ~ 978	0.220 ~ 0.242	≤1.0D	≤1.0D	24400 ~ 25930	10740 ~ 12550
		16	2	920 ~ 978	0.282 ~ 0.311	≤1.0D	≤1.0D	18300 ~ 19450	10320 ~ 12100
		20	2	920 ~ 978	0.345 ~ 0.379	≤1.0D	≤1.0D	14640 ~ 15560	10100 ~ 11790

AL SE DP Standard Endmills - High Performance



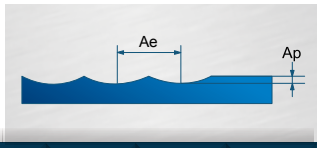
4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	3	4	377	0.040 ~ 0.046	≤1.5D	≤0.3D	40000	6400 ~ 7360
		4	4	500 ~ 503	0.055 ~ 0.062	≤1.5D	≤0.5D	39790 ~ 40000	8750 ~ 9920
		5	4	500 ~ 600	0.071 ~ 0.079	≤1.5D	≤0.5D	31830 ~ 38200	9040 ~ 12070
		6	4	500 ~ 600	0.086 ~ 0.095	≤1.5D	≤0.5D	26530 ~ 31830	9130 ~ 12100
		8	4	500 ~ 600	0.108 ~ 0.118	≤1.5D	≤0.5D	19890 ~ 23870	8590 ~ 11270
		10	4	500 ~ 600	0.129 ~ 0.142	≤1.5D	≤0.5D	15920 ~ 19100	8210 ~ 10850
		12	4	500 ~ 600	0.150 ~ 0.165	≤1.5D	≤0.5D	13260 ~ 15920	7960 ~ 10510
		14	4	500 ~ 600	0.171 ~ 0.188	≤1.5D	≤0.5D	11370 ~ 13640	7780 ~ 10260
		16	4	500 ~ 600	0.193 ~ 0.212	≤1.5D	≤0.5D	9950 ~ 11940	7680 ~ 10130
		18	4	500 ~ 600	0.214 ~ 0.235	≤1.5D	≤0.5D	8840 ~ 10610	7570 ~ 9970
		20	4	500 ~ 600	0.235 ~ 0.258	≤1.5D	≤0.5D	7960 ~ 9550	7480 ~ 9860
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	3	4	350 ~ 377	0.035 ~ 0.040	≤1.5D	≤0.3D	37140 ~ 40000	5200 ~ 6400
		4	4	350 ~ 400	0.048 ~ 0.054	≤1.5D	≤0.5D	27850 ~ 31830	5350 ~ 6880
		5	4	350 ~ 400	0.062 ~ 0.069	≤1.5D	≤0.5D	22280 ~ 25460	5530 ~ 7030
		6	4	350 ~ 400	0.076 ~ 0.083	≤1.5D	≤0.5D	18570 ~ 21220	5650 ~ 7050
		8	4	350 ~ 400	0.094 ~ 0.104	≤1.5D	≤0.5D	13930 ~ 15920	5240 ~ 6620
		10	4	350 ~ 400	0.113 ~ 0.124	≤1.5D	≤0.5D	11140 ~ 12730	5040 ~ 6310
		12	4	350 ~ 400	0.131 ~ 0.144	≤1.5D	≤0.5D	9280 ~ 10610	4860 ~ 6110
		14	4	350 ~ 400	0.150 ~ 0.165	≤1.5D	≤0.5D	7960 ~ 9090	4780 ~ 6000
		16	4	350 ~ 400	0.168 ~ 0.185	≤1.5D	≤0.5D	6960 ~ 7960	4680 ~ 5890
		18	4	350 ~ 400	0.187 ~ 0.206	≤1.5D	≤0.5D	6190 ~ 7070	4630 ~ 5830
		20	4	350 ~ 400	0.206 ~ 0.226	≤1.5D	≤0.5D	5570 ~ 6370	4590 ~ 5760
COPPER	M03	3	4	300 ~ 350	0.035 ~ 0.040	≤1.5D	≤0.3D	31830 ~ 37140	4460 ~ 5940
		4	4	300 ~ 350	0.048 ~ 0.054	≤1.5D	≤0.5D	23870 ~ 27850	4580 ~ 6020
		5	4	300 ~ 350	0.062 ~ 0.069	≤1.5D	≤0.5D	19100 ~ 22280	4740 ~ 6150
		6	4	300 ~ 350	0.076 ~ 0.083	≤1.5D	≤0.5D	15920 ~ 18570	4840 ~ 6170
		8	4	300 ~ 350	0.094 ~ 0.104	≤1.5D	≤0.5D	11940 ~ 13930	4490 ~ 5790
		10	4	300 ~ 350	0.113 ~ 0.124	≤1.5D	≤0.5D	9550 ~ 11140	4320 ~ 5530
		12	4	300 ~ 350	0.131 ~ 0.144	≤1.5D	≤0.5D	7960 ~ 9280	4170 ~ 5350
		14	4	300 ~ 350	0.150 ~ 0.165	≤1.5D	≤0.5D	6820 ~ 7960	4090 ~ 5250
		16	4	300 ~ 350	0.168 ~ 0.185	≤1.5D	≤0.5D	5970 ~ 6960	4010 ~ 5150
		18	4	300 ~ 350	0.187 ~ 0.206	≤1.5D	≤0.5D	5310 ~ 6190	3970 ~ 5100
		20	4	300 ~ 350	0.206 ~ 0.226	≤1.5D	≤0.5D	4770 ~ 5570	3930 ~ 5040
BRASS, BRONZE	M08, M09	3	4	200 ~ 250	0.035 ~ 0.040	≤1.5D	≤0.3D	21220 ~ 26530	2970 ~ 4240
		4	4	200 ~ 250	0.048 ~ 0.054	≤1.5D	≤0.5D	15920 ~ 19890	3060 ~ 4300
		5	4	200 ~ 250	0.062 ~ 0.069	≤1.5D	≤0.5D	12730 ~ 15920	3160 ~ 4390
		6	4	200 ~ 250	0.076 ~ 0.083	≤1.5D	≤0.5D	10610 ~ 13260	3230 ~ 4400
		8	4	200 ~ 250	0.094 ~ 0.104	≤1.5D	≤0.5D	7960 ~ 9950	2990 ~ 4140
		10	4	200 ~ 250	0.113 ~ 0.124	≤1.5D	≤0.5D	6370 ~ 7960	2880 ~ 3950
		12	4	200 ~ 250	0.131 ~ 0.144	≤1.5D	≤0.5D	5310 ~ 6630	2780 ~ 3820
		14	4	200 ~ 250	0.150 ~ 0.165	≤1.5D	≤0.5D	4550 ~ 5680	2730 ~ 3750
		16	4	200 ~ 250	0.168 ~ 0.185	≤1.5D	≤0.5D	3980 ~ 4970	2670 ~ 3680
		18	4	200 ~ 250	0.187 ~ 0.206	≤1.5D	≤0.5D	3540 ~ 4420	2650 ~ 3640
		20	4	200 ~ 250	0.206 ~ 0.226	≤1.5D	≤0.5D	3180 ~ 3980	2620 ~ 3600
THERMOPLASTICS	M01	3	4	377	0.055 ~ 0.062	≤1.5D	≤0.3D	40000	8800 ~ 9920
		4	4	503	0.076 ~ 0.085	≤1.5D	≤0.5D	40000	12160 ~ 13600
		5	4	628	0.098 ~ 0.108	≤1.5D	≤0.5D	40000	15680 ~ 17280
		6	4	754	0.119 ~ 0.131	≤1.5D	≤0.5D	40000	19040 ~ 20960
		8	4	800 ~ 850	0.148 ~ 0.163	≤1.5D	≤0.5D	31830 ~ 33820	18840 ~ 22050
		10	4	800 ~ 850	0.177 ~ 0.195	≤1.5D	≤0.5D	25460 ~ 27060	18030 ~ 21110
		12	4	800 ~ 850	0.206 ~ 0.227	≤1.5D	≤0.5D	21220 ~ 22550	17490 ~ 20480
		14	4	800 ~ 850	0.236 ~ 0.259	≤1.5D	≤0.5D	18190 ~ 19330	17170 ~ 20030
		16	4	800 ~ 850	0.265 ~ 0.291	≤1.5D	≤0.5D	15920 ~ 16910	16880 ~ 19680
		18	4	800 ~ 850	0.294 ~ 0.323	≤1.5D	≤0.5D	14150 ~ 15030	16640 ~ 19420
		20	4	800 ~ 850	0.323 ~ 0.355	≤1.5D	≤0.5D	12730 ~ 13530	16450 ~ 19210

AL SE DP Standard Endmills - High Performance



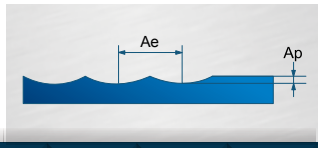
4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	3	4	377	0.032 ~ 0.036	≤1.0D	≤1.0D	40000	5120 ~ 5760
		4	4	500 ~ 503	0.044 ~ 0.050	≤1.0D	≤1.0D	39790 ~ 40000	7000 ~ 8000
		5	4	500 ~ 600	0.057 ~ 0.063	≤1.0D	≤1.0D	31830 ~ 38200	7260 ~ 9630
		6	4	500 ~ 600	0.069 ~ 0.076	≤1.0D	≤1.0D	26530 ~ 31830	7320 ~ 9680
		8	4	500 ~ 600	0.086 ~ 0.095	≤1.0D	≤1.0D	19890 ~ 23870	6840 ~ 9070
		10	4	500 ~ 600	0.103 ~ 0.113	≤1.0D	≤1.0D	15920 ~ 19100	6560 ~ 8630
		12	4	500 ~ 600	0.120 ~ 0.132	≤1.0D	≤1.0D	13260 ~ 15920	6360 ~ 8410
		14	4	500 ~ 600	0.137 ~ 0.151	≤1.0D	≤1.0D	11370 ~ 13640	6230 ~ 8240
		16	4	500 ~ 600	0.154 ~ 0.169	≤1.0D	≤1.0D	9950 ~ 11940	6130 ~ 8070
		18	4	500 ~ 600	0.171 ~ 0.188	≤1.0D	≤1.0D	8840 ~ 10610	6050 ~ 7980
		20	4	500 ~ 600	0.188 ~ 0.207	≤1.0D	≤1.0D	7960 ~ 9550	5990 ~ 7910
ALUMINIUM ALLOYS SI < 8%	M04.M05. M06. M07	3	4	350 ~ 377	0.028 ~ 0.032	≤1.0D	≤1.0D	37140 ~ 40000	4160 ~ 5120
		4	4	350 ~ 400	0.039 ~ 0.043	≤1.0D	≤1.0D	27850 ~ 31830	4340 ~ 5470
		5	4	350 ~ 400	0.050 ~ 0.055	≤1.0D	≤1.0D	22280 ~ 25460	4460 ~ 5600
		6	4	350 ~ 400	0.060 ~ 0.067	≤1.0D	≤1.0D	18570 ~ 21220	4460 ~ 5690
		8	4	350 ~ 400	0.075 ~ 0.083	≤1.0D	≤1.0D	13930 ~ 15920	4180 ~ 5290
		10	4	350 ~ 400	0.090 ~ 0.099	≤1.0D	≤1.0D	11140 ~ 12730	4010 ~ 5040
		12	4	350 ~ 400	0.105 ~ 0.116	≤1.0D	≤1.0D	9280 ~ 10610	3900 ~ 4920
		14	4	350 ~ 400	0.120 ~ 0.132	≤1.0D	≤1.0D	7960 ~ 9090	3820 ~ 4800
		16	4	350 ~ 400	0.135 ~ 0.148	≤1.0D	≤1.0D	6960 ~ 7960	3760 ~ 4710
		18	4	350 ~ 400	0.150 ~ 0.165	≤1.0D	≤1.0D	6190 ~ 7070	3710 ~ 4670
		20	4	350 ~ 400	0.164 ~ 0.181	≤1.0D	≤1.0D	5570 ~ 6370	3650 ~ 4610
COPPER	M03	3	4	300 ~ 350	0.028 ~ 0.032	≤1.0D	≤1.0D	31830 ~ 37140	3560 ~ 4750
		4	4	300 ~ 350	0.039 ~ 0.043	≤1.0D	≤1.0D	23870 ~ 27850	3720 ~ 4790
		5	4	300 ~ 350	0.050 ~ 0.055	≤1.0D	≤1.0D	19100 ~ 22280	3820 ~ 4900
		6	4	300 ~ 350	0.060 ~ 0.067	≤1.0D	≤1.0D	15920 ~ 18570	3820 ~ 4980
		8	4	300 ~ 350	0.075 ~ 0.083	≤1.0D	≤1.0D	11940 ~ 13930	3580 ~ 4620
		10	4	300 ~ 350	0.090 ~ 0.099	≤1.0D	≤1.0D	9550 ~ 11140	3440 ~ 4410
		12	4	300 ~ 350	0.105 ~ 0.116	≤1.0D	≤1.0D	7960 ~ 9280	3340 ~ 4310
		14	4	300 ~ 350	0.120 ~ 0.132	≤1.0D	≤1.0D	6820 ~ 7960	3270 ~ 4200
		16	4	300 ~ 350	0.135 ~ 0.148	≤1.0D	≤1.0D	5970 ~ 6960	3220 ~ 4120
		18	4	300 ~ 350	0.150 ~ 0.165	≤1.0D	≤1.0D	5310 ~ 6190	3190 ~ 4090
		20	4	300 ~ 350	0.164 ~ 0.181	≤1.0D	≤1.0D	4770 ~ 5570	3130 ~ 4030
BRASS, BRONZE	M08, M09	3	4	200 ~ 250	0.028 ~ 0.032	≤1.0D	≤1.0D	21220 ~ 26530	2380 ~ 3400
		4	4	200 ~ 250	0.039 ~ 0.043	≤1.0D	≤1.0D	15920 ~ 19890	2480 ~ 3420
		5	4	200 ~ 250	0.050 ~ 0.055	≤1.0D	≤1.0D	12730 ~ 15920	2550 ~ 3500
		6	4	200 ~ 250	0.060 ~ 0.067	≤1.0D	≤1.0D	10610 ~ 13260	2550 ~ 3550
		8	4	200 ~ 250	0.075 ~ 0.083	≤1.0D	≤1.0D	7960 ~ 9950	2390 ~ 3300
		10	4	200 ~ 250	0.090 ~ 0.099	≤1.0D	≤1.0D	6370 ~ 7960	2290 ~ 3150
		12	4	200 ~ 250	0.105 ~ 0.116	≤1.0D	≤1.0D	5310 ~ 6630	2230 ~ 3080
		14	4	200 ~ 250	0.120 ~ 0.132	≤1.0D	≤1.0D	4550 ~ 5680	2180 ~ 3000
		16	4	200 ~ 250	0.135 ~ 0.148	≤1.0D	≤1.0D	3980 ~ 4970	2150 ~ 2940
		18	4	200 ~ 250	0.150 ~ 0.165	≤1.0D	≤1.0D	3540 ~ 4420	2120 ~ 2920
		20	4	200 ~ 250	0.164 ~ 0.181	≤1.0D	≤1.0D	3180 ~ 3980	2090 ~ 2880
THERMOPLASTICS	M01	3	4	377	0.044 ~ 0.050	≤1.0D	≤1.0D	40000	7040 ~ 8000
		4	4	503	0.061 ~ 0.068	≤1.0D	≤1.0D	40000	9760 ~ 10880
		5	4	628	0.078 ~ 0.086	≤1.0D	≤1.0D	40000	12480 ~ 13760
		6	4	754	0.095 ~ 0.105	≤1.0D	≤1.0D	40000	15200 ~ 16800
		8	4	800 ~ 850	0.118 ~ 0.130	≤1.0D	≤1.0D	31830 ~ 33820	15020 ~ 17590
		10	4	800 ~ 850	0.142 ~ 0.156	≤1.0D	≤1.0D	25460 ~ 27060	14460 ~ 16890
		12	4	800 ~ 850	0.165 ~ 0.182	≤1.0D	≤1.0D	21220 ~ 22550	14010 ~ 16420
		14	4	800 ~ 850	0.188 ~ 0.207	≤1.0D	≤1.0D	18190 ~ 19330	13680 ~ 16010
		16	4	800 ~ 850	0.212 ~ 0.233	≤1.0D	≤1.0D	15920 ~ 16910	13500 ~ 15760
		18	4	800 ~ 850	0.235 ~ 0.259	≤1.0D	≤1.0D	14150 ~ 15030	13300 ~ 15570
		20	4	800 ~ 850	0.258 ~ 0.284	≤1.0D	≤1.0D	12730 ~ 13530	13140 ~ 15370

AL BN Standard Ballnose Cutters



2 Z Roughing		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	3	2	377	0.064 ~ 0.073	≤0.1D	≤0.25D	40000	5120 ~ 5840
		4	2	500 ~ 503	0.089 ~ 0.099	≤0.1D	≤0.25D	39790 ~ 40000	7080 ~ 7920
		5	2	500 ~ 600	0.113 ~ 0.126	≤0.1D	≤0.25D	31830 ~ 38200	7190 ~ 9630
		6	2	500 ~ 600	0.138 ~ 0.152	≤0.1D	≤0.25D	26530 ~ 31830	7320 ~ 9680
		8	2	500 ~ 600	0.172 ~ 0.189	≤0.1D	≤0.25D	19890 ~ 23870	6840 ~ 9020
		10	2	500 ~ 600	0.206 ~ 0.227	≤0.1D	≤0.25D	15920 ~ 19100	6560 ~ 8670
		12	2	500 ~ 600	0.240 ~ 0.264	≤0.1D	≤0.25D	13260 ~ 15920	6360 ~ 8410
		16	2	500 ~ 600	0.308 ~ 0.339	≤0.1D	≤0.25D	9950 ~ 11940	6130 ~ 8100
		20	2	500 ~ 600	0.376 ~ 0.414	≤0.1D	≤0.25D	7960 ~ 9550	5990 ~ 7910
ALUMINIUM ALLOYS SI < 8%	M04, M05, M06, M07	3	2	350 ~ 377	0.055 ~ 0.064	≤0.1D	≤0.25D	37140 ~ 40000	4090 ~ 5120
		4	2	350 ~ 400	0.077 ~ 0.087	≤0.1D	≤0.25D	27850 ~ 31830	4290 ~ 5540
		5	2	350 ~ 400	0.099 ~ 0.110	≤0.1D	≤0.25D	22280 ~ 25460	4410 ~ 5600
		6	2	350 ~ 400	0.121 ~ 0.133	≤0.1D	≤0.25D	18570 ~ 21220	4490 ~ 5640
		8	2	350 ~ 400	0.151 ~ 0.166	≤0.1D	≤0.25D	13930 ~ 15920	4210 ~ 5290
		10	2	350 ~ 400	0.180 ~ 0.198	≤0.1D	≤0.25D	11140 ~ 12730	4010 ~ 5040
		12	2	350 ~ 400	0.210 ~ 0.231	≤0.1D	≤0.25D	9280 ~ 10610	3900 ~ 4900
		16	2	350 ~ 400	0.270 ~ 0.296	≤0.1D	≤0.25D	6960 ~ 7960	3760 ~ 4710
		20	2	350 ~ 400	0.329 ~ 0.362	≤0.1D	≤0.25D	5570 ~ 6370	3670 ~ 4610
COPPER	M03	3	2	300 ~ 350	0.055 ~ 0.064	≤0.1D	≤0.25D	31830 ~ 37140	3500 ~ 4750
		4	2	300 ~ 350	0.077 ~ 0.087	≤0.1D	≤0.25D	23870 ~ 27850	3680 ~ 4850
		5	2	300 ~ 350	0.099 ~ 0.110	≤0.1D	≤0.25D	19100 ~ 22280	3780 ~ 4900
		6	2	300 ~ 350	0.121 ~ 0.133	≤0.1D	≤0.25D	15920 ~ 18570	3850 ~ 4940
		8	2	300 ~ 350	0.151 ~ 0.166	≤0.1D	≤0.25D	11940 ~ 13930	3610 ~ 4620
		10	2	300 ~ 350	0.180 ~ 0.198	≤0.1D	≤0.25D	9550 ~ 11140	3440 ~ 4410
		12	2	300 ~ 350	0.210 ~ 0.231	≤0.1D	≤0.25D	7960 ~ 9280	3340 ~ 4290
		16	2	300 ~ 350	0.270 ~ 0.296	≤0.1D	≤0.25D	5970 ~ 6960	3220 ~ 4120
		20	2	300 ~ 350	0.329 ~ 0.362	≤0.1D	≤0.25D	4770 ~ 5570	3140 ~ 4030
BRASS, BRONZE	M08, M09	3	2	200 ~ 250	0.055 ~ 0.064	≤0.1D	≤0.25D	21220 ~ 26530	2330 ~ 3400
		4	2	200 ~ 250	0.077 ~ 0.087	≤0.1D	≤0.25D	15920 ~ 19890	2450 ~ 3460
		5	2	200 ~ 250	0.099 ~ 0.110	≤0.1D	≤0.25D	12730 ~ 15920	2520 ~ 3500
		6	2	200 ~ 250	0.121 ~ 0.133	≤0.1D	≤0.25D	10610 ~ 13260	2570 ~ 3530
		8	2	200 ~ 250	0.151 ~ 0.166	≤0.1D	≤0.25D	7960 ~ 9950	2400 ~ 3300
		10	2	200 ~ 250	0.180 ~ 0.198	≤0.1D	≤0.25D	6370 ~ 7960	2290 ~ 3150
		12	2	200 ~ 250	0.210 ~ 0.231	≤0.1D	≤0.25D	5310 ~ 6630	2230 ~ 3060
		16	2	200 ~ 250	0.270 ~ 0.296	≤0.1D	≤0.25D	3980 ~ 4970	2150 ~ 2940
		20	2	200 ~ 250	0.329 ~ 0.362	≤0.1D	≤0.25D	3180 ~ 3980	2090 ~ 2880
THERMOPLASTICS	M01	3	2	377	0.066 ~ 0.074	≤0.1D	≤0.25D	40000	10560 ~ 11840
		4	2	503	0.092 ~ 0.102	≤0.1D	≤0.25D	40000	14720 ~ 16320
		5	2	628	0.117 ~ 0.129	≤0.1D	≤0.25D	40000	18720 ~ 20640
		6	2	754	0.143 ~ 0.157	≤0.1D	≤0.25D	40000	22880 ~ 25120
		8	2	800 ~ 850	0.178 ~ 0.195	≤0.1D	≤0.25D	31830 ~ 33820	22660 ~ 26380
		10	2	800 ~ 850	0.213 ~ 0.234	≤0.1D	≤0.25D	25460 ~ 27060	21690 ~ 25330
		12	2	800 ~ 850	0.248 ~ 0.272	≤0.1D	≤0.25D	21220 ~ 22550	21050 ~ 24530
		16	2	800 ~ 850	0.318 ~ 0.349	≤0.1D	≤0.25D	15920 ~ 16910	20250 ~ 23610
		20	2	800 ~ 850	0.388 ~ 0.426	≤0.1D	≤0.25D	12730 ~ 13530	19760 ~ 23060

AL BN Standard Ballnose Cutters



2 Z Finishing		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMINIUM	M02	3	2	377	0.064 ~ 0.073	≤0.03D	≤0.05D	40000	5120 ~ 5840
		4	2	503	0.089 ~ 0.099	≤0.03D	≤0.05D	40000	7120 ~ 7920
		5	2	628	0.113 ~ 0.126	≤0.03D	≤0.05D	40000	9040 ~ 10080
		6	2	650 ~ 754	0.138 ~ 0.152	≤0.03D	≤0.05D	34480 ~ 40000	9520 ~ 12160
		8	2	650 ~ 780	0.172 ~ 0.189	≤0.03D	≤0.05D	25860 ~ 31040	8900 ~ 11730
		10	2	650 ~ 780	0.206 ~ 0.227	≤0.03D	≤0.05D	20690 ~ 24830	8520 ~ 11270
		12	2	650 ~ 780	0.240 ~ 0.264	≤0.03D	≤0.05D	17240 ~ 20690	8280 ~ 10920
		16	2	650 ~ 780	0.308 ~ 0.339	≤0.03D	≤0.05D	12930 ~ 15520	7960 ~ 10520
		20	2	650 ~ 780	0.376 ~ 0.414	≤0.03D	≤0.05D	10350 ~ 12410	7780 ~ 10280
ALUMINIUM ALLOYS SI < 8%	M04, M05, M06, M07	3	2	377	0.055 ~ 0.064	≤0.03D	≤0.05D	40000	4400 ~ 5120
		4	2	455 ~ 503	0.077 ~ 0.087	≤0.03D	≤0.05D	36210 ~ 40000	5580 ~ 6960
		5	2	455 ~ 520	0.099 ~ 0.110	≤0.03D	≤0.05D	28970 ~ 33100	5740 ~ 7280
		6	2	455 ~ 520	0.121 ~ 0.133	≤0.03D	≤0.05D	24140 ~ 27590	5840 ~ 7340
		8	2	455 ~ 520	0.151 ~ 0.166	≤0.03D	≤0.05D	18100 ~ 20690	5470 ~ 6870
		10	2	455 ~ 520	0.180 ~ 0.198	≤0.03D	≤0.05D	14480 ~ 16550	5210 ~ 6550
		12	2	455 ~ 520	0.210 ~ 0.231	≤0.03D	≤0.05D	12070 ~ 13790	5070 ~ 6370
		16	2	455 ~ 520	0.270 ~ 0.296	≤0.03D	≤0.05D	9050 ~ 10350	4890 ~ 6130
		20	2	455 ~ 520	0.329 ~ 0.362	≤0.03D	≤0.05D	7240 ~ 8280	4760 ~ 5990
COPPER	M03	3	2	377	0.055 ~ 0.064	≤0.03D	≤0.05D	40000	4400 ~ 5120
		4	2	390 ~ 455	0.077 ~ 0.087	≤0.03D	≤0.05D	31040 ~ 36210	4780 ~ 6300
		5	2	390 ~ 455	0.099 ~ 0.110	≤0.03D	≤0.05D	24830 ~ 28970	4920 ~ 6370
		6	2	390 ~ 455	0.121 ~ 0.133	≤0.03D	≤0.05D	20690 ~ 24140	5010 ~ 6420
		8	2	390 ~ 455	0.151 ~ 0.166	≤0.03D	≤0.05D	15520 ~ 18100	4690 ~ 6010
		10	2	390 ~ 455	0.180 ~ 0.198	≤0.03D	≤0.05D	12410 ~ 14480	4470 ~ 5730
		12	2	390 ~ 455	0.210 ~ 0.231	≤0.03D	≤0.05D	10350 ~ 12070	4350 ~ 5580
		16	2	390 ~ 455	0.270 ~ 0.296	≤0.03D	≤0.05D	7760 ~ 9050	4190 ~ 5360
		20	2	390 ~ 455	0.329 ~ 0.362	≤0.03D	≤0.05D	6210 ~ 7240	4090 ~ 5240
BRASS, BRONZE	M08, M09	3	2	260 ~ 325	0.055 ~ 0.064	≤0.03D	≤0.05D	27590 ~ 34480	3030 ~ 4410
		4	2	260 ~ 325	0.077 ~ 0.087	≤0.03D	≤0.05D	20690 ~ 25860	3190 ~ 4500
		5	2	260 ~ 325	0.099 ~ 0.110	≤0.03D	≤0.05D	16550 ~ 20690	3280 ~ 4550
		6	2	260 ~ 325	0.121 ~ 0.133	≤0.03D	≤0.05D	13790 ~ 17240	3340 ~ 4590
		8	2	260 ~ 325	0.151 ~ 0.166	≤0.03D	≤0.05D	10350 ~ 12930	3130 ~ 4290
		10	2	260 ~ 325	0.180 ~ 0.198	≤0.03D	≤0.05D	8280 ~ 10350	2980 ~ 4100
		12	2	260 ~ 325	0.210 ~ 0.231	≤0.03D	≤0.05D	6900 ~ 8620	2900 ~ 3980
		16	2	260 ~ 325	0.270 ~ 0.296	≤0.03D	≤0.05D	5170 ~ 6470	2790 ~ 3830
		20	2	260 ~ 325	0.329 ~ 0.362	≤0.03D	≤0.05D	4140 ~ 5170	2720 ~ 3740
THERMOPLASTICS	M01	3	2	377	0.066 ~ 0.074	≤0.03D	≤0.05D	40000	4400 ~ 4960
		4	2	503	0.092 ~ 0.102	≤0.03D	≤0.05D	40000	6120 ~ 6800
		5	2	628	0.117 ~ 0.129	≤0.03D	≤0.05D	40000	7800 ~ 8640
		6	2	754	0.143 ~ 0.157	≤0.03D	≤0.05D	40000	9520 ~ 10440
		8	2	1005	0.178 ~ 0.195	≤0.03D	≤0.05D	40000	11840 ~ 13040
		10	2	1040 ~ 1105	0.213 ~ 0.234	≤0.03D	≤0.05D	33100 ~ 35170	11720 ~ 13720
		12	2	1040 ~ 1105	0.248 ~ 0.272	≤0.03D	≤0.05D	27590 ~ 29310	11390 ~ 13310
		16	2	1040 ~ 1105	0.318 ~ 0.349	≤0.03D	≤0.05D	20690 ~ 21980	10950 ~ 12790
		20	2	1040 ~ 1105	0.388 ~ 0.426	≤0.03D	≤0.05D	16550 ~ 17590	10690 ~ 12510

AL SE Miniature Endmills with long neck

2 Z Slotting			ALUMINIUM					ALUMINIUM ALLOYS SI < 8%				
Work Material												
Material Groups			M02					M04,M05,M06,M07				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.040	25	0.008	40,000	640	0.034	25	0.007	40,000	560
0.2	1	1.0D	0.016	23	0.007	37,400	560	0.014	23	0.007	37,400	490
0.2	1.5	1.0D	0.011	22	0.007	34,800	484	0.010	22	0.006	34,800	424
0.3	1	1.0D	0.040	38	0.010	40,000	800	0.034	38	0.009	40,000	720
0.3	2	1.0D	0.020	33	0.009	34,800	606	0.017	33	0.008	34,800	545
0.3	3	1.0D	0.012	28	0.007	29,600	438	0.010	28	0.007	29,600	394
0.4	2	1.0D	0.032	47	0.011	37,400	839	0.027	47	0.010	37,400	769
0.4	3	1.0D	0.023	44	0.010	34,800	727	0.019	44	0.010	34,800	666
0.4	4	1.0D	0.016	37	0.009	29,600	526	0.014	37	0.008	29,600	482
0.4	5	1.0D	0.013	34	0.008	27,000	437	0.011	34	0.007	27,000	401
0.5	2	1.0D	0.050	63	0.014	40,000	1,120	0.043	63	0.012	40,000	960
0.5	4	1.0D	0.025	51	0.011	32,200	726	0.021	51	0.010	32,200	622
0.5	6	1.0D	0.017	43	0.009	27,000	510	0.014	43	0.008	27,000	437
0.5	8	1.0D	0.013	34	0.008	21,800	333	0.011	34	0.007	21,800	285
0.6	2	1.0D	0.080	75	0.017	40,000	1,360	0.068	75	0.014	40,000	1,120
0.6	4	1.0D	0.040	65	0.015	34,800	1,029	0.034	65	0.012	34,800	848
0.6	6	1.0D	0.024	56	0.013	29,600	745	0.020	56	0.010	29,600	613
0.6	8	1.0D	0.018	51	0.011	27,000	620	0.016	51	0.009	27,000	510
0.6	10	1.0D	0.015	41	0.009	21,800	404	0.013	41	0.008	21,800	333
0.7	2	1.0D	0.140	88	0.019	40,000	1,520	0.119	88	0.016	40,000	1,280
0.7	4	1.0D	0.056	82	0.018	37,400	1,329	0.048	82	0.015	37,400	1,119
0.7	6	1.0D	0.035	71	0.015	32,200	985	0.030	71	0.013	32,200	829
0.7	8	1.0D	0.025	65	0.014	29,600	832	0.022	65	0.012	29,600	701
0.7	10	1.0D	0.020	54	0.012	24,400	566	0.017	54	0.010	24,400	476
0.8	4	1.0D	0.064	94	0.020	37,400	1,469	0.054	94	0.017	37,400	1,259
0.8	6	1.0D	0.046	88	0.018	34,800	1,272	0.039	88	0.016	34,800	1,090
0.8	8	1.0D	0.032	75	0.016	29,600	920	0.027	75	0.013	29,600	789
0.8	10	1.0D	0.027	68	0.014	27,000	765	0.023	68	0.012	27,000	656
0.8	12	1.0D	0.021	62	0.013	24,400	625	0.018	62	0.011	24,400	536
0.9	6	1.0D	0.060	98	0.020	34,800	1,393	0.051	98	0.017	34,800	1,211
0.9	8	1.0D	0.045	91	0.019	32,200	1,192	0.038	91	0.016	32,200	1,037
0.9	10	1.0D	0.033	84	0.017	29,600	1,008	0.028	84	0.015	29,600	876
0.9	15	1.0D	0.023	62	0.013	21,800	547	0.019	62	0.011	21,800	475
1.0	6	1.0D	0.067	110	0.022	34,800	1,514	0.057	110	0.018	34,800	1,272
1.0	8	1.0D	0.050	101	0.020	32,200	1,296	0.043	101	0.017	32,200	1,089
1.0	10	1.0D	0.040	93	0.019	29,600	1,095	0.034	93	0.016	29,600	920
1.0	12	1.0D	0.033	85	0.017	27,000	911	0.028	85	0.014	27,000	765
1.0	14	1.0D	0.029	77	0.015	24,400	744	0.024	77	0.013	24,400	625
1.0	16	1.0D	0.025	69	0.014	21,800	594	0.021	69	0.011	21,800	499
1.2	6	1.0D	0.096	141	0.028	37,400	2,098	0.082	141	0.023	37,400	1,748
1.2	8	1.0D	0.080	131	0.026	34,800	1,817	0.068	131	0.022	34,800	1,514
1.2	10	1.0D	0.060	122	0.024	32,200	1,555	0.051	122	0.020	32,200	1,296
1.2	12	1.0D	0.048	112	0.022	29,600	1,314	0.041	112	0.019	29,600	1,095
1.4	6	1.0D	0.140	176	0.034	40,000	2,720	0.119	176	0.028	40,000	2,240
1.4	8	1.0D	0.112	165	0.032	37,400	2,378	0.095	165	0.026	37,400	1,958
1.4	10	1.0D	0.080	153	0.030	34,800	2,059	0.068	153	0.024	34,800	1,695
1.4	12	1.0D	0.070	142	0.027	32,200	1,763	0.060	142	0.023	32,200	1,452
1.4	14	1.0D	0.056	130	0.025	29,600	1,489	0.048	130	0.021	29,600	1,227
1.4	16	1.0D	0.051	130	0.025	29,600	1,489	0.043	130	0.021	29,600	1,227
1.5	6	1.0D	0.150	188	0.036	40,000	2,880	0.128	188	0.030	40,000	2,400
1.5	8	1.0D	0.120	176	0.034	37,400	2,518	0.102	176	0.028	37,400	2,098
1.5	10	1.0D	0.100	164	0.031	34,800	2,180	0.085	164	0.026	34,800	1,817
1.5	12	1.0D	0.075	151	0.029	32,200	1,866	0.064	151	0.024	32,200	1,555
1.5	14	1.0D	0.067	151	0.029	32,200	1,866	0.057	151	0.024	32,200	1,555
1.5	16	1.0D	0.060	139	0.027	29,600	1,577	0.051	139	0.022	29,600	1,314
1.5	18	1.0D	0.050	127	0.024	27,000	1,312	0.043	127	0.020	27,000	1,094
1.5	20	1.0D	0.046	127	0.024	27,000	1,312	0.039	127	0.020	27,000	1,094
1.6	6	1.0D	0.213	201	0.038	40,000	3,040	0.181	201	0.032	40,000	2,560
1.6	8	1.0D	0.128	188	0.036	37,400	2,658	0.109	188	0.030	37,400	2,238
1.6	10	1.0D	0.107	175	0.033	34,800	2,301	0.091	175	0.028	34,800	1,938
1.6	12	1.0D	0.091	175	0.033	34,800	2,301	0.078	175	0.028	34,800	1,938
1.6	14	1.0D	0.080	162	0.031	32,200	1,970	0.068	162	0.026	32,200	1,659
1.6	16	1.0D	0.064	149	0.028	29,600	1,665	0.054	149	0.024	29,600	1,402
1.6	18	1.0D	0.058	149	0.028	29,600	1,665	0.049	149	0.024	29,600	1,402
1.6	20	1.0D	0.053	136	0.026	27,000	1,385	0.045	136	0.022	27,000	1,166

AL SE Miniature Endmills with long neck

2 Z Slotting			ALUMINIUM					ALUMINIUM ALLOYS SI < 8%				
Work Material												
Material Groups			M02					M04,M05,M06,M07				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.240	226	0.043	40,000	3,440	0.204	226	0.036	40,000	2,880
1.8	8	1.0D	0.180	226	0.043	40,000	3,440	0.153	226	0.036	40,000	2,880
1.8	10	1.0D	0.144	211	0.040	37,400	3,007	0.122	211	0.034	37,400	2,518
1.8	12	1.0D	0.120	197	0.037	34,800	2,604	0.102	197	0.031	34,800	2,180
1.8	14	1.0D	0.103	197	0.037	34,800	2,604	0.087	197	0.031	34,800	2,180
1.8	16	1.0D	0.090	182	0.035	32,200	2,229	0.077	182	0.029	32,200	1,866
1.8	18	1.0D	0.072	167	0.032	29,600	1,884	0.061	167	0.027	29,600	1,577
1.8	20	1.0D	0.065	167	0.032	29,600	1,884	0.056	167	0.027	29,600	1,577
2.0	6	1.0D	0.267	251	0.047	40,000	3,760	0.227	251	0.039	40,000	3,120
2.0	8	1.0D	0.200	251	0.047	40,000	3,760	0.170	251	0.039	40,000	3,120
2.0	10	1.0D	0.160	235	0.044	37,400	3,287	0.136	235	0.036	37,400	2,728
2.0	12	1.0D	0.133	218	0.041	34,800	2,846	0.113	218	0.034	34,800	2,362
2.0	14	1.0D	0.114	218	0.041	34,800	2,846	0.097	218	0.034	34,800	2,362
2.0	16	1.0D	0.100	202	0.038	32,200	2,437	0.085	202	0.031	32,200	2,022
2.0	18	1.0D	0.089	202	0.038	32,200	2,437	0.076	202	0.031	32,200	2,022
2.0	20	1.0D	0.080	186	0.035	29,600	2,059	0.068	186	0.029	29,600	1,709
2.0	25	1.0D	0.067	169	0.032	27,000	1,713	0.057	169	0.026	27,000	1,422
2.0	30	1.0D	0.053	153	0.029	24,400	1,399	0.045	153	0.024	24,400	1,161
2.5	8	1.0D	0.333	314	0.058	40,000	4,640	0.283	307	0.052	39,099	4,034
2.5	10	1.0D	0.250	314	0.058	40,000	4,640	0.213	307	0.052	39,099	4,034
2.5	12	1.0D	0.250	314	0.058	40,000	4,640	0.213	307	0.052	39,099	4,034
2.5	14	1.0D	0.200	294	0.054	37,400	4,056	0.170	287	0.048	36,557	3,526
2.5	16	1.0D	0.167	273	0.050	34,800	3,512	0.142	267	0.045	34,016	3,053
2.5	18	1.0D	0.143	273	0.050	34,800	3,512	0.121	267	0.045	34,016	3,053
2.5	20	1.0D	0.125	253	0.047	32,200	3,007	0.106	247	0.041	31,474	2,614
2.5	25	1.0D	0.100	232	0.043	29,600	2,541	0.085	227	0.038	28,933	2,209
2.5	30	1.0D	0.083	212	0.039	27,000	2,114	0.071	207	0.035	26,391	1,838
3.0	8	1.0D	0.600	377	0.068	40,000	5,440	0.510	325	0.061	34,484	4,229
3.0	10	1.0D	0.400	377	0.068	40,000	5,440	0.340	325	0.061	34,484	4,229
3.0	12	1.0D	0.300	377	0.068	40,000	5,440	0.255	325	0.061	34,484	4,229
3.0	14	1.0D	0.300	377	0.068	40,000	5,440	0.255	325	0.061	34,484	4,229
3.0	16	1.0D	0.240	352	0.064	37,400	4,756	0.204	304	0.057	32,242	3,697
3.0	18	1.0D	0.200	328	0.059	34,800	4,118	0.170	283	0.053	30,001	3,201
3.0	20	1.0D	0.200	328	0.059	34,800	4,118	0.170	283	0.053	30,001	3,201
3.0	25	1.0D	0.150	303	0.055	32,200	3,525	0.128	262	0.049	27,759	2,740
4.0	10	1.0D	0.800	450	0.095	35,810	6,844	0.680	325	0.080	25,863	4,158
4.0	15	1.0D	0.533	450	0.095	35,810	6,844	0.453	325	0.080	25,863	4,158
4.0	20	1.0D	0.320	421	0.089	33,482	5,983	0.272	304	0.075	24,181	3,635
4.0	25	1.0D	0.267	392	0.083	31,155	5,180	0.227	283	0.070	22,500	3,147
4.0	30	1.0D	0.229	392	0.083	31,155	5,180	0.194	283	0.070	22,500	3,147
4.0	40	1.0D	0.160	333	0.070	26,499	3,748	0.136	241	0.059	19,138	2,277

AL SE Miniature Endmills with long neck

2 Z Slotting			COPPER					BRASS, BRONZE				
Work Material												
Material Groups			M03					M08,M09				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.028	25	0.007	40,000	560	0.034	25	0.006	40,000	480
0.2	1	1.0D	0.011	23	0.007	37,400	490	0.014	23	0.006	37,400	420
0.2	1.5	1.0D	0.008	22	0.006	34,800	424	0.010	22	0.005	34,800	363
0.3	1	1.0D	0.028	38	0.009	40,000	720	0.034	38	0.007	40,000	560
0.3	2	1.0D	0.014	33	0.008	34,800	545	0.017	33	0.006	34,800	424
0.3	3	1.0D	0.008	28	0.007	29,600	394	0.010	28	0.005	29,600	307
0.4	2	1.0D	0.022	47	0.010	37,400	769	0.027	47	0.008	37,400	629
0.4	3	1.0D	0.016	44	0.010	34,800	666	0.019	44	0.008	34,800	545
0.4	4	1.0D	0.011	37	0.008	29,600	482	0.014	37	0.007	29,600	394
0.4	5	1.0D	0.009	34	0.007	27,000	401	0.011	34	0.006	27,000	328
0.5	2	1.0D	0.035	63	0.012	40,000	960	0.043	63	0.010	40,000	800
0.5	4	1.0D	0.018	51	0.010	32,200	622	0.021	51	0.008	32,200	518
0.5	6	1.0D	0.012	43	0.008	27,000	437	0.014	43	0.007	27,000	365
0.5	8	1.0D	0.009	34	0.007	21,800	285	0.011	34	0.005	21,800	238
0.6	2	1.0D	0.056	75	0.014	40,000	1,120	0.068	75	0.012	40,000	960
0.6	4	1.0D	0.028	65	0.012	34,800	848	0.034	65	0.010	34,800	727
0.6	6	1.0D	0.017	56	0.010	29,600	613	0.020	56	0.009	29,600	526
0.6	8	1.0D	0.013	51	0.009	27,000	510	0.016	51	0.008	27,000	437
0.6	10	1.0D	0.011	41	0.008	21,800	333	0.013	41	0.007	21,800	285
0.7	2	1.0D	0.098	88	0.016	40,000	1,280	0.119	88	0.013	40,000	1,040
0.7	4	1.0D	0.039	82	0.015	37,400	1,119	0.048	82	0.012	37,400	909
0.7	6	1.0D	0.025	71	0.013	32,200	829	0.030	71	0.010	32,200	674
0.7	8	1.0D	0.018	65	0.012	29,600	701	0.022	65	0.010	29,600	570
0.7	10	1.0D	0.014	54	0.010	24,400	476	0.017	54	0.008	24,400	387
0.8	4	1.0D	0.045	94	0.017	37,400	1,259	0.054	94	0.014	37,400	1,049
0.8	6	1.0D	0.032	88	0.016	34,800	1,090	0.039	88	0.013	34,800	908
0.8	8	1.0D	0.022	75	0.013	29,600	789	0.027	75	0.011	29,600	657
0.8	10	1.0D	0.019	68	0.012	27,000	656	0.023	68	0.010	27,000	547
0.8	12	1.0D	0.015	62	0.011	24,400	536	0.018	62	0.009	24,400	447
0.9	6	1.0D	0.042	98	0.017	34,800	1,211	0.051	98	0.014	34,800	969
0.9	8	1.0D	0.032	91	0.016	32,200	1,037	0.038	91	0.013	32,200	829
0.9	10	1.0D	0.023	84	0.015	29,600	876	0.028	84	0.012	29,600	701
0.9	15	1.0D	0.016	62	0.011	21,800	475	0.019	62	0.009	21,800	380
1.0	6	1.0D	0.047	110	0.018	34,800	1,272	0.057	110	0.015	34,800	1,029
1.0	8	1.0D	0.035	101	0.017	32,200	1,089	0.043	101	0.014	32,200	881
1.0	10	1.0D	0.028	93	0.016	29,600	920	0.034	93	0.013	29,600	745
1.0	12	1.0D	0.023	85	0.014	27,000	765	0.028	85	0.011	27,000	620
1.0	14	1.0D	0.020	77	0.013	24,400	625	0.024	77	0.010	24,400	506
1.0	16	1.0D	0.018	69	0.011	21,800	499	0.021	69	0.009	21,800	404
1.2	6	1.0D	0.067	141	0.023	37,400	1,748	0.082	141	0.019	37,400	1,399
1.2	8	1.0D	0.056	131	0.022	34,800	1,514	0.068	131	0.017	34,800	1,211
1.2	10	1.0D	0.042	122	0.020	32,200	1,296	0.051	122	0.016	32,200	1,037
1.2	12	1.0D	0.034	112	0.019	29,600	1,095	0.041	112	0.015	29,600	876
1.4	6	1.0D	0.098	176	0.028	40,000	2,240	0.119	176	0.023	40,000	1,840
1.4	8	1.0D	0.078	165	0.026	37,400	1,958	0.095	165	0.022	37,400	1,609
1.4	10	1.0D	0.056	153	0.024	34,800	1,695	0.068	153	0.020	34,800	1,393
1.4	12	1.0D	0.049	142	0.023	32,200	1,452	0.060	142	0.019	32,200	1,192
1.4	14	1.0D	0.039	130	0.021	29,600	1,227	0.048	130	0.017	29,600	1,008
1.4	16	1.0D	0.036	130	0.021	29,600	1,227	0.043	130	0.017	29,600	1,008
1.5	6	1.0D	0.105	188	0.030	40,000	2,400	0.128	188	0.024	40,000	1,920
1.5	8	1.0D	0.084	176	0.028	37,400	2,098	0.102	176	0.022	37,400	1,679
1.5	10	1.0D	0.070	164	0.026	34,800	1,817	0.085	164	0.021	34,800	1,453
1.5	12	1.0D	0.053	151	0.024	32,200	1,555	0.064	151	0.019	32,200	1,244
1.5	14	1.0D	0.047	151	0.024	32,200	1,555	0.057	151	0.019	32,200	1,244
1.5	16	1.0D	0.042	139	0.022	29,600	1,314	0.051	139	0.018	29,600	1,051
1.5	18	1.0D	0.035	127	0.020	27,000	1,094	0.043	127	0.016	27,000	875
1.5	20	1.0D	0.032	127	0.020	27,000	1,094	0.039	127	0.016	27,000	875
1.6	6	1.0D	0.149	201	0.032	40,000	2,560	0.181	201	0.029	39,789	2,268
1.6	8	1.0D	0.090	188	0.030	37,400	2,238	0.109	188	0.027	37,203	1,983
1.6	10	1.0D	0.075	175	0.028	34,800	1,938	0.091	175	0.025	34,616	1,717
1.6	12	1.0D	0.064	175	0.028	34,800	1,938	0.078	175	0.025	34,616	1,717
1.6	14	1.0D	0.056	162	0.026	32,200	1,659	0.068	162	0.023	32,030	1,470
1.6	16	1.0D	0.045	149	0.024	29,600	1,402	0.054	149	0.021	29,444	1,242
1.6	18	1.0D	0.041	149	0.024	29,600	1,402	0.049	149	0.021	29,444	1,242
1.6	20	1.0D	0.037	136	0.022	27,000	1,166	0.045	136	0.019	26,858	1,033

AL SE Miniature Endmills with long neck

2 Z Slotting			COPPER					BRASS, BRONZE				
Work Material												
Material Groups			M03					M08,M09				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.168	226	0.036	40,000	2,880	0.204	200	0.032	35,368	2,228
1.8	8	1.0D	0.126	226	0.036	40,000	2,880	0.153	200	0.032	35,368	2,228
1.8	10	1.0D	0.101	211	0.034	37,400	2,518	0.122	187	0.029	33,069	1,948
1.8	12	1.0D	0.084	197	0.031	34,800	2,180	0.102	174	0.027	30,770	1,686
1.8	14	1.0D	0.072	197	0.031	34,800	2,180	0.087	174	0.027	30,770	1,686
1.8	16	1.0D	0.063	182	0.029	32,200	1,866	0.077	161	0.025	28,471	1,444
1.8	18	1.0D	0.050	167	0.027	29,600	1,577	0.061	148	0.023	26,172	1,220
1.8	20	1.0D	0.046	167	0.027	29,600	1,577	0.056	148	0.023	26,172	1,220
2.0	6	1.0D	0.187	251	0.042	39,895	3,352	0.227	200	0.035	31,831	2,196
2.0	8	1.0D	0.140	251	0.042	39,895	3,352	0.170	200	0.035	31,831	2,196
2.0	10	1.0D	0.112	234	0.039	37,301	2,930	0.136	187	0.032	29,762	1,920
2.0	12	1.0D	0.093	218	0.037	34,708	2,537	0.113	174	0.030	27,693	1,662
2.0	14	1.0D	0.080	218	0.037	34,708	2,537	0.097	174	0.030	27,693	1,662
2.0	16	1.0D	0.070	202	0.034	32,115	2,172	0.085	161	0.028	25,624	1,423
2.0	18	1.0D	0.062	202	0.034	32,115	2,172	0.076	161	0.028	25,624	1,423
2.0	20	1.0D	0.056	185	0.031	29,522	1,836	0.068	148	0.026	23,555	1,203
2.0	25	1.0D	0.047	169	0.028	26,929	1,527	0.057	135	0.023	21,486	1,001
2.0	30	1.0D	0.037	153	0.026	24,336	1,247	0.045	122	0.021	19,417	817
2.5	8	1.0D	0.233	275	0.052	35,014	3,629	0.283	200	0.043	25,465	2,165
2.5	10	1.0D	0.175	275	0.052	35,014	3,629	0.213	200	0.043	25,465	2,165
2.5	12	1.0D	0.175	275	0.052	35,014	3,629	0.213	200	0.043	25,465	2,165
2.5	14	1.0D	0.140	257	0.048	32,738	3,173	0.170	187	0.040	23,810	1,892
2.5	16	1.0D	0.117	239	0.045	30,462	2,747	0.142	174	0.037	22,155	1,638
2.5	18	1.0D	0.100	239	0.045	30,462	2,747	0.121	174	0.037	22,155	1,638
2.5	20	1.0D	0.088	221	0.041	28,186	2,352	0.106	161	0.034	20,499	1,403
2.5	25	1.0D	0.070	204	0.038	25,910	1,987	0.085	148	0.031	18,844	1,185
2.5	30	1.0D	0.058	186	0.035	23,634	1,653	0.071	135	0.029	17,189	986
3.0	8	1.0D	0.420	275	0.061	29,179	3,581	0.510	200	0.050	21,221	2,122
3.0	10	1.0D	0.280	275	0.061	29,179	3,581	0.340	200	0.050	21,221	2,122
3.0	12	1.0D	0.210	275	0.061	29,179	3,581	0.255	200	0.050	21,221	2,122
3.0	14	1.0D	0.210	275	0.061	29,179	3,581	0.255	200	0.050	21,221	2,122
3.0	16	1.0D	0.168	257	0.057	27,282	3,131	0.204	187	0.047	19,842	1,855
3.0	18	1.0D	0.140	239	0.053	25,385	2,710	0.170	174	0.044	18,462	1,606
3.0	20	1.0D	0.140	239	0.053	25,385	2,710	0.170	174	0.044	18,462	1,606
3.0	25	1.0D	0.105	221	0.049	23,489	2,321	0.128	161	0.040	17,083	1,375
4.0	10	1.0D	0.560	275	0.080	21,884	3,521	0.680	200	0.065	15,915	2,069
4.0	15	1.0D	0.373	275	0.080	21,884	3,521	0.453	200	0.065	15,915	2,069
4.0	20	1.0D	0.224	257	0.075	20,461	3,078	0.272	187	0.061	14,881	1,809
4.0	25	1.0D	0.187	239	0.070	19,039	2,665	0.227	174	0.057	13,846	1,566
4.0	30	1.0D	0.160	239	0.070	19,039	2,665	0.194	174	0.057	13,846	1,566
4.0	40	1.0D	0.112	204	0.059	16,194	1,928	0.136	148	0.048	11,777	1,133

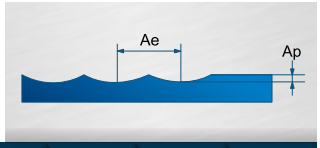
AL SE Miniature Endmills with long neck

2 Z Slotting			THERMOPLASTICS				
Work Material							
Material Groups			M01, M29				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.034	25	0.008	40,000	640
0.2	1	1.0D	0.014	23	0.007	37,400	560
0.2	1.5	1.0D	0.010	22	0.007	34,800	484
0.3	1	1.0D	0.034	38	0.010	40,000	800
0.3	2	1.0D	0.017	33	0.009	34,800	606
0.3	3	1.0D	0.010	28	0.007	29,600	438
0.4	2	1.0D	0.027	47	0.011	37,400	839
0.4	3	1.0D	0.019	44	0.010	34,800	727
0.4	4	1.0D	0.014	37	0.009	29,600	526
0.4	5	1.0D	0.011	34	0.008	27,000	437
0.5	2	1.0D	0.043	63	0.014	40,000	1,120
0.5	4	1.0D	0.021	51	0.011	32,200	726
0.5	6	1.0D	0.014	43	0.009	27,000	510
0.5	8	1.0D	0.011	34	0.008	21,800	333
0.6	2	1.0D	0.068	75	0.017	40,000	1,360
0.6	4	1.0D	0.034	65	0.015	34,800	1,029
0.6	6	1.0D	0.020	56	0.013	29,600	745
0.6	8	1.0D	0.016	51	0.011	27,000	620
0.6	10	1.0D	0.013	41	0.009	21,800	404
0.7	2	1.0D	0.119	88	0.019	40,000	1,520
0.7	4	1.0D	0.048	82	0.018	37,400	1,329
0.7	6	1.0D	0.030	71	0.015	32,200	985
0.7	8	1.0D	0.022	65	0.014	29,600	832
0.7	10	1.0D	0.017	54	0.012	24,400	566
0.8	4	1.0D	0.054	94	0.020	37,400	1,469
0.8	6	1.0D	0.039	88	0.018	34,800	1,272
0.8	8	1.0D	0.027	75	0.016	29,600	920
0.8	10	1.0D	0.023	68	0.014	27,000	765
0.8	12	1.0D	0.018	62	0.013	24,400	625
0.9	6	1.0D	0.051	98	0.020	34,800	1,393
0.9	8	1.0D	0.038	91	0.019	32,200	1,192
0.9	10	1.0D	0.028	84	0.017	29,600	1,008
0.9	15	1.0D	0.019	62	0.013	21,800	547
1.0	6	1.0D	0.057	110	0.022	34,800	1,514
1.0	8	1.0D	0.043	101	0.020	32,200	1,296
1.0	10	1.0D	0.034	93	0.019	29,600	1,095
1.0	12	1.0D	0.028	85	0.017	27,000	911
1.0	14	1.0D	0.024	77	0.015	24,400	744
1.0	16	1.0D	0.021	69	0.014	21,800	594
1.2	6	1.0D	0.082	141	0.028	37,400	2,098
1.2	8	1.0D	0.068	131	0.026	34,800	1,817
1.2	10	1.0D	0.051	122	0.024	32,200	1,555
1.2	12	1.0D	0.041	112	0.022	29,600	1,314
1.4	6	1.0D	0.119	176	0.034	40,000	2,720
1.4	8	1.0D	0.095	165	0.032	37,400	2,378
1.4	10	1.0D	0.068	153	0.030	34,800	2,059
1.4	12	1.0D	0.060	142	0.027	32,200	1,763
1.4	14	1.0D	0.048	130	0.025	29,600	1,489
1.4	16	1.0D	0.043	130	0.025	29,600	1,489
1.5	6	1.0D	0.128	188	0.036	40,000	2,880
1.5	8	1.0D	0.102	176	0.034	37,400	2,518
1.5	10	1.0D	0.085	164	0.031	34,800	2,180
1.5	12	1.0D	0.064	151	0.029	32,200	1,866
1.5	14	1.0D	0.057	151	0.029	32,200	1,866
1.5	16	1.0D	0.051	139	0.027	29,600	1,577
1.5	18	1.0D	0.043	127	0.024	27,000	1,312
1.5	20	1.0D	0.039	127	0.024	27,000	1,312
1.6	6	1.0D	0.181	201	0.038	40,000	3,040
1.6	8	1.0D	0.109	188	0.036	37,400	2,658
1.6	10	1.0D	0.091	175	0.033	34,800	2,301
1.6	12	1.0D	0.078	175	0.033	34,800	2,301
1.6	14	1.0D	0.068	162	0.031	32,200	1,970
1.6	16	1.0D	0.054	149	0.028	29,600	1,665
1.6	18	1.0D	0.049	149	0.028	29,600	1,665
1.6	20	1.0D	0.045	136	0.026	27,000	1,385

AL SE Miniature Endmills with long neck

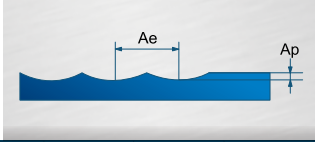
2 Z Slotting			THERMOPLASTICS				
Work Material							
Material Groups			M01, M29				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.204	226	0.043	40,000	3,440
1.8	8	1.0D	0.153	226	0.043	40,000	3,440
1.8	10	1.0D	0.122	211	0.040	37,400	3,007
1.8	12	1.0D	0.102	197	0.037	34,800	2,604
1.8	14	1.0D	0.087	197	0.037	34,800	2,604
1.8	16	1.0D	0.077	182	0.035	32,200	2,229
1.8	18	1.0D	0.061	167	0.032	29,600	1,884
1.8	20	1.0D	0.056	167	0.032	29,600	1,884
2.0	6	1.0D	0.227	251	0.047	40,000	3,760
2.0	8	1.0D	0.170	251	0.047	40,000	3,760
2.0	10	1.0D	0.136	235	0.044	37,400	3,287
2.0	12	1.0D	0.113	218	0.041	34,800	2,846
2.0	14	1.0D	0.097	218	0.041	34,800	2,846
2.0	16	1.0D	0.085	202	0.038	32,200	2,437
2.0	18	1.0D	0.076	202	0.038	32,200	2,437
2.0	20	1.0D	0.068	186	0.035	29,600	2,059
2.0	25	1.0D	0.057	169	0.032	27,000	1,713
2.0	30	1.0D	0.045	153	0.029	24,400	1,399
2.5	8	1.0D	0.283	314	0.058	40,000	4,640
2.5	10	1.0D	0.213	314	0.058	40,000	4,640
2.5	12	1.0D	0.213	314	0.058	40,000	4,640
2.5	14	1.0D	0.170	294	0.054	37,400	4,056
2.5	16	1.0D	0.142	273	0.050	34,800	3,512
2.5	18	1.0D	0.121	273	0.050	34,800	3,512
2.5	20	1.0D	0.106	253	0.047	32,200	3,007
2.5	25	1.0D	0.085	232	0.043	29,600	2,541
2.5	30	1.0D	0.071	212	0.039	27,000	2,114
3.0	8	1.0D	0.510	377	0.068	40,000	5,440
3.0	10	1.0D	0.340	377	0.068	40,000	5,440
3.0	12	1.0D	0.255	377	0.068	40,000	5,440
3.0	14	1.0D	0.255	377	0.068	40,000	5,440
3.0	16	1.0D	0.204	352	0.064	37,400	4,756
3.0	18	1.0D	0.170	328	0.059	34,800	4,118
3.0	20	1.0D	0.170	328	0.059	34,800	4,118
3.0	25	1.0D	0.128	303	0.055	32,200	3,525
4.0	10	1.0D	0.680	503	0.090	40,000	7,200
4.0	15	1.0D	0.453	503	0.090	40,000	7,200
4.0	20	1.0D	0.272	470	0.084	37,400	6,294
4.0	25	1.0D	0.227	438	0.078	34,800	5,450
4.0	30	1.0D	0.194	438	0.078	34,800	5,450
4.0	40	1.0D	0.136	372	0.067	29,600	3,943

AL BN Miniature Ballnose Cutters with long neck



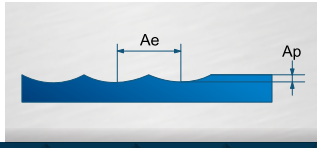
2 Z Profile Milling				ALUMINIUM				ALUMINIUM ALLOYS SI < 8%			
Work Material											
Material Groups				M01				M04,M05,M06,M07			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	0.05D	0.20D	25	0.005	40,000	400	25	0.004	40,000	320
0.2	1	0.05D	0.20D	25	0.005	40,000	400	25	0.004	40,000	320
0.2	1.5	0.05D	0.15D	21	0.004	34,000	240	21	0.003	34,000	192
0.3	1	0.05D	0.20D	38	0.007	40,000	560	38	0.005	40,000	400
0.3	2	0.05D	0.15D	32	0.005	34,000	336	32	0.004	34,000	240
0.3	3	0.02D	0.10D	27	0.005	28,000	280	27	0.004	28,000	200
0.4	1	0.05D	0.20D	50	0.008	40,000	640	50	0.007	40,000	560
0.4	2	0.05D	0.20D	50	0.008	40,000	640	50	0.007	40,000	560
0.4	3	0.05D	0.15D	43	0.006	34,000	384	43	0.005	34,000	336
0.4	4	0.02D	0.10D	35	0.006	28,000	320	35	0.005	28,000	280
0.4	5	0.02D	0.10D	35	0.006	28,000	320	35	0.005	28,000	280
0.5	2	0.05D	0.20D	63	0.010	40,000	800	63	0.008	40,000	640
0.5	3	0.05D	0.15D	54	0.007	34,000	480	54	0.006	34,000	384
0.5	4	0.05D	0.15D	54	0.007	34,000	480	54	0.006	34,000	384
0.5	5	0.02D	0.10D	44	0.007	28,000	400	44	0.006	28,000	320
0.5	6	0.02D	0.10D	44	0.007	28,000	400	44	0.006	28,000	320
0.5	8	0.02D	0.10D	38	0.007	24,000	320	38	0.005	24,000	256
0.6	2	0.05D	0.20D	75	0.012	40,000	960	75	0.009	40,000	720
0.6	3	0.05D	0.20D	75	0.012	40,000	960	75	0.009	40,000	720
0.6	4	0.05D	0.15D	64	0.008	34,000	576	64	0.006	34,000	432
0.6	5	0.05D	0.15D	64	0.008	34,000	576	64	0.006	34,000	432
0.6	6	0.02D	0.10D	53	0.009	28,000	480	53	0.006	28,000	360
0.6	8	0.02D	0.10D	53	0.009	28,000	480	53	0.006	28,000	360
0.8	2	0.05D	0.20D	101	0.015	40,000	1,200	88	0.011	40,000	960
0.8	4	0.05D	0.20D	101	0.015	40,000	1,200	88	0.011	40,000	960
0.8	5	0.05D	0.15D	86	0.011	34,000	720	75	0.008	34,000	576
0.8	6	0.05D	0.15D	86	0.011	34,000	720	75	0.008	34,000	576
0.8	7	0.05D	0.15D	86	0.011	34,000	720	75	0.008	34,000	576
0.8	8	0.02D	0.10D	71	0.011	28,000	600	62	0.008	28,000	480
0.8	10	0.02D	0.10D	71	0.011	28,000	600	62	0.008	28,000	480
1.0	3	0.05D	0.20D	126	0.018	40,000	1,440	126	0.012	40,000	1,200
1.0	4	0.05D	0.20D	126	0.018	40,000	1,440	126	0.012	40,000	1,200
1.0	5	0.05D	0.20D	126	0.018	40,000	1,440	126	0.012	40,000	1,200
1.0	6	0.05D	0.15D	107	0.013	34,000	864	107	0.008	34,000	720
1.0	7	0.05D	0.15D	107	0.013	34,000	864	107	0.008	34,000	720
1.0	8	0.05D	0.15D	107	0.013	34,000	864	107	0.008	34,000	720
1.0	9	0.05D	0.15D	107	0.013	34,000	864	107	0.008	34,000	720
1.0	10	0.02D	0.10D	88	0.013	28,000	720	88	0.009	28,000	600
1.0	12	0.02D	0.10D	88	0.013	28,000	720	88	0.009	28,000	600
1.0	14	0.02D	0.10D	88	0.013	28,000	720	88	0.009	28,000	600
1.0	20	0.02D	0.10D	76	0.012	24,000	576	76	0.008	24,000	480
1.2	6	0.05D	0.20D	151	0.021	40,000	1,680	151	0.015	40,000	1,360
1.2	8	0.05D	0.15D	128	0.015	34,000	1,008	128	0.011	34,000	816
1.2	10	0.05D	0.15D	128	0.015	34,000	1,008	128	0.011	34,000	816
1.2	12	0.02D	0.10D	106	0.015	28,000	840	106	0.011	28,000	680
1.2	8	0.05D	0.15D	128	0.015	34,000	1,008	128	0.011	34,000	816
1.2	12	0.02D	0.10D	106	0.015	28,000	840	106	0.011	28,000	680
1.2	16	0.02D	0.10D	106	0.015	28,000	840	106	0.011	28,000	680
1.4	8	0.05D	0.20D	176	0.025	40,000	2,000	176	0.020	40,000	1,600
1.4	12	0.05D	0.15D	150	0.018	34,000	1,200	150	0.014	34,000	960
1.4	16	0.02D	0.10D	123	0.018	28,000	1,000	123	0.014	28,000	800
1.5	8	0.05D	0.20D	188	0.026	40,000	2,080	188	0.021	40,000	1,680
1.5	12	0.05D	0.15D	160	0.018	34,000	1,248	160	0.015	34,000	1,008
1.5	16	0.02D	0.10D	132	0.019	28,000	1,040	132	0.015	28,000	840
1.5	18	0.02D	0.10D	132	0.019	28,000	1,040	132	0.015	28,000	840
1.6	8	0.05D	0.20D	201	0.028	40,000	2,240	201	0.023	40,000	1,840
1.6	12	0.05D	0.15D	171	0.020	34,000	1,344	171	0.016	34,000	1,104
1.6	16	0.02D	0.10D	141	0.020	28,000	1,120	141	0.016	28,000	920
1.6	20	0.02D	0.10D	141	0.020	28,000	1,120	141	0.016	28,000	920
1.8	8	0.05D	0.20D	226	0.031	40,000	2,480	226	0.025	40,000	2,000
1.8	12	0.05D	0.15D	192	0.022	34,000	1,488	192	0.018	34,000	1,200
1.8	16	0.05D	0.15D	192	0.022	34,000	1,488	192	0.018	34,000	1,200
1.8	20	0.02D	0.10D	158	0.022	28,000	1,240	158	0.018	28,000	1,000

AL BN Miniature Ballnose Cutters with long neck



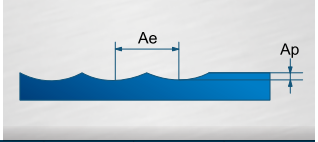
2 Z Profile Milling				ALUMINIUM				ALUMINIUM ALLOYS SI < 8%			
Work Material											
Material Groups				M01				M04,M05,M06,M07			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	251	0.034	40,000	2,720	251	0.028	40,000	2,240
2.0	6	0.05D	0.20D	251	0.034	40,000	2,720	251	0.028	40,000	2,240
2.0	8	0.05D	0.20D	251	0.034	40,000	2,720	251	0.028	40,000	2,240
2.0	10	0.05D	0.20D	251	0.034	40,000	2,720	251	0.028	40,000	2,240
2.0	12	0.05D	0.15D	213	0.024	34,000	1,632	213	0.020	34,000	1,344
2.0	14	0.05D	0.15D	213	0.024	34,000	1,632	213	0.020	34,000	1,344
2.0	16	0.05D	0.15D	213	0.024	34,000	1,632	213	0.020	34,000	1,344
2.0	18	0.05D	0.15D	213	0.024	34,000	1,632	213	0.020	34,000	1,344
2.0	20	0.02D	0.10D	176	0.024	28,000	1,360	176	0.020	28,000	1,120
2.0	22	0.02D	0.10D	176	0.024	28,000	1,360	176	0.020	28,000	1,120
2.0	25	0.02D	0.10D	176	0.024	28,000	1,360	176	0.020	28,000	1,120
2.0	30	0.02D	0.10D	176	0.024	28,000	1,360	176	0.020	28,000	1,120
3.0	8	0.05D	0.20D	377	0.051	40,000	4,080	325	0.046	34,484	3,157
3.0	10	0.05D	0.20D	377	0.051	40,000	4,080	325	0.046	34,484	3,157
3.0	16	0.05D	0.20D	377	0.051	40,000	4,080	325	0.046	34,484	3,157
3.0	20	0.05D	0.15D	320	0.036	34,000	2,448	276	0.032	29,311	1,894
3.0	25	0.05D	0.15D	320	0.036	34,000	2,448	276	0.032	29,311	1,894
3.0	30	0.02D	0.10D	264	0.036	28,000	2,040	228	0.033	24,138	1,578
3.0	35	0.02D	0.10D	264	0.036	28,000	2,040	228	0.033	24,138	1,578
4.0	10	0.05D	0.20D	450	0.072	35,810	5,197	325	0.060	25,863	3,124
4.0	16	0.05D	0.20D	450	0.072	35,810	5,197	325	0.060	25,863	3,124
4.0	20	0.05D	0.20D	450	0.072	35,810	5,197	325	0.060	25,863	3,124
4.0	25	0.05D	0.15D	383	0.051	30,439	3,118	276	0.042	21,983	1,874
4.0	30	0.05D	0.15D	383	0.051	30,439	3,118	276	0.042	21,983	1,874
4.0	35	0.05D	0.15D	383	0.051	30,439	3,118	276	0.042	21,983	1,874
4.0	40	0.02D	0.10D	315	0.051	25,067	2,598	228	0.043	18,104	1,562
4.0	45	0.02D	0.10D	315	0.051	25,067	2,598	228	0.043	18,104	1,562
4.0	50	0.02D	0.10D	315	0.051	25,067	2,598	228	0.043	18,104	1,562

AL BN Miniature Ballnose Cutters with long neck



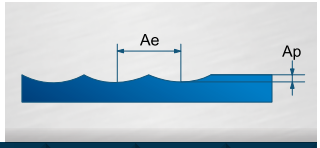
2 Z Profile Milling				COPPER				BRASS, BRONZE			
Work Material											
Material Groups				M03				M08,M09			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	0.05D	0.20D	25	0.004	40,000	320	25	0.003	40,000	240
0.2	1	0.05D	0.20D	25	0.004	40,000	320	25	0.003	40,000	240
0.2	1.5	0.05D	0.15D	21	0.003	34,000	192	21	0.002	34,000	144
0.3	1	0.05D	0.20D	38	0.005	40,000	400	38	0.004	40,000	320
0.3	2	0.05D	0.15D	32	0.004	34,000	240	32	0.003	34,000	192
0.3	3	0.02D	0.10D	27	0.004	28,000	200	27	0.003	28,000	160
0.4	1	0.05D	0.20D	50	0.007	40,000	560	50	0.005	40,000	400
0.4	2	0.05D	0.20D	50	0.007	40,000	560	50	0.005	40,000	400
0.4	3	0.05D	0.15D	43	0.005	34,000	336	43	0.004	34,000	240
0.4	4	0.02D	0.10D	35	0.005	28,000	280	35	0.004	28,000	200
0.4	5	0.02D	0.10D	35	0.005	28,000	280	35	0.004	28,000	200
0.5	2	0.05D	0.20D	63	0.008	40,000	640	63	0.006	40,000	480
0.5	3	0.05D	0.15D	54	0.006	34,000	384	54	0.004	34,000	288
0.5	4	0.05D	0.15D	54	0.006	34,000	384	54	0.004	34,000	288
0.5	5	0.02D	0.10D	44	0.006	28,000	320	44	0.004	28,000	240
0.5	6	0.02D	0.10D	44	0.006	28,000	320	44	0.004	28,000	240
0.5	8	0.02D	0.10D	38	0.005	24,000	256	38	0.004	24,000	192
0.6	2	0.05D	0.20D	75	0.009	40,000	720	75	0.007	40,000	560
0.6	3	0.05D	0.20D	75	0.009	40,000	720	75	0.007	40,000	560
0.6	4	0.05D	0.15D	64	0.006	34,000	432	64	0.005	34,000	336
0.6	5	0.05D	0.15D	64	0.006	34,000	432	64	0.005	34,000	336
0.6	6	0.02D	0.10D	53	0.006	28,000	360	53	0.005	28,000	280
0.6	8	0.02D	0.10D	53	0.006	28,000	360	53	0.005	28,000	280
0.8	2	0.05D	0.20D	101	0.012	40,000	960	101	0.009	40,000	720
0.8	4	0.05D	0.20D	101	0.012	40,000	960	101	0.009	40,000	720
0.8	5	0.05D	0.15D	86	0.008	34,000	576	86	0.006	34,000	432
0.8	6	0.05D	0.15D	86	0.008	34,000	576	86	0.006	34,000	432
0.8	7	0.05D	0.15D	86	0.008	34,000	576	86	0.006	34,000	432
0.8	8	0.02D	0.10D	71	0.009	28,000	480	71	0.006	28,000	360
0.8	10	0.02D	0.10D	71	0.009	28,000	480	71	0.006	28,000	360
1.0	3	0.05D	0.20D	126	0.015	40,000	1,200	126	0.011	40,000	880
1.0	4	0.05D	0.20D	126	0.015	40,000	1,200	126	0.011	40,000	880
1.0	5	0.05D	0.20D	126	0.015	40,000	1,200	126	0.011	40,000	880
1.0	6	0.05D	0.15D	107	0.011	34,000	720	107	0.008	34,000	528
1.0	7	0.05D	0.15D	107	0.011	34,000	720	107	0.008	34,000	528
1.0	8	0.05D	0.15D	107	0.011	34,000	720	107	0.008	34,000	528
1.0	9	0.05D	0.15D	107	0.011	34,000	720	107	0.008	34,000	528
1.0	10	0.02D	0.10D	88	0.011	28,000	600	88	0.008	28,000	440
1.0	12	0.02D	0.10D	88	0.011	28,000	600	88	0.008	28,000	440
1.0	14	0.02D	0.10D	88	0.011	28,000	600	88	0.008	28,000	440
1.0	20	0.02D	0.10D	76	0.010	24,000	480	76	0.007	24,000	352
1.2	6	0.05D	0.20D	151	0.017	40,000	1,360	151	0.014	40,000	1,120
1.2	8	0.05D	0.15D	128	0.012	34,000	816	128	0.010	34,000	672
1.2	10	0.05D	0.15D	128	0.012	34,000	816	128	0.010	34,000	672
1.2	12	0.02D	0.10D	106	0.012	28,000	680	106	0.010	28,000	560
1.2	8	0.05D	0.15D	128	0.012	34,000	816	128	0.010	34,000	672
1.2	12	0.02D	0.10D	106	0.012	28,000	680	106	0.010	28,000	560
1.2	16	0.02D	0.10D	106	0.012	28,000	680	106	0.010	28,000	560
1.4	8	0.05D	0.20D	176	0.020	40,000	1,600	176	0.016	40,000	1,280
1.4	12	0.05D	0.15D	150	0.014	34,000	960	150	0.011	34,000	768
1.4	16	0.02D	0.10D	123	0.014	28,000	800	123	0.011	28,000	640
1.5	8	0.05D	0.20D	188	0.021	40,000	1,680	188	0.017	40,000	1,360
1.5	12	0.05D	0.15D	160	0.015	34,000	1,008	160	0.012	34,000	816
1.5	16	0.02D	0.10D	132	0.015	28,000	840	132	0.012	28,000	680
1.5	18	0.02D	0.10D	132	0.015	28,000	840	132	0.012	28,000	680
1.6	8	0.05D	0.20D	201	0.023	40,000	1,840	200	0.021	39,789	1,631
1.6	12	0.05D	0.15D	171	0.016	34,000	1,104	170	0.014	33,821	979
1.6	16	0.02D	0.10D	141	0.016	28,000	920	140	0.015	27,852	816
1.6	20	0.02D	0.10D	141	0.016	28,000	920	140	0.015	27,852	816
1.8	8	0.05D	0.20D	226	0.025	40,000	2,000	200	0.023	35,368	1,592
1.8	12	0.05D	0.15D	192	0.018	34,000	1,200	170	0.016	30,063	955
1.8	16	0.05D	0.15D	192	0.018	34,000	1,200	170	0.016	30,063	955
1.8	20	0.02D	0.10D	158	0.018	28,000	1,000	140	0.016	24,758	796

AL BN Miniature Ballnose Cutters with long neck



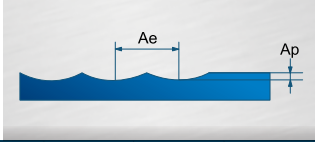
2 Z Profile Milling				COPPER				BRASS, BRONZE			
Work Material											
Material Groups				M03				M08,M09			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	251	0.031	39,895	2,474	200	0.025	31,831	1,592
2.0	6	0.05D	0.20D	251	0.031	39,895	2,474	200	0.025	31,831	1,592
2.0	8	0.05D	0.20D	251	0.031	39,895	2,474	200	0.025	31,831	1,592
2.0	10	0.05D	0.20D	251	0.031	39,895	2,474	200	0.025	31,831	1,592
2.0	12	0.05D	0.15D	213	0.022	33,910	1,484	170	0.018	27,056	955
2.0	14	0.05D	0.15D	213	0.022	33,910	1,484	170	0.018	27,056	955
2.0	16	0.05D	0.15D	213	0.022	33,910	1,484	170	0.018	27,056	955
2.0	18	0.05D	0.15D	213	0.022	33,910	1,484	170	0.018	27,056	955
2.0	20	0.02D	0.10D	175	0.022	27,926	1,237	140	0.018	22,282	796
2.0	22	0.02D	0.10D	175	0.022	27,926	1,237	140	0.018	22,282	796
2.0	25	0.02D	0.10D	175	0.022	27,926	1,237	140	0.018	22,282	796
2.0	30	0.02D	0.10D	175	0.022	27,926	1,237	140	0.018	22,282	796
3.0	8	0.05D	0.20D	275	0.046	29,179	2,674	200	0.036	21,221	1,528
3.0	10	0.05D	0.20D	275	0.046	29,179	2,674	200	0.036	21,221	1,528
3.0	16	0.05D	0.20D	275	0.046	29,179	2,674	200	0.036	21,221	1,528
3.0	20	0.05D	0.15D	234	0.032	24,802	1,604	170	0.025	18,038	917
3.0	25	0.05D	0.15D	234	0.032	24,802	1,604	170	0.025	18,038	917
3.0	30	0.02D	0.10D	193	0.033	20,425	1,337	140	0.026	14,855	764
3.0	35	0.02D	0.10D	193	0.033	20,425	1,337	140	0.026	14,855	764
4.0	10	0.05D	0.20D	275	0.060	21,884	2,646	200	0.048	15,915	1,528
4.0	16	0.05D	0.20D	275	0.060	21,884	2,646	200	0.048	15,915	1,528
4.0	20	0.05D	0.20D	275	0.060	21,884	2,646	200	0.048	15,915	1,528
4.0	25	0.05D	0.15D	234	0.042	18,601	1,587	170	0.034	13,528	917
4.0	30	0.05D	0.15D	234	0.042	18,601	1,587	170	0.034	13,528	917
4.0	35	0.05D	0.15D	234	0.042	18,601	1,587	170	0.034	13,528	917
4.0	40	0.02D	0.10D	193	0.043	15,318	1,323	140	0.034	11,141	764
4.0	45	0.02D	0.10D	193	0.043	15,318	1,323	140	0.034	11,141	764
4.0	50	0.02D	0.10D	193	0.043	15,318	1,323	140	0.034	11,141	764

AL BN Miniature Ballnose Cutters with long neck



2 Z Slotting				THERMOPLASTICS			
Work Material							
Material Groups				M01, M29			
D (mm)	l 2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.05D	0.05D	0.20D	25	0.005	40,000	400
0.2	0.05D	0.05D	0.20D	25	0.005	40,000	400
0.2	0.05D	0.05D	0.15D	21	0.004	34,000	240
0.3	0.05D	0.05D	0.20D	38	0.007	40,000	560
0.3	0.05D	0.05D	0.15D	32	0.005	34,000	336
0.3	0.02D	0.02D	0.10D	27	0.005	28,000	280
0.4	0.05D	0.05D	0.20D	50	0.008	40,000	640
0.4	0.05D	0.05D	0.20D	50	0.008	40,000	640
0.4	0.05D	0.05D	0.15D	43	0.006	34,000	384
0.4	0.02D	0.02D	0.10D	35	0.006	28,000	320
0.4	0.02D	0.02D	0.10D	35	0.006	28,000	320
0.5	0.05D	0.05D	0.20D	63	0.010	40,000	800
0.5	0.05D	0.05D	0.15D	54	0.007	34,000	480
0.5	0.05D	0.05D	0.15D	54	0.007	34,000	480
0.5	0.02D	0.02D	0.10D	44	0.007	28,000	400
0.5	0.02D	0.02D	0.10D	44	0.007	28,000	400
0.5	0.02D	0.02D	0.10D	38	0.007	24,000	320
0.6	0.05D	0.05D	0.20D	75	0.012	40,000	960
0.6	0.05D	0.05D	0.20D	75	0.012	40,000	960
0.6	0.05D	0.05D	0.15D	64	0.008	34,000	576
0.6	0.05D	0.05D	0.15D	64	0.008	34,000	576
0.6	0.02D	0.02D	0.10D	53	0.009	28,000	480
0.6	0.02D	0.02D	0.10D	53	0.009	28,000	480
0.8	0.05D	0.05D	0.20D	101	0.015	40,000	1,200
0.8	0.05D	0.05D	0.20D	101	0.015	40,000	1,200
0.8	0.05D	0.05D	0.15D	86	0.011	34,000	720
0.8	0.05D	0.05D	0.15D	86	0.011	34,000	720
0.8	0.05D	0.05D	0.15D	86	0.011	34,000	720
0.8	0.02D	0.02D	0.10D	71	0.011	28,000	600
0.8	0.02D	0.02D	0.10D	71	0.011	28,000	600
1.0	0.05D	0.05D	0.20D	126	0.018	40,000	1,440
1.0	0.05D	0.05D	0.20D	126	0.018	40,000	1,440
1.0	0.05D	0.05D	0.20D	126	0.018	40,000	1,440
1.0	0.05D	0.05D	0.15D	107	0.013	34,000	864
1.0	0.05D	0.05D	0.15D	107	0.013	34,000	864
1.0	0.05D	0.05D	0.15D	107	0.013	34,000	864
1.0	0.05D	0.05D	0.15D	107	0.013	34,000	864
1.0	0.02D	0.02D	0.10D	88	0.013	28,000	720
1.0	0.02D	0.02D	0.10D	88	0.013	28,000	720
1.0	0.02D	0.02D	0.10D	88	0.013	28,000	720
1.0	0.02D	0.02D	0.10D	76	0.012	24,000	576
1.2	0.05D	0.05D	0.20D	151	0.021	40,000	1,680
1.2	0.05D	0.05D	0.15D	128	0.015	34,000	1,008
1.2	0.05D	0.05D	0.15D	128	0.015	34,000	1,008
1.2	0.02D	0.02D	0.10D	106	0.015	28,000	840
1.2	0.05D	0.05D	0.15D	128	0.015	34,000	1,008
1.2	0.02D	0.02D	0.10D	106	0.015	28,000	840
1.2	0.02D	0.02D	0.10D	106	0.015	28,000	840
1.4	0.05D	0.05D	0.20D	176	0.025	40,000	2,000
1.4	0.05D	0.05D	0.15D	150	0.018	34,000	1,200
1.4	0.02D	0.02D	0.10D	123	0.018	28,000	1,000
1.5	0.05D	0.05D	0.20D	188	0.026	40,000	2,080
1.5	0.05D	0.05D	0.15D	160	0.018	34,000	1,248
1.5	0.02D	0.02D	0.10D	132	0.019	28,000	1,040
1.5	0.02D	0.02D	0.10D	132	0.019	28,000	1,040
1.6	0.05D	0.05D	0.20D	201	0.028	40,000	2,240
1.6	0.05D	0.05D	0.15D	171	0.020	34,000	1,344
1.6	0.02D	0.02D	0.10D	141	0.020	28,000	1,120
1.6	0.02D	0.02D	0.10D	141	0.020	28,000	1,120
1.8	0.05D	0.05D	0.20D	226	0.031	40,000	2,480
1.8	0.05D	0.05D	0.15D	192	0.022	34,000	1,488
1.8	0.05D	0.05D	0.15D	192	0.022	34,000	1,488
1.8	0.02D	0.02D	0.10D	158	0.022	28,000	1,240

AL BN Miniature Ballnose Cutters with long neck



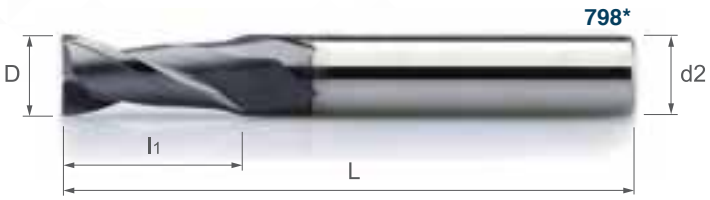
2 Z Slotting				THERMOPLASTICS			
Work Material							
Material Groups				M01, M29			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	251	0.034	40,000	2,720
2.0	6	0.05D	0.20D	251	0.034	40,000	2,720
2.0	8	0.05D	0.20D	251	0.034	40,000	2,720
2.0	10	0.05D	0.20D	251	0.034	40,000	2,720
2.0	12	0.05D	0.15D	213	0.024	34,000	1,632
2.0	14	0.05D	0.15D	213	0.024	34,000	1,632
2.0	16	0.05D	0.15D	213	0.024	34,000	1,632
2.0	18	0.05D	0.15D	213	0.024	34,000	1,632
2.0	20	0.02D	0.10D	176	0.024	28,000	1,360
2.0	22	0.02D	0.10D	176	0.024	28,000	1,360
2.0	25	0.02D	0.10D	176	0.024	28,000	1,360
2.0	30	0.02D	0.10D	176	0.024	28,000	1,360
3.0	8	0.05D	0.20D	377	0.051	40,000	4,080
3.0	10	0.05D	0.20D	377	0.051	40,000	4,080
3.0	16	0.05D	0.20D	377	0.051	40,000	4,080
3.0	20	0.05D	0.15D	320	0.036	34,000	2,448
3.0	25	0.05D	0.15D	320	0.036	34,000	2,448
3.0	30	0.02D	0.10D	264	0.036	28,000	2,040
3.0	35	0.02D	0.10D	264	0.036	28,000	2,040
4.0	10	0.05D	0.20D	503	0.067	40,000	5,360
4.0	16	0.05D	0.20D	503	0.067	40,000	5,360
4.0	20	0.05D	0.20D	503	0.067	40,000	5,360
4.0	25	0.05D	0.15D	428	0.047	34,000	3,216
4.0	30	0.05D	0.15D	428	0.047	34,000	3,216
4.0	35	0.05D	0.15D	428	0.047	34,000	3,216
4.0	40	0.02D	0.10D	352	0.048	28,000	2,680
4.0	45	0.02D	0.10D	352	0.048	28,000	2,680
4.0	50	0.02D	0.10D	352	0.048	28,000	2,680

SE30

SE 30 STANDARD ENDMILLS

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Standard Endmills, 2 flutes
Fraises 2 tailles SE 30 standard - 2 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 2 刃 – 标准长度
VHM SE 30 Standard Fräser, 2 Zähne
Frese SE 30 in metallo duro integrale, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	661* T ... n	798* B0819	C34* G6110
0100 040 03	1	3		40	3	●	●	●
0100 040 04	1	3		40	4	●	●	●
0150 040 03	1.5	4.5		40	3	●	●	●
0150 040 04	1.5	4.5		40	4	●	●	●
0200 040 03	2	6.5		40	3	●	●	●
0200 040 04	2	6.5		40	4	●	●	●
0250 040 03	2.5	6.5		40	3	●	●	●
0250 040 04	2.5	6.5		40	4	●	●	●
0300	3	9		40	3	●	●	●
0300 050 06	3	9		50	6	●	●	●
0400	4	12		50	4	●	●	●
0400 050 06	4	12		50	6	●	●	●
0500	5	15		50	5	●	●	●
0500 050 06	5	15		50	6	●	●	●
0600 050	6	16		50	6	●	●	●
0600 060	6	20		60	6	●	●	●
0800	8	20		64	8	●	●	●
1000 070	10	22		70	10	●	●	●
1000 075	10	22		75	10	●	●	●
1200	12	25		75	12	●	●	●
1400	14	32		90	14	●	●	●
1600	16	32		90	16	●	●	●
1800	18	38		100	18	●	●	●
2000	20	38		100	20	●	●	●
2200	22	40		100	22	●	●	●
2500	25	40		100	25	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

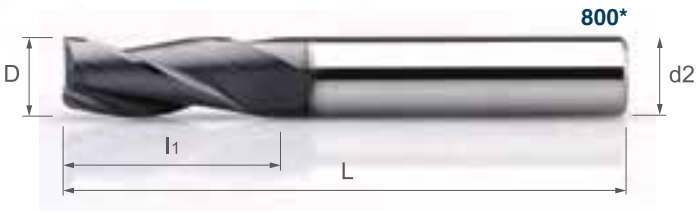
Working Material	Cutting Parameter
564	186

若有技术规格变更，恕不事先通知

SE 30 STANDARD ENDMILLS

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Standard Endmills, 3 flutes
Fraises 2 tailles SE 30 standard - 3 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 3 刃 – 标准长度
VHM SE 30 Standard Fräser, 3 Zähne
Frese SE 30 in metallo duro integrale, 3 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					777*	800*	C35*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	G6110
0100 040 03	1	3		40	3	●	●	●
0100 040 04	1	3		40	4	●	●	●
0150 040 03	1.5	4.5		40	3	●	●	●
0150 040 04	1.5	4.5		40	4	●	●	●
0200 040 03	2	6.5		40	3	●	●	●
0200 040 04	2	6.5		40	4	●	●	●
0250 040 03	2.5	6.5		40	3	●	●	●
0250 040 04	2.5	6.5		40	4	●	●	●
0300	3	9		40	3	●	●	●
0300 050 06	3	9		50	6	●	●	●
0400	4	12		50	4	●	●	●
0400 050 06	4	12		50	6	●	●	●
0500	5	15		50	5	●	●	●
0500 050 06	5	15		50	6	●	●	●
0600 050	6	16		50	6	●	●	●
0600 060	6	20		60	6	●	●	●
0800	8	20		64	8	●	●	●
1000 070	10	22		70	10	●	●	●
1000 075	10	22		75	10	●	●	●
1200	12	25		75	12	●	●	●
1400	14	32		90	14	●	●	●
1600	16	32		90	16	●	●	●
1800	18	38		100	18	●	●	●
2000	20	38		100	20	●	●	●
2200	22	40		100	22	●	●	●
2500	25	40		100	25	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	188

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 30 STANDARD ENDMILLS

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Standard Endmills, 4 flutes
Fraises 2 tailles SE 30 standard - 4 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 4 刃 – 标准长度
VHM SE 30 Standard Fräser, 4 Zähne
Frese SE 30 in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					677*	802*	C37*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	G6110
0100 040 03	1	3		40	3	●	●	●
0100 040 04	1	3		40	4	●	●	●
0150 040 03	1.5	4.5		40	3	●	●	●
0150 040 04	1.5	4.5		40	4	●	●	●
0200 040 03	2	6.5		40	3	●	●	●
0200 040 04	2	6.5		40	4	●	●	●
0250 040 03	2.5	6.5		40	3	●	●	●
0250 040 04	2.5	6.5		40	4	●	●	●
0300	3	9		40	3	●	●	●
0300 050 06	3	9		50	6	●	●	●
0400	4	12		50	4	●	●	●
0400 050 06	4	12		50	6	●	●	●
0500	5	15		50	5	●	●	●
0500 050 06	5	15		50	6	●	●	●
0600 050	6	16		50	6	●	●	●
0600 060	6	20		60	6	●	●	●
0800	8	20		64	8	●	●	●
1000 070	10	22		70	10	●	●	●
1000 075	10	22		75	10	●	●	●
1200	12	25		75	12	●	●	●
1400	14	32		90	14	●	●	●
1600	16	32		90	16	●	●	●
1800	18	38		100	18	●	●	●
2000	20	38		100	20	●	●	●
2200	22	40		100	22	●	●	●
2500	25	40		100	25	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	190

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 30 ENDMILLS - LONG

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Long Endmills, 4 Flutes
Fraises 2 tailles SE 30 Longue - 4 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 4 刃 – 中长
VHM Fräser SE 30 Lang, 4 Zähne
Frese SE 30 Lunga in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	682* T ... n	806* B0819
0300	3	19		60	3	●	●
0300 075 06	3	19		75	6	●	●
0400	4	19		60	4	●	●
0400 075 06	4	19		75	6	●	●
0500	5	19		60	5	●	●
0500 075 06	5	19		75	6	●	●
0600	6	31		75	6	●	●
0800	8	31		75	8	●	●
1000 075	10	31		75	10	●	●
1000 100	10	50		100	10	●	●
1200	12	50		100	12	●	●
1400	14	57		125	14	●	●
1600	16	57		125	16	●	●
1800	18	57		125	18	●	●
2000	20	57		125	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	192

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 30 ENDMILLS - EXTRA-LONG

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Extra-Long Endmills, 4 Flutes
Fraises 2 tailles SE 30 Extra-Longue - 4 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 4 刃 – 加长
VHM Fräser SE 30 Extra-Lang, 4 Zähne
Frese SE 30 Extra-Lunga in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	686* T ... n	810* B0819
0300	3	25		100	3	●	●
0300 100 06	3	25		100	6	●	●
0400	4	31		100	4	●	●
0400 100 06	4	31		100	6	●	●
0500	5	31		100	5	●	●
0500 100 06	5	31		100	6	●	●
0600	6	38		100	6	●	●
0800	8	41		100	8	●	●
1000	10	57		125	10	●	●
1200	12	75		150	12	●	●
1400	14	75		150	14	●	●
1600	16	75		150	16	●	●
1800	18	75		150	18	●	●
2000	20	75		150	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

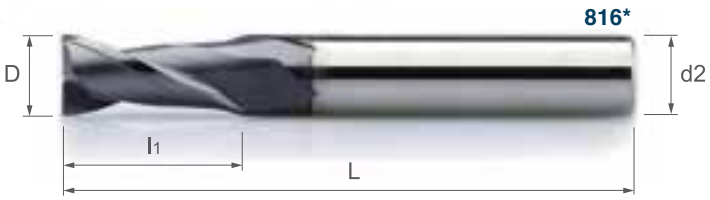
Working Material	Cutting Parameter
564	194

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 30 STANDARD ENDMILLS

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Standard Endmills, 2 flutes
Fraises 2 tailles SE 30 standard - 2 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 2 刃 – 标准长度
VHM SE 30 Standard Fräser, 2 Zähne
Frese SE 30 in metallo duro integrale, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	100* T ... n	816* B0819
0100 040 03	1	3		40	3	●	●
0100 040 04	1	3		40	4	●	●
0150 040 03	1.5	4.5		40	3	●	●
0150 040 04	1.5	4.5		40	4	●	●
0200 040 03	2	6.5		40	3	●	●
0200 040 04	2	6.5		40	4	●	●
0250 040 03	2.5	6.5		40	3	●	●
0250 040 04	2.5	6.5		40	4	●	●
0300	3	9		40	3	●	●
0300 050 06	3	9		50	6	●	●
0350 050 04	3.5	12		50	4	●	●
0400	4	12		50	4	●	●
0400 050 06	4	12		50	6	●	●
0450 050 05	4.5	15		50	5	●	●
0500	5	15		50	5	●	●
0500 050 06	5	15		50	6	●	●
0550 050 06	5.5	15		50	6	●	●
0600 050	6	16		50	6	●	●
0600 060	6	20		60	6	●	●
0700 064 08	7	20		64	8	●	●
0800	8	20		64	8	●	●
0900 070 10	9	22		70	10	●	●
1000 070	10	22		70	10	●	●
1000 075	10	22		75	10	●	●
1100 075 12	11	25		75	12	●	●
1200	12	25		75	12	●	●
1400	14	32		90	14	●	●
1600	16	32		90	16	●	●
1800	18	38		100	18	●	●
2000	20	38		100	20	●	●
2200	22	40		100	22	●	●
2500	25	40		100	25	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

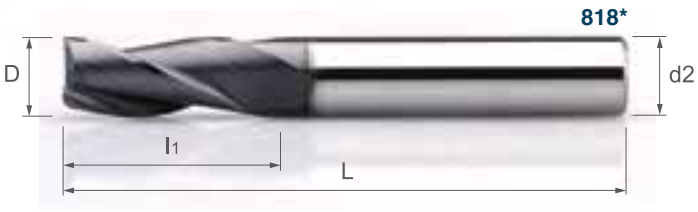
Working Material	Cutting Parameter
564	186

若有技术规格变更，恕不事先通知

SE 30 STANDARD ENDMILLS

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Standard Endmills, 3 flutes
Fraises 2 tailles SE 30 standard - 3 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 3 刃 – 标准长度
VHM SE 30 Standard Fräser, 3 Zähne
Frese SE 30 in metallo duro integrale, 3 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	775* T ... n	818* B0819
0100 040 03	1	3		40	3	●	●
0100 040 04	1	3		40	4	●	●
0150 040 03	1.5	4.5		40	3	●	●
0150 040 04	1.5	4.5		40	4	●	●
0200 040 03	2	6.5		40	3	●	●
0200 040 04	2	6.5		40	4	●	●
0250 040 03	2.5	6.5		40	3	●	●
0250 040 04	2.5	6.5		40	4	●	●
0300	3	9		40	3	●	●
0300 050 06	3	9		50	6	●	●
0350 050 04	3.5	12		50	4	●	●
0400	4	12		50	4	●	●
0400 050 06	4	12		50	6	●	●
0450 050 05	4.5	15		50	5	●	●
0500	5	15		50	5	●	●
0500 050 06	5	15		50	6	●	●
0550 050 06	5.5	15		50	6	●	●
0600 050	6	16		50	6	●	●
0600 060	6	20		60	6	●	●
0700 064 08	7	20		64	8	●	●
0800	8	20		64	8	●	●
0900 070 10	9	22		70	10	●	●
1000 070	10	22		70	10	●	●
1000 075	10	22		75	10	●	●
1100 075 12	11	25		75	12	●	●
1200	12	25		75	12	●	●
1400	14	32		90	14	●	●
1600	16	32		90	16	●	●
1800	18	38		100	18	●	●
2000	20	38		100	20	●	●
2200	22	40		100	22	●	●
2500	25	40		100	25	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	188

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 30 STANDARD ENDMILLS

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Standard Endmills, 4 flutes
Fraises 2 tailles SE 30 standard - 4 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 4 刃 – 标准长度
VHM SE 30 Standard Fräser, 4 Zähne
Frese SE 30 in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	112* T ... n	820* B0819
0100 040 03	1	3		40	3	●	●
0100 040 04	1	3		40	4	●	●
0150 040 03	1.5	4.5		40	3	●	●
0150 040 04	1.5	4.5		40	4	●	●
0200 040 03	2	6.5		40	3	●	●
0200 040 04	2	6.5		40	4	●	●
0250 040 03	2.5	6.5		40	3	●	●
0250 040 04	2.5	6.5		40	4	●	●
0300	3	9		40	3	●	●
0300 050 06	3	9		50	6	●	●
0350 050 04	3.5	12		50	4	●	●
0400	4	12		50	4	●	●
0400 050 06	4	12		50	6	●	●
0450 050 05	4.5	15		50	5	●	●
0500	5	15		50	5	●	●
0500 050 06	5	15		50	6	●	●
0550 050 06	5.5	15		50	6	●	●
0600 050	6	16		50	6	●	●
0600 060	6	20		60	6	●	●
0700 064 08	7	20		64	8	●	●
0800	8	20		64	8	●	●
0900 070 10	9	22		70	10	●	●
1000 070	10	22		70	10	●	●
1000 075	10	22		75	10	●	●
1100 075 12	11	25		75	12	●	●
1200	12	25		75	12	●	●
1400	14	32		90	14	●	●
1600	16	32		90	16	●	●
1800	18	38		100	18	●	●
2000	20	38		100	20	●	●
2200	22	40		100	22	●	●
2500	25	40		100	25	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	190

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 30 ENDMILLS - LONG

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Long Endmills, 4 Flutes
Fraises 2 tailles SE 30 Longue - 4 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 4 刃 – 中长
VHM Fräser SE 30 Lang, 4 Zähne
Frese SE 30 Lunga in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	320* T ... n	824* B0819
0300	3	19		60	3	●	●
0300 075 06	3	19		75	6	●	●
0400	4	19		60	4	●	●
0400 075 06	4	19		75	6	●	●
0500	5	19		60	5	●	●
0500 075 06	5	19		75	6	●	●
0600	6	31		75	6	●	●
0800	8	31		75	8	●	●
1000 075	10	31		75	10	●	●
1000 100	10	50		100	10	●	●
1200	12	50		100	12	●	●
1400	14	57		125	14	●	●
1600	16	57		125	16	●	●
1800	18	57		125	18	●	●
2000	20	57		125	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	192

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 30 ENDMILLS - EXTRA-LONG

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Extra-Long Endmills, 4 Flutes
Fraises 2 tailles SE 30 Extra-Longue - 4 dents, en carbure monobloc
整体硬质合金 SE 30 系列 立铣刀 4 刃 – 加长
VHM Fräser SE 30 Extra-Lang, 4 Zähne
Frese SE 30 Extra-Lunga in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	326* T ... n	828* B0819
0300	3	25		100	3	●	●
0300 100 06	3	25		100	6	●	●
0400	4	31		100	4	●	●
0400 100 06	4	31		100	6	●	●
0500	5	31		100	5	●	●
0500 100 06	5	31		100	6	●	●
0600	6	38		100	6	●	●
0800	8	41		100	8	●	●
1000	10	57		125	10	●	●
1200	12	75		150	12	●	●
1400	14	75		150	14	●	●
1600	16	75		150	16	●	●
1800	18	75		150	18	●	●
2000	20	75		150	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	194

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 30 MULTI-PURPOSE ENDMILLS - 60° Point Angle

≤ 900 N/mm² + B0819 ≤ 45 HRC

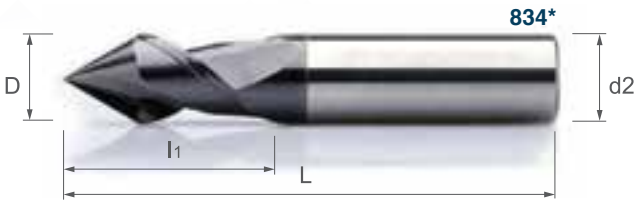
Solid Carbide SE 30 Multi-Purpose Endmills with 60° point angle

Fraises SE 30 multiple usage en carbure monobloc, angle de pointe: 60°

整体硬质合金 SE 30 系列 多功能立□刀 2 刃 – 倒角 60°

SE 30 VHM Mehrzweck-Fräser, Spitzenwinkel: 60°

Fresa SE 30 multiplo impiego in metallo duro integrale, angolo di punta: 60°



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	668* T ... n	834* B0819
0300 040	3	9		40	3	●	●
0400 050	4	12		50	4	●	●
0500 050	5	15		50	5	●	●
0600 050	6	16		50	6	●	●
0800 064	8	20		64	8	●	●
1000 070	10	22		70	10	●	●
1200 075	12	25		75	12	●	●
1600 090	16	32		90	16	●	●
2000 100	20	38		100	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	186

若有技术规格变更，恕不事先通知

SE 30 MULTI-PURPOSE ENDMILLS - 90° Point Angle

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Multi-Purpose Endmills with 90° point angle

Fraises SE 30 multiple usage en carbure monobloc, angle de pointe: 90°

整体硬质合金 SE 30 系列 多功能立□刀 2 刃 – 倒角 90°

SE 30 VHM Mehrzweck-Fräser, Spitzenwinkel: 90°

Fresa SE 30 multiplo impiego in metallo duro integrale, angolo di punta: 90°

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	670* T ... n	836* B0819
0300 040	3	9		40	3	●	●
0400 050	4	12		50	4	●	●
0500 050	5	15		50	5	●	●
0600 050	6	16		50	6	●	●
0800 064	8	20		64	8	●	●
1000 070	10	22		70	10	●	●
1200 075	12	25		75	12	●	●
1600 090	16	32		90	16	●	●
2000 100	20	38		100	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	186

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 30 MULTI-PURPOSE ENDMILLS - 120° Point Angle

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide SE 30 Multi-Purpose Endmills with 120° point angle

Fraises SE 30 multiple usage en carbure monobloc, angle de pointe: 120°

整体硬质合金 SE 30 系列 多功能立□刀 2 刃 – 倒角 120°

SE 30 VHM Mehrzweck-Fräser, Spitzenwinkel: 120°

Fresa SE 30 multiplo impiego in metallo duro integrale, angolo di punta: 120°

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	672* T ... n	838* B0819
0300 040	3	9		40	3	●	●
0400 050	4	12		50	4	●	●
0500 050	5	15		50	5	●	●
0600 050	6	16		50	6	●	●
0800 064	8	20		64	8	●	●
1000 070	10	22		70	10	●	●
1200 075	12	25		75	12	●	●
1600 090	16	32		90	16	●	●
2000 100	20	38		100	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	186

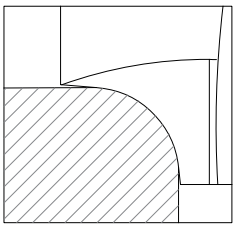
TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

MG MINIATURE ROUND CORNER MILLING CUTTERS

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide Round Corner Milling cutters, 4 flutes
Fraises 1/4 de cercle en carbure monobloc, 4 dents
整体硬质合金 圆弧倒角刀 4 刃
VHM Viertelrund Profilfräser, 4 Zähne
Frese 1/4 circolare in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						435*	398*
	D ± 0.1	D ± 0.2	l 1	l 2	L	d2 (h6)	T ... n	B0819
0025 010	1.0	0.25	49.48	7	50	3	●	○
0030 010	1.0	0.30	49.46	7	50	3	●	○
0040 010	1.0	0.40	49.36	7	50	3	●	○
0050 015	1.5	0.50	49.24	10	50	4	●	○
0060 015	1.5	0.60	49.14	10	50	4	●	○
0070 015	1.5	0.70	49.05	10	50	4	●	○
0080 015	1.5	0.80	48.96	10	50	4	●	○
0090 015	1.5	0.90	48.87	10	50	4	●	○
0100 015	1.5	1.00	48.78	10	50	4	●	○
0125 020	2.0	1.25	48.49	12	50	6	●	○
0150 020	2.0	1.50	48.26	12	50	6	●	○
0175 020	2.0	1.75	48.03	12	50	6	●	○
0200 025	2.5	2.00	47.74	14	50	8	●	○
0225 025	2.5	2.25	47.51	14	50	8	●	○
0250 025	2.5	2.50	47.28	14	50	8	●	○



These cutters are designed for CNC machines.
They allow to machine even very thin materials.
Easy to regrind.

Diese Profilfräser sind für den Einsatz auf CNC Maschinen
und für die Bearbeitung dünner Werkstücke geeignet und leicht
nachschleifbar.

Ces fraises 1/4 de cercle sont conçues pour l'emploi sur des centres CNC.
et permettent d'usiner des matériaux très minces.
Faciles à réaffûter.

Queste frese 1/4 circolare sono concepite per l'impiego su centri CNC
e permettono di lavorare parti sottili.
Riaffilatura facile.

此切削刀具是专为CNC加工中心设计使用
可以在非常薄片工件加工
容易再磨研

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

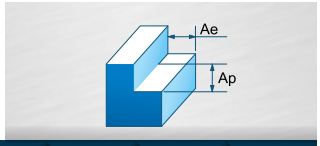
M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	188

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 30 Standard Series Endmills

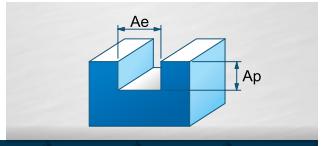
Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D



2 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	2	126	0.009 ~ 0.013	≤1.5D	≤0.10D	40000	720 ~ 1040
		1.5	2	188	0.017 ~ 0.022	≤1.5D	≤0.10D	40000	1360 ~ 1760
		2	2	200 ~ 250	0.025 ~ 0.030	≤1.5D	≤0.10D	31830 ~ 39790	1590 ~ 2390
		2.5	2	200 ~ 250	0.033 ~ 0.039	≤1.5D	≤0.10D	25460 ~ 31830	1680 ~ 2480
		3	2	200 ~ 250	0.041 ~ 0.048	≤1.5D	≤0.10D	21220 ~ 26530	1740 ~ 2550
		4	2	200 ~ 250	0.058 ~ 0.065	≤1.5D	≤0.20D	15920 ~ 19890	1850 ~ 2590
		5	2	200 ~ 250	0.074 ~ 0.082	≤1.5D	≤0.20D	12730 ~ 15920	1880 ~ 2610
		6	2	200 ~ 250	0.091 ~ 0.100	≤1.5D	≤0.20D	10610 ~ 13260	1930 ~ 2650
		8	2	200 ~ 250	0.113 ~ 0.124	≤1.5D	≤0.20D	7960 ~ 9950	1800 ~ 2470
		10	2	200 ~ 250	0.135 ~ 0.149	≤1.5D	≤0.20D	6370 ~ 7960	1720 ~ 2370
		12	2	200 ~ 250	0.158 ~ 0.173	≤1.5D	≤0.20D	5310 ~ 6630	1680 ~ 2290
		14	2	200 ~ 250	0.180 ~ 0.198	≤1.5D	≤0.20D	4550 ~ 5680	1640 ~ 2250
		16	2	200 ~ 250	0.202 ~ 0.222	≤1.5D	≤0.20D	3980 ~ 4970	1610 ~ 2210
		18	2	200 ~ 250	0.224 ~ 0.247	≤1.5D	≤0.20D	3540 ~ 4420	1590 ~ 2180
		20	2	200 ~ 250	0.247 ~ 0.271	≤1.5D	≤0.20D	3180 ~ 3980	1570 ~ 2160
		22	2	200 ~ 250	0.269 ~ 0.296	≤1.5D	≤0.20D	2890 ~ 3620	1550 ~ 2140
		25	2	200 ~ 250	0.302 ~ 0.333	≤1.5D	≤0.20D	2550 ~ 3180	1540 ~ 2120
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	2	126	0.006 ~ 0.010	≤1.5D	≤0.10D	40000	480 ~ 800
		1.5	2	130 ~ 170	0.012 ~ 0.015	≤1.5D	≤0.10D	27590 ~ 36080	660 ~ 1080
		2	2	130 ~ 170	0.017 ~ 0.021	≤1.5D	≤0.10D	20690 ~ 27060	700 ~ 1140
		2.5	2	130 ~ 170	0.022 ~ 0.026	≤1.5D	≤0.10D	16550 ~ 21650	730 ~ 1130
		3	2	130 ~ 170	0.027 ~ 0.031	≤1.5D	≤0.10D	13790 ~ 18040	740 ~ 1120
		4	2	130 ~ 170	0.038 ~ 0.042	≤1.5D	≤0.20D	10350 ~ 13530	790 ~ 1140
		5	2	130 ~ 170	0.048 ~ 0.053	≤1.5D	≤0.20D	8280 ~ 10820	790 ~ 1150
		6	2	130 ~ 170	0.058 ~ 0.064	≤1.5D	≤0.20D	6900 ~ 9020	800 ~ 1150
		8	2	130 ~ 170	0.070 ~ 0.077	≤1.5D	≤0.20D	5170 ~ 6760	720 ~ 1040
		10	2	130 ~ 170	0.082 ~ 0.091	≤1.5D	≤0.20D	4140 ~ 5410	680 ~ 980
		12	2	130 ~ 170	0.094 ~ 0.104	≤1.5D	≤0.20D	3450 ~ 4510	650 ~ 940
		14	2	130 ~ 170	0.107 ~ 0.117	≤1.5D	≤0.20D	2960 ~ 3870	630 ~ 910
		16	2	130 ~ 170	0.119 ~ 0.130	≤1.5D	≤0.20D	2590 ~ 3380	620 ~ 880
		18	2	130 ~ 170	0.131 ~ 0.144	≤1.5D	≤0.20D	2300 ~ 3010	600 ~ 870
		20	2	130 ~ 170	0.143 ~ 0.157	≤1.5D	≤0.20D	2070 ~ 2710	590 ~ 850
		22	2	130 ~ 170	0.155 ~ 0.170	≤1.5D	≤0.20D	1880 ~ 2460	580 ~ 840
		25	2	130 ~ 170	0.173 ~ 0.190	≤1.5D	≤0.20D	1660 ~ 2160	570 ~ 820
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	2	120 ~ 126	0.006 ~ 0.010	≤1.5D	≤0.10D	38200 ~ 40000	460 ~ 800
		1.5	2	120 ~ 140	0.012 ~ 0.015	≤1.5D	≤0.10D	25460 ~ 29710	610 ~ 890
		2	2	120 ~ 140	0.017 ~ 0.021	≤1.5D	≤0.10D	19100 ~ 22280	650 ~ 940
		2.5	2	120 ~ 140	0.022 ~ 0.026	≤1.5D	≤0.10D	15280 ~ 17830	670 ~ 930
		3	2	120 ~ 140	0.027 ~ 0.031	≤1.5D	≤0.10D	12730 ~ 14850	690 ~ 920
		4	2	120 ~ 140	0.038 ~ 0.042	≤1.5D	≤0.20D	9550 ~ 11140	730 ~ 940
		5	2	120 ~ 140	0.048 ~ 0.053	≤1.5D	≤0.20D	7640 ~ 8910	730 ~ 940
		6	2	120 ~ 140	0.058 ~ 0.064	≤1.5D	≤0.20D	6370 ~ 7430	740 ~ 950
		8	2	120 ~ 140	0.073 ~ 0.080	≤1.5D	≤0.20D	4770 ~ 5570	700 ~ 890
		10	2	120 ~ 140	0.087 ~ 0.096	≤1.5D	≤0.20D	3820 ~ 4460	660 ~ 860
		12	2	120 ~ 140	0.101 ~ 0.111	≤1.5D	≤0.20D	3180 ~ 3710	640 ~ 820
		14	2	120 ~ 140	0.116 ~ 0.127	≤1.5D	≤0.20D	2730 ~ 3180	630 ~ 810
		16	2	120 ~ 140	0.130 ~ 0.143	≤1.5D	≤0.20D	2390 ~ 2790	620 ~ 800
		18	2	120 ~ 140	0.144 ~ 0.159	≤1.5D	≤0.20D	2120 ~ 2480	610 ~ 790
		20	2	120 ~ 140	0.159 ~ 0.174	≤1.5D	≤0.20D	1910 ~ 2230	610 ~ 780
		22	2	120 ~ 140	0.173 ~ 0.190	≤1.5D	≤0.20D	1740 ~ 2030	600 ~ 770
		25	2	120 ~ 140	0.194 ~ 0.214	≤1.5D	≤0.20D	1530 ~ 1780	590 ~ 760

SE 30 Standard Series Endmills

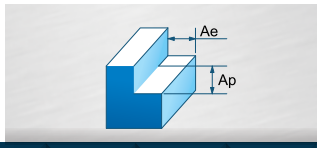
Ae = D
Ap ≤ 0.1D (D < Ø2)
Ap ≤ 0.3D (Ø2 ≤ D ≤ Ø3)
Ap ≤ 0.5D (D > Ø3)



2 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	2	126	0.007 ~ 0.010	≤0.1D	1.0D	40000	560 ~ 800
		1.5	2	188	0.013 ~ 0.017	≤0.1D	1.0D	40000	1040 ~ 1360
		2	2	200 ~ 250	0.020 ~ 0.024	≤0.3D	1.0D	31830 ~ 39790	1270 ~ 1910
		2.5	2	200 ~ 250	0.027 ~ 0.031	≤0.3D	1.0D	25460 ~ 31830	1370 ~ 1970
		3	2	200 ~ 250	0.033 ~ 0.038	≤0.3D	1.0D	21220 ~ 26530	1400 ~ 2020
		4	2	200 ~ 250	0.046 ~ 0.052	≤0.5D	1.0D	15920 ~ 19890	1460 ~ 2070
		5	2	200 ~ 250	0.059 ~ 0.066	≤0.5D	1.0D	12730 ~ 15920	1500 ~ 2100
		6	2	200 ~ 250	0.073 ~ 0.080	≤0.5D	1.0D	10610 ~ 13260	1550 ~ 2120
		8	2	200 ~ 250	0.090 ~ 0.099	≤0.5D	1.0D	7960 ~ 9950	1430 ~ 1970
		10	2	200 ~ 250	0.108 ~ 0.119	≤0.5D	1.0D	6370 ~ 7960	1380 ~ 1890
		12	2	200 ~ 250	0.126 ~ 0.139	≤0.5D	1.0D	5310 ~ 6630	1340 ~ 1840
		14	2	200 ~ 250	0.144 ~ 0.158	≤0.5D	1.0D	4550 ~ 5680	1310 ~ 1790
		16	2	200 ~ 250	0.162 ~ 0.178	≤0.5D	1.0D	3980 ~ 4970	1290 ~ 1770
		18	2	200 ~ 250	0.180 ~ 0.197	≤0.5D	1.0D	3540 ~ 4420	1270 ~ 1740
		20	2	200 ~ 250	0.197 ~ 0.217	≤0.5D	1.0D	3180 ~ 3980	1250 ~ 1730
		22	2	200 ~ 250	0.215 ~ 0.237	≤0.5D	1.0D	2890 ~ 3620	1240 ~ 1720
		25	2	200 ~ 250	0.242 ~ 0.266	≤0.5D	1.0D	2550 ~ 3180	1230 ~ 1690
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	2	126	0.005 ~ 0.008	≤0.1D	1.0D	40000	400 ~ 640
		1.5	2	130 ~ 170	0.009 ~ 0.012	≤0.1D	1.0D	27590 ~ 36080	500 ~ 870
		2	2	130 ~ 170	0.013 ~ 0.016	≤0.3D	1.0D	20690 ~ 27060	540 ~ 870
		2.5	2	130 ~ 170	0.018 ~ 0.021	≤0.3D	1.0D	16550 ~ 21650	600 ~ 910
		3	2	130 ~ 170	0.022 ~ 0.025	≤0.3D	1.0D	13790 ~ 18040	610 ~ 900
		4	2	130 ~ 170	0.030 ~ 0.034	≤0.5D	1.0D	10350 ~ 13530	620 ~ 920
		5	2	130 ~ 170	0.038 ~ 0.043	≤0.5D	1.0D	8280 ~ 10820	630 ~ 930
		6	2	130 ~ 170	0.047 ~ 0.051	≤0.5D	1.0D	6900 ~ 9020	650 ~ 920
		8	2	130 ~ 170	0.056 ~ 0.062	≤0.5D	1.0D	5170 ~ 6760	580 ~ 840
		10	2	130 ~ 170	0.066 ~ 0.073	≤0.5D	1.0D	4140 ~ 5410	550 ~ 790
		12	2	130 ~ 170	0.076 ~ 0.083	≤0.5D	1.0D	3450 ~ 4510	520 ~ 750
		14	2	130 ~ 170	0.085 ~ 0.094	≤0.5D	1.0D	2960 ~ 3870	500 ~ 730
		16	2	130 ~ 170	0.095 ~ 0.104	≤0.5D	1.0D	2590 ~ 3380	490 ~ 700
		18	2	130 ~ 170	0.104 ~ 0.115	≤0.5D	1.0D	2300 ~ 3010	480 ~ 690
		20	2	130 ~ 170	0.114 ~ 0.126	≤0.5D	1.0D	2070 ~ 2710	470 ~ 680
		22	2	130 ~ 170	0.124 ~ 0.136	≤0.5D	1.0D	1880 ~ 2460	470 ~ 670
		25	2	130 ~ 170	0.138 ~ 0.152	≤0.5D	1.0D	1660 ~ 2160	460 ~ 660
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	2	120 ~ 126	0.005 ~ 0.008	≤0.1D	1.0D	38200 ~ 40000	380 ~ 640
		1.5	2	120 ~ 140	0.009 ~ 0.012	≤0.1D	1.0D	25460 ~ 29710	460 ~ 710
		2	2	120 ~ 140	0.013 ~ 0.016	≤0.3D	1.0D	19100 ~ 22280	500 ~ 710
		2.5	2	120 ~ 140	0.018 ~ 0.021	≤0.3D	1.0D	15280 ~ 17830	550 ~ 750
		3	2	120 ~ 140	0.022 ~ 0.025	≤0.3D	1.0D	12730 ~ 14850	560 ~ 740
		4	2	120 ~ 140	0.030 ~ 0.034	≤0.5D	1.0D	9550 ~ 11140	570 ~ 760
		5	2	120 ~ 140	0.038 ~ 0.043	≤0.5D	1.0D	7640 ~ 8910	580 ~ 770
		6	2	120 ~ 140	0.047 ~ 0.051	≤0.5D	1.0D	6370 ~ 7430	600 ~ 760
		8	2	120 ~ 140	0.058 ~ 0.064	≤0.5D	1.0D	4770 ~ 5570	550 ~ 710
		10	2	120 ~ 140	0.070 ~ 0.077	≤0.5D	1.0D	3820 ~ 4460	530 ~ 690
		12	2	120 ~ 140	0.081 ~ 0.089	≤0.5D	1.0D	3180 ~ 3710	520 ~ 660
		14	2	120 ~ 140	0.092 ~ 0.102	≤0.5D	1.0D	2730 ~ 3180	500 ~ 650
		16	2	120 ~ 140	0.104 ~ 0.114	≤0.5D	1.0D	2390 ~ 2790	500 ~ 640
		18	2	120 ~ 140	0.115 ~ 0.127	≤0.5D	1.0D	2120 ~ 2480	490 ~ 630
		20	2	120 ~ 140	0.127 ~ 0.140	≤0.5D	1.0D	1910 ~ 2230	490 ~ 620
		22	2	120 ~ 140	0.138 ~ 0.152	≤0.5D	1.0D	1740 ~ 2030	480 ~ 620
		25	2	120 ~ 140	0.156 ~ 0.171	≤0.5D	1.0D	1530 ~ 1780	480 ~ 610

SE 30 Standard Series Endmills

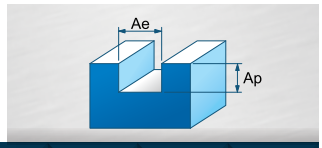
Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D



3 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	3	126	0.007 ~ 0.011	≤1.5D	≤0.10D	40000	840 ~ 1320
		1.5	3	188	0.014 ~ 0.018	≤1.5D	≤0.10D	40000	1680 ~ 2160
		2	3	200 ~ 250	0.021 ~ 0.025	≤1.5D	≤0.10D	31830 ~ 39790	2010 ~ 2980
		2.5	3	200 ~ 250	0.028 ~ 0.033	≤1.5D	≤0.10D	25460 ~ 31830	2140 ~ 3150
		3	3	200 ~ 250	0.035 ~ 0.040	≤1.5D	≤0.10D	21220 ~ 26530	2230 ~ 3180
		4	3	200 ~ 250	0.048 ~ 0.054	≤1.5D	≤0.20D	15920 ~ 19890	2290 ~ 3220
		5	3	200 ~ 250	0.062 ~ 0.069	≤1.5D	≤0.20D	12730 ~ 15920	2370 ~ 3300
		6	3	200 ~ 250	0.076 ~ 0.083	≤1.5D	≤0.20D	10610 ~ 13260	2420 ~ 3300
		8	3	200 ~ 250	0.094 ~ 0.104	≤1.5D	≤0.20D	7960 ~ 9950	2240 ~ 3100
		10	3	200 ~ 250	0.113 ~ 0.124	≤1.5D	≤0.20D	6370 ~ 7960	2160 ~ 2960
		12	3	200 ~ 250	0.131 ~ 0.144	≤1.5D	≤0.20D	5310 ~ 6630	2090 ~ 2860
		14	3	200 ~ 250	0.150 ~ 0.165	≤1.5D	≤0.20D	4550 ~ 5680	2050 ~ 2810
		16	3	200 ~ 250	0.168 ~ 0.185	≤1.5D	≤0.20D	3980 ~ 4970	2010 ~ 2760
		18	3	200 ~ 250	0.187 ~ 0.206	≤1.5D	≤0.20D	3540 ~ 4420	1990 ~ 2730
		20	3	200 ~ 250	0.206 ~ 0.226	≤1.5D	≤0.20D	3180 ~ 3980	1970 ~ 2700
		22	3	200 ~ 250	0.224 ~ 0.247	≤1.5D	≤0.20D	2890 ~ 3620	1940 ~ 2680
		25	3	200 ~ 250	0.252 ~ 0.277	≤1.5D	≤0.20D	2550 ~ 3180	1930 ~ 2640
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	3	126	0.005 ~ 0.008	≤1.5D	≤0.10D	40000	600 ~ 960
		1.5	3	130 ~ 170	0.010 ~ 0.013	≤1.5D	≤0.10D	27590 ~ 36080	830 ~ 1410
		2	3	130 ~ 170	0.014 ~ 0.017	≤1.5D	≤0.10D	20690 ~ 27060	870 ~ 1380
		2.5	3	130 ~ 170	0.018 ~ 0.022	≤1.5D	≤0.10D	16550 ~ 21650	890 ~ 1430
		3	3	130 ~ 170	0.023 ~ 0.026	≤1.5D	≤0.10D	13790 ~ 18040	950 ~ 1410
		4	3	130 ~ 170	0.031 ~ 0.035	≤1.5D	≤0.20D	10350 ~ 13530	960 ~ 1420
		5	3	130 ~ 170	0.040 ~ 0.044	≤1.5D	≤0.20D	8280 ~ 10820	990 ~ 1430
		6	3	130 ~ 170	0.049 ~ 0.053	≤1.5D	≤0.20D	6900 ~ 9020	1010 ~ 1430
		8	3	130 ~ 170	0.059 ~ 0.065	≤1.5D	≤0.20D	5170 ~ 6760	920 ~ 1320
		10	3	130 ~ 170	0.069 ~ 0.076	≤1.5D	≤0.20D	4140 ~ 5410	860 ~ 1230
		12	3	130 ~ 170	0.079 ~ 0.087	≤1.5D	≤0.20D	3450 ~ 4510	820 ~ 1180
		14	3	130 ~ 170	0.089 ~ 0.098	≤1.5D	≤0.20D	2960 ~ 3870	790 ~ 1140
		16	3	130 ~ 170	0.099 ~ 0.109	≤1.5D	≤0.20D	2590 ~ 3380	770 ~ 1110
		18	3	130 ~ 170	0.109 ~ 0.120	≤1.5D	≤0.20D	2300 ~ 3010	750 ~ 1080
		20	3	130 ~ 170	0.119 ~ 0.131	≤1.5D	≤0.20D	2070 ~ 2710	740 ~ 1070
		22	3	130 ~ 170	0.129 ~ 0.142	≤1.5D	≤0.20D	1880 ~ 2460	730 ~ 1050
		25	3	130 ~ 170	0.144 ~ 0.158	≤1.5D	≤0.20D	1660 ~ 2160	720 ~ 1020
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	3	120 ~ 126	0.005 ~ 0.008	≤1.5D	≤0.10D	38200 ~ 40000	570 ~ 960
		1.5	3	120 ~ 140	0.010 ~ 0.013	≤1.5D	≤0.10D	25460 ~ 29710	760 ~ 1160
		2	3	120 ~ 140	0.014 ~ 0.017	≤1.5D	≤0.10D	19100 ~ 22280	800 ~ 1140
		2.5	3	120 ~ 140	0.018 ~ 0.022	≤1.5D	≤0.10D	15280 ~ 17830	830 ~ 1180
		3	3	120 ~ 140	0.023 ~ 0.026	≤1.5D	≤0.10D	12730 ~ 14850	880 ~ 1160
		4	3	120 ~ 140	0.031 ~ 0.035	≤1.5D	≤0.20D	9550 ~ 11140	890 ~ 1170
		5	3	120 ~ 140	0.040 ~ 0.044	≤1.5D	≤0.20D	7640 ~ 8910	920 ~ 1180
		6	3	120 ~ 140	0.049 ~ 0.053	≤1.5D	≤0.20D	6370 ~ 7430	940 ~ 1180
		8	3	120 ~ 140	0.061 ~ 0.067	≤1.5D	≤0.20D	4770 ~ 5570	870 ~ 1120
		10	3	120 ~ 140	0.072 ~ 0.080	≤1.5D	≤0.20D	3820 ~ 4460	830 ~ 1070
		12	3	120 ~ 140	0.084 ~ 0.093	≤1.5D	≤0.20D	3180 ~ 3710	800 ~ 1040
		14	3	120 ~ 140	0.096 ~ 0.106	≤1.5D	≤0.20D	2730 ~ 3180	790 ~ 1010
		16	3	120 ~ 140	0.108 ~ 0.119	≤1.5D	≤0.20D	2390 ~ 2790	770 ~ 1000
		18	3	120 ~ 140	0.120 ~ 0.132	≤1.5D	≤0.20D	2120 ~ 2480	760 ~ 980
		20	3	120 ~ 140	0.132 ~ 0.145	≤1.5D	≤0.20D	1910 ~ 2230	760 ~ 970
		22	3	120 ~ 140	0.144 ~ 0.159	≤1.5D	≤0.20D	1740 ~ 2030	750 ~ 970
		25	3	120 ~ 140	0.162 ~ 0.178	≤1.5D	≤0.20D	1530 ~ 1780	740 ~ 950

SE 30 Standard Series Endmills

Ae = D
Ap ≤ 0.1D (D < Ø2)
Ap ≤ 0.3D (Ø2 ≤ D ≤ Ø3)
Ap ≤ 0.5D (D > Ø3)

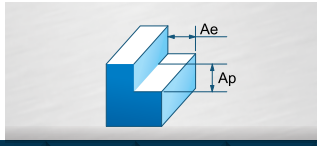


3 Z Slotting

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	3	126	0.006 ~ 0.009	≤0.1D	1.0D	40000	720 ~ 1080
		1.5	3	188	0.011 ~ 0.014	≤0.1D	1.0D	40000	1320 ~ 1680
		2	3	200 ~ 250	0.017 ~ 0.020	≤0.3D	1.0D	31830 ~ 39790	1620 ~ 2390
		2.5	3	200 ~ 250	0.022 ~ 0.026	≤0.3D	1.0D	25460 ~ 31830	1680 ~ 2480
		3	3	200 ~ 250	0.028 ~ 0.032	≤0.3D	1.0D	21220 ~ 26530	1780 ~ 2550
		4	3	200 ~ 250	0.039 ~ 0.043	≤0.5D	1.0D	15920 ~ 19890	1860 ~ 2570
		5	3	200 ~ 250	0.050 ~ 0.055	≤0.5D	1.0D	12730 ~ 15920	1910 ~ 2630
		6	3	200 ~ 250	0.060 ~ 0.067	≤0.5D	1.0D	10610 ~ 13260	1910 ~ 2670
		8	3	200 ~ 250	0.075 ~ 0.083	≤0.5D	1.0D	7960 ~ 9950	1790 ~ 2480
		10	3	200 ~ 250	0.090 ~ 0.099	≤0.5D	1.0D	6370 ~ 7960	1720 ~ 2360
		12	3	200 ~ 250	0.105 ~ 0.116	≤0.5D	1.0D	5310 ~ 6630	1670 ~ 2310
		14	3	200 ~ 250	0.120 ~ 0.132	≤0.5D	1.0D	4550 ~ 5680	1640 ~ 2250
		16	3	200 ~ 250	0.135 ~ 0.148	≤0.5D	1.0D	3980 ~ 4970	1610 ~ 2210
		18	3	200 ~ 250	0.150 ~ 0.165	≤0.5D	1.0D	3540 ~ 4420	1590 ~ 2190
		20	3	200 ~ 250	0.164 ~ 0.181	≤0.5D	1.0D	3180 ~ 3980	1560 ~ 2160
		22	3	200 ~ 250	0.179 ~ 0.197	≤0.5D	1.0D	2890 ~ 3620	1550 ~ 2140
		25	3	200 ~ 250	0.202 ~ 0.222	≤0.5D	1.0D	2550 ~ 3180	1550 ~ 2120
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	3	126	0.004 ~ 0.006	≤0.1D	1.0D	40000	480 ~ 720
		1.5	3	130 ~ 170	0.008 ~ 0.010	≤0.1D	1.0D	27590 ~ 36080	660 ~ 1080
		2	3	130 ~ 170	0.011 ~ 0.014	≤0.3D	1.0D	20690 ~ 27060	680 ~ 1140
		2.5	3	130 ~ 170	0.015 ~ 0.017	≤0.3D	1.0D	16550 ~ 21650	740 ~ 1100
		3	3	130 ~ 170	0.018 ~ 0.021	≤0.3D	1.0D	13790 ~ 18040	740 ~ 1140
		4	3	130 ~ 170	0.025 ~ 0.028	≤0.5D	1.0D	10350 ~ 13530	780 ~ 1140
		5	3	130 ~ 170	0.032 ~ 0.036	≤0.5D	1.0D	8280 ~ 10820	790 ~ 1170
		6	3	130 ~ 170	0.039 ~ 0.043	≤0.5D	1.0D	6900 ~ 9020	810 ~ 1160
		8	3	130 ~ 170	0.047 ~ 0.052	≤0.5D	1.0D	5170 ~ 6760	730 ~ 1050
		10	3	130 ~ 170	0.055 ~ 0.060	≤0.5D	1.0D	4140 ~ 5410	680 ~ 970
		12	3	130 ~ 170	0.063 ~ 0.069	≤0.5D	1.0D	3450 ~ 4510	650 ~ 930
		14	3	130 ~ 170	0.071 ~ 0.078	≤0.5D	1.0D	2960 ~ 3870	630 ~ 910
		16	3	130 ~ 170	0.079 ~ 0.087	≤0.5D	1.0D	2590 ~ 3380	610 ~ 880
		18	3	130 ~ 170	0.087 ~ 0.096	≤0.5D	1.0D	2300 ~ 3010	600 ~ 870
		20	3	130 ~ 170	0.095 ~ 0.105	≤0.5D	1.0D	2070 ~ 2710	590 ~ 850
		22	3	130 ~ 170	0.103 ~ 0.113	≤0.5D	1.0D	1880 ~ 2460	580 ~ 830
		25	3	130 ~ 170	0.115 ~ 0.127	≤0.5D	1.0D	1660 ~ 2160	570 ~ 820
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	3	120 ~ 126	0.004 ~ 0.006	≤0.1D	1.0D	38200 ~ 40000	460 ~ 720
		1.5	3	120 ~ 140	0.008 ~ 0.010	≤0.1D	1.0D	25460 ~ 29710	610 ~ 890
		2	3	120 ~ 140	0.011 ~ 0.014	≤0.3D	1.0D	19100 ~ 22280	630 ~ 940
		2.5	3	120 ~ 140	0.015 ~ 0.017	≤0.3D	1.0D	15280 ~ 17830	690 ~ 910
		3	3	120 ~ 140	0.018 ~ 0.021	≤0.3D	1.0D	12730 ~ 14850	690 ~ 940
		4	3	120 ~ 140	0.025 ~ 0.028	≤0.5D	1.0D	9550 ~ 11140	720 ~ 940
		5	3	120 ~ 140	0.032 ~ 0.036	≤0.5D	1.0D	7640 ~ 8910	730 ~ 960
		6	3	120 ~ 140	0.039 ~ 0.043	≤0.5D	1.0D	6370 ~ 7430	750 ~ 960
		8	3	120 ~ 140	0.048 ~ 0.053	≤0.5D	1.0D	4770 ~ 5570	690 ~ 890
		10	3	120 ~ 140	0.058 ~ 0.064	≤0.5D	1.0D	3820 ~ 4460	660 ~ 860
		12	3	120 ~ 140	0.068 ~ 0.074	≤0.5D	1.0D	3180 ~ 3710	650 ~ 820
		14	3	120 ~ 140	0.077 ~ 0.085	≤0.5D	1.0D	2730 ~ 3180	630 ~ 810
		16	3	120 ~ 140	0.087 ~ 0.095	≤0.5D	1.0D	2390 ~ 2790	620 ~ 800
		18	3	120 ~ 140	0.096 ~ 0.106	≤0.5D	1.0D	2120 ~ 2480	610 ~ 790
		20	3	120 ~ 140	0.106 ~ 0.116	≤0.5D	1.0D	1910 ~ 2230	610 ~ 780
		22	3	120 ~ 140	0.115 ~ 0.127	≤0.5D	1.0D	1740 ~ 2030	600 ~ 770
		25	3	120 ~ 140	0.130 ~ 0.143	≤0.5D	1.0D	1530 ~ 1780	600 ~ 760

SE 30 Standard Series Endmills

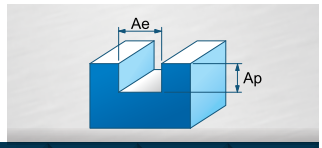
Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	4	126	0.006 ~ 0.010	≤1.5D	≤0.10D	40000	960 ~ 1600
		1.5	4	188	0.013 ~ 0.016	≤1.5D	≤0.10D	40000	2080 ~ 2560
		2	4	200 ~ 250	0.019 ~ 0.023	≤1.5D	≤0.10D	31830 ~ 39790	2420 ~ 3660
		2.5	4	200 ~ 250	0.025 ~ 0.029	≤1.5D	≤0.10D	25460 ~ 31830	2550 ~ 3690
		3	4	200 ~ 250	0.031 ~ 0.036	≤1.5D	≤0.10D	21220 ~ 26530	2630 ~ 3820
		4	4	200 ~ 250	0.043 ~ 0.049	≤1.5D	≤0.20D	15920 ~ 19890	2740 ~ 3900
		5	4	200 ~ 250	0.056 ~ 0.062	≤1.5D	≤0.20D	12730 ~ 15920	2850 ~ 3950
		6	4	200 ~ 250	0.068 ~ 0.075	≤1.5D	≤0.20D	10610 ~ 13260	2890 ~ 3980
		8	4	200 ~ 250	0.085 ~ 0.093	≤1.5D	≤0.20D	7960 ~ 9950	2710 ~ 3700
		10	4	200 ~ 250	0.101 ~ 0.112	≤1.5D	≤0.20D	6370 ~ 7960	2570 ~ 3570
		12	4	200 ~ 250	0.118 ~ 0.130	≤1.5D	≤0.20D	5310 ~ 6630	2510 ~ 3450
		14	4	200 ~ 250	0.135 ~ 0.148	≤1.5D	≤0.20D	4550 ~ 5680	2460 ~ 3360
		16	4	200 ~ 250	0.152 ~ 0.167	≤1.5D	≤0.20D	3980 ~ 4970	2420 ~ 3320
		18	4	200 ~ 250	0.168 ~ 0.185	≤1.5D	≤0.20D	3540 ~ 4420	2380 ~ 3270
		20	4	200 ~ 250	0.185 ~ 0.204	≤1.5D	≤0.20D	3180 ~ 3980	2350 ~ 3250
		22	4	200 ~ 250	0.202 ~ 0.222	≤1.5D	≤0.20D	2890 ~ 3620	2340 ~ 3210
		25	4	200 ~ 250	0.227 ~ 0.249	≤1.5D	≤0.20D	2550 ~ 3180	2320 ~ 3170
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	126	0.005 ~ 0.007	≤1.5D	≤0.10D	40000	800 ~ 1120
		1.5	4	130 ~ 170	0.009 ~ 0.011	≤1.5D	≤0.10D	27590 ~ 36080	990 ~ 1590
		2	4	130 ~ 170	0.013 ~ 0.015	≤1.5D	≤0.10D	20690 ~ 27060	1080 ~ 1620
		2.5	4	130 ~ 170	0.017 ~ 0.020	≤1.5D	≤0.10D	16550 ~ 21650	1130 ~ 1730
		3	4	130 ~ 170	0.020 ~ 0.024	≤1.5D	≤0.10D	13790 ~ 18040	1100 ~ 1730
		4	4	130 ~ 170	0.028 ~ 0.032	≤1.5D	≤0.20D	10350 ~ 13530	1160 ~ 1730
		5	4	130 ~ 170	0.036 ~ 0.040	≤1.5D	≤0.20D	8280 ~ 10820	1190 ~ 1730
		6	4	130 ~ 170	0.044 ~ 0.048	≤1.5D	≤0.20D	6900 ~ 9020	1210 ~ 1730
		8	4	130 ~ 170	0.053 ~ 0.058	≤1.5D	≤0.20D	5170 ~ 6760	1100 ~ 1570
		10	4	130 ~ 170	0.062 ~ 0.068	≤1.5D	≤0.20D	4140 ~ 5410	1030 ~ 1470
		12	4	130 ~ 170	0.071 ~ 0.078	≤1.5D	≤0.20D	3450 ~ 4510	980 ~ 1410
		14	4	130 ~ 170	0.080 ~ 0.088	≤1.5D	≤0.20D	2960 ~ 3870	950 ~ 1360
		16	4	130 ~ 170	0.089 ~ 0.098	≤1.5D	≤0.20D	2590 ~ 3380	920 ~ 1320
		18	4	130 ~ 170	0.098 ~ 0.108	≤1.5D	≤0.20D	2300 ~ 3010	900 ~ 1300
		20	4	130 ~ 170	0.107 ~ 0.118	≤1.5D	≤0.20D	2070 ~ 2710	890 ~ 1280
		22	4	130 ~ 170	0.116 ~ 0.128	≤1.5D	≤0.20D	1880 ~ 2460	870 ~ 1260
		25	4	130 ~ 170	0.130 ~ 0.143	≤1.5D	≤0.20D	1660 ~ 2160	860 ~ 1240
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	4	120 ~ 126	0.005 ~ 0.007	≤1.5D	≤0.10D	38200 ~ 40000	760 ~ 1120
		1.5	4	120 ~ 140	0.009 ~ 0.011	≤1.5D	≤0.10D	25460 ~ 29710	920 ~ 1310
		2	4	120 ~ 140	0.013 ~ 0.015	≤1.5D	≤0.10D	19100 ~ 22280	990 ~ 1340
		2.5	4	120 ~ 140	0.017 ~ 0.020	≤1.5D	≤0.10D	15280 ~ 17830	1040 ~ 1430
		3	4	120 ~ 140	0.020 ~ 0.024	≤1.5D	≤0.10D	12730 ~ 14850	1020 ~ 1430
		4	4	120 ~ 140	0.028 ~ 0.032	≤1.5D	≤0.20D	9550 ~ 11140	1070 ~ 1430
		5	4	120 ~ 140	0.036 ~ 0.040	≤1.5D	≤0.20D	7640 ~ 8910	1100 ~ 1430
		6	4	120 ~ 140	0.044 ~ 0.048	≤1.5D	≤0.20D	6370 ~ 7430	1120 ~ 1430
		8	4	120 ~ 140	0.054 ~ 0.060	≤1.5D	≤0.20D	4770 ~ 5570	1030 ~ 1340
		10	4	120 ~ 140	0.065 ~ 0.072	≤1.5D	≤0.20D	3820 ~ 4460	990 ~ 1280
		12	4	120 ~ 140	0.076 ~ 0.084	≤1.5D	≤0.20D	3180 ~ 3710	970 ~ 1250
		14	4	120 ~ 140	0.087 ~ 0.095	≤1.5D	≤0.20D	2730 ~ 3180	950 ~ 1210
		16	4	120 ~ 140	0.097 ~ 0.107	≤1.5D	≤0.20D	2390 ~ 2790	930 ~ 1190
		18	4	120 ~ 140	0.108 ~ 0.119	≤1.5D	≤0.20D	2120 ~ 2480	920 ~ 1180
		20	4	120 ~ 140	0.119 ~ 0.131	≤1.5D	≤0.20D	1910 ~ 2230	910 ~ 1170
		22	4	120 ~ 140	0.130 ~ 0.143	≤1.5D	≤0.20D	1740 ~ 2030	900 ~ 1160
		25	4	120 ~ 140	0.146 ~ 0.160	≤1.5D	≤0.20D	1530 ~ 1780	890 ~ 1140

SE 30 Standard Series Endmills

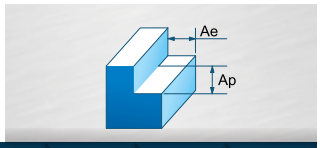
Ae = D
Ap ≤ 0.1D (D < Ø2)
Ap ≤ 0.3D (Ø2 ≤ D ≤ Ø3)
Ap ≤ 0.5D (D > Ø3)



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	4	126	0.005 ~ 0.008	≤0.1D	1.0D	40000	800 ~ 1280
		1.5	4	188	0.010 ~ 0.013	≤0.1D	1.0D	40000	1600 ~ 2080
		2	4	200 ~ 250	0.015 ~ 0.018	≤0.3D	1.0D	31830 ~ 39790	1910 ~ 2860
		2.5	4	200 ~ 250	0.020 ~ 0.023	≤0.3D	1.0D	25460 ~ 31830	2040 ~ 2930
		3	4	200 ~ 250	0.025 ~ 0.029	≤0.3D	1.0D	21220 ~ 26530	2120 ~ 3080
		4	4	200 ~ 250	0.035 ~ 0.039	≤0.5D	1.0D	15920 ~ 19890	2230 ~ 3100
		5	4	200 ~ 250	0.045 ~ 0.049	≤0.5D	1.0D	12730 ~ 15920	2290 ~ 3120
		6	4	200 ~ 250	0.054 ~ 0.060	≤0.5D	1.0D	10610 ~ 13260	2290 ~ 3180
		8	4	200 ~ 250	0.068 ~ 0.075	≤0.5D	1.0D	7960 ~ 9950	2170 ~ 2990
		10	4	200 ~ 250	0.081 ~ 0.089	≤0.5D	1.0D	6370 ~ 7960	2060 ~ 2830
		12	4	200 ~ 250	0.095 ~ 0.104	≤0.5D	1.0D	5310 ~ 6630	2020 ~ 2760
		14	4	200 ~ 250	0.108 ~ 0.119	≤0.5D	1.0D	4550 ~ 5680	1970 ~ 2700
		16	4	200 ~ 250	0.121 ~ 0.133	≤0.5D	1.0D	3980 ~ 4970	1930 ~ 2640
		18	4	200 ~ 250	0.135 ~ 0.148	≤0.5D	1.0D	3540 ~ 4420	1910 ~ 2620
		20	4	200 ~ 250	0.148 ~ 0.163	≤0.5D	1.0D	3180 ~ 3980	1880 ~ 2590
		22	4	200 ~ 250	0.161 ~ 0.178	≤0.5D	1.0D	2890 ~ 3620	1860 ~ 2580
		25	4	200 ~ 250	0.181 ~ 0.200	≤0.5D	1.0D	2550 ~ 3180	1850 ~ 2540
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	126	0.004 ~ 0.006	≤0.1D	1.0D	40000	640 ~ 960
		1.5	4	130 ~ 170	0.007 ~ 0.009	≤0.1D	1.0D	27590 ~ 36080	770 ~ 1300
		2	4	130 ~ 170	0.010 ~ 0.012	≤0.3D	1.0D	20690 ~ 27060	830 ~ 1300
		2.5	4	130 ~ 170	0.013 ~ 0.016	≤0.3D	1.0D	16550 ~ 21650	860 ~ 1390
		3	4	130 ~ 170	0.016 ~ 0.019	≤0.3D	1.0D	13790 ~ 18040	880 ~ 1370
		4	4	130 ~ 170	0.023 ~ 0.025	≤0.5D	1.0D	10350 ~ 13530	950 ~ 1350
		5	4	130 ~ 170	0.029 ~ 0.032	≤0.5D	1.0D	8280 ~ 10820	960 ~ 1380
		6	4	130 ~ 170	0.035 ~ 0.038	≤0.5D	1.0D	6900 ~ 9020	970 ~ 1370
		8	4	130 ~ 170	0.042 ~ 0.046	≤0.5D	1.0D	5170 ~ 6760	870 ~ 1240
		10	4	130 ~ 170	0.049 ~ 0.054	≤0.5D	1.0D	4140 ~ 5410	810 ~ 1170
		12	4	130 ~ 170	0.057 ~ 0.062	≤0.5D	1.0D	3450 ~ 4510	790 ~ 1120
		14	4	130 ~ 170	0.064 ~ 0.070	≤0.5D	1.0D	2960 ~ 3870	760 ~ 1080
		16	4	130 ~ 170	0.071 ~ 0.078	≤0.5D	1.0D	2590 ~ 3380	740 ~ 1050
		18	4	130 ~ 170	0.078 ~ 0.086	≤0.5D	1.0D	2300 ~ 3010	720 ~ 1040
		20	4	130 ~ 170	0.086 ~ 0.094	≤0.5D	1.0D	2070 ~ 2710	710 ~ 1020
		22	4	130 ~ 170	0.093 ~ 0.102	≤0.5D	1.0D	1880 ~ 2460	700 ~ 1000
		25	4	130 ~ 170	0.104 ~ 0.114	≤0.5D	1.0D	1660 ~ 2160	690 ~ 980
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	4	120 ~ 126	0.004 ~ 0.006	≤0.1D	1.0D	38200 ~ 40000	610 ~ 960
		1.5	4	120 ~ 140	0.007 ~ 0.009	≤0.1D	1.0D	25460 ~ 29710	710 ~ 1070
		2	4	120 ~ 140	0.010 ~ 0.012	≤0.3D	1.0D	19100 ~ 22280	760 ~ 1070
		2.5	4	120 ~ 140	0.013 ~ 0.016	≤0.3D	1.0D	15280 ~ 17830	790 ~ 1140
		3	4	120 ~ 140	0.016 ~ 0.019	≤0.3D	1.0D	12730 ~ 14850	810 ~ 1130
		4	4	120 ~ 140	0.023 ~ 0.025	≤0.5D	1.0D	9550 ~ 11140	880 ~ 1110
		5	4	120 ~ 140	0.029 ~ 0.032	≤0.5D	1.0D	7640 ~ 8910	890 ~ 1140
		6	4	120 ~ 140	0.035 ~ 0.038	≤0.5D	1.0D	6370 ~ 7430	890 ~ 1130
		8	4	120 ~ 140	0.044 ~ 0.048	≤0.5D	1.0D	4770 ~ 5570	840 ~ 1070
		10	4	120 ~ 140	0.052 ~ 0.057	≤0.5D	1.0D	3820 ~ 4460	790 ~ 1020
		12	4	120 ~ 140	0.061 ~ 0.067	≤0.5D	1.0D	3180 ~ 3710	780 ~ 990
		14	4	120 ~ 140	0.069 ~ 0.076	≤0.5D	1.0D	2730 ~ 3180	750 ~ 970
		16	4	120 ~ 140	0.078 ~ 0.086	≤0.5D	1.0D	2390 ~ 2790	750 ~ 960
		18	4	120 ~ 140	0.087 ~ 0.095	≤0.5D	1.0D	2120 ~ 2480	740 ~ 940
		20	4	120 ~ 140	0.095 ~ 0.105	≤0.5D	1.0D	1910 ~ 2230	730 ~ 940
		22	4	120 ~ 140	0.104 ~ 0.114	≤0.5D	1.0D	1740 ~ 2030	720 ~ 930
		25	4	120 ~ 140	0.117 ~ 0.128	≤0.5D	1.0D	1530 ~ 1780	720 ~ 910

SE 30 Long Series Endmills

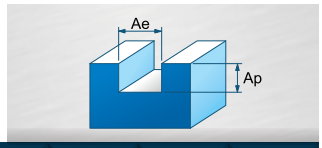
Ae ≤ 0.1D (D ≤ ø3)
Ae ≤ 0.2D (D > ø3)
Ap ≤ 1.5D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	4	126	0.006 ~ 0.010	≤1.5D	≤0.10D	40000	960 ~ 1600
		1.5	4	160 ~ 188	0.013 ~ 0.016	≤1.5D	≤0.10D	33950 ~ 40000	1770 ~ 2560
		2	4	160 ~ 200	0.019 ~ 0.023	≤1.5D	≤0.10D	25460 ~ 31830	1930 ~ 2930
		2.5	4	160 ~ 200	0.025 ~ 0.029	≤1.5D	≤0.10D	20370 ~ 25460	2040 ~ 2950
		3	4	160 ~ 200	0.031 ~ 0.036	≤1.5D	≤0.10D	16980 ~ 21220	2110 ~ 3060
		4	4	160 ~ 200	0.043 ~ 0.049	≤1.5D	≤0.20D	12730 ~ 15920	2190 ~ 3120
		5	4	160 ~ 200	0.056 ~ 0.062	≤1.5D	≤0.20D	10190 ~ 12730	2280 ~ 3160
		6	4	160 ~ 200	0.068 ~ 0.075	≤1.5D	≤0.20D	8490 ~ 10610	2310 ~ 3180
		8	4	160 ~ 200	0.085 ~ 0.093	≤1.5D	≤0.20D	6370 ~ 7960	2170 ~ 2960
		10	4	160 ~ 200	0.101 ~ 0.112	≤1.5D	≤0.20D	5090 ~ 6370	2060 ~ 2850
		12	4	160 ~ 200	0.118 ~ 0.130	≤1.5D	≤0.20D	4240 ~ 5310	2000 ~ 2760
		14	4	160 ~ 200	0.135 ~ 0.148	≤1.5D	≤0.20D	3640 ~ 4550	1970 ~ 2690
		16	4	160 ~ 200	0.152 ~ 0.167	≤1.5D	≤0.20D	3180 ~ 3980	1930 ~ 2660
		18	4	160 ~ 200	0.168 ~ 0.185	≤1.5D	≤0.20D	2830 ~ 3540	1900 ~ 2620
		20	4	160 ~ 200	0.185 ~ 0.204	≤1.5D	≤0.20D	2550 ~ 3180	1890 ~ 2590
		22	4	160 ~ 200	0.202 ~ 0.222	≤1.5D	≤0.20D	2310 ~ 2890	1870 ~ 2570
		25	4	160 ~ 200	0.227 ~ 0.249	≤1.5D	≤0.20D	2040 ~ 2550	1850 ~ 2540
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	104 ~ 126	0.005 ~ 0.007	≤1.5D	≤0.10D	33100 ~ 40000	660 ~ 1120
		1.5	4	104 ~ 136	0.009 ~ 0.011	≤1.5D	≤0.10D	22070 ~ 28860	790 ~ 1270
		2	4	104 ~ 136	0.013 ~ 0.015	≤1.5D	≤0.10D	16550 ~ 21650	860 ~ 1300
		2.5	4	104 ~ 136	0.017 ~ 0.020	≤1.5D	≤0.10D	13240 ~ 17320	900 ~ 1390
		3	4	104 ~ 136	0.020 ~ 0.024	≤1.5D	≤0.10D	11030 ~ 14430	880 ~ 1390
		4	4	104 ~ 136	0.028 ~ 0.032	≤1.5D	≤0.20D	8280 ~ 10820	930 ~ 1380
		5	4	104 ~ 136	0.036 ~ 0.040	≤1.5D	≤0.20D	6620 ~ 8660	950 ~ 1390
		6	4	104 ~ 136	0.044 ~ 0.048	≤1.5D	≤0.20D	5520 ~ 7220	970 ~ 1390
		8	4	104 ~ 136	0.053 ~ 0.058	≤1.5D	≤0.20D	4140 ~ 5410	880 ~ 1260
		10	4	104 ~ 136	0.062 ~ 0.068	≤1.5D	≤0.20D	3310 ~ 4330	820 ~ 1180
		12	4	104 ~ 136	0.071 ~ 0.078	≤1.5D	≤0.20D	2760 ~ 3610	780 ~ 1130
		14	4	104 ~ 136	0.080 ~ 0.088	≤1.5D	≤0.20D	2360 ~ 3090	760 ~ 1090
		16	4	104 ~ 136	0.089 ~ 0.098	≤1.5D	≤0.20D	2070 ~ 2710	740 ~ 1060
		18	4	104 ~ 136	0.098 ~ 0.108	≤1.5D	≤0.20D	1840 ~ 2410	720 ~ 1040
		20	4	104 ~ 136	0.107 ~ 0.118	≤1.5D	≤0.20D	1660 ~ 2160	710 ~ 1020
		22	4	104 ~ 136	0.116 ~ 0.128	≤1.5D	≤0.20D	1500 ~ 1970	700 ~ 1010
		25	4	104 ~ 136	0.130 ~ 0.143	≤1.5D	≤0.20D	1320 ~ 1730	690 ~ 990
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	4	96 ~ 112	0.005 ~ 0.007	≤1.5D	≤0.10D	30560 ~ 35650	610 ~ 1000
		1.5	4	96 ~ 112	0.009 ~ 0.011	≤1.5D	≤0.10D	20370 ~ 23770	730 ~ 1050
		2	4	96 ~ 112	0.013 ~ 0.015	≤1.5D	≤0.10D	15280 ~ 17830	790 ~ 1070
		2.5	4	96 ~ 112	0.017 ~ 0.020	≤1.5D	≤0.10D	12220 ~ 14260	830 ~ 1140
		3	4	96 ~ 112	0.020 ~ 0.024	≤1.5D	≤0.10D	10190 ~ 11880	820 ~ 1140
		4	4	96 ~ 112	0.028 ~ 0.032	≤1.5D	≤0.20D	7640 ~ 8910	860 ~ 1140
		5	4	96 ~ 112	0.036 ~ 0.040	≤1.5D	≤0.20D	6110 ~ 7130	880 ~ 1140
		6	4	96 ~ 112	0.044 ~ 0.048	≤1.5D	≤0.20D	5090 ~ 5940	900 ~ 1140
		8	4	96 ~ 112	0.054 ~ 0.060	≤1.5D	≤0.20D	3820 ~ 4460	830 ~ 1070
		10	4	96 ~ 112	0.065 ~ 0.072	≤1.5D	≤0.20D	3060 ~ 3570	800 ~ 1030
		12	4	96 ~ 112	0.076 ~ 0.084	≤1.5D	≤0.20D	2550 ~ 2970	780 ~ 1000
		14	4	96 ~ 112	0.087 ~ 0.095	≤1.5D	≤0.20D	2180 ~ 2550	760 ~ 970
		16	4	96 ~ 112	0.097 ~ 0.107	≤1.5D	≤0.20D	1910 ~ 2230	740 ~ 950
		18	4	96 ~ 112	0.108 ~ 0.119	≤1.5D	≤0.20D	1700 ~ 1980	730 ~ 940
		20	4	96 ~ 112	0.119 ~ 0.131	≤1.5D	≤0.20D	1530 ~ 1780	730 ~ 930
		22	4	96 ~ 112	0.130 ~ 0.143	≤1.5D	≤0.20D	1390 ~ 1620	720 ~ 930
		25	4	96 ~ 112	0.146 ~ 0.160	≤1.5D	≤0.20D	1220 ~ 1430	710 ~ 920

SE 30 Long Series Endmills

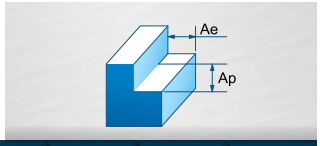
Ae = D
Ap ≤ 0.1D (D < Ø2)
Ap ≤ 0.3D (Ø2 ≤ D ≤ Ø3)
Ap ≤ 0.5D (D > Ø3)



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	4	126	0.005 ~ 0.008	≤0.1D	1.0D	40000	800 ~ 1280
		1.5	4	160 ~ 188	0.010 ~ 0.013	≤0.1D	1.0D	33950 ~ 40000	1360 ~ 2080
		2	4	160 ~ 200	0.015 ~ 0.018	≤0.3D	1.0D	25460 ~ 31830	1530 ~ 2290
		2.5	4	160 ~ 200	0.020 ~ 0.023	≤0.3D	1.0D	20370 ~ 25460	1630 ~ 2340
		3	4	160 ~ 200	0.025 ~ 0.029	≤0.3D	1.0D	16980 ~ 21220	1700 ~ 2460
		4	4	160 ~ 200	0.035 ~ 0.039	≤0.5D	1.0D	12730 ~ 15920	1780 ~ 2480
		5	4	160 ~ 200	0.045 ~ 0.049	≤0.5D	1.0D	10190 ~ 12730	1830 ~ 2500
		6	4	160 ~ 200	0.054 ~ 0.060	≤0.5D	1.0D	8490 ~ 10610	1830 ~ 2550
		8	4	160 ~ 200	0.068 ~ 0.075	≤0.5D	1.0D	6370 ~ 7960	1730 ~ 2390
		10	4	160 ~ 200	0.081 ~ 0.089	≤0.5D	1.0D	5090 ~ 6370	1650 ~ 2270
		12	4	160 ~ 200	0.095 ~ 0.104	≤0.5D	1.0D	4240 ~ 5310	1610 ~ 2210
		14	4	160 ~ 200	0.108 ~ 0.119	≤0.5D	1.0D	3640 ~ 4550	1570 ~ 2170
		16	4	160 ~ 200	0.121 ~ 0.133	≤0.5D	1.0D	3180 ~ 3980	1540 ~ 2120
		18	4	160 ~ 200	0.135 ~ 0.148	≤0.5D	1.0D	2830 ~ 3540	1530 ~ 2100
		20	4	160 ~ 200	0.148 ~ 0.163	≤0.5D	1.0D	2550 ~ 3180	1510 ~ 2070
		22	4	160 ~ 200	0.161 ~ 0.178	≤0.5D	1.0D	2310 ~ 2890	1490 ~ 2060
		25	4	160 ~ 200	0.181 ~ 0.200	≤0.5D	1.0D	2040 ~ 2550	1480 ~ 2040
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	104 ~ 126	0.004 ~ 0.006	≤0.1D	1.0D	33100 ~ 40000	530 ~ 960
		1.5	4	104 ~ 136	0.007 ~ 0.009	≤0.1D	1.0D	22070 ~ 28860	620 ~ 1040
		2	4	104 ~ 136	0.010 ~ 0.012	≤0.3D	1.0D	16550 ~ 21650	660 ~ 1040
		2.5	4	104 ~ 136	0.013 ~ 0.016	≤0.3D	1.0D	13240 ~ 17320	690 ~ 1110
		3	4	104 ~ 136	0.016 ~ 0.019	≤0.3D	1.0D	11030 ~ 14430	710 ~ 1100
		4	4	104 ~ 136	0.023 ~ 0.025	≤0.5D	1.0D	8280 ~ 10820	760 ~ 1080
		5	4	104 ~ 136	0.029 ~ 0.032	≤0.5D	1.0D	6620 ~ 8660	770 ~ 1110
		6	4	104 ~ 136	0.035 ~ 0.038	≤0.5D	1.0D	5520 ~ 7220	770 ~ 1100
		8	4	104 ~ 136	0.042 ~ 0.046	≤0.5D	1.0D	4140 ~ 5410	700 ~ 1000
		10	4	104 ~ 136	0.049 ~ 0.054	≤0.5D	1.0D	3310 ~ 4330	650 ~ 940
		12	4	104 ~ 136	0.057 ~ 0.062	≤0.5D	1.0D	2760 ~ 3610	630 ~ 900
		14	4	104 ~ 136	0.064 ~ 0.070	≤0.5D	1.0D	2360 ~ 3090	600 ~ 870
		16	4	104 ~ 136	0.071 ~ 0.078	≤0.5D	1.0D	2070 ~ 2710	590 ~ 850
		18	4	104 ~ 136	0.078 ~ 0.086	≤0.5D	1.0D	1840 ~ 2410	570 ~ 830
		20	4	104 ~ 136	0.086 ~ 0.094	≤0.5D	1.0D	1660 ~ 2160	570 ~ 810
		22	4	104 ~ 136	0.093 ~ 0.102	≤0.5D	1.0D	1500 ~ 1970	560 ~ 800
		25	4	104 ~ 136	0.104 ~ 0.114	≤0.5D	1.0D	1320 ~ 1730	550 ~ 790
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	4	96 ~ 112	0.004 ~ 0.006	≤0.1D	1.0D	30560 ~ 35650	490 ~ 860
		1.5	4	96 ~ 112	0.007 ~ 0.009	≤0.1D	1.0D	20370 ~ 23770	570 ~ 860
		2	4	96 ~ 112	0.010 ~ 0.012	≤0.3D	1.0D	15280 ~ 17830	610 ~ 860
		2.5	4	96 ~ 112	0.013 ~ 0.016	≤0.3D	1.0D	12220 ~ 14260	640 ~ 910
		3	4	96 ~ 112	0.016 ~ 0.019	≤0.3D	1.0D	10190 ~ 11880	650 ~ 900
		4	4	96 ~ 112	0.023 ~ 0.025	≤0.5D	1.0D	7640 ~ 8910	700 ~ 890
		5	4	96 ~ 112	0.029 ~ 0.032	≤0.5D	1.0D	6110 ~ 7130	710 ~ 910
		6	4	96 ~ 112	0.035 ~ 0.038	≤0.5D	1.0D	5090 ~ 5940	710 ~ 900
		8	4	96 ~ 112	0.044 ~ 0.048	≤0.5D	1.0D	3820 ~ 4460	670 ~ 860
		10	4	96 ~ 112	0.052 ~ 0.057	≤0.5D	1.0D	3060 ~ 3570	640 ~ 810
		12	4	96 ~ 112	0.061 ~ 0.067	≤0.5D	1.0D	2550 ~ 2970	620 ~ 800
		14	4	96 ~ 112	0.069 ~ 0.076	≤0.5D	1.0D	2180 ~ 2550	600 ~ 780
		16	4	96 ~ 112	0.078 ~ 0.086	≤0.5D	1.0D	1910 ~ 2230	600 ~ 770
		18	4	96 ~ 112	0.087 ~ 0.095	≤0.5D	1.0D	1700 ~ 1980	590 ~ 750
		20	4	96 ~ 112	0.095 ~ 0.105	≤0.5D	1.0D	1530 ~ 1780	580 ~ 750
		22	4	96 ~ 112	0.104 ~ 0.114	≤0.5D	1.0D	1390 ~ 1620	580 ~ 740
		25	4	96 ~ 112	0.117 ~ 0.128	≤0.5D	1.0D	1220 ~ 1430	570 ~ 730

SE 30 Extra-Long Series Endmills

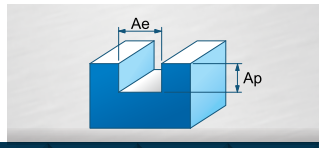
Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	4	100 ~ 125	0.006 ~ 0.010	≤1.5D	≤0.10D	31830 ~ 39790	760 ~ 1590
		1.5	4	100 ~ 125	0.013 ~ 0.016	≤1.5D	≤0.10D	21220 ~ 26530	1100 ~ 1700
		2	4	100 ~ 125	0.019 ~ 0.023	≤1.5D	≤0.10D	15920 ~ 19890	1210 ~ 1830
		2.5	4	100 ~ 125	0.025 ~ 0.029	≤1.5D	≤0.10D	12730 ~ 15920	1270 ~ 1850
		3	4	100 ~ 125	0.031 ~ 0.036	≤1.5D	≤0.10D	10610 ~ 13260	1320 ~ 1910
		4	4	100 ~ 125	0.043 ~ 0.049	≤1.5D	≤0.20D	7960 ~ 9950	1370 ~ 1950
		5	4	100 ~ 125	0.056 ~ 0.062	≤1.5D	≤0.20D	6370 ~ 7960	1430 ~ 1970
		6	4	100 ~ 125	0.068 ~ 0.075	≤1.5D	≤0.20D	5310 ~ 6630	1440 ~ 1990
		8	4	100 ~ 125	0.085 ~ 0.093	≤1.5D	≤0.20D	3980 ~ 4970	1350 ~ 1850
		10	4	100 ~ 125	0.101 ~ 0.112	≤1.5D	≤0.20D	3180 ~ 3980	1280 ~ 1780
		12	4	100 ~ 125	0.118 ~ 0.130	≤1.5D	≤0.20D	2650 ~ 3320	1250 ~ 1730
		14	4	100 ~ 125	0.135 ~ 0.148	≤1.5D	≤0.20D	2270 ~ 2840	1230 ~ 1680
		16	4	100 ~ 125	0.152 ~ 0.167	≤1.5D	≤0.20D	1990 ~ 2490	1210 ~ 1660
		18	4	100 ~ 125	0.168 ~ 0.185	≤1.5D	≤0.20D	1770 ~ 2210	1190 ~ 1640
		20	4	100 ~ 125	0.185 ~ 0.204	≤1.5D	≤0.20D	1590 ~ 1990	1180 ~ 1620
		22	4	100 ~ 125	0.202 ~ 0.222	≤1.5D	≤0.20D	1450 ~ 1810	1170 ~ 1610
		25	4	100 ~ 125	0.227 ~ 0.249	≤1.5D	≤0.20D	1270 ~ 1590	1150 ~ 1580
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	65 ~ 85	0.005 ~ 0.007	≤1.5D	≤0.10D	20690 ~ 27060	410 ~ 760
		1.5	4	65 ~ 85	0.009 ~ 0.011	≤1.5D	≤0.10D	13790 ~ 18040	500 ~ 790
		2	4	65 ~ 85	0.013 ~ 0.015	≤1.5D	≤0.10D	10350 ~ 13530	540 ~ 810
		2.5	4	65 ~ 85	0.017 ~ 0.020	≤1.5D	≤0.10D	8280 ~ 10820	560 ~ 870
		3	4	65 ~ 85	0.020 ~ 0.024	≤1.5D	≤0.10D	6900 ~ 9020	550 ~ 870
		4	4	65 ~ 85	0.028 ~ 0.032	≤1.5D	≤0.20D	5170 ~ 6760	580 ~ 870
		5	4	65 ~ 85	0.036 ~ 0.040	≤1.5D	≤0.20D	4140 ~ 5410	600 ~ 870
		6	4	65 ~ 85	0.044 ~ 0.048	≤1.5D	≤0.20D	3450 ~ 4510	610 ~ 870
		8	4	65 ~ 85	0.053 ~ 0.058	≤1.5D	≤0.20D	2590 ~ 3380	550 ~ 780
		10	4	65 ~ 85	0.062 ~ 0.068	≤1.5D	≤0.20D	2070 ~ 2710	510 ~ 740
		12	4	65 ~ 85	0.071 ~ 0.078	≤1.5D	≤0.20D	1720 ~ 2250	490 ~ 700
		14	4	65 ~ 85	0.080 ~ 0.088	≤1.5D	≤0.20D	1480 ~ 1930	470 ~ 680
		16	4	65 ~ 85	0.089 ~ 0.098	≤1.5D	≤0.20D	1290 ~ 1690	460 ~ 660
		18	4	65 ~ 85	0.098 ~ 0.108	≤1.5D	≤0.20D	1150 ~ 1500	450 ~ 650
		20	4	65 ~ 85	0.107 ~ 0.118	≤1.5D	≤0.20D	1030 ~ 1350	440 ~ 640
		22	4	65 ~ 85	0.116 ~ 0.128	≤1.5D	≤0.20D	940 ~ 1230	440 ~ 630
		25	4	65 ~ 85	0.130 ~ 0.143	≤1.5D	≤0.20D	830 ~ 1080	430 ~ 620
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	4	60 ~ 70	0.005 ~ 0.007	≤1.5D	≤0.10D	19100 ~ 22280	380 ~ 620
		1.5	4	60 ~ 70	0.009 ~ 0.011	≤1.5D	≤0.10D	12730 ~ 14850	460 ~ 650
		2	4	60 ~ 70	0.013 ~ 0.015	≤1.5D	≤0.10D	9550 ~ 11140	500 ~ 670
		2.5	4	60 ~ 70	0.017 ~ 0.020	≤1.5D	≤0.10D	7640 ~ 8910	520 ~ 710
		3	4	60 ~ 70	0.020 ~ 0.024	≤1.5D	≤0.10D	6370 ~ 7430	510 ~ 710
		4	4	60 ~ 70	0.028 ~ 0.032	≤1.5D	≤0.20D	4770 ~ 5570	530 ~ 710
		5	4	60 ~ 70	0.036 ~ 0.040	≤1.5D	≤0.20D	3820 ~ 4460	550 ~ 710
		6	4	60 ~ 70	0.044 ~ 0.048	≤1.5D	≤0.20D	3180 ~ 3710	560 ~ 710
		8	4	60 ~ 70	0.054 ~ 0.060	≤1.5D	≤0.20D	2390 ~ 2790	520 ~ 670
		10	4	60 ~ 70	0.065 ~ 0.072	≤1.5D	≤0.20D	1910 ~ 2230	500 ~ 640
		12	4	60 ~ 70	0.076 ~ 0.084	≤1.5D	≤0.20D	1590 ~ 1860	480 ~ 620
		14	4	60 ~ 70	0.087 ~ 0.095	≤1.5D	≤0.20D	1360 ~ 1590	470 ~ 600
		16	4	60 ~ 70	0.097 ~ 0.107	≤1.5D	≤0.20D	1190 ~ 1390	460 ~ 590
		18	4	60 ~ 70	0.108 ~ 0.119	≤1.5D	≤0.20D	1060 ~ 1240	460 ~ 590
		20	4	60 ~ 70	0.119 ~ 0.131	≤1.5D	≤0.20D	950 ~ 1110	450 ~ 580
		22	4	60 ~ 70	0.130 ~ 0.143	≤1.5D	≤0.20D	870 ~ 1010	450 ~ 580
		25	4	60 ~ 70	0.146 ~ 0.160	≤1.5D	≤0.20D	760 ~ 890	440 ~ 570

SE 30 Extra-Long Series Endmills

Ae = D
Ap ≤ 0.1D (D < Ø2)
Ap ≤ 0.3D (Ø2 ≤ D ≤ Ø3)
Ap ≤ 0.5D (D > Ø3)



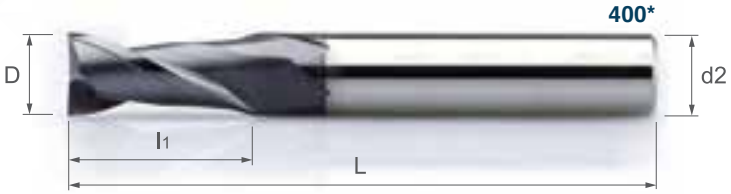
4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALUMIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M02, M03, M04, M05, M06, M07, M08, M09	1	4	100 ~ 125	0.005 ~ 0.008	≤0.1D	1.0D	31830 ~ 39790	640 ~ 1270
		1.5	4	100 ~ 125	0.010 ~ 0.013	≤0.1D	1.0D	21220 ~ 26530	850 ~ 1380
		2	4	100 ~ 125	0.015 ~ 0.018	≤0.3D	1.0D	15920 ~ 19890	960 ~ 1430
		2.5	4	100 ~ 125	0.020 ~ 0.023	≤0.3D	1.0D	12730 ~ 15920	1020 ~ 1460
		3	4	100 ~ 125	0.025 ~ 0.029	≤0.3D	1.0D	10610 ~ 13260	1060 ~ 1540
		4	4	100 ~ 125	0.035 ~ 0.039	≤0.5D	1.0D	7960 ~ 9950	1110 ~ 1550
		5	4	100 ~ 125	0.045 ~ 0.049	≤0.5D	1.0D	6370 ~ 7960	1150 ~ 1560
		6	4	100 ~ 125	0.054 ~ 0.060	≤0.5D	1.0D	5310 ~ 6630	1150 ~ 1590
		8	4	100 ~ 125	0.068 ~ 0.075	≤0.5D	1.0D	3980 ~ 4970	1080 ~ 1490
		10	4	100 ~ 125	0.081 ~ 0.089	≤0.5D	1.0D	3180 ~ 3980	1030 ~ 1420
		12	4	100 ~ 125	0.095 ~ 0.104	≤0.5D	1.0D	2650 ~ 3320	1010 ~ 1380
		14	4	100 ~ 125	0.108 ~ 0.119	≤0.5D	1.0D	2270 ~ 2840	980 ~ 1350
		16	4	100 ~ 125	0.121 ~ 0.133	≤0.5D	1.0D	1990 ~ 2490	960 ~ 1320
		18	4	100 ~ 125	0.135 ~ 0.148	≤0.5D	1.0D	1770 ~ 2210	960 ~ 1310
		20	4	100 ~ 125	0.148 ~ 0.163	≤0.5D	1.0D	1590 ~ 1990	940 ~ 1300
		22	4	100 ~ 125	0.161 ~ 0.178	≤0.5D	1.0D	1450 ~ 1810	930 ~ 1290
		25	4	100 ~ 125	0.181 ~ 0.200	≤0.5D	1.0D	1270 ~ 1590	920 ~ 1270
CARBON STEEL (- 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	65 ~ 85	0.005 ~ 0.006	≤0.1D	1.0D	20690 ~ 27060	410 ~ 650
		1.5	4	65 ~ 85	0.008 ~ 0.011	≤0.1D	1.0D	13790 ~ 18040	440 ~ 790
		2	4	65 ~ 85	0.012 ~ 0.015	≤0.3D	1.0D	10350 ~ 13530	500 ~ 810
		2.5	4	65 ~ 85	0.016 ~ 0.019	≤0.3D	1.0D	8280 ~ 10820	530 ~ 820
		3	4	65 ~ 85	0.020 ~ 0.023	≤0.3D	1.0D	6900 ~ 9020	550 ~ 830
		4	4	65 ~ 85	0.027 ~ 0.031	≤0.5D	1.0D	5170 ~ 6760	560 ~ 840
		5	4	65 ~ 85	0.035 ~ 0.039	≤0.5D	1.0D	4140 ~ 5410	580 ~ 840
		6	4	65 ~ 85	0.043 ~ 0.047	≤0.5D	1.0D	3450 ~ 4510	590 ~ 850
		8	4	65 ~ 85	0.051 ~ 0.056	≤0.5D	1.0D	2590 ~ 3380	530 ~ 760
		10	4	65 ~ 85	0.058 ~ 0.064	≤0.5D	1.0D	2070 ~ 2710	480 ~ 690
		12	4	65 ~ 85	0.066 ~ 0.073	≤0.5D	1.0D	1720 ~ 2250	450 ~ 660
		14	4	65 ~ 85	0.074 ~ 0.081	≤0.5D	1.0D	1480 ~ 1930	440 ~ 630
		16	4	65 ~ 85	0.082 ~ 0.090	≤0.5D	1.0D	1290 ~ 1690	420 ~ 610
		18	4	65 ~ 85	0.089 ~ 0.098	≤0.5D	1.0D	1150 ~ 1500	410 ~ 590
		20	4	65 ~ 85	0.097 ~ 0.107	≤0.5D	1.0D	1030 ~ 1350	400 ~ 580
		22	4	65 ~ 85	0.105 ~ 0.115	≤0.5D	1.0D	940 ~ 1230	390 ~ 570
		25	4	65 ~ 85	0.117 ~ 0.128	≤0.5D	1.0D	830 ~ 1080	390 ~ 550
ALLOY STEEL TOOL STEEL PREHARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M25	1	4	60 ~ 70	0.004 ~ 0.006	≤0.1D	1.0D	19100 ~ 22280	310 ~ 530
		1.5	4	60 ~ 70	0.007 ~ 0.009	≤0.1D	1.0D	12730 ~ 14850	360 ~ 530
		2	4	60 ~ 70	0.010 ~ 0.012	≤0.3D	1.0D	9550 ~ 11140	380 ~ 530
		2.5	4	60 ~ 70	0.013 ~ 0.016	≤0.3D	1.0D	7640 ~ 8910	400 ~ 570
		3	4	60 ~ 70	0.016 ~ 0.019	≤0.3D	1.0D	6370 ~ 7430	410 ~ 560
		4	4	60 ~ 70	0.023 ~ 0.025	≤0.5D	1.0D	4770 ~ 5570	440 ~ 560
		5	4	60 ~ 70	0.029 ~ 0.032	≤0.5D	1.0D	3820 ~ 4460	440 ~ 570
		6	4	60 ~ 70	0.035 ~ 0.038	≤0.5D	1.0D	3180 ~ 3710	450 ~ 560
		8	4	60 ~ 70	0.044 ~ 0.048	≤0.5D	1.0D	2390 ~ 2790	420 ~ 540
		10	4	60 ~ 70	0.052 ~ 0.057	≤0.5D	1.0D	1910 ~ 2230	400 ~ 510
		12	4	60 ~ 70	0.061 ~ 0.067	≤0.5D	1.0D	1590 ~ 1860	390 ~ 500
		14	4	60 ~ 70	0.069 ~ 0.076	≤0.5D	1.0D	1360 ~ 1590	380 ~ 480
		16	4	60 ~ 70	0.078 ~ 0.086	≤0.5D	1.0D	1190 ~ 1390	370 ~ 480
		18	4	60 ~ 70	0.087 ~ 0.095	≤0.5D	1.0D	1060 ~ 1240	370 ~ 470
		20	4	60 ~ 70	0.095 ~ 0.105	≤0.5D	1.0D	950 ~ 1110	360 ~ 470
		22	4	60 ~ 70	0.104 ~ 0.114	≤0.5D	1.0D	870 ~ 1010	360 ~ 460
		25	4	60 ~ 70	0.117 ~ 0.128	≤0.5D	1.0D	760 ~ 890	360 ~ 460

SE45

SE 45 STANDARD ENDMILLS

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45 Standard Endmills, 2 Flutes
Fraises 2 tailles SE 45 Standard en carbure monobloc, 2 dents
整体硬质合金 SE 45 系列 立铣刀 2 刃 – 标准长度
VHM SE 45 Standard Fräser, 2 Zähne
Frese standard SE 45 in metallo duro integrale, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					692*	848*	400*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	G6110	B0819
0100 040 03	1	3		40	3	●	●	●
0100 040 04	1	3		40	4	●	●	●
0150 040 03	1.5	4.5		40	3	●	●	●
0150 040 04	1.5	4.5		40	4	●	●	●
0200 040 03	2	6.5		40	3	●	●	●
0200 040 04	2	6.5		40	4	●	●	●
0250 040 03	2.5	6.5		40	3	●	●	●
0250 040 04	2.5	6.5		40	4	●	●	●
0300	3	9		40	3	●	●	●
0300 050 06	3	9		50	6	●	●	●
0400	4	12		50	4	●	●	●
0400 050 06	4	12		50	6	●	●	●
0500	5	15		50	5	●	●	●
0500 050 06	5	15		50	6	●	●	●
0600 050	6	16		50	6	●	●	●
0600 060	6	20		60	6	●	●	●
0800	8	20		64	8	●	●	●
1000 070	10	22		70	10	●	●	●
1000 075	10	22		75	10	●	●	●
1200	12	25		75	12	●	●	●
1400	14	32		90	14	●	●	●
1600	16	32		90	16	●	●	●
1800	18	38		100	18	●	●	●
2000	20	38		100	20	●	●	●
2200	22	40		100	22	●	●	●
2500	25	40		100	25	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

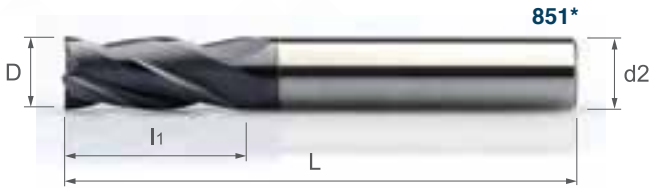
Working Material	Cutting Parameter
564	242

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45 STANDARD ENDMILLS

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45 Standard Endmills, 4 Flutes
Fraises 2 tailles SE 45 Standard en carbure monobloc, 4 dents
整体硬质合金 SE 45 系列 立铣刀 4 刃 – 标准长度
VHM SE 45 Standard Fräser, 4 Zähne
Frese standard SE 45 in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					694*	850*	851*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	G6110	B0819
0100 040 03	1	3		40	3	●	●	●
0100 040 04	1	3		40	4	●	●	●
0150 040 03	1.5	4.5		40	3	●	●	●
0150 040 04	1.5	4.5		40	4	●	●	●
0200 040 03	2	6.5		40	3	●	●	●
0200 040 04	2	6.5		40	4	●	●	●
0250 040 03	2.5	6.5		40	3	●	●	●
0250 040 04	2.5	6.5		40	4	●	●	●
0300	3	9		40	3	●	●	●
0300 050 06	3	9		50	6	●	●	●
0400	4	12		50	4	●	●	●
0400 050 06	4	12		50	6	●	●	●
0500	5	15		50	5	●	●	●
0500 050 06	5	15		50	6	●	●	●
0600 050	6	16		50	6	●	●	●
0600 060	6	20		60	6	●	●	●
0800	8	20		64	8	●	●	●
1000 070	10	22		70	10	●	●	●
1000 075	10	22		75	10	●	●	●
1200	12	25		75	12	●	●	●
1400	14	32		90	14	●	●	●
1600	16	32		90	16	●	●	●
1800	18	38		100	18	●	●	●
2000	20	38		100	20	●	●	●
2200	22	40		100	22	●	●	●
2500	25	40		100	25	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material 564 | Cutting Parameter 244

若有技术规格变更，恕不事先通知

SE 45 ENDMILLS - LONG

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45 Endmills - Long 4 Flutes
Fraises 2 tailles SE 45 longues en carbure monobloc, 4 dents
整体硬质合金 SE 45 系列 立铣刀 4 刃 – 中长
VHM SE 45 Fräser, lang, 4 Zähne
Frese SE 45 lunghe in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)					720*	854*	855*
	D	l 1	l 2	L	d2 (h6)	T ... n	G6110	B0819
0300	3	19		60	3	●	●	●
0300 075 06	3	19		75	6	●	●	●
0400	4	19		60	4	●	●	●
0400 075 06	4	19		75	6	●	●	●
0500	5	19		60	5	●	●	●
0500 075 06	5	19		75	6	●	●	●
0600	6	31		75	6	●	●	●
0800	8	31		75	8	●	●	●
1000 075	10	31		75	10	●	●	●
1000 100	10	50		100	10	●	●	●
1200	12	50		100	12	●	●	●
1400	14	57		125	14	●	●	●
1600	16	57		125	16	●	●	●
1800	18	57		125	18	●	●	●
2000	20	57		125	20	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	246

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45 ENDMILLS - EXTRA-LONG

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45 Endmills - extra-long 4 Flutes
Fraises 2 tailles SE 45 extra-longues en carbure monobloc, 4 dents
整体硬质合金 SE 45 系列 立铣刀 4 刃 – 加长
VHM SE 45 Fräser, extra-lang, 4 Zähne
Frese SE 45 extra-lunghe in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					987*	858*	859*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	G6110	B0819
0300	3	25		100	3	●	●	●
0300 100 06	3	25		100	6	●	●	●
0400	4	31		100	4	●	●	●
0400 100 06	4	31		100	6	●	●	●
0500	5	31		100	5	●	●	●
0500 100 06	5	31		100	6	●	●	●
0600	6	38		100	6	●	●	●
0800	8	41		100	8	●	●	●
1000	10	57		125	10	●	●	●
1200	12	75		150	12	●	●	●
1400	14	75		150	14	●	●	●
1600	16	75		150	16	●	●	●
1800	18	75		150	18	●	●	●
2000	20	75		150	20	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

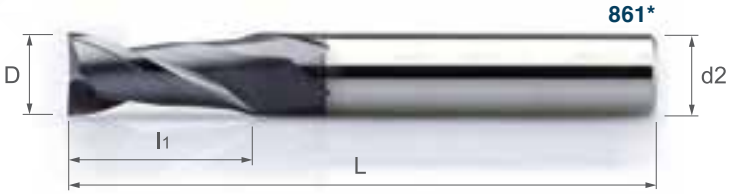
Working Material	Cutting Parameter
564	248

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45 STANDARD ENDMILLS

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45 Standard Endmills, 2 Flutes
Fraises 2 tailles SE 45 Standard en carbure monobloc, 2 dents
整体硬质合金 SE 45 系列 立铣刀 2 刃 – 标准长度
VHM SE 45 Standard Fräser, 2 Zähne
Frese standard SE 45 in metallo duro integrale, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					116*	860*	861*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	G6110	B0819
0100 040 03	1	3		40	3	●	●	●
0100 040 04	1	3		40	4	●	●	●
0150 040 03	1.5	4.5		40	3	●	●	●
0150 040 04	1.5	4.5		40	4	●	●	●
0200 040 03	2	6.5		40	3	●	●	●
0200 040 04	2	6.5		40	4	●	●	●
0250 040 03	2.5	6.5		40	3	●	●	●
0250 040 04	2.5	6.5		40	4	●	●	●
0300	3	9		40	3	●	●	●
0300 040 04	3	9		40	4	●	●	●
0300 050 06	3	9		50	6	●	●	●
0400	4	12		50	4	●	●	●
0400 050 06	4	12		50	6	●	●	●
0500	5	15		50	5	●	●	●
0500 050 06	5	15		50	6	●	●	●
0600 050	6	16		50	6	●	●	●
0600 060	6	20		60	6	●	●	●
0800	8	20		64	8	●	●	●
1000 070	10	22		70	10	●	●	●
1000 075	10	22		75	10	●	●	●
1200	12	25		75	12	●	●	●
1400	14	32		90	14	●	●	●
1600	16	32		90	16	●	●	●
1800	18	38		100	18	●	●	●
2000	20	38		100	20	●	●	●
2200	22	40		100	22	●	●	●
2500	25	40		100	25	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

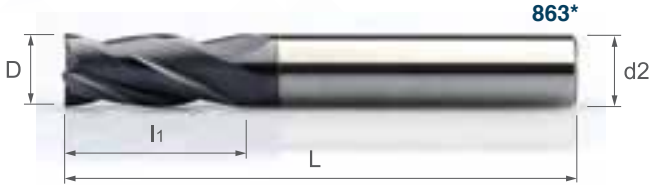
Working Material 564 | Cutting Parameter 242

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 45 STANDARD ENDMILLS

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45 Standard Endmills, 4 Flutes
Fraises 2 tailles SE 45 Standard en carbure monobloc, 4 dents
整体硬质合金 SE 45 系列 立铣刀 4 刃 – 标准长度
VHM SE 45 Standard Fräser, 4 Zähne
Frese standard SE 45 in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	120* T ... n	862* G6110	863* B0819
0100 040 03	1	3		40	3	●	●	●
0100 040 04	1	3		40	4	●	●	●
0150 040 03	1.5	4.5		40	3	●	●	●
0150 040 04	1.5	4.5		40	4	●	●	●
0200 040 03	2	6.5		40	3	●	●	●
0200 040 04	2	6.5		40	4	●	●	●
0250 040 03	2.5	6.5		40	3	●	●	●
0250 040 04	2.5	6.5		40	4	●	●	●
0300	3	9		40	3	●	●	●
0300 040 04	3	9		40	4	●	●	●
0300 050 06	3	9		50	6	●	●	●
0400	4	12		50	4	●	●	●
0400 050 06	4	12		50	6	●	●	●
0500	5	15		50	5	●	●	●
0500 050 06	5	15		50	6	●	●	●
0600 050	6	16		50	6	●	●	●
0600 060	6	20		60	6	●	●	●
0800	8	20		64	8	●	●	●
1000 070	10	22		70	10	●	●	●
1000 075	10	22		75	10	●	●	●
1200	12	25		75	12	●	●	●
1400	14	32		90	14	●	●	●
1600	16	32		90	16	●	●	●
1800	18	38		100	18	●	●	●
2000	20	38		100	20	●	●	●
2200	22	40		100	22	●	●	●
2500	25	40		100	25	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material 564 | Cutting Parameter 244

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45 ENDMILLS - LONG

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45 Endmills - Long 4 Flutes
Fraises 2 tailles SE 45 longues en carbure monobloc, 4 dents
整体硬质合金 SE 45 系列 立铣刀 4 刃 – 中长
VHM SE 45 Fräser, lang, 4 Zähne
Frese SE 45 lunghe in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)					341*	866*	867*
	D	l 1	l 2	L	d2 (h6)	T ... n	G6110	B0819
0300	3	19		60	3	●	●	●
0300 075 06	3	19		75	6	●	●	●
0400	4	19		60	4	●	●	●
0400 075 06	4	19		75	6	●	●	●
0500	5	19		60	5	●	●	●
0500 075 06	5	19		75	6	●	●	●
0600	6	31		75	6	●	●	●
0800	8	31		75	8	●	●	●
1000 075	10	31		75	10	●	●	●
1000 100	10	50		100	10	●	●	●
1200	12	50		100	12	●	●	●
1400	14	57		125	14	●	●	●
1600	16	57		125	16	●	●	●
1800	18	57		125	18	●	●	●
2000	20	57		125	20	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	246

若有技术规格变更，恕不事先通知

SE 45 ENDMILLS - EXTRA-LONG

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45 Endmills - extra-long 4 Flutes
Fraises 2 tailles SE 45 extra-longues en carbure monobloc, 4 dents
整体硬质合金 SE 45 系列 立铣刀 4 刃 – 加长
VHM SE 45 Fräser, extra-lang, 4 Zähne
Frese SE 45 extra-lunghe in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	794* T ... n	870* G6110	871* B0819
0300	3	25		100	3	●	●	●
0300 100 06	3	25		100	6	●	●	●
0400	4	31		100	4	●	●	●
0400 100 06	4	31		100	6	●	●	●
0500	5	31		100	5	●	●	●
0500 100 06	5	31		100	6	●	●	●
0600	6	38		100	6	●	●	●
0800	8	41		100	8	●	●	●
1000	10	57		125	10	●	●	●
1200	12	75		150	12	●	●	●
1400	14	75		150	14	●	●	●
1600	16	75		150	16	●	●	●
1800	18	75		150	18	●	●	●
2000	20	75		150	20	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

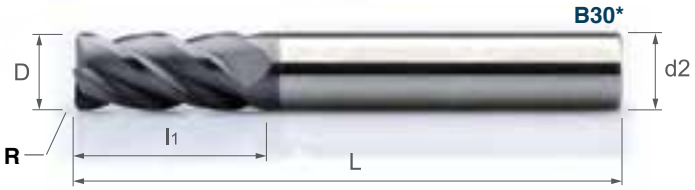
Working Material	Cutting Parameter
564	248

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45R STANDARD TORUS ENDMILLS

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45R Standard Torus Endmills, 4 flutes
Fraises 2 tailles SE 45R toriques Standard en carbure monobloc, 4 dents
整体硬质合金 SE 45R 系列 圆鼻 立铣刀 4 刃 – 标准长度
VHM SE 45R Standard Torusfräser, 4 Zähne
Frese SE 45R toroidali Standard, in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	358* T ... n	B59* G6110	B30* B0819
0100 040 0400 020	1	3		40	4	0.2	●	●	●
0100 050 0600 020	1	3		50	6	0.2	●	●	●
0150 040 0400 020	1.5	4.5		40	4	0.2	●	●	●
0150 050 0600 020	1.5	4.5		50	6	0.2	●	●	●
0200 040 0400 020	2	6.5		40	4	0.2	○	○	○
0200 040 0400 030	2	6.5		40	4	0.3	●	●	●
0200 050 0600 020	2	6.5		50	6	0.2	○	○	○
0200 050 0600 030	2	6.5		50	6	0.3	●	●	●
0250 040 0400 020	2.5	6.5		40	4	0.2	○	○	○
0250 040 0400 030	2.5	6.5		40	4	0.3	●	●	●
0250 040 0400 050	2.5	6.5		40	4	0.5	●	●	●
0250 050 0600 020	2.5	6.5		50	6	0.2	○	○	○
0250 050 0600 030	2.5	6.5		50	6	0.3	●	●	●
0250 050 0600 050	2.5	6.5		50	6	0.5	●	●	●
0300 040 0300 020	3	9		40	3	0.2	○	○	○
0300 040 0300 030	3	9		40	3	0.3	●	●	●
0300 040 0300 050	3	9		40	3	0.5	●	●	●
0300 040 0400 020	3	9		40	4	0.2	○	○	○
0300 040 0400 030	3	9		40	4	0.3	●	●	●
0300 040 0400 050	3	9		40	4	0.5	●	●	●
0300 050 0600 020	3	9		50	6	0.2	○	○	○
0300 050 0600 030	3	9		50	6	0.3	●	●	●
0300 050 0600 050	3	9		50	6	0.5	●	●	●
0400 050 0400 020	4	12		50	4	0.2	○	○	○
0400 050 0400 030	4	12		50	4	0.3	●	●	●
0400 050 0400 050	4	12		50	4	0.5	●	●	●
0400 050 0400 100	4	12		50	4	1	●	●	●
0400 050 0600 020	4	12		50	6	0.2	○	○	○
0400 050 0600 030	4	12		50	6	0.3	●	●	●
0400 050 0600 050	4	12		50	6	0.5	●	●	●
0400 050 0600 100	4	12		50	6	1	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30
●						

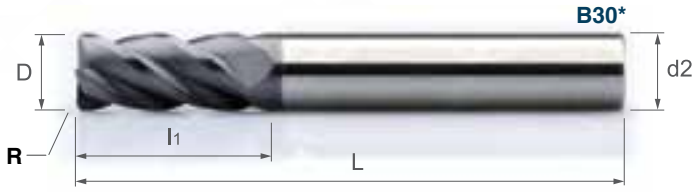
Working Material	Cutting Parameter
564	244

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45R STANDARD TORUS ENDMILLS

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45R Standard Torus Endmills, 4 flutes
Fraises 2 tailles SE 45R toriques Standard en carbure monobloc, 4 dents
整体硬质合金 SE 45R 系列 圆鼻 立铣刀 4 刃 – 标准长度
VHM SE 45R Standard Torusfräser, 4 Zähne
Frese SE 45R toroidali Standard, in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						358*	B59*	B30*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	R	T ... n	G6110	B0819
0500 050 0500 020	5	15		50	5	0.2	○	○	○
0500 050 0500 030	5	15		50	5	0.3	●	●	●
0500 050 0500 050	5	15		50	5	0.5	●	●	●
0500 050 0500 100	5	15		50	5	1	●	●	●
0500 050 0600 020	5	15		50	6	0.2	○	○	○
0500 050 0600 030	5	15		50	6	0.3	●	●	●
0500 050 0600 050	5	15		50	6	0.5	●	●	●
0500 050 0600 100	5	15		50	6	1	●	●	●
0600 050 0600 020	6	16		50	6	0.2	○	○	○
0600 050 0600 030	6	16		50	6	0.3	●	●	●
0600 050 0600 050	6	16		50	6	0.5	●	●	●
0600 050 0600 100	6	16		50	6	1	●	●	●
0600 060 0600 020	6	20		60	6	0.2	○	○	○
0600 060 0600 030	6	20		60	6	0.3	●	●	●
0600 060 0600 050	6	20		60	6	0.5	●	●	●
0600 060 0600 100	6	20		60	6	1	●	●	●
0800 064 0800 020	8	20		64	8	0.2	○	○	○
0800 064 0800 030	8	20		64	8	0.3	●	●	●
0800 064 0800 050	8	20		64	8	0.5	●	●	●
0800 064 0800 100	8	20		64	8	1	●	●	●
0800 064 0800 150	8	20		64	8	1.5	●	●	●
0800 064 0800 200	8	20		64	8	2	●	●	●
1000 070 1000 030	10	22		70	10	0.3	●	●	●
1000 070 1000 050	10	22		70	10	0.5	●	●	●
1000 070 1000 100	10	22		70	10	1	●	●	●
1000 070 1000 150	10	22		70	10	1.5	●	●	●
1000 070 1000 200	10	22		70	10	2	●	●	●
1000 075 1000 030	10	22		75	10	0.3	●	●	●
1000 075 1000 050	10	22		75	10	0.5	●	●	●
1000 075 1000 100	10	22		75	10	1	●	●	●
1000 075 1000 150	10	22		75	10	1.5	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

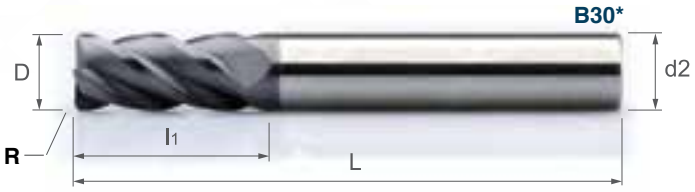
Working Material 564 | Cutting Parameter 244

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 45R STANDARD TORUS ENDMILLS

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

Solid Carbide SE 45R Standard Torus Endmills, 4 flutes
Fraises 2 tailles SE 45R toriques Standard en carbure monobloc, 4 dents
整体硬质合金 SE 45R 系列 圆鼻 立铣刀 4 刃 – 标准长度
VHM SE 45R Standard Torusfräser, 4 Zähne
Frese SE 45R toroidali Standard, in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	358* T ... n	B59* G6110	B30* B0819
1000 075 1000 200	10	22		75	10	2	●	●	●
1200 075 1200 030	12	25		75	12	0.3	●	●	●
1200 075 1200 050	12	25		75	12	0.5	●	●	●
1200 075 1200 100	12	25		75	12	1	●	●	●
1200 075 1200 150	12	25		75	12	1.5	●	●	●
1200 075 1200 200	12	25		75	12	2	●	●	●
1200 075 1200 300	12	25		75	12	3	●	●	●
1400 090 1400 050	14	32		90	14	0.5	●	●	●
1400 090 1400 100	14	32		90	14	1	●	●	●
1400 090 1400 150	14	32		90	14	1.5	●	●	●
1400 090 1400 200	14	32		90	14	2	●	●	●
1400 090 1400 300	14	32		90	14	3	●	●	●
1600 090 1600 050	16	32		90	16	0.5	●	●	●
1600 090 1600 100	16	32		90	16	1	●	●	●
1600 090 1600 150	16	32		90	16	1.5	●	●	●
1600 090 1600 200	16	32		90	16	2	●	●	●
1600 090 1600 300	16	32		90	16	3	●	●	●
1800 100 1800 050	18	38		100	18	0.5	○	○	○
1800 100 1800 100	18	38		100	18	1	○	○	○
1800 100 1800 150	18	38		100	18	1.5	○	○	○
1800 100 1800 200	18	38		100	18	2	○	○	○
1800 100 1800 300	18	38		100	18	3	○	○	○
2000 100 2000 050	20	38		100	20	0.5	●	●	●
2000 100 2000 100	20	38		100	20	1	●	●	●
2000 100 2000 150	20	38		100	20	1.5	●	●	●
2000 100 2000 200	20	38		100	20	2	●	●	●
2000 100 2000 300	20	38		100	20	3	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material 564 | Cutting Parameter 244

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45 MINIATURE ENDMILLS

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Miniature Endmills, 2 Flutes
Micro-Fraises 2 tailles SE 45 en carbure monobloc, 2 dents
整体硬质合金 SE 45 系列 微型 立铣刀 2 刃
VHM SE 45 Kleinstfräser, 2 Zähne
Micro-frese SE 45 in metallo duro integrale, 2 taglienti

A01*

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					156*	799*	883*	A01*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	G6110	B0819	B0909
0010 03	0.1	0.2		40	3	●	●	●	●
0010 04	0.1	0.2		40	4	●	●	●	●
0020 03	0.2	0.4		40	3	●	●	●	●
0020 04	0.2	0.4		40	4	●	●	●	●
0030 03	0.3	0.6		40	3	●	●	●	●
0030 04	0.3	0.6		40	4	●	●	●	●
0040 03	0.4	0.8		40	3	●	●	●	●
0040 04	0.4	0.8		40	4	●	●	●	●
0050 03	0.5	1.0		40	3	●	●	●	●
0050 04	0.5	1.0		40	4	●	●	●	●
0060 03	0.6	1.2		40	3	●	●	●	●
0060 04	0.6	1.2		40	4	●	●	●	●
0070 03	0.7	1.4		40	3	●	●	●	●
0070 04	0.7	1.4		40	4	●	●	●	●
0080 03	0.8	1.6		40	3	●	●	●	●
0080 04	0.8	1.6		40	4	●	●	●	●
0090 03	0.9	1.8		40	3	●	●	●	●
0090 04	0.9	1.8		40	4	●	●	●	●
0100 03	1.0	2		40	3	●	●	●	●
0110 03	1.1	2.2		40	3	●	●	●	●
0120 03	1.2	2.4		40	3	●	●	●	●
0130 03	1.3	2.6		40	3	●	●	●	●
0140 03	1.4	2.8		40	3	●	●	●	●
0150 03	1.5	3		40	3	●	●	●	●
0160 03	1.6	3.2		40	3	●	●	●	●
0170 03	1.7	3.4		40	3	●	●	●	●
0180 03	1.8	3.6		40	3	●	●	●	●
0190 03	1.9	3.8		40	3	●	●	●	●
0200 03	2.0	4		40	3	●	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

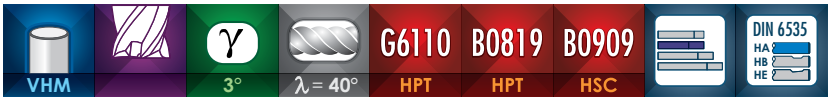
若有技术规格变更，恕不事先通知

SE 45 MINIATURE ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Miniature Endmills with long neck, 2 flutes
Micro-fraises SE 45 2 tailles en carbure monobloc avec cou long, 2 dents
整体硬质合金 SE 45 系列 长颈短刃 立铣刀 2 刃
VHM SE 45 Kleinstfräser mit langem Hals, 2 Zähne
Micro-frese SE 45 in metallo duro integrale con collo lungo, 2 taglienti

884*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	159* T ... n	162* G6110	884* B0819	A02* B0909
0020 050 0300 010	0.2	0.3	1	50	3	●	●	●	●
0020 050 0300 015	0.2	0.3	1.5	50	3	●	●	●	●
0030 050 0300 010	0.3	0.4	1	50	3	●	●	●	●
0030 050 0300 020	0.3	0.4	2	50	3	●	●	●	●
0030 050 0300 030	0.3	0.4	3	50	3	●	●	●	●
0040 050 0300 020	0.4	0.6	2	50	3	●	●	●	●
0040 050 0300 030	0.4	0.6	3	50	3	●	●	●	●
0040 050 0300 040	0.4	0.6	4	50	3	●	●	●	●
0040 050 0300 050	0.4	0.6	5	50	3	●	●	●	●
0050 050 0300 020	0.5	1	2	50	3	●	●	●	●
0050 050 0300 040	0.5	1	4	50	3	●	●	●	●
0050 050 0300 060	0.5	1	6	50	3	●	●	●	●
0060 050 0300 020	0.6	1	2	50	3	●	●	●	●
0060 050 0300 040	0.6	1	4	50	3	●	●	●	●
0060 050 0300 060	0.6	1	6	50	3	●	●	●	●
0070 050 0400 040	0.7	1.4	4	50	4	●	●	●	●
0070 050 0400 060	0.7	1.4	6	50	4	●	●	●	●
0080 050 0400 040	0.8	1.5	4	50	4	●	●	●	●
0080 050 0400 060	0.8	1.5	6	50	4	●	●	●	●
0080 050 0400 080	0.8	1.5	8	50	4	●	●	●	●
0090 050 0400 060	0.9	1.8	6	50	4	●	●	●	●
0090 050 0400 080	0.9	1.8	8	50	4	●	●	●	●
0090 050 0400 100	0.9	1.8	10	50	4	●	●	●	●
0100 060 0400 050	1	1.5	5	60	4	●	●	●	●
0100 060 0400 100	1	1.5	10	60	4	●	●	●	●
0150 060 0400 075	1.5	1.5	7.5	60	4	●	●	●	●
0150 060 0400 150	1.5	1.5	15	60	4	●	●	●	●
0200 060 0400 100	2	2	10	60	4	●	●	●	●
0200 060 0400 150	2	2	15	60	4	●	●	●	●
0200 060 0400 200	2	2	20	60	4	●	●	●	●
0250 060 0400 125	2.5	2.5	12.5	60	4	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
572	253

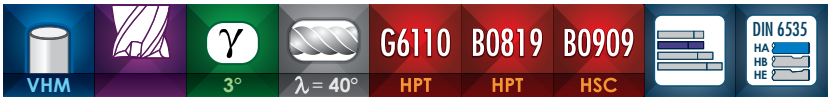
TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45 MINIATURE ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Miniature Endmills with long neck, 2 flutes
Micro-fraises SE 45 2 tailles en carbure monobloc avec cou long, 2 dents
整体硬质合金 SE 45 系列 长颈短刃 立铣刀 2 刃
VHM SE 45 Kleinstfräser mit langem Hals, 2 Zähne
Micro-frese SE 45 in metallo duro integrale con collo lungo, 2 taglienti

884*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					159*	162*	884*	A02*
=*+Ødata	D	l1	l2	L	d2 (h6)	T ... n	G6110	B0819	B0909
0250 060 0400 185	2.5	2.5	18.5	60	4	●	●	●	●
0250 060 0400 250	2.5	2.5	25	60	4	●	●	●	●
0300 075 0600 150	3.0	3.0	15	75	6	●	●	●	●
0300 075 0600 200	3.0	3.0	20	75	6	●	●	●	●
0300 075 0600 300	3.0	3.0	30	75	6	●	●	●	●
0400 075 0600 200	4.0	4.0	20	75	6	●	●	●	●
0400 075 0600 300	4.0	4.0	30	75	6	●	●	●	●
0400 075 0600 400	4.0	4.0	40	75	6	●	●	●	●

Ø mm	Tol. µm
0.1 ~ 0.7	0 / -12
0.7 ~ 4.0	0 / -20

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45 MINIATURE ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Miniature Endmills with long neck, 2 flutes
Micro-fraises SE 45 2 tailles en carbure monobloc avec cou long, 2 dents
整体硬质合金 SE 45 系列 长颈短刃 立铣刀 2 刃
VHM SE 45 Kleinstfräser mit langem Hals, 2 Zähne
Micro-frese SE 45 in metallo duro integrale con collo lungo, 2 taglienti

885*

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						722*	724*	885*	A03*
=*+Ødata	D	l 1	l 2	L	d1	d2 (h6)	T ... n	G6110	B0819	B0909
0020 050 0400 005	0.2	0.3	0.5	50	0.16	4	●	●	●	●
0020 050 0400 010	0.2	0.3	1	50	0.16	4	●	●	●	●
0020 050 0400 015	0.2	0.3	1.5	50	0.16	4	●	●	●	●
0030 050 0400 010	0.3	0.4	1	50	0.26	4	●	●	●	●
0030 050 0400 020	0.3	0.4	2	50	0.26	4	●	●	●	●
0030 050 0400 030	0.3	0.4	3	50	0.26	4	●	●	●	●
0040 050 0400 020	0.4	0.6	2	50	0.37	4	●	●	●	●
0040 050 0400 030	0.4	0.6	3	50	0.37	4	●	●	●	●
0040 050 0400 040	0.4	0.6	4	50	0.37	4	●	●	●	●
0040 050 0400 050	0.4	0.6	5	50	0.37	4	●	●	●	●
0050 050 0400 020	0.5	0.7	2	50	0.45	4	●	●	●	●
0050 050 0400 040	0.5	0.7	4	50	0.45	4	●	●	●	●
0050 050 0400 060	0.5	0.7	6	50	0.45	4	●	●	●	●
0050 050 0400 080	0.5	0.7	8	50	0.45	4	●	●	●	●
0060 050 0400 020	0.6	0.9	2	50	0.55	4	●	●	●	●
0060 050 0400 040	0.6	0.9	4	50	0.55	4	●	●	●	●
0060 050 0400 060	0.6	0.9	6	50	0.55	4	●	●	●	●
0060 050 0400 080	0.6	0.9	8	50	0.55	4	●	●	●	●
0060 050 0400 100	0.6	0.9	10	50	0.55	4	●	●	●	●
0070 050 0400 020	0.7	1.0	2	50	0.65	4	●	●	●	●
0070 050 0400 040	0.7	1.0	4	50	0.65	4	●	●	●	●
0070 050 0400 060	0.7	1.0	6	50	0.65	4	●	●	●	●
0070 050 0400 080	0.7	1.0	8	50	0.65	4	●	●	●	●
0070 050 0400 100	0.7	1.0	10	50	0.65	4	●	●	●	●
0080 050 0400 040	0.8	1.2	4	50	0.75	4	●	●	●	●
0080 050 0400 060	0.8	1.2	6	50	0.75	4	●	●	●	●
0080 050 0400 080	0.8	1.2	8	50	0.75	4	●	●	●	●
0080 050 0400 100	0.8	1.2	10	50	0.75	4	●	●	●	●
0080 050 0400 120	0.8	1.2	12	50	0.75	4	●	●	●	●
0090 050 0400 060	0.9	1.4	6	50	0.85	4	●	●	●	●
0090 050 0400 080	0.9	1.4	8	50	0.85	4	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

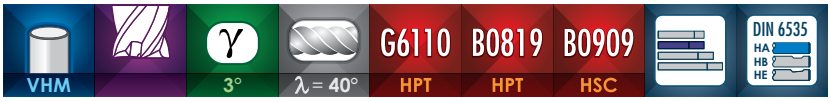
SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 45 MINIATURE ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Miniature Endmills with long neck, 2 flutes
Micro-fraises SE 45 2 tailles en carbure monobloc avec cou long, 2 dents
整体硬质合金 SE 45 系列 长颈短刃 立铣刀 2 刃
VHM SE 45 Kleinstfräser mit langem Hals, 2 Zähne
Micro-frese SE 45 in metallo duro integrale con collo lungo, 2 taglienti

885*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						722*	724*	885*	A03*
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	T ... n	G6110	B0819	B0909
0090 050 0400 100	0.9	1.4	10	50	0.85	4	●	●	●	●
0090 050 0400 150	0.9	1.4	15	50	0.85	4	●	●	●	●
0100 050 0400 060	1.0	1.5	6	50	0.95	4	●	●	●	●
0100 050 0400 080	1.0	1.5	8	50	0.95	4	●	●	●	●
0100 050 0400 100	1.0	1.5	10	50	0.95	4	●	●	●	●
0100 050 0400 120	1.0	1.5	12	50	0.95	4	●	●	●	●
0100 050 0400 140	1.0	1.5	14	50	0.95	4	●	●	●	●
0100 050 0400 160	1.0	1.5	16	50	0.95	4	●	●	●	●
0120 050 0400 060	1.2	1.8	6	50	1.15	4	●	●	●	●
0120 050 0400 080	1.2	1.8	8	50	1.15	4	●	●	●	●
0120 050 0400 100	1.2	1.8	10	50	1.15	4	●	●	●	●
0120 050 0400 120	1.2	1.8	12	50	1.15	4	●	●	●	●
0140 050 0400 060	1.4	2.1	6	50	1.35	4	●	●	●	●
0140 050 0400 080	1.4	2.1	8	50	1.35	4	●	●	●	●
0140 050 0400 100	1.4	2.1	10	50	1.35	4	●	●	●	●
0140 050 0400 120	1.4	2.1	12	50	1.35	4	●	●	●	●
0140 050 0400 140	1.4	2.1	14	50	1.35	4	●	●	●	●
0140 050 0400 160	1.4	2.1	16	50	1.35	4	●	●	●	●
0150 050 0400 060	1.5	2.3	6	50	1.45	4	●	●	●	●
0150 050 0400 080	1.5	2.3	8	50	1.45	4	●	●	●	●
0150 050 0400 100	1.5	2.3	10	50	1.45	4	●	●	●	●
0150 050 0400 120	1.5	2.3	12	50	1.45	4	●	●	●	●
0150 050 0400 140	1.5	2.3	14	50	1.45	4	●	●	●	●
0150 050 0400 160	1.5	2.3	16	50	1.45	4	●	●	●	●
0150 060 0400 180	1.5	2.3	18	60	1.45	4	●	●	●	●
0150 060 0400 200	1.5	2.3	20	60	1.45	4	●	●	●	●
0160 050 0400 060	1.6	2.4	6	50	1.55	4	●	●	●	●
0160 050 0400 080	1.6	2.4	8	50	1.55	4	●	●	●	●
0160 050 0400 100	1.6	2.4	10	50	1.55	4	●	●	●	●
0160 050 0400 120	1.6	2.4	12	50	1.55	4	●	●	●	●
0160 050 0400 140	1.6	2.4	14	50	1.55	4	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

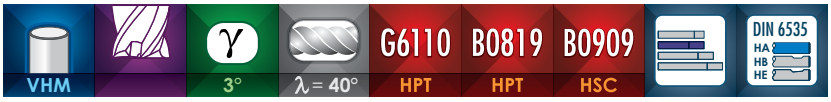
MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45 MINIATURE ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Miniature Endmills with long neck, 2 flutes
Micro-fraises SE 45 2 tailles en carbure monobloc avec cou long, 2 dents
整体硬质合金 SE 45 系列 长颈短刃 立铣刀 2 刃
VHM SE 45 Kleinstfräser mit langem Hals, 2 Zähne
Micro-frese SE 45 in metallo duro integrale con collo lungo, 2 taglienti

885*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						722*	724*	885*	A03*
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	T ... n	G6110	B0819	B0909
0160 050 0400 160	1.6	2.4	16	50	1.55	4	●	●	●	●
0160 060 0400 180	1.6	2.4	18	60	1.55	4	●	●	●	●
0160 060 0400 200	1.6	2.4	20	60	1.55	4	●	●	●	●
0180 050 0400 060	1.8	2.7	6	50	1.75	4	●	●	●	●
0180 050 0400 080	1.8	2.7	8	50	1.75	4	●	●	●	●
0180 050 0400 100	1.8	2.7	10	50	1.75	4	●	●	●	●
0180 050 0400 120	1.8	2.7	12	50	1.75	4	●	●	●	●
0180 050 0400 140	1.8	2.7	14	50	1.75	4	●	●	●	●
0180 050 0400 160	1.8	2.7	16	50	1.75	4	●	●	●	●
0180 060 0400 180	1.8	2.7	18	60	1.75	4	●	●	●	●
0180 060 0400 200	1.8	2.7	20	60	1.75	4	●	●	●	●
0200 050 0400 060	2	3	6	50	1.95	4	●	●	●	●
0200 050 0400 080	2	3	8	50	1.95	4	●	●	●	●
0200 050 0400 100	2	3	10	50	1.95	4	●	●	●	●
0200 050 0400 120	2	3	12	50	1.95	4	●	●	●	●
0200 050 0400 140	2	3	14	50	1.95	4	●	●	●	●
0200 050 0400 160	2	3	16	50	1.95	4	●	●	●	●
0200 060 0400 180	2	3	18	60	1.95	4	●	●	●	●
0200 060 0400 200	2	3	20	60	1.95	4	●	●	●	●
0200 075 0400 250	2	3	25	75	1.95	4	●	●	●	●
0200 075 0400 300	2	3	30	75	1.95	4	●	●	●	●
0250 050 0400 080	2.5	3.7	8	50	2.4	4	●	●	●	●
0250 050 0400 100	2.5	3.7	10	50	2.4	4	●	●	●	●
0250 050 0400 120	2.5	3.7	12	50	2.4	4	●	●	●	●
0250 050 0400 140	2.5	3.7	14	50	2.4	4	●	●	●	●
0250 050 0400 160	2.5	3.7	16	50	2.4	4	●	●	●	●
0250 060 0400 180	2.5	3.7	18	60	2.4	4	●	●	●	●
0250 060 0400 200	2.5	3.7	20	60	2.4	4	●	●	●	●
0250 060 0400 250	2.5	3.7	25	60	2.4	4	●	●	●	●
0250 075 0400 300	2.5	3.7	30	75	2.4	4	●	●	●	●
0300 050 0600 080	3	4.5	8	50	2.85	4	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

若有技术规格变更，恕不事先通知

SE 45 MINIATURE ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Miniature Endmills with long neck, 2 flutes

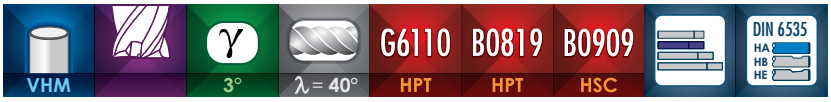
Micro-fraises SE 45 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 45 系列 长颈短刃 立铣刀 2 刃

VHM SE 45 Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese SE 45 in metallo duro integrale con collo lungo, 2 taglienti

885*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						722*	724*	885*	A03*
=*+Ødata	D	l 1	l 2	L	d1	d2 (h6)	T ... n	G6110	B0819	B0909
0300 050 0600 100	3	4.5	10	50	2.85	6	●	●	●	●
0300 050 0600 120	3	4.5	12	50	2.85	6	●	●	●	●
0300 050 0600 140	3	4.5	14	50	2.85	6	●	●	●	●
0300 060 0600 160	3	4.5	16	60	2.85	6	●	●	●	●
0300 060 0600 180	3	4.5	18	60	2.85	6	●	●	●	●
0300 060 0600 200	3	4.5	20	60	2.85	6	●	●	●	●
0300 075 0600 250	3	4.5	25	75	2.85	6	●	●	●	●
0400 060 0600 100	4	4.5	10	60	3.85	6	●	●	●	●
0400 060 0600 150	4	4.5	15	60	3.85	6	●	●	●	●
0400 060 0600 200	4	4.5	20	60	3.85	6	●	●	●	●
0400 075 0600 250	4	4.5	25	75	3.85	6	●	●	●	●
0400 075 0600 300	4	4.5	30	75	3.85	6	●	●	●	●
0400 075 0600 400	4	4.5	40	75	3.85	6	●	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45R MINIATURE TORUS ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

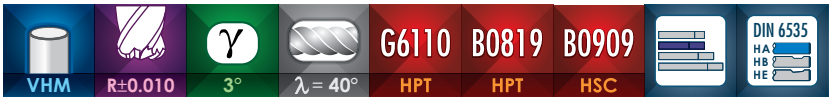
Solid Carbide SE 45R Miniature Torus Endmills with long neck, 2 flutes

Micro-fraises SE 45R 2 tailles toriques en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 45R 系列 长颈短刃 立铣刀 2 刃

VHM SE 45R Torus-Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese SE 45R torodidali in metallo duro integrale con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							B65*	787*	B66*	A79*
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	R	T ... n	G6110	B0819	B0909
0020 050 0400 005	0.2	0.3	0.5	50	0.16	4	0.02	●	●	●	●
0020 050 0400 010	0.2	0.3	1	50	0.16	4	0.02	●	●	●	●
0020 050 0400 015	0.2	0.3	1.5	50	0.16	4	0.02	●	●	●	●
0030 050 0400 010	0.3	0.4	1	50	0.26	4	0.03	●	●	●	●
0030 050 0400 020	0.3	0.4	2	50	0.26	4	0.03	●	●	●	●
0030 050 0400 030	0.3	0.4	3	50	0.26	4	0.03	●	●	●	●
0040 050 0400 020	0.4	0.6	2	50	0.37	4	0.03	●	●	●	●
0040 050 0400 030	0.4	0.6	3	50	0.37	4	0.03	●	●	●	●
0040 050 0400 040	0.4	0.6	4	50	0.37	4	0.03	●	●	●	●
0040 050 0400 050	0.4	0.6	5	50	0.37	4	0.03	●	●	●	●
0050 050 0400 020	0.5	0.7	2	50	0.45	4	0.05	●	●	●	●
0050 050 0400 040	0.5	0.7	4	50	0.45	4	0.05	●	●	●	●
0050 050 0400 060	0.5	0.7	6	50	0.45	4	0.05	●	●	●	●
0050 050 0400 080	0.5	0.7	8	50	0.45	4	0.05	●	●	●	●
0060 050 0400 020	0.6	0.9	2	50	0.55	4	0.05	●	●	●	●
0060 050 0400 040	0.6	0.9	4	50	0.55	4	0.05	●	●	●	●
0060 050 0400 060	0.6	0.9	6	50	0.55	4	0.05	●	●	●	●
0060 050 0400 080	0.6	0.9	8	50	0.55	4	0.05	●	●	●	●
0060 050 0400 100	0.6	0.9	10	50	0.55	4	0.05	●	●	●	●
0070 050 0400 020	0.7	1.0	2	50	0.65	4	0.08	●	●	●	●
0070 050 0400 040	0.7	1.0	4	50	0.65	4	0.08	●	●	●	●
0070 050 0400 060	0.7	1.0	6	50	0.65	4	0.08	●	●	●	●
0070 050 0400 080	0.7	1.0	8	50	0.65	4	0.08	●	●	●	●
0070 050 0400 100	0.7	1.0	10	50	0.65	4	0.08	●	●	●	●
0080 050 0400 040	0.8	1.2	4	50	0.75	4	0.08	●	●	●	●
0080 050 0400 060	0.8	1.2	6	50	0.75	4	0.08	●	●	●	●
0080 050 0400 080	0.8	1.2	8	50	0.75	4	0.08	●	●	●	●
0080 050 0400 100	0.8	1.2	10	50	0.75	4	0.08	●	●	●	●
0080 050 0400 120	0.8	1.2	12	50	0.75	4	0.08	●	●	●	●
0090 050 0400 060	0.9	1.4	6	50	0.85	4	0.08	●	●	●	●
0090 050 0400 080	0.9	1.4	8	50	0.85	4	0.08	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45R MINIATURE TORUS ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

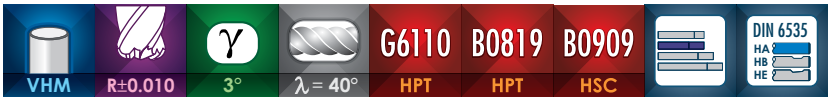
Solid Carbide SE 45R Miniature Torus Endmills with long neck, 2 flutes

Micro-fraises SE 45R 2 tailles toriques en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 45R 系列 长颈短刃 立铣刀 2 刃

VHM SE 45R Torus-Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese SE 45R torodidali in metallo duro integrale con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							B65*	787*	B66*	A79*
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	R	T ... n	G6110	B0819	B0909
0090 050 0400 100	0.9	1.4	10	50	0.85	4	0.08	●	●	●	●
0090 050 0400 150	0.9	1.4	15	50	0.85	4	0.08	●	●	●	●
0100 050 0400 060	1.0	1.5	6	50	0.95	4	0.1	●	●	●	●
0100 050 0400 080	1.0	1.5	8	50	0.95	4	0.1	●	●	●	●
0100 050 0400 100	1.0	1.5	10	50	0.95	4	0.1	●	●	●	●
0100 050 0400 120	1.0	1.5	12	50	0.95	4	0.1	●	●	●	●
0100 050 0400 140	1.0	1.5	14	50	0.95	4	0.1	●	●	●	●
0100 050 0400 160	1.0	1.5	16	50	0.95	4	0.1	●	●	●	●
0120 050 0400 060	1.2	1.8	6	50	1.15	4	0.1	●	●	●	●
0120 050 0400 080	1.2	1.8	8	50	1.15	4	0.1	●	●	●	●
0120 050 0400 100	1.2	1.8	10	50	1.15	4	0.1	●	●	●	●
0120 050 0400 120	1.2	1.8	12	50	1.15	4	0.1	●	●	●	●
0140 050 0400 060	1.4	2.1	6	50	1.35	4	0.15	●	●	●	●
0140 050 0400 080	1.4	2.1	8	50	1.35	4	0.15	●	●	●	●
0140 050 0400 100	1.4	2.1	10	50	1.35	4	0.15	●	●	●	●
0140 050 0400 120	1.4	2.1	12	50	1.35	4	0.15	●	●	●	●
0140 050 0400 140	1.4	2.1	14	50	1.35	4	0.15	●	●	●	●
0140 050 0400 160	1.4	2.1	16	50	1.35	4	0.15	●	●	●	●
0150 050 0400 060	1.5	2.3	6	50	1.45	4	0.15	●	●	●	●
0150 050 0400 080	1.5	2.3	8	50	1.45	4	0.15	●	●	●	●
0150 050 0400 100	1.5	2.3	10	50	1.45	4	0.15	●	●	●	●
0150 050 0400 120	1.5	2.3	12	50	1.45	4	0.15	●	●	●	●
0150 050 0400 140	1.5	2.3	14	50	1.45	4	0.15	●	●	●	●
0150 050 0400 160	1.5	2.3	16	50	1.45	4	0.15	●	●	●	●
0150 060 0400 180	1.5	2.3	18	60	1.45	4	0.15	●	●	●	●
0150 060 0400 200	1.5	2.3	20	60	1.45	4	0.15	●	●	●	●
0160 050 0400 060	1.6	2.4	6	50	1.55	4	0.15	●	●	●	●
0160 050 0400 080	1.6	2.4	8	50	1.55	4	0.15	●	●	●	●
0160 050 0400 100	1.6	2.4	10	50	1.55	4	0.15	●	●	●	●
0160 050 0400 120	1.6	2.4	12	50	1.55	4	0.15	●	●	●	●
0160 050 0400 140	1.6	2.4	14	50	1.55	4	0.15	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 45R MINIATURE TORUS ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

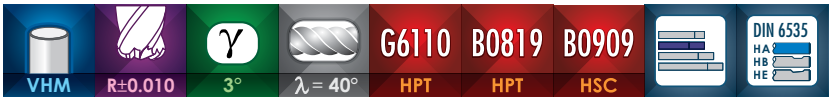
Solid Carbide SE 45R Miniature Torus Endmills with long neck, 2 flutes

Micro-fraises SE 45R 2 tailles toriques en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 45R 系列 长颈短刃 立铣刀 2 刃

VHM SE 45R Torus-Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese SE 45R torodidali in metallo duro integrale con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							B65*	787*	B66*	A79*
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	R	T ... n	G6110	B0819	B0909
0160 050 0400 160	1.6	2.4	16	50	1.55	4	0.15	●	●	●	●
0160 060 0400 180	1.6	2.4	18	60	1.55	4	0.15	●	●	●	●
0160 060 0400 200	1.6	2.4	20	60	1.55	4	0.15	●	●	●	●
0180 050 0400 060	1.8	2.7	6	50	1.75	4	0.2	●	●	●	●
0180 050 0400 080	1.8	2.7	8	50	1.75	4	0.2	●	●	●	●
0180 050 0400 100	1.8	2.7	10	50	1.75	4	0.2	●	●	●	●
0180 050 0400 120	1.8	2.7	12	50	1.75	4	0.2	●	●	●	●
0180 050 0400 140	1.8	2.7	14	50	1.75	4	0.2	●	●	●	●
0180 050 0400 160	1.8	2.7	16	50	1.75	4	0.2	●	●	●	●
0180 060 0400 180	1.8	2.7	18	60	1.75	4	0.2	●	●	●	●
0180 060 0400 200	1.8	2.7	20	60	1.75	4	0.2	●	●	●	●
0200 050 0400 060	2	3	6	50	1.95	4	0.2	●	●	●	●
0200 050 0400 080	2	3	8	50	1.95	4	0.2	●	●	●	●
0200 050 0400 100	2	3	10	50	1.95	4	0.2	●	●	●	●
0200 050 0400 120	2	3	12	50	1.95	4	0.2	●	●	●	●
0200 050 0400 140	2	3	14	50	1.95	4	0.2	●	●	●	●
0200 050 0400 160	2	3	16	50	1.95	4	0.2	●	●	●	●
0200 060 0400 180	2	3	18	60	1.95	4	0.2	●	●	●	●
0200 060 0400 200	2	3	20	60	1.95	4	0.2	●	●	●	●
0200 075 0400 250	2	3	25	75	1.95	4	0.2	●	●	●	●
0200 075 0400 300	2	3	30	75	1.95	4	0.2	●	●	●	●
0250 050 0400 080	2.5	3.7	8	50	2.4	4	0.3	●	●	●	●
0250 050 0400 100	2.5	3.7	10	50	2.4	4	0.3	●	●	●	●
0250 050 0400 120	2.5	3.7	12	50	2.4	4	0.3	●	●	●	●
0250 050 0400 140	2.5	3.7	14	50	2.4	4	0.3	●	●	●	●
0250 050 0400 160	2.5	3.7	16	50	2.4	4	0.3	●	●	●	●
0250 060 0400 180	2.5	3.7	18	60	2.4	4	0.3	●	●	●	●
0250 060 0400 200	2.5	3.7	20	60	2.4	4	0.3	●	●	●	●
0250 060 0400 250	2.5	3.7	25	60	2.4	4	0.3	●	●	●	●
0250 075 0400 300	2.5	3.7	30	75	2.4	4	0.3	●	●	●	●
0300 050 0600 080	3	4.5	8	50	2.85	6	0.3	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45R MINIATURE TORUS ENDMILLS - with Long Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

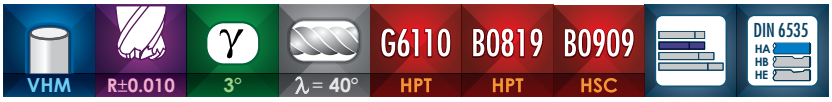
Solid Carbide SE 45R Miniature Torus Endmills with long neck, 2 flutes

Micro-fraises SE 45R 2 tailles toriques en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 45R 系列 长颈短刃 立铣刀 2 刃

VHM SE 45R Torus-Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese SE 45R torodidali in metallo duro integrale con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							B65*	787*	B66*	A79*
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	R	T... n	G6110	B0819	B0909
0300 050 0600 100	3	4.5	10	50	2.85	6	0.3	●	●	●	●
0300 050 0600 120	3	4.5	12	50	2.85	6	0.3	●	●	●	●
0300 050 0600 140	3	4.5	14	50	2.85	6	0.3	●	●	●	●
0300 060 0600 160	3	4.5	16	60	2.85	6	0.3	●	●	●	●
0300 060 0600 180	3	4.5	18	60	2.85	6	0.3	●	●	●	●
0300 060 0600 200	3	4.5	20	60	2.85	6	0.3	●	●	●	●
0300 075 0600 250	3	4.5	25	75	2.85	6	0.3	●	●	●	●
0400 060 0600 100	4	4.5	10	60	3.85	6	0.4	●	●	●	●
0400 060 0600 150	4	4.5	15	60	3.85	6	0.4	●	●	●	●
0400 060 0600 200	4	4.5	20	60	3.85	6	0.4	●	●	●	●
0400 075 0600 250	4	4.5	25	75	3.85	6	0.4	●	●	●	●
0400 075 0600 300	4	4.5	30	75	3.85	6	0.4	●	●	●	●
0400 075 0600 400	4	4.5	40	75	3.85	6	0.4	●	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

若有技术规格变更，恕不事先通知

SE 45R MINIATURE TORUS ENDMILLS - with Long Neck and 6,00 mm shank Ø

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45R Miniature Torus Endmills with long neck, 2 flutes, shank-Ø 6,00 mm

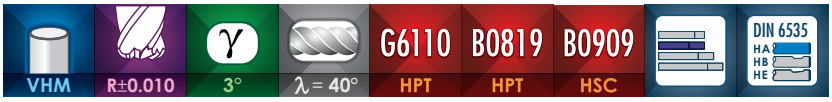
Micro-fraises SE 45R 2 tailles toriques en carbure monobloc avec cou long, 2 dents, Ø queue: 6,00 mm

整体硬质合金 SE 45R 系列 圆鼻长颈短刃 立铣刀 2 刃 – Ø6柄

VHM SE 45R Torus-Kleinstfräser mit langem Hals, 2 Zähne, Schaft-Ø 6,00 mm

Micro-frese toroidali SE 45R con collo lungo in metallo duro integrale, 2 taglienti Ø gambo: 6,00 mm

902*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							163*	612*	902*	A24*
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	R	T ... n	G6110	B0819	B0909
0050 060 0600 025	0.5	0.7	2.5	60	0.5	6	0.2	●	●	●	●
0050 060 0600 040	0.5	0.7	4	60	0.5	6	0.2	●	●	●	●
0060 060 0600 030	0.6	0.9	3	60	0.6	6	0.2	●	●	●	●
0070 060 0600 040	0.7	1.0	4	60	0.7	6	0.2	●	●	●	●
0080 060 0600 040	0.8	1.2	4	60	0.8	6	0.2	●	●	●	●
0080 060 0600 080	0.8	1.2	8	60	0.8	6	0.2	●	●	●	●
0100 060 0600 060	1.0	1.5	6	60	1.0	6	0.2	●	●	●	●
0100 060 0600 080	1.0	1.5	8	60	1.0	6	0.2	●	●	●	●
0100 060 0600 100	1.0	1.5	10	60	1.0	6	0.2	●	●	●	●
0100 060 0600 120	1.0	1.5	12	60	1.0	6	0.2	●	●	●	●
0120 060 0600 060	1.2	1.8	6	60	1.2	6	0.2	●	●	●	●
0120 060 0600 080	1.2	1.8	8	60	1.2	6	0.2	●	●	●	●
0120 060 0600 100	1.2	1.8	10	60	1.2	6	0.2	●	●	●	●
0120 060 0600 120	1.2	1.8	12	60	1.2	6	0.2	●	●	●	●
0140 060 0600 070	1.4	2.1	7	60	1.4	6	0.2	●	●	●	●
0140 060 0600 080	1.4	2.1	8	60	1.4	6	0.2	●	●	●	●
0140 060 0600 100	1.4	2.1	10	60	1.4	6	0.2	●	●	●	●
0140 060 0600 120	1.4	2.1	12	60	1.4	6	0.2	●	●	●	●
0140 060 0600 140	1.4	2.1	14	60	1.4	6	0.2	●	●	●	●
0140 060 0600 160	1.4	2.1	16	60	1.4	6	0.2	●	●	●	●
0150 060 0600 060	1.5	2.3	6	60	1.5	6	0.2	●	●	●	●
0150 060 0600 080	1.5	2.3	8	60	1.5	6	0.2	●	●	●	●
0150 060 0600 100	1.5	2.3	10	60	1.5	6	0.2	●	●	●	●
0150 060 0600 120	1.5	2.3	12	60	1.5	6	0.2	●	●	●	●
0150 060 0600 140	1.5	2.3	14	60	1.5	6	0.2	●	●	●	●
0150 060 0600 160	1.5	2.3	16	60	1.5	6	0.2	●	●	●	●
0150 060 0600 180	1.5	2.3	18	60	1.5	6	0.2	●	●	●	●
0150 075 0600 200	1.5	2.3	20	75	1.5	6	0.2	●	●	●	●
0160 060 0600 060	1.6	2.4	6	60	1.6	6	0.2	●	●	●	●
0160 060 0600 080	1.6	2.4	8	60	1.6	6	0.2	●	●	●	●
0160 060 0600 100	1.6	2.4	10	60	1.6	6	0.2	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45R MINIATURE TORUS ENDMILLS - with Long Neck and 6,00 mm shank Ø

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45R Miniature Torus Endmills with long neck, 2 flutes, shank-Ø 6,00 mm

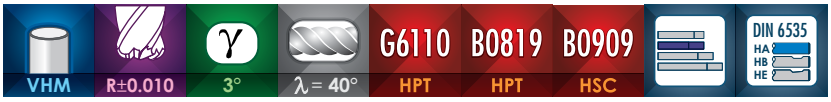
Micro-fraises SE 45R 2 tailles toriques en carbure monobloc avec cou long, 2 dents, Ø queue: 6,00 mm

整体硬质合金 SE 45R 系列 圆鼻长颈短刃 立铣刀 2 刃 – □6柄

VHM SE 45R Torus-Kleinstfräser mit langem Hals, 2 Zähne, Schaft-Ø 6,00 mm

Micro-frese toroidali SE 45R con collo lungo in metallo duro integrale, 2 taglienti Ø gambo: 6,00 mm

902*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							163*	612*	902*	A24*
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	R	T ... n	G6110	B0819	B0909
0160 060 0600 120	1.6	2.4	12	60	1.6	6	0.2	●	●	●	●
0160 060 0600 140	1.6	2.4	14	60	1.6	6	0.2	●	●	●	●
0160 060 0600 160	1.6	2.4	16	60	1.6	6	0.2	●	●	●	●
0160 060 0600 180	1.6	2.4	18	60	1.6	6	0.2	●	●	●	●
0160 060 0600 200	1.6	2.4	20	60	1.6	6	0.2	●	●	●	●
0180 060 0600 060	1.8	2.7	6	60	1.8	6	0.2	●	●	●	●
0180 060 0600 080	1.8	2.7	8	60	1.8	6	0.2	●	●	●	●
0180 060 0600 100	1.8	2.7	10	60	1.8	6	0.2	●	●	●	●
0180 060 0600 120	1.8	2.7	12	60	1.8	6	0.2	●	●	●	●
0180 060 0600 140	1.8	2.7	14	60	1.8	6	0.2	●	●	●	●
0180 060 0600 160	1.8	2.7	16	60	1.8	6	0.2	●	●	●	●
0180 075 0600 180	1.8	2.7	18	75	1.8	6	0.2	●	●	●	●
0180 075 0600 200	1.8	2.7	20	75	1.8	6	0.2	●	●	●	●
0190 060 0600 100	1.9	2.8	10	60	1.9	6	0.2	●	●	●	●
0190 060 0600 120	1.9	2.8	12	60	1.9	6	0.2	●	●	●	●
0190 060 0600 140	1.9	2.8	14	60	1.9	6	0.2	●	●	●	●
0190 060 0600 160	1.9	2.8	16	60	1.9	6	0.2	●	●	●	●
0190 075 0600 200	1.9	2.8	20	75	1.9	6	0.2	●	●	●	●
0200 060 0600 060	2	3	6	60	1.95	6	0.2	●	●	●	●
0200 060 0600 080	2	3	8	60	1.95	6	0.2	●	●	●	●
0200 060 0600 100	2	3	10	60	1.95	6	0.2	●	●	●	●
0200 060 0600 120	2	3	12	60	1.95	6	0.2	●	●	●	●
0200 060 0600 140	2	3	14	60	1.95	6	0.2	●	●	●	●
0200 060 0600 160	2	3	16	60	1.95	6	0.2	●	●	●	●
0200 075 0600 180	2	3	18	75	1.95	6	0.2	●	●	●	●
0200 075 0600 200	2	3	20	75	1.95	6	0.2	●	●	●	●
0200 075 0600 250	2	3	25	75	1.95	6	0.2	●	●	●	●
0200 075 0600 300	2	3	30	75	1.95	6	0.2	●	●	●	●
0250 060 0600 080	2.5	3.7	8	60	2.4	6	0.2	●	●	●	●
0250 060 0600 100	2.5	3.7	10	60	2.4	6	0.2	●	●	●	●
0250 060 0600 120	2.5	3.7	12	60	2.4	6	0.2	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45R MINIATURE TORUS ENDMILLS - with Long Neck and 6,00 mm shank Ø

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45R Miniature Torus Endmills with long neck, 2 flutes, shank-Ø 6,00 mm

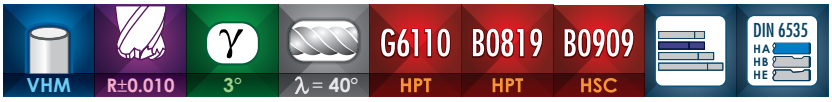
Micro-fraises SE 45R 2 tailles toriques en carbure monobloc avec cou long, 2 dents, Ø queue: 6,00 mm

整体硬质合金 SE 45R 系列 圆鼻长颈短刃 立铣刀 2 刃 – □6柄

VHM SE 45R Torus-Kleinstfräser mit langem Hals, 2 Zähne, Schaft-Ø 6,00 mm

Micro-frese toroidali SE 45R con collo lungo in metallo duro integrale, 2 taglienti Ø gambo: 6,00 mm

902*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							163*	612*	902*	A24*
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	R	T ... n	G6110	B0819	B0909
0250 060 0600 140	2.5	3.7	14	60	2.4	6	0.2	●	●	●	●
0250 060 0600 160	2.5	3.7	16	60	2.4	6	0.2	●	●	●	●
0250 075 0600 180	2.5	3.7	18	75	2.4	6	0.2	●	●	●	●
0250 075 0600 200	2.5	3.7	20	75	2.4	6	0.2	●	●	●	●
0250 075 0600 250	2.5	3.7	25	75	2.4	6	0.2	●	●	●	●
0250 075 0600 300	2.5	3.7	30	75	2.4	6	0.2	●	●	●	●
0300 060 0600 080	3	4.5	8	60	2.85	6	0.2	●	●	●	●
0300 060 0600 100	3	4.5	10	60	2.85	6	0.2	●	●	●	●
0300 060 0600 120	3	4.5	12	60	2.85	6	0.2	●	●	●	●
0300 060 0600 140	3	4.5	18	60	2.85	6	0.2	●	●	●	●
0300 060 0600 160	3	4.5	16	60	2.85	6	0.2	●	●	●	●
0300 075 0600 180	3	4.5	18	75	2.85	6	0.2	●	●	●	●
0300 075 0600 200	3	4.5	20	75	2.85	6	0.2	●	●	●	●
0300 075 0600 250	3	4.5	25	75	2.85	6	0.2	●	●	●	●
0300 075 0600 300	3	4.5	30	75	2.85	6	0.2	●	●	●	●
0400 060 0600 100	4	4.5	10	60	3.85	6	0.2	●	●	●	●
0400 060 0600 150	4	4.5	15	60	3.85	6	0.2	●	●	●	●
0400 075 0600 200	4	4.5	20	75	3.85	6	0.2	●	●	●	●
0400 075 0600 250	4	4.5	25	75	3.85	6	0.2	●	●	●	●
0400 075 0600 300	4	4.5	30	75	3.85	6	0.2	●	●	●	●
0400 075 0600 400	4	4.5	40	75	3.85	6	0.2	●	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	253

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 45R TORUS ENDMILLS - with Taper Neck

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

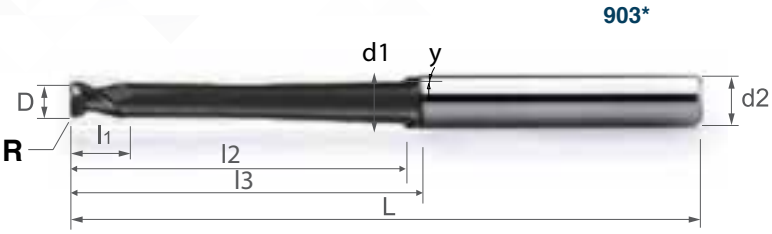
Solid Carbide SE 45R Torus Endmills with taper neck, 2 flutes

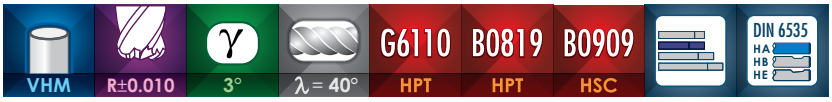
Fraises 2 tailles SE 45R toriques avec cou conique en carbure monobloc, 2 dents

整体硬质合金 SE 45R 系列 圆鼻锥颈位 立铣刀 2 刃

VHM SE 45R Torusfräser mit konischem Hals, 2 Zähne

Frese toroidali SE 45R con collo conico in metallo duro integrale, 2 taglienti





EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)								210*	213*	903*	A25*
=*+Ødata	D	l1	l2	l3	L	d2 (h6)	y	R	T ... n	G6110	B0819	B0909
0100 020 06 080	1.0	1.5	4.0	20	60	6	8°	0.2	●	●	●	●
0100 040 06 040	1.0	1.5	4.0	40	75	6	4.0°	0.2	●	●	●	●
0150 020 06 070	1.5	2.3	7.5	20	60	6	7°	0.2	●	●	●	●
0150 040 06 035	1.5	2.3	7.5	40	75	6	3.5°	0.2	●	●	●	●
0200 020 06 057	2.0	3.0	8.0	20	60	6	5.7°	0.5	●	●	●	●
0200 040 06 029	2.0	3.0	8.0	40	75	6	2.9°	0.5	●	●	●	●
0200 040 06 010	2.0	3.0	8.0	40	75	6	1°	0.5	●	●	●	●
0300 020 06 043	3.0	3.5	10.0	20	60	6	4.3°	0.5	●	●	●	●
0300 040 06 021	3.0	3.5	12.0	40	75	6	2.1°	0.5	●	●	●	●
0300 045 06 010	3.0	3.5	12.0	45	75	6	1°	0.5	●	●	●	●
0400 020 06 029	4.0	4.0	12.0	20	60	6	2.9°	1	●	●	●	●
0400 040 06 014	4.0	4.0	20.0	40	75	6	1.4°	1	●	●	●	●
0400 060 06 010	4.0	4.0	20.0	60	100	6	1°	0.5	●	●	●	●
0600 020 06 000	6.0	6.0	20.0	20	60	6	-	2	●	●	●	●
0600 040 06 000	6.0	6.0	40.0	40	75	6	-	1	●	●	●	●
0600 060 08 010	6.0	6.0	25.0	60	100	8	1°	2	●	●	●	●
0600 080 08 010	6.0	6.0	25.0	80	125	8	1°	1	●	●	●	●
0800 025 08 000	8.0	7.0	25.0	25	64	8	-	2	●	●	●	●
0800 060 08 000	8.0	7.0	60.0	60	100	8	-	2	●	●	●	●
0800 075 10 008	8.0	7.0	30.0	75	125	10	0.8°	1	●	●	●	●
0800 105 10 006	8.0	7.0	20.0	105	150	10	0.6°	1	●	●	●	●
1000 030 10 000	10.0	8.0	30.0	30	75	10	-	3	●	●	●	●
1000 075 10 000	10.0	8.0	75.0	75	125	10	-	3	●	●	●	●
1000 070 12 008	10.0	8.0	30.0	70	125	12	0.8°	3	●	●	●	●
1200 035 12 000	12.0	10.0	35.0	35	100	12	-	4	●	●	●	●
1200 070 12 000	12.0	10.0	70.0	70	125	12	-	4	●	●	●	●
1200 100 16 012	12.0	10.0	35.0	100	150	16	1.2°	4	●	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

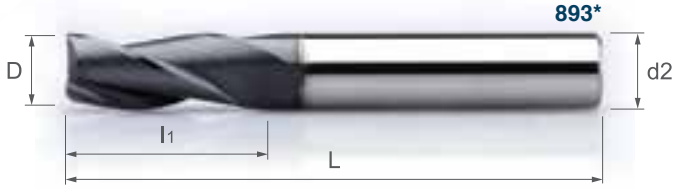
Working Material	Cutting Parameter
564	-

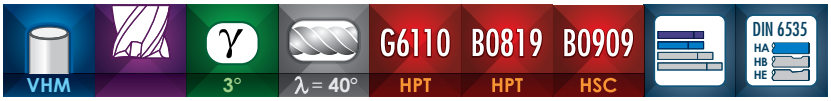
MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45 STANDARD ENDMILLS, SHORT FLUTE

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Standard Endmills, with short flute, 3 flutes
Fraises 2 tailles SE 45 Standard à hélices courtes en carbure monobloc, 3 dents
整体硬质合金 SE 45 系列 立铣刀 3 刃 – 标准长度-短刃
VHM SE 45 Standard Fräser mit kuezen Nuten, 3 Zähne
Frese SE 45 Standard con gole corte in metallo duro integrale,3 taglienti

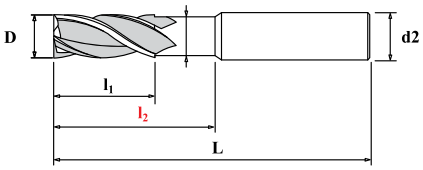




EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	140* T ... n	535* G6110	893* B0819	A14* B0909
0100 040 03	1	3		40	3	●	○	●	●
0100 040 04	1	3		40	4	●	○	●	●
0150 040 03	1.5	4.5		40	3	●	○	●	●
0150 040 04	1.5	4.5		40	4	●	○	●	●
0200 040 03	2	6.5		40	3	●	○	●	●
0200 040 04	2	6.5		40	4	●	○	●	●
0250 040 03	2.5	6.5		40	3	●	○	●	●
0250 040 04	2.5	6.5		40	4	●	○	●	●
0300	3	7	15	40	3	●	○	●	●
0300 050 06	3	7	15	50	6	●	○	●	●
0350 050 04	3.5	8	20	50	4	●	○	●	●
0400	4	8	20	50	4	●	○	●	●
0400 050 06	4	8	20	50	6	●	○	●	●
0450 050 05	4.5	10	20	50	5	●	○	●	●
0500	5	10	20	50	5	●	○	●	●
0500 050 06	5	10	20	50	6	●	○	●	●
0550 050 06	5.5	10	20	50	6	●	○	●	●
0600 050	6	10	20	50	6	●	○	●	●
0600 060	6	13	30	60	6	●	○	●	●
0700 064 08	7	16	30	64	8	●	○	●	●
0800	8	16	30	64	8	●	○	●	●
0900 070 10	9	19	32	70	10	●	○	●	●
1000 070	10	19	32	70	10	●	○	●	●
1000 075	10	19	32	75	10	●	○	●	●
1100 075 12	11	22	37	75	12	●	○	●	●
1200	12	22	37	75	12	●	○	●	●
1400	14	22	44	90	14	●	○	●	●
1600	16	26	46	90	16	●	○	●	●
1800	18	26	53	100	18	●	○	●	●
2000	20	32	58	100	20	●	○	●	●
2200	22	32	58	100	22	●	○	●	●
2500	25	36	58	100	25	●	○	●	●
						141*		630*	A15*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	242

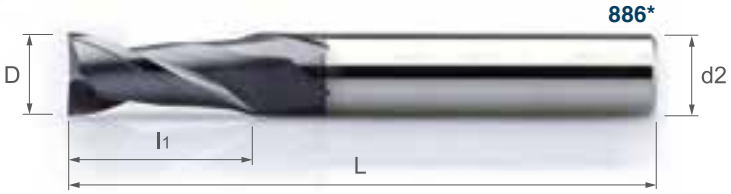
若有技术规格变更，恕不事先通知

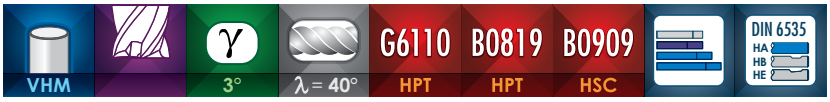
SE 45 STANDARD ENDMILLS

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Standard Endmills, 2 Flutes
Fraises 2 tailles SE 45 Standard en carbure monobloc, 2 dents
整体硬质合金 SE 45 系列 立铣刀 2 刃 – 标准长度

VHM SE 45 Standard Fräser, 2 Zähne
Frese standard SE 45 in metallo duro integrale, 2 taglienti

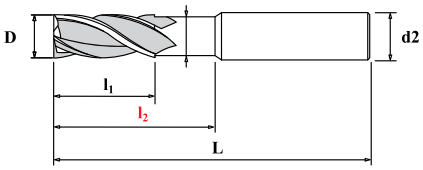




EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					124*	578*	886*	A04*
=*+Ødata	D	l1	l2	L	d2 (h6)	T ... n	G6110	B0819	B0909
0100 040 03	1	3		40	3	●	○	●	●
0100 040 04	1	3		40	4	●	○	●	●
0150 040 03	1.5	4.5		40	3	●	○	●	●
0150 040 04	1.5	4.5		40	4	●	○	●	●
0200 040 03	2	6.5		40	3	●	○	●	●
0200 040 04	2	6.5		40	4	●	○	●	●
0250 040 03	2.5	6.5		40	3	●	○	●	●
0250 040 04	2.5	6.5		40	4	●	○	●	●
0300	3	9	15	40	3	●	○	●	●
0300 050 06	3	9	15	50	6	●	○	●	●
0350 050 06	3.5	12	20	50	6	●	○	●	●
0400	4	12	20	50	4	●	○	●	●
0400 050 06	4	12	20	50	6	●	○	●	●
0450 050 06	4.5	15	20	50	6	●	○	●	●
0500	5	15	20	50	5	●	○	●	●
0500 050 06	5	15	20	50	6	●	○	●	●
0550 050 06	5.5	15	20	50	6	●	○	●	●
0600 050	6	16	20	50	6	●	○	●	●
0600 060	6	20	30	60	6	●	○	●	●
0700 064 08	7	20	30	64	8	●	○	●	●
0800	8	20	30	64	8	●	○	●	●
0900 070 10	9	22	32	70	10	●	○	●	●
1000 070	10	22	32	70	10	●	○	●	●
1000 075	10	22	32	75	10	●	○	●	●
1100 075 12	11	25	37	75	12	●	○	●	●
1200	12	25	37	75	12	●	○	●	●
1400	14	32	44	90	14	●	○	●	●
1600	16	32	46	90	16	●	○	●	●
1800	18	38	53	100	18	●	○	●	●
2000	20	38	58	100	20	●	○	●	●
2200	22	40	58	100	22	●	○	●	●
2500	25	40	58	100	25	●	○	●	●
						703*		B31*	A05*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

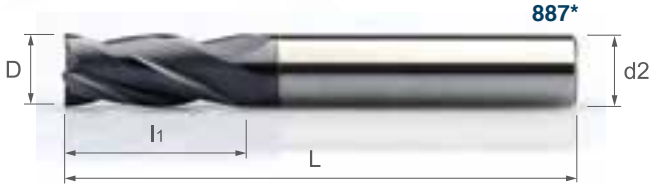
Working Material	Cutting Parameter
564	242

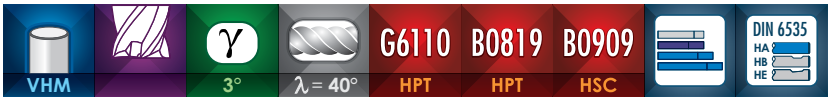
TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45 STANDARD ENDMILLS

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Standard Endmills, 4 Flutes
Fraises 2 tailles SE 45 Standard en carbure monobloc, 4 dents
整体硬质合金 SE 45 系列 立铣刀 4 刃 – 标准长度
VHM SE 45 Standard Fräser, 4 Zähne
Frese standard SE 45 in metallo duro integrale, 4 taglienti

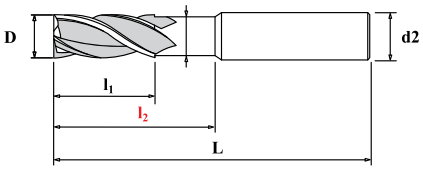




EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					148*	543*	887*	A06*
=*+Ødata	D	l1	l2	L	d2 (h6)	T ... n	G6110	B0819	B0909
0100 040 03	1	3		40	3	●	○	●	●
0100 040 04	1	3		40	4	●	○	●	●
0150 040 03	1.5	4.5		40	3	●	○	●	●
0150 040 04	1.5	4.5		40	4	●	○	●	●
0200 040 03	2	6.5		40	3	●	○	●	●
0200 040 04	2	6.5		40	4	●	○	●	●
0250 040 03	2.5	6.5		40	3	●	○	●	●
0250 040 04	2.5	6.5		40	4	●	○	●	●
0300	3	9	15	40	3	●	○	●	●
0300 050 06	3	9	15	50	6	●	○	●	●
0350 050 06	3.5	12	20	50	6	●	○	●	●
0400	4	12	20	50	4	●	○	●	●
0400 050 06	4	12	20	50	6	●	○	●	●
0450 050 06	4.5	15	20	50	6	●	○	●	●
0500	5	15	20	50	5	●	○	●	●
0500 050 06	5	15	20	50	6	●	○	●	●
0550 050 06	5.5	15	20	50	6	●	○	●	●
0600 050	6	16	20	50	6	●	○	●	●
0600 060	6	20	30	60	6	●	○	●	●
0700 064 08	7	20	30	64	8	●	○	●	●
0800	8	20	30	64	8	●	○	●	●
0900 070 10	9	22	32	70	10	●	○	●	●
1000 070	10	22	32	70	10	●	○	●	●
1000 075	10	22	32	75	10	●	○	●	●
1100 075 12	11	25	37	75	12	●	○	●	●
1200	12	25	37	75	12	●	○	●	●
1400	14	32	44	90	14	●	○	●	●
1600	16	32	46	90	16	●	○	●	●
1800	18	38	53	100	18	●	○	●	●
2000	20	38	58	100	20	●	○	●	●
2200	22	40	58	100	22	●	○	●	●
2500	25	40	58	100	25	●	○	●	●
						149*		635*	A07*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	244

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45 ENDMILLS - LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Endmills - Long, 4 Flutes
Fraises 2 tailles SE 45 longues en carbure monobloc, 4 dents
整体硬质合金 SE 45 系列 立铣刀 4 刃 – 中长
VHM SE 45 Fräser, lang, 4 Zähne
Frese SE 45 lunghe in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					180*	186*	889*	A09*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	G6110	B0819	B0909
0300	3	19		60	3	○	○	●	●
0300 075 06	3	19		75	6	○	○	●	●
0400	4	19		60	4	○	○	●	●
0400 075 06	4	19		75	6	○	○	●	●
0500	5	19		60	5	○	○	●	●
0500 075 06	5	19		75	6	○	○	●	●
0600	6	31		75	6	○	○	●	●
0800	8	31		75	8	○	○	●	●
1000 075	10	31		75	10	○	○	●	●
1000 100	10	50		100	10	○	○	●	●
1200	12	50		100	12	○	○	●	●
1400	14	57		125	14	○	○	●	●
1600	16	57		125	16	○	○	●	●
1800	18	57		125	18	○	○	●	●
2000	20	57		125	20	○	○	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material 564 | Cutting Parameter 246

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 45 ENDMILLS - EXTRA-LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Endmills - extra-long, 4 Flutes
Fraises 2 tailles SE 45 extra-longues en carbure monobloc, 4 dents
整体硬质合金 SE 45 系列 立铣刀 4 刃 – 加长
VHM SE 45 Fräser, extra-lang , 4 Zähne
Frese SE 45 extra-lunghe in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	196* T ... n	202* G6110	891* B0819	A11* B0909
0300	3	25		100	3	●	○	●	●
0300 100 06	3	25		100	6	●	○	●	●
0400	4	31		100	4	●	○	●	●
0400 100 06	4	31		100	6	●	○	●	●
0500	5	31		100	5	●	○	●	●
0500 100 06	5	31		100	6	●	○	●	●
0600	6	38		100	6	●	○	●	●
0800	8	41		100	8	●	○	●	●
1000	10	57		125	10	●	○	●	●
1200	12	75		150	12	●	○	●	●
1400	14	75		150	14	●	○	●	●
1600	16	75		150	16	●	○	●	●
1800	18	75		150	18	●	○	●	●
2000	20	75		150	20	●	○	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	248

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45 SHORT FLUTES LONG REACH ENDMILLS - LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 long LONG REACH Endmills with short flutes, 4 flutes

Fraises 2 tailles SE 45 LONG REACH longues à hélices courtes en carbure monobloc, 4 dents

整体硬质合金 SE 45 系列 短刃 立铣刀 4 刃 – 中长

VHM SE 45 lange LONG REACH Fräser mit kurzen Nuten, 4 Zähne

Frese SE 45 LONG REACH lunghe in metallo duro integrale, con gole corte, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	243* T ... n	113* G6110	895* B0819	A18* B0909
0300	3	5	30	60	3	●	●	●	●
0300 075 06	3	5	30	75	6	●	●	●	●
0400	4	8	32	60	4	●	●	●	●
0400 075 06	4	8	32	75	6	●	●	●	●
0500	5	9	32	60	5	●	●	●	●
0500 075 06	5	9	32	75	6	●	●	●	●
0600	6	10	40	75	6	●	●	●	●
0800	8	12	40	75	8	●	●	●	●
1000 075	10	14	40	75	10	●	●	●	●
1000 100	10	14	60	100	10	●	●	●	●
1200	12	16	60	100	12	●	●	●	●
1400	14	22	85	125	14	●	●	●	●
1600	16	22	85	125	16	●	●	●	●
1800	18	26	85	125	18	●	●	●	●
2000	20	26	85	125	20	●	●	●	●
						244*	114*	897*	A19*

Tools with recess upon rquest

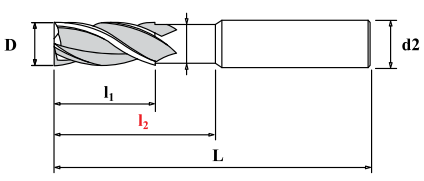
Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	246

若有技术规格变更，恕不事先通知

SE 45 SHORT FLUTES LONG REACH ENDMILLS - EXTRA-LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

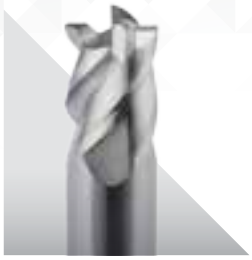
Solid Carbide SE 45 extra-long LONG REACH Endmills, with short flutes, 4 flutes

Fraises 2 tailles SE 45 LONG REACH extra-longues à hélices courtes en carbure monobloc, 4 dents

整体硬质合金 SE 45 系列 短刃 立铣刀 4 刃 – 加长

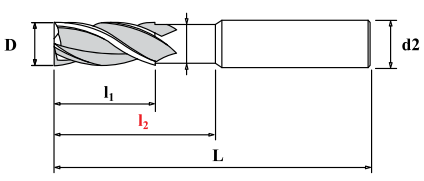
VHM SE 45 extra-lange LONG REACH Fräser mit kurzen Nuten, 4 Zähne

Frese SE 45 LONG REACH extra-lunghe in metallo duro integrale, con gole corte, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	271* T ... n	121* G6110	899* B0819	A22* B0909
0300	3	5	60	100	3	●	●	●	●
0300 100 06	3	5	60	100	6	●	●	●	●
0400	4	8	60	100	4	●	●	●	●
0400 100 06	4	8	60	100	6	●	●	●	●
0500	5	9	60	100	5	●	●	●	●
0500 100 06	5	9	60	100	6	●	●	●	●
0600	6	10	60	100	6	●	●	●	●
0800	8	12	60	100	8	●	●	●	●
1000	10	14	85	125	10	●	●	●	●
1200	12	16	110	150	12	●	●	●	●
1400	14	22	110	150	14	●	●	●	●
1600	16	22	110	150	16	●	●	●	●
1800	18	26	110	150	18	●	●	●	●
2000	20	26	110	150	20	●	●	●	●
						272*	122*	901*	A23*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

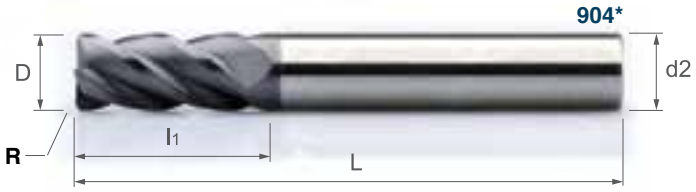
Working Material	Cutting Parameter
564	248

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45R STANDARD TORUS ENDMILLS

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45R Standard Torus Endmills, 4 flutes
Fraises 2 tailles SE 45R toriques Standard en carbure monobloc, 4 dents
整体硬质合金 SE 45R 系列 圆鼻 立铣刀 4 刃 – 标准长度
VHM SE 45R Standard Torusfräser, 4 Zähne
Frese SE 45R toroidali Standard, in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						305*	311*	904*	A26*
=*+Ødata	D	l1	l2	L	d2 (h6)	R	T ... n	G6110	B0819	B0909
0100 040 0400 020	1	3		40	4	0.2	●	●	●	●
0100 050 0600 020	1	3		50	6	0.2	●	●	●	●
0150 040 0400 020	1.5	4.5		40	4	0.2	●	●	●	●
0150 050 0600 020	1.5	4.5		50	6	0.2	●	●	●	●
0200 040 0400 020	2	6.5		40	4	0.2	○	○	○	○
0200 040 0400 030	2	6.5		40	4	0.3	●	●	●	●
0200 050 0600 020	2	6.5		50	6	0.2	○	○	○	○
0200 050 0600 030	2	6.5		50	6	0.3	●	●	●	●
0250 040 0400 020	2.5	6.5		40	4	0.2	○	○	○	○
0250 040 0400 030	2.5	6.5		40	4	0.3	●	●	●	●
0250 040 0400 050	2.5	6.5		40	4	0.5	●	●	●	●
0250 050 0600 020	2.5	6.5		50	6	0.2	○	○	○	○
0250 050 0600 030	2.5	6.5		50	6	0.3	●	●	●	●
0250 050 0600 050	2.5	6.5		50	6	0.5	●	●	●	●
0300 040 0300 020	3	9		40	3	0.2	○	○	○	○
0300 040 0300 030	3	9		40	3	0.3	●	●	●	●
0300 040 0300 050	3	9		40	3	0.5	●	●	●	●
0300 040 0400 020	3	9		40	4	0.2	○	○	○	○
0300 040 0400 030	3	9		40	4	0.3	●	●	●	●
0300 040 0400 050	3	9		40	4	0.5	●	●	●	●
0300 050 0600 020	3	9		50	6	0.2	○	○	○	○
0300 050 0600 030	3	9		50	6	0.3	●	●	●	●
0300 050 0600 050	3	9		50	6	0.5	●	●	●	●
0400 050 0400 020	4	12		50	4	0.2	○	○	○	○
0400 050 0400 030	4	12		50	4	0.3	●	●	●	●
0400 050 0400 050	4	12		50	4	0.5	●	●	●	●
0400 050 0400 100	4	12		50	4	1	●	●	●	●
0400 050 0600 020	4	12		50	6	0.2	○	○	○	○
0400 050 0600 030	4	12		50	6	0.3	●	●	●	●
0400 050 0600 050	4	12		50	6	0.5	●	●	●	●
0400 050 0600 100	4	12		50	6	1	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

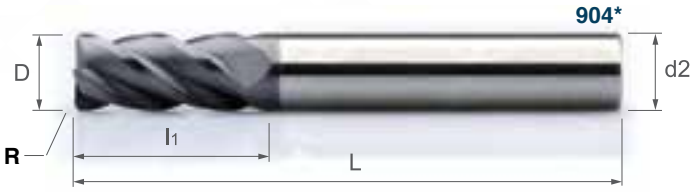
Working Material	Cutting Parameter
564	244

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45R STANDARD TORUS ENDMILLS

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45R Standard Torus Endmills, 4 flutes
Fraises 2 tailles SE 45R toriques Standard en carbure monobloc, 4 dents
整体硬质合金 SE 45R 系列 圆鼻 立铣刀 4 刃 – 标准长度
VHM SE 45R Standard Torusfräser, 4 Zähne
Frese SE 45R toroidali Standard, in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						305*	311*	904*	A26*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	R	T ... n	G6110	B0819	B0909
0500 050 0500 020	5	15		50	5	0.2	○	○	○	○
0500 050 0500 030	5	15		50	5	0.3	●	●	●	●
0500 050 0500 050	5	15		50	5	0.5	●	●	●	●
0500 050 0500 100	5	15		50	5	1	●	●	●	●
0500 050 0600 020	5	15		50	6	0.2	○	○	○	○
0500 050 0600 030	5	15		50	6	0.3	●	●	●	●
0500 050 0600 050	5	15		50	6	0.5	●	●	●	●
0500 050 0600 100	5	15		50	6	1	●	●	●	●
0600 050 0600 020	6	16		50	6	0.2	○	○	○	○
0600 050 0600 030	6	16		50	6	0.3	●	●	●	●
0600 050 0600 050	6	16		50	6	0.5	●	●	●	●
0600 050 0600 100	6	16		50	6	1	●	●	●	●
0600 060 0600 020	6	20		60	6	0.2	○	○	○	○
0600 060 0600 030	6	20		60	6	0.3	●	●	●	●
0600 060 0600 050	6	20		60	6	0.5	●	●	●	●
0600 060 0600 100	6	20		60	6	1	●	●	●	●
0800 064 0800 020	8	20		64	8	0.2	○	○	○	○
0800 064 0800 030	8	20		64	8	0.3	●	●	●	●
0800 064 0800 050	8	20		64	8	0.5	●	●	●	●
0800 064 0800 100	8	20		64	8	1	●	●	●	●
0800 064 0800 150	8	20		64	8	1.5	●	●	●	●
0800 064 0800 200	8	20		64	8	2	●	●	●	●
1000 070 1000 030	10	22		70	10	0.3	●	●	●	●
1000 070 1000 050	10	22		70	10	0.5	●	●	●	●
1000 070 1000 100	10	22		70	10	1	●	●	●	●
1000 070 1000 150	10	22		70	10	1.5	●	●	●	●
1000 070 1000 200	10	22		70	10	2	●	●	●	●
1000 075 1000 030	10	22		75	10	0.3	●	●	●	●
1000 075 1000 050	10	22		75	10	0.5	●	●	●	●
1000 075 1000 100	10	22		75	10	1	●	●	●	●
1000 075 1000 150	10	22		75	10	1.5	●	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

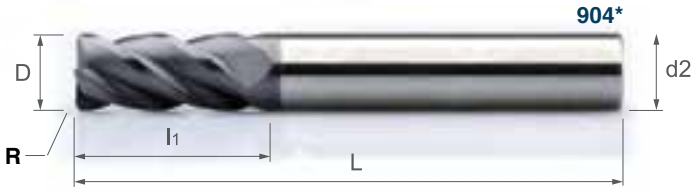
Working Material	Cutting Parameter
564	244

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 45R STANDARD TORUS ENDMILLS

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45R Standard Torus Endmills, 4 flutes
Fraises 2 tailles SE 45R toriques Standard en carbure monobloc, 4 dents
整体硬质合金 SE 45R 系列 圆鼻 立铣刀 4 刃 – 标准长度
VHM SE 45R Standard Torusfräser, 4 Zähne
Frese SE 45R toroidali Standard, in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						305*	311*	904*	A26*
=*+Ødata	D	l1	l2	L	d2 (h6)	R	T ... n	G6110	B0819	B0909
1000 075 1000 200	10	22		75	10	2	●	●	●	●
1200 075 1200 030	12	25		75	12	0.3	●	●	●	●
1200 075 1200 050	12	25		75	12	0.5	●	●	●	●
1200 075 1200 100	12	25		75	12	1	●	●	●	●
1200 075 1200 150	12	25		75	12	1.5	●	●	●	●
1200 075 1200 200	12	25		75	12	2	●	●	●	●
1200 075 1200 300	12	25		75	12	3	●	●	●	●
1400 090 1400 030	14	32		90	14	0.3	●	●	●	●
1400 090 1400 050	14	32		90	14	0.5	●	●	●	●
1400 090 1400 100	14	32		90	14	1	●	●	●	●
1400 090 1400 150	14	32		90	14	1.5	●	●	●	●
1400 090 1400 200	14	32		90	14	2	●	●	●	●
1400 090 1400 300	14	32		90	14	3	●	●	●	●
1600 090 1600 050	16	32		90	16	0.5	●	●	●	●
1600 090 1600 100	16	32		90	16	1	●	●	●	●
1600 090 1600 150	16	32		90	16	1.5	●	●	●	●
1600 090 1600 200	16	32		90	16	2	●	●	●	●
1600 090 1600 300	16	32		90	16	3	●	●	●	●
1800 100 1800 050	18	38		100	18	0.5	○	○	○	○
1800 100 1800 100	18	38		100	18	1	○	○	○	○
1800 100 1800 150	18	38		100	18	1.5	○	○	○	○
1800 100 1800 200	18	38		100	18	2	○	○	○	○
1800 100 1800 300	18	38		100	18	3	○	○	○	○
2000 100 2000 050	20	38		100	20	0.5	●	●	●	●
2000 100 2000 100	20	38		100	20	1	●	●	●	●
2000 100 2000 150	20	38		100	20	1.5	●	●	●	●
2000 100 2000 200	20	38		100	20	2	●	●	●	●
2000 100 2000 300	20	38		100	20	3	●	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material 564 | Cutting Parameter 244

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45R SHORT FLUTES LONG REACH TORUS ENDMILLS - LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

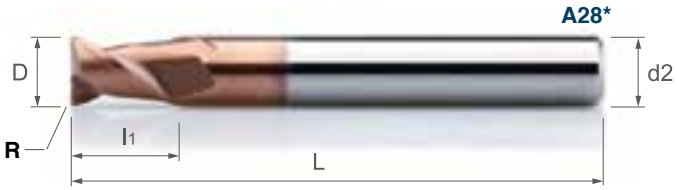
Solid Carbide SE 45R long LONG REACH Torus Endmills, short flutes, 2 flutes

Fraises 2 tailles SE 45R LONG REACH toriques longues, goujures courtes, 2 dents

整体硬质合金 SE 45R 系列 圆鼻短刃 立铣刀 2 刃 – 中长

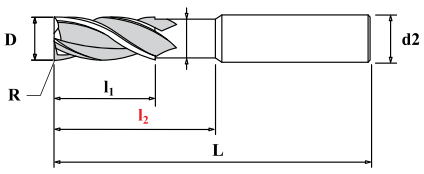
VHM SE 45R lange LONG REACH Torusfräser, kurze Nuten, 2 Zähne

Frese toroidali SE 45R LONG REACH lunghe in metallo duro integrale, gole corte, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						249*	255*	906*	A28*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	R	T ... n	G6110	B0819	B0909
0200 075 0600 030	2	4	30	75	6	0.3	●	●	●	●
0300 075 0600 030	3	5	30	75	6	0.3	●	●	●	●
0300 075 0600 050	3	5	30	75	6	0.5	●	●	●	●
0400 075 0600 030	4	8	32	75	6	0.3	●	●	●	●
0400 075 0600 050	4	8	32	75	6	0.5	●	●	●	●
0500 075 0600 030	5	9	32	75	6	0.3	●	●	●	●
0500 075 0600 050	5	9	32	75	6	0.5	●	●	●	●
0600 075 0600 030	6	10	40	75	6	0.3	●	●	●	●
0600 075 0600 050	6	10	40	75	6	0.5	●	●	●	●
0600 075 0600 100	6	10	40	75	6	1	●	●	●	●
0800 075 0800 030	8	12	40	75	8	0.3	●	●	●	●
0800 075 0800 050	8	12	40	75	8	0.5	●	●	●	●
0800 075 0800 100	8	12	40	75	8	1	●	●	●	●
1000 075 1000 050	10	14	40	75	10	0.5	●	●	●	●
1000 075 1000 100	10	14	40	75	10	1	●	●	●	●
1000 075 1000 200	10	14	40	75	10	2	●	●	●	●
1000 100 1000 050	10	14	60	100	10	0.5	●	●	●	●
1000 100 1000 100	10	14	60	100	10	1	●	●	●	●
1000 100 1000 200	10	14	60	100	10	2	●	●	●	●
1200 100 1200 050	12	16	60	100	12	0.5	●	●	●	●
1200 100 1200 100	12	16	60	100	12	1	●	●	●	●
1200 100 1200 200	12	16	60	100	12	2	●	●	●	●
1600 125 1600 050	16	22	85	125	16	0.5	●	●	●	●
1600 125 1600 100	16	22	85	125	16	1	●	●	●	●
1600 125 1600 200	16	22	85	125	16	2	●	●	●	●
1600 125 1600 300	16	22	85	125	16	3	●	●	●	●
							250*	256*	786*	A99*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	246

若有技术规格变更，恕不事先通知

SE 45R SHORT FLUTES LONG REACH TORUS ENDMILLS - LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45R long LONG REACH Torus Endmills, short flutes, 4 flutes

Fraises 2 tailles SE 45R LONG REACH toriques longues, goujures courtes, 4 dents

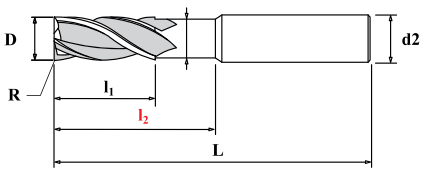
整体硬质合金 SE 45R 系列 圆鼻短刃 立铣刀 4 刃 – 中长

VHM SE 45R lange LONG REACH Torusfräser, kurze Nuten, 4 Zähne

Frese toroidali SE 45R LONG REACH lunghe in metallo duro integrale, gole corte, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						257*	263*	907*	A29*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	R	T ... n	G6110	B0819	B0909
0200 075 0600 030	2	4	30	75	6	0.3	●	●	●	●
0300 075 0600 030	3	5	30	75	6	0.3	●	●	●	●
0300 075 0600 050	3	5	30	75	6	0.5	●	●	●	●
0400 075 0600 030	4	8	32	75	6	0.3	●	●	●	●
0400 075 0600 050	4	8	32	75	6	0.5	●	●	●	●
0500 075 0600 030	5	9	32	75	6	0.3	●	●	●	●
0500 075 0600 050	5	9	32	75	6	0.5	●	●	●	●
0600 075 0600 030	6	10	40	75	6	0.3	●	●	●	●
0600 075 0600 050	6	10	40	75	6	0.5	●	●	●	●
0600 075 0600 100	6	10	40	75	6	1	●	●	●	●
0800 075 0800 030	8	12	40	75	8	0.3	●	●	●	●
0800 075 0800 050	8	12	40	75	8	0.5	●	●	●	●
0800 075 0800 100	8	12	40	75	8	1	●	●	●	●
1000 075 1000 050	10	14	40	75	10	0.5	●	●	●	●
1000 075 1000 100	10	14	40	75	10	1	●	●	●	●
1000 075 1000 200	10	14	40	75	10	2	●	●	●	●
1000 100 1000 050	10	14	60	100	10	0.5	●	●	●	●
1000 100 1000 100	10	14	60	100	10	1	●	●	●	●
1000 100 1000 200	10	14	60	100	10	2	●	●	●	●
1200 100 1200 050	12	16	60	100	12	0.5	●	●	●	●
1200 100 1200 100	12	16	60	100	12	1	●	●	●	●
1200 100 1200 200	12	16	60	100	12	2	●	●	●	●
1600 125 1600 050	16	22	85	125	16	0.5	●	●	●	●
1600 125 1600 100	16	22	85	125	16	1	●	●	●	●
1600 125 1600 200	16	22	85	125	16	2	●	●	●	●
1600 125 1600 300	16	22	85	125	16	3	●	●	●	●
							258*	264*	813*	A1B*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	246

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45R SHORT FLUTES LONG REACH TORUS ENDMILLS - EXTRA-LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

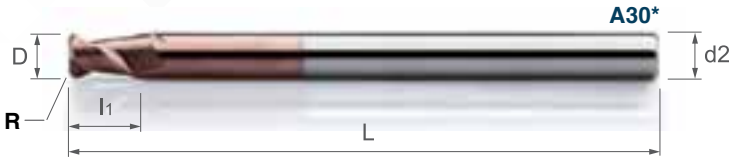
Solid Carbide SE 45R extra-long LONG REACH Torus Endmills, short flutes, 2 flutes

Fraises 2 tailles SE 45R LONG REACH toriques extra-longues, goujures courtes, 2 dents

整体硬质合金 SE 45R 系列 圆鼻短刃 立铣刀 2 刃 – 加长

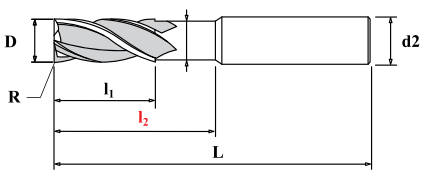
VHM SE 45R extra-lange LONG REACH Torusfräser, kurze Nuten, 2 Zähne

Frese toroidali SE 45R LONG REACH extra-lunghe in metallo duro integrale, gole corte, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						277*	283*	908*	A30*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	R	T ... n	G6110	B0819	B0909
0200 100 0600 030	2	4	60	100	6	0.3	●	●	●	●
0300 100 0600 030	3	5	60	100	6	0.3	●	●	●	●
0300 100 0600 050	3	5	60	100	6	0.5	●	●	●	●
0400 100 0600 030	4	8	60	100	6	0.3	●	●	●	●
0400 100 0600 050	4	8	60	100	6	0.5	●	●	●	●
0500 100 0600 030	5	9	60	100	6	0.3	●	●	●	●
0500 100 0600 050	5	9	60	100	6	0.5	●	●	●	●
0600 100 0600 030	6	10	60	100	6	0.3	●	●	●	●
0600 100 0600 050	6	10	60	100	6	0.5	●	●	●	●
0600 100 0600 100	6	10	60	100	6	1	●	●	●	●
0800 100 0800 030	8	12	60	100	8	0.3	●	●	●	●
0800 100 0800 050	8	12	60	100	8	0.5	●	●	●	●
0800 100 0800 100	8	12	60	100	8	1	●	●	●	●
1000 125 1000 050	10	14	85	125	10	0.5	●	●	●	●
1000 125 1000 100	10	14	85	125	10	1	●	●	●	●
1000 125 1000 200	10	14	85	125	10	2	●	●	●	●
1200 150 1200 050	12	16	110	150	12	0.5	●	●	●	●
1200 150 1200 100	12	16	110	150	12	1	●	●	●	●
1200 150 1200 200	12	16	110	150	12	2	●	●	●	●
1600 150 1600 050	16	22	110	150	16	0.5	●	●	●	●
1600 150 1600 100	16	22	110	150	16	1	●	●	●	●
1600 150 1600 200	16	22	110	150	16	2	●	●	●	●
1600 150 1600 300	16	22	110	150	16	3	●	●	●	●
							278*	284*	B32*	A31*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30
●						

Working Material	Cutting Parameter
564	248

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45R SHORT FLUTES LONG REACH TORUS ENDMILLS - EXTRA-LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

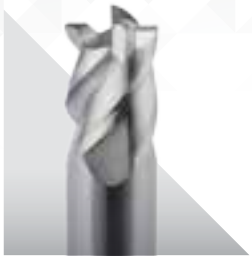
Solid Carbide SE 45R extra-long LONG REACH Torus Endmills, short flutes, 4 flutes

Fraises 2 tailles SE 45R LONG REACH toriques extra-longues, goujures courtes, 4 dents

整体硬质合金 SE 45R 系列 圆鼻短刃 立铣刀 4 刃 – 加长

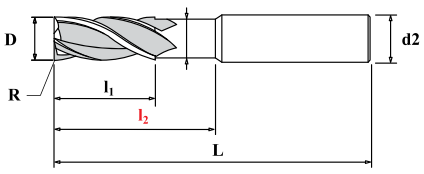
VHM SE 45R extra-lange LONG REACH Torusfräser, kurze Nuten, 4 Zähne

Frese toroidali SE 45R LONG REACH extra-lunghe in metallo duro integrale, gole corte, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						285*	291*	909*	A32*
=*+Ødata	D	l1	l2	L	d2 (h6)	R	T ... n	G6110	B0819	B0909
0200 100 0600 030	2	4	60	100	6	0.3	●	●	●	●
0300 100 0600 030	3	5	60	100	6	0.3	●	●	●	●
0300 100 0600 050	3	5	60	100	6	0.5	●	●	●	●
0400 100 0600 030	4	8	60	100	6	0.3	●	●	●	●
0400 100 0600 050	4	8	60	100	6	0.5	●	●	●	●
0500 100 0600 030	5	9	60	100	6	0.3	●	●	●	●
0500 100 0600 050	5	9	60	100	6	0.5	●	●	●	●
0600 100 0600 030	6	10	60	100	6	0.3	●	●	●	●
0600 100 0600 050	6	10	60	100	6	0.5	●	●	●	●
0600 100 0600 100	6	10	60	100	6	1	●	●	●	●
0800 100 0800 030	8	12	60	100	8	0.3	●	●	●	●
0800 100 0800 050	8	12	60	100	8	0.5	●	●	●	●
0800 100 0800 100	8	12	60	100	8	1	●	●	●	●
1000 125 1000 050	10	14	85	125	10	0.5	●	●	●	●
1000 125 1000 100	10	14	85	125	10	1	●	●	●	●
1000 125 1000 200	10	14	85	125	10	2	●	●	●	●
1200 150 1200 050	12	16	110	150	12	0.5	●	●	●	●
1200 150 1200 100	12	16	110	150	12	1	●	●	●	●
1200 150 1200 200	12	16	110	150	12	2	●	●	●	●
1600 150 1600 050	16	22	110	150	16	0.5	●	●	●	●
1600 150 1600 100	16	22	110	150	16	1	●	●	●	●
1600 150 1600 200	16	22	110	150	16	2	●	●	●	●
1600 150 1600 300	16	22	110	150	16	3	●	●	●	●
							286*	292*	B33*	A33*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

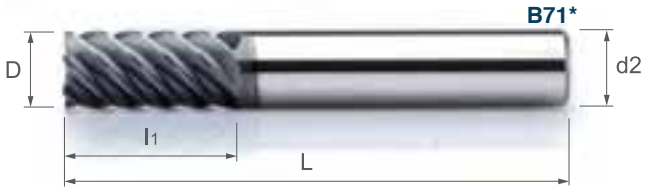
Working Material	Cutting Parameter
564	248

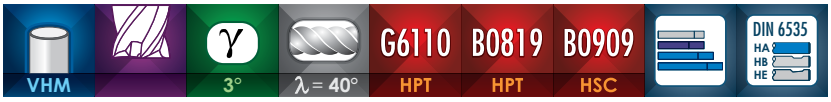
SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 45 MULTIFLUTE ENDMILLS

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

Solid Carbide SE 45 Multiflute Endmills, 6 respectively 8 Flutes
Fraises 2 tailles Multidents SE 45 en carbure monobloc, 6 respectivement 8 dents
整体硬质合金 SE 45 系列 密齿 立铣刀 6 – 8 刃 – 标准长度
VHM Mehrzahnfräser SE 45 - 6 bzw. 8 Zähne
Frese multi-taglienti SE 45 in metallo duro integrale, 6 respettivamente 8 taglienti



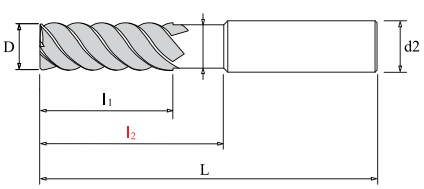


EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	353* T ... n	125* G6110	B71* B0819	A89* B0909
0300 050 06	3	8	20	50	6	○	●	●	●
0400 050 06	4	11	20	50	6	○	●	●	●
0500 050 06	5	13	20	50	6	○	●	●	●
0600 050	6	15	20	50	6	○	●	●	●
0600 060	6	20	30	60	6	○	●	●	●
0800	8	20	30	64	8	○	●	●	●
1000	10	22	32	70	10	○	●	●	●
1200	12	25	37	75	12	○	●	●	●
1400	14	30	44	90	14	○	●	●	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	353* T ... n	125* G6110	B71* B0819	A89* B0909
1600	16	30	46	90	16	○	●	●	●
1800	18	35	53	100	18	○	●	●	●
2000	20	38	58	100	20	○	●	●	●
						355*	365*	C14*	A94*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	250

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45 MULTIFLUTE ENDMILLS - LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

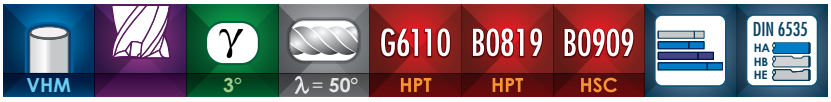
Solid Carbide SE 45 Long Multiflute Endmills, 6 respectively 8 Flutes

Fraises 2 tailles Multidents SE 45 longues en carbure monobloc, 6 respectivement 8 dents

整体硬质合金 SE 45 系列 密齿 立铣刀 6 – 8 刃 – 中长

VHM lange Mehrzahnfräser SE 45 - 6 bzw. 8 Zähne

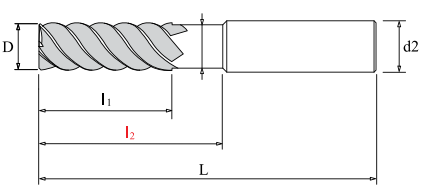
Frese multi-taglienti SE 45 lunghe in metallo duro integrale, 6 respettivamente 8 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					367*	395*	B73*	A90*
=*+Ødata	D	l1	l2	L	d2 (h6)	T ... n	G6110	B0819	B0909
0300 075 06	3	19	30	75	6	○	●	●	●
0400 075 06	4	19	32	75	6	○	●	●	●
0500 075 06	5	19	32	75	6	○	●	●	●
0600	6	31	40	75	6	○	●	●	●
0800	8	31	40	75	8	○	●	●	●
1000	10	45	60	100	10	○	●	●	●
1200	12	50	60	100	12	○	●	●	●
1400	14	57	85	125	14	○	●	●	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					367*	395*	B73*	A90*
=*+Ødata	D	l1	l2	L	d2 (h6)	T ... n	G6110	B0819	B0909
1600	16	57	85	125	16	○	●	●	●
1800	18	57	85	125	18	○	●	●	●
2000	20	57	85	125	20	○	●	●	●
						369*	397*	C15*	A95*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	251

若有技术规格变更，恕不事先通知

SE 45 MULTIFLUTE ENDMILLS - EXTRA-LONG

≤ 1.300 N/mm² + B0819/B0909 ≤ 52 HRC

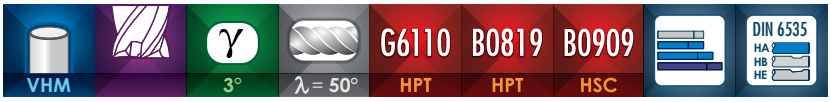
Solid Carbide SE 45 Extra-Long Multiflute Endmills, 6 respectively 8 Flutes

Fraises 2 tailles Multidents SE 45 extra-longues en carbure monobloc, 6 respectivement 8 dents

整体硬质合金 SE 45 系列 密齿 立铣刀 6 – 8 刃 – 加长

VHM extra-lange Mehrzahnfräser SE 45 - 6 bzw. 8 Zähne

Frese multi-taglienti SE 45 extra-lunghe in metallo duro integrale, 6 respettivamente 8 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	383* T ... n	431* G6110	B78* B0819	A91* B0909
0300 100 06	3	25	60	100	6	●	●	●	●
0400 100 06	4	31	60	100	6	●	●	●	●
0500 100 06	5	31	60	100	6	●	●	●	●
0600	6	38	60	100	6	●	●	●	●
0800	8	41	60	100	8	●	●	●	●
1000	10	57	85	125	10	●	●	●	●
1200	12	75	110	150	12	●	●	●	●
1400	14	75	110	150	14	●	●	●	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	383* T ... n	431* G6110	B78* B0819	A91* B0909
1600	16	75	110	150	16	●	●	●	●
1800	18	75	110	150	18	●	●	●	●
2000	20	75	110	150	20	●	●	●	●
						385*	433*	C16*	A96*

Tools with recess upon rquest

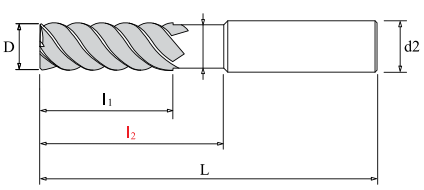
Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	252

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45 RF ROUGHING - FINISHING ENDMILLS

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

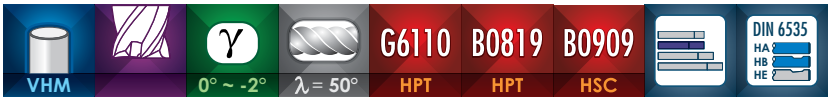
Solid Carbide SE 45 RF Roughing and Finishing Endmills 4 Flutes

Fraises ébauches et finitions 2 tailles SE 45 RF en carbure monobloc, 4 dents, queue Weldon

整体硬质合金 SE 45 RF 系列 粗皮 立铣刀 4 刃 – 标准长度，柄部标准 DIN 6535HB

VHM SE 45 RF Schlicht- Schruppfräser, 4 Zähne, Weldon Schaft

Frese per sgrossare e finitura SE 45 RF in metallo duro integrale, 4 taglienti, codolo Weldon



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						994*	840*	A82*
	D	l1	l2	L	d2 (h6)	C	G6110	B0819	B0909
0600	6	14	20	66	6	0.2	●	●	●
0800	8	18	26	66	8	0.2	●	●	●
1000	10	22	32	82	10	0.2	●	●	●
1200	12	26	38	82	12	0.2	●	●	●
1400	14	30	42	82	14	0.3	●	●	●
1600	16	34	50	82	16	0.3	●	●	●
1800	18	38	50	100	18	0.3	●	●	●
2000	20	42	60	110	20	0.3	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

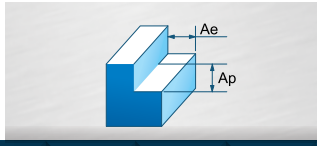
M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	244

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45 Standard Series Endmills

Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D

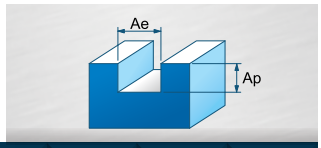


2 Z Side Milling

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35~ 45 HRC)	M22,M31	1	2	70 ~ 90	0.006 ~ 0.010	≤1.5D	≤0.10D	22280 ~ 28650	270 ~ 570
		1.5	2	70 ~ 90	0.010 ~ 0.014	≤1.5D	≤0.10D	14850 ~ 19100	300 ~ 530
		2	2	70 ~ 90	0.014 ~ 0.018	≤1.5D	≤0.10D	11140 ~ 14320	310 ~ 520
		2.5	2	70 ~ 90	0.018 ~ 0.022	≤1.5D	≤0.10D	8910 ~ 11460	320 ~ 500
		3	2	70 ~ 90	0.022 ~ 0.026	≤1.5D	≤0.10D	7430 ~ 9550	330 ~ 500
		4	2	70 ~ 90	0.030 ~ 0.034	≤1.5D	≤0.20D	5570 ~ 7160	330 ~ 490
		5	2	70 ~ 90	0.038 ~ 0.042	≤1.5D	≤0.20D	4460 ~ 5730	340 ~ 480
		6	2	70 ~ 90	0.046 ~ 0.051	≤1.5D	≤0.20D	3710 ~ 4770	340 ~ 490
		8	2	70 ~ 90	0.057 ~ 0.063	≤1.5D	≤0.20D	2790 ~ 3580	320 ~ 450
		10	2	70 ~ 90	0.069 ~ 0.076	≤1.5D	≤0.20D	2230 ~ 2860	310 ~ 430
		12	2	70 ~ 90	0.080 ~ 0.088	≤1.5D	≤0.20D	1860 ~ 2390	300 ~ 420
		14	2	70 ~ 90	0.091 ~ 0.100	≤1.5D	≤0.20D	1590 ~ 2050	290 ~ 410
		16	2	70 ~ 90	0.103 ~ 0.113	≤1.5D	≤0.20D	1390 ~ 1790	290 ~ 400
		18	2	70 ~ 90	0.114 ~ 0.125	≤1.5D	≤0.20D	1240 ~ 1590	280 ~ 400
		20	2	70 ~ 90	0.125 ~ 0.138	≤1.5D	≤0.20D	1110 ~ 1430	280 ~ 390
		22	2	70 ~ 90	0.137 ~ 0.150	≤1.5D	≤0.20D	1010 ~ 1300	280 ~ 390
		25	2	70 ~ 90	0.154 ~ 0.169	≤1.5D	≤0.20D	890 ~ 1150	270 ~ 390
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (35 - 45 HRC) AISI H13 NAK	M20, M21, M24	1	2	50 ~ 70	0.004 ~ 0.008	≤1.5D	≤0.10D	15920 ~ 22280	130 ~ 360
		1.5	2	50 ~ 70	0.007 ~ 0.012	≤1.5D	≤0.10D	10610 ~ 14850	150 ~ 360
		2	2	50 ~ 70	0.010 ~ 0.015	≤1.5D	≤0.10D	7960 ~ 11140	160 ~ 330
		2.5	2	50 ~ 70	0.013 ~ 0.018	≤1.5D	≤0.10D	6370 ~ 8910	170 ~ 320
		3	2	50 ~ 70	0.017 ~ 0.021	≤1.5D	≤0.10D	5310 ~ 7430	180 ~ 310
		4	2	50 ~ 70	0.023 ~ 0.027	≤1.5D	≤0.20D	3980 ~ 5570	180 ~ 300
		5	2	50 ~ 70	0.030 ~ 0.033	≤1.5D	≤0.20D	3180 ~ 4460	190 ~ 290
		6	2	50 ~ 70	0.036 ~ 0.040	≤1.5D	≤0.20D	2650 ~ 3710	190 ~ 300
		8	2	50 ~ 70	0.045 ~ 0.049	≤1.5D	≤0.20D	1990 ~ 2790	180 ~ 270
		10	2	50 ~ 70	0.054 ~ 0.059	≤1.5D	≤0.20D	1590 ~ 2230	170 ~ 260
		12	2	50 ~ 70	0.063 ~ 0.069	≤1.5D	≤0.20D	1330 ~ 1860	170 ~ 260
		14	2	50 ~ 70	0.071 ~ 0.079	≤1.5D	≤0.20D	1140 ~ 1590	160 ~ 250
		16	2	50 ~ 70	0.080 ~ 0.088	≤1.5D	≤0.20D	990 ~ 1390	160 ~ 240
		18	2	50 ~ 70	0.089 ~ 0.098	≤1.5D	≤0.20D	880 ~ 1240	160 ~ 240
		20	2	50 ~ 70	0.098 ~ 0.108	≤1.5D	≤0.20D	800 ~ 1110	160 ~ 240
		22	2	50 ~ 70	0.107 ~ 0.117	≤1.5D	≤0.20D	720 ~ 1010	150 ~ 240
		25	2	50 ~ 70	0.120 ~ 0.132	≤1.5D	≤0.20D	640 ~ 890	150 ~ 230
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	2	40 ~ 60	0.001 ~ 0.002	≤1.5D	≤0.10D	12730 ~ 19100	30 ~ 80
		1.5	2	40 ~ 60	0.003 ~ 0.004	≤1.5D	≤0.10D	8490 ~ 12730	50 ~ 100
		2	2	40 ~ 60	0.004 ~ 0.005	≤1.5D	≤0.10D	6370 ~ 9550	50 ~ 100
		2.5	2	40 ~ 60	0.005 ~ 0.006	≤1.5D	≤0.10D	5090 ~ 7640	50 ~ 90
		3	2	40 ~ 60	0.006 ~ 0.008	≤1.5D	≤0.10D	4240 ~ 6370	50 ~ 100
		4	2	40 ~ 60	0.009 ~ 0.010	≤1.5D	≤0.20D	3180 ~ 4770	60 ~ 100
		5	2	40 ~ 60	0.012 ~ 0.013	≤1.5D	≤0.20D	2550 ~ 3820	60 ~ 100
		6	2	40 ~ 60	0.014 ~ 0.016	≤1.5D	≤0.20D	2120 ~ 3180	60 ~ 100
		8	2	40 ~ 60	0.018 ~ 0.020	≤1.5D	≤0.20D	1590 ~ 2390	60 ~ 100
		10	2	40 ~ 60	0.021 ~ 0.024	≤1.5D	≤0.20D	1270 ~ 1910	50 ~ 90
		12	2	40 ~ 60	0.025 ~ 0.028	≤1.5D	≤0.20D	1060 ~ 1590	50 ~ 90
		14	2	40 ~ 60	0.029 ~ 0.031	≤1.5D	≤0.20D	910 ~ 1360	50 ~ 80
		16	2	40 ~ 60	0.032 ~ 0.035	≤1.5D	≤0.20D	800 ~ 1190	50 ~ 80
		18	2	40 ~ 60	0.036 ~ 0.039	≤1.5D	≤0.20D	710 ~ 1060	50 ~ 80
		20	2	40 ~ 60	0.039 ~ 0.043	≤1.5D	≤0.20D	640 ~ 950	50 ~ 80
		22	2	40 ~ 60	0.043 ~ 0.047	≤1.5D	≤0.20D	580 ~ 870	50 ~ 80
		25	2	40 ~ 60	0.048 ~ 0.053	≤1.5D	≤0.20D	510 ~ 760	50 ~ 80

SE 45 Standard Series Endmills

Ae = D
Ap ≤ 0.1D (D < ø2)
Ap ≤ 0.2D (D ≥ ø2)

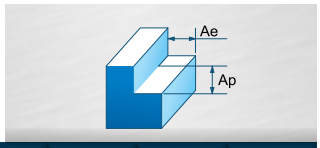


2 Z Slotting

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35HRC ~ 45 HRC)	M22,M31	1	2	70 ~ 90	0.005 ~ 0.008	≤0.1D	1.0D	22280 ~ 28650	220 ~ 460
		1.5	2	70 ~ 90	0.008 ~ 0.011	≤0.1D	1.0D	14850 ~ 19100	240 ~ 420
		2	2	70 ~ 90	0.011 ~ 0.014	≤0.2D	1.0D	11140 ~ 14320	250 ~ 400
		2.5	2	70 ~ 90	0.014 ~ 0.018	≤0.2D	1.0D	8910 ~ 11460	250 ~ 410
		3	2	70 ~ 90	0.018 ~ 0.021	≤0.2D	1.0D	7430 ~ 9550	270 ~ 400
		4	2	70 ~ 90	0.024 ~ 0.027	≤0.2D	1.0D	5570 ~ 7160	270 ~ 390
		5	2	70 ~ 90	0.030 ~ 0.034	≤0.2D	1.0D	4460 ~ 5730	270 ~ 390
		6	2	70 ~ 90	0.037 ~ 0.041	≤0.2D	1.0D	3710 ~ 4770	270 ~ 390
		8	2	70 ~ 90	0.046 ~ 0.051	≤0.2D	1.0D	2790 ~ 3580	260 ~ 370
		10	2	70 ~ 90	0.055 ~ 0.060	≤0.2D	1.0D	2230 ~ 2860	250 ~ 340
		12	2	70 ~ 90	0.064 ~ 0.070	≤0.2D	1.0D	1860 ~ 2390	240 ~ 330
		14	2	70 ~ 90	0.073 ~ 0.080	≤0.2D	1.0D	1590 ~ 2050	230 ~ 330
		16	2	70 ~ 90	0.082 ~ 0.090	≤0.2D	1.0D	1390 ~ 1790	230 ~ 320
		18	2	70 ~ 90	0.091 ~ 0.100	≤0.2D	1.0D	1240 ~ 1590	230 ~ 320
		20	2	70 ~ 90	0.100 ~ 0.110	≤0.2D	1.0D	1110 ~ 1430	220 ~ 310
		22	2	70 ~ 90	0.109 ~ 0.120	≤0.2D	1.0D	1010 ~ 1300	220 ~ 310
		25	2	70 ~ 90	0.123 ~ 0.135	≤0.2D	1.0D	890 ~ 1150	220 ~ 310
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20, M21, M24	1	2	50 ~ 70	0.003 ~ 0.007	≤0.1D	1.0D	15920 ~ 22280	100 ~ 310
		1.5	2	50 ~ 70	0.005 ~ 0.009	≤0.1D	1.0D	10610 ~ 14850	110 ~ 270
		2	2	50 ~ 70	0.008 ~ 0.012	≤0.2D	1.0D	7960 ~ 11140	130 ~ 270
		2.5	2	50 ~ 70	0.011 ~ 0.014	≤0.2D	1.0D	6370 ~ 8910	140 ~ 250
		3	2	50 ~ 70	0.013 ~ 0.017	≤0.2D	1.0D	5310 ~ 7430	140 ~ 250
		4	2	50 ~ 70	0.018 ~ 0.022	≤0.2D	1.0D	3980 ~ 5570	140 ~ 250
		5	2	50 ~ 70	0.024 ~ 0.027	≤0.2D	1.0D	3180 ~ 4460	150 ~ 240
		6	2	50 ~ 70	0.029 ~ 0.032	≤0.2D	1.0D	2650 ~ 3710	150 ~ 240
		8	2	50 ~ 70	0.036 ~ 0.039	≤0.2D	1.0D	1990 ~ 2790	140 ~ 220
		10	2	50 ~ 70	0.043 ~ 0.047	≤0.2D	1.0D	1590 ~ 2230	140 ~ 210
		12	2	50 ~ 70	0.050 ~ 0.055	≤0.2D	1.0D	1330 ~ 1860	130 ~ 200
		14	2	50 ~ 70	0.057 ~ 0.063	≤0.2D	1.0D	1140 ~ 1590	130 ~ 200
		16	2	50 ~ 70	0.064 ~ 0.071	≤0.2D	1.0D	990 ~ 1390	130 ~ 200
		18	2	50 ~ 70	0.071 ~ 0.078	≤0.2D	1.0D	880 ~ 1240	120 ~ 190
		20	2	50 ~ 70	0.078 ~ 0.086	≤0.2D	1.0D	800 ~ 1110	120 ~ 190
		22	2	50 ~ 70	0.085 ~ 0.094	≤0.2D	1.0D	720 ~ 1010	120 ~ 190
		25	2	50 ~ 70	0.096 ~ 0.106	≤0.2D	1.0D	640 ~ 890	120 ~ 190
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	2	40 ~ 60	0.001 ~ 0.002	≤0.05D	1.0D	12730 ~ 19100	30 ~ 80
		1.5	2	40 ~ 60	0.002 ~ 0.003	≤0.05D	1.0D	8490 ~ 12730	30 ~ 80
		2	2	40 ~ 60	0.003 ~ 0.004	≤0.1D	1.0D	6370 ~ 9550	40 ~ 80
		2.5	2	40 ~ 60	0.004 ~ 0.005	≤0.1D	1.0D	5090 ~ 7640	40 ~ 80
		3	2	40 ~ 60	0.005 ~ 0.006	≤0.1D	1.0D	4240 ~ 6370	40 ~ 80
		4	2	40 ~ 60	0.007 ~ 0.008	≤0.1D	1.0D	3180 ~ 4770	40 ~ 80
		5	2	40 ~ 60	0.009 ~ 0.011	≤0.1D	1.0D	2550 ~ 3820	50 ~ 80
		6	2	40 ~ 60	0.012 ~ 0.013	≤0.1D	1.0D	2120 ~ 3180	50 ~ 80
		8	2	40 ~ 60	0.014 ~ 0.016	≤0.1D	1.0D	1590 ~ 2390	40 ~ 80
		10	2	40 ~ 60	0.017 ~ 0.019	≤0.1D	1.0D	1270 ~ 1910	40 ~ 70
		12	2	40 ~ 60	0.020 ~ 0.022	≤0.1D	1.0D	1060 ~ 1590	40 ~ 70
		14	2	40 ~ 60	0.023 ~ 0.025	≤0.1D	1.0D	910 ~ 1360	40 ~ 70
		16	2	40 ~ 60	0.026 ~ 0.028	≤0.1D	1.0D	800 ~ 1190	40 ~ 70
		18	2	40 ~ 60	0.028 ~ 0.031	≤0.1D	1.0D	710 ~ 1060	40 ~ 70
		20	2	40 ~ 60	0.031 ~ 0.034	≤0.1D	1.0D	640 ~ 950	40 ~ 60
		22	2	40 ~ 60	0.034 ~ 0.038	≤0.1D	1.0D	580 ~ 870	40 ~ 70
		25	2	40 ~ 60	0.038 ~ 0.042	≤0.1D	1.0D	510 ~ 760	40 ~ 60

SE 45 Standard Series Endmills

Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D

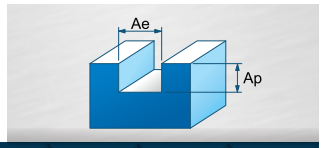


4 Z Side Milling

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35 HRC ~ 45 HRC)	M22,M31	1	4	70 ~ 90	0.005 ~ 0.007	≤1.5D	≤0.10D	22280 ~ 28650	450 ~ 800
		1.5	4	70 ~ 90	0.008 ~ 0.010	≤1.5D	≤0.10D	14850 ~ 19100	480 ~ 760
		2	4	70 ~ 90	0.011 ~ 0.013	≤1.5D	≤0.10D	11140 ~ 14320	490 ~ 740
		2.5	4	70 ~ 90	0.014 ~ 0.016	≤1.5D	≤0.10D	8910 ~ 11460	500 ~ 730
		3	4	70 ~ 90	0.017 ~ 0.020	≤1.5D	≤0.10D	7430 ~ 9550	510 ~ 760
		4	4	70 ~ 90	0.023 ~ 0.026	≤1.5D	≤0.20D	5570 ~ 7160	510 ~ 740
		5	4	70 ~ 90	0.029 ~ 0.032	≤1.5D	≤0.20D	4460 ~ 5730	520 ~ 730
		6	4	70 ~ 90	0.035 ~ 0.038	≤1.5D	≤0.20D	3710 ~ 4770	520 ~ 730
		8	4	70 ~ 90	0.043 ~ 0.047	≤1.5D	≤0.20D	2790 ~ 3580	480 ~ 670
		10	4	70 ~ 90	0.052 ~ 0.057	≤1.5D	≤0.20D	2230 ~ 2860	460 ~ 650
		12	4	70 ~ 90	0.060 ~ 0.066	≤1.5D	≤0.20D	1860 ~ 2390	450 ~ 630
		14	4	70 ~ 90	0.069 ~ 0.075	≤1.5D	≤0.20D	1590 ~ 2050	440 ~ 620
		16	4	70 ~ 90	0.077 ~ 0.085	≤1.5D	≤0.20D	1390 ~ 1790	430 ~ 610
		18	4	70 ~ 90	0.085 ~ 0.094	≤1.5D	≤0.20D	1240 ~ 1590	420 ~ 600
		20	4	70 ~ 90	0.094 ~ 0.103	≤1.5D	≤0.20D	1110 ~ 1430	420 ~ 590
		22	4	70 ~ 90	0.102 ~ 0.113	≤1.5D	≤0.20D	1010 ~ 1300	410 ~ 590
		25	4	70 ~ 90	0.115 ~ 0.127	≤1.5D	≤0.20D	890 ~ 1150	410 ~ 580
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20, M21, M24	1	4	50 ~ 70	0.003 ~ 0.006	≤1.5D	≤0.10D	15920 ~ 22280	190 ~ 530
		1.5	4	50 ~ 70	0.005 ~ 0.009	≤1.5D	≤0.10D	10610 ~ 14850	210 ~ 530
		2	4	50 ~ 70	0.008 ~ 0.011	≤1.5D	≤0.10D	7960 ~ 11140	250 ~ 490
		2.5	4	50 ~ 70	0.010 ~ 0.013	≤1.5D	≤0.10D	6370 ~ 8910	250 ~ 460
		3	4	50 ~ 70	0.012 ~ 0.016	≤1.5D	≤0.10D	5310 ~ 7430	250 ~ 480
		4	4	50 ~ 70	0.017 ~ 0.020	≤1.5D	≤0.20D	3980 ~ 5570	270 ~ 450
		5	4	50 ~ 70	0.022 ~ 0.025	≤1.5D	≤0.20D	3180 ~ 4460	280 ~ 450
		6	4	50 ~ 70	0.027 ~ 0.030	≤1.5D	≤0.20D	2650 ~ 3710	290 ~ 450
		8	4	50 ~ 70	0.034 ~ 0.037	≤1.5D	≤0.20D	1990 ~ 2790	270 ~ 410
		10	4	50 ~ 70	0.040 ~ 0.044	≤1.5D	≤0.20D	1590 ~ 2230	250 ~ 390
		12	4	50 ~ 70	0.047 ~ 0.052	≤1.5D	≤0.20D	1330 ~ 1860	250 ~ 390
		14	4	50 ~ 70	0.054 ~ 0.059	≤1.5D	≤0.20D	1140 ~ 1590	250 ~ 380
		16	4	50 ~ 70	0.060 ~ 0.066	≤1.5D	≤0.20D	990 ~ 1390	240 ~ 370
		18	4	50 ~ 70	0.067 ~ 0.073	≤1.5D	≤0.20D	880 ~ 1240	240 ~ 360
		20	4	50 ~ 70	0.073 ~ 0.081	≤1.5D	≤0.20D	800 ~ 1110	230 ~ 360
		22	4	50 ~ 70	0.080 ~ 0.088	≤1.5D	≤0.20D	720 ~ 1010	230 ~ 360
		25	4	50 ~ 70	0.090 ~ 0.099	≤1.5D	≤0.20D	640 ~ 890	230 ~ 350
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	4	40 ~ 60	0.001 ~ 0.002	≤1.0D	≤0.05D	12730 ~ 19100	50 ~ 150
		1.5	4	40 ~ 60	0.002 ~ 0.003	≤1.0D	≤0.05D	8490 ~ 12730	70 ~ 150
		2	4	40 ~ 60	0.003 ~ 0.004	≤1.0D	≤0.05D	6370 ~ 9550	80 ~ 150
		2.5	4	40 ~ 60	0.004 ~ 0.005	≤1.0D	≤0.05D	5090 ~ 7640	80 ~ 150
		3	4	40 ~ 60	0.005 ~ 0.006	≤1.0D	≤0.05D	4240 ~ 6370	80 ~ 150
		4	4	40 ~ 60	0.007 ~ 0.008	≤1.0D	≤0.05D	3180 ~ 4770	90 ~ 150
		5	4	40 ~ 60	0.009 ~ 0.010	≤1.0D	≤0.05D	2550 ~ 3820	90 ~ 150
		6	4	40 ~ 60	0.011 ~ 0.012	≤1.0D	≤0.05D	2120 ~ 3180	90 ~ 150
		8	4	40 ~ 60	0.013 ~ 0.015	≤1.0D	≤0.05D	1590 ~ 2390	80 ~ 140
		10	4	40 ~ 60	0.016 ~ 0.018	≤1.0D	≤0.05D	1270 ~ 1910	80 ~ 140
		12	4	40 ~ 60	0.019 ~ 0.021	≤1.0D	≤0.05D	1060 ~ 1590	80 ~ 130
		14	4	40 ~ 60	0.021 ~ 0.024	≤1.0D	≤0.05D	910 ~ 1360	80 ~ 130
		16	4	40 ~ 60	0.024 ~ 0.026	≤1.0D	≤0.05D	800 ~ 1190	80 ~ 120
		18	4	40 ~ 60	0.027 ~ 0.029	≤1.0D	≤0.05D	710 ~ 1060	80 ~ 120
		20	4	40 ~ 60	0.029 ~ 0.032	≤1.0D	≤0.05D	640 ~ 950	70 ~ 120
		22	4	40 ~ 60	0.032 ~ 0.035	≤1.0D	≤0.05D	580 ~ 870	70 ~ 120
		25	4	40 ~ 60	0.036 ~ 0.040	≤1.0D	≤0.05D	510 ~ 760	70 ~ 120

SE 45 Standard Series Endmills

Ae = D
Ap ≤ 0.1D (D < Ø2)
Ap ≤ 0.2D (D ≥ Ø2)

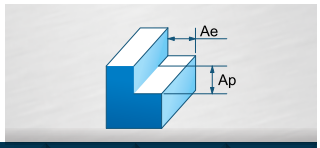


4 Z Slotting

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35 HRC ~ 45 HRC)	M22,M31	1	4	70 ~ 90	0.004 ~ 0.006	≤0.1D	1.0D	22280 ~ 28650	360 ~ 690
		1.5	4	70 ~ 90	0.006 ~ 0.008	≤0.1D	1.0D	14850 ~ 19100	360 ~ 610
		2	4	70 ~ 90	0.008 ~ 0.011	≤0.2D	1.0D	11140 ~ 14320	360 ~ 630
		2.5	4	70 ~ 90	0.011 ~ 0.013	≤0.2D	1.0D	8910 ~ 11460	390 ~ 600
		3	4	70 ~ 90	0.013 ~ 0.016	≤0.2D	1.0D	7430 ~ 9550	390 ~ 610
		4	4	70 ~ 90	0.018 ~ 0.021	≤0.2D	1.0D	5570 ~ 7160	400 ~ 600
		5	4	70 ~ 90	0.023 ~ 0.025	≤0.2D	1.0D	4460 ~ 5730	410 ~ 570
		6	4	70 ~ 90	0.028 ~ 0.030	≤0.2D	1.0D	3710 ~ 4770	420 ~ 570
		8	4	70 ~ 90	0.034 ~ 0.038	≤0.2D	1.0D	2790 ~ 3580	380 ~ 540
		10	4	70 ~ 90	0.041 ~ 0.045	≤0.2D	1.0D	2230 ~ 2860	370 ~ 510
		12	4	70 ~ 90	0.048 ~ 0.053	≤0.2D	1.0D	1860 ~ 2390	360 ~ 510
		14	4	70 ~ 90	0.055 ~ 0.060	≤0.2D	1.0D	1590 ~ 2050	350 ~ 490
		16	4	70 ~ 90	0.062 ~ 0.068	≤0.2D	1.0D	1390 ~ 1790	340 ~ 490
		18	4	70 ~ 90	0.068 ~ 0.075	≤0.2D	1.0D	1240 ~ 1590	340 ~ 480
		20	4	70 ~ 90	0.075 ~ 0.083	≤0.2D	1.0D	1110 ~ 1430	330 ~ 470
		22	4	70 ~ 90	0.082 ~ 0.090	≤0.2D	1.0D	1010 ~ 1300	330 ~ 470
		25	4	70 ~ 90	0.092 ~ 0.101	≤0.2D	1.0D	890 ~ 1150	330 ~ 460
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20,M21, M24	1	4	50 ~ 70	0.002 ~ 0.005	≤0.1D	1.0D	15920 ~ 22280	130 ~ 450
		1.5	4	50 ~ 70	0.004 ~ 0.007	≤0.1D	1.0D	10610 ~ 14850	170 ~ 420
		2	4	50 ~ 70	0.006 ~ 0.009	≤0.2D	1.0D	7960 ~ 11140	190 ~ 400
		2.5	4	50 ~ 70	0.008 ~ 0.011	≤0.2D	1.0D	6370 ~ 8910	200 ~ 390
		3	4	50 ~ 70	0.010 ~ 0.013	≤0.2D	1.0D	5310 ~ 7430	210 ~ 390
		4	4	50 ~ 70	0.014 ~ 0.016	≤0.2D	1.0D	3980 ~ 5570	220 ~ 360
		5	4	50 ~ 70	0.018 ~ 0.020	≤0.2D	1.0D	3180 ~ 4460	230 ~ 360
		6	4	50 ~ 70	0.022 ~ 0.024	≤0.2D	1.0D	2650 ~ 3710	230 ~ 360
		8	4	50 ~ 70	0.027 ~ 0.030	≤0.2D	1.0D	1990 ~ 2790	210 ~ 330
		10	4	50 ~ 70	0.032 ~ 0.035	≤0.2D	1.0D	1590 ~ 2230	200 ~ 310
		12	4	50 ~ 70	0.038 ~ 0.041	≤0.2D	1.0D	1330 ~ 1860	200 ~ 310
		14	4	50 ~ 70	0.043 ~ 0.047	≤0.2D	1.0D	1140 ~ 1590	200 ~ 300
		16	4	50 ~ 70	0.048 ~ 0.053	≤0.2D	1.0D	990 ~ 1390	190 ~ 290
		18	4	50 ~ 70	0.053 ~ 0.059	≤0.2D	1.0D	880 ~ 1240	190 ~ 290
		20	4	50 ~ 70	0.059 ~ 0.065	≤0.2D	1.0D	800 ~ 1110	190 ~ 290
		22	4	50 ~ 70	0.064 ~ 0.070	≤0.2D	1.0D	720 ~ 1010	180 ~ 280
		25	4	50 ~ 70	0.072 ~ 0.079	≤0.2D	1.0D	640 ~ 890	180 ~ 280
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	4	40 ~ 60	0.001 ~ 0.001	≤0.05D	1.0D	12730 ~ 19100	50 ~ 80
		1.5	4	40 ~ 60	0.002 ~ 0.002	≤0.05D	1.0D	8490 ~ 12730	70 ~ 100
		2	4	40 ~ 60	0.002 ~ 0.003	≤0.1D	1.0D	6370 ~ 9550	50 ~ 110
		2.5	4	40 ~ 60	0.003 ~ 0.004	≤0.1D	1.0D	5090 ~ 7640	60 ~ 120
		3	4	40 ~ 60	0.004 ~ 0.005	≤0.1D	1.0D	4240 ~ 6370	70 ~ 130
		4	4	40 ~ 60	0.005 ~ 0.006	≤0.1D	1.0D	3180 ~ 4770	60 ~ 110
		5	4	40 ~ 60	0.007 ~ 0.008	≤0.1D	1.0D	2550 ~ 3820	70 ~ 120
		6	4	40 ~ 60	0.009 ~ 0.010	≤0.1D	1.0D	2120 ~ 3180	80 ~ 130
		8	4	40 ~ 60	0.011 ~ 0.012	≤0.1D	1.0D	1590 ~ 2390	70 ~ 110
		10	4	40 ~ 60	0.013 ~ 0.014	≤0.1D	1.0D	1270 ~ 1910	70 ~ 110
		12	4	40 ~ 60	0.015 ~ 0.017	≤0.1D	1.0D	1060 ~ 1590	60 ~ 110
		14	4	40 ~ 60	0.017 ~ 0.019	≤0.1D	1.0D	910 ~ 1360	60 ~ 100
		16	4	40 ~ 60	0.019 ~ 0.021	≤0.1D	1.0D	800 ~ 1190	60 ~ 100
		18	4	40 ~ 60	0.021 ~ 0.024	≤0.1D	1.0D	710 ~ 1060	60 ~ 100
		20	4	40 ~ 60	0.023 ~ 0.026	≤0.1D	1.0D	640 ~ 950	60 ~ 100
		22	4	40 ~ 60	0.026 ~ 0.028	≤0.1D	1.0D	580 ~ 870	60 ~ 100
		25	4	40 ~ 60	0.029 ~ 0.032	≤0.1D	1.0D	510 ~ 760	60 ~ 100

SE 45 Long Series Endmills

Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D



4 Z Side Milling

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35 HRC ~ 45 HRC)	M22,M31	1	4	56 ~ 72	0.005 ~ 0.007	≤1.5D	≤0.10D	17830 ~ 22920	360 ~ 640
		1.5	4	56 ~ 72	0.008 ~ 0.010	≤1.5D	≤0.10D	11880 ~ 15280	380 ~ 610
		2	4	56 ~ 72	0.011 ~ 0.013	≤1.5D	≤0.10D	8910 ~ 11460	390 ~ 600
		2.5	4	56 ~ 72	0.014 ~ 0.016	≤1.5D	≤0.10D	7130 ~ 9170	400 ~ 590
		3	4	56 ~ 72	0.017 ~ 0.020	≤1.5D	≤0.10D	5940 ~ 7640	400 ~ 610
		4	4	56 ~ 72	0.023 ~ 0.026	≤1.5D	≤0.20D	4460 ~ 5730	410 ~ 600
		5	4	56 ~ 72	0.029 ~ 0.032	≤1.5D	≤0.20D	3570 ~ 4580	410 ~ 590
		6	4	56 ~ 72	0.035 ~ 0.038	≤1.5D	≤0.20D	2970 ~ 3820	420 ~ 580
		8	4	56 ~ 72	0.043 ~ 0.047	≤1.5D	≤0.20D	2230 ~ 2860	380 ~ 540
		10	4	56 ~ 72	0.052 ~ 0.057	≤1.5D	≤0.20D	1780 ~ 2290	370 ~ 520
		12	4	56 ~ 72	0.060 ~ 0.066	≤1.5D	≤0.20D	1490 ~ 1910	360 ~ 500
		14	4	56 ~ 72	0.069 ~ 0.075	≤1.5D	≤0.20D	1270 ~ 1640	350 ~ 490
		16	4	56 ~ 72	0.077 ~ 0.085	≤1.5D	≤0.20D	1110 ~ 1430	340 ~ 490
		18	4	56 ~ 72	0.085 ~ 0.094	≤1.5D	≤0.20D	990 ~ 1270	340 ~ 480
		20	4	56 ~ 72	0.094 ~ 0.103	≤1.5D	≤0.20D	890 ~ 1150	330 ~ 470
		22	4	56 ~ 72	0.102 ~ 0.113	≤1.5D	≤0.20D	810 ~ 1040	330 ~ 470
		25	4	56 ~ 72	0.115 ~ 0.127	≤1.5D	≤0.20D	710 ~ 920	330 ~ 470
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20,,M21 M24	1	4	40 ~ 56	0.003 ~ 0.006	≤1.5D	≤0.10D	12730 ~ 17830	150 ~ 430
		1.5	4	40 ~ 56	0.005 ~ 0.009	≤1.5D	≤0.10D	8490 ~ 11880	170 ~ 430
		2	4	40 ~ 56	0.008 ~ 0.011	≤1.5D	≤0.10D	6370 ~ 8910	200 ~ 390
		2.5	4	40 ~ 56	0.010 ~ 0.013	≤1.5D	≤0.10D	5090 ~ 7130	200 ~ 370
		3	4	40 ~ 56	0.012 ~ 0.016	≤1.5D	≤0.10D	4240 ~ 5940	200 ~ 380
		4	4	40 ~ 56	0.017 ~ 0.020	≤1.5D	≤0.20D	3180 ~ 4460	220 ~ 360
		5	4	40 ~ 56	0.022 ~ 0.025	≤1.5D	≤0.20D	2550 ~ 3570	220 ~ 360
		6	4	40 ~ 56	0.027 ~ 0.030	≤1.5D	≤0.20D	2120 ~ 2970	230 ~ 360
		8	4	40 ~ 56	0.034 ~ 0.037	≤1.5D	≤0.20D	1590 ~ 2230	220 ~ 330
		10	4	40 ~ 56	0.040 ~ 0.044	≤1.5D	≤0.20D	1270 ~ 1780	200 ~ 310
		12	4	40 ~ 56	0.047 ~ 0.052	≤1.5D	≤0.20D	1060 ~ 1490	200 ~ 310
		14	4	40 ~ 56	0.054 ~ 0.059	≤1.5D	≤0.20D	910 ~ 1270	200 ~ 300
		16	4	40 ~ 56	0.060 ~ 0.066	≤1.5D	≤0.20D	800 ~ 1110	190 ~ 290
		18	4	40 ~ 56	0.067 ~ 0.073	≤1.5D	≤0.20D	710 ~ 990	190 ~ 290
		20	4	40 ~ 56	0.073 ~ 0.081	≤1.5D	≤0.20D	640 ~ 890	190 ~ 290
		22	4	40 ~ 56	0.080 ~ 0.088	≤1.5D	≤0.20D	580 ~ 810	190 ~ 290
		25	4	40 ~ 56	0.090 ~ 0.099	≤1.5D	≤0.20D	510 ~ 710	180 ~ 280
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	4	32 ~ 48	0.001 ~ 0.002	≤1.0D	≤0.05D	10190 ~ 15280	40 ~ 120
		1.5	4	32 ~ 48	0.002 ~ 0.003	≤1.0D	≤0.05D	6790 ~ 10190	50 ~ 120
		2	4	32 ~ 48	0.003 ~ 0.004	≤1.0D	≤0.05D	5090 ~ 7640	60 ~ 120
		2.5	4	32 ~ 48	0.004 ~ 0.005	≤1.0D	≤0.05D	4070 ~ 6110	70 ~ 120
		3	4	32 ~ 48	0.005 ~ 0.006	≤1.0D	≤0.05D	3400 ~ 5090	70 ~ 120
		4	4	32 ~ 48	0.007 ~ 0.008	≤1.0D	≤0.05D	2550 ~ 3820	70 ~ 120
		5	4	32 ~ 48	0.009 ~ 0.010	≤1.0D	≤0.05D	2040 ~ 3060	70 ~ 120
		6	4	32 ~ 48	0.011 ~ 0.012	≤1.0D	≤0.05D	1700 ~ 2550	70 ~ 120
		8	4	32 ~ 48	0.013 ~ 0.015	≤1.0D	≤0.05D	1270 ~ 1910	70 ~ 110
		10	4	32 ~ 48	0.016 ~ 0.018	≤1.0D	≤0.05D	1020 ~ 1530	70 ~ 110
		12	4	32 ~ 48	0.019 ~ 0.021	≤1.0D	≤0.05D	850 ~ 1270	60 ~ 110
		14	4	32 ~ 48	0.021 ~ 0.024	≤1.0D	≤0.05D	730 ~ 1090	60 ~ 100
		16	4	32 ~ 48	0.024 ~ 0.026	≤1.0D	≤0.05D	640 ~ 950	60 ~ 100
		18	4	32 ~ 48	0.027 ~ 0.029	≤1.0D	≤0.05D	570 ~ 850	60 ~ 100
		20	4	32 ~ 48	0.029 ~ 0.032	≤1.0D	≤0.05D	510 ~ 760	60 ~ 100
		22	4	32 ~ 48	0.032 ~ 0.035	≤1.0D	≤0.05D	460 ~ 690	60 ~ 100
		25	4	32 ~ 48	0.036 ~ 0.040	≤1.0D	≤0.05D	410 ~ 610	60 ~ 100

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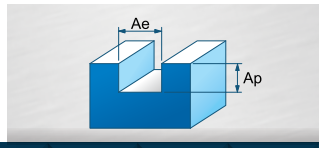
SE 45 Long Series Endmills

Ae = D
Ap ≤ 0.1D (D < Ø2)
Ap ≤ 0.2D (D ≥ Ø2)

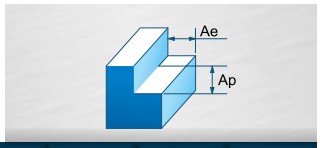


4 Z Slotting

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35HRC ~ 45 HRC)	M22,M31	1	4	56 ~ 72	0.004 ~ 0.006	≤0.1D	1.0D	17830 ~ 22920	290 ~ 550
		1.5	4	56 ~ 72	0.006 ~ 0.008	≤0.1D	1.0D	11880 ~ 15280	290 ~ 490
		2	4	56 ~ 72	0.008 ~ 0.011	≤0.2D	1.0D	8910 ~ 11460	290 ~ 500
		2.5	4	56 ~ 72	0.011 ~ 0.013	≤0.2D	1.0D	7130 ~ 9170	310 ~ 480
		3	4	56 ~ 72	0.013 ~ 0.016	≤0.2D	1.0D	5940 ~ 7640	310 ~ 490
		4	4	56 ~ 72	0.018 ~ 0.021	≤0.2D	1.0D	4460 ~ 5730	320 ~ 480
		5	4	56 ~ 72	0.023 ~ 0.025	≤0.2D	1.0D	3570 ~ 4580	330 ~ 460
		6	4	56 ~ 72	0.028 ~ 0.030	≤0.2D	1.0D	2970 ~ 3820	330 ~ 460
		8	4	56 ~ 72	0.034 ~ 0.038	≤0.2D	1.0D	2230 ~ 2860	300 ~ 430
		10	4	56 ~ 72	0.041 ~ 0.045	≤0.2D	1.0D	1780 ~ 2290	290 ~ 410
		12	4	56 ~ 72	0.048 ~ 0.053	≤0.2D	1.0D	1490 ~ 1910	290 ~ 400
		14	4	56 ~ 72	0.055 ~ 0.060	≤0.2D	1.0D	1270 ~ 1640	280 ~ 390
		16	4	56 ~ 72	0.062 ~ 0.068	≤0.2D	1.0D	1110 ~ 1430	280 ~ 390
		18	4	56 ~ 72	0.068 ~ 0.075	≤0.2D	1.0D	990 ~ 1270	270 ~ 380
		20	4	56 ~ 72	0.075 ~ 0.083	≤0.2D	1.0D	890 ~ 1150	270 ~ 380
		22	4	56 ~ 72	0.082 ~ 0.090	≤0.2D	1.0D	810 ~ 1040	270 ~ 370
		25	4	56 ~ 72	0.092 ~ 0.101	≤0.2D	1.0D	710 ~ 920	260 ~ 370
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20, M21, M24	1	4	40 ~ 56	0.002 ~ 0.005	≤0.1D	1.0D	12730 ~ 17830	100 ~ 360
		1.5	4	40 ~ 56	0.004 ~ 0.007	≤0.1D	1.0D	8490 ~ 11880	140 ~ 330
		2	4	40 ~ 56	0.006 ~ 0.009	≤0.2D	1.0D	6370 ~ 8910	150 ~ 320
		2.5	4	40 ~ 56	0.008 ~ 0.011	≤0.2D	1.0D	5090 ~ 7130	160 ~ 310
		3	4	40 ~ 56	0.010 ~ 0.013	≤0.2D	1.0D	4240 ~ 5940	170 ~ 310
		4	4	40 ~ 56	0.014 ~ 0.016	≤0.2D	1.0D	3180 ~ 4460	180 ~ 290
		5	4	40 ~ 56	0.018 ~ 0.020	≤0.2D	1.0D	2550 ~ 3570	180 ~ 290
		6	4	40 ~ 56	0.022 ~ 0.024	≤0.2D	1.0D	2120 ~ 2970	190 ~ 290
		8	4	40 ~ 56	0.027 ~ 0.030	≤0.2D	1.0D	1590 ~ 2230	170 ~ 270
		10	4	40 ~ 56	0.032 ~ 0.035	≤0.2D	1.0D	1270 ~ 1780	160 ~ 250
		12	4	40 ~ 56	0.038 ~ 0.041	≤0.2D	1.0D	1060 ~ 1490	160 ~ 240
		14	4	40 ~ 56	0.043 ~ 0.047	≤0.2D	1.0D	910 ~ 1270	160 ~ 240
		16	4	40 ~ 56	0.048 ~ 0.053	≤0.2D	1.0D	800 ~ 1110	150 ~ 240
		18	4	40 ~ 56	0.053 ~ 0.059	≤0.2D	1.0D	710 ~ 990	150 ~ 230
		20	4	40 ~ 56	0.059 ~ 0.065	≤0.2D	1.0D	640 ~ 890	150 ~ 230
		22	4	40 ~ 56	0.064 ~ 0.070	≤0.2D	1.0D	580 ~ 810	150 ~ 230
		25	4	40 ~ 56	0.072 ~ 0.079	≤0.2D	1.0D	510 ~ 710	150 ~ 220
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	4	32 ~ 48	0.001 ~ 0.001	≤0.05D	1.0D	10190 ~ 15280	40 ~ 60
		1.5	4	32 ~ 48	0.002 ~ 0.002	≤0.05D	1.0D	6790 ~ 10190	50 ~ 80
		2	4	32 ~ 48	0.002 ~ 0.003	≤0.1D	1.0D	5090 ~ 7640	40 ~ 90
		2.5	4	32 ~ 48	0.003 ~ 0.004	≤0.1D	1.0D	4070 ~ 6110	50 ~ 100
		3	4	32 ~ 48	0.004 ~ 0.005	≤0.1D	1.0D	3400 ~ 5090	50 ~ 100
		4	4	32 ~ 48	0.005 ~ 0.006	≤0.1D	1.0D	2550 ~ 3820	50 ~ 90
		5	4	32 ~ 48	0.007 ~ 0.008	≤0.1D	1.0D	2040 ~ 3060	60 ~ 100
		6	4	32 ~ 48	0.009 ~ 0.010	≤0.1D	1.0D	1700 ~ 2550	60 ~ 100
		8	4	32 ~ 48	0.011 ~ 0.012	≤0.1D	1.0D	1270 ~ 1910	60 ~ 90
		10	4	32 ~ 48	0.013 ~ 0.014	≤0.1D	1.0D	1020 ~ 1530	50 ~ 90
		12	4	32 ~ 48	0.015 ~ 0.017	≤0.1D	1.0D	850 ~ 1270	50 ~ 90
		14	4	32 ~ 48	0.017 ~ 0.019	≤0.1D	1.0D	730 ~ 1090	50 ~ 80
		16	4	32 ~ 48	0.019 ~ 0.021	≤0.1D	1.0D	640 ~ 950	50 ~ 80
		18	4	32 ~ 48	0.021 ~ 0.024	≤0.1D	1.0D	570 ~ 850	50 ~ 80
		20	4	32 ~ 48	0.023 ~ 0.026	≤0.1D	1.0D	510 ~ 760	50 ~ 80
		22	4	32 ~ 48	0.026 ~ 0.028	≤0.1D	1.0D	460 ~ 690	50 ~ 80
		25	4	32 ~ 48	0.029 ~ 0.032	≤0.1D	1.0D	410 ~ 610	50 ~ 80

SE 45 Extra-Long Series Endmills

Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D

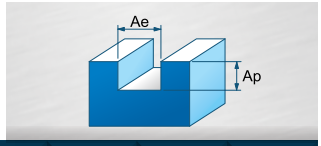


4 Z Side Milling

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35 HRC ~ 45 HRC)	M22,M31	1	4	35 ~ 45	0.005 ~ 0.007	≤1.5D	≤0.10D	11140 ~ 14320	220 ~ 400
		1.5	4	35 ~ 45	0.008 ~ 0.010	≤1.5D	≤0.10D	7430 ~ 9550	240 ~ 380
		2	4	35 ~ 45	0.011 ~ 0.013	≤1.5D	≤0.10D	5570 ~ 7160	250 ~ 370
		2.5	4	35 ~ 45	0.014 ~ 0.016	≤1.5D	≤0.10D	4460 ~ 5730	250 ~ 370
		3	4	35 ~ 45	0.017 ~ 0.020	≤1.5D	≤0.10D	3710 ~ 4770	250 ~ 380
		4	4	35 ~ 45	0.023 ~ 0.026	≤1.5D	≤0.20D	2790 ~ 3580	260 ~ 370
		5	4	35 ~ 45	0.029 ~ 0.032	≤1.5D	≤0.20D	2230 ~ 2860	260 ~ 370
		6	4	35 ~ 45	0.035 ~ 0.038	≤1.5D	≤0.20D	1860 ~ 2390	260 ~ 360
		8	4	35 ~ 45	0.043 ~ 0.047	≤1.5D	≤0.20D	1390 ~ 1790	240 ~ 340
		10	4	35 ~ 45	0.052 ~ 0.057	≤1.5D	≤0.20D	1110 ~ 1430	230 ~ 330
		12	4	35 ~ 45	0.060 ~ 0.066	≤1.5D	≤0.20D	930 ~ 1190	220 ~ 310
		14	4	35 ~ 45	0.069 ~ 0.075	≤1.5D	≤0.20D	800 ~ 1020	220 ~ 310
		16	4	35 ~ 45	0.077 ~ 0.085	≤1.5D	≤0.20D	700 ~ 900	220 ~ 310
		18	4	35 ~ 45	0.085 ~ 0.094	≤1.5D	≤0.20D	620 ~ 800	210 ~ 300
		20	4	35 ~ 45	0.094 ~ 0.103	≤1.5D	≤0.20D	560 ~ 720	210 ~ 300
		22	4	35 ~ 45	0.102 ~ 0.113	≤1.5D	≤0.20D	510 ~ 650	210 ~ 290
		25	4	35 ~ 45	0.115 ~ 0.127	≤1.5D	≤0.20D	450 ~ 570	210 ~ 290
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20,M21, M24	1	4	25 ~ 35	0.003 ~ 0.006	≤1.5D	≤0.10D	7960 ~ 11140	100 ~ 270
		1.5	4	25 ~ 35	0.005 ~ 0.009	≤1.5D	≤0.10D	5310 ~ 7430	110 ~ 270
		2	4	25 ~ 35	0.008 ~ 0.011	≤1.5D	≤0.10D	3980 ~ 5570	130 ~ 250
		2.5	4	25 ~ 35	0.010 ~ 0.013	≤1.5D	≤0.10D	3180 ~ 4460	130 ~ 230
		3	4	25 ~ 35	0.012 ~ 0.016	≤1.5D	≤0.10D	2650 ~ 3710	130 ~ 240
		4	4	25 ~ 35	0.017 ~ 0.020	≤1.5D	≤0.20D	1990 ~ 2790	140 ~ 220
		5	4	25 ~ 35	0.022 ~ 0.025	≤1.5D	≤0.20D	1590 ~ 2230	140 ~ 220
		6	4	25 ~ 35	0.027 ~ 0.030	≤1.5D	≤0.20D	1330 ~ 1860	140 ~ 220
		8	4	25 ~ 35	0.034 ~ 0.037	≤1.5D	≤0.20D	990 ~ 1390	130 ~ 210
		10	4	25 ~ 35	0.040 ~ 0.044	≤1.5D	≤0.20D	800 ~ 1110	130 ~ 200
		12	4	25 ~ 35	0.047 ~ 0.052	≤1.5D	≤0.20D	660 ~ 930	120 ~ 190
		14	4	25 ~ 35	0.054 ~ 0.059	≤1.5D	≤0.20D	570 ~ 800	120 ~ 190
		16	4	25 ~ 35	0.060 ~ 0.066	≤1.5D	≤0.20D	500 ~ 700	120 ~ 180
		18	4	25 ~ 35	0.067 ~ 0.073	≤1.5D	≤0.20D	440 ~ 620	120 ~ 180
		20	4	25 ~ 35	0.073 ~ 0.081	≤1.5D	≤0.20D	400 ~ 560	120 ~ 180
		22	4	25 ~ 35	0.080 ~ 0.088	≤1.5D	≤0.20D	360 ~ 510	120 ~ 180
		25	4	25 ~ 35	0.090 ~ 0.099	≤1.5D	≤0.20D	320 ~ 450	120 ~ 180
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	4	20 ~ 30	0.001 ~ 0.002	≤1.0D	≤0.05D	6370 ~ 9550	30 ~ 80
		1.5	4	20 ~ 30	0.002 ~ 0.003	≤1.0D	≤0.05D	4240 ~ 6370	30 ~ 80
		2	4	20 ~ 30	0.003 ~ 0.004	≤1.0D	≤0.05D	3180 ~ 4770	40 ~ 80
		2.5	4	20 ~ 30	0.004 ~ 0.005	≤1.0D	≤0.05D	2550 ~ 3820	40 ~ 80
		3	4	20 ~ 30	0.005 ~ 0.006	≤1.0D	≤0.05D	2120 ~ 3180	40 ~ 80
		4	4	20 ~ 30	0.007 ~ 0.008	≤1.0D	≤0.05D	1590 ~ 2390	40 ~ 80
		5	4	20 ~ 30	0.009 ~ 0.010	≤1.0D	≤0.05D	1270 ~ 1910	50 ~ 80
		6	4	20 ~ 30	0.011 ~ 0.012	≤1.0D	≤0.05D	1060 ~ 1590	50 ~ 80
		8	4	20 ~ 30	0.013 ~ 0.015	≤1.0D	≤0.05D	800 ~ 1190	40 ~ 70
		10	4	20 ~ 30	0.016 ~ 0.018	≤1.0D	≤0.05D	640 ~ 950	40 ~ 70
		12	4	20 ~ 30	0.019 ~ 0.021	≤1.0D	≤0.05D	530 ~ 800	40 ~ 70
		14	4	20 ~ 30	0.021 ~ 0.024	≤1.0D	≤0.05D	450 ~ 680	40 ~ 70
		16	4	20 ~ 30	0.024 ~ 0.026	≤1.0D	≤0.05D	400 ~ 600	40 ~ 60
		18	4	20 ~ 30	0.027 ~ 0.029	≤1.0D	≤0.05D	350 ~ 530	40 ~ 60
		20	4	20 ~ 30	0.029 ~ 0.032	≤1.0D	≤0.05D	320 ~ 480	40 ~ 60
		22	4	20 ~ 30	0.032 ~ 0.035	≤1.0D	≤0.05D	290 ~ 430	40 ~ 60
		25	4	20 ~ 30	0.036 ~ 0.040	≤1.0D	≤0.05D	250 ~ 380	40 ~ 60

SE 45 Extra-Long Series Endmills

Ae = D
Ap ≤ 0.1D (D < ø2)
Ap ≤ 0.2D (D ≥ ø2)

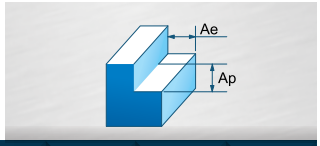


4 Z Slotting

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35 HRC ~ 45HRC)	M22,M31	1	4	35 ~ 45	0.004 ~ 0.006	≤0.1D	1.0D	11140 ~ 14320	180 ~ 340
		1.5	4	35 ~ 45	0.006 ~ 0.008	≤0.1D	1.0D	7430 ~ 9550	180 ~ 310
		2	4	35 ~ 45	0.008 ~ 0.011	≤0.2D	1.0D	5570 ~ 7160	180 ~ 320
		2.5	4	35 ~ 45	0.011 ~ 0.013	≤0.2D	1.0D	4460 ~ 5730	200 ~ 300
		3	4	35 ~ 45	0.013 ~ 0.016	≤0.2D	1.0D	3710 ~ 4770	190 ~ 310
		4	4	35 ~ 45	0.018 ~ 0.021	≤0.2D	1.0D	2790 ~ 3580	200 ~ 300
		5	4	35 ~ 45	0.023 ~ 0.025	≤0.2D	1.0D	2230 ~ 2860	210 ~ 290
		6	4	35 ~ 45	0.028 ~ 0.030	≤0.2D	1.0D	1860 ~ 2390	210 ~ 290
		8	4	35 ~ 45	0.034 ~ 0.038	≤0.2D	1.0D	1390 ~ 1790	190 ~ 270
		10	4	35 ~ 45	0.041 ~ 0.045	≤0.2D	1.0D	1110 ~ 1430	180 ~ 260
		12	4	35 ~ 45	0.048 ~ 0.053	≤0.2D	1.0D	930 ~ 1190	180 ~ 250
		14	4	35 ~ 45	0.055 ~ 0.060	≤0.2D	1.0D	800 ~ 1020	180 ~ 240
		16	4	35 ~ 45	0.062 ~ 0.068	≤0.2D	1.0D	700 ~ 900	170 ~ 240
		18	4	35 ~ 45	0.068 ~ 0.075	≤0.2D	1.0D	620 ~ 800	170 ~ 240
		20	4	35 ~ 45	0.075 ~ 0.083	≤0.2D	1.0D	560 ~ 720	170 ~ 240
		22	4	35 ~ 45	0.082 ~ 0.090	≤0.2D	1.0D	510 ~ 650	170 ~ 230
		25	4	35 ~ 45	0.092 ~ 0.101	≤0.2D	1.0D	450 ~ 570	170 ~ 230
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20, M21,M24	1	4	25 ~ 35	0.002 ~ 0.005	≤0.1D	1.0D	7960 ~ 11140	60 ~ 220
		1.5	4	25 ~ 35	0.004 ~ 0.007	≤0.1D	1.0D	5310 ~ 7430	80 ~ 210
		2	4	25 ~ 35	0.006 ~ 0.009	≤0.2D	1.0D	3980 ~ 5570	100 ~ 200
		2.5	4	25 ~ 35	0.008 ~ 0.011	≤0.2D	1.0D	3180 ~ 4460	100 ~ 200
		3	4	25 ~ 35	0.010 ~ 0.013	≤0.2D	1.0D	2650 ~ 3710	110 ~ 190
		4	4	25 ~ 35	0.014 ~ 0.016	≤0.2D	1.0D	1990 ~ 2790	110 ~ 180
		5	4	25 ~ 35	0.018 ~ 0.020	≤0.2D	1.0D	1590 ~ 2230	110 ~ 180
		6	4	25 ~ 35	0.022 ~ 0.024	≤0.2D	1.0D	1330 ~ 1860	120 ~ 180
		8	4	25 ~ 35	0.027 ~ 0.030	≤0.2D	1.0D	990 ~ 1390	110 ~ 170
		10	4	25 ~ 35	0.032 ~ 0.035	≤0.2D	1.0D	800 ~ 1110	100 ~ 160
		12	4	25 ~ 35	0.038 ~ 0.041	≤0.2D	1.0D	660 ~ 930	100 ~ 150
		14	4	25 ~ 35	0.043 ~ 0.047	≤0.2D	1.0D	570 ~ 800	100 ~ 150
		16	4	25 ~ 35	0.048 ~ 0.053	≤0.2D	1.0D	500 ~ 700	100 ~ 150
		18	4	25 ~ 35	0.053 ~ 0.059	≤0.2D	1.0D	440 ~ 620	90 ~ 150
		20	4	25 ~ 35	0.059 ~ 0.065	≤0.2D	1.0D	400 ~ 560	90 ~ 150
		22	4	25 ~ 35	0.064 ~ 0.070	≤0.2D	1.0D	360 ~ 510	90 ~ 140
		25	4	25 ~ 35	0.072 ~ 0.079	≤0.2D	1.0D	320 ~ 450	90 ~ 140
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	4	20 ~ 30	0.001 ~ 0.001	≤0.05D	1.0D	6370 ~ 9550	30 ~ 40
		1.5	4	20 ~ 30	0.002 ~ 0.002	≤0.05D	1.0D	4240 ~ 6370	30 ~ 50
		2	4	20 ~ 30	0.002 ~ 0.003	≤0.1D	1.0D	3180 ~ 4770	30 ~ 60
		2.5	4	20 ~ 30	0.003 ~ 0.004	≤0.1D	1.0D	2550 ~ 3820	30 ~ 60
		3	4	20 ~ 30	0.004 ~ 0.005	≤0.1D	1.0D	2120 ~ 3180	30 ~ 60
		4	4	20 ~ 30	0.005 ~ 0.006	≤0.1D	1.0D	1590 ~ 2390	30 ~ 60
		5	4	20 ~ 30	0.007 ~ 0.008	≤0.1D	1.0D	1270 ~ 1910	40 ~ 60
		6	4	20 ~ 30	0.009 ~ 0.010	≤0.1D	1.0D	1060 ~ 1590	40 ~ 60
		8	4	20 ~ 30	0.011 ~ 0.012	≤0.1D	1.0D	800 ~ 1190	40 ~ 60
		10	4	20 ~ 30	0.013 ~ 0.014	≤0.1D	1.0D	640 ~ 950	30 ~ 50
		12	4	20 ~ 30	0.015 ~ 0.017	≤0.1D	1.0D	530 ~ 800	30 ~ 50
		14	4	20 ~ 30	0.017 ~ 0.019	≤0.1D	1.0D	450 ~ 680	30 ~ 50
		16	4	20 ~ 30	0.019 ~ 0.021	≤0.1D	1.0D	400 ~ 600	30 ~ 50
		18	4	20 ~ 30	0.021 ~ 0.024	≤0.1D	1.0D	350 ~ 530	30 ~ 50
		20	4	20 ~ 30	0.023 ~ 0.026	≤0.1D	1.0D	320 ~ 480	30 ~ 50
		22	4	20 ~ 30	0.026 ~ 0.028	≤0.1D	1.0D	290 ~ 430	30 ~ 50
		25	4	20 ~ 30	0.029 ~ 0.032	≤0.1D	1.0D	250 ~ 380	30 ~ 50

SE 45 MultiFlute Series Endmills

Ae ≤ 0.05D
Ap ≤ 1.5D

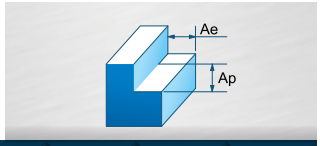


6/8 Z Side Milling (Finishing)

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35HRC ~ 45 HRC)	M22, M31	1	6	70 ~ 90	0.004 ~ 0.006	≤1.5D	≤0.05D	22280 ~ 28650	530 ~ 1030
		1.5	6	70 ~ 90	0.007 ~ 0.009	≤1.5D	≤0.05D	14850 ~ 19100	620 ~ 1030
		2	6	70 ~ 90	0.009 ~ 0.012	≤1.5D	≤0.05D	11140 ~ 14320	600 ~ 1030
		2.5	6	70 ~ 90	0.012 ~ 0.015	≤1.5D	≤0.05D	8910 ~ 11460	640 ~ 1030
		3	6	70 ~ 90	0.015 ~ 0.017	≤1.5D	≤0.05D	7430 ~ 9550	670 ~ 970
		4	6	70 ~ 90	0.020 ~ 0.023	≤1.5D	≤0.05D	5570 ~ 7160	670 ~ 990
		5	6	70 ~ 90	0.025 ~ 0.028	≤1.5D	≤0.05D	4460 ~ 5730	670 ~ 960
		6	6	70 ~ 90	0.031 ~ 0.034	≤1.5D	≤0.05D	3710 ~ 4770	690 ~ 970
		8	6	70 ~ 90	0.038 ~ 0.042	≤1.5D	≤0.05D	2790 ~ 3580	640 ~ 900
		10	6	70 ~ 90	0.046 ~ 0.050	≤1.5D	≤0.05D	2230 ~ 2860	620 ~ 860
		12	6	70 ~ 90	0.053 ~ 0.059	≤1.5D	≤0.05D	1860 ~ 2390	590 ~ 850
		14	6	70 ~ 90	0.061 ~ 0.067	≤1.5D	≤0.05D	1590 ~ 2050	580 ~ 820
		16	8	70 ~ 90	0.068 ~ 0.075	≤1.5D	≤0.05D	1390 ~ 1790	570 ~ 810
		18	8	70 ~ 90	0.076 ~ 0.084	≤1.5D	≤0.05D	1240 ~ 1590	570 ~ 800
		20	8	70 ~ 90	0.084 ~ 0.092	≤1.5D	≤0.05D	1110 ~ 1430	560 ~ 790
		22	8	70 ~ 90	0.091 ~ 0.100	≤1.5D	≤0.05D	1010 ~ 1300	550 ~ 780
		25	8	70 ~ 90	0.102 ~ 0.113	≤1.5D	≤0.05D	890 ~ 1150	540 ~ 780
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20,M21,M24	1	6	50 ~ 70	0.002 ~ 0.006	≤1.5D	≤0.05D	15920 ~ 22280	190 ~ 800
		1.5	6	50 ~ 70	0.005 ~ 0.008	≤1.5D	≤0.05D	10610 ~ 14850	320 ~ 710
		2	6	50 ~ 70	0.007 ~ 0.010	≤1.5D	≤0.05D	7960 ~ 11140	330 ~ 670
		2.5	6	50 ~ 70	0.009 ~ 0.012	≤1.5D	≤0.05D	6370 ~ 8910	340 ~ 640
		3	6	50 ~ 70	0.011 ~ 0.014	≤1.5D	≤0.05D	5310 ~ 7430	350 ~ 620
		4	6	50 ~ 70	0.015 ~ 0.018	≤1.5D	≤0.05D	3980 ~ 5570	360 ~ 600
		5	6	50 ~ 70	0.020 ~ 0.022	≤1.5D	≤0.05D	3180 ~ 4460	380 ~ 590
		6	6	50 ~ 70	0.024 ~ 0.026	≤1.5D	≤0.05D	2650 ~ 3710	380 ~ 580
		8	6	50 ~ 70	0.030 ~ 0.033	≤1.5D	≤0.05D	1990 ~ 2790	360 ~ 550
		10	6	50 ~ 70	0.036 ~ 0.039	≤1.5D	≤0.05D	1590 ~ 2230	340 ~ 520
		12	6	50 ~ 70	0.042 ~ 0.046	≤1.5D	≤0.05D	1330 ~ 1860	340 ~ 510
		14	6	50 ~ 70	0.048 ~ 0.052	≤1.5D	≤0.05D	1140 ~ 1590	330 ~ 500
		16	8	50 ~ 70	0.053 ~ 0.059	≤1.5D	≤0.05D	990 ~ 1390	310 ~ 490
		18	8	50 ~ 70	0.059 ~ 0.065	≤1.5D	≤0.05D	880 ~ 1240	310 ~ 480
		20	8	50 ~ 70	0.065 ~ 0.072	≤1.5D	≤0.05D	800 ~ 1110	310 ~ 480
		22	8	50 ~ 70	0.071 ~ 0.078	≤1.5D	≤0.05D	720 ~ 1010	310 ~ 470
		25	8	50 ~ 70	0.080 ~ 0.088	≤1.5D	≤0.05D	640 ~ 890	310 ~ 470
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	6	40 ~ 60	0.001 ~ 0.002	≤1.0D	≤0.03D	12730 ~ 19100	80 ~ 230
		1.5	6	40 ~ 60	0.002 ~ 0.002	≤1.0D	≤0.03D	8490 ~ 12730	100 ~ 150
		2	6	40 ~ 60	0.003 ~ 0.003	≤1.0D	≤0.03D	6370 ~ 9550	110 ~ 170
		2.5	6	40 ~ 60	0.003 ~ 0.004	≤1.0D	≤0.03D	5090 ~ 7640	90 ~ 180
		3	6	40 ~ 60	0.004 ~ 0.005	≤1.0D	≤0.05D (Max0.5)	4240 ~ 6370	100 ~ 190
		4	6	40 ~ 60	0.006 ~ 0.007	≤1.0D	≤0.05D (Max0.5)	3180 ~ 4770	110 ~ 200
		5	6	40 ~ 60	0.008 ~ 0.009	≤1.0D	≤0.05D (Max0.5)	2550 ~ 3820	120 ~ 210
		6	6	40 ~ 60	0.010 ~ 0.011	≤1.0D	≤0.05D (Max0.5)	2120 ~ 3180	130 ~ 210
		8	6	40 ~ 60	0.012 ~ 0.013	≤1.0D	≤0.05D (Max0.5)	1590 ~ 2390	110 ~ 190
		10	6	40 ~ 60	0.014 ~ 0.016	≤1.0D	≤0.05D (Max0.5)	1270 ~ 1910	110 ~ 180
		12	6	40 ~ 60	0.017 ~ 0.018	≤1.0D	≤0.05D (Max0.5)	1060 ~ 1590	110 ~ 170
		14	6	40 ~ 60	0.019 ~ 0.021	≤1.0D	≤0.05D (Max0.5)	910 ~ 1360	100 ~ 170
		16	8	40 ~ 60	0.021 ~ 0.024	≤1.0D	≤0.05D (Max0.5)	800 ~ 1190	100 ~ 170
		18	8	40 ~ 60	0.024 ~ 0.026	≤1.0D	≤0.05D (Max0.5)	710 ~ 1060	100 ~ 170
		20	8	40 ~ 60	0.026 ~ 0.029	≤1.0D	≤0.05D (Max0.5)	640 ~ 950	100 ~ 170
		22	8	40 ~ 60	0.028 ~ 0.031	≤1.0D	≤0.05D (Max0.5)	580 ~ 870	100 ~ 160
		25	8	40 ~ 60	0.032 ~ 0.035	≤1.0D	≤0.05D (Max0.5)	510 ~ 760	100 ~ 160

SE 45 MultiFlute Long Series Endmills

Ae ≤ 0.05D
Ap ≤ 1.5D

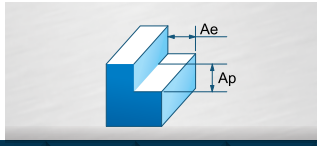


6/8 Z Side Milling (Finishing)

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35HRC ~ 45HRC)	M22,M31	1	6	56 ~ 72	0.004 ~ 0.006	≤1.5D	≤0.05D	17830 ~ 22920	430 ~ 830
		1.5	6	56 ~ 72	0.007 ~ 0.009	≤1.5D	≤0.05D	11880 ~ 15280	500 ~ 830
		2	6	56 ~ 72	0.009 ~ 0.012	≤1.5D	≤0.05D	8910 ~ 11460	480 ~ 830
		2.5	6	56 ~ 72	0.012 ~ 0.015	≤1.5D	≤0.05D	7130 ~ 9170	510 ~ 830
		3	6	56 ~ 72	0.015 ~ 0.017	≤1.5D	≤0.05D	5940 ~ 7640	530 ~ 780
		4	6	56 ~ 72	0.020 ~ 0.023	≤1.5D	≤0.05D	4460 ~ 5730	540 ~ 790
		5	6	56 ~ 72	0.025 ~ 0.028	≤1.5D	≤0.05D	3570 ~ 4580	540 ~ 770
		6	6	56 ~ 72	0.031 ~ 0.034	≤1.5D	≤0.05D	2970 ~ 3820	550 ~ 780
		8	6	56 ~ 72	0.038 ~ 0.042	≤1.5D	≤0.05D	2230 ~ 2860	510 ~ 720
		10	6	56 ~ 72	0.046 ~ 0.050	≤1.5D	≤0.05D	1780 ~ 2290	490 ~ 690
		12	6	56 ~ 72	0.053 ~ 0.059	≤1.5D	≤0.05D	1490 ~ 1910	470 ~ 680
		14	6	56 ~ 72	0.061 ~ 0.067	≤1.5D	≤0.05D	1270 ~ 1640	460 ~ 660
		16	8	56 ~ 72	0.068 ~ 0.075	≤1.5D	≤0.05D	1110 ~ 1430	450 ~ 640
		18	8	56 ~ 72	0.076 ~ 0.084	≤1.5D	≤0.05D	990 ~ 1270	450 ~ 640
		20	8	56 ~ 72	0.084 ~ 0.092	≤1.5D	≤0.05D	890 ~ 1150	450 ~ 630
		22	8	56 ~ 72	0.091 ~ 0.100	≤1.5D	≤0.05D	810 ~ 1040	440 ~ 620
		25	8	56 ~ 72	0.102 ~ 0.113	≤1.5D	≤0.05D	710 ~ 920	430 ~ 620
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20, M21,M24	1	6	40 ~ 56	0.002 ~ 0.006	≤1.5D	≤0.05D	12730 ~ 17830	150 ~ 640
		1.5	6	40 ~ 56	0.005 ~ 0.008	≤1.5D	≤0.05D	8490 ~ 11880	250 ~ 570
		2	6	40 ~ 56	0.007 ~ 0.010	≤1.5D	≤0.05D	6370 ~ 8910	270 ~ 530
		2.5	6	40 ~ 56	0.009 ~ 0.012	≤1.5D	≤0.05D	5090 ~ 7130	270 ~ 510
		3	6	40 ~ 56	0.011 ~ 0.014	≤1.5D	≤0.05D	4240 ~ 5940	280 ~ 500
		4	6	40 ~ 56	0.015 ~ 0.018	≤1.5D	≤0.05D	3180 ~ 4460	290 ~ 480
		5	6	40 ~ 56	0.020 ~ 0.022	≤1.5D	≤0.05D	2550 ~ 3570	310 ~ 470
		6	6	40 ~ 56	0.024 ~ 0.026	≤1.5D	≤0.05D	2120 ~ 2970	310 ~ 460
		8	6	40 ~ 56	0.030 ~ 0.033	≤1.5D	≤0.05D	1590 ~ 2230	290 ~ 440
		10	6	40 ~ 56	0.036 ~ 0.039	≤1.5D	≤0.05D	1270 ~ 1780	270 ~ 420
		12	6	40 ~ 56	0.042 ~ 0.046	≤1.5D	≤0.05D	1060 ~ 1490	270 ~ 410
		14	6	40 ~ 56	0.048 ~ 0.052	≤1.5D	≤0.05D	910 ~ 1270	260 ~ 400
		16	8	40 ~ 56	0.053 ~ 0.059	≤1.5D	≤0.05D	800 ~ 1110	250 ~ 390
		18	8	40 ~ 56	0.059 ~ 0.065	≤1.5D	≤0.05D	710 ~ 990	250 ~ 390
		20	8	40 ~ 56	0.065 ~ 0.072	≤1.5D	≤0.05D	640 ~ 890	250 ~ 380
		22	8	40 ~ 56	0.071 ~ 0.078	≤1.5D	≤0.05D	580 ~ 810	250 ~ 380
		25	8	40 ~ 56	0.080 ~ 0.088	≤1.5D	≤0.05D	510 ~ 710	240 ~ 370
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	6	32 ~ 48	0.001 ~ 0.002	≤1.0D	≤0.03D	10190 ~ 15280	60 ~ 180
		1.5	6	32 ~ 48	0.002 ~ 0.002	≤1.0D	≤0.03D	6790 ~ 10190	80 ~ 120
		2	6	32 ~ 48	0.003 ~ 0.003	≤1.0D	≤0.03D	5090 ~ 7640	90 ~ 140
		2.5	6	32 ~ 48	0.003 ~ 0.004	≤1.0D	≤0.03D	4070 ~ 6110	70 ~ 150
		3	6	32 ~ 48	0.004 ~ 0.005	≤1.0D	≤0.05D (Max0.5)	3400 ~ 5090	80 ~ 150
		4	6	32 ~ 48	0.006 ~ 0.007	≤1.0D	≤0.05D (Max0.5)	2550 ~ 3820	90 ~ 160
		5	6	32 ~ 48	0.008 ~ 0.009	≤1.0D	≤0.05D (Max0.5)	2040 ~ 3060	100 ~ 170
		6	6	32 ~ 48	0.010 ~ 0.011	≤1.0D	≤0.05D (Max0.5)	1700 ~ 2550	100 ~ 170
		8	6	32 ~ 48	0.012 ~ 0.013	≤1.0D	≤0.05D (Max0.5)	1270 ~ 1910	90 ~ 150
		10	6	32 ~ 48	0.014 ~ 0.016	≤1.0D	≤0.05D (Max0.5)	1020 ~ 1530	90 ~ 150
		12	6	32 ~ 48	0.017 ~ 0.018	≤1.0D	≤0.05D (Max0.5)	850 ~ 1270	90 ~ 140
		14	6	32 ~ 48	0.019 ~ 0.021	≤1.0D	≤0.05D (Max0.5)	730 ~ 1090	80 ~ 140
		16	8	32 ~ 48	0.021 ~ 0.024	≤1.0D	≤0.05D (Max0.5)	640 ~ 950	80 ~ 140
		18	8	32 ~ 48	0.024 ~ 0.026	≤1.0D	≤0.05D (Max0.5)	570 ~ 850	80 ~ 130
		20	8	32 ~ 48	0.026 ~ 0.029	≤1.0D	≤0.05D (Max0.5)	510 ~ 760	80 ~ 130
		22	8	32 ~ 48	0.028 ~ 0.031	≤1.0D	≤0.05D (Max0.5)	460 ~ 690	80 ~ 130
		25	8	32 ~ 48	0.032 ~ 0.035	≤1.0D	≤0.05D (Max0.5)	410 ~ 610	80 ~ 130

SE 45 MultiFlute Extra-Long Series Endmills

Ae ≤ 0.05D
Ap ≤ 1.5D



6/8 Z Side Milling (Finishing)

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
STEEL AND CAST STEEL (35HRC ~ 45HRC)	M22,M31	1	6	35 ~ 45	0.004 ~ 0.006	≤1.5D	≤0.05D	11140 ~ 14320	270 ~ 520
		1.5	6	35 ~ 45	0.007 ~ 0.009	≤1.5D	≤0.05D	7430 ~ 9550	310 ~ 520
		2	6	35 ~ 45	0.009 ~ 0.012	≤1.5D	≤0.05D	5570 ~ 7160	300 ~ 520
		2.5	6	35 ~ 45	0.012 ~ 0.015	≤1.5D	≤0.05D	4460 ~ 5730	320 ~ 520
		3	6	35 ~ 45	0.015 ~ 0.017	≤1.5D	≤0.05D	3710 ~ 4770	330 ~ 490
		4	6	35 ~ 45	0.020 ~ 0.023	≤1.5D	≤0.05D	2790 ~ 3580	330 ~ 490
		5	6	35 ~ 45	0.025 ~ 0.028	≤1.5D	≤0.05D	2230 ~ 2860	330 ~ 480
		6	6	35 ~ 45	0.031 ~ 0.034	≤1.5D	≤0.05D	1860 ~ 2390	350 ~ 490
		8	6	35 ~ 45	0.038 ~ 0.042	≤1.5D	≤0.05D	1390 ~ 1790	320 ~ 450
		10	6	35 ~ 45	0.046 ~ 0.050	≤1.5D	≤0.05D	1110 ~ 1430	310 ~ 430
		12	6	35 ~ 45	0.053 ~ 0.059	≤1.5D	≤0.05D	930 ~ 1190	300 ~ 420
		14	6	35 ~ 45	0.061 ~ 0.067	≤1.5D	≤0.05D	800 ~ 1020	290 ~ 410
		16	8	35 ~ 45	0.068 ~ 0.075	≤1.5D	≤0.05D	700 ~ 900	290 ~ 410
		18	8	35 ~ 45	0.076 ~ 0.084	≤1.5D	≤0.05D	620 ~ 800	280 ~ 400
		20	8	35 ~ 45	0.084 ~ 0.092	≤1.5D	≤0.05D	560 ~ 720	280 ~ 400
		22	8	35 ~ 45	0.091 ~ 0.100	≤1.5D	≤0.05D	510 ~ 650	280 ~ 390
		25	8	35 ~ 45	0.102 ~ 0.113	≤1.5D	≤0.05D	450 ~ 570	280 ~ 390
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M20,M21, M24	1	6	25 ~ 35	0.002 ~ 0.006	≤1.5D	≤0.05D	7960 ~ 11140	100 ~ 400
		1.5	6	25 ~ 35	0.005 ~ 0.008	≤1.5D	≤0.05D	5310 ~ 7430	160 ~ 360
		2	6	25 ~ 35	0.007 ~ 0.010	≤1.5D	≤0.05D	3980 ~ 5570	170 ~ 330
		2.5	6	25 ~ 35	0.009 ~ 0.012	≤1.5D	≤0.05D	3180 ~ 4460	170 ~ 320
		3	6	25 ~ 35	0.011 ~ 0.014	≤1.5D	≤0.05D	2650 ~ 3710	170 ~ 310
		4	6	25 ~ 35	0.015 ~ 0.018	≤1.5D	≤0.05D	1990 ~ 2790	180 ~ 300
		5	6	25 ~ 35	0.020 ~ 0.022	≤1.5D	≤0.05D	1590 ~ 2230	190 ~ 290
		6	6	25 ~ 35	0.024 ~ 0.026	≤1.5D	≤0.05D	1330 ~ 1860	190 ~ 290
		8	6	25 ~ 35	0.030 ~ 0.033	≤1.5D	≤0.05D	990 ~ 1390	180 ~ 280
		10	6	25 ~ 35	0.036 ~ 0.039	≤1.5D	≤0.05D	800 ~ 1110	170 ~ 260
		12	6	25 ~ 35	0.042 ~ 0.046	≤1.5D	≤0.05D	660 ~ 930	170 ~ 260
		14	6	25 ~ 35	0.048 ~ 0.052	≤1.5D	≤0.05D	570 ~ 800	160 ~ 250
		16	8	25 ~ 35	0.053 ~ 0.059	≤1.5D	≤0.05D	500 ~ 700	160 ~ 250
		18	8	25 ~ 35	0.059 ~ 0.065	≤1.5D	≤0.05D	440 ~ 620	160 ~ 240
		20	8	25 ~ 35	0.065 ~ 0.072	≤1.5D	≤0.05D	400 ~ 560	160 ~ 240
		22	8	25 ~ 35	0.071 ~ 0.078	≤1.5D	≤0.05D	360 ~ 510	150 ~ 240
		25	8	25 ~ 35	0.080 ~ 0.088	≤1.5D	≤0.05D	320 ~ 450	150 ~ 240
HARDENED STEEL (45 - 55 HRC)	M26, M32	1	6	20 ~ 30	0.001 ~ 0.002	≤1.0D	≤0.03D	6370 ~ 9550	40 ~ 110
		1.5	6	20 ~ 30	0.002 ~ 0.002	≤1.0D	≤0.03D	4240 ~ 6370	50 ~ 80
		2	6	20 ~ 30	0.003 ~ 0.003	≤1.0D	≤0.03D	3180 ~ 4770	60 ~ 90
		2.5	6	20 ~ 30	0.003 ~ 0.004	≤1.0D	≤0.03D	2550 ~ 3820	50 ~ 90
		3	6	20 ~ 30	0.004 ~ 0.005	≤1.0D	≤0.05D (Max0.5)	2120 ~ 3180	50 ~ 100
		4	6	20 ~ 30	0.006 ~ 0.007	≤1.0D	≤0.05D (Max0.5)	1590 ~ 2390	60 ~ 100
		5	6	20 ~ 30	0.008 ~ 0.009	≤1.0D	≤0.05D (Max0.5)	1270 ~ 1910	60 ~ 100
		6	6	20 ~ 30	0.010 ~ 0.011	≤1.0D	≤0.05D (Max0.5)	1060 ~ 1590	60 ~ 100
		8	6	20 ~ 30	0.012 ~ 0.013	≤1.0D	≤0.05D (Max0.5)	800 ~ 1190	60 ~ 90
		10	6	20 ~ 30	0.014 ~ 0.016	≤1.0D	≤0.05D (Max0.5)	640 ~ 950	50 ~ 90
		12	6	20 ~ 30	0.017 ~ 0.018	≤1.0D	≤0.05D (Max0.5)	530 ~ 800	50 ~ 90
		14	6	20 ~ 30	0.019 ~ 0.021	≤1.0D	≤0.05D (Max0.5)	450 ~ 680	50 ~ 90
		16	8	20 ~ 30	0.021 ~ 0.024	≤1.0D	≤0.05D (Max0.5)	400 ~ 600	50 ~ 90
		18	8	20 ~ 30	0.024 ~ 0.026	≤1.0D	≤0.05D (Max0.5)	350 ~ 530	50 ~ 80
		20	8	20 ~ 30	0.026 ~ 0.029	≤1.0D	≤0.05D (Max0.5)	320 ~ 480	50 ~ 80
		22	8	20 ~ 30	0.028 ~ 0.031	≤1.0D	≤0.05D (Max0.5)	290 ~ 430	50 ~ 80
		25	8	20 ~ 30	0.032 ~ 0.035	≤1.0D	≤0.05D (Max0.5)	250 ~ 380	50 ~ 80

SE 45 Miniature Endmills with long neck

2 Z Slotting			MILD STEELS,CARBON STEELS (UP TO 1600 N/mm²)					CAST IRON SS400,NODULAR IRON,MALLEABLE IRON				
Work Material												
Material Groups			M15, M18, M22, M25					M10,M11,M12, M13,M14				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.040	25	0.003	40,000	240	0.034	25	0.003	40,000	240
0.2	1	1.0D	0.016	23	0.003	37,400	210	0.014	23	0.003	37,400	210
0.2	1.5	1.0D	0.011	22	0.003	34,800	182	0.010	22	0.003	34,800	182
0.3	1	1.0D	0.040	38	0.003	40,000	240	0.034	38	0.003	40,000	240
0.3	2	1.0D	0.020	33	0.003	34,800	182	0.017	33	0.003	34,800	182
0.3	3	1.0D	0.012	28	0.002	29,600	131	0.010	28	0.002	29,600	131
0.4	2	1.0D	0.032	47	0.004	37,400	280	0.027	47	0.004	37,400	280
0.4	3	1.0D	0.023	44	0.003	34,800	242	0.019	44	0.003	34,800	242
0.4	4	1.0D	0.016	37	0.003	29,600	175	0.014	37	0.003	29,600	175
0.4	5	1.0D	0.013	34	0.003	27,000	146	0.011	34	0.003	27,000	146
0.5	2	1.0D	0.050	63	0.004	40,000	320	0.043	63	0.004	40,000	320
0.5	4	1.0D	0.025	51	0.003	32,200	207	0.021	51	0.003	32,200	207
0.5	6	1.0D	0.017	43	0.003	27,000	146	0.014	43	0.003	27,000	146
0.5	8	1.0D	0.013	34	0.002	21,800	95	0.011	34	0.002	21,800	95
0.6	2	1.0D	0.080	73	0.008	38,568	586	0.068	75	0.005	40,000	400
0.6	4	1.0D	0.040	63	0.007	33,554	443	0.034	65	0.004	34,800	303
0.6	6	1.0D	0.024	54	0.006	28,540	321	0.020	56	0.004	29,600	219
0.6	8	1.0D	0.018	49	0.005	26,033	267	0.016	51	0.003	27,000	182
0.6	10	1.0D	0.015	40	0.004	21,020	174	0.013	41	0.003	21,800	119
0.7	2	1.0D	0.140	79	0.008	35,916	599	0.119	84	0.008	38,189	622
0.7	4	1.0D	0.056	74	0.007	33,581	524	0.048	79	0.007	35,707	544
0.7	6	1.0D	0.035	64	0.006	28,912	388	0.030	68	0.006	30,742	403
0.7	8	1.0D	0.025	58	0.006	26,577	328	0.022	62	0.006	28,260	341
0.7	10	1.0D	0.020	48	0.005	21,908	223	0.017	51	0.005	23,295	231
0.8	4	1.0D	0.064	75	0.007	29,762	466	0.054	85	0.007	33,581	524
0.8	6	1.0D	0.046	70	0.007	27,693	404	0.039	79	0.007	31,246	453
0.8	8	1.0D	0.032	59	0.006	23,555	292	0.027	67	0.006	26,577	328
0.8	10	1.0D	0.027	54	0.005	21,486	243	0.023	61	0.005	24,243	273
0.8	12	1.0D	0.021	49	0.005	19,417	199	0.018	55	0.005	21,908	223
0.9	6	1.0D	0.060	70	0.008	24,616	402	0.051	84	0.008	29,708	492
0.9	8	1.0D	0.045	64	0.007	22,777	344	0.038	78	0.007	27,488	421
0.9	10	1.0D	0.033	59	0.007	20,938	291	0.028	71	0.007	25,269	356
0.9	15	1.0D	0.023	44	0.005	15,420	158	0.019	53	0.005	18,610	193
1.0	6	1.0D	0.067	70	0.008	22,155	383	0.057	87	0.008	27,693	492
1.0	8	1.0D	0.050	64	0.008	20,499	328	0.043	81	0.008	25,624	421
1.0	10	1.0D	0.040	59	0.007	18,844	277	0.034	74	0.007	23,555	356
1.0	12	1.0D	0.033	54	0.006	17,189	231	0.028	68	0.006	21,486	296
1.0	14	1.0D	0.029	49	0.006	15,534	188	0.024	61	0.006	19,417	242
1.0	16	1.0D	0.025	44	0.005	13,878	150	0.021	55	0.005	17,348	193
1.2	6	1.0D	0.096	75	0.010	19,841	406	0.082	94	0.010	24,802	519
1.2	8	1.0D	0.080	70	0.009	18,462	351	0.068	87	0.009	23,078	450
1.2	10	1.0D	0.060	64	0.008	17,083	301	0.051	81	0.008	21,353	385
1.2	12	1.0D	0.048	59	0.008	15,703	254	0.041	74	0.008	19,629	325
1.4	6	1.0D	0.140	80	0.012	18,189	455	0.119	100	0.012	22,737	582
1.4	8	1.0D	0.112	75	0.011	17,007	398	0.095	94	0.011	21,259	509
1.4	10	1.0D	0.080	70	0.010	15,824	344	0.068	87	0.010	19,781	441
1.4	12	1.0D	0.070	64	0.010	14,642	295	0.060	81	0.010	18,303	377
1.4	14	1.0D	0.056	59	0.009	13,460	249	0.048	74	0.009	16,825	319
1.4	16	1.0D	0.051	59	0.009	13,460	249	0.043	74	0.009	16,825	319
1.5	6	1.0D	0.150	80	0.013	16,977	444	0.128	100	0.013	21,221	569
1.5	8	1.0D	0.120	75	0.012	15,873	388	0.102	94	0.012	19,842	497
1.5	10	1.0D	0.100	70	0.011	14,770	336	0.085	87	0.011	18,462	431
1.5	12	1.0D	0.075	64	0.010	13,666	287	0.064	81	0.010	17,083	369
1.5	14	1.0D	0.067	64	0.010	13,666	287	0.057	81	0.010	17,083	369
1.5	16	1.0D	0.060	59	0.009	12,563	243	0.051	74	0.009	15,704	312
1.5	18	1.0D	0.050	54	0.008	11,459	202	0.043	68	0.008	14,324	259
1.5	20	1.0D	0.046	54	0.008	11,459	202	0.039	68	0.008	14,324	259
1.6	6	1.0D	0.213	80	0.013	15,916	430	0.181	100	0.013	19,894	549
1.6	8	1.0D	0.128	75	0.012	14,881	376	0.109	94	0.012	18,601	480
1.6	10	1.0D	0.107	70	0.011	13,846	325	0.091	87	0.011	17,308	416
1.6	12	1.0D	0.091	70	0.011	13,846	325	0.078	87	0.011	17,308	416
1.6	14	1.0D	0.080	64	0.010	12,812	279	0.068	81	0.010	16,015	356
1.6	16	1.0D	0.064	59	0.010	11,777	235	0.054	74	0.010	14,722	301
1.6	18	1.0D	0.058	59	0.010	11,777	235	0.049	74	0.010	14,722	301
1.6	20	1.0D	0.053	54	0.009	10,743	196	0.045	68	0.009	13,428	250

SE 45 Miniature Endmills with long neck

2 Z Slotting			MILD STEELS,CARBON STEELS (UP TO 1600 N/mm²)					CAST IRON SS400,NODULAR IRON,MALLEABLE IRON				
Work Material												
Material Groups			M15, M18, M22, M25					M10,M11,M12, M13,M14				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.240	80	0.014	14,147	414	0.204	100	0.014	17,684	531
1.8	8	1.0D	0.180	80	0.014	14,147	414	0.153	100	0.014	17,684	531
1.8	10	1.0D	0.144	75	0.013	13,227	362	0.122	94	0.013	16,535	464
1.8	12	1.0D	0.120	70	0.012	12,308	313	0.102	87	0.012	15,385	402
1.8	14	1.0D	0.103	70	0.012	12,308	313	0.087	87	0.012	15,385	402
1.8	16	1.0D	0.090	64	0.011	11,388	268	0.077	81	0.011	14,236	344
1.8	18	1.0D	0.072	59	0.010	10,469	227	0.061	74	0.010	13,086	291
1.8	20	1.0D	0.065	59	0.010	10,469	227	0.056	74	0.010	13,086	291
2.0	6	1.0D	0.267	80	0.015	12,733	398	0.227	100	0.015	15,916	510
2.0	8	1.0D	0.200	80	0.015	12,733	398	0.170	100	0.015	15,916	510
2.0	10	1.0D	0.160	75	0.014	11,905	348	0.136	94	0.014	14,881	445
2.0	12	1.0D	0.133	70	0.013	11,077	301	0.113	87	0.013	13,846	386
2.0	14	1.0D	0.114	70	0.013	11,077	301	0.097	87	0.013	13,846	386
2.0	16	1.0D	0.100	64	0.012	10,250	258	0.085	81	0.012	12,812	330
2.0	18	1.0D	0.089	64	0.012	10,250	258	0.076	81	0.012	12,812	330
2.0	20	1.0D	0.080	59	0.011	9,422	218	0.068	74	0.011	11,777	279
2.0	25	1.0D	0.067	54	0.010	8,594	181	0.057	68	0.010	10,743	232
2.0	30	1.0D	0.053	49	0.009	7,767	148	0.045	61	0.009	9,708	190
2.5	8	1.0D	0.333	80	0.018	10,186	382	0.283	100	0.018	12,733	489
2.5	10	1.0D	0.250	80	0.018	10,186	382	0.213	100	0.018	12,733	489
2.5	12	1.0D	0.250	80	0.018	10,186	382	0.213	100	0.018	12,733	489
2.5	14	1.0D	0.200	75	0.017	9,524	334	0.170	94	0.017	11,905	427
2.5	16	1.0D	0.167	70	0.016	8,862	289	0.142	87	0.016	11,077	370
2.5	18	1.0D	0.143	70	0.016	8,862	289	0.121	87	0.016	11,077	370
2.5	20	1.0D	0.125	64	0.014	8,200	248	0.106	81	0.014	10,250	317
2.5	25	1.0D	0.100	59	0.013	7,538	209	0.085	74	0.013	9,422	268
2.5	30	1.0D	0.083	54	0.012	6,876	174	0.071	68	0.012	8,594	223
3.0	8	1.0D	0.600	80	0.021	8,488	372	0.510	100	0.021	10,610	476
3.0	10	1.0D	0.400	80	0.021	8,488	372	0.340	100	0.021	10,610	476
3.0	12	1.0D	0.300	80	0.021	8,488	372	0.255	100	0.021	10,610	476
3.0	14	1.0D	0.300	80	0.021	8,488	372	0.255	100	0.021	10,610	476
3.0	16	1.0D	0.240	75	0.020	7,936	325	0.204	94	0.020	9,920	416
3.0	18	1.0D	0.200	70	0.018	7,385	281	0.170	87	0.018	9,231	360
3.0	20	1.0D	0.200	70	0.018	7,385	281	0.170	87	0.018	9,231	360
3.0	25	1.0D	0.150	64	0.017	6,833	241	0.128	81	0.017	8,541	308
4.0	10	1.0D	0.800	80	0.027	6,366	351	0.680	100	0.027	7,958	449
4.0	15	1.0D	0.533	80	0.027	6,366	351	0.453	100	0.027	7,958	449
4.0	20	1.0D	0.320	75	0.025	5,952	307	0.272	94	0.025	7,440	392
4.0	25	1.0D	0.267	70	0.023	5,538	266	0.227	87	0.023	6,923	339
4.0	30	1.0D	0.229	70	0.023	5,538	266	0.194	87	0.023	6,923	339
4.0	40	1.0D	0.160	59	0.020	4,711	192	0.136	74	0.020	5,889	246

SE 45 Miniature Endmills with long neck

2 Z Slotting			ALLOY STEELS,TOOLS STEELS					HARDENED STEELS				
Work Material												
Material Groups			M17,M19,M21, M23,M24					M26				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.028	25	0.003	40,000	240	0.034	25	0.002	40,000	160
0.2	1	1.0D	0.011	23	0.003	37,400	210	0.014	23	0.002	37,400	140
0.2	1.5	1.0D	0.008	22	0.003	34,800	182	0.010	22	0.002	34,800	121
0.3	1	1.0D	0.028	38	0.003	40,000	240	0.034	38	0.002	40,000	160
0.3	2	1.0D	0.014	33	0.003	34,800	182	0.017	33	0.002	34,800	121
0.3	3	1.0D	0.008	28	0.002	29,600	131	0.010	28	0.001	29,600	88
0.4	2	1.0D	0.022	47	0.004	37,400	280	0.027	47	0.003	37,400	210
0.4	3	1.0D	0.016	44	0.003	34,800	242	0.019	44	0.003	34,800	182
0.4	4	1.0D	0.011	37	0.003	29,600	175	0.014	37	0.002	29,600	131
0.4	5	1.0D	0.009	34	0.003	27,000	146	0.011	34	0.002	27,000	109
0.5	2	1.0D	0.035	62	0.007	39,099	513	0.043	62	0.004	39,099	315
0.5	4	1.0D	0.018	50	0.005	31,474	332	0.021	50	0.003	31,474	204
0.5	6	1.0D	0.012	42	0.004	26,391	234	0.014	42	0.003	26,391	143
0.5	8	1.0D	0.009	34	0.004	21,309	152	0.011	34	0.002	21,309	93
0.6	2	1.0D	0.056	68	0.008	35,916	559	0.068	68	0.005	35,916	336
0.6	4	1.0D	0.028	59	0.007	31,246	423	0.034	59	0.004	31,246	254
0.6	6	1.0D	0.017	50	0.006	26,577	306	0.020	50	0.003	26,577	184
0.6	8	1.0D	0.013	46	0.005	24,243	255	0.016	46	0.003	24,243	153
0.6	10	1.0D	0.011	37	0.004	19,574	166	0.013	37	0.002	19,574	100
0.7	2	1.0D	0.098	70	0.008	31,831	537	0.119	70	0.005	31,831	328
0.7	4	1.0D	0.039	65	0.007	29,762	469	0.048	65	0.005	29,762	286
0.7	6	1.0D	0.025	56	0.006	25,624	348	0.030	56	0.004	25,624	212
0.7	8	1.0D	0.018	52	0.006	23,555	294	0.022	52	0.004	23,555	179
0.7	10	1.0D	0.014	43	0.005	19,417	200	0.017	43	0.003	19,417	122
0.8	4	1.0D	0.045	65	0.007	26,042	410	0.054	65	0.005	26,042	278
0.8	6	1.0D	0.032	61	0.007	24,231	355	0.039	61	0.005	24,231	241
0.8	8	1.0D	0.022	52	0.006	20,610	257	0.027	52	0.004	20,610	174
0.8	10	1.0D	0.019	47	0.005	18,800	214	0.023	47	0.004	18,800	145
0.8	12	1.0D	0.015	43	0.005	16,990	175	0.018	43	0.003	16,990	119
0.9	6	1.0D	0.042	61	0.008	21,539	353	0.051	61	0.005	21,539	230
0.9	8	1.0D	0.032	56	0.007	19,930	303	0.038	56	0.005	19,930	197
0.9	10	1.0D	0.023	52	0.007	18,321	256	0.028	52	0.004	18,321	166
0.9	15	1.0D	0.016	38	0.005	13,493	139	0.019	38	0.003	13,493	90
1.0	6	1.0D	0.047	61	0.008	19,385	337	0.057	61	0.006	19,385	226
1.0	8	1.0D	0.035	56	0.008	17,937	289	0.043	56	0.005	17,937	194
1.0	10	1.0D	0.028	52	0.007	16,489	244	0.034	52	0.005	16,489	164
1.0	12	1.0D	0.023	47	0.006	15,040	203	0.028	47	0.004	15,040	136
1.0	14	1.0D	0.020	43	0.006	13,592	166	0.024	43	0.004	13,592	111
1.0	16	1.0D	0.018	38	0.005	12,144	132	0.021	38	0.004	12,144	89
1.2	6	1.0D	0.067	65	0.010	17,361	357	0.082	65	0.007	17,361	250
1.2	8	1.0D	0.056	61	0.009	16,154	309	0.068	61	0.007	16,154	217
1.2	10	1.0D	0.042	56	0.008	14,947	265	0.051	56	0.006	14,947	186
1.2	12	1.0D	0.034	52	0.008	13,740	224	0.041	52	0.006	13,740	157
1.4	6	1.0D	0.098	70	0.012	15,916	400	0.119	70	0.008	15,916	264
1.4	8	1.0D	0.078	65	0.011	14,881	350	0.095	65	0.007	14,881	231
1.4	10	1.0D	0.056	61	0.010	13,846	303	0.068	61	0.007	13,846	200
1.4	12	1.0D	0.049	56	0.010	12,812	259	0.060	56	0.006	12,812	171
1.4	14	1.0D	0.039	52	0.009	11,777	219	0.048	52	0.006	11,777	145
1.4	16	1.0D	0.036	52	0.009	11,777	219	0.043	52	0.006	11,777	145
1.5	6	1.0D	0.105	70	0.013	14,855	391	0.128	70	0.009	14,855	259
1.5	8	1.0D	0.084	65	0.012	13,889	341	0.102	65	0.008	13,889	226
1.5	10	1.0D	0.070	61	0.011	12,923	296	0.085	61	0.007	12,923	196
1.5	12	1.0D	0.053	56	0.010	11,958	253	0.064	56	0.007	11,958	168
1.5	14	1.0D	0.047	56	0.010	11,958	253	0.057	56	0.007	11,958	168
1.5	16	1.0D	0.042	52	0.009	10,992	214	0.051	52	0.006	10,992	142
1.5	18	1.0D	0.035	47	0.008	10,027	178	0.043	47	0.006	10,027	118
1.5	20	1.0D	0.032	47	0.008	10,027	178	0.039	47	0.006	10,027	118
1.6	6	1.0D	0.149	70	0.013	13,926	378	0.181	70	0.009	13,926	259
1.6	8	1.0D	0.090	65	0.012	13,021	330	0.109	65	0.008	13,021	226
1.6	10	1.0D	0.075	61	0.011	12,116	286	0.091	61	0.008	12,116	196
1.6	12	1.0D	0.064	61	0.011	12,116	286	0.078	61	0.008	12,116	196
1.6	14	1.0D	0.056	56	0.010	11,210	245	0.068	56	0.007	11,210	168
1.6	16	1.0D	0.045	52	0.010	10,305	207	0.054	52	0.007	10,305	142
1.6	18	1.0D	0.041	52	0.010	10,305	207	0.049	52	0.007	10,305	142
1.6	20	1.0D	0.037	47	0.009	9,400	172	0.045	47	0.006	9,400	118

SE 45 Miniature Endmills with long neck

2 Z Slotting			ALLOY STEELS,TOOLS STEELS					HARDENED STEELS				
Work Material												
Material Groups			M17,M19,M21, M23,M24					M26				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.168	70	0.014	12,379	365	0.204	70	0.010	12,379	255
1.8	8	1.0D	0.126	70	0.014	12,379	365	0.153	70	0.010	12,379	255
1.8	10	1.0D	0.101	65	0.013	11,574	319	0.122	65	0.009	11,574	223
1.8	12	1.0D	0.084	61	0.012	10,769	276	0.102	61	0.009	10,769	193
1.8	14	1.0D	0.072	61	0.012	10,769	276	0.087	61	0.009	10,769	193
1.8	16	1.0D	0.063	56	0.011	9,965	236	0.077	56	0.008	9,965	165
1.8	18	1.0D	0.050	52	0.010	9,160	200	0.061	52	0.007	9,160	140
1.8	20	1.0D	0.046	52	0.010	9,160	200	0.056	52	0.007	9,160	140
2.0	6	1.0D	0.187	70	0.015	11,141	350	0.227	70	0.011	11,141	252
2.0	8	1.0D	0.140	70	0.015	11,141	350	0.170	70	0.011	11,141	252
2.0	10	1.0D	0.112	65	0.014	10,416	306	0.136	65	0.010	10,416	220
2.0	12	1.0D	0.093	61	0.013	9,692	265	0.113	61	0.010	9,692	190
2.0	14	1.0D	0.080	61	0.013	9,692	265	0.097	61	0.010	9,692	190
2.0	16	1.0D	0.070	56	0.012	8,968	227	0.085	56	0.009	8,968	163
2.0	18	1.0D	0.062	56	0.012	8,968	227	0.076	56	0.009	8,968	163
2.0	20	1.0D	0.056	52	0.011	8,244	192	0.068	52	0.008	8,244	138
2.0	25	1.0D	0.047	47	0.010	7,520	159	0.057	47	0.007	7,520	115
2.0	30	1.0D	0.037	43	0.009	6,796	130	0.045	43	0.007	6,796	94
2.5	8	1.0D	0.233	70	0.018	8,913	336	0.283	70	0.013	8,913	230
2.5	10	1.0D	0.175	70	0.018	8,913	336	0.213	70	0.013	8,913	230
2.5	12	1.0D	0.175	70	0.018	8,913	336	0.213	70	0.013	8,913	230
2.5	14	1.0D	0.140	65	0.017	8,333	294	0.170	65	0.012	8,333	201
2.5	16	1.0D	0.117	61	0.016	7,754	254	0.142	61	0.011	7,754	174
2.5	18	1.0D	0.100	61	0.016	7,754	254	0.121	61	0.011	7,754	174
2.5	20	1.0D	0.088	56	0.014	7,175	218	0.106	56	0.010	7,175	149
2.5	25	1.0D	0.070	52	0.013	6,595	184	0.085	52	0.009	6,595	126
2.5	30	1.0D	0.058	47	0.012	6,016	153	0.071	47	0.008	6,016	105
3.0	8	1.0D	0.420	70	0.021	7,427	327	0.510	70	0.015	7,427	221
3.0	10	1.0D	0.280	70	0.021	7,427	327	0.340	70	0.015	7,427	221
3.0	12	1.0D	0.210	70	0.021	7,427	327	0.255	70	0.015	7,427	221
3.0	14	1.0D	0.210	70	0.021	7,427	327	0.255	70	0.015	7,427	221
3.0	16	1.0D	0.168	65	0.020	6,944	285	0.204	65	0.014	6,944	193
3.0	18	1.0D	0.140	61	0.018	6,461	247	0.170	61	0.013	6,461	167
3.0	20	1.0D	0.140	61	0.018	6,461	247	0.170	61	0.013	6,461	167
3.0	25	1.0D	0.105	56	0.017	5,979	212	0.128	56	0.012	5,979	143
4.0	10	1.0D	0.560	70	0.027	5,571	309	0.680	70	0.019	5,571	217
4.0	15	1.0D	0.373	70	0.027	5,571	309	0.453	70	0.019	5,571	217
4.0	20	1.0D	0.224	65	0.025	5,208	270	0.272	65	0.018	5,208	189
4.0	25	1.0D	0.187	61	0.023	4,846	234	0.227	61	0.017	4,846	164
4.0	30	1.0D	0.160	61	0.023	4,846	234	0.194	61	0.017	4,846	164
4.0	40	1.0D	0.112	52	0.020	4,122	169	0.136	52	0.014	4,122	119

SE 45 Miniature Endmills with long neck

2 Z Slotting			STAINLESS STEEL				
Work Material							
Material Groups			M1M16, M20				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.034	25	0.003	40,000	240
0.2	1	1.0D	0.014	23	0.003	37,400	210
0.2	1.5	1.0D	0.010	22	0.003	34,800	182
0.3	1	1.0D	0.034	38	0.003	40,000	240
0.3	2	1.0D	0.017	33	0.003	34,800	182
0.3	3	1.0D	0.010	28	0.002	29,600	131
0.4	2	1.0D	0.027	47	0.004	37,400	280
0.4	3	1.0D	0.019	44	0.003	34,800	242
0.4	4	1.0D	0.014	37	0.003	29,600	175
0.4	5	1.0D	0.011	34	0.003	27,000	146
0.5	2	1.0D	0.043	62	0.007	39,099	513
0.5	4	1.0D	0.021	50	0.005	31,474	332
0.5	6	1.0D	0.014	42	0.004	26,391	234
0.5	8	1.0D	0.011	34	0.004	21,309	152
0.6	2	1.0D	0.068	68	0.008	35,916	559
0.6	4	1.0D	0.034	59	0.007	31,246	423
0.6	6	1.0D	0.020	50	0.006	26,577	306
0.6	8	1.0D	0.016	46	0.005	24,243	255
0.6	10	1.0D	0.013	37	0.004	19,574	166
0.7	2	1.0D	0.119	70	0.008	31,831	537
0.7	4	1.0D	0.048	65	0.007	29,762	469
0.7	6	1.0D	0.030	56	0.006	25,624	348
0.7	8	1.0D	0.022	52	0.006	23,555	294
0.7	10	1.0D	0.017	43	0.005	19,417	200
0.8	4	1.0D	0.054	65	0.007	26,042	410
0.8	6	1.0D	0.039	61	0.007	24,231	355
0.8	8	1.0D	0.027	52	0.006	20,610	257
0.8	10	1.0D	0.023	47	0.005	18,800	214
0.8	12	1.0D	0.018	43	0.005	16,990	175
0.9	6	1.0D	0.051	61	0.008	21,539	353
0.9	8	1.0D	0.038	56	0.007	19,930	303
0.9	10	1.0D	0.028	52	0.007	18,321	256
0.9	15	1.0D	0.019	38	0.005	13,493	139
1.0	6	1.0D	0.057	61	0.008	19,385	337
1.0	8	1.0D	0.043	56	0.008	17,937	289
1.0	10	1.0D	0.034	52	0.007	16,489	244
1.0	12	1.0D	0.028	47	0.006	15,040	203
1.0	14	1.0D	0.024	43	0.006	13,592	166
1.0	16	1.0D	0.021	38	0.005	12,144	132
1.2	6	1.0D	0.082	65	0.010	17,361	357
1.2	8	1.0D	0.068	61	0.009	16,154	309
1.2	10	1.0D	0.051	56	0.008	14,947	265
1.2	12	1.0D	0.041	52	0.008	13,740	224
1.4	6	1.0D	0.119	70	0.012	15,916	400
1.4	8	1.0D	0.095	65	0.011	14,881	350
1.4	10	1.0D	0.068	61	0.010	13,846	303
1.4	12	1.0D	0.060	56	0.010	12,812	259
1.4	14	1.0D	0.048	52	0.009	11,777	219
1.4	16	1.0D	0.043	52	0.009	11,777	219
1.5	6	1.0D	0.128	70	0.013	14,855	391
1.5	8	1.0D	0.102	65	0.012	13,889	341
1.5	10	1.0D	0.085	61	0.011	12,923	296
1.5	12	1.0D	0.064	56	0.010	11,958	253
1.5	14	1.0D	0.057	56	0.010	11,958	253
1.5	16	1.0D	0.051	52	0.009	10,992	214
1.5	18	1.0D	0.043	47	0.008	10,027	178
1.5	20	1.0D	0.039	47	0.008	10,027	178
1.6	6	1.0D	0.181	70	0.013	13,926	378
1.6	8	1.0D	0.109	65	0.012	13,021	330
1.6	10	1.0D	0.091	61	0.011	12,116	286
1.6	12	1.0D	0.078	61	0.011	12,116	286
1.6	14	1.0D	0.068	56	0.010	11,210	245
1.6	16	1.0D	0.054	52	0.010	10,305	207
1.6	18	1.0D	0.049	52	0.010	10,305	207
1.6	20	1.0D	0.045	47	0.009	9,400	172

SE 45 Miniature Endmills with long neck

2 Z Slotting			STAINLESS STEEL				
Work Material							
Material Groups			M1M16, M20				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.204	270	0.014	12,379	365
1.8	8	1.0D	0.153	70	0.014	12,379	365
1.8	10	1.0D	0.122	65	0.013	11,574	319
1.8	12	1.0D	0.102	61	0.012	10,769	276
1.8	14	1.0D	0.087	61	0.012	10,769	276
1.8	16	1.0D	0.077	56	0.011	9,965	236
1.8	18	1.0D	0.061	52	0.010	9,160	200
1.8	20	1.0D	0.056	52	0.010	9,160	200
2.0	6	1.0D	0.227	70	0.015	11,141	350
2.0	8	1.0D	0.170	70	0.015	11,141	350
2.0	10	1.0D	0.136	65	0.014	10,416	306
2.0	12	1.0D	0.113	61	0.013	9,692	265
2.0	14	1.0D	0.097	61	0.013	9,692	265
2.0	16	1.0D	0.085	56	0.012	8,968	227
2.0	18	1.0D	0.076	56	0.012	8,968	227
2.0	20	1.0D	0.068	52	0.011	8,244	192
2.0	25	1.0D	0.057	47	0.010	7,520	159
2.0	30	1.0D	0.045	43	0.009	6,796	130
2.5	8	1.0D	0.283	70	0.018	8,913	336
2.5	10	1.0D	0.213	70	0.018	8,913	336
2.5	12	1.0D	0.213	70	0.018	8,913	336
2.5	14	1.0D	0.170	65	0.017	8,333	294
2.5	16	1.0D	0.142	61	0.016	7,754	254
2.5	18	1.0D	0.121	61	0.016	7,754	254
2.5	20	1.0D	0.106	56	0.014	7,175	218
2.5	25	1.0D	0.085	52	0.013	6,595	184
2.5	30	1.0D	0.071	47	0.012	6,016	153
3.0	8	1.0D	0.510	70	0.021	7,427	327
3.0	10	1.0D	0.340	70	0.021	7,427	327
3.0	12	1.0D	0.255	70	0.021	7,427	327
3.0	14	1.0D	0.255	70	0.021	7,427	327
3.0	16	1.0D	0.204	65	0.020	6,944	285
3.0	18	1.0D	0.170	61	0.018	6,461	247
3.0	20	1.0D	0.170	61	0.018	6,461	247
3.0	25	1.0D	0.128	56	0.017	5,979	212
4.0	10	1.0D	0.680	70	0.027	5,571	309
4.0	15	1.0D	0.453	70	0.027	5,571	309
4.0	20	1.0D	0.272	65	0.025	5,208	270
4.0	25	1.0D	0.227	61	0.023	4,846	234
4.0	30	1.0D	0.194	61	0.023	4,846	234
4.0	40	1.0D	0.136	52	0.020	4,122	169

SE60

SE 60 STANDARD ENDMILLS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Standard Endmills, 4 flutes
Fraises 2 tailles SE 60 Standard en carbure monobloc, 4 dents
整体硬质合金 SE 60 系列 立铣刀 4 刃 – 标准长度
VHM SE 60 Standard Fräser, 4 Zähne
Frese SE 60 Standard in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					382*	384*	A35*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
0100 040 04	1	3		40	4	●	●	●
0100 050 06	1	3		50	6	●	●	●
0150 040 04	1.5	4.5		40	4	●	●	●
0150 050 06	1.5	4.5		50	6	●	●	●
0200 040 04	2	6.5		40	4	●	●	●
0200 050 06	2.5	6.5		50	6	●	●	●
0250 040 04	2.5	6.5		40	4	●	●	●
0300	3	9		40	3	●	●	●
0300 050 06	3	9		50	6	●	●	●
0400	4	12		50	4	●	●	●
0400 050 06	4	12		50	6	●	●	●
0500	5	15		50	5	●	●	●
0500 050 06	5	15		50	6	●	●	●
0600 050	6	16		50	6	●	●	●
0600 060	6	20		60	6	●	●	●
0800	8	20		64	8	●	●	●
1000 070	10	22		70	10	●	●	●
1000 075	10	22		75	10	●	●	●
1200	12	25		75	12	●	●	●
1400	14	32		90	14	●	●	●
1600	16	32		90	16	●	●	●
1800	18	38		100	18	●	●	●
2000	20	38		100	20	●	●	●
2200	22	40		100	22	●	●	●
2500	25	40		100	25	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	285

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 60 ENDMILLS - LONG

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Endmills - Long ,4 flutes
Fraises 2 tailles SE 60 longues en carbure monobloc, 4 dents
整体硬质合金 SE 60 系列 立铣刀 4 刃 – 中长
VHM SE 60 Fräser, lang, 4 Zähne
Frese SE 60 lunghe in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)					370*	372*	A36*
	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
0300 075 06	3	19		75	6	●	●	●
0400 075 06	4	19		75	6	●	●	●
0500	5	19		60	5	●	●	●
0500 075 06	5	19		75	6	●	●	●
0600	6	31		75	6	●	●	●
0800	8	31		75	8	●	●	●
1000 075	10	31		75	10	●	●	●
1000 100	10	50		100	10	●	●	●
1200	12	50		100	12	●	●	●
1400	14	57		125	14	●	●	●
1600	16	57		125	16	●	●	●
1800	18	57		125	18	●	●	●
2000	20	57		125	20	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	287

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 60 ENDMILLS - EXTRA-LONG

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Endmills - extra-long ,4 flutes
Fraises 2 tailles SE 60 extra-longues en carbure monobloc, 4 dents
整体硬质合金 SE 60 系列 立铣刀 4 刃 – 加长
VHM SE 60 Fräser, extra-lang, 4 Zähne
Frese SE 60 extra-lunghe in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)					376*	378*	A37*
	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
0300 100 06	3	25		100	6	●	●	●
0400 100 06	4	31		100	6	●	●	●
0500	5	31		100	5	●	●	●
0500 100 06	5	31		100	6	●	●	●
0600	6	38		100	6	●	●	●
0800	8	41		100	8	●	●	●
1000	10	57		125	10	●	●	●
1200	12	75		150	12	●	●	●
1400	14	75		150	14	●	●	●
1600	16	75		150	16	●	●	●
1800	18	75		150	18	●	●	●
2000	20	75		150	20	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	289

若有技术规格变更，恕不事先通知

SE 60 SHORT FLUTES LONG REACH ENDMILLS - LONG

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 long LONG REACH Endmills with short flutes, 4 flutes

Fraises 2 tailles SE 60 LONG REACH longues à hélices courtes en carbure monobloc, 4 dentsc

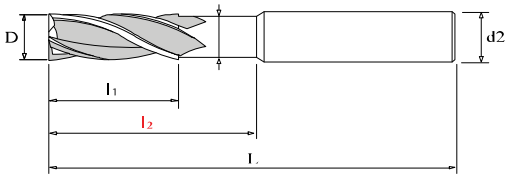
整体硬质合金 SE 60 系列 短刃 立铣刀 4 刃 – 中长

VHM SE 60 lange LONG REACH Fräser mit kurzen Nuten, 4 Zähne

Frese SE 60 LONG REACH lunghe in metallo duro integrale, con gole corte, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					402*	404*	A38*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
0300 075 06	3	5	30	75	6	●	●	●
0400 075 06	4	8	32	75	6	●	●	●
0500 075 06	5	9	32	75	6	●	●	●
0600	5	10	40	75	6	●	●	●
0800	6	12	40	75	6	●	●	●
1000 075	8	14	40	75	8	●	●	●
1000 100	10	14	60	100	10	●	●	●
1200	12	16	60	100	12	●	●	●
1400	14	22	85	125	14	●	●	●
1600	16	22	85	125	16	●	●	●
1800	18	26	85	125	18	●	●	●
2000	20	26	85	125	20	●	●	●
						651*	449*	A39*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
●	●	●	●																						

Working Material	Cutting Parameter
564	287

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 60 SHORT FLUTES LONG REACH ENDMILLS - EXTRA-LONG

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

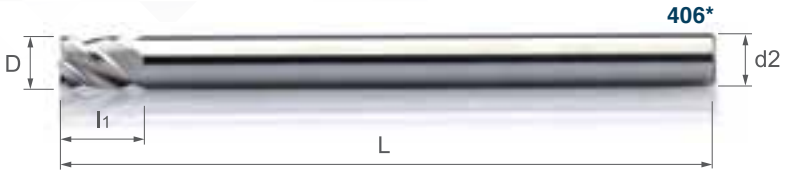
Solid Carbide SE 60 extra-long LONG REACH Endmills with short flutes, 4 flutes

Fraises 2 tailles SE 60 LONG REACH extra-longues à hélices courtes en carbure monobloc, 4 dents

整体硬质合金 SE 60 系列 短刃 立铣刀 4 刃 – 加长

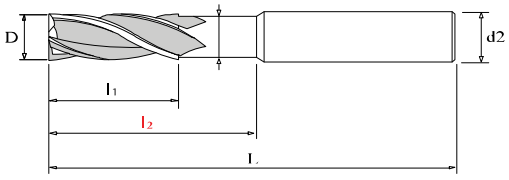
VHM SE 60 extra-lange LONG REACH Fräser mit kurzen Nuten, 4 Zähne

Frese SE 60 LONG REACH extra-lunghe in metallo duro integrale, con gole corte, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	406* T ... n	408* B0819	A40* B0909
0300 100 06	3	5	60	100	6	●	●	●
0400 100 06	4	8	60	100	6	●	●	●
0500 100 06	5	9	60	100	6	●	●	●
0600	6	10	60	100	6	●	●	●
0800	8	12	60	100	8	●	●	●
1000	10	14	85	125	10	●	●	●
1200	12	16	110	150	12	●	●	●
1400	14	22	110	150	14	●	●	●
1600	16	22	110	150	16	●	●	●
1800	18	26	110	150	18	●	●	●
2000	20	26	110	150	20	●	●	●
						654*	631*	A41*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
●	●	●	●																						

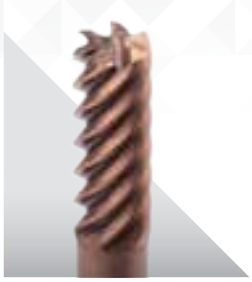
Working Material	Cutting Parameter
564	289

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 60 MULTIFLUTE ENDMILLS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Multiflute Endmills, 6 respectively 8 Flutes
Fraises 2 tailles Multidents SE 60 en carbure monobloc, 6 respectivement 8 dents
整体硬质合金 SE 60 系列 密齿 立铣刀 6 – 8 刃 – 标准长度
VHM Mehrzahnfräser SE 60 - 6 bzw. 8 Zähne
Frese multi-taglienti SE 60 in metallo duro integrale, 6 respettivamente 8 taglienti

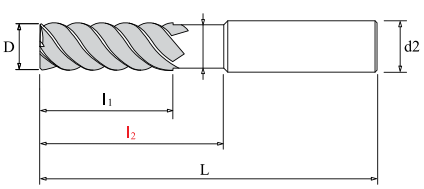


EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					399*	450*	A42*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
0300 050 06	3	8	20	50	6	●	●	●
0400 050 06	4	11	20	50	6	●	●	●
0500 050 06	5	13	20	50	6	●	●	●
0600 050	6	15	20	50	6	●	●	●
0600 060	6	20	30	60	6	●	●	●
0800	8	20	30	64	8	●	●	●
1000	10	22	32	70	10	●	●	●
1200	12	25	37	75	12	●	●	●
1400	14	30	44	90	14	●	●	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					399*	450*	A42*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
1600	16	30	46	90	16	●	●	●
1800	18	35	53	100	18	●	●	●
2000	20	38	58	100	20	●	●	●
						401*	451*	A43*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	291

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 60 MULTIFLUTE ENDMILLS - LONG

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Long Multiflute Endmills, 6 respectively 8 Flutes

Fraises 2 tailles Multidents SE 60 longues en carbure monobloc, 6 respectivement 8 dents

整体硬质合金 SE 60 系列 密齿 立铣刀 6 – 8 刃 – 中长

VHM lange Mehrzahnfräser SE 60 - 6 bzw. 8 Zähne

Frese multi-taglienti SE 60 lunghe in metallo duro integrale, 6 respettivamente 8 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					411*	452*	A44*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
0300 075 06	3	19	30	75	6	○	●	●
0400 075 06	4	19	32	75	6	○	●	●
0500 075 06	5	19	32	75	6	○	●	●
0600	6	31	40	75	6	○	●	●
0800	8	31	40	75	8	○	●	●
1000	10	45	60	100	10	○	●	●
1200	12	50	60	100	12	○	●	●
1400	14	57	85	125	14	○	●	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					411*	452*	A44*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
1600	16	57	85	125	16	○	●	●
1800	18	57	85	125	18	○	●	●
2000	20	57	85	125	20	○	●	●
						413*	453*	A45*

Tools with recess upon rquest

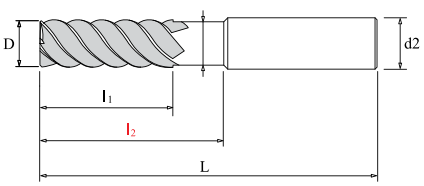
Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	292

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 60 MULTIFLUTE ENDMILLS - EXTRA LONG

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Extra-Long Multiflute Endmills, 6 respectively 8 Flutes

Fraises 2 tailles Multidents SE 60 extra-longues en carbure monobloc, 6 respectivement 8 dents

整体硬质合金 SE 60 系列 密齿 立铣刀 6 – 8 刃 – 加长

VHM extra-lange Mehrzahnfräser SE 60, 6 bzw. 8 Zähne

Frese multi-taglienti SE 60 extra-lunghe in metallo duro integrale, 6 respettivamente 8 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					423*	459*	A46*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
0300 100 06	3	25	60	100	6	●	●	●
0400 100 06	4	31	60	100	6	●	●	●
0500 100 06	5	31	60	100	6	●	●	●
0600	6	38	60	100	6	●	●	●
0800	8	41	60	100	8	●	●	●
1000	10	57	85	125	10	●	●	●
1200	12	75	110	150	12	●	●	●
1400	14	75	110	150	14	●	●	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					423*	459*	A46*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
1600	16	75	110	150	16	●	●	●
1800	18	75	110	150	18	●	●	●
2000	20	75	110	150	20	●	●	●
						425*	558*	A47*

Tools with recess upon rquest

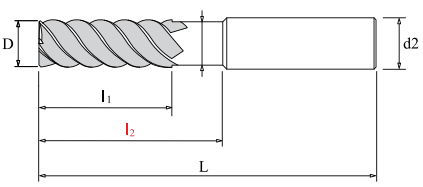
Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
●	●	●	●																						

Working Material	Cutting Parameter
564	293

若有技术规格变更，恕不事先通知

SE 60 STANDARD ENDMILLS, SHORT FLUTES

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Standard Endmills, 4 flutes
Fraises 2 tailles SE 60 Standard en carbure monobloc, 4 dents
整体硬质合金 SE 60 系列 立铣刀 4 刃 – 标准长度
VHM SE 60 Standard Fräser, 4 Zähne
Frese Standard SE 60 in metallo duro integrale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)					329*	910*	A34*
	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
0300 060 06	3	4		60	6	●	●	●
0400 060 06	4	5		60	6	●	●	●
0500 060 06	5	6		60	6	●	●	●
0600	6	7		60	6	●	●	●
0800	8	9		64	8	●	●	●
1000	10	11		70	10	●	●	●
1200	12	13		75	12	●	●	●
1600	16	17		90	16	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	285

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

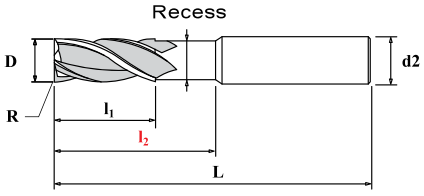
SE 60R SHORT FLUTE TORUS ENDMILLS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R Torus Endmills, short flutes, 4 flutes
Fraises toriques 2 tailles SE 60R toriques, goujures courtes, 4 dents
整体硬质合金 SE 60R 系列 圆鼻短刃 立铣刀 4 刃 – 标准长度
VHM SE 60R Standard Torusfräser, kurzen Nuten, 4 Zähne
Frese toroidali SE 60R in metallo duro integrale, gole corte, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						332*	789*	A48*
	D	l 1	l 2	L	d2 (h6)	R	T ... n	B0819	B0909
0300 060 0600 030	3	4	14	60	6	0.3	●	●	●
0300 060 0600 050	3	4	14	60	6	0.5	●	●	●
0400 060 0600 030	4	5	16	60	6	0.3	●	●	●
0400 060 0600 050	4	5	16	60	6	0.5	●	●	●
0500 060 0600 030	5	6	18	60	6	0.3	●	●	●
0500 060 0600 050	5	6	18	60	6	0.5	●	●	●
0600 060 0600 030	6	7	20	60	6	0.3	●	●	●
0600 060 0600 050	6	7	20	60	6	0.5	●	●	●
0600 060 0600 100	6	7	20	60	6	1.0	●	●	●
0800 064 0800 030	8	9	26	64	8	0.3	●	●	●
0800 064 0800 050	8	9	26	64	8	0.5	●	●	●
0800 064 0800 100	8	9	26	64	8	1.0	●	●	●
1000 070 1000 050	10	11	31	70	10	0.5	●	●	●
1000 070 1000 100	10	11	31	70	10	1.0	●	●	●
1000 070 1000 200	10	11	31	70	10	2.0	●	●	●
1200 075 1200 050	12	13	37	75	12	0.5	●	●	●
1200 075 1200 100	12	13	37	75	12	1.0	●	●	●
1200 075 1200 200	12	13	37	75	12	2.0	●	●	●
1600 090 1600 050	16	17	43	90	16	0.5	●	●	●
1600 090 1600 100	16	17	43	90	16	1.0	●	●	●
1600 090 1600 200	16	17	43	90	16	2.0	●	●	●
1600 090 1600 300	16	17	43	90	16	3.0	●	●	●
							656*	575*	A49*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	285

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 60R STANDARD TORUS ENDMILLS - with Recess and Weldon Shank

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R Torus Endmills, 4 Flutes, with Recess and Weldon Shank

Fraises toriques 2 tailles SE 60R en carburemonobloc, 4 dents, avec dégagement, queue Weldon

整体硬质合金 SE 60R 系列 圆鼻 立铣刀 4 刃 – 标准长度, 带颈位, 柄部标准 DIN 6535HB

VHM SE 60R Torusfräser, 4 Zähne, mit Freistellung und Weldon-Schaft

Frese toroidali SE 60R in metallo duro integrale, 4 taglienti, con diminuzione del collo, gambo con piano Weldon

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	d3	R	345* T ... n	759* B0819
0300 060 0600 030	3	4	14	60	6	2.8	0.3	●	●
0300 060 0600 050	3	4	14	60	6	2.8	0.5	●	●
0400 060 0600 030	4	5	16	60	6	3.8	0.3	●	●
0400 060 0600 050	4	5	16	60	6	3.8	0.5	●	●
0500 060 0600 030	5	6	18	60	6	4.8	0.3	●	●
0500 060 0600 050	5	6	18	60	6	4.8	0.5	●	●
0600 060 0600 030	6	7	20	60	6	5.7	0.3	●	●
0600 060 0600 050	6	7	20	60	6	5.7	0.5	●	●
0600 060 0600 100	6	7	20	60	6	5.7	1.0	●	●
0800 064 0800 030	8	9	26	64	8	7.7	0.3	●	●
0800 064 0800 050	8	9	26	64	8	7.7	0.5	●	●
0800 064 0800 100	8	9	26	64	8	7.7	1.0	●	●
1000 070 1000 050	10	11	31	70	10	9.6	0.5	●	●
1000 070 1000 100	10	11	31	70	10	9.6	1.0	●	●
1000 070 1000 200	10	11	31	70	10	9.6	2.0	●	●
1200 075 1200 050	12	13	37	75	12	11.6	0.5	●	●
1200 075 1200 100	12	13	37	75	12	11.6	1.0	●	●
1200 075 1200 200	12	13	37	75	12	11.6	2.0	●	●
1600 090 1600 050	16	17	43	90	16	15.6	0.5	●	●
1600 090 1600 100	16	17	43	90	16	15.6	1.0	●	●
1600 090 1600 200	16	17	43	90	16	15.6	2.0	●	●
1600 090 1600 300	16	17	43	90	16	15.6	3.0	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

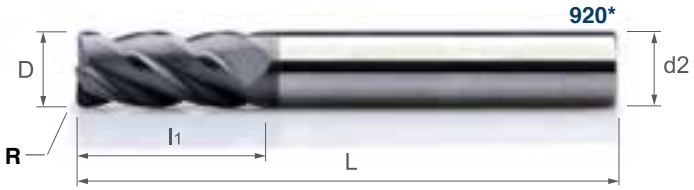
Working Material	Cutting Parameter
564	285

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 60R STANDARD TORUS ENDMILLS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R Standard Torus Endmills, 4 flutes
Fraises 2 tailles SE 60R toriques Standard en carbure monobloc, 4 dents
整体硬质合金 SE 60R 系列 圆鼻 立铣刀 4 刃 – 标准长度
VHM SE 60R Standard Torusfräser, 4 Zähne
Frese SE 60R toroidali Standard, in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						B69*	920*	A50*
	D	l 1	l 2	L	d2 (h6)	R	T ... n	B0819	B0909
0100 040 0400 020	1	3		40	4	0.2	●	●	●
0100 050 0600 020	1	3		50	6	0.2	●	●	●
0150 040 0400 020	1.5	4.5		40	4	0.2	●	●	●
0150 050 0600 020	1.5	4.5		50	6	0.2	●	●	●
0200 040 0400 020	2	6.5		40	4	0.2	●	●	●
0200 040 0400 030	2	6.5		40	4	0.3	●	●	●
0200 050 0600 020	2	6.5		50	6	0.2	●	●	●
0200 050 0600 030	2	6.5		50	6	0.3	●	●	●
0250 040 0400 020	2.5	6.5		40	4	0.2	●	●	●
0250 040 0400 030	2.5	6.5		40	4	0.3	●	●	●
0250 040 0400 050	2.5	6.5		40	4	0.5	●	●	●
0250 050 0600 020	2.5	6.5		50	6	0.2	●	●	●
0250 050 0600 030	2.5	6.5		50	6	0.3	●	●	●
0250 050 0600 050	2.5	6.5		50	6	0.5	●	●	●
0300 040 0300 020	3	9		40	3	0.2	●	●	●
0300 040 0300 030	3	9		40	3	0.3	●	●	●
0300 040 0300 050	3	9		40	3	0.5	●	●	●
0300 040 0400 020	3	9		40	4	0.2	●	●	●
0300 040 0400 030	3	9		40	4	0.3	●	●	●
0300 040 0400 050	3	9		40	4	0.5	●	●	●
0300 050 0600 020	3	9		50	6	0.2	●	●	●
0300 050 0600 030	3	9		50	6	0.3	●	●	●
0300 050 0600 050	3	9		50	6	0.5	●	●	●
0400 050 0400 020	4	12		50	4	0.2	●	●	●
0400 050 0400 030	4	12		50	4	0.3	●	●	●
0400 050 0400 050	4	12		50	4	0.5	●	●	●
0400 050 0400 100	4	12		50	4	1	●	●	●
0400 050 0600 020	4	12		50	6	0.2	●	●	●
0400 050 0600 030	4	12		50	6	0.3	●	●	●
0400 050 0600 050	4	12		50	6	0.5	●	●	●
0400 050 0600 100	4	12		50	6	1	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

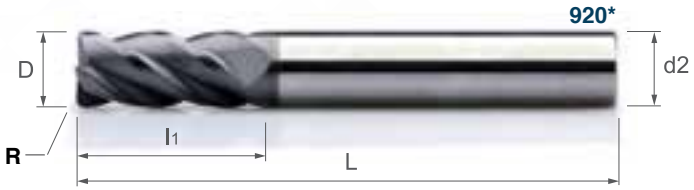
Working Material	Cutting Parameter
564	285

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 60R STANDARD TORUS ENDMILLS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R Standard Torus Endmills, 4 flutes
Fraises 2 tailles SE 60R toriques Standard en carbure monobloc, 4 dents
整体硬质合金 SE 60R 系列 圆鼻 立铣刀 4 刃 – 标准长度
VHM SE 60R Standard Torusfräser, 4 Zähne
Frese SE 60R toroidali Standard, in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						B69*	920*	A50*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	R	T ... n	B0819	B0909
0500 050 0500 020	5	15		50	5	0.2	●	●	●
0500 050 0500 030	5	15		50	5	0.3	●	●	●
0500 050 0500 050	5	15		50	5	0.5	●	●	●
0500 050 0500 100	5	15		50	5	1	●	●	●
0500 050 0600 020	5	15		50	6	0.2	●	●	●
0500 050 0600 030	5	15		50	6	0.3	●	●	●
0500 050 0600 050	5	15		50	6	0.5	●	●	●
0500 050 0600 100	5	15		50	6	1	●	●	●
0600 050 0600 020	6	16		50	6	0.2	●	●	●
0600 050 0600 030	6	16		50	6	0.3	●	●	●
0600 050 0600 050	6	16		50	6	0.5	●	●	●
0600 050 0600 100	6	16		50	6	1.0	●	●	●
0600 060 0600 020	6	20		60	6	0.2	●	●	●
0600 060 0600 030	6	20		60	6	0.3	●	●	●
0600 060 0600 050	6	20		60	6	0.5	●	●	●
0600 060 0600 100	6	20		60	6	1.0	●	●	●
0800 064 0800 020	8	20		64	8	0.2	●	●	●
0800 064 0800 030	8	20		64	8	0.3	●	●	●
0800 064 0800 050	8	20		64	8	0.5	●	●	●
0800 064 0800 100	8	20		64	8	1.0	●	●	●
0800 064 0800 150	8	20		64	8	1.5	●	●	●
0800 064 0800 200	8	20		64	8	2.0	●	●	●
1000 070 1000 030	10	22		70	10	0.3	●	●	●
1000 070 1000 050	10	22		70	10	0.5	●	●	●
1000 070 1000 100	10	22		70	10	1.0	●	●	●
1000 070 1000 150	10	22		70	10	1.5	●	●	●
1000 070 1000 200	10	22		70	10	2.0	●	●	●
1000 075 1000 030	10	22		75	10	0.3	●	●	●
1000 075 1000 050	10	22		75	10	0.5	●	●	●
1000 075 1000 100	10	22		75	10	1.0	●	●	●
1000 075 1000 150	10	22		75	10	1.5	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

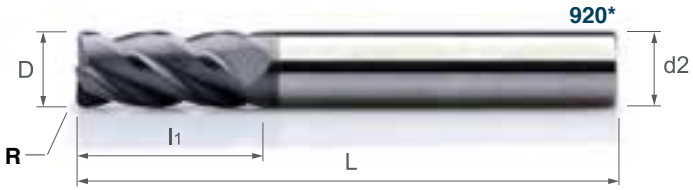
Working Material	Cutting Parameter
564	285

若有技术规格变更，恕不事先通知

SE 60R STANDARD TORUS ENDMILLS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R Standard Torus Endmills, 4 flutes
Fraises 2 tailles SE 60R toriques Standard en carbure monobloc, 4 dents
整体硬质合金 SE 60R 系列 圆鼻 立铣刀 4 刃 – 标准长度
VHM SE 60R Standard Torusfräser, 4 Zähne
Frese SE 60R toroidali Standard, in metallo duro integrale, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						B69*	920*	A50*
	D	l 1	l 2	L	d2 (h6)	R	T ... n	B0819	B0909
1000 075 1000 200	10	22		75	10	2	●	●	●
1200 075 1200 030	12	25		75	12	0.3	●	●	●
1200 075 1200 050	12	25		75	12	0.5	●	●	●
1200 075 1200 100	12	25		75	12	1	●	●	●
1200 075 1200 150	12	25		75	12	1.5	●	●	●
1200 075 1200 200	12	25		75	12	2	●	●	●
1200 075 1200 300	12	25		75	12	3	●	●	●
1400 090 1400 050	14	32		90	14	0.5	●	●	●
1400 090 1400 100	14	32		90	14	1	●	●	●
1400 090 1400 150	14	32		90	14	1.5	●	●	●
1400 090 1400 200	14	32		90	14	2	●	●	●
1400 090 1400 300	14	32		90	14	3	●	●	●
1600 090 1600 050	16	32		90	16	0.5	●	●	●
1600 090 1600 100	16	32		90	16	1	●	●	●
1600 090 1600 150	16	32		90	16	1.5	●	●	●
1600 090 1600 200	16	32		90	16	2.0	●	●	●
1600 090 1600 300	16	32		90	16	3.0	●	●	●
1800 100 1800 050	18	38		100	18	0.5	○	○	○
1800 100 1800 100	18	38		100	18	1	○	○	○
1800 100 1800 150	18	38		100	18	1.5	○	○	○
1800 100 1800 200	18	38		100	18	2	○	○	○
1800 100 1800 300	18	38		100	18	3	○	○	○
2000 100 2000 050	20	38		100	20	0.5	●	●	●
2000 100 2000 100	20	38		100	20	1	●	●	●
2000 100 2000 150	20	38		100	20	1.5	●	●	●
2000 100 2000 200	20	38		100	20	2	●	●	●
2000 100 2000 300	20	38		100	20	3	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	285

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

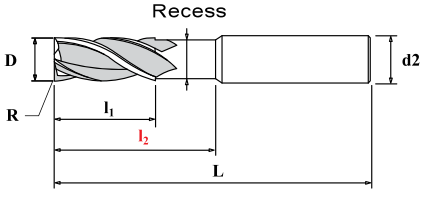
SE 60R SHORT FLUTES TORUS ENDMILLS - LONG REACH - LONG

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R long LONG REACH Torus Endmills, short flutes, 4 flutes
Fraises 2 tailles SE 60R LONG REACH toriques longues, goujures courtes, 4 dents
整体硬质合金 SE 60R 系列 圆鼻短刃 立铣刀 4 刃 – 中长
VHM SE 60R lange LONG REACH Torusfräser, kurze Nuten, 4 Zähne
Frese SE 60R LONG REACH toroidali lunghe in metallo duro integrale, gole corte, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						454*	455*	A51*
	D	l 1	l 2	L	d2 (h6)	R	T ... n	B0819	B0909
0200 075 0600 030	2	4	30	75	6	0.3	●	●	●
0300 075 0600 030	3	5	30	75	6	0.3	●	●	●
0300 075 0600 050	3	5	30	75	6	0.5	●	●	●
0400 075 0600 030	4	8	32	75	6	0.3	●	●	●
0400 075 0600 050	4	8	32	75	6	0.5	●	●	●
0500 075 0600 030	5	9	32	75	6	0.3	●	●	●
0500 075 0600 050	5	9	32	75	6	0.5	●	●	●
0600 075 0600 030	6	10	40	75	6	0.3	●	●	●
0600 075 0600 050	6	10	40	75	6	0.5	●	●	●
0600 075 0600 100	6	10	40	75	6	1	●	●	●
0800 075 0800 030	8	12	40	75	8	0.3	●	●	●
0800 075 0800 050	8	12	40	75	8	0.5	●	●	●
0800 075 0800 100	8	12	40	75	8	1	●	●	●
1000 075 1000 050	10	14	40	75	10	0.5	●	●	●
1000 075 1000 100	10	14	40	75	10	1	●	●	●
1000 075 1000 200	10	14	40	75	10	2	●	●	●
1000 100 1000 050	10	14	60	100	10	0.5	●	●	●
1000 100 1000 100	10	14	60	100	10	1	●	●	●
1000 100 1000 200	10	14	60	100	10	2	●	●	●
1200 100 1200 050	12	16	60	100	12	0.5	●	●	●
1200 100 1200 100	12	16	60	100	12	1	●	●	●
1200 100 1200 200	12	16	60	100	12	2	●	●	●
1600 125 1600 050	16	22	85	125	16	0.5	●	●	●
1600 125 1600 100	16	22	85	125	16	1	●	●	●
1600 125 1600 200	16	22	85	125	16	2	●	●	●
1600 125 1600 300	16	22	85	125	16	3	●	●	●
							457*	458*	A52*

Recess



Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

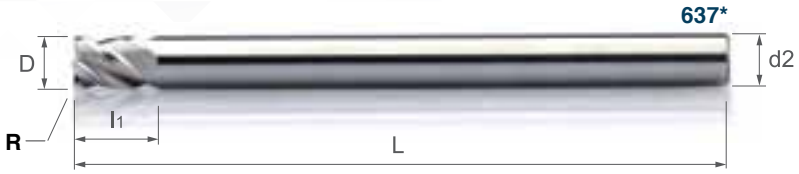
Working Material	Cutting Parameter
564	287

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 60R SHORT FLUTES LONG REACH TORUS ENDMILLS - EXTRA-LONG

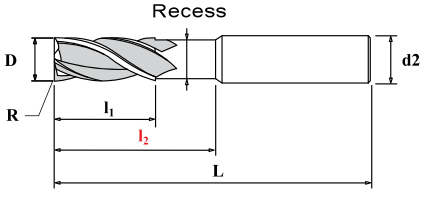
≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R extra-long LONG REACH Torus Endmills, short flutes, 4 flutes
Fraises toriques 2 tailles SE 60R LONG REACH extra-longues, goujures courtes, 4 dents
整体硬质合金 SE 60R 系列 圆鼻短刃 立铣刀 4 刃 -加长
VHM SE 60R extra-lange LONG REACH Torusfräser, kurze Nuten, 4 Zähne
Frese torodali SE 60R LONG REACH extra-lunghe in metallo duro integrale, gole corte,4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						637*	B34*	A53*
	D	l 1	l 2	L	d2 (h6)	R	T ... n	B0819	B0909
0200 100 0600 030	2	4	60	100	6	0.3	●	●	●
0300 100 0600 030	3	5	60	100	6	0.3	●	●	●
0300 100 0600 050	3	5	60	100	6	0.5	●	●	●
0400 100 0600 030	4	8	60	100	6	0.3	●	●	●
0400 100 0600 050	4	8	60	100	6	0.5	●	●	●
0500 100 0600 030	5	9	60	100	6	0.3	●	●	●
0500 100 0600 050	5	9	60	100	6	0.5	●	●	●
0600 100 0600 030	6	10	60	100	6	0.3	●	●	●
0600 100 0600 050	6	10	60	100	6	0.5	●	●	●
0600 100 0600 100	6	10	60	100	6	1	●	●	●
0800 100 0800 030	8	12	60	100	8	0.3	●	●	●
0800 100 0800 050	8	12	60	100	8	0.5	●	●	●
0800 100 0800 100	8	12	60	100	8	1	●	●	●
1000 125 1000 050	10	14	85	125	10	0.5	●	●	●
1000 125 1000 100	10	14	85	125	10	1	●	●	●
1000 125 1000 200	10	14	85	125	10	2	●	●	●
1200 150 1200 050	12	16	110	150	12	0.5	●	●	●
1200 150 1200 100	12	16	110	150	12	1	●	●	●
1200 150 1200 200	12	16	110	150	12	2	●	●	●
1600 150 1600 050	16	22	110	150	16	0.5	●	●	●
1600 150 1600 100	16	22	110	150	16	1	●	●	●
1600 150 1600 200	16	22	110	150	16	2	●	●	●
1600 150 1600 300	16	22	110	150	16	3	●	●	●
							640*	B35*	A54*

Recess



Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
●	●	●	●																						

Working Material	Cutting Parameter
564	289

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 60 MINIATURE ENDMILLS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Miniature Endmills, 2 Flutes
Micro-Fraises 2 tailles SE 60 en carbure monobloc, 2 dents
整体硬质合金 SE 60 系列 微型 立铣刀 2 刃
VHM SE 60 Kleinstfräser, 2 Zähne
Micro-frese SE 60 in metallo duro integrale, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)					B56*	B36*	A55*
	D	l 1	l 2	L	d2 (h6)	T ... n	B0819	B0909
0010 03	0.1	0.2		40	3	●	●	●
0010 04	0.1	0.2		40	4	●	●	●
0020 03	0.2	0.4		40	3	●	●	●
0020 04	0.2	0.4		40	4	●	●	●
0030 03	0.3	0.6		40	3	●	●	●
0030 04	0.3	0.6		40	4	●	●	●
0040 03	0.4	0.8		40	3	●	●	●
0040 04	0.4	0.8		40	4	●	●	●
0050 03	0.5	1.0		40	3	●	●	●
0050 04	0.5	1.0		40	4	●	●	●
0060 03	0.6	1.2		40	3	●	●	●
0060 04	0.6	1.2		40	4	●	●	●
0070 03	0.7	1.4		40	3	●	●	●
0070 04	0.7	1.4		40	4	●	●	●
0080 03	0.8	1.6		40	3	●	●	●
0080 04	0.8	1.6		40	4	●	●	●
0090 03	0.9	1.8		40	3	●	●	●
0090 04	0.9	1.8		40	4	●	●	●

Ø mm	Tol. µm
0.1 ~ 0.7	0 / -12
0.7 ~ 4.0	0 / - 20

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	294

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 60 MINIATURE ENDMILLS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Miniature Endmills with long neck, 2 flutes

Micro-fraises SE 60 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 60 系列 长颈短刃 立铣刀 2 刃

VHM SE 60 Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese SE 60 in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						976*	977*	A56*
=*+Ødata	D	l 1	l 2	L	d1	d2 (h6)	T ... n	B0819	B0909
0020 050 0400 005	0.2	0.3	0.5	50	0.16	4	●	●	●
0020 050 0400 010	0.2	0.3	1	50	0.16	4	●	●	●
0020 050 0400 015	0.2	0.3	1.5	50	0.16	4	●	●	●
0030 050 0400 010	0.3	0.4	1	50	0.26	4	●	●	●
0030 050 0400 020	0.3	0.4	2	50	0.26	4	●	●	●
0030 050 0400 030	0.3	0.4	3	50	0.26	4	●	●	●
0040 050 0400 020	0.4	0.6	2	50	0.37	4	●	●	●
0040 050 0400 030	0.4	0.6	3	50	0.37	4	●	●	●
0040 050 0400 040	0.4	0.6	4	50	0.37	4	●	●	●
0040 050 0400 050	0.4	0.6	5	50	0.37	4	●	●	●
0050 050 0400 020	0.5	0.7	2	50	0.45	4	●	●	●
0050 050 0400 040	0.5	0.7	4	50	0.45	4	●	●	●
0050 050 0400 060	0.5	0.7	6	50	0.45	4	●	●	●
0050 050 0400 080	0.5	0.7	8	50	0.45	4	●	●	●
0060 050 0400 020	0.6	0.9	2	50	0.55	4	●	●	●
0060 050 0400 040	0.6	0.9	4	50	0.55	4	●	●	●
0060 050 0400 060	0.6	0.9	6	50	0.55	4	●	●	●
0060 050 0400 080	0.6	0.9	8	50	0.55	4	●	●	●
0060 050 0400 100	0.6	0.9	10	50	0.55	4	●	●	●
0070 050 0400 020	0.7	1.0	2	50	0.65	4	●	●	●
0070 050 0400 040	0.7	1.0	4	50	0.65	4	●	●	●
0070 050 0400 060	0.7	1.0	6	50	0.65	4	●	●	●
0070 050 0400 080	0.7	1.0	8	50	0.65	4	●	●	●
0070 050 0400 100	0.7	1.0	10	50	0.65	4	●	●	●
0080 050 0400 040	0.8	1.2	4	50	0.75	4	●	●	●
0080 050 0400 060	0.8	1.2	6	50	0.75	4	●	●	●
0080 050 0400 080	0.8	1.2	8	50	0.75	4	●	●	●
0080 050 0400 100	0.8	1.2	10	50	0.75	4	●	●	●
0080 050 0400 120	0.8	1.2	12	50	0.75	4	●	●	●
0090 050 0400 060	0.9	1.4	6	50	0.85	4	●	●	●
0090 050 0400 080	0.9	1.4	8	50	0.85	4	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
●	●	●	●																						

Working Material	Cutting Parameter
564	294

若有技术规格变更，恕不事先通知

SE 60 MINIATURE ENDMILLS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Miniature Endmills with long neck, 2 flutes
Micro-fraises SE 60 2 tailles en carbure monobloc avec cou long, 2 dents
整体硬质合金 SE 60 系列 长颈短刃 立铣刀 2 刃
VHM SE 60 Kleinstfräser mit langem Hals, 2 Zähne
Micro-frese SE 60 in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						976*	977*	A56*
=*+Ødata	D	l 1	l 2	L	d1	d2 (h6)	T ... n	B0819	B0909
0090 050 0400 100	0.9	1.4	10	50	0.85	4	●	●	●
0090 050 0400 150	0.9	1.4	15	50	0.85	4	●	●	●
0100 050 0400 060	1	1.5	6	50	0.95	4	●	●	●
0100 050 0400 080	1	1.5	8	50	0.95	4	●	●	●
0100 050 0400 100	1	1.5	10	50	0.95	4	●	●	●
0100 050 0400 120	1	1.5	12	50	0.95	4	●	●	●
0100 050 0400 140	1	1.5	14	50	0.95	4	●	●	●
0100 050 0400 160	1	1.5	16	50	0.95	4	●	●	●
0120 050 0400 060	1.2	1.8	6	50	1.15	4	●	●	●
0120 050 0400 080	1.2	1.8	8	50	1.15	4	●	●	●
0120 050 0400 100	1.2	1.8	10	50	1.15	4	●	●	●
0120 050 0400 120	1.2	1.8	12	50	1.15	4	●	●	●
0140 050 0400 060	1.4	2.1	6	50	1.35	4	●	●	●
0140 050 0400 080	1.4	2.1	8	50	1.35	4	●	●	●
0140 050 0400 100	1.4	2.1	10	50	1.35	4	●	●	●
0140 050 0400 120	1.4	2.1	12	50	1.35	4	●	●	●
0140 050 0400 140	1.4	2.1	14	50	1.35	4	●	●	●
0140 050 0400 160	1.4	2.1	16	50	1.35	4	●	●	●
0150 050 0400 060	1.5	2.3	6	50	1.45	4	●	●	●
0150 050 0400 080	1.5	2.3	8	50	1.45	4	●	●	●
0150 050 0400 100	1.5	2.3	10	50	1.45	4	●	●	●
0150 050 0400 120	1.5	2.3	12	50	1.45	4	●	●	●
0150 050 0400 140	1.5	2.3	14	50	1.45	4	●	●	●
0150 060 0400 160	1.5	2.3	16	50	1.45	4	●	●	●
0150 060 0400 180	1.5	2.3	18	60	1.45	4	●	●	●
0150 060 0400 200	1.5	2.3	20	60	1.45	4	●	●	●
0160 050 0400 060	1.6	2.4	6	50	1.55	4	●	●	●
0160 050 0400 080	1.6	2.4	8	50	1.55	4	●	●	●
0160 050 0400 100	1.6	2.4	10	50	1.55	4	●	●	●
0160 050 0400 120	1.6	2.4	12	50	1.55	4	●	●	●
0160 050 0400 140	1.6	2.4	14	50	1.55	4	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	294

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 60 MINIATURE ENDMILLS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Miniature Endmills with long neck, 2 flutes
Micro-fraises SE 60 2 tailles en carbure monobloc avec cou long, 2 dents
整体硬质合金 SE 60 系列 长颈短刃 立铣刀 2 刃
VHM SE 60 Kleinstfräser mit langem Hals, 2 Zähne
Micro-frese SE 60 in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d1	d2 (h6)	976* T ... n	977* B0819	A56* B0909
0160 050 0400 160	1.6	2.4	16	50	1.55	4	●	●	●
0160 060 0400 180	1.6	2.4	18	60	1.55	4	●	●	●
0160 060 0400 200	1.6	2.4	20	60	1.55	4	●	●	●
0180 050 0400 060	1.8	2.7	6	50	1.75	4	●	●	●
0180 050 0400 080	1.8	2.7	8	50	1.75	4	●	●	●
0180 050 0400 100	1.8	2.7	10	50	1.75	4	●	●	●
0180 050 0400 120	1.8	2.7	12	50	1.75	4	●	●	●
0180 050 0400 140	1.8	2.7	14	50	1.75	4	●	●	●
0180 050 0400 160	1.8	2.7	16	50	1.75	4	●	●	●
0180 060 0400 180	1.8	2.7	18	60	1.75	4	●	●	●
0180 060 0400 200	1.8	2.7	20	60	1.75	4	●	●	●
0200 050 0400 060	2	3	6	50	1.95	4	●	●	●
0200 050 0400 080	2	3	8	50	1.95	4	●	●	●
0200 050 0400 100	2	3	10	50	1.95	4	●	●	●
0200 050 0400 120	2	3	12	50	1.95	4	●	●	●
0200 050 0400 140	2	3	14	50	1.95	4	●	●	●
0200 050 0400 160	2	3	16	50	1.95	4	●	●	●
0200 060 0400 180	2	3	18	60	1.95	4	●	●	●
0200 060 0400 200	2	3	20	60	1.95	4	●	●	●
0200 075 0400 250	2	3	25	75	1.95	4	●	●	●
0200 075 0400 300	2	3	30	75	1.95	4	●	●	●
0250 050 0400 080	2.5	3.7	8	50	2.4	4	●	●	●
0250 050 0400 100	2.5	3.7	10	50	2.4	4	●	●	●
0250 050 0400 120	2.5	3.7	12	50	2.4	4	●	●	●
0250 050 0400 140	2.5	3.7	14	50	2.4	4	●	●	●
0250 050 0400 160	2.5	3.7	16	50	2.4	4	●	●	●
0250 060 0400 180	2.5	3.7	18	60	2.4	4	●	●	●
0250 060 0400 200	2.5	3.7	20	60	2.4	4	●	●	●
0250 075 0400 250	2.5	3.7	25	75	3.4	4	●	●	●
0250 075 0400 300	2.5	3.7	30	75	2.4	4	●	●	●
0300 050 0400 080	2.5	4.5	8	50	2.85	4	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	294

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 60 MINIATURE ENDMILLS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60 Miniature Endmills with long neck, 2 flutes
Micro-fraises SE 60 2 tailles en carbure monobloc avec cou long, 2 dents
整体硬质合金 SE 60 系列 长颈短刃 立铣刀 2 刃
VHM SE 60 Kleinstfräser mit langem Hals, 2 Zähne
Micro-frese SE 60 in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d1	d2 (h6)	976* T ... n	977* B0819	A56* B0909
0300 050 0600 080	3	4.5	8	50	2.85	6	●	●	●
0300 050 0600 100	3	4.5	10	50	2.85	6	●	●	●
0300 050 0600 120	3	4.5	12	50	2.85	6	●	●	●
0300 050 0400 140	3	4.5	14	50	2.85	4	●	●	●
0300 050 0600 140	3	4.5	14	50	2.85	6	●	●	●
0300 060 0600 160	3	4.5	16	60	2.85	6	●	●	●
0300 060 0600 180	3	4.5	18	60	2.85	6	●	●	●
0300 060 0600 200	3	4.5	20	60	2.85	6	●	●	●
0300 075 0400 250	3	4.5	25	75	2.85	4	●	●	●
0300 075 0600 250	3	4.5	25	75	2.85	6	●	●	●
0400 060 0600 100	4	4.5	10	60	3.85	6	●	●	●
0400 060 0600 150	4	4.5	15	60	3.85	6	●	●	●
0400 060 0600 200	4	4.5	20	60	3.85	6	●	●	●
0400 075 0600 250	4	4.5	25	75	3.85	6	●	●	●
0400 075 0600 300	4	4.5	30	75	3.85	6	●	●	●
0400 075 0600 400	4	4.5	40	75	3.85	6	●	●	●

Ø mm	Tol. µm
0.1 ~ 0.7	0 / -12
0.7 ~ 4.0	0 / -20

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	294

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 60R MINIATURE TORUS ENDMILLS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R Miniature Torus Endmills with long neck, 2 flutes

Micro-fraises SE 60R 2 tailles toriques en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 60R 系列 圆鼻长颈短刃 立铣刀 2 刃

VHM SE 60R Torus-Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese torodali SE 60R in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							B67*	B68*	A80*
=*+Ødata	D *	l 1	l 2	L	d1	R	d2 (h6)	T ... n	B0819	B0909
0020 050 0400 005	0.2	0.3	0.5	50	0.16	0.02	4	●	●	●
0020 050 0400 010	0.2	0.3	1	50	0.16	0.02	4	●	●	●
0020 050 0400 015	0.2	0.3	1.5	50	0.16	0.02	4	●	●	●
0030 050 0400 010	0.3	0.4	1	50	0.26	0.03	4	●	●	●
0030 050 0400 020	0.3	0.4	2	50	0.26	0.03	4	●	●	●
0030 050 0400 030	0.3	0.4	3	50	0.26	0.03	4	●	●	●
0040 050 0400 020	0.4	0.6	2	50	0.37	0.03	4	●	●	●
0040 050 0400 030	0.4	0.6	3	50	0.37	0.03	4	●	●	●
0040 050 0400 040	0.4	0.6	4	50	0.37	0.03	4	●	●	●
0040 050 0400 050	0.4	0.6	5	50	0.37	0.03	4	●	●	●
0050 050 0400 020	0.5	0.7	2	50	0.45	0.05	4	●	●	●
0050 050 0400 040	0.5	0.7	4	50	0.45	0.05	4	●	●	●
0050 050 0400 060	0.5	0.7	6	50	0.45	0.05	4	●	●	●
0050 050 0400 080	0.5	0.7	8	50	0.45	0.05	4	●	●	●
0060 050 0400 020	0.6	0.9	2	50	0.55	0.05	4	●	●	●
0060 050 0400 040	0.6	0.9	4	50	0.55	0.05	4	●	●	●
0060 050 0400 060	0.6	0.9	6	50	0.55	0.05	4	●	●	●
0060 050 0400 080	0.6	0.9	8	50	0.55	0.05	4	●	●	●
0060 050 0400 100	0.6	0.9	10	50	0.55	0.05	4	●	●	●
0070 050 0400 020	0.7	1.0	2	50	0.65	0.08	4	●	●	●
0070 050 0400 040	0.7	1.0	4	50	0.65	0.08	4	●	●	●
0070 050 0400 060	0.7	1.0	6	50	0.65	0.08	4	●	●	●
0070 050 0400 080	0.7	1.0	8	50	0.65	0.08	4	●	●	●
0070 050 0400 100	0.7	1.0	10	50	0.65	0.08	4	●	●	●
0080 050 0400 040	0.8	1.2	4	50	0.75	0.08	4	●	●	●
0080 050 0400 060	0.8	1.2	6	50	0.75	0.08	4	●	●	●
0080 050 0400 080	0.8	1.2	8	50	0.75	0.08	4	●	●	●
0080 050 0400 100	0.8	1.2	10	50	0.75	0.08	4	●	●	●
0080 050 0400 120	0.8	1.2	12	50	0.75	0.08	4	●	●	●
0090 050 0400 060	0.9	1.4	6	50	0.85	0.08	4	●	●	●
0090 050 0400 080	0.9	1.4	8	50	0.85	0.08	4	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	294

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 60R MINIATURE TORUS ENDMILLS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R Miniature Torus Endmills with long neck, 2 flutes

Micro-fraises SE 60R 2 tailles toriques en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 60R 系列 圆鼻长颈短刃 立铣刀 2 刃

VHM SE 60R Torus-Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese torodali SE 60R in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							B67*	B68*	A80*
=*+Ødata	D *	l 1	l 2	L	d1	R	d2 (h6)	T ... n	B0819	B0909
0090 050 0400 100	0.9	1.4	10	50	0.85	0.08	4	●	●	●
0090 050 0400 150	0.9	1.4	15	50	0.85	0.08	4	●	●	●
0100 050 0400 060	1.0	1.5	6	50	0.95	0.1	4	●	●	●
0100 050 0400 080	1.0	1.5	8	50	0.95	0.1	4	●	●	●
0100 050 0400 100	1.0	1.5	10	50	0.95	0.1	4	●	●	●
0100 050 0400 120	1.0	1.5	12	50	0.95	0.1	4	●	●	●
0100 050 0400 140	1.0	1.5	14	50	0.95	0.1	4	●	●	●
0100 050 0400 160	1.0	1.5	16	50	0.95	0.1	4	●	●	●
0120 050 0400 060	1.2	1.8	6	50	1.15	0.1	4	●	●	●
0120 050 0400 080	1.2	1.8	8	50	1.15	0.1	4	●	●	●
0120 050 0400 100	1.2	1.8	10	50	1.15	0.1	4	●	●	●
0120 050 0400 120	1.2	1.8	12	50	1.15	0.1	4	●	●	●
0140 050 0400 060	1.4	2.1	6	50	1.35	0.15	4	●	●	●
0140 050 0400 080	1.4	2.1	8	50	1.35	0.15	4	●	●	●
0140 050 0400 100	1.4	2.1	10	50	1.35	0.15	4	●	●	●
0140 050 0400 120	1.4	2.1	12	50	1.35	0.15	4	●	●	●
0140 050 0400 140	1.4	2.1	14	50	1.35	0.15	4	●	●	●
0140 050 0400 160	1.4	2.1	16	50	1.35	0.15	4	●	●	●
0150 050 0400 060	1.5	2.3	6	50	1.45	0.15	4	●	●	●
0150 050 0400 080	1.5	2.3	8	50	1.45	0.15	4	●	●	●
0150 050 0400 100	1.5	2.3	10	50	1.45	0.15	4	●	●	●
0150 050 0400 120	1.5	2.3	12	50	1.45	0.15	4	●	●	●
0150 050 0400 140	1.5	2.3	14	50	1.45	0.15	4	●	●	●
0150 050 0400 160	1.5	2.3	16	50	1.45	0.15	4	●	●	●
0150 060 0400 180	1.5	2.3	18	60	1.45	0.15	4	●	●	●
0150 060 0400 200	1.5	2.3	20	60	1.45	0.15	4	●	●	●
0160 050 0400 060	1.6	2.4	6	50	1.55	0.15	4	●	●	●
0160 050 0400 080	1.6	2.4	8	50	1.55	0.15	4	●	●	●
0160 050 0400 100	1.6	2.4	10	50	1.55	0.15	4	●	●	●
0160 050 0400 120	1.6	2.4	12	50	1.55	0.15	4	●	●	●
0160 050 0400 140	1.6	2.4	14	50	1.55	0.15	4	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	294

若有技术规格变更，恕不事先通知

SE 60R MINIATURE TORUS ENDMILLS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R Miniature Torus Endmills with long neck, 2 flutes

Micro-fraises SE 60R 2 tailles toriques en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 60R 系列 圆鼻长颈短刃 立铣刀 2 刃

VHM SE 60R Torus-Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese torodali SE 60R in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							B67*	B68*	A80*
=*+Ødata	D *	l 1	l 2	L	d1	R	d2 (h6)	T ... n	B0819	B0909
0160 050 0400 160	1.6	2.4	16	50	1.55	0.15	4	●	●	●
0160 060 0400 180	1.6	2.4	18	60	1.55	0.15	4	●	●	●
0160 060 0400 200	1.6	2.4	20	60	1.55	0.15	4	●	●	●
0180 050 0400 060	1.8	2.7	6	50	1.75	0.2	4	●	●	●
0180 050 0400 080	1.8	2.7	8	50	1.75	0.2	4	●	●	●
0180 050 0400 100	1.8	2.7	10	50	1.75	0.2	4	●	●	●
0180 050 0400 120	1.8	2.7	12	50	1.75	0.2	4	●	●	●
0180 050 0400 140	1.8	2.7	14	50	1.75	0.2	4	●	●	●
0180 050 0400 160	1.8	2.7	16	50	1.75	0.2	4	●	●	●
0180 060 0400 180	1.8	2.7	18	60	1.75	0.2	4	●	●	●
0180 060 0400 200	1.8	2.7	20	60	1.75	0.2	4	●	●	●
0200 050 0400 060	2	3	6	50	1.95	0.2	4	●	●	●
0200 050 0400 080	2	3	8	50	1.95	0.2	4	●	●	●
0200 050 0400 100	2	3	10	50	1.95	0.2	4	●	●	●
0200 050 0400 120	2	3	12	50	1.95	0.2	4	●	●	●
0200 050 0400 140	2	3	14	50	1.95	0.2	4	●	●	●
0200 050 0400 160	2	3	16	50	1.95	0.2	4	●	●	●
0200 060 0400 180	2	3	18	60	1.95	0.2	4	●	●	●
0200 060 0400 200	2	3	20	60	1.95	0.2	4	●	●	●
0200 075 0400 250	2	3	25	75	1.95	0.2	4	●	●	●
0200 075 0400 300	2	3	30	75	1.95	0.2	4	●	●	●
0250 050 0400 080	2.5	3.7	8	50	2.4	0.3	4	●	●	●
0250 050 0400 100	2.5	3.7	10	50	2.4	0.3	4	●	●	●
0250 050 0400 120	2.5	3.7	12	50	2.4	0.3	4	●	●	●
0250 050 0400 140	2.5	3.7	14	50	2.4	0.3	4	●	●	●
0250 050 0400 160	2.5	3.7	16	50	2.4	0.3	4	●	●	●
0250 060 0400 180	2.5	3.7	18	60	2.4	0.3	4	●	●	●
0250 060 0400 200	2.5	3.7	20	60	2.4	0.3	4	●	●	●
0250 075 0400 250	2.5	3.7	25	75	2.4	0.3	4	●	●	●
0250 075 0400 300	2.5	3.7	30	75	2.4	0.3	4	●	●	●
0300 050 0600 080	3	4.5	8	50	2.85	0.3	6	●	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●																						

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	294

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 60R MINIATURE TORUS ENDMILLS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide SE 60R Miniature Torus Endmills with long neck, 2 flutes

Micro-fraises SE 60R 2 tailles toriques en carbure monobloc avec cou long, 2 dents

整体硬质合金 SE 60R 系列 圆鼻长颈短刃 立铣刀 2 刃

VHM SE 60R Torus-Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese torodali SE 60R in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							B67*	B68*	A80*
=*+Ødata	D *	l 1	l 2	L	d1	R	d2 (h6)	T ... n	B0819	B0909
0300 050 0600 100	3	4.5	10	50	2.85	0.3	6	●	●	●
0300 050 0600 120	3	4.5	12	50	2.85	0.3	6	●	●	●
0300 050 0600 140	3	4.5	14	50	2.85	0.3	6	●	●	●
0300 060 0600 160	3	4.5	16	60	2.85	0.3	6	●	●	●
0300 060 0600 180	3	4.5	18	60	2.85	0.3	6	●	●	●
0300 060 0600 200	3	4.5	20	60	2.85	0.3	6	●	●	●
0300 075 0600 250	3	4.5	25	75	2.85	0.3	6	●	●	●
0400 060 0600 100	4	4.5	10	60	3.85	0.4	6	●	●	●
0400 060 0600 150	4	4.5	15	60	3.85	0.4	6	●	●	●
0400 060 0600 200	4	4.5	20	60	3.85	0.4	6	●	●	●
0400 075 0600 250	4	4.5	25	75	3.85	0.4	6	●	●	●
0400 075 0600 300	4	4.5	30	75	3.85	0.4	6	●	●	●
0400 075 0600 400	4	4.5	40	75	3.85	0.4	6	●	●	●

Ø mm	Tol. µm
0.1 ~ 0.7	0 / -12
0.7 ~ 4.0	0 / -20

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

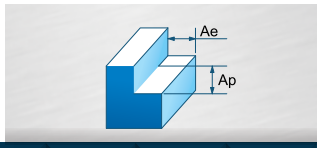
M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	294

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 60 Standard Series Endmills

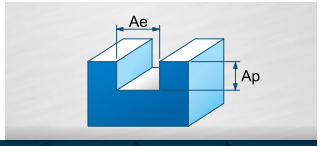
Ae ≤ 0.03D (D < Ø3)
Ae ≤ 0.05D (D ≤ Ø3)
(MAX 0.5mm)
Ap ≤ 1.0D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45-55HRC) AISI H13	M26	1	4	50 ~ 70	0.005 ~ 0.007	≤1.0D	≤0.3D	15920 ~ 22280	320 ~ 620
		1.5	4	50 ~ 70	0.008 ~ 0.011	≤1.0D	≤0.3D	10610 ~ 14850	340 ~ 650
		2	4	50 ~ 70	0.012 ~ 0.015	≤1.0D	≤0.3D	7960 ~ 11140	380 ~ 670
		2.5	4	50 ~ 70	0.016 ~ 0.019	≤1.0D	≤0.3D	6370 ~ 8910	410 ~ 680
		3	4	50 ~ 70	0.020 ~ 0.023	≤1.0D	≤0.05D (MAX 0.5)	5310 ~ 7430	420 ~ 680
		4	4	50 ~ 70	0.028 ~ 0.031	≤1.0D	≤0.05D (MAX 0.5)	3980 ~ 5570	450 ~ 690
		5	4	50 ~ 70	0.035 ~ 0.039	≤1.0D	≤0.05D (MAX 0.5)	3180 ~ 4460	450 ~ 700
		6	4	50 ~ 70	0.043 ~ 0.048	≤1.0D	≤0.05D (MAX 0.5)	2650 ~ 3710	460 ~ 710
		8	4	50 ~ 70	0.054 ~ 0.059	≤1.0D	≤0.05D (MAX 0.5)	1990 ~ 2790	430 ~ 660
		10	4	50 ~ 70	0.064 ~ 0.071	≤1.0D	≤0.05D (MAX 0.5)	1590 ~ 2230	410 ~ 630
		12	4	50 ~ 70	0.075 ~ 0.083	≤1.0D	≤0.05D (MAX 0.5)	1330 ~ 1860	400 ~ 620
		14	4	50 ~ 70	0.086 ~ 0.094	≤1.0D	≤0.05D (MAX 0.5)	1140 ~ 1590	390 ~ 600
		16	4	50 ~ 70	0.096 ~ 0.106	≤1.0D	≤0.05D (MAX 0.5)	990 ~ 1390	380 ~ 590
		18	4	50 ~ 70	0.107 ~ 0.118	≤1.0D	≤0.05D (MAX 0.5)	880 ~ 1240	380 ~ 590
		20	4	50 ~ 70	0.117 ~ 0.129	≤1.0D	≤0.05D (MAX 0.5)	800 ~ 1110	370 ~ 570
		22	4	50 ~ 70	0.128 ~ 0.141	≤1.0D	≤0.05D (MAX 0.5)	720 ~ 1010	370 ~ 570
		25	4	50 ~ 70	0.144 ~ 0.158	≤1.0D	≤0.05D (MAX 0.5)	640 ~ 890	370 ~ 560
HARDENED STEEL (55-60HRC) AISI D2	M27, M28	1	4	40 ~ 60	0.004 ~ 0.006	≤1.0D	≤0.3D (MAX 0.2)	12730 ~ 19100	200 ~ 460
		1.5	4	40 ~ 60	0.006 ~ 0.009	≤1.0D	≤0.3D (MAX 0.2)	8490 ~ 12730	200 ~ 460
		2	4	40 ~ 60	0.009 ~ 0.012	≤1.0D	≤0.3D (MAX 0.2)	6370 ~ 9550	230 ~ 460
		2.5	4	40 ~ 60	0.012 ~ 0.015	≤1.0D	≤0.3D (MAX 0.2)	5090 ~ 7640	240 ~ 460
		3	4	40 ~ 60	0.015 ~ 0.018	≤1.0D	≤0.3D (MAX 0.2)	4240 ~ 6370	250 ~ 460
		4	4	40 ~ 60	0.021 ~ 0.024	≤1.0D	≤0.3D (MAX 0.2)	3180 ~ 4770	270 ~ 460
		5	4	40 ~ 60	0.027 ~ 0.030	≤1.0D	≤0.3D (MAX 0.2)	2550 ~ 3820	280 ~ 460
		6	4	40 ~ 60	0.032 ~ 0.036	≤1.0D	≤0.3D (MAX 0.2)	2120 ~ 3180	270 ~ 460
		8	4	40 ~ 60	0.040 ~ 0.044	≤1.0D	≤0.3D (MAX 0.2)	1590 ~ 2390	250 ~ 420
		10	4	40 ~ 60	0.048 ~ 0.053	≤1.0D	≤0.3D (MAX 0.2)	1270 ~ 1910	240 ~ 400
		12	4	40 ~ 60	0.056 ~ 0.062	≤1.0D	≤0.3D (MAX 0.2)	1060 ~ 1590	240 ~ 390
		14	4	40 ~ 60	0.064 ~ 0.071	≤1.0D	≤0.3D (MAX 0.2)	910 ~ 1360	230 ~ 390
		16	4	40 ~ 60	0.072 ~ 0.079	≤1.0D	≤0.3D (MAX 0.2)	800 ~ 1190	230 ~ 380
		18	4	40 ~ 60	0.080 ~ 0.088	≤1.0D	≤0.3D (MAX 0.2)	710 ~ 1060	230 ~ 370
		20	4	40 ~ 60	0.088 ~ 0.097	≤1.0D	≤0.3D (MAX 0.2)	640 ~ 950	230 ~ 370
		22	4	40 ~ 60	0.096 ~ 0.106	≤1.0D	≤0.3D (MAX 0.2)	580 ~ 870	220 ~ 370
		25	4	40 ~ 60	0.108 ~ 0.119	≤1.0D	≤0.3D (MAX 0.2)	510 ~ 760	220 ~ 360
HARDENED STEEL (60-65HRC) AISI D2	M33	1	4	30 ~ 50	0.001 ~ 0.002	≤1.0D	≤0.3D (MAX 0.2)	9550 ~ 15920	40 ~ 130
		1.5	4	30 ~ 50	0.002 ~ 0.003	≤1.0D	≤0.3D (MAX 0.2)	6370 ~ 10610	50 ~ 130
		2	4	30 ~ 50	0.003 ~ 0.004	≤1.0D	≤0.3D (MAX 0.2)	4770 ~ 7960	60 ~ 130
		2.5	4	30 ~ 50	0.004 ~ 0.005	≤1.0D	≤0.3D (MAX 0.2)	3820 ~ 6370	60 ~ 130
		3	4	30 ~ 50	0.005 ~ 0.006	≤1.0D	≤0.3D (MAX 0.2)	3180 ~ 5310	60 ~ 130
		4	4	30 ~ 50	0.007 ~ 0.008	≤1.0D	≤0.3D (MAX 0.2)	2390 ~ 3980	70 ~ 130
		5	4	30 ~ 50	0.009 ~ 0.010	≤1.0D	≤0.3D (MAX 0.2)	1910 ~ 3180	70 ~ 130
		6	4	30 ~ 50	0.011 ~ 0.012	≤1.0D	≤0.3D (MAX 0.2)	1590 ~ 2650	70 ~ 130
		8	4	30 ~ 50	0.013 ~ 0.015	≤1.0D	≤0.3D (MAX 0.2)	1190 ~ 1990	60 ~ 120
		10	4	30 ~ 50	0.016 ~ 0.018	≤1.0D	≤0.3D (MAX 0.2)	950 ~ 1590	60 ~ 110
		12	4	30 ~ 50	0.019 ~ 0.021	≤1.0D	≤0.3D (MAX 0.2)	800 ~ 1330	60 ~ 110
		14	4	30 ~ 50	0.021 ~ 0.024	≤1.0D	≤0.3D (MAX 0.2)	680 ~ 1140	60 ~ 110
		16	4	30 ~ 50	0.024 ~ 0.026	≤1.0D	≤0.3D (MAX 0.2)	600 ~ 990	60 ~ 100
		18	4	30 ~ 50	0.027 ~ 0.029	≤1.0D	≤0.3D (MAX 0.2)	530 ~ 880	60 ~ 100
		20	4	30 ~ 50	0.029 ~ 0.032	≤1.0D	≤0.3D (MAX 0.2)	480 ~ 800	60 ~ 100
		22	4	30 ~ 50	0.032 ~ 0.035	≤1.0D	≤0.3D (MAX 0.2)	430 ~ 720	60 ~ 100
		25	4	30 ~ 50	0.036 ~ 0.040	≤1.0D	≤0.3D (MAX 0.2)	380 ~ 640	50 ~ 100

SE 60 Standard Series Endmills

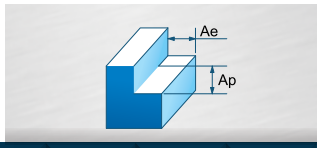
Ae = D
Ap ≤ 0.05D



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45-55HRC) AISI H13	M26	1	4	50 ~ 70	0.004 ~ 0.006	≤0.05D	1.0D	15920 ~ 22280	250 ~ 530
		1.5	4	50 ~ 70	0.007 ~ 0.009	≤0.05D	1.0D	10610 ~ 14850	300 ~ 530
		2	4	50 ~ 70	0.010 ~ 0.012	≤0.05D	1.0D	7960 ~ 11140	320 ~ 530
		2.5	4	50 ~ 70	0.013 ~ 0.015	≤0.05D	1.0D	6370 ~ 8910	330 ~ 530
		3	4	50 ~ 70	0.016 ~ 0.019	≤0.05D	1.0D	5310 ~ 7430	340 ~ 560
		4	4	50 ~ 70	0.022 ~ 0.025	≤0.05D	1.0D	3980 ~ 5570	350 ~ 560
		5	4	50 ~ 70	0.028 ~ 0.032	≤0.05D	1.0D	3180 ~ 4460	360 ~ 570
		6	4	50 ~ 70	0.035 ~ 0.038	≤0.05D	1.0D	2650 ~ 3710	370 ~ 560
		8	4	50 ~ 70	0.043 ~ 0.047	≤0.05D	1.0D	1990 ~ 2790	340 ~ 520
		10	4	50 ~ 70	0.052 ~ 0.057	≤0.05D	1.0D	1590 ~ 2230	330 ~ 510
		12	4	50 ~ 70	0.060 ~ 0.066	≤0.05D	1.0D	1330 ~ 1860	320 ~ 490
		14	4	50 ~ 70	0.069 ~ 0.075	≤0.05D	1.0D	1140 ~ 1590	310 ~ 480
		16	4	50 ~ 70	0.077 ~ 0.085	≤0.05D	1.0D	990 ~ 1390	300 ~ 470
		18	4	50 ~ 70	0.085 ~ 0.094	≤0.05D	1.0D	880 ~ 1240	300 ~ 470
		20	4	50 ~ 70	0.094 ~ 0.103	≤0.05D	1.0D	800 ~ 1110	300 ~ 460
		22	4	50 ~ 70	0.102 ~ 0.113	≤0.05D	1.0D	720 ~ 1010	290 ~ 460
		25	4	50 ~ 70	0.115 ~ 0.127	≤0.05D	1.0D	640 ~ 890	290 ~ 450
HARDENED STEEL (55-60HRC) AISI D2	M27, M28	1	4	40 ~ 60	0.003 ~ 0.005	≤0.05D	1.0D	12730 ~ 19100	150 ~ 380
		1.5	4	40 ~ 60	0.005 ~ 0.007	≤0.05D	1.0D	8490 ~ 12730	170 ~ 360
		2	4	40 ~ 60	0.007 ~ 0.010	≤0.05D	1.0D	6370 ~ 9550	180 ~ 380
		2.5	4	40 ~ 60	0.010 ~ 0.012	≤0.05D	1.0D	5090 ~ 7640	200 ~ 370
		3	4	40 ~ 60	0.012 ~ 0.014	≤0.05D	1.0D	4240 ~ 6370	200 ~ 360
		4	4	40 ~ 60	0.017 ~ 0.019	≤0.05D	1.0D	3180 ~ 4770	220 ~ 360
		5	4	40 ~ 60	0.021 ~ 0.024	≤0.05D	1.0D	2550 ~ 3820	210 ~ 370
		6	4	40 ~ 60	0.026 ~ 0.029	≤0.05D	1.0D	2120 ~ 3180	220 ~ 370
		8	4	40 ~ 60	0.032 ~ 0.036	≤0.05D	1.0D	1590 ~ 2390	200 ~ 340
		10	4	40 ~ 60	0.039 ~ 0.043	≤0.05D	1.0D	1270 ~ 1910	200 ~ 330
		12	4	40 ~ 60	0.045 ~ 0.050	≤0.05D	1.0D	1060 ~ 1590	190 ~ 320
		14	4	40 ~ 60	0.051 ~ 0.057	≤0.05D	1.0D	910 ~ 1360	190 ~ 310
		16	4	40 ~ 60	0.058 ~ 0.064	≤0.05D	1.0D	800 ~ 1190	190 ~ 300
		18	4	40 ~ 60	0.064 ~ 0.071	≤0.05D	1.0D	710 ~ 1060	180 ~ 300
		20	4	40 ~ 60	0.070 ~ 0.078	≤0.05D	1.0D	640 ~ 950	180 ~ 300
		22	4	40 ~ 60	0.077 ~ 0.085	≤0.05D	1.0D	580 ~ 870	180 ~ 300
		25	4	40 ~ 60	0.086 ~ 0.095	≤0.05D	1.0D	510 ~ 760	180 ~ 290
HARDENED STEEL (60-65HRC) AISI D2	M33	1	4	30 ~ 50	0.001 ~ 0.001	≤0.05D	1.0D	9550 ~ 15920	40 ~ 60
		1.5	4	30 ~ 50	0.002 ~ 0.002	≤0.05D	1.0D	6370 ~ 10610	50 ~ 80
		2	4	30 ~ 50	0.002 ~ 0.003	≤0.05D	1.0D	4770 ~ 7960	40 ~ 100
		2.5	4	30 ~ 50	0.003 ~ 0.004	≤0.05D	1.0D	3820 ~ 6370	50 ~ 100
		3	4	30 ~ 50	0.004 ~ 0.005	≤0.05D	1.0D	3180 ~ 5310	50 ~ 110
		4	4	30 ~ 50	0.005 ~ 0.006	≤0.05D	1.0D	2390 ~ 3980	50 ~ 100
		5	4	30 ~ 50	0.007 ~ 0.008	≤0.05D	1.0D	1910 ~ 3180	50 ~ 100
		6	4	30 ~ 50	0.009 ~ 0.010	≤0.05D	1.0D	1590 ~ 2650	60 ~ 110
		8	4	30 ~ 50	0.011 ~ 0.012	≤0.05D	1.0D	1190 ~ 1990	50 ~ 100
		10	4	30 ~ 50	0.013 ~ 0.014	≤0.05D	1.0D	950 ~ 1590	50 ~ 90
		12	4	30 ~ 50	0.015 ~ 0.017	≤0.05D	1.0D	800 ~ 1330	50 ~ 90
		14	4	30 ~ 50	0.017 ~ 0.019	≤0.05D	1.0D	680 ~ 1140	50 ~ 90
		16	4	30 ~ 50	0.019 ~ 0.021	≤0.05D	1.0D	600 ~ 990	50 ~ 80
		18	4	30 ~ 50	0.021 ~ 0.024	≤0.05D	1.0D	530 ~ 880	40 ~ 80
		20	4	30 ~ 50	0.023 ~ 0.026	≤0.05D	1.0D	480 ~ 800	40 ~ 80
		22	4	30 ~ 50	0.026 ~ 0.028	≤0.05D	1.0D	430 ~ 720	40 ~ 80
		25	4	30 ~ 50	0.029 ~ 0.032	≤0.05D	1.0D	380 ~ 640	40 ~ 80

SE 60 Long Series Endmills

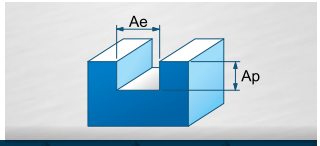
Ae ≤ 0.03D (D < Ø3)
Ae ≤ 0.05D (D ≤ Ø3)
(MAX 0.5mm)
Ap ≤ 1.0D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45-55HRC) AISI H13	M26	1	4	40 ~ 56	0.005 ~ 0.007	≤1.0D	≤0.3D	12730 ~ 17830	250 ~ 500
		1.5	4	40 ~ 56	0.008 ~ 0.011	≤1.0D	≤0.3D	8490 ~ 11880	270 ~ 520
		2	4	40 ~ 56	0.012 ~ 0.015	≤1.0D	≤0.3D	6370 ~ 8910	310 ~ 530
		2.5	4	40 ~ 56	0.016 ~ 0.019	≤1.0D	≤0.3D	5090 ~ 7130	330 ~ 540
		3	4	40 ~ 56	0.020 ~ 0.023	≤1.0D	≤0.05D (MAX 0.5)	4240 ~ 5940	340 ~ 550
		4	4	40 ~ 56	0.028 ~ 0.031	≤1.0D	≤0.05D (MAX 0.5)	3180 ~ 4460	360 ~ 550
		5	4	40 ~ 56	0.035 ~ 0.039	≤1.0D	≤0.05D (MAX 0.5)	2550 ~ 3570	360 ~ 560
		6	4	40 ~ 56	0.043 ~ 0.048	≤1.0D	≤0.05D (MAX 0.5)	2120 ~ 2970	360 ~ 570
		8	4	40 ~ 56	0.054 ~ 0.059	≤1.0D	≤0.05D (MAX 0.5)	1590 ~ 2230	340 ~ 530
		10	4	40 ~ 56	0.064 ~ 0.071	≤1.0D	≤0.05D (MAX 0.5)	1270 ~ 1780	330 ~ 510
		12	4	40 ~ 56	0.075 ~ 0.083	≤1.0D	≤0.05D (MAX 0.5)	1060 ~ 1490	320 ~ 490
		14	4	40 ~ 56	0.086 ~ 0.094	≤1.0D	≤0.05D (MAX 0.5)	910 ~ 1270	310 ~ 480
		16	4	40 ~ 56	0.096 ~ 0.106	≤1.0D	≤0.05D (MAX 0.5)	800 ~ 1110	310 ~ 470
		18	4	40 ~ 56	0.107 ~ 0.118	≤1.0D	≤0.05D (MAX 0.5)	710 ~ 990	300 ~ 470
		20	4	40 ~ 56	0.117 ~ 0.129	≤1.0D	≤0.05D (MAX 0.5)	640 ~ 890	300 ~ 460
		22	4	40 ~ 56	0.128 ~ 0.141	≤1.0D	≤0.05D (MAX 0.5)	580 ~ 810	300 ~ 460
		25	4	40 ~ 56	0.144 ~ 0.158	≤1.0D	≤0.05D (MAX 0.5)	510 ~ 710	290 ~ 450
HARDENED STEEL (55-60HRC) AISI D2	M27, M28	1	4	32 ~ 48	0.004 ~ 0.006	≤1.0D	≤0.3D (MAX 0.2)	10190 ~ 15280	160 ~ 370
		1.5	4	32 ~ 48	0.006 ~ 0.009	≤1.0D	≤0.3D (MAX 0.2)	6790 ~ 10190	160 ~ 370
		2	4	32 ~ 48	0.009 ~ 0.012	≤1.0D	≤0.3D (MAX 0.2)	5090 ~ 7640	180 ~ 370
		2.5	4	32 ~ 48	0.012 ~ 0.015	≤1.0D	≤0.3D (MAX 0.2)	4070 ~ 6110	200 ~ 370
		3	4	32 ~ 48	0.015 ~ 0.018	≤1.0D	≤0.3D (MAX 0.2)	3400 ~ 5090	200 ~ 370
		4	4	32 ~ 48	0.021 ~ 0.024	≤1.0D	≤0.3D (MAX 0.2)	2550 ~ 3820	210 ~ 370
		5	4	32 ~ 48	0.027 ~ 0.030	≤1.0D	≤0.3D (MAX 0.2)	2040 ~ 3060	220 ~ 370
		6	4	32 ~ 48	0.032 ~ 0.036	≤1.0D	≤0.3D (MAX 0.2)	1700 ~ 2550	220 ~ 370
		8	4	32 ~ 48	0.040 ~ 0.044	≤1.0D	≤0.3D (MAX 0.2)	1270 ~ 1910	200 ~ 340
		10	4	32 ~ 48	0.048 ~ 0.053	≤1.0D	≤0.3D (MAX 0.2)	1020 ~ 1530	200 ~ 320
		12	4	32 ~ 48	0.056 ~ 0.062	≤1.0D	≤0.3D (MAX 0.2)	850 ~ 1270	190 ~ 310
		14	4	32 ~ 48	0.064 ~ 0.071	≤1.0D	≤0.3D (MAX 0.2)	730 ~ 1090	190 ~ 310
		16	4	32 ~ 48	0.072 ~ 0.079	≤1.0D	≤0.3D (MAX 0.2)	640 ~ 950	180 ~ 300
		18	4	32 ~ 48	0.080 ~ 0.088	≤1.0D	≤0.3D (MAX 0.2)	570 ~ 850	180 ~ 300
		20	4	32 ~ 48	0.088 ~ 0.097	≤1.0D	≤0.3D (MAX 0.2)	510 ~ 760	180 ~ 290
		22	4	32 ~ 48	0.096 ~ 0.106	≤1.0D	≤0.3D (MAX 0.2)	460 ~ 690	180 ~ 290
		25	4	32 ~ 48	0.108 ~ 0.119	≤1.0D	≤0.3D (MAX 0.2)	410 ~ 610	180 ~ 290
HARDENED STEEL (60-65HRC) AISI D2	M33	1	4	24 ~ 40	0.001 ~ 0.002	≤1.0D	≤0.3D (MAX 0.2)	7640 ~ 12730	30 ~ 100
		1.5	4	24 ~ 40	0.002 ~ 0.003	≤1.0D	≤0.3D (MAX 0.2)	5090 ~ 8490	40 ~ 100
		2	4	24 ~ 40	0.003 ~ 0.004	≤1.0D	≤0.3D (MAX 0.2)	3820 ~ 6370	50 ~ 100
		2.5	4	24 ~ 40	0.004 ~ 0.005	≤1.0D	≤0.3D (MAX 0.2)	3060 ~ 5090	50 ~ 100
		3	4	24 ~ 40	0.005 ~ 0.006	≤1.0D	≤0.3D (MAX 0.2)	2550 ~ 4240	50 ~ 100
		4	4	24 ~ 40	0.007 ~ 0.008	≤1.0D	≤0.3D (MAX 0.2)	1910 ~ 3180	50 ~ 100
		5	4	24 ~ 40	0.009 ~ 0.010	≤1.0D	≤0.3D (MAX 0.2)	1530 ~ 2550	60 ~ 100
		6	4	24 ~ 40	0.011 ~ 0.012	≤1.0D	≤0.3D (MAX 0.2)	1270 ~ 2120	60 ~ 100
		8	4	24 ~ 40	0.013 ~ 0.015	≤1.0D	≤0.3D (MAX 0.2)	950 ~ 1590	50 ~ 100
		10	4	24 ~ 40	0.016 ~ 0.018	≤1.0D	≤0.3D (MAX 0.2)	760 ~ 1270	50 ~ 90
		12	4	24 ~ 40	0.019 ~ 0.021	≤1.0D	≤0.3D (MAX 0.2)	640 ~ 1060	50 ~ 90
		14	4	24 ~ 40	0.021 ~ 0.024	≤1.0D	≤0.3D (MAX 0.2)	550 ~ 910	50 ~ 90
		16	4	24 ~ 40	0.024 ~ 0.026	≤1.0D	≤0.3D (MAX 0.2)	480 ~ 800	50 ~ 80
		18	4	24 ~ 40	0.027 ~ 0.029	≤1.0D	≤0.3D (MAX 0.2)	420 ~ 710	50 ~ 80
		20	4	24 ~ 40	0.029 ~ 0.032	≤1.0D	≤0.3D (MAX 0.2)	380 ~ 640	40 ~ 80
		22	4	24 ~ 40	0.032 ~ 0.035	≤1.0D	≤0.3D (MAX 0.2)	350 ~ 580	40 ~ 80
		25	4	24 ~ 40	0.036 ~ 0.040	≤1.0D	≤0.3D (MAX 0.2)	310 ~ 510	40 ~ 80

SE 60 Long Series Endmills

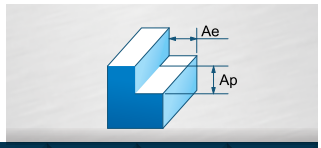
Ae = D
Ap ≤ 0.05D



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45-55HRC) AISI H13	M26	1	4	40 ~ 56	0.004 ~ 0.006	≤0.05D	1.0D	12730 ~ 17830	200 ~ 430
		1.5	4	40 ~ 56	0.007 ~ 0.009	≤0.05D	1.0D	8490 ~ 11880	240 ~ 430
		2	4	40 ~ 56	0.010 ~ 0.012	≤0.05D	1.0D	6370 ~ 8910	250 ~ 430
		2.5	4	40 ~ 56	0.013 ~ 0.015	≤0.05D	1.0D	5090 ~ 7130	260 ~ 430
		3	4	40 ~ 56	0.016 ~ 0.019	≤0.05D	1.0D	4240 ~ 5940	270 ~ 450
		4	4	40 ~ 56	0.022 ~ 0.025	≤0.05D	1.0D	3180 ~ 4460	280 ~ 450
		5	4	40 ~ 56	0.028 ~ 0.032	≤0.05D	1.0D	2550 ~ 3570	290 ~ 460
		6	4	40 ~ 56	0.035 ~ 0.038	≤0.05D	1.0D	2120 ~ 2970	300 ~ 450
		8	4	40 ~ 56	0.043 ~ 0.047	≤0.05D	1.0D	1590 ~ 2230	270 ~ 420
		10	4	40 ~ 56	0.052 ~ 0.057	≤0.05D	1.0D	1270 ~ 1780	260 ~ 410
		12	4	40 ~ 56	0.060 ~ 0.066	≤0.05D	1.0D	1060 ~ 1490	250 ~ 390
		14	4	40 ~ 56	0.069 ~ 0.075	≤0.05D	1.0D	910 ~ 1270	250 ~ 380
		16	4	40 ~ 56	0.077 ~ 0.085	≤0.05D	1.0D	800 ~ 1110	250 ~ 380
		18	4	40 ~ 56	0.085 ~ 0.094	≤0.05D	1.0D	710 ~ 990	240 ~ 370
		20	4	40 ~ 56	0.094 ~ 0.103	≤0.05D	1.0D	640 ~ 890	240 ~ 370
		22	4	40 ~ 56	0.102 ~ 0.113	≤0.05D	1.0D	580 ~ 810	240 ~ 370
		25	4	40 ~ 56	0.115 ~ 0.127	≤0.05D	1.0D	510 ~ 710	230 ~ 360
HARDENED STEEL (55-60HRC) AISI D2	M27, M28	1	4	32 ~ 48	0.003 ~ 0.005	≤0.05D	1.0D	10190 ~ 15280	120 ~ 310
		1.5	4	32 ~ 48	0.005 ~ 0.007	≤0.05D	1.0D	6790 ~ 10190	140 ~ 290
		2	4	32 ~ 48	0.007 ~ 0.010	≤0.05D	1.0D	5090 ~ 7640	140 ~ 310
		2.5	4	32 ~ 48	0.010 ~ 0.012	≤0.05D	1.0D	4070 ~ 6110	160 ~ 290
		3	4	32 ~ 48	0.012 ~ 0.014	≤0.05D	1.0D	3400 ~ 5090	160 ~ 290
		4	4	32 ~ 48	0.017 ~ 0.019	≤0.05D	1.0D	2550 ~ 3820	170 ~ 290
		5	4	32 ~ 48	0.021 ~ 0.024	≤0.05D	1.0D	2040 ~ 3060	170 ~ 290
		6	4	32 ~ 48	0.026 ~ 0.029	≤0.05D	1.0D	1700 ~ 2550	180 ~ 300
		8	4	32 ~ 48	0.032 ~ 0.036	≤0.05D	1.0D	1270 ~ 1910	160 ~ 280
		10	4	32 ~ 48	0.039 ~ 0.043	≤0.05D	1.0D	1020 ~ 1530	160 ~ 260
		12	4	32 ~ 48	0.045 ~ 0.050	≤0.05D	1.0D	850 ~ 1270	150 ~ 250
		14	4	32 ~ 48	0.051 ~ 0.057	≤0.05D	1.0D	730 ~ 1090	150 ~ 250
		16	4	32 ~ 48	0.058 ~ 0.064	≤0.05D	1.0D	640 ~ 950	150 ~ 240
		18	4	32 ~ 48	0.064 ~ 0.071	≤0.05D	1.0D	570 ~ 850	150 ~ 240
		20	4	32 ~ 48	0.070 ~ 0.078	≤0.05D	1.0D	510 ~ 760	140 ~ 240
		22	4	32 ~ 48	0.077 ~ 0.085	≤0.05D	1.0D	460 ~ 690	140 ~ 230
		25	4	32 ~ 48	0.086 ~ 0.095	≤0.05D	1.0D	410 ~ 610	140 ~ 230
HARDENED STEEL (60-65HRC) AISI D2	M33	1	4	24 ~ 40	0.001 ~ 0.001	≤0.05D	1.0D	7640 ~ 12730	30 ~ 50
		1.5	4	24 ~ 40	0.002 ~ 0.002	≤0.05D	1.0D	5090 ~ 8490	40 ~ 70
		2	4	24 ~ 40	0.002 ~ 0.003	≤0.05D	1.0D	3820 ~ 6370	30 ~ 80
		2.5	4	24 ~ 40	0.003 ~ 0.004	≤0.05D	1.0D	3060 ~ 5090	40 ~ 80
		3	4	24 ~ 40	0.004 ~ 0.005	≤0.05D	1.0D	2550 ~ 4240	40 ~ 80
		4	4	24 ~ 40	0.005 ~ 0.006	≤0.05D	1.0D	1910 ~ 3180	40 ~ 80
		5	4	24 ~ 40	0.007 ~ 0.008	≤0.05D	1.0D	1530 ~ 2550	40 ~ 80
		6	4	24 ~ 40	0.009 ~ 0.010	≤0.05D	1.0D	1270 ~ 2120	50 ~ 80
		8	4	24 ~ 40	0.011 ~ 0.012	≤0.05D	1.0D	950 ~ 1590	40 ~ 80
		10	4	24 ~ 40	0.013 ~ 0.014	≤0.05D	1.0D	760 ~ 1270	40 ~ 70
		12	4	24 ~ 40	0.015 ~ 0.017	≤0.05D	1.0D	640 ~ 1060	40 ~ 70
		14	4	24 ~ 40	0.017 ~ 0.019	≤0.05D	1.0D	550 ~ 910	40 ~ 70
		16	4	24 ~ 40	0.019 ~ 0.021	≤0.05D	1.0D	480 ~ 800	40 ~ 70
		18	4	24 ~ 40	0.021 ~ 0.024	≤0.05D	1.0D	420 ~ 710	40 ~ 70
		20	4	24 ~ 40	0.023 ~ 0.026	≤0.05D	1.0D	380 ~ 640	30 ~ 70
		22	4	24 ~ 40	0.026 ~ 0.028	≤0.05D	1.0D	350 ~ 580	40 ~ 60
		25	4	24 ~ 40	0.029 ~ 0.032	≤0.05D	1.0D	310 ~ 510	40 ~ 70

SE 60 Extra-Long Series Endmills

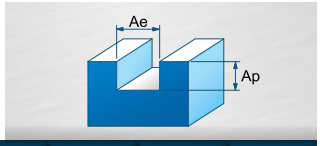
Ae ≤ 0.03D (D < Ø3)
Ae ≤ 0.05D (D ≥ Ø3)
(MAX 0.5mm)
Ap ≤ 1.0D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45-55HRC) AISI H13	M26	1	4	25 ~ 35	0.005 ~ 0.007	≤1.0D	≤0.3D	7960 ~ 11140	160 ~ 310
		1.5	4	25 ~ 35	0.008 ~ 0.011	≤1.0D	≤0.3D	5310 ~ 7430	170 ~ 330
		2	4	25 ~ 35	0.012 ~ 0.015	≤1.0D	≤0.3D	3980 ~ 5570	190 ~ 330
		2.5	4	25 ~ 35	0.016 ~ 0.019	≤1.0D	≤0.3D	3180 ~ 4460	200 ~ 340
		3	4	25 ~ 35	0.020 ~ 0.023	≤1.0D	≤0.05D (MAX 0.5)	2650 ~ 3710	210 ~ 340
		4	4	25 ~ 35	0.028 ~ 0.031	≤1.0D	≤0.05D (MAX 0.5)	1990 ~ 2790	220 ~ 350
		5	4	25 ~ 35	0.035 ~ 0.039	≤1.0D	≤0.05D (MAX 0.5)	1590 ~ 2230	220 ~ 350
		6	4	25 ~ 35	0.043 ~ 0.048	≤1.0D	≤0.05D (MAX 0.5)	1330 ~ 1860	230 ~ 360
		8	4	25 ~ 35	0.054 ~ 0.059	≤1.0D	≤0.05D (MAX 0.5)	990 ~ 1390	210 ~ 330
		10	4	25 ~ 35	0.064 ~ 0.071	≤1.0D	≤0.05D (MAX 0.5)	800 ~ 1110	200 ~ 320
		12	4	25 ~ 35	0.075 ~ 0.083	≤1.0D	≤0.05D (MAX 0.5)	660 ~ 930	200 ~ 310
		14	4	25 ~ 35	0.086 ~ 0.094	≤1.0D	≤0.05D (MAX 0.5)	570 ~ 800	200 ~ 300
		16	4	25 ~ 35	0.096 ~ 0.106	≤1.0D	≤0.05D (MAX 0.5)	500 ~ 700	190 ~ 300
		18	4	25 ~ 35	0.107 ~ 0.118	≤1.0D	≤0.05D (MAX 0.5)	440 ~ 620	190 ~ 290
		20	4	25 ~ 35	0.117 ~ 0.129	≤1.0D	≤0.05D (MAX 0.5)	400 ~ 560	190 ~ 290
		22	4	25 ~ 35	0.128 ~ 0.141	≤1.0D	≤0.05D (MAX 0.5)	360 ~ 510	180 ~ 290
		25	4	25 ~ 35	0.144 ~ 0.158	≤1.0D	≤0.05D (MAX 0.5)	320 ~ 450	180 ~ 280
HARDENED STEEL (55-60HRC) AISI D2	M27, M28	1	4	20 ~ 30	0.004 ~ 0.006	≤1.0D	≤0.3D (MAX 0.2)	6370 ~ 9550	100 ~ 230
		1.5	4	20 ~ 30	0.006 ~ 0.009	≤1.0D	≤0.3D (MAX 0.2)	4240 ~ 6370	100 ~ 230
		2	4	20 ~ 30	0.009 ~ 0.012	≤1.0D	≤0.3D (MAX 0.2)	3180 ~ 4770	110 ~ 230
		2.5	4	20 ~ 30	0.012 ~ 0.015	≤1.0D	≤0.3D (MAX 0.2)	2550 ~ 3820	120 ~ 230
		3	4	20 ~ 30	0.015 ~ 0.018	≤1.0D	≤0.3D (MAX 0.2)	2120 ~ 3180	130 ~ 230
		4	4	20 ~ 30	0.021 ~ 0.024	≤1.0D	≤0.3D (MAX 0.2)	1590 ~ 2390	130 ~ 230
		5	4	20 ~ 30	0.027 ~ 0.030	≤1.0D	≤0.3D (MAX 0.2)	1270 ~ 1910	140 ~ 230
		6	4	20 ~ 30	0.032 ~ 0.036	≤1.0D	≤0.3D (MAX 0.2)	1060 ~ 1590	140 ~ 230
		8	4	20 ~ 30	0.040 ~ 0.044	≤1.0D	≤0.3D (MAX 0.2)	800 ~ 1190	130 ~ 210
		10	4	20 ~ 30	0.048 ~ 0.053	≤1.0D	≤0.3D (MAX 0.2)	640 ~ 950	120 ~ 200
		12	4	20 ~ 30	0.056 ~ 0.062	≤1.0D	≤0.3D (MAX 0.2)	530 ~ 800	120 ~ 200
		14	4	20 ~ 30	0.064 ~ 0.071	≤1.0D	≤0.3D (MAX 0.2)	450 ~ 680	120 ~ 190
		16	4	20 ~ 30	0.072 ~ 0.079	≤1.0D	≤0.3D (MAX 0.2)	400 ~ 600	120 ~ 190
		18	4	20 ~ 30	0.080 ~ 0.088	≤1.0D	≤0.3D (MAX 0.2)	350 ~ 530	110 ~ 190
		20	4	20 ~ 30	0.088 ~ 0.097	≤1.0D	≤0.3D (MAX 0.2)	320 ~ 480	110 ~ 190
		22	4	20 ~ 30	0.096 ~ 0.106	≤1.0D	≤0.3D (MAX 0.2)	290 ~ 430	110 ~ 180
		25	4	20 ~ 30	0.108 ~ 0.119	≤1.0D	≤0.3D (MAX 0.2)	250 ~ 380	110 ~ 180
HARDENED STEEL (60-65HRC) AISI D2	M33	1	4	15 ~ 25	0.001 ~ 0.002	≤1.0D	≤0.3D (MAX 0.2)	4770 ~ 7960	20 ~ 60
		1.5	4	15 ~ 25	0.002 ~ 0.003	≤1.0D	≤0.3D (MAX 0.2)	3180 ~ 5310	30 ~ 60
		2	4	15 ~ 25	0.003 ~ 0.004	≤1.0D	≤0.3D (MAX 0.2)	2390 ~ 3980	30 ~ 60
		2.5	4	15 ~ 25	0.004 ~ 0.005	≤1.0D	≤0.3D (MAX 0.2)	1910 ~ 3180	30 ~ 60
		3	4	15 ~ 25	0.005 ~ 0.006	≤1.0D	≤0.3D (MAX 0.2)	1590 ~ 2650	30 ~ 60
		4	4	15 ~ 25	0.007 ~ 0.008	≤1.0D	≤0.3D (MAX 0.2)	1190 ~ 1990	30 ~ 60
		5	4	15 ~ 25	0.009 ~ 0.010	≤1.0D	≤0.3D (MAX 0.2)	950 ~ 1590	30 ~ 60
		6	4	15 ~ 25	0.011 ~ 0.012	≤1.0D	≤0.3D (MAX 0.2)	800 ~ 1330	40 ~ 60
		8	4	15 ~ 25	0.013 ~ 0.015	≤1.0D	≤0.3D (MAX 0.2)	600 ~ 990	30 ~ 60
		10	4	15 ~ 25	0.016 ~ 0.018	≤1.0D	≤0.3D (MAX 0.2)	480 ~ 800	30 ~ 60
		12	4	15 ~ 25	0.019 ~ 0.021	≤1.0D	≤0.3D (MAX 0.2)	400 ~ 660	30 ~ 60
		14	4	15 ~ 25	0.021 ~ 0.024	≤1.0D	≤0.3D (MAX 0.2)	340 ~ 570	30 ~ 50
		16	4	15 ~ 25	0.024 ~ 0.026	≤1.0D	≤0.3D (MAX 0.2)	300 ~ 500	30 ~ 50
		18	4	15 ~ 25	0.027 ~ 0.029	≤1.0D	≤0.3D (MAX 0.2)	270 ~ 440	30 ~ 50
		20	4	15 ~ 25	0.029 ~ 0.032	≤1.0D	≤0.3D (MAX 0.2)	240 ~ 400	30 ~ 50
		22	4	15 ~ 25	0.032 ~ 0.035	≤1.0D	≤0.3D (MAX 0.2)	220 ~ 360	30 ~ 50
		25	4	15 ~ 25	0.036 ~ 0.040	≤1.0D	≤0.3D (MAX 0.2)	190 ~ 320	30 ~ 50

SE 60 Extra-Long Series Endmills

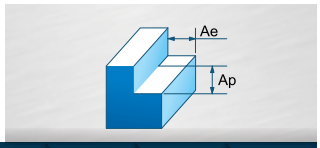
Ae = D
Ap ≤ 0.05D



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45-55HRC) AISI H13	M26	1	4	25 ~ 35	0.004 ~ 0.006	≤0.05D	1.0D	7960 ~ 11140	130 ~ 270
		1.5	4	25 ~ 35	0.007 ~ 0.009	≤0.05D	1.0D	5310 ~ 7430	150 ~ 270
		2	4	25 ~ 35	0.010 ~ 0.012	≤0.05D	1.0D	3980 ~ 5570	160 ~ 270
		2.5	4	25 ~ 35	0.013 ~ 0.015	≤0.05D	1.0D	3180 ~ 4460	170 ~ 270
		3	4	25 ~ 35	0.016 ~ 0.019	≤0.05D	1.0D	2650 ~ 3710	170 ~ 280
		4	4	25 ~ 35	0.022 ~ 0.025	≤0.05D	1.0D	1990 ~ 2790	180 ~ 280
		5	4	25 ~ 35	0.028 ~ 0.032	≤0.05D	1.0D	1590 ~ 2230	180 ~ 290
		6	4	25 ~ 35	0.035 ~ 0.038	≤0.05D	1.0D	1330 ~ 1860	190 ~ 280
		8	4	25 ~ 35	0.043 ~ 0.047	≤0.05D	1.0D	990 ~ 1390	170 ~ 260
		10	4	25 ~ 35	0.052 ~ 0.057	≤0.05D	1.0D	800 ~ 1110	170 ~ 250
		12	4	25 ~ 35	0.060 ~ 0.066	≤0.05D	1.0D	660 ~ 930	160 ~ 250
		14	4	25 ~ 35	0.069 ~ 0.075	≤0.05D	1.0D	570 ~ 800	160 ~ 240
		16	4	25 ~ 35	0.077 ~ 0.085	≤0.05D	1.0D	500 ~ 700	150 ~ 240
		18	4	25 ~ 35	0.085 ~ 0.094	≤0.05D	1.0D	440 ~ 620	150 ~ 230
		20	4	25 ~ 35	0.094 ~ 0.103	≤0.05D	1.0D	400 ~ 560	150 ~ 230
		22	4	25 ~ 35	0.102 ~ 0.113	≤0.05D	1.0D	360 ~ 510	150 ~ 230
		25	4	25 ~ 35	0.115 ~ 0.127	≤0.05D	1.0D	320 ~ 450	150 ~ 230
HARDENED STEEL (55-60HRC) AISI D2	M27, M28	1	4	20 ~ 30	0.003 ~ 0.005	≤0.05D	1.0D	6370 ~ 9550	80 ~ 190
		1.5	4	20 ~ 30	0.005 ~ 0.007	≤0.05D	1.0D	4240 ~ 6370	80 ~ 180
		2	4	20 ~ 30	0.007 ~ 0.010	≤0.05D	1.0D	3180 ~ 4770	90 ~ 190
		2.5	4	20 ~ 30	0.010 ~ 0.012	≤0.05D	1.0D	2550 ~ 3820	100 ~ 180
		3	4	20 ~ 30	0.012 ~ 0.014	≤0.05D	1.0D	2120 ~ 3180	100 ~ 180
		4	4	20 ~ 30	0.017 ~ 0.019	≤0.05D	1.0D	1590 ~ 2390	110 ~ 180
		5	4	20 ~ 30	0.021 ~ 0.024	≤0.05D	1.0D	1270 ~ 1910	110 ~ 180
		6	4	20 ~ 30	0.026 ~ 0.029	≤0.05D	1.0D	1060 ~ 1590	110 ~ 180
		8	4	20 ~ 30	0.032 ~ 0.036	≤0.05D	1.0D	800 ~ 1190	100 ~ 170
		10	4	20 ~ 30	0.039 ~ 0.043	≤0.05D	1.0D	640 ~ 950	100 ~ 160
		12	4	20 ~ 30	0.045 ~ 0.050	≤0.05D	1.0D	530 ~ 800	100 ~ 160
		14	4	20 ~ 30	0.051 ~ 0.057	≤0.05D	1.0D	450 ~ 680	90 ~ 160
		16	4	20 ~ 30	0.058 ~ 0.064	≤0.05D	1.0D	400 ~ 600	90 ~ 150
		18	4	20 ~ 30	0.064 ~ 0.071	≤0.05D	1.0D	350 ~ 530	90 ~ 150
		20	4	20 ~ 30	0.070 ~ 0.078	≤0.05D	1.0D	320 ~ 480	90 ~ 150
		22	4	20 ~ 30	0.077 ~ 0.085	≤0.05D	1.0D	290 ~ 430	90 ~ 150
		25	4	20 ~ 30	0.086 ~ 0.095	≤0.05D	1.0D	250 ~ 380	90 ~ 140
HARDENED STEEL (60-65HRC) AISI D2	M33	1	4	15 ~ 25	0.001 ~ 0.001	≤0.05D	1.0D	4770 ~ 7960	20 ~ 30
		1.5	4	15 ~ 25	0.002 ~ 0.002	≤0.05D	1.0D	3180 ~ 5310	30 ~ 40
		2	4	15 ~ 25	0.002 ~ 0.003	≤0.05D	1.0D	2390 ~ 3980	20 ~ 50
		2.5	4	15 ~ 25	0.003 ~ 0.004	≤0.05D	1.0D	1910 ~ 3180	20 ~ 50
		3	4	15 ~ 25	0.004 ~ 0.005	≤0.05D	1.0D	1590 ~ 2650	30 ~ 50
		4	4	15 ~ 25	0.005 ~ 0.006	≤0.05D	1.0D	1190 ~ 1990	20 ~ 50
		5	4	15 ~ 25	0.007 ~ 0.008	≤0.05D	1.0D	950 ~ 1590	30 ~ 50
		6	4	15 ~ 25	0.009 ~ 0.010	≤0.05D	1.0D	800 ~ 1330	30 ~ 50
		8	4	15 ~ 25	0.011 ~ 0.012	≤0.05D	1.0D	600 ~ 990	30 ~ 50
		10	4	15 ~ 25	0.013 ~ 0.014	≤0.05D	1.0D	480 ~ 800	20 ~ 40
		12	4	15 ~ 25	0.015 ~ 0.017	≤0.05D	1.0D	400 ~ 660	20 ~ 40
		14	4	15 ~ 25	0.017 ~ 0.019	≤0.05D	1.0D	340 ~ 570	20 ~ 40
		16	4	15 ~ 25	0.019 ~ 0.021	≤0.05D	1.0D	300 ~ 500	20 ~ 40
		18	4	15 ~ 25	0.021 ~ 0.024	≤0.05D	1.0D	270 ~ 440	20 ~ 40
		20	4	15 ~ 25	0.023 ~ 0.026	≤0.05D	1.0D	240 ~ 400	20 ~ 40
		22	4	15 ~ 25	0.026 ~ 0.028	≤0.05D	1.0D	220 ~ 360	20 ~ 40
		25	4	15 ~ 25	0.029 ~ 0.032	≤0.05D	1.0D	190 ~ 320	20 ~ 40

SE 60 MultiFlute Series Endmills

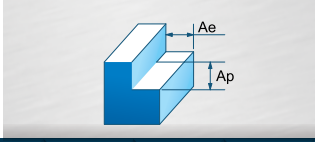
Ae ≤ 0.03D (D < Ø3)
Ae ≤ 0.05D (D ≤ Ø3)
(MAX 0.5mm)
Ap ≤ 1.0D



6/8 Z Side Milling (Finishing)									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45-55HRC) AISI H13	M26	1	6	50 ~ 70	0.004 ~ 0.006	≤1.0D	≤0.3D	15920 ~ 22280	380 ~ 800
		1.5	6	50 ~ 70	0.007 ~ 0.010	≤1.0D	≤0.3D	10610 ~ 14850	450 ~ 890
		2	6	50 ~ 70	0.011 ~ 0.014	≤1.0D	≤0.3D	7960 ~ 11140	530 ~ 940
		2.5	6	50 ~ 70	0.014 ~ 0.017	≤1.0D	≤0.3D	6370 ~ 8910	540 ~ 910
		3	6	50 ~ 70	0.018 ~ 0.021	≤1.0D	≤0.05D (MAX 0.5)	5310 ~ 7430	570 ~ 940
		4	6	50 ~ 70	0.025 ~ 0.028	≤1.0D	≤0.05D (MAX 0.5)	3980 ~ 5570	600 ~ 940
		5	6	50 ~ 70	0.032 ~ 0.035	≤1.0D	≤0.05D (MAX 0.5)	3180 ~ 4460	610 ~ 940
		6	6	50 ~ 70	0.038 ~ 0.042	≤1.0D	≤0.05D (MAX 0.5)	2650 ~ 3710	600 ~ 930
		8	6	50 ~ 70	0.048 ~ 0.053	≤1.0D	≤0.05D (MAX 0.5)	1990 ~ 2790	570 ~ 890
		10	6	50 ~ 70	0.057 ~ 0.063	≤1.0D	≤0.05D (MAX 0.5)	1590 ~ 2230	540 ~ 840
		12	6	50 ~ 70	0.067 ~ 0.073	≤1.0D	≤0.05D (MAX 0.5)	1330 ~ 1860	530 ~ 810
		14	6	50 ~ 70	0.076 ~ 0.084	≤1.0D	≤0.05D (MAX 0.5)	1140 ~ 1590	520 ~ 800
		16	8	50 ~ 70	0.086 ~ 0.094	≤1.0D	≤0.05D (MAX 0.5)	990 ~ 1390	510 ~ 780
		18	8	50 ~ 70	0.095 ~ 0.104	≤1.0D	≤0.05D (MAX 0.5)	880 ~ 1240	500 ~ 770
		20	8	50 ~ 70	0.104 ~ 0.115	≤1.0D	≤0.05D (MAX 0.5)	800 ~ 1110	500 ~ 770
		22	8	50 ~ 70	0.114 ~ 0.125	≤1.0D	≤0.05D (MAX 0.5)	720 ~ 1010	490 ~ 760
		25	8	50 ~ 70	0.128 ~ 0.141	≤1.0D	≤0.05D (MAX 0.5)	640 ~ 890	490 ~ 750
HARDENED STEEL (55-60HRC) AISI D2	M27, M28	1	6	40 ~ 60	0.003 ~ 0.006	≤1.0D	≤0.3D (MAX 0.2)	12730 ~ 19100	230 ~ 690
		1.5	6	40 ~ 60	0.006 ~ 0.008	≤1.0D	≤0.3D (MAX 0.2)	8490 ~ 12730	310 ~ 610
		2	6	40 ~ 60	0.008 ~ 0.011	≤1.0D	≤0.3D (MAX 0.2)	6370 ~ 9550	310 ~ 630
		2.5	6	40 ~ 60	0.011 ~ 0.013	≤1.0D	≤0.3D (MAX 0.2)	5090 ~ 7640	340 ~ 600
		3	6	40 ~ 60	0.013 ~ 0.016	≤1.0D	≤0.3D (MAX 0.2)	4240 ~ 6370	330 ~ 610
		4	6	40 ~ 60	0.019 ~ 0.021	≤1.0D	≤0.3D (MAX 0.2)	3180 ~ 4770	360 ~ 600
		5	6	40 ~ 60	0.024 ~ 0.026	≤1.0D	≤0.3D (MAX 0.2)	2550 ~ 3820	370 ~ 600
		6	6	40 ~ 60	0.029 ~ 0.032	≤1.0D	≤0.3D (MAX 0.2)	2120 ~ 3180	370 ~ 610
		8	6	40 ~ 60	0.036 ~ 0.039	≤1.0D	≤0.3D (MAX 0.2)	1590 ~ 2390	340 ~ 560
		10	6	40 ~ 60	0.043 ~ 0.047	≤1.0D	≤0.3D (MAX 0.2)	1270 ~ 1910	330 ~ 540
		12	6	40 ~ 60	0.050 ~ 0.055	≤1.0D	≤0.3D (MAX 0.2)	1060 ~ 1590	320 ~ 520
		14	6	40 ~ 60	0.057 ~ 0.063	≤1.0D	≤0.3D (MAX 0.2)	910 ~ 1360	310 ~ 510
		16	8	40 ~ 60	0.064 ~ 0.071	≤1.0D	≤0.3D (MAX 0.2)	800 ~ 1190	310 ~ 510
		18	8	40 ~ 60	0.071 ~ 0.078	≤1.0D	≤0.3D (MAX 0.2)	710 ~ 1060	300 ~ 500
		20	8	40 ~ 60	0.078 ~ 0.086	≤1.0D	≤0.3D (MAX 0.2)	640 ~ 950	300 ~ 490
		22	8	40 ~ 60	0.085 ~ 0.094	≤1.0D	≤0.3D (MAX 0.2)	580 ~ 870	300 ~ 490
		25	8	40 ~ 60	0.096 ~ 0.106	≤1.0D	≤0.3D (MAX 0.2)	510 ~ 760	290 ~ 480
HARDENED STEEL (60-65HRC) AISI D2	M33	1	6	30 ~ 50	0.001 ~ 0.002	≤1.0D	≤0.3D (MAX 0.2)	9550 ~ 15920	60 ~ 190
		1.5	6	30 ~ 50	0.002 ~ 0.002	≤1.0D	≤0.3D (MAX 0.2)	6370 ~ 10610	80 ~ 130
		2	6	30 ~ 50	0.003 ~ 0.003	≤1.0D	≤0.3D (MAX 0.2)	4770 ~ 7960	90 ~ 140
		2.5	6	30 ~ 50	0.003 ~ 0.004	≤1.0D	≤0.3D (MAX 0.2)	3820 ~ 6370	70 ~ 150
		3	6	30 ~ 50	0.004 ~ 0.005	≤1.0D	≤0.3D (MAX 0.2)	3180 ~ 5310	80 ~ 160
		4	6	30 ~ 50	0.006 ~ 0.007	≤1.0D	≤0.3D (MAX 0.2)	2390 ~ 3980	90 ~ 170
		5	6	30 ~ 50	0.008 ~ 0.009	≤1.0D	≤0.3D (MAX 0.2)	1910 ~ 3180	90 ~ 170
		6	6	30 ~ 50	0.010 ~ 0.011	≤1.0D	≤0.3D (MAX 0.2)	1590 ~ 2650	100 ~ 170
		8	6	30 ~ 50	0.012 ~ 0.013	≤1.0D	≤0.3D (MAX 0.2)	1190 ~ 1990	90 ~ 160
		10	6	30 ~ 50	0.014 ~ 0.016	≤1.0D	≤0.3D (MAX 0.2)	950 ~ 1590	80 ~ 150
		12	6	30 ~ 50	0.017 ~ 0.018	≤1.0D	≤0.3D (MAX 0.2)	800 ~ 1330	80 ~ 140
		14	6	30 ~ 50	0.019 ~ 0.021	≤1.0D	≤0.3D (MAX 0.2)	680 ~ 1140	80 ~ 140
		16	8	30 ~ 50	0.021 ~ 0.024	≤1.0D	≤0.3D (MAX 0.2)	600 ~ 990	80 ~ 140
		18	8	30 ~ 50	0.024 ~ 0.026	≤1.0D	≤0.3D (MAX 0.2)	530 ~ 880	80 ~ 140
		20	8	30 ~ 50	0.026 ~ 0.029	≤1.0D	≤0.3D (MAX 0.2)	480 ~ 800	70 ~ 140
		22	8	30 ~ 50	0.028 ~ 0.031	≤1.0D	≤0.3D (MAX 0.2)	430 ~ 720	70 ~ 130
		25	8	30 ~ 50	0.032 ~ 0.035	≤1.0D	≤0.3D (MAX 0.2)	380 ~ 640	70 ~ 130

SE 60 MultiFlute Long Series Endmills

Ae ≤ 0.03D (D < Ø3)
Ae ≤ 0.05D (D ≤ Ø3)
(MAX 0.5mm)
Ap ≤ 1.0D

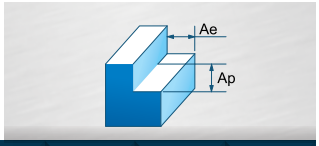


6/8 Z Side Milling (Finishing)

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45-55HRC) AISI H13	M26	1	6	40 ~ 56	0.004 ~ 0.006	≤1.0D	≤0.3D	12730 ~ 17830	310 ~ 640
		1.5	6	40 ~ 56	0.007 ~ 0.010	≤1.0D	≤0.3D	8490 ~ 11880	360 ~ 710
		2	6	40 ~ 56	0.011 ~ 0.014	≤1.0D	≤0.3D	6370 ~ 8910	420 ~ 750
		2.5	6	40 ~ 56	0.014 ~ 0.017	≤1.0D	≤0.3D	5090 ~ 7130	430 ~ 730
		3	6	40 ~ 56	0.018 ~ 0.021	≤1.0D	≤0.05D (MAX 0.5)	4240 ~ 5940	460 ~ 750
		4	6	40 ~ 56	0.025 ~ 0.028	≤1.0D	≤0.05D (MAX 0.5)	3180 ~ 4460	480 ~ 750
		5	6	40 ~ 56	0.032 ~ 0.035	≤1.0D	≤0.05D (MAX 0.5)	2550 ~ 3570	490 ~ 750
		6	6	40 ~ 56	0.038 ~ 0.042	≤1.0D	≤0.05D (MAX 0.5)	2120 ~ 2970	480 ~ 750
		8	6	40 ~ 56	0.048 ~ 0.053	≤1.0D	≤0.05D (MAX 0.5)	1590 ~ 2230	460 ~ 710
		10	6	40 ~ 56	0.057 ~ 0.063	≤1.0D	≤0.05D (MAX 0.5)	1270 ~ 1780	430 ~ 670
		12	6	40 ~ 56	0.067 ~ 0.073	≤1.0D	≤0.05D (MAX 0.5)	1060 ~ 1490	430 ~ 650
		14	6	40 ~ 56	0.076 ~ 0.084	≤1.0D	≤0.05D (MAX 0.5)	910 ~ 1270	410 ~ 640
		16	8	40 ~ 56	0.086 ~ 0.094	≤1.0D	≤0.05D (MAX 0.5)	800 ~ 1110	410 ~ 630
		18	8	40 ~ 56	0.095 ~ 0.104	≤1.0D	≤0.05D (MAX 0.5)	710 ~ 990	400 ~ 620
		20	8	40 ~ 56	0.104 ~ 0.115	≤1.0D	≤0.05D (MAX 0.5)	640 ~ 890	400 ~ 610
		22	8	40 ~ 56	0.114 ~ 0.125	≤1.0D	≤0.05D (MAX 0.5)	580 ~ 810	400 ~ 610
		25	8	40 ~ 56	0.128 ~ 0.141	≤1.0D	≤0.05D (MAX 0.5)	510 ~ 710	390 ~ 600
HARDENED STEEL (55-60HRC) AISI D2	M27, M28	1	6	32 ~ 48	0.003 ~ 0.006	≤1.0D	≤0.3D (MAX 0.2)	10190 ~ 15280	180 ~ 550
		1.5	6	32 ~ 48	0.006 ~ 0.008	≤1.0D	≤0.3D (MAX 0.2)	6790 ~ 10190	240 ~ 490
		2	6	32 ~ 48	0.008 ~ 0.011	≤1.0D	≤0.3D (MAX 0.2)	5090 ~ 7640	240 ~ 500
		2.5	6	32 ~ 48	0.011 ~ 0.013	≤1.0D	≤0.3D (MAX 0.2)	4070 ~ 6110	270 ~ 480
		3	6	32 ~ 48	0.013 ~ 0.016	≤1.0D	≤0.3D (MAX 0.2)	3400 ~ 5090	270 ~ 490
		4	6	32 ~ 48	0.019 ~ 0.021	≤1.0D	≤0.3D (MAX 0.2)	2550 ~ 3820	290 ~ 480
		5	6	32 ~ 48	0.024 ~ 0.026	≤1.0D	≤0.3D (MAX 0.2)	2040 ~ 3060	290 ~ 480
		6	6	32 ~ 48	0.029 ~ 0.032	≤1.0D	≤0.3D (MAX 0.2)	1700 ~ 2550	300 ~ 490
		8	6	32 ~ 48	0.036 ~ 0.039	≤1.0D	≤0.3D (MAX 0.2)	1270 ~ 1910	270 ~ 450
		10	6	32 ~ 48	0.043 ~ 0.047	≤1.0D	≤0.3D (MAX 0.2)	1020 ~ 1530	260 ~ 430
		12	6	32 ~ 48	0.050 ~ 0.055	≤1.0D	≤0.3D (MAX 0.2)	850 ~ 1270	260 ~ 420
		14	6	32 ~ 48	0.057 ~ 0.063	≤1.0D	≤0.3D (MAX 0.2)	730 ~ 1090	250 ~ 410
		16	8	32 ~ 48	0.064 ~ 0.071	≤1.0D	≤0.3D (MAX 0.2)	640 ~ 950	250 ~ 400
		18	8	32 ~ 48	0.071 ~ 0.078	≤1.0D	≤0.3D (MAX 0.2)	570 ~ 850	240 ~ 400
		20	8	32 ~ 48	0.078 ~ 0.086	≤1.0D	≤0.3D (MAX 0.2)	510 ~ 760	240 ~ 390
		22	8	32 ~ 48	0.085 ~ 0.094	≤1.0D	≤0.3D (MAX 0.2)	460 ~ 690	230 ~ 390
		25	8	32 ~ 48	0.096 ~ 0.106	≤1.0D	≤0.3D (MAX 0.2)	410 ~ 610	240 ~ 390
HARDENED STEEL (60-65HRC) AISI D2	M33	1	6	24 ~ 40	0.001 ~ 0.002	≤1.0D	≤0.3D (MAX 0.2)	7640 ~ 12730	50 ~ 150
		1.5	6	24 ~ 40	0.002 ~ 0.002	≤1.0D	≤0.3D (MAX 0.2)	5090 ~ 8490	60 ~ 100
		2	6	24 ~ 40	0.003 ~ 0.003	≤1.0D	≤0.3D (MAX 0.2)	3820 ~ 6370	70 ~ 110
		2.5	6	24 ~ 40	0.003 ~ 0.004	≤1.0D	≤0.3D (MAX 0.2)	3060 ~ 5090	60 ~ 120
		3	6	24 ~ 40	0.004 ~ 0.005	≤1.0D	≤0.3D (MAX 0.2)	2550 ~ 4240	60 ~ 130
		4	6	24 ~ 40	0.006 ~ 0.007	≤1.0D	≤0.3D (MAX 0.2)	1910 ~ 3180	70 ~ 130
		5	6	24 ~ 40	0.008 ~ 0.009	≤1.0D	≤0.3D (MAX 0.2)	1530 ~ 2550	70 ~ 140
		6	6	24 ~ 40	0.010 ~ 0.011	≤1.0D	≤0.3D (MAX 0.2)	1270 ~ 2120	80 ~ 140
		8	6	24 ~ 40	0.012 ~ 0.013	≤1.0D	≤0.3D (MAX 0.2)	950 ~ 1590	70 ~ 120
		10	6	24 ~ 40	0.014 ~ 0.016	≤1.0D	≤0.3D (MAX 0.2)	760 ~ 1270	60 ~ 120
		12	6	24 ~ 40	0.017 ~ 0.018	≤1.0D	≤0.3D (MAX 0.2)	640 ~ 1060	70 ~ 110
		14	6	24 ~ 40	0.019 ~ 0.021	≤1.0D	≤0.3D (MAX 0.2)	550 ~ 910	60 ~ 110
		16	8	24 ~ 40	0.021 ~ 0.024	≤1.0D	≤0.3D (MAX 0.2)	480 ~ 800	60 ~ 120
		18	8	24 ~ 40	0.024 ~ 0.026	≤1.0D	≤0.3D (MAX 0.2)	420 ~ 710	60 ~ 110
		20	8	24 ~ 40	0.026 ~ 0.029	≤1.0D	≤0.3D (MAX 0.2)	380 ~ 640	60 ~ 110
		22	8	24 ~ 40	0.028 ~ 0.031	≤1.0D	≤0.3D (MAX 0.2)	350 ~ 580	60 ~ 110
		25	8	24 ~ 40	0.032 ~ 0.035	≤1.0D	≤0.3D (MAX 0.2)	310 ~ 510	60 ~ 110

SE 60 MultiFlute Extra-Long Series Endmills

Ae ≤ 0.03D (D < Ø3)
Ae ≤ 0.05D (D ≤ Ø3)
(MAX 0.5mm)
Ap ≤ 1.0D



6/8 Z Side Milling (Finishing)

Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45-55HRC) AISI H13	M26	1	6	25 ~ 35	0.004 ~ 0.006	≤1.0D	≤0.3D	7960 ~ 11140	190 ~ 400
		1.5	6	25 ~ 35	0.007 ~ 0.010	≤1.0D	≤0.3D	5310 ~ 7430	220 ~ 450
		2	6	25 ~ 35	0.011 ~ 0.014	≤1.0D	≤0.3D	3980 ~ 5570	260 ~ 470
		2.5	6	25 ~ 35	0.014 ~ 0.017	≤1.0D	≤0.3D	3180 ~ 4460	270 ~ 450
		3	6	25 ~ 35	0.018 ~ 0.021	≤1.0D	≤0.05D (MAX 0.5)	2650 ~ 3710	290 ~ 470
		4	6	25 ~ 35	0.025 ~ 0.028	≤1.0D	≤0.05D (MAX 0.5)	1990 ~ 2790	300 ~ 470
		5	6	25 ~ 35	0.032 ~ 0.035	≤1.0D	≤0.05D (MAX 0.5)	1590 ~ 2230	310 ~ 470
		6	6	25 ~ 35	0.038 ~ 0.042	≤1.0D	≤0.05D (MAX 0.5)	1330 ~ 1860	300 ~ 470
		8	6	25 ~ 35	0.048 ~ 0.053	≤1.0D	≤0.05D (MAX 0.5)	990 ~ 1390	290 ~ 440
		10	6	25 ~ 35	0.057 ~ 0.063	≤1.0D	≤0.05D (MAX 0.5)	800 ~ 1110	270 ~ 420
		12	6	25 ~ 35	0.067 ~ 0.073	≤1.0D	≤0.05D (MAX 0.5)	660 ~ 930	270 ~ 410
		14	6	25 ~ 35	0.076 ~ 0.084	≤1.0D	≤0.05D (MAX 0.5)	570 ~ 800	260 ~ 400
		16	8	25 ~ 35	0.086 ~ 0.094	≤1.0D	≤0.05D (MAX 0.5)	500 ~ 700	260 ~ 390
		18	8	25 ~ 35	0.095 ~ 0.104	≤1.0D	≤0.05D (MAX 0.5)	440 ~ 620	250 ~ 390
		20	8	25 ~ 35	0.104 ~ 0.115	≤1.0D	≤0.05D (MAX 0.5)	400 ~ 560	250 ~ 390
		22	8	25 ~ 35	0.114 ~ 0.125	≤1.0D	≤0.05D (MAX 0.5)	360 ~ 510	250 ~ 380
		25	8	25 ~ 35	0.128 ~ 0.141	≤1.0D	≤0.05D (MAX 0.5)	320 ~ 450	250 ~ 380
HARDENED STEEL (55-60HRC) AISI D2	M27, M28	1	6	20 ~ 30	0.003 ~ 0.006	≤1.0D	≤0.3D (MAX 0.2)	6370 ~ 9550	110 ~ 340
		1.5	6	20 ~ 30	0.006 ~ 0.008	≤1.0D	≤0.3D (MAX 0.2)	4240 ~ 6370	150 ~ 310
		2	6	20 ~ 30	0.008 ~ 0.011	≤1.0D	≤0.3D (MAX 0.2)	3180 ~ 4770	150 ~ 310
		2.5	6	20 ~ 30	0.011 ~ 0.013	≤1.0D	≤0.3D (MAX 0.2)	2550 ~ 3820	170 ~ 300
		3	6	20 ~ 30	0.013 ~ 0.016	≤1.0D	≤0.3D (MAX 0.2)	2120 ~ 3180	170 ~ 310
		4	6	20 ~ 30	0.019 ~ 0.021	≤1.0D	≤0.3D (MAX 0.2)	1590 ~ 2390	180 ~ 300
		5	6	20 ~ 30	0.024 ~ 0.026	≤1.0D	≤0.3D (MAX 0.2)	1270 ~ 1910	180 ~ 300
		6	6	20 ~ 30	0.029 ~ 0.032	≤1.0D	≤0.3D (MAX 0.2)	1060 ~ 1590	180 ~ 310
		8	6	20 ~ 30	0.036 ~ 0.039	≤1.0D	≤0.3D (MAX 0.2)	800 ~ 1190	170 ~ 280
		10	6	20 ~ 30	0.043 ~ 0.047	≤1.0D	≤0.3D (MAX 0.2)	640 ~ 950	170 ~ 270
		12	6	20 ~ 30	0.050 ~ 0.055	≤1.0D	≤0.3D (MAX 0.2)	530 ~ 800	160 ~ 260
		14	6	20 ~ 30	0.057 ~ 0.063	≤1.0D	≤0.3D (MAX 0.2)	450 ~ 680	150 ~ 260
		16	8	20 ~ 30	0.064 ~ 0.071	≤1.0D	≤0.3D (MAX 0.2)	400 ~ 600	150 ~ 260
		18	8	20 ~ 30	0.071 ~ 0.078	≤1.0D	≤0.3D (MAX 0.2)	350 ~ 530	150 ~ 250
		20	8	20 ~ 30	0.078 ~ 0.086	≤1.0D	≤0.3D (MAX 0.2)	320 ~ 480	150 ~ 250
		22	8	20 ~ 30	0.085 ~ 0.094	≤1.0D	≤0.3D (MAX 0.2)	290 ~ 430	150 ~ 240
		25	8	20 ~ 30	0.096 ~ 0.106	≤1.0D	≤0.3D (MAX 0.2)	250 ~ 380	140 ~ 240
HARDENED STEEL (60-65HRC) AISI D2	M33	1	6	15 ~ 25	0.001 ~ 0.002	≤1.0D	≤0.3D (MAX 0.2)	4770 ~ 7960	30 ~ 60
		1.5	6	15 ~ 25	0.002 ~ 0.002	≤1.0D	≤0.3D (MAX 0.2)	3180 ~ 5310	40 ~ 60
		2	6	15 ~ 25	0.003 ~ 0.003	≤1.0D	≤0.3D (MAX 0.2)	2390 ~ 3980	40 ~ 70
		2.5	6	15 ~ 25	0.003 ~ 0.004	≤1.0D	≤0.3D (MAX 0.2)	1910 ~ 3180	30 ~ 80
		3	6	15 ~ 25	0.004 ~ 0.005	≤1.0D	≤0.3D (MAX 0.2)	1590 ~ 2650	40 ~ 80
		4	6	15 ~ 25	0.006 ~ 0.007	≤1.0D	≤0.3D (MAX 0.2)	1190 ~ 1990	40 ~ 80
		5	6	15 ~ 25	0.008 ~ 0.009	≤1.0D	≤0.3D (MAX 0.2)	950 ~ 1590	50 ~ 90
		6	6	15 ~ 25	0.010 ~ 0.011	≤1.0D	≤0.3D (MAX 0.2)	800 ~ 1330	50 ~ 90
		8	6	15 ~ 25	0.012 ~ 0.013	≤1.0D	≤0.3D (MAX 0.2)	600 ~ 990	40 ~ 80
		10	6	15 ~ 25	0.014 ~ 0.016	≤1.0D	≤0.3D (MAX 0.2)	480 ~ 800	40 ~ 80
		12	6	15 ~ 25	0.017 ~ 0.018	≤1.0D	≤0.3D (MAX 0.2)	400 ~ 660	40 ~ 70
		14	6	15 ~ 25	0.019 ~ 0.021	≤1.0D	≤0.3D (MAX 0.2)	340 ~ 570	40 ~ 70
		16	8	15 ~ 25	0.021 ~ 0.024	≤1.0D	≤0.3D (MAX 0.2)	300 ~ 500	40 ~ 70
		18	8	15 ~ 25	0.024 ~ 0.026	≤1.0D	≤0.3D (MAX 0.2)	270 ~ 440	40 ~ 70
		20	8	15 ~ 25	0.026 ~ 0.029	≤1.0D	≤0.3D (MAX 0.2)	240 ~ 400	40 ~ 70
		22	8	15 ~ 25	0.028 ~ 0.031	≤1.0D	≤0.3D (MAX 0.2)	220 ~ 360	40 ~ 70
		25	8	15 ~ 25	0.032 ~ 0.035	≤1.0D	≤0.3D (MAX 0.2)	190 ~ 320	40 ~ 70

SE 60 Miniature Endmills with long neck

2 Z Slotting			HARDENED STEELS					HARDENED STEELS				
Work Material												
Material Groups			M26, M27					M28, M33				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.040	25	0.002	40,000	160	0.034	25	0.001	40,000	80
0.2	1	1.0D	0.016	23	0.002	37,400	140	0.014	23	0.001	37,400	70
0.2	1.5	1.0D	0.011	22	0.002	34,800	121	0.010	22	0.001	34,800	61
0.3	1	1.0D	0.040	38	0.002	40,000	160	0.034	38	0.001	40,000	80
0.3	2	1.0D	0.020	33	0.002	34,800	121	0.017	33	0.001	34,800	61
0.3	3	1.0D	0.012	28	0.001	29,600	88	0.010	28	0.001	29,600	44
0.4	2	1.0D	0.032	47	0.003	37,400	210	0.027	47	0.003	37,301	209
0.4	3	1.0D	0.023	44	0.003	34,800	182	0.019	44	0.003	34,708	181
0.4	4	1.0D	0.016	37	0.002	29,600	131	0.014	37	0.002	29,522	131
0.4	5	1.0D	0.013	34	0.002	27,000	109	0.011	34	0.002	26,929	109
0.5	2	1.0D	0.050	62	0.004	39,099	315	0.043	57	0.004	35,916	264
0.5	4	1.0D	0.025	50	0.003	31,474	204	0.021	45	0.003	28,912	171
0.5	6	1.0D	0.017	42	0.003	26,391	143	0.014	38	0.002	24,243	120
0.5	8	1.0D	0.013	34	0.002	21,309	93	0.011	31	0.002	19,574	78
0.6	2	1.0D	0.080	68	0.005	35,916	336	0.068	60	0.004	31,831	239
0.6	4	1.0D	0.040	59	0.004	31,246	254	0.034	52	0.003	27,693	181
0.6	6	1.0D	0.024	50	0.003	26,577	184	0.020	44	0.003	23,555	131
0.6	8	1.0D	0.018	46	0.003	24,243	153	0.016	41	0.002	21,486	109
0.6	10	1.0D	0.015	37	0.002	19,574	100	0.013	33	0.002	17,348	71
0.7	2	1.0D	0.140	70	0.005	31,831	328	0.119	60	0.005	27,284	259
0.7	4	1.0D	0.056	65	0.005	29,762	286	0.048	56	0.004	25,510	226
0.7	6	1.0D	0.035	56	0.004	25,624	212	0.030	48	0.004	21,963	168
0.7	8	1.0D	0.025	52	0.004	23,555	179	0.022	44	0.003	20,190	142
0.7	10	1.0D	0.020	43	0.003	19,417	122	0.017	37	0.003	16,643	96
0.8	4	1.0D	0.064	65	0.005	26,042	278	0.054	56	0.004	22,321	198
0.8	6	1.0D	0.046	61	0.005	24,231	241	0.039	52	0.004	20,770	171
0.8	8	1.0D	0.032	52	0.004	20,610	174	0.027	44	0.003	17,666	124
0.8	10	1.0D	0.027	47	0.004	18,800	145	0.023	41	0.003	16,114	103
0.8	12	1.0D	0.021	43	0.003	16,990	119	0.018	37	0.003	14,563	84
0.9	6	1.0D	0.060	61	0.005	21,539	230	0.051	52	0.005	18,462	185
0.9	8	1.0D	0.045	56	0.005	19,930	197	0.038	48	0.004	17,083	158
0.9	10	1.0D	0.033	52	0.004	18,321	166	0.028	44	0.004	15,703	134
0.9	15	1.0D	0.023	38	0.003	13,493	90	0.019	33	0.003	11,565	72
1.0	6	1.0D	0.067	61	0.006	19,385	226	0.057	52	0.005	16,616	166
1.0	8	1.0D	0.050	56	0.005	17,937	194	0.043	48	0.004	15,374	142
1.0	10	1.0D	0.040	52	0.005	16,489	164	0.034	44	0.004	14,133	120
1.0	12	1.0D	0.033	47	0.004	15,040	136	0.028	41	0.004	12,891	100
1.0	14	1.0D	0.029	43	0.004	13,592	111	0.024	37	0.003	11,650	82
1.0	16	1.0D	0.025	38	0.004	12,144	89	0.021	33	0.003	10,409	65
1.2	6	1.0D	0.096	65	0.007	17,361	250	0.082	56	0.006	14,881	188
1.2	8	1.0D	0.080	61	0.007	16,154	217	0.068	52	0.006	13,846	163
1.2	10	1.0D	0.060	56	0.006	14,947	186	0.051	48	0.005	12,812	139
1.2	12	1.0D	0.048	52	0.006	13,740	157	0.041	44	0.005	11,777	118
1.4	6	1.0D	0.140	70	0.008	15,916	264	0.119	60	0.007	13,642	200
1.4	8	1.0D	0.112	65	0.007	14,881	231	0.095	56	0.007	12,755	175
1.4	10	1.0D	0.080	61	0.007	13,846	200	0.068	52	0.006	11,868	151
1.4	12	1.0D	0.070	56	0.006	12,812	171	0.060	48	0.006	10,981	130
1.4	14	1.0D	0.056	52	0.006	11,777	145	0.048	44	0.005	10,095	110
1.4	16	1.0D	0.051	52	0.006	11,777	145	0.043	44	0.005	10,095	110
1.5	6	1.0D	0.150	70	0.009	14,855	259	0.128	60	0.008	12,732	212
1.5	8	1.0D	0.120	65	0.008	13,889	226	0.102	56	0.007	11,904	185
1.5	10	1.0D	0.100	61	0.007	12,923	196	0.085	52	0.007	11,077	160
1.5	12	1.0D	0.075	56	0.007	11,958	168	0.064	48	0.006	10,249	137
1.5	14	1.0D	0.067	56	0.007	11,958	168	0.057	48	0.006	10,249	137
1.5	16	1.0D	0.060	52	0.006	10,992	142	0.051	44	0.006	9,422	116
1.5	18	1.0D	0.050	47	0.006	10,027	118	0.043	41	0.005	8,594	97
1.5	20	1.0D	0.046	47	0.006	10,027	118	0.039	41	0.005	8,594	97
1.6	6	1.0D	0.213	70	0.009	13,926	259	0.181	60	0.008	11,937	199
1.6	8	1.0D	0.128	65	0.008	13,021	226	0.109	56	0.007	11,161	174
1.6	10	1.0D	0.107	61	0.008	12,116	196	0.091	52	0.007	10,385	151
1.6	12	1.0D	0.091	61	0.008	12,116	196	0.078	52	0.007	10,385	151
1.6	14	1.0D	0.080	56	0.007	11,210	168	0.068	48	0.006	9,609	129
1.6	16	1.0D	0.064	52	0.007	10,305	142	0.054	44	0.006	8,833	109
1.6	18	1.0D	0.058	52	0.007	10,305	142	0.049	44	0.006	8,833	109
1.6	20	1.0D	0.053	47	0.006	9,400	118	0.045	41	0.005	8,057	91

SE 60 Miniature Endmills with long neck

2 Z Slotting			HARDENED STEELS					HARDENED STEELS				
Work Material												
Material Groups			M26, M27					M28, M33				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.240	70	0.010	12,379	255	0.204	60	0.009	10,611	198
1.8	8	1.0D	0.180	70	0.010	12,379	255	0.153	60	0.009	10,611	198
1.8	10	1.0D	0.144	65	0.009	11,574	223	0.122	56	0.008	9,921	173
1.8	12	1.0D	0.120	61	0.009	10,769	193	0.102	52	0.008	9,231	150
1.8	14	1.0D	0.103	61	0.009	10,769	193	0.087	52	0.008	9,231	150
1.8	16	1.0D	0.090	56	0.008	9,965	165	0.077	48	0.007	8,541	128
1.8	18	1.0D	0.072	52	0.007	9,160	140	0.061	44	0.007	7,852	108
1.8	20	1.0D	0.065	52	0.007	9,160	140	0.056	44	0.007	7,852	108
2.0	6	1.0D	0.267	70	0.011	11,141	252	0.227	60	0.010	9,550	197
2.0	8	1.0D	0.200	70	0.011	11,141	252	0.170	60	0.010	9,550	197
2.0	10	1.0D	0.160	65	0.010	10,416	220	0.136	56	0.009	8,929	172
2.0	12	1.0D	0.133	61	0.010	9,692	190	0.113	52	0.009	8,308	149
2.0	14	1.0D	0.114	61	0.010	9,692	190	0.097	52	0.009	8,308	149
2.0	16	1.0D	0.100	56	0.009	8,968	163	0.085	48	0.008	7,687	128
2.0	18	1.0D	0.089	56	0.009	8,968	163	0.076	48	0.008	7,687	128
2.0	20	1.0D	0.080	52	0.008	8,244	138	0.068	44	0.007	7,067	108
2.0	25	1.0D	0.067	47	0.007	7,520	115	0.057	41	0.007	6,446	90
2.0	30	1.0D	0.053	43	0.007	6,796	94	0.045	37	0.006	5,825	73
2.5	8	1.0D	0.333	70	0.013	8,913	230	0.283	60	0.012	7,640	191
2.5	10	1.0D	0.250	70	0.013	8,913	230	0.213	60	0.012	7,640	191
2.5	12	1.0D	0.250	70	0.013	8,913	230	0.213	60	0.012	7,640	191
2.5	14	1.0D	0.200	65	0.012	8,333	201	0.170	56	0.011	7,143	167
2.5	16	1.0D	0.167	61	0.011	7,754	174	0.142	52	0.010	6,646	145
2.5	18	1.0D	0.143	61	0.011	7,754	174	0.121	52	0.010	6,646	145
2.5	20	1.0D	0.125	56	0.010	7,175	149	0.106	48	0.010	6,150	124
2.5	25	1.0D	0.100	52	0.009	6,595	126	0.085	44	0.009	5,653	105
2.5	30	1.0D	0.083	47	0.008	6,016	105	0.071	41	0.008	5,157	87
3.0	8	1.0D	0.600	70	0.015	7,427	221	0.510	60	0.014	6,366	185
3.0	10	1.0D	0.400	70	0.015	7,427	221	0.340	60	0.014	6,366	185
3.0	12	1.0D	0.300	70	0.015	7,427	221	0.255	60	0.014	6,366	185
3.0	14	1.0D	0.300	70	0.015	7,427	221	0.255	60	0.014	6,366	185
3.0	16	1.0D	0.240	65	0.014	6,944	193	0.204	56	0.013	5,952	162
3.0	18	1.0D	0.200	61	0.013	6,461	167	0.170	52	0.012	5,538	140
3.0	20	1.0D	0.200	61	0.013	6,461	167	0.170	52	0.012	5,538	140
3.0	25	1.0D	0.150	56	0.012	5,979	143	0.128	48	0.011	5,125	120
4.0	10	1.0D	0.800	70	0.019	5,571	217	0.680	60	0.019	4,775	182
4.0	15	1.0D	0.533	70	0.019	5,571	217	0.453	60	0.019	4,775	182
4.0	20	1.0D	0.320	65	0.018	5,208	189	0.272	56	0.017	4,464	159
4.0	25	1.0D	0.267	61	0.017	4,846	164	0.227	52	0.016	4,154	138
4.0	30	1.0D	0.229	61	0.017	4,846	164	0.194	52	0.016	4,154	138
4.0	40	1.0D	0.160	52	0.014	4,122	119	0.136	44	0.014	3,533	100

SEGR

SE GR STANDARD ENDMILLS

For Graphite

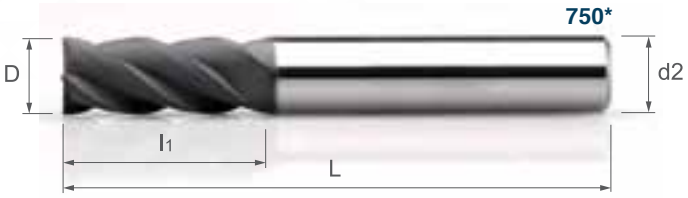
Solid Carbide SE GR Endmills, 4 flutes, DIAMOND respectively DLC coated for machining grahite

Fraises 2 tailles SE GR en carbure monobloc, 4 dents, revêtues DIAMANT respectivement DLC pour usinage de graphite

整体硬质合金 SE GR 系列 立铣刀 – 石墨操作 4 刃 – DLC 钻石涂层 – 标准长度

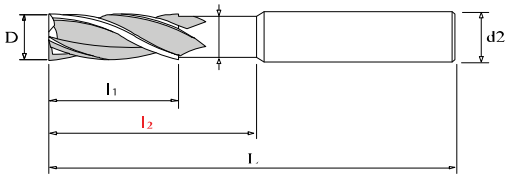
VHM SE GR Fräser, 4 Zähne, DIAMANT bzw. DLC beschichtet zur Bearbeitung von Grafit

Frese SE GR in metallo duro integrale,4 taglienti, rivestite DIAMANTE respettivamenta DLC per lavorazioni in grafite



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)					875*	750*	212*
	D	l 1	l 2	L	d2 (h6)	D0700	DCT01	DCT02
0100 040 03	1	3	6	40	3	●	●	-
0150 040 03	1.5	4.5	9	40	3	●	●	-
0200 040 03	2	6.5	12	40	3	●	●	-
0250 040 03	2.5	6.5	13	40	3	●	●	-
0300	3	9	18	40	3	●	●	●
0400	4	12	20	50	4	●	●	●
0500	5	15	20	50	5	●	●	●
0600	6	20	30	60	6	●	●	●
0800	8	20	30	64	8	●	●	●
1000	10	22	35	70	10	●	●	●
1200	12	25	40	75	12	●	●	●
						639*	751*	763*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
●																									

Working Material	Cutting Parameter
564	302

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE GR ENDMILLS - with LONG NECK

For Graphite

Solid Carbide long SE GR Endmills with Long Neck, 2 flutes, DIAMOND respectively DLC coated for machining grahite

Fraises 2 tailles SE GR avec cou long longues en carbure monobloc, 2 dents, revêtues DIAMANT respectivement DLC pour usinage de graphite

整体硬质合金 SE GR 系列 立铣刀 – 石墨操作 2 刃 – DLC 钻石涂层 – 中长

VHM lange SE GR Fräser mit langem Hals, 2 Zähne, DIAMANT bzw. DLC beschichtet, zur Bearbeitung von Grafit

Frese SE GR in metallo duro integrale, 2 taglienti, rivestite DIAMANTE respettivamenta DLC, con collo lungo, per lavorazioni in grafite

764*

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						641*	752*	764*
=*+Ødata	D	l 1	l 2	L	d1	d2 (h6)	D0700	DCT01	DCT02
0050 050 03	0.5	1	6	50	0.45	3	●	●	-
0050 050 04	0.5	1	6	50	0.45	4	●	●	-
0060 050 03	0.6	1.2	6	50	0.55	3	●	●	-
0060 050 04	0.6	1.2	6	50	0.55	4	●	●	-
0080 050 03	0.8	1.6	8	50	0.75	3	●	●	-
0080 050 04	0.8	1.6	8	50	0.75	4	●	●	-
0100 060 03	1	3	10	60	0.95	3	●	●	-
0100 060 04	1	3	10	60	0.95	4	●	●	-
0150 060 03	1.5	4.5	15	60	1.45	3	●	●	-
0150 060 04	1.5	4.5	15	60	1.45	4	●	●	-
0200 060 03	2	6.5	20	60	1.95	3	●	●	-
0200 060 04	2	6.5	20	60	1.95	4	●	●	-
0250 060 03	2.5	6.5	25	60	2.4	3	●	●	-
0250 060 04	2.5	6.5	25	60	2.4	4	●	●	-
0300 075 03	3	9	30	75	2.85	3	●	●	●
0300 075 06	3	9	30	75	2.85	6	●	●	●
0300 100 03	3	19	30	100	2.85	3	●	●	●
0300 100 06	3	19	30	100	2.85	6	●	●	●
0400 075 04	4	12	32	75	3.85	4	●	●	●
0400 075 06	4	12	32	75	3.85	6	●	●	●
0400 100 04	4	25	40	100	3.85	4	●	●	●
0400 100 06	4	25	40	100	3.85	6	●	●	●
0500 075 05	5	15	32	75	4.85	5	●	●	●
0500 075 06	5	15	32	75	4.85	6	●	●	●
0500 100 05	5	25	60	100	4.85	5	●	●	●
0500 100 06	5	25	60	100	4.85	6	●	●	●
0600	6	25	60	100	5.85	6	●	●	●
0800	8	25	60	100	7.85	8	●	●	●
1000	10	25	60	100	9.85	10	●	●	●
1200 100	12	25	60	100	11.85	12	●	●	●
1200 150	12	25	80	150	11.85	12	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
				●																					

Working Material	Cutting Parameter
564	302

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE GR ENDMILLS - with LONG NECK

For Graphite

Solid Carbide long SE GR Endmills with Long Neck, 4 flutes, DIAMOND respectively DLC coated for machining grahite

Fraises 2 tailles SE GR avec cou long longues en carbure monobloc, 4 dents, revêtues DIAMANT respectivement DLC pour usinage de graphite

整体硬质合金 SE GR 系列 立铣刀 – 石墨操作 4 刃 – DLC 钻石涂层 – 中长

VHM lange SE GR Fräser mit langem Hals, 4 Zähne, DIAMANT bzw. DLC beschichtet, zur Bearbeitung von Grafit

Frese SE GR in metallo duro integrale, 4 taglienti, rivestite DIAMANTE respettivamenta DLC, con collo lungo, per lavorazioni in grafite

765*

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						874*	753*	765*
=*+Ødata	D	l 1	l 2	L	d1	d2 (h6)	D0700	DCT01	DCT02
0050 050 03	0.5	1	6	50	0.45	3	●	●	-
0050 050 04	0.5	1	6	50	0.45	4	●	●	-
0060 050 03	0.6	1.2	6	50	0.55	3	●	●	-
0060 050 04	0.6	1.2	6	50	0.55	4	●	●	-
0080 050 03	0.8	1.6	8	50	0.75	3	●	●	-
0080 050 04	0.8	1.6	8	50	0.75	4	●	●	-
0100 060 03	1	3	10	60	0.95	3	●	●	-
0100 060 04	1	3	10	60	0.95	4	●	●	-
0150 060 03	1.5	4.5	15	60	1.45	3	●	●	-
0150 060 04	1.5	4.5	15	60	1.45	4	●	●	-
0200 060 03	2	6.5	20	60	1.95	3	●	●	-
0200 060 04	2	6.5	20	60	1.95	4	●	●	-
0250 060 03	2.5	6.5	25	60	2.4	3	●	●	-
0250 060 04	2.5	6.5	25	60	2.4	4	●	●	-
0300 075 03	3	9	30	75	2.85	3	●	●	●
0300 075 06	3	9	30	75	2.85	6	●	●	●
0300 100 03	3	19	30	100	2.85	3	●	●	●
0300 100 06	3	19	30	100	2.85	6	●	●	●
0400 075 04	4	12	32	75	3.85	4	●	●	●
0400 075 06	4	12	32	75	3.85	6	●	●	●
0400 100 04	4	25	40	100	3.85	4	●	●	●
0400 100 06	4	25	40	100	3.85	6	●	●	●
0500 075 05	5	15	32	75	4.85	5	●	●	●
0500 075 06	5	15	32	75	4.85	6	●	●	●
0500 100 05	5	25	60	100	4.85	5	●	●	●
0500 100 06	5	25	60	100	4.85	6	●	●	●
0600	6	25	60	100	5.85	6	●	●	●
0800	8	25	60	100	7.85	8	●	●	●
1000	10	25	60	100	9.85	10	●	●	●
1200 100	12	25	60	100	11.85	12	●	●	●
1200 150	12	25	80	150	11.85	12	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
				●																					

Working Material	Cutting Parameter
564	302

若有技术规格变更，恕不事先通知

SE GR STANDARD TORUS ENDMILLS

For Graphite

Solid Carbide SE GR Standard Torus Endmills, 4 flutes, DIAMOND respectively DLC coated for machining grahite

Fraises 4 tailles SE GR toriques Standard en carbure monobloc, 4 dents, revêtues DIAMANT respectivement DLC pour usinage de graphite

整体硬质合金 SE GR 系列 立铣刀 – 石墨操作 4 刃 – DLC 钻石涂层 – 标准长度

VHM SE GR Standard Torusfräser, 4 Zähne, DIAMANT bzw. DLC beschichtet zur Bearbeitung von Grafit

Frese SE GR torodali Standard, in metallo duro integrale, 4 taglienti, rivestite DIAMANTE respettivamenta DLC, con collo lungo, per lavorazioni in grafite

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						C08*	142*	811*
	D	l 1	l 2	L	d2 (h6)	R	D0700	DCT01	DCT02
0100 040 0300 015	1	3		40	3	0.15	●	●	-
0100 040 0400 015	1	3		40	4	0.15	●	●	-
0150 040 0300 015	1.5	4.5		40	3	0.15	●	●	-
0150 040 0400 015	1.5	4.5		40	4	0.15	●	●	-
0200 040 0300 020	2	6.5		40	3	0.2	●	●	-
0200 040 0400 020	2	6.5		40	4	0.2	●	●	-
0250 040 0300 020	2.5	6.5		40	3	0.2	●	●	-
0250 040 0400 020	2.5	6.5		40	4	0.2	●	●	-
0300 040 0300 020	3	9		40	3	0.2	●	●	●
0300 050 0600 020	3	9		50	6	0.2	●	●	●
0400 050 0400 020	4	12		50	4	0.2	●	●	●
0400 050 0600 020	4	12		50	6	0.2	●	●	●
0500 050 0500 020	5	15		50	5	0.2	●	●	●
0500 050 0600 020	5	15		50	6	0.2	●	●	●
0600 050 0600 020	6	16		50	6	0.2	●	●	●
0600 060 0600 020	6	20		60	6	0.2	●	●	●
0800 064 0800 030	8	20		64	8	0.3	●	●	●
1000 070 1000 030	10	22		70	10	0.3	●	●	●
1000 075 1000 030	10	22		75	10	0.3	●	●	●
1200 075 1200 030	12	25		75	12	0.3	●	●	●
1600 090 1600 050	16	32		90	16	0.5	●	●	●
2000 100 2000 050	20	38		100	20	0.5	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

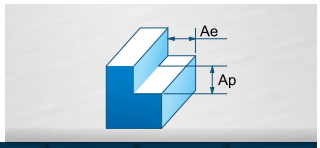
M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
						●																			

Working Material	Cutting Parameter
564	302

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE GR Standard Series Endmills

Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D



2 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
GRAPHITE	M29, M30	1	2	126	0.009	≤1.0D	≤0.10D	40,000	720
		1.5	2	188	0.013	≤1.0D	≤0.10D	40,000	1,069
		2	2	251	0.018	≤1.0D	≤0.10D	40,000	1,419
		2.5	2	314	0.022	≤1.0D	≤0.10D	40,000	1,768
		3	2	350	0.026	≤1.0D	≤0.10D	37,136	1,966
		4	2	350	0.035	≤1.0D	≤0.10D	27,852	1,961
		5	2	350	0.044	≤1.0D	≤0.10D	22,282	1,958
		6	2	350	0.053	≤1.0D	≤0.10D	18,568	1,956
		8	2	350	0.070	≤1.0D	≤0.10D	13,926	1,953
		10	2	350	0.088	≤1.0D	≤0.10D	11,141	1,952
		12	2	350	0.105	≤1.0D	≤0.10D	9,284	1,951
		14	2	350	0.123	≤1.0D	≤0.10D	7,958	1,950
		16	2	350	0.140	≤1.0D	≤0.10D	6,963	1,950
		18	2	350	0.140	≤1.0D	≤0.10D	6,189	1,733
		20	2	350	0.140	≤1.0D	≤0.10D	5,570	1,560
		22	2	350	0.140	≤1.0D	≤0.10D	5,064	1,418
		25	2	350	0.140	≤1.0D	≤0.10D	4,456	1,248

4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
GRAPHITE	M29, M30	1	4	126	0.007	≤1.0D	≤0.10D	40,000	1,080
		1.5	4	188	0.010	≤1.0D	≤0.10D	40,000	1,604
		2	4	251	0.013	≤1.0D	≤0.10D	40,000	2,128
		2.5	4	314	0.017	≤1.0D	≤0.10D	40,000	2,652
		3	4	350	0.020	≤1.0D	≤0.10D	37,136	2,949
		4	4	350	0.026	≤1.0D	≤0.10D	27,852	2,941
		5	4	350	0.033	≤1.0D	≤0.10D	22,282	2,937
		6	4	350	0.040	≤1.0D	≤0.10D	18,568	2,934
		8	4	350	0.053	≤1.0D	≤0.10D	13,926	2,930
		10	4	350	0.066	≤1.0D	≤0.10D	11,141	2,928
		12	4	350	0.079	≤1.0D	≤0.10D	9,284	2,926
		14	4	350	0.092	≤1.0D	≤0.10D	7,958	2,925
		16	4	350	0.105	≤1.0D	≤0.10D	6,963	2,924
		18	4	350	0.105	≤1.0D	≤0.10D	6,189	2,600
		20	4	350	0.105	≤1.0D	≤0.10D	5,570	2,340
		22	4	350	0.105	≤1.0D	≤0.10D	5,064	2,127
		25	4	350	0.105	≤1.0D	≤0.10D	4,456	1,872

BN30

BN 30 STANDARD BALLNOSE CUTTERS

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide BN 30 Standard Ballnose Cutters, 2 flutes

Fraises BN 30 Standard en carbure monobloc, à bout hémisphérique, 2 dents

整体硬质合金 BN 30 系列 球头 立铣刀 2 刃 – 标准长度

VHM Standard BN 30 Radiusschaftfräser, 2 Zähne

Frese cilindriche a raggio in metallo duro integrale, tipo BN 30 Standard, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l 1	l 2	L	d2 (h6)	574* T ... n	923* B0819
0300	3	1.5	9		40	3	●	●
0300 050 06	3	1.5	9		50	6	●	●
0400	4	2	14		50	4	●	●
0400 050 06	4	2	14		50	6	●	●
0500	5	2.5	15		50	5	●	●
0500 050 06	5	2.5	15		50	6	●	●
0600 050	6	3	20		50	6	●	●
0600 060	6	3	20		60	6	●	●
0800	8	4	20		64	8	●	●
1000 70	10	5	22		70	10	●	●
1000 75	10	5	22		75	10	●	●
1200	12	6	25		75	12	●	●
1400	14	7	30		90	14	○	○
1600	16	8	30		90	16	●	●
1800	18	9	38		100	18	○	○
2000	20	10	38		100	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	307

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

BN 30 BALLNOSE CUTTERS - LONG

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide BN 30 Long Ballnose Cutters, 2 flutes
Fraises BN 30 longues en carbure monobloc, à bout hémisphérique, 2 dents
整体硬质合金 BN 30 系列 球头 立铣刀 2 刃 – 中长
VHM lange BN 30 Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 30 lunghe, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l1	l2	L	d2 (h6)	577* T ... n	925* B0819
0300	3	1.5	19		60	3	●	●
0300 075 06	3	1.5	19		75	6	●	●
0400	4	2	19		60	4	●	●
0400 075 06	4	2	19		75	6	●	●
0500	5	2.5	19		60	5	●	●
0500 075 06	5	2.5	19		75	6	●	●
0600	6	3	31		75	6	●	●
0800	8	4	31		75	8	●	●
1000 075	10	5	31		75	10	●	●
1000 100	10	5	31		100	10	●	●
1200	12	6	50		100	12	●	●
1400	14	7	57		125	14	○	○
1600	16	8	57		125	16	●	●
1800	18	9	57		125	18	○	○
2000	20	10	57		125	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	308

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

BN 30 BALLNOSE CUTTERS - EXTRA-LONG

≤ 900 N/mm² + B0819 ≤ 45 HRC

Solid Carbide BN 30 Extra-Long Ballnose Cutters, 2 flutes

Fraises BN 30 extra-longues en carbure monobloc, à bout hémisphérique, 2 dents

整体硬质合金 BN 30 系列 球头 立铣刀 2 刃 – 加长

VHM extra-lange BN 30 Radiusschaftfräser, 2 Zähne

Frese cilindriche a raggio in metallo duro integrale, tipo BN 30 extra-lunghe, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						580*	927*
	D	R	l 1	l 2	L	d2 (h6)	T ... n	B0819
0300	3	1.5	25		100	3	●	●
0300 100 06	3	1.5	25		100	6	●	●
0400	4	2	31		100	4	●	●
0400 100 06	4	2	31		100	6	●	●
0500	5	2.5	31		100	5	●	●
0500 100 06	5	2.5	31		100	6	●	●
0600 100	6	3	38		100	6	●	●
0600 150	6	3	38		150	6	●	●
0800 100	8	4	41		100	8	●	●
0800 150	8	4	41		150	8	●	●
1000 125	10	5	45		125	10	●	●
1000 150	10	5	45		150	10	●	●
1200 125	12	6	75		125	12	●	●
1200 150	12	6	75		150	12	●	●
1400 150	14	7	75		150	14	○	○
1400 200	14	7	75		200	14	○	○
1600 150	16	8	75		150	16	●	●
1600 200	16	8	75		200	16	●	●
1800 150	18	9	75		150	18	○	○
1800 200	18	9	75		200	18	○	○
2000 150	20	10	75		150	20	●	●
2000 200	20	10	75		200	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

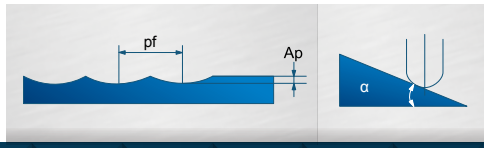
M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	309

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

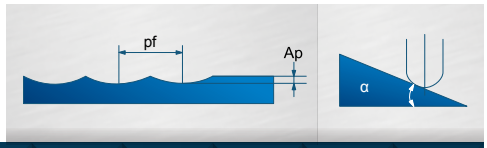
BN 30 Standard Series Ballnose Cutters



2 Z Roughing		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.004 ~ 0.006	≤0.1D	≤0.25D	40000	320 ~ 480
		2	2	234 ~ 251	0.010 ~ 0.013	≤0.1D	≤0.25D	37240 ~ 40000	740 ~ 1040
		3	2	234 ~ 306	0.017 ~ 0.019	≤0.1D	≤0.25D	24830 ~ 32470	840 ~ 1230
		4	2	234 ~ 306	0.023 ~ 0.026	≤0.1D	≤0.25D	18620 ~ 24350	860 ~ 1270
		5	2	234 ~ 306	0.029 ~ 0.033	≤0.1D	≤0.25D	14900 ~ 19480	860 ~ 1290
		6	2	234 ~ 306	0.036 ~ 0.039	≤0.1D	≤0.25D	12410 ~ 16230	890 ~ 1270
		8	2	234 ~ 306	0.044 ~ 0.049	≤0.1D	≤0.25D	9310 ~ 12180	820 ~ 1190
		10	2	234 ~ 306	0.053 ~ 0.058	≤0.1D	≤0.25D	7450 ~ 9740	790 ~ 1130
		12	2	234 ~ 306	0.062 ~ 0.068	≤0.1D	≤0.25D	6210 ~ 8120	770 ~ 1100
		14	2	234 ~ 306	0.071 ~ 0.078	≤0.1D	≤0.25D	5320 ~ 6960	760 ~ 1090
		16	2	234 ~ 306	0.079 ~ 0.087	≤0.1D	≤0.25D	4660 ~ 6090	740 ~ 1060
		18	2	234 ~ 306	0.088 ~ 0.097	≤0.1D	≤0.25D	4140 ~ 5410	730 ~ 1050
		20	2	234 ~ 306	0.097 ~ 0.107	≤0.1D	≤0.25D	3720 ~ 4870	720 ~ 1040
		25	2	234 ~ 306	0.119 ~ 0.131	≤0.1D	≤0.25D	2980 ~ 3900	710 ~ 1020
		α > 15°						
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.003 ~ 0.005	≤0.1D	≤0.25D	40000	240 ~ 400
		2	2	218 ~ 251	0.008 ~ 0.010	≤0.1D	≤0.25D	34760 ~ 40000	560 ~ 800
		3	2	218 ~ 286	0.013 ~ 0.015	≤0.1D	≤0.25D	23170 ~ 30300	600 ~ 910
		4	2	218 ~ 286	0.018 ~ 0.021	≤0.1D	≤0.25D	17380 ~ 22730	630 ~ 950
		5	2	218 ~ 286	0.023 ~ 0.026	≤0.1D	≤0.25D	13900 ~ 18180	640 ~ 950
		6	2	218 ~ 286	0.029 ~ 0.031	≤0.1D	≤0.25D	11590 ~ 15150	670 ~ 940
		8	2	218 ~ 286	0.036 ~ 0.039	≤0.1D	≤0.25D	8690 ~ 11360	630 ~ 890
		10	2	218 ~ 286	0.043 ~ 0.047	≤0.1D	≤0.25D	6950 ~ 9090	600 ~ 850
		12	2	218 ~ 286	0.050 ~ 0.054	≤0.1D	≤0.25D	5790 ~ 7580	580 ~ 820
		14	2	219 ~ 285	0.057 ~ 0.062	≤0.1D	≤0.25D	4970 ~ 6490	570 ~ 800
		16	2	218 ~ 286	0.064 ~ 0.070	≤0.1D	≤0.25D	4340 ~ 5680	560 ~ 800
		18	2	218 ~ 286	0.071 ~ 0.078	≤0.1D	≤0.25D	3860 ~ 5050	550 ~ 790
		20	2	219 ~ 286	0.078 ~ 0.085	≤0.1D	≤0.25D	3480 ~ 4550	540 ~ 770
		25	2	218 ~ 286	0.095 ~ 0.105	≤0.1D	≤0.25D	2780 ~ 3640	530 ~ 760

2 Z Finishing		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.006 ~ 0.008	≤0.03D	≤0.05D	40000	480 ~ 640
		2	2	251	0.014 ~ 0.018	≤0.03D	≤0.05D	40000	1120 ~ 1440
		3	2	328 ~ 377	0.023 ~ 0.027	≤0.03D	≤0.05D	34760 ~ 40000	1600 ~ 2160
		4	2	328 ~ 428	0.032 ~ 0.036	≤0.03D	≤0.05D	26070 ~ 34090	1670 ~ 2450
		5	2	328 ~ 428	0.041 ~ 0.046	≤0.03D	≤0.05D	20860 ~ 27270	1710 ~ 2510
		6	2	328 ~ 428	0.050 ~ 0.055	≤0.03D	≤0.05D	17380 ~ 22730	1740 ~ 2500
		8	2	327 ~ 429	0.062 ~ 0.068	≤0.03D	≤0.05D	13030 ~ 17050	1620 ~ 2320
		10	2	328 ~ 429	0.074 ~ 0.082	≤0.03D	≤0.05D	10430 ~ 13640	1540 ~ 2240
		12	2	328 ~ 428	0.087 ~ 0.095	≤0.03D	≤0.05D	8690 ~ 11360	1510 ~ 2160
		14	2	328 ~ 428	0.099 ~ 0.109	≤0.03D	≤0.05D	7450 ~ 9740	1480 ~ 2120
		16	2	328 ~ 428	0.111 ~ 0.122	≤0.03D	≤0.05D	6520 ~ 8520	1450 ~ 2080
		18	2	327 ~ 429	0.123 ~ 0.136	≤0.03D	≤0.05D	5790 ~ 7580	1420 ~ 2060
		20	2	327 ~ 429	0.136 ~ 0.149	≤0.03D	≤0.05D	5210 ~ 6820	1420 ~ 2030
		25	2	328 ~ 428	0.166 ~ 0.183	≤0.03D	≤0.05D	4170 ~ 5450	1380 ~ 1990
		α > 15°						
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.004 ~ 0.006	≤0.03D	≤0.05D	40000	320 ~ 480
		2	2	251	0.011 ~ 0.013	≤0.03D	≤0.05D	40000	880 ~ 1040
		3	2	284 ~ 371	0.017 ~ 0.020	≤0.03D	≤0.05D	30120 ~ 39390	1020 ~ 1580
		4	2	284 ~ 371	0.024 ~ 0.027	≤0.03D	≤0.05D	22590 ~ 29550	1080 ~ 1600
		5	2	284 ~ 371	0.030 ~ 0.034	≤0.03D	≤0.05D	18070 ~ 23640	1080 ~ 1610
		6	2	284 ~ 371	0.037 ~ 0.041	≤0.03D	≤0.05D	15060 ~ 19700	1110 ~ 1620
		8	2	284 ~ 371	0.046 ~ 0.051	≤0.03D	≤0.05D	11300 ~ 14770	1040 ~ 1510
		10	2	284 ~ 371	0.055 ~ 0.061	≤0.03D	≤0.05D	9040 ~ 11820	990 ~ 1440
		12	2	284 ~ 371	0.064 ~ 0.071	≤0.03D	≤0.05D	7530 ~ 9850	960 ~ 1400
		14	2	284 ~ 371	0.073 ~ 0.081	≤0.03D	≤0.05D	6460 ~ 8440	940 ~ 1370
		16	2	284 ~ 371	0.083 ~ 0.091	≤0.03D	≤0.05D	5650 ~ 7390	940 ~ 1340
		18	2	284 ~ 372	0.092 ~ 0.101	≤0.03D	≤0.05D	5020 ~ 6570	920 ~ 1330
		20	2	284 ~ 371	0.101 ~ 0.111	≤0.03D	≤0.05D	4520 ~ 5910	910 ~ 1310
		25	2	284 ~ 371	0.124 ~ 0.136	≤0.03D	≤0.05D	3610 ~ 4730	900 ~ 1290

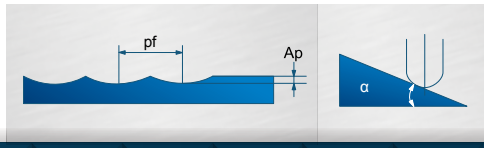
BN 30 Long Series Ballnose Cutters



2 Z Roughing		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.004 ~ 0.006	≤0.1D	≤0.25D	40000	320 ~ 480
		2	2	187 ~ 245	0.010 ~ 0.013	≤0.1D	≤0.25D	29790 ~ 38960	600 ~ 1010
		3	2	187 ~ 245	0.017 ~ 0.019	≤0.1D	≤0.25D	19860 ~ 25970	680 ~ 990
		4	2	187 ~ 245	0.023 ~ 0.026	≤0.1D	≤0.25D	14900 ~ 19480	690 ~ 1010
		5	2	187 ~ 245	0.029 ~ 0.033	≤0.1D	≤0.25D	11920 ~ 15580	690 ~ 1030
		6	2	187 ~ 245	0.036 ~ 0.039	≤0.1D	≤0.25D	9930 ~ 12990	710 ~ 1010
		8	2	187 ~ 245	0.044 ~ 0.049	≤0.1D	≤0.25D	7450 ~ 9740	660 ~ 950
		10	2	187 ~ 245	0.053 ~ 0.058	≤0.1D	≤0.25D	5960 ~ 7790	630 ~ 900
		12	2	187 ~ 245	0.062 ~ 0.068	≤0.1D	≤0.25D	4970 ~ 6490	620 ~ 880
		14	2	187 ~ 245	0.071 ~ 0.078	≤0.1D	≤0.25D	4260 ~ 5570	600 ~ 870
		16	2	187 ~ 245	0.079 ~ 0.087	≤0.1D	≤0.25D	3720 ~ 4870	590 ~ 850
		18	2	187 ~ 245	0.088 ~ 0.097	≤0.1D	≤0.25D	3310 ~ 4330	580 ~ 840
		20	2	187 ~ 245	0.097 ~ 0.107	≤0.1D	≤0.25D	2980 ~ 3900	580 ~ 830
		25	2	187 ~ 245	0.119 ~ 0.131	≤0.1D	≤0.25D	2380 ~ 3120	570 ~ 820
		α > 15°						
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.003 ~ 0.005	≤0.1D	≤0.25D	40000	240 ~ 400
		2	2	175 ~ 228	0.008 ~ 0.010	≤0.1D	≤0.25D	27810 ~ 36360	440 ~ 730
		3	2	175 ~ 228	0.013 ~ 0.015	≤0.1D	≤0.25D	18540 ~ 24240	480 ~ 730
		4	2	175 ~ 228	0.018 ~ 0.021	≤0.1D	≤0.25D	13900 ~ 18180	500 ~ 760
		5	2	175 ~ 229	0.023 ~ 0.026	≤0.1D	≤0.25D	11120 ~ 14550	510 ~ 760
		6	2	175 ~ 228	0.029 ~ 0.031	≤0.1D	≤0.25D	9270 ~ 12120	540 ~ 750
		8	2	175 ~ 228	0.036 ~ 0.039	≤0.1D	≤0.25D	6950 ~ 9090	500 ~ 710
		10	2	175 ~ 228	0.043 ~ 0.047	≤0.1D	≤0.25D	5560 ~ 7270	480 ~ 680
		12	2	175 ~ 228	0.050 ~ 0.054	≤0.1D	≤0.25D	4630 ~ 6060	460 ~ 650
		14	2	175 ~ 228	0.057 ~ 0.062	≤0.1D	≤0.25D	3970 ~ 5190	450 ~ 640
		16	2	175 ~ 229	0.064 ~ 0.070	≤0.1D	≤0.25D	3480 ~ 4550	450 ~ 640
		18	2	175 ~ 228	0.071 ~ 0.078	≤0.1D	≤0.25D	3090 ~ 4040	440 ~ 630
		20	2	175 ~ 229	0.078 ~ 0.085	≤0.1D	≤0.25D	2780 ~ 3640	430 ~ 620
		25	2	174 ~ 229	0.095 ~ 0.105	≤0.1D	≤0.25D	2220 ~ 2910	420 ~ 610

2 Z Finishing		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.006 ~ 0.008	≤0.03D	≤0.05D	40000	480 ~ 640
		2	2	251	0.014 ~ 0.018	≤0.03D	≤0.05D	40000	1120 ~ 1440
		3	2	262 ~ 343	0.023 ~ 0.027	≤0.03D	≤0.05D	27810 ~ 36360	1280 ~ 1960
		4	2	262 ~ 343	0.032 ~ 0.036	≤0.03D	≤0.05D	20860 ~ 27270	1340 ~ 1960
		5	2	262 ~ 343	0.041 ~ 0.046	≤0.03D	≤0.05D	16680 ~ 21820	1370 ~ 2010
		6	2	262 ~ 343	0.050 ~ 0.055	≤0.03D	≤0.05D	13900 ~ 18180	1390 ~ 2000
		8	2	262 ~ 343	0.062 ~ 0.068	≤0.03D	≤0.05D	10430 ~ 13640	1290 ~ 1860
		10	2	262 ~ 343	0.074 ~ 0.082	≤0.03D	≤0.05D	8340 ~ 10910	1230 ~ 1790
		12	2	262 ~ 343	0.087 ~ 0.095	≤0.03D	≤0.05D	6950 ~ 9090	1210 ~ 1730
		14	2	262 ~ 343	0.099 ~ 0.109	≤0.03D	≤0.05D	5960 ~ 7790	1180 ~ 1700
		16	2	262 ~ 343	0.111 ~ 0.122	≤0.03D	≤0.05D	5210 ~ 6820	1160 ~ 1660
		18	2	262 ~ 343	0.123 ~ 0.136	≤0.03D	≤0.05D	4630 ~ 6060	1140 ~ 1650
		20	2	262 ~ 342	0.136 ~ 0.149	≤0.03D	≤0.05D	4170 ~ 5450	1130 ~ 1620
		25	2	262 ~ 342	0.166 ~ 0.183	≤0.03D	≤0.05D	3340 ~ 4360	1110 ~ 1600
		α > 15°						
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.004 ~ 0.006	≤0.03D	≤0.05D	40000	320 ~ 480
		2	2	227 ~ 251	0.011 ~ 0.013	≤0.03D	≤0.05D	36150 ~ 40000	800 ~ 1040
		3	2	227 ~ 297	0.017 ~ 0.020	≤0.03D	≤0.05D	24100 ~ 31520	820 ~ 1260
		4	2	227 ~ 297	0.024 ~ 0.027	≤0.03D	≤0.05D	18070 ~ 23640	870 ~ 1280
		5	2	227 ~ 297	0.030 ~ 0.034	≤0.03D	≤0.05D	14460 ~ 18910	870 ~ 1290
		6	2	227 ~ 297	0.037 ~ 0.041	≤0.03D	≤0.05D	12050 ~ 15760	890 ~ 1290
		8	2	227 ~ 297	0.046 ~ 0.051	≤0.03D	≤0.05D	9040 ~ 11820	830 ~ 1210
		10	2	227 ~ 297	0.055 ~ 0.061	≤0.03D	≤0.05D	7230 ~ 9450	800 ~ 1150
		12	2	227 ~ 297	0.064 ~ 0.071	≤0.03D	≤0.05D	6020 ~ 7880	770 ~ 1120
		14	2	227 ~ 297	0.073 ~ 0.081	≤0.03D	≤0.05D	5160 ~ 6750	750 ~ 1090
		16	2	227 ~ 297	0.083 ~ 0.091	≤0.03D	≤0.05D	4520 ~ 5910	750 ~ 1080
		18	2	227 ~ 297	0.092 ~ 0.101	≤0.03D	≤0.05D	4020 ~ 5250	740 ~ 1060
		20	2	227 ~ 297	0.101 ~ 0.111	≤0.03D	≤0.05D	3610 ~ 4730	730 ~ 1050
		25	2	227 ~ 297	0.124 ~ 0.136	≤0.03D	≤0.05D	2890 ~ 3780	720 ~ 1030

BN 30 Extra-Long Series Ballnose Cutters



2 Z Roughing		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	117 ~ 126	0.004 ~ 0.006	≤0.1D	≤0.25D	37240 ~ 40000	300 ~ 480
		2	2	117 ~ 153	0.010 ~ 0.013	≤0.1D	≤0.25D	18620 ~ 24350	370 ~ 630
		3	2	117 ~ 153	0.017 ~ 0.019	≤0.1D	≤0.25D	12410 ~ 16230	420 ~ 620
		4	2	117 ~ 153	0.023 ~ 0.026	≤0.1D	≤0.25D	9310 ~ 12180	430 ~ 630
		5	2	117 ~ 153	0.029 ~ 0.033	≤0.1D	≤0.25D	7450 ~ 9740	430 ~ 640
		6	2	117 ~ 153	0.036 ~ 0.039	≤0.1D	≤0.25D	6210 ~ 8120	450 ~ 630
		8	2	117 ~ 153	0.044 ~ 0.049	≤0.1D	≤0.25D	4660 ~ 6090	410 ~ 600
		10	2	117 ~ 153	0.053 ~ 0.058	≤0.1D	≤0.25D	3720 ~ 4870	390 ~ 560
		12	2	117 ~ 153	0.062 ~ 0.068	≤0.1D	≤0.25D	3100 ~ 4060	380 ~ 550
		14	2	117 ~ 153	0.071 ~ 0.078	≤0.1D	≤0.25D	2660 ~ 3480	380 ~ 540
		16	2	117 ~ 153	0.079 ~ 0.087	≤0.1D	≤0.25D	2330 ~ 3040	370 ~ 530
		18	2	117 ~ 153	0.088 ~ 0.097	≤0.1D	≤0.25D	2070 ~ 2710	360 ~ 530
		20	2	117 ~ 153	0.097 ~ 0.107	≤0.1D	≤0.25D	1860 ~ 2440	360 ~ 520
		25	2	117 ~ 153	0.119 ~ 0.131	≤0.1D	≤0.25D	1490 ~ 1950	350 ~ 510
		α > 15°						
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	109 ~ 126	0.003 ~ 0.005	≤0.1D	≤0.25D	34760 ~ 40000	210 ~ 400
		2	2	109 ~ 143	0.008 ~ 0.010	≤0.1D	≤0.25D	17380 ~ 22730	280 ~ 450
		3	2	109 ~ 143	0.013 ~ 0.015	≤0.1D	≤0.25D	11590 ~ 15150	300 ~ 450
		4	2	109 ~ 143	0.018 ~ 0.021	≤0.1D	≤0.25D	8690 ~ 11360	310 ~ 480
		5	2	109 ~ 143	0.023 ~ 0.026	≤0.1D	≤0.25D	6950 ~ 9090	320 ~ 470
		6	2	109 ~ 143	0.029 ~ 0.031	≤0.1D	≤0.25D	5790 ~ 7580	340 ~ 470
		8	2	109 ~ 143	0.036 ~ 0.039	≤0.1D	≤0.25D	4340 ~ 5680	310 ~ 440
		10	2	109 ~ 143	0.043 ~ 0.047	≤0.1D	≤0.25D	3480 ~ 4550	300 ~ 430
		12	2	109 ~ 143	0.050 ~ 0.054	≤0.1D	≤0.25D	2900 ~ 3790	290 ~ 410
		14	2	109 ~ 143	0.057 ~ 0.062	≤0.1D	≤0.25D	2480 ~ 3250	280 ~ 400
		16	2	109 ~ 143	0.064 ~ 0.070	≤0.1D	≤0.25D	2170 ~ 2840	280 ~ 400
		18	2	109 ~ 143	0.071 ~ 0.078	≤0.1D	≤0.25D	1930 ~ 2530	270 ~ 390
		20	2	109 ~ 143	0.078 ~ 0.085	≤0.1D	≤0.25D	1740 ~ 2270	270 ~ 390
		25	2	109 ~ 143	0.095 ~ 0.105	≤0.1D	≤0.25D	1390 ~ 1820	260 ~ 380

2 Z Finishing		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.006 ~ 0.008	≤0.03D	≤0.05D	40000	480 ~ 640
		2	2	164 ~ 214	0.014 ~ 0.018	≤0.03D	≤0.05D	26070 ~ 34090	730 ~ 1230
		3	2	164 ~ 214	0.023 ~ 0.027	≤0.03D	≤0.05D	17380 ~ 22730	800 ~ 1230
		4	2	164 ~ 214	0.032 ~ 0.036	≤0.03D	≤0.05D	13030 ~ 17050	830 ~ 1230
		5	2	164 ~ 214	0.041 ~ 0.046	≤0.03D	≤0.05D	10430 ~ 13640	860 ~ 1250
		6	2	164 ~ 214	0.050 ~ 0.055	≤0.03D	≤0.05D	8690 ~ 11360	870 ~ 1250
		8	2	164 ~ 214	0.062 ~ 0.068	≤0.03D	≤0.05D	6520 ~ 8520	810 ~ 1160
		10	2	164 ~ 214	0.074 ~ 0.082	≤0.03D	≤0.05D	5210 ~ 6820	770 ~ 1120
		12	2	164 ~ 214	0.087 ~ 0.095	≤0.03D	≤0.05D	4340 ~ 5680	760 ~ 1080
		14	2	164 ~ 214	0.099 ~ 0.109	≤0.03D	≤0.05D	3720 ~ 4870	740 ~ 1060
		16	2	164 ~ 214	0.111 ~ 0.122	≤0.03D	≤0.05D	3260 ~ 4260	720 ~ 1040
		18	2	164 ~ 214	0.123 ~ 0.136	≤0.03D	≤0.05D	2900 ~ 3790	710 ~ 1030
		20	2	164 ~ 214	0.136 ~ 0.149	≤0.03D	≤0.05D	2610 ~ 3410	710 ~ 1020
		25	2	164 ~ 214	0.166 ~ 0.183	≤0.03D	≤0.05D	2090 ~ 2730	690 ~ 1000
		α > 15°						
CARBON STEEL, ALLOY STEEL, PRE-HARDENED STEEL (~40 HRC) AISI 1055, AISI H13, AISI D12, NAK	M02, M03, M04, M05, M06, M07, M08, M09, M10, M11, M12, M13, M14,M15,M18, M25	1	2	126	0.004 ~ 0.006	≤0.03D	≤0.05D	40000	320 ~ 480
		2	2	142 ~ 186	0.011 ~ 0.013	≤0.03D	≤0.05D	22590 ~ 29550	500 ~ 770
		3	2	142 ~ 186	0.017 ~ 0.020	≤0.03D	≤0.05D	15060 ~ 19700	510 ~ 790
		4	2	142 ~ 186	0.024 ~ 0.027	≤0.03D	≤0.05D	11300 ~ 14770	540 ~ 800
		5	2	142 ~ 186	0.030 ~ 0.034	≤0.03D	≤0.05D	9040 ~ 11820	540 ~ 800
		6	2	142 ~ 186	0.037 ~ 0.041	≤0.03D	≤0.05D	7530 ~ 9850	560 ~ 810
		8	2	142 ~ 186	0.046 ~ 0.051	≤0.03D	≤0.05D	5650 ~ 7390	520 ~ 750
		10	2	142 ~ 186	0.055 ~ 0.061	≤0.03D	≤0.05D	4520 ~ 5910	500 ~ 720
		12	2	142 ~ 185	0.064 ~ 0.071	≤0.03D	≤0.05D	3770 ~ 4920	480 ~ 700
		14	2	142 ~ 186	0.073 ~ 0.081	≤0.03D	≤0.05D	3230 ~ 4220	470 ~ 680
		16	2	142 ~ 185	0.083 ~ 0.091	≤0.03D	≤0.05D	2820 ~ 3690	470 ~ 670
		18	2	142 ~ 185	0.092 ~ 0.101	≤0.03D	≤0.05D	2510 ~ 3280	460 ~ 660
		20	2	142 ~ 185	0.101 ~ 0.111	≤0.03D	≤0.05D	2260 ~ 2950	460 ~ 650
		25	2	142 ~ 185	0.124 ~ 0.136	≤0.03D	≤0.05D	1810 ~ 2360	450 ~ 640

BN45

BN 45 STANDARD BALLNOSE CUTTERS

≤ 1.300 N/mm² + B0819 ≤ 45 HRC

Solid Carbide BN 45 Standard Ballnose Cutters, 2 flutes
Fraises BN 45 Standard en carbure monobloc, à bout hémisphérique, 2 dents
整体硬口合金 BN 45 系列 球口 立口刀 2 刃 – 口准口度
VHM Standard BN 45 Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 45 Standard, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						C36*	929*
	D	R	l 1	l 2	L	d2 (h6)	G6110	B0819
0100 040 03	1	0.5	3		40	3	●	●
0100 040 04	1	0.5	3		40	4	●	●
0150 040 03	1.5	0.75	3		40	3	●	●
0150 040 04	1.5	0.75	3		40	4	●	●
0200 040 03	2	1	4		40	3	●	●
0200 040 04	2	1	4		40	4	●	●
0250 040 03	2.5	1.25	4		40	3	●	●
0250 040 04	2.5	1.25	4		40	4	●	●
0300	3	1.5	5		40	3	●	●
0300 050 06	3	1.5	5		50	6	●	●
0350 050 04	3.5	1.75	8		50	4	●	●
0400	4	2	8		50	4	●	●
0400 050 06	4	2	8		50	6	●	●
0450 050 05	4.5	2.25	9		50	5	●	●
0500	5	2.5	9		50	5	●	●
0500 050 06	5	2.5	9		50	6	●	●
0550 050 06	5.5	2.75	10		50	6	●	●
0600 050	6	3	10		50	6	●	●
0600 060	6	3	10		60	6	●	●
0700 064 08	7	3.5	12		64	8	●	●
0800	8	4	12		64	8	●	●
0900 070 10	9	4.5	14		70	10	●	●
1000 070	10	5	14		70	10	●	●
1000 075	10	5	14		75	10	●	●
1100 075 12	11	5.5	16		75	12	●	●
1200	12	6	16		75	12	●	●
1400	14	7	32		90	14	●	●
1600	16	8	32		90	16	●	●
1800	18	9	38		100	18	●	●
2000	20	10	38		100	20	●	●
2200	22	11	40		100	22	●	●
2500	25	12.5	40		100	25	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

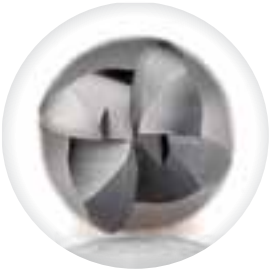
Working Material	Cutting Parameter
564	327

若有技术规格变更，恕不事先通知

BN 45 STANDARD BALLNOSE CUTTERS

≤ 1.300 N/mm² + B0819 ≤ 45 HRC

Solid Carbide BN 45 Standard Ballnose Cutters, 4 flutes
Fraises BN 45 Standard en carbure monobloc, à bout hémisphérique, 4 dents
整体硬口合金 BN 45 系列 球口 立口刀 4 刃 – 口准口度
VHM Standard BN 45 Radiusschaftfräser, 4 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 45 Standard, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l 1	l 2	L	d2 (h6)	B82* B0819
0300	3	1.5	5		40	3	●
0300 050 06	3	1.5	5		50	6	●
0350 050 04	3.5	1.75	8		50	4	●
0400	4	2	8		50	4	●
0400 050 06	4	2	8		50	6	●
0450 050 05	4.5	2.25	9		50	5	●
0500	5	2.5	9		50	5	●
0500 050 06	5	2.5	9		50	6	●
0550 050 06	5.5	2.75	10		50	6	●
0600 050	6	3	10		50	6	●
0600 060	6	3	10		60	6	●
0700 064 08	7	3.5	12		64	8	●
0800	8	4	12		64	8	●
0900 070 10	9	4.5	14		70	10	●
1000 070	10	5	14		70	10	●
1000 075	10	5	14		75	10	●
1100 075 12	11	5.5	16		75	12	●
1200	12	6	16		75	12	●
1400	14	7	32		90	14	●
1600	16	8	32		90	16	●
1800	18	9	38		100	18	●
2000	20	10	38		100	20	●
2200	22	11	40		100	22	●
2500	25	12.5	40		100	25	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	329

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

BN 45 BALLNOSE CUTTERS - LONG

≤ 1.300 N/mm² + B0819 ≤ 45 HRC

Solid Carbide BN 45 Long Ballnose Cutters, 2 flutes
Fraises BN 45 longues en carbure monobloc, à bout hémisphérique, 2 dents
整体硬口合金 BN 45 系列 球口 立口刀 2 刃 – 中口
VHM lange BN 45 Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 45 lunghe, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						C65*	931*
	D	R	l 1	l 2	L	d2 (h6)	G6110	B0819
0100 060 03	1	0.5	3		60	3	●	●
0100 075 04	1	0.5	3		75	4	●	●
0150 060 03	1.5	0.75	3		60	3	●	●
0150 075 04	1.5	0.75	3		75	4	●	●
0200 060 03	2	1	4		60	3	●	●
0200 075 04	2	1	4		75	4	●	●
0250 060 03	2.5	1.25	4		60	3	●	●
0250 075 04	2.5	1.25	4		75	4	●	●
0300	3	1.5	5		60	3	●	●
0300 075 06	3	1.5	5		75	6	●	●
0400	4	2	8		60	4	●	●
0400 075 06	4	2	8		75	6	●	●
0500	5	2.5	9		60	5	●	●
0500 075 06	5	2.5	9		75	6	●	●
0600	6	3	10		75	6	●	●
0800	8	4	12		75	8	●	●
1000 075	10	5	14		75	10	●	●
1000 100	10	5	14		100	10	●	●
1200	12	6	16		100	12	●	●
1400	14	7	32		125	14	●	●
1600	16	8	32		125	16	●	●
1800	18	9	38		125	18	●	●
2000	20	10	38		125	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	331

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

BN 45 BALLNOSE CUTTERS - EXTRA-LONG

≤ 1.300 N/mm² + B0819 ≤ 45 HRC

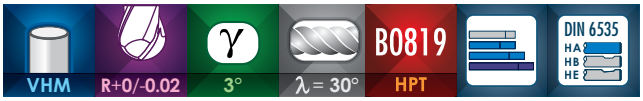
Solid Carbide BN 45 Extra-Long Ballnose Cutters, 2 flutes

Fraises BN 45 extra-longues en carbure monobloc, à bout hémisphérique, 2 dents

整体硬质合金 BN 45 系列 球头 立铣刀 2 刃 – 加长

VHM extra-lange BN 45 Radiusschaftfräser, 2 Zähne

Frese cilindriche a raggio in metallo duro integrale, tipo BN 45 extra-lunghe, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l 1	l 2	L	d2 (h6)	933* B0819
0100 100 03	1	0.5	3		100	3	●
0100 100 04	1	0.5	3		100	4	●
0150 100 03	1.5	0.75	3		100	3	●
0150 100 04	1.5	0.75	3		100	4	●
0200 100 03	2	1	4		100	3	●
0200 100 04	2	1	4		100	4	●
0250 100 03	2.5	1.25	4		100	3	●
0250 100 04	2.5	1.25	4		100	4	●
0300	3	1.5	5		100	3	●
0300 100 06	3	1.5	5		100	6	●
0400	4	2	8		100	4	●
0400 100 06	4	2	8		100	6	●
0500	5	2.5	9		100	5	●
0500 100 06	5	2.5	9		100	6	●
0600 100	6	3	10		100	6	●
0600 150	6	3	10		150	6	●
0800 100	8	4	12		100	8	●
0800 150	8	4	12		150	8	●
1000 125	10	5	14		125	10	●
1000 150	10	5	14		150	10	●
1200 125	12	6	16		125	12	●
1200 150	12	6	16		150	12	●
1400 150	14	7	32		150	14	●
1400 200	14	7	32		200	14	●
1600 150	16	8	32		150	16	●
1600 200	16	8	32		200	16	●
1800 150	18	9	38		150	18	●
1800 200	18	9	38		200	18	●
2000 150	20	10	38		150	20	●
2000 200	20	10	38		200	20	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	335

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

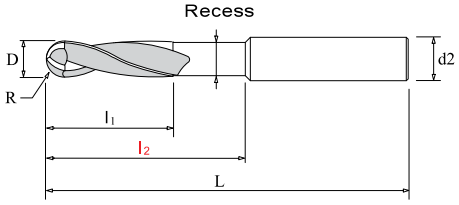
BN 45 STANDARD BALLNOSE CUTTERS

≤ 1.300 N/mm² + B0819 / B0909 ≤ 52 HRC

Solid Carbide BN 45 Standard Ballnose Cutters, 2 flutes
Fraises BN 45 Standard en carbure monobloc, à bout hémisphérique, 2 dents
整体硬口合金 BN 45 系列 球口 立口刀 2 刃 – 口准口度
VHM Standard BN 45 Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 45 Standard, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						473*	940*	A57*
	D	R	l1	l2	L	d2 (h6)	G6110	B0819	B0909
0100 040 03	1	0.5	3	4	40	3	○	●	●
0100 040 04	1	0.5	3	4	40	4	○	●	●
0150 040 03	1.5	0.75	3	6	40	3	○	●	●
0150 040 04	1.5	0.75	3	6	40	4	○	●	●
0200 040 03	2	1	4	8	40	3	○	●	●
0200 040 04	2	1	4	8	40	4	○	●	●
0250 040 03	2.5	1.25	4	10	40	3	○	●	●
0250 040 04	2.5	1.25	4	10	40	4	○	●	●
0300	3	1.5	5	14	40	3	○	●	●
0300 050 06	3	1.5	5	14	50	6	○	●	●
0400	4	2	8	20	50	4	○	●	●
0400 050 06	4	2	8	20	50	6	○	●	●
0500	5	2.5	9	20	50	5	○	●	●
0500 050 06	5	2.5	9	20	50	6	○	●	●
0600 050	6	3	10	20	50	6	○	●	●
0600 060	6	3	10	30	60	6	○	●	●
0800	8	4	12	30	64	8	○	●	●
1000	10	5	14	32	70	10	○	●	●
1200	12	6	16	38	75	12	○	●	●
1400	14	7	32	44	90	14	○	●	●
1600	16	8	32	46	90	16	○	●	●
1800	18	9	38	53	100	18	○	●	●
2000	20	10	38	58	100	20	○	●	●
2200	22	11	40	58	100	22	○	●	●
2500	25	12.5	40	58	100	25	○	●	●
								941*	A58*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	327

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

BN 45 STANDARD BALLNOSE CUTTERS

≤ 1.300 N/mm² + G6110 ≤ 52 HRC

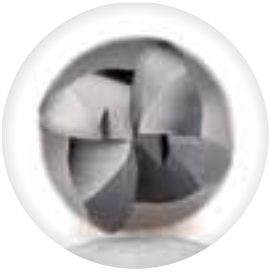
Solid Carbide BN 45 Standard Ballnose Cutters, 4 flutes

Fraises BN 45 Standard en carbure monobloc, à bout hémisphérique, 4 dents

整体硬口合金 BN 45 系列 球口 立口刀 4 刃 – 口准口度

VHM Standard BN 45 Radiusschaftfräser, 4 Zähne

Frese cilindriche a raggio in metallo duro integrale, tipo BN 45 Standard, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l 1	l 2	L	d2 (h6)	485* G6110
0300	3	1.5	5		40	3	O
0300 050 06	3	1.5	5		50	6	O
0400	4	2	8		50	4	O
0400 050 06	4	2	8		50	6	O
0500	5	2.5	9		50	5	O
0500 050 06	5	2.5	9		50	6	O
0600 050	6	3	10		50	6	O
0600 060	6	3	10		60	6	O
0800	8	4	12		64	8	O
1000	10	5	14		70	10	O
1200	12	6	16		75	12	O
1400	14	7	32		90	14	O
1600	16	8	32		90	16	O
1800	18	9	38		100	18	O
2000	20	10	38		100	20	O
2200	22	11	40		100	22	O
2500	25	12.5	40		100	25	O

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															•		•		•			•		•	•

M26	M27	M28	M33	M01	M29	M30

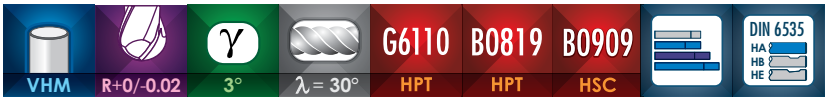
Working Material	Cutting Parameter
564	329

若有技术规格变更，恕不事先通知

BN 45 BALLNOSE CUTTERS - LONG

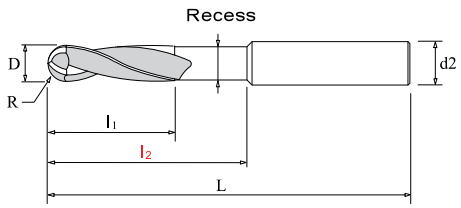
≤ 1.300 N/mm² + B0819 / B0909 ≤ 52 HRC

Solid Carbide BN 45 Long Ballnose Cutters, 2 flutes
Fraises BN 45 longues en carbure monobloc, à bout hémisphérique, 2 dents
整体硬质合金 BN 45 系列 球头 立铣刀 2 刃 – 中长
VHM lange BN 45 Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 45 lunghe, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						487*	493*	942*	A59*
=*+Ødata	D	R	l1	l2	L	d2 (h6)	T ... n	G6110	B0819	B0909
0100 060 03	1	0.5	3	7	60	3	●	○	●	●
0100 075 04	1	0.7	3	7	75	4	●	○	●	●
0150 060 03	1.5	0.75	3	10	60	3	●	○	●	●
0150 075 04	1.5	0.75	3	10	75	4	●	○	●	●
0200 060 03	2	1	4	14	60	3	●	○	●	●
0200 075 04	2	1	4	14	75	4	●	○	●	●
0250 060 03	2.5	1.25	4	18	60	3	●	○	●	●
0250 075 04	2.5	1.25	4	18	75	6	●	○	●	●
0300	3	1.5	5	21	60	4	●	○	●	●
0300 075 06	3	1.5	5	21	75	6	●	○	●	●
0400	4	2	8	28	60	4	●	○	●	●
0400 075 06	4	2	8	28	75	6	●	○	●	●
0500	5	2.5	9	32	60	5	●	○	●	●
0500 075 06	5	2.5	9	32	75	6	●	○	●	●
0600	6	3	10	40	75	6	●	○	●	●
0800	8	4	10	40	75	8	●	○	●	●
1000 075	10	5	12	40	75	10	●	○	●	●
1000 100	10	5	14	60	100	10	●	○	●	●
1200	12	6	16	60	100	12	●	○	●	●
1400	14	7	32	80	125	14	○	○	●	●
1600	16	8	32	80	125	16	●	○	●	●
1800	18	9	38	80	125	18	○	○	●	●
2000	20	10	38	80	125	20	●	○	●	●
							488*		943*	A60*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M16	M20	M17	M19	M21	M23	M24	M26
														●		●		●			●		●	●

M27	M28	M01	M29	M30

Working Material	Cutting Parameter
564	331

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

BN 45 BALLNOSE CUTTERS - LONG

≤ 1.300 N/mm² + G6110 ≤ 52 HRC

Solid Carbide BN 45 Long Ballnose Cutters, 4 flutes
Fraises BN 45 longues en carbure monobloc, à bout hémisphérique, 4 dents
整体硬质合金 BN 45 系列 球头 立铣刀 4 刃 – 中长
VHM lange BN 45 Radiusschaftfräser, 4 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 45 lunghe, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l 1	l 2	L	d2 (h6)	501* G6110
0300	3	1.5	5		60	3	O
0300 075 06	3	1.5	5		75	6	O
0400	4	2	8		60	4	O
0400 075 06	4	2	8		75	6	O
0500	5	2.5	9		60	5	O
0500 075 06	5	2.5	9		75	6	O
0600	6	3	10		75	6	O
0800	8	4	12		75	8	O
1000 075	10	5	14		75	10	O
1000 100	10	5	14		100	10	O
1200	12	6	16		100	12	O
1400	14	7	32		125	14	O
1600	16	8	32		125	16	O
1800	18	9	38		125	18	O
2000	20	10	38		125	20	O

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															•		•		•			•		•	•

M26	M27	M28	M33	M01	M29	M30

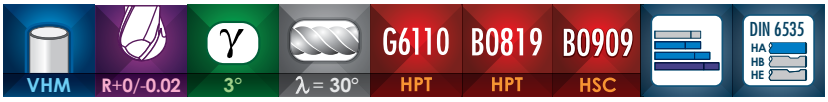
Working Material	Cutting Parameter
564	333

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

BN 45 BALLNOSE CUTTERS - EXTRA-LONG

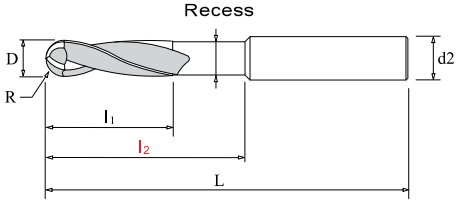
≤ 1.300 N/mm² + B0819 / B0909 ≤ 52 HRC

Solid Carbide BN 45 Extra-Long Ballnose Cutters, 2 flutes
Fraises BN 45 extra-longues en carbure monobloc, à bout hémisphérique, 2 dents
整体硬质合金 BN 45 系列 球头 立铣刀 2 刃 – 加长
VHM extra-lange BN 45 Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 45 extra-lunghe, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						509*	944*	A61*
=*+Ødata	D	R	l1	l2	L	d2 (h6)	G6110	B0819	B0909
0100 100 03	1	0.5	3	10	100	3	○	●	●
0100 100 04	1	0.5	3	10	100	4	○	●	●
0150 100 03	1.5	0.75	3	15	100	3	○	●	●
0150 100 04	1.5	0.75	3	15	100	4	○	●	●
0200 100 03	2	1	4	20	100	3	○	●	●
0200 100 04	2	1	4	20	100	4	○	●	●
0250 100 03	2.5	1.25	4	25	100	3	○	●	●
0250 100 04	2.5	1.25	4	25	100	4	○	●	●
0300	3	1.5	5	30	100	3	○	●	●
0300 100 06	3	1.5	5	30	100	6	○	●	●
0400	4	2	8	40	100	4	○	●	●
0400 100 06	4	2	8	40	100	6	○	●	●
0500	5	2.5	9	50	100	5	○	●	●
0500 100 06	5	2.5	9	50	100	6	○	●	●
0600 100	6	3	10	60	100	6	○	●	●
0600 150	6	3	10	60	150	6	○	●	●
0800 100	8	4	12	60	100	8	○	●	●
0800 150	8	4	12	80	150	8	○	●	●
1000 125	10	5	14	85	125	10	○	●	●
1000 150	10	5	14	100	150	10	○	●	●
1200 125	12	6	16	85	125	12	○	●	●
1200 150	12	6	16	110	150	12	○	●	●
1400 150	14	7	32	110	150	14	○	●	●
1400 200	14	7	32	150	200	14	○	●	●
1600 150	16	8	32	110	150	16	○	●	●
1600 200	16	8	32	150	200	16	○	●	●
1800 150	18	9	38	110	150	18	○	●	●
1800 200	18	9	38	150	200	18	○	●	●
2000 150	20	10	38	110	150	20	○	●	●
2000 200	20	10	38	150	200	20	○	●	●
								945*	A62*

Recess



Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	335

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

BN 45 MINIATURE BALLNOSE CUTTERS

≤ 1.300 N/mm² + B0819 / B0909 ≤ 52 HRC

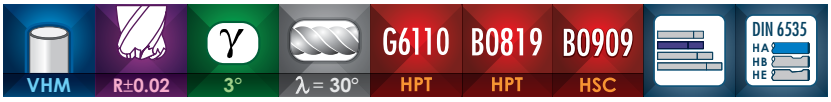
Solid Carbide BN 45 Miniature Ballnose Cutters, 2 flutes

Micro-fraises BN 45 en carbure monobloc à bout hémisphérique, 2 dents

整体硬质合金 BN 45 系列 微型球头 立铣刀 2 刃 – 标准长度

VHM Radiuskleinstschaftfräser BN 45, 2 Zähne

Micro-frese cilindriche a raggio in metallo duro integrale, tipo BN 45, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						566*	935*	A63*
	D	R	l1	l2	L	d2 (h6)	G6110	B0819	B0909
0020 03	0.2	0.1	0.4		40	3	●	●	●
0020 04	0.2	0.1	0.4		40	4	●	●	●
0030 03	0.3	0.15	0.6		40	3	●	●	●
0030 04	0.3	0.15	0.6		40	4	●	●	●
0040 03	0.4	0.2	0.8		40	3	●	●	●
0040 04	0.4	0.2	0.8		40	4	●	●	●
0050 03	0.5	0.25	1.2		40	3	●	●	●
0050 04	0.5	0.25	1.2		40	4	●	●	●
0060 03	0.6	0.3	1.4		40	3	●	●	●
0060 04	0.6	0.3	1.4		40	4	●	●	●
0070 03	0.7	0.35	1.6		40	3	●	●	●
0070 04	0.7	0.35	1.6		40	4	●	●	●
0080 03	0.8	0.4	1.8		40	3	●	●	●
0080 04	0.8	0.4	1.8		40	4	●	●	●
0090 03	0.9	0.45	2		40	3	●	●	●
0090 04	0.9	0.45	2		40	4	●	●	●

Ø mm	Tol. µm
0.1 ~ 0.7	0 / -12
0.7 ~ 4.0	0 / -20

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●				●	●	●

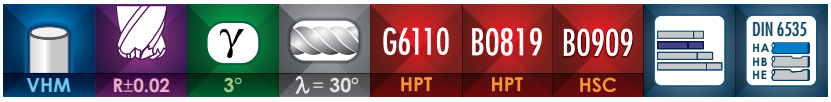
M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	337

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

BN 45 MINIATURE BALLNOSE CUTTERS - with Long Neck

≤ 1.300 N/mm² + B0819 / B0909 ≤ 52 HRC



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							C57*	936*	A65*
=*+Ødata	D	R	l 1	l 2	L	d1	d2 (h6)	G6110	B0819	B0909
0050 060 0600 025	0.5	0.25	0.5	2.5	60	0.45	6	●	●	●
0060 060 0600 060	0.6	0.30	0.6	6.0	60	0.55	6	●	●	●
0080 060 0600 040	0.8	0.40	0.8	4.0	60	0.75	6	●	●	●
0080 060 0600 080	0.8	0.40	0.8	8.0	60	0.75	6	●	●	●
0100 060 0600 050	1.0	0.50	1.5	5.0	60	0.95	6	●	●	●
0100 060 0600 080	1.0	0.50	1.5	8.0	60	0.95	6	●	●	●
0100 060 0600 120	1.0	0.50	1.5	12.0	60	0.93	6	●	●	●
0120 060 0600 060	1.2	0.60	1.8	6.0	60	1.15	6	●	●	●
0150 060 0600 080	1.5	0.75	2.3	8.0	60	1.45	6	●	●	●
0150 060 0600 120	1.5	0.75	2.3	12.0	60	1.43	6	●	●	●
0150 060 0600 160	1.5	0.75	2.3	16.0	60	1.41	6	●	●	●
0160 060 0600 160	1.6	0.80	2.4	16.0	60	1.51	6	●	●	●
0180 060 0600 160	1.8	0.90	2.7	16.0	60	1.71	6	●	●	●
0200 060 0600 120	2.0	1.00	3.0	12.0	60	1.93	6	●	●	●
0200 060 0600 160	2.0	1.00	3.0	16.0	60	1.91	6	●	●	●
0200 075 0600 200	2.0	1.00	3.0	20.0	75	1.89	6	●	●	●
0250 075 0600 125	2.5	1.25	3.0	12.5	75	2.4	6	●	●	●
0300 075 0600 160	3.0	1.50	4.5	16.0	75	2.85	6	●	●	●
0300 075 0600 200	3.0	1.50	4.5	20.0	75	2.85	6	●	●	●
0400 075 0600 200	4.0	2.00	6.0	20.0	75	3.85	6	●	●	●

Ø mm	Tol. µm
0.1 ~ 0.7	0 / -12
0.7 ~ 4.0	0 / -20

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	337

若有技术规格变更，恕不事先通知

BN 45 MINIATURE BALLNOSE CUTTERS - with Long Neck

≤ 1.300 N/mm² + B0819 / B0909 ≤ 52 HRC

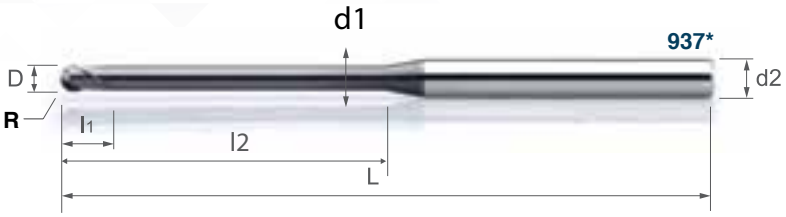
Solid Carbide BN 45 Miniature Ballnose Cutters with long neck, 2 flutes

VHM Kleinst-Radiusfräser BN 45 mit langem Hals, 2 Zähne

Micro-fraises BN 45 en carbure monobloc avec bout hémisphérique et cou long, 2 dents

Micro-frese cilindriche BN 45 a raggio con collo lungo, 2 taglienti

整体硬质合金 BN 45 系列 长颈短刃 球头 立铣刀 2 刃



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)							937*	A66*
	D	R	l 1	l 2	L	d1	d2 (h6)	B0819	B0909
0020 050 0400 005	0.2	0.10	0.2	0.5	50	0.15	4	●	●
0020 050 0400 010	0.2	0.10	0.2	1.0	50	0.15	4	●	●
0020 050 0400 015	0.2	0.10	0.2	1.5	50	0.15	4	●	●
0030 050 0400 010	0.3	0.15	0.3	1.0	50	0.25	4	●	●
0030 050 0400 020	0.3	0.15	0.3	2.0	50	0.25	4	●	●
0030 050 0400 030	0.3	0.15	0.3	3.0	50	0.25	4	●	●
0040 050 0400 010	0.4	0.20	0.4	1.0	50	0.35	4	●	●
0040 050 0400 020	0.4	0.20	0.4	2.0	50	0.35	4	●	●
0040 050 0400 030	0.4	0.20	0.4	3.0	50	0.35	4	●	●
0040 050 0400 040	0.4	0.20	0.4	4.0	50	0.35	4	●	●
0040 050 0400 050	0.4	0.20	0.4	5.0	50	0.35	4	●	●
0050 050 0400 020	0.5	0.25	0.4	2.0	50	0.45	4	●	●
0050 050 0400 030	0.5	0.25	0.4	3.0	50	0.45	4	●	●
0050 050 0400 040	0.5	0.25	0.4	4.0	50	0.45	4	●	●
0050 050 0400 050	0.5	0.25	0.4	5.0	50	0.45	4	●	●
0050 050 0400 060	0.5	0.25	0.4	6.0	50	0.45	4	●	●
0050 050 0400 080	0.5	0.25	0.4	8.0	50	0.45	4	●	●
0060 050 0400 020	0.6	0.30	0.5	2.0	50	0.55	4	●	●
0060 050 0400 030	0.6	0.30	0.5	3.0	50	0.55	4	●	●
0060 050 0400 040	0.6	0.30	0.5	4.0	50	0.55	4	●	●
0060 050 0400 050	0.6	0.30	0.5	5.0	50	0.55	4	●	●
0060 050 0400 060	0.6	0.30	0.5	6.0	50	0.55	4	●	●
0060 050 0400 080	0.6	0.30	0.5	8.0	50	0.55	4	●	●
0080 050 0400 020	0.8	0.40	0.6	2.0	50	0.75	4	●	●
0080 050 0400 040	0.8	0.40	0.6	4.0	50	0.75	4	●	●
0080 050 0400 050	0.8	0.40	0.6	5.0	50	0.75	4	●	●
0080 050 0400 060	0.8	0.40	0.6	6.0	50	0.75	4	●	●
0080 050 0400 070	0.8	0.40	0.6	7.0	50	0.75	4	●	●
0080 050 0400 080	0.8	0.40	0.6	8.0	50	0.75	4	●	●
0080 050 0400 100	0.8	0.40	0.6	10.0	50	0.75	4	●	●
0100 050 0400 030	1.0	0.50	0.8	3.0	50	0.95	4	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	337

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

BN 45 MINIATURE BALLNOSE CUTTERS - with Long Neck

≤ 1.300 N/mm² + B0819 / B0909 ≤ 52 HRC

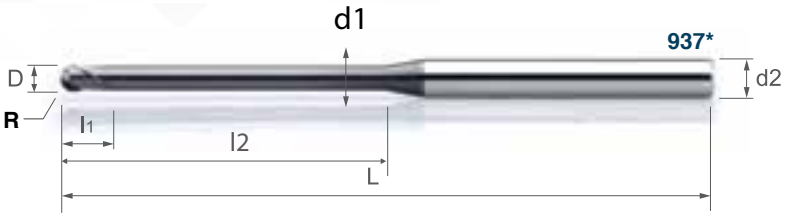
Solid Carbide BN 45 Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises BN 45 en carbure monobloc avec bout hémisphérique et cou long, 2 dents

整体硬质合金 BN 45 系列 长颈短刃 球头 立铣刀 2 刃

VHM Kleinst-Radiusfräser BN 45 mit langem Hals, 2 Zähne

Micro-frese cilindriche BN 45 a raggio con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l 1	l 2	L	d1	d2 (h6)	937* B0819	A66* B0909
0100 050 0400 040	1.0	0.50	0.8	4.0	50	0.95	4	●	●
0100 050 0400 050	1.0	0.50	0.8	5.0	50	0.95	4	●	●
0100 050 0400 060	1.0	0.50	0.8	6.0	50	0.95	4	●	●
0100 050 0400 070	1.0	0.50	0.8	7.0	50	0.95	4	●	●
0100 050 0400 080	1.0	0.50	0.8	8.0	50	0.95	4	●	●
0100 050 0400 090	1.0	0.50	0.8	9.0	50	0.95	4	●	●
0100 050 0400 100	1.0	0.50	0.8	10.0	50	0.95	4	●	●
0100 050 0400 120	1.0	0.50	0.8	12.0	50	0.95	4	●	●
0100 050 0400 140	1.0	0.50	0.8	14.0	50	0.95	4	●	●
0100 050 0400 160	1.0	0.50	0.8	14.0	50	0.95	4	●	●
0100 060 0400 200	1.0	0.50	0.8	20.0	60	0.95	4	●	●
0120 050 0400 060	1.2	0.60	1.0	6.0	50	1.15	4	●	●
0120 050 0400 080	1.2	0.60	1.0	8.0	50	1.15	4	●	●
0120 050 0400 100	1.2	0.60	1.0	10.0	50	1.15	4	●	●
0120 050 0400 120	1.2	0.60	1.0	12.0	50	1.15	4	●	●
0140 050 0400 080	1.4	0.70	1.1	8.0	50	1.35	4	●	●
0140 050 0400 120	1.4	0.70	1.1	12.0	50	1.35	4	●	●
0140 050 0400 160	1.4	0.70	1.1	16.0	50	1.35	4	●	●
0150 050 0400 080	1.5	0.75	1.2	8.0	50	1.45	4	●	●
0150 050 0400 120	1.5	0.75	1.2	12.0	50	1.45	4	●	●
0150 050 0400 160	1.5	0.75	1.2	16.0	50	1.45	4	●	●
0150 060 0400 180	1.5	0.75	1.2	18.0	60	1.45	4	●	●
0160 050 0400 080	1.6	0.80	1.3	8.0	50	1.55	4	●	●
0160 050 0400 120	1.6	0.80	1.3	12.0	50	1.55	4	●	●
0160 050 0400 160	1.6	0.80	1.3	16.0	50	1.55	4	●	●
0160 060 0400 200	1.6	0.80	1.3	20.0	60	1.55	4	●	●
0180 050 0400 080	1.8	0.90	1.4	8.0	50	1.75	4	●	●
0180 050 0400 120	1.8	0.90	1.4	12.0	50	1.75	4	●	●
0180 050 0400 160	1.8	0.90	1.4	16.0	50	1.75	4	●	●
0180 060 0400 200	1.8	0.9	1.4	20	60	1.75	4	●	●
0200 050 0400 040	2	1	1.6	4	50	1.95	4	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	337

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

BN 45 MINIATURE BALLNOSE CUTTERS - with Long Neck

≤ 1.300 N/mm² + B0819 / B0909 ≤ 52 HRC

Solid Carbide BN 45 Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises BN 45 en carbure monobloc avec bout hémisphérique et cou long, 2 dents

整体硬质合金 BN 45 系列 长颈短刃 球头 立铣刀 2 刃

VHM Kleinst-Radiusfräser BN 45 mit langem Hals, 2 Zähne

Micro-frese cilindriche BN 45 a raggio con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)							937*	A66*
	D	R	l1	l2	L	d1	d2 (h6)	B0819	B0909
0200 050 0400 060	2	1.00	1.6	6.0	50	1.95	4	●	●
0200 050 0400 080	2	1.00	1.6	8.0	50	1.95	4	●	●
0200 050 0400 100	2	1.00	1.6	10.0	50	1.95	4	●	●
0200 050 0400 120	2	1.00	1.6	12.0	50	1.95	4	●	●
0200 050 0400 140	2	1.00	1.6	14.0	50	1.95	4	●	●
0200 050 0400 160	2	1.00	1.6	16.0	50	1.95	4	●	●
0200 060 0400 180	2	1.00	1.6	18.0	60	1.95	4	●	●
0200 060 0400 200	2	1.00	1.6	20.0	60	1.95	4	●	●
0200 060 0400 220	2	1.00	1.6	22.0	60	1.95	4	●	●
0200 075 0400 250	2	1.00	1.6	25.0	75	1.95	4	●	●
0200 075 0400 300	2	1.00	1.6	30.0	75	1.95	4	●	●
0300 050 0600 080	3	1.50	2.4	8.0	50	2.85	6	●	●
0300 050 0600 100	3	1.50	2.4	10.0	50	2.85	6	●	●
0300 060 0600 160	3	1.50	2.4	16.0	60	2.85	6	●	●
0300 060 0600 200	3	1.50	2.4	20.0	60	2.85	6	●	●
0300 075 0600 250	3	1.50	2.4	25.0	75	2.85	6	●	●
0300 075 0600 300	3	1.50	2.4	30.0	75	2.85	6	●	●
0300 075 0600 350	3	1.50	2.4	35.0	75	2.85	6	●	●
0400 050 0600 100	4	2.00	3.2	10.0	50	3.85	6	●	●
0400 060 0600 160	4	2.00	3.2	16.0	60	3.85	6	●	●
0400 060 0600 200	4	2.00	3.2	20.0	60	3.85	6	●	●
0400 075 0600 250	4	2.00	3.2	25.0	75	3.85	6	●	●
0400 075 0600 300	4	2.00	3.2	30.0	75	3.85	6	●	●
0400 075 0600 350	4	2.00	3.2	35.0	75	3.85	6	●	●
0400 100 0600 400	4	2.00	3.2	40.0	100	3.85	6	●	●
0400 100 0600 450	4	2.00	3.2	45.0	100	3.85	6	●	●
0400 100 0600 500	4	2.00	3.2	50.0	100	3.85	6	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	337

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

BN 45 BALLNOSE CUTERS - with Taper Neck

≤ 1.300 N/mm² + B0819 / B0909 ≤ 52 HRC

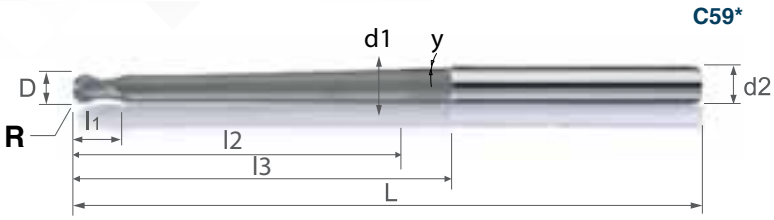
Solid Carbide BN 45 Ballnose Cutters with taper neck, 2 flutes

Fraises à bout hémisphérique BN 45 en carbure monobloc avec cou conique, 2 dents

整体硬口合金 BN 45 系列 口口位 球口 立口刀 2 刃

VHM BN 45 Radiusfräser mit konischem Hals, 2 Zähne

Frese cilindriche BN 45 a raggio in metallo duro integrale con collo conico, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)								C59*	939*	A78*
	D	R	l1	l2	l3	L	d2 (h6)	y	G6110	B0819	B0909
0100 020 06 080	1.0	0.5	1.5	4.0	20	60	6	8°	●	●	●
0100 040 06 040	1.0	0.5	1.5	4.0	40	75	6	4°	●	●	●
0150 020 06 070	1.5	0.75	2.3	7.5	20	60	6	7°	●	●	●
0150 040 06 035	1.5	0.75	2.3	7.5	40	75	6	3.5°	●	●	●
0200 020 06 067	2.0	1	3.0	8.0	20	60	6	6.7°	●	●	●
0200 040 06 029	2.0	1	3.0	8.0	40	75	6	2.9°	●	●	●
0200 040 06 010	2.0	1	3.0	8.0	40	75	6	1°	●	●	●
0300 020 06 043	3.0	1.5	3.5	10.0	20	60	6	4.3°	●	●	●
0300 040 06 022	3.0	1.5	3.5	12.0	40	75	6	2.2°	●	●	●
0300 045 06 010	3.0	1.5	3.5	12.0	45	75	6	1°	●	●	●
0400 020 06 029	4.0	2	4.0	12.0	20	60	6	2.9°	●	●	●
0400 040 06 014	4.0	2	4.0	20.0	40	75	6	1.4°	●	●	●
0400 060 06 010	4.0	2	4.0	20.0	60	100	6	1°	●	●	●
0500 040 06 007	5.0	2.5	6.0	25.0	40	75	6	0.7°	●	●	●
0600 020 06 000	6.0	3	6.0	20.0	20	60	6	-	●	●	●
0600 040 06 000	6.0	3	6.0	40.0	40	75	6	-	●	●	●
0600 060 08 010	6.0	3	6.0	25.0	60	100	8	1°	●	●	●
0600 080 08 010	6.0	3	6.0	25.0	80	125	8	1°	●	●	●
0800 025 08 000	8.0	4	7.0	25.0	25	64	8	-	●	●	●
0800 060 08 000	8.0	4	7.0	60.0	60	100	8	-	●	●	●
0800 075 10 008	8.0	4	7.0	30.0	75	125	10	0.8°	●	●	●
0800 105 10 006	8.0	4	7.0	20.0	105	150	10	0.6°	●	●	●
1000 030 10 000	10.0	5	8.0	30.0	30	75	10	-	●	●	●
1000 075 10 000	10.0	5	8.0	75.0	75	125	10	-	●	●	●
1000 070 12 008	10.0	5	8.0	30.0	70	125	12	0.8°	●	●	●
1200 035 12 000	12.0	6	10.0	35.0	35	100	12	-	●	●	●
1200 070 12 000	12.0	6	10.0	70.0	70	125	12	-	●	●	●
1200 090 16 013	12.0	6	10.0	35.0	90	150	16	1.3°	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
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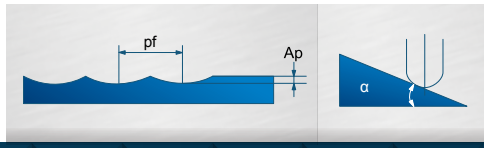
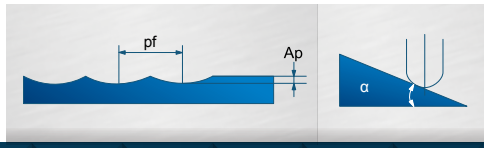
BN 45 Standard Series Ballnose Cutters



2 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	2	63	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.6	2	75	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.7	2	88	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		0.9	2	113	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1	2	126	0.004 ~ 0.006	≤0.05D	≤0.1D	40000	320 ~ 480
		1.5	2	188	0.007 ~ 0.009	≤0.05D	≤0.2D	40000	560 ~ 720
		2	2	251	0.010 ~ 0.013	≤0.05D	≤0.2D	40000	800 ~ 1040
		2.5	2	314	0.013 ~ 0.016	≤0.05D	≤0.2D	40000	1040 ~ 1280
		3	2	377	0.017 ~ 0.019	≤0.05D	≤0.2D	40000	1360 ~ 1520
		4	2	503	0.023 ~ 0.026	≤0.05D	≤0.2D	40000	1840 ~ 2080
		5	2	540 ~ 628	0.029 ~ 0.033	≤0.05D	≤0.2D	34380 ~ 40000	1990 ~ 2640
		6	2	540 ~ 630	0.036 ~ 0.039	≤0.05D	≤0.2D	28650 ~ 33420	2060 ~ 2610
		8	2	540 ~ 630	0.044 ~ 0.049	≤0.05D	≤0.2D	21490 ~ 25070	1890 ~ 2460
		10	2	540 ~ 630	0.053 ~ 0.058	≤0.05D	≤0.2D	17190 ~ 20050	1820 ~ 2330
		12	2	540 ~ 630	0.062 ~ 0.068	≤0.05D	≤0.2D	14320 ~ 16710	1780 ~ 2270
		14	2	540 ~ 630	0.071 ~ 0.078	≤0.05D	≤0.2D	12280 ~ 14320	1740 ~ 2230
		16	2	540 ~ 630	0.079 ~ 0.087	≤0.05D	≤0.2D	10740 ~ 12530	1700 ~ 2180
		18	2	540 ~ 630	0.088 ~ 0.097	≤0.05D	≤0.2D	9550 ~ 11140	1680 ~ 2160
		20	2	540 ~ 630	0.097 ~ 0.107	≤0.05D	≤0.2D	8590 ~ 10030	1670 ~ 2150
		22	2	540 ~ 630	0.106 ~ 0.116	≤0.05D	≤0.2D	7810 ~ 9120	1660 ~ 2120
		25	2	540 ~ 630	0.119 ~ 0.131	≤0.05D	≤0.2D	6880 ~ 8020	1640 ~ 2100
		α > 15°							
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	2	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	2	75	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.7	2	88	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	160 ~ 240
		0.8	2	101	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.9	2	113	0.003 ~ 0.004	≤0.05D	≤0.1D	40000	240 ~ 320
		1	2	126	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1.5	2	188	0.006 ~ 0.007	≤0.05D	≤0.2D	40000	480 ~ 560
		2	2	251	0.008 ~ 0.010	≤0.05D	≤0.2D	40000	640 ~ 800
		2.5	2	314	0.011 ~ 0.013	≤0.05D	≤0.2D	40000	880 ~ 1040
		3	2	377	0.013 ~ 0.015	≤0.05D	≤0.2D	40000	1040 ~ 1200
		4	2	503	0.018 ~ 0.021	≤0.05D	≤0.2D	40000	1440 ~ 1680
		5	2	504 ~ 588	0.023 ~ 0.026	≤0.05D	≤0.2D	32090 ~ 37430	1480 ~ 1950
		6	2	504 ~ 588	0.029 ~ 0.031	≤0.05D	≤0.2D	26740 ~ 31190	1550 ~ 1930
		8	2	504 ~ 588	0.036 ~ 0.039	≤0.05D	≤0.2D	20050 ~ 23400	1440 ~ 1830
		10	2	504 ~ 588	0.043 ~ 0.047	≤0.05D	≤0.2D	16040 ~ 18720	1380 ~ 1760
		12	2	504 ~ 588	0.050 ~ 0.054	≤0.05D	≤0.2D	13370 ~ 15600	1340 ~ 1680
		14	2	504 ~ 588	0.057 ~ 0.062	≤0.05D	≤0.2D	11460 ~ 13370	1310 ~ 1660
		16	2	504 ~ 588	0.064 ~ 0.070	≤0.05D	≤0.2D	10030 ~ 11700	1280 ~ 1640
		18	2	504 ~ 588	0.071 ~ 0.078	≤0.05D	≤0.2D	8910 ~ 10400	1270 ~ 1620
		20	2	504 ~ 588	0.078 ~ 0.085	≤0.05D	≤0.2D	8020 ~ 9360	1250 ~ 1590
		22	2	504 ~ 588	0.085 ~ 0.093	≤0.05D	≤0.2D	7290 ~ 8510	1240 ~ 1580
		25	2	504 ~ 588	0.095 ~ 0.105	≤0.05D	≤0.2D	6420 ~ 7490	1220 ~ 1570

BN 45 Standard Series Ballnose Cutters



2 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	2	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	2	75	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.7	2	88	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.9	2	113	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1	2	126	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1.5	2	188	0.006 ~ 0.008	≤0.05D	≤0.2D	40000	480 ~ 640
		2	2	225 ~ 251	0.009 ~ 0.011	≤0.05D	≤0.2D	35810 ~ 40000	640 ~ 880
		2.5	2	225 ~ 314	0.012 ~ 0.014	≤0.05D	≤0.2D	28650 ~ 40000	690 ~ 1120
		3	2	225 ~ 315	0.015 ~ 0.017	≤0.05D	≤0.2D	23870 ~ 33420	720 ~ 1140
		4	2	225 ~ 315	0.020 ~ 0.023	≤0.05D	≤0.2D	17900 ~ 25070	720 ~ 1150
		5	2	225 ~ 315	0.026 ~ 0.029	≤0.05D	≤0.2D	14320 ~ 20050	740 ~ 1160
		6	2	225 ~ 315	0.032 ~ 0.035	≤0.05D	≤0.2D	11940 ~ 16710	760 ~ 1170
		8	2	225 ~ 315	0.039 ~ 0.043	≤0.05D	≤0.2D	8950 ~ 12530	700 ~ 1080
		10	2	225 ~ 315	0.047 ~ 0.052	≤0.05D	≤0.2D	7160 ~ 10030	670 ~ 1040
		12	2	225 ~ 315	0.055 ~ 0.061	≤0.05D	≤0.2D	5970 ~ 8360	660 ~ 1020
		14	2	225 ~ 315	0.063 ~ 0.069	≤0.05D	≤0.2D	5120 ~ 7160	650 ~ 990
		16	2	225 ~ 315	0.071 ~ 0.078	≤0.05D	≤0.2D	4480 ~ 6270	640 ~ 980
		18	2	225 ~ 315	0.078 ~ 0.086	≤0.05D	≤0.2D	3980 ~ 5570	620 ~ 960
		20	2	225 ~ 315	0.086 ~ 0.095	≤0.05D	≤0.2D	3580 ~ 5010	620 ~ 950
		22	2	225 ~ 315	0.094 ~ 0.103	≤0.05D	≤0.2D	3260 ~ 4560	610 ~ 940
		25	2	225 ~ 315	0.106 ~ 0.116	≤0.05D	≤0.2D	2860 ~ 4010	610 ~ 930

		α > 15°							
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	2	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	2	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.7	2	88	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.8	2	101	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	160 ~ 240
		0.9	2	113	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		1	2	126	0.003 ~ 0.004	≤0.05D	≤0.1D	40000	240 ~ 320
		1.5	2	188	0.005 ~ 0.007	≤0.05D	≤0.2D	40000	400 ~ 560
		2	2	210 ~ 251	0.007 ~ 0.009	≤0.05D	≤0.2D	33420 ~ 40000	470 ~ 720
		2.5	2	210 ~ 294	0.009 ~ 0.011	≤0.05D	≤0.2D	26740 ~ 37430	480 ~ 820
		3	2	210 ~ 294	0.012 ~ 0.014	≤0.05D	≤0.2D	22280 ~ 31190	530 ~ 870
		4	2	210 ~ 294	0.016 ~ 0.018	≤0.05D	≤0.2D	16710 ~ 23400	530 ~ 840
		5	2	210 ~ 294	0.021 ~ 0.023	≤0.05D	≤0.2D	13370 ~ 18720	560 ~ 860
		6	2	210 ~ 294	0.025 ~ 0.028	≤0.05D	≤0.2D	11140 ~ 15600	560 ~ 870
		8	2	210 ~ 294	0.032 ~ 0.035	≤0.05D	≤0.2D	8360 ~ 11700	540 ~ 820
		10	2	210 ~ 294	0.038 ~ 0.042	≤0.05D	≤0.2D	6680 ~ 9360	510 ~ 790
		12	2	210 ~ 294	0.044 ~ 0.048	≤0.05D	≤0.2D	5570 ~ 7800	490 ~ 750
		14	2	210 ~ 294	0.050 ~ 0.055	≤0.05D	≤0.2D	4770 ~ 6680	480 ~ 730
		16	2	210 ~ 294	0.056 ~ 0.062	≤0.05D	≤0.2D	4180 ~ 5850	470 ~ 730
		18	2	210 ~ 294	0.063 ~ 0.069	≤0.05D	≤0.2D	3710 ~ 5200	470 ~ 720
		20	2	210 ~ 294	0.069 ~ 0.076	≤0.05D	≤0.2D	3340 ~ 4680	460 ~ 710
		22	2	210 ~ 294	0.075 ~ 0.083	≤0.05D	≤0.2D	3040 ~ 4250	460 ~ 710
		25	2	210 ~ 294	0.084 ~ 0.093	≤0.05D	≤0.2D	2670 ~ 3740	450 ~ 700

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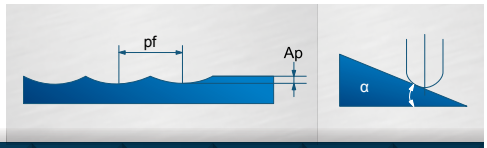
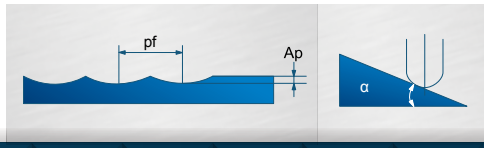


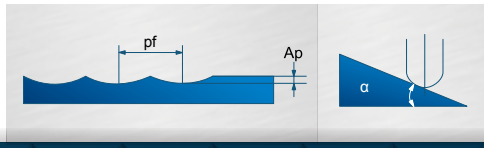
4 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	4	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.6	4	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.7	4	88	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		0.8	4	101	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		0.9	4	113	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	320 ~ 640
		1	4	126	0.003 ~ 0.004	≤0.05D	≤0.1D	40000	480 ~ 640
		1.5	4	188	0.005 ~ 0.007	≤0.05D	≤0.2D	40000	800 ~ 1120
		2	4	251	0.008 ~ 0.009	≤0.05D	≤0.2D	40000	1280 ~ 1440
		2.5	4	314	0.010 ~ 0.012	≤0.05D	≤0.2D	40000	1600 ~ 1920
		3	4	377	0.012 ~ 0.014	≤0.05D	≤0.2D	40000	1920 ~ 2240
		4	4	503	0.017 ~ 0.019	≤0.05D	≤0.2D	40000	2720 ~ 3040
		5	4	540 ~ 628	0.022 ~ 0.024	≤0.05D	≤0.2D	34380 ~ 40000	3030 ~ 3840
		6	4	540 ~ 630	0.027 ~ 0.029	≤0.05D	≤0.2D	28650 ~ 33420	3090 ~ 3880
		8	4	540 ~ 630	0.033 ~ 0.037	≤0.05D	≤0.2D	21490 ~ 25070	2840 ~ 3710
		10	4	540 ~ 630	0.040 ~ 0.044	≤0.05D	≤0.2D	17190 ~ 20050	2750 ~ 3530
		12	4	540 ~ 630	0.046 ~ 0.051	≤0.05D	≤0.2D	14320 ~ 16710	2630 ~ 3410
		14	4	540 ~ 630	0.053 ~ 0.058	≤0.05D	≤0.2D	12280 ~ 14320	2600 ~ 3320
		16	4	540 ~ 630	0.060 ~ 0.066	≤0.05D	≤0.2D	10740 ~ 12530	2580 ~ 3310
		18	4	540 ~ 630	0.066 ~ 0.073	≤0.05D	≤0.2D	9550 ~ 11140	2520 ~ 3250
		20	4	540 ~ 630	0.073 ~ 0.080	≤0.05D	≤0.2D	8590 ~ 10030	2510 ~ 3210
		22	4	540 ~ 630	0.079 ~ 0.087	≤0.05D	≤0.2D	7810 ~ 9120	2470 ~ 3170
		25	4	540 ~ 630	0.089 ~ 0.098	≤0.05D	≤0.2D	6880 ~ 8020	2450 ~ 3140
		α > 15°						
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	4	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 320
		0.6	4	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.7	4	88	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	4	101	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		0.9	4	113	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		1	4	126	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	320 ~ 640
		1.5	4	188	0.004 ~ 0.006	≤0.05D	≤0.2D	40000	640 ~ 960
		2	4	251	0.006 ~ 0.008	≤0.05D	≤0.2D	40000	960 ~ 1280
		2.5	4	314	0.008 ~ 0.010	≤0.05D	≤0.2D	40000	1280 ~ 1600
		3	4	377	0.010 ~ 0.012	≤0.05D	≤0.2D	40000	1600 ~ 1920
		4	4	503	0.014 ~ 0.016	≤0.05D	≤0.2D	40000	2240 ~ 2560
		5	4	504 ~ 588	0.018 ~ 0.020	≤0.05D	≤0.2D	32090 ~ 37430	2310 ~ 2990
		6	4	504 ~ 588	0.021 ~ 0.024	≤0.05D	≤0.2D	26740 ~ 31190	2250 ~ 2990
		8	4	504 ~ 588	0.027 ~ 0.029	≤0.05D	≤0.2D	20050 ~ 23400	2170 ~ 2710
		10	4	504 ~ 588	0.032 ~ 0.035	≤0.05D	≤0.2D	16040 ~ 18720	2050 ~ 2620
		12	4	504 ~ 588	0.037 ~ 0.041	≤0.05D	≤0.2D	13370 ~ 15600	1980 ~ 2560
		14	4	504 ~ 588	0.042 ~ 0.047	≤0.05D	≤0.2D	11460 ~ 13370	1930 ~ 2510
		16	4	504 ~ 588	0.048 ~ 0.052	≤0.05D	≤0.2D	10030 ~ 11700	1930 ~ 2430
		18	4	504 ~ 588	0.053 ~ 0.058	≤0.05D	≤0.2D	8910 ~ 10400	1890 ~ 2410
		20	4	504 ~ 588	0.058 ~ 0.064	≤0.05D	≤0.2D	8020 ~ 9360	1860 ~ 2400
		22	4	504 ~ 588	0.063 ~ 0.070	≤0.05D	≤0.2D	7290 ~ 8510	1840 ~ 2380
		25	4	504 ~ 588	0.071 ~ 0.078	≤0.05D	≤0.2D	6420 ~ 7490	1820 ~ 2340

BN 45 Standard Series Ballnose Cutters



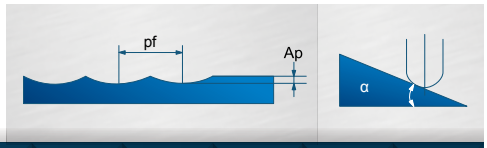
4 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	4	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 320
		0.6	4	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.7	4	88	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	160 ~ 480
		0.8	4	101	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		0.9	4	113	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	320 ~ 640
		1	4	126	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	320 ~ 640
		1.5	4	188	0.005 ~ 0.006	≤0.05D	≤0.2D	40000	800 ~ 960
		2	4	225 ~ 251	0.007 ~ 0.008	≤0.05D	≤0.2D	35810 ~ 40000	1000 ~ 1280
		2.5	4	225 ~ 314	0.009 ~ 0.011	≤0.05D	≤0.2D	28650 ~ 40000	1030 ~ 1760
		3	4	225 ~ 315	0.011 ~ 0.013	≤0.05D	≤0.2D	23870 ~ 33420	1050 ~ 1740
		4	4	225 ~ 315	0.015 ~ 0.017	≤0.05D	≤0.2D	17900 ~ 25070	1070 ~ 1700
		5	4	225 ~ 315	0.020 ~ 0.022	≤0.05D	≤0.2D	14320 ~ 20050	1150 ~ 1760
		6	4	225 ~ 315	0.024 ~ 0.026	≤0.05D	≤0.2D	11940 ~ 16710	1150 ~ 1740
		8	4	225 ~ 315	0.030 ~ 0.033	≤0.05D	≤0.2D	8950 ~ 12530	1070 ~ 1650
		10	4	225 ~ 315	0.035 ~ 0.039	≤0.05D	≤0.2D	7160 ~ 10030	1000 ~ 1560
		12	4	225 ~ 315	0.041 ~ 0.045	≤0.05D	≤0.2D	5970 ~ 8360	980 ~ 1500
		14	4	225 ~ 315	0.047 ~ 0.052	≤0.05D	≤0.2D	5120 ~ 7160	960 ~ 1490
		16	4	225 ~ 315	0.053 ~ 0.058	≤0.05D	≤0.2D	4480 ~ 6270	950 ~ 1450
		18	4	225 ~ 315	0.059 ~ 0.065	≤0.05D	≤0.2D	3980 ~ 5570	940 ~ 1450
		20	4	225 ~ 315	0.065 ~ 0.071	≤0.05D	≤0.2D	3580 ~ 5010	930 ~ 1420
		22	4	225 ~ 315	0.070 ~ 0.077	≤0.05D	≤0.2D	3260 ~ 4560	910 ~ 1400
		25	4	225 ~ 315	0.079 ~ 0.087	≤0.05D	≤0.2D	2860 ~ 4010	900 ~ 1400
		α > 15°							
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	4	63	0.001	≤0.05D	≤0.1D	40000	160
		0.6	4	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.7	4	88	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	4	101	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.9	4	113	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		1	4	126	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		1.5	4	188	0.004 ~ 0.005	≤0.05D	≤0.2D	40000	640 ~ 800
		2	4	210 ~ 251	0.005 ~ 0.007	≤0.05D	≤0.2D	33420 ~ 40000	670 ~ 1120
		2.5	4	210 ~ 294	0.007 ~ 0.008	≤0.05D	≤0.2D	26740 ~ 37430	750 ~ 1200
		3	4	210 ~ 294	0.009 ~ 0.010	≤0.05D	≤0.2D	22280 ~ 31190	800 ~ 1250
		4	4	210 ~ 294	0.012 ~ 0.014	≤0.05D	≤0.2D	16710 ~ 23400	800 ~ 1310
		5	4	210 ~ 294	0.016 ~ 0.017	≤0.05D	≤0.2D	13370 ~ 18720	860 ~ 1270
		6	4	210 ~ 294	0.019 ~ 0.021	≤0.05D	≤0.2D	11140 ~ 15600	850 ~ 1310
		8	4	210 ~ 294	0.024 ~ 0.026	≤0.05D	≤0.2D	8360 ~ 11700	800 ~ 1220
		10	4	210 ~ 294	0.028 ~ 0.031	≤0.05D	≤0.2D	6680 ~ 9360	750 ~ 1160
		12	4	210 ~ 294	0.033 ~ 0.036	≤0.05D	≤0.2D	5570 ~ 7800	740 ~ 1120
		14	4	210 ~ 294	0.038 ~ 0.041	≤0.05D	≤0.2D	4770 ~ 6680	730 ~ 1100
		16	4	210 ~ 294	0.042 ~ 0.047	≤0.05D	≤0.2D	4180 ~ 5850	700 ~ 1100
		18	4	210 ~ 294	0.047 ~ 0.052	≤0.05D	≤0.2D	3710 ~ 5200	700 ~ 1080
		20	4	210 ~ 294	0.052 ~ 0.057	≤0.05D	≤0.2D	3340 ~ 4680	690 ~ 1070
		22	4	210 ~ 294	0.056 ~ 0.062	≤0.05D	≤0.2D	3040 ~ 4250	680 ~ 1050
		25	4	210 ~ 294	0.063 ~ 0.070	≤0.05D	≤0.2D	2670 ~ 3740	670 ~ 1050

BN 45 Long Series Ballnose Cutters



2 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	2	63	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.6	2	75	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.7	2	88	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		0.9	2	113	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1	2	126	0.004 ~ 0.006	≤0.05D	≤0.1D	40000	320 ~ 480
		1.5	2	188	0.007 ~ 0.009	≤0.05D	≤0.2D	40000	560 ~ 720
		2	2	251	0.010 ~ 0.013	≤0.05D	≤0.2D	40000	800 ~ 1040
		2.5	2	314	0.013 ~ 0.016	≤0.05D	≤0.2D	40000	1040 ~ 1280
		3	2	377	0.017 ~ 0.019	≤0.05D	≤0.2D	40000	1360 ~ 1520
		4	2	432 ~ 503	0.023 ~ 0.026	≤0.05D	≤0.2D	34380 ~ 40000	1580 ~ 2080
		5	2	432 ~ 504	0.029 ~ 0.033	≤0.05D	≤0.2D	27500 ~ 32090	1600 ~ 2120
		6	2	432 ~ 504	0.036 ~ 0.039	≤0.05D	≤0.2D	22920 ~ 26740	1650 ~ 2090
		8	2	432 ~ 504	0.044 ~ 0.049	≤0.05D	≤0.2D	17190 ~ 20050	1510 ~ 1960
		10	2	432 ~ 504	0.053 ~ 0.058	≤0.05D	≤0.2D	13750 ~ 16040	1460 ~ 1860
		12	2	432 ~ 504	0.062 ~ 0.068	≤0.05D	≤0.2D	11460 ~ 13370	1420 ~ 1820
		14	2	432 ~ 504	0.071 ~ 0.078	≤0.05D	≤0.2D	9820 ~ 11460	1390 ~ 1790
		16	2	432 ~ 504	0.079 ~ 0.087	≤0.05D	≤0.2D	8590 ~ 10030	1360 ~ 1750
		18	2	432 ~ 504	0.088 ~ 0.097	≤0.05D	≤0.2D	7640 ~ 8910	1340 ~ 1730
		20	2	432 ~ 504	0.097 ~ 0.107	≤0.05D	≤0.2D	6880 ~ 8020	1330 ~ 1720
		22	2	432 ~ 504	0.106 ~ 0.116	≤0.05D	≤0.2D	6250 ~ 7290	1330 ~ 1690
		25	2	432 ~ 504	0.119 ~ 0.131	≤0.05D	≤0.2D	5500 ~ 6420	1310 ~ 1680
		α > 15°							
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	2	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	2	75	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.7	2	88	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	160 ~ 240
		0.8	2	101	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.9	2	113	0.003 ~ 0.004	≤0.05D	≤0.1D	40000	240 ~ 320
		1	2	126	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1.5	2	188	0.006 ~ 0.007	≤0.05D	≤0.2D	40000	480 ~ 560
		2	2	251	0.008 ~ 0.010	≤0.05D	≤0.2D	40000	640 ~ 800
		2.5	2	314	0.011 ~ 0.013	≤0.05D	≤0.2D	40000	880 ~ 1040
		3	2	377	0.013 ~ 0.015	≤0.05D	≤0.2D	40000	1040 ~ 1200
		4	2	403 ~ 470	0.018 ~ 0.021	≤0.05D	≤0.2D	32090 ~ 37430	1160 ~ 1570
		5	2	403 ~ 470	0.023 ~ 0.026	≤0.05D	≤0.2D	25670 ~ 29950	1180 ~ 1560
		6	2	403 ~ 470	0.029 ~ 0.031	≤0.05D	≤0.2D	21390 ~ 24960	1240 ~ 1550
		8	2	403 ~ 470	0.036 ~ 0.039	≤0.05D	≤0.2D	16040 ~ 18720	1150 ~ 1460
		10	2	403 ~ 470	0.043 ~ 0.047	≤0.05D	≤0.2D	12830 ~ 14970	1100 ~ 1410
		12	2	403 ~ 470	0.050 ~ 0.054	≤0.05D	≤0.2D	10700 ~ 12480	1070 ~ 1350
		14	2	403 ~ 471	0.057 ~ 0.062	≤0.05D	≤0.2D	9170 ~ 10700	1050 ~ 1330
		16	2	403 ~ 470	0.064 ~ 0.070	≤0.05D	≤0.2D	8020 ~ 9360	1030 ~ 1310
		18	2	403 ~ 470	0.071 ~ 0.078	≤0.05D	≤0.2D	7130 ~ 8320	1010 ~ 1300
		20	2	403 ~ 471	0.078 ~ 0.085	≤0.05D	≤0.2D	6420 ~ 7490	1000 ~ 1270
		22	2	403 ~ 471	0.085 ~ 0.093	≤0.05D	≤0.2D	5830 ~ 6810	990 ~ 1270
		25	2	403 ~ 470	0.095 ~ 0.105	≤0.05D	≤0.2D	5130 ~ 5990	970 ~ 1260

BN 45 Long Series Ballnose Cutters



2 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	2	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	2	75	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.7	2	88	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.9	2	113	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1	2	126	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1.5	2	180 ~ 188	0.006 ~ 0.008	≤0.05D	≤0.2D	38200 ~ 40000	460 ~ 640
		2	2	180 ~ 251	0.009 ~ 0.011	≤0.05D	≤0.2D	28650 ~ 40000	520 ~ 880
		2.5	2	180 ~ 252	0.012 ~ 0.014	≤0.05D	≤0.2D	22920 ~ 32090	550 ~ 900
		3	2	180 ~ 252	0.015 ~ 0.017	≤0.05D	≤0.2D	19100 ~ 26740	570 ~ 910
		4	2	180 ~ 252	0.020 ~ 0.023	≤0.05D	≤0.2D	14320 ~ 20050	570 ~ 920
		5	2	180 ~ 252	0.026 ~ 0.029	≤0.05D	≤0.2D	11460 ~ 16040	600 ~ 930
		6	2	180 ~ 252	0.032 ~ 0.035	≤0.05D	≤0.2D	9550 ~ 13370	610 ~ 940
		8	2	180 ~ 252	0.039 ~ 0.043	≤0.05D	≤0.2D	7160 ~ 10030	560 ~ 860
		10	2	180 ~ 252	0.047 ~ 0.052	≤0.05D	≤0.2D	5730 ~ 8020	540 ~ 830
		12	2	180 ~ 252	0.055 ~ 0.061	≤0.05D	≤0.2D	4770 ~ 6680	520 ~ 810
		14	2	180 ~ 252	0.063 ~ 0.069	≤0.05D	≤0.2D	4090 ~ 5730	520 ~ 790
		16	2	180 ~ 252	0.071 ~ 0.078	≤0.05D	≤0.2D	3580 ~ 5010	510 ~ 780
		18	2	180 ~ 252	0.078 ~ 0.086	≤0.05D	≤0.2D	3180 ~ 4460	500 ~ 770
		20	2	180 ~ 252	0.086 ~ 0.095	≤0.05D	≤0.2D	2860 ~ 4010	490 ~ 760
		22	2	180 ~ 252	0.094 ~ 0.103	≤0.05D	≤0.2D	2600 ~ 3650	490 ~ 750
		25	2	180 ~ 252	0.106 ~ 0.116	≤0.05D	≤0.2D	2290 ~ 3210	490 ~ 740
		α > 15°							
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	2	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	2	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.7	2	88	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.8	2	101	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	160 ~ 240
		0.9	2	113	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		1	2	126	0.003 ~ 0.004	≤0.05D	≤0.1D	40000	240 ~ 320
		1.5	2	168 ~ 188	0.005 ~ 0.007	≤0.05D	≤0.2D	35650 ~ 40000	360 ~ 560
		2	2	168 ~ 235	0.007 ~ 0.009	≤0.05D	≤0.2D	26740 ~ 37430	370 ~ 670
		2.5	2	168 ~ 235	0.009 ~ 0.011	≤0.05D	≤0.2D	21390 ~ 29950	390 ~ 660
		3	2	168 ~ 235	0.012 ~ 0.014	≤0.05D	≤0.2D	17830 ~ 24960	430 ~ 700
		4	2	168 ~ 235	0.016 ~ 0.018	≤0.05D	≤0.2D	13370 ~ 18720	430 ~ 670
		5	2	168 ~ 235	0.021 ~ 0.023	≤0.05D	≤0.2D	10700 ~ 14970	450 ~ 690
		6	2	168 ~ 235	0.025 ~ 0.028	≤0.05D	≤0.2D	8910 ~ 12480	450 ~ 700
		8	2	168 ~ 235	0.032 ~ 0.035	≤0.05D	≤0.2D	6680 ~ 9360	430 ~ 660
		10	2	168 ~ 235	0.038 ~ 0.042	≤0.05D	≤0.2D	5350 ~ 7490	410 ~ 630
		12	2	168 ~ 235	0.044 ~ 0.048	≤0.05D	≤0.2D	4460 ~ 6240	390 ~ 600
		14	2	168 ~ 235	0.050 ~ 0.055	≤0.05D	≤0.2D	3820 ~ 5350	380 ~ 590
		16	2	168 ~ 235	0.056 ~ 0.062	≤0.05D	≤0.2D	3340 ~ 4680	370 ~ 580
		18	2	168 ~ 235	0.063 ~ 0.069	≤0.05D	≤0.2D	2970 ~ 4160	370 ~ 570
		20	2	168 ~ 235	0.069 ~ 0.076	≤0.05D	≤0.2D	2670 ~ 3740	370 ~ 570
		22	2	168 ~ 235	0.075 ~ 0.083	≤0.05D	≤0.2D	2430 ~ 3400	360 ~ 560
		25	2	168 ~ 235	0.084 ~ 0.093	≤0.05D	≤0.2D	2140 ~ 2990	360 ~ 560

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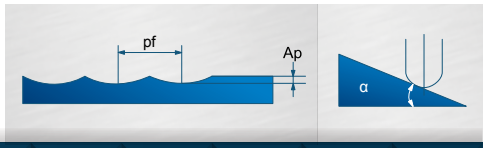
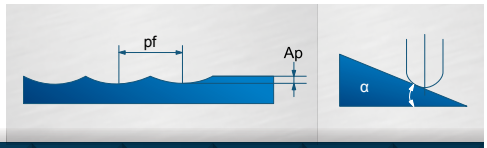


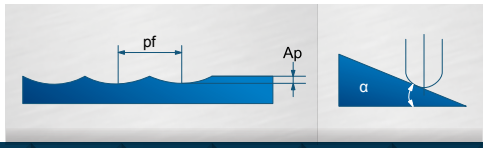
4 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	4	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.6	4	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.7	4	88	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		0.8	4	101	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		0.9	4	113	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	320 ~ 640
		1	4	126	0.003 ~ 0.004	≤0.05D	≤0.1D	40000	480 ~ 640
		1.5	4	188	0.005 ~ 0.007	≤0.05D	≤0.2D	40000	800 ~ 1120
		2	4	251	0.008 ~ 0.009	≤0.05D	≤0.2D	40000	1280 ~ 1440
		2.5	4	314	0.010 ~ 0.012	≤0.05D	≤0.2D	40000	1600 ~ 1920
		3	4	377	0.012 ~ 0.014	≤0.05D	≤0.2D	40000	1920 ~ 2240
		4	4	432 ~ 503	0.017 ~ 0.019	≤0.05D	≤0.2D	34380 ~ 40000	2340 ~ 3040
		5	4	432 ~ 504	0.022 ~ 0.024	≤0.05D	≤0.2D	27500 ~ 32090	2420 ~ 3080
		6	4	432 ~ 504	0.027 ~ 0.029	≤0.05D	≤0.2D	22920 ~ 26740	2480 ~ 3100
		8	4	432 ~ 504	0.033 ~ 0.037	≤0.05D	≤0.2D	17190 ~ 20050	2270 ~ 2970
		10	4	432 ~ 504	0.040 ~ 0.044	≤0.05D	≤0.2D	13750 ~ 16040	2200 ~ 2820
		12	4	432 ~ 504	0.046 ~ 0.051	≤0.05D	≤0.2D	11460 ~ 13370	2110 ~ 2730
		14	4	432 ~ 504	0.053 ~ 0.058	≤0.05D	≤0.2D	9820 ~ 11460	2080 ~ 2660
		16	4	432 ~ 504	0.060 ~ 0.066	≤0.05D	≤0.2D	8590 ~ 10030	2060 ~ 2650
		18	4	432 ~ 504	0.066 ~ 0.073	≤0.05D	≤0.2D	7640 ~ 8910	2020 ~ 2600
		20	4	432 ~ 504	0.073 ~ 0.080	≤0.05D	≤0.2D	6880 ~ 8020	2010 ~ 2570
		22	4	432 ~ 504	0.079 ~ 0.087	≤0.05D	≤0.2D	6250 ~ 7290	1980 ~ 2540
		25	4	432 ~ 504	0.089 ~ 0.098	≤0.05D	≤0.2D	5500 ~ 6420	1960 ~ 2520
		α > 15°							
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	4	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 320
		0.6	4	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.7	4	88	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	4	101	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		0.9	4	113	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		1	4	126	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	320 ~ 640
		1.5	4	188	0.004 ~ 0.006	≤0.05D	≤0.2D	40000	640 ~ 960
		2	4	251	0.006 ~ 0.008	≤0.05D	≤0.2D	40000	960 ~ 1280
		2.5	4	314	0.008 ~ 0.010	≤0.05D	≤0.2D	40000	1280 ~ 1600
		3	4	377	0.010 ~ 0.012	≤0.05D	≤0.2D	40000	1600 ~ 1920
		4	4	403 ~ 470	0.014 ~ 0.016	≤0.05D	≤0.2D	32090 ~ 37430	1800 ~ 2400
		5	4	403 ~ 470	0.018 ~ 0.020	≤0.05D	≤0.2D	25670 ~ 29950	1850 ~ 2400
		6	4	403 ~ 470	0.021 ~ 0.024	≤0.05D	≤0.2D	21390 ~ 24960	1800 ~ 2400
		8	4	403 ~ 470	0.027 ~ 0.029	≤0.05D	≤0.2D	16040 ~ 18720	1730 ~ 2170
		10	4	403 ~ 470	0.032 ~ 0.035	≤0.05D	≤0.2D	12830 ~ 14970	1640 ~ 2100
		12	4	403 ~ 470	0.037 ~ 0.041	≤0.05D	≤0.2D	10700 ~ 12480	1580 ~ 2050
		14	4	403 ~ 471	0.042 ~ 0.047	≤0.05D	≤0.2D	9170 ~ 10700	1540 ~ 2010
		16	4	403 ~ 470	0.048 ~ 0.052	≤0.05D	≤0.2D	8020 ~ 9360	1540 ~ 1950
		18	4	403 ~ 470	0.053 ~ 0.058	≤0.05D	≤0.2D	7130 ~ 8320	1510 ~ 1930
		20	4	403 ~ 471	0.058 ~ 0.064	≤0.05D	≤0.2D	6420 ~ 7490	1490 ~ 1920
		22	4	403 ~ 471	0.063 ~ 0.070	≤0.05D	≤0.2D	5830 ~ 6810	1470 ~ 1910
		25	4	403 ~ 470	0.071 ~ 0.078	≤0.05D	≤0.2D	5130 ~ 5990	1460 ~ 1870

BN 45 Long Series Ballnose Cutters



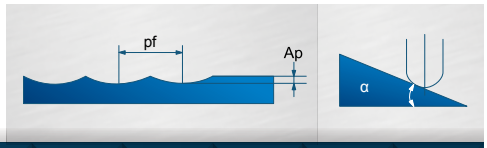
4 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	4	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 320
		0.6	4	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.7	4	88	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	160 ~ 480
		0.8	4	101	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		0.9	4	113	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	320 ~ 640
		1	4	126	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	320 ~ 640
		1.5	4	180 ~ 188	0.005 ~ 0.006	≤0.05D	≤0.2D	38200 ~ 40000	760 ~ 960
		2	4	180 ~ 251	0.007 ~ 0.008	≤0.05D	≤0.2D	28650 ~ 40000	800 ~ 1280
		2.5	4	180 ~ 252	0.009 ~ 0.011	≤0.05D	≤0.2D	22920 ~ 32090	830 ~ 1410
		3	4	180 ~ 252	0.011 ~ 0.013	≤0.05D	≤0.2D	19100 ~ 26740	840 ~ 1390
		4	4	180 ~ 252	0.015 ~ 0.017	≤0.05D	≤0.2D	14320 ~ 20050	860 ~ 1360
		5	4	180 ~ 252	0.020 ~ 0.022	≤0.05D	≤0.2D	11460 ~ 16040	920 ~ 1410
		6	4	180 ~ 252	0.024 ~ 0.026	≤0.05D	≤0.2D	9550 ~ 13370	920 ~ 1390
		8	4	180 ~ 252	0.030 ~ 0.033	≤0.05D	≤0.2D	7160 ~ 10030	860 ~ 1320
		10	4	180 ~ 252	0.035 ~ 0.039	≤0.05D	≤0.2D	5730 ~ 8020	800 ~ 1250
		12	4	180 ~ 252	0.041 ~ 0.045	≤0.05D	≤0.2D	4770 ~ 6680	780 ~ 1200
		14	4	180 ~ 252	0.047 ~ 0.052	≤0.05D	≤0.2D	4090 ~ 5730	770 ~ 1190
		16	4	180 ~ 252	0.053 ~ 0.058	≤0.05D	≤0.2D	3580 ~ 5010	760 ~ 1160
		18	4	180 ~ 252	0.059 ~ 0.065	≤0.05D	≤0.2D	3180 ~ 4460	750 ~ 1160
		20	4	180 ~ 252	0.065 ~ 0.071	≤0.05D	≤0.2D	2860 ~ 4010	740 ~ 1140
		22	4	180 ~ 252	0.070 ~ 0.077	≤0.05D	≤0.2D	2600 ~ 3650	730 ~ 1120
		25	4	180 ~ 252	0.079 ~ 0.087	≤0.05D	≤0.2D	2290 ~ 3210	720 ~ 1120
		α > 15°							
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	4	63	0.000 ~ 0.001	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	4	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.7	4	88	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	4	101	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	160 ~ 320
		0.9	4	113	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		1	4	126	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	320 ~ 480
		1.5	4	168 ~ 188	0.004 ~ 0.005	≤0.05D	≤0.2D	35650 ~ 40000	570 ~ 800
		2	4	168 ~ 235	0.005 ~ 0.007	≤0.05D	≤0.2D	26740 ~ 37430	530 ~ 1050
		2.5	4	168 ~ 235	0.007 ~ 0.008	≤0.05D	≤0.2D	21390 ~ 29950	600 ~ 960
		3	4	168 ~ 235	0.009 ~ 0.010	≤0.05D	≤0.2D	17830 ~ 24960	640 ~ 1000
		4	4	168 ~ 235	0.012 ~ 0.014	≤0.05D	≤0.2D	13370 ~ 18720	640 ~ 1050
		5	4	168 ~ 235	0.016 ~ 0.017	≤0.05D	≤0.2D	10700 ~ 14970	680 ~ 1020
		6	4	168 ~ 235	0.019 ~ 0.021	≤0.05D	≤0.2D	8910 ~ 12480	680 ~ 1050
		8	4	168 ~ 235	0.024 ~ 0.026	≤0.05D	≤0.2D	6680 ~ 9360	640 ~ 970
		10	4	168 ~ 235	0.028 ~ 0.031	≤0.05D	≤0.2D	5350 ~ 7490	600 ~ 930
		12	4	168 ~ 235	0.033 ~ 0.036	≤0.05D	≤0.2D	4460 ~ 6240	590 ~ 900
		14	4	168 ~ 235	0.038 ~ 0.041	≤0.05D	≤0.2D	3820 ~ 5350	580 ~ 880
		16	4	168 ~ 235	0.042 ~ 0.047	≤0.05D	≤0.2D	3340 ~ 4680	560 ~ 880
		18	4	168 ~ 235	0.047 ~ 0.052	≤0.05D	≤0.2D	2970 ~ 4160	560 ~ 870
		20	4	168 ~ 235	0.052 ~ 0.057	≤0.05D	≤0.2D	2670 ~ 3740	560 ~ 850
		22	4	168 ~ 235	0.056 ~ 0.062	≤0.05D	≤0.2D	2430 ~ 3400	540 ~ 840
		25	4	168 ~ 235	0.063 ~ 0.070	≤0.05D	≤0.2D	2140 ~ 2990	540 ~ 840

BN 45 Extra-Long Series Ballnose Cutters



2 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	2	63	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.6	2	75	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.7	2	88	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		0.9	2	113	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1	2	126	0.004 ~ 0.006	≤0.05D	≤0.1D	40000	320 ~ 480
		1.5	2	188	0.007 ~ 0.009	≤0.05D	≤0.2D	40000	560 ~ 720
		2	2	251	0.010 ~ 0.013	≤0.05D	≤0.2D	40000	800 ~ 1040
		2.5	2	270 ~ 314	0.013 ~ 0.016	≤0.05D	≤0.2D	34380 ~ 40000	890 ~ 1280
		3	2	270 ~ 315	0.017 ~ 0.019	≤0.05D	≤0.2D	28650 ~ 33420	970 ~ 1270
		4	2	270 ~ 315	0.023 ~ 0.026	≤0.05D	≤0.2D	21490 ~ 25070	990 ~ 1300
		5	2	270 ~ 315	0.029 ~ 0.033	≤0.05D	≤0.2D	17190 ~ 20050	1000 ~ 1320
		6	2	270 ~ 315	0.036 ~ 0.039	≤0.05D	≤0.2D	14320 ~ 16710	1030 ~ 1300
		8	2	270 ~ 315	0.044 ~ 0.049	≤0.05D	≤0.2D	10740 ~ 12530	950 ~ 1230
		10	2	270 ~ 315	0.053 ~ 0.058	≤0.05D	≤0.2D	8590 ~ 10030	910 ~ 1160
		12	2	270 ~ 315	0.062 ~ 0.068	≤0.05D	≤0.2D	7160 ~ 8360	890 ~ 1140
		14	2	270 ~ 315	0.071 ~ 0.078	≤0.05D	≤0.2D	6140 ~ 7160	870 ~ 1120
		16	2	270 ~ 315	0.079 ~ 0.087	≤0.05D	≤0.2D	5370 ~ 6270	850 ~ 1090
		18	2	270 ~ 315	0.088 ~ 0.097	≤0.05D	≤0.2D	4770 ~ 5570	840 ~ 1080
		20	2	270 ~ 315	0.097 ~ 0.107	≤0.05D	≤0.2D	4300 ~ 5010	830 ~ 1070
		22	2	270 ~ 315	0.106 ~ 0.116	≤0.05D	≤0.2D	3910 ~ 4560	830 ~ 1060
		25	2	270 ~ 315	0.119 ~ 0.131	≤0.05D	≤0.2D	3440 ~ 4010	820 ~ 1050
		α > 15°						
ALLOY STEEL, TOOL STEEL, PRE-HARDENED STEEL (~45 HRC) AISI H13, AISI D12, NAK	M12, M13, M14, M15, M18, M22, M23, M24, M25	0.5	2	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	2	75	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.7	2	88	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	160 ~ 240
		0.8	2	101	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.9	2	113	0.003 ~ 0.004	≤0.05D	≤0.1D	40000	240 ~ 320
		1	2	126	0.003 ~ 0.005	≤0.05D	≤0.1D	40000	240 ~ 400
		1.5	2	188	0.006 ~ 0.007	≤0.05D	≤0.2D	40000	480 ~ 560
		2	2	251	0.008 ~ 0.010	≤0.05D	≤0.2D	40000	640 ~ 800
		2.5	2	252 ~ 294	0.011 ~ 0.013	≤0.05D	≤0.2D	32090 ~ 37430	710 ~ 970
		3	2	252 ~ 294	0.013 ~ 0.015	≤0.05D	≤0.2D	26740 ~ 31190	700 ~ 940
		4	2	252 ~ 294	0.018 ~ 0.021	≤0.05D	≤0.2D	20050 ~ 23400	720 ~ 980
		5	2	252 ~ 294	0.023 ~ 0.026	≤0.05D	≤0.2D	16040 ~ 18720	740 ~ 970
		6	2	252 ~ 294	0.029 ~ 0.031	≤0.05D	≤0.2D	13370 ~ 15600	780 ~ 970
		8	2	252 ~ 294	0.036 ~ 0.039	≤0.05D	≤0.2D	10030 ~ 11700	720 ~ 910
		10	2	252 ~ 294	0.043 ~ 0.047	≤0.05D	≤0.2D	8020 ~ 9360	690 ~ 880
		12	2	252 ~ 294	0.050 ~ 0.054	≤0.05D	≤0.2D	6680 ~ 7800	670 ~ 840
		14	2	252 ~ 294	0.057 ~ 0.062	≤0.05D	≤0.2D	5730 ~ 6680	650 ~ 830
		16	2	252 ~ 294	0.064 ~ 0.070	≤0.05D	≤0.2D	5010 ~ 5850	640 ~ 820
		18	2	252 ~ 294	0.071 ~ 0.078	≤0.05D	≤0.2D	4460 ~ 5200	630 ~ 810
		20	2	252 ~ 294	0.078 ~ 0.085	≤0.05D	≤0.2D	4010 ~ 4680	630 ~ 800
		22	2	252 ~ 294	0.085 ~ 0.093	≤0.05D	≤0.2D	3650 ~ 4250	620 ~ 790
		25	2	252 ~ 294	0.095 ~ 0.105	≤0.05D	≤0.2D	3210 ~ 3740	610 ~ 790

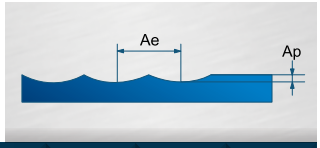
BN 45 Extra-Long Series Ballnose Cutters



2 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	2	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	2	75	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.7	2	88	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.002 ~ 0.004	≤0.05D	≤0.1D	40000	160 ~ 320
		0.9	2	113	0.003 ~ 0.005	≤0.05D	≤0.1D	39790	240 ~ 400
		1	2	113 ~ 126	0.003 ~ 0.005	≤0.05D	≤0.1D	35810 ~ 40000	210 ~ 400
		1.5	2	112 ~ 157	0.006 ~ 0.008	≤0.05D	≤0.2D	23870 ~ 33420	290 ~ 530
		2	2	112 ~ 158	0.009 ~ 0.011	≤0.05D	≤0.2D	17900 ~ 25070	320 ~ 550
		2.5	2	112 ~ 157	0.012 ~ 0.014	≤0.05D	≤0.2D	14320 ~ 20050	340 ~ 560
		3	2	113 ~ 157	0.015 ~ 0.017	≤0.05D	≤0.2D	11940 ~ 16710	360 ~ 570
		4	2	112 ~ 157	0.020 ~ 0.023	≤0.05D	≤0.2D	8950 ~ 12530	360 ~ 580
		5	2	112 ~ 158	0.026 ~ 0.029	≤0.05D	≤0.2D	7160 ~ 10030	370 ~ 580
		6	2	113 ~ 158	0.032 ~ 0.035	≤0.05D	≤0.2D	5970 ~ 8360	380 ~ 590
		8	2	113 ~ 158	0.039 ~ 0.043	≤0.05D	≤0.2D	4480 ~ 6270	350 ~ 540
		10	2	112 ~ 157	0.047 ~ 0.052	≤0.05D	≤0.2D	3580 ~ 5010	340 ~ 520
		12	2	112 ~ 158	0.055 ~ 0.061	≤0.05D	≤0.2D	2980 ~ 4180	330 ~ 510
		14	2	113 ~ 157	0.063 ~ 0.069	≤0.05D	≤0.2D	2560 ~ 3580	320 ~ 490
		16	2	113 ~ 157	0.071 ~ 0.078	≤0.05D	≤0.2D	2240 ~ 3130	320 ~ 490
		18	2	113 ~ 158	0.078 ~ 0.086	≤0.05D	≤0.2D	1990 ~ 2790	310 ~ 480
		20	2	112 ~ 158	0.086 ~ 0.095	≤0.05D	≤0.2D	1790 ~ 2510	310 ~ 480
		22	2	113 ~ 158	0.094 ~ 0.103	≤0.05D	≤0.2D	1630 ~ 2280	310 ~ 470
		25	2	112 ~ 158	0.106 ~ 0.116	≤0.05D	≤0.2D	1430 ~ 2010	300 ~ 470

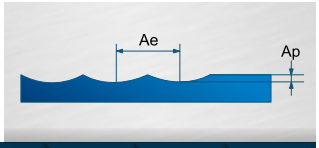
		α > 15°							
HARDENED STEEL (45~55 HRC) AISI H13	M26, M32	0.5	2	63	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.6	2	75	0.001 ~ 0.002	≤0.05D	≤0.1D	40000	80 ~ 160
		0.7	2	88	0.001 ~ 0.003	≤0.05D	≤0.1D	40000	80 ~ 240
		0.8	2	101	0.002 ~ 0.003	≤0.05D	≤0.1D	40000	160 ~ 240
		0.9	2	105 ~ 113	0.002 ~ 0.004	≤0.05D	≤0.1D	37140 ~ 40000	150 ~ 320
		1	2	105 ~ 126	0.003 ~ 0.004	≤0.05D	≤0.1D	33420 ~ 40000	200 ~ 320
		1.5	2	105 ~ 147	0.005 ~ 0.007	≤0.05D	≤0.2D	22280 ~ 31190	220 ~ 440
		2	2	105 ~ 147	0.007 ~ 0.009	≤0.05D	≤0.2D	16710 ~ 23400	230 ~ 420
		2.5	2	105 ~ 147	0.009 ~ 0.011	≤0.05D	≤0.2D	13370 ~ 18720	240 ~ 410
		3	2	105 ~ 147	0.012 ~ 0.014	≤0.05D	≤0.2D	11140 ~ 15600	270 ~ 440
		4	2	105 ~ 147	0.016 ~ 0.018	≤0.05D	≤0.2D	8360 ~ 11700	270 ~ 420
		5	2	105 ~ 147	0.021 ~ 0.023	≤0.05D	≤0.2D	6680 ~ 9360	280 ~ 430
		6	2	105 ~ 147	0.025 ~ 0.028	≤0.05D	≤0.2D	5570 ~ 7800	280 ~ 440
		8	2	105 ~ 147	0.032 ~ 0.035	≤0.05D	≤0.2D	4180 ~ 5850	270 ~ 410
		10	2	105 ~ 147	0.038 ~ 0.042	≤0.05D	≤0.2D	3340 ~ 4680	250 ~ 390
		12	2	105 ~ 147	0.044 ~ 0.048	≤0.05D	≤0.2D	2790 ~ 3900	250 ~ 370
		14	2	105 ~ 147	0.050 ~ 0.055	≤0.05D	≤0.2D	2390 ~ 3340	240 ~ 370
		16	2	105 ~ 147	0.056 ~ 0.062	≤0.05D	≤0.2D	2090 ~ 2920	230 ~ 360
		18	2	105 ~ 147	0.063 ~ 0.069	≤0.05D	≤0.2D	1860 ~ 2600	230 ~ 360
		20	2	105 ~ 147	0.069 ~ 0.076	≤0.05D	≤0.2D	1670 ~ 2340	230 ~ 360
		22	2	105 ~ 147	0.075 ~ 0.083	≤0.05D	≤0.2D	1520 ~ 2130	230 ~ 350
		25	2	105 ~ 147	0.084 ~ 0.093	≤0.05D	≤0.2D	1340 ~ 1870	230 ~ 350

BN 45 Miniature Ballnose Cutters with long neck



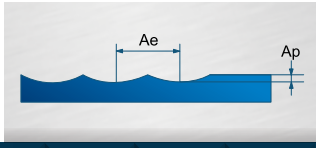
2 Z Profile Milling				MILD STEELS,CARBON STEELS (UP TO 1600 N/mm²)				STAINLESS STEEL			
Work Material											
Material Groups				M15, M18, M22, M25				M16,M20			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	0.05D	0.20D	25	0.003	40,000	240	25	0.003	40,000	240
0.2	1	0.05D	0.20D	25	0.003	40,000	240	25	0.003	40,000	240
0.2	1.5	0.05D	0.15D	21	0.002	34,000	144	21	0.002	34,000	144
0.3	1	0.05D	0.20D	38	0.003	40,000	240	38	0.003	40,000	240
0.3	2	0.05D	0.15D	32	0.002	34,000	144	32	0.002	34,000	144
0.3	3	0.02D	0.10D	27	0.002	28,000	120	27	0.002	28,000	120
0.4	1	0.05D	0.20D	50	0.004	40,000	320	50	0.004	40,000	320
0.4	2	0.05D	0.20D	50	0.004	40,000	320	50	0.004	40,000	320
0.4	3	0.05D	0.15D	43	0.003	34,000	192	43	0.003	34,000	192
0.4	4	0.02D	0.10D	35	0.003	28,000	160	35	0.003	28,000	160
0.4	5	0.02D	0.10D	35	0.003	28,000	160	35	0.003	28,000	160
0.5	2	0.05D	0.20D	63	0.004	40,000	320	62	0.006	39,099	433
0.5	3	0.05D	0.15D	54	0.003	34,000	192	52	0.004	33,234	260
0.5	4	0.05D	0.15D	54	0.003	34,000	192	52	0.004	33,234	260
0.5	5	0.02D	0.10D	44	0.003	28,000	160	43	0.004	27,369	217
0.5	6	0.02D	0.10D	44	0.003	28,000	160	43	0.004	27,369	217
0.5	8	0.02D	0.10D	38	0.003	24,000	128	37	0.004	23,459	173
0.6	2	0.05D	0.20D	73	0.006	38,568	469	68	0.006	35,916	448
0.6	3	0.05D	0.20D	73	0.006	38,568	469	68	0.006	35,916	448
0.6	4	0.05D	0.15D	62	0.004	32,783	281	57	0.004	30,528	269
0.6	5	0.05D	0.15D	62	0.004	32,783	281	57	0.004	30,528	269
0.6	6	0.02D	0.10D	51	0.004	26,998	234	47	0.004	25,141	224
0.6	8	0.02D	0.10D	51	0.004	26,998	234	47	0.004	25,141	224
0.8	2	0.05D	0.20D	80	0.007	31,831	462	70	0.007	27,852	406
0.8	4	0.05D	0.20D	80	0.007	31,831	462	70	0.007	27,852	406
0.8	5	0.05D	0.15D	68	0.005	27,056	277	60	0.005	23,674	244
0.8	6	0.05D	0.15D	68	0.005	27,056	277	60	0.005	23,674	244
0.8	7	0.05D	0.15D	68	0.005	27,056	277	60	0.005	23,674	244
0.8	8	0.02D	0.10D	56	0.005	22,282	231	49	0.005	19,496	203
0.8	10	0.02D	0.10D	56	0.005	22,282	231	49	0.005	19,496	203
1.0	3	0.05D	0.20D	80	0.009	25,465	449	70	0.007	22,282	395
1.0	4	0.05D	0.20D	80	0.009	25,465	449	70	0.007	22,282	395
1.0	5	0.05D	0.20D	80	0.009	25,465	449	70	0.007	22,282	395
1.0	6	0.05D	0.15D	68	0.006	21,645	269	60	0.005	18,940	237
1.0	7	0.05D	0.15D	68	0.006	21,645	269	60	0.005	18,940	237
1.0	8	0.05D	0.15D	68	0.006	21,645	269	60	0.005	18,940	237
1.0	9	0.05D	0.15D	68	0.006	21,645	269	60	0.005	18,940	237
1.0	10	0.02D	0.10D	56	0.006	17,826	224	49	0.005	15,597	197
1.0	12	0.02D	0.10D	56	0.006	17,826	224	49	0.005	15,597	197
1.0	14	0.02D	0.10D	56	0.006	17,826	224	49	0.005	15,597	197
1.0	20	0.02D	0.10D	48	0.006	15,279	179	42	0.005	13,369	158
1.2	6	0.05D	0.20D	80	0.009	21,221	398	70	0.009	18,568	350
1.2	8	0.05D	0.15D	68	0.006	18,037	239	60	0.006	15,783	210
1.2	10	0.05D	0.15D	68	0.006	18,037	239	60	0.006	15,783	210
1.2	12	0.02D	0.10D	56	0.006	14,854	199	49	0.006	12,998	175
1.2	8	0.05D	0.15D	68	0.006	18,037	239	60	0.006	15,783	210
1.2	12	0.02D	0.10D	56	0.006	14,854	199	49	0.006	12,998	175
1.2	16	0.02D	0.10D	56	0.006	14,854	199	49	0.006	12,998	175
1.4	8	0.05D	0.20D	80	0.011	18,189	398	70	0.011	15,916	350
1.4	12	0.05D	0.15D	68	0.007	15,461	239	60	0.007	13,528	210
1.4	16	0.02D	0.10D	56	0.008	12,732	199	49	0.008	11,141	175
1.5	8	0.05D	0.20D	80	0.011	16,977	372	70	0.011	14,855	327
1.5	12	0.05D	0.15D	68	0.007	14,430	223	60	0.007	12,626	196
1.5	16	0.02D	0.10D	56	0.008	11,884	186	49	0.008	10,398	163
1.5	18	0.02D	0.10D	56	0.008	11,884	186	49	0.008	10,398	163
1.6	8	0.05D	0.20D	80	0.011	15,916	366	70	0.011	13,926	322
1.6	12	0.05D	0.15D	68	0.008	13,528	220	60	0.008	11,837	193
1.6	16	0.02D	0.10D	56	0.008	11,141	183	49	0.008	9,748	161
1.6	20	0.02D	0.10D	56	0.008	11,141	183	49	0.008	9,748	161
1.8	8	0.05D	0.20D	80	0.012	14,147	354	70	0.012	12,379	312
1.8	12	0.05D	0.15D	68	0.008	12,025	212	60	0.008	10,522	187
1.8	16	0.05D	0.15D	68	0.008	12,025	212	60	0.008	10,522	187
1.8	20	0.02D	0.10D	56	0.009	9,903	177	49	0.009	8,665	156

BN 45 Miniature Ballnose Cutters with long neck



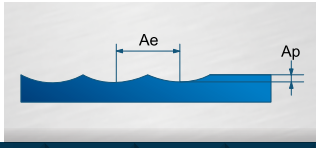
2 Z Profile Milling				MILD STEELS,CARBON STEELS (UP TO 1600 N/mm²)				STAINLESS STEEL			
Work Material											
Material Groups				M15, M18, M22, M25				M16,M20			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	80	0.014	12,733	359	70	0.014	11,141	315
2.0	6	0.05D	0.20D	80	0.014	12,733	359	70	0.014	11,141	315
2.0	8	0.05D	0.20D	80	0.014	12,733	359	70	0.014	11,141	315
2.0	10	0.05D	0.20D	80	0.014	12,733	359	70	0.014	11,141	315
2.0	12	0.05D	0.15D	68	0.010	10,823	215	60	0.010	9,469	189
2.0	14	0.05D	0.15D	68	0.010	10,823	215	60	0.010	9,469	189
2.0	16	0.05D	0.15D	68	0.010	10,823	215	60	0.010	9,469	189
2.0	18	0.05D	0.15D	68	0.010	10,823	215	60	0.010	9,469	189
2.0	20	0.02D	0.10D	56	0.010	8,913	179	49	0.010	7,798	158
2.0	22	0.02D	0.10D	56	0.010	8,913	179	49	0.010	7,798	158
2.0	25	0.02D	0.10D	56	0.010	8,913	179	49	0.010	7,798	158
2.0	30	0.02D	0.10D	56	0.010	8,913	179	49	0.010	7,798	158
3.0	8	0.05D	0.20D	80	0.019	8,488	328	70	0.019	7,427	289
3.0	10	0.05D	0.20D	80	0.019	8,488	328	70	0.019	7,427	289
3.0	16	0.05D	0.20D	80	0.019	8,488	328	70	0.019	7,427	289
3.0	20	0.05D	0.15D	68	0.013	7,215	197	60	0.013	6,313	173
3.0	25	0.05D	0.15D	68	0.013	7,215	197	60	0.013	6,313	173
3.0	30	0.02D	0.10D	56	0.013	5,942	164	49	0.013	5,199	144
3.0	35	0.02D	0.10D	56	0.013	5,942	164	49	0.013	5,199	144
4.0	10	0.05D	0.20D	80	0.024	6,366	313	70	0.024	5,571	275
4.0	16	0.05D	0.20D	80	0.024	6,366	313	70	0.024	5,571	275
4.0	20	0.05D	0.20D	80	0.024	6,366	313	70	0.024	5,571	275
4.0	25	0.05D	0.15D	68	0.017	5,411	188	60	0.017	4,735	165
4.0	30	0.05D	0.15D	68	0.017	5,411	188	60	0.017	4,735	165
4.0	35	0.05D	0.15D	68	0.017	5,411	188	60	0.017	4,735	165
4.0	40	0.02D	0.10D	56	0.017	4,456	156	49	0.017	3,899	138
4.0	45	0.02D	0.10D	56	0.017	4,456	156	49	0.017	3,899	138
4.0	50	0.02D	0.10D	56	0.017	4,456	156	49	0.017	3,899	138

BN 45 Miniature Ballnose Cutters with long neck



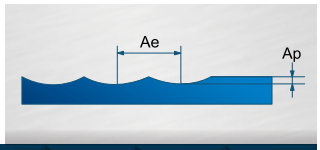
2 Z Profile Milling				CAST IRON SS400,NODULAR IRON, MALLEABLE IRON				ALLOY STEELS,TOOLS STEELS			
Work Material											
Material Groups				M10,M11,M12,M13,M14				M17,M19,M21,M23,M24			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	0.05D	0.20D	25	0.003	40,000	240	25	0.003	40,000	240
0.2	1	0.05D	0.20D	25	0.003	40,000	240	25	0.003	40,000	240
0.2	1.5	0.05D	0.15D	21	0.002	34,000	144	21	0.002	34,000	144
0.3	1	0.05D	0.20D	38	0.003	40,000	240	38	0.003	40,000	240
0.3	2	0.05D	0.15D	32	0.002	34,000	144	32	0.002	34,000	144
0.3	3	0.02D	0.10D	27	0.002	28,000	120	27	0.002	28,000	120
0.4	1	0.05D	0.20D	50	0.004	40,000	320	50	0.004	40,000	320
0.4	2	0.05D	0.20D	50	0.004	40,000	320	50	0.004	40,000	320
0.4	3	0.05D	0.15D	43	0.003	34,000	192	43	0.003	34,000	192
0.4	4	0.02D	0.10D	35	0.003	28,000	160	35	0.003	28,000	160
0.4	5	0.02D	0.10D	35	0.003	28,000	160	35	0.003	28,000	160
0.5	2	0.05D	0.20D	62	0.006	39,099	433	62	0.006	39,099	433
0.5	3	0.05D	0.15D	52	0.004	33,234	260	52	0.004	33,234	260
0.5	4	0.05D	0.15D	52	0.004	33,234	260	52	0.004	33,234	260
0.5	5	0.02D	0.10D	43	0.004	27,369	217	43	0.004	27,369	217
0.5	6	0.02D	0.10D	43	0.004	27,369	217	43	0.004	27,369	217
0.5	8	0.02D	0.10D	37	0.004	23,459	173	37	0.004	23,459	173
0.6	2	0.05D	0.20D	68	0.006	35,916	448	68	0.006	35,916	448
0.6	3	0.05D	0.20D	68	0.006	35,916	448	68	0.006	35,916	448
0.6	4	0.05D	0.15D	57	0.004	30,528	269	57	0.004	30,528	269
0.6	5	0.05D	0.15D	57	0.004	30,528	269	57	0.004	30,528	269
0.6	6	0.02D	0.10D	47	0.004	25,141	224	47	0.004	25,141	224
0.6	8	0.02D	0.10D	47	0.004	25,141	224	47	0.004	25,141	224
0.8	2	0.05D	0.20D	70	0.007	27,852	406	70	0.007	27,852	406
0.8	4	0.05D	0.20D	70	0.007	27,852	406	70	0.007	27,852	406
0.8	5	0.05D	0.15D	60	0.005	23,674	244	60	0.005	23,674	244
0.8	6	0.05D	0.15D	60	0.005	23,674	244	60	0.005	23,674	244
0.8	7	0.05D	0.15D	60	0.005	23,674	244	60	0.005	23,674	244
0.8	8	0.02D	0.10D	49	0.005	19,496	203	49	0.005	19,496	203
0.8	10	0.02D	0.10D	49	0.005	19,496	203	49	0.005	19,496	203
1.0	3	0.05D	0.20D	70	0.009	22,282	395	70	0.009	22,282	395
1.0	4	0.05D	0.20D	70	0.009	22,282	395	70	0.009	22,282	395
1.0	5	0.05D	0.20D	70	0.009	22,282	395	70	0.009	22,282	395
1.0	6	0.05D	0.15D	60	0.006	18,940	237	60	0.006	18,940	237
1.0	7	0.05D	0.15D	60	0.006	18,940	237	60	0.006	18,940	237
1.0	8	0.05D	0.15D	60	0.006	18,940	237	60	0.006	18,940	237
1.0	9	0.05D	0.15D	60	0.006	18,940	237	60	0.006	18,940	237
1.0	10	0.02D	0.10D	49	0.006	15,597	197	49	0.006	15,597	197
1.0	12	0.02D	0.10D	49	0.006	15,597	197	49	0.006	15,597	197
1.0	14	0.02D	0.10D	49	0.006	15,597	197	49	0.006	15,597	197
1.0	20	0.02D	0.10D	42	0.006	13,369	158	42	0.006	13,369	158
1.2	6	0.05D	0.20D	70	0.009	18,568	350	70	0.009	18,568	350
1.2	8	0.05D	0.15D	60	0.006	15,783	210	60	0.006	15,783	210
1.2	10	0.05D	0.15D	60	0.006	15,783	210	60	0.006	15,783	210
1.2	12	0.02D	0.10D	49	0.006	12,998	175	49	0.006	12,998	175
1.2	8	0.05D	0.15D	60	0.006	15,783	210	60	0.006	15,783	210
1.2	12	0.02D	0.10D	49	0.006	12,998	175	49	0.006	12,998	175
1.2	16	0.02D	0.10D	49	0.006	12,998	175	49	0.006	12,998	175
1.4	8	0.05D	0.20D	70	0.011	15,916	350	70	0.011	15,916	350
1.4	12	0.05D	0.15D	60	0.007	13,528	210	60	0.007	13,528	210
1.4	16	0.02D	0.10D	49	0.008	11,141	175	49	0.008	11,141	175
1.5	8	0.05D	0.20D	70	0.011	14,855	327	70	0.011	14,855	327
1.5	12	0.05D	0.15D	60	0.007	12,626	196	60	0.007	12,626	196
1.5	16	0.02D	0.10D	49	0.008	10,398	163	49	0.008	10,398	163
1.5	18	0.02D	0.10D	49	0.008	10,398	163	49	0.008	10,398	163
1.6	8	0.05D	0.20D	70	0.011	13,926	322	70	0.011	13,926	322
1.6	12	0.05D	0.15D	60	0.008	11,837	193	60	0.008	11,837	193
1.6	16	0.02D	0.10D	49	0.008	9,748	161	49	0.008	9,748	161
1.6	20	0.02D	0.10D	49	0.008	9,748	161	49	0.008	9,748	161
1.8	8	0.05D	0.20D	70	0.012	12,379	312	70	0.012	12,379	312
1.8	12	0.05D	0.15D	60	0.008	10,522	187	60	0.008	10,522	187
1.8	16	0.05D	0.15D	60	0.008	10,522	187	60	0.008	10,522	187
1.8	20	0.02D	0.10D	49	0.009	8,665	156	49	0.009	8,665	156

BN 45 Miniature Ballnose Cutters with long neck



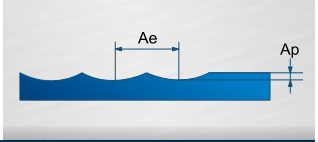
2 Z Profile Milling				CAST IRON SS400,NODULAR IRON, MALLEABLE IRON				ALLOY STEELS,TOOLS STEELS			
Work Material											
Material Groups				M10,M11,M12,M13,M14				M17,M19,M21,M23,M24			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	70	0.014	11,141	315	70	0.014	11,141	315
2.0	6	0.05D	0.20D	70	0.014	11,141	315	70	0.014	11,141	315
2.0	8	0.05D	0.20D	70	0.014	11,141	315	70	0.014	11,141	315
2.0	10	0.05D	0.20D	70	0.014	11,141	315	70	0.014	11,141	315
2.0	12	0.05D	0.15D	60	0.010	9,469	189	60	0.010	9,469	189
2.0	14	0.05D	0.15D	60	0.010	9,469	189	60	0.010	9,469	189
2.0	16	0.05D	0.15D	60	0.010	9,469	189	60	0.010	9,469	189
2.0	18	0.05D	0.15D	60	0.010	9,469	189	60	0.010	9,469	189
2.0	20	0.02D	0.10D	49	0.010	7,798	158	49	0.010	7,798	158
2.0	22	0.02D	0.10D	49	0.010	7,798	158	49	0.010	7,798	158
2.0	25	0.02D	0.10D	49	0.010	7,798	158	49	0.010	7,798	158
2.0	30	0.02D	0.10D	49	0.010	7,798	158	49	0.010	7,798	158
3.0	8	0.05D	0.20D	70	0.019	7,427	289	70	0.019	7,427	289
3.0	10	0.05D	0.20D	70	0.019	7,427	289	70	0.019	7,427	289
3.0	16	0.05D	0.20D	70	0.019	7,427	289	70	0.019	7,427	289
3.0	20	0.05D	0.15D	60	0.013	6,313	173	60	0.013	6,313	173
3.0	25	0.05D	0.15D	60	0.013	6,313	173	60	0.013	6,313	173
3.0	30	0.02D	0.10D	49	0.013	5,199	144	49	0.013	5,199	144
3.0	35	0.02D	0.10D	49	0.013	5,199	144	49	0.013	5,199	144
4.0	10	0.05D	0.20D	70	0.024	5,571	275	70	0.024	5,571	275
4.0	16	0.05D	0.20D	70	0.024	5,571	275	70	0.024	5,571	275
4.0	20	0.05D	0.20D	70	0.024	5,571	275	70	0.024	5,571	275
4.0	25	0.05D	0.15D	60	0.017	4,735	165	60	0.017	4,735	165
4.0	30	0.05D	0.15D	60	0.017	4,735	165	60	0.017	4,735	165
4.0	35	0.05D	0.15D	60	0.017	4,735	165	60	0.017	4,735	165
4.0	40	0.02D	0.10D	49	0.017	3,899	138	49	0.017	3,899	138
4.0	45	0.02D	0.10D	49	0.017	3,899	138	49	0.017	3,899	138
4.0	50	0.02D	0.10D	49	0.017	3,899	138	49	0.017	3,899	138

BN 45 Miniature Ballnose Cutters with long neck



2 Z Slotting				HARDENED STEELS			
Work Material							
Material Groups				M26			
D (mm)	l 2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	0.05D	0.20D	25	0.002	40,000	160
0.2	1	0.05D	0.20D	25	0.002	40,000	160
0.2	1.5	0.05D	0.15D	21	0.001	34,000	96
0.3	1	0.05D	0.20D	38	0.002	40,000	160
0.3	2	0.05D	0.15D	32	0.001	34,000	96
0.3	3	0.02D	0.10D	27	0.001	28,000	80
0.4	1	0.05D	0.20D	50	0.002	40,000	160
0.4	2	0.05D	0.20D	50	0.002	40,000	160
0.4	3	0.05D	0.15D	43	0.001	34,000	96
0.4	4	0.02D	0.10D	35	0.001	28,000	80
0.4	5	0.02D	0.10D	35	0.001	28,000	80
0.5	2	0.05D	0.20D	62	0.004	39,099	315
0.5	3	0.05D	0.15D	52	0.003	33,234	189
0.5	4	0.05D	0.15D	52	0.003	33,234	189
0.5	5	0.02D	0.10D	43	0.003	27,369	157
0.5	6	0.02D	0.10D	43	0.003	27,369	157
0.5	8	0.02D	0.10D	37	0.003	23,459	126
0.6	2	0.05D	0.20D	68	0.005	35,916	336
0.6	3	0.05D	0.20D	68	0.005	35,916	336
0.6	4	0.05D	0.15D	57	0.003	30,528	201
0.6	5	0.05D	0.15D	57	0.003	30,528	201
0.6	6	0.02D	0.10D	47	0.003	25,141	168
0.6	8	0.02D	0.10D	47	0.003	25,141	168
0.8	2	0.05D	0.20D	70	0.005	27,852	295
0.8	4	0.05D	0.20D	70	0.005	27,852	295
0.8	5	0.05D	0.15D	60	0.004	23,674	177
0.8	6	0.05D	0.15D	60	0.004	23,674	177
0.8	7	0.05D	0.15D	60	0.004	23,674	177
0.8	8	0.02D	0.10D	49	0.004	19,496	147
0.8	10	0.02D	0.10D	49	0.004	19,496	147
1.0	3	0.05D	0.20D	70	0.006	22,282	280
1.0	4	0.05D	0.20D	70	0.006	22,282	280
1.0	5	0.05D	0.20D	70	0.006	22,282	280
1.0	6	0.05D	0.15D	60	0.004	18,940	168
1.0	7	0.05D	0.15D	60	0.004	18,940	168
1.0	8	0.05D	0.15D	60	0.004	18,940	168
1.0	9	0.05D	0.15D	60	0.004	18,940	168
1.0	10	0.02D	0.10D	49	0.004	15,597	140
1.0	12	0.02D	0.10D	49	0.004	15,597	140
1.0	14	0.02D	0.10D	49	0.004	15,597	140
1.0	20	0.02D	0.10D	42	0.004	13,369	112
1.2	6	0.05D	0.20D	70	0.006	18,568	234
1.2	8	0.05D	0.15D	60	0.004	15,783	140
1.2	10	0.05D	0.15D	60	0.004	15,783	140
1.2	12	0.02D	0.10D	49	0.004	12,998	117
1.2	8	0.05D	0.15D	60	0.004	15,783	140
1.2	12	0.02D	0.10D	49	0.004	12,998	117
1.2	16	0.02D	0.10D	49	0.004	12,998	117
1.4	8	0.05D	0.20D	70	0.007	15,916	232
1.4	12	0.05D	0.15D	60	0.005	13,528	139
1.4	16	0.02D	0.10D	49	0.005	11,141	116
1.5	8	0.05D	0.20D	70	0.008	14,855	234
1.5	12	0.05D	0.15D	60	0.005	12,626	140
1.5	16	0.02D	0.10D	49	0.005	10,398	117
1.5	18	0.02D	0.10D	49	0.005	10,398	117
1.6	8	0.05D	0.20D	70	0.008	13,926	219
1.6	12	0.05D	0.15D	60	0.005	11,837	131
1.6	16	0.02D	0.10D	49	0.005	9,748	109
1.6	20	0.02D	0.10D	49	0.005	9,748	109
1.8	8	0.05D	0.20D	70	0.009	12,379	219
1.8	12	0.05D	0.15D	60	0.006	10,522	131
1.8	16	0.05D	0.15D	60	0.006	10,522	131
1.8	20	0.02D	0.10D	49	0.006	8,665	110

BN 45 Miniature Ballnose Cutters with long neck



2 Z Slotting				HARDENED STEELS			
Work Material							
Material Groups				M26			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	70	0.009	11,141	211
2.0	6	0.05D	0.20D	70	0.009	11,141	211
2.0	8	0.05D	0.20D	70	0.009	11,141	211
2.0	10	0.05D	0.20D	70	0.009	11,141	211
2.0	12	0.05D	0.15D	60	0.006	9,469	126
2.0	14	0.05D	0.15D	60	0.006	9,469	126
2.0	16	0.05D	0.15D	60	0.006	9,469	126
2.0	18	0.05D	0.15D	60	0.006	9,469	126
2.0	20	0.02D	0.10D	49	0.006	7,798	105
2.0	22	0.02D	0.10D	49	0.006	7,798	105
2.0	25	0.02D	0.10D	49	0.006	7,798	105
2.0	30	0.02D	0.10D	49	0.006	7,798	105
3.0	8	0.05D	0.20D	70	0.013	7,427	202
3.0	10	0.05D	0.20D	70	0.013	7,427	202
3.0	16	0.05D	0.20D	70	0.013	7,427	202
3.0	20	0.05D	0.15D	60	0.009	6,313	121
3.0	25	0.05D	0.15D	60	0.009	6,313	121
3.0	30	0.02D	0.10D	49	0.009	5,199	101
3.0	35	0.02D	0.10D	49	0.009	5,199	101
4.0	10	0.05D	0.20D	70	0.016	5,571	186
4.0	16	0.05D	0.20D	70	0.016	5,571	186
4.0	20	0.05D	0.20D	70	0.016	5,571	186
4.0	25	0.05D	0.15D	60	0.011	4,735	112
4.0	30	0.05D	0.15D	60	0.011	4,735	112
4.0	35	0.05D	0.15D	60	0.011	4,735	112
4.0	40	0.02D	0.10D	49	0.011	3,899	93
4.0	45	0.02D	0.10D	49	0.011	3,899	93
4.0	50	0.02D	0.10D	49	0.011	3,899	93

BN60

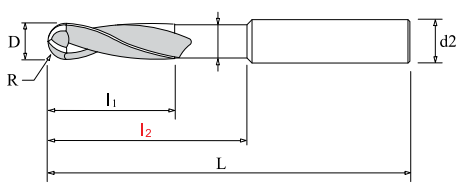
BN 60 STANDARD BALLNOSE CUTTERS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide BN 60 Standard Ballnose Cutters, 2 flutes
Fraises BN 60 Standard en carbure monobloc, à bout hémisphérique, 2 dents
整体硬质合金 BN 60 系列 球头 立铣刀 2 刃 – 标准长度
VHM Standard BN 60 Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 60 Standard, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l1	l2	L	d2 (h6)	657* B0819	A69* B0909
0050	0.5	0.25	1.2		40	4	●	●
0050 050 06	0.5	0.25	1.2		50	6	●	●
0060	0.6	0.3	1.4		40	4	●	●
0060 050 06	0.6	0.3	1.4		50	6	●	●
0080	0.8	0.4	1.8		40	4	●	●
0080 050 06	0.8	0.4	1.8		50	6	●	●
0100	1	0.5	3	4	40	4	●	●
0100 050 06	1	0.5	3	4	50	6	●	●
0150	1.5	0.75	3	6	40	4	●	●
0150 050 06	1.5	0.75	3	6	50	6	●	●
0200	2	1	4	8	40	4	●	●
0200 050 06	2	1	4	8	50	6	●	●
0250	2.5	1.25	4	10	40	4	●	●
0250 050 06	2.5	1.25	4	10	50	6	●	●
0300	3	1.5	5	14	40	3	●	●
0300 050 04	3	1.5	5	14	50	4	●	●
0300 060 06	3	1.5	5	14	50	6	●	●
0400	4	2	8	20	50	4	●	●
0400 050 06	4	2	8	20	50	6	●	●
0500	5	2.5	9	20	50	5	●	●
0500 050 06	5	2.5	9	20	50	6	●	●
0600 050	6	3	10	20	50	6	●	●
0600 060	6	3	10	30	60	6	●	●
0800	8	4	12	30	64	8	●	●
1000	10	5	14	32	70	10	●	●
1200	12	6	16	38	75	12	●	●
1400	14	7	32	44	90	14	●	●
1600	16	8	32	46	90	16	●	●
1800	18	9	38	53	100	18	●	●
2000	20	10	38	58	100	20	●	●
2200	22	11	40	58	100	22	●	●
2500	25	12.85	40	58	100	25	●	●
						520*	658*	A70*

Recess



Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
●	●	●	●																						

Working Material	Cutting Parameter
564	354

若有技术规格变更，恕不事先通知

BN 60 STANDARD BALLNOSE CUTTERS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide BN 60 Standard Ballnose Cutters, 4 flutes

Fraises BN 60 Standard en carbure monobloc, à bout hémisphérique, 4 dents

整体硬质合金 BN 60 系列 球头 立铣刀 4 刃 – 标准长度

VHM Standard BN 60 Radiusschaftfräser, 4 Zähne

Frese cilindriche a raggio in metallo duro integrale, tipo BN 60 Standard, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						529*	A1L*
	D	R	l 1	l 2	L	d2 (h6)	B0819	B0909
0300	3	1.5	5		40	3	○	●
0300 050 06	3	1.5	5		50	6	○	●
0400	4	2	8		50	4	○	●
0400 050 06	4	2	8		50	6	○	●
0500	5	2.5	9		50	5	○	●
0500 050 06	5	2.5	9		50	6	○	●
0600 050	6	3	10		50	6	○	●
0600 060	6	3	10		60	6	○	●
0800	8	4	12		64	8	○	●
1000	10	5	14		70	10	○	●
1200	12	6	16		75	12	○	●
1400	14	7	32		90	14	○	●
1600	16	8	32		90	16	○	●
1800	18	9	38		100	18	○	●
2000	20	10	38		100	20	○	●
2200	22	11	40		100	22	○	●
2500	25	12.5	40		100	25	○	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	357

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

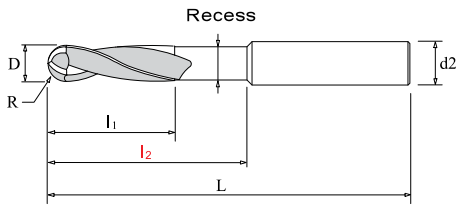
BN 60 BALLNOSE CUTTERS - LONG

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide BN 60 Long Ballnose Cutters, 2 flutes
Fraises BN 60 longues en carbure monobloc, à bout hémisphérique, 2 dents
整体硬质合金 BN 60 系列 球头 立铣刀 2 刃 – 中长
VHM lange BN 60 Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 60 lunghe, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l1	l2	L	d2 (h6)	790* B0819	A71* B0909
0100 04	1	0.5	3	7	75	4	●	●
0100 075 06	1	0.5	3	7	75	6	●	●
0150 04	1.5	0.75	3	10	75	4	●	●
0150 075 06	1.5	0.75	3	10	75	6	●	●
0200 04	2	1	4	14	75	4	●	●
0200 075 06	2	1	4	14	75	6	●	●
0250 04	2.5	1.25	4	18	75	4	●	●
0250 075 06	2.5	1.25	4	18	75	6	●	●
0300	3	1.5	5	21	60	3	●	●
0300 075 06	3	1.5	5	21	75	6	●	●
0400	4	2	8	28	60	4	●	●
0400 075 06	4	2	8	28	75	6	●	●
0500	5	2.5	9	32	60	5	●	●
0500 075 06	5	2.5	9	32	75	6	●	●
0600	6	3	10	40	75	6	●	●
0800	8	4	12	40	75	8	●	●
1000 075	10	5	14	40	75	10	●	●
1000 100	10	5	14	60	100	10	●	●
1200	12	6	16	60	100	12	●	●
1400	14	7	32	80	125	14	●	●
1600	16	8	32	80	125	16	●	●
1800	18	9	38	80	125	18	●	●
2000	20	10	38	80	125	20	●	●
							791*	A72*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

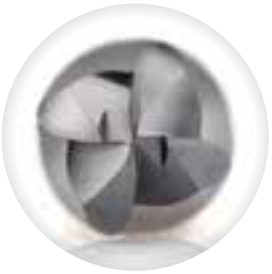
Working Material	Cutting Parameter
564	360

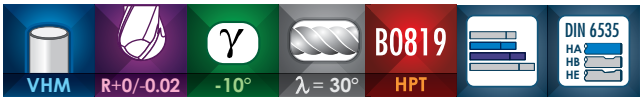
TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

BN 60 BALLNOSE CUTTERS - LONG

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide BN 60 Long Ballnose Cutters, 4 flutes
Fraises BN 60 longues en carbure monobloc, à bout hémisphérique, 4 dents
整体硬质合金 BN 60 系列 球头 立铣刀 4 刃 – 中长
VHM lange BN 60 Radiusschaftfräser, 4 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 60 lunghe, 4 taglienti





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l 1	l 2	L	d2 (h6)	545* B0819
0300	3	1.5	5		60	3	O
0300 075 06	3	1.5	5		75	6	O
0400	4	2	8		60	4	O
0400 075 06	4	2	8		75	6	O
0500	5	2.5	9		60	5	O
0500 075 06	5	2.5	9		75	6	O
0600	6	3	10		75	6	O
0800	8	4	12		75	8	O
1000 075	10	5	14		75	10	O
1000 100	10	5	14		100	10	O
1200	12	6	16		100	12	O
1400	14	7	32		125	14	O
1600	16	8	32		125	16	O
1800	18	9	38		125	18	O
2000	20	10	38		125	20	O

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
•	•	•	•			

Working Material	Cutting Parameter
564	363

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

BN 60 BALLNOSE CUTTERS - EXTRA-LONG

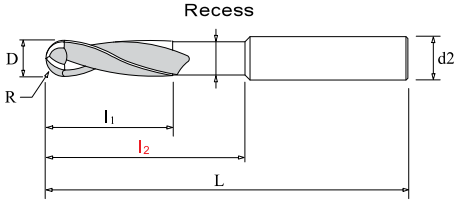
≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide BN 60 Extra-Long Ballnose Cutters, 2 flutes
Fraises BN 60 extra-longues en carbure monobloc, à bout hémisphérique, 2 dents
整体硬质合金 BN 60 系列 球头 立铣刀 2 刃 – 加长
VHM extra-lange BN 60 Radiusschaftfräser, 2 Zähne
Frese cilindriche a raggio in metallo duro integrale, tipo BN 60 extra-lunghe, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						797*	A73*
	D	R	l1	l2	L	d2 (h6)	B0819	B0909
0100 04	1	0.5	3	10	100	4	●	●
0100 100 06	1	0.5	3	10	100	6	●	●
0150 04	1.5	0.75	3	15	100	4	●	●
0150 100 06	1.5	0.75	3	15	100	6	●	●
0200 04	2	1	4	20	100	4	●	●
0200 100 06	2	1	4	20	100	6	●	●
0250 04	2.5	1.25	4	25	100	4	●	●
0250 100 06	2.5	1.25	4	10	100	6	●	●
0300	3	1.5	5	30	100	3	●	●
0300 100 06	3	1.5	5	30	100	6	●	●
0400	4	2	8	40	100	4	●	●
0400 100 06	4	2	8	40	100	6	●	●
0500	5	2.5	9	50	100	5	●	●
0500 100 06	5	2.5	9	50	100	6	●	●
0600 100	6	3	10	60	100	6	●	●
0600 150	6	3	10	60	150	6	●	●
0800 100	8	4	12	60	100	8	●	●
0800 150	8	4	12	80	150	8	●	●
1000 125	10	5	14	85	125	10	●	●
1000 150	10	5	14	100	150	10	●	●
1200 125	12	6	16	85	125	12	●	●
1200 150	12	6	16	110	150	12	●	●
1400 150	14	7	32	110	150	14	●	●
1400 200	14	7	32	150	200	14	●	●
1600 150	16	8	32	110	150	16	●	●
1600 200	16	8	32	150	200	16	●	●
1800 150	18	9	38	110	150	18	●	●
1800 200	18	9	38	150	200	18	●	●
2000 150	20	10	38	110	150	20	●	●
2000 200	20	10	38	150	200	20	●	●
							911*	A74*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	366

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

BN 60 MINIATURE BALLNOSE CUTTERS

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide BN 60 Miniature Ballnose Cutters, 2 flutes
Micro-fraises BN 60 en carbure monobloc à bout hémisphérique, 2 dents
整体硬质合金 BN 60 系列 微型球头 立铣刀 2 刃 – 标准长度
VHM BN 60 Radiuskleinstschaftfräser, 2 Zähne
Micro-frese cilindriche a raggio in metallo duro integrale, tipo BN60, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						993*	A75*
	D	R	l 1	l 2	L	d2 (h6)	B0819	B0909
0020 03	0.2	0.1	0.4		40	3	●	●
0020 04	0.2	0.1	0.4		40	4	●	●
0030 03	0.3	0.15	0.6		40	3	●	●
0030 04	0.3	0.15	0.6		40	4	●	●
0040 03	0.4	0.2	0.8		40	3	●	●
0040 04	0.4	0.2	0.8		40	4	●	●
0050 03	0.5	0.25	1.2		40	3	●	●
0050 04	0.5	0.25	1.2		40	4	●	●
0060 03	0.6	0.3	1.4		40	3	●	●
0060 04	0.6	0.3	1.4		40	4	●	●
0070 03	0.7	0.35	1.6		40	3	●	●
0070 04	0.7	0.35	1.6		40	4	●	●
0080 03	0.8	0.4	1.8		40	3	●	●
0080 04	0.8	0.4	1.8		40	4	●	●
0090 03	0.9	0.45	2		40	3	●	●
0090 04	0.9	0.45	2		40	4	●	●

Ø mm	Tol. µm
0.1 ~ 0.7	0 / -12
0.7 ~ 4.0	0 / -20

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	369

若有技术规格变更，恕不事先通知

BN 60 MINIATURE BALLNOSE CUTTERS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

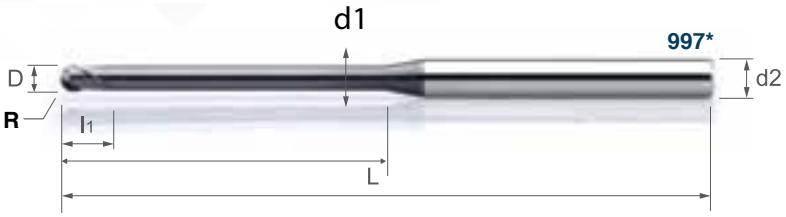
Solid Carbide BN 60 Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises BN 60 en carbure monobloc avec bout hémisphérique et cou long, 2 dents

整体硬质合金 BN 60 系列 长颈短刃 球头 立铣刀 2 刃

VHM Kleinst-Radiusfräser BN 60 mit langem Hals, 2 Zähne

Micro-frese cilindriche BN 60 a raggio con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)							997*	A76*
	D	R	l 1	l 2	L	d1	d2 (h6)	B0819	B0909
0020 050 0400 005	0.2	0.10	0.2	0.5	50	0.15	4	●	●
0020 050 0400 010	0.2	0.10	0.2	1.0	50	0.15	4	●	●
0020 050 0400 015	0.2	0.10	0.2	1.5	50	0.15	4	●	●
0030 050 0400 010	0.3	0.15	0.3	1.0	50	0.25	4	●	●
0030 050 0400 020	0.3	0.15	0.3	2.0	50	0.25	4	●	●
0030 050 0400 030	0.3	0.15	0.3	3.0	50	0.25	4	●	●
0040 050 0400 010	0.4	0.20	0.4	1.0	50	0.35	4	●	●
0040 050 0400 020	0.4	0.20	0.4	2.0	50	0.35	4	●	●
0040 050 0400 030	0.4	0.20	0.4	3.0	50	0.35	4	●	●
0040 050 0400 040	0.4	0.20	0.4	4.0	50	0.35	4	●	●
0040 050 0400 050	0.4	0.20	0.4	5.0	50	0.35	4	●	●
0050 050 0400 020	0.5	0.25	0.4	2.0	50	0.45	4	●	●
0050 050 0400 030	0.5	0.25	0.4	3.0	50	0.45	4	●	●
0050 050 0400 040	0.5	0.25	0.4	4.0	50	0.45	4	●	●
0050 050 0400 050	0.5	0.25	0.4	5.0	50	0.45	4	●	●
0050 050 0400 060	0.5	0.25	0.4	6.0	50	0.45	4	●	●
0050 050 0400 080	0.5	0.25	0.4	8.0	50	0.45	4	●	●
0060 050 0400 020	0.6	0.30	0.5	2.0	50	0.55	4	●	●
0060 050 0400 030	0.6	0.30	0.5	3.0	50	0.55	4	●	●
0060 050 0400 040	0.6	0.30	0.5	4.0	50	0.55	4	●	●
0060 050 0400 050	0.6	0.30	0.5	5.0	50	0.55	4	●	●
0060 050 0400 060	0.6	0.30	0.5	6.0	50	0.55	4	●	●
0060 050 0400 080	0.6	0.30	0.5	8.0	50	0.55	4	●	●
0080 050 0400 020	0.8	0.40	0.6	2.0	50	0.75	4	●	●
0080 050 0400 040	0.8	0.40	0.6	4.0	50	0.75	4	●	●
0080 050 0400 050	0.8	0.40	0.6	5.0	50	0.75	4	●	●
0080 050 0400 060	0.8	0.40	0.6	6.0	50	0.75	4	●	●
0080 050 0400 070	0.8	0.40	0.6	7.0	50	0.75	4	●	●
0080 050 0400 080	0.8	0.40	0.6	8.0	50	0.75	4	●	●
0080 050 0400 100	0.8	0.40	0.6	10.0	50	0.75	4	●	●
0100 050 0400 030	1.0	0.50	0.8	3.0	50	0.95	4	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	369

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

BN 60 MINIATURE BALLNOSE CUTTERS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

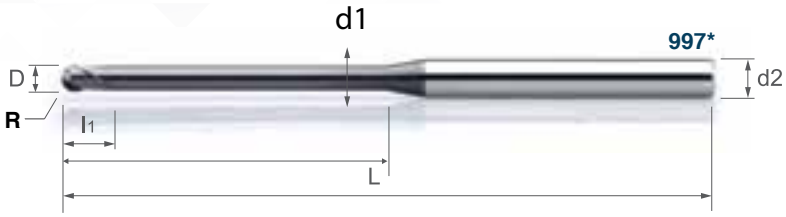
Solid Carbide BN 60 Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises BN 60 en carbure monobloc avec bout hémisphérique et cou long, 2 dents

整体硬质合金 BN 60 系列 长颈短刃 球头 立铣刀 2 刃

VHM Kleinst-Radiusfräser BN 60 mit langem Hals, 2 Zähne

Micro-frese cilindriche BN 60 a raggio con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l1	l2	L	d1	d2 (h6)	997* B0819	A76* B0909
0100 050 0400 040	1.0	0.50	0.8	4.0	50	0.95	4	●	●
0100 050 0400 050	1.0	0.50	0.8	5.0	50	0.95	4	●	●
0100 050 0400 060	1.0	0.50	0.8	6.0	50	0.95	4	●	●
0100 050 0400 070	1.0	0.50	0.8	7.0	50	0.95	4	●	●
0100 050 0400 080	1.0	0.50	0.8	8.0	50	0.95	4	●	●
0100 050 0400 090	1.0	0.50	0.8	9.0	50	0.95	4	●	●
0100 050 0400 100	1.0	0.50	0.8	10.0	50	0.95	4	●	●
0100 050 0400 120	1.0	0.50	0.8	12.0	50	0.95	4	●	●
0100 050 0400 140	1.0	0.50	0.8	14.0	50	0.95	4	●	●
0100 050 0400 160	1.0	0.50	0.8	14.0	50	0.95	4	●	●
0100 060 0400 200	1.0	0.50	0.8	20.0	60	0.95	4	●	●
0120 050 0400 060	1.2	0.60	1.0	6.0	50	1.15	4	●	●
0120 050 0400 080	1.2	0.60	1.0	8.0	50	1.15	4	●	●
0120 050 0400 100	1.2	0.60	1.0	10.0	50	1.15	4	●	●
0120 050 0400 120	1.2	0.60	1.0	12.0	50	1.15	4	●	●
0140 050 0400 080	1.4	0.70	1.1	8.0	50	1.35	4	●	●
0140 050 0400 120	1.4	0.70	1.1	12.0	50	1.35	4	●	●
0140 050 0400 160	1.4	0.70	1.1	16.0	50	1.35	4	●	●
0150 050 0400 080	1.5	0.75	1.2	8.0	50	1.45	4	●	●
0150 050 0400 120	1.5	0.75	1.2	12.0	50	1.45	4	●	●
0150 050 0400 160	1.5	0.75	1.2	16.0	50	1.45	4	●	●
0150 060 0400 180	1.5	0.75	1.2	18.0	60	1.45	4	●	●
0160 050 0400 080	1.6	0.80	1.3	8.0	50	1.55	4	●	●
0160 050 0400 120	1.6	0.80	1.3	12.0	50	1.55	4	●	●
0160 050 0400 160	1.6	0.80	1.3	16.0	50	1.55	4	●	●
0160 060 0400 200	1.6	0.80	1.3	20.0	60	1.55	4	●	●
0180 050 0400 080	1.8	0.90	1.4	8.0	50	1.75	4	●	●
0180 050 0400 120	1.8	0.90	1.4	12.0	50	1.75	4	●	●
0180 050 0400 160	1.8	0.90	1.4	16.0	50	1.75	4	●	●
0180 060 0400 200	1.8	0.90	1.4	20.0	60	1.75	4	●	●
0200 050 0400 040	2	1.00	1.6	4.0	50	1.95	4	●	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	369

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

BN 60 MINIATURE BALLNOSE CUTTERS - with Long Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

Solid Carbide BN 60 Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises BN 60 en carbure monobloc avec bout hémisphérique et cou long, 2 dents

整体硬质合金 BN 60 系列 长颈短刃 球头 立铣刀 2 刃

VHM Kleinst-Radiusfräser BN 60 mit langem Hals, 2 Zähne

Micro-frese cilindriche BN 60 a raggio con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)							997*	A76*
	D	R	l 1	l 2	L	d1	d2 (h6)	B0819	B0909
0200 050 0400 060	2	1.00	1.6	6.0	50	1.95	4	●	●
0200 050 0400 080	2	1.00	1.6	8.0	50	1.95	4	●	●
0200 050 0400 100	2	1.00	1.6	10.0	50	1.95	4	●	●
0200 050 0400 120	2	1.00	1.6	12.0	50	1.95	4	●	●
0200 050 0400 140	2	1.00	1.6	14.0	50	1.95	4	●	●
0200 050 0400 160	2	1.00	1.6	16.0	50	1.95	4	●	●
0200 060 0400 180	2	1.00	1.6	18.0	60	1.95	4	●	●
0200 060 0400 200	2	1.00	1.6	20.0	60	1.95	4	●	●
0200 060 0400 220	2	1.00	1.6	22.0	60	1.95	4	●	●
0200 075 0400 250	2	1.00	1.6	25.0	75	1.95	4	●	●
0200 075 0400 300	2	1.00	1.6	30.0	75	1.95	4	●	●
0300 050 0600 080	3	1.50	2.4	8.0	50	2.85	6	●	●
0300 050 0600 100	3	1.50	2.4	10.0	50	2.85	6	●	●
0300 060 0600 160	3	1.50	2.4	16.0	60	2.85	6	●	●
0300 060 0600 200	3	1.50	2.4	20.0	60	2.85	6	●	●
0300 075 0600 250	3	1.50	2.4	25.0	75	2.85	6	●	●
0300 075 0600 300	3	1.50	2.4	30.0	75	2.85	6	●	●
0300 075 0600 350	3	1.50	2.4	35.0	75	2.85	6	●	●
0400 050 0600 100	4	2.00	3.2	10.0	50	3.85	6	●	●
0400 060 0600 160	4	2.00	3.2	16.0	60	3.85	6	●	●
0400 060 0600 200	4	2.00	3.2	20.0	60	3.85	6	●	●
0400 075 0600 250	4	2.00	3.2	25.0	75	3.85	6	●	●
0400 075 0600 300	4	2.00	3.2	30.0	75	3.85	6	●	●
0400 075 0600 350	4	2.00	3.2	35.0	75	3.85	6	●	●
0400 100 0600 400	4	2.00	3.2	40.0	100	3.85	6	●	●
0400 100 0600 450	4	2.00	3.2	45.0	100	3.85	6	●	●
0400 100 0600 500	4	2.00	3.2	50.0	100	3.85	6	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	369

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

BN 60 BALLNOSE CUTERS - with Taper Neck

≤ 1.600 N/mm² + B0819 / B0909 ≤ 65 HRC

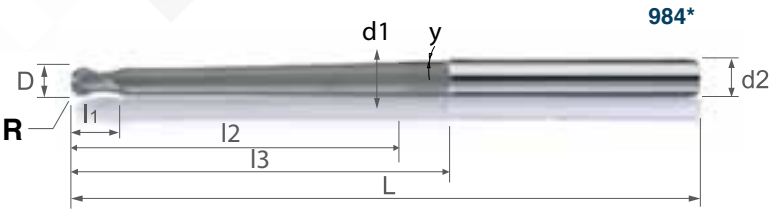
Solid Carbide BN 60 Ballnose Cutters with taper neck, 2 flutes

Fraises à bout hémisphérique BN 60 en carbure monobloc avec cou conique, 2 dents

整体硬质合金 BN 60 系列 锥颈位 球头 立铣刀 2 刃

VHM BN 60 Radiusfräser mit konischem Hals, 2 Zähne

Frese cilindriche BN 60 a raggio in metallo duro integrale con collo conico, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)								984*	A77*
=*+Ødata	D	R	l1	l2	l3	L	d2 (h6)	y	B0819	B0909
0100 020 06 080	1.0	0.5	1.5	4.0	20	60	6	8°	●	●
0100 040 06 040	1.0	0.5	1.5	4.0	40	75	6	4°	●	●
0150 020 06 070	1.5	0.75	2.3	7.5	20	60	6	7°	●	●
0150 040 06 035	1.5	0.75	2.3	7.5	40	75	6	3.5°	●	●
0200 020 06 067	2.0	1	3.0	8.0	20	60	6	6.7°	●	●
0200 040 06 029	2.0	1	3.0	8.0	40	75	6	2.9°	●	●
0200 040 06 010	2.0	1	3.0	8.0	40	75	6	1°	●	●
0300 020 06 043	3.0	1.5	3.5	10.0	20	60	6	4.3°	●	●
0300 040 06 022	3.0	1.5	3.5	12.0	40	75	6	2.2°	●	●
0300 045 06 010	3.0	1.5	3.5	12.0	45	75	6	1°	●	●
0400 020 06 029	4.0	2	4.0	12.0	20	60	6	2.9°	●	●
0400 040 06 014	4.0	2	4.0	20.0	40	75	6	1.4°	●	●
0400 060 06 010	4.0	2	4.0	20.0	60	100	6	1°	●	●
0500 040 06 007	5.0	2.5	6.0	25.0	40	75	6	0.7°	●	●
0600 020 06 000	6.0	3	6.0	20.0	20	60	6	-	●	●
0600 040 06 000	6.0	3	6.0	40.0	40	75	6	-	●	●
0600 060 08 010	6.0	3	6.0	25.0	60	100	8	1°	●	●
0600 080 08 010	6.0	3	6.0	25.0	80	125	8	1°	●	●
0800 025 08 000	8.0	4	7.0	25.0	25	64	8	-	●	●
0800 060 08 000	8.0	4	7.0	60.0	60	100	8	-	●	●
0800 075 10 008	8.0	4	7.0	30.0	75	125	10	0.8°	●	●
0800 105 10 006	8.0	4	7.0	20.0	105	150	10	0.6°	●	●
1000 030 10 000	10.0	5	8.0	30.0	30	75	10	-	●	●
1000 075 10 000	10.0	5	8.0	75.0	75	125	10	-	●	●
1000 070 12 008	10.0	5	8.0	30.0	70	125	12	0.8°	●	●
1200 035 12 000	12.0	6	10.0	35.0	35	100	12	-	●	●
1200 070 12 000	12.0	6	10.0	70.0	70	125	12	-	●	●
1200 090 16 013	12.0	6	10.0	35.0	90	150	16	1.3°	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

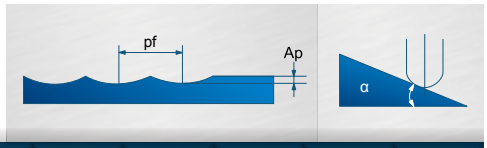
M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	-

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

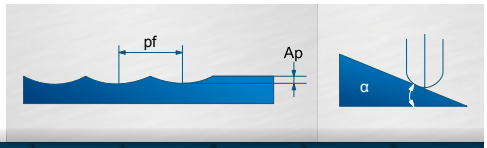
BN 60 Standard Series Ballnose Cutters



2 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 400
		0.8	2	101	0.002 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 400
		1	2	126	0.004 ~ 0.006	≤0.05D(Max 0.5)	≤0.1D	40000	320 ~ 480
		1.5	2	188	0.007 ~ 0.009	≤0.05D(Max 0.5)	≤0.1D	40000	560 ~ 720
		2	2	234 ~ 251	0.010 ~ 0.012	≤0.05D(Max 0.5)	≤0.2D	37240 ~ 40000	740 ~ 960
		2.5	2	234 ~ 314	0.013 ~ 0.016	≤0.05D(Max 0.5)	≤0.2D	29790 ~ 40000	770 ~ 1280
		3	2	234 ~ 328	0.016 ~ 0.019	≤0.05D(Max 0.5)	≤0.2D	24830 ~ 34760	790 ~ 1320
		4	2	234 ~ 328	0.022 ~ 0.025	≤0.05D(Max 0.5)	≤0.2D	18620 ~ 26070	820 ~ 1300
		5	2	234 ~ 328	0.029 ~ 0.032	≤0.05D(Max 0.5)	≤0.2D	14900 ~ 20860	860 ~ 1340
		6	2	234 ~ 328	0.035 ~ 0.038	≤0.05D(Max 0.5)	≤0.2D	12410 ~ 17380	870 ~ 1320
		8	2	234 ~ 327	0.043 ~ 0.048	≤0.05D(Max 0.5)	≤0.2D	9310 ~ 13030	800 ~ 1250
		10	2	234 ~ 328	0.052 ~ 0.057	≤0.05D(Max 0.5)	≤0.2D	7450 ~ 10430	770 ~ 1190
		12	2	234 ~ 328	0.061 ~ 0.067	≤0.05D(Max 0.5)	≤0.2D	6210 ~ 8690	760 ~ 1160
		14	2	234 ~ 328	0.069 ~ 0.076	≤0.05D(Max 0.5)	≤0.2D	5320 ~ 7450	730 ~ 1130
		16	2	234 ~ 328	0.078 ~ 0.085	≤0.05D(Max 0.5)	≤0.2D	4660 ~ 6520	730 ~ 1110
		18	2	234 ~ 327	0.086 ~ 0.095	≤0.05D(Max 0.5)	≤0.2D	4140 ~ 5790	710 ~ 1100
		20	2	234 ~ 327	0.095 ~ 0.104	≤0.05D(Max 0.5)	≤0.2D	3720 ~ 5210	710 ~ 1080

		α > 15°						
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 320
		1	2	126	0.003 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	40000	240 ~ 400
		1.5	2	188	0.005 ~ 0.007	≤0.05D(Max 0.5)	≤0.1D	40000	400 ~ 560
		2	2	218 ~ 251	0.008 ~ 0.010	≤0.05D(Max 0.5)	≤0.2D	34760 ~ 40000	560 ~ 800
		2.5	2	218 ~ 306	0.010 ~ 0.012	≤0.05D(Max 0.5)	≤0.2D	27810 ~ 38930	560 ~ 930
		3	2	218 ~ 306	0.013 ~ 0.015	≤0.05D(Max 0.5)	≤0.2D	23170 ~ 32440	600 ~ 970
		4	2	218 ~ 306	0.018 ~ 0.020	≤0.05D(Max 0.5)	≤0.2D	17380 ~ 24330	630 ~ 970
		5	2	218 ~ 306	0.023 ~ 0.025	≤0.05D(Max 0.5)	≤0.2D	13900 ~ 19470	640 ~ 970
		6	2	218 ~ 306	0.028 ~ 0.031	≤0.05D(Max 0.5)	≤0.2D	11590 ~ 16220	650 ~ 1010
		8	2	218 ~ 306	0.035 ~ 0.038	≤0.05D(Max 0.5)	≤0.2D	8690 ~ 12170	610 ~ 920
		10	2	218 ~ 306	0.042 ~ 0.046	≤0.05D(Max 0.5)	≤0.2D	6950 ~ 9730	580 ~ 900
		12	2	218 ~ 306	0.048 ~ 0.053	≤0.05D(Max 0.5)	≤0.2D	5790 ~ 8110	560 ~ 860
		14	2	219 ~ 306	0.055 ~ 0.061	≤0.05D(Max 0.5)	≤0.2D	4970 ~ 6950	550 ~ 850
		16	2	218 ~ 306	0.062 ~ 0.068	≤0.05D(Max 0.5)	≤0.2D	4340 ~ 6080	540 ~ 830
		18	2	218 ~ 306	0.069 ~ 0.076	≤0.05D(Max 0.5)	≤0.2D	3860 ~ 5410	530 ~ 820
		20	2	219 ~ 306	0.076 ~ 0.083	≤0.05D(Max 0.5)	≤0.2D	3480 ~ 4870	530 ~ 810

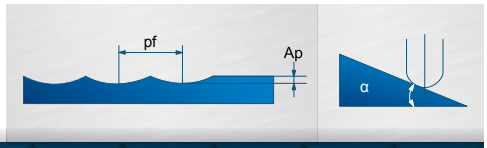
BN 60 Standard Series Ballnose Cutters



2 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		1	2	126	0.003 ~ 0.005	≤0.05D(Max 0.3)	≤0.1D	40000	240 ~ 400
		1.5	2	187 ~ 188	0.005 ~ 0.007	≤0.05D(Max 0.3)	≤0.1D	39730 ~ 40000	400 ~ 560
		2	2	187 ~ 251	0.008 ~ 0.010	≤0.05D(Max 0.3)	≤0.2D	29790 ~ 40000	480 ~ 800
		2.5	2	187 ~ 281	0.010 ~ 0.012	≤0.05D(Max 0.3)	≤0.2D	23840 ~ 35750	480 ~ 860
		3	2	187 ~ 281	0.012 ~ 0.015	≤0.05D(Max 0.3)	≤0.2D	19860 ~ 29790	480 ~ 890
		4	2	187 ~ 281	0.017 ~ 0.019	≤0.05D(Max 0.3)	≤0.2D	14900 ~ 22350	510 ~ 850
		5	2	187 ~ 281	0.021 ~ 0.024	≤0.05D(Max 0.3)	≤0.2D	11920 ~ 17880	500 ~ 860
		6	2	187 ~ 281	0.026 ~ 0.029	≤0.05D(Max 0.3)	≤0.2D	9930 ~ 14900	520 ~ 860
		8	2	187 ~ 281	0.033 ~ 0.036	≤0.05D(Max 0.3)	≤0.2D	7450 ~ 11170	490 ~ 800
		10	2	187 ~ 281	0.039 ~ 0.043	≤0.05D(Max 0.3)	≤0.2D	5960 ~ 8940	460 ~ 770
		12	2	187 ~ 281	0.045 ~ 0.050	≤0.05D(Max 0.3)	≤0.2D	4970 ~ 7450	450 ~ 750
		14	2	187 ~ 281	0.052 ~ 0.057	≤0.05D(Max 0.3)	≤0.2D	4260 ~ 6380	440 ~ 730
		16	2	187 ~ 281	0.058 ~ 0.064	≤0.05D(Max 0.3)	≤0.2D	3720 ~ 5590	430 ~ 720
		18	2	187 ~ 281	0.065 ~ 0.071	≤0.05D(Max 0.3)	≤0.2D	3310 ~ 4970	430 ~ 710
		20	2	187 ~ 281	0.071 ~ 0.078	≤0.05D(Max 0.3)	≤0.2D	2980 ~ 4470	420 ~ 700

		α > 15°						
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 240
		0.8	2	101	0.002 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 240
		1	2	126	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		1.5	2	175 ~ 188	0.004 ~ 0.006	≤0.05D(Max 0.3)	≤0.1D	37080 ~ 40000	300 ~ 480
		2	2	175 ~ 251	0.006 ~ 0.008	≤0.05D(Max 0.3)	≤0.2D	27810 ~ 40000	330 ~ 640
		2.5	2	175 ~ 262	0.008 ~ 0.010	≤0.05D(Max 0.3)	≤0.2D	22250 ~ 33370	360 ~ 670
		3	2	175 ~ 262	0.010 ~ 0.012	≤0.05D(Max 0.3)	≤0.2D	18540 ~ 27810	370 ~ 670
		4	2	175 ~ 262	0.013 ~ 0.015	≤0.05D(Max 0.3)	≤0.2D	13900 ~ 20860	360 ~ 630
		5	2	175 ~ 262	0.017 ~ 0.019	≤0.05D(Max 0.3)	≤0.2D	11120 ~ 16680	380 ~ 630
		6	2	175 ~ 262	0.021 ~ 0.023	≤0.05D(Max 0.3)	≤0.2D	9270 ~ 13900	390 ~ 640
		8	2	175 ~ 262	0.026 ~ 0.029	≤0.05D(Max 0.3)	≤0.2D	6950 ~ 10430	360 ~ 600
		10	2	175 ~ 262	0.031 ~ 0.034	≤0.05D(Max 0.3)	≤0.2D	5560 ~ 8340	340 ~ 570
		12	2	175 ~ 262	0.036 ~ 0.040	≤0.05D(Max 0.3)	≤0.2D	4630 ~ 6950	330 ~ 560
		14	2	175 ~ 262	0.041 ~ 0.046	≤0.05D(Max 0.3)	≤0.2D	3970 ~ 5960	330 ~ 550
		16	2	175 ~ 262	0.047 ~ 0.051	≤0.05D(Max 0.3)	≤0.2D	3480 ~ 5210	330 ~ 530
		18	2	175 ~ 262	0.052 ~ 0.057	≤0.05D(Max 0.3)	≤0.2D	3090 ~ 4630	320 ~ 530
		20	2	175 ~ 262	0.057 ~ 0.063	≤0.05D(Max 0.3)	≤0.2D	2780 ~ 4170	320 ~ 530

BN 60 Standard Series Ballnose Cutters



2 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	2	38	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		1	2	126	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 100
		1.5	2	140 ~ 188	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	29790 ~ 40000	120 ~ 160
		2	2	140 ~ 234	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	22350 ~ 37240	90 ~ 220
		2.5	2	140 ~ 234	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	17880 ~ 29790	110 ~ 240
		3	2	140 ~ 234	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	14900 ~ 24830	120 ~ 250
		4	2	140 ~ 234	0.006 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	11170 ~ 18620	130 ~ 220
		5	2	140 ~ 234	0.007 ~ 0.008	≤0.03D(Max 0.3)	≤0.1D	8940 ~ 14900	130 ~ 240
		6	2	140 ~ 234	0.009 ~ 0.010	≤0.03D(Max 0.3)	≤0.1D	7450 ~ 12410	130 ~ 250
		8	2	140 ~ 234	0.011 ~ 0.012	≤0.03D(Max 0.3)	≤0.1D	5590 ~ 9310	120 ~ 220
		10	2	140 ~ 234	0.013 ~ 0.014	≤0.03D(Max 0.3)	≤0.1D	4470 ~ 7450	120 ~ 210
		12	2	140 ~ 234	0.015 ~ 0.017	≤0.03D(Max 0.3)	≤0.1D	3720 ~ 6210	110 ~ 210
		14	2	140 ~ 234	0.017 ~ 0.019	≤0.03D(Max 0.3)	≤0.1D	3190 ~ 5320	110 ~ 200
		16	2	140 ~ 234	0.019 ~ 0.021	≤0.03D(Max 0.3)	≤0.1D	2790 ~ 4660	110 ~ 200
		18	2	140 ~ 234	0.022 ~ 0.024	≤0.03D(Max 0.3)	≤0.1D	2480 ~ 4140	110 ~ 200
		20	2	140 ~ 234	0.024 ~ 0.026	≤0.03D(Max 0.3)	≤0.1D	2230 ~ 3720	110 ~ 190

		α > 15°						
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	2	38	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		1	2	126	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 100
		1.5	2	131 ~ 188	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	27810 ~ 40000	60 ~ 160
		2	2	131 ~ 218	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	20860 ~ 34760	80 ~ 140
		2.5	2	131 ~ 218	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	16680 ~ 27810	70 ~ 170
		3	2	131 ~ 218	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	13900 ~ 23170	80 ~ 190
		4	2	131 ~ 218	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	10430 ~ 17380	80 ~ 170
		5	2	131 ~ 218	0.006 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	8340 ~ 13900	100 ~ 170
		6	2	131 ~ 218	0.007 ~ 0.008	≤0.03D(Max 0.3)	≤0.1D	6950 ~ 11590	100 ~ 190
		8	2	131 ~ 218	0.009 ~ 0.010	≤0.03D(Max 0.3)	≤0.1D	5210 ~ 8690	90 ~ 170
		10	2	131 ~ 218	0.010 ~ 0.011	≤0.03D(Max 0.3)	≤0.1D	4170 ~ 6950	80 ~ 150
		12	2	131 ~ 218	0.012 ~ 0.013	≤0.03D(Max 0.3)	≤0.1D	3480 ~ 5790	80 ~ 150
		14	2	131 ~ 219	0.014 ~ 0.015	≤0.03D(Max 0.3)	≤0.1D	2980 ~ 4970	80 ~ 150
		16	2	131 ~ 218	0.016 ~ 0.017	≤0.03D(Max 0.3)	≤0.1D	2610 ~ 4340	80 ~ 150
		18	2	131 ~ 218	0.017 ~ 0.019	≤0.03D(Max 0.3)	≤0.1D	2320 ~ 3860	80 ~ 150
		20	2	131 ~ 219	0.019 ~ 0.021	≤0.03D(Max 0.3)	≤0.1D	2090 ~ 3480	80 ~ 150

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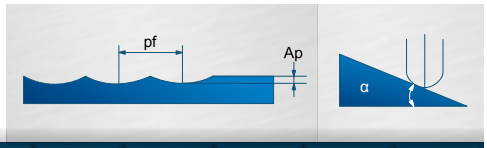

4 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	4	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.4	4	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.002 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	320 ~ 480
		0.8	4	101	0.002 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	320 ~ 480
		1	4	126	0.003 ~ 0.004	≤0.05D(Max 0.5)	≤0.1D	40000	480 ~ 640
		1.5	4	188	0.005 ~ 0.007	≤0.05D(Max 0.5)	≤0.1D	40000	800 ~ 1120
		2	4	234 ~ 251	0.007 ~ 0.009	≤0.05D(Max 0.5)	≤0.2D	37240 ~ 40000	1040 ~ 1440
		2.5	4	234 ~ 314	0.010 ~ 0.012	≤0.05D(Max 0.5)	≤0.2D	29790 ~ 40000	1190 ~ 1920
		3	4	234 ~ 328	0.012 ~ 0.014	≤0.05D(Max 0.5)	≤0.2D	24830 ~ 34760	1190 ~ 1950
		4	4	234 ~ 328	0.017 ~ 0.019	≤0.05D(Max 0.5)	≤0.2D	18620 ~ 26070	1270 ~ 1980
		5	4	234 ~ 328	0.021 ~ 0.024	≤0.05D(Max 0.5)	≤0.2D	14900 ~ 20860	1250 ~ 2000
		6	4	234 ~ 328	0.026 ~ 0.029	≤0.05D(Max 0.5)	≤0.2D	12410 ~ 17380	1290 ~ 2020
		8	4	234 ~ 327	0.033 ~ 0.036	≤0.05D(Max 0.5)	≤0.2D	9310 ~ 13030	1230 ~ 1880
		10	4	234 ~ 328	0.039 ~ 0.043	≤0.05D(Max 0.5)	≤0.2D	7450 ~ 10430	1160 ~ 1790
		12	4	234 ~ 328	0.045 ~ 0.050	≤0.05D(Max 0.5)	≤0.2D	6210 ~ 8690	1120 ~ 1740
		14	4	234 ~ 328	0.052 ~ 0.057	≤0.05D(Max 0.5)	≤0.2D	5320 ~ 7450	1110 ~ 1700
		16	4	234 ~ 328	0.058 ~ 0.064	≤0.05D(Max 0.5)	≤0.2D	4660 ~ 6520	1080 ~ 1670
		18	4	234 ~ 327	0.065 ~ 0.071	≤0.05D(Max 0.5)	≤0.2D	4140 ~ 5790	1080 ~ 1640
		20	4	234 ~ 327	0.071 ~ 0.078	≤0.05D(Max 0.5)	≤0.2D	3720 ~ 5210	1060 ~ 1630

		α > 15°						
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	4	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80~ 160
		0.4	4	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.001 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 480
		0.8	4	101	0.001 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 480
		1	4	126	0.002 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	320 ~ 480
		1.5	4	188	0.004 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	40000	640 ~ 800
		2	4	218 ~ 251	0.006 ~ 0.007	≤0.05D(Max 0.5)	≤0.2D	34760 ~ 40000	830 ~ 1120
		2.5	4	218 ~ 306	0.008 ~ 0.009	≤0.05D(Max 0.5)	≤0.2D	27810 ~ 38930	890 ~ 1400
		3	4	218 ~ 306	0.010 ~ 0.011	≤0.05D(Max 0.5)	≤0.2D	23170 ~ 32440	930 ~ 1430
		4	4	218 ~ 306	0.013 ~ 0.015	≤0.05D(Max 0.5)	≤0.2D	17380 ~ 24330	900 ~ 1460
		5	4	218 ~ 306	0.017 ~ 0.019	≤0.05D(Max 0.5)	≤0.2D	13900 ~ 19470	950 ~ 1480
		6	4	218 ~ 306	0.021 ~ 0.023	≤0.05D(Max 0.5)	≤0.2D	11590 ~ 16220	970 ~ 1490
		8	4	218 ~ 306	0.026 ~ 0.029	≤0.05D(Max 0.5)	≤0.2D	8690 ~ 12170	900 ~ 1410
		10	4	218 ~ 306	0.031 ~ 0.034	≤0.05D(Max 0.5)	≤0.2D	6950 ~ 9730	860 ~ 1320
		12	4	218 ~ 306	0.036 ~ 0.040	≤0.05D(Max 0.5)	≤0.2D	5790 ~ 8110	830 ~ 1300
		14	4	219 ~ 306	0.041 ~ 0.046	≤0.05D(Max 0.5)	≤0.2D	4970 ~ 6950	820 ~ 1280
		16	4	218 ~ 306	0.047 ~ 0.051	≤0.05D(Max 0.5)	≤0.2D	4340 ~ 6080	820 ~ 1240
		18	4	218 ~ 306	0.052 ~ 0.057	≤0.05D(Max 0.5)	≤0.2D	3860 ~ 5410	800 ~ 1230
		20	4	219 ~ 306	0.057 ~ 0.063	≤0.05D(Max 0.5)	≤0.2D	3480 ~ 4870	790 ~ 1230

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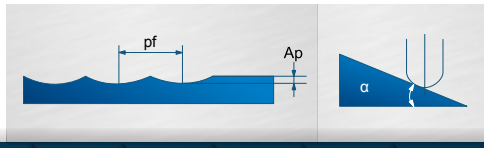
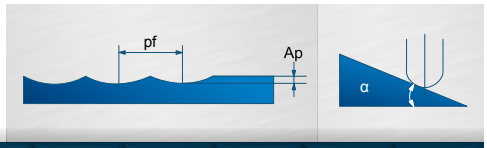


4 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	4	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	40 ~ 160
		0.4	4	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		0.8	4	101	0.001 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 480
		0.8	4	101	0.001 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 480
		1	4	126	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	40000	320 ~ 640
		1.5	4	187 ~ 188	0.004 ~ 0.006	≤0.05D(Max 0.3)	≤0.1D	39730 ~ 40000	640 ~ 960
		2	4	187 ~ 251	0.006 ~ 0.007	≤0.05D(Max 0.3)	≤0.2D	29790 ~ 40000	710 ~ 1120
		2.5	4	187 ~ 281	0.007 ~ 0.009	≤0.05D(Max 0.3)	≤0.2D	23840 ~ 35750	670 ~ 1290
		3	4	187 ~ 281	0.009 ~ 0.011	≤0.05D(Max 0.3)	≤0.2D	19860 ~ 29790	710 ~ 1310
		4	4	187 ~ 281	0.013 ~ 0.014	≤0.05D(Max 0.3)	≤0.2D	14900 ~ 22350	770 ~ 1250
		5	4	187 ~ 281	0.016 ~ 0.018	≤0.05D(Max 0.3)	≤0.2D	11920 ~ 17880	760 ~ 1290
		6	4	187 ~ 281	0.020 ~ 0.022	≤0.05D(Max 0.3)	≤0.2D	9930 ~ 14900	790 ~ 1310
		8	4	187 ~ 281	0.024 ~ 0.027	≤0.05D(Max 0.3)	≤0.2D	7450 ~ 11170	720 ~ 1210
		10	4	187 ~ 281	0.029 ~ 0.032	≤0.05D(Max 0.3)	≤0.2D	5960 ~ 8940	690 ~ 1140
		12	4	187 ~ 281	0.034 ~ 0.037	≤0.05D(Max 0.3)	≤0.2D	4970 ~ 7450	680 ~ 1100
		14	4	187 ~ 281	0.039 ~ 0.043	≤0.05D(Max 0.3)	≤0.2D	4260 ~ 6380	660 ~ 1100
		16	4	187 ~ 281	0.044 ~ 0.048	≤0.05D(Max 0.3)	≤0.2D	3720 ~ 5590	650 ~ 1070
		18	4	187 ~ 281	0.048 ~ 0.053	≤0.05D(Max 0.3)	≤0.2D	3310 ~ 4970	640 ~ 1050
		20	4	187 ~ 281	0.053 ~ 0.059	≤0.05D(Max 0.3)	≤0.2D	2980 ~ 4470	630 ~ 1050

		α > 15°							
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	4	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.4	4	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		0.8	4	101	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		1	4	126	0.002 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	320 ~ 480
		1.5	4	175 ~ 188	0.003 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	37080 ~ 40000	440 ~ 640
		2	4	175 ~ 251	0.005 ~ 0.006	≤0.05D(Max 0.3)	≤0.2D	27810 ~ 40000	560 ~ 960
		2.5	4	175 ~ 262	0.006 ~ 0.007	≤0.05D(Max 0.3)	≤0.2D	22250 ~ 33370	530 ~ 930
		3	4	175 ~ 262	0.007 ~ 0.009	≤0.05D(Max 0.3)	≤0.2D	18540 ~ 27810	520 ~ 1000
		4	4	175 ~ 262	0.010 ~ 0.012	≤0.05D(Max 0.3)	≤0.2D	13900 ~ 20860	560 ~ 1000
		5	4	175 ~ 262	0.013 ~ 0.014	≤0.05D(Max 0.3)	≤0.2D	11120 ~ 16680	580 ~ 930
		6	4	175 ~ 262	0.016 ~ 0.017	≤0.05D(Max 0.3)	≤0.2D	9270 ~ 13900	590 ~ 950
		8	4	175 ~ 262	0.020 ~ 0.021	≤0.05D(Max 0.3)	≤0.2D	6950 ~ 10430	560 ~ 880
		10	4	175 ~ 262	0.023 ~ 0.026	≤0.05D(Max 0.3)	≤0.2D	5560 ~ 8340	510 ~ 870
		12	4	175 ~ 262	0.027 ~ 0.030	≤0.05D(Max 0.3)	≤0.2D	4630 ~ 6950	500 ~ 830
		14	4	175 ~ 262	0.031 ~ 0.034	≤0.05D(Max 0.3)	≤0.2D	3970 ~ 5960	490 ~ 810
		16	4	175 ~ 262	0.035 ~ 0.038	≤0.05D(Max 0.3)	≤0.2D	3480 ~ 5210	490 ~ 790
		18	4	175 ~ 262	0.039 ~ 0.043	≤0.05D(Max 0.3)	≤0.2D	3090 ~ 4630	480 ~ 800
		20	4	175 ~ 262	0.043 ~ 0.047	≤0.05D(Max 0.3)	≤0.2D	2780 ~ 4170	480 ~ 780

BN 60 Standard Series Ballnose Cutters



4 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	4	38	0.001 ~ 0.0002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	4	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	4	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	120 ~ 160
		1	4	126	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	140 ~ 160
		1.5	4	140 ~ 188	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	29790 ~ 40000	120 ~ 320
		2	4	140 ~ 234	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	22350 ~ 37240	180 ~ 300
		2.5	4	140 ~ 234	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	17880 ~ 29790	140 ~ 360
		3	4	140 ~ 234	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	14900 ~ 24830	180 ~ 400
		4	4	140 ~ 234	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	11170 ~ 18620	180 ~ 370
		5	4	140 ~ 234	0.005 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	8940 ~ 14900	180 ~ 360
		6	4	140 ~ 234	0.007 ~ 0.007	≤0.03D(Max 0.3)	≤0.1D	7450 ~ 12410	210 ~ 350
		8	4	140 ~ 234	0.008 ~ 0.009	≤0.03D(Max 0.3)	≤0.1D	5590 ~ 9310	180 ~ 340
		10	4	140 ~ 234	0.010 ~ 0.011	≤0.03D(Max 0.3)	≤0.1D	4470 ~ 7450	180 ~ 330
		12	4	140 ~ 234	0.011 ~ 0.012	≤0.03D(Max 0.3)	≤0.1D	3720 ~ 6210	160 ~ 300
		14	4	140 ~ 234	0.013 ~ 0.014	≤0.03D(Max 0.3)	≤0.1D	3190 ~ 5320	170 ~ 300
		16	4	140 ~ 234	0.015 ~ 0.016	≤0.03D(Max 0.3)	≤0.1D	2790 ~ 4660	170 ~ 300
		18	4	140 ~ 234	0.016 ~ 0.018	≤0.03D(Max 0.3)	≤0.1D	2480 ~ 4140	160 ~ 300
		20	4	140 ~ 234	0.018 ~ 0.020	≤0.03D(Max 0.3)	≤0.1D	2230 ~ 3720	160 ~ 300

		α > 15°							
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	4	38	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	4	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	4	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 160
		1	4	126	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 160
		1.5	4	131 ~ 188	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	27810 ~ 40000	110 ~ 160
		2	4	131 ~ 218	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	20860 ~ 34760	80 ~ 280
		2.5	4	131 ~ 218	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	16680 ~ 27810	130 ~ 220
		3	4	131 ~ 218	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	13900 ~ 23170	110 ~ 280
		4	4	131 ~ 218	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	10430 ~ 17380	130 ~ 280
		5	4	131 ~ 218	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	8340 ~ 13900	130 ~ 280
		6	4	131 ~ 218	0.005 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	6950 ~ 11590	140 ~ 280
		8	4	131 ~ 218	0.007 ~ 0.007	≤0.03D(Max 0.3)	≤0.1D	5210 ~ 8690	150 ~ 240
		10	4	131 ~ 218	0.008 ~ 0.009	≤0.03D(Max 0.3)	≤0.1D	4170 ~ 6950	130 ~ 250
		12	4	131 ~ 218	0.009 ~ 0.010	≤0.03D(Max 0.3)	≤0.1D	3480 ~ 5790	130 ~ 230
		14	4	131 ~ 219	0.010 ~ 0.011	≤0.03D(Max 0.3)	≤0.1D	2980 ~ 4970	120 ~ 220
		16	4	131 ~ 218	0.012 ~ 0.013	≤0.03D(Max 0.3)	≤0.1D	2610 ~ 4340	130 ~ 230
		18	4	131 ~ 218	0.013 ~ 0.014	≤0.03D(Max 0.3)	≤0.1D	2320 ~ 3860	120 ~ 220
		20	4	131 ~ 219	0.014 ~ 0.016	≤0.03D(Max 0.3)	≤0.1D	2090 ~ 3480	120 ~ 220

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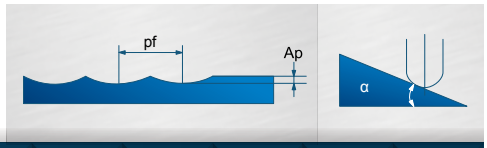

2 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 400
		0.8	2	101	0.002 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 400
		1	2	126	0.004 ~ 0.006	≤0.05D(Max 0.5)	≤0.1D	40000	320 ~ 480
		1.5	2	187 ~ 188	0.007 ~ 0.009	≤0.05D(Max 0.5)	≤0.1D	39730 ~ 40000	560 ~ 720
		2	2	187 ~ 251	0.010 ~ 0.012	≤0.05D(Max 0.5)	≤0.2D	29790 ~ 40000	600 ~ 960
		2.5	2	187 ~ 262	0.013 ~ 0.016	≤0.05D(Max 0.5)	≤0.2D	23840 ~ 33370	620 ~ 1070
		3	2	187 ~ 262	0.016 ~ 0.019	≤0.05D(Max 0.5)	≤0.2D	19860 ~ 27810	640 ~ 1060
		4	2	187 ~ 262	0.022 ~ 0.025	≤0.05D(Max 0.5)	≤0.2D	14900 ~ 20860	660 ~ 1040
		5	2	187 ~ 262	0.029 ~ 0.032	≤0.05D(Max 0.5)	≤0.2D	11920 ~ 16680	690 ~ 1070
		6	2	187 ~ 262	0.035 ~ 0.038	≤0.05D(Max 0.5)	≤0.2D	9930 ~ 13900	700 ~ 1060
		8	2	187 ~ 262	0.043 ~ 0.048	≤0.05D(Max 0.5)	≤0.2D	7450 ~ 10430	640 ~ 1000
		10	2	187 ~ 262	0.052 ~ 0.057	≤0.05D(Max 0.5)	≤0.2D	5960 ~ 8340	620 ~ 950
		12	2	187 ~ 262	0.061 ~ 0.067	≤0.05D(Max 0.5)	≤0.2D	4970 ~ 6950	610 ~ 930
		14	2	187 ~ 262	0.069 ~ 0.076	≤0.05D(Max 0.5)	≤0.2D	4260 ~ 5960	590 ~ 910
		16	2	187 ~ 262	0.078 ~ 0.085	≤0.05D(Max 0.5)	≤0.2D	3720 ~ 5210	580 ~ 890
		18	2	187 ~ 262	0.086 ~ 0.095	≤0.05D(Max 0.5)	≤0.2D	3310 ~ 4630	570 ~ 880
		20	2	187 ~ 262	0.095 ~ 0.104	≤0.05D(Max 0.5)	≤0.2D	2980 ~ 4170	570 ~ 870

		α > 15°						
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 320
		1	2	126	0.003 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	40000	240 ~ 400
		1.5	2	175 ~ 188	0.005 ~ 0.007	≤0.05D(Max 0.5)	≤0.1D	37080 ~ 40000	370 ~ 560
		2	2	175 ~ 245	0.008 ~ 0.010	≤0.05D(Max 0.5)	≤0.2D	27810 ~ 38930	440 ~ 780
		2.5	2	175 ~ 245	0.010 ~ 0.012	≤0.05D(Max 0.5)	≤0.2D	22250 ~ 31140	450 ~ 750
		3	2	175 ~ 245	0.013 ~ 0.015	≤0.05D(Max 0.5)	≤0.2D	18540 ~ 25950	480 ~ 780
		4	2	175 ~ 245	0.018 ~ 0.020	≤0.05D(Max 0.5)	≤0.2D	13900 ~ 19470	500 ~ 780
		5	2	175 ~ 245	0.023 ~ 0.025	≤0.05D(Max 0.5)	≤0.2D	11120 ~ 15570	510 ~ 780
		6	2	175 ~ 245	0.028 ~ 0.031	≤0.05D(Max 0.5)	≤0.2D	9270 ~ 12980	520 ~ 800
		8	2	175 ~ 245	0.035 ~ 0.038	≤0.05D(Max 0.5)	≤0.2D	6950 ~ 9730	490 ~ 740
		10	2	175 ~ 245	0.042 ~ 0.046	≤0.05D(Max 0.5)	≤0.2D	5560 ~ 7790	470 ~ 720
		12	2	175 ~ 245	0.048 ~ 0.053	≤0.05D(Max 0.5)	≤0.2D	4630 ~ 6490	440 ~ 690
		14	2	175 ~ 245	0.055 ~ 0.061	≤0.05D(Max 0.5)	≤0.2D	3970 ~ 5560	440 ~ 680
		16	2	175 ~ 245	0.062 ~ 0.068	≤0.05D(Max 0.5)	≤0.2D	3480 ~ 4870	430 ~ 660
		18	2	175 ~ 245	0.069 ~ 0.076	≤0.05D(Max 0.5)	≤0.2D	3090 ~ 4330	430 ~ 660
		20	2	175 ~ 244	0.076 ~ 0.083	≤0.05D(Max 0.5)	≤0.2D	2780 ~ 3890	420 ~ 650

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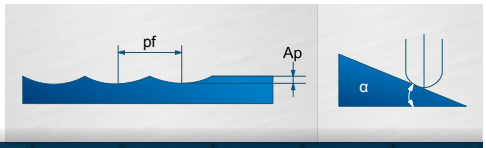

2 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		1	2	126	0.003 ~ 0.005	≤0.05D(Max 0.3)	≤0.1D	40000	240 ~ 400
		1.5	2	150 ~ 188	0.005 ~ 0.007	≤0.05D(Max 0.3)	≤0.1D	31780 ~ 40000	320 ~ 560
		2	2	150 ~ 225	0.008 ~ 0.010	≤0.05D(Max 0.3)	≤0.2D	23840 ~ 35750	380 ~ 720
		2.5	2	150 ~ 225	0.010 ~ 0.012	≤0.05D(Max 0.3)	≤0.2D	19070 ~ 28600	380 ~ 690
		3	2	150 ~ 225	0.012 ~ 0.015	≤0.05D(Max 0.3)	≤0.2D	15890 ~ 23840	380 ~ 720
		4	2	150 ~ 225	0.017 ~ 0.019	≤0.05D(Max 0.3)	≤0.2D	11920 ~ 17880	410 ~ 680
		5	2	150 ~ 225	0.021 ~ 0.024	≤0.05D(Max 0.3)	≤0.2D	9530 ~ 14300	400 ~ 690
		6	2	150 ~ 225	0.026 ~ 0.029	≤0.05D(Max 0.3)	≤0.2D	7950 ~ 11920	410 ~ 690
		8	2	150 ~ 225	0.033 ~ 0.036	≤0.05D(Max 0.3)	≤0.2D	5960 ~ 8940	390 ~ 640
		10	2	150 ~ 225	0.039 ~ 0.043	≤0.05D(Max 0.3)	≤0.2D	4770 ~ 7150	370 ~ 610
		12	2	150 ~ 225	0.045 ~ 0.050	≤0.05D(Max 0.3)	≤0.2D	3970 ~ 5960	360 ~ 600
		14	2	150 ~ 225	0.052 ~ 0.057	≤0.05D(Max 0.3)	≤0.2D	3410 ~ 5110	350 ~ 580
		16	2	150 ~ 225	0.058 ~ 0.064	≤0.05D(Max 0.3)	≤0.2D	2980 ~ 4470	350 ~ 570
		18	2	150 ~ 224	0.065 ~ 0.071	≤0.05D(Max 0.3)	≤0.2D	2650 ~ 3970	340 ~ 560
		20	2	150 ~ 225	0.071 ~ 0.078	≤0.05D(Max 0.3)	≤0.2D	2380 ~ 3580	340 ~ 560

		α > 15°							
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 240
		0.8	2	101	0.002 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 240
		1	2	126	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		1.5	2	140 ~ 188	0.004 ~ 0.006	≤0.05D(Max 0.3)	≤0.1D	29660 ~ 40000	240 ~ 480
		2	2	140 ~ 210	0.006 ~ 0.008	≤0.05D(Max 0.3)	≤0.2D	22250 ~ 33370	270 ~ 530
		2.5	2	140 ~ 210	0.008 ~ 0.010	≤0.05D(Max 0.3)	≤0.2D	17800 ~ 26700	280 ~ 530
		3	2	140 ~ 210	0.010 ~ 0.012	≤0.05D(Max 0.3)	≤0.2D	14830 ~ 22250	300 ~ 530
		4	2	140 ~ 210	0.013 ~ 0.015	≤0.05D(Max 0.3)	≤0.2D	11120 ~ 16680	290 ~ 500
		5	2	140 ~ 210	0.017 ~ 0.019	≤0.05D(Max 0.3)	≤0.2D	8900 ~ 13350	300 ~ 510
		6	2	140 ~ 210	0.021 ~ 0.023	≤0.05D(Max 0.3)	≤0.2D	7420 ~ 11120	310 ~ 510
		8	2	140 ~ 210	0.026 ~ 0.029	≤0.05D(Max 0.3)	≤0.2D	5560 ~ 8340	290 ~ 480
		10	2	140 ~ 210	0.031 ~ 0.034	≤0.05D(Max 0.3)	≤0.2D	4450 ~ 6670	280 ~ 450
		12	2	140 ~ 210	0.036 ~ 0.040	≤0.05D(Max 0.3)	≤0.2D	3710 ~ 5560	270 ~ 440
		14	2	140 ~ 210	0.041 ~ 0.046	≤0.05D(Max 0.3)	≤0.2D	3180 ~ 4770	260 ~ 440
		16	2	140 ~ 210	0.047 ~ 0.051	≤0.05D(Max 0.3)	≤0.2D	2780 ~ 4170	260 ~ 430
		18	2	140 ~ 210	0.052 ~ 0.057	≤0.05D(Max 0.3)	≤0.2D	2470 ~ 3710	260 ~ 420
		20	2	139 ~ 210	0.057 ~ 0.063	≤0.05D(Max 0.3)	≤0.2D	2220 ~ 3340	250 ~ 420

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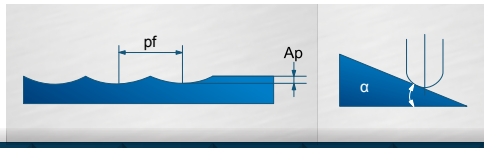
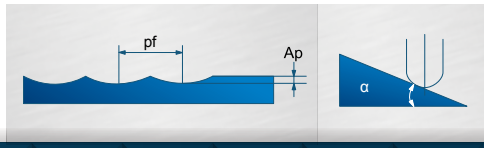


2 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	2	38	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		1	2	112 ~ 126	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	35750 ~ 40000	70 ~ 90
		1.5	2	112 ~ 187	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	23840 ~ 39730	100 ~ 160
		2	2	112 ~ 187	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	17880 ~ 29790	70 ~ 180
		2.5	2	112 ~ 187	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	14300 ~ 23840	90 ~ 190
		3	2	112 ~ 187	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	11920 ~ 19860	100 ~ 200
		4	2	112 ~ 187	0.006 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	8940 ~ 14900	110 ~ 180
		5	2	112 ~ 187	0.007 ~ 0.008	≤0.03D(Max 0.3)	≤0.1D	7150 ~ 11920	100 ~ 190
		6	2	112 ~ 187	0.009 ~ 0.010	≤0.03D(Max 0.3)	≤0.1D	5960 ~ 9930	110 ~ 200
		8	2	112 ~ 187	0.011 ~ 0.012	≤0.03D(Max 0.3)	≤0.1D	4470 ~ 7450	100 ~ 180
		10	2	112 ~ 187	0.013 ~ 0.014	≤0.03D(Max 0.3)	≤0.1D	3580 ~ 5960	90 ~ 170
		12	2	112 ~ 187	0.015 ~ 0.017	≤0.03D(Max 0.3)	≤0.1D	2980 ~ 4970	90 ~ 170
		14	2	112 ~ 187	0.017 ~ 0.019	≤0.03D(Max 0.3)	≤0.1D	2550 ~ 4260	90 ~ 160
		16	2	112 ~ 187	0.019 ~ 0.021	≤0.03D(Max 0.3)	≤0.1D	2230 ~ 3720	80 ~ 160
		18	2	113 ~ 187	0.022 ~ 0.024	≤0.03D(Max 0.3)	≤0.1D	1990 ~ 3310	90 ~ 160
		20	2	112 ~ 187	0.024 ~ 0.026	≤0.03D(Max 0.3)	≤0.1D	1790 ~ 2980	

		α > 15°							
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	2	38	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~80
		0.4	2	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		1	2	105 ~ 126	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	33370 ~ 40000	70 ~ 90
		1.5	2	105 ~ 175	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	22250 ~ 37080	40 ~ 150
		2	2	105 ~ 175	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	16680 ~ 27810	70 ~ 110
		2.5	2	105 ~ 175	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	13350 ~ 22250	50 ~ 130
		3	2	105 ~ 175	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	11120 ~ 18540	70 ~ 150
		4	2	105 ~ 175	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	8340 ~ 13900	70 ~ 140
		5	2	105 ~ 175	0.006 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	6670 ~ 11120	80 ~ 130
		6	2	105 ~ 175	0.007 ~ 0.008	≤0.03D(Max 0.3)	≤0.1D	5560 ~ 9270	80 ~ 150
		8	2	105 ~ 175	0.009 ~ 0.010	≤0.03D(Max 0.3)	≤0.1D	4170 ~ 6950	80 ~ 140
		10	2	105 ~ 175	0.010 ~ 0.011	≤0.03D(Max 0.3)	≤0.1D	3340 ~ 5560	70 ~ 120
		12	2	105 ~ 175	0.012 ~ 0.013	≤0.03D(Max 0.3)	≤0.1D	2780 ~ 4630	70 ~ 120
		14	2	105 ~ 175	0.014 ~ 0.015	≤0.03D(Max 0.3)	≤0.1D	2380 ~ 3970	70 ~ 120
		16	2	105 ~ 175	0.016 ~ 0.017	≤0.03D(Max 0.3)	≤0.1D	2090 ~ 3480	70 ~ 120
		18	2	105 ~ 175	0.017 ~ 0.019	≤0.03D(Max 0.3)	≤0.1D	1850 ~ 3090	60 ~ 120
		20	2	105 ~ 175	0.019 ~ 0.021	≤0.03D(Max 0.3)	≤0.1D	1670 ~ 2780	60 ~ 120

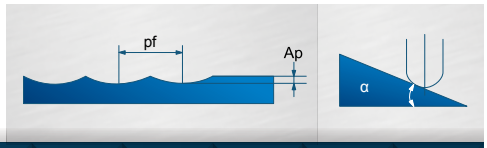
BN 60 Long Series Ballnose Cutters



4 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	4	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.4	4	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.002 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	320 ~ 480
		0.8	4	101	0.002 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	320 ~ 480
		1	4	126	0.003 ~ 0.004	≤0.05D(Max 0.5)	≤0.1D	40000	480 ~ 640
		1.5	4	187 ~ 188	0.005 ~ 0.007	≤0.05D(Max 0.5)	≤0.1D	39730 ~ 40000	790 ~ 1120
		2	4	187 ~ 251	0.007 ~ 0.009	≤0.05D(Max 0.5)	≤0.2D	29790 ~ 40000	830 ~ 1440
		2.5	4	187 ~ 262	0.010 ~ 0.012	≤0.05D(Max 0.5)	≤0.2D	23840 ~ 33370	950 ~ 1600
		3	4	187 ~ 262	0.012 ~ 0.014	≤0.05D(Max 0.5)	≤0.2D	19860 ~ 27810	950 ~ 1560
		4	4	187 ~ 262	0.017 ~ 0.019	≤0.05D(Max 0.5)	≤0.2D	14900 ~ 20860	1010 ~ 1590
		5	4	187 ~ 262	0.021 ~ 0.024	≤0.05D(Max 0.5)	≤0.2D	11920 ~ 16680	1000 ~ 1600
		6	4	187 ~ 262	0.026 ~ 0.029	≤0.05D(Max 0.5)	≤0.2D	9930 ~ 13900	1030 ~ 1610
		8	4	187 ~ 262	0.033 ~ 0.036	≤0.05D(Max 0.5)	≤0.2D	7450 ~ 10430	980 ~ 1500
		10	4	187 ~ 262	0.039 ~ 0.043	≤0.05D(Max 0.5)	≤0.2D	5960 ~ 8340	930 ~ 1430
		12	4	187 ~ 262	0.045 ~ 0.050	≤0.05D(Max 0.5)	≤0.2D	4970 ~ 6950	890 ~ 1390
		14	4	187 ~ 262	0.052 ~ 0.057	≤0.05D(Max 0.5)	≤0.2D	4260 ~ 5960	890 ~ 1360
		16	4	187 ~ 262	0.058 ~ 0.064	≤0.05D(Max 0.5)	≤0.2D	3720 ~ 5210	860 ~ 1330
		18	4	187 ~ 262	0.065 ~ 0.071	≤0.05D(Max 0.5)	≤0.2D	3310 ~ 4630	860 ~ 1310
		20	4	187 ~ 262	0.071 ~ 0.078	≤0.05D(Max 0.5)	≤0.2D	2980 ~ 4170	850 ~ 1300

		α > 15°						
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	4	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.4	4	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.001 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 480
		0.8	4	101	0.001 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 480
		1	4	126	0.002 ~ 0.003	≤0.05D(Max 0.5)	≤0.1D	40000	320 ~ 480
		1.5	4	175 ~ 188	0.004 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	37080 ~ 40000	590 ~ 800
		2	4	175 ~ 245	0.006 ~ 0.007	≤0.05D(Max 0.5)	≤0.2D	27810 ~ 38930	670 ~ 1090
		2.5	4	175 ~ 245	0.008 ~ 0.009	≤0.05D(Max 0.5)	≤0.2D	22250 ~ 31140	710 ~ 1120
		3	4	175 ~ 245	0.010 ~ 0.011	≤0.05D(Max 0.5)	≤0.2D	18540 ~ 25950	740 ~ 1140
		4	4	175 ~ 245	0.013 ~ 0.015	≤0.05D(Max 0.5)	≤0.2D	13900 ~ 19470	720 ~ 1170
		5	4	175 ~ 245	0.017 ~ 0.019	≤0.05D(Max 0.5)	≤0.2D	11120 ~ 15570	760 ~ 1180
		6	4	175 ~ 245	0.021 ~ 0.023	≤0.05D(Max 0.5)	≤0.2D	9270 ~ 12980	780 ~ 1190
		8	4	175 ~ 245	0.026 ~ 0.029	≤0.05D(Max 0.5)	≤0.2D	6950 ~ 9730	720 ~ 1130
		10	4	175 ~ 245	0.031 ~ 0.034	≤0.05D(Max 0.5)	≤0.2D	5560 ~ 7790	690 ~ 1060
		12	4	175 ~ 245	0.036 ~ 0.040	≤0.05D(Max 0.5)	≤0.2D	4630 ~ 6490	670 ~ 1040
		14	4	175 ~ 245	0.041 ~ 0.046	≤0.05D(Max 0.5)	≤0.2D	3970 ~ 5560	650 ~ 1020
		16	4	175 ~ 245	0.047 ~ 0.051	≤0.05D(Max 0.5)	≤0.2D	3480 ~ 4870	650 ~ 990
		18	4	175 ~ 245	0.052 ~ 0.057	≤0.05D(Max 0.5)	≤0.2D	3090 ~ 4330	640 ~ 990
		20	4	175 ~ 244	0.057 ~ 0.063	≤0.05D(Max 0.5)	≤0.2D	2780 ~ 3890	630 ~ 980

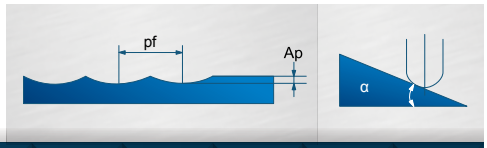
BN 60 Long Series Ballnose Cutters



4 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	4	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.4	4	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		0.8	4	101	0.001 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 480
		0.8	4	101	0.001 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 480
		1	4	126	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	40000	320 ~ 640
		1.5	4	150 ~ 188	0.004 ~ 0.006	≤0.05D(Max 0.3)	≤0.1D	31780 ~ 40000	510 ~ 960
		2	4	150 ~ 225	0.006 ~ 0.007	≤0.05D(Max 0.3)	≤0.2D	23840 ~ 35750	570 ~ 1000
		2.5	4	150 ~ 225	0.007 ~ 0.009	≤0.05D(Max 0.3)	≤0.2D	19070 ~ 28600	530 ~ 1030
		3	4	150 ~ 225	0.009 ~ 0.011	≤0.05D(Max 0.3)	≤0.2D	15890 ~ 23840	570 ~ 1050
		4	4	150 ~ 225	0.013 ~ 0.014	≤0.05D(Max 0.3)	≤0.2D	11920 ~ 17880	620 ~ 1000
		5	4	150 ~ 225	0.016 ~ 0.018	≤0.05D(Max 0.3)	≤0.2D	9530 ~ 14300	610 ~ 1030
		6	4	150 ~ 225	0.020 ~ 0.022	≤0.05D(Max 0.3)	≤0.2D	7950 ~ 11920	640 ~ 1050
		8	4	150 ~ 225	0.024 ~ 0.027	≤0.05D(Max 0.3)	≤0.2D	5960 ~ 8940	570 ~ 970
		10	4	150 ~ 225	0.029 ~ 0.032	≤0.05D(Max 0.3)	≤0.2D	4770 ~ 7150	550 ~ 920
		12	4	150 ~ 225	0.034 ~ 0.037	≤0.05D(Max 0.3)	≤0.2D	3970 ~ 5960	540 ~ 880
		14	4	150 ~ 225	0.039 ~ 0.043	≤0.05D(Max 0.3)	≤0.2D	3410 ~ 5110	530 ~ 880
		16	4	150 ~ 225	0.044 ~ 0.048	≤0.05D(Max 0.3)	≤0.2D	2980 ~ 4470	520 ~ 860
		18	4	150 ~ 224	0.048 ~ 0.053	≤0.05D(Max 0.3)	≤0.2D	2650 ~ 3970	510 ~ 840
		20	4	150 ~ 225	0.053 ~ 0.059	≤0.05D(Max 0.3)	≤0.2D	2380 ~ 3580	500 ~ 840

		α > 15°							
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	4	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.4	4	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		0.8	4	101	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	160 ~ 320
		1	4	126	0.002 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	40000	320 ~ 480
		1.5	4	140 ~ 188	0.003 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	29660 ~ 40000	360 ~ 640
		2	4	140 ~ 210	0.005 ~ 0.006	≤0.05D(Max 0.3)	≤0.2D	22250 ~ 33370	450 ~ 800
		2.5	4	140 ~ 210	0.006 ~ 0.007	≤0.05D(Max 0.3)	≤0.2D	17800 ~ 26700	430 ~ 750
		3	4	140 ~ 210	0.007 ~ 0.009	≤0.05D(Max 0.3)	≤0.2D	14830 ~ 22250	420 ~ 800
		4	4	140 ~ 210	0.010 ~ 0.012	≤0.05D(Max 0.3)	≤0.2D	11120 ~ 16680	440 ~ 800
		5	4	140 ~ 210	0.013 ~ 0.014	≤0.05D(Max 0.3)	≤0.2D	8900 ~ 13350	460 ~ 750
		6	4	140 ~ 210	0.016 ~ 0.017	≤0.05D(Max 0.3)	≤0.2D	7420 ~ 11120	470 ~ 760
		8	4	140 ~ 210	0.020 ~ 0.021	≤0.05D(Max 0.3)	≤0.2D	5560 ~ 8340	440 ~ 700
		10	4	140 ~ 210	0.023 ~ 0.026	≤0.05D(Max 0.3)	≤0.2D	4450 ~ 6670	410 ~ 690
		12	4	140 ~ 210	0.027 ~ 0.030	≤0.05D(Max 0.3)	≤0.2D	3710 ~ 5560	400 ~ 670
		14	4	140 ~ 210	0.031 ~ 0.034	≤0.05D(Max 0.3)	≤0.2D	3180 ~ 4770	390 ~ 650
		16	4	140 ~ 210	0.035 ~ 0.038	≤0.05D(Max 0.3)	≤0.2D	2780 ~ 4170	390 ~ 630
		18	4	140 ~ 210	0.039 ~ 0.043	≤0.05D(Max 0.3)	≤0.2D	2470 ~ 3710	390 ~ 640
		20	4	139 ~ 210	0.043 ~ 0.047	≤0.05D(Max 0.3)	≤0.2D	2220 ~ 3340	380 ~ 630

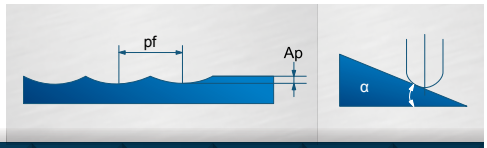
BN 60 Long Series Ballnose Cutters



4 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	4	38	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	4	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	4	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 160
		1	4	112 ~ 126	0.001 ~ 0.001	≤0.03D(Max 0.3)	≤0.1D	35750 ~ 40000	140 ~ 160
		1.5	4	112 ~ 187	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	23840 ~ 39730	100 ~ 320
		2	4	112 ~ 187	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	17880 ~ 29790	140 ~ 240
		2.5	4	112 ~ 187	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	14300 ~ 23840	110 ~ 290
		3	4	112 ~ 187	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	11920 ~ 19860	140 ~ 320
		4	4	112 ~ 187	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	8940 ~ 14900	140 ~ 300
		5	4	112 ~ 187	0.005 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	7150 ~ 11920	140 ~ 290
		6	4	112 ~ 187	0.007 ~ 0.007	≤0.03D(Max 0.3)	≤0.1D	5960 ~ 9930	170 ~ 280
		8	4	112 ~ 187	0.008 ~ 0.009	≤0.03D(Max 0.3)	≤0.1D	4470 ~ 7450	140 ~ 270
		10	4	112 ~ 187	0.010 ~ 0.011	≤0.03D(Max 0.3)	≤0.1D	3580 ~ 5960	140 ~ 260
		12	4	112 ~ 187	0.011 ~ 0.012	≤0.03D(Max 0.3)	≤0.1D	2980 ~ 4970	130 ~ 240
		14	4	112 ~ 187	0.013 ~ 0.014	≤0.03D(Max 0.3)	≤0.1D	2550 ~ 4260	130 ~ 240
		16	4	112 ~ 187	0.015 ~ 0.016	≤0.03D(Max 0.3)	≤0.1D	2230 ~ 3720	130 ~ 240
		18	4	113 ~ 187	0.016 ~ 0.018	≤0.03D(Max 0.3)	≤0.1D	1990 ~ 3310	130 ~ 240
		20	4	112 ~ 187	0.018 ~ 0.020	≤0.03D(Max 0.3)	≤0.1D	1790 ~ 2980	130 ~ 240

		α > 15°							
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	4	38	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	4	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	4	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	4	101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	80 ~ 160
		1	4	105 ~ 126	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	33370 ~ 40000	80 ~ 160
		1.5	4	105 ~ 175	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	22250 ~ 37080	90 ~ 150
		2	4	105 ~ 175	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	16680 ~ 27810	70 ~ 220
		2.5	4	105 ~ 175	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	13350 ~ 22250	110 ~ 180
		3	4	105 ~ 175	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	11120 ~ 18540	90 ~ 220
		4	4	105 ~ 175	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	8340 ~ 13900	100 ~ 220
		5	4	105 ~ 175	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	6670 ~ 11120	110 ~ 220
		6	4	105 ~ 175	0.005 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	5560 ~ 9270	110 ~ 220
		8	4	105 ~ 175	0.007 ~ 0.007	≤0.03D(Max 0.3)	≤0.1D	4170 ~ 6950	120 ~ 190
		10	4	105 ~ 175	0.008 ~ 0.009	≤0.03D(Max 0.3)	≤0.1D	3340 ~ 5560	110 ~ 200
		12	4	105 ~ 175	0.009 ~ 0.010	≤0.03D(Max 0.3)	≤0.1D	2780 ~ 4630	100 ~ 190
		14	4	105 ~ 175	0.010 ~ 0.011	≤0.03D(Max 0.3)	≤0.1D	2380 ~ 3970	100 ~ 170
		16	4	105 ~ 175	0.012 ~ 0.013	≤0.03D(Max 0.3)	≤0.1D	2090 ~ 3480	100 ~ 180
		18	4	105 ~ 175	0.013 ~ 0.014	≤0.03D(Max 0.3)	≤0.1D	1850 ~ 3090	100 ~ 170
		20	4	105 ~ 175	0.014 ~ 0.016	≤0.03D(Max 0.3)	≤0.1D	1670 ~ 2780	90 ~ 180

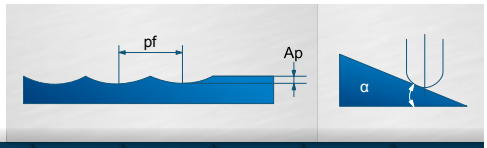
BN 60 Extra-Long Series Ballnose Cutters



2 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 400
		0.8	2	101	0.002 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 400
		1	2	117 ~ 126	0.004 ~ 0.006	≤0.05D(Max 0.5)	≤0.1D	37240 ~ 40000	300 ~ 480
		1.5	2	117 ~ 164	0.007 ~ 0.009	≤0.05D(Max 0.5)	≤0.1D	24830 ~ 34760	350 ~ 630
		2	2	117 ~ 164	0.010 ~ 0.012	≤0.05D(Max 0.5)	≤0.2D	18620 ~ 26070	370 ~ 630
		2.5	2	117 ~ 164	0.013 ~ 0.016	≤0.05D(Max 0.5)	≤0.2D	14900 ~ 20860	390 ~ 670
		3	2	117 ~ 164	0.016 ~ 0.019	≤0.05D(Max 0.5)	≤0.2D	12410 ~ 17380	400 ~ 660
		4	2	117 ~ 164	0.022 ~ 0.025	≤0.05D(Max 0.5)	≤0.2D	9310 ~ 13030	410 ~ 650
		5	2	117 ~ 164	0.029 ~ 0.032	≤0.05D(Max 0.5)	≤0.2D	7450 ~ 10430	430 ~ 670
		6	2	117 ~ 164	0.035 ~ 0.038	≤0.05D(Max 0.5)	≤0.2D	6210 ~ 8690	430 ~ 660
		8	2	117 ~ 164	0.043 ~ 0.048	≤0.05D(Max 0.5)	≤0.2D	4660 ~ 6520	400 ~ 630
		10	2	117 ~ 164	0.052 ~ 0.057	≤0.05D(Max 0.5)	≤0.2D	3720 ~ 5210	390 ~ 590
		12	2	117 ~ 164	0.061 ~ 0.067	≤0.05D(Max 0.5)	≤0.2D	3100 ~ 4340	380 ~ 580
		14	2	117 ~ 164	0.069 ~ 0.076	≤0.05D(Max 0.5)	≤0.2D	2660 ~ 3720	370 ~ 570
		16	2	117 ~ 164	0.078 ~ 0.085	≤0.05D(Max 0.5)	≤0.2D	2330 ~ 3260	360 ~ 550
		18	2	117 ~ 164	0.086 ~ 0.095	≤0.05D(Max 0.5)	≤0.2D	2070 ~ 2900	360 ~ 550
		20	2	117 ~ 164	0.095 ~ 0.104	≤0.05D(Max 0.5)	≤0.2D	1860 ~ 2610	350 ~ 540

		α > 15°						
HARDENED STEEL (45~55 HRC) AISI H13, AISI D2, SUS 420 etc	M26, M27	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.5)	≤0.1D	40000	80 ~ 160
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 320
		0.8	2	101	0.002 ~ 0.004	≤0.05D(Max 0.5)	≤0.1D	40000	160 ~ 320
		1	2	109 ~ 126	0.003 ~ 0.005	≤0.05D(Max 0.5)	≤0.1D	34760 ~ 40000	210 ~ 400
		1.5	2	109 ~ 153	0.005 ~ 0.007	≤0.05D(Max 0.5)	≤0.1D	23170 ~ 32440	230 ~ 450
		2	2	109 ~ 153	0.008 ~ 0.010	≤0.05D(Max 0.5)	≤0.2D	17380 ~ 24330	280 ~ 490
		2.5	2	109 ~ 153	0.010 ~ 0.012	≤0.05D(Max 0.5)	≤0.2D	13900 ~ 19470	280 ~ 470
		3	2	109 ~ 153	0.013 ~ 0.015	≤0.05D(Max 0.5)	≤0.2D	11590 ~ 16220	300 ~ 490
		4	2	109 ~ 153	0.018 ~ 0.020	≤0.05D(Max 0.5)	≤0.2D	8690 ~ 12170	310 ~ 490
		5	2	109 ~ 153	0.023 ~ 0.025	≤0.05D(Max 0.5)	≤0.2D	6950 ~ 9730	320 ~ 490
		6	2	109 ~ 153	0.028 ~ 0.031	≤0.05D(Max 0.5)	≤0.2D	5790 ~ 8110	320 ~ 500
		8	2	109 ~ 153	0.035 ~ 0.038	≤0.05D(Max 0.5)	≤0.2D	4340 ~ 6080	300 ~ 460
		10	2	109 ~ 153	0.042 ~ 0.046	≤0.05D(Max 0.5)	≤0.2D	3480 ~ 4870	290 ~ 450
		12	2	109 ~ 153	0.048 ~ 0.053	≤0.05D(Max 0.5)	≤0.2D	2900 ~ 4060	280 ~ 430
		14	2	109 ~ 153	0.055 ~ 0.061	≤0.05D(Max 0.5)	≤0.2D	2480 ~ 3480	270 ~ 420
		16	2	109 ~ 153	0.062 ~ 0.068	≤0.05D(Max 0.5)	≤0.2D	2170 ~ 3040	270 ~ 410
		18	2	109 ~ 153	0.069 ~ 0.076	≤0.05D(Max 0.5)	≤0.2D	1930 ~ 2700	270 ~ 410
		20	2	109 ~ 153	0.076 ~ 0.083	≤0.05D(Max 0.5)	≤0.2D	1740 ~ 2430	260 ~ 400

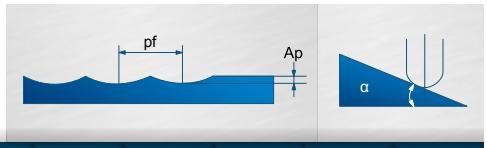
BN 60 Extra-Long Series Ballnose Cutters



2 Z Milling		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	2	94 ~ 101	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	37240 ~ 40000	150 ~ 320
		0.8	2	94 ~ 101	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	37240 ~ 40000	150 ~ 320
		1	2	94 ~ 126	0.003 ~ 0.005	≤0.05D(Max 0.3)	≤0.1D	29790 ~ 40000	180 ~ 400
		1.5	2	94 ~ 140	0.005 ~ 0.007	≤0.05D(Max 0.3)	≤0.1D	19860 ~ 29790	200 ~ 420
		2	2	94 ~ 140	0.008 ~ 0.010	≤0.05D(Max 0.3)	≤0.2D	14900 ~ 22350	240 ~ 450
		2.5	2	94 ~ 140	0.010 ~ 0.012	≤0.05D(Max 0.3)	≤0.2D	11920 ~ 17880	240 ~ 430
		3	2	94 ~ 140	0.012 ~ 0.015	≤0.05D(Max 0.3)	≤0.2D	9930 ~ 14900	240 ~ 450
		4	2	94 ~ 140	0.017 ~ 0.019	≤0.05D(Max 0.3)	≤0.2D	7450 ~ 11170	250 ~ 420
		5	2	94 ~ 140	0.021 ~ 0.024	≤0.05D(Max 0.3)	≤0.2D	5960 ~ 8940	250 ~ 430
		6	2	94 ~ 140	0.026 ~ 0.029	≤0.05D(Max 0.3)	≤0.2D	4970 ~ 7450	260 ~ 430
		8	2	93 ~ 140	0.033 ~ 0.036	≤0.05D(Max 0.3)	≤0.2D	3720 ~ 5590	250 ~ 400
		10	2	94 ~ 140	0.039 ~ 0.043	≤0.05D(Max 0.3)	≤0.2D	2980 ~ 4470	230 ~ 380
		12	2	93 ~ 140	0.045 ~ 0.050	≤0.05D(Max 0.3)	≤0.2D	2480 ~ 3720	220 ~ 370
		14	2	94 ~ 140	0.052 ~ 0.057	≤0.05D(Max 0.3)	≤0.2D	2130 ~ 3190	220 ~ 360
		16	2	93 ~ 140	0.058 ~ 0.064	≤0.05D(Max 0.3)	≤0.2D	1860 ~ 2790	220 ~ 360
		18	2	94 ~ 140	0.065 ~ 0.071	≤0.05D(Max 0.3)	≤0.2D	1660 ~ 2480	220 ~ 350
		20	2	94 ~ 140	0.071 ~ 0.078	≤0.05D(Max 0.3)	≤0.2D	1490 ~ 2230	210 ~ 350

		α > 15°						
HARDENED STEEL (55~62 HRC) AISI D2, SKH, SKS etc	M28	0.3	2	38	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.05D(Max 0.3)	≤0.1D	40000	80 ~ 160
		0.8	2	87 ~ 101	0.002 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	34760 ~ 40000	140 ~ 240
		0.8	2	87 ~ 101	0.002 ~ 0.003	≤0.05D(Max 0.3)	≤0.1D	34760 ~ 40000	140 ~ 240
		1	2	87 ~ 126	0.002 ~ 0.004	≤0.05D(Max 0.3)	≤0.1D	27810 ~ 40000	110 ~ 320
		1.5	2	87 ~ 131	0.004 ~ 0.006	≤0.05D(Max 0.3)	≤0.1D	18540 ~ 27810	150 ~ 330
		2	2	87 ~ 131	0.006 ~ 0.008	≤0.05D(Max 0.3)	≤0.2D	13900 ~ 20860	170 ~ 330
		2.5	2	87 ~ 131	0.008 ~ 0.010	≤0.05D(Max 0.3)	≤0.2D	11120 ~ 16680	180 ~ 330
		3	2	87 ~ 131	0.010 ~ 0.012	≤0.05D(Max 0.3)	≤0.2D	9270 ~ 13900	190 ~ 330
		4	2	87 ~ 131	0.013 ~ 0.015	≤0.05D(Max 0.3)	≤0.2D	6950 ~ 10430	180 ~ 310
		5	2	87 ~ 131	0.017 ~ 0.019	≤0.05D(Max 0.3)	≤0.2D	5560 ~ 8340	190 ~ 320
		6	2	87 ~ 131	0.021 ~ 0.023	≤0.05D(Max 0.3)	≤0.2D	4630 ~ 6950	190 ~ 320
		8	2	87 ~ 131	0.026 ~ 0.029	≤0.05D(Max 0.3)	≤0.2D	3480 ~ 5210	180 ~ 300
		10	2	87 ~ 131	0.031 ~ 0.034	≤0.05D(Max 0.3)	≤0.2D	2780 ~ 4170	170 ~ 280
		12	2	87 ~ 131	0.036 ~ 0.040	≤0.05D(Max 0.3)	≤0.2D	2320 ~ 3480	170 ~ 280
		14	2	88 ~ 131	0.041 ~ 0.046	≤0.05D(Max 0.3)	≤0.2D	1990 ~ 2980	160 ~ 270
		16	2	87 ~ 131	0.047 ~ 0.051	≤0.05D(Max 0.3)	≤0.2D	1740 ~ 2610	160 ~ 270
		18	2	87 ~ 131	0.052 ~ 0.057	≤0.05D(Max 0.3)	≤0.2D	1540 ~ 2320	160 ~ 260
		20	2	87 ~ 131	0.057 ~ 0.063	≤0.05D(Max 0.3)	≤0.2D	1390 ~ 2090	160 ~ 260

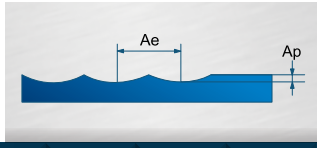
BN 60 Extra-Long Series Ballnose Cutters



2 Z Milling		α ≤ 15°							
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	2	38	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	70 ~ 101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	27930 ~ 40000	20 ~ 80
		0.8	2	70 ~ 101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	27930 ~ 40000	20 ~ 80
		1	2	70 ~ 117	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	22350 ~ 37240	40 ~ 70
		1.5	2	70 ~ 117	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	14900 ~ 24830	60 ~ 100
		2	2	70 ~ 117	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	11170 ~ 18620	40 ~ 110
		2.5	2	70 ~ 117	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	8940 ~ 14900	50 ~ 120
		3	2	70 ~ 117	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	7450 ~ 12410	60 ~ 120
		4	2	70 ~ 117	0.006 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	5590 ~ 9310	70 ~ 110
		5	2	70 ~ 117	0.007 ~ 0.008	≤0.03D(Max 0.3)	≤0.1D	4470 ~ 7450	60 ~ 120
		6	2	70 ~ 117	0.009 ~ 0.010	≤0.03D(Max 0.3)	≤0.1D	3720 ~ 6210	70 ~ 120
		8	2	70 ~ 117	0.011 ~ 0.012	≤0.03D(Max 0.3)	≤0.1D	2790 ~ 4660	60 ~ 110
		10	2	70 ~ 117	0.013 ~ 0.014	≤0.03D(Max 0.3)	≤0.1D	2230 ~ 3720	60 ~ 100
		12	2	70 ~ 117	0.015 ~ 0.017	≤0.03D(Max 0.3)	≤0.1D	1860 ~ 3100	60 ~ 110
		14	2	70 ~ 117	0.017 ~ 0.019	≤0.03D(Max 0.3)	≤0.1D	1600 ~ 2660	50 ~ 100
		16	2	70 ~ 117	0.019 ~ 0.021	≤0.03D(Max 0.3)	≤0.1D	1400 ~ 2330	50 ~ 100
		18	2	70 ~ 117	0.022 ~ 0.024	≤0.03D(Max 0.3)	≤0.1D	1240 ~ 2070	50 ~ 100
		20	2	70 ~ 117	0.024 ~ 0.026	≤0.03D(Max 0.3)	≤0.1D	1120 ~ 1860	50 ~ 100

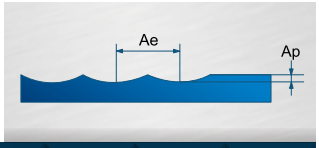
		α > 15°							
HARDENED STEEL (60~65 HRC) AISI D2	M33	0.3	2	38	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.4	2	50	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	40000	20 ~ 80
		0.8	2	66 ~ 101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	26070 ~ 40000	20 ~ 80
		0.8	2	66 ~ 101	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	26070 ~ 40000	20 ~ 80
		1	2	66 ~ 109	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	20860 ~ 34760	40 ~ 70
		1.5	2	66 ~ 109	0.001 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	13900 ~ 23170	30 ~ 90
		2	2	66 ~ 109	0.002 ~ 0.002	≤0.03D(Max 0.3)	≤0.1D	10430 ~ 17380	40 ~ 70
		2.5	2	66 ~ 109	0.002 ~ 0.003	≤0.03D(Max 0.3)	≤0.1D	8340 ~ 13900	30 ~ 80
		3	2	66 ~ 109	0.003 ~ 0.004	≤0.03D(Max 0.3)	≤0.1D	6950 ~ 11590	40 ~ 90
		4	2	65 ~ 109	0.004 ~ 0.005	≤0.03D(Max 0.3)	≤0.1D	5210 ~ 8690	40 ~ 90
		5	2	66 ~ 109	0.006 ~ 0.006	≤0.03D(Max 0.3)	≤0.1D	4170 ~ 6950	50 ~ 80
		6	2	66 ~ 109	0.007 ~ 0.008	≤0.03D(Max 0.3)	≤0.1D	3480 ~ 5790	50 ~ 90
		8	2	66 ~ 109	0.009 ~ 0.010	≤0.03D(Max 0.3)	≤0.1D	2610 ~ 4340	50 ~ 90
		10	2	66 ~ 109	0.010 ~ 0.011	≤0.03D(Max 0.3)	≤0.1D	2090 ~ 3480	40 ~ 80
		12	2	66 ~ 109	0.012 ~ 0.013	≤0.03D(Max 0.3)	≤0.1D	1740 ~ 2900	40 ~ 80
		14	2	66 ~ 109	0.014 ~ 0.015	≤0.03D(Max 0.3)	≤0.1D	1490 ~ 2480	40 ~ 70
		16	2	65 ~ 109	0.016 ~ 0.017	≤0.03D(Max 0.3)	≤0.1D	1300 ~ 2170	40 ~ 70
		18	2	66 ~ 109	0.017 ~ 0.019	≤0.03D(Max 0.3)	≤0.1D	1160 ~ 1930	40 ~ 70
		20	2	65 ~ 109	0.019 ~ 0.021	≤0.03D(Max 0.3)	≤0.1D	1040 ~ 1740	40 ~ 70

BN 60 Miniature Ballnose Cutters with long neck



2 Z Profile Milling				HARDENED STEELS				HARDENED STEELS			
Work Material											
Material Groups				M26, M27				M28, M33			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	0.05D	0.20D	25	0.002	40,000	160	25	0.001	40,000	80
0.2	1	0.05D	0.20D	25	0.002	40,000	160	25	0.001	40,000	80
0.2	1.5	0.05D	0.15D	21	0.001	34,000	96	21	0.001	34,000	48
0.3	1	0.05D	0.20D	38	0.002	40,000	160	38	0.001	40,000	80
0.3	2	0.05D	0.15D	32	0.001	34,000	96	32	0.001	34,000	48
0.3	3	0.02D	0.10D	27	0.001	28,000	80	27	0.001	28,000	40
0.4	1	0.05D	0.20D	50	0.002	40,000	160	50	0.004	39,895	280
0.4	2	0.05D	0.20D	50	0.002	40,000	160	50	0.004	39,895	280
0.4	3	0.05D	0.15D	43	0.001	34,000	96	43	0.002	33,910	168
0.4	4	0.02D	0.10D	35	0.001	28,000	80	35	0.003	27,926	140
0.4	5	0.02D	0.10D	35	0.001	28,000	80	35	0.003	27,926	140
0.5	2	0.05D	0.20D	62	0.004	39,099	315	57	0.004	35,916	264
0.5	3	0.05D	0.15D	52	0.003	33,234	189	48	0.002	30,528	158
0.5	4	0.05D	0.15D	52	0.003	33,234	189	48	0.002	30,528	158
0.5	5	0.02D	0.10D	43	0.003	27,369	157	40	0.003	25,141	132
0.5	6	0.02D	0.10D	43	0.003	27,369	157	40	0.003	25,141	132
0.5	8	0.02D	0.10D	37	0.003	23,459	126	34	0.002	21,549	105
0.6	2	0.05D	0.20D	68	0.005	35,916	336	60	0.004	31,831	276
0.6	3	0.05D	0.20D	68	0.005	35,916	336	60	0.004	31,831	276
0.6	4	0.05D	0.15D	57	0.003	30,528	201	51	0.003	27,056	166
0.6	5	0.05D	0.15D	57	0.003	30,528	201	51	0.003	27,056	166
0.6	6	0.02D	0.10D	47	0.003	25,141	168	42	0.003	22,282	138
0.6	8	0.02D	0.10D	47	0.003	25,141	168	42	0.003	22,282	138
0.8	2	0.05D	0.20D	70	0.005	27,852	295	60	0.004	23,873	255
0.8	4	0.05D	0.20D	70	0.005	27,852	295	60	0.004	23,873	255
0.8	5	0.05D	0.15D	60	0.004	23,674	177	51	0.003	20,292	153
0.8	6	0.05D	0.15D	60	0.004	23,674	177	51	0.003	20,292	153
0.8	7	0.05D	0.15D	60	0.004	23,674	177	51	0.003	20,292	153
0.8	8	0.02D	0.10D	49	0.004	19,496	147	42	0.003	16,711	127
0.8	10	0.02D	0.10D	49	0.004	19,496	147	42	0.003	16,711	127
1.0	3	0.05D	0.20D	70	0.006	22,282	280	60	0.005	19,099	226
1.0	4	0.05D	0.20D	70	0.006	22,282	280	60	0.005	19,099	226
1.0	5	0.05D	0.20D	70	0.006	22,282	280	60	0.005	19,099	226
1.0	6	0.05D	0.15D	60	0.004	18,940	168	51	0.004	16,234	136
1.0	7	0.05D	0.15D	60	0.004	18,940	168	51	0.004	16,234	136
1.0	8	0.05D	0.15D	60	0.004	18,940	168	51	0.004	16,234	136
1.0	9	0.05D	0.15D	60	0.004	18,940	168	51	0.004	16,234	136
1.0	10	0.02D	0.10D	49	0.004	15,597	140	42	0.004	13,369	113
1.0	12	0.02D	0.10D	49	0.004	15,597	140	42	0.004	13,369	113
1.0	14	0.02D	0.10D	49	0.004	15,597	140	42	0.004	13,369	113
1.0	20	0.02D	0.10D	42	0.004	13,369	112	36	0.003	11,459	90
1.2	6	0.05D	0.20D	70	0.006	18,568	234	60	0.006	15,916	202
1.2	8	0.05D	0.15D	60	0.004	15,783	140	51	0.004	13,528	121
1.2	10	0.05D	0.15D	60	0.004	15,783	140	51	0.004	13,528	121
1.2	12	0.02D	0.10D	49	0.004	12,998	117	42	0.004	11,141	101
1.2	8	0.05D	0.15D	60	0.004	15,783	140	51	0.004	13,528	121
1.2	12	0.02D	0.10D	49	0.004	12,998	117	42	0.004	11,141	101
1.2	16	0.02D	0.10D	49	0.004	12,998	117	42	0.004	11,141	101
1.4	8	0.05D	0.20D	70	0.007	15,916	232	60	0.007	13,642	189
1.4	12	0.05D	0.15D	60	0.005	13,528	139	51	0.005	11,595	113
1.4	16	0.02D	0.10D	49	0.005	11,141	116	42	0.005	9,549	94
1.5	8	0.05D	0.20D	70	0.008	14,855	234	60	0.007	12,732	191
1.5	12	0.05D	0.15D	60	0.005	12,626	140	51	0.005	10,822	115
1.5	16	0.02D	0.10D	49	0.005	10,398	117	42	0.005	8,912	96
1.5	18	0.02D	0.10D	49	0.005	10,398	117	42	0.005	8,912	96
1.6	8	0.05D	0.20D	70	0.008	13,926	219	60	0.008	11,937	189
1.6	12	0.05D	0.15D	60	0.005	11,837	131	51	0.005	10,146	113
1.6	16	0.02D	0.10D	49	0.005	9,748	109	42	0.005	8,356	95
1.6	20	0.02D	0.10D	49	0.005	9,748	109	42	0.005	8,356	95
1.8	8	0.05D	0.20D	70	0.009	12,379	219	60	0.008	10,611	180
1.8	12	0.05D	0.15D	60	0.006	10,522	131	51	0.006	9,019	108
1.8	16	0.05D	0.15D	60	0.006	10,522	131	51	0.006	9,019	108
1.8	20	0.02D	0.10D	49	0.006	8,665	110	42	0.006	7,427	90

BN 60 Miniature Ballnose Cutters with long neck



2 Z Profile Milling				HARDENED STEELS				HARDENED STEELS			
Work Material											
Material Groups				M26, M27				M28, M33			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	70	0.009	11,141	211	60	0.009	9,550	181
2.0	6	0.05D	0.20D	70	0.009	11,141	211	60	0.009	9,550	181
2.0	8	0.05D	0.20D	70	0.009	11,141	211	60	0.009	9,550	181
2.0	10	0.05D	0.20D	70	0.009	11,141	211	60	0.009	9,550	181
2.0	12	0.05D	0.15D	60	0.006	9,469	126	51	0.006	8,117	109
2.0	14	0.05D	0.15D	60	0.006	9,469	126	51	0.006	8,117	109
2.0	16	0.05D	0.15D	60	0.006	9,469	126	51	0.006	8,117	109
2.0	18	0.05D	0.15D	60	0.006	9,469	126	51	0.006	8,117	109
2.0	20	0.02D	0.10D	49	0.006	7,798	105	42	0.006	6,685	91
2.0	22	0.02D	0.10D	49	0.006	7,798	105	42	0.006	6,685	91
2.0	25	0.02D	0.10D	49	0.006	7,798	105	42	0.006	6,685	91
2.0	30	0.02D	0.10D	49	0.006	7,798	105	42	0.006	6,685	91
3.0	8	0.05D	0.20D	70	0.013	7,427	202	60	0.013	6,366	169
3.0	10	0.05D	0.20D	70	0.013	7,427	202	60	0.013	6,366	169
3.0	16	0.05D	0.20D	70	0.013	7,427	202	60	0.013	6,366	169
3.0	20	0.05D	0.15D	60	0.009	6,313	121	51	0.009	5,411	101
3.0	25	0.05D	0.15D	60	0.009	6,313	121	51	0.009	5,411	101
3.0	30	0.02D	0.10D	49	0.009	5,199	101	42	0.009	4,456	85
3.0	35	0.02D	0.10D	49	0.009	5,199	101	42	0.009	4,456	85
4.0	10	0.05D	0.20D	70	0.016	5,571	186	60	0.016	4,775	161
4.0	16	0.05D	0.20D	70	0.016	5,571	186	60	0.016	4,775	161
4.0	20	0.05D	0.20D	70	0.016	5,571	186	60	0.016	4,775	161
4.0	25	0.05D	0.15D	60	0.011	4,735	112	51	0.011	4,058	97
4.0	30	0.05D	0.15D	60	0.011	4,735	112	51	0.011	4,058	97
4.0	35	0.05D	0.15D	60	0.011	4,735	112	51	0.011	4,058	97
4.0	40	0.02D	0.10D	49	0.011	3,899	93	42	0.011	3,342	81
4.0	45	0.02D	0.10D	49	0.011	3,899	93	42	0.011	3,342	81
4.0	50	0.02D	0.10D	49	0.011	3,899	93	42	0.011	3,342	81

BNGR

BN GR STANDARD BALLNOSE CUTTERS

For Graphite

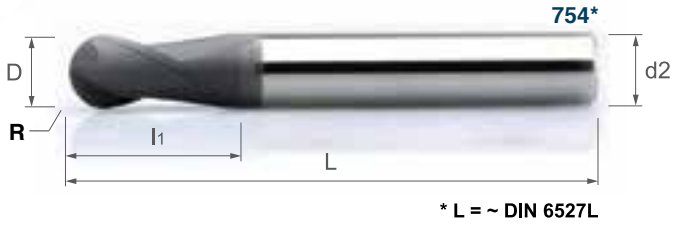
Solid Carbide BN GR Standard Ballnose Cutters, 2 fluted, DIAMOND respectively DLC coated for graphite operations

Fraises BN GR standard en carbure monobloc à bout hémisphérique, 2 dents, revêtue DIAMANT respectivement DLC,pour usinage de graphite

整体硬质合金 BN GR 系列 球头 立铣刀 - 石墨操作 2 刃 -DLC 钻石涂层 - 标准长度

VHM BN GR Radiusschaftfräser, 2 Zähne, DIAMANT bzw. DLC beschichtet zur Bearbeitung von Grafit

Frese clindriche a raggio tipo BN GR standard in metallo duro integrale, 2 taglienti, rivestite DIAMANTE respettivamente DLC per lavorazioni in grafite



* L = ~ DIN 6527L

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l 1	l 2	L	d2 (h6)	912* D0700	754* DCT01	780* DCT02
0100 040 03	1	0.5	3	6	40	3	●	●	-
0150 040 03	1.5	0.75	3	9	40	3	●	●	-
0200 040 03	2	1	4	12	40	3	●	●	-
0250 040 03	2.5	1.25	4	13	40	3	●	●	-
0300	3	1.5	5	18	40	3	●	●	●
0400	4	2	8	20	50	4	●	●	●
0500	5	2.5	9	20	50	5	●	●	●
0600	6	3	10	30	60	6	●	●	●
0800	8	4	12	30	64	8	●	●	●
1000	10	5	14	35	70	10	●	●	●
1200	12	6	16	35	75	12	●	●	●
							913*	755*	781*

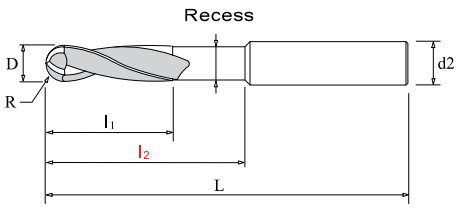
Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
●																									

Working Material	Cutting Parameter
564	375

若有技术规格变更，恕不事先通知

BN GR BALLNOSE CUTTERS - LONG with Recess

For Graphite

Solid Carbide long BN GR Ballnose Cutters, 2 fluted, DIAMOND respectively DLC coated, with recess, for graphite operations

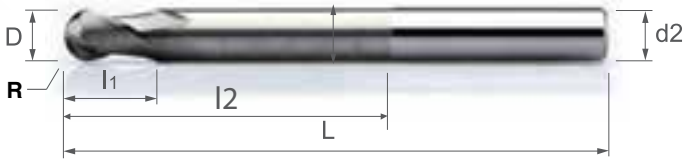
Fraises BN GR longues en carbure monobloc à bout hémisphérique, 2 dents, revêtue DIAMANT respectivement DLC, avec dégagement pour usinage de graphite

整体硬质合金 BN GR 系列 球头 立铣刀 - 石墨操作 2 刃 - DLC 钻石涂层 - 中长, 带颈位

VHM lange BN GR Radiusschaftfräser 2 Zähne, mit Freistellung, DIAMANT bzw. DLC beschichtet, zur Bearbeitung von Grafit

Frese cilindriche lunghe a raggio tipo BN GR in metallo duro integrale, 2 taglienti, rivestite DIAMANTE, respettivamente DLC, con diminuzione del collo, per lavorazioni in grafite

914*



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)							914*	756*	809*
=*+Ødata	D	R	l 1	l 2	L	d1	d2 (h6)	D0700	DCT01	DCT02
0050 050 03	0.5	0.25	1	6	50	0.45	3	●	●	-
0050 050 04	0.5	0.25	1	6	50	0.45	4	●	●	-
0060 050 03	0.6	0.3	1.2	6	50	0.55	3	●	●	-
0060 050 04	0.6	0.3	1.2	6	50	0.55	4	●	●	-
0080 050 03	0.8	0.4	1.6	8	50	0.75	3	●	●	-
0080 050 04	0.8	0.4	1.6	8	50	0.75	4	●	●	-
0100 060 03	1	0.5	3	10	60	0.95	3	●	●	-
0100 060 04	1	0.5	3	10	60	0.95	4	●	●	-
0150 060 03	1.5	0.75	3	15	60	1.45	3	●	●	-
0150 060 04	1.5	0.75	3	15	60	1.45	4	●	●	-
0200 060 03	2	1	4	20	60	1.95	3	●	●	-
0200 060 04	2	1	4	20	60	1.95	4	●	●	-
0250 060 03	2.5	1.25	4	25	60	2.4	3	●	●	-
0250 060 04	2.5	1.25	4	25	60	2.4	4	●	●	-
0300	3	1.5	5	30	100	2.85	3	●	●	●
0300 075 06	3	1.5	5	35	75	2.85	6	●	●	●
0300 100 06	3	1.5	5	60	100	2.85	6	●	●	●
0400	4	2	8	40	100	3.85	4	●	●	●
0400 075 06	4	2	8	35	75	3.85	6	●	●	●
0400 100 06	4	2	8	60	100	3.85	6	●	●	●
0500	5	2.5	9	50	100	4.85	5	●	●	●
0500 075 06	5	2.5	9	35	75	4.85	6	●	●	●
0500 100 06	5	2.5	9	60	100	4.85	6	●	●	●
0600 100	6	3	10	60	100	5.85	6	●	●	●
0600 150	6	3	10	80	150	5.85	6	●	●	●
0800 100	8	4	12	60	100	7.85	8	●	●	●
0800 150	8	4	12	80	150	7.85	8	●	●	●
1000 100	10	5	14	60	100	9.85	10	●	●	●
1000 150	10	5	14	80	150	9.85	10	●	●	●
1200 100	12	6	16	60	100	11.85	12	●	●	●
1200 150	12	6	16	80	150	11.85	12	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
				●																					

Working Material	Cutting Parameter
564	375

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

BN GR BALLNOSE CUTTERS - EXTRA-LONG

For Graphite

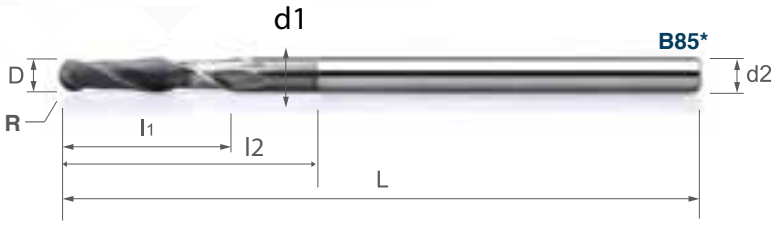
Solid Carbide BN GR Extra-Long Ballnose Cutters, 2 fluted, DIAMOND respectively DLC coated, for graphite operations

Fraises BN GR extra-longues en carbure monobloc à bout hémisphérique, 2 dents, revêtue DIAMANT respectivement DLC, pour usinage de graphite

整体硬质合金 BN GR 系列 球头 立铣刀 - 石墨操作
2 刃 - DLC 钻石涂层 -加长

VHM extra-lange BN GR Radiusschaftfräser, 2 Zähne, DIAMANT bzw. DLC beschichtet, zur Bearbeitung von Grafit

Frese cilindriche a raggio tipo BN GR extra-lunghe in metallo duro integrale, 2 taglienti, rivestite DIAMANTE, respettivamente DLC per lavorazioni in grafite



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						C09*	B85*	784*
=*+Ødata	D	R	l 1	l 2	L	d2 (h6)	D0700	DCT01	DCT02
0200 080 03	2	1	10	20	80	3	●	●	-
0200 100 04	2	1	10	20	100	4	●	●	-
0300 080 03	3	1.5	15	25	80	3	●	●	●
0300 100 04	3	1.5	15	25	100	4	●	●	●
0400	4	2	20	30	100	4	●	●	●
0500	5	2.5	30	50	120	5	●	●	●
0600	6	3	30	50	150	6	●	●	●
0800	8	4	40	60	150	8	●	●	●

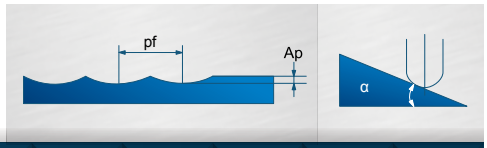
Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
						●																			

Working Material	Cutting Parameter
564	375

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

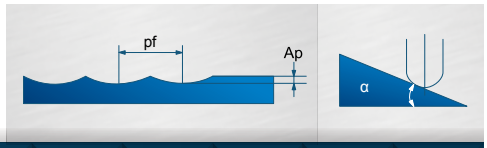
BN GR Standard Series Ballnose Cutters



2 Z Roughing		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
GRAPHITE	M29, M30	1	2	126	0.010	≤0.1D	≤0.25D	40,000	800
		2	2	251	0.017	≤0.1D	≤0.25D	40,000	1,367
		3	2	325	0.024	≤0.1D	≤0.25D	34,484	1,668
		4	2	325	0.031	≤0.1D	≤0.25D	25,863	1,618
		5	2	325	0.038	≤0.1D	≤0.25D	20,690	1,587
		6	2	325	0.045	≤0.1D	≤0.25D	17,242	1,567
		8	2	325	0.060	≤0.1D	≤0.25D	12,931	1,542
		10	2	325	0.074	≤0.1D	≤0.25D	10,345	1,527
		12	2	325	0.088	≤0.1D	≤0.25D	8,621	1,517
		14	2	325	0.088	≤0.1D	≤0.25D	7,389	1,301
		16	2	325	0.088	≤0.1D	≤0.25D	6,466	1,138
		18	2	325	0.088	≤0.1D	≤0.25D	5,747	1,012
		20	2	325	0.088	≤0.1D	≤0.25D	5,173	910
		25	2	325	0.088	≤0.1D	≤0.25D	4,138	728

		α > 15°						
GRAPHITE	M29, M30	1	2	126	0.008	≤0.03D	≤0.05D	40,000	640
		2	2	251	0.071	≤0.03D	≤0.05D	40,000	5,702
		3	2	377	0.135	≤0.03D	≤0.05D	40,000	10,764
		4	2	406	0.198	≤0.03D	≤0.05D	32,308	12,782
		5	2	406	0.261	≤0.03D	≤0.05D	25,847	13,497
		6	2	406	0.324	≤0.03D	≤0.05D	21,539	13,973
		8	2	406	0.451	≤0.03D	≤0.05D	16,154	14,568
		10	2	406	0.577	≤0.03D	≤0.05D	12,923	14,925
		12	2	406	0.704	≤0.03D	≤0.05D	10,769	15,163
		14	2	406	0.704	≤0.03D	≤0.05D	9,231	12,997
		16	2	406	0.704	≤0.03D	≤0.05D	8,077	11,373
		18	2	406	0.704	≤0.03D	≤0.05D	7,180	10,109
		20	2	406	0.704	≤0.03D	≤0.05D	6,462	9,098
		25	2	406	0.704	≤0.03D	≤0.05D	5,169	7,278

BN GR Standard Series Ballnose Cutters



2 Z Finishing		α ≤ 15°						
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
GRAPHITE	M29, M30	1	2	126	0.008	≤0.03D	≤0.05D	40,000	640
		2	2	251	0.071	≤0.03D	≤0.05D	40,000	5,702
		3	2	377	0.135	≤0.03D	≤0.05D	40,000	10,764
		4	2	406	0.198	≤0.03D	≤0.05D	32,308	12,782
		5	2	406	0.261	≤0.03D	≤0.05D	25,847	13,497
		6	2	406	0.324	≤0.03D	≤0.05D	21,539	13,973
		8	2	406	0.451	≤0.03D	≤0.05D	16,154	14,568
		10	2	406	0.577	≤0.03D	≤0.05D	12,923	14,925
		12	2	406	0.704	≤0.03D	≤0.05D	10,769	15,163
		14	2	406	0.704	≤0.03D	≤0.05D	9,231	12,997
		16	2	406	0.704	≤0.03D	≤0.05D	8,077	11,373
		18	2	406	0.704	≤0.03D	≤0.05D	7,180	10,109
		20	2	406	0.704	≤0.03D	≤0.05D	6,462	9,098
		25	2	406	0.704	≤0.03D	≤0.05D	5,16	7,278

		α > 15°						
GRAPHITE	M29, M30	1	2	126	0.008	≤0.03D	≤0.05D	40,000	640
		2	2	251	0.012	≤0.03D	≤0.05D	40,000	989
		3	2	325	0.017	≤0.03D	≤0.05D	34,484	1,154
		4	2	325	0.021	≤0.03D	≤0.05D	25,863	1,091
		5	2	325	0.025	≤0.03D	≤0.05D	20,690	1,053
		6	2	325	0.030	≤0.03D	≤0.05D	17,242	1,028
		8	2	325	0.039	≤0.03D	≤0.05D	12,931	997
		10	2	325	0.047	≤0.03D	≤0.05D	10,345	978
		12	2	325	0.056	≤0.03D	≤0.05D	8,621	966
		14	2	325	0.056	≤0.03D	≤0.05D	7,389	828
		16	2	325	0.056	≤0.03D	≤0.05D	6,466	724
		18	2	325	0.056	≤0.03D	≤0.05D	5,747	644
		20	2	325	0.056	≤0.03D	≤0.05D	5,173	579
		25	2	325	0.056	≤0.03D	≤0.05D	4,138	463

TE45

TE 45 DIE - SINKING CUTTERS - with 0.5° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

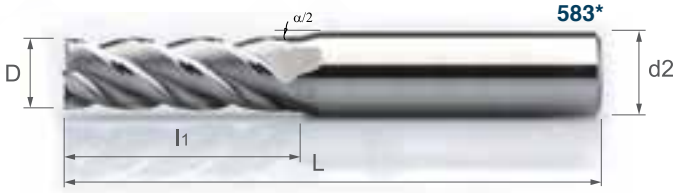
Solid Carbide TE 45 Die-Sinking Cutters with 0,5° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 0,5° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 – 锥度 0.5°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 0,5° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 0,5° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						583*	B37*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	Z	T ... n	B0819
0050 040 0300 02	0.5	2		40	3	3	●	●
0060 040 0300 03	0.6	3		40	3	3	●	●
0080 040 0300 03	0.8	3		40	3	3	●	●
0100 050 0400 04	1.0	4		50	4	3	●	●
0150 050 0400 05	1.5	5		50	4	3	●	●
0200 050 0400 06	2.0	6		50	4	3	●	●
0250 050 0400 08	2.5	8		50	4	3	●	●
0250 040 0300 10	2.5	10		40	3	3	●	●
0250 060 0300 20	2.5	20		60	3	3	●	●
0300 050 0600 10	3.0	10		50	6	3	●	●
0300 060 0400 20	3.0	20		60	4	3	●	●
0300 060 0400 30	3.0	30		60	4	3	●	●
0350 060 0400 20	3.5	20		60	4	3	●	●
0400 050 0600 15	4.0	15		50	6	3	●	●
0400 060 0500 20	4.0	20		60	5	3	●	●
0400 075 0500 30	4.0	30		75	5	3	●	●
0500 060 0600 20	5.0	20		60	6	3	●	●
0500 075 0600 30	5.0	30		75	6	3	●	●
0500 100 0600 50	5.0	50		100	6	3	●	●
0600 064 0800 20	6.0	20		64	8	3	●	●
0600 075 0800 30	6.0	30		75	8	3	●	●
0600 100 0800 60	6.0	60		100	8	3	●	●
0800 070 1000 25	8.0	25		70	10	4	●	●
0800 075 1000 30	8.0	30		75	10	4	●	●
0800 100 1000 60	8.0	60		100	10	4	●	●
1000 075 1200 30	10.0	30		75	12	4	●	●
1200 075 1400 30	12.0	30		75	14	4	●	●
1200 100 1400 50	12.0	50		100	14	4	●	●
1600 100 1800 60	16.0	60		100	18	4	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

TE 45 DIE - SINKING CUTTERS - with 1° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

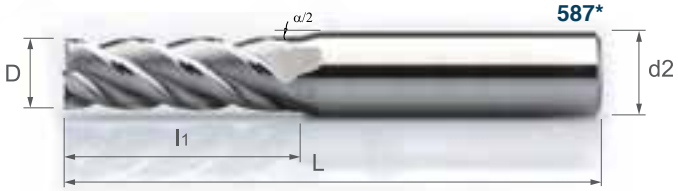
Solid Carbide TE 45 Die-Sinking Cutters with 1,0° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 1,0° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 – 锥度 1°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 1,0° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 1,0° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						587*	B38*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	Z	T ... n	B0819
0050 040 0300 02	0.5	2		40	3	3	●	●
0060 040 0300 03	0.6	3		40	3	3	●	●
0080 040 0300 03	0.8	3		40	3	3	●	●
0100 050 0400 04	1	4		50	4	3	●	●
0150 050 0400 05	1.5	5		50	4	3	●	●
0200 050 0400 06	2	6		50	4	3	●	●
0250 050 0400 08	2.5	8		50	4	3	●	●
0250 060 0400 20	2.5	20		60	4	3	●	●
0300 050 0600 10	3	10		50	6	3	●	●
0300 060 0400 20	3	20		60	4	3	●	●
0300 075 0500 40	3	40		75	5	3	●	●
0350 060 0500 20	3.5	20		60	5	3	●	●
0400 050 0600 15	4	15		50	6	3	●	●
0400 065 0500 20	4	20		65	5	3	●	●
0500 060 0600 20	5	20		60	6	3	●	●
0500 075 0600 30	5	30		75	6	3	●	●
0500 100 0800 55	5	55		100	8	3	●	●
0600 064 0800 20	6	20		64	8	3	●	●
0600 075 0800 30	6	30		75	8	3	●	●
0600 100 0800 57	6	57		100	8	3	●	●
0800 070 1000 25	8	25		70	10	4	●	●
0800 075 1000 30	8	30		75	10	4	●	●
0800 100 1000 57	8	57		100	10	4	●	●
1000 075 1200 30	10	30		75	12	4	●	●
1000 100 1200 50	10	50		100	12	4	●	●
1200 075 1400 30	12	30		75	14	4	●	●
1200 100 1400 55	12	55		100	14	4	●	●
1600 100 1800 55	16	55		100	18	4	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

若有技术规格变更，恕不事先通知

TE 45 DIE - SINKING CUTTERS - with 1.5° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

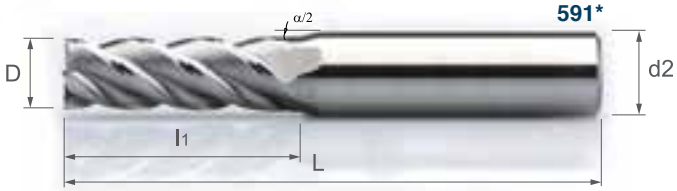
Solid Carbide TE 45 Die-Sinking Cutters with 1,5° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 1,5° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 – 锥度 1.5°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 1,5° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 1,5° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						591*	B39*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	Z	T ... n	B0819
0050 040 0300 02	0.5	2		40	3	3	●	●
0060 040 0300 03	0.6	3		40	3	3	●	●
0080 040 0300 03	0.8	3		40	3	3	●	●
0100 050 0400 04	1	4		50	4	3	●	●
0150 050 0400 05	1.5	5		50	4	3	●	●
0200 050 0400 06	2	6		50	4	3	●	●
0250 050 0400 08	2.5	8		50	4	3	●	●
0250 060 0400 20	2.5	20		60	4	3	●	●
0300 050 0600 10	3	10		50	6	3	●	●
0300 060 0400 19	3	19		60	4	3	●	●
0300 075 0500 35	3	35		75	5	3	●	●
0350 060 0500 20	3.5	20		60	5	3	●	●
0400 050 0600 15	4	15		50	6	3	●	●
0400 060 0500 19	4	19		60	5	3	●	●
0400 075 0600 35	4	35		75	6	3	●	●
0500 060 0600 20	5	20		60	6	3	●	●
0500 075 0800 35	5	35		75	8	3	●	●
0500 100 0800 57	5	57		100	8	3	●	●
0600 064 0800 20	6	20		64	8	3	●	●
0600 075 0800 35	6	35		75	8	3	●	●
0600 100 1000 60	6	60		100	10	3	●	●
0800 070 1000 25	8	25		70	10	4	●	●
0800 075 1000 35	8	35		75	10	4	●	●
0800 100 1200 60	8	60		100	12	4	●	●
1000 075 1200 38	10	38		75	12	4	●	●
1200 075 1400 35	12	35		75	14	4	●	●
1200 100 1600 60	12	60		100	16	4	●	●
1600 100 2000 65	16	65		100	20	4	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

TE 45 DIE - SINKING CUTTERS - with 2.0° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

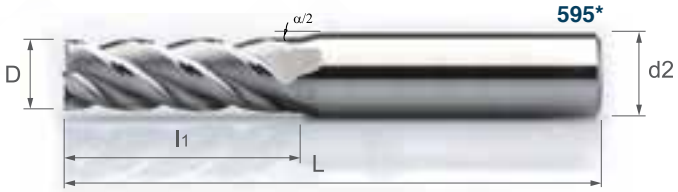
Solid Carbide TE 45 Die-Sinking Cutters with 2,0° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 2,0° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 – 锥度 2.0°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 2,0° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 2,0° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						595*	B40*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	Z	T ... n	B0819
0050 040 0300 02	0.5	2		40	3	3	●	●
0060 040 0300 03	0.6	3		40	3	3	●	●
0080 040 0300 03	0.8	3		40	3	3	●	●
0100 050 0400 04	1	4		50	4	3	●	●
0150 050 0400 05	1.5	5		50	4	3	●	●
0200 050 0400 06	2	6		50	4	3	●	●
0250 050 0400 08	2.5	8		50	4	3	●	●
0250 060 0400 20	2.5	20		60	4	3	●	●
0300 050 0600 10	3	10		50	6	3	●	●
0300 060 0500 25	3	25		60	5	3	●	●
0300 075 0600 40	3	40		75	6	3	●	●
0350 060 0500 20	3.5	20		60	5	3	●	●
0400 050 0600 15	4	15		50	6	3	●	●
0400 060 0600 20	4	20		60	6	3	●	●
0400 075 0600 28	4	28		75	6	3	●	●
0500 064 0800 20	5	20		64	8	3	●	●
0500 075 0800 35	5	35		75	8	3	●	●
0600 064 0800 20	6	20		64	8	3	●	●
0600 075 0800 28	6	28		75	8	3	●	●
0600 100 1000 57	6	57		100	10	3	●	●
0800 070 1000 25	8	25		70	10	4	●	●
0800 075 1000 28	8	28		75	10	4	●	●
0800 100 1200 57	8	57		100	12	4	●	●
1000 075 1400 28	10	28		75	12	4	●	●
1200 075 1400 28	12	28		75	14	4	●	●
1200 100 1600 57	12	57		100	16	4	●	●
1600 100 2000 55	16	55		100	20	4	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

TE 45 DIE - SINKING CUTTERS - with 2.5° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

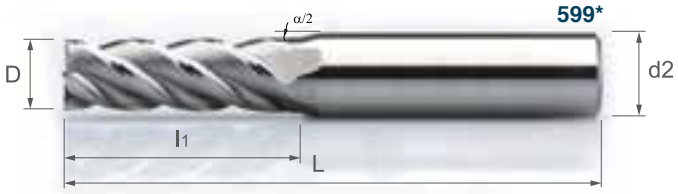
Solid Carbide TE 45 Die-Sinking Cutters with 2,5° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 2,5° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 – 锥度 2.5°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 2,5° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 2,5° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	Z	599* T ... n	B41* B0819
0050 040 0300 02	0.5	2		40	3	3	●	●
0060 040 0300 03	0.6	3		40	3	3	●	●
0080 040 0300 03	0.8	3		40	3	3	●	●
0100 050 0400 04	1	4		50	4	3	●	●
0150 050 0400 05	1.5	5		50	4	3	●	●
0200 050 0400 06	2	6		50	4	3	●	●
0250 050 0400 08	2.5	8		50	4	3	●	●
0300 050 0600 10	3	10		50	6	3	●	●
0400 050 0600 15	4	15		50	6	3	●	●
0500 064 0800 20	5	20		64	8	3	●	●
0600 064 0800 20	6	20		64	8	3	●	●
0800 070 1000 23	8	23		70	10	4	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

TE 45 DIE - SINKING CUTTERS - with 3° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

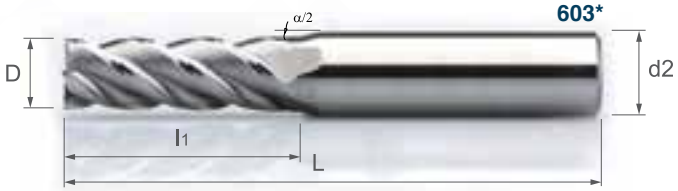
Solid Carbide TE 45 Die-Sinking Cutters with 3,0° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 3,0° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 – 锥度 3.0°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 3,0° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 3,0° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						603*	B42*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	Z	T ... n	B0819
0050 040 0300 02	0.5	2		40	3	3	●	●
0060 040 0300 03	0.6	3		40	3	3	●	●
0080 040 0300 03	0.8	3		40	3	3	●	●
0100 050 0400 04	1	4		50	4	3	●	●
0150 050 0400 05	1.5	5		50	4	3	●	●
0200 050 0400 06	2	6		50	4	3	●	●
0250 050 0400 08	2.5	8		50	4	3	●	●
0250 060 0500 20	2.5	20		60	5	3	●	●
0300 050 0600 10	3	10		50	6	3	●	●
0300 060 0600 25	3	25		60	6	3	●	●
0300 075 0800 40	3	40		75	8	3	●	●
0350 060 0600 23	3.5	23		60	6	3	●	●
0400 050 0600 15	4	15		50	6	3	●	●
0400 075 0800 38	4	38		75	8	3	●	●
0500 064 0800 20	5	20		64	8	3	●	●
0500 075 0800 28	5	28		75	8	3	●	●
0600 064 0800 20	6	20		64	8	3	●	●
0600 075 1000 38	6	38		75	10	3	●	●
0600 100 1200 57	6	57		100	12	3	●	●
0800 075 1200 25	8	25		75	12	4	●	●
0800 075 1200 38	8	38		75	12	4	●	●
0800 100 1400 57	8	57		100	14	4	●	●
1000 075 1400 38	10	38		75	14	4	●	●
1200 075 1600 38	12	38		75	16	4	●	●
1200 100 1800 55	12	55		100	18	4	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

TE 45 DIE - SINKING CUTTERS - with 4° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

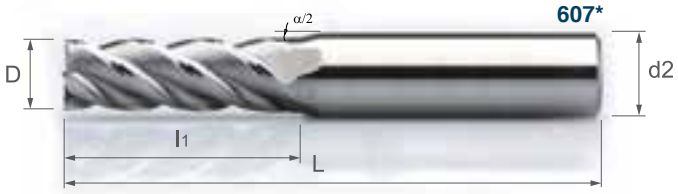
Solid Carbide TE 45 Die-Sinking Cutters with 4,0° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 4,0° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 - 锥度 4.0°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 4,0° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 4,0° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	Z	607* T ... n	B43* B0819
0250 060 0600 25	2.5	25		60	6	3	●	●
0300 075 0800 35	3	35		75	8	3	●	●
0350 075 0800 32	3.5	32		75	8	3	●	●
0400 075 0800 28	4	28		75	8	3	●	●
0500 075 1000 35	5	35		75	10	3	●	●
0600 100 1200 42	6	42		100	12	3	●	●
0800 075 1200 28	8	28		75	12	4	●	●
0800 100 1600 57	8	57		100	16	4	●	●
1000 100 1600 42	10	42		100	16	4	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

若有技术规格变更，恕不事先通知

TE 45 DIE - SINKING CUTTERS - with 5° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

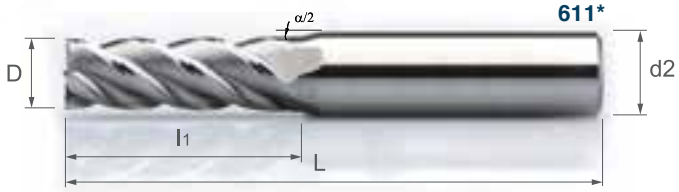
Solid Carbide TE 45 Die-Sinking Cutters with 5,0° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 5,0° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 – 锥度 5.0°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 5,0° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 5,0° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	Z	611* T ... n	B44* B0819
0050 040 0300 02	0.5	2		40	3	3	●	●
0060 040 0300 03	0.6	3		40	3	3	●	●
0080 040 0300 03	0.8	3		40	3	3	●	●
0100 050 0400 04	1	4		50	4	3	●	●
0150 050 0400 05	1.5	5		50	4	3	●	●
0200 050 0400 06	2	6		50	4	3	●	●
0250 050 0400 08	2.5	8		50	4	3	●	●
0250 060 0600 20	2.5	20		60	6	3	●	●
0300 050 0600 10	3	10		50	6	3	●	●
0300 075 0800 28	3	28		75	8	3	●	●
0300 075 1000 40	3	40		75	10	3	●	●
0350 075 0800 25	3.5	25		75	8	3	●	●
0400 064 0800 15	4	15		64	8	3	●	●
0400 075 0800 22	4	22		75	8	3	●	●
0500 070 1000 20	5	20		70	10	3	●	●
0500 075 1000 28	5	28		75	10	3	●	●
0600 070 1000 20	6	20		70	10	3	●	●
0600 075 1200 34	6	34		75	12	3	●	●
0600 100 1600 57	6	57		100	16	3	●	●
0800 090 1600 25	8	25		90	16	4	●	●
0800 075 1400 34	8	34		75	14	4	●	●
0800 100 1800 57	8	57		100	18	4	●	●
1000 075 1600 34	10	34		75	16	4	●	●
1000 100 1800 45	10	45		100	18	4	●	●
1200 100 2000 45	12	45		100	20	4	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

TE 45 DIE - SINKING CUTTERS - with 7° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

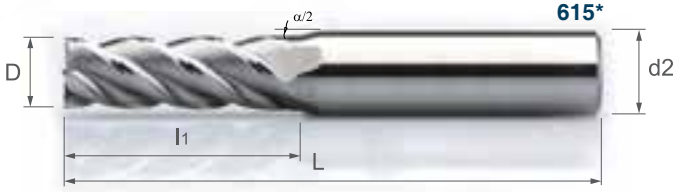
Solid Carbide TE 45 Die-Sinking Cutters with 7,0° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 7,0° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 - 锥度 7.0°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 7,0° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 7,0° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						615*	B45*
=*+Ødata	D	l 1	l 2	L	d2 (h6)	Z	T ... n	B0819
0050 040 0300 02	0.5	2		40	3	3	●	●
0060 040 0300 03	0.6	3		40	3	3	●	●
0080 040 0300 03	0.8	3		40	3	3	●	●
0100 050 0400 04	1	4		50	4	3	●	●
0150 050 0400 05	1.5	5		50	4	3	●	●
0200 050 0400 06	2	6		50	4	3	●	●
0250 050 0600 08	2.5	8		50	6	3	●	●
0250 075 0800 22	2.5	22		75	8	3	●	●
0300 050 0600 10	3	10		50	6	3	●	●
0300 075 1000 28	3	28		75	10	3	●	●
0300 100 1400 44	3	44		100	14	3	●	●
0350 075 1000 26	3.5	26		75	10	3	●	●
0400 064 0800 15	4	15		64	8	3	●	●
0400 075 1000 24	4	24		75	10	3	●	●
0400 075 1200 32	4	32		75	12	3	●	●
0500 070 1000 20	5	20		70	10	3	●	●
0500 075 1200 28	5	28		75	12	3	●	●
0600 075 1400 32	6	32		75	14	3	●	●
0600 100 1800 48	6	48		100	18	3	●	●
0800 075 1600 32	8	32		75	16	4	●	●
0800 100 2000 48	8	48		100	20	4	●	●
1000 075 1800 32	10	32		75	18	4	●	●
1200 100 2000 32	12	32		100	20	4	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

TE 45 DIE - SINKING CUTTERS - with 10° inclination

≤ 1.300 N/mm² + B0819 ≤ 52 HRC

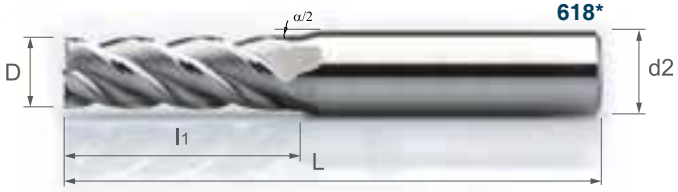
Solid Carbide TE 45 Die-Sinking Cutters with 10,0° inclination, 3 respectively 4 flutes

Fraises coniques TE 45 pour matrices en carbure monobloc avec 10,0° d'inclinaison, 3 respectivement 4 dents

整体硬质合金 TE 45 系列 锥度 立铣刀 3 / 4 刃 - 锥度 10.0°

VHM TE 45 Gesenkfräser, kegelig mit einem Winkel von 10,0° - 3 bzw. 4 Zähne

Frese coniche TE 45 con un angolo di 10,0° per stampi in metallo duro integrale, 3 respettivamente 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	618* T ... n	B46* B0819
0050 040 0300 02	0.5	2		40	3	●	●
0060 040 0300 03	0.6	3		40	3	●	●
0080 040 0300 03	0.8	3		40	3	●	●
0100 050 0400 04	1	4		50	4	●	●
0150 050 0400 05	1.5	5		50	4	●	●
0200 050 0600 06	2	6		50	6	●	●
0250 050 0600 08	2.5	8		50	6	●	●
0250 075 1000 21	2.5	21		75	10	●	●
0300 064 0800 10	3	10		64	8	●	●
0300 075 1200 25	3	25		75	12	●	●
0300 100 1800 42	3	42		100	18	●	●
0350 075 1200 24	3.5	24		75	12	●	●
0400 070 1000 15	4	15		70	10	●	●
0400 075 1200 22	4	22		75	12	●	●
0400 100 1600 34	4	34		100	16	●	●
0500 075 1200 20	5	20		75	12	●	●
0500 075 1600 31	5	31		75	16	●	●
0600 100 1800 34	6	34		100	18	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
				●	●			●	●	●	●	●	●	●	●	●	●	●	●				●	●	

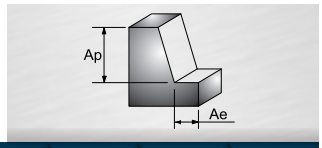
M26	M27	M28	M33	M01	M29	M30
●	●					

Working Material	Cutting Parameter
564	388 / 389

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

TE45 Standard Series Endmills

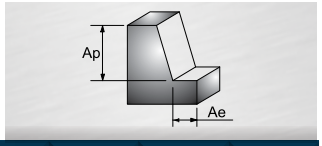
Ap = 2.5D
Ae = 0.02D



3 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CAST IRON FC, FCD	M10, M11, M14, M15	1	3	60	0.004	≤2.5D	≤0.02D	19,099	229
		1.5	3	60	0.006	≤2.5D	≤0.02D	12,732	235
		2	3	60	0.008	≤2.5D	≤0.02D	9,549	237
		2.5	3	60	0.010	≤2.5D	≤0.02D	7,639	239
		3	3	60	0.013	≤2.5D	≤0.02D	6,366	240
		4	3	60	0.017	≤2.5D	≤0.02D	4,775	241
		5	3	60	0.021	≤2.5D	≤0.02D	3,820	242
		6	3	60	0.025	≤2.5D	≤0.02D	3,183	243
		8	3	60	0.034	≤2.5D	≤0.02D	2,387	244
		10	3	60	0.038	≤2.5D	≤0.02D	1,910	218
MILD STEEL CARBON STEELS SS400, S55C	M12, M13	1	3	55	0.004	≤2.5D	≤0.02D	17,507	210
		1.5	3	55	0.006	≤2.5D	≤0.02D	11,671	215
		2	3	55	0.008	≤2.5D	≤0.02D	8,754	218
		2.5	3	55	0.010	≤2.5D	≤0.02D	7,003	219
		3	3	55	0.013	≤2.5D	≤0.02D	5,836	220
		4	3	55	0.017	≤2.5D	≤0.02D	4,377	221
		5	3	55	0.021	≤2.5D	≤0.02D	3,501	222
		6	3	55	0.025	≤2.5D	≤0.02D	2,918	223
		8	3	55	0.034	≤2.5D	≤0.02D	2,188	223
		10	3	55	0.038	≤2.5D	≤0.02D	1,751	200
ALLOY STEELS TOOL STEELS SCM, SKT, SKS, SKD	M18	1	3	55	0.004	≤2.5D	≤0.02D	17,507	184
		1.5	3	55	0.005	≤2.5D	≤0.02D	11,671	174
		2	3	55	0.006	≤2.5D	≤0.02D	8,754	169
		2.5	3	55	0.008	≤2.5D	≤0.02D	7,003	166
		3	3	55	0.009	≤2.5D	≤0.02D	5,836	164
		4	3	55	0.012	≤2.5D	≤0.02D	4,377	162
		5	3	55	0.015	≤2.5D	≤0.02D	3,501	160
		6	3	55	0.018	≤2.5D	≤0.02D	2,918	160
		8	3	55	0.024	≤2.5D	≤0.02D	2,188	158
		10	3	55	0.030	≤2.5D	≤0.02D	1,751	158
HARDENED STEELS, PREHARDENED STEELS (FREE CUTTING) SKT, SKD, NAK55, HPM1	M22, M25, M23	1	3	50	0.003	≤2.5D	≤0.02D	15,915	119
		1.5	3	50	0.004	≤2.5D	≤0.02D	10,610	119
		2	3	50	0.005	≤2.5D	≤0.02D	7,958	119
		2.5	3	50	0.006	≤2.5D	≤0.02D	6,366	119
		3	3	50	0.008	≤2.5D	≤0.02D	5,305	119
		4	3	50	0.010	≤2.5D	≤0.02D	3,979	119
		5	3	50	0.013	≤2.5D	≤0.02D	3,183	119
		6	3	50	0.015	≤2.5D	≤0.02D	2,653	119
		8	3	50	0.020	≤2.5D	≤0.02D	1,989	119
		10	3	50	0.025	≤2.5D	≤0.02D	1,592	119
STAINLESS STEELS, HARDENED STEELS, SUS 304, SKD	M20, M16	1	3	45	0.003	≤2.5D	≤0.02D	14,324	112
		1.5	3	45	0.004	≤2.5D	≤0.02D	9,549	112
		2	3	45	0.005	≤2.5D	≤0.02D	7,162	112
		2.5	3	45	0.007	≤2.5D	≤0.02D	5,730	112
		3	3	45	0.008	≤2.5D	≤0.02D	4,775	112
		4	3	45	0.010	≤2.5D	≤0.02D	3,581	112
		5	3	45	0.013	≤2.5D	≤0.02D	2,865	112
		6	3	45	0.016	≤2.5D	≤0.02D	2,387	112
		8	3	45	0.021	≤2.5D	≤0.02D	1,790	112
		10	3	45	0.026	≤2.5D	≤0.02D	1,432	112
HARDENED STEELS	M26, M24	1	3	40	0.002	≤2.5D	≤0.02D	12,732	61
		1.5	3	40	0.002	≤2.5D	≤0.02D	8,488	61
		2	3	40	0.003	≤2.5D	≤0.02D	6,366	61
		2.5	3	40	0.004	≤2.5D	≤0.02D	5,093	61
		3	3	40	0.005	≤2.5D	≤0.02D	4,244	61
		4	3	40	0.006	≤2.5D	≤0.02D	3,183	61
		5	3	40	0.008	≤2.5D	≤0.02D	2,546	61
		6	3	40	0.010	≤2.5D	≤0.02D	2,122	61
		8	3	40	0.013	≤2.5D	≤0.02D	1,592	61
		10	3	40	0.016	≤2.5D	≤0.02D	1,273	61

TE45 Standard Series Endmills

Ap = 2.5D
Ae = 0.02D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CAST IRON FC, FCD	M10, M11, M14, M15	1	4	60	0.003	≤2.5D	≤0.02D	19,099	260
		1.5	4	60	0.005	≤2.5D	≤0.02D	12,732	266
		2	4	60	0.007	≤2.5D	≤0.02D	9,549	269
		2.5	4	60	0.009	≤2.5D	≤0.02D	7,639	271
		3	4	60	0.011	≤2.5D	≤0.02D	6,366	272
		4	4	60	0.014	≤2.5D	≤0.02D	4,775	274
		5	4	60	0.018	≤2.5D	≤0.02D	3,820	275
		6	4	60	0.022	≤2.5D	≤0.02D	3,183	275
		8	4	60	0.029	≤2.5D	≤0.02D	2,387	276
		10	4	60	0.032	≤2.5D	≤0.02D	1,910	247
MILD STEEL CARBON STEELS SS400, S55C	M12, M13	1	4	55	0.003	≤2.5D	≤0.02D	17,507	238
		1.5	4	55	0.005	≤2.5D	≤0.02D	11,671	244
		2	4	55	0.007	≤2.5D	≤0.02D	8,754	247
		2.5	4	55	0.009	≤2.5D	≤0.02D	7,003	248
		3	4	55	0.011	≤2.5D	≤0.02D	5,836	249
		4	4	55	0.014	≤2.5D	≤0.02D	4,377	251
		5	4	55	0.018	≤2.5D	≤0.02D	3,501	252
		6	4	55	0.022	≤2.5D	≤0.02D	2,918	252
		8	4	55	0.029	≤2.5D	≤0.02D	2,188	253
		10	4	55	0.032	≤2.5D	≤0.02D	1,751	226
ALLOY STEELS TOOL STEELS SCM, SKT, SKS, SKD	M18	1	4	55	0.003	≤2.5D	≤0.02D	17,507	208
		1.5	4	55	0.004	≤2.5D	≤0.02D	11,671	197
		2	4	55	0.005	≤2.5D	≤0.02D	8,754	192
		2.5	4	55	0.007	≤2.5D	≤0.02D	7,003	188
		3	4	55	0.008	≤2.5D	≤0.02D	5,836	186
		4	4	55	0.010	≤2.5D	≤0.02D	4,377	184
		5	4	55	0.013	≤2.5D	≤0.02D	3,501	182
		6	4	55	0.015	≤2.5D	≤0.02D	2,918	181
		8	4	55	0.020	≤2.5D	≤0.02D	2,188	179
		10	4	55	0.026	≤2.5D	≤0.02D	1,751	179
HARDENED STEELS, PREHARDENED STEELS (FREE CUTTING) SKT, SKD, NAK55, HPM1	M22, M25, M23	1	4	50	0.002	≤2.5D	≤0.02D	15,915	135
		1.5	4	50	0.003	≤2.5D	≤0.02D	10,610	135
		2	4	50	0.004	≤2.5D	≤0.02D	7,958	135
		2.5	4	50	0.005	≤2.5D	≤0.02D	6,366	135
		3	4	50	0.006	≤2.5D	≤0.02D	5,305	135
		4	4	50	0.009	≤2.5D	≤0.02D	3,979	135
		5	4	50	0.011	≤2.5D	≤0.02D	3,183	135
		6	4	50	0.013	≤2.5D	≤0.02D	2,653	135
		8	4	50	0.017	≤2.5D	≤0.02D	1,989	135
		10	4	50	0.021	≤2.5D	≤0.02D	1,592	135
STAINLESS STEELS, HARDENED STEELS, SUS 304, SKD	M20, M16	1	4	45	0.002	≤2.5D	≤0.02D	14,324	127
		1.5	4	45	0.003	≤2.5D	≤0.02D	9,549	127
		2	4	45	0.004	≤2.5D	≤0.02D	7,162	127
		2.5	4	45	0.006	≤2.5D	≤0.02D	5,730	127
		3	4	45	0.007	≤2.5D	≤0.02D	4,775	127
		4	4	45	0.009	≤2.5D	≤0.02D	3,581	127
		5	4	45	0.011	≤2.5D	≤0.02D	2,865	127
		6	4	45	0.013	≤2.5D	≤0.02D	2,387	127
		8	4	45	0.018	≤2.5D	≤0.02D	1,790	127
		10	4	45	0.022	≤2.5D	≤0.02D	1,432	127
HARDENED STEELS	M26, M24	1	4	40	0.001	≤2.5D	≤0.02D	12,732	69
		1.5	4	40	0.002	≤2.5D	≤0.02D	8,488	69
		2	4	40	0.003	≤2.5D	≤0.02D	6,366	69
		2.5	4	40	0.003	≤2.5D	≤0.02D	5,093	69
		3	4	40	0.004	≤2.5D	≤0.02D	4,244	69
		4	4	40	0.005	≤2.5D	≤0.02D	3,183	69
		5	4	40	0.007	≤2.5D	≤0.02D	2,546	69
		6	4	40	0.008	≤2.5D	≤0.02D	2,122	69
		8	4	40	0.011	≤2.5D	≤0.02D	1,592	69
		10	4	40	0.014	≤2.5D	≤0.02D	1,273	69

RE45

RE 45 SHORT MACHINE REAMERS-STRAIGHT FLUTE, R.H. CUTTING

≤ 1.300 N/mm²

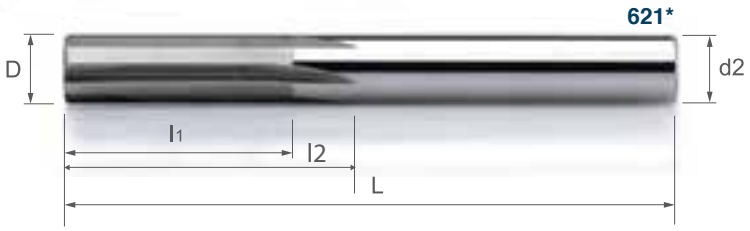
Solid Carbide RE 45 Short Machine Reamers straight flutes, 4 respectively 6 flutes

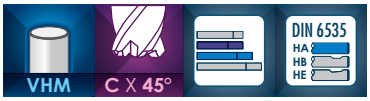
Alésoirs machine RE 45 courts en carbure monobloc, goujures droites, 4 respectivement 6 goujures

整体硬质合金 RE 45 系列 直槽 铰刀 4 刃 / 6刃 – 标准长度, 带颈位

VHM RE 45 Maschinenreibahlen, kurz, gerade Nuten, 4 bzw. 6 Schneiden

Alesatori macchina RE 45 corti in metallo duro integrale, gole diritte, 4 respettivamente 6 taglienti





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	621* T ... n
0150	1.5	1.5	11/15*	38	2	●
0200	2	2	14.5	44	2	●
0250	2.5	2.5	18.5	57	2.5	●
0300	3	3	19	57	3	●
0350	3.5	3.5	22.5	63	3.5	●
0400	4	4	23	63	4	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	621* T ... n
0450	4.5	22	26.5	70	4.5	●
0500	5	25.5	30.5	76	5	●
0550	5.5	25.5	31	76	5.5	●
0600	6	25.5	31.5	76	6	●
0650	6.5	28.5	35	83	6.5	●
0700	7	28.5	35.5	83	7	●
0750	7.5	28.5	36	83	7.5	●
0800	8	28.5	36.5	83	8	●
0850	8.5	32	40.5	89	8.5	●
0900	9	32	41	89	9	●
0950	9.5	32	41.5	89	9.5	●
1000	10	32	42	89	10	●
1050	10.5	32	42.5	89	10.5	●
1100	11	35	46	95	11	●
1150	11.5	35	46.5	95	11.5	●
1200	12	35	47	95	12	●
1300	13	38	51	102	13	●
1400	14	38	52	102	14	●
1500	15	44.5	53	102	15	●
1600	16	44.5	54	102	16	●

* RECESS

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	

Working Material	Cutting Parameter
564	401

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

RE 45 SHORT MACHINE REAMERS-L.H. HELIX, R.H. CUTTING - Double Lead Entrance

≤ 1.300 N/mm²

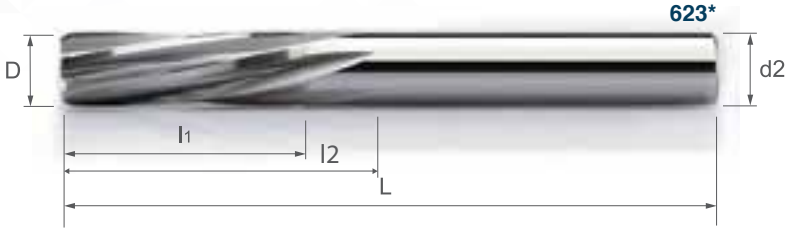
Solid Carbide RE 45 Short Machine Reamers
12° left hand helix right hand cut, 4 respectively 6 flutes

Alésoirs machine RE 45 courts en carbure monobloc, hélice 12° à gauche, coupe à droite double entrée 4 respectivement 6 goujures

整体硬质合金 RE 45 系列 螺旋 铰刀
4 刃 / 6 刃 – 标准长度, 带颈位

VHM RE 45 Maschinenreibahlen, kurz, 12° Linksdrall, rechtsschneidend, doppeiter Anschitt 4 bzw. 6 Schneiden

Alesatori macchina RE 45 corti in metallo duro integrale, eliche 12° sinistra, taglio a destra, doppio imbocco 4 respettivamente 6 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	623* T ... n
0150	1.5	1.5	11/15*	38	2	●
0200	2	2	14.5	44	2	●
0250	2.5	2.5	18.5	57	2.5	●
0300	3	3	19	57	3	●
0350	3.5	3.5	22.5	63	3.5	●
0400	4	4	23	63	4	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	623* T ... n
0450	4.5	22	26.5	70	4.5	●
0500	5	25.5	30.5	76	5	●
0550	5.5	25.5	31	76	5.5	●
0600	6	25.5	31.5	76	6	●
0650	6.5	28.5	35	83	6.5	●
0700	7	28.5	35.5	83	7	●
0750	7.5	28.5	36	83	7.5	●
0800	8	28.5	36.5	83	8	●
0850	8.5	32	40.5	89	8.5	●
0900	9	32	41	89	9	●
0950	9.5	32	41.5	89	9.5	●
1000	10	32	42	89	10	●
1050	10.5	32	42.5	89	10.5	●
1100	11	35	46	95	11	●
1150	11.5	35	46.5	95	11.5	●
1200	12	35	47	95	12	●
1300	13	38	51	102	13	●
1400	14	38	52	102	14	●
1500	15	44.5	59.5	102	15	●
1600	16	44.5	60.5	102	16	●

* RECESS

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	

Working Material	Cutting Parameter
564	401

若有技术规格变更，恕不事先通知

RE 45 MACHINE REAMERS- R.H. CUTTING- ~DIN 212- STRIGHT FLUTES

≤ 1.300 N/mm²

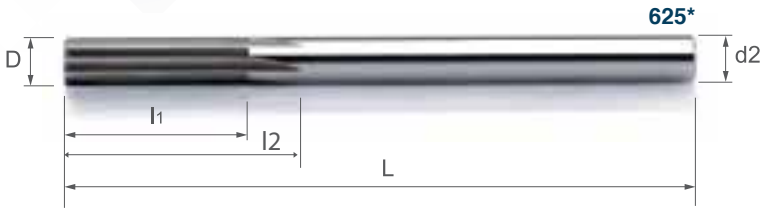
Solid Carbide RE 45 Machine Reamers
acc. to DIN 212, straight flutes, 4 respectively 6 flutes

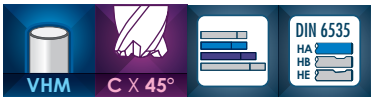
Alésoirs machine RE 45 selon DIN 212 en
carbure, monobloc, goujures droites, 4 respectivement 6 goujures

整体硬质合金 RE 45 系列 直槽 铰刀
4 刃 / 6 刃 – 长度标准 ~DIN 212, 带颈位

VHM RE 45 Maschinenreibahlen nach
DIN 212, gerade Nuten, 4 bzw. 6 Schneiden

Alesatori macchina RE 45 secondo DIN 212
in metallo duro integrale, 4 rispettivamente 6 taglienti





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	625* T ... n
0200	2	11	13	49	2	●
0250	2.5	14	16.5	57	2.5	●
0300	3	15	18	61	3	●
0350	3.5	18	21.5	70	3.5	●
0400	4	19	23	75	4	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	625* T ... n
0450	4.5	21	25.5	80	4.5	●
0500	5	23	28	86	5	●
0550	5.5	26	31.5	93	5.5	●
0600	6	26	32	93	6	●
0650	6.5	28	34.5	101	6.5	●
0700	7	31	38	109	7	●
0750	7.5	31	38.5	109	7.5	●
0800	8	33	41	117	8	●
0850	8.5	33	41.5	117	8.5	●
0900	9	36	45	125	9	●
0950	9.5	36	45.5	125	9.5	●
1000	10	38	48	133	10	●
1050	10.5	38	48.5	133	10.5	●
1100	11	41	52	142	11	●
1150	11.5	41	52.5	142	11.5	●
1200	12	44	56	151	12	●
1300	13	44	57	151	13	●
1400	14	47	61	160	14	●
1500	15	50	65	160	15	●
1600	16	52	68	170	16	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	

Working Material	Cutting Parameter
564	401

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

RE 45 MACHINE REAMERS - L.H. HELIX, R.H. CUTTING - Double Lead Entrance - ~ DIN 212

≤ 1.300 N/mm²

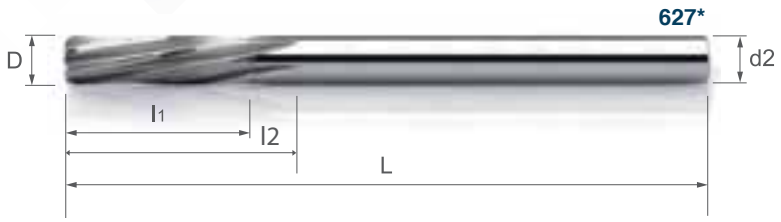
Solid Carbide RE 45 Machine Reamers acc. to DIN 212, 12° l.h. helix, r.h. cut, double lead entrance, 4 respectively 6 flutes

Alésoirs machine RE 45 selon DIN 212 en carbure monobloc, hélices 12° à gauche, coupe à droite, double entrée, 4 respect. 6 goujures

整体硬质合金 RE 45 系列 螺旋 铰刀
4 刃 / 6刃 -标准长度 ~DIN 212, 带颈位

VHM RE 45 Maschinenreibahlen nach DIN 212,12° Linksdrall, rechtsschneidend, doppelter Anschnitt, 4 bzw. 6 Schneiden

Alesatori macchina Re 45 secondo DIN 212 in metallo duro integrale, elica 12° a sinistra, taglio a destra, doppio imbocco, 4 resp. 6 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	627* T ... n
0200	2	11	13	49	2	●
0210	2.1	11	13	49	2.1	●
0220	2.2	14	16.5	57	2.2	●
0230	2.3	14	16.5	57	2.3	●
0240	2.4	14	16.5	57	2.4	●
0250	2.5	14	16.5	57	2.5	●
0260	2.6	14	16.5	57	2.6	●
0270	2.7	15	16.5	61	2.7	●
0280	2.8	15	16.5	61	2.8	●
0290	2.9	15	16.5	61	2.9	●
0300	3	15	18	61	3	●
0310	3.1	15	18	61	3.1	●
0320	3.2	18	21.5	70	3.2	●
0330	3.3	18	21.5	70	3.3	●
0340	3.4	18	21.5	70	3.4	●
0350	3.5	18	21.5	70	3.5	●
0360	3.6	18	21.5	70	3.6	●
0370	3.7	19	23	75	3.7	●
0380	3.8	19	23	75	3.8	●
0390	3.9	19	23	75	3.9	●
0400	4	19	23	75	4	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	627* T ... n
0410	4.1	19	23	75	4.1	●
0420	4.2	21	25.5	80	4.2	●
0430	4.3	21	25.5	80	4.3	●
0440	4.4	21	25.5	80	4.4	●
0450	4.5	21	25.5	80	4.5	●
0460	4.6	21	25.5	80	4.6	●
0470	4.7	23	28	86	4.7	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	

Working Material	Cutting Parameter
564	401

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

RE 45 MACHINE REAMERS - L.H. HELIX, R.H. CUTTING - Double Lead Entrance - ~ DIN 212

≤ 1.300 N/mm²

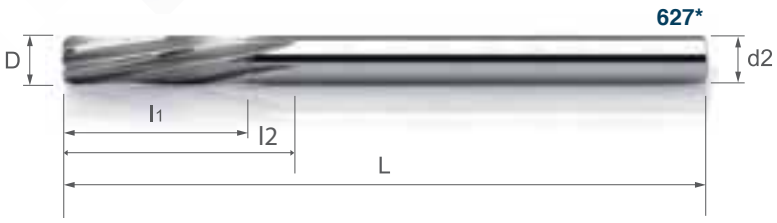
Solid Carbide RE 45 Machine Reamers acc. to DIN 212, 12° l.h. helix, r.h. cut, double lead entrance, 4 respectively 6 flutes

Alésoirs machine RE 45 selon DIN 212 en carbure monobloc, hélices 12° à gauche, coupe à droite, double entrée, 4 respect. 6 goujures

整体硬质合金 RE 45 系列 螺旋 铰刀
4 刃 / 6刃 -标准长度 ~DIN 212, 带颈位

VHM RE 45 Maschinenreibahlen nach DIN 212,12° Linksdrall, rechtsschneidend, doppelter Anschnitt, 4 bzw. 6 Schneiden

Alesatori macchina Re 45 secondo DIN 212 in metallo duro integrale, elica 12° a sinistra, taglio a destra, doppio imbocco, 4 resp. 6 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	627* T ... n
0480	4.8	23	28	86	4.8	●
0490	4.9	23	28	86	4.9	●
0500	5	23	28	86	5	●
0510	5.1	23	28	86	5.1	●
0520	5.2	26	31.5	93	5.2	●
0530	5.3	26	31.5	93	5.3	●
0540	5.4	26	31.5	93	5.4	●
0550	5.5	26	31.5	93	5.5	●
0560	5.6	26	31.5	93	5.6	●
0570	5.7	26	31.5	93	5.7	●
0580	5.8	26	31.5	93	5.8	●
0590	5.9	26	31.5	93	5.9	●
0600	6	26	32	93	6	●
0610	6.1	26	32	93	6.1	●
0620	6.2	28	34.5	101	6.2	●
0630	6.3	28	34.5	101	6.3	●
0640	6.4	28	34.5	101	6.4	●
0650	6.5	28	34.5	101	6.5	●
0660	6.6	28	34.5	101	6.6	●
0670	6.7	31	38	109	6.7	●
0680	6.8	31	38	109	6.8	●
0690	6.9	31	38	109	6.9	●
0700	7	31	38	109	7	●
0710	7.1	31	38	109	7.1	●
0720	7.2	31	38	109	7.2	●
0730	7.3	31	38	109	7.3	●
0740	7.4	31	38	109	7.4	●
0750	7.5	31	38.5	109	7.5	●
0720	7.2	31	38	109	7.2	●
0730	7.3	31	38	109	7.3	●
0740	7.4	31	38	109	7.4	●
0750	7.5	31	38.5	109	7.5	●
0760	7.6	31	38.5	109	7.6	●
0770	7.7	33	41	117	7.7	●
0780	7.8	33	41	117	7.8	●
0790	7.9	33	41	117	7.9	●
0800	8	33	41	117	8	●

cont'd ▶

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	

Working Material	Cutting Parameter
564	401

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

RE 45 MACHINE REAMERS - L.H. HELIX, R.H. CUTTING - Double Lead Entrance - ~ DIN 212

≤ 1.300 N/mm²

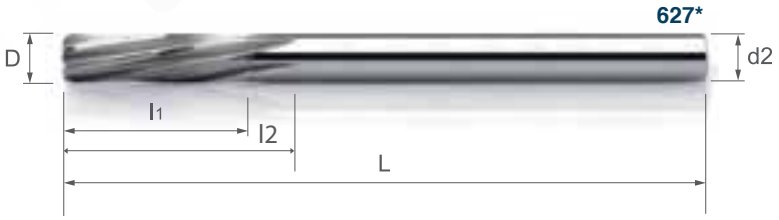
Solid Carbide RE 45 Machine Reamers acc. to DIN 212, 12° l.h. helix, r.h. cut, double lead entrance, 4 respectively 6 flutes

Alésoirs machine RE 45 selon DIN 212 en carbure monobloc, hélices 12° à gauche, coupe à droite, double entrée, 4 respect. 6 goujures

整体硬质合金 RE 45 系列 螺旋 铰刀
4 刃 / 6刃 -标准长度 ~DIN 212, 带颈位

VHM RE 45 Maschinenreibahlen nach DIN 212,12° Linksdrall, rechtsschneidend, doppelter Anschnitt, 4 bzw. 6 Schneiden

Alesatori macchina Re 45 secondo DIN 212 in metallo duro integrale, elica 12° a sinistra, taglio a destra, doppio imbocco, 4 resp. 6 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	627* T ... n
0810	8.1	33	41	117	8.1	●
0820	8.2	33	41	117	8.2	●
0830	8.3	33	41	117	8.3	●
0840	8.4	33	41	117	8.4	●
0850	8.5	33	41	117	8.5	●
0860	8.6	33	41	117	8.6	●
0870	8.7	36	45.5	125	8.7	●
0880	8.8	36	45.5	125	8.8	●
0890	8.9	36	45.5	125	8.9	●
0900	9	36	45.5	125	9	●
0910	9.1	36	45.5	125	9.1	●
0920	9.2	36	45.5	125	9.2	●
0930	9.3	36	45.5	125	9.3	●
0940	9.4	36	45.5	125	9.4	●
0950	9.5	36	45.5	125	9.5	●
0960	9.6	36	45.5	125	9.6	●
0970	9.7	38	48	133	9.7	●
0980	9.8	38	48	133	9.8	●
0990	9.9	38	48	133	9.9	●
1000	10	38	48	133	10	●
1050	10.5	38	48.5	133	10.5	●
1100	11	41	52	142	11	●
1150	11.5	41	52.5	142	11.5	●
1200	12	44	56	151	12	●
1300	13	44	57	151	13	●
1400	14	47	61	160	14	●
1500	15	50	65	160	15	●
1600	16	52	68	170	16	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	

Working Material	Cutting Parameter
564	401

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

RE 45 MACHINE REAMERS HIGH L.H. HELIX, R.H. CUTTING - ~DIN 212

≤ 1.300 N/mm²

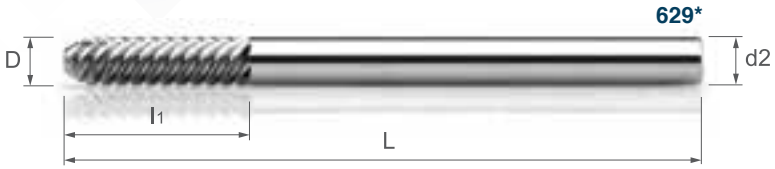
Solid Carbide RE 45 Machine Reamers acc. to DIN 212, 60° l.h. helix, r.h. cut, special lead entrance, 3 - 4 respectively 6 flutes

Alésoirs machine RE 45 selon DIN 212 en carbure monobloc, hélices 60° à gauche, coupe à droite, entrée spéciale, 3 - 4 resp. 6 goujures

整体硬质合金 RE 45 系列 高螺旋 铰刀
3 / 4 / 6 刃 – 标准长度 ~DIN 212, 带颈位

VHM RE 45 Maschinenreibahlen nach DIN 212, 60° Linksdrall, rechtsschneidend, Sonder- Anschnitt, 3 - 4 bzw. 6 Schneiden

Alesatori macchina RE 45 secondo DIN 212 in metallo duro integrale, elica 60° a sinistra, taglio a destra, imbocco speciale, 3-4 resp. 6 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	629* T ... n
0200	2	11	13	49	2	●
0210	2.1	11	13	49	2.1	●
0220	2.2	14	16.5	57	2.2	●
0230	2.3	14	16.5	57	2.3	●
0240	2.4	14	16.5	57	2.4	●
0250	2.5	14	16.5	57	2.5	●
0260	2.6	14	16.5	57	2.6	●
0270	2.7	15	16.5	61	2.7	●
0280	2.8	15	16.5	61	2.8	●
0290	2.9	15	16.5	61	2.9	●
0300	3	15	18	61	3	●
0310	3.1	15	18	61	3.1	●
0320	3.2	18	21.5	70	3.2	●
0330	3.3	18	21.5	70	3.3	●
0340	3.4	18	21.5	70	3.4	●
0350	3.5	18	21.5	70	3.5	●
0360	3.6	18	21.5	70	3.6	●
0370	3.7	19	23	75	3.7	●
0380	3.8	19	23	75	3.8	●
0390	3.9	19	23	75	3.9	●
0400	4	19	23	75	4	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	629* T ... n
0410	4.1	19	23	75	4.1	●
0420	4.2	21	25.5	80	4.2	●
0430	4.3	21	25.5	80	4.3	●
0440	4.4	21	25.5	80	4.4	●
0450	4.5	21	25.5	80	4.5	●
0460	4.6	21	25.5	80	4.6	●
0470	4.7	23	28	86	4.7	●

cont'd ▶

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	

Working Material	Cutting Parameter
564	401

若有技术规格变更，恕不事先通知

RE 45 MACHINE REAMERS HIGH L.H. HELIX, R.H. CUTTING - ~DIN 212

≤ 1.300 N/mm²

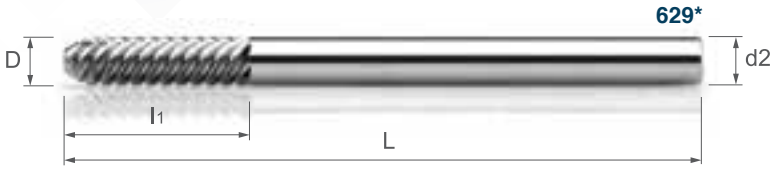
Solid Carbide RE 45 Machine Reamers acc. to DIN 212, 60° l.h. helix, r.h. cut, special lead entrance, 3 - 4 respectively 6 flutes

VHM RE 45 Maschinenreibahlen nach DIN 212, 60° Linksdrall, rechtsschneidend, Sonder- Anschnitt, 3 - 4 bzw. 6 Schneiden

Alésoirs machine RE 45 selon DIN 212 en carbure monobloc, hélices 60° à gauche, coupe à droite, entrée spéciale, 3 - 4 resp. 6 goujures

Alesatori macchina RE 45 secondo DIN 212 in metallo duro integrale, elica 60° a sinistra, taglio a destra, imbocco speciale, 3-4 resp. 6 taglienti

整体硬质合金 RE 45 系列 高螺旋 铰刀
3 / 4 / 6 刃 – 标准长度 ~DIN 212, 带颈位



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	629* T ... n
0480	4.8	23		86	4.8	●
0490	4.9	23		86	4.9	●
0500	5	23		86	5	●
0510	5.1	23		86	5.1	●
0520	5.2	26		93	5.2	●
0530	5.3	26		93	5.3	●
0540	5.4	26		93	5.4	●
0550	5.5	26		93	5.5	●
0560	5.6	26		93	5.6	●
0570	5.7	26		93	5.7	●
0580	5.8	26		93	5.8	●
0590	5.9	26		93	5.9	●
0600	6	26		93	6	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	629* T ... n
0610	6.1	26		93	6.1	●
0620	6.2	28		101	6.2	●
0630	6.3	28		101	6.3	●
0640	6.4	28		101	6.4	●
0650	6.5	28		101	6.5	●
0660	6.6	28		101	6.6	●
0670	6.7	31		109	6.7	●
0680	6.8	31		109	6.8	●
0690	6.9	31		109	6.9	●
0700	7	31		109	7	●
0710	7.1	31		109	7.1	●
0720	7.2	31		109	7.2	●
0730	7.3	31		109	7.3	●
0740	7.4	31		109	7.4	●
0750	7.5	31		109	7.5	●
0760	7.6	31		109	7.6	●

cont'd ▶

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	

Working Material	Cutting Parameter
564	401

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

RE 45 MACHINE REAMERS HIGH L.H. HELIX, R.H. CUTTING - ~DIN 212

≤ 1.300 N/mm²

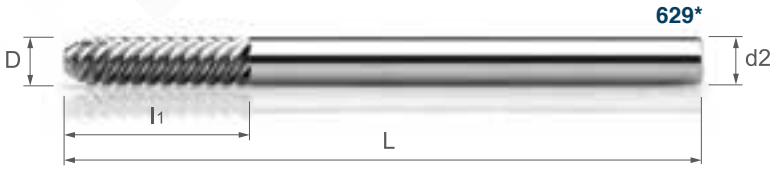
Solid Carbide RE 45 Machine Reamers acc. to DIN 212, 60° l.h. helix, r.h. cut, special lead entrance, 3 - 4 respectively 6 flutes

Alésoirs machine RE 45 selon DIN 212 en carbure monobloc, hélices 60° à gauche, coupe à droite, entrée spéciale, 3 - 4 resp. 6 goujures

整体硬质合金 RE 45 系列 高螺旋 铰刀
3 / 4 / 6 刃 – 标准长度 ~DIN 212, 带颈位

VHM RE 45 Maschinenreibahlen nach DIN 212, 60° Linksdrall, rechtsschneidend, Sonder- Anschnitt, 3 - 4 bzw. 6 Schneiden

Alesatori macchina RE 45 secondo DIN 212 in metallo duro integrale, elica 60° a sinistra, taglio a destra, imbocco speciale, 3-4 resp. 6 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (H7)	l 1	l 2	L	d2 (h9)	629* T ... n
0770	7.7	33		117	7.7	●
0780	7.8	33		117	7.8	●
0790	7.9	33		117	7.9	●
0800	8	33		117	8	●
0810	8.1	33		117	8.1	●
0820	8.2	33		117	8.2	●
0830	8.3	33		117	8.3	●
0840	8.4	33		117	8.4	●
0850	8.5	33		117	8.5	●
0860	8.6	33		117	8.6	●
0870	8.7	36		125	8.7	●
0880	8.8	36		125	8.8	●
0890	8.9	36		125	8.9	●
0900	9	36		125	9	●
0910	9.1	36		125	9.1	●
0920	9.2	36		125	9.2	●
0930	9.3	36		125	9.3	●
0940	9.4	36		125	9.4	●
0950	9.5	36		125	9.5	●
0960	9.6	36		125	9.6	●
0970	9.7	38		133	9.7	●
0980	9.8	38		133	9.8	●
0990	9.9	38		133	9.9	●
1000	10	38		133	10	●
1050	10.5	38		133	10.5	●
1100	11	41		142	11	●
1150	11.5	41		142	11.5	●
1200	12	44		151	12	●
1300	13	44		151	13	●
1400	14	47		160	14	●
1500	15	50		160	15	●
1600	16	52		170	16	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	

Working Material	Cutting Parameter
564	401

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

4 / 6 Z					
Work Material	Material Groups	D (mm)	Vc (m/min)	f (mm/rev)	STOCK REMOVAL (mm)
LOW CARBON STEELS MILD STELS S15C, SS400 AISI 1015	M15	1	12 ~ 20	0.008~0.015	0.08~0.13
		2	12 ~ 20	0.018~0.030	0.10~0.20
		3	12 ~ 20	0.028~0.045	0.10~0.20
		4	12 ~ 20	0.040~0.060	0.15~0.30
		5	12 ~ 20	0.050~0.090	0.15~0.30
		6	12 ~ 20	0.060~0.120	0.15~0.30
		8	12 ~ 20	0.080~0.150	0.20~0.36
		10	12 ~ 20	0.100~0.200	0.20~0.36
		12	12 ~ 20	0.120~0.220	0.25~0.38
		13	12 ~ 20	0.130~0.230	0.30~0.45
		14	12 ~ 20	0.140~0.240	0.30~0.45
		15	12 ~ 20	0.150~0.250	0.30~0.45
		16	12 ~ 20	0.160~0.260	0.30~0.45
CARBON STEEL S45C, S50C AISI 1045, 1050	M18, M20, M16, M19	1	10 ~ 16	0.008~0.015	0.08~0.13
		2	10 ~ 16	0.018~0.030	0.10~0.20
		3	10 ~ 16	0.028~0.045	0.10~0.20
		4	10 ~ 16	0.040~0.060	0.15~0.30
		5	10 ~ 16	0.050~0.090	0.15~0.30
		6	10 ~ 16	0.060~0.120	0.15~0.30
		8	10 ~ 16	0.080~0.015	0.20~0.36
		10	10 ~ 16	0.100~0.200	0.20~0.36
		12	10 ~ 16	0.120~0.220	0.25~0.38
		13	10 ~ 16	0.130~0.230	0.30~0.45
		14	10 ~ 16	0.140~0.240	0.30~0.45
		15	10 ~ 16	0.150~0.250	0.30~0.45
		16	10 ~ 16	0.160~0.260	0.30~0.45
TAITANIUM ALLYS	M17, M21	1	8 ~ 12	0.008~0.015	0.08~0.13
		2	8 ~ 12	0.018~0.030	0.10~0.20
		3	8 ~ 12	0.028~0.045	0.10~0.20
		4	8 ~ 12	0.040~0.060	0.15~0.30
		5	8 ~ 12	0.050~0.090	0.15~0.30
		6	8 ~ 12	0.060~0.120	0.15~0.30
		8	8 ~ 12	0.080~0.150	0.20~0.36
		10	8 ~ 12	0.100~0.200	0.20~0.36
		12	8 ~ 12	0.120~0.220	0.25~0.38
		13	8 ~ 12	0.130~0.230	0.30~0.45
		14	8 ~ 12	0.140~0.240	0.30~0.45
		15	8 ~ 12	0.150~0.250	0.30~0.45
		16	8 ~ 12	0.160~0.260	0.30~0.45
ALUMINIUM ALLOY CASTING A7075, ADC, DIN ALZnMgCul.5D	M08, M09, M02, M05, M06, M07, M04, M01, M29	1	15 ~ 30	0.008~0.015	0.08~0.13
		2	15 ~ 30	0.018~0.030	0.10~0.20
		3	15 ~ 30	0.028~0.045	0.10~0.20
		4	15 ~ 30	0.040~0.060	0.15~0.30
		5	15 ~ 30	0.050~0.090	0.15~0.30
		6	15 ~ 30	0.060~0.130	0.15~0.30
		8	15 ~ 30	0.080~0.180	0.20~0.36
		10	15 ~ 30	0.100~0.200	0.20~0.36
		12	15 ~ 30	0.120~0.220	0.25~0.38
		13	15 ~ 30	0.130~0.230	0.30~0.45
		14	15 ~ 30	0.140~0.240	0.30~0.45
		15	15 ~ 30	0.150~0.250	0.30~0.45
		16	15 ~ 30	0.160~0.260	0.30~0.45
ALLOYS STEEL SCM, SNC, SNCM	M22, M25, M31	1	12 ~ 20	0.007~0.014	0.08~0.13
		2	12 ~ 20	0.015~0.027	0.10~0.20
		3	12 ~ 20	0.023~0.040	0.10~0.20
		4	12 ~ 20	0.032~0.052	0.15~0.30
		5	12 ~ 20	0.040~0.080	0.15~0.30
		6	12 ~ 20	0.050~0.100	0.15~0.30
		8	12 ~ 20	0.600~0.130	0.20~0.36
		10	12 ~ 20	0.080~0.180	0.20~0.36
		12	12 ~ 20	0.100~0.200	0.25~0.38
		13	12 ~ 20	0.100~0.210	0.30~0.45
		14	12 ~ 20	0.110~0.220	0.30~0.45
		15	12 ~ 20	0.120~0.230	0.30~0.45
		16	12 ~ 20	0.130~0.240	0.30~0.45

RE 45 Standard Series

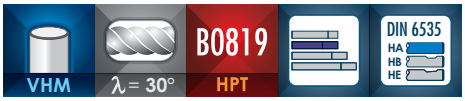
4 / 6 Z					
Work Material	Material Groups	D (mm)	Vc (m/min)	f (mm/rev)	STOCK REMOVAL (mm)
NIKEL BASE ALLOYS	M23, M24, M32	1	10 ~ 16	-	-
		2	10 ~ 16	-	-
		3	10 ~ 16	0.012~0.030	0.10~0.20
		4	10 ~ 16	0.015~0.035	0.15~0.30
		5	10 ~ 16	0.020~0.050	0.15~0.30
		6	10 ~ 16	0.025~0.055	0.15~0.30
		8	10 ~ 16	0.030~0.075	0.20~0.36
		10	10 ~ 16	0.040~0.080	0.20~0.36
		12	10 ~ 16	0.004~0.090	0.25~0.38
		13	10 ~ 16	0.004~0.100	0.30~0.45
		14	10 ~ 16	0.500~0.110	0.30~0.45
		15	10 ~ 16	0.060~0.120	0.30~0.45
		16	10 ~ 16	0.070~0.130	0.30~0.45
HARDENED STEELS SKT, SKD	M26, M28, M33	1	8 ~ 12	0.030~0.100	0.08~0.13
		2	8 ~ 12	0.030~0.100	0.10~0.20
		3	8 ~ 12	0.030~0.100	0.10~0.20
		4	8 ~ 12	0.030~0.100	0.15~0.30
		5	8 ~ 12	0.030~0.100	0.15~0.30
		6	8 ~ 12	0.030~0.100	0.15~0.30
		8	8 ~ 12	0.030~0.100	0.20~0.36
		10	8 ~ 12	0.030~0.100	0.20~0.36
		12	8 ~ 12	0.030~0.100	0.25~0.38
		13	8 ~ 12	0.030~0.100	0.30~0.45
		14	8 ~ 12	0.030~0.100	0.30~0.45
		15	8 ~ 12	0.030~0.100	0.30~0.45
		16	8 ~ 12	0.030~0.100	0.30~0.45
CAST IRON FC250	M10, M11, M12, M13, M14	1	15 ~ 30	0.008~0.015	0.08~0.13
		2	15 ~ 30	0.018~0.030	0.10~0.20
		3	15 ~ 30	0.028~0.045	0.10~0.20
		4	15 ~ 30	0.040~0.060	0.15~0.30
		5	15 ~ 30	0.050~0.090	0.15~0.30
		6	15 ~ 30	0.060~0.120	0.15~0.30
		8	15 ~ 30	0.080~0.150	0.20~0.36
		10	15 ~ 30	0.100~0.200	0.20~0.36
		12	15 ~ 30	0.120~0.230	0.25~0.38
		13	15 ~ 30	0.130~0.250	0.30~0.45
		14	15 ~ 30	0.140~0.260	0.30~0.45
		15	15 ~ 30	0.150~0.270	0.30~0.45
		16	15 ~ 30	0.160~0.280	0.30~0.45

TWIST DRILLS

NC SPOTTING DRILLS - 60° Point Angle

≤ 900 N/mm² + B0819 ≤ 35 HRC

Solid Carbide NC Spotting Drills, 60° point angle
Forets NC de pointage en carbure monobloc, angle de pointe: 60°
整体硬质合金 中心钻 2 刃 – 倒角 60°
VHM NC Positionierungsbohrer Spizenwinkel: 60°
Punte NC di posizionamento in metallo duro integrale, angolo di punta: 60°



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)					662*	953*
	D (h6)	l 1	l 2	L	d2 (h6)	T ... n	B0819
0300 040	3	6		40	3	●	●
0300 060	3	6		60	3	●	●
0300 100	3	6		100	3	●	●
0400 050	4	8		50	4	●	●
0400 075	4	8		75	4	●	●
0400 100	4	8		100	4	●	●
0500 050	5	12		50	5	●	●
0500 075	5	12		75	5	●	●
0500 100	5	12		100	5	●	●
0600 050	6	16		50	6	●	●
0600 075	6	16		75	6	●	●
0600 100	6	16		100	6	●	●
0800 064	8	20		64	8	●	●
0800 100	8	20		100	8	●	●
1000 070	10	25		70	10	●	●
1000 100	10	25		100	10	●	●
1000 125	10	25		125	10	●	●
1000 150	10	25		150	10	●	●
1200 075	12	25		75	12	●	●
1200 100	12	25		100	12	●	●
1200 125	12	25		125	12	●	●
1200 150	12	25		150	12	●	●
1600 090	16	26		90	16	●	●
1600 125	16	26		125	16	●	●
1600 150	16	26		150	16	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

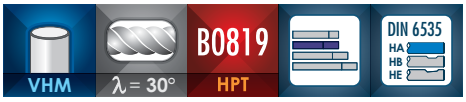
Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

NC SPOTTING DRILLS - 90° Point Angle

≤ 900 N/mm² + B0819 ≤ 35 HRC

Solid Carbide NC Spotting Drills, 90° point angle
Forets NC de pointage en carbure monobloc, angle de pointe: 90°
整体硬质合金 中心钻 2 刃 – 倒角 90°
VHM NC Positionierungsbohrer Spizenwinkel: 90°
Punte NC di posizionamento in metallo duro integrale, angolo di punta: 90°



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (h6)	l 1	l 2	L	d2 (h6)	664* T ... n	955* B0819
0300 040	3	6		40	3	●	●
0300 060	3	6		60	3	●	●
0300 100	3	6		100	3	●	●
0400 050	4	8		50	4	●	●
0400 075	4	8		75	4	●	●
0400 100	4	8		100	4	●	●
0500 050	5	12		50	5	●	●
0500 075	5	12		75	5	●	●
0500 100	5	12		100	5	●	●
0600 050	6	16		50	6	●	●
0600 075	6	16		75	6	●	●
0600 100	6	16		100	6	●	●
0800 064	8	20		64	8	●	●
0800 100	8	20		100	8	●	●
1000 070	10	25		70	10	●	●
1000 100	10	25		100	10	●	●
1000 125	10	25		125	10	●	●
1000 150	10	25		150	10	●	●
1200 075	12	25		75	12	●	●
1200 100	12	25		100	12	●	●
1200 125	12	25		125	12	●	●
1200 150	12	25		150	12	●	●
1600 090	16	26		90	16	●	●
1600 125	16	26		125	16	●	●
1600 150	16	26		150	16	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

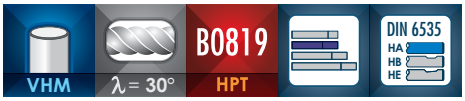
Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

NC SPOTTING DRILLS - 120° Point Angle

≤ 900 N/mm² + B0819 ≤ 35 HRC

Solid Carbide NC Spotting Drills, 120° point angle
Forets NC de pointage en carbure monobloc, angle de pointe: 120°
整体硬质合金 中心钻 2 刃 – 倒角 120°
VHM NC Positionierungsbohrer Spizenwinkel: 120°
Punte NC di posizionamento in metallo duro integrale, angolo di punta: 120°



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)					666*	957*
	D (h6)	l 1	l 2	L	d2 (h6)	T ... n	B0819
0300 040	3	6		40	3	●	●
0300 060	3	6		60	3	●	●
0300 100	3	6		100	3	●	●
0400 050	4	8		50	4	●	●
0400 075	4	8		75	4	●	●
0400 100	4	8		100	4	●	●
0500 050	5	12		50	5	●	●
0500 075	5	12		75	5	●	●
0500 100	5	12		100	5	●	●
0600 050	6	16		50	6	●	●
0600 075	6	16		75	6	●	●
0600 100	6	16		100	6	●	●
0800 064	8	20		64	8	●	●
0800 100	8	20		100	8	●	●
1000 070	10	25		70	10	●	●
1000 100	10	25		100	10	●	●
1000 125	10	25		125	10	●	●
1000 150	10	25		150	10	●	●
1200 075	12	25		75	12	●	●
1200 100	12	25		100	12	●	●
1200 125	12	25		125	12	●	●
1200 150	12	25		150	12	●	●
1600 090	16	26		90	16	●	●
1600 125	16	26		125	16	●	●
1600 150	16	26		150	16	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR 30 TWIST DRILLS - Similar to DIN 6539 - 140° Point Angle - 3 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

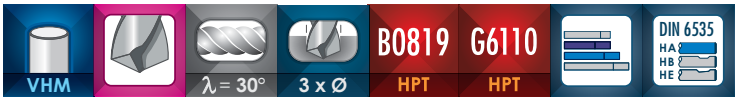
Solid Carbide DR 30 Twist Drills similar to DIN 6539, 140° point angle

Forets hélicoïdaux DR 30 en carbure monobloc semblable à DIN 6539, 140° angle de pointe

整体硬质合金 DR 30 外冷却 钻头 – 相等于 DIN 6539 2 刃 – 加工深度 3xD

VHM DR 30 Spiralbohrer ähnlich DIN 6539, 140° Spitzenwinkel

Punte elicoidali DR 30 in metallo duro simili a DIN 6539, angolo di punta 140°



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (h7)	l1	l2	l3	L	d2 (h6)	644* T ... n	958* B0819	C98* G6110
*	0100	1	6			40	2	●	●	○
*	0110	1.1	7			40	2	●	●	○
*	0120	1.2	8			40	2	●	●	○
*	0130	1.3	8			40	2	●	●	○
*	0140	1.4	9			40	2	●	●	○
*	0150	1.5	9			40	2	●	●	○
*	0160	1.6	10			40	2	●	●	○
*	0170	1.7	10			40	2	●	●	○
*	0180	1.8	11			40	2	●	●	○
*	0190	1.9	11			40	2	●	●	○
*	0200	2	12			40	2	●	●	○
*	0210	2.1	12			40	2.1	●	●	○
	0220	2.2	13			40	2.2	●	●	○
*	0230	2.3	13			46	2.3	●	●	○
*	0240	2.4	14			46	2.4	●	●	○
*	0250	2.5	14			46	2.5	●	●	○
*	0260	2.6	14			46	2.6	●	●	○
	0270	2.7	16			46	2.7	●	●	○
*	0280	2.8	16			49	2.8	●	●	○
*	0290	2.9	16			49	2.9	●	●	○
*	0300	3	16			49	3	●	●	○
	0310	3.1	18			49	3.1	●	●	○
	0320	3.2	18			49	3.2	●	●	○
*	0330	3.3	18			52	3.3	●	●	○
	0340	3.4	20			52	3.4	●	●	○
	0350	3.5	20			52	3.5	●	●	○
	0360	3.6	20			52	3.6	●	●	○
	0370	3.7	20			52	3.7	●	●	○
	0380	3.8	22			55	3.8	●	●	○
	0390	3.9	22			55	3.9	●	●	○
	0400	4	22			55	4	●	●	○

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR 30 TWIST DRILLS - Similar to DIN 6539 - 140° Point Angle - 3 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

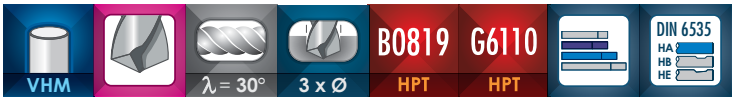
Solid Carbide DR 30 Twist Drills similar to DIN 6539, 140° point angle

Forets hélicoïdaux DR 30 en carbure monobloc semblable à DIN 6539, 140° angle de pointe

整体硬质合金 DR 30 外冷却 钻头 – 相等于 DIN 6539 2 刃 – 加工深度 3xD

VHM DR 30 Spiralbohrer ähnlich DIN 6539, 140° Spitzenwinkel

Punte elicoidali DR 30 in metallo duro simili a DIN 6539, angolo di punta 140°



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (h7)	l1	l2	l3	L	d2 (h6)	644* T ... n	958* B0819	C98* G6110
0410	4.1	22			55	4.1	●	●	○
0420	4.2	22			55	4.2	●	●	○
0430	4.3	24			58	4.3	●	●	○
0440	4.4	24			58	4.4	●	●	○
0450	4.5	24			58	4.5	●	●	○
0460	4.6	24			58	4.6	●	●	○
0470	4.7	24			58	4.7	●	●	○
0480	4.8	26			62	4.8	●	●	○
0490	4.9	26			62	4.9	●	●	○
0500	5	26			62	5	●	●	○
0510	5.1	26			62	5.1	●	●	○
0520	5.2	26			62	5.2	●	●	○
* 0530	5.3	26			66	5.3	●	●	○
0540	5.4	28			66	5.4	●	●	○
0550	5.5	28			66	5.5	●	●	○
0560	5.6	28			66	5.6	●	●	○
0570	5.7	28			66	5.7	●	●	○
* 0580	5.8	28			70	5.8	●	●	○
* 0590	5.9	28			70	5.9	●	●	○
* 0600	6	28			70	6	●	●	○
0610	6.1	31			70	6.1	●	●	○
0620	6.2	31			70	6.2	●	●	○
0630	6.3	31			70	6.3	●	●	○
0640	6.4	31			70	6.4	●	●	○
0650	6.5	31			70	6.5	●	●	○
0660	6.6	31			70	6.6	●	●	○
0670	6.7	31			70	6.7	●	●	○
0680	6.8	34			74	6.8	●	●	○
0690	6.9	34			74	6.9	●	●	○
0700	7	34			74	7	●	●	○
0710	7.1	34			74	7.1	●	●	○

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 30 TWIST DRILLS - Similar to DIN 6539 - 140° Point Angle - 3 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

Solid Carbide DR 30 Twist Drills similar to DIN 6539, 140° point angle

Forets hélicoïdaux DR 30 en carbure monobloc semblable à DIN 6539, 140° angle de pointe

整体硬质合金 DR 30 外冷却 钻头 – 相等于 DIN 6539 2 刃 – 加工深度 3xD

VHM DR 30 Spiralbohrer ähnlich DIN 6539, 140° Spitzenwinkel

Punte elicoidali DR 30 in metallo duro simili a DIN 6539, angolo di punta 140°

	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (h7)	l1	l2	l3	L	d2 (h6)	644* T ... n	958* B0819	C98* G6110
	0720	7.2	34			74	7.2	●	●	○
*	0730	7.3	34			79	7.3	●	●	○
*	0740	7.4	34			79	7.4	●	●	○
*	0750	7.5	34			79	7.5	●	●	○
	0760	7.6	37			79	7.6	●	●	○
	0770	7.7	37			79	7.7	●	●	○
	0780	7.8	37			79	7.8	●	●	○
	0790	7.9	37			79	7.9	●	●	○
	0800	8	37			79	8	●	●	○
	0810	8.1	37			79	8.1	●	●	○
	0820	8.2	37			79	8.2	●	●	○
*	0830	8.3	37			84	8.3	●	●	○
*	0840	8.4	37			84	8.4	●	●	○
*	0850	8.5	37			84	8.5	●	●	○
	0860	8.6	40			84	8.6	●	●	○
	0870	8.7	40			84	8.7	●	●	○
	0880	8.8	40			84	8.8	●	●	○
	0890	8.9	40			84	8.9	●	●	○
	0900	9	40			84	9	●	●	○
	0910	9.1	40			84	9.1	●	●	○
	0920	9.2	40			84	9.2	●	●	○
*	0930	9.3	40			89	9.3	●	●	○
*	0940	9.4	40			89	9.4	●	●	○
*	0950	9.5	40			89	9.5	●	●	○
	0960	9.6	43			89	9.6	●	●	○
	0970	9.7	43			89	9.7	●	●	○
	0980	9.8	43			89	9.8	●	●	○
	0990	9.9	43			89	9.9	●	●	○
	1000	10	43			89	10	●	●	○
	1020	10.2	43			89	10.2	●	●	○
	1050	10.5	43			95	10.5	●	●	○

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR 30 TWIST DRILLS - Similar to DIN 6539 - 140° Point Angle - 3 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

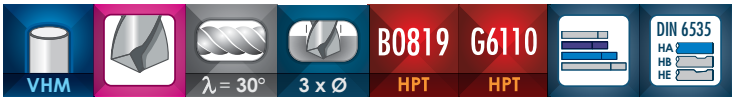
Solid Carbide DR 30 Twist Drills similar to DIN 6539, 140° point angle

Forets hélicoïdaux DR 30 en carbure monobloc semblable à DIN 6539, 140° angle de pointe

整体硬质合金 DR 30 外冷却 钻头 – 相等于 DIN 6539 2 刃 – 加工深度 3xD

VHM DR 30 Spiralbohrer ähnlich DIN 6539, 140° Spitzenwinkel

Punte elicoidali DR 30 in metallo duro simili a DIN 6539, angolo di punta 140°



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (h7)	l1	l2	l3	L	d2 (h6)	644* T ... n	958* B0819	C98* G6110
	1080	10.8	47			95	10.8	●	●	○
	1100	11.0	47			95	11.0	●	●	○
*	1120	11.2	47			102	11.2	●	●	○
*	1130	11.3	47			102	11.3	●	●	○
*	1150	11.5	47			102	11.5	●	●	○
*	1180	11.8	47			102	11.8	●	●	○
	1200	12.0	51			102	12.0	●	●	○
	1220	12.2	51			102	12.2	●	●	○
*	1250	12.5	51			103	12.5	●	●	○
	1270	12.7	51			103	12.7	●	●	○
	1280	12.8	51			103	12.8	●	●	○
	1300	13.0	51			103	13.0	●	●	○
	1350	13.5	54			107	13.5	●	●	○
	1370	13.7	54			107	13.7	●	●	○
	1380	13.8	54			107	13.8	●	●	○
	1400	14.0	54			107	14.0	●	●	○
	1450	14.5	56			111	14.5	●	●	○
	1500	15.0	56			111	15.0	●	●	○
	1530	15.3	56			111	15.3	●	●	○
	1550	15.5	58			115	15.5	●	●	○
	1580	15.8	58			115	15.8	●	●	○
	1600	16.0	58			115	16.0	●	●	○

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR 30 TWIST DRILLS - 140° Point Angle - 5 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

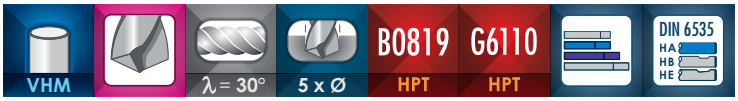
Solid Carbide DR 30 Twist Drills acc. to HPMT Standard 140° point angle

Forets hélicoïdaux DR 30 en carbure monobloc, norme usine, angle de pointe 140°

整体硬质合金 DR 30 外冷却 钻头 2 刃 – 加工深度 5xD

VHM DR 30 Spiralbohrer nach HPMT Norm, 140° Spitzenwinkel

Punte elicoidali DR 30 in metallo duro integrale, norma HPMT, angolo di punta 140°



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (h7)	l1	l2	l3	L	d2 (h6)	729* T ... n	960* B0819	C99* G6110
*	0100	1.0	12			40	2	●	●	○
*	0110	1.1	14			40	2	●	●	○
*	0120	1.2	16			40	2	●	●	○
*	0130	1.3	16			40	2	●	●	○
	0140	1.4	18			40	2	●	●	○
	0150	1.5	18			40	2	●	●	○
*	0160	1.6	20			49	2	●	●	○
*	0170	1.7	20			49	2	●	●	○
*	0180	1.8	22			49	2	●	●	○
	0190	1.9	22			49	2	●	●	○
	0200	2.0	24			49	2	●	●	○
	0210	2.1	24			49	2.1	●	●	○
	0220	2.2	27			53	2.2	●	●	○
	0230	2.3	27			53	2.3	●	●	○
	0240	2.4	30			57	2.4	●	●	○
	0250	2.5	30			57	2.5	●	●	○
	0260	2.6	30			57	2.6	●	●	○
	0270	2.7	33			61	2.7	●	●	○
	0280	2.8	33			61	2.8	●	●	○
	0290	2.9	33			61	2.9	●	●	○
	0300	3.0	33			61	3	●	●	○
	0310	3.1	36			65	3.1	●	●	○
	0320	3.2	36			65	3.2	●	●	○
	0330	3.3	36			65	3.3	●	●	○
	0340	3.4	39			70	3.4	●	●	○
	0350	3.5	39			70	3.5	●	●	○
	0360	3.6	39			70	3.6	●	●	○
	0370	3.7	39			70	3.7	●	●	○
	0380	3.8	43			75	3.8	●	●	○
	0390	3.9	43			75	3.9	●	●	○
	0400	4.0	43			75	4	●	●	○

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR 30 TWIST DRILLS - 140° Point Angle - 5 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

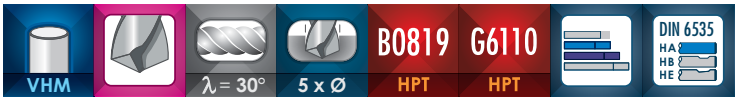
Solid Carbide DR 30 Twist Drills acc. to HPMT Standard 140° point angle

Forets hélicoïdaux DR 30 en carbure monobloc, norme usine, angle de pointe 140°

整体硬质合金 DR 30 外冷却 钻头 2 刃 – 加工深度 5xD

VHM DR 30 Spiralbohrer nach HPMT Norm, 140° Spitzenwinkel

Punte elicoidali DR 30 in metallo duro integrale, norma HPMT, angolo di punta 140°



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (h7)	l 1	l 2	l 3	L	d2 (h6)	729* T ... n	960* B0819	C99* G6110
0410	4.1	43			75	4.1	●	●	○
0420	4.2	43			75	4.2	●	●	○
0430	4.3	47			80	4.3	●	●	○
0440	4.4	47			80	4.4	●	●	○
0450	4.5	47			80	4.5	●	●	○
0460	4.6	47			80	4.6	●	●	○
0470	4.7	47			80	4.7	●	●	○
0480	4.8	52			86	4.8	●	●	○
0490	4.9	52			86	4.9	●	●	○
0500	5.0	52			86	5.0	●	●	○
0510	5.1	52			86	5.1	●	●	○
0520	5.2	52			86	5.2	●	●	○
0530	5.3	52			86	5.3	●	●	○
0540	5.4	57			93	5.4	●	●	○
0550	5.5	57			93	5.5	●	●	○
0560	5.6	57			93	5.6	●	●	○
0570	5.7	57			93	5.7	●	●	○
0580	5.8	57			93	5.8	●	●	○
0590	5.9	57			93	5.9	●	●	○
0600	6	57			93	6	●	●	○
0610	6.1	63			101	6.1	●	●	○
0620	6.2	63			101	6.2	●	●	○
0630	6.3	63			101	6.3	●	●	○
0640	6.4	63			101	6.4	●	●	○
0650	6.5	63			101	6.5	●	●	○
0660	6.6	63			101	6.6	●	●	○
0670	6.7	63			101	6.7	●	●	○
0680	6.8	69			109	6.8	●	●	○
0690	6.9	69			109	6.9	●	●	○
0700	7	69			109	7	●	●	○
0710	7.1	69			109	7.1	●	●	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR 30 TWIST DRILLS - 140° Point Angle - 5 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

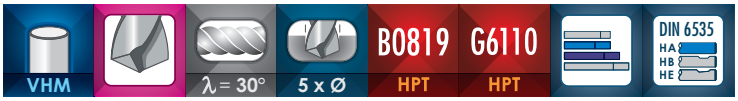
Solid Carbide DR 30 Twist Drills acc. to HPMT Standard 140° point angle

Forets hélicoïdaux DR 30 en carbure monobloc, norme usine, angle de pointe 140°

整体硬质合金 DR 30 外冷却 钻头 2 刃 – 加工深度 5xD

VHM DR 30 Spiralbohrer nach HPMT Norm, 140° Spitzenwinkel

Punte elicoidali DR 30 in metallo duro integrale, norma HPMT, angolo di punta 140°



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (h7)	l 1	l 2	l 3	L	d2 (h6)	729* T ... n	960* B0819	C99* G6110
0720	7.2	69			109	7.2	●	●	○
0730	7.3	69			109	7.3	●	●	○
0740	7.4	69			109	7.4	●	●	○
0750	7.5	69			109	7.5	●	●	○
0760	7.6	75			117	7.6	●	●	○
0770	7.7	75			117	7.7	●	●	○
0780	7.8	75			117	7.8	●	●	○
0790	7.9	75			117	7.9	●	●	○
0800	8	75			117	8	●	●	○
0810	8.1	75			117	8.1	●	●	○
0820	8.2	75			117	8.2	●	●	○
0830	8.3	75			117	8.3	●	●	○
0840	8.4	75			117	8.4	●	●	○
0850	8.5	75			117	8.5	●	●	○
0860	8.6	81			125	8.6	●	●	○
0870	8.7	81			125	8.7	●	●	○
0880	8.8	81			125	8.8	●	●	○
0890	8.9	81			125	8.9	●	●	○
0900	9	81			125	9	●	●	○
0910	9.1	81			125	9.1	●	●	○
0920	9.2	81			125	9.2	●	●	○
0930	9.3	81			125	9.3	●	●	○
0940	9.4	81			125	9.4	●	●	○
0950	9.5	81			125	9.5	●	●	○
0960	9.6	87			133	9.6	●	●	○
0970	9.7	87			133	9.7	●	●	○
0980	9.8	87			133	9.8	●	●	○
0990	9.9	87			133	9.9	●	●	○
1000	10	87			133	10	●	●	○
1020	10.2	87			133	10.2	●	●	○
1050	10.5	87			133	10.5	●	●	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 30 TWIST DRILLS - 140° Point Angle - 5 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

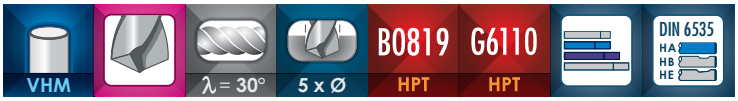
Solid Carbide DR 30 Twist Drills acc. to HPMT Standard 140° point angle

Forets hélicoïdaux DR 30 en carbure monobloc, norme usine, angle de pointe 140°

整体硬质合金 DR 30 外冷却 钻头 2 刃 – 加工深度 5xD

VHM DR 30 Spiralbohrer nach HPMT Norm, 140° Spitzenwinkel

Punte elicoidali DR 30 in metallo duro integrale, norma HPMT, angolo di punta 140°



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						729*	960*	C99*
=*+Ødata	D (h7)	l 1	l 2	l 3	L	d2 (h6)	T ... n	B0819	G6110
1080	10.8	94			142	10.8	●	●	○
1100	11	94			142	11	●	●	○
1120	11.2	94			142	11.2	●	●	○
1130	11.3	94			142	11.3	●	●	○
1150	11.5	94			142	11.5	●	●	○
* 1180	11.8	101			151	11.8	●	●	○
1200	12	101			151	12	●	●	○
1220	12.2	101			151	12.2	●	●	○
1250	12.5	101			151	12.5	●	●	○
1280	12.8	101			151	12.8	●	●	○
1300	13	101			151	13	●	●	○
1350	13.5	108			160	13.5	●	●	○
1380	13.8	108			160	13.8	●	●	○
1400	14	108			160	14	●	●	○
1450	14.5	114			169	14.5	●	●	○
1500	15	114			169	15	●	●	○
* 1530	15.3	114			169	15.3	●	●	○
1550	15.5	120			178	15.5	●	●	○
1580	15.8	120			178	15.8	●	●	○
1600	16	120			178	16	●	●	○

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●						●							●	●				

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR 45 TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm² + B0819 ≤ 48 HRC

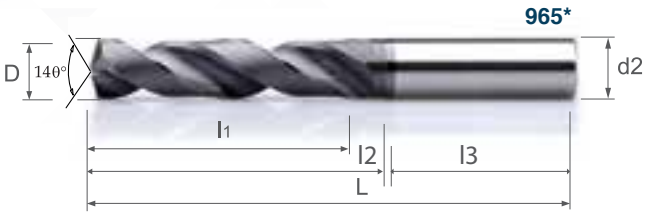
Solid Carbide DR 45 Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

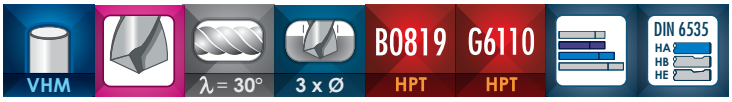
Forets hélicoïdaux DR 45 en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD，柄部标准 DIN 6535HA

VHM DR 45 Spiralbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K angolo di punta 140°, codolo DIN 6535HA





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						965*	D01*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	B0819	G6110
0300	3	14	20	36	62	6	●	○
0310	3.1	14	20	36	62	6	●	○
0320	3.2	14	20	36	62	6	●	○
0330	3.3	14	20	36	62	6	●	○
0340	3.4	14	20	36	62	6	●	○
0350	3.5	14	20	36	62	6	●	○
0360	3.6	14	20	36	62	6	●	○
0370	3.7	14	20	36	62	6	●	○
0380	3.8	17	24	36	66	6	●	○
0390	3.9	17	24	36	66	6	●	○
0400	4	17	24	36	66	6	●	○
0410	4.1	17	24	36	66	6	●	○
0420	4.2	17	24	36	66	6	●	○
0430	4.3	17	24	36	66	6	●	○
0440	4.4	17	24	36	66	6	●	○
0450	4.5	17	24	36	66	6	●	○
0460	4.6	17	24	36	66	6	●	○
0470	4.7	17	24	36	66	6	●	○
0480	4.8	20	28	36	66	6	●	○
0490	4.9	20	28	36	66	6	●	○
0500	5	20	28	36	66	6	●	○
0510	5.1	20	28	36	66	6	●	○
0520	5.2	20	28	36	66	6	●	○
0530	5.3	20	28	36	66	6	●	○
0540	5.4	20	28	36	66	6	●	○
0550	5.5	20	28	36	66	6	●	○
0560	5.6	20	28	36	66	6	●	○
0570	5.7	20	28	36	66	6	●	○
0580	5.8	20	28	36	66	6	●	○
0590	5.9	20	28	36	66	6	●	○
0600	6	20	28	36	66	6	●	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR 45 TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm² + B0819 ≤ 48 HRC

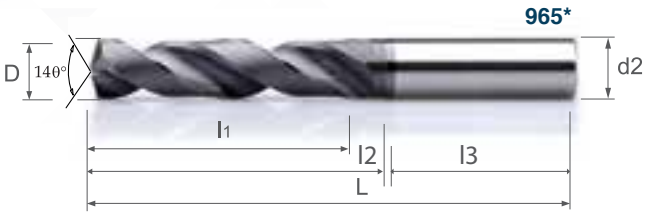
Solid Carbide DR 45 Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

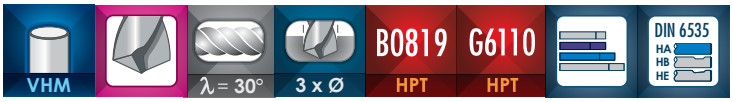
Forets hélicoïdaux DR 45 en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD，柄部标准 DIN 6535HA

VHM DR 45 Spiralbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K angolo di punta 140°, codolo DIN 6535HA





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	965* B0819	D01* G6110
0610	6.1	24	34	36	79	8	●	○
0620	6.2	24	34	36	79	8	●	○
0630	6.3	24	34	36	79	8	●	○
0640	6.4	24	34	36	79	8	●	○
0650	6.5	24	34	36	79	8	●	○
0660	6.6	24	34	36	79	8	●	○
0670	6.7	24	34	36	79	8	●	○
0680	6.8	24	34	36	79	8	●	○
0690	6.9	24	34	36	79	8	●	○
0700	7	24	34	36	79	8	●	○
0710	7.1	29	41	36	79	8	●	○
0720	7.2	29	41	36	79	8	●	○
0730	7.3	29	41	36	79	8	●	○
0740	7.4	29	41	36	79	8	●	○
0750	7.5	29	41	36	79	8	●	○
0760	7.6	29	41	36	79	8	●	○
0770	7.7	29	41	36	79	8	●	○
0780	7.8	29	41	36	79	8	●	○
0790	7.9	29	41	36	79	8	●	○
0800	8	29	41	36	79	8	●	○
0810	8.1	35	47	40	89	10	●	○
0820	8.2	35	47	40	89	10	●	○
0830	8.3	35	47	40	89	10	●	○
0840	8.4	35	47	40	89	10	●	○
0850	8.5	35	47	40	89	10	●	○
0860	8.6	35	47	40	89	10	●	○
0870	8.7	35	47	40	89	10	●	○
0880	8.8	35	47	40	89	10	●	○
0890	8.9	35	47	40	89	10	●	○
0900	9	35	47	40	89	10	●	○
0910	9.1	35	47	40	89	10	●	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR 45 TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm² + B0819 ≤ 48 HRC

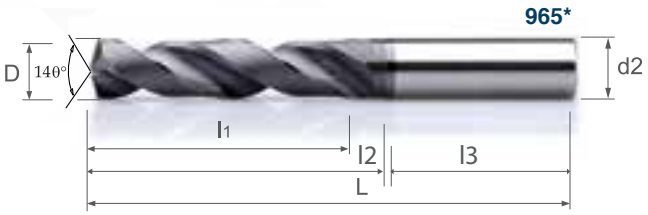
Solid Carbide DR 45 Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR 45 en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD，柄部标准 DIN 6535HA

VHM DR 45 Spiralbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						965*	D01*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	B0819	G6110
0920	9.2	35	47	40	89	10	●	○
0930	9.3	35	47	40	89	10	●	○
0940	9.4	35	47	40	89	10	●	○
0950	9.5	35	47	40	89	10	●	○
0960	9.6	35	47	40	89	10	●	○
0970	9.7	35	47	40	89	10	●	○
0980	9.8	35	47	40	89	10	●	○
0990	9.9	35	47	40	89	10	●	○
1000	10	35	47	40	89	10	●	○
1010	10.1	40	55	45	102	12	●	○
1020	10.2	40	55	45	102	12	●	○
1030	10.3	40	55	45	102	12	●	○
1040	10.4	40	55	45	102	12	●	○
1050	10.5	40	55	45	102	12	●	○
1060	10.6	40	55	45	102	12	●	○
1070	10.7	40	55	45	102	12	●	○
1080	10.8	40	55	45	102	12	●	○
1090	10.9	40	55	45	102	12	●	○
1100	11	40	55	45	102	12	●	○
1110	11.1	40	55	45	102	12	●	○
1120	11.2	40	55	45	102	12	●	○
1130	11.3	40	55	45	102	12	●	○
1140	11.4	40	55	45	102	12	●	○
1150	11.5	40	55	45	102	12	●	○
1160	11.6	40	55	45	102	12	●	○
1170	11.7	40	55	45	102	12	●	○
1180	11.8	40	55	45	102	12	●	○
1190	11.9	40	55	45	102	12	●	○
1200	12	40	55	45	102	12	●	○
1250	12.5	43	60	45	107	14	●	○
1270	12.7	43	60	45	107	14	●	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR 45 TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm² + B0819 ≤ 48 HRC

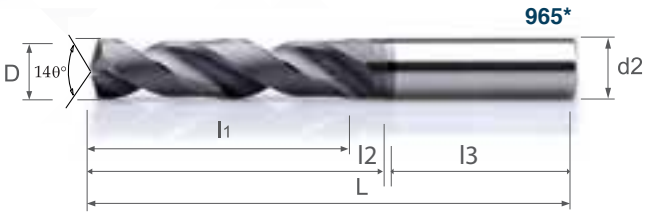
Solid Carbide DR 45 Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR 45 en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD，柄部标准 DIN 6535HA

VHM DR 45 Spiralbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	965* B0819	D01* G6110
1300	13	43	60	45	107	14	●	○
1350	13.5	43	60	45	107	14	●	○
1370	13.7	43	60	45	107	14	●	○
1400	14	43	60	45	107	14	●	○
1450	14.5	45	65	48	115	16	●	○
1500	15	65	65	48	115	16	●	○
1550	15.5	65	65	48	115	16	●	○
1600	16	65	65	48	115	16	●	○
1650	16.5	73	73	48	123	18	●	○
1700	17	73	73	48	123	18	●	○
1750	17.5	73	73	48	123	18	●	○
1800	18	73	73	48	123	18	●	○
1850	18.5	79	79	50	131	20	●	○
1900	19	79	79	50	131	20	●	○
1950	19.5	79	79	50	131	20	●	○
2000	20	79	79	50	131	20	●	○

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 45 TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + B0819 ≤ 48 HRC

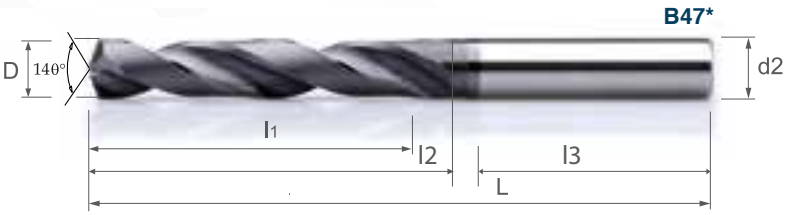
Solid Carbide Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD，柄部标准 DIN 6535HA

VHM Spiralbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali in metallo duro integrale norma DIN 6537L angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						B47*	D02*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	B0819	G6110
0300	3	23	28	36	66	6	●	○
0310	3.1	23	28	36	66	6	●	○
0320	3.2	23	28	36	66	6	●	○
0330	3.3	23	28	36	66	6	●	○
0340	3.4	23	28	36	66	6	●	○
0350	3.5	23	28	36	66	6	●	○
0360	3.6	23	28	36	66	6	●	○
0370	3.7	23	28	36	66	6	●	○
0380	3.8	29	36	36	74	6	●	○
0390	3.9	29	36	36	74	6	●	○
0400	4	29	36	36	74	6	●	○
0410	4.1	29	36	36	74	6	●	○
0420	4.2	29	36	36	74	6	●	○
0430	4.3	29	36	36	74	6	●	○
0440	4.4	29	36	36	74	6	●	○
0450	4.5	29	36	36	74	6	●	○
0460	4.6	29	36	36	74	6	●	○
0470	4.7	29	36	36	74	6	●	○
0480	4.8	35	44	36	82	6	●	○
0490	4.9	35	44	36	82	6	●	○
0500	5	35	44	36	82	6	●	○
0510	5.1	35	44	36	82	6	●	○
0520	5.2	35	44	36	82	6	●	○
0530	5.3	35	44	36	82	6	●	○
0540	5.4	35	44	36	82	6	●	○
0550	5.5	35	44	36	82	6	●	○
0560	5.6	35	44	36	82	6	●	○
0570	5.7	35	44	36	82	6	●	○
0580	5.8	35	44	36	82	6	●	○
0590	5.9	35	44	36	82	6	●	○
0600	6	35	44	36	82	6	●	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR 45 TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + B0819 ≤ 48 HRC

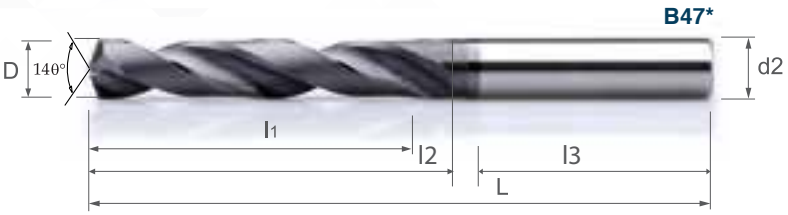
Solid Carbide Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM Spiralbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali in metallo duro integrale norma DIN 6537L angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						B47*	D02*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	B0819	G6110
0610	6.1	43	53	36	91	8	●	○
0620	6.2	43	53	36	91	8	●	○
0630	6.3	43	53	36	91	8	●	○
0640	6.4	43	53	36	91	8	●	○
0650	6.5	43	53	36	91	8	●	○
0660	6.6	43	53	36	91	8	●	○
0670	6.7	43	53	36	91	8	●	○
0680	6.8	43	53	36	91	8	●	○
0690	6.9	43	53	36	91	8	●	○
0700	7	43	53	36	91	8	●	○
0710	7.1	43	53	36	91	8	●	○
0720	7.2	43	53	36	91	8	●	○
0730	7.3	43	53	36	91	8	●	○
0740	7.4	43	53	36	91	8	●	○
0750	7.5	43	53	36	91	8	●	○
0760	7.6	43	53	36	91	8	●	○
0770	7.7	43	53	36	91	8	●	○
0780	7.8	43	53	36	91	8	●	○
0790	7.9	43	53	36	91	8	●	○
0800	8	43	53	36	91	8	●	○
0810	8.1	49	61	40	103	10	●	○
0820	8.2	49	61	40	103	10	●	○
0830	8.3	49	61	40	103	10	●	○
0840	8.4	49	61	40	103	10	●	○
0850	8.5	49	61	40	103	10	●	○
0860	8.6	49	61	40	103	10	●	○
0870	8.7	49	61	40	103	10	●	○
0880	8.8	49	61	40	103	10	●	○
0890	8.9	49	61	40	103	10	●	○
0900	9	49	61	40	103	10	●	○
0910	9.1	49	61	40	103	10	●	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR 45 TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + B0819 ≤ 48 HRC

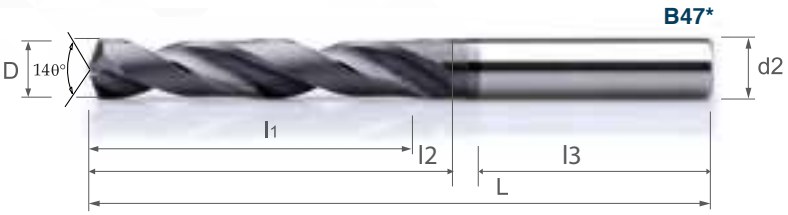
Solid Carbide Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD，柄部标准 DIN 6535HA

VHM Spiralbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali in metallo duro integrale norma DIN 6537L angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						B47*	D02*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	B0819	G6110
0920	9.2	49	61	40	103	10	●	○
0930	9.3	49	61	40	103	10	●	○
0940	9.4	49	61	40	103	10	●	○
0950	9.5	61	61	40	103	10	●	○
0960	9.6	61	61	40	103	10	●	○
0970	9.7	61	61	40	103	10	●	○
0980	9.8	61	61	40	103	10	●	○
0990	9.9	61	61	40	103	10	●	○
1000	10	61	61	40	103	10	●	○
1020	10.2	71	71	45	118	12	●	○
1050	10.5	71	71	45	118	12	●	○
1080	10.8	71	71	45	118	12	●	○
1100	11	71	71	45	118	12	●	○
1120	11.2	71	71	45	118	12	●	○
1130	11.3	71	71	45	118	12	●	○
1150	11.5	71	71	45	118	12	●	○
1180	11.8	71	71	45	118	12	●	○
1200	12	71	71	45	118	12	●	○
1220	12.2	71	71	45	118	12	●	○
1250	12.5	77	77	45	124	14	●	○
1270	12.7	77	77	45	124	14	●	○
1280	12.8	77	77	45	124	14	●	○
1300	13	77	77	45	124	14	●	○
1330	13.3	77	77	45	124	14	●	○
1350	13.5	77	77	45	124	14	●	○
1370	13.7	77	77	45	124	14	●	○
1380	13.8	77	77	45	124	14	●	○
1400	14	77	77	45	124	14	●	○
1450	14.5	83	83	48	133	16	●	○
1500	15	83	83	48	133	16	●	○
1530	15.3	83	83	48	133	16	●	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR 45 TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + B0819 ≤ 48 HRC

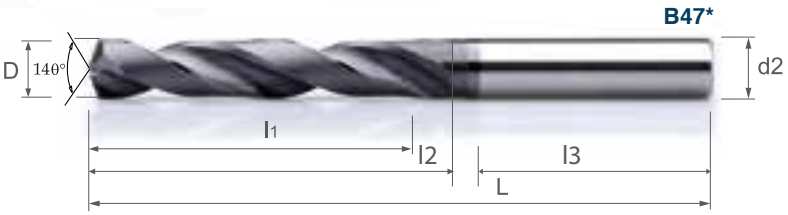
Solid Carbide Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD，柄部标准 DIN 6535HA

VHM Spiralbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali in metallo duro integrale norma DIN 6537L angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	B47* B0819	D02* G6110
1550	15.5	83	83	48	133	16	●	○
1580	15.8	83	83	48	133	16	●	○
1600	16	83	83	48	133	16	●	○
1650	16.5	93	93	48	143	18	●	○
1700	17	93	93	48	143	18	●	○
1750	17.5	93	93	48	143	18	●	○
1800	18	93	93	48	143	18	●	○
1850	18.5	101	101	50	153	20	●	○
1900	19	101	101	50	153	20	●	○
1950	19.5	101	101	50	153	20	●	○
2000	20	101	101	50	153	20	●	○

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR 60 TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.600 N/mm² + D0120 ≤ 62 HRC

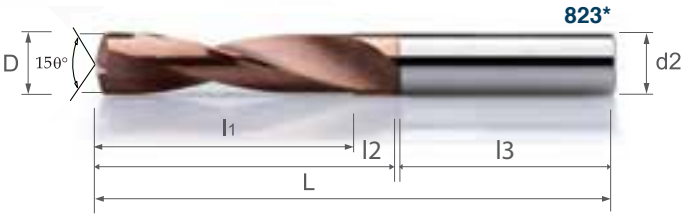
Solid Carbide Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD，柄部标准 DIN 6535HA

VHM Spiralbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali in metallo duro integrale norma DIN 6537K angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						823*
	D (h7)	l 1	l 2	l 3	L	d2 (h6)	D0120
0300	3	14	20	36	62	6	●
0330	3.3	14	20	36	62	6	●
0350	3.5	14	20	36	62	6	●
0380	3.8	17	24	36	66	6	●
0400	4	17	24	36	66	6	●
0420	4.2	17	24	36	66	6	●
0450	4.5	17	24	36	66	6	●
0480	4.8	20	28	36	66	6	●
0500	5	20	28	36	66	6	●
0550	5.5	20	28	36	66	6	●
0580	5.8	20	28	36	66	6	●
0600	6	20	28	36	66	6	●
0650	6.5	29	41	36	79	8	●
0680	6.8	29	41	36	79	8	●
0700	7	29	41	36	79	8	●
0750	7.5	29	41	36	79	8	●
0780	7.8	29	41	36	79	8	●
0800	8	29	41	36	79	8	●
0850	8.5	35	47	40	89	10	●
0880	8.8	35	47	40	89	10	●
0900	9	35	47	40	89	10	●
0950	9.5	35	47	40	89	10	●
0980	9.8	35	47	40	89	10	●
1000	10	35	47	40	89	10	●
1020	10.2	40	55	45	102	12	●
1050	10.5	40	55	45	102	12	●
1080	10.8	40	55	45	102	12	●
1100	11	40	55	45	102	12	●
1150	11.5	40	55	45	102	12	●
1180	11.8	40	55	45	102	12	●
1200	12	40	55	45	102	12	●
1250	12.5	43	60	45	107	14	●
1280	12.8	43	60	45	107	14	●
1300	13	43	60	45	107	14	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 60 TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.600 N/mm² + D0120 ≤ 62 HRC

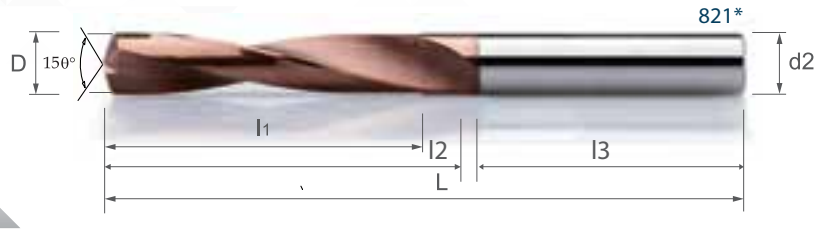
Solid Carbide Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 钻头 - 相等于 DIN 6537L 2 刃 - 加工深度 3xD，柄部标准 DIN 6535HA

VHM Spiralbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali in metallo duro integrale norma DIN 6537L angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (h7)	l 1	l 2	l 3	L	d2 (h6)	821* D0120
0300	3	23	28	36	66	6	●
0330	3.3	23	28	36	66	6	●
0350	3.5	23	28	36	66	6	●
0380	3.8	29	36	36	74	6	●
0400	4	29	36	36	74	6	●
0420	4.2	29	36	36	74	6	●
0450	4.5	29	36	36	82	6	●
0480	4.8	35	44	36	82	6	●
0500	5	35	44	36	82	6	●
0550	5.5	35	44	36	82	6	●
0580	5.8	35	44	36	82	6	●
0600	6	35	44	36	82	6	●
0650	6.5	43	53	36	91	8	●
0680	6.8	43	53	36	91	8	●
0700	7	43	53	36	91	8	●
0750	7.5	43	53	36	91	8	●
0780	7.8	43	53	36	91	8	●
0800	8	43	53	36	91	8	●
0850	8.5	49	61	40	103	10	●
0880	8.8	49	61	40	103	10	●
0900	9	49	61	40	103	10	●
0950	9.5	61	61	40	103	10	●
0980	9.8	61	61	40	103	10	●
1000	10	61	61	40	103	10	●
1020	10.2	71	71	45	118	12	●
1050	10.5	71	71	45	118	12	●
1080	10.8	71	71	45	118	12	●
1100	11	71	71	45	118	12	●
1150	11.5	71	71	45	118	12	●
1180	11.8	71	71	45	118	12	●
1200	12	71	71	45	118	12	●
1250	12.5	77	77	45	124	14	●
1280	12.8	77	77	45	124	14	●
1300	13	77	77	45	124	14	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR ALU OIL FEED TWIST DRILLS - DIN 6537K - 130° Point Angle - 3 x Ø

≤ 700 N/mm²

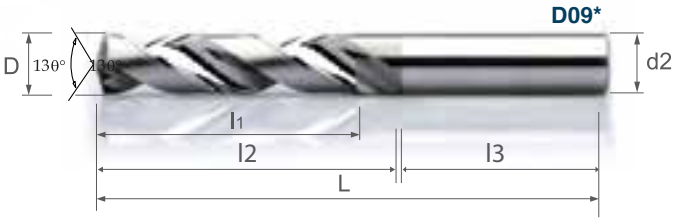
Solid Carbide DR ALU Oil Feed Twist Drills acc. to DIN 6537K, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR ALU à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR ALU 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR ALU Kühlkanalbohrer nach DIN 6537K, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR ALU in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	D09* T ... n
*	0300 062 03	3	14	20	36	62	3	○
	0300	3	14	20	36	62	6	●
*	0310 062 03	3.1	14	20	36	62	3	○
	0310	3.1	14	20	36	62	6	●
*	0320 062 03	3.2	14	20	36	62	3	○
	0320	3.2	14	20	36	62	6	●
	0330	3.3	14	20	36	62	6	●
	0340	3.4	14	20	36	62	6	●
	0350	3.5	14	20	36	62	6	●
	0360	3.6	14	20	36	62	6	●
	0370	3.7	14	20	36	62	6	●
	0380	3.8	17	24	36	66	6	●
	0390	3.9	17	24	36	66	6	●
*	0400 066 04	4	17	24	36	66	4	○
	0400	4	17	24	36	66	6	●
*	0410 066 04	4.1	17	24	36	66	4	○
	0410	4.1	17	24	36	66	6	●
*	0420 066 04	4.2	17	24	36	66	4	○
	0420	4.2	17	24	36	66	6	●
	0430	4.3	17	24	36	66	6	●
	0440	4.4	17	24	36	66	6	●
	0450	4.5	17	24	36	66	6	●
	0460	4.6	17	24	36	66	6	●
	0470	4.7	17	24	36	66	6	●
	0480	4.8	20	28	36	66	6	●
	0490	4.9	20	28	36	66	6	●
	0500	5	20	28	36	66	6	●
	0510	5.1	20	28	36	66	6	●
	0520	5.2	20	28	36	66	6	●
	0530	5.3	20	28	36	66	6	●
	0540	5.4	20	28	36	66	6	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR ALU OIL FEED TWIST DRILLS - DIN 6537K - 130° Point Angle - 3 x Ø

≤ 700 N/mm²

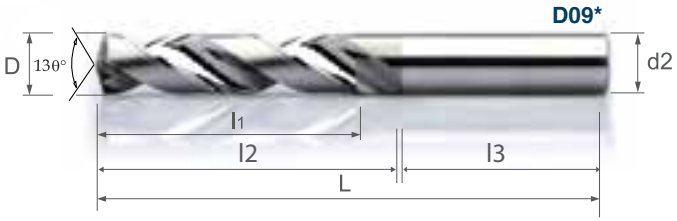
Solid Carbide DR ALU Oil Feed Twist Drills acc. to DIN 6537K, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR ALU à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR ALU 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR ALU Kühlkanalbohrer nach DIN 6537K, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR ALU in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	D09* T ... n
	0550	5.5	20	28	36	66	6	●
	0560	5.6	20	28	36	66	6	●
	0570	5.7	20	28	36	66	6	●
	0580	5.8	20	28	36	66	6	●
	0590	5.9	20	28	36	66	6	●
	0600	6	20	28	36	66	6	●
*	0610 066 06	6.1	20	28	36	66	6	○
	0610	6.1	24	34	36	79	8	●
	0620	6.2	24	34	36	79	8	●
	0630	6.3	24	34	36	79	8	●
	0640	6.4	24	34	36	79	8	●
	0650	6.5	24	34	36	79	8	●
	0660	6.6	24	34	36	79	8	●
	0670	6.7	24	34	36	79	8	●
	0680	6.8	24	34	36	79	8	●
	0690	6.9	24	34	36	79	8	●
	0700	7	24	34	36	79	8	●
	0710	7.1	29	41	36	79	8	●
	0720	7.2	29	41	36	79	8	●
	0730	7.3	29	41	36	79	8	●
	0740	7.4	29	41	36	79	8	●
	0750	7.5	29	41	36	79	8	●
	0760	7.6	29	41	36	79	8	●
	0770	7.7	29	41	36	79	8	●
	0780	7.8	29	41	36	79	8	●
	0790	7.9	29	41	36	79	8	●
	0800	8	29	41	36	79	8	●
*	0810 079 08	8.1	29	41	36	79	8	○
	0810	8.1	35	47	40	89	10	●
	0820	8.2	35	47	40	89	10	●
	0830	8.3	35	47	40	89	10	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR ALU OIL FEED TWIST DRILLS - DIN 6537K - 130° Point Angle - 3 x Ø

≤ 700 N/mm²

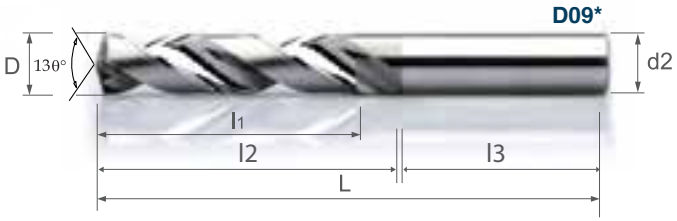
Solid Carbide DR ALU Oil Feed Twist Drills acc. to DIN 6537K, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR ALU à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR ALU 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR ALU Kühlkanalbohrer nach DIN 6537K, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR ALU in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						D09*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	T ... n
0840	8.4	35	47	40	89	10	●
0850	8.5	35	47	40	89	10	●
0860	8.6	35	47	40	89	10	●
0870	8.7	35	47	40	89	10	●
0880	8.8	35	47	40	89	10	●
0890	8.9	35	47	40	89	10	●
0900	9	35	47	40	89	10	●
0910	9.1	35	47	40	89	10	●
0920	9.2	35	47	40	89	10	●
0930	9.3	35	47	40	89	10	●
0940	9.4	35	47	40	89	10	●
0950	9.5	35	47	40	89	10	●
0960	9.6	35	47	40	89	10	●
0970	9.7	35	47	40	89	10	●
0980	9.8	35	47	40	89	10	●
0990	9.9	35	47	40	89	10	●
1000	10	35	47	40	89	10	●
1020	10.2	40	55	45	102	12	●
1050	10.5	40	55	45	102	12	●
1080	10.8	40	55	45	102	12	●
1100	11	40	55	45	102	12	●
1120	11.2	40	55	45	102	12	●
1130	11.3	40	55	45	102	12	●
1150	11.5	40	55	45	102	12	●
1180	11.8	40	55	45	102	12	●
1200	12	40	55	45	102	12	●
1220	12.2	43	60	45	107	14	●
1250	12.5	43	60	45	107	14	●
1270	12.7	43	60	45	107	14	●
1280	12.8	43	60	45	107	14	●
1300	13	43	60	45	107	14	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR ALU OIL FEED TWIST DRILLS - DIN 6537K - 130° Point Angle - 3 x Ø

≤ 700 N/mm²

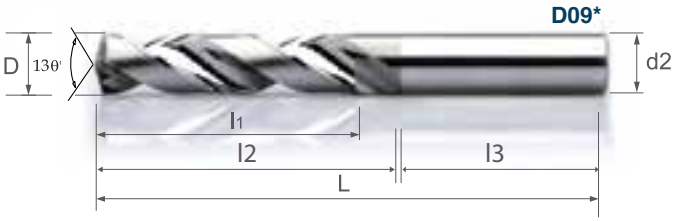
Solid Carbide DR ALU Oil Feed Twist Drills acc. to DIN 6537K, point angle 130°, shank acc. to DIN 6535H

Forets hélicoïdaux DR ALU à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR ALU 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR ALU Kühlkanalbohrer nach DIN 6537K, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR ALU in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						D09*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	T ... n
1330	13.3	43	60	45	107	14	●
1350	13.5	43	60	45	107	14	●
1370	13.7	43	60	45	107	14	●
1380	13.8	43	60	45	107	14	●
1400	14	43	60	45	107	14	●
1450	14.5	45	65	48	115	16	●
1500	15	65	65	48	115	16	●
1530	15.3	65	65	48	115	16	●
1550	15.5	65	65	48	115	16	●
1580	15.8	65	65	48	115	16	●
1600	16	65	65	48	115	16	●
1650	16.5	73	73	48	123	18	●
1700	17	73	73	48	123	18	●
1750	17.5	73	73	48	123	18	●
1800	18	73	73	48	123	18	●
1850	18.5	79	79	50	131	20	●
1900	19	79	79	50	131	20	●
1950	19.5	79	79	50	131	20	●
2000	20	79	79	50	131	20	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR ALU OIL FEED TWIST DRILLS - DIN 6537L - 130° Point Angle - 5 x Ø

≤ 700 N/mm²

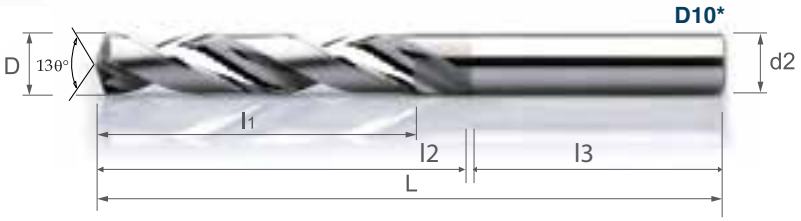
Solid Carbide DR ALU Oil Feed Twist Drills acc. to DIN 6537L, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR ALU à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR ALU 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR ALU Kühlkanalbohrer nach DIN 6537L, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR ALU in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 130°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	D10* T ... n
*	0300 066 03	3	23	28	36	66	3	○
	0300	3	23	28	36	66	6	●
*	0310 066 03	3.1	23	28	36	66	3	○
	0310	3.1	23	28	36	66	6	●
*	0320 066 03	3.2	23	28	36	66	3	○
	0320	3.2	23	28	36	66	6	●
	0330	3.3	23	28	36	66	6	●
	0340	3.4	23	28	36	66	6	●
	0350	3.5	23	28	36	66	6	●
	0360	3.6	23	28	36	66	6	●
	0370	3.7	23	28	36	66	6	●
	0380	3.8	29	36	36	74	6	●
	0390	3.9	29	36	36	74	6	●
*	0400 074 04	4	29	36	36	74	4	○
	0400	4	29	36	36	74	6	●
*	0410 074 04	4.1	29	36	36	74	4	○
	0410	4.1	29	36	36	74	6	●
*	0420 074 04	4.2	29	36	36	74	4	○
	0420	4.2	29	36	36	74	6	●
	0430	4.3	29	36	36	74	6	●
	0440	4.4	29	36	36	74	6	●
	0450	4.5	29	36	36	74	6	●
	0460	4.6	29	36	36	74	6	●
	0470	4.7	29	36	36	74	6	●
	0480	4.8	35	44	36	82	6	●
	0490	4.9	35	44	36	82	6	●
	0500	5	35	44	36	82	6	●
	0510	5.1	35	44	36	82	6	●
	0520	5.2	35	44	36	82	6	●
	0530	5.3	35	44	36	82	6	●
	0540	5.4	35	44	36	82	6	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●	●	●	●

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR ALU OIL FEED TWIST DRILLS - DIN 6537L - 130° Point Angle - 5 x Ø

≤ 700 N/mm²

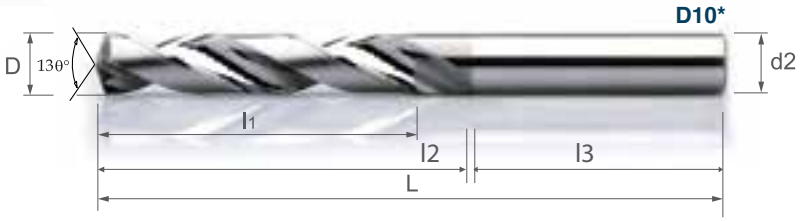
Solid Carbide DR ALU Oil Feed Twist Drills acc. to DIN 6537L, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR ALU à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR ALU 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR ALU Kühlkanalbohrer nach DIN 6537L, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR ALU in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 130°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	D10* T ... n
0550	5.5	35	44	36	82	6	●
0560	5.6	35	44	36	82	6	●
0570	5.7	35	44	36	82	6	●
0580	5.8	35	44	36	82	6	●
0590	5.9	35	44	36	82	6	●
0600	6	35	44	36	82	6	●
* 0610 082 06	6.1	35	44	36	82	6	○
0610	6.1	43	53	36	91	8	●
0620	6.2	43	53	36	91	8	●
0630	6.3	43	53	36	91	8	●
0640	6.4	43	53	36	91	8	●
0650	6.5	43	53	36	91	8	●
0660	6.6	43	53	36	91	8	●
0670	6.7	43	53	36	91	8	●
0680	6.8	43	53	36	91	8	●
0690	6.9	43	53	36	91	8	●
0700	7	43	53	36	91	8	●
0710	7.1	43	53	36	91	8	●
0720	7.2	43	53	36	91	8	●
0730	7.3	43	53	36	91	8	●
0740	7.4	43	53	36	91	8	●
0750	7.5	43	53	36	91	8	●
0760	7.6	43	53	36	91	8	●
0770	7.7	43	53	36	91	8	●
0780	7.8	43	53	36	91	8	●
0790	7.9	43	53	36	91	8	●
0800	8	43	53	36	91	8	●
* 0810 091 08	8.1	43	53	36	91	8	○
0810	8.1	49	61	40	103	10	●
0820	8.2	49	61	40	103	10	●
0830	8.3	49	61	40	103	10	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR ALU OIL FEED TWIST DRILLS - DIN 6537L - 130° Point Angle - 5 x Ø

≤ 700 N/mm²

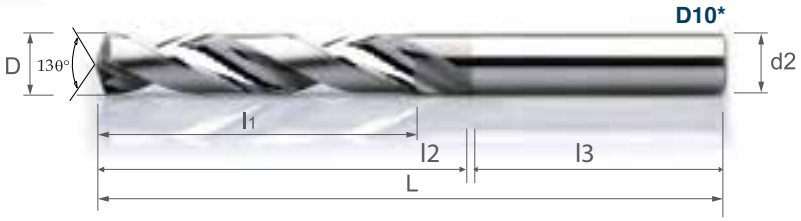
Solid Carbide DR ALU Oil Feed Twist Drills acc. to DIN 6537L, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR ALU à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR ALU 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR ALU Kühlkanalbohrer nach DIN 6537L, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR ALU in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 130°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						D10*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	T ... n
0840	8.4	49	61	40	103	10	●
0850	8.5	49	61	40	103	10	●
0860	8.6	49	61	40	103	10	●
0870	8.7	49	61	40	103	10	●
0880	8.8	49	61	40	103	10	●
0890	8.9	49	61	40	103	10	●
0900	9	49	61	40	103	10	●
0910	9.1	49	61	40	103	10	●
0920	9.2	49	61	40	103	10	●
0930	9.3	49	61	40	103	10	●
0940	9.4	49	61	40	103	10	●
0950	9.5	61	61	40	103	10	●
0960	9.6	61	61	40	103	10	●
0970	9.7	61	61	40	103	10	●
0980	9.8	61	61	40	103	10	●
0990	9.9	61	61	40	103	10	●
1000	10	61	61	40	103	10	●
1020	10.2	71	71	45	118	12	●
1050	10.5	71	71	45	118	12	●
1080	10.8	71	71	45	118	12	●
1100	11	71	71	45	118	12	●
1120	11.2	71	71	45	118	12	●
1130	11.3	71	71	45	118	12	●
1150	11.5	71	71	45	118	12	●
1180	11.8	71	71	45	118	12	●
1200	12	71	71	45	118	12	●
1220	12.2	77	77	45	124	14	●
1250	12.5	77	77	45	124	14	●
1270	12.7	77	77	45	124	14	●
1280	12.8	77	77	45	124	14	●
1300	13	77	77	45	124	14	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR ALU OIL FEED TWIST DRILLS - DIN 6537L - 130° Point Angle - 5 x Ø

≤ 700 N/mm²

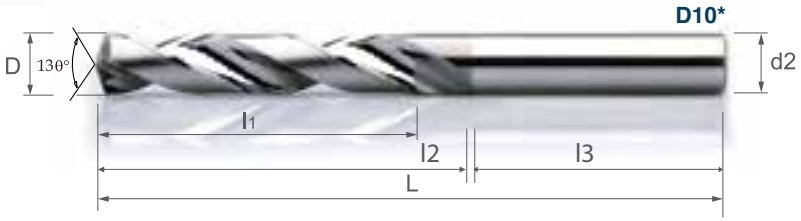
Solid Carbide DR ALU Oil Feed Twist Drills acc. to DIN 6537L, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR ALU à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR ALU 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR ALU Kühlkanalbohrer nach DIN 6537L, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR ALU in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 130°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						D10*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	T ... n
1330	13.3	77	77	45	124	14	●
1350	13.5	77	77	45	124	14	●
1370	13.7	77	77	45	124	14	●
1380	13.8	77	77	45	124	14	●
1400	14	77	77	45	124	14	●
1450	14.5	83	83	48	133	16	●
1500	15	83	83	48	133	16	●
1530	15.3	83	83	48	133	16	●
1550	15.5	83	83	48	133	16	●
1580	15.8	83	83	48	133	16	●
1600	16	83	83	48	133	16	●
1650	16.5	93	93	48	143	18	●
1700	17	93	93	48	143	18	●
1750	17.5	93	93	48	143	18	●
1800	18	93	93	48	143	18	●
1850	18.5	101	101	50	153	20	●
1900	19	101	101	50	153	20	●
1950	19.5	101	101	50	153	20	●
2000	20	101	101	50	153	20	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●																		

M26	M27	M28	M33	M01	M29	M30
				●	●	

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR NiTiCo OIL FEED TWIST DRILLS - DIN 6537K - 130° Point Angle - 3 x Ø

≥ 700 N/mm² ~ 35 HRC

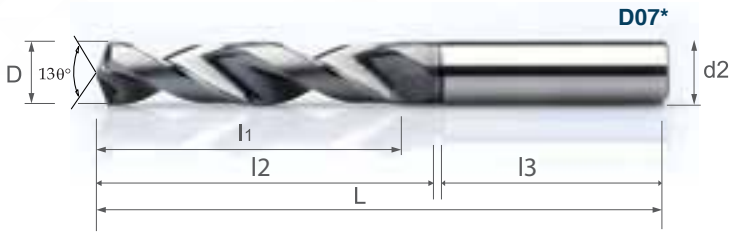
Solid Carbide DR NiTiCo Oil Feed Twist Drills acc. to DIN 6537K, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR NiTiCo à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR NiTiCo 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR NiTiCo Kühlkanalbohrer nach DIN 6537K, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR NiTiCo in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	D07* G6110
*	0300 062 03	3	14	20	36	62	3	○
	0300	3	14	20	36	62	6	●
*	0310 062 03	3.1	14	20	36	62	3	○
	0310	3.1	14	20	36	62	6	●
*	0320 062 03	3.2	14	20	36	62	3	○
	0320	3.2	14	20	36	62	6	●
	0330	3.3	14	20	36	62	6	●
	0340	3.4	14	20	36	62	6	●
	0350	3.5	14	20	36	62	6	●
	0360	3.6	14	20	36	62	6	●
	0370	3.7	14	20	36	62	6	●
	0380	3.8	17	24	36	66	6	●
	0390	3.9	17	24	36	66	6	●
*	0400 066 04	4	17	24	36	66	4	○
	0400	4	17	24	36	66	6	●
*	0410 066 04	4.1	17	24	36	66	4	○
	0410	4.1	17	24	36	66	6	●
*	0420 066 04	4.2	17	24	36	66	4	○
	0420	4.2	17	24	36	66	6	●
	0430	4.3	17	24	36	66	6	●
	0440	4.4	17	24	36	66	6	●
	0450	4.5	17	24	36	66	6	●
	0460	4.6	17	24	36	66	6	●
	0470	4.7	17	24	36	66	6	●
	0480	4.8	20	28	36	66	6	●
	0490	4.9	20	28	36	66	6	●
	0500	5	20	28	36	66	6	●
	0510	5.1	20	28	36	66	6	●
	0520	5.2	20	28	36	66	6	●
	0530	5.3	20	28	36	66	6	●
	0540	5.4	20	28	36	66	6	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
																				●	●	●	●	●	

M26	M27	M28	M33	M01	M29	M30
						●

Working Material	Cutting Parameter
107	61

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR NiTiCo OIL FEED TWIST DRILLS - DIN 6537K - 130° Point Angle - 3 x Ø

≥ 700 N/mm² ~ 35 HRC

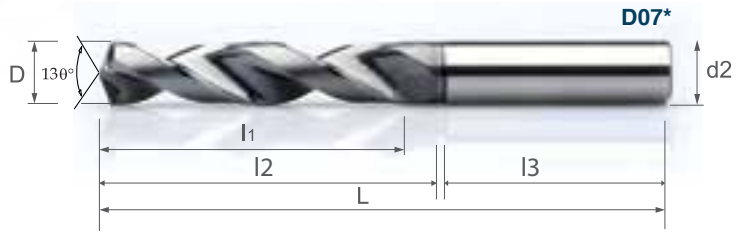
Solid Carbide DR NiTiCo Oil Feed Twist Drills acc. to DIN 6537K, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR NiTiCo à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR NiTiCo 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR NiTiCo Kühlkanalbohrer nach DIN 6537K, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR NiTiCo in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	D07* G6110
	0550	5.5	20	28	36	66	6	●
	0560	5.6	20	28	36	66	6	●
	0570	5.7	20	28	36	66	6	●
	0580	5.8	20	28	36	66	6	●
	0590	5.9	20	28	36	66	6	●
	0600	6	20	28	36	66	6	●
*	0610 066 06	6.1	20	28	36	66	6	○
	0610	6.1	24	34	36	79	8	●
	0620	6.2	24	34	36	79	8	●
	0630	6.3	24	34	36	79	8	●
	0640	6.4	24	34	36	79	8	●
	0650	6.5	24	34	36	79	8	●
	0660	6.6	24	34	36	79	8	●
	0670	6.7	24	34	36	79	8	●
	0680	6.8	24	34	36	79	8	●
	0690	6.9	24	34	36	79	8	●
	0700	7	24	34	36	79	8	●
	0710	7.1	29	41	36	79	8	●
	0720	7.2	29	41	36	79	8	●
	0730	7.3	29	41	36	79	8	●
	0740	7.4	29	41	36	79	8	●
	0750	7.5	29	41	36	79	8	●
	0760	7.6	29	41	36	79	8	●
	0770	7.7	29	41	36	79	8	●
	0780	7.8	29	41	36	79	8	●
	0790	7.9	29	41	36	79	8	●
	0800	8	29	41	36	79	8	●
*	0810 079 08	8.1	29	41	36	79	8	○
	0810	8.1	35	47	40	89	10	●
	0820	8.2	35	47	40	89	10	●
	0830	8.3	35	47	40	89	10	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
																				●	●	●	●	●	

M26	M27	M28	M33	M01	M29	M30
						●

Working Material	Cutting Parameter
107	61

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR NiTiCo OIL FEED TWIST DRILLS - DIN 6537K - 130° Point Angle - 3 x Ø

≥ 700 N/mm² ~ 35 HRC

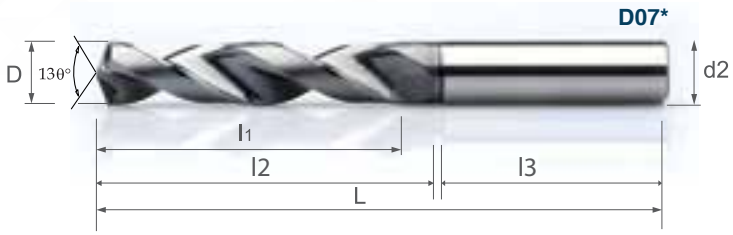
Solid Carbide DR NiTiCo Oil Feed Twist Drills acc. to DIN 6537K, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR NiTiCo à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR NiTiCo 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR NiTiCo Kühlkanalbohrer nach DIN 6537K, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR NiTiCo in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						D07*
	D (m7)	l1	l2	l3	L	d2 (h6)	G6110
0840	8.4	35	47	40	89	10	●
0850	8.5	35	47	40	89	10	●
0860	8.6	35	47	40	89	10	●
0870	8.7	35	47	40	89	10	●
0880	8.8	35	47	40	89	10	●
0890	8.9	35	47	40	89	10	●
0900	9	35	47	40	89	10	●
0910	9.1	35	47	40	89	10	●
0920	9.2	35	47	40	89	10	●
0930	9.3	35	47	40	89	10	●
0940	9.4	35	47	40	89	10	●
0950	9.5	35	47	40	89	10	●
0960	9.6	35	47	40	89	10	●
0970	9.7	35	47	40	89	10	●
0980	9.8	35	47	40	89	10	●
0990	9.9	35	47	40	89	10	●
1000	10	35	47	40	89	10	●
1020	10.2	40	55	45	102	12	●
1050	10.5	40	55	45	102	12	●
1080	10.8	40	55	45	102	12	●
1100	11	40	55	45	102	12	●
1120	11.2	40	55	45	102	12	●
1130	11.3	40	55	45	102	12	●
1150	11.5	40	55	45	102	12	●
1180	11.8	40	55	45	102	12	●
1200	12	40	55	45	102	12	●
1220	12.2	43	60	45	107	14	●
1250	12.5	43	60	45	107	14	●
1280	12.8	43	60	45	107	14	●
1300	13	43	60	45	107	14	●
1330	13.3	43	60	45	107	14	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
																				●	●	●	●	●	

M26	M27	M28	M33	M01	M29	M30
						●

Working Material	Cutting Parameter
107	61

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR NiTiCo OIL FEED TWIST DRILLS - DIN 6537K - 130° Point Angle - 3 x Ø

≥ 700 N/mm² ~ 35 HRC

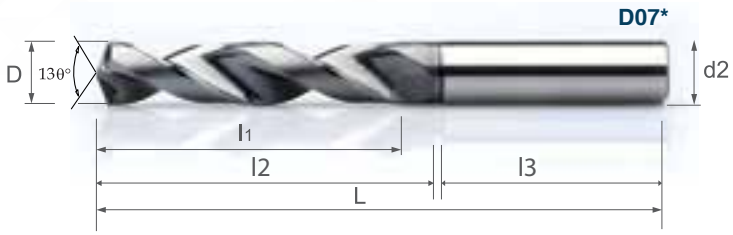
Solid Carbide DR NiTiCo Oil Feed Twist Drills acc. to DIN 6537K, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR NiTiCo à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR NiTiCo 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR NiTiCo Kühlkanalbohrer nach DIN 6537K, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR NiTiCo in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						D07*
	D (m7)	l1	l2	l3	L	d2 (h6)	G6110
1350	13.5	43	60	45	107	14	●
1380	13.8	43	60	45	107	14	●
1400	14	43	60	45	107	14	●
1450	14.5	45	65	48	115	16	●
1500	15	65	65	48	115	16	●
1530	15.3	65	65	48	115	16	●
1550	15.5	65	65	48	115	16	●
1580	15.8	65	65	48	115	16	●
1600	16	65	65	48	115	16	●
1650	16.5	73	73	48	123	18	●
1700	17	73	73	48	123	18	●
1750	17.5	73	73	48	123	18	●
1800	18	73	73	48	123	18	●
1850	18.5	79	79	50	131	20	●
1900	19	79	79	50	131	20	●
1950	19.5	79	79	50	131	20	●
2000	20	79	79	50	131	20	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
																				●	●	●	●	●	

M26	M27	M28	M33	M01	M29	M30
						●

Working Material	Cutting Parameter
107	61

若有技术规格变更，恕不事先通知

DR NiTiCo OIL FEED TWIST DRILLS - DIN 6537L - 130° Point Angle - 5 x Ø

≥ 700 N/mm² ~ 35 HRC

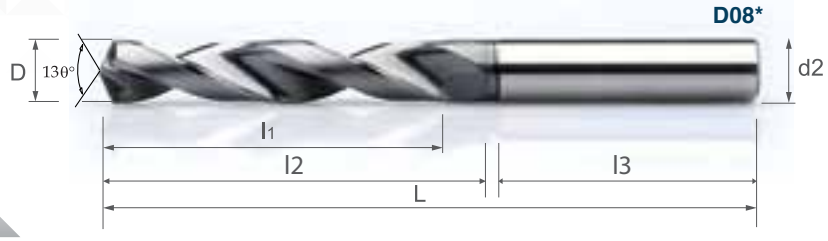
Solid Carbide DR NiTiCo Oil Feed Twist Drills acc. to DIN 6537L, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR NiTiCo à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR NiTiCo 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR NiTiCo Kühlkanalbohrer nach DIN 6537L, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR NiTiCo in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 130°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	D08* G6110
*	0300 066 03	3	23	28	36	66	3	○
	0300	3	23	28	36	66	6	●
*	0310 066 03	3.1	23	28	36	66	3	○
	0310	3.1	23	28	36	66	6	●
*	0320 066 03	3.2	23	28	36	66	3	○
	0320	3.2	23	28	36	66	6	●
	0330	3.3	23	28	36	66	6	●
	0340	3.4	23	28	36	66	6	●
	0350	3.5	23	28	36	66	6	●
	0360	3.6	23	28	36	66	6	●
	0370	3.7	23	28	36	66	6	●
	0380	3.8	29	36	36	74	6	●
	0390	3.9	29	36	36	74	6	●
*	0400 074 04	4	29	36	36	74	4	○
	0400	4	29	36	36	74	6	●
*	0410 074 04	4.1	29	36	36	74	4	○
	0410	4.1	29	36	36	74	6	●
*	0420 074 04	4.2	29	36	36	74	4	○
	0420	4.2	29	36	36	74	6	●
	0430	4.3	29	36	36	74	6	●
	0440	4.4	29	36	36	74	6	●
	0450	4.5	29	36	36	74	6	●
	0460	4.6	29	36	36	74	6	●
	0470	4.7	29	36	36	74	6	●
	0480	4.8	35	44	36	82	6	●
	0490	4.9	35	44	36	82	6	●
	0500	5	35	44	36	82	6	●
	0510	5.1	35	44	36	82	6	●
	0520	5.2	35	44	36	82	6	●
	0530	5.3	35	44	36	82	6	●
	0540	5.4	35	44	36	82	6	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
																				●	●	●	●	●	

M26	M27	M28	M33	M01	M29	M30
						●

Working Material	Cutting Parameter
107	61

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR NiTiCo OIL FEED TWIST DRILLS - DIN 6537L - 130° Point Angle - 5 x Ø

≥ 700 N/mm² ~ 35 HRC

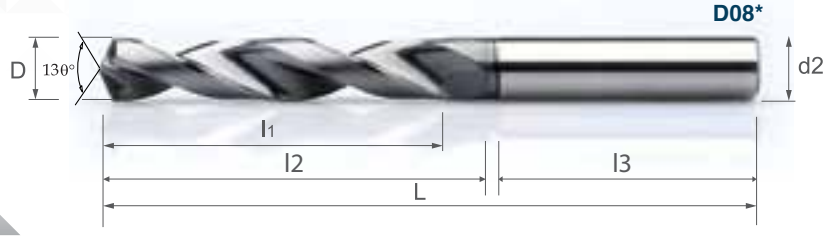
Solid Carbide DR NiTiCo Oil Feed Twist Drills acc. to DIN 6537L, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR NiTiCo à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR NiTiCo 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR NiTiCo Kühlkanalbohrer nach DIN 6537L, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR NiTiCo in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 130°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	D08* G6110
	0550	5.5	35	44	36	82	6	●
	0560	5.6	35	44	36	82	6	●
	0570	5.7	35	44	36	82	6	●
	0580	5.8	35	44	36	82	6	●
	0590	5.9	35	44	36	82	6	●
	0600	6	35	44	36	82	6	●
*	0610 082 06	6.1	35	44	36	82	6	○
	0610	6.1	43	53	36	91	8	●
	0620	6.2	43	53	36	91	8	●
	0630	6.3	43	53	36	91	8	●
	0640	6.4	43	53	36	91	8	●
	0650	6.5	43	53	36	91	8	●
	0660	6.6	43	53	36	91	8	●
	0670	6.7	43	53	36	91	8	●
	0680	6.8	43	53	36	91	8	●
	0690	6.9	43	53	36	91	8	●
	0700	7	43	53	36	91	8	●
	0710	7.1	43	53	36	91	8	●
	0720	7.2	43	53	36	91	8	●
	0730	7.3	43	53	36	91	8	●
	0740	7.4	43	53	36	91	8	●
	0750	7.5	43	53	36	91	8	●
	0760	7.6	43	53	36	91	8	●
	0770	7.7	43	53	36	91	8	●
	0780	7.8	43	53	36	91	8	●
	0790	7.9	43	53	36	91	8	●
	0800	8	43	53	36	91	8	●
*	0810 091 08	8.1	43	53	36	91	8	○
	0810	8.1	49	61	40	103	10	●
	0820	8.2	49	61	40	103	10	●
	0830	8.3	49	61	40	103	10	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
																				●	●	●	●	●	

M26	M27	M28	M33	M01	M29	M30
						●

Working Material	Cutting Parameter
107	61

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR NiTiCo OIL FEED TWIST DRILLS - DIN 6537L - 130° Point Angle - 5 x Ø

≥ 700 N/mm² ~ 35 HRC

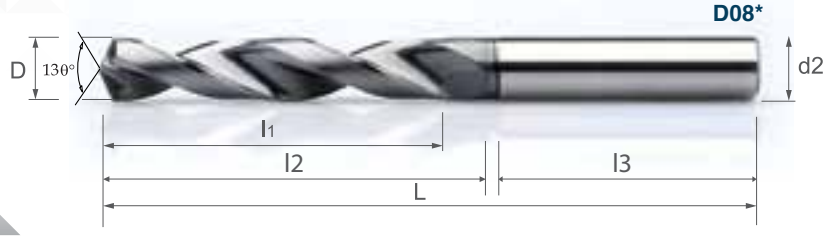
Solid Carbide DR NiTiCo Oil Feed Twist Drills acc. to DIN 6537L, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR NiTiCo à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR NiTiCo 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR NiTiCo Kühlkanalbohrer nach DIN 6537L, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR NiTiCo in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 130°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						D10*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	T ... n
0840	8.4	49	61	40	103	10	●
0850	8.5	49	61	40	103	10	●
0860	8.6	49	61	40	103	10	●
0870	8.7	49	61	40	103	10	●
0880	8.8	49	61	40	103	10	●
0890	8.9	49	61	40	103	10	●
0900	9	49	61	40	103	10	●
0910	9.1	49	61	40	103	10	●
0920	9.2	49	61	40	103	10	●
0930	9.3	49	61	40	103	10	●
0940	9.4	49	61	40	103	10	●
0950	9.5	61	61	40	103	10	●
0960	9.6	61	61	40	103	10	●
0970	9.7	61	61	40	103	10	●
0980	9.8	61	61	40	103	10	●
0990	9.9	61	61	40	103	10	●
1000	10	61	61	40	103	10	●
1020	10.2	71	71	45	118	12	●
1050	10.5	71	71	45	118	12	●
1080	10.8	71	71	45	118	12	●
1100	11	71	71	45	118	12	●
1120	11.2	71	71	45	118	12	●
1130	11.3	71	71	45	118	12	●
1150	11.5	71	71	45	118	12	●
1180	11.8	71	71	45	118	12	●
1200	12	71	71	45	118	12	●
1220	12.2	77	77	45	124	14	●
1250	12.5	77	77	45	124	14	●
1280	12.8	77	77	45	124	14	●
1300	13	77	77	45	124	14	●
1330	13.3	77	77	45	124	14	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
																				●	●	●	●	●	

M26	M27	M28	M33	M01	M29	M30
						●

Working Material	Cutting Parameter
107	61

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR NiTiCo OIL FEED TWIST DRILLS - DIN 6537L - 130° Point Angle - 5 x Ø

≥ 700 N/mm² ~ 35 HRC

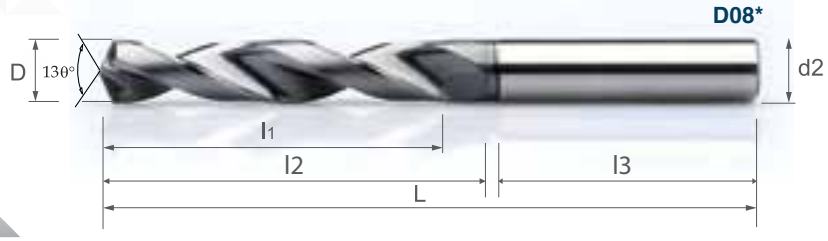
Solid Carbide DR NiTiCo Oil Feed Twist Drills acc. to DIN 6537L, point angle 130°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR NiTiCo à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 130°, queue selon DIN 6535HA

整体硬质合金 DR NiTiCo 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR NiTiCo Kühlkanalbohrer nach DIN 6537L, 130° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR NiTiCo in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 130°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						D08*
	D (m7)	l1	l2	l3	L	d2 (h6)	G6110
1350	13.5	77	77	45	124	14	●
1380	13.8	77	77	45	124	14	●
1400	14	77	77	45	124	14	●
1450	14.5	83	83	48	133	16	●
1500	15	83	83	48	133	16	●
1530	15.3	83	83	48	133	16	●
1550	15.5	83	83	48	133	16	●
1580	15.8	83	83	48	133	16	●
1600	16	83	83	48	133	16	●
1650	16.5	93	93	48	143	18	●
1700	17	93	93	48	143	18	●
1750	17.5	93	93	48	143	18	●
1800	18	93	93	48	143	18	●
1850	18.5	101	101	50	153	20	●
1900	19	101	101	50	153	20	●
1950	19.5	101	101	50	153	20	●
2000	20	101	101	50	153	20	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
																				●	●	●	●	●	

M26	M27	M28	M33	M01	M29	M30
						●

Working Material	Cutting Parameter
107	61

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR VA OIL FEED TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≥ 1.300 N/mm²

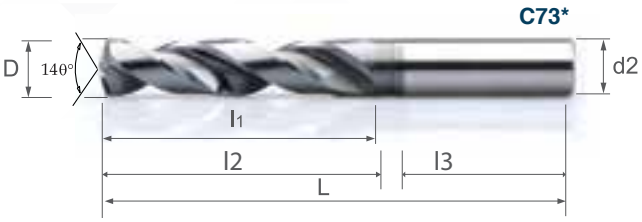
Solid Carbide DR VA Oil Feed Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR VA à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR VA 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR VA Kühlkanalbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	C73* G6110
*	0300 062 03	3	14	20	36	62	3	○
	0300	3	14	20	36	62	6	●
*	0310 062 03	3.1	14	20	36	62	3	○
	0310	3.1	14	20	36	62	6	●
*	0320 062 03	3.2	14	20	36	62	3	○
	0320	3.2	14	20	36	62	6	●
	0330	3.3	14	20	36	62	6	●
	0340	3.4	14	20	36	62	6	●
	0350	3.5	14	20	36	62	6	●
	0360	3.6	14	20	36	62	6	●
	0370	3.7	14	20	36	62	6	●
	0380	3.8	17	24	36	66	6	●
	0390	3.9	17	24	36	66	6	●
*	0400 066 04	4	17	24	36	66	4	○
	0400	4	17	24	36	66	6	●
*	0410 066 04	4.1	17	24	36	66	4	○
	0410	4.1	17	24	36	66	6	●
*	0420 066 04	4.2	17	24	36	66	4	○
	0420	4.2	17	24	36	66	6	●
	0430	4.3	17	24	36	66	6	●
	0440	4.4	17	24	36	66	6	●
	0450	4.5	17	24	36	66	6	●
	0460	4.6	17	24	36	66	6	●
	0470	4.7	17	24	36	66	6	●
	0480	4.8	20	28	36	66	6	●
	0490	4.9	20	28	36	66	6	●
	0500	5	20	28	36	66	6	●
	0510	5.1	20	28	36	66	6	●
	0520	5.2	20	28	36	66	6	●
	0530	5.3	20	28	36	66	6	●
	0540	5.4	20	28	36	66	6	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR VA OIL FEED TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≥ 1.300 N/mm²

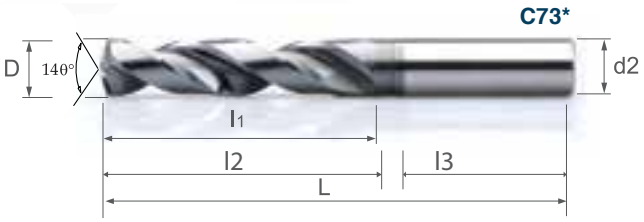
Solid Carbide DR VA Oil Feed Twist Drills
acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR VA à trous d'huile en carbure monobloc
selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR VA 内冷却 钻头 – 相等于
DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR VA Kühlkanalbohrer nach DIN 6537K,
140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR VA in metallo duro integrale norma DIN 6537K
con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	C73* G6110
	0550	5.5	20	28	36	66	6	●
	0560	5.6	20	28	36	66	6	●
	0570	5.7	20	28	36	66	6	●
	0580	5.8	20	28	36	66	6	●
	0590	5.9	20	28	36	66	6	●
	0600	6	20	28	36	66	6	●
*	0610 066 06	6.1	20	28	36	66	6	○
	0610	6.1	24	34	36	79	8	●
	0620	6.2	24	34	36	79	8	●
	0630	6.3	24	34	36	79	8	●
	0640	6.4	24	34	36	79	8	●
	0650	6.5	24	34	36	79	8	●
	0660	6.6	24	34	36	79	8	●
	0670	6.7	24	34	36	79	8	●
	0680	6.8	24	34	36	79	8	●
	0690	6.9	24	34	36	79	8	●
	0700	7	24	34	36	79	8	●
	0710	7.1	29	41	36	79	8	●
	0720	7.2	29	41	36	79	8	●
	0730	7.3	29	41	36	79	8	●
	0740	7.4	29	41	36	79	8	●
	0750	7.5	29	41	36	79	8	●
	0760	7.6	29	41	36	79	8	●
	0770	7.7	29	41	36	79	8	●
	0780	7.8	29	41	36	79	8	●
	0790	7.9	29	41	36	79	8	●
	0800	8	29	41	36	79	8	●
*	0810 079 08	8.1	29	41	36	79	8	○
	0810	8.1	35	47	40	89	10	●
	0820	8.2	35	47	40	89	10	●
	0830	8.3	35	47	40	89	10	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR VA OIL FEED TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≥ 1.300 N/mm²

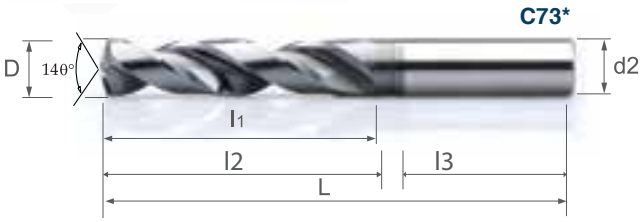
Solid Carbide DR VA Oil Feed Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR VA à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR VA 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR VA Kühlkanalbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						C73*
	D (m7)	l1	l2	l3	L	d2 (h6)	G6110
0840	8.4	35	47	40	89	10	●
0850	8.5	35	47	40	89	10	●
0860	8.6	35	47	40	89	10	●
0870	8.7	35	47	40	89	10	●
0880	8.8	35	47	40	89	10	●
0890	8.9	35	47	40	89	10	●
0900	9	35	47	40	89	10	●
0910	9.1	35	47	40	89	10	●
0920	9.2	35	47	40	89	10	●
0930	9.3	35	47	40	89	10	●
0940	9.4	35	47	40	89	10	●
0950	9.5	35	47	40	89	10	●
0960	9.6	35	47	40	89	10	●
0970	9.7	35	47	40	89	10	●
0980	9.8	35	47	40	89	10	●
0990	9.9	35	47	40	89	10	●
1000	10	35	47	40	89	10	●
1020	10.2	40	55	45	102	12	●
1050	10.5	40	55	45	102	12	●
1080	10.8	40	55	45	102	12	●
1100	11	40	55	45	102	12	●
1120	11.2	40	55	45	102	12	●
1130	11.3	40	55	45	102	12	●
1150	11.5	40	55	45	102	12	●
1180	11.8	40	55	45	102	12	●
1200	12	40	55	45	102	12	●
1220	12.2	43	60	45	107	14	●
1250	12.5	43	60	45	107	14	●
1270	12.7	43	60	45	107	14	●
1280	12.8	43	60	45	107	14	●
1300	13	43	60	45	107	14	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR VA OIL FEED TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≥ 1.300 N/mm²

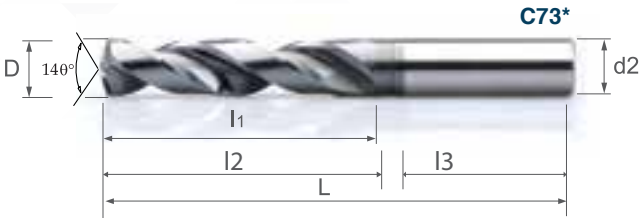
Solid Carbide DR VA Oil Feed Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR VA à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR VA 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR VA Kühlkanalbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						C73*
	D (m7)	l1	l2	l3	L	d2 (h6)	G6110
1330	13.3	43	60	45	107	14	●
1350	13.5	43	60	45	107	14	●
1370	13.7	43	60	45	107	14	●
1380	13.8	43	60	45	107	14	●
1400	14	43	60	45	107	14	●
1450	14.5	45	65	48	115	16	●
1500	15	65	65	48	115	16	●
1530	15.3	65	65	48	115	16	●
1550	15.5	65	65	48	115	16	●
1580	15.8	65	65	48	115	16	●
1600	16	65	65	48	115	16	●
1650	16.5	73	73	48	123	18	●
1700	17	73	73	48	123	18	●
1750	17.5	73	73	48	123	18	●
1800	18	73	73	48	123	18	●
1850	18.5	79	79	50	131	20	●
1900	19	79	79	50	131	20	●
1950	19.5	79	79	50	131	20	●
2000	20	79	79	50	131	20	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR VA OIL FEED TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≥ 1.300 N/mm²

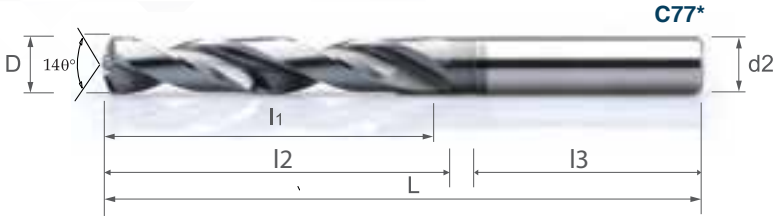
Solid Carbide DR VA Oil Feed Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR VA à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR VA 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR VA Kühlkanalbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR VA in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	C77* G6110
*	0300 066 03	3	23	28	36	66	3	○
	0300	3	23	28	36	66	6	●
*	0310 066 03	3.1	23	28	36	66	3	○
	0310	3.1	23	28	36	66	6	●
*	0320 066 03	3.2	23	28	36	66	3	○
	0320	3.2	23	28	36	66	6	●
	0330	3.3	23	28	36	66	6	●
	0340	3.4	23	28	36	66	6	●
	0350	3.5	23	28	36	66	6	●
	0360	3.6	23	28	36	66	6	●
	0370	3.7	23	28	36	66	6	●
	0380	3.8	29	36	36	74	6	●
	0390	3.9	29	36	36	74	6	●
*	0400 074 04	4	29	36	36	74	4	○
	0400	4	29	36	36	74	6	●
*	0410 074 04	4.1	29	36	36	74	4	○
	0410	4.1	29	36	36	74	6	●
*	0420 074 04	4.2	29	36	36	74	4	○
	0420	4.2	29	36	36	74	6	●
	0430	4.3	29	36	36	74	6	●
	0440	4.4	29	36	36	74	6	●
	0450	4.5	29	36	36	74	6	●
	0460	4.6	29	36	36	74	6	●
	0470	4.7	29	36	36	74	6	●
	0480	4.8	35	44	36	82	6	●
	0490	4.9	35	44	36	82	6	●
	0500	5	35	44	36	82	6	●
	0510	5.1	35	44	36	82	6	●
	0520	5.2	35	44	36	82	6	●
	0530	5.3	35	44	36	82	6	●
	0540	5.4	35	44	36	82	6	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR VA OIL FEED TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≥ 1.300 N/mm²

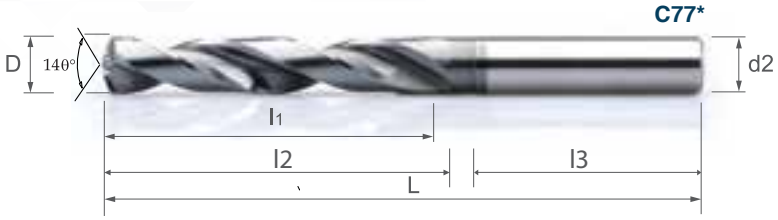
Solid Carbide DR VA Oil Feed Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR VA à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR VA 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR VA Kühlkanalbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR VA in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	D08* G6110
	0550	5.5	35	44	36	82	6	●
	0560	5.6	35	44	36	82	6	●
	0570	5.7	35	44	36	82	6	●
	0580	5.8	35	44	36	82	6	●
	0590	5.9	35	44	36	82	6	●
	0600	6	35	44	36	82	6	●
*	0610 082 06	6.1	35	44	36	82	6	○
	0610	6.1	43	53	36	91	8	●
	0620	6.2	43	53	36	91	8	●
	0630	6.3	43	53	36	91	8	●
	0640	6.4	43	53	36	91	8	●
	0650	6.5	43	53	36	91	8	●
	0660	6.6	43	53	36	91	8	●
	0670	6.7	43	53	36	91	8	●
	0680	6.8	43	53	36	91	8	●
	0690	6.9	43	53	36	91	8	●
	0700	7	43	53	36	91	8	●
	0710	7.1	43	53	36	91	8	●
	0720	7.2	43	53	36	91	8	●
	0730	7.3	43	53	36	91	8	●
	0740	7.4	43	53	36	91	8	●
	0750	7.5	43	53	36	91	8	●
	0760	7.6	43	53	36	91	8	●
	0770	7.7	43	53	36	91	8	●
	0780	7.8	43	53	36	91	8	●
	0790	7.9	43	53	36	91	8	●
	0800	8	43	53	36	91	8	●
*	0810 091 08	8.1	43	53	36	91	8	○
	0810	8.1	49	61	40	103	10	●
	0820	8.2	49	61	40	103	10	●
	0830	8.3	49	61	40	103	10	●

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR VA OIL FEED TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≥ 1.300 N/mm²

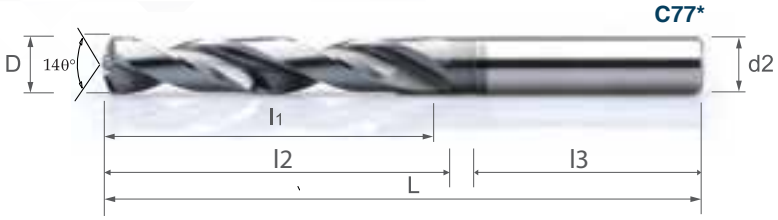
Solid Carbide DR VA Oil Feed Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR VA à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR VA 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR VA Kühlkanalbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR VA in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	D10* T ... n
0840	8.4	49	61	40	103	10	●
0850	8.5	49	61	40	103	10	●
0860	8.6	49	61	40	103	10	●
0870	8.7	49	61	40	103	10	●
0880	8.8	49	61	40	103	10	●
0890	8.9	49	61	40	103	10	●
0900	9	49	61	40	103	10	●
0910	9.1	49	61	40	103	10	●
0920	9.2	49	61	40	103	10	●
0930	9.3	49	61	40	103	10	●
0940	9.4	49	61	40	103	10	●
0950	9.5	61	61	40	103	10	●
0960	9.6	61	61	40	103	10	●
0970	9.7	61	61	40	103	10	●
0980	9.8	61	61	40	103	10	●
0990	9.9	61	61	40	103	10	●
1000	10	61	61	40	103	10	●
1020	10.2	71	71	45	118	12	●
1050	10.5	71	71	45	118	12	●
1080	10.8	71	71	45	118	12	●
1100	11	71	71	45	118	12	●
1120	11.2	71	71	45	118	12	●
1130	11.3	71	71	45	118	12	●
1150	11.5	71	71	45	118	12	●
1180	11.8	71	71	45	118	12	●
1200	12	71	71	45	118	12	●
1220	12.2	77	77	45	124	14	●
1250	12.5	77	77	45	124	14	●
1270	12.7	77	77	45	124	14	●
1280	12.8	77	77	45	124	14	●
1300	13	77	77	45	124	14	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR VA OIL FEED TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≥ 700 N/mm² ~ 35 HRC

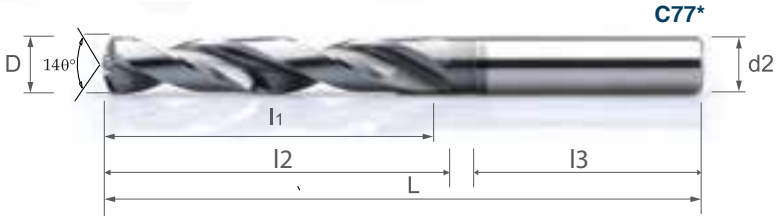
Solid Carbide DR VA Oil Feed Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR VA à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR VA 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR VA Kühlkanalbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR VA in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						C77*
	D (m7)	l1	l2	l3	L	d2 (h6)	G6110
1330	13.3	77	77	45	124	14	●
1350	13.5	77	77	45	124	14	●
1370	13.7	77	77	45	124	14	●
1380	13.8	77	77	45	124	14	●
1400	14	77	77	45	124	14	●
1450	14.5	83	83	48	133	16	●
1500	15	83	83	48	133	16	●
1530	15.3	83	83	48	133	16	●
1550	15.5	83	83	48	133	16	●
1580	15.8	83	83	48	133	16	●
1600	16	83	83	48	133	16	●
1650	16.5	93	93	48	143	18	●
1700	17	93	93	48	143	18	●
1750	17.5	93	93	48	143	18	●
1800	18	93	93	48	143	18	●
1850	18.5	101	101	50	153	20	●
1900	19	101	101	50	153	20	●
1950	19.5	101	101	50	153	20	●
2000	20	101	101	50	153	20	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 45 OIL FEED TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

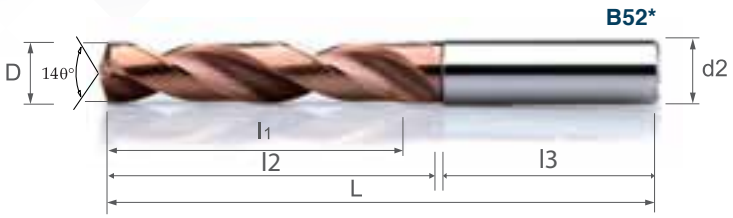
Solid Carbide DR 45 Oil Feed Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR 45 à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR 45 Kühlkanalbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	B48* B0819	B52* D0120	C95* G6110
*	0300 056 03	3	14	20	36	56	3	○	○	○
	0300	3	14	20	36	56	6	●	○	○
*	0310 056 03	3.1	14	20	36	56	3	○	○	○
	0310	3.1	14	20	36	56	6	●	○	○
*	0320 056 03	3.2	14	20	36	56	3	○	○	○
	0320	3.2	14	20	36	56	6	●	○	○
	0330	3.3	14	20	36	56	6	●	○	○
	0340	3.4	14	20	36	56	6	●	○	○
	0350	3.5	14	20	36	56	6	●	○	○
	0360	3.6	16	20	36	56	6	●	○	○
	0370	3.7	16	20	36	56	6	●	○	○
	0380	3.8	16	20	36	56	6	●	○	○
	0390	3.9	16	20	36	56	6	●	○	○
*	0400 056 04	4	16	20	36	56	4	○	○	○
	0400	4	17	20	36	56	6	●	○	○
*	0410 056 04	4.1	16	20	36	56	4	○	○	○
	0410	4.1	17	20	36	56	6	●	○	○
*	0420 056 04	4.2	17	20	36	56	4	○	○	○
	0420	4.2	17	20	36	56	6	●	○	○
	0430	4.3	18	24	36	66	6	●	○	○
	0440	4.4	18	24	36	66	6	●	○	○
	0450	4.5	18	24	36	66	6	●	○	○
	0460	4.6	18	24	36	66	6	●	○	○
	0470	4.7	19	24	36	66	6	●	○	○
	0480	4.8	19	26	36	66	6	●	○	○
	0490	4.9	19	26	36	66	6	●	○	○
	0500	5	20	28	36	66	6	●	○	○
	0510	5.1	20	28	36	66	6	●	○	○
	0520	5.2	20	28	36	66	6	●	○	○
	0530	5.3	20	28	36	66	6	●	○	○
	0540	5.4	20	28	36	66	6	●	○	○

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR 45 OIL FEED TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

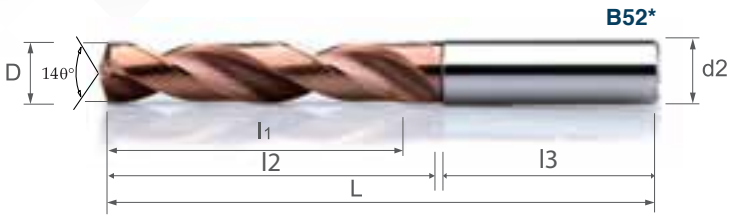
Solid Carbide DR 45 Oil Feed Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR 45 à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR 45 Kühlkanalbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	B48* B0819	B52* D0120	C95* G6110
	0550	5.5	20	28	36	66	6	●	○	○
	0560	5.6	20	28	36	66	6	●	○	○
	0570	5.7	20	28	36	66	6	●	○	○
	0580	5.8	20	28	36	66	6	●	○	○
	0590	5.9	20	28	36	66	6	●	○	○
	0600	6	20	28	36	66	6	●	○	○
*	0610 066 06	6.1	20	28	36	66	6	○	○	○
	0610	6.1	24	34	36	79	8	●	○	○
	0620	6.2	24	34	36	79	8	●	○	○
	0630	6.3	24	34	36	79	8	●	○	○
	0640	6.4	24	34	36	79	8	●	○	○
	0650	6.5	24	34	36	79	8	●	○	○
	0660	6.6	24	34	36	79	8	●	○	○
	0670	6.7	24	34	36	79	8	●	○	○
	0680	6.8	24	34	36	79	8	●	○	○
	0690	6.9	24	34	36	79	8	●	○	○
	0700	7	24	34	36	79	8	●	○	○
	0710	7.1	29	41	36	79	8	●	○	○
	0720	7.2	29	41	36	79	8	●	○	○
	0730	7.3	29	41	36	79	8	●	○	○
	0740	7.4	29	41	36	79	8	●	○	○
	0750	7.5	29	41	36	79	8	●	○	○
	0760	7.6	29	41	36	79	8	●	○	○
	0770	7.7	29	41	36	79	8	●	○	○
	0780	7.8	29	41	36	79	8	●	○	○
	0790	7.9	29	41	36	79	8	●	○	○
	0800	8	29	41	36	79	8	●	○	○
*	0810 079 08	8.1	29	41	36	79	8	○	○	○
	0810	8.1	35	47	40	89	10	●	○	○
	0820	8.2	35	47	40	89	10	●	○	○
	0830	8.3	35	47	40	89	10	●	○	○

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 45 OIL FEED TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

Solid Carbide DR 45 Oil Feed Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

VHM DR 45 Kühlkanalbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Forets hélicoïdaux DR 45 à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA

整体硬质合金 DR 45 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						B48*	B52*	C95*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	B0819	D0120	G6110
0840	8.4	35	47	40	89	10	●	○	○
0850	8.5	35	47	40	89	10	●	○	○
0860	8.6	35	47	40	89	10	●	○	○
0870	8.7	35	47	40	89	10	●	○	○
0880	8.8	35	47	40	89	10	●	○	○
0890	8.9	35	47	40	89	10	●	○	○
0900	9	35	47	40	89	10	●	○	○
0910	9.1	35	47	40	89	10	●	○	○
0920	9.2	35	47	40	89	10	●	○	○
0930	9.3	35	47	40	89	10	●	○	○
0940	9.4	35	47	40	89	10	●	○	○
0950	9.5	35	47	40	89	10	●	○	○
0960	9.6	35	47	40	89	10	●	○	○
0970	9.7	35	47	40	89	10	●	○	○
0980	9.8	35	47	40	89	10	●	○	○
0990	9.9	35	47	40	89	10	●	○	○
1000	10	35	47	40	89	10	●	○	○
1020	10.2	40	55	45	102	12	●	○	○
1050	10.5	40	55	45	102	12	●	○	○
1080	10.8	40	55	45	102	12	●	○	○
1100	11	40	55	45	102	12	●	○	○
1120	11.2	40	55	45	102	12	●	○	○
1130	11.3	40	55	45	102	12	●	○	○
1150	11.5	40	55	45	102	12	●	○	○
1180	11.8	40	55	45	102	12	●	○	○
1200	12	40	55	45	102	12	●	○	○
1220	12.2	43	60	45	107	14	●	○	○
1250	12.5	43	60	45	107	14	●	○	○
1270	12.7	43	60	45	107	14	●	○	○
1280	12.8	43	60	45	107	14	●	○	○
1300	13	43	60	45	107	14	●	○	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR 45 OIL FEED TWIST DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 900 N/mm² + B0819 ≤ 35 HRC

Solid Carbide DR 45 Oil Feed Twist Drills acc. to DIN 6537K, point angle 140°, shank acc. to DIN 6535HA

Forets hélicoïdaux DR 45 à trous d'huile en carbure monobloc selon DIN 6537K, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 内冷却 钻头 – 相等于 DIN 6537K 2 刃 – 加工深度 3xD, 柄部标准 DIN 6535HA

VHM DR 45 Kühlkanalbohrer nach DIN 6537K, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537K con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						B48*	B52*	C95*
=*+Ødata	D (m7)	l 1	l 2	l 3	L	d2 (h6)	B0819	D0120	G6110
1330	13.3	43	60	45	107	14	●	○	○
1350	13.5	43	60	45	107	14	●	○	○
1370	13.7	43	60	45	107	14	●	○	○
1400	14	43	60	45	107	14	●	○	○
1450	14.5	45	65	48	115	16	●	○	○
1500	15	65	65	48	115	16	●	○	○
1530	15.3	65	65	48	115	16	●	○	○
1550	15.5	65	65	48	115	16	●	○	○
1580	15.8	65	65	48	115	16	●	○	○
1600	16	65	65	48	115	16	●	○	○
1650	16.5	73	73	48	123	18	●	○	○
1700	17	73	73	48	123	18	●	○	○
1750	17.5	73	73	48	123	18	●	○	○
1800	18	73	73	48	123	18	●	○	○
1850	18.5	79	79	50	131	20	●	○	○
1900	19	79	79	50	131	20	●	○	○
1950	19.5	79	79	50	131	20	●	○	○
2000	20	79	79	50	131	20	●	○	○

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR 45 OIL FEED TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

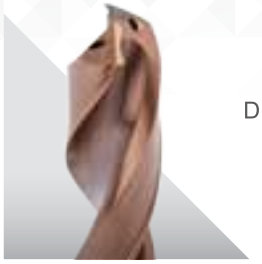
Solid Carbide DR 45 Oil Feed Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

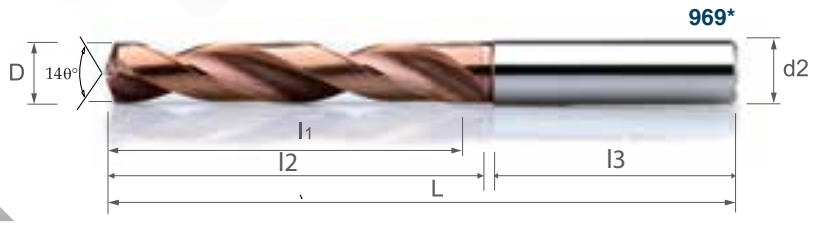
Forets hélicoïdaux DR 45 à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 5xD, 柄部标准 DIN 6535HA

VHM DR 45 Kühlkanalbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA





	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	967* B0819	969* D0120	C96* G6110
*	0300 066 03	3	21	28	36	68	3	○	○	○
	0300	3	21	28	36	68	6	●	○	○
*	0310 066 03	3.1	21	28	36	68	3	○	○	○
	0310	3.1	21	28	36	68	6	●	○	○
*	0320 066 03	3.2	21	28	36	68	3	○	○	○
	0320	3.2	21	28	36	68	6	●	○	○
	0330	3.3	21	28	36	68	6	●	○	○
	0340	3.4	21	28	36	68	6	●	○	○
	0350	3.5	21	28	36	68	6	●	○	○
	0360	3.6	24	28	36	68	6	●	○	○
	0370	3.7	24	28	36	68	6	●	○	○
	0380	3.8	24	28	36	68	6	●	○	○
	0390	3.9	24	28	36	68	6	●	○	○
*	0400 074 04	4	24	28	36	68	4	○	○	○
	0400	4	26	32	36	68	6	●	○	○
*	0410 074 04	4.1	24	32	36	68	4	○	○	○
	0410	4.1	26	32	36	68	6	●	○	○
*	0420 074 04	4.2	26	32	36	68	4	○	○	○
	0420	4.2	26	32	36	68	6	●	○	○
	0430	4.3	26	36	36	82	6	●	○	○
	0440	4.4	26	36	36	82	6	●	○	○
	0450	4.5	28	36	36	82	6	●	○	○
	0460	4.6	28	36	36	82	6	●	○	○
	0470	4.7	30	36	36	82	6	●	○	○
	0480	4.8	30	36	36	82	6	●	○	○
	0490	4.9	30	36	36	82	6	●	○	○
	0500	5	35	44	36	82	6	●	○	○
	0510	5.1	35	44	36	82	6	●	○	○
	0520	5.2	35	44	36	82	6	●	○	○
	0530	5.3	35	44	36	82	6	●	○	○
	0540	5.4	35	44	36	82	6	●	○	○

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR 45 OIL FEED TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

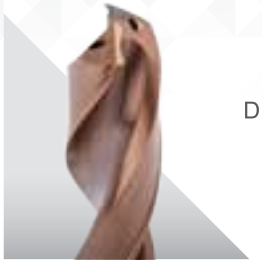
Solid Carbide DR 45 Oil Feed Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

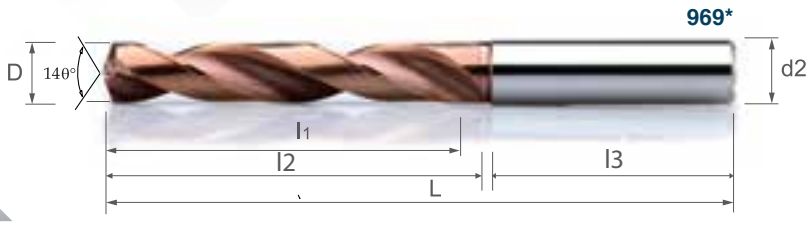
Forets hélicoïdaux DR 45 à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 5xD, 柄部标准 DIN 6535HA

VHM DR 45 Kühlkanalbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	967* B0819	969* D0120	C96* G6110
0550	5.5	35	44	36	82	6	○	○	○
0560	5.6	35	44	36	82	6	●	○	○
0570	5.7	35	44	36	82	6	○	○	○
0580	5.8	35	44	36	82	6	●	○	○
0590	5.9	35	44	36	82	6	○	○	○
0600	6	35	44	36	82	6	●	○	○
* 0610 082 06	6.1	35	44	36	82	6	●	○	○
0610	6.1	43	53	36	91	8	●	○	○
0620	6.2	43	53	36	91	8	●	○	○
0630	6.3	43	53	36	91	8	●	○	○
0640	6.4	43	53	36	91	8	●	○	○
0650	6.5	43	53	36	91	8	●	○	○
0660	6.6	43	53	36	91	8	●	○	○
0670	6.7	43	53	36	91	8	○	○	○
0680	6.8	43	53	36	91	8	●	○	○
0690	6.9	43	53	36	91	8	○	○	○
0700	7	43	53	36	91	8	●	○	○
0710	7.1	43	53	36	91	8	○	○	○
0720	7.2	43	53	36	91	8	●	○	○
0730	7.3	43	53	36	91	8	●	○	○
0740	7.4	43	53	36	91	8	●	○	○
0750	7.5	43	53	36	91	8	●	○	○
0760	7.6	43	53	36	91	8	●	○	○
0770	7.7	43	53	36	91	8	●	○	○
0780	7.8	43	53	36	91	8	●	○	○
0790	7.9	43	53	36	91	8	●	○	○
0800	8	43	53	36	91	8	●	○	○
* 0810 091 08	8.1	43	53	36	91	8	●	○	○
0810	8.1	49	61	40	103	10	●	○	○
0820	8.2	49	61	40	103	10	●	○	○
0830	8.3	49	61	40	103	10	●	○	○

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR 45 OIL FEED TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

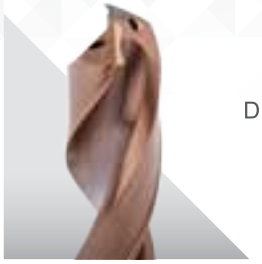
Solid Carbide DR 45 Oil Feed Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

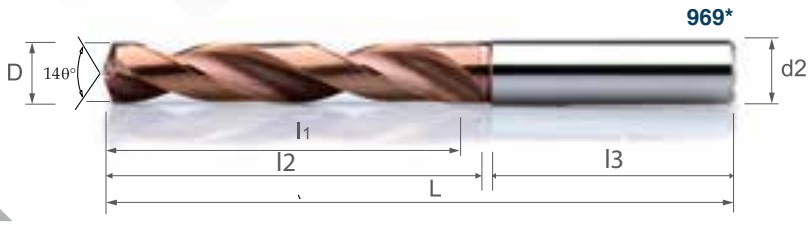
Forets hélicoïdaux DR 45 à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 5xD, 柄部标准 DIN 6535HA

VHM DR 45 Kühlkanalbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA





EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						967*	969*	C96*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	B0819	D0120	G6110
0840	8.4	49	61	40	103	10	●	○	○
0850	8.5	49	61	40	103	10	●	○	○
0860	8.6	49	61	40	103	10	●	○	○
0870	8.7	49	61	40	103	10	●	○	○
0880	8.8	49	61	40	103	10	●	○	○
0890	8.9	49	61	40	103	10	●	○	○
0900	9	49	61	40	103	10	●	○	○
0910	9.1	49	61	40	103	10	●	○	○
0920	9.2	49	61	40	103	10	●	○	○
0930	9.3	49	61	40	103	10	●	○	○
0940	9.4	49	61	40	103	10	●	○	○
0950	9.5	61	61	40	103	10	●	○	○
0960	9.6	61	61	40	103	10	●	○	○
0970	9.7	61	61	40	103	10	●	○	○
0980	9.8	61	61	40	103	10	●	○	○
0990	9.9	61	61	40	103	10	●	○	○
1000	10	61	61	40	103	10	●	○	○
1020	10.2	71	71	45	118	12	●	○	○
1050	10.5	71	71	45	118	12	●	○	○
1080	10.8	71	71	45	118	12	●	○	○
1100	11	71	71	45	118	12	●	○	○
1120	11.2	71	71	45	118	12	●	○	○
1130	11.3	71	71	45	118	12	●	○	○
1150	11.5	71	71	45	118	12	●	○	○
1180	11.8	71	71	45	118	12	●	○	○
1200	12	71	71	45	118	12	●	○	○
1220	12.2	77	77	45	124	14	●	○	○
1250	12.5	77	77	45	124	14	●	○	○
1270	12.7	77	77	45	124	14	●	○	○
1280	12.8	77	77	45	124	14	●	○	○
1300	13	77	77	45	124	14	●	○	○

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 45 OIL FEED TWIST DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

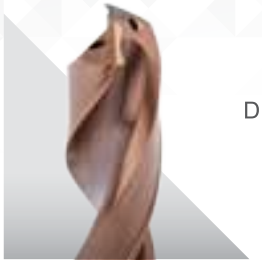
Solid Carbide DR 45 Oil Feed Twist Drills acc. to DIN 6537L, point angle 140°, shank acc. to DIN 6535HA

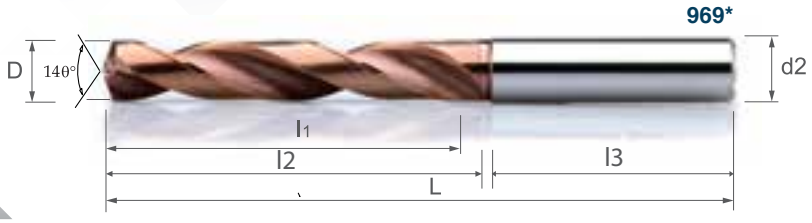
Forets hélicoïdaux DR 45 à trous d'huile en carbure monobloc selon DIN 6537L, angle de pointe 140°, queue selon DIN 6535HA

整体硬质合金 DR 45 内冷却 钻头 – 相等于 DIN 6537L 2 刃 – 加工深度 5xD, 柄部标准 DIN 6535HA

VHM DR 45 Kühlkanalbohrer nach DIN 6537L, 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 in metallo duro integrale norma DIN 6537L con fori di lubrificazione angolo di punta 140°, codolo DIN 6535HA





EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						967*	969*	C96*
=*+Ødata	D (m7)	l 1	l 2	l 3	L	d2 (h6)	B0819	D0120	G6110
1330	13.3	77	77	45	124	14	●	○	○
1350	13.5	77	77	45	124	14	●	○	○
1370	13.7	77	77	45	124	14	●	○	○
1380	13.8	77	77	45	124	14	●	○	○
1400	14.0	77	77	45	124	14	●	○	○
1450	14.5	83	83	48	133	16	●	○	○
1500	15.0	83	83	48	133	16	●	○	○
1530	15.3	83	83	48	133	16	●	○	○
1550	15.5	83	83	48	133	16	●	○	○
1580	15.8	83	83	48	133	16	●	○	○
1600	16.0	83	83	48	133	16	●	○	○
1650	16.5	93	93	48	143	18	●	○	○
1700	17.0	93	93	48	143	18	●	○	○
1750	17.5	93	93	48	143	18	●	○	○
1800	18.0	93	93	48	143	18	●	○	○
1850	18.5	101	101	50	153	20	●	○	○
1900	19.0	101	101	50	153	20	●	○	○
1950	19.5	101	101	50	153	20	●	○	○
2000	20.0	101	101	50	153	20	●	○	○

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR 45 SB SPIRAL BURNISHING DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm²

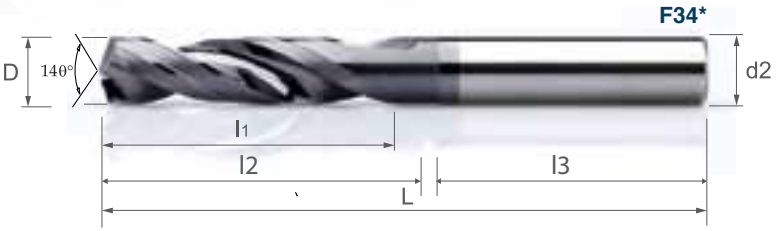
Solid Carbide DR 45 SB Spiral Burnishing Drills according to DIN 6537K, without oil feed holes - 140° point angle, shank according to DIN 6535HA.

DR 45 SB Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537K, queue DIN 6535HA

整体硬质合金 DR 45 SB 钻头 – DIN 6537K 顶角140° 柄部标准 DIN 6535HA

VHM DR 45 SB 4 Fasen-Spiralbohrer nach DIN 6537K, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB a doppio pattino in metallo duro integrale, norme DIN 6537K, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	F34* B0819
0300	3	14	20	36	62	6	O
0310	3.1	14	20	36	62	6	O
0320	3.2	14	20	36	62	6	O
0330	3.3	14	20	36	62	6	O
0340	3.4	14	20	36	62	6	O
0350	3.5	14	20	36	62	6	O
0360	3.6	14	20	36	62	6	O
0370	3.7	14	20	36	62	6	O
0380	3.8	17	24	36	66	6	O
0390	3.9	17	24	36	66	6	O
0400	4	17	24	36	66	6	O
0410	4.1	17	24	36	66	6	O
0420	4.2	17	24	36	66	6	O
0430	4.3	17	24	36	66	6	O
0440	4.4	17	24	36	66	6	O
0450	4.5	17	24	36	66	6	O
0460	4.6	17	24	36	66	6	O
0470	4.7	17	24	36	66	6	O
0480	4.8	20	28	36	66	6	O
0490	4.9	20	28	36	66	6	O
0500	5	20	28	36	66	6	O
0510	5.1	20	28	36	66	6	O
0520	5.2	20	28	36	66	6	O
0530	5.3	20	28	36	66	6	O
0540	5.4	20	28	36	66	6	O
0550	5.5	20	28	36	66	6	O
0560	5.6	20	28	36	66	6	O
0570	5.7	20	28	36	66	6	O
0580	5.8	20	28	36	66	6	O
0590	5.9	20	28	36	66	6	O
0600	6	20	28	36	66	6	O

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR 45 SB SPIRAL BURNISHING DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm²

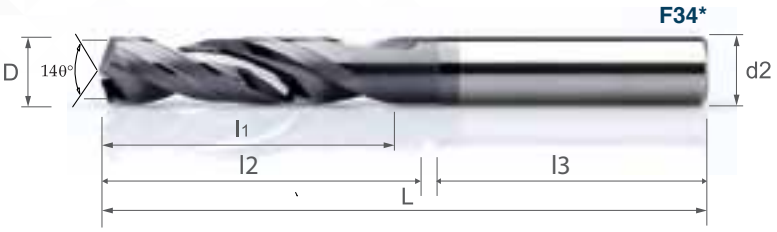
Solid Carbide DR 45 SB Spiral Burnishing Drills according to DIN 6537K, without oil feed holes - 140° point angle, shank according to DIN 6535HA.

DR 45 SB Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537K, queue DIN 6535HA

整体硬质合金 DR 45 SB 钻头 – DIN 6537K 顶角140° 柄部标准 DIN 6535HA

VHM DR 45 SB 4 Fasen-Spiralbohrer nach DIN 6537K, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB a doppio pattino in metallo duro integrale, norme DIN 6537K, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	F34* B0819
0610	6.1	24	34	36	79	8	O
0620	6.2	24	34	36	79	8	O
0630	6.3	24	34	36	79	8	O
0640	6.4	24	34	36	79	8	O
0650	6.5	24	34	36	79	8	O
0660	6.6	24	34	36	79	8	O
0670	6.7	24	34	36	79	8	O
0680	6.8	24	34	36	79	8	O
0690	6.9	24	34	36	79	8	O
0700	7	24	34	36	79	8	O
0710	7.1	29	41	36	79	8	O
0720	7.2	29	41	36	79	8	O
0730	7.3	29	41	36	79	8	O
0740	7.4	29	41	36	79	8	O
0750	7.5	29	41	36	79	8	O
0760	7.6	29	41	36	79	8	O
0770	7.7	29	41	36	79	8	O
0780	7.8	29	41	36	79	8	O
0790	7.9	29	41	36	79	8	O
0800	8	29	41	36	79	8	O
0810	8.1	35	47	40	89	10	O
0820	8.2	35	47	40	89	10	O
0830	8.3	35	47	40	89	10	O
0840	8.4	35	47	40	89	10	O
0850	8.5	35	47	40	89	10	O
0860	8.6	35	47	40	89	10	O
0870	8.7	35	47	40	89	10	O
0880	8.8	35	47	40	89	10	O
0890	8.9	35	47	40	89	10	O
0900	9	35	47	40	89	10	O
0910	9.1	35	47	40	89	10	O

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR 45 SB SPIRAL BURNISHING DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm²

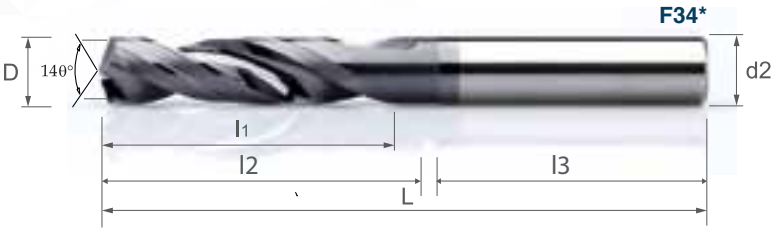
Solid Carbide DR 45 SB Spiral Burnishing Drills according to DIN 6537K, without oil feed holes - 140° point angle, shank according to DIN 6535HA.

DR 45 SB Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537K, queue DIN 6535HA

整体硬质合金 DR 45 SB 钻头 – DIN 6537K 顶角140° 柄部标准 DIN 6535HA

VHM DR 45 SB 4 Fasen-Spiralbohrer nach DIN 6537K, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB a doppio pattino in metallo duro integrale, norme DIN 6537K, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	F34* B0819
0920	9.2	35	47	40	89	10	O
0930	9.3	35	47	40	89	10	O
0940	9.4	35	47	40	89	10	O
0950	9.5	35	47	40	89	10	O
0960	9.6	35	47	40	89	10	O
0970	9.7	35	47	40	89	10	O
0980	9.8	35	47	40	89	10	O
0990	9.9	35	47	40	89	10	O
1000	10	35	47	40	89	10	O
1010	10.1	40	55	45	102	12	O
1020	10.2	40	55	45	102	12	O
1030	10.3	40	55	45	102	12	O
1040	10.4	40	55	45	102	12	O
1050	10.5	40	55	45	102	12	O
1060	10.6	40	55	45	102	12	O
1070	107.0	40	55	45	102	12	O
1080	10.8	40	55	45	102	12	O
1090	10.9	40	55	45	102	12	O
1100	11	40	55	45	102	12	O
1110	11.1	40	55	45	102	12	O
1120	11.2	40	55	45	102	12	O
1130	11.3	40	55	45	102	12	O
1140	11.4	40	55	45	102	12	O
1150	11.4	40	55	45	102	12	O
1160	11.6	40	55	45	102	12	O
1170	11.7	40	55	45	102	12	O
1180	11.8	40	55	45	102	12	O
1190	11.9	40	55	45	102	12	O
1200	12	40	55	45	102	12	O
1220	12.2	43	60	45	107	14	O
1250	12.5	43	60	45	107	14	O

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR 45 SB SPIRAL BURNISHING DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm²

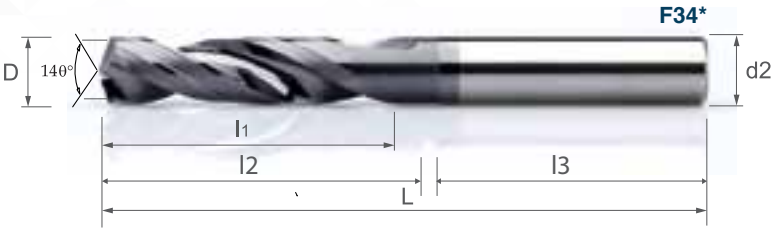
Solid Carbide DR 45 SB Spiral Burnishing Drills according to DIN 6537K, without oil feed holes - 140° point angle, shank according to DIN 6535HA.

DR 45 SB Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537K, queue DIN 6535HA

整体硬质合金 DR 45 SB 钻头 – DIN 6537K 顶角140° 柄部标准 DIN 6535HA

VHM DR 45 SB 4 Fasen-Spiralbohrer nach DIN 6537K, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB a doppio pattino in metallo duro integrale, norme DIN 6537K, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	F34* B0819
1270	12.7	43	60	45	107	14	O
1280	12.8	43	60	45	107	14	O
1300	13.0	43	60	45	107	14	O
1330	13.3	43	60	45	107	14	O
1350	13.5	43	60	45	107	14	O
1370	13.7	43	60	45	107	14	O
1380	13.8	43	60	45	107	14	O
1400	14.0	43	60	45	107	14	O
1450	14.5	43	65	48	115	16	O
1500	15	65	65	48	115	16	O
1530	15.3	65	65	48	115	16	O
1550	15.5	65	65	48	115	16	O
1580	15.8	65	65	48	115	16	O
1600	16.0	65	65	48	115	16	O
1650	16.5	73	73	48	123	18	O
1700	17	73	73	48	123	18	O
1750	17.5	73	73	48	123	18	O
1800	18.0	73	73	48	123	18	O
1850	18.5	79	79	50	131	20	O
1900	19.0	79	79	50	131	20	O
1950	19.5	79	79	50	131	20	O
2000	20	79	79	50	131	20	O

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 45 SB OF SPIRAL BURNISHING DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

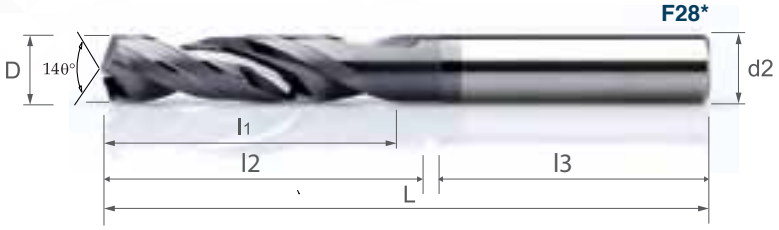
Solid Carbide DR 45 SB OF Spiral Burnishing Drills according to DIN 6537K, with oil feed holes 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537K, queue DIN 6535HA

整体硬质合金 DR 45 SB OF 内冷却钻头 – DIN 6537K 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF 4 Fasen-Spiralbohrer nach DIN 6537K, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio pattino in metallo duro integrale, norme DIN 6537K, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	F27* D0120	F28* G6110
*	0300 062 03	3	14	20	36	62	3	O	O
	0300	3	14	20	36	62	6	O	O
*	0310 062 03	3.1	14	20	36	62	3	O	O
	0310	3.1	14	20	36	62	6	O	O
*	0320 062 03	3.2	14	20	36	62	3	O	O
	0320	3.2	14	20	36	62	6	O	O
	0330	3.3	14	20	36	62	6	O	O
	0340	3.4	14	20	36	62	6	O	O
	0350	3.5	14	20	36	62	6	O	O
	0360	3.6	14	20	36	62	6	O	O
	0370	3.7	14	20	36	62	6	O	O
	0380	3.8	17	24	36	66	6	O	O
	0390	3.9	17	24	36	66	6	O	O
*	0400 066 04	4	17	24	36	66	4	O	O
	0400	4	17	24	36	66	6	O	O
*	0410 066 04	4.1	17	24	36	66	4	O	O
	0410	4.1	17	24	36	66	6	O	O
*	0420 066 04	4.2	17	24	36	66	4	O	O
	0420	4.2	17	24	36	66	6	O	O
	0430	4.3	17	24	36	66	6	O	O
	0440	4.4	17	24	36	66	6	O	O
	0450	4.5	17	24	36	66	6	O	O
	0460	4.6	17	24	36	66	6	O	O
	0470	4.7	17	24	36	66	6	O	O
	0480	4.8	20	28	36	66	6	O	O
	0490	4.9	20	28	36	66	6	O	O
	0500	5	20	28	36	66	6	O	O
	0510	5.1	20	28	36	66	6	O	O
	0520	5.2	20	28	36	66	6	O	O
	0530	5.3	20	28	36	66	6	O	O
	0540	5.4	20	28	36	66	6	O	O

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR 45 SB OF SPIRAL BURNISHING DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

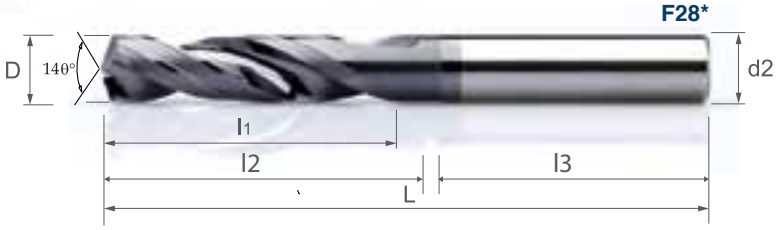
Solid Carbide DR 45 SB OF Spiral Burnishing Drills according to DIN 6537K, with oil feed holes 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537K, queue DIN 65353HA

整体硬质合金 DR 45 SB OF 内冷却钻头 – DIN 6537K 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF 4 Fasen-Spiralbohrer nach DIN 6537K, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio pattino in metallo duro integrale, norme DIN 6537K, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						F27*	F28*
=*+Ødata	D (m7)	l 1	l 2	l 3	L	d2 (h6)	D0120	G6110
0550	5.5	20	28	36	66	6	O	O
0560	5.6	20	28	36	66	6	O	O
0570	5.7	20	28	36	66	6	O	O
0580	5.8	20	28	36	66	6	O	O
0590	5.9	20	28	36	66	6	O	O
0600	6	20	28	36	66	6	O	O
* 0610 066 06	6.1	20	28	36	66	6	O	O
0610	6.1	24	34	36	79	8	O	O
0620	6.2	24	34	36	79	8	O	O
0630	6.3	24	34	36	79	8	O	O
0640	6.4	24	34	36	79	8	O	O
0650	6.5	24	34	36	79	8	O	O
0660	6.6	24	34	36	79	8	O	O
0670	6.7	24	34	36	79	8	O	O
0680	6.8	24	34	36	79	8	O	O
0690	6.9	24	34	36	79	8	O	O
0700	7	24	34	36	79	8	O	O
0710	7.1	29	41	36	79	8	O	O
0720	7.2	29	41	36	79	8	O	O
0730	7.3	29	41	36	79	8	O	O
0740	7.4	29	41	36	79	8	O	O
0750	7.5	29	41	36	79	8	O	O
0760	7.6	29	41	36	79	8	O	O
0770	7.7	29	41	36	79	8	O	O
0780	7.8	29	41	36	79	8	O	O
0790	7.9	29	41	36	79	8	O	O
0800	8	29	41	36	79	8	O	O
* 0810 079 08	8.1	29	41	36	79	8	O	O
0810	8.1	35	47	40	89	10	O	O
0820	8.2	35	47	40	89	10	O	O
0830	8.3	35	47	40	89	10	O	O

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR 45 SB OF SPIRAL BURNISHING DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

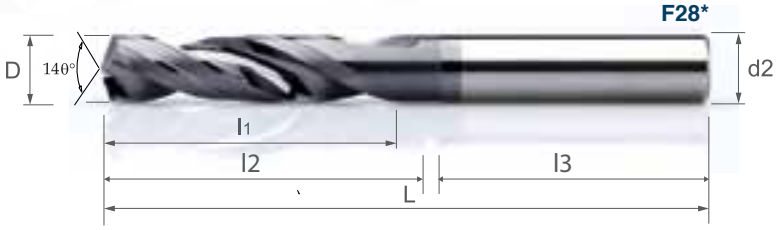
Solid Carbide DR 45 SB OF Spiral Burnishing Drills according to DIN 6537K, with oil feed holes 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537K, queue DIN 65353HA

整体硬质合金 DR 45 SB OF 内冷却钻头 – DIN 6537K 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF 4 Fasen-Spiralbohrer nach DIN 6537K, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio pattino in metallo duro integrale, norme DIN 6537K, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						F27*	F28*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	D0120	G6110
0840	8.4	35	47	40	89	10	O	O
0850	8.5	35	47	40	89	10	O	O
0860	8.6	35	47	40	89	10	O	O
0870	8.7	35	47	40	89	10	O	O
0880	8.8	35	47	40	89	10	O	O
0890	8.9	35	47	40	89	10	O	O
0900	9	35	47	40	89	10	O	O
0910	9.1	35	47	40	89	10	O	O
0920	9.2	35	47	40	89	10	O	O
0930	9.3	35	47	40	89	10	O	O
0940	9.4	35	47	40	89	10	O	O
0950	9.5	35	47	40	89	10	O	O
0960	9.6	35	47	40	89	10	O	O
0970	9.7	35	47	40	89	10	O	O
0980	9.8	35	47	40	89	10	O	O
0990	9.9	35	47	40	89	10	O	O
1000	10	35	47	40	89	10	O	O
1020	10.2	40	55	45	102	12	O	O
1050	10.5	40	55	45	102	12	O	O
1080	10.8	40	55	45	102	12	O	O
1100	11	40	55	45	102	12	O	O
1120	11.2	40	55	45	102	12	O	O
1130	11.3	40	55	45	102	12	O	O
1150	11.5	40	55	45	102	12	O	O
1180	11.8	40	55	45	102	12	O	O
1200	12	40	55	45	102	12	O	O
1220	12.2	43	60	45	107	14	O	O
1250	12.5	43	60	45	107	14	O	O
1270	12.7	43	60	45	107	14	O	O
1280	12.8	43	60	45	107	14	O	O
1300	13	43	60	45	107	14	O	O

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR 45 SB OF SPIRAL BURNISHING DRILLS - DIN 6537K - 140° Point Angle - 3 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

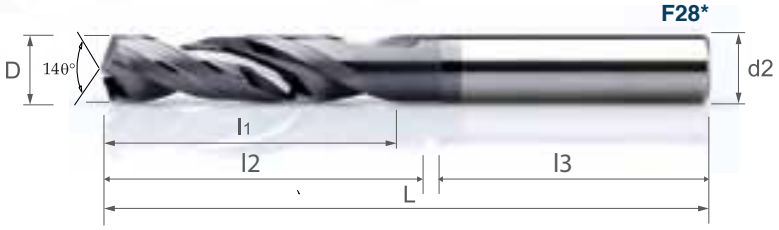
Solid Carbide DR 45 SB OF Spiral Burnishing Drills according to DIN 6537K, with oil feed holes 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537K, queue DIN 6535HA

整体硬质合金 DR 45 SB OF 内冷却钻头 – DIN 6537K 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF 4 Fasen-Spiralbohrer nach DIN 6537K, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio pattino in metallo duro integrale, norme DIN 6537K, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	F27* D0120	F28* G6110
1330	13.3	43	60	45	107	14	O	O
1350	13.5	43	60	45	107	14	O	O
1370	13.7	43	60	45	107	14	O	O
1380	13.8	43	60	45	107	14	O	O
1400	14	43	60	45	107	14	O	O
1450	14.5	45	65	48	115	16	O	O
1500	15	65	65	48	115	16	O	O
1530	15.3	65	65	48	115	16	O	O
1550	15.5	65	65	48	115	16	O	O
1580	15.8	65	65	48	115	16	O	O
1600	16	65	65	48	115	16	O	O
1650	16.5	73	73	48	123	18	O	O
1700	17	73	73	48	123	18	O	O
1750	17.5	73	73	48	123	18	O	O
1800	18	73	73	48	123	18	O	O
1850	18.5	79	79	50	131	20	O	O
1900	19	79	79	50	131	20	O	O
1950	19.5	79	79	50	131	20	O	O
2000	20	79	79	50	131	20	O	O

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR 45 SB OF SPIRAL BURNISHING DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

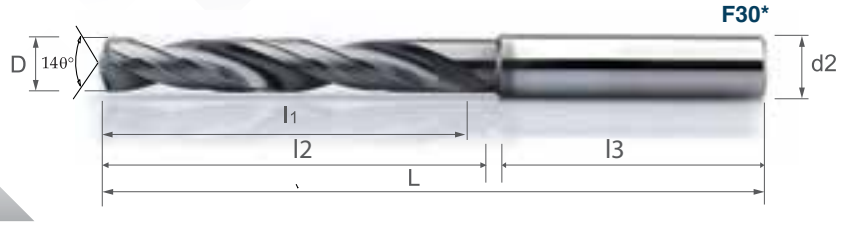
Solid Carbide DR 45 SB OF Spiral Burnishing Drills according to DIN 6537L, with oil feed holes 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537L, queue DIN 6535HA

整体硬质合金 DR 45 SB OF 内冷却钻头 – DIN 6537L 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF 4 Fasen-Spiralbohrer nach DIN 6537L, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio pattino in metallo duro integrale, norme DIN 6537L, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	F29* D0120	F30* G6110
*	0300 066 03	3	23	28	36	66	3	O	O
	0300	3	23	28	36	66	6	O	O
*	0310 066 03	3.1	23	28	36	66	3	O	O
	0310	3.1	23	28	36	66	6	O	O
*	0320 066 03	3.2	23	28	36	66	3	O	O
	0320	3.2	23	28	36	66	6	O	O
	0330	3.3	23	28	36	66	6	O	O
	0340	3.4	23	28	36	66	6	O	O
	0350	3.5	23	28	36	66	6	O	O
	0360	3.6	23	28	36	66	6	O	O
	0370	3.7	23	28	36	66	6	O	O
	0380	3.8	29	36	36	74	6	O	O
	0390	3.9	29	36	36	74	6	O	O
*	0400 074 04	4	29	36	36	74	4	O	O
	0400	4	29	36	36	74	6	O	O
*	0410 074 04	4.1	29	36	36	74	4	O	O
	0410	4.1	29	36	36	74	6	O	O
*	0420 074 04	4.2	29	36	36	74	4	O	O
	0420	4.2	29	36	36	74	6	O	O
	0430	4.3	29	36	36	74	6	O	O
	0440	4.4	29	36	36	74	6	O	O
	0450	4.5	29	36	36	74	6	O	O
	0460	4.6	29	36	36	74	6	O	O
	0470	4.7	29	36	36	74	6	O	O
	0480	4.8	35	44	36	82	6	O	O
	0490	4.9	35	44	36	82	6	O	O
	0500	5	35	44	36	82	6	O	O
	0510	5.1	35	44	36	82	6	O	O
	0520	5.2	35	44	36	82	6	O	O
	0530	5.3	35	44	36	82	6	O	O
	0540	5.4	35	44	36	82	6	O	O

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 45 SB OF SPIRAL BURNISHING DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

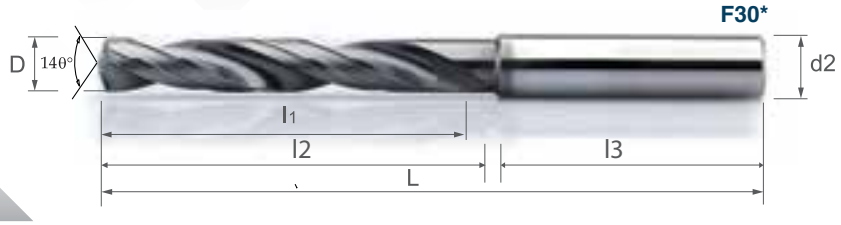
Solid Carbide DR 45 SB OF Spiral Burnishing Drills according to DIN 6537L, with oil feed holes 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537L, queue DIN 6535HA

整体硬质合金 DR 45 SB OF 内冷却钻头 – DIN 6537L 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF 4 Fasen-Spiralbohrer nach DIN 6537L, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio pattino in metallo duro integrale, norme DIN 6537L, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	F29* D0120	F30* G6110
	0550	5.5	35	44	36	82	6	O	O
	0560	5.6	35	44	36	82	6	O	O
	0570	5.7	35	44	36	82	6	O	O
	0580	5.8	35	44	36	82	6	O	O
	0590	5.9	35	44	36	82	6	O	O
	0600	6	35	44	36	82	6	O	O
*	0610 082 06	6.1	35	44	36	82	6	O	O
	0610	6.1	43	53	36	91	8	O	O
	0620	6.2	43	53	36	91	8	O	O
	0630	6.3	43	53	36	91	8	O	O
	0640	6.4	43	53	36	91	8	O	O
	0650	6.5	43	53	36	91	8	O	O
	0660	6.6	43	53	36	91	8	O	O
	0670	6.7	43	53	36	91	8	O	O
	0680	6.8	43	53	36	91	8	O	O
	0690	6.9	43	53	36	91	8	O	O
	0700	7	43	53	36	91	8	O	O
	0710	7.1	43	53	36	91	8	O	O
	0720	7.2	43	53	36	91	8	O	O
	0730	7.3	43	53	36	91	8	O	O
	0740	7.4	43	53	36	91	8	O	O
	0750	7.5	43	53	36	91	8	O	O
	0760	7.6	43	53	36	91	8	O	O
	0770	7.7	43	53	36	91	8	O	O
	0780	7.8	43	53	36	91	8	O	O
	0790	7.9	43	53	36	91	8	O	O
	0800	8	43	53	36	91	8	O	O
*	0810 091 08	8.1	43	53	36	91	8	O	O
	0810	8.1	49	61	40	103	10	O	O
	0820	8.2	49	61	40	103	10	O	O
	0830	8.3	49	61	40	103	10	O	O

cont'd ►

* = HPMT STANDARD

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								•	•	•	•	•	•	•	•	•	•	•	•						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR 45 SB OF SPIRAL BURNISHING DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

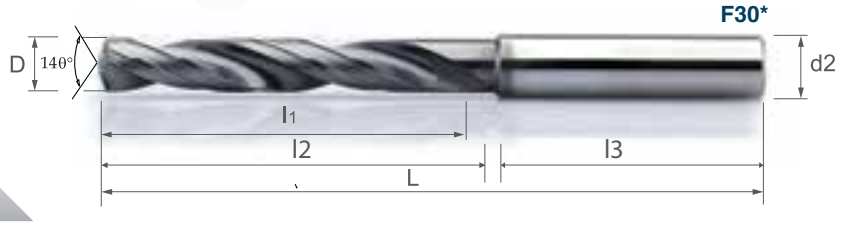
Solid Carbide DR 45 SB OF Spiral Burnishing Drills according to DIN 6537L, with oil feed holes 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537L, queue DIN 6535HA

整体硬质合金 DR 45 SB OF 内冷却钻头 – DIN 6537L 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF 4 Fasen-Spiralbohrer nach DIN 6537L, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio pattino in metallo duro integrale, norme DIN 6537L, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	F29* D0120	F30* G6110
0840	8.4	49	61	40	103	10	O	O
0850	8.5	49	61	40	103	10	O	O
0860	8.6	49	61	40	103	10	O	O
0870	8.7	49	61	40	103	10	O	O
0880	8.8	49	61	40	103	10	O	O
0890	8.9	49	61	40	103	10	O	O
0900	9	49	61	40	103	10	O	O
0910	9.1	49	61	40	103	10	O	O
0920	9.2	49	61	40	103	10	O	O
0930	9.3	49	61	40	103	10	O	O
0940	9.4	49	61	40	103	10	O	O
0950	9.5	61	61	40	103	10	O	O
0960	9.6	61	61	40	103	10	O	O
0970	9.7	61	61	40	103	10	O	O
0980	9.8	61	61	40	103	10	O	O
0990	9.9	61	61	40	103	10	O	O
1000	10	61	61	40	103	10	O	O
1020	10.2	71	71	45	118	12	O	O
1050	10.5	71	71	45	118	12	O	O
1080	10.8	71	71	45	118	12	O	O
1100	11	71	71	45	118	12	O	O
1120	11.2	71	71	45	118	12	O	O
1130	11.3	71	71	45	118	12	O	O
1150	11.5	71	71	45	118	12	O	O
1180	11.8	71	71	45	118	12	O	O
1200	12	71	71	45	118	12	O	O
1220	12.2	77	77	45	124	14	O	O
1250	12.5	77	77	45	124	14	O	O
1270	12.7	77	77	45	124	14	O	O
1280	12.8	77	77	45	124	14	O	O
1300	13	77	77	45	124	14	O	O

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			

Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

DR 45 SB OF SPIRAL BURNISHING DRILLS - DIN 6537L - 140° Point Angle - 5 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

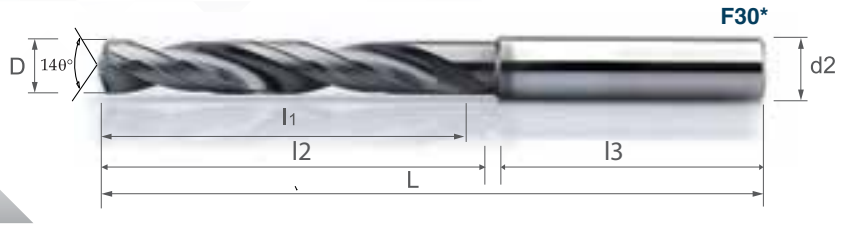
Solid Carbide DR 45 SB OF Spiral Burnishing Drills according to DIN 6537L, with oil feed holes 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon DIN 6537L, queue DIN 6535HA

整体硬质合金 DR 45 SB OF 内冷却钻头 – DIN 6537L 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF 4 Fasen-Spiralbohrer nach DIN 6537L, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio pattino in metallo duro integrale, norme DIN 6537L, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l1	l2	l3	L	d2 (h6)	F29* D0120	F30* G6110
1330	13.3	77	77	45	124	14	O	O
1350	13.5	77	77	45	124	14	O	O
1370	13.7	77	77	45	124	14	O	O
1380	13.8	77	77	45	124	14	O	O
1400	14	77	77	45	124	14	O	O
1450	14.5	83	83	48	133	16	O	O
1500	15	83	83	48	133	16	O	O
1530	15.3	83	83	48	133	16	O	O
1550	15.5	83	83	48	133	16	O	O
1580	15.8	83	83	48	133	16	O	O
1600	16	83	83	48	133	16	O	O
1650	16.5	93	93	48	143	18	O	O
1700	17	93	93	48	143	18	O	O
1750	17.5	93	93	48	143	18	O	O
1800	18	93	93	48	143	18	O	O
1850	18.5	101	101	50	153	20	O	O
1900	19	101	101	50	153	20	O	O
1950	19.5	101	101	50	153	20	O	O
2000	20	101	101	50	153	20	O	O

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

若有技术规格变更，恕不事先通知

DR 45 SB LONG OF SPIRAL BURNISHING DRILLS - HPMT STANDARD - 140° Point Angle - 8 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

Solid Carbide DR 45 SB LONG OF Spiral Burnishing Drills according to HPMT Standard, with oil feed holes - 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon norme HPMT, queue DIN 6535HA

整体硬质合金DR 45 SB LONG OF 内冷却钻头 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF Lange 4 Fasen-Spiralbohrer nach HPMT Norm, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio margine in metallo duro integrale, norma HPMT, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	F32* D0120	F33* G6110
0300 085 03	3	32	40	36	85	3	O	O
0300	3	32	40	36	85	6	O	O
0310 085 03	3.1	32	40	36	85	3	O	O
0310	3.1	32	40	36	85	6	O	O
0320 085 03	3.2	32	40	36	85	3	O	O
0320	3.2	32	40	36	85	6	O	O
0330	3.3	32	40	36	85	6	O	O
0340	3.4	32	40	36	85	6	O	O
0350	3.5	32	40	36	85	6	O	O
0360	3.6	36	40	36	85	6	O	O
0370	3.7	36	40	36	85	6	O	O
0380	3.8	36	40	36	85	6	O	O
0390	3.9	36	40	36	85	6	O	O
0400 085 04	4	36	40	36	85	4	O	O
0400	4	38	46	36	85	6	O	O
0410 085 04	4.1	36	40	36	85	4	O	O
0410	4.1	38	46	36	85	6	O	O
0420 085 04	4.2	36	40	36	85	4	O	O
0420	4.2	38	46	36	85	6	O	O
0430	4.3	40	46	36	97	6	O	O
0440	4.4	40	46	36	97	6	O	O
0450	4.5	44	46	36	97	6	O	O
0460	4.6	44	46	36	97	6	O	O
0470	4.7	44	46	36	97	6	O	O
0480	4.8	44	46	36	97	6	O	O
0490	4.9	44	46	36	97	6	O	O
0500	5	48	57	36	97	6	O	O
0510	5.1	48	57	36	97	6	O	O
0520	5.2	48	57	36	97	6	O	O
0530	5.3	48	57	36	97	6	O	O
0540	5.4	48	57	36	97	6	O	O

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

DR 45 SB LONG OF SPIRAL BURNISHING DRILLS - HPMT STANDARD - 140° Point Angle - 8 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

Solid Carbide DR 45 SB LONG OF Spiral Burnishing Drills according to HPMT Standard, with oil feed holes - 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon norme HPMT, queue DIN 6535HA

整体硬质合金DR 45 SB LONG OF 内冷却钻头 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF Lange 4 Fasen-Spiralbohrer nach HPMT Norm, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio margine in metallo duro integrale, norma HPMT, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D (m7)	l 1	l 2	l 3	L	d2 (h6)	F32* D0120	F33* G6110
0550	5.5	48	57	36	97	6	O	O
0560	5.6	48	57	36	97	6	O	O
0570	5.7	48	57	36	97	6	O	O
0580	5.8	48	57	36	97	6	O	O
0590	5.9	48	57	36	97	6	O	O
0600	6	48	57	36	97	6	O	O
0610 097 06	6.1	48	57	36	97	6	O	O
0610	6.1	64	76	36	116	8	O	O
0620	6.2	64	76	36	116	8	O	O
0630	6.3	64	76	36	116	8	O	O
0640	6.4	64	76	36	116	8	O	O
0650	6.5	64	76	36	116	8	O	O
0660	6.6	64	76	36	116	8	O	O
0670	6.7	64	76	36	116	8	O	O
0680	6.8	64	76	36	116	8	O	O
0690	6.9	64	76	36	116	8	O	O
0700	7	64	76	36	116	8	O	O
0710	7.1	64	76	36	116	8	O	O
0720	7.2	64	76	36	116	8	O	O
0730	7.3	64	76	36	116	8	O	O
0740	7.4	64	76	36	116	8	O	O
0750	7.5	64	76	36	116	8	O	O
0760	7.6	64	76	36	116	8	O	O
0770	7.7	64	76	36	116	8	O	O
0780	7.8	64	76	36	116	8	O	O
0790	7.9	64	76	36	116	8	O	O
0800	8	64	76	36	116	8	O	O
0810 116 08	8.1	64	76	36	116	8	O	O
0810	8.1	80	95	40	142	10	O	O
0820	8.2	80	95	40	142	10	O	O
0830	8.3	80	95	40	142	10	O	O

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			

Working Material	Cutting Parameter
564	473

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

DR 45 SB LONG OF SPIRAL BURNISHING DRILLS - HPMT STANDARD - 140° Point Angle - 8 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

Solid Carbide DR 45 SB LONG OF Spiral Burnishing Drills according to HPMT Standard, with oil feed holes - 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon norme HPMT, queue DIN 6535HA

整体硬质合金DR 45 SB LONG OF 内冷却钻头 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF Lange 4 Fasen-Spiralbohrer nach HPMT Norm, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio margine in metallo duro integrale, norma HPMT, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)						F32*	F33*
	D (m7)	l 1	l 2	l 3	L	d2 (h6)	D0120	G6110
0840	8.4	80	95	40	142	10	O	O
0850	8.5	80	95	40	142	10	O	O
0860	8.6	80	95	40	142	10	O	O
0870	8.7	80	95	40	142	10	O	O
0880	8.8	80	95	40	142	10	O	O
0890	8.9	80	95	40	142	10	O	O
0900	9	80	95	40	142	10	O	O
0910	9.1	80	95	40	142	10	O	O
0920	9.2	80	95	40	142	10	O	O
0930	9.3	80	95	40	142	10	O	O
0940	9.4	80	95	40	142	10	O	O
0950	9.5	80	95	40	142	10	O	O
0960	9.6	80	95	40	142	10	O	O
0970	9.7	80	95	40	142	10	O	O
0980	9.8	80	95	40	142	10	O	O
0990	9.9	80	95	40	142	10	O	O
1000	10	80	95	40	142	10	O	O
1020	10.2	96	114	45	163	12	O	O
1050	10.5	96	114	45	163	12	O	O
1080	10.8	96	114	45	163	12	O	O
1100	11	96	114	45	163	12	O	O
1120	11.2	96	114	45	163	12	O	O
1130	11.3	96	114	45	163	12	O	O
1150	11.5	96	114	45	163	12	O	O
1180	11.8	96	114	45	163	12	O	O
1200	12	96	114	45	163	12	O	O
1220	12.2	112	133	45	182	14	O	O
1250	12.5	112	133	45	182	14	O	O
1270	12.7	112	133	45	182	14	O	O
1280	12.8	112	133	45	182	14	O	O
1300	13	112	133	45	182	14	O	O

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	473

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

DR 45 SB LONG OF SPIRAL BURNISHING DRILLS - HPMT STANDARD - 140° Point Angle - 8 x Ø

≤ 1.300 N/mm² + D0120 ≤ 48 HRC

Solid Carbide DR 45 SB LONG OF Spiral Burnishing Drills according to HPMT Standard, with oil feed holes - 140° point angle, shank according to DIN 6535HA.

DR 45 SB OF Foret hélicoïdal double listel en carbure monobloc à trou d'huile, selon norme HPMT, queue DIN 6535HA

整体硬质合金DR 45 SB LONG OF 内冷却钻头 顶角140°，柄部标准 DIN 6535HA

VHM DR 45 SB OF Lange 4 Fasen-Spiralbohrer nach HPMT Norm, mit Kühlkanälen - 140° Spitzenwinkel, Schaft nach DIN 6535HA

Punte elicoidali DR 45 SB OF a doppio margine in metallo duro integrale, norma HPMT, con fori di lubrificazione - angolo di punta 140°, codolo DIN 6535HA

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						F32*	F33*
=*+Ødata	D (m7)	l 1	l 2	l 3	L	d2 (h6)	D0120	G6110
1350	13.5	112	133	45	182	14	O	O
1370	13.7	112	133	45	182	14	O	O
1400	14	112	133	45	182	14	O	O
1450	14.5	128	152	48	204	16	O	O
1500	15	128	152	48	204	16	O	O
1550	15.5	128	152	48	204	16	O	O
1600	16	128	152	48	204	16	O	O

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			

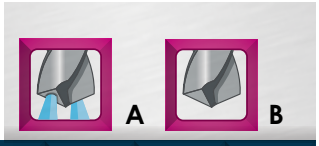
Working Material	Cutting Parameter
564	473

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

Standard Series Drills

Material Groups		Cutting Speed Vc = (n/min)		Feeds f (mm/rev) for diameter ranges (mm)																			
Working Material		Type	Application Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Thermo plastics	M01	A	250 ~ 400	0.06	0.10	0.15	0.19	0.24	0.28	0.32	0.36	0.40	0.43	0.47	0.51	0.55	0.58	0.62	0.66	0.69	0.73	0.76	0.80
without fillers		B	250 ~ 370	0.05	0.09	0.13	0.17	0.21	0.25	0.28	0.32	0.36	0.40	0.43	0.47	0.50	0.54	0.57	0.61	0.65	0.68	0.72	0.75
Aluminium commercial	M02	A	120 ~ 300	0.07	0.12	0.16	0.20	0.23	0.26	0.30	0.32	0.35	0.38	0.41	0.44	0.46	0.49	0.51	0.54	0.56	0.58	0.61	0.63
pure Al-Alloys wrought		B	120 ~ 230	0.06	0.10	0.14	0.17	0.20	0.23	0.26	0.29	0.32	0.34	0.37	0.39	0.41	0.44	0.46	0.48	0.51	0.53	0.55	0.57
Copper pure	M03	A	125 ~ 125	0.06	0.09	0.13	0.15	0.18	0.21	0.23	0.26	0.28	0.30	0.32	0.34	0.36	0.39	0.41	0.42	0.44	0.46	0.48	0.50
		B	120 ~ 120	0.04	0.07	0.10	0.13	0.15	0.17	0.20	0.22	0.24	0.26	0.28	0.30	0.32	0.34	0.36	0.38	0.40	0.41	0.43	0.45
Zinc-Alloys	M04	A	180 ~ 220	0.06	0.11	0.15	0.19	0.23	0.26	0.30	0.33	0.37	0.40	0.43	0.46	0.49	0.52	0.55	0.58	0.61	0.64	0.67	0.70
		B	180 ~ 210	0.05	0.09	0.13	0.17	0.20	0.23	0.27	0.30	0.33	0.36	0.39	0.42	0.45	0.48	0.51	0.54	0.57	0.59	0.62	0.65
Aluminium-Slilicon Alloys	M05	A	200 ~ 300	0.06	0.10	0.15	0.19	0.24	0.28	0.32	0.36	0.40	0.43	0.47	0.51	0.55	0.58	0.62	0.66	0.69	0.73	0.76	0.80
Cast, below 10% Si		B	200 ~ 270	0.05	0.09	0.13	0.17	0.21	0.25	0.28	0.32	0.36	0.40	0.43	0.47	0.50	0.54	0.57	0.61	0.65	0.68	0.72	0.75
Aluminium-Slilicon Alloys	M06	A	180 ~ 220	0.07	0.12	0.16	0.20	0.23	0.26	0.30	0.32	0.35	0.38	0.41	0.44	0.46	0.49	0.51	0.54	0.56	0.58	0.61	0.63
Cast, 10% - 14% Si		B	180 ~ 210	0.06	0.09	0.13	0.16	0.19	0.22	0.25	0.28	0.31	0.33	0.36	0.38	0.41	0.43	0.46	0.48	0.50	0.53	0.55	0.57
Aluminium-Slilicon Alloys	M07	A	120 ~ 180	0.07	0.12	0.16	0.20	0.23	0.26	0.30	0.32	0.35	0.38	0.41	0.44	0.46	0.49	0.51	0.54	0.56	0.58	0.61	0.63
Cast, more than 14% Si		B	120 ~ 160	0.06	0.09	0.13	0.16	0.19	0.22	0.25	0.28	0.31	0.33	0.36	0.38	0.41	0.43	0.46	0.48	0.50	0.53	0.55	0.57
Brass	M08	A	120 ~ 180	0.06	0.09	0.13	0.15	0.18	0.21	0.23	0.26	0.28	0.30	0.32	0.34	0.36	0.39	0.41	0.42	0.44	0.46	0.48	0.50
		B	120 ~ 160	0.04	0.07	0.10	0.13	0.15	0.17	0.20	0.22	0.24	0.26	0.28	0.30	0.32	0.34	0.36	0.38	0.40	0.41	0.43	0.45
Bronze	M09	A	120 ~ 180	0.06	0.10	0.14	0.17	0.20	0.23	0.26	0.28	0.31	0.33	0.36	0.38	0.40	0.43	0.45	0.47	0.49	0.51	0.53	0.55
		B	120 ~ 160	0.06	0.09	0.13	0.15	0.18	0.21	0.23	0.26	0.28	0.30	0.32	0.34	0.36	0.39	0.41	0.42	0.44	0.46	0.48	0.50
Cast iron	M10	A	50 ~ 130	0.04	0.07	0.10	0.13	0.15	0.18	0.21	0.23	0.25	0.28	0.30	0.32	0.35	0.37	0.39	0.41	0.44	0.46	0.48	0.50
GG 10... GG20		B	50 ~ 110	0.04	0.07	0.09	0.11	0.13	0.16	0.18	0.19	0.21	0.23	0.25	0.27	0.29	0.30	0.32	0.34	0.35	0.37	0.38	0.40
Cast iron, Malleable iron	M11- M14	A	50 ~ 130	0.04	0.07	0.10	0.13	0.15	0.18	0.21	0.23	0.25	0.28	0.30	0.32	0.35	0.37	0.39	0.41	0.44	0.46	0.48	0.50
		B	50 ~ 110	0.03	0.05	0.07	0.09	0.11	0.13	0.15	0.17	0.19	0.21	0.23	0.25	0.27	0.29	0.31	0.33	0.34	0.36	0.38	0.40
Steel and Cast Steel	M15	A	80 ~ 120	0.04	0.07	0.10	0.12	0.15	0.17	0.19	0.21	0.23	0.25	0.27	0.29	0.30	0.32	0.34	0.35	0.37	0.39	0.40	0.42
up to 700 N/mm² - 210HB		B	80 ~ 110	0.03	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.28	0.30	0.31	0.33	0.35	0.37	0.38	0.40
Stainless Steel -SUS 300	M16	A	30 ~ 55	0.02	0.04	0.06	0.08	0.09	0.11	0.12	0.14	0.15	0.17	0.18	0.19	0.21	0.22	0.24	0.25	0.26	0.27	0.29	0.30
		B	30 ~ 50	0.02	0.04	0.05	0.06	0.08	0.09	0.10	0.11	0.13	0.14	0.15	0.16	0.17	0.18	0.20	0.21	0.22	0.23	0.24	0.25
Titanium commercial	M17	A	45 ~ 45	0.03	0.05	0.06	0.08	0.09	0.10	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25
Titanium alloys up to 700 N/mm²		B	45 ~ 45	0.03	0.05	0.06	0.07	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.20	0.21	0.22	0.23
Steel and Cast Steel	M18	A	80 ~ 135	0.06	0.09	0.12	0.15	0.17	0.19	0.22	0.24	0.26	0.28	0.30	0.32	0.33	0.35	0.37	0.39	0.40	0.42	0.43	0.45
~30 HRC -210 - 295 HB		B	80 ~ 110	0.03	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.28	0.30	0.31	0.33	0.35	0.37	0.38	0.40
Ni and Co Alloys	M19	A	30 ~ 50	0.03	0.04	0.06	0.07	0.09	0.10	0.11	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25
up to 900 N/mm² - 266HB		B	25 ~ 45	0.03	0.05	0.06	0.07	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.20	0.21	0.22	0.23
Stainless Steel -SUS 400	M20	A	30 ~ 60	0.04	0.06	0.08	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.23	0.24	0.25
		B	30 ~ 55	0.05	0.07	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.18	0.19	0.20	0.21	0.21	0.22	0.22	0.23
Titanium commercial	M21	A	40 ~ 40	0.03	0.05	0.06	0.08	0.09	0.10	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25
Titanium alloys over 700 N/mm²		B	40 ~ 40	0.03	0.05	0.06	0.07	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.20	0.21	0.22	0.23
Steel and Cast Steel	M22	A	60 ~ 85	0.04	0.06	0.08	0.10	0.12	0.13	0.15	0.16	0.18	0.19	0.20	0.22	0.23	0.24	0.26	0.27	0.28	0.29	0.30	0.32
~ 40 HRC - 360 - 440B		B	60 ~ 70	0.03	0.05	0.07	0.08	0.10	0.11	0.12	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.22	0.23	0.24	0.25
Ni and Co Alloys	M23	A	20 ~ 40	0.02	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.15	0.16	0.17	0.18	0.19	0.19	0.20
up to 1200 N/mm²		B	20 ~ 37	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.10	0.11	0.12	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.18
Ni and Co Alloys	M24	A	20 ~ 35	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.10	0.11	0.12	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.18
more than 1200 N/mm²		B	20 ~ 30	0.02	0.03	0.04	0.04	0.05	0.06	0.07	0.07	0.08	0.09	0.09	0.10	0.11	0.11	0.12	0.13	0.13	0.14	0.14	0.15
Steel and Cast Steel	M25	A	40 ~ 60	0.02	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.15	0.16	0.17	0.18	0.19	0.19	0.20
~ 35 HRC - 295 - 360B		B	30 ~ 45	0.02	0.03	0.04	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.10	0.11	0.12	0.12	0.13	0.14	0.14	0.15	0.15	0.16
Hardened Steel	M26	A	15 ~ 25	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20
~52 HRC		B	15 ~ 25	0.63	0.38	0.28	0.23	0.19	0.17	0.06	0.14	0.08	0.11	0.09	0.10	0.11	0.12	0.12	0.08	0.14	0.15	0.15	0.07
Chilled cast Iron	M27	A	40 ~ 40	0.02	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.15	0.16	0.17	0.18	0.19	0.19	0.20
		B	35 ~ 35	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.08	0.09	0.10	0.11	0.12	0.12	0.13	0.14	0.14	0.15	0.16	0.16	0.17
Hardened Steel	M28	A	10 ~ 15	0.01	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.09	0.09	0.10	0.11	0.11	0.12	0.13	0.14	0.14	0.15	0.16
~52 -65 HRC		B	10 ~ 13	0.01	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.12

Standard Series Drills

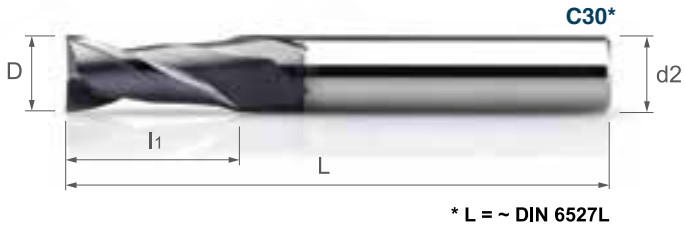


Material Groups		Cutting Speed Vc = (n/min)		Feeds f (mm/rev) for diameter ranges (mm)																			
Working Material		Type	Application Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Plastic , reinforced with organic	M29	A	200 ~ 375	0.05	0.09	0.13	0.17	0.21	0.25	0.28	0.32	0.36	0.40	0.43	0.47	0.50	0.54	0.57	0.61	0.65	0.68	0.72	0.75
fillers.		B	200 ~ 350	0.03	0.07	0.10	0.13	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.42	0.46	0.50	0.53	0.57	0.61	0.65	0.68	0.72
Graphite	M30	A	200 ~ 400	0.05	0.09	0.13	0.17	0.21	0.25	0.28	0.32	0.36	0.40	0.43	0.47	0.50	0.54	0.57	0.61	0.65	0.68	0.72	0.75
		B	200 ~ 375	0.03	0.07	0.10	0.14	0.17	0.21	0.25	0.28	0.32	0.36	0.40	0.44	0.47	0.51	0.55	0.59	0.63	0.67	0.71	0.75
Heat- Resistaant Steel	M31	A	25 ~ 40	0.01	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.17	0.18	0.19	0.20	0.21	0.22	0.23
		B	25 ~ 37	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20
Nickel Base Alloys pre-hardened	M32	A	20 ~ 35	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.17	0.18	0.19	0.20
(e.g INCONEL 718)		B	30 ~ 33	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.15	0.16	0.17	0.18
Hardened Steel	M33	A	7 ~ 12	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.09	0.10	0.11	0.11	0.12	0.13	0.13
~ 63-68 HRC		B	7 ~ 11	0.01	0.01	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.11

NiTiCo 30

NiTiCo 30 STANDARD ENDMILLS

Solid Carbide NiTiCo 30 Standard Endmills, 2/3/4 flutes
Fraises 2 tailles NiTiCo 30 Standard - 2/3/4 dents, en carbure monobloc
整体硬质合金 NiTiCo 30 系列 立铣刀 2/3/4 刃 – 标准长度
VHM NiTiCo 30 Standard Fräser, 2/3/4 Zähne
Frese NiTiCo 30 Standard in metallo duro integrale, 2/3/4 taglienti



* L = ~ DIN 6527L

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	C30* HA G6110	C31* HA G6110	C32* HA G6110
0100 040 03	1	3		40	3	●	●	●
0100 040 04	1	3		40	4	●	●	●
0150 040 03	1.5	4.5		40	3	●	●	●
0150 040 04	1.5	4.5		40	4	●	●	●
0200 040 03	2	6.5		40	3	●	●	●
0200 040 04	2	6.5		40	4	●	●	●
0250 040 03	2.5	6.5		40	3	●	●	●
0250 040 04	2.5	6.5		40	4	●	●	●
0300	3	9		40	3	●	●	●
0300 050 06	3	9		50	6	●	●	●
0400	4	12		50	4	●	●	●
0400 050 06	4	12		50	6	●	●	●
0500	5	15		50	5	●	●	●
0500 050 06	5	15		50	6	●	●	●
0600 050	6	16		50	6	●	●	●
0600 060	6	20		60	6	●	●	●
0800	8	20		64	8	●	●	●
1000 070	10	22		70	10	●	●	●
1000 075	10	22		75	10	●	●	●
1200	12	25		75	12	●	●	●
1400	14	32		90	14	●	●	●
1600	16	32		90	16	●	●	●
1800	18	38		100	18	●	●	●
2000	20	38		100	20	●	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material 564 | Cutting Parameter 494

若有技术规格变更，恕不事先通知

NiTiCo 30 STANDARD ENDMILLS with WELDON SHANK

Solid Carbide NiTiCo 30 Standard Endmills with Weldon Shank, 2/3/4 flutes

Fraises 2 tailles NiTiCo 30 Standard avec queue Weldon - 2/3/4 dents, en carbure monobloc

整体硬质合金 NiTiCo 30 系列 立铣刀 2/3/4 刃 – 标准长度

VHM NiTiCo 30 Standard Fräser mit Weldon Schaft, 2/3/4 Zähne

Frese NiTiCo 30 Standard con codolo Weldon in metallo duro integrale, 2/3/4 taglienti

* L = ~ DIN 6527L

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)					C42* HB	C43* HB	C44* HB
=*+Ødata	D	l 1	l 2	L	d2 (h6)	G6110	G6110	G6110
0300 050 06	3	9		50	6	O	O	O
0400 050 06	4	12		50	6	O	O	O
0500 050 06	5	15		50	6	O	O	O
0600 050	6	16		50	6	O	O	O
0800	8	20		64	8	O	O	O
1000 070	10	22		70	10	O	O	O
1200	12	25		75	12	O	O	O
1400	14	32		90	14	O	O	O
1600	16	32		90	16	O	O	O
1800	18	38		100	18	O	O	O
2000	20	38		100	20	O	O	O

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								•	•	•	•	•	•	•		•	•	•		•	•		•		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	494

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

NiTiCo 30 DP STANDARD ENDMILLS, also with WELDON SHANK

Solid Carbide NiTiCo 30 DP Standard Endmills, with Differential Pitch, 4 flutes

Fraises 2 tailles NiTiCo 30 DP Standard à pas décalés, 4 dents, en carbure monobloc

整体硬质合金 NiTiCo 30 DP 系列 立铣刀 4 刃 – 标准长度

VHM NiTiCo 30 DP Standard Fräser mit ungleicher Teilung, 4 Zähne

Frese NiTiCo 30 DP Standard in metallo duro, passo differenziale, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	951* HA G6110	972* HB G6110
0300 040 03	3	9		40	3	○	-
0300 040 04	3	9		40	4	○	-
0300 050 06	3	9		50	6	○	○
0300 057 06	3	9		57	6	●	●
0400 050 04	4	12		50	4	○	-
0400 050 06	4	12		50	6	○	○
0400 057 06	4	12		57	6	●	●
0500 050 05	5	13		50	5	○	-
0500 050 06	5	13		50	6	○	○
0500 057 06	5	13		57	6	●	●
0600 050	6	13		50	6	○	○
0600 057	6	13		57	6	●	●
0800 064	8	20		64	8	●	●
1000 070	10	22		70	10	○	○
1000 072	10	22		72	10	●	●
1000 075	10	22		75	10	○	○
1200 075	12	26		75	12	○	○
1200 083	12	26		83	12	●	●
1400 083	14	32		83	14	●	●
1400 090	14	32		90	14	○	○
1600 090	16	32		90	16	○	○
1600 092	16	32		92	16	●	●
1800 092	18	38		92	18	●	●
1800 100	18	38		100	18	○	○
2000 100	20	38		100	20	○	○
2000 104	20	38		104	20	●	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material 564 | Cutting Parameter 494

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

NiTiCo 30 DP ROUGHING ENDMILLS, also with WELDON SHANK

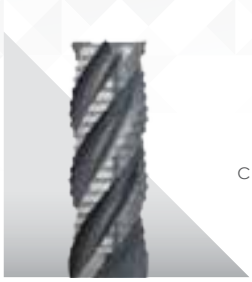
Solid Carbide Roughing Endmills
NiTiCo 30 DP with differential pitch, 4 Flutes

Fraises ébauches 2 tailles NiTiCo 30 DP
à pas décalés - 4 dents, en carbure monobloc

整体硬质合金 NiTiCo 30 DP 系列 粗皮
立铣刀 4 刃 – 标准长度

VHM DP Schruppfräser NiTiCo 30 mit
ungleicher Teilung, 4 Zähne

Frese per sgrossare NiTiCo 30 DP
in metallo duro, passo differenziale, 4 taglienti



* L = ~ DIN 6527L

	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	C	C47* HA G6110	C64* HB G6110
	0600 050	6	16		50	6	0.1	○	○
*	0600 057	6	16		57	6	0.1	●	●
*	0800 064	8	20		64	8	0.2	●	●
	1000 070	10	22		70	10	0.2	○	○
*	1000 072	10	22		72	10	0.2	●	●
	1000 075	10	22		75	10	0.2	○	○
*	1200 075	12	26		75	12	0.2	○	○
	1200 083	12	26		83	12	0.2	●	●
	1400 083	14	26		83	14	0.3	●	●
	1400 090	14	32		90	14	0.3	○	○
	1600 090	16	32		90	16	0.3	○	○
*	1600 092	16	32		92	16	0.3	●	●
*	1800 092	18	32		92	18	0.3	●	●
	1800 100	18	38		100	18	0.3	○	○
	2000 100	20	38		100	20	0.4	○	○
*	2000 104	20	38		104	2	0.4	●	●

CNC Repeatability within 10 µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	498

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

NiTiCo 30 - DPR TORUS ENDMILLS, also with Weldon Shank

Solid Carbide NiTiCo 30 DPR Torus Endmills with differential pitch, 4 flutes

Fraises 2 tailles NiTiCo 30 DPR toriques à pas décalés en carbure monobloc, 4 dents

整体硬质合金 NiTiCo 30 DPR 系列 圆鼻立铣刀 4 刃

VHM SE NiTiCo 30 DPR Torusfräser mit ungleicher Teilung, 4 Zähne

Frese NiTiCo 30 DPR toriche, in metallo duro integrale, passo differenziale, 4 taglienti

* L = ~ DIN 6527L

	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	C45* HA T ... n	C46* HA G6110	C51* HB T ... n	C52* HB G6110
	0300 040 0300 030	3	9		40	3	0.3	○	○	-	-
	0300 040 0300 050	3	9		40	3	0.5	○	○	-	-
	0300 040 0400 030	3	9		40	4	0.3	○	○	-	-
	0300 040 0400 050	3	9		40	4	0.5	●	●	-	-
	0300 050 0600 030	3	9		50	6	0.3	●	●	-	-
	0300 050 0600 050	3	9		50	6	0.5	●	●	-	-
*	0300 057 0600 030	3	9		57	6	0.3	○	○	-	-
*	0300 057 0600 050	3	9		57	6	0.5	○	○	-	-
	0400 050 0400 030	4	12		50	4	0.3	○	○	-	-
	0400 050 0400 050	4	12		50	4	0.5	○	○	-	-
	0400 050 0400 100	4	12		50	4	1	○	○	-	-
	0400 050 0600 030	4	12		50	6	0.3	○	○	-	-
	0400 050 0600 050	4	12		50	6	0.5	○	○	-	-
	0400 050 0600 100	4	12		50	6	1	○	○	-	-
*	0400 057 0600 030	4	12		57	6	0.3	●	●	-	-
*	0400 057 0600 050	4	12		57	6	0.5	●	●	-	-
	0500 050 0500 030	5	15		50	5	0.3	○	○	-	-
	0500 050 0500 050	5	15		50	5	0.5	○	○	-	-
	0500 050 0500 100	5	15		50	5	1	○	○	-	-
	0500 050 0600 030	5	15		50	6	0.3	○	○	-	-
	0500 050 0600 050	5	15		50	6	0.5	○	○	-	-
	0500 050 0600 100	5	15		50	6	1	○	○	-	-
*	0500 057 0600 030	5	15		57	6	0.3	●	●	-	-
*	0500 057 0600 050	5	15		57	6	0.5	●	●	-	-
	0600 050 0600 030	6	16		50	6	0.3	○	○	○	○
	0600 050 0600 050	6	16		50	6	0.5	○	○	○	○
	0600 050 0600 100	6	16		50	6	1	○	○	○	○
*	0600 057 0600 030	6	16		57	6	0.3	●	●	●	●
*	0600 057 0600 050	6	16		57	6	0.5	●	●	●	●
*	0600 057 0600 100	6	16		57	6	1	●	●	●	●
	0600 060 0600 030	6	20		60	6	0.3	○	○	○	○

CNC Repeatability within 10 µm

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	494

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

NiTiCo 30 - DPR TORUS ENDMILLS, also with Weldon Shank

Solid Carbide NiTiCo 30 DPR Torus Endmills with differential pitch, 4 flutes

Fraises 2 tailles NiTiCo 30 DPR toriques à pas décalés en carbure monobloc, 4 dents

整体硬质合金 NiTiCo 30 DPR 系列 圆鼻立铣刀 4 刃

VHM SE NiTiCo 30 DPR Torusfräser mit ungleicher Teilung, 4 Zähne

Frese NiTiCo 30 DPR toriche, in metallo duro integrale, passo differenziale, 4 taglienti

* L = ~ DIN 6527L

	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l 1	l 2	L	d2 (h6)	R	C45* HA T ... n	C46* HA G6110	C51* HB T ... n	C52* HB G6110
	0600 060 0600 050	6	20		60	6	0.5	○	○	○	○
	0600 060 0600 100	6	20		60	6	1	○	○	○	○
*	0800 064 0800 030	8	20		64	8	0.3	●	●	●	●
*	0800 064 0800 050	8	20		64	8	0.5	●	●	●	●
*	0800 064 0800 100	8	20		64	8	1	●	●	●	●
*	0800 064 0800 150	8	20		64	8	1.5	●	●	●	●
*	0800 064 0800 200	8	20		64	8	2	●	●	●	●
	1000 070 1000 030	10	22		70	10	0.3	○	○	○	○
	1000 070 1000 050	10	22		70	10	0.5	○	○	○	○
	1000 070 1000 100	10	22		70	10	1	○	○	○	○
	1000 070 1000 150	10	22		70	10	1.5	○	○	○	○
	1000 070 1000 200	10	22		70	10	2	○	○	○	○
*	1000 072 1000 030	10	22		72	10	0.3	●	●	●	●
*	1000 072 1000 050	10	22		72	10	0.5	●	●	●	●
*	1000 072 1000 100	10	22		72	10	1	●	●	●	●
	1000 075 1000 030	10	22		75	10	0.3	○	○	○	○
	1000 075 1000 050	10	22		75	10	0.5	○	○	○	○
	1000 075 1000 100	10	22		75	10	1	○	○	○	○
	1000 075 1000 150	10	22		75	10	1.5	○	○	○	○
	1000 075 1000 200	10	22		75	10	2	○	○	○	○
	1200 075 1200 030	12	25		75	12	0.3	○	○	○	○
	1200 075 1200 050	12	25		75	12	0.5	○	○	○	○
	1200 075 1200 100	12	25		75	12	1	○	○	○	○
	1200 075 1200 150	12	25		75	12	1.5	○	○	○	○
	1200 075 1200 200	12	25		75	12	2	○	○	○	○
	1200 075 1200 250	12	25		75	12	2.5	○	○	○	○
	1200 075 1200 300	12	25		75	12	3	○	○	○	○
*	1200 083 1200 030	12	26		83	12	0.3	●	●	●	●
*	1200 083 1200 050	12	26		83	12	0.5	●	●	●	●
*	1200 083 1200 100	12	26		83	12	1	●	●	●	●
*	1200 083 1200 200	12	26		83	12	2	●	●	●	●

CNC Repeatability within 10 µm

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●			●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	494

若有技术规格变更，恕不事先通知

NiTiCo 30 - DPR TORUS ENDMILLS, also with Weldon Shank

Solid Carbide NiTiCo 30 DPR Torus Endmills with differential pitch, 4 flutes

Fraises 2 tailles NiTiCo 30 DPR toriques à pas décalés en carbure monobloc, 4 dents

整体硬质合金 NiTiCo 30 DPR 系列 圆鼻立铣刀 4 刃

VHM SE NiTiCo 30 DPR Torusfräser mit ungleicher Teilung, 4 Zähne

Frese NiTiCo 30 DPR toriche, in metallo duro integrale, passo differenziale, 4 taglienti

* L = ~ DIN 6527L

	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	C45* HA T ... n	C46* HA G6110	C51* HB T ... n	C52* HB G6110
	1200 083 1200 250	12	20		83	12	2.5	●	●	●	●
*	1200 083 1200 300	12	20		83	12	3	●	●	●	●
*	1400 083 1400 030	14	20		83	14	0.3	●	●	●	●
*	1400 083 1400 050	14	20		83	14	0.5	●	●	●	●
*	1400 083 1400 100	14	20		83	14	1	●	●	●	●
*	1400 083 1400 200	14	20		83	14	2	●	●	●	●
*	1400 083 1400 300	14	20		83	14	3	●	●	●	●
	1400 090 1400 050	14	22		90	14	0.5	○	○	○	○
	1400 090 1400 100	14	22		90	14	1	○	○	○	○
	1400 090 1400 150	14	22		90	14	1.5	○	○	○	○
	1400 090 1400 200	14	22		90	14	2	○	○	○	○
	1400 090 1400 300	14	22		90	14	3	○	○	○	○
	1600 090 1600 050	16	22		90	16	0.5	○	○	○	○
	1600 090 1600 100	16	22		90	16	1	○	○	○	○
	1600 090 1600 150	16	22		90	16	1.5	○	○	○	○
	1600 090 1600 200	16	22		90	16	2	○	○	○	○
	1600 090 1600 250	16	22		90	16	2.5	○	○	○	○
	1600 090 1600 300	16	22		90	16	3	○	○	○	○
	1600 090 1600 400	16	22		90	16	4	○	○	○	○
*	1600 092 1600 030	16	22		92	16	0.3	●	●	●	●
*	1600 092 1600 050	16	25		92	16	0.5	●	●	●	●
*	1600 092 1600 100	16	25		92	16	1	●	●	●	●
*	1600 092 1600 200	16	25		92	16	2	●	●	●	●
	1600 092 1600 250	16	25		92	16	2.5	●	●	●	●
*	1600 092 1600 300	16	25		92	16	3	●	●	●	●
	1600 092 1600 400	16	25		92	16	4	●	●	●	●
*	1800 092 1800 030	18	25		92	18	0.3	●	●	●	●
*	1800 092 1800 050	18	26		92	18	0.5	●	●	●	●
*	1800 092 1800 100	18	26		92	18	1	●	●	●	●
*	1800 092 1800 200	18	26		92	18	2	●	●	●	●
*	1800 092 1800 300	18	26		92	18	3	●	●	●	●

CNC Repeatability within 10 µm

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●		●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	494

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

NiTiCo 30 - DPR TORUS ENDMILLS, also with Weldon Shank

Solid Carbide NiTiCo 30 DPR Torus Endmills with differential pitch, 4 flutes

Fraises 2 tailles NiTiCo 30 DPR toriques à pas décalés en carbure monobloc, 4 dents

整体硬质合金 NiTiCo 30 DPR 系列 圆鼻立铣刀 4 刃

VHM SE NiTiCo 30 DPR Torusfräser mit ungleicher Teilung, 4 Zähne

Frese NiTiCo 30 DPR toriche, in metallo duro integrale, passo differenziale, 4 taglienti

* L = ~ DIN 6527L

	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	C45* HA T ... n	C46* HA G6110	C51* HB T ... n	C52* HB G6110
	1800 100 1800 050	18	38		100	18	18	○	○	○	○
	1800 100 1800 100	18	38		100	18	18	○	○	○	○
	1800 100 1800 150	18	38		100	18	18	○	○	○	○
	1800 100 1800 200	18	38		100	18	18	○	○	○	○
	1800 100 1800 300	18	38		100	18	18	○	○	○	○
	2000 100 2000 050	20	38		100	20	20	○	○	○	○
	2000 100 2000 100	20	38		100	20	20	○	○	○	○
	2000 100 2000 150	20	38		100	20	20	○	○	○	○
	2000 100 2000 200	20	38		100	20	20	○	○	○	○
	2000 100 2000 250	20	38		100	20	20	○	○	○	○
	2000 100 2000 300	20	38		100	20	20	○	○	○	○
	2000 100 2000 400	20	38		100	20	20	○	○	○	○
*	2000 104 2000 030	20	38		104	20	20	●	●	●	●
*	2000 104 2000 050	20	38		104	20	20	●	●	●	●
*	2000 104 2000 100	20	38		104	20	20	●	●	●	●
*	2000 104 2000 200	20	38		104	20	20	●	●	●	●
*	2000 104 2000 250	20	38		104	20	20	●	●	●	●
*	2000 104 2000 300	20	38		104	20	20	●	●	●	●
*	2000 104 2000 400	20	38		104	20	20	●	●	●	●

CNC Repeatability within 10 µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●	●	●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	494

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

NiTiCo 30 DP/DH ENDMILLS, also with Weldon Shank

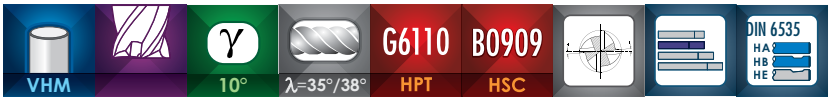
Solid Carbide NiTiCo 30 DP/DH Endmills
with differential pitch and differential helix angles, 4 Flutes

Fraises 2 tailles NiTiCo 30 DP/DH à pas décalés et hélices
différentes, en carbure monobloc, 4 dents

整体硬质合金 NiTiCo 30 系列 不等分 割及
不等份 螺旋角 立铣刀 4 刃 – 标准长度

VHM NiTiCo 30 DP/DH Fräser mit
ungleicher Teilung und ungleichen Drallwinkeln, 4 Zähne

Frese NiTiCo 30 DP/DH in metallo duro
integrale a passo ed eliche variabili,4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	C	949* HA G6110	A1N* HA B0909	C49* HB G6110	A1S* HB B0909
0400	4	11		57	6	0.1	●	●	●	●
0500	5	13		57	6	0.1	●	●	●	●
0600	6	13		57	6	0.1	●	●	●	●
0800	8	20		64	8	0.2	●	●	●	●
1000	10	22		72	10	0.2	●	●	●	●
1200	12	26		83	12	0.2	●	●	●	●
1400	14	26		83	14	0.3	●	●	●	●
1600	16	32		92	16	0.3	●	●	●	●
1800	18	32		92	18	0.3	●	●	●	●
2000	20	38		104	20	0.4	●	●	●	●

CNC Repeatability within 10 µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material 564 | Cutting Parameter 494

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

NiTiCo 30R DP/DH ENDMILLS, also with Weldon Shank

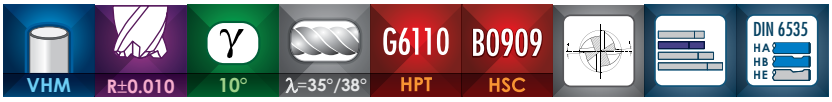
Solid Carbide NiTiCo 30R DP/DH Endmills with differential pitch and differential helix angles, 4 Flutes

Fraises 2 tailles NiTiCo 30R DP/DH toriques à pas décalés et hélices différentes, en carbure monobloc, 4 dents

整体硬质合金 NiTiCo 30R 系列 不等分 割及 不等份 螺旋角 立铣刀 4 刃 – 标准长度

VHM NiTiCo 30R DP/DH Fräser mit ungleicher Teilung und ungleichen Drallwinkeln, 4 Zähne

Frese NiTiCo 30R DP/DH in metallo duro integrale a passo ed eliche variabili, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	C48* HA G6110	A1R* HA B0909	C50* HB G6110	A1T* HB B0909
0400 057 0600 030	4	11		57	6	0.3	●	●	●	●
0400 057 0600 050	4	11		57	6	0.5	●	●	●	●
0500 057 0600 030	5	13		57	6	0.3	●	●	●	●
0500 057 0600 050	5	13		57	6	0.5	●	●	●	●
0600 057 0600 030	6	13		57	6	0.3	●	●	●	●
0600 057 0600 050	6	13		57	6	0.5	●	●	●	●
0600 057 0600 100	6	13		57	6	1	●	●	●	●
0800 064 0800 030	8	20		64	8	0.3	●	●	●	●
0800 064 0800 050	8	20		64	8	0.5	●	●	●	●
0800 064 0800 100	8	20		64	8	1	●	●	●	●
1000 072 1000 030	10	22		72	10	0.3	●	●	●	●
1000 072 1000 050	10	22		72	10	0.5	●	●	●	●
1000 072 1000 100	10	22		72	10	1	●	●	●	●
1200 083 1200 030	12	26		83	12	0.3	●	●	●	●
1200 083 1200 050	12	26		83	12	0.5	●	●	●	●
1200 083 1200 100	12	26		83	12	1	●	●	●	●
1200 083 1200 200	12	26		83	12	2	●	●	●	●
1200 083 1200 250	12	26		83	12	2.5	●	●	●	●
1200 083 1200 300	12	26		83	12	3	●	●	●	●
1400 083 1400 030	14	26		83	14	0.3	●	●	●	●
1400 083 1400 050	14	26		83	14	0.5	●	●	●	●
1400 083 1400 100	14	26		83	14	1	●	●	●	●
1400 083 1400 200	14	26		83	14	2	●	●	●	●
1400 083 1400 300	14	26		83	14	3	●	●	●	●
1600 092 1600 030	16	32		92	16	0.3	●	●	●	●
1600 092 1600 050	16	32		92	16	0.5	●	●	●	●
1600 092 1600 100	16	32		92	16	1	●	●	●	●
1600 092 1600 200	16	32		92	16	2	●	●	●	●
1600 092 1600 250	16	32		92	16	2.5	●	●	●	●
1600 092 1600 300	16	32		92	16	3	●	●	●	●
1600 092 1600 400	16	32		92	16	4	●	●	●	●

CNC Repeatability within 10 µm

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	494

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

NiTiCo 30R DP/DH ENDMILLS, also with Weldon Shank

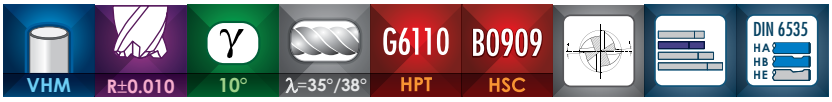
Solid Carbide NiTiCo 30R DP/DH Endmills
with differential pitch and differential helix angles, 4 Flutes

Fraises 2 tailles NiTiCo 30R DP/DH toriques
à pas décalés et hélices différentes, en carbure monobloc, 4 dents

整体硬质合金 NiTiCo 30R 系列 不等分 割及
不等份 螺旋角 立铣刀 4 刃 – 标准长度

VHM NiTiCo 30R DP/DH Fräser mit
ungleicher Teilung und ungleichen Drallwinkeln, 4 Zähne

Frese NiTiCo 30R DP/DH in metallo duro
integrale a passo ed eliche variabili, 4 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	C48* HA G6110	A1R* HA B0909	C50* HB G6110	A1T* HB B0909
1800 092 1800 030	18	32		92	18	0.3	●	●	●	●
1800 092 1800 050	18	32		92	18	0.5	●	●	●	●
1800 092 1800 100	18	32		92	18	1	●	●	●	●
1800 092 1800 200	18	32		92	18	2	●	●	●	●
1800 092 1800 300	18	32		92	18	3	●	●	●	●
2000 104 2000 030	20	38		104	20	0.3	●	●	●	●
2000 104 2000 050	20	38		104	20	0.5	●	●	●	●
2000 104 2000 100	20	38		104	20	1	●	●	●	●
2000 104 2000 200	20	38		104	20	2	●	●	●	●
2000 104 2000 250	20	38		104	20	2.5	●	●	●	●
2000 104 2000 300	20	38		104	20	3	●	●	●	●
2000 104 2000 400	20	38		104	20	4	●	●	●	●

CNC Repeatability within 10 µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	494

若有技术规格变更，恕不事先通知

NiTiCo 30 MINIATURE ENDMILLS - with Long Neck

Solid Carbide NiTiCo 30 Miniature Endmills with long neck, 2 flutes

Micro-fraises NiTiCo 30 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 NiTiCo 30 系列 长颈短刃 立铣刀 2 刃

VHM NiTiCo 30 Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese NiTiCo 30 in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d1	d2 (h6)	G87 * G6110
0020 050 0400 005	0.2	0.3	0.5	50	0.16	4	●
0020 050 0400 010	0.2	0.3	1	50	0.16	4	●
0020 050 0400 015	0.2	0.3	1.5	50	0.16	4	●
0030 050 0400 010	0.3	0.4	1	50	0.26	4	●
0030 050 0400 020	0.3	0.4	2	50	0.26	4	●
0030 050 0400 030	0.3	0.4	3	50	0.26	4	●
0040 050 0400 020	0.4	0.6	2	50	0.37	4	●
0040 050 0400 030	0.4	0.6	3	50	0.37	4	●
0040 050 0400 040	0.4	0.6	4	50	0.37	4	●
0040 050 0400 050	0.4	0.6	5	50	0.37	4	●
0050 050 0400 020	0.5	0.7	2	50	0.45	4	●
0050 050 0400 040	0.5	0.7	4	50	0.45	4	●
0050 050 0400 060	0.5	0.7	6	50	0.45	4	●
0050 050 0400 080	0.5	0.7	8	50	0.45	4	●
0060 050 0400 020	0.6	0.9	2	50	0.55	4	●
0060 050 0400 040	0.6	0.9	4	50	0.55	4	●
0060 050 0400 060	0.6	0.9	6	50	0.55	4	●
0060 050 0400 080	0.6	0.9	8	50	0.55	4	●
0060 050 0400 100	0.6	0.9	10	50	0.55	4	●
0070 050 0400 020	0.7	1	2	50	0.65	4	●
0070 050 0400 040	0.7	1	4	50	0.65	4	●
0070 050 0400 060	0.7	1	6	50	0.65	4	●
0070 050 0400 080	0.7	1	8	50	0.65	4	●
0070 050 0400 100	0.7	1	10	50	0.65	4	●
0080 050 0400 040	0.8	1.2	4	50	0.75	4	●
0080 050 0400 060	0.8	1.2	6	50	0.75	4	●
0080 050 0400 080	0.8	1.2	8	50	0.75	4	●
0080 050 0400 100	0.8	1.2	10	50	0.75	4	●
0080 050 0400 120	0.8	1.2	12	50	0.75	4	●
0090 050 0400 060	0.9	1.2	6	50	0.85	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	502

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

NiTiCo 30 MINIATURE ENDMILLS - with Long Neck

Solid Carbide NiTiCo 30 Miniature Endmills with long neck, 2 flutes

Micro-fraises NiTiCo 30 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 NiTiCo 30 系列 长颈短刃 立铣刀 2 刃

VHM NiTiCo 30 Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese NiTiCo 30 in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d1	d2 (h6)	G87 * G6110
0090 050 0400 080	0.9	1.4	8.0	50	0.85	4	●
0090 050 0400 100	0.9	1.4	10.0	50	0.85	4	●
0090 050 0400 150	0.9	1.4	15.0	50	0.85	4	●
0100 050 0400 060	1.0	1.5	6.0	50	0.95	4	●
0100 050 0400 080	1.0	1.5	8.0	50	0.95	4	●
0100 050 0400 100	1.0	1.5	10.0	50	0.95	4	●
0100 050 0400 120	1.0	1.5	12.0	50	0.95	4	●
0100 050 0400 140	1.0	1.5	14.0	50	0.95	4	●
0100 050 0400 160	1.0	1.5	16.0	50	0.95	4	●
0120 050 0400 060	1.2	1.8	6.0	50	1.15	4	●
0120 050 0400 080	1.2	1.8	8.0	50	1.15	4	●
0120 050 0400 100	1.2	1.8	10.0	50	1.15	4	●
0120 050 0400 120	1.2	1.8	12.0	50	1.15	4	●
0140 050 0400 060	1.4	2.1	6.0	50	1.35	4	●
0140 050 0400 080	1.4	2.1	8.0	50	1.35	4	●
0140 050 0400 100	1.4	2.1	10.0	50	1.35	4	●
0140 050 0400 120	1.4	2.1	12.0	50	1.35	4	●
0140 050 0400 140	1.4	2.1	14.0	50	1.35	4	●
0140 050 0400 160	1.4	2.1	16.0	50	1.35	4	●
0150 050 0400 060	1.5	2.3	6.0	50	1.45	4	●
0150 050 0400 080	1.5	2.3	8.0	50	1.45	4	●
0150 050 0400 100	1.5	2.3	10.0	50	1.45	4	●
0150 050 0400 120	1.5	2.3	12.0	50	1.45	4	●
0150 050 0400 140	1.5	2.3	14.0	50	1.45	4	●
0150 050 0400 160	1.5	2.3	16.0	50	1.45	4	●
0150 060 0400 180	1.5	2.3	18.0	60	1.45	4	●
0150 060 0400 200	1.5	2.3	20.0	60	1.45	4	●
0160 050 0400 060	1.6	2.4	6.0	50	1.55	4	●
0160 050 0400 080	1.6	2.4	8.0	50	1.55	4	●
0160 050 0400 100	1.6	2.4	10.0	50	1.55	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	502

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

NiTiCo 30 MINIATURE ENDMILLS - with Long Neck

Solid Carbide NiTiCo 30 Miniature Endmills with long neck, 2 flutes

Micro-fraises NiTiCo 30 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 NiTiCo 30 系列 长颈短刃 立铣刀 2 刃

VHM NiTiCo 30 Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese NiTiCo 30 in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d1	d2 (h6)	G87 * G6110
0160 050 0400 120	1.6	2.4	12.0	50	1.55	4	●
0160 050 0400 140	1.6	2.4	14.0	50	1.55	4	●
0160 050 0400 160	1.6	2.4	16.0	50	1.55	4	●
0160 060 0400 180	1.6	2.4	18.0	60	1.55	4	●
0160 060 0400 200	1.6	2.4	20.0	60	1.55	4	●
0180 050 0400 060	1.8	2.7	6.0	50	1.75	4	●
0180 050 0400 080	1.8	2.7	8.0	50	1.75	4	●
0180 050 0400 100	1.8	2.7	10.0	50	1.75	4	●
0180 050 0400 120	1.8	2.7	12.0	50	1.75	4	●
0180 050 0400 140	1.8	2.7	14.0	50	1.75	4	●
0180 050 0400 160	1.8	2.7	16.0	50	1.75	4	●
0180 060 0400 180	1.8	2.7	18.0	60	1.75	4	●
0180 060 0400 200	1.8	2.7	20.0	60	1.75	4	●
0200 050 0400 060	2	3	6.0	50	1.95	4	●
0200 050 0400 080	2	3	8.0	50	1.95	4	●
0200 050 0400 100	2	3	10.0	50	1.95	4	●
0200 050 0400 120	2	3	12.0	50	1.95	4	●
0200 050 0400 140	2	3	14.0	50	1.95	4	●
0200 050 0400 160	2	3	16.0	50	1.95	4	●
0200 060 0400 180	2	3	18.0	60	1.95	4	●
0200 060 0400 200	2	3	20.0	60	1.95	4	●
0200 075 0400 250	2	3	25.0	75	1.95	4	●
0200 075 0400 300	2	3	30.0	75	1.95	4	●
0250 050 0400 080	2.5	3.7	8.0	50	2.4	4	●
0250 050 0400 100	2.5	3.7	10.0	50	2.4	4	●
0250 050 0400 120	2.5	3.7	12.0	50	2.4	4	●
0250 050 0400 140	2.5	3.7	14.0	50	2.4	4	●
0250 050 0400 160	2.5	3.7	16.0	50	2.4	4	●
0250 060 0400 180	2.5	3.7	18.0	60	2.4	4	●
0250 060 0400 200	2.5	3.7	20.0	60	2.4	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	502

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

NiTiCo 30 MINIATURE ENDMILLS - with Long Neck

Solid Carbide NiTiCo 30 Miniature Endmills with long neck, 2 flutes

Micro-fraises NiTiCo 30 2 tailles en carbure monobloc avec cou long, 2 dents

整体硬质合金 NiTiCo 30 系列 长颈短刃 立铣刀 2 刃

VHM NiTiCo 30 Kleinstfräser mit langem Hals, 2 Zähne

Micro-frese NiTiCo 30 in metallo duro integrale con collo lungo, 2 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP	Dimension (mm)						G87 *
=*+Ødata	D	l1	l2	L	d1	d2 (h6)	G6110
0250 060 0400 250	2.5	3.7	25.0	60	2.4	4	●
0250 075 0400 300	2.5	3.7	30.0	75	2.4	4	●
0300 050 0600 080	3	4.5	8.0	50	2.85	6	●
0300 050 0600 100	3	4.5	10.0	50	2.85	6	●
0300 050 0600 120	3	4.5	12.0	50	2.85	6	●
0300 050 0600 140	3	4.5	14.0	50	2.85	6	●
0300 060 0600 160	3	4.5	16.0	60	2.85	6	●
0300 060 0600 180	3	4.5	18.0	60	2.85	6	●
0300 060 0600 200	3	4.5	20.0	60	2.85	6	●
0300 075 0600 250	3	4.5	25.0	75	2.85	6	●
0400 060 0600 100	4	4.5	10.0	60	3.85	6	●
0400 060 0600 150	4	4.5	15.0	60	3.85	6	●
0400 060 0600 200	4	4.5	20.0	60	3.85	6	●
0400 075 0600 250	4	4.5	25.0	75	3.85	6	●
0400 075 0600 300	4	4.5	30.0	75	3.85	6	●
0400 075 0600 400	4	4.5	40.0	75	3.85	6	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	502

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

NiTiCo 30 MINIATURE BALLNOSE CUTTERS - with Long Neck

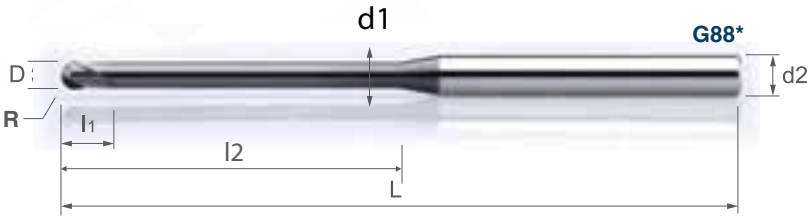
Solid Carbide NiTiCo 30 Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises NiTiCo 30 en carbure monobloc avec bout hémisphérique et cou long, 2 dents

整体硬质合金 NiTiCo 30 系列 长颈短刃 球头 立铣刀 2 刃

VHM Kleinst-Radiusfräser NiTiCo 30 mit langem Hals, 2 Zähne

Micro-frese cilindriche NiTiCo 30 a raggio con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)							G88 *
	D	R	l 1	l 2	L	d1	d2 (h6)	G6110
0020 050 0400 005	0.2	0.10	0.2	0.5	50	0.15	4	●
0020 050 0400 010	0.2	0.10	0.2	1.0	50	0.15	4	●
0020 050 0400 015	0.2	0.10	0.2	1.5	50	0.15	4	●
0030 050 0400 010	0.3	0.15	0.3	1.0	50	0.25	4	●
0030 050 0400 020	0.3	0.15	0.3	2.0	50	0.25	4	●
0030 050 0400 030	0.3	0.15	0.3	3.0	50	0.25	4	●
0040 050 0400 010	0.4	0.20	0.4	1.0	50	0.35	4	●
0040 050 0400 020	0.4	0.20	0.4	2.0	50	0.35	4	●
0040 050 0400 030	0.4	0.20	0.4	3.0	50	0.35	4	●
0040 050 0400 040	0.4	0.20	0.4	4.0	50	0.35	4	●
0040 050 0400 050	0.4	0.20	0.4	5.0	50	0.35	4	●
0050 050 0400 020	0.5	0.25	0.4	2.0	50	0.45	4	●
0050 050 0400 030	0.5	0.25	0.4	3.0	50	0.45	4	●
0050 050 0400 040	0.5	0.25	0.4	4.0	50	0.45	4	●
0050 050 0400 050	0.5	0.25	0.4	5.0	50	0.45	4	●
0050 050 0400 060	0.5	0.25	0.4	6.0	50	0.45	4	●
0050 050 0400 080	0.5	0.25	0.4	8.0	50	0.45	4	●
0060 050 0400 020	0.6	0.3	0.5	2.0	50	0.55	4	●
0060 050 0400 030	0.6	0.3	0.5	3.0	50	0.55	4	●
0060 050 0400 040	0.6	0.3	0.5	4.0	50	0.55	4	●
0060 050 0400 050	0.6	0.3	0.5	5.0	50	0.55	4	●
0060 050 0400 060	0.6	0.3	0.5	6.0	50	0.55	4	●
0060 050 0400 080	0.6	0.3	0.5	8.0	50	0.55	4	●
0080 050 0400 020	0.8	0.4	0.6	2.0	50	0.75	4	●
0080 050 0400 040	0.8	0.4	0.6	4.0	50	0.75	4	●
0080 050 0400 050	0.8	0.4	0.6	5.0	50	0.75	4	●
0080 050 0400 060	0.8	0.4	0.6	6.0	50	0.75	4	●
0080 050 0400 070	0.8	0.4	0.6	7.0	50	0.75	4	●
0080 050 0400 080	0.8	0.4	0.6	8.0	50	0.75	4	●
0080 050 0400 100	0.8	0.4	0.6	10.0	50	0.75	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	508

若有技术规格变更，恕不事先通知

NiTiCo 30 MINIATURE BALLNOSE CUTTERS - with Long Neck

Solid Carbide NiTiCo 30 Miniature Ballnose Cutters with long neck, 2 flutes

Micro-fraises NiTiCo 30 en carbure monobloc avec bout hémisphérique et cou long, 2 dents

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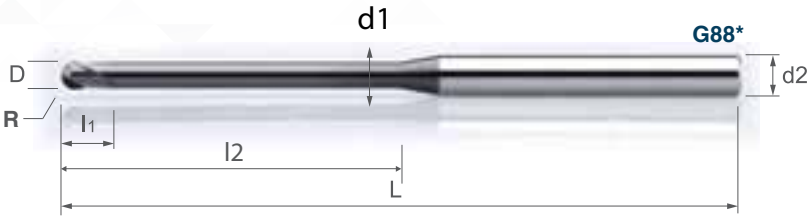
VHM Kleinst-Radiusfräser NiTiCo 30 mit langem Hals, 2 Zähne

Micro-frese cilindriche NiTiCo 30 a raggio con collo lungo, 2 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l1	l2	L	d1	d2 (h6)	G88 * G6110
0100 050 0400 030	1.0	0.5	0.8	3.0	50	0.95	4	●
0100 050 0400 040	1.0	0.5	0.8	4.0	50	0.95	4	●
0100 050 0400 050	1.0	0.5	0.8	5.0	50	0.95	4	●
0100 050 0400 060	1.0	0.5	0.8	6.0	50	0.95	4	●
0100 050 0400 070	1.0	0.5	0.8	7.0	50	0.95	4	●
0100 050 0400 080	1.0	0.5	0.8	8.0	50	0.95	4	●
0100 050 0400 090	1.0	0.5	0.8	9.0	50	0.95	4	●
0100 050 0400 100	1.0	0.5	0.8	10.0	50	0.95	4	●
0100 050 0400 120	1.0	0.5	0.8	12.0	50	0.95	4	●
0100 050 0400 140	1.0	0.5	0.8	14.0	50	0.95	4	●
0100 060 0400 200	1.0	0.5	0.8	20.0	50	0.95	4	●
0120 050 0400 060	1.2	0.6	1.0	6.0	50	1.15	4	●
0120 050 0400 080	1.2	0.6	1.0	8.0	50	1.15	4	●
0120 050 0400 100	1.2	0.6	1.0	10.0	50	1.15	4	●
0120 050 0400 120	1.2	0.6	1.0	12.0	50	1.15	4	●
0140 050 0400 080	1.4	0.7	1.1	8.0	50	1.35	4	●
0140 050 0400 120	1.4	0.7	1.1	12.0	50	1.35	4	●
0140 050 0400 160	1.4	0.7	1.1	16.0	50	1.35	4	●
0150 050 0400 080	1.5	0.75	1.2	8.0	50	1.45	4	●
0150 050 0400 120	1.5	0.75	1.2	12.0	50	1.45	4	●
0150 050 0400 160	1.5	0.75	1.2	16.0	50	1.45	4	●
0150 060 0400 180	1.5	0.75	1.2	18.0	60	1.45	4	●
0160 050 0400 080	1.6	0.8	1.3	8.0	50	1.55	4	●
0160 050 0400 120	1.6	0.8	1.3	12.0	50	1.55	4	●
0160 050 0400 160	1.6	0.8	1.3	16.0	50	1.55	4	●
0160 060 0400 200	1.6	0.8	1.3	20.0	60	1.55	4	●
0180 050 0400 080	1.8	0.9	1.4	8.0	50	1.75	4	●
0180 050 0400 120	1.8	0.9	1.4	12.0	50	1.75	4	●
0180 050 0400 160	1.8	0.9	1.4	16.0	50	1.75	4	●
0180 060 0400 200	1.8	0.9	1.4	20.0	60	1.75	4	●

cont'd ►

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	508

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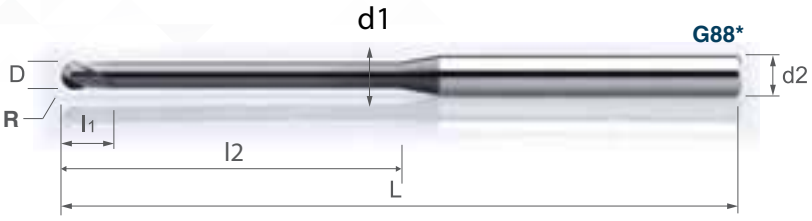


EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	R	l1	l2	L	d1	d2 (h6)	G88 * G6110
0200 050 0400 040	2	1.0	1.6	4.0	50	1.95	4	●
0200 050 0400 060	2	1.0	1.6	6.0	50	1.95	4	●
0200 050 0400 080	2	1.0	1.6	8.0	50	1.95	4	●
0200 050 0400 100	2	1.0	1.6	10.0	50	1.95	4	●
0200 050 0400 120	2	1.0	1.6	12.0	50	1.95	4	●
0200 050 0400 140	2	1.0	1.6	14.0	50	1.95	4	●
0200 050 0400 160	2	1.0	1.6	16.0	50	1.95	4	●
0200 060 0400 180	2	1.0	1.6	18.0	60	1.95	4	●
0200 060 0400 200	2	1.0	1.6	20.0	60	1.95	4	●
0200 060 0400 220	2	1.0	1.6	22.0	60	1.95	4	●
0200 075 0400 250	2	1.0	1.6	25.0	75	1.95	4	●
0200 075 0400 300	2	1.0	1.6	30.0	75	1.95	4	●
0300 050 0600 080	3	1.5	2.4	8.0	50	2.85	6	●
0300 050 0600 100	3	1.5	2.4	10.0	50	2.85	6	●
0300 060 0600 160	3	1.5	2.4	16.0	60	2.85	6	●
0300 060 0600 200	3	1.5	2.4	20.0	60	2.85	6	●
0300 075 0600 250	3	1.5	2.4	25.0	75	2.85	6	●
0300 075 0600 300	3	1.5	2.4	30.0	75	2.85	6	●
0300 075 0600 350	3	1.5	2.4	35.0	75	2.85	6	●
0400 050 0600 100	4	2.0	3.2	10.0	50	3.85	6	●
0400 060 0600 160	4	2.0	3.2	16.0	60	3.85	6	●
0400 060 0600 200	4	2.0	3.2	20.0	60	3.85	6	●
0400 075 0600 250	4	2.0	3.2	25.0	75	3.85	6	●
0400 075 0600 300	4	2.0	3.2	30.0	75	3.85	6	●
0400 075 0600 350	4	2.0	3.2	35.0	75	3.85	6	●
0400 100 0600 400	4	2.0	3.2	40.0	100	3.85	6	●
0400 100 0600 450	4	2.0	3.2	45.0	100	3.85	6	●
0400 100 0600 500	4	2.0	3.2	50.0	100	3.85	6	●

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
								●	●	●	●	●	●	●		●	●	●		●	●		●		

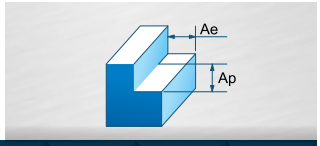
M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	508

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

NiTiCo 30 DP Endmills

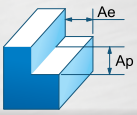
Ae = 0.5 x D (0.3 x D)
Ap = 1.5 x D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL (~ 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	126	0.005 ~ 0.007	≤1.5D	≤ 0.5 D	40000	800 ~ 1120
		1.5	4	130 ~ 170	0.008 ~ 0.010	≤1.5D	≤ 0.5 D	27590 ~ 36080	880 ~ 1440
		2	4	130 ~ 170	0.011 ~ 0.014	≤1.5D	≤ 0.5 D	20690 ~ 27060	910 ~ 1520
		2.5	4	130 ~ 170	0.014 ~ 0.017	≤1.5D	≤ 0.5 D	16550 ~ 21650	930 ~ 1470
		3	4	130 ~ 170	0.017 ~ 0.020	≤1.5D	≤ 0.5 D	13790 ~ 18040	940 ~ 1440
		4	4	130 ~ 170	0.023 ~ 0.026	≤1.5D	≤ 0.5 D	10350 ~ 13530	950 ~ 1410
		5	4	130 ~ 170	0.029 ~ 0.032	≤1.5D	≤ 0.5 D	8280 ~ 10820	960 ~ 1380
		6	4	130 ~ 170	0.035 ~ 0.038	≤1.5D	≤ 0.5 D	6900 ~ 9020	970 ~ 1370
		8	4	130 ~ 170	0.042 ~ 0.046	≤1.5D	≤ 0.5 D	5170 ~ 6760	870 ~ 1240
		10	4	130 ~ 170	0.049 ~ 0.054	≤1.5D	≤ 0.5 D	4140 ~ 5410	810 ~ 1170
		12	4	130 ~ 170	0.057 ~ 0.062	≤1.5D	≤ 0.5 D	3450 ~ 4510	790 ~ 1120
		14	4	130 ~ 170	0.064 ~ 0.070	≤1.5D	≤ 0.5 D	2960 ~ 3870	760 ~ 1080
		16	4	130 ~ 170	0.071 ~ 0.078	≤1.5D	≤ 0.5 D	2590 ~ 3380	740 ~ 1050
		18	4	130 ~ 170	0.078 ~ 0.086	≤1.5D	≤ 0.5 D	2300 ~ 3010	720 ~ 1040
		20	4	130 ~ 170	0.086 ~ 0.094	≤1.5D	≤ 0.5 D	2070 ~ 2710	710 ~ 1020
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M19, M23, M25	1	4	120 ~ 126	0.005 ~ 0.007	≤1.5D	≤ 0.5 D	38200 ~ 40000	760 ~ 1120
		1.5	4	120 ~ 140	0.008 ~ 0.010	≤1.5D	≤ 0.5 D	25460 ~ 29710	810 ~ 1190
		2	4	120 ~ 140	0.011 ~ 0.014	≤1.5D	≤ 0.5 D	19100 ~ 22280	840 ~ 1250
		2.5	4	120 ~ 140	0.014 ~ 0.017	≤1.5D	≤ 0.5 D	15280 ~ 17830	860 ~ 1210
		3	4	120 ~ 140	0.017 ~ 0.020	≤1.5D	≤ 0.5 D	12730 ~ 14850	870 ~ 1190
		4	4	120 ~ 140	0.023 ~ 0.026	≤1.5D	≤ 0.5 D	9550 ~ 11140	880 ~ 1160
		5	4	120 ~ 140	0.029 ~ 0.032	≤1.5D	≤ 0.5 D	7640 ~ 8910	890 ~ 1140
		6	4	120 ~ 140	0.035 ~ 0.038	≤1.5D	≤ 0.5 D	6370 ~ 7430	890 ~ 1130
		8	4	120 ~ 140	0.042 ~ 0.046	≤1.5D	≤ 0.5 D	4770 ~ 5570	800 ~ 1020
		10	4	120 ~ 140	0.049 ~ 0.054	≤1.5D	≤ 0.5 D	3820 ~ 4460	750 ~ 960
		12	4	120 ~ 140	0.057 ~ 0.062	≤1.5D	≤ 0.5 D	3180 ~ 3710	730 ~ 920
		14	4	120 ~ 140	0.064 ~ 0.070	≤1.5D	≤ 0.5 D	2730 ~ 3180	700 ~ 890
		16	4	120 ~ 140	0.071 ~ 0.078	≤1.5D	≤ 0.5 D	2390 ~ 2790	680 ~ 870
		18	4	120 ~ 140	0.078 ~ 0.086	≤1.5D	≤ 0.5 D	2120 ~ 2480	660 ~ 850
		20	4	120 ~ 140	0.086 ~ 0.094	≤1.5D	≤ 0.5 D	1910 ~ 2230	660 ~ 840
STAINLESS STEEL UP TO 35 HRC)	M16	1	4	60 ~ 80	0.003 ~ 0.006	≤1.5D	≤ 0.5 D	19100 ~ 25460	230 ~ 610
		1.5	4	60 ~ 80	0.006 ~ 0.008	≤1.5D	≤ 0.5 D	12730 ~ 16980	310 ~ 540
		2	4	60 ~ 80	0.008 ~ 0.011	≤1.5D	≤ 0.5 D	9550 ~ 12730	310 ~ 560
		2.5	4	60 ~ 80	0.011 ~ 0.014	≤1.5D	≤ 0.5 D	7640 ~ 10190	340 ~ 570
		3	4	60 ~ 80	0.014 ~ 0.016	≤1.5D	≤ 0.5 D	6370 ~ 8490	360 ~ 540
		4	4	60 ~ 80	0.019 ~ 0.022	≤1.5D	≤ 0.5 D	4770 ~ 6370	360 ~ 560
		5	4	60 ~ 80	0.024 ~ 0.027	≤1.5D	≤ 0.5 D	3820 ~ 5090	370 ~ 550
		6	4	60 ~ 80	0.029 ~ 0.032	≤1.5D	≤ 0.5 D	3180 ~ 4240	370 ~ 540
		8	4	60 ~ 80	0.036 ~ 0.040	≤1.5D	≤ 0.5 D	2390 ~ 3180	340 ~ 510
		10	4	60 ~ 80	0.043 ~ 0.048	≤1.5D	≤ 0.5 D	1910 ~ 2550	330 ~ 490
		12	4	60 ~ 80	0.051 ~ 0.056	≤1.5D	≤ 0.5 D	1590 ~ 2120	320 ~ 470
		14	4	60 ~ 80	0.058 ~ 0.064	≤1.5D	≤ 0.5 D	1360 ~ 1820	320 ~ 470
		16	4	60 ~ 80	0.065 ~ 0.071	≤1.5D	≤ 0.5 D	1190 ~ 1590	310 ~ 450
		18	4	60 ~ 80	0.072 ~ 0.079	≤1.5D	≤ 0.5 D	1060 ~ 1410	310 ~ 450
		20	4	60 ~ 80	0.079 ~ 0.087	≤1.5D	≤ 0.5 D	950 ~ 1270	300 ~ 440
TITANIUM ALLOYS HARDENED UP TO 35 HRC	M17	1	4	60 ~ 80	0.004 ~ 0.006	≤1.5D	≤ 0.5 D	19100 ~ 25460	310 ~ 610
		1.5	4	60 ~ 80	0.008 ~ 0.010	≤1.5D	≤ 0.5 D	12730 ~ 16980	410 ~ 680
		2	4	60 ~ 80	0.011 ~ 0.014	≤1.5D	≤ 0.5 D	9550 ~ 12730	420 ~ 710
		2.5	4	60 ~ 80	0.014 ~ 0.017	≤1.5D	≤ 0.5 D	7640 ~ 10190	430 ~ 690
		3	4	60 ~ 80	0.018 ~ 0.021	≤1.5D	≤ 0.5 D	6370 ~ 8490	460 ~ 710
		4	4	60 ~ 80	0.025 ~ 0.028	≤1.5D	≤ 0.5 D	4770 ~ 6370	480 ~ 710
		5	4	60 ~ 80	0.032 ~ 0.036	≤1.5D	≤ 0.5 D	3820 ~ 5090	490 ~ 730
		6	4	60 ~ 80	0.039 ~ 0.043	≤1.5D	≤ 0.5 D	3180 ~ 4240	500 ~ 730
		8	4	60 ~ 80	0.048 ~ 0.053	≤1.5D	≤ 0.5 D	2390 ~ 3180	460 ~ 670
		10	4	60 ~ 80	0.058 ~ 0.064	≤1.5D	≤ 0.5 D	1910 ~ 2550	440 ~ 650
		12	4	60 ~ 80	0.068 ~ 0.074	≤1.5D	≤ 0.5 D	1590 ~ 2120	430 ~ 630
		14	4	60 ~ 80	0.077 ~ 0.085	≤1.5D	≤ 0.5 D	1360 ~ 1820	420 ~ 620
		16	4	60 ~ 80	0.087 ~ 0.095	≤1.5D	≤ 0.5 D	1190 ~ 1590	410 ~ 600
		18	4	60 ~ 80	0.096 ~ 0.106	≤1.5D	≤ 0.5 D	1060 ~ 1410	410 ~ 600
		20	4	60 ~ 80	0.106 ~ 0.116	≤1.5D	≤ 0.5 D	950 ~ 1270	400 ~ 590

NiTiCo 30 DP Endmills

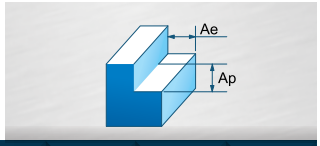
Ae = 0.5 x D (0.3 x D)
Ap = 1.5 x D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
NICKEL BASED ALLOYS HARDENED UP TO 35 HRC	M21	1	4	60 ~ 80	0.003 ~ 0.006	≤1.5D	≤ 0.5 D	19100 ~ 25460	230 ~ 610
		1.5	4	60 ~ 80	0.006 ~ 0.009	≤1.5D	≤ 0.5 D	12730 ~ 16980	310 ~ 610
		2	4	60 ~ 80	0.008 ~ 0.012	≤1.5D	≤ 0.5 D	9550 ~ 12730	310 ~ 610
		2.5	4	60 ~ 80	0.011 ~ 0.014	≤1.5D	≤ 0.5 D	7640 ~ 10190	340 ~ 570
		3	4	60 ~ 80	0.014 ~ 0.017	≤1.5D	≤ 0.5 D	6370 ~ 8490	360 ~ 580
		4	4	60 ~ 80	0.019 ~ 0.022	≤1.5D	≤ 0.5 D	4770 ~ 6370	360 ~ 560
		5	4	60 ~ 80	0.024 ~ 0.027	≤1.5D	≤ 0.5 D	3820 ~ 5090	370 ~ 550
		6	4	60 ~ 80	0.029 ~ 0.032	≤1.5D	≤ 0.5 D	3180 ~ 4240	370 ~ 540
		8	4	60 ~ 80	0.036 ~ 0.040	≤1.5D	≤ 0.5 D	2390 ~ 3180	340 ~ 510
		10	4	60 ~ 80	0.043 ~ 0.048	≤1.5D	≤ 0.5 D	1910 ~ 2550	330 ~ 490
		12	4	60 ~ 80	0.051 ~ 0.056	≤1.5D	≤ 0.5 D	1590 ~ 2120	320 ~ 470
		14	4	60 ~ 80	0.058 ~ 0.064	≤1.5D	≤ 0.5 D	1360 ~ 1820	320 ~ 470
		16	4	60 ~ 80	0.065 ~ 0.071	≤1.5D	≤ 0.5 D	1190 ~ 1590	310 ~ 450
		18	4	60 ~ 80	0.072 ~ 0.079	≤1.5D	≤ 0.5 D	1060 ~ 1410	310 ~ 450
		20	4	60 ~ 80	0.079 ~ 0.087	≤1.5D	≤ 0.5 D	950 ~ 1270	300 ~ 440

NiTiCo 30 Roughing Series Endmills

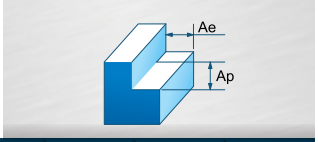
Ae ≤ 0.1D (D ≤ ø3)
Ae ≤ 0.2D (D > ø3)
Ap ≤ 1.5D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL (~30 HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	126	0.005 ~ 0.008	≤ 1.5 D	≤ 0.5 D	40000	800 ~ 1280
		1.5	4	143 ~ 187	0.009 ~ 0.012	≤ 1.5 D	≤ 0.5 D	30350 ~ 39680	1090 ~ 1900
		2	4	143 ~ 187	0.012 ~ 0.015	≤ 1.5 D	≤ 0.5 D	22760 ~ 29760	1090 ~ 1790
		2.5	4	143 ~ 187	0.015 ~ 0.019	≤ 1.5 D	≤ 0.5 D	18210 ~ 23810	1090 ~ 1810
		3	4	143 ~ 187	0.019 ~ 0.022	≤ 1.5 D	≤ 0.5 D	15170 ~ 19840	1150 ~ 1750
		4	4	143 ~ 187	0.025 ~ 0.029	≤ 1.5 D	≤ 0.5 D	11380 ~ 14880	1140 ~ 1730
		5	4	143 ~ 187	0.032 ~ 0.036	≤ 1.5 D	≤ 0.5 D	9100 ~ 11900	1160 ~ 1710
		6	4	143 ~ 187	0.039 ~ 0.043	≤ 1.5 D	≤ 0.5 D	7590 ~ 9920	1180 ~ 1710
		8	4	143 ~ 187	0.047 ~ 0.052	≤ 1.5 D	≤ 0.5 D	5690 ~ 7440	1070 ~ 1550
		10	4	143 ~ 187	0.055 ~ 0.060	≤ 1.5 D	≤ 0.5 D	4550 ~ 5950	1000 ~ 1430
		12	4	143 ~ 187	0.063 ~ 0.069	≤ 1.5 D	≤ 0.5 D	3790 ~ 4960	960 ~ 1370
		14	4	143 ~ 187	0.071 ~ 0.078	≤ 1.5 D	≤ 0.5 D	3250 ~ 4250	920 ~ 1330
		16	4	143 ~ 187	0.079 ~ 0.087	≤ 1.5 D	≤ 0.5 D	2840 ~ 3720	900 ~ 1290
		18	4	143 ~ 187	0.087 ~ 0.096	≤ 1.5 D	≤ 0.5 D	2530 ~ 3310	880 ~ 1270
		20	4	143 ~ 187	0.095 ~ 0.105	≤ 1.5 D	≤ 0.5 D	2280 ~ 2980	870 ~ 1250
ALLOY STEEL , TOOL STEEL, PREHARDENED STEEL (30 ~ 45 HRC) AISI H13 NAK	M15, M18, M19, M23, M25	1	4	126	0.005 ~ 0.008	≤ 1.5 D	≤ 0.5 D	40000	800 ~ 1280
		1.5	4	132 ~ 154	0.009 ~ 0.012	≤ 1.5 D	≤ 0.5 D	28010 ~ 32680	1010 ~ 1570
		2	4	132 ~ 154	0.012 ~ 0.015	≤ 1.5 D	≤ 0.5 D	21010 ~ 24510	1010 ~ 1470
		2.5	4	132 ~ 154	0.015 ~ 0.019	≤ 1.5 D	≤ 0.5 D	16810 ~ 19610	1010 ~ 1490
		3	4	132 ~ 154	0.019 ~ 0.022	≤ 1.5 D	≤ 0.5 D	14010 ~ 16340	1060 ~ 1440
		4	4	132 ~ 154	0.025 ~ 0.029	≤ 1.5 D	≤ 0.5 D	10500 ~ 12250	1050 ~ 1420
		5	4	132 ~ 154	0.032 ~ 0.036	≤ 1.5 D	≤ 0.5 D	8400 ~ 9800	1080 ~ 1410
		6	4	132 ~ 154	0.039 ~ 0.043	≤ 1.5 D	≤ 0.5 D	7000 ~ 8170	1090 ~ 1410
		8	4	132 ~ 154	0.047 ~ 0.052	≤ 1.5 D	≤ 0.5 D	5250 ~ 6130	990 ~ 1280
		10	4	132 ~ 154	0.055 ~ 0.060	≤ 1.5 D	≤ 0.5 D	4200 ~ 4900	920 ~ 1180
		12	4	132 ~ 154	0.063 ~ 0.069	≤ 1.5 D	≤ 0.5 D	3500 ~ 4080	880 ~ 1130
		14	4	132 ~ 154	0.071 ~ 0.078	≤ 1.5 D	≤ 0.5 D	3000 ~ 3500	850 ~ 1090
		16	4	132 ~ 154	0.079 ~ 0.087	≤ 1.5 D	≤ 0.5 D	2630 ~ 3060	830 ~ 1060
		18	4	132 ~ 154	0.087 ~ 0.096	≤ 1.5 D	≤ 0.5 D	2330 ~ 2720	810 ~ 1040
		20	4	132 ~ 154	0.095 ~ 0.105	≤ 1.5 D	≤ 0.5 D	2100 ~ 2450	800 ~ 1030
STAINLESS STEEL UP TO 35 HRC)	M16	1	4	66 ~ 88	0.004 ~ 0.006	≤ 1.5 D	≤ 0.5 D	21010 ~ 28010	340 ~ 670
		1.5	4	66 ~ 88	0.006 ~ 0.009	≤ 1.5 D	≤ 0.5 D	14010 ~ 18670	340 ~ 670
		2	4	66 ~ 88	0.009 ~ 0.012	≤ 1.5 D	≤ 0.5 D	10500 ~ 14010	380 ~ 670
		2.5	4	66 ~ 88	0.012 ~ 0.015	≤ 1.5 D	≤ 0.5 D	8400 ~ 11200	400 ~ 670
		3	4	66 ~ 88	0.015 ~ 0.018	≤ 1.5 D	≤ 0.5 D	7000 ~ 9340	420 ~ 670
		4	4	66 ~ 88	0.021 ~ 0.024	≤ 1.5 D	≤ 0.5 D	5250 ~ 7000	440 ~ 670
		5	4	66 ~ 88	0.027 ~ 0.030	≤ 1.5 D	≤ 0.5 D	4200 ~ 5600	450 ~ 670
		6	4	66 ~ 88	0.032 ~ 0.036	≤ 1.5 D	≤ 0.5 D	3500 ~ 4670	450 ~ 670
		8	4	66 ~ 88	0.040 ~ 0.044	≤ 1.5 D	≤ 0.5 D	2630 ~ 3500	420 ~ 620
		10	4	66 ~ 88	0.048 ~ 0.053	≤ 1.5 D	≤ 0.5 D	2100 ~ 2800	400 ~ 590
		12	4	66 ~ 88	0.056 ~ 0.062	≤ 1.5 D	≤ 0.5 D	1750 ~ 2330	390 ~ 580
		14	4	66 ~ 88	0.064 ~ 0.071	≤ 1.5 D	≤ 0.5 D	1500 ~ 2000	380 ~ 570
		16	4	66 ~ 88	0.072 ~ 0.079	≤ 1.5 D	≤ 0.5 D	1310 ~ 1750	380 ~ 550
		18	4	66 ~ 88	0.080 ~ 0.088	≤ 1.5 D	≤ 0.5 D	1170 ~ 1560	370 ~ 550
		20	4	66 ~ 88	0.088 ~ 0.097	≤ 1.5 D	≤ 0.5 D	1050 ~ 1400	370 ~ 540
TITANIUM ALLOYS HARDENED UP TO 35 HRC	M17	1	4	66 ~ 88	0.005 ~ 0.007	≤ 1.5 D	≤ 0.5 D	21010 ~ 28010	420 ~ 780
		1.5	4	66 ~ 88	0.008 ~ 0.011	≤ 1.5 D	≤ 0.5 D	14010 ~ 18670	450 ~ 820
		2	4	66 ~ 88	0.012 ~ 0.015	≤ 1.5 D	≤ 0.5 D	10500 ~ 14010	500 ~ 840
		2.5	4	66 ~ 88	0.016 ~ 0.019	≤ 1.5 D	≤ 0.5 D	8400 ~ 11200	540 ~ 850
		3	4	66 ~ 88	0.020 ~ 0.023	≤ 1.5 D	≤ 0.5 D	7000 ~ 9340	560 ~ 860
		4	4	66 ~ 88	0.028 ~ 0.031	≤ 1.5 D	≤ 0.5 D	5250 ~ 7000	590 ~ 870
		5	4	66 ~ 88	0.035 ~ 0.039	≤ 1.5 D	≤ 0.5 D	4200 ~ 5600	590 ~ 870
		6	4	66 ~ 88	0.043 ~ 0.048	≤ 1.5 D	≤ 0.5 D	3500 ~ 4670	600 ~ 900
		8	4	66 ~ 88	0.054 ~ 0.059	≤ 1.5 D	≤ 0.5 D	2630 ~ 3500	570 ~ 830
		10	4	66 ~ 88	0.064 ~ 0.071	≤ 1.5 D	≤ 0.5 D	2100 ~ 2800	540 ~ 800
		12	4	66 ~ 88	0.075 ~ 0.083	≤ 1.5 D	≤ 0.5 D	1750 ~ 2330	530 ~ 770
		14	4	66 ~ 88	0.086 ~ 0.094	≤ 1.5 D	≤ 0.5 D	1500 ~ 2000	520 ~ 750
		16	4	66 ~ 88	0.096 ~ 0.106	≤ 1.5 D	≤ 0.5 D	1310 ~ 1750	500 ~ 740
		18	4	66 ~ 88	0.107 ~ 0.118	≤ 1.5 D	≤ 0.5 D	1170 ~ 1560	500 ~ 740
		20	4	66 ~ 88	0.117 ~ 0.129	≤ 1.5 D	≤ 0.5 D	1050 ~ 1400	490 ~ 720

NiTiCo 30 Roughing Series Endmills

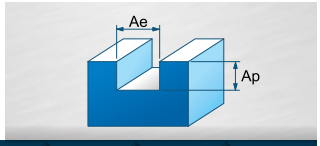
Ae ≤ 0.1D (D ≤ Ø3)
Ae ≤ 0.2D (D > Ø3)
Ap ≤ 1.5D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
NICKEL BASED ALLOYS HARDENED >32 HRC	M19,M23	1	4	66 ~ 88	0.004 ~ 0.007	≤ 1.5 D	≤ 0.5 D	21010 ~ 28010	340 ~ 780
		1.5	4	66 ~ 88	0.006 ~ 0.010	≤ 1.5 D	≤ 0.5 D	14010 ~ 18670	340 ~ 750
		2	4	66 ~ 88	0.009 ~ 0.013	≤ 1.5 D	≤ 0.5 D	10500 ~ 14010	380 ~ 730
		2.5	4	66 ~ 88	0.012 ~ 0.016	≤ 1.5 D	≤ 0.5 D	8400 ~ 11200	400 ~ 720
		3	4	66 ~ 88	0.015 ~ 0.019	≤ 1.5 D	≤ 0.5 D	7000 ~ 9340	420 ~ 710
		4	4	66 ~ 88	0.021 ~ 0.024	≤ 1.5 D	≤ 0.5 D	5250 ~ 7000	440 ~ 670
		5	4	66 ~ 88	0.027 ~ 0.030	≤ 1.5 D	≤ 0.5 D	4200 ~ 5600	450 ~ 670
		6	4	66 ~ 88	0.032 ~ 0.036	≤ 1.5 D	≤ 0.5 D	3500 ~ 4670	450 ~ 670
		8	4	66 ~ 88	0.040 ~ 0.044	≤ 1.5 D	≤ 0.5 D	2630 ~ 3500	420 ~ 620
		10	4	66 ~ 88	0.048 ~ 0.053	≤ 1.5 D	≤ 0.5 D	2100 ~ 2800	400 ~ 590
		12	4	66 ~ 88	0.056 ~ 0.062	≤ 1.5 D	≤ 0.5 D	1750 ~ 2330	390 ~ 580
		14	4	66 ~ 88	0.064 ~ 0.071	≤ 1.5 D	≤ 0.5 D	1500 ~ 2000	380 ~ 570
		16	4	66 ~ 88	0.072 ~ 0.079	≤ 1.5 D	≤ 0.5 D	1310 ~ 1750	380 ~ 550
		18	4	66 ~ 88	0.080 ~ 0.088	≤ 1.5 D	≤ 0.5 D	1170 ~ 1560	370 ~ 550
		20	4	66 ~ 88	0.088 ~ 0.097	≤ 1.5 D	≤ 0.5 D	1050 ~ 1400	370 ~ 540

NiTiCo 30 DP Endmills

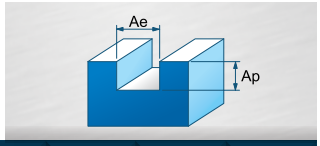
Ae = 1 x D
Ap = 1 x D (0.5 x D)



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL (~ 30HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	126	0.004 ~ 0.006	≤ 1.0 D	≤ 1.0 D	40000	640 ~ 960
		1.5	4	130 ~ 170	0.006 ~ 0.008	≤ 1.0 D	≤ 1.0 D	27590 ~ 36080	660 ~ 1150
		2	4	130 ~ 170	0.009 ~ 0.011	≤ 1.0 D	≤ 1.0 D	20690 ~ 27060	740 ~ 1190
		2.5	4	130 ~ 170	0.011 ~ 0.013	≤ 1.0 D	≤ 1.0 D	16550 ~ 21650	730 ~ 1130
		3	4	130 ~ 170	0.014 ~ 0.016	≤ 1.0 D	≤ 1.0 D	13790 ~ 18040	770 ~ 1150
		4	4	130 ~ 170	0.018 ~ 0.021	≤ 1.0 D	≤ 1.0 D	10350 ~ 13530	750 ~ 1140
		5	4	130 ~ 170	0.023 ~ 0.026	≤ 1.0 D	≤ 1.0 D	8280 ~ 10820	760 ~ 1130
		6	4	130 ~ 170	0.028 ~ 0.031	≤ 1.0 D	≤ 1.0 D	6900 ~ 9020	770 ~ 1120
		8	4	130 ~ 170	0.034 ~ 0.037	≤ 1.0 D	≤ 1.0 D	5170 ~ 6760	700 ~ 1000
		10	4	130 ~ 170	0.040 ~ 0.044	≤ 1.0 D	≤ 1.0 D	4140 ~ 5410	660 ~ 950
		12	4	130 ~ 170	0.045 ~ 0.050	≤ 1.0 D	≤ 1.0 D	3450 ~ 4510	620 ~ 900
		14	4	130 ~ 170	0.051 ~ 0.056	≤ 1.0 D	≤ 1.0 D	2960 ~ 3870	600 ~ 870
		16	4	130 ~ 170	0.057 ~ 0.063	≤ 1.0 D	≤ 1.0 D	2590 ~ 3380	590 ~ 850
		18	4	130 ~ 170	0.063 ~ 0.069	≤ 1.0 D	≤ 1.0 D	2300 ~ 3010	580 ~ 830
		20	4	130 ~ 170	0.068 ~ 0.075	≤ 1.0 D	≤ 1.0 D	2070 ~ 2710	560 ~ 810
ALLOY STEEL TOOL STEEL PRE-HARDENED STEEL (30 - 45 HRC) AISI H13 NAK	M15, M18, M19, M23, M25	1	4	120 ~ 126	0.004 ~ 0.006	≤ 1.0 D	≤ 1.0 D	38200 ~ 40000	610 ~ 960
		1.5	4	120 ~ 140	0.006 ~ 0.008	≤ 1.0 D	≤ 1.0 D	25460 ~ 29710	610 ~ 950
		2	4	120 ~ 140	0.009 ~ 0.011	≤ 1.0 D	≤ 1.0 D	19100 ~ 22280	690 ~ 980
		2.5	4	120 ~ 140	0.011 ~ 0.013	≤ 1.0 D	≤ 1.0 D	15280 ~ 17830	670 ~ 930
		3	4	120 ~ 140	0.014 ~ 0.016	≤ 1.0 D	≤ 1.0 D	12730 ~ 14850	710 ~ 950
		4	4	120 ~ 140	0.018 ~ 0.021	≤ 1.0 D	≤ 1.0 D	9550 ~ 11140	690 ~ 940
		5	4	120 ~ 140	0.023 ~ 0.026	≤ 1.0 D	≤ 1.0 D	7640 ~ 8910	700 ~ 930
		6	4	120 ~ 140	0.028 ~ 0.031	≤ 1.0 D	≤ 1.0 D	6370 ~ 7430	710 ~ 920
		8	4	120 ~ 140	0.034 ~ 0.037	≤ 1.0 D	≤ 1.0 D	4770 ~ 5570	650 ~ 820
		10	4	120 ~ 140	0.040 ~ 0.044	≤ 1.0 D	≤ 1.0 D	3820 ~ 4460	610 ~ 780
		12	4	120 ~ 140	0.045 ~ 0.050	≤ 1.0 D	≤ 1.0 D	3180 ~ 3710	570 ~ 740
		14	4	120 ~ 140	0.051 ~ 0.056	≤ 1.0 D	≤ 1.0 D	2730 ~ 3180	560 ~ 710
		16	4	120 ~ 140	0.057 ~ 0.063	≤ 1.0 D	≤ 1.0 D	2390 ~ 2790	540 ~ 700
		18	4	120 ~ 140	0.063 ~ 0.069	≤ 1.0 D	≤ 1.0 D	2120 ~ 2480	530 ~ 680
		20	4	120 ~ 140	0.068 ~ 0.075	≤ 1.0 D	≤ 1.0 D	1910 ~ 2230	520 ~ 670
STAINLESS STEEL UP TO 35 HRC	M16	1	4	60 ~ 80	0.003 ~ 0.005	≤ 1.0 D	≤ 1.0 D	19100 ~ 25460	230 ~ 510
		1.5	4	60 ~ 80	0.005 ~ 0.007	≤ 1.0 D	≤ 1.0 D	12730 ~ 16980	250 ~ 480
		2	4	60 ~ 80	0.007 ~ 0.009	≤ 1.0 D	≤ 1.0 D	9550 ~ 12730	270 ~ 460
		2.5	4	60 ~ 80	0.009 ~ 0.011	≤ 1.0 D	≤ 1.0 D	7640 ~ 10190	280 ~ 450
		3	4	60 ~ 80	0.011 ~ 0.013	≤ 1.0 D	≤ 1.0 D	6370 ~ 8490	280 ~ 440
		4	4	60 ~ 80	0.015 ~ 0.017	≤ 1.0 D	≤ 1.0 D	4770 ~ 6370	290 ~ 430
		5	4	60 ~ 80	0.019 ~ 0.021	≤ 1.0 D	≤ 1.0 D	3820 ~ 5090	290 ~ 430
		6	4	60 ~ 80	0.023 ~ 0.026	≤ 1.0 D	≤ 1.0 D	3180 ~ 4240	290 ~ 440
		8	4	60 ~ 80	0.029 ~ 0.032	≤ 1.0 D	≤ 1.0 D	2390 ~ 3180	280 ~ 410
		10	4	60 ~ 80	0.035 ~ 0.038	≤ 1.0 D	≤ 1.0 D	1910 ~ 2550	270 ~ 390
		12	4	60 ~ 80	0.041 ~ 0.045	≤ 1.0 D	≤ 1.0 D	1590 ~ 2120	260 ~ 380
		14	4	60 ~ 80	0.046 ~ 0.051	≤ 1.0 D	≤ 1.0 D	1360 ~ 1820	250 ~ 370
		16	4	60 ~ 80	0.052 ~ 0.057	≤ 1.0 D	≤ 1.0 D	1190 ~ 1590	250 ~ 360
		18	4	60 ~ 80	0.058 ~ 0.063	≤ 1.0 D	≤ 1.0 D	1060 ~ 1410	250 ~ 360
		20	4	60 ~ 80	0.063 ~ 0.070	≤ 1.0 D	≤ 1.0 D	950 ~ 1270	240 ~ 360
TITANIUM ALLOYS HARDENED UP TO 35 HRC	M17	1	4	60 ~ 80	0.003 ~ 0.005	≤ 1.0 D	≤ 1.0 D	19100 ~ 25460	230 ~ 510
		1.5	4	60 ~ 80	0.006 ~ 0.008	≤ 1.0 D	≤ 1.0 D	12730 ~ 16980	310 ~ 540
		2	4	60 ~ 80	0.009 ~ 0.011	≤ 1.0 D	≤ 1.0 D	9550 ~ 12730	340 ~ 560
		2.5	4	60 ~ 80	0.012 ~ 0.014	≤ 1.0 D	≤ 1.0 D	7640 ~ 10190	370 ~ 570
		3	4	60 ~ 80	0.014 ~ 0.017	≤ 1.0 D	≤ 1.0 D	6370 ~ 8490	360 ~ 580
		4	4	60 ~ 80	0.020 ~ 0.023	≤ 1.0 D	≤ 1.0 D	4770 ~ 6370	380 ~ 590
		5	4	60 ~ 80	0.026 ~ 0.028	≤ 1.0 D	≤ 1.0 D	3820 ~ 5090	400 ~ 570
		6	4	60 ~ 80	0.031 ~ 0.034	≤ 1.0 D	≤ 1.0 D	3180 ~ 4240	390 ~ 580
		8	4	60 ~ 80	0.039 ~ 0.043	≤ 1.0 D	≤ 1.0 D	2390 ~ 3180	370 ~ 550
		10	4	60 ~ 80	0.046 ~ 0.051	≤ 1.0 D	≤ 1.0 D	1910 ~ 2550	350 ~ 520
		12	4	60 ~ 80	0.054 ~ 0.059	≤ 1.0 D	≤ 1.0 D	1590 ~ 2120	340 ~ 500
		14	4	60 ~ 80	0.062 ~ 0.068	≤ 1.0 D	≤ 1.0 D	1360 ~ 1820	340 ~ 500
		16	4	60 ~ 80	0.069 ~ 0.076	≤ 1.0 D	≤ 1.0 D	1190 ~ 1590	330 ~ 480
		18	4	60 ~ 80	0.077 ~ 0.085	≤ 1.0 D	≤ 1.0 D	1060 ~ 1410	330 ~ 480
		20	4	60 ~ 80	0.085 ~ 0.093	≤ 1.0 D	≤ 1.0 D	950 ~ 1270	320 ~ 470

NiTiCo 30 DP Endmills

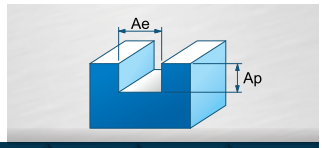
Ae = 1 x D
Ap = 1 x D (0.5 x D)



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
NICKEL BASED ALLOYS HARDENED UP TO 35 HRC	M19,M23	1	4	60 ~ 80	0.003 ~ 0.005	≤ 1.0 D	≤ 1.0 D	19100 ~ 25460	230 ~ 510
		1.5	4	60 ~ 80	0.005 ~ 0.007	≤ 1.0 D	≤ 1.0 D	12730 ~ 16980	250 ~ 480
		2	4	60 ~ 80	0.007 ~ 0.009	≤ 1.0 D	≤ 1.0 D	9550 ~ 12730	270 ~ 460
		2.5	4	60 ~ 80	0.009 ~ 0.011	≤ 1.0 D	≤ 1.0 D	7640 ~ 10190	280 ~ 450
		3	4	60 ~ 80	0.011 ~ 0.013	≤ 1.0 D	≤ 1.0 D	6370 ~ 8490	280 ~ 440
		4	4	60 ~ 80	0.015 ~ 0.017	≤ 1.0 D	≤ 1.0 D	4770 ~ 6370	290 ~ 430
		5	4	60 ~ 80	0.019 ~ 0.022	≤ 1.0 D	≤ 1.0 D	3820 ~ 5090	290 ~ 450
		6	4	60 ~ 80	0.023 ~ 0.026	≤ 1.0 D	≤ 1.0 D	3180 ~ 4240	290 ~ 440
		8	4	60 ~ 80	0.029 ~ 0.032	≤ 1.0 D	≤ 1.0 D	2390 ~ 3180	280 ~ 410
		10	4	60 ~ 80	0.035 ~ 0.038	≤ 1.0 D	≤ 1.0 D	1910 ~ 2550	270 ~ 390
		12	4	60 ~ 80	0.041 ~ 0.045	≤ 1.0 D	≤ 1.0 D	1590 ~ 2120	260 ~ 380
		14	4	60 ~ 80	0.046 ~ 0.051	≤ 1.0 D	≤ 1.0 D	1360 ~ 1820	250 ~ 370
		16	4	60 ~ 80	0.052 ~ 0.057	≤ 1.0 D	≤ 1.0 D	1190 ~ 1590	250 ~ 360
		18	4	60 ~ 80	0.058 ~ 0.063	≤ 1.0 D	≤ 1.0 D	1060 ~ 1410	250 ~ 360
		20	4	60 ~ 80	0.063 ~ 0.070	≤ 1.0 D	≤ 1.0 D	950 ~ 1270	240 ~ 360

NiTiCo 30 Roughing Series Endmills

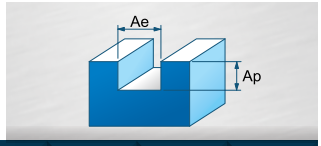
Ae = D
Ap ≤ 0.1D (D < Ø2)
Ap ≤ 0.3D (Ø2 ≤ D ≤ Ø3)
Ap ≤ 0.5D (D > Ø3)



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
CARBON STEEL (~30 HRC) AISI 1049, SCM CAST IRON FC250	M10, M11, M12, M13, M14	1	4	126	0.004 ~ 0.006	≤ 1.0 D	≤ 1.0 D	40000	640 ~ 960
		1.5	4	143 ~ 187	0.007 ~ 0.009	≤ 1.0 D	≤ 1.0 D	30350 ~ 39680	850 ~ 1430
		2	4	143 ~ 187	0.010 ~ 0.012	≤ 1.0 D	≤ 1.0 D	22760 ~ 29760	910 ~ 1430
		2.5	4	143 ~ 187	0.012 ~ 0.015	≤ 1.0 D	≤ 1.0 D	18210 ~ 23810	870 ~ 1430
		3	4	143 ~ 187	0.015 ~ 0.018	≤ 1.0 D	≤ 1.0 D	15170 ~ 19840	910 ~ 1430
		4	4	143 ~ 187	0.020 ~ 0.023	≤ 1.0 D	≤ 1.0 D	11380 ~ 14880	910 ~ 1370
		5	4	143 ~ 187	0.026 ~ 0.029	≤ 1.0 D	≤ 1.0 D	9100 ~ 11900	950 ~ 1380
		6	4	143 ~ 187	0.031 ~ 0.034	≤ 1.0 D	≤ 1.0 D	7590 ~ 9920	940 ~ 1350
		8	4	143 ~ 187	0.038 ~ 0.041	≤ 1.0 D	≤ 1.0 D	5690 ~ 7440	860 ~ 1220
		10	4	143 ~ 187	0.044 ~ 0.048	≤ 1.0 D	≤ 1.0 D	4550 ~ 5950	800 ~ 1140
		12	4	143 ~ 187	0.050 ~ 0.055	≤ 1.0 D	≤ 1.0 D	3790 ~ 4960	760 ~ 1090
		14	4	143 ~ 187	0.057 ~ 0.062	≤ 1.0 D	≤ 1.0 D	3250 ~ 4250	740 ~ 1050
		16	4	143 ~ 187	0.063 ~ 0.070	≤ 1.0 D	≤ 1.0 D	2840 ~ 3720	720 ~ 1040
		18	4	143 ~ 187	0.070 ~ 0.077	≤ 1.0 D	≤ 1.0 D	2530 ~ 3310	710 ~ 1020
		20	4	143 ~ 187	0.076 ~ 0.084	≤ 1.0 D	≤ 1.0 D	2280 ~ 2980	690 ~ 1000
ALLOY STEEL , TOOL STEEL, PREHARDENED STEEL (30 ~ 45 HRC) AISI H13 NAK	M15, M18, M10, M23, M25	1	4	126	0.004 ~ 0.006	≤ 1.0 D	≤ 1.0 D	40000	640 ~ 960
		1.5	4	132 ~ 154	0.007 ~ 0.009	≤ 1.0 D	≤ 1.0 D	28010 ~ 32680	780 ~ 1180
		2	4	132 ~ 154	0.010 ~ 0.012	≤ 1.0 D	≤ 1.0 D	21010 ~ 24510	840 ~ 1180
		2.5	4	132 ~ 154	0.012 ~ 0.015	≤ 1.0 D	≤ 1.0 D	16810 ~ 19610	810 ~ 1180
		3	4	132 ~ 154	0.015 ~ 0.018	≤ 1.0 D	≤ 1.0 D	14010 ~ 16340	840 ~ 1180
		4	4	132 ~ 154	0.020 ~ 0.023	≤ 1.0 D	≤ 1.0 D	10500 ~ 12250	840 ~ 1130
		5	4	132 ~ 154	0.026 ~ 0.029	≤ 1.0 D	≤ 1.0 D	8400 ~ 9800	870 ~ 1140
		6	4	132 ~ 154	0.031 ~ 0.034	≤ 1.0 D	≤ 1.0 D	7000 ~ 8170	870 ~ 1110
		8	4	132 ~ 154	0.038 ~ 0.041	≤ 1.0 D	≤ 1.0 D	5250 ~ 6130	800 ~ 1010
		10	4	132 ~ 154	0.044 ~ 0.048	≤ 1.0 D	≤ 1.0 D	4200 ~ 4900	740 ~ 940
		12	4	132 ~ 154	0.050 ~ 0.055	≤ 1.0 D	≤ 1.0 D	3500 ~ 4080	700 ~ 900
		14	4	132 ~ 154	0.057 ~ 0.062	≤ 1.0 D	≤ 1.0 D	3000 ~ 3500	680 ~ 870
		16	4	132 ~ 154	0.063 ~ 0.070	≤ 1.0 D	≤ 1.0 D	2630 ~ 3060	660 ~ 860
		18	4	132 ~ 154	0.070 ~ 0.077	≤ 1.0 D	≤ 1.0 D	2330 ~ 2720	650 ~ 840
		20	4	132 ~ 154	0.076 ~ 0.084	≤ 1.0 D	≤ 1.0 D	2100 ~ 2450	640 ~ 820
STAINLESS STEEL UP TO 35 HRC	M16	1	4	66 ~ 88	0.003 ~ 0.005	≤ 1.0 D	≤ 1.0 D	21010 ~ 28010	250 ~ 560
		1.5	4	66 ~ 88	0.005 ~ 0.007	≤ 1.0 D	≤ 1.0 D	14010 ~ 18670	280 ~ 520
		2	4	66 ~ 88	0.007 ~ 0.010	≤ 1.0 D	≤ 1.0 D	10500 ~ 14010	290 ~ 560
		2.5	4	66 ~ 88	0.010 ~ 0.012	≤ 1.0 D	≤ 1.0 D	8400 ~ 11200	340 ~ 540
		3	4	66 ~ 88	0.012 ~ 0.014	≤ 1.0 D	≤ 1.0 D	7000 ~ 9340	340 ~ 520
		4	4	66 ~ 88	0.017 ~ 0.019	≤ 1.0 D	≤ 1.0 D	5250 ~ 7000	360 ~ 530
		5	4	66 ~ 88	0.021 ~ 0.024	≤ 1.0 D	≤ 1.0 D	4200 ~ 5600	350 ~ 540
		6	4	66 ~ 88	0.026 ~ 0.029	≤ 1.0 D	≤ 1.0 D	3500 ~ 4670	360 ~ 540
		8	4	66 ~ 88	0.032 ~ 0.036	≤ 1.0 D	≤ 1.0 D	2630 ~ 3500	340 ~ 500
		10	4	66 ~ 88	0.039 ~ 0.043	≤ 1.0 D	≤ 1.0 D	2100 ~ 2800	330 ~ 480
		12	4	66 ~ 88	0.045 ~ 0.050	≤ 1.0 D	≤ 1.0 D	1750 ~ 2330	320 ~ 470
		14	4	66 ~ 88	0.051 ~ 0.057	≤ 1.0 D	≤ 1.0 D	1500 ~ 2000	310 ~ 460
		16	4	66 ~ 88	0.058 ~ 0.064	≤ 1.0 D	≤ 1.0 D	1310 ~ 1750	300 ~ 450
		18	4	66 ~ 88	0.064 ~ 0.071	≤ 1.0 D	≤ 1.0 D	1170 ~ 1560	300 ~ 440
		20	4	66 ~ 88	0.070 ~ 0.078	≤ 1.0 D	≤ 1.0 D	1050 ~ 1400	290 ~ 440
TITANIUM ALLOYS HARDENED UP TO 35 HRC	M17	1	4	66 ~ 88	0.004 ~ 0.006	≤ 1.0 D	≤ 1.0 D	21010 ~ 28010	340 ~ 670
		1.5	4	66 ~ 88	0.007 ~ 0.009	≤ 1.0 D	≤ 1.0 D	14010 ~ 18670	390 ~ 670
		2	4	66 ~ 88	0.010 ~ 0.012	≤ 1.0 D	≤ 1.0 D	10500 ~ 14010	420 ~ 670
		2.5	4	66 ~ 88	0.013 ~ 0.015	≤ 1.0 D	≤ 1.0 D	8400 ~ 11200	440 ~ 670
		3	4	66 ~ 88	0.016 ~ 0.019	≤ 1.0 D	≤ 1.0 D	7000 ~ 9340	450 ~ 710
		4	4	66 ~ 88	0.022 ~ 0.025	≤ 1.0 D	≤ 1.0 D	5250 ~ 7000	460 ~ 700
		5	4	66 ~ 88	0.028 ~ 0.032	≤ 1.0 D	≤ 1.0 D	4200 ~ 5600	470 ~ 720
		6	4	66 ~ 88	0.035 ~ 0.038	≤ 1.0 D	≤ 1.0 D	3500 ~ 4670	490 ~ 710
		8	4	66 ~ 88	0.043 ~ 0.047	≤ 1.0 D	≤ 1.0 D	2630 ~ 3500	450 ~ 660
		10	4	66 ~ 88	0.052 ~ 0.057	≤ 1.0 D	≤ 1.0 D	2100 ~ 2800	440 ~ 640
		12	4	66 ~ 88	0.060 ~ 0.066	≤ 1.0 D	≤ 1.0 D	1750 ~ 2330	420 ~ 620
		14	4	66 ~ 88	0.069 ~ 0.075	≤ 1.0 D	≤ 1.0 D	1500 ~ 2000	410 ~ 600
		16	4	66 ~ 88	0.077 ~ 0.085	≤ 1.0 D	≤ 1.0 D	1310 ~ 1750	400 ~ 600
		18	4	66 ~ 88	0.085 ~ 0.094	≤ 1.0 D	≤ 1.0 D	1170 ~ 1560	400 ~ 590
		20	4	66 ~ 88	0.094 ~ 0.103	≤ 1.0 D	≤ 1.0 D	1050 ~ 1400	390 ~ 580

NiTiCo 30 Roughing Series Endmills

Ae = D
Ap ≤ 0.1D (D < Ø2)
Ap ≤ 0.3D (Ø2 ≤ D ≤ Ø3)
Ap ≤ 0.5D (D > Ø3)



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
NICKEL BASED ALLOYS UP TO 35 HRC	M19,M23	1	4	66 ~ 88	0.003 ~ 0.006	≤ 1.0 D	≤ 1.0 D	21010 ~ 28010	250 ~ 670
		1.5	4	66 ~ 88	0.005 ~ 0.008	≤ 1.0 D	≤ 1.0 D	14010 ~ 18670	280 ~ 600
		2	4	66 ~ 88	0.007 ~ 0.010	≤ 1.0 D	≤ 1.0 D	10500 ~ 14010	290 ~ 560
		2.5	4	66 ~ 88	0.010 ~ 0.013	≤ 1.0 D	≤ 1.0 D	8400 ~ 11200	340 ~ 580
		3	4	66 ~ 88	0.012 ~ 0.015	≤ 1.0 D	≤ 1.0 D	7000 ~ 9340	340 ~ 560
		4	4	66 ~ 88	0.017 ~ 0.019	≤ 1.0 D	≤ 1.0 D	5250 ~ 7000	360 ~ 530
		5	4	66 ~ 88	0.021 ~ 0.024	≤ 1.0 D	≤ 1.0 D	4200 ~ 5600	350 ~ 540
		6	4	66 ~ 88	0.026 ~ 0.029	≤ 1.0 D	≤ 1.0 D	3500 ~ 4670	360 ~ 540
		8	4	66 ~ 88	0.032 ~ 0.036	≤ 1.0 D	≤ 1.0 D	2630 ~ 3500	340 ~ 500
		10	4	66 ~ 88	0.039 ~ 0.043	≤ 1.0 D	≤ 1.0 D	2100 ~ 2800	330 ~ 480
		12	4	66 ~ 88	0.045 ~ 0.050	≤ 1.0 D	≤ 1.0 D	1750 ~ 2330	320 ~ 470
		14	4	66 ~ 88	0.051 ~ 0.057	≤ 1.0 D	≤ 1.0 D	1500 ~ 2000	310 ~ 460
		16	4	66 ~ 88	0.058 ~ 0.064	≤ 1.0 D	≤ 1.0 D	1310 ~ 1750	300 ~ 450
		18	4	66 ~ 88	0.064 ~ 0.071	≤ 1.0 D	≤ 1.0 D	1170 ~ 1560	300 ~ 440
		20	4	66 ~ 88	0.070 ~ 0.078	≤ 1.0 D	≤ 1.0 D	1050 ~ 1400	290 ~ 440

NiTiCo 30 Miniature Endmills with long neck

2 Z Slotting			CARBON STEEL (~30 HRC) AISI 1049 , SCM CAST IRON FC250					ALLOY STEEL , TOOL STEEL, PREHARDENED STEEL (30 ~ 45 HRC) AISI H13 NAK				
Work Material												
Material Groups			M10,M11,M12,M13,M14,M15					M18,M22,M25				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.040	25	0.003	40,000	240	0.034	25	0.002	40,000	160
0.2	1	1.0D	0.016	23	0.003	37,400	210	0.014	23	0.002	37,400	140
0.2	1.5	1.0D	0.011	22	0.003	34,800	182	0.010	22	0.002	34,800	121
0.3	1	1.0D	0.040	38	0.003	40,000	240	0.034	38	0.002	40,000	160
0.3	2	1.0D	0.020	33	0.003	34,800	182	0.017	33	0.002	34,800	121
0.3	3	1.0D	0.012	28	0.002	29,600	131	0.010	28	0.001	29,600	88
0.4	2	1.0D	0.032	47	0.004	37,400	280	0.027	42	0.005	33,581	328
0.4	3	1.0D	0.023	44	0.003	34,800	242	0.019	39	0.004	31,246	284
0.4	4	1.0D	0.016	37	0.003	29,600	175	0.014	33	0.004	26,577	206
0.4	5	1.0D	0.013	34	0.003	27,000	146	0.011	30	0.003	24,243	171
0.5	2	1.0D	0.050	63	0.004	40,000	320	0.043	52	0.006	32,733	437
0.5	4	1.0D	0.025	51	0.003	32,200	207	0.021	41	0.005	26,350	283
0.5	6	1.0D	0.017	43	0.003	27,000	146	0.014	35	0.004	22,094	199
0.5	8	1.0D	0.013	34	0.002	21,800	95	0.011	28	0.003	17,839	130
0.6	2	1.0D	0.080	75	0.005	40,000	400	0.068	58	0.007	30,611	485
0.6	4	1.0D	0.040	65	0.004	34,800	303	0.034	50	0.006	26,631	367
0.6	6	1.0D	0.024	56	0.004	29,600	219	0.020	43	0.005	22,652	266
0.6	8	1.0D	0.018	51	0.003	27,000	182	0.016	39	0.005	20,662	221
0.6	10	1.0D	0.015	41	0.003	21,800	119	0.013	31	0.004	16,683	144
0.7	2	1.0D	0.140	84	0.009	38,189	662	0.119	60	0.008	27,284	473
0.7	4	1.0D	0.056	79	0.008	35,707	579	0.048	56	0.007	25,510	414
0.7	6	1.0D	0.035	68	0.007	30,742	429	0.030	48	0.006	21,963	307
0.7	8	1.0D	0.025	62	0.006	28,260	363	0.022	44	0.006	20,190	259
0.7	10	1.0D	0.020	51	0.005	23,295	246	0.017	37	0.005	16,643	176
0.8	4	1.0D	0.064	85	0.009	33,581	622	0.054	56	0.008	22,321	403
0.8	6	1.0D	0.046	79	0.008	31,246	538	0.039	52	0.007	20,770	349
0.8	8	1.0D	0.032	67	0.007	26,577	389	0.027	44	0.006	17,666	253
0.8	10	1.0D	0.027	61	0.006	24,243	324	0.023	41	0.006	16,114	210
0.8	12	1.0D	0.021	55	0.006	21,908	265	0.018	37	0.005	14,563	172
0.9	6	1.0D	0.060	84	0.009	29,708	553	0.051	52	0.008	18,462	332
0.9	8	1.0D	0.045	78	0.008	27,488	473	0.038	48	0.007	17,083	284
0.9	10	1.0D	0.033	71	0.007	25,269	400	0.028	44	0.007	15,703	240
0.9	15	1.0D	0.023	53	0.005	18,610	217	0.019	33	0.005	11,565	130
1.0	6	1.0D	0.067	87	0.010	27,693	569	0.057	52	0.009	16,616	328
1.0	8	1.0D	0.050	81	0.009	25,624	487	0.043	48	0.008	15,374	281
1.0	10	1.0D	0.040	74	0.008	23,555	412	0.034	44	0.007	14,133	237
1.0	12	1.0D	0.033	68	0.007	21,486	342	0.028	41	0.007	12,891	197
1.0	14	1.0D	0.029	61	0.007	19,417	280	0.024	37	0.006	11,650	161
1.0	16	1.0D	0.025	55	0.006	17,348	223	0.021	33	0.005	10,409	129
1.2	6	1.0D	0.096	94	0.012	24,802	631	0.082	56	0.011	14,881	381
1.2	8	1.0D	0.080	87	0.011	23,078	546	0.068	52	0.010	13,846	330
1.2	10	1.0D	0.060	81	0.010	21,353	468	0.051	48	0.010	12,812	282
1.2	12	1.0D	0.048	74	0.009	19,629	395	0.041	44	0.009	11,777	238
1.4	6	1.0D	0.140	100	0.014	22,737	691	0.119	60	0.014	13,642	419
1.4	8	1.0D	0.112	94	0.013	21,259	604	0.095	56	0.013	12,755	366
1.4	10	1.0D	0.080	87	0.012	19,781	523	0.068	52	0.012	11,869	317
1.4	12	1.0D	0.070	81	0.011	18,303	448	0.060	48	0.011	10,982	271
1.4	14	1.0D	0.056	74	0.010	16,825	378	0.048	44	0.010	10,095	229
1.4	16	1.0D	0.051	74	0.010	16,825	378	0.043	44	0.010	10,095	229
1.5	6	1.0D	0.150	100	0.015	21,221	688	0.128	60	0.014	12,733	408
1.5	8	1.0D	0.120	94	0.014	19,842	601	0.102	56	0.013	11,905	356
1.5	10	1.0D	0.100	87	0.013	18,462	521	0.085	52	0.012	11,077	308
1.5	12	1.0D	0.075	81	0.012	17,083	446	0.064	48	0.011	10,250	264
1.5	14	1.0D	0.067	81	0.012	17,083	446	0.057	48	0.011	10,250	264
1.5	16	1.0D	0.060	74	0.011	15,704	377	0.051	44	0.010	9,422	223
1.5	18	1.0D	0.050	68	0.010	14,324	313	0.043	41	0.009	8,594	186
1.5	20	1.0D	0.046	68	0.010	14,324	313	0.039	41	0.009	8,594	186
1.6	6	1.0D	0.213	100	0.016	19,894	668	0.181	60	0.016	11,937	422
1.6	8	1.0D	0.128	94	0.014	18,601	584	0.109	56	0.014	11,161	368
1.6	10	1.0D	0.107	87	0.013	17,308	506	0.091	52	0.013	10,385	319
1.6	12	1.0D	0.091	87	0.013	17,308	506	0.078	52	0.013	10,385	319
1.6	14	1.0D	0.080	81	0.012	16,015	433	0.068	48	0.012	9,609	273
1.6	16	1.0D	0.064	74	0.011	14,722	366	0.054	44	0.011	8,833	231
1.6	18	1.0D	0.058	74	0.011	14,722	366	0.049	44	0.011	8,833	231
1.6	20	1.0D	0.053	68	0.010	13,428	304	0.045	41	0.010	8,057	192

NiTiCo 30 Miniature Endmills with long neck

2 Z Slotting			CARBON STEEL (~30 HRC) AISI 1049 , SCM CAST IRON FC250					ALLOY STEEL , TOOL STEEL, PREHARDENED STEEL (30 ~ 45 HRC) AISI H13 NAK				
Work Material												
Material Groups			M10,M11,M12,M13,M14,M15					M18,M22,M25				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.240	100	0.018	17,684	672	0.204	60	0.017	10,611	410
1.8	8	1.0D	0.180	100	0.018	17,684	672	0.153	60	0.017	10,611	410
1.8	10	1.0D	0.144	94	0.016	16,535	587	0.122	56	0.016	9,921	358
1.8	12	1.0D	0.120	87	0.015	15,385	509	0.102	52	0.015	9,231	310
1.8	14	1.0D	0.103	87	0.015	15,385	509	0.087	52	0.015	9,231	310
1.8	16	1.0D	0.090	81	0.014	14,236	435	0.077	48	0.014	8,541	266
1.8	18	1.0D	0.072	74	0.013	13,086	368	0.061	44	0.013	7,852	225
1.8	20	1.0D	0.065	74	0.013	13,086	368	0.056	44	0.013	7,852	225
2.0	6	1.0D	0.267	100	0.019	15,916	656	0.227	60	0.019	9,549	401
2.0	8	1.0D	0.200	100	0.019	15,916	656	0.170	60	0.019	9,549	401
2.0	10	1.0D	0.160	94	0.018	14,881	573	0.136	56	0.017	8,928	351
2.0	12	1.0D	0.133	87	0.017	13,846	496	0.113	52	0.016	8,308	304
2.0	14	1.0D	0.114	87	0.017	13,846	496	0.097	52	0.016	8,308	304
2.0	16	1.0D	0.100	81	0.015	12,812	425	0.085	48	0.015	7,687	260
2.0	18	1.0D	0.089	81	0.015	12,812	425	0.076	48	0.015	7,687	260
2.0	20	1.0D	0.080	74	0.014	11,777	359	0.068	44	0.014	7,066	220
2.0	25	1.0D	0.067	68	0.013	10,743	299	0.057	41	0.012	6,446	183
2.0	30	1.0D	0.053	61	0.012	9,708	244	0.045	37	0.011	5,825	149
2.5	8	1.0D	0.333	100	0.023	12,733	637	0.283	60	0.023	7,640	392
2.5	10	1.0D	0.250	100	0.023	12,733	637	0.213	60	0.023	7,640	392
2.5	12	1.0D	0.250	100	0.023	12,733	637	0.213	60	0.023	7,640	392
2.5	14	1.0D	0.200	94	0.022	11,905	556	0.170	56	0.021	7,143	343
2.5	16	1.0D	0.167	87	0.020	11,077	482	0.142	52	0.020	6,646	297
2.5	18	1.0D	0.143	87	0.020	11,077	482	0.121	52	0.020	6,646	297
2.5	20	1.0D	0.125	81	0.019	10,250	412	0.106	48	0.018	6,150	254
2.5	25	1.0D	0.100	74	0.017	9,422	349	0.085	44	0.017	5,653	215
2.5	30	1.0D	0.083	68	0.016	8,594	290	0.071	41	0.015	5,157	179
3.0	8	1.0D	0.600	100	0.027	10,610	620	0.510	60	0.027	6,366	386
3.0	10	1.0D	0.400	100	0.027	10,610	620	0.340	60	0.027	6,366	386
3.0	12	1.0D	0.300	100	0.027	10,610	620	0.255	60	0.027	6,366	386
3.0	14	1.0D	0.300	100	0.027	10,610	620	0.255	60	0.027	6,366	386
3.0	16	1.0D	0.240	94	0.025	9,920	542	0.204	56	0.025	5,952	337
3.0	18	1.0D	0.200	87	0.023	9,231	469	0.170	52	0.023	5,538	292
3.0	20	1.0D	0.200	87	0.023	9,231	469	0.170	52	0.023	5,538	292
3.0	25	1.0D	0.150	81	0.022	8,541	402	0.128	48	0.021	5,125	250
4.0	10	1.0D	0.800	100	0.035	7,958	605	0.680	60	0.035	4,775	382
4.0	15	1.0D	0.533	100	0.035	7,958	605	0.453	60	0.035	4,775	382
4.0	20	1.0D	0.320	94	0.033	7,440	529	0.272	56	0.033	4,464	334
4.0	25	1.0D	0.267	87	0.030	6,923	458	0.227	52	0.030	4,154	289
4.0	30	1.0D	0.229	87	0.030	6,923	458	0.194	52	0.030	4,154	289
4.0	40	1.0D	0.160	74	0.026	5,889	331	0.136	44	0.026	3,533	209

NiTiCo 30 Miniature Endmills with long neck

2 Z Slotting			STAINLESS STEEL 300 (<35 HRC)					TITANIUM ALLOYS HARDENED LESS THAN HRC 32				
Work Material												
Material Groups			M16					M17				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.028	23	0.003	35,916	232	0.034	25	0.002	40,000	160
0.2	1	1.0D	0.011	21	0.003	33,581	203	0.014	23	0.002	37,400	140
0.2	1.5	1.0D	0.008	20	0.003	31,246	176	0.010	22	0.002	34,800	121
0.3	1	1.0D	0.028	29	0.004	30,611	283	0.034	38	0.002	40,000	160
0.3	2	1.0D	0.014	25	0.003	26,631	214	0.017	33	0.002	34,800	121
0.3	3	1.0D	0.008	21	0.003	22,652	155	0.010	28	0.001	29,600	88
0.4	2	1.0D	0.022	33	0.004	26,140	273	0.027	42	0.005	33,581	328
0.4	3	1.0D	0.016	30	0.004	24,323	236	0.019	39	0.004	31,246	284
0.4	4	1.0D	0.011	26	0.003	20,689	171	0.014	33	0.004	26,577	206
0.4	5	1.0D	0.009	24	0.003	18,871	142	0.011	30	0.003	24,243	171
0.5	2	1.0D	0.035	40	0.006	25,465	382	0.043	52	0.006	32,733	437
0.5	4	1.0D	0.018	32	0.005	20,499	248	0.021	41	0.005	26,350	283
0.5	6	1.0D	0.012	27	0.004	17,189	174	0.014	35	0.004	22,094	199
0.5	8	1.0D	0.009	22	0.003	13,878	113	0.011	28	0.003	17,839	130
0.6	2	1.0D	0.056	40	0.007	21,221	351	0.068	58	0.007	30,611	485
0.6	4	1.0D	0.028	35	0.006	18,462	265	0.034	50	0.006	26,631	367
0.6	6	1.0D	0.017	30	0.005	15,703	192	0.020	43	0.005	22,652	266
0.6	8	1.0D	0.013	27	0.004	14,324	160	0.016	39	0.005	20,662	221
0.6	10	1.0D	0.011	22	0.004	11,565	104	0.013	31	0.004	16,683	144
0.7	2	1.0D	0.098	40	0.008	18,190	337	0.119	60	0.008	27,284	473
0.7	4	1.0D	0.039	37	0.007	17,007	294	0.048	56	0.007	25,510	414
0.7	6	1.0D	0.025	32	0.006	14,643	218	0.030	48	0.006	21,963	307
0.7	8	1.0D	0.018	30	0.006	13,460	184	0.022	44	0.006	20,190	259
0.7	10	1.0D	0.014	24	0.005	11,096	125	0.017	37	0.005	16,643	176
0.8	4	1.0D	0.045	37	0.007	14,881	278	0.054	56	0.008	22,321	403
0.8	6	1.0D	0.032	35	0.007	13,846	241	0.039	52	0.007	20,770	349
0.8	8	1.0D	0.022	30	0.006	11,777	174	0.027	44	0.006	17,666	253
0.8	10	1.0D	0.019	27	0.005	10,743	145	0.023	41	0.006	16,114	210
0.8	12	1.0D	0.015	24	0.005	9,708	119	0.018	37	0.005	14,563	172
0.9	6	1.0D	0.042	35	0.008	12,308	236	0.051	52	0.008	18,462	332
0.9	8	1.0D	0.032	32	0.007	11,389	202	0.038	48	0.007	17,083	284
0.9	10	1.0D	0.023	30	0.007	10,469	171	0.028	44	0.007	15,703	240
0.9	15	1.0D	0.016	22	0.005	7,710	93	0.019	33	0.005	11,565	130
1.0	6	1.0D	0.047	35	0.008	11,077	227	0.057	52	0.009	16,616	328
1.0	8	1.0D	0.035	32	0.008	10,250	194	0.043	48	0.008	15,374	281
1.0	10	1.0D	0.028	30	0.007	9,422	164	0.034	44	0.007	14,133	237
1.0	12	1.0D	0.023	27	0.006	8,594	136	0.028	41	0.007	12,891	197
1.0	14	1.0D	0.020	24	0.006	7,767	111	0.024	37	0.006	11,650	161
1.0	16	1.0D	0.018	22	0.005	6,939	89	0.021	33	0.005	10,409	129
1.2	6	1.0D	0.067	37	0.011	9,920	264	0.082	56	0.011	14,881	381
1.2	8	1.0D	0.056	35	0.010	9,231	229	0.068	52	0.010	13,846	330
1.2	10	1.0D	0.042	32	0.009	8,541	196	0.051	48	0.010	12,812	282
1.2	12	1.0D	0.034	30	0.009	7,851	166	0.041	44	0.009	11,777	238
1.4	6	1.0D	0.098	40	0.013	9,095	291	0.119	60	0.014	13,642	419
1.4	8	1.0D	0.078	37	0.012	8,503	254	0.095	56	0.013	12,755	366
1.4	10	1.0D	0.056	35	0.011	7,912	220	0.068	52	0.012	11,869	317
1.4	12	1.0D	0.049	32	0.010	7,321	189	0.060	48	0.011	10,982	271
1.4	14	1.0D	0.039	30	0.010	6,730	159	0.048	44	0.010	10,095	229
1.4	16	1.0D	0.036	30	0.010	6,730	159	0.043	44	0.010	10,095	229
1.5	6	1.0D	0.105	40	0.014	8,488	289	0.128	60	0.014	12,733	408
1.5	8	1.0D	0.084	37	0.013	7,936	252	0.102	56	0.013	11,905	356
1.5	10	1.0D	0.070	35	0.012	7,385	218	0.085	52	0.012	11,077	308
1.5	12	1.0D	0.053	32	0.011	6,833	187	0.064	48	0.011	10,250	264
1.5	14	1.0D	0.047	32	0.011	6,833	187	0.057	48	0.011	10,250	264
1.5	16	1.0D	0.042	30	0.010	6,281	158	0.051	44	0.010	9,422	223
1.5	18	1.0D	0.035	27	0.009	5,729	131	0.043	41	0.009	8,594	186
1.5	20	1.0D	0.032	27	0.009	5,729	131	0.039	41	0.009	8,594	186
1.6	6	1.0D	0.149	40	0.015	7,958	295	0.181	60	0.016	11,937	422
1.6	8	1.0D	0.090	37	0.014	7,441	257	0.109	56	0.014	11,161	368
1.6	10	1.0D	0.075	35	0.013	6,923	223	0.091	52	0.013	10,385	319
1.6	12	1.0D	0.064	35	0.013	6,923	223	0.078	52	0.013	10,385	319
1.6	14	1.0D	0.056	32	0.012	6,406	191	0.068	48	0.012	9,609	273
1.6	16	1.0D	0.045	30	0.011	5,889	161	0.054	44	0.011	8,833	231
1.6	18	1.0D	0.041	30	0.011	5,889	161	0.049	44	0.011	8,833	231
1.6	20	1.0D	0.037	27	0.010	5,372	134	0.045	41	0.010	8,057	192

NiTiCo 30 Miniature Endmills with long neck

2 Z Slotting			STAINLESS STEEL 300 (<35 HRC)					TITANIUM ALLOYS HARDENED LESS THAN HRC 32				
Work Material												
Material Groups			M16					M17				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.168	40	0.017	7,074	287	0.204	60	0.017	10,611	410
1.8	8	1.0D	0.126	40	0.017	7,074	287	0.153	60	0.017	10,611	410
1.8	10	1.0D	0.101	37	0.015	6,614	250	0.122	56	0.016	9,921	358
1.8	12	1.0D	0.084	35	0.014	6,154	217	0.102	52	0.015	9,231	310
1.8	14	1.0D	0.072	35	0.014	6,154	217	0.087	52	0.015	9,231	310
1.8	16	1.0D	0.063	32	0.013	5,694	186	0.077	48	0.014	8,541	266
1.8	18	1.0D	0.050	30	0.012	5,234	157	0.061	44	0.013	7,852	225
1.8	20	1.0D	0.046	30	0.012	5,234	157	0.056	44	0.013	7,852	225
2.0	6	1.0D	0.187	40	0.018	6,366	281	0.227	60	0.019	9,549	401
2.0	8	1.0D	0.140	40	0.018	6,366	281	0.170	60	0.019	9,549	401
2.0	10	1.0D	0.112	37	0.017	5,952	245	0.136	56	0.017	8,928	351
2.0	12	1.0D	0.093	35	0.016	5,538	212	0.113	52	0.016	8,308	304
2.0	14	1.0D	0.080	35	0.016	5,538	212	0.097	52	0.016	8,308	304
2.0	16	1.0D	0.070	32	0.014	5,125	182	0.085	48	0.015	7,687	260
2.0	18	1.0D	0.062	32	0.014	5,125	182	0.076	48	0.015	7,687	260
2.0	20	1.0D	0.056	30	0.013	4,711	154	0.068	44	0.014	7,066	220
2.0	25	1.0D	0.047	27	0.012	4,297	128	0.057	41	0.012	6,446	183
2.0	30	1.0D	0.037	24	0.011	3,883	104	0.045	37	0.011	5,825	149
2.5	8	1.0D	0.233	40	0.023	5,093	278	0.283	60	0.023	7,640	392
2.5	10	1.0D	0.175	40	0.023	5,093	278	0.213	60	0.023	7,640	392
2.5	12	1.0D	0.175	40	0.023	5,093	278	0.213	60	0.023	7,640	392
2.5	14	1.0D	0.140	37	0.021	4,761	243	0.170	56	0.021	7,143	343
2.5	16	1.0D	0.117	35	0.020	4,430	210	0.142	52	0.020	6,646	297
2.5	18	1.0D	0.100	35	0.020	4,430	210	0.121	52	0.020	6,646	297
2.5	20	1.0D	0.088	32	0.018	4,099	180	0.106	48	0.018	6,150	254
2.5	25	1.0D	0.070	30	0.017	3,768	152	0.085	44	0.017	5,653	215
2.5	30	1.0D	0.058	27	0.015	3,437	126	0.071	41	0.015	5,157	179
3.0	8	1.0D	0.420	40	0.027	4,244	274	0.510	60	0.027	6,366	386
3.0	10	1.0D	0.280	40	0.027	4,244	274	0.340	60	0.027	6,366	386
3.0	12	1.0D	0.210	40	0.027	4,244	274	0.255	60	0.027	6,366	386
3.0	14	1.0D	0.210	40	0.027	4,244	274	0.255	60	0.027	6,366	386
3.0	16	1.0D	0.168	37	0.025	3,968	240	0.204	56	0.025	5,952	337
3.0	18	1.0D	0.140	35	0.023	3,692	207	0.170	52	0.023	5,538	292
3.0	20	1.0D	0.140	35	0.023	3,692	207	0.170	52	0.023	5,538	292
3.0	25	1.0D	0.105	32	0.021	3,416	178	0.128	48	0.021	5,125	250
4.0	10	1.0D	0.560	40	0.035	3,184	271	0.680	60	0.035	4,775	382
4.0	15	1.0D	0.373	40	0.035	3,184	271	0.453	60	0.035	4,775	382
4.0	20	1.0D	0.224	37	0.033	2,977	237	0.272	56	0.033	4,464	334
4.0	25	1.0D	0.187	35	0.030	2,770	205	0.227	52	0.030	4,154	289
4.0	30	1.0D	0.160	35	0.030	2,770	205	0.194	52	0.030	4,154	289
4.0	40	1.0D	0.112	30	0.026	2,356	148	0.136	44	0.026	3,533	209

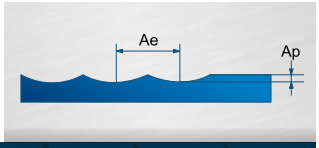
NiTiCo 30 Miniature Endmills with long neck

2 Z Slotting			TITANIUM ALLOYS HARDENED MORE THAN HRC 32					COBALT CHROME				
Work Material												
Material Groups			M21					M				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	1.0D	0.034	25	0.001	40,000	80	0.034	25	0.001	40,000	80
0.2	1	1.0D	0.014	23	0.001	37,400	70	0.014	23	0.001	37,400	70
0.2	1.5	1.0D	0.010	22	0.001	34,800	61	0.010	22	0.001	34,800	61
0.3	1	1.0D	0.034	34	0.004	35,916	304	0.034	38	0.002	40,000	160
0.3	2	1.0D	0.017	30	0.003	31,246	230	0.017	33	0.002	34,800	121
0.3	3	1.0D	0.010	25	0.003	26,577	166	0.010	28	0.001	29,600	88
0.4	2	1.0D	0.027	37	0.004	29,861	286	0.027	36	0.004	37,400	280
0.4	3	1.0D	0.019	35	0.004	27,785	248	0.019	33	0.003	34,800	242
0.4	4	1.0D	0.014	30	0.003	23,633	179	0.014	28	0.003	29,600	175
0.4	5	1.0D	0.011	27	0.003	21,557	149	0.011	26	0.003	27,000	146
0.5	2	1.0D	0.043	45	0.006	28,648	402	0.043	63	0.005	40,000	400
0.5	4	1.0D	0.021	36	0.005	23,062	260	0.021	51	0.004	32,200	259
0.5	6	1.0D	0.014	30	0.004	19,337	183	0.014	43	0.003	27,000	182
0.5	8	1.0D	0.011	25	0.003	15,613	119	0.011	34	0.003	21,800	119
0.6	2	1.0D	0.068	45	0.007	23,873	366	0.068	75	0.006	40,000	480
0.6	4	1.0D	0.034	39	0.006	20,770	277	0.034	65	0.005	34,800	363
0.6	6	1.0D	0.020	33	0.005	17,666	200	0.020	56	0.004	29,600	263
0.6	8	1.0D	0.016	30	0.004	16,114	167	0.016	51	0.004	27,000	219
0.6	10	1.0D	0.013	25	0.004	13,011	109	0.013	41	0.003	21,800	143
0.7	2	1.0D	0.119	45	0.008	20,463	355	0.119	88	0.007	40,000	560
0.7	4	1.0D	0.048	42	0.007	19,133	310	0.048	82	0.007	37,400	490
0.7	6	1.0D	0.030	36	0.006	16,473	230	0.030	71	0.006	32,200	363
0.7	8	1.0D	0.022	33	0.006	15,143	194	0.022	65	0.005	29,600	307
0.7	10	1.0D	0.017	27	0.005	12,482	132	0.017	54	0.004	24,400	208
0.8	4	1.0D	0.054	42	0.007	16,741	292	0.054	94	0.008	37,400	629
0.8	6	1.0D	0.039	39	0.007	15,577	253	0.039	88	0.008	34,800	545
0.8	8	1.0D	0.027	33	0.006	13,250	183	0.027	75	0.007	29,600	394
0.8	10	1.0D	0.023	30	0.005	12,086	152	0.023	68	0.006	27,000	328
0.8	12	1.0D	0.018	27	0.005	10,922	124	0.018	62	0.005	24,400	268
0.9	6	1.0D	0.051	39	0.008	13,846	249	0.051	98	0.009	34,800	606
0.9	8	1.0D	0.038	36	0.007	12,812	213	0.038	91	0.008	32,200	518
0.9	10	1.0D	0.028	33	0.007	11,777	180	0.028	84	0.007	29,600	438
0.9	15	1.0D	0.019	25	0.005	8,674	98	0.019	62	0.005	21,800	238
1.0	6	1.0D	0.057	39	0.008	12,462	238	0.057	110	0.010	34,800	666
1.0	8	1.0D	0.043	36	0.008	11,531	204	0.043	101	0.009	32,200	570
1.0	10	1.0D	0.034	33	0.007	10,600	172	0.034	93	0.008	29,600	482
1.0	12	1.0D	0.028	30	0.006	9,669	144	0.028	85	0.007	27,000	401
1.0	14	1.0D	0.024	27	0.006	8,738	117	0.024	77	0.007	24,400	327
1.0	16	1.0D	0.021	25	0.005	7,807	94	0.021	69	0.006	21,800	261
1.2	6	1.0D	0.082	42	0.011	11,161	278	0.082	136	0.017	36,061	1224
1.2	8	1.0D	0.068	39	0.010	10,385	241	0.068	127	0.016	33,554	1060
1.2	10	1.0D	0.051	36	0.009	9,609	206	0.051	117	0.014	31,047	907
1.2	12	1.0D	0.041	33	0.009	8,833	174	0.041	108	0.013	28,540	767
1.4	6	1.0D	0.119	45	0.013	10,232	307	0.119	150	0.021	34,105	1456
1.4	8	1.0D	0.095	42	0.012	9,566	268	0.095	140	0.020	31,888	1272
1.4	10	1.0D	0.068	39	0.011	8,901	232	0.068	131	0.018	29,671	1102
1.4	12	1.0D	0.060	36	0.010	8,236	199	0.060	121	0.017	27,454	943
1.4	14	1.0D	0.048	33	0.010	7,571	168	0.048	111	0.016	25,237	797
1.4	16	1.0D	0.043	33	0.010	7,571	168	0.043	111	0.016	25,237	797
1.5	6	1.0D	0.128	45	0.014	9,549	306	0.128	150	0.023	31,831	1452
1.5	8	1.0D	0.102	42	0.013	8,928	267	0.102	140	0.021	29,762	1269
1.5	10	1.0D	0.085	39	0.012	8,308	231	0.085	131	0.020	27,693	1099
1.5	12	1.0D	0.064	36	0.011	7,687	198	0.064	121	0.018	25,624	941
1.5	14	1.0D	0.057	36	0.011	7,687	198	0.057	121	0.018	25,624	941
1.5	16	1.0D	0.051	33	0.010	7,066	167	0.051	111	0.017	23,555	795
1.5	18	1.0D	0.043	30	0.009	6,446	139	0.043	101	0.015	21,486	661
1.5	20	1.0D	0.039	30	0.009	6,446	139	0.039	101	0.015	21,486	661
1.6	6	1.0D	0.181	45	0.015	8,953	310	0.181	150	0.024	29,842	1452
1.6	8	1.0D	0.109	42	0.014	8,371	271	0.109	140	0.022	27,902	1269
1.6	10	1.0D	0.091	39	0.013	7,789	235	0.091	131	0.021	25,962	1099
1.6	12	1.0D	0.078	39	0.013	7,789	235	0.078	131	0.021	25,962	1099
1.6	14	1.0D	0.068	36	0.012	7,207	201	0.068	121	0.019	24,022	941
1.6	16	1.0D	0.054	33	0.011	6,625	170	0.054	111	0.018	22,083	795
1.6	18	1.0D	0.049	33	0.011	6,625	170	0.049	111	0.018	22,083	795
1.6	20	1.0D	0.045	30	0.010	6,043	141	0.045	101	0.016	20,143	662

NiTiCo 30 Miniature Endmills with long neck

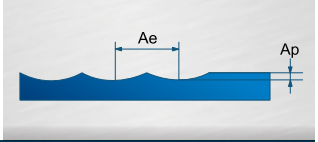
2 Z Slotting			TITANIUM ALLOYS HARDENED MORE THAN HRC 32					COBALT CHROME				
Work Material												
Material Groups			M21					M				
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
1.8	6	1.0D	0.204	45	0.017	7,958	302	0.204	150	0.027	26,526	1,450
1.8	8	1.0D	0.153	45	0.017	7,958	302	0.153	150	0.027	26,526	1,450
1.8	10	1.0D	0.122	42	0.015	7,440	264	0.122	140	0.025	24,801	1,268
1.8	12	1.0D	0.102	39	0.014	6,923	229	0.102	131	0.023	23,077	1,098
1.8	14	1.0D	0.087	39	0.014	6,923	229	0.087	131	0.023	23,077	1,098
1.8	16	1.0D	0.077	36	0.013	6,406	196	0.077	121	0.022	21,353	940
1.8	18	1.0D	0.061	33	0.012	5,889	165	0.061	111	0.020	19,629	794
1.8	20	1.0D	0.056	33	0.012	5,889	165	0.056	111	0.020	19,629	794
2.0	6	1.0D	0.227	45	0.018	7,162	297	0.227	150	0.030	23,874	1,452
2.0	8	1.0D	0.170	45	0.018	7,162	297	0.170	150	0.030	23,874	1,452
2.0	10	1.0D	0.136	42	0.017	6,696	259	0.136	140	0.028	22,322	1,269
2.0	12	1.0D	0.113	39	0.016	6,231	224	0.113	131	0.026	20,770	1,099
2.0	14	1.0D	0.097	39	0.016	6,231	224	0.097	131	0.026	20,770	1,099
2.0	16	1.0D	0.085	36	0.014	5,765	192	0.085	121	0.024	19,218	941
2.0	18	1.0D	0.076	36	0.014	5,765	192	0.076	121	0.024	19,218	941
2.0	20	1.0D	0.068	33	0.013	5,300	162	0.068	111	0.022	17,666	795
2.0	25	1.0D	0.057	30	0.012	4,834	135	0.057	101	0.020	16,115	661
2.0	30	1.0D	0.045	27	0.011	4,369	110	0.045	92	0.018	14,563	540
2.5	8	1.0D	0.283	45	0.023	5,730	294	0.283	150	0.030	23,874	1,452
2.5	10	1.0D	0.213	45	0.023	5,730	294	0.213	150	0.030	23,874	1,452
2.5	12	1.0D	0.213	45	0.023	5,730	294	0.213	150	0.030	23,874	1,452
2.5	14	1.0D	0.170	42	0.021	5,357	257	0.170	140	0.028	22,322	1,269
2.5	16	1.0D	0.142	39	0.020	4,985	223	0.142	131	0.026	20,770	1,099
2.5	18	1.0D	0.121	39	0.020	4,985	223	0.121	131	0.026	20,770	1,099
2.5	20	1.0D	0.106	36	0.018	4,612	191	0.106	121	0.024	19,218	941
2.5	25	1.0D	0.085	33	0.017	4,240	161	0.085	111	0.022	17,666	795
2.5	30	1.0D	0.071	30	0.015	3,867	134	0.071	101	0.020	16,115	661
3.0	8	1.0D	0.510	45	0.027	4,775	290	0.510	150	0.045	15,916	1,450
3.0	10	1.0D	0.340	45	0.027	4,775	290	0.340	150	0.045	15,916	1,450
3.0	12	1.0D	0.255	45	0.027	4,775	290	0.255	150	0.045	15,916	1,450
3.0	14	1.0D	0.255	45	0.027	4,775	290	0.255	150	0.045	15,916	1,450
3.0	16	1.0D	0.204	42	0.025	4,464	253	0.204	140	0.042	14,881	1,267
3.0	18	1.0D	0.170	39	0.023	4,154	219	0.170	131	0.039	13,846	1,097
3.0	20	1.0D	0.170	39	0.023	4,154	219	0.170	131	0.039	13,846	1,097
3.0	25	1.0D	0.128	36	0.021	3,843	188	0.128	121	0.036	12,812	939
4.0	10	1.0D	0.680	45	0.035	3,581	287	0.680	150	0.060	11,937	1,448
4.0	15	1.0D	0.453	45	0.035	3,581	287	0.453	150	0.060	11,937	1,448
4.0	20	1.0D	0.272	42	0.033	3,348	250	0.272	140	0.056	11,161	1,266
4.0	25	1.0D	0.227	39	0.030	3,115	217	0.227	131	0.052	10,385	1,096
4.0	30	1.0D	0.194	39	0.030	3,115	217	0.194	131	0.052	10,385	1,096
4.0	40	1.0D	0.136	33	0.026	2,650	157	0.136	111	0.044	8,833	793

NiTiCo 30 Miniature Ballnose Cutters with long neck



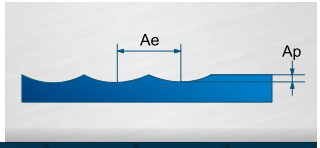
2 Z Profile Milling				CARBON STEEL (~30 HRC) AISI 1049 , SCM CAST IRON FC250				ALLOY STEEL , TOOL STEEL, PREHARDENED STEEL (30 ~ 45 HRC) AISI H13 NAK			
Work Material											
Material Groups				M10,M11,M12,M13,M14,M15				M18,M22,M25			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	0.05D	0.20D	25	0.003	40,000	240	25	0.002	40,000	160
0.2	1	0.05D	0.20D	25	0.003	40,000	240	25	0.002	40,000	160
0.2	1.5	0.05D	0.15D	21	0.002	34,000	144	21	0.001	34,000	96
0.3	1	0.05D	0.20D	38	0.003	40,000	240	38	0.002	40,000	160
0.3	2	0.05D	0.15D	32	0.002	34,000	144	32	0.001	34,000	96
0.3	3	0.02D	0.10D	27	0.002	28,000	120	27	0.001	28,000	80
0.4	1	0.05D	0.20D	50	0.004	40,000	320	45	0.005	35,916	376
0.4	2	0.05D	0.20D	50	0.004	40,000	320	45	0.005	35,916	376
0.4	3	0.05D	0.15D	43	0.003	34,000	192	38	0.004	30,528	225
0.4	4	0.02D	0.10D	35	0.003	28,000	160	32	0.004	25,141	188
0.4	5	0.02D	0.10D	35	0.003	28,000	160	32	0.004	25,141	188
0.5	2	0.05D	0.20D	63	0.004	40,000	320	52	0.006	32,733	437
0.5	3	0.05D	0.15D	54	0.003	34,000	192	44	0.004	27,823	262
0.5	4	0.05D	0.15D	54	0.003	34,000	192	44	0.004	27,823	262
0.5	5	0.02D	0.10D	44	0.003	28,000	160	36	0.004	22,913	218
0.5	6	0.02D	0.10D	44	0.003	28,000	160	36	0.004	22,913	218
0.5	8	0.02D	0.10D	38	0.003	24,000	128	31	0.004	19,640	175
0.6	2	0.05D	0.20D	75	0.005	40,000	400	58	0.007	30,611	485
0.6	3	0.05D	0.20D	75	0.005	40,000	400	58	0.007	30,611	485
0.6	4	0.05D	0.15D	64	0.004	34,000	240	49	0.005	26,019	291
0.6	5	0.05D	0.15D	64	0.004	34,000	240	49	0.005	26,019	291
0.6	6	0.02D	0.10D	53	0.004	28,000	200	40	0.005	21,427	243
0.6	8	0.02D	0.10D	53	0.004	28,000	200	40	0.005	21,427	243
0.8	2	0.05D	0.20D	91	0.010	35,916	711	60	0.008	23,873	462
0.8	4	0.05D	0.20D	91	0.010	35,916	711	60	0.008	23,873	462
0.8	5	0.05D	0.15D	77	0.007	30,528	427	51	0.005	20,292	277
0.8	6	0.05D	0.15D	77	0.007	30,528	427	51	0.005	20,292	277
0.8	7	0.05D	0.15D	77	0.007	30,528	427	51	0.005	20,292	277
0.8	8	0.02D	0.10D	63	0.007	25,141	356	42	0.005	16,711	231
0.8	10	0.02D	0.10D	63	0.007	25,141	356	42	0.005	16,711	231
1.0	3	0.05D	0.20D	100	0.011	31,831	752	60	0.009	19,099	433
1.0	4	0.05D	0.20D	100	0.011	31,831	752	60	0.009	19,099	433
1.0	5	0.05D	0.20D	100	0.011	31,831	752	60	0.009	19,099	433
1.0	6	0.05D	0.15D	85	0.008	27,056	451	51	0.006	16,234	260
1.0	7	0.05D	0.15D	85	0.008	27,056	451	51	0.006	16,234	260
1.0	8	0.05D	0.15D	85	0.008	27,056	451	51	0.006	16,234	260
1.0	9	0.05D	0.15D	85	0.008	27,056	451	51	0.006	16,234	260
1.0	10	0.02D	0.10D	70	0.008	22,282	376	42	0.006	13,369	217
1.0	12	0.02D	0.10D	70	0.008	22,282	376	42	0.006	13,369	217
1.0	14	0.02D	0.10D	70	0.008	22,282	376	42	0.006	13,369	217
1.0	20	0.02D	0.10D	60	0.007	19,099	301	36	0.006	11,459	173
1.2	6	0.05D	0.20D	100	0.013	26,526	722	60	0.010	15,916	436
1.2	8	0.05D	0.15D	85	0.009	22,547	433	51	0.007	13,528	261
1.2	10	0.05D	0.15D	85	0.009	22,547	433	51	0.007	13,528	261
1.2	12	0.02D	0.10D	70	0.009	18,568	361	42	0.007	11,141	218
1.2	8	0.05D	0.15D	85	0.009	22,547	433	51	0.007	13,528	261
1.2	12	0.02D	0.10D	70	0.009	18,568	361	42	0.007	11,141	218
1.2	16	0.02D	0.10D	70	0.009	18,568	361	42	0.007	11,141	218
1.4	8	0.05D	0.20D	100	0.014	22,737	691	60	0.014	13,642	419
1.4	12	0.05D	0.15D	85	0.010	19,326	415	51	0.010	11,596	251
1.4	16	0.02D	0.10D	70	0.010	15,916	346	42	0.010	9,549	209
1.5	8	0.05D	0.20D	100	0.015	21,221	688	60	0.014	12,733	408
1.5	12	0.05D	0.15D	85	0.011	18,038	413	51	0.010	10,823	245
1.5	16	0.02D	0.10D	70	0.011	14,855	344	42	0.010	8,913	204
1.5	18	0.02D	0.10D	70	0.011	14,855	344	42	0.010	8,913	204
1.6	8	0.05D	0.20D	100	0.016	19,894	668	60	0.016	11,937	422
1.6	12	0.05D	0.15D	85	0.011	16,910	401	51	0.011	10,146	253
1.6	16	0.02D	0.10D	70	0.011	13,926	334	42	0.011	8,356	211
1.6	20	0.02D	0.10D	70	0.011	13,926	334	42	0.011	8,356	211
1.8	8	0.05D	0.20D	100	0.018	17,684	672	60	0.017	10,611	410
1.8	12	0.05D	0.15D	85	0.012	15,031	403	51	0.012	9,019	246
1.8	16	0.05D	0.15D	85	0.012	15,031	403	51	0.012	9,019	246
1.8	20	0.02D	0.10D	70	0.013	12,379	336	42	0.012	7,427	205

NiTiCo 30 Miniature Ballnose Cutters with long neck



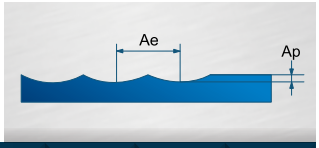
2 Z Profile Milling				CARBON STEEL (~30 HRC) AISI 1049 , SCM CAST IRON FC250				ALLOY STEEL , TOOL STEEL, PREHARDENED STEEL (30 ~ 45 HRC) AISI H13 NAK			
Work Material											
Material Groups				M10,M11,M12,M13,M14,M15				M18,M22,M25			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	100	0.019	15,916	656	60	0.019	9,549	401
2.0	6	0.05D	0.20D	100	0.019	15,916	656	60	0.019	9,549	401
2.0	8	0.05D	0.20D	100	0.019	15,916	656	60	0.019	9,549	401
2.0	10	0.05D	0.20D	100	0.019	15,916	656	60	0.019	9,549	401
2.0	12	0.05D	0.15D	85	0.013	13,528	393	51	0.013	8,117	241
2.0	14	0.05D	0.15D	85	0.013	13,528	393	51	0.013	8,117	241
2.0	16	0.05D	0.15D	85	0.013	13,528	393	51	0.013	8,117	241
2.0	18	0.05D	0.15D	85	0.013	13,528	393	51	0.013	8,117	241
2.0	20	0.02D	0.10D	70	0.014	11,141	328	42	0.013	6,684	201
2.0	22	0.02D	0.10D	70	0.014	11,141	328	42	0.013	6,684	201
2.0	25	0.02D	0.10D	70	0.014	11,141	328	42	0.013	6,684	201
2.0	30	0.02D	0.10D	70	0.014	11,141	328	42	0.013	6,684	201
3.0	8	0.05D	0.20D	100	0.027	10,610	620	60	0.027	6,366	386
3.0	10	0.05D	0.20D	100	0.027	10,610	620	60	0.027	6,366	386
3.0	16	0.05D	0.20D	100	0.027	10,610	620	60	0.027	6,366	386
3.0	20	0.05D	0.15D	85	0.019	9,019	372	51	0.019	5,411	232
3.0	25	0.05D	0.15D	85	0.019	9,019	372	51	0.019	5,411	232
3.0	30	0.02D	0.10D	70	0.019	7,427	310	42	0.019	4,456	193
3.0	35	0.02D	0.10D	70	0.019	7,427	310	42	0.019	4,456	193
4.0	10	0.05D	0.20D	100	0.035	7,958	605	60	0.035	4,775	382
4.0	16	0.05D	0.20D	100	0.035	7,958	605	60	0.035	4,775	382
4.0	20	0.05D	0.20D	100	0.035	7,958	605	60	0.035	4,775	382
4.0	25	0.05D	0.15D	85	0.025	6,764	363	51	0.025	4,058	229
4.0	30	0.05D	0.15D	85	0.025	6,764	363	51	0.025	4,058	229
4.0	35	0.05D	0.15D	85	0.025	6,764	363	51	0.025	4,058	229
4.0	40	0.02D	0.10D	70	0.025	5,570	303	42	0.025	3,342	191
4.0	45	0.02D	0.10D	70	0.025	5,570	303	42	0.025	3,342	191
4.0	50	0.02D	0.10D	70	0.025	5,570	303	42	0.025	3,342	191

NiTiCo 30 Miniature Ballnose Cutters with long neck



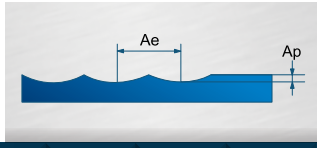
2 Z Profile Milling				STAINLESS STEEL 300 (<35 HRC)				TITANIUM ALLOYS HARDENED LESS THAN HRC 32			
Work Material											
Material Groups				M16				M17			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	0.05D	0.20D	23	0.003	35,916	232	25	0.002	40,000	160
0.2	1	0.05D	0.20D	23	0.003	35,916	232	25	0.002	40,000	160
0.2	1.5	0.05D	0.15D	19	0.002	30,528	139	21	0.001	34,000	96
0.3	1	0.05D	0.20D	29	0.004	30,611	283	38	0.002	40,000	160
0.3	2	0.05D	0.15D	25	0.003	26,019	170	32	0.001	34,000	96
0.3	3	0.02D	0.10D	20	0.003	21,427	141	27	0.001	28,000	80
0.4	1	0.05D	0.20D	35	0.005	27,958	312	45	0.005	35,916	376
0.4	2	0.05D	0.20D	35	0.005	27,958	312	45	0.005	35,916	376
0.4	3	0.05D	0.15D	30	0.003	23,764	187	38	0.004	30,528	225
0.4	4	0.02D	0.10D	25	0.003	19,570	156	32	0.004	25,141	188
0.4	5	0.02D	0.10D	25	0.003	19,570	156	32	0.004	25,141	188
0.5	2	0.05D	0.20D	40	0.006	25,465	382	52	0.006	32,733	437
0.5	3	0.05D	0.15D	34	0.004	21,645	229	44	0.004	27,823	262
0.5	4	0.05D	0.15D	34	0.004	21,645	229	44	0.004	27,823	262
0.5	5	0.02D	0.10D	28	0.004	17,825	191	36	0.004	22,913	218
0.5	6	0.02D	0.10D	28	0.004	17,825	191	36	0.004	22,913	218
0.5	8	0.02D	0.10D	24	0.004	15,279	153	31	0.004	19,640	175
0.6	2	0.05D	0.20D	40	0.007	21,221	351	58	0.007	30,611	485
0.6	3	0.05D	0.20D	40	0.007	21,221	351	58	0.007	30,611	485
0.6	4	0.05D	0.15D	34	0.005	18,037	210	49	0.005	26,019	291
0.6	5	0.05D	0.15D	34	0.005	18,037	210	49	0.005	26,019	291
0.6	6	0.02D	0.10D	28	0.005	14,854	175	40	0.005	21,427	243
0.6	8	0.02D	0.10D	28	0.005	14,854	175	40	0.005	21,427	243
0.8	2	0.05D	0.20D	40	0.008	15,916	319	60	0.009	23,873	462
0.8	4	0.05D	0.20D	40	0.008	15,916	319	60	0.009	23,873	462
0.8	5	0.05D	0.15D	34	0.006	13,528	191	51	0.006	20,292	277
0.8	6	0.05D	0.15D	34	0.006	13,528	191	51	0.006	20,292	277
0.8	7	0.05D	0.15D	34	0.006	13,528	191	51	0.006	20,292	277
0.8	8	0.02D	0.10D	28	0.006	11,141	159	42	0.006	16,711	231
0.8	10	0.02D	0.10D	28	0.006	11,141	159	42	0.006	16,711	231
1.0	3	0.05D	0.20D	40	0.010	12,733	300	60	0.010	19,099	433
1.0	4	0.05D	0.20D	40	0.010	12,733	300	60	0.010	19,099	433
1.0	5	0.05D	0.20D	40	0.010	12,733	300	60	0.010	19,099	433
1.0	6	0.05D	0.15D	34	0.007	10,823	180	51	0.007	16,234	260
1.0	7	0.05D	0.15D	34	0.007	10,823	180	51	0.007	16,234	260
1.0	8	0.05D	0.15D	34	0.007	10,823	180	51	0.007	16,234	260
1.0	9	0.05D	0.15D	34	0.007	10,823	180	51	0.007	16,234	260
1.0	10	0.02D	0.10D	28	0.007	8,913	150	42	0.007	13,369	217
1.0	12	0.02D	0.10D	28	0.007	8,913	150	42	0.007	13,369	217
1.0	14	0.02D	0.10D	28	0.007	8,913	150	42	0.007	13,369	217
1.0	20	0.02D	0.10D	24	0.006	7,640	120	36	0.007	11,459	173
1.2	6	0.05D	0.20D	40	0.012	10,610	303	60	0.012	15,916	436
1.2	8	0.05D	0.15D	34	0.008	9,019	182	51	0.008	13,528	261
1.2	10	0.05D	0.15D	34	0.008	9,019	182	51	0.008	13,528	261
1.2	12	0.02D	0.10D	28	0.008	7,427	151	42	0.009	11,141	218
1.2	8	0.05D	0.15D	34	0.008	9,019	182	51	0.008	13,528	261
1.2	12	0.02D	0.10D	28	0.008	7,427	151	42	0.009	11,141	218
1.2	16	0.02D	0.10D	28	0.008	7,427	151	42	0.009	11,141	218
1.4	8	0.05D	0.20D	40	0.013	9,095	291	60	0.014	13,642	419
1.4	12	0.05D	0.15D	34	0.009	7,730	175	51	0.010	11,596	251
1.4	16	0.02D	0.10D	28	0.009	6,366	146	42	0.010	9,549	209
1.5	8	0.05D	0.20D	40	0.014	8,488	289	60	0.014	12,733	408
1.5	12	0.05D	0.15D	34	0.010	7,215	173	51	0.010	10,823	245
1.5	16	0.02D	0.10D	28	0.010	5,942	144	42	0.010	8,913	204
1.5	18	0.02D	0.10D	28	0.010	5,942	144	42	0.010	8,913	204
1.6	8	0.05D	0.20D	40	0.015	7,958	295	60	0.016	11,937	422
1.6	12	0.05D	0.15D	34	0.011	6,764	177	51	0.011	10,146	253
1.6	16	0.02D	0.10D	28	0.011	5,571	147	42	0.011	8,356	211
1.6	20	0.02D	0.10D	28	0.011	5,571	147	42	0.011	8,356	211
1.8	8	0.05D	0.20D	40	0.017	7,074	287	60	0.017	10,611	410
1.8	12	0.05D	0.15D	34	0.012	6,012	172	51	0.012	9,019	246
1.8	16	0.05D	0.15D	34	0.012	6,012	172	51	0.012	9,019	246
1.8	20	0.02D	0.10D	28	0.012	4,951	143	42	0.012	7,427	205

NiTiCo 30 Miniature Ballnose Cutters with long neck



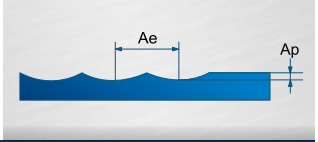
2 Z Profile Milling				STAINLESS STEEL 300 (<35 HRC)				TITANIUM ALLOYS HARDENED LESS THAN HRC 32			
Work Material											
Material Groups				M16				M17			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	40	0.018	6,366	281	60	0.019	9,549	401
2.0	6	0.05D	0.20D	40	0.018	6,366	281	60	0.019	9,549	401
2.0	8	0.05D	0.20D	40	0.018	6,366	281	60	0.019	9,549	401
2.0	10	0.05D	0.20D	40	0.018	6,366	281	60	0.019	9,549	401
2.0	12	0.05D	0.15D	34	0.013	5,411	168	51	0.013	8,117	241
2.0	14	0.05D	0.15D	34	0.013	5,411	168	51	0.013	8,117	241
2.0	16	0.05D	0.15D	34	0.013	5,411	168	51	0.013	8,117	241
2.0	18	0.05D	0.15D	34	0.013	5,411	168	51	0.013	8,117	241
2.0	20	0.02D	0.10D	28	0.013	4,456	140	42	0.013	6,684	201
2.0	22	0.02D	0.10D	28	0.013	4,456	140	42	0.013	6,684	201
2.0	25	0.02D	0.10D	28	0.013	4,456	140	42	0.013	6,684	201
2.0	30	0.02D	0.10D	28	0.013	4,456	140	42	0.013	6,684	201
3.0	8	0.05D	0.20D	40	0.027	4,244	274	60	0.027	6,366	386
3.0	10	0.05D	0.20D	40	0.027	4,244	274	60	0.027	6,366	386
3.0	16	0.05D	0.20D	40	0.027	4,244	274	60	0.027	6,366	386
3.0	20	0.05D	0.15D	34	0.019	3,607	164	51	0.019	5,411	232
3.0	25	0.05D	0.15D	34	0.019	3,607	164	51	0.019	5,411	232
3.0	30	0.02D	0.10D	28	0.019	2,971	137	42	0.019	4,456	193
3.0	35	0.02D	0.10D	28	0.019	2,971	137	42	0.019	4,456	193
4.0	10	0.05D	0.20D	40	0.035	3,184	271	60	0.035	4,775	382
4.0	16	0.05D	0.20D	40	0.035	3,184	271	60	0.035	4,775	382
4.0	20	0.05D	0.20D	40	0.035	3,184	271	60	0.035	4,775	382
4.0	25	0.05D	0.15D	34	0.025	2,706	163	51	0.025	4,058	229
4.0	30	0.05D	0.15D	34	0.025	2,706	163	51	0.025	4,058	229
4.0	35	0.05D	0.15D	34	0.025	2,706	163	51	0.025	4,058	229
4.0	40	0.02D	0.10D	28	0.025	2,228	136	42	0.025	3,342	191
4.0	45	0.02D	0.10D	28	0.025	2,228	136	42	0.025	3,342	191
4.0	50	0.02D	0.10D	28	0.025	2,228	136	42	0.025	3,342	191

NiTiCo 30 Miniature Ballnose Cutters with long neck



2 Z Profile Milling				TITANIUM ALLOYS HARDENED MORE THAN HRC 32				COBALT CHROME			
Work Material											
Material Groups				M21				M			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
0.2	0.5	0.05D	0.20D	25	0.001	40,000	80	25	0.003	40,000	240
0.2	1	0.05D	0.20D	25	0.001	40,000	80	25	0.003	40,000	240
0.2	1.5	0.05D	0.15D	21	0.001	34,000	48	21	0.002	34,000	144
0.3	1	0.05D	0.20D	34	0.004	35,916	304	38	0.005	40,000	400
0.3	2	0.05D	0.15D	29	0.003	30,528	182	32	0.004	34,000	240
0.3	3	0.02D	0.10D	24	0.003	25,141	152	27	0.004	28,000	200
0.4	1	0.05D	0.20D	40	0.005	31,937	328	50	0.007	40,000	560
0.4	2	0.05D	0.20D	40	0.005	31,937	328	50	0.007	40,000	560
0.4	3	0.05D	0.15D	34	0.003	27,146	197	43	0.005	34,000	336
0.4	4	0.02D	0.10D	28	0.003	22,356	164	35	0.005	28,000	280
0.4	5	0.02D	0.10D	28	0.003	22,356	164	35	0.005	28,000	280
0.5	2	0.05D	0.20D	45	0.006	28,648	402	63	0.008	40,000	640
0.5	3	0.05D	0.15D	38	0.004	24,351	241	54	0.006	34,000	384
0.5	4	0.05D	0.15D	38	0.004	24,351	241	54	0.006	34,000	384
0.5	5	0.02D	0.10D	32	0.004	20,054	201	44	0.006	28,000	320
0.5	6	0.02D	0.10D	32	0.004	20,054	201	44	0.006	28,000	320
0.5	8	0.02D	0.10D	27	0.004	17,189	161	38	0.005	24,000	256
0.6	2	0.05D	0.20D	45	0.007	23,873	366	75	0.010	40,000	800
0.6	3	0.05D	0.20D	45	0.007	23,873	366	75	0.010	40,000	800
0.6	4	0.05D	0.15D	38	0.005	20,292	220	64	0.007	34,000	480
0.6	5	0.05D	0.15D	38	0.005	20,292	220	64	0.007	34,000	480
0.6	6	0.02D	0.10D	32	0.005	16,711	183	53	0.007	28,000	400
0.6	8	0.02D	0.10D	32	0.005	16,711	183	53	0.007	28,000	400
0.8	2	0.05D	0.20D	45	0.008	17,905	334	101	0.014	40,000	1,120
0.8	4	0.05D	0.20D	45	0.008	17,905	334	101	0.014	40,000	1,120
0.8	5	0.05D	0.15D	38	0.006	15,219	200	86	0.010	34,000	672
0.8	6	0.05D	0.15D	38	0.006	15,219	200	86	0.010	34,000	672
0.8	7	0.05D	0.15D	38	0.006	15,219	200	86	0.010	34,000	672
0.8	8	0.02D	0.10D	32	0.006	12,534	167	71	0.010	28,000	560
0.8	10	0.02D	0.10D	32	0.006	12,534	167	71	0.010	28,000	560
1.0	3	0.05D	0.20D	45	0.010	14,324	315	126	0.017	40,000	1,360
1.0	4	0.05D	0.20D	45	0.010	14,324	315	126	0.017	40,000	1,360
1.0	5	0.05D	0.20D	45	0.010	14,324	315	126	0.017	40,000	1,360
1.0	6	0.05D	0.15D	38	0.007	12,175	189	107	0.012	34,000	816
1.0	7	0.05D	0.15D	38	0.007	12,175	189	107	0.012	34,000	816
1.0	8	0.05D	0.15D	38	0.007	12,175	189	107	0.012	34,000	816
1.0	9	0.05D	0.15D	38	0.007	12,175	189	107	0.012	34,000	816
1.0	10	0.02D	0.10D	32	0.007	10,027	158	88	0.012	28,000	680
1.0	12	0.02D	0.10D	32	0.007	10,027	158	88	0.012	28,000	680
1.0	14	0.02D	0.10D	32	0.007	10,027	158	88	0.012	28,000	680
1.0	20	0.02D	0.10D	27	0.006	8,594	126	76	0.011	24,000	544
1.2	6	0.05D	0.20D	45	0.012	11,937	318	146	0.023	38,568	1,740
1.2	8	0.05D	0.15D	38	0.008	10,146	191	124	0.016	32,783	1,044
1.2	10	0.05D	0.15D	38	0.008	10,146	191	124	0.016	32,783	1,044
1.2	12	0.02D	0.10D	32	0.008	8,356	159	102	0.016	26,998	870
1.2	8	0.05D	0.15D	38	0.008	10,146	191	124	0.016	32,783	1,044
1.2	12	0.02D	0.10D	32	0.008	8,356	159	102	0.016	26,998	870
1.2	16	0.02D	0.10D	32	0.008	8,356	159	102	0.016	26,998	870
1.4	8	0.05D	0.20D	45	0.013	10,232	307	150	0.026	34,105	1,783
1.4	12	0.05D	0.15D	38	0.009	8,697	184	128	0.018	28,989	1,070
1.4	16	0.02D	0.10D	32	0.009	7,162	153	105	0.019	23,873	891
1.5	8	0.05D	0.20D	45	0.014	9,549	306	150	0.028	31,831	1,791
1.5	12	0.05D	0.15D	38	0.010	8,117	183	128	0.020	27,056	1,075
1.5	16	0.02D	0.10D	32	0.010	6,684	153	105	0.020	22,282	896
1.5	18	0.02D	0.10D	32	0.010	6,684	153	105	0.020	22,282	896
1.6	8	0.05D	0.20D	45	0.015	8,953	310	150	0.030	29,842	1,799
1.6	12	0.05D	0.15D	38	0.011	7,610	186	128	0.021	25,365	1,079
1.6	16	0.02D	0.10D	32	0.011	6,267	155	105	0.021	20,889	899
1.6	20	0.02D	0.10D	32	0.011	6,267	155	105	0.021	20,889	899
1.8	8	0.05D	0.20D	45	0.017	7,958	302	150	0.034	26,526	1,786
1.8	12	0.05D	0.15D	38	0.012	6,764	181	128	0.024	22,547	1,072
1.8	16	0.05D	0.15D	38	0.012	6,764	181	128	0.024	22,547	1,072
1.8	20	0.02D	0.10D	32	0.012	5,570	151	105	0.024	18,568	893

NiTiCo 30 Miniature Ballnose Cutters with long neck



2 Z Profile Milling				TITANIUM ALLOYS HARDENED MORE THAN HRC 32				COBALT CHROME			
Work Material											
Material Groups				M21				M			
D (mm)	l2	Ae (mm)	Ap (mm)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)	Vc (m/min)	Fz (mm)	n (min-1)	Vf (mm/min)
2.0	4	0.05D	0.20D	45	0.018	7,162	297	150	0.038	23,874	1,799
2.0	6	0.05D	0.20D	45	0.018	7,162	297	150	0.038	23,874	1,799
2.0	8	0.05D	0.20D	45	0.018	7,162	297	150	0.038	23,874	1,799
2.0	10	0.05D	0.20D	45	0.018	7,162	297	150	0.038	23,874	1,799
2.0	12	0.05D	0.15D	38	0.013	6,088	178	128	0.026	20,292	1,079
2.0	14	0.05D	0.15D	38	0.013	6,088	178	128	0.026	20,292	1,079
2.0	16	0.05D	0.15D	38	0.013	6,088	178	128	0.026	20,292	1,079
2.0	18	0.05D	0.15D	38	0.013	6,088	178	128	0.026	20,292	1,079
2.0	20	0.02D	0.10D	32	0.013	5,013	148	105	0.027	16,711	899
2.0	22	0.02D	0.10D	32	0.013	5,013	148	105	0.027	16,711	899
2.0	25	0.02D	0.10D	32	0.013	5,013	148	105	0.027	16,711	899
2.0	30	0.02D	0.10D	32	0.013	5,013	148	105	0.027	16,711	899
3.0	8	0.05D	0.20D	45	0.027	4,775	290	150	0.056	15,916	1,791
3.0	10	0.05D	0.20D	45	0.027	4,775	290	150	0.056	15,916	1,791
3.0	16	0.05D	0.20D	45	0.027	4,775	290	150	0.056	15,916	1,791
3.0	20	0.05D	0.15D	38	0.019	4,058	174	128	0.040	13,528	1,075
3.0	25	0.05D	0.15D	38	0.019	4,058	174	128	0.040	13,528	1,075
3.0	30	0.02D	0.10D	32	0.019	3,342	145	105	0.040	11,141	896
3.0	35	0.02D	0.10D	32	0.019	3,342	145	105	0.040	11,141	896
4.0	10	0.05D	0.20D	45	0.035	3,581	287	150	0.075	11,937	1,799
4.0	16	0.05D	0.20D	45	0.035	3,581	287	150	0.075	11,937	1,799
4.0	20	0.05D	0.20D	45	0.035	3,581	287	150	0.075	11,937	1,799
4.0	25	0.05D	0.15D	38	0.025	3,044	172	128	0.053	10,146	1,079
4.0	30	0.05D	0.15D	38	0.025	3,044	172	128	0.053	10,146	1,079
4.0	35	0.05D	0.15D	38	0.025	3,044	172	128	0.053	10,146	1,079
4.0	40	0.02D	0.10D	32	0.025	2,507	143	105	0.054	8,356	899
4.0	45	0.02D	0.10D	32	0.025	2,507	143	105	0.054	8,356	899
4.0	50	0.02D	0.10D	32	0.025	2,507	143	105	0.054	8,356	899

PLUNGE-MILL

SE 30 NOVIANO PLUNGE-MILL

≤ 900 N/mm² + G6110 ≤ 45 HRC

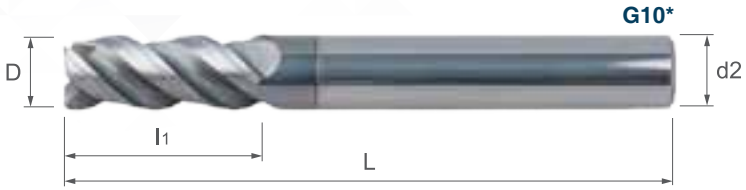
Solid Carbide Endmills, 3 flutes,
For Plunging + Slotting + Milling

Fraises 2 tailles SE 30 Noviano Plongée, 3 dents,
en carbure monobloc, pour usinages en plongée, rainurage

整体硬质合金 SE30 NOVIANO 系列.立铣刀3刃,
适用于开槽.侧铣.插铣

VHM Schaftfräser, 3 Schneiden,
zum Bohren, Nuten- und Umfangsfräsen

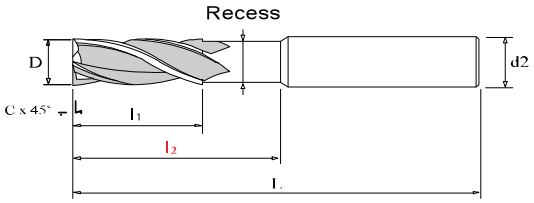
Frese in metallo duro, 3 taglienti, Per lavorazioni a Tuffo,
dal pieno e contornature



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	C	G10* G6110
0100 050 04	1	1.5	5	50	4	0.1	●
0150 050 04	1.5	2.3	7.5	50	4	0.1	●
0200 050 04	2	3	10	50	4	0.1	●
0250 050 04	2.5	3.8	12.5	50	4	0.1	●
0300 050 06	3	6	15	50	6	0.2	●
0400 050 06	4	8	20	50	6	0.2	●
0500 050 06	5	10	20	50	6	0.25	●
0600	6	13	20	50	6	0.25	●
0800	8	20	30	64	8	0.3	●
1000	10	22	32	75	10	0.3	●
1200	12	25	37	75	12	0.3	●
1600	16	32	46	90	16	0.3	●

G12*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求



CNC Repeatalibility

Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						

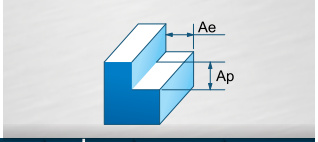
M26	M27	M28	M33	M01	M29	M30

Working Material	Cutting Parameter
564	517

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

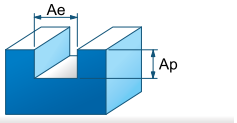
SE 30 Noviano PLUNGE-MILL

Ae = 0.4D (SUS =0.3D)
Ap = 1.5 x D



3 Z					Drilling		Slotting		Side Milling	
Work Material	Material Groups	D (mm)	Vc (m/min)	n (min-1)	FZ	Vf (mm/min)	FZ	Vf (mm/min)	FZ	Vf (mm/min)
ALUMINIUM ALLOY EXCEPT SOFT ALUMINIUM ALLOYS	M05, M06, M07, M08, M09	1	85	27,060	0.001	81	0.003	244	0.005	406
		1.5	85	18,040	0.003	179	0.008	406	0.014	763
		2	85	13,530	0.006	227	0.012	487	0.023	942
		2.5	85	10,820	0.008	256	0.017	536	0.032	1049
		3	85	9,020	0.010	276	0.021	568	0.041	1120
		4	85	6,760	0.015	300	0.030	609	0.060	1209
		5	85	5,410	0.019	315	0.039	633	0.078	1263
		6	85	4,510	0.024	325	0.048	649	0.096	1299
		7	85	3,870	0.025	288	0.050	576	0.099	1151
		8	85	3,380	0.026	260	0.051	520	0.103	1041
		9	85	3,010	0.026	239	0.053	478	0.106	955
		10	85	2,710	0.027	222	0.055	443	0.109	886
		11	85	2,460	0.028	208	0.056	415	0.113	830
		12	85	2,250	0.029	196	0.058	392	0.116	783
		16	85	1,690	0.032	164	0.065	327	0.129	654
CARBON STEEL CAST IRON	M10, M11, M12, M13, M14, M15	1	50	15,920	0.002	72	0.003	143	0.006	286
		1.5	50	10,610	0.006	186	0.006	193	0.012	385
		2	50	7,960	0.010	244	0.009	217	0.018	434
		2.5	50	6,370	0.015	278	0.012	232	0.024	464
		3	50	5,310	0.019	301	0.015	242	0.030	484
		4	50	3,980	0.028	329	0.021	254	0.043	509
		5	50	3,180	0.036	347	0.027	262	0.055	523
		6	50	2,650	0.045	358	0.034	267	0.067	533
		7	50	2,270	0.045	307	0.035	240	0.070	480
		8	50	1,990	0.045	269	0.037	220	0.074	439
		9	50	1,770	0.045	239	0.038	204	0.077	408
		10	50	1,590	0.045	215	0.040	191	0.080	383
		11	50	1,450	0.045	195	0.042	181	0.084	362
		12	50	1,330	0.045	179	0.043	173	0.087	345
		16	50	990	0.045	134	0.050	149	0.100	298
STAINLESS STEEL UP TO 35 HRC	M16	1	33	10,500	0.001	32	0.003	95	0.006	189
		1.5	33	7,000	0.002	49	0.006	118	0.011	235
		2	33	5,250	0.004	58	0.008	129	0.016	258
		2.5	33	4,200	0.005	64	0.011	136	0.022	272
		3	33	3,500	0.006	67	0.013	141	0.027	282
		4	33	2,630	0.009	72	0.019	147	0.037	293
		5	33	2,100	0.012	74	0.024	150	0.048	300
		6	33	1,750	0.015	76	0.029	152	0.058	305
		7	33	1,500	0.015	65	0.032	144	0.064	288
		8	33	1,310	0.015	57	0.035	138	0.070	276
		9	33	1,170	0.015	51	0.038	133	0.076	266
		10	33	1,050	0.015	46	0.041	129	0.082	258
		11	33	950	0.015	42	0.044	126	0.088	252
		12	33	880	0.015	38	0.047	123	0.094	247
		16	33	660	0.015	29	0.059	116	0.118	232
ALLOY STEEL PRE-HARDENED STEEL (~35 HRC)	M18, M22, M25	1	53	16,870	0.001	63	0.003	127	0.005	253
		1.5	53	11,250	0.003	103	0.006	206	0.012	412
		2	53	8,440	0.005	123	0.010	245	0.019	491
		2.5	53	6,750	0.007	135	0.013	269	0.027	539
		3	53	5,620	0.008	143	0.017	285	0.034	570
		4	53	4,220	0.012	152	0.024	305	0.048	610
		5	53	3,370	0.016	158	0.031	317	0.063	634
		6	53	2,810	0.019	162	0.039	325	0.077	650
		7	53	2,410	0.020	142	0.039	285	0.079	570
		8	53	2,110	0.020	127	0.040	255	0.081	510
		9	53	1,870	0.021	116	0.041	232	0.082	463
		10	53	1,690	0.021	107	0.042	213	0.084	426
		11	53	1,530	0.022	99	0.043	198	0.086	396
		12	53	1,410	0.022	93	0.044	185	0.088	370
		16	53	1,050	0.024	75	0.048	150	0.095	301

Ae = 1 x D
Ap = Ø1 ~Ø2.5 = 0.5D (SUS = 2.5D)
Ap = Ø3 ~Ø16 = 1D (SUS = 0.5D)



NOVIANO

SE 45 NOVIANO DP STANDARD ENDMILLS, also with WELDON SHANK

Solid Carbide SE 45 NOVIANO DP Standard Endmills, with Differential Pitch, 4 flutes

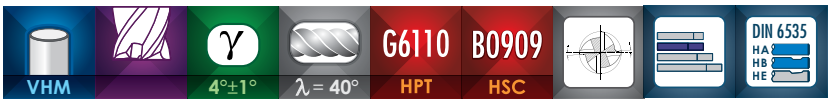
Fraises 2 tailles SE 45 NOVIANO DP Standard à pas décalés, 4 dents, en carbure monobloc

整体硬质合金 SE 45 NOVIANO DP 系列 立铣刀 4 刃 – 标准长度

VHM SE 45 NOVIANO DP Standard Fräser mit ungleicher Teilung, 4 Zähne

Frese SE 45 NOVIANO DP Standard in metallo duro, passo differenziale, 4 taglienti

* L = ~ DIN 6527L



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	G14* HA G6110	G15* HA B0909	G20* HB G6110	G21* HB B0909
	0300	3	9	15	57	6	●	●	●	●
*	0400	4	12	20	57	6	●	●	●	●
*	0500	5	13	20	57	6	●	●	●	●
*	0600	6	13	20	57	6	●	●	●	●
*	0800	8	20	30	64	8	●	●	●	●
*	1000	10	22	32	72	10	●	●	●	●
	1200	12	26	37	83	12	●	●	●	●
*	1400	14	32	44	83	14	●	●	●	●
*	1600	16	32	46	92	16	●	●	●	●
*	1800	18	38	53	92	18	●	●	●	●
*	2000	20	38	58	104	20	●	●	●	●
							G17*	G18*	G23*	G24*

Tools with recess upon rquest

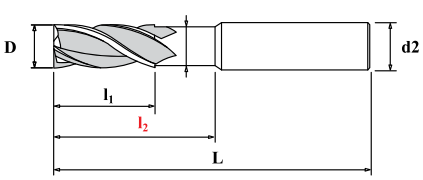
Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Recess



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30
●						

Working Material	Cutting Parameter
564	524

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 45 NOVIANO DP TORUS ENDMILLS, also with Weldon Shank

Solid Carbide SE 45 NOVIANO DP Torus Endmills with differential pitch, 4 flutes

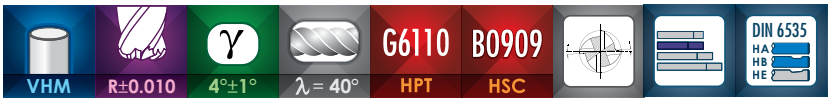
Fraises 2 tailles SE 45 NOVIANO DP toriques à pas décalés en carbure monobloc, 4 dents

整体硬质合金 SE 45 NOVIANO DP 系列 圆鼻立铣刀 4 刃

VHM SE SE 45 NOVIANO DP Torusfräser mit ungleicher Teilung, 4 Zähne

Frese SE 45 NOVIANO DP toriche, in metallo duro integrale, passo differenziale, 4 taglienti

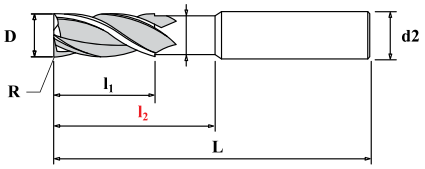
* L = ~ DIN 6527L



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	G26* HA G6110	G27* HA B0909	G32* HB G6110	G33* HB B0909
0300 050 0400 030	3	9	15	50	6	0.3	●	●	●	●
0300 050 0400 050	3	9	15	50	6	0.5	●	●	●	●
* 0400 057 0600 030	4	12	20	57	6	0.3	●	●	●	●
* 0400 057 0600 050	4	12	20	57	6	0.5	●	●	●	●
* 0400 057 0600 100	4	12	20	57	6	1	●	●	●	●
* 0500 057 0600 030	5	15	20	57	6	0.3	●	●	●	●
* 0500 057 0600 050	5	15	20	57	6	0.5	●	●	●	●
* 0600 057 0600 030	6	16	20	57	6	0.3	●	●	●	●
* 0600 057 0600 050	6	16	20	57	6	0.5	●	●	●	●
* 0600 057 0600 100	6	16	20	57	6	1	●	●	●	●
* 0800 064 0800 030	8	20	30	64	8	0.3	●	●	●	●
* 0800 064 0800 050	8	20	30	64	8	0.5	●	●	●	●
* 0800 064 0800 100	8	20	30	64	8	1	●	●	●	●
* 0800 064 0800 150	8	20	30	64	8	1.5	●	●	●	●
* 0800 064 0800 200	8	20	30	64	8	2	●	●	●	●
* 1000 072 1000 030	10	22	32	72	10	0.3	●	●	●	●
* 1000 072 1000 050	10	22	32	72	10	0.5	●	●	●	●
* 1000 072 1000 100	10	22	32	72	10	1	●	●	●	●
* 1000 072 1000 150	10	22	32	72	10	1.5	●	●	●	●
* 1000 072 1000 200	10	22	32	72	10	2	●	●	●	●
* 1200 083 1200 030	12	26	37	83	12	0.3	●	●	●	●
* 1200 083 1200 050	12	26	37	83	12	0.5	●	●	●	●
* 1200 083 1200 100	12	26	37	83	12	1	●	●	●	●
* 1200 083 1200 200	12	26	37	83	12	2	●	●	●	●
1200 083 1200 250	12	26	37	83	12	2.5	●	●	●	●
* 1200 083 1200 300	12	26	37	83	12	3	●	●	●	●
* 1400 083 1400 030	14	32	44	83	14	0.3	●	●	●	●
* 1400 083 1400 050	14	32	44	83	14	0.5	●	●	●	●
* 1400 083 1400 100	14	32	44	83	14	1	●	●	●	●
* 1400 083 1400 200	14	32	44	83	14	2	●	●	●	●
* 1400 083 1400 300	14	32	44	83	14	3	●	●	●	●
							G29*	G30*	G35*	G36*

cont'd ▶

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

CNC Repeatability

Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30
●						

Working Material	Cutting Parameter
564	524

若有技术规格变更，恕不事先通知

SE 45 NOVIANO DP TORUS ENDMILLS, also with Weldon Shank

Solid Carbide SE 45 NOVIANO DP Torus Endmills with differential pitch, 4 flutes

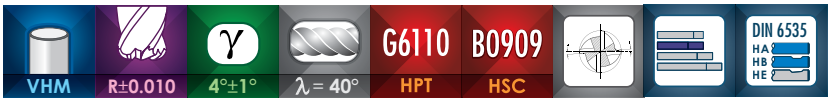
Fraises 2 tailles SE 45 NOVIANO DP toriques à pas décalés en carbure monobloc, 4 dents

整体硬质合金 SE 45 NOVIANO DP 系列 圆鼻立铣刀 4 刃

VHM SE SE 45 NOVIANO DP Torusfräser mit ungleicher Teilung, 4 Zähne

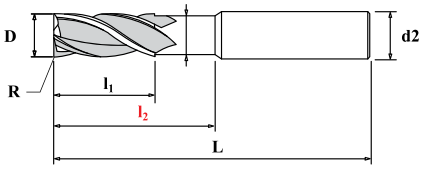
Frese SE 45 NOVIANO DP toriche, in metallo duro integrale, passo differenziale, 4 taglienti

* L = ~ DIN 6527L



	EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	G26* HA G6110	G27* HA B0909	G32* HB G6110	G33* HB B0909
*	1600 092 1600 030	16	32	46	92	16	0.3	●	●	●	●
*	1600 092 1600 050	16	32	46	92	16	0.5	●	●	●	●
*	1600 092 1600 100	16	32	46	92	16	1	●	●	●	●
*	1600 092 1600 200	16	32	46	92	16	2	●	●	●	●
	1600 092 1600 250	16	32	46	92	16	2.5	●	●	●	●
*	1600 092 1600 300	16	32	46	92	16	3	●	●	●	●
	1600 092 1600 400	16	32	46	92	16	4	●	●	●	●
*	1800 092 1800 050	18	38	53	92	18	0.3	●	●	●	●
*	1800 092 1800 100	18	38	53	92	18	0.5	●	●	●	●
*	1800 092 1800 150	18	38	53	92	18	1	●	●	●	●
*	1800 092 1800 200	18	38	53	92	18	2	●	●	●	●
*	1800 092 1800 300	18	38	53	92	18	3	●	●	●	●
*	2000 104 2000 030	20	38	58	104	20	0.3	●	●	●	●
*	2000 104 2000 050	20	38	58	104	20	0.5	●	●	●	●
*	2000 104 2000 100	20	38	58	104	20	1	●	●	●	●
*	2000 104 2000 200	20	38	58	104	20	2	●	●	●	●
	2000 104 2000 250	20	38	58	104	20	2.5	●	●	●	●
*	2000 104 2000 300	20	38	58	104	20	3	●	●	●	●
	2000 104 2000 400	20	38	58	104	20	4	●	●	●	●
								G29*	G30*	G35*	G36*

Recess



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

CNC Repeatalibility

Ø1 - Ø3 within 10µm

Ø4 - Ø8 within 15µm

≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

M26	M27	M28	M33	M01	M29	M30
●						

Working Material	Cutting Parameter
564	524

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 45 NOVIANO DP ROUGHING ENDMILLS, also with WELDON SHANK

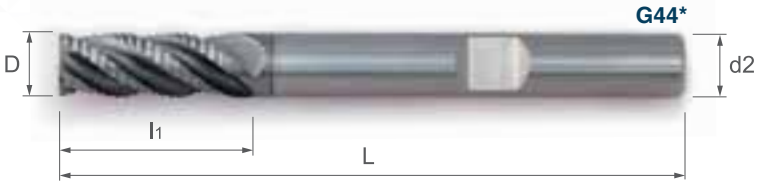
Solid Carbide Roughing Endmills
SE 45 NOVIANO DP with differential pitch, 4 Flutes

Fraises ébauches 2 tailles SE 45 NOVIANO DP
à pas décalés - 4 dents, en carbure monobloc

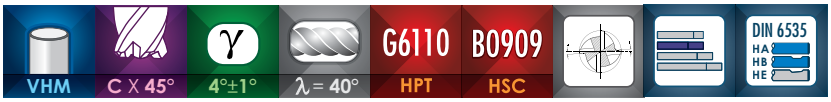
整体硬质合金 SE 45 NOVIANO DP 系列 粗皮
立铣刀 4 刃 – 标准长度

VHM DP Schruppfräser SE 45 NOVIANO mit
ungleicher Teilung, 4 Zähne

Frese per sgrossare SE 45 NOVIANO DP
in metallo duro, passo differenziale, 4 taglienti

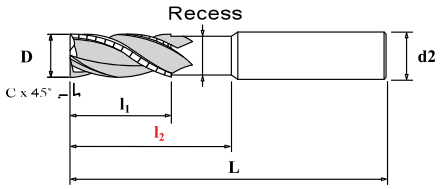


* L = ~ DIN 6527L



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D(h10)	l1	l2	L	d2 (h6)	C	G38* HA G6110	G39* HA B0909	G44* HB G6110	G45* HB B0909
* 0600	6	13	20	57	6	0.1	●	●	●	●
* 0800	8	20	30	64	8	0.2	●	●	●	●
* 1000	10	22	32	72	10	0.2	●	●	●	●
1200	12	26	37	83	12	0.2	●	●	●	●
* 1400	14	26	44	83	14	0.3	●	●	●	●
* 1600	16	32	46	92	16	0.3	●	●	●	●
* 1800	18	32	53	92	18	0.3	●	●	●	●
* 2000	20	38	58	104	20	0.4	●	●	●	●
							G41*	G42*	G47*	G48*

Tools with recess upon rquest
Fräser mit Freistellung auf Bestellung
Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta
密齿 立铣刀 带颈位 特别要求



Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
															●		●		●			●		●	●

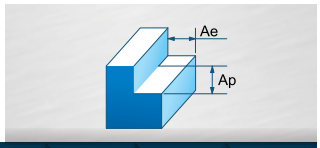
M26	M27	M28	M33	M01	M29	M30
●						

Working Material	Cutting Parameter
564	524

TECHNISCHE ÄNDERUNGEN OHNE VORHERIGE INFORMATION VORBEHALTEN

SE 45 Noviano Series Endmills

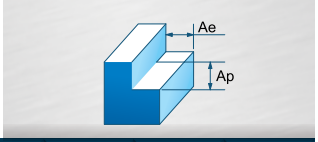
Ae ≤ 0.2D (Ø3 ≤ D ≤ Ø3)
Ae ≤ 0.3D (Ø6 ≤ D ≤ Ø20)
Ap ≤ 1.5D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALLOY STEEL , TOOL STEEL, PREHARDENED STEEL (more than 35 HRC) AISI H13 NAK	M22,M31	1	4	84 ~ 108	0.005 ~ 0.007	≤1.5D	≤ 0.2 D	26740 ~ 34380	530 ~ 960
		1.5	4	84 ~ 108	0.008 ~ 0.010	≤1.5D	≤ 0.2 D	17830 ~ 22920	570 ~ 920
		2	4	84 ~ 108	0.011 ~ 0.013	≤1.5D	≤ 0.2 D	13370 ~ 17190	590 ~ 890
		2.5	4	84 ~ 108	0.014 ~ 0.016	≤1.5D	≤ 0.2 D	10700 ~ 13750	600 ~ 880
		3	4	84 ~ 108	0.017 ~ 0.020	≤1.5D	≤ 0.2 D	8910 ~ 11460	610 ~ 920
		4	4	84 ~ 108	0.023 ~ 0.026	≤1.5D	≤ 0.2 D	6680 ~ 8590	610 ~ 890
		5	4	84 ~ 108	0.029 ~ 0.032	≤1.5D	≤ 0.2 D	5350 ~ 6880	620 ~ 880
		6	4	84 ~ 108	0.035 ~ 0.038	≤1.5D	≤ 0.3 D	4460 ~ 5730	620 ~ 870
		8	4	84 ~ 108	0.043 ~ 0.047	≤1.5D	≤ 0.3 D	3340 ~ 4300	570 ~ 810
		10	4	84 ~ 108	0.052 ~ 0.057	≤1.5D	≤ 0.3 D	2670 ~ 3440	560 ~ 780
		12	4	84 ~ 108	0.060 ~ 0.066	≤1.5D	≤ 0.3 D	2230 ~ 2860	540 ~ 760
		14	4	84 ~ 108	0.069 ~ 0.075	≤1.5D	≤ 0.3 D	1910 ~ 2460	530 ~ 740
		16	4	84 ~ 108	0.077 ~ 0.085	≤1.5D	≤ 0.3 D	1670 ~ 2150	510 ~ 730
		18	4	84 ~ 108	0.085 ~ 0.094	≤1.5D	≤ 0.3 D	1490 ~ 1910	510 ~ 720
		20	4	84 ~ 108	0.094 ~ 0.103	≤1.5D	≤ 0.3 D	1340 ~ 1720	500 ~ 710
TITANIUM ALLOYS HARDENED MORE THAN 35 HRC	M21	1	4	48 ~ 72	0.002 ~ 0.005	≤1.5D	≤ 0.2 D	15280 ~ 22920	120 ~ 460
		1.5	4	48 ~ 72	0.003 ~ 0.006	≤1.5D	≤ 0.2 D	10190 ~ 15280	120 ~ 370
		2	4	48 ~ 72	0.005 ~ 0.007	≤1.5D	≤ 0.2 D	7640 ~ 11460	150 ~ 320
		2.5	4	48 ~ 72	0.006 ~ 0.008	≤1.5D	≤ 0.2 D	6110 ~ 9170	150 ~ 290
		3	4	48 ~ 72	0.008 ~ 0.010	≤1.5D	≤ 0.2 D	5090 ~ 7640	160 ~ 310
		4	4	48 ~ 72	0.010 ~ 0.012	≤1.5D	≤ 0.2 D	3820 ~ 5730	150 ~ 280
		5	4	48 ~ 72	0.013 ~ 0.015	≤1.5D	≤ 0.2 D	3060 ~ 4580	160 ~ 270
		6	4	48 ~ 72	0.016 ~ 0.018	≤1.5D	≤ 0.3 D	2550 ~ 3820	160 ~ 280
		8	4	48 ~ 72	0.020 ~ 0.022	≤1.5D	≤ 0.3 D	1910 ~ 2860	150 ~ 250
		10	4	48 ~ 72	0.024 ~ 0.027	≤1.5D	≤ 0.3 D	1530 ~ 2290	150 ~ 250
		12	4	48 ~ 72	0.028 ~ 0.031	≤1.5D	≤ 0.3 D	1270 ~ 1910	140 ~ 240
		14	4	48 ~ 72	0.032 ~ 0.035	≤1.5D	≤ 0.3 D	1090 ~ 1640	140 ~ 230
		16	4	48 ~ 72	0.036 ~ 0.040	≤1.5D	≤ 0.3 D	950 ~ 1430	140 ~ 230
		18	4	48 ~ 72	0.040 ~ 0.044	≤1.5D	≤ 0.3 D	850 ~ 1270	140 ~ 220
		20	4	48 ~ 72	0.044 ~ 0.048	≤1.5D	≤ 0.3 D	760 ~ 1150	130 ~ 220
STAINLESS STEEL UP MORE THAN 35 HRC	M20	1	4	48 ~ 72	0.002 ~ 0.005	≤1.5D	≤ 0.2 D	15280 ~ 22920	120 ~ 460
		1.5	4	48 ~ 72	0.003 ~ 0.006	≤1.5D	≤ 0.2 D	10190 ~ 15280	120 ~ 370
		2	4	48 ~ 72	0.005 ~ 0.007	≤1.5D	≤ 0.2 D	7640 ~ 11460	150 ~ 320
		2.5	4	48 ~ 72	0.006 ~ 0.008	≤1.5D	≤ 0.2 D	6110 ~ 9170	150 ~ 290
		3	4	48 ~ 72	0.008 ~ 0.010	≤1.5D	≤ 0.2 D	5090 ~ 7640	160 ~ 310
		4	4	48 ~ 72	0.010 ~ 0.012	≤1.5D	≤ 0.2 D	3820 ~ 5730	150 ~ 280
		5	4	48 ~ 72	0.013 ~ 0.015	≤1.5D	≤ 0.2 D	3060 ~ 4580	160 ~ 270
		6	4	48 ~ 72	0.016 ~ 0.018	≤1.5D	≤ 0.3 D	2550 ~ 3820	160 ~ 280
		8	4	48 ~ 72	0.020 ~ 0.022	≤1.5D	≤ 0.3 D	1910 ~ 2860	150 ~ 250
		10	4	48 ~ 72	0.024 ~ 0.027	≤1.5D	≤ 0.3 D	1530 ~ 2290	150 ~ 250
		12	4	48 ~ 72	0.028 ~ 0.031	≤1.5D	≤ 0.3 D	1270 ~ 1910	140 ~ 240
		14	4	48 ~ 72	0.032 ~ 0.035	≤1.5D	≤ 0.3 D	1090 ~ 1640	140 ~ 230
		16	4	48 ~ 72	0.036 ~ 0.040	≤1.5D	≤ 0.3 D	950 ~ 1430	140 ~ 230
		18	4	48 ~ 72	0.040 ~ 0.044	≤1.5D	≤ 0.3 D	850 ~ 1270	140 ~ 220
		20	4	48 ~ 72	0.044 ~ 0.048	≤1.5D	≤ 0.3 D	760 ~ 1150	130 ~ 220
NICKEL BASED ALLOY MORE THAN 35 HRC	M24,M32	1	4	48 ~ 72	0.001 ~ 0.002	≤1.5D	≤ 0.2 D	15280 ~ 22920	60 ~ 180
		1.5	4	48 ~ 72	0.002 ~ 0.003	≤1.5D	≤ 0.2 D	10190 ~ 15280	80 ~ 180
		2	4	48 ~ 72	0.003 ~ 0.004	≤1.5D	≤ 0.2 D	7640 ~ 11460	90 ~ 180
		2.5	4	48 ~ 72	0.004 ~ 0.005	≤1.5D	≤ 0.2 D	6110 ~ 9170	100 ~ 180
		3	4	48 ~ 72	0.005 ~ 0.006	≤1.5D	≤ 0.2 D	5090 ~ 7640	100 ~ 180
		4	4	48 ~ 72	0.007 ~ 0.008	≤1.5D	≤ 0.2 D	3820 ~ 5730	110 ~ 180
		5	4	48 ~ 72	0.009 ~ 0.010	≤1.5D	≤ 0.2 D	3060 ~ 4580	110 ~ 180
		6	4	48 ~ 72	0.011 ~ 0.012	≤1.5D	≤ 0.3 D	2550 ~ 3820	110 ~ 180
		8	4	48 ~ 72	0.013 ~ 0.015	≤1.5D	≤ 0.3 D	1910 ~ 2860	100 ~ 170
		10	4	48 ~ 72	0.016 ~ 0.018	≤1.5D	≤ 0.3 D	1530 ~ 2290	100 ~ 160
		12	4	48 ~ 72	0.019 ~ 0.021	≤1.5D	≤ 0.3 D	1270 ~ 1910	100 ~ 160
		14	4	48 ~ 72	0.021 ~ 0.024	≤1.5D	≤ 0.3 D	1090 ~ 1640	90 ~ 160
		16	4	48 ~ 72	0.024 ~ 0.026	≤1.5D	≤ 0.3 D	950 ~ 1430	90 ~ 150
		18	4	48 ~ 72	0.027 ~ 0.029	≤1.5D	≤ 0.3 D	850 ~ 1270	90 ~ 150
		20	4	48 ~ 72	0.029 ~ 0.032	≤1.5D	≤ 0.3 D	760 ~ 1150	90 ~ 150

SE 45 Noviano Series Endmills

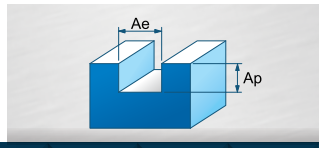
Ae ≤ 0.2D (Ø3 ≤ D ≤ Ø3)
Ae ≤ 0.3D (Ø6 ≤ D ≤ Ø20)
Ap ≤ 1.5D



4 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45 ~ 55 HRC) AISI H13	M26	1	4	60 ~ 84	0.005 ~ 0.007	≤1.5D	≤ 0.2 D	19100 ~ 26740	380 ~ 750
		1.5	4	60 ~ 84	0.008 ~ 0.011	≤1.5D	≤ 0.2 D	12730 ~ 17830	410 ~ 780
		2	4	60 ~ 84	0.012 ~ 0.015	≤1.5D	≤ 0.2 D	9550 ~ 13370	460 ~ 800
		2.5	4	60 ~ 84	0.016 ~ 0.019	≤1.5D	≤ 0.2 D	7640 ~ 10700	490 ~ 810
		3	4	60 ~ 84	0.020 ~ 0.023	≤1.5D	≤ 0.2 D	6370 ~ 8910	510 ~ 820
		4	4	60 ~ 84	0.028 ~ 0.031	≤1.5D	≤ 0.2 D	4770 ~ 6680	530 ~ 830
		5	4	60 ~ 84	0.035 ~ 0.039	≤1.5D	≤ 0.2 D	3820 ~ 5350	530 ~ 830
		6	4	60 ~ 84	0.043 ~ 0.048	≤1.5D	≤ 0.3 D	3180 ~ 4460	550 ~ 860
		8	4	60 ~ 84	0.054 ~ 0.059	≤1.5D	≤ 0.3 D	2390 ~ 3340	520 ~ 790
		10	4	60 ~ 84	0.064 ~ 0.071	≤1.5D	≤ 0.3 D	1910 ~ 2670	490 ~ 760
		12	4	60 ~ 84	0.075 ~ 0.083	≤1.5D	≤ 0.3 D	1590 ~ 2230	480 ~ 740
		14	4	60 ~ 84	0.086 ~ 0.094	≤1.5D	≤ 0.3 D	1360 ~ 1910	470 ~ 720
		16	4	60 ~ 84	0.096 ~ 0.106	≤1.5D	≤ 0.3 D	1190 ~ 1670	460 ~ 710
		18	4	60 ~ 84	0.107 ~ 0.118	≤1.5D	≤ 0.3 D	1060 ~ 1490	450 ~ 700
		20	4	60 ~ 84	0.117 ~ 0.129	≤1.5D	≤ 0.3 D	950 ~ 1340	440 ~ 690

SE 45 Noviano Series Endmills

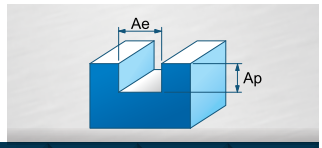
Ae = D
Ap ≤ 0.05D (Ø0.5 ≤ D ≤ Ø2)
Ae ≤ 1.0D (D > Ø2)



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
ALLOY STEEL , TOOL STEEL, PREHARDENED STEEL (more than 35 HRC) AISI H13 NAK	M22,M31	1	4	84 ~ 108	0.004 ~ 0.006	≤ 1.0 D	≤ 1.0 D	26740 ~ 34380	430 ~ 830
		1.5	4	84 ~ 108	0.006 ~ 0.008	≤ 1.0 D	≤ 1.0 D	17830 ~ 22920	430 ~ 730
		2	4	84 ~ 108	0.008 ~ 0.011	≤ 1.0 D	≤ 1.0 D	13370 ~ 17190	430 ~ 760
		2.5	4	84 ~ 108	0.011 ~ 0.013	≤ 1.0 D	≤ 1.0 D	10700 ~ 13750	470 ~ 720
		3	4	84 ~ 108	0.013 ~ 0.016	≤ 1.0 D	≤ 1.0 D	8910 ~ 11460	460 ~ 730
		4	4	84 ~ 108	0.018 ~ 0.021	≤ 1.0 D	≤ 1.0 D	6680 ~ 8590	480 ~ 720
		5	4	84 ~ 108	0.023 ~ 0.025	≤ 1.0 D	≤ 1.0 D	5350 ~ 6880	490 ~ 690
		6	4	84 ~ 108	0.028 ~ 0.030	≤ 1.0 D	≤ 1.0 D	4460 ~ 5730	500 ~ 690
		8	4	84 ~ 108	0.034 ~ 0.038	≤ 1.0 D	≤ 1.0 D	3340 ~ 4300	450 ~ 650
		10	4	84 ~ 108	0.041 ~ 0.045	≤ 1.0 D	≤ 1.0 D	2670 ~ 3440	440 ~ 620
		12	4	84 ~ 108	0.048 ~ 0.053	≤ 1.0 D	≤ 1.0 D	2230 ~ 2860	430 ~ 610
		14	4	84 ~ 108	0.055 ~ 0.060	≤ 1.0 D	≤ 1.0 D	1910 ~ 2460	420 ~ 590
		16	4	84 ~ 108	0.062 ~ 0.068	≤ 1.0 D	≤ 1.0 D	1670 ~ 2150	410 ~ 580
		18	4	84 ~ 108	0.068 ~ 0.075	≤ 1.0 D	≤ 1.0 D	1490 ~ 1910	410 ~ 570
		20	4	84 ~ 108	0.075 ~ 0.083	≤ 1.0 D	≤ 1.0 D	1340 ~ 1720	400 ~ 570
TITANIUM ALLOYS HARDENED MORE THAN 35 HRC	M21	1	4	48 ~ 72	0.001 ~ 0.004	≤ 1.0 D	≤ 1.0 D	15280 ~ 22920	60 ~ 370
		1.5	4	48 ~ 72	0.003 ~ 0.005	≤ 1.0 D	≤ 1.0 D	10190 ~ 15280	120 ~ 310
		2	4	48 ~ 72	0.004 ~ 0.006	≤ 1.0 D	≤ 1.0 D	7640 ~ 11460	120 ~ 280
		2.5	4	48 ~ 72	0.005 ~ 0.007	≤ 1.0 D	≤ 1.0 D	6110 ~ 9170	120 ~ 260
		3	4	48 ~ 72	0.006 ~ 0.008	≤ 1.0 D	≤ 1.0 D	5090 ~ 7640	120 ~ 240
		4	4	48 ~ 72	0.008 ~ 0.010	≤ 1.0 D	≤ 1.0 D	3820 ~ 5730	120 ~ 230
		5	4	48 ~ 72	0.011 ~ 0.012	≤ 1.0 D	≤ 1.0 D	3060 ~ 4580	130 ~ 220
		6	4	48 ~ 72	0.013 ~ 0.014	≤ 1.0 D	≤ 1.0 D	2550 ~ 3820	130 ~ 210
		8	4	48 ~ 72	0.016 ~ 0.018	≤ 1.0 D	≤ 1.0 D	1910 ~ 2860	120 ~ 210
		10	4	48 ~ 72	0.019 ~ 0.021	≤ 1.0 D	≤ 1.0 D	1530 ~ 2290	120 ~ 190
		12	4	48 ~ 72	0.023 ~ 0.025	≤ 1.0 D	≤ 1.0 D	1270 ~ 1910	120 ~ 190
		14	4	48 ~ 72	0.026 ~ 0.028	≤ 1.0 D	≤ 1.0 D	1090 ~ 1640	110 ~ 180
		16	4	48 ~ 72	0.029 ~ 0.032	≤ 1.0 D	≤ 1.0 D	950 ~ 1430	110 ~ 180
		18	4	48 ~ 72	0.032 ~ 0.035	≤ 1.0 D	≤ 1.0 D	850 ~ 1270	110 ~ 180
		20	4	48 ~ 72	0.035 ~ 0.039	≤ 1.0 D	≤ 1.0 D	760 ~ 1150	110 ~ 180
STAINLESS STEEL MORE THAN 35 HRC	M20	1	4	48 ~ 72	0.001 ~ 0.004	≤ 1.0 D	≤ 1.0 D	15280 ~ 22920	60 ~ 370
		1.5	4	48 ~ 72	0.003 ~ 0.005	≤ 1.0 D	≤ 1.0 D	10190 ~ 15280	120 ~ 310
		2	4	48 ~ 72	0.004 ~ 0.006	≤ 1.0 D	≤ 1.0 D	7640 ~ 11460	120 ~ 280
		2.5	4	48 ~ 72	0.005 ~ 0.007	≤ 1.0 D	≤ 1.0 D	6110 ~ 9170	120 ~ 260
		3	4	48 ~ 72	0.006 ~ 0.008	≤ 1.0 D	≤ 1.0 D	5090 ~ 7640	120 ~ 240
		4	4	48 ~ 72	0.008 ~ 0.010	≤ 1.0 D	≤ 1.0 D	3820 ~ 5730	120 ~ 230
		5	4	48 ~ 72	0.011 ~ 0.012	≤ 1.0 D	≤ 1.0 D	3060 ~ 4580	130 ~ 220
		6	4	48 ~ 72	0.013 ~ 0.014	≤ 1.0 D	≤ 1.0 D	2550 ~ 3820	130 ~ 210
		8	4	48 ~ 72	0.016 ~ 0.018	≤ 1.0 D	≤ 1.0 D	1910 ~ 2860	120 ~ 210
		10	4	48 ~ 72	0.019 ~ 0.021	≤ 1.0 D	≤ 1.0 D	1530 ~ 2290	120 ~ 190
		12	4	48 ~ 72	0.023 ~ 0.025	≤ 1.0 D	≤ 1.0 D	1270 ~ 1910	120 ~ 190
		14	4	48 ~ 72	0.026 ~ 0.028	≤ 1.0 D	≤ 1.0 D	1090 ~ 1640	110 ~ 180
		16	4	48 ~ 72	0.029 ~ 0.032	≤ 1.0 D	≤ 1.0 D	950 ~ 1430	110 ~ 180
		18	4	48 ~ 72	0.032 ~ 0.035	≤ 1.0 D	≤ 1.0 D	850 ~ 1270	110 ~ 180
		20	4	48 ~ 72	0.035 ~ 0.039	≤ 1.0 D	≤ 1.0 D	760 ~ 1150	110 ~ 180
NICKEL BASED ALLOY MORE THAN 35 HRC	M24,M32	1	4	48 ~ 72	0.001 ~ 0.001	≤ 1.0 D	≤ 1.0 D	15280 ~ 22920	60 ~ 90
		1.5	4	48 ~ 72	0.002 ~ 0.002	≤ 1.0 D	≤ 1.0 D	10190 ~ 15280	80 ~ 120
		2	4	48 ~ 72	0.002 ~ 0.003	≤ 1.0 D	≤ 1.0 D	7640 ~ 11460	60 ~ 140
		2.5	4	48 ~ 72	0.003 ~ 0.004	≤ 1.0 D	≤ 1.0 D	6110 ~ 9170	70 ~ 150
		3	4	48 ~ 72	0.004 ~ 0.005	≤ 1.0 D	≤ 1.0 D	5090 ~ 7640	80 ~ 150
		4	4	48 ~ 72	0.005 ~ 0.006	≤ 1.0 D	≤ 1.0 D	3820 ~ 5730	80 ~ 140
		5	4	48 ~ 72	0.007 ~ 0.008	≤ 1.0 D	≤ 1.0 D	3060 ~ 4580	90 ~ 150
		6	4	48 ~ 72	0.009 ~ 0.010	≤ 1.0 D	≤ 1.0 D	2550 ~ 3820	90 ~ 150
		8	4	48 ~ 72	0.011 ~ 0.012	≤ 1.0 D	≤ 1.0 D	1910 ~ 2860	80 ~ 140
		10	4	48 ~ 72	0.013 ~ 0.014	≤ 1.0 D	≤ 1.0 D	1530 ~ 2290	80 ~ 130
		12	4	48 ~ 72	0.015 ~ 0.017	≤ 1.0 D	≤ 1.0 D	1270 ~ 1910	80 ~ 130
		14	4	48 ~ 72	0.017 ~ 0.019	≤ 1.0 D	≤ 1.0 D	1090 ~ 1640	70 ~ 120
		16	4	48 ~ 72	0.019 ~ 0.021	≤ 1.0 D	≤ 1.0 D	950 ~ 1430	70 ~ 120
		18	4	48 ~ 72	0.021 ~ 0.024	≤ 1.0 D	≤ 1.0 D	850 ~ 1270	70 ~ 120
		20	4	48 ~ 72	0.023 ~ 0.026	≤ 1.0 D	≤ 1.0 D	760 ~ 1150	70 ~ 120

SE 45 Noviano Series Endmills

Ae = D
Ap ≤ 0.05D (Ø0.5 ≤ D ≤ Ø2)
Ae ≤ 1.0D (D > Ø2)



4 Z Slotting									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
HARDENED STEEL (45 ~ 55 HRC) AISI H13	M26	1	4	60 ~ 84	0.004 ~ 0.006	≤ 1.0 D	≤ 1.0 D	19100 ~ 26740	310 ~ 640
		1.5	4	60 ~ 84	0.007 ~ 0.009	≤ 1.0 D	≤ 1.0 D	12730 ~ 17830	360 ~ 640
		2	4	60 ~ 84	0.010 ~ 0.012	≤ 1.0 D	≤ 1.0 D	9550 ~ 13370	380 ~ 640
		2.5	4	60 ~ 84	0.013 ~ 0.015	≤ 1.0 D	≤ 1.0 D	7640 ~ 10700	400 ~ 640
		3	4	60 ~ 84	0.016 ~ 0.019	≤ 1.0 D	≤ 1.0 D	6370 ~ 8910	410 ~ 680
		4	4	60 ~ 84	0.022 ~ 0.025	≤ 1.0 D	≤ 1.0 D	4770 ~ 6680	420 ~ 670
		5	4	60 ~ 84	0.028 ~ 0.032	≤ 1.0 D	≤ 1.0 D	3820 ~ 5350	430 ~ 680
		6	4	60 ~ 84	0.035 ~ 0.038	≤ 1.0 D	≤ 1.0 D	3180 ~ 4460	450 ~ 680
		8	4	60 ~ 84	0.043 ~ 0.047	≤ 1.0 D	≤ 1.0 D	2390 ~ 3340	410 ~ 630
		10	4	60 ~ 84	0.052 ~ 0.057	≤ 1.0 D	≤ 1.0 D	1910 ~ 2670	400 ~ 610
		12	4	60 ~ 84	0.060 ~ 0.066	≤ 1.0 D	≤ 1.0 D	1590 ~ 2230	380 ~ 590
		14	4	60 ~ 84	0.069 ~ 0.075	≤ 1.0 D	≤ 1.0 D	1360 ~ 1910	380 ~ 570
		16	4	60 ~ 84	0.077 ~ 0.085	≤ 1.0 D	≤ 1.0 D	1190 ~ 1670	370 ~ 570
		18	4	60 ~ 84	0.085 ~ 0.094	≤ 1.0 D	≤ 1.0 D	1060 ~ 1490	360 ~ 560
		20	4	60 ~ 84	0.094 ~ 0.103	≤ 1.0 D	≤ 1.0 D	950 ~ 1340	360 ~ 550

HI-FEED

SE 60 HI-FEED FIN-MILL TORUS ENDMILLS - STANDARD

≤ 1.600 N/mm² + B0909 ≤ 65 HRC

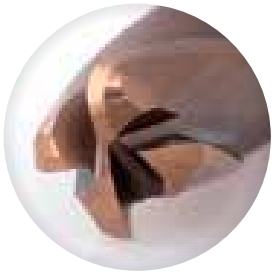
Solid Carbide SE 60 Hi-Feed Fin-mill Torus Endmills - Standard , 4 / 6 flutes

Fraises 2 tailles SE 60 Hi-Feed Fin-mill toriques en carbure monobloc - Standard, 4 / 6 dents

整体硬质合金 SE 60 Hi-Feed Fin-mill 系列 圆鼻立铣刀 4 刃 - 标准长度

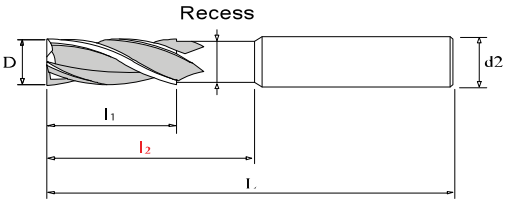
VHM SE 60 Hi-Feed Fin-mill Torusfräser, - Standard, 4 / 6 Zähne

Frese SE 60 Hi-Feed Fin-mill toroidali, in metallo duro integrale - Standard, 4 / 6 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	G78* B0909
0200 060 0600 010	2	2	10	60	6	0.3	●
0200 060 0600 020	2	2	20	60	6	0.3	●
0300 060 0600 009	3	3	9	60	6	0.5	●
0300 060 0600 021	3	3	21	60	6	0.5	●
0400 060 0600 012	4	4	12	60	6	0.5	●
0400 060 0600 020	4	4	20	60	6	0.5	●
0600	6	6	20	60	6	1	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	G78* B0909
0800	8	8	24	64	8	2	●
1000	10	10	30	75	10	2	●
1200	12	12	30	75	12	2	●
							G80*



Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

CNC Repeatalibility

Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	534

SPÉCIFICATIONS TECHNIQUES SUJETTES À CHANGEMENT SANS AVIS PRÉALABLE

SE 60 HI-FEED FIN-MILL TORUS ENDMILLS - LONG

≤ 1.600 N/mm² + B0909 ≤ 65 HRC

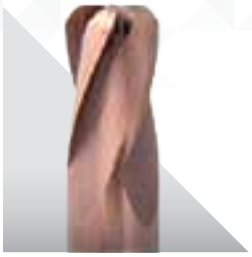
Solid Carbide SE 60 Hi-Feed Fin-mill Torus Endmills - Long, 4 / 6 flutes

Fraises 2 tailles SE 60 Hi-Feed Fin-mill toriques longues en carbure monobloc, 4 / 6 dents

整体硬质合金 SE 60 Hi-Feed Fin-mill 系列 圆鼻 立铣刀 4 / 6 刃 - 中长度

VHM SE 60 Hi-Feed Fin-mill Langer Torusfräser, 4 / 6 Zähne

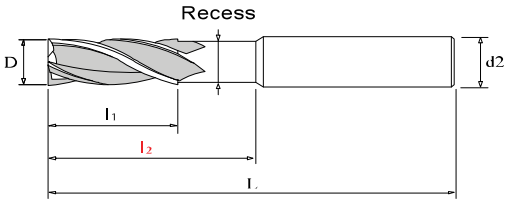
Frese SE 60 Hi-Feed Fin-mill toroidali lunghe, in metallo duro integrale, 4 / 6 taglienti



EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	G82* B0909
0200 075 0600 020	2	2	20	75	6	0.3	●
0200 075 0600 035	2	2	35	75	6	0.3	●
0300	3	3	30	75	6	0.5	●
0400	4	4	32	75	6	0.5	●
0600	6	6	40	75	6	1	●

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R	G82* B0909
0800	8	8	60	100	8	2	●
1000	10	10	60	100	10	2	●
1200	12	12	60	100	12	2	●

G84*



CNC Repeatability

Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

Tools with recess upon rquest

Fräser mit Freistellung auf Bestellung

Outils avec dégagement sur demande

Utensilli con riduzione gambo su richiesta

密齿 立铣刀 带颈位 特别要求

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
M26	M27	M28	M33	M01	M29	M30																			
●	●	●	●																						

Working Material	Cutting Parameter
564	534

MODIFICHE TECHICHE POSSIBILI SENZA PREAVVISO

SE 60 HI-FEED SWEEP-MILL TORUS ENDMILLS

≤ 1.600 N/mm² + B0909 ≤ 65 HRC

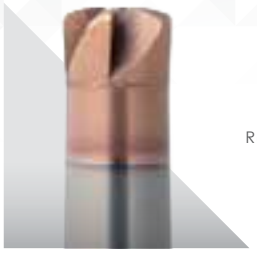
Solid Carbide SE 60 Hi-Feed Sweep-Mill Torus Endmills, 4 / 6 flutes

Fraises 2 tailles toriques SE 60 Hi-Feed Sweep-Mill en carbure monobloc, 4 / 6 dents, pour opération d'ébauche

整体硬质合金 SE 60R 系列 圆鼻立铣刀 4/6刃,

VHM SE 60R Torusfräser, 4/6 Schneiden

Frese Toroidali in metallo duro SE 60R, 4 / 6 taglienti



VHM | R±0.01 | -1° | λ = 3° | B0909 | HSC | DIN 6535 HA HB HE

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R(theo)	G86* B0909
0400 057 0600 008	4	1.5	8	57	6	0.4	●
0400 057 0600 015	4	1.5	15	57	6	0.4	○
0500 057 0600 010	5	2	10	57	6	0.5	●
0500 057 0600 021	5	2	21	57	6	0.5	○
0600 057 0600 012	6	2.5	12	57	6	0.6	●
0600 057 0600 026	6	2.5	26	57	6	0.6	○

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm) D	l1	l2	L	d2 (h6)	R(theo)	G86* B0909
0800 063 0800 016	8	3	16	63	8	0.8	●
0800 063 0800 031	8	3	31	63	8	0.8	○
1000 072 1000 020	10	3.5	20	72	10	1	●
1000 072 1000 036	10	3.5	36	72	10	1	○
1200 083 1200 024	12	4	24	83	12	1.2	●
1200 083 1200 021	12	4	41	83	12	1.2	○

Ø mm	HPMT Standard
0.1 < 3.0	-10 / -25
3.0 ~ 6.0	-10 / -38
6.0 ~ 10.0	-10 / -50
10.0 ~ 12.0	-10 / -50

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	535

若有技术规格变更，恕不事先通知

BN 60 HI-FEED DOUBLE R BALLNOSE CUTTERS

≤ 1.600 N/mm² + B0909 ≤ 65 HRC

Solid Carbide BN 60 HI-Feed Double R Ballnose Cutters, 2 flutes

Fraises BN 60 BN 60 HI-Feed Double R en carbure monobloc, à bout hémisphérique, 2 dents

整体硬质合金 BN 60 BN 60 HI-Feed Double R 系列 球头 立铣刀 2 刃 – 标准长度

VHM BN 60 HI-Feed Double R Radiusschaft-, fräser 2 Zähne

Frese cilindriche a raggio in metallo duro integrale, tipo BN HI-Feed Double R, 4 taglienti

EDPNo./EDV-Nr./ CODEusine/CodiceEDP =*+Ødata	Dimension (mm)									815*	A98*
	D1	D3	L1	L2	L3	r1	r2	Ap max	d2 (h6)	G6110	B0909
0400	4	3.90	50	9	4	0.5	4	0.8	6	●	●
0500	5	4.90	50	11	5	0.6	5	1	6	●	●
0600	6	5.90	50	13	6	0.8	6	1.2	6	●	●
0800	8	7.90	64	19	8	1	8	1.6	8	●	●
1000	10	9.90	75	21	10	1.5	10	2.2	10	●	●
1200	12	11.90	75	25	12	2	12	2.8	12	●	●
1600	16	15.90	90	33	16	2.5	16	3.6	16	●	●

Ø mm	HPMT Standard
0.1 < 3.0	-10 / -25
3.0 ~ 6.0	-10 / -38
6.0 ~ 10.0	-10 / -50
10.0 ~ 12.0	-10 / -50

Material group - Material-Gruppe - Groupe matière - Gruppo materiali - 材质主类

M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M18	M22	M25	M31	M16	M20	M17	M19	M21	M23	M24	M32

M26	M27	M28	M33	M01	M29	M30
●	●	●	●			

Working Material	Cutting Parameter
564	536

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SE 60 HI-FEED Fin-Mill Torus Endmills

4 / 6 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
PRE-HARDENED STEELS + HARDENED STEELS (45~55 HRC)	M26	2	4	75 ~ 105	0.049 ~ 0.061	≤0.035D	≤0.035D	11940 ~ 16710	2340 ~ 4080
		3	4	75 ~ 105	0.080 ~ 0.093	≤0.035D	≤0.035D	7960 ~ 11140	2550 ~ 4140
		4	4	75 ~ 105	0.111 ~ 0.126	≤0.035D	≤0.035D	5970 ~ 8360	2650 ~ 4210
		6	4	75 ~ 105	0.173 ~ 0.190	≤0.035D	≤0.035D	3980 ~ 5570	2750 ~ 4230
		8	6	75 ~ 105	0.215 ~ 0.237	≤0.035D	≤0.035D	2980 ~ 4180	2560 ~ 3960
		10	6	75 ~ 105	0.258 ~ 0.283	≤0.035D	≤0.035D	2390 ~ 3340	2470 ~ 3780
		12	6	75 ~ 105	0.300 ~ 0.330	≤0.035D	≤0.035D	1990 ~ 2790	2390 ~ 3680
HARDENED STEELS (55~ 60 HRC)	M27, M28	2	4	60 ~ 90	0.037 ~ 0.049	≤0.02D	≤0.3D	9550 ~ 14320	1410 ~ 2810
		3	4	60 ~ 90	0.060 ~ 0.072	≤0.02D	≤0.3D	6370 ~ 9550	1530 ~ 2750
		4	4	60 ~ 90	0.084 ~ 0.096	≤0.02D	≤0.3D	4770 ~ 7160	1600 ~ 2750
		6	4	60 ~ 90	0.130 ~ 0.143	≤0.02D	≤0.3D	3180 ~ 4770	1650 ~ 2730
		8	6	60 ~ 90	0.161 ~ 0.178	≤0.02D	≤0.3D	2390 ~ 3580	1540 ~ 2550
		10	6	60 ~ 90	0.193 ~ 0.213	≤0.02D	≤0.3D	1910 ~ 2860	1470 ~ 2440
		12	6	60 ~ 90	0.225 ~ 0.248	≤0.02D	≤0.3D	1590 ~ 2390	1430 ~ 2370
HARDENED STEEL (60~65 HRC)	M33	2	4	45 ~ 75	0.012 ~ 0.015	≤0.015D	≤0.3D	7160 ~ 11940	340 ~ 720
		3	4	45 ~ 75	0.019 ~ 0.023	≤0.015D	≤0.3D	4770 ~ 7960	360 ~ 730
		4	4	45 ~ 75	0.027 ~ 0.031	≤0.015D	≤0.3D	3580 ~ 5970	390 ~ 740
		6	4	45 ~ 75	0.043 ~ 0.048	≤0.015D	≤0.3D	2390 ~ 3980	410 ~ 760
		8	6	45 ~ 75	0.054 ~ 0.059	≤0.015D	≤0.3D	1790 ~ 2980	390 ~ 700
		10	6	45 ~ 75	0.064 ~ 0.071	≤0.015D	≤0.3D	1430 ~ 2390	370 ~ 680
		12	6	45 ~ 75	0.075 ~ 0.083	≤0.015D	≤0.3D	1190 ~ 1990	360 ~ 660

* Remarks: all conditions for overhang : 5 x Ø
if overhang is 6 x Ø, reduce Ap by 10%
if overhang is 8 x Ø, reduce Ap by 25%
if overhang is 10 x Ø, reduce Ap by 50%

* Use for cutting contour line or down cutting. In Z direction, cut at an inclined angle of 1° and reduce feed rate between 60% to 70%.

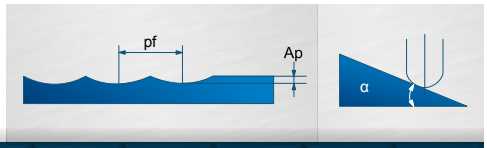
SE 60 HI-FEED Sweep-Mill Torus Endmills

4 / 6 Z Side Milling									
Work Material	Material Groups	D (mm)	Z	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
PRE-HARDENED STEELS + HARDENED STEELS (45~55 HRC)	M26	4	4	125 ~ 175	00.111 ~ 0.126	≤0.025D	≤0.5D	9950 ~ 13930	4420 ~ 7020
		5	4	125 ~ 175	0.142 ~ 0.158	≤0.025D	≤0.5D	7960 ~ 11140	4520 ~ 7040
		6	4	125 ~ 175	0.173 ~ 0.190	≤0.025D	≤0.5D	6630 ~ 9280	4590 ~ 7050
		8	6	125 ~ 175	0.215 ~ 0.237	≤0.025D	≤0.5D	4970 ~ 6960	4270 ~ 6600
		10	6	125 ~ 175	0.258 ~ 0.283	≤0.025D	≤0.5D	3980 ~ 5570	4110 ~ 6310
		12	6	125 ~ 175	0.300 ~ 0.330	≤0.025D	≤0.5D	3320 ~ 4640	3980 ~ 6120
HARDENED STEELS (55~ 60 HRC)	M27, M28	4	4	100 ~ 150	0.084 ~ 0.096	≤0.018D	≤0.5D	7960 ~ 11940	2670 ~ 4580
		5	4	100 ~ 150	0.107 ~ 0.119	≤0.018D	≤0.5D	6370 ~ 9550	2730 ~ 4550
		6	4	100 ~ 150	0.130 ~ 0.143	≤0.018D	≤0.5D	5310 ~ 7960	2760 ~ 4550
		8	6	100 ~ 150	0.161 ~ 0.178	≤0.018D	≤0.5D	3980 ~ 5970	2560 ~ 4250
		10	6	100 ~ 150	0.193 ~ 0.213	≤0.018D	≤0.5D	3180 ~ 4770	2450 ~ 4060
		12	6	100 ~ 150	0.225 ~ 0.248	≤0.018D	≤0.5D	2650 ~ 3980	2390 ~ 3950
HARDENED STEEL (60~65 HRC)	M33	4	4	75 ~ 125	0.027 ~ 0.031	≤0.015D	≤0.5D	5970 ~ 9950	640 ~ 1230
		5	4	75 ~ 125	0.035 ~ 0.039	≤0.015D	≤0.5D	4770 ~ 7960	670 ~ 1240
		6	4	75 ~ 125	0.043 ~ 0.048	≤0.015D	≤0.5D	3980 ~ 6630	680 ~ 1270
		8	6	75 ~ 125	0.054 ~ 0.059	≤0.015D	≤0.5D	2980 ~ 4970	640 ~ 1170
		10	6	75 ~ 125	0.064 ~ 0.071	≤0.015D	≤0.5D	2390 ~ 3980	610 ~ 1130
		12	6	75 ~ 125	0.075 ~ 0.083	≤0.015D	≤0.5D	1990 ~ 3320	600 ~ 1100

* Remarks: all conditions for overhang : 3 x Ø
if overhang is > 3 x Ø, reduce Feed by 25%

* Konturfräsen oder Fräsen in der Z-Richtung, bitte unter einem Neigungswinkel von 1°oder mehr und unter Verringerung des Vorschubwertes auf 60-70% fräsen.

BN 60 HI-FEED Double R Ballnose Cutters



2 Z Roughing & Finishing		α ≤ 15°			Roughing		Finishing			
Work Material	Material Groups	D (mm)	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
PRE-HARDENED STEELS + HARDENED STEELS (45~55 HRC)	M26	4	135	0.080	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	10,743	1,719
		5	135	0.085	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	8,594	1,461
		6	135	0.090	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	7,162	1,289
		8	135	0.100	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	5,371	1,074
		10	135	0.110	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	4,297	945
		12	135	0.110	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	3,581	788
		16	135	0.110	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	2,686	591
HARDENED STEELS (55~ 60 HRC)	M27, M28	4	45	0.078	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.20D	3,581	559
		5	45	0.080	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.20D	2,865	458
		6	45	0.082	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.20D	2,387	392
		8	45	0.086	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.20D	1,790	308
		10	45	0.090	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.20D	1,432	258
		12	45	0.090	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.20D	1,194	215
		16	45	0.090	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.20D	895	161
HARDENED STEEL (60~65 HRC)	M33	4	45	0.070	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	**≤0.20D**	3,581	501
		5	45	0.072	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	**≤0.20D**	2,865	411
		6	45	0.073	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	**≤0.20D**	2,387	350
		8	45	0.077	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	**≤0.20D**	1,790	275
		10	45	0.080	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	**≤0.20D**	1,432	229
		12	45	0.080	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	**≤0.20D**	1,194	191
		16	45	0.080	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	**≤0.20D**	895	143

2 Z Roughing & Finishing		α ≥ 15°			Roughing		Finishing			
Work Material	Material Groups	D (mm)	Vc (m/min)	Fz (mm)	Ap (mm)	Ae (mm)	Ap (mm)	Ae (mm)	n (min-1)	Vf (mm/min)
PRE-HARDENED STEELS + HARDENED STEELS (45~55 HRC)	M26	4	100	0.058	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	8,100	950
		5	100	0.062	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	6,400	800
		6	100	0.066	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	5,400	710
		8	100	0.073	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	4,000	590
		10	100	0.080	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	3,200	520
		12	100	0.080	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	2,700	430
		16	100	0.080	≤0.05D (MAX=0..5)	≤0.20D	≤0.05D	≤0.20D	2,000	320
HARDENED STEELS (55~ 60 HRC)	M27, M28	4	30	0.057	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.10D	2,700	340
		5	30	0.058	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.10D	2,100	280
		6	30	0.060	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.10D	1,800	230
		8	30	0.063	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.10D	1,300	180
		10	30	0.066	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.10D	1,100	150
		12	30	0.066	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.10D	900	130
		16	30	0.066	≤0.05D (MAX=0..3)	≤0.20D	≤0.3D	≤0.10D	700	100
HARDENED STEEL (60~65 HRC)	M33	4	30	0.051	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	≤0.10D	2,700	280
		5	30	0.052	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	≤0.10D	2,100	230
		6	30	0.054	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	≤0.10D	1,800	190
		8	30	0.056	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	≤0.10D	1,300	150
		10	30	0.058	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	≤0.10D	1,100	130
		12	30	0.058	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	≤0.10D	900	110
		16	30	0.058	≤0.05D (MAX=0..2)	≤0.20D	≤0.2D	≤0.10D	700	80

SPECIAL TOOLS

ENDMILL	Fräser	Fraise	Fresa	端铣刀
ENDMILL with Corner Radius	Fräser mit Eckenradius	Fraises avec rayon	Fresa con angolo raggiato	带圆角端铣刀
STEP ENDMILL	Stufenfräser	Fraise étagée	Fresa a gradino	阶梯铣刀
CORNER RADIUS CUTTER	Viertelrund Profilfräser	Fraise 1/4 de cercle	Fresa 1/4 circolare	倒圆弧铣刀
BALLNOSE	Radiusfräser	Fraise hémisphérique	Fresa cilindrica a raggio	球头铣刀
TAPER BALLNOSE	Kegeliger Radiusfräser	Fraise hémisphérique conique	Fresa cilindrica a raggio conica	锥度球头铣刀
TAPER ENDMILL	Gesenkfräser	Faise conique pour matrices	Fresa conica	锥度端铣刀
STRAIGHT FLUTE REAMER	Reibahle mit geraden Nuten	Alésoir avec goujures droites	Alesatore con gole diritte	直刃绞刀
SPIRAL REAMER	Reibahle mit gedrallten Nuten	Alésoir avec goujures hélicoïdales	Alesatore con gole elicoidali	螺旋绞刀
STEP REAMER	Stufen-Reibahle	Alésoir étagé	Alesatore a gradino	阶梯绞刀
T-SLOT CUTTER	T-Fräser	Fraise à T	Fresa a T	T型槽刀
TWIST DRILL	Spiralbohrer	Foret hélicoïdal	Punta elicoidale	钻头
STEP TWIST DRILL	Stufenbohrer	Foret étagé	Punta a gradino	阶梯钻
CENTER DRILL	Zentrierbohrer	Foret à centrer	Punta a centrare	中心钻
BURNISHING DRILL	4 Fasenbohrer	Foret carré	Punta a 4 fasi	钻绞刀
STEP BURNISHING DRILL	4 Fasen-Stufenbohrer	Foret carré étagé	Punte a 4 fasi a gradino	阶梯钻绞刀

Customer's name		Material	UF	MG
Person : Mr/Ms		Material to be cut		
Enquiry number		Coating		
Cutting Conditions	Vc Vf	Coolant	Dry	Wet
Date	Quality	Remark		

Firmenname		VHM	UF	MG
Herr/Frau		Zu zerspanendes Material		
Anfrage-Nr.		Beschichtung		
Arbeitsbedingungen	Vc Vf	Kühlung	trocken	nass
Datum	Stückzahl	Bemerkung		

Nom de la société		Carbure monobloc	UF	MG
Mr/Mme		Matière à usiner		
Demande no.		Revêtement		
Conditions d'usinage	Vc Vf	Lubrification	à sec	avec lubrification
Date	Quantité	Remarques		

Nome della società		Metallo duro integrale	UF	MG
Sig./Sig.ra		Materiale da lavorare		
Richiesta no.		Rivestimento		
Condizioni di lavoro	Vc Vf	con lubrificazione	a secco	con lubrificazione
Date	Quantità	Osservazione		

用户名称		刀具材料	UF	MG
销售人员		被加工材料		
图纸编号		表面涂层		
设计	Vc Vf	切削剂	乾	湿
日期	数量	标印		

Request Forms for Special Tools

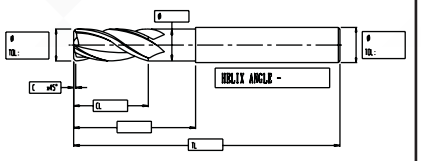
Anfrage-Formulare für Sonderwerkzeuge

Fiches pour demandes d'outils spéciaux

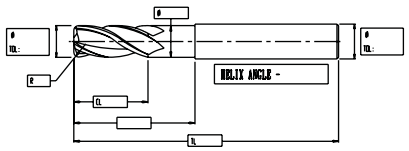
Schede per richieste d'utensili speciali

请用本表格订制非标力具

ENDMILL



ENDMILL WITH CORNER RADIUS



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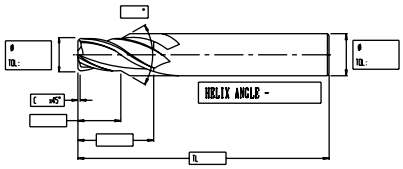
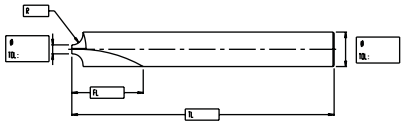
STEP ENDMILL



CORNER RADIUS CUTTER



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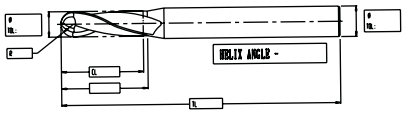
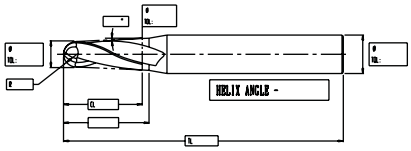
BALLNOSE



CORNER RADIUS CUTTER



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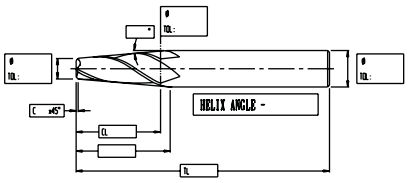
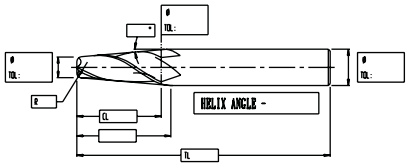
TAPER ENDMILL



TAPER ENDMILL WITH CORNER RADIUS



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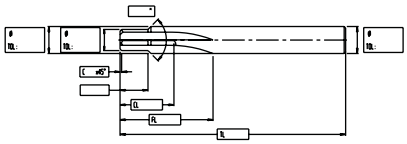
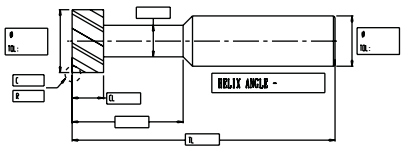
STEP REAMER



T-SLOT ENDMILL



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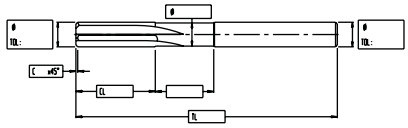
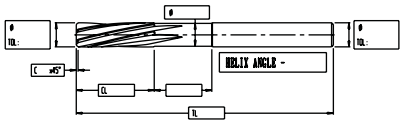
STRAIGHT FLUTE REAMER



SPIRAL REAMER



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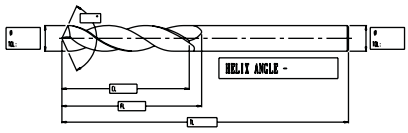
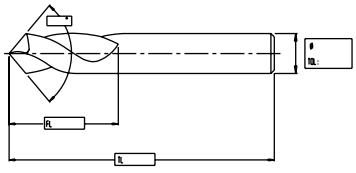
TWIST DRILL



NC SPOT DRILL



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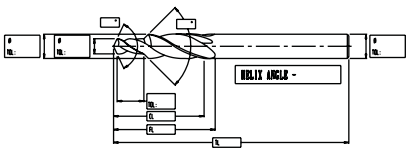
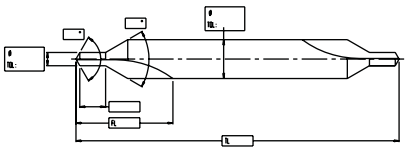
STEP TWIST DRILL



CENTER DRILL



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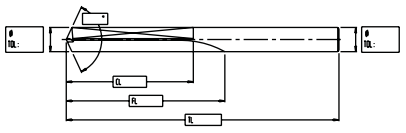
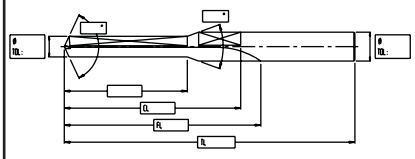
BURNISHING DRILL



STEP BURNISHING DRILL



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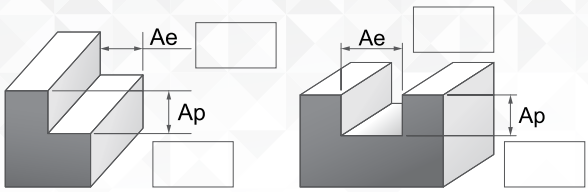
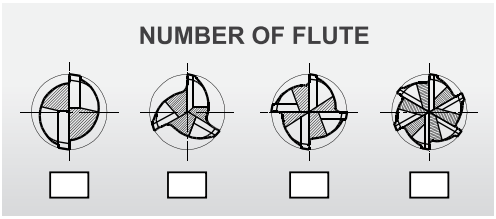
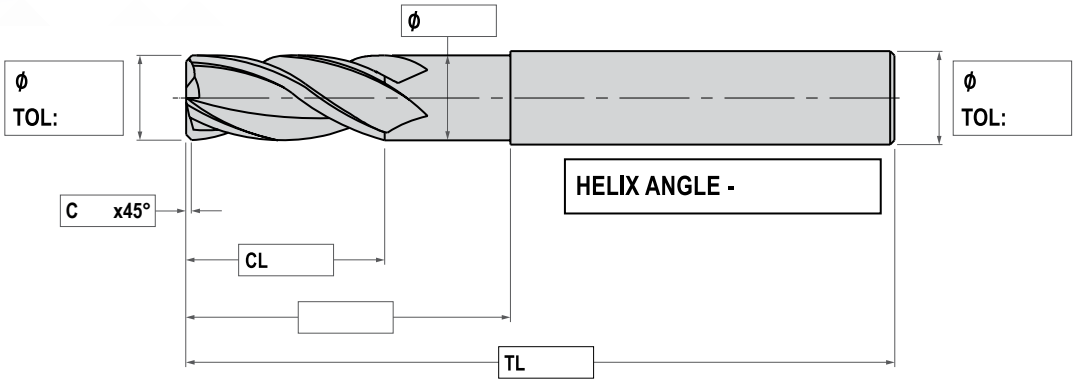
ENDMILL







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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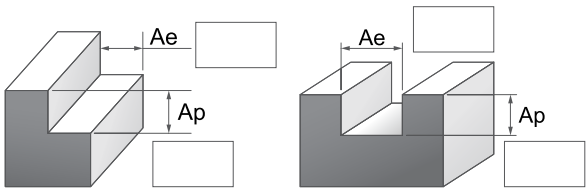
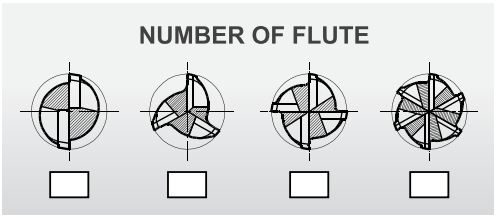
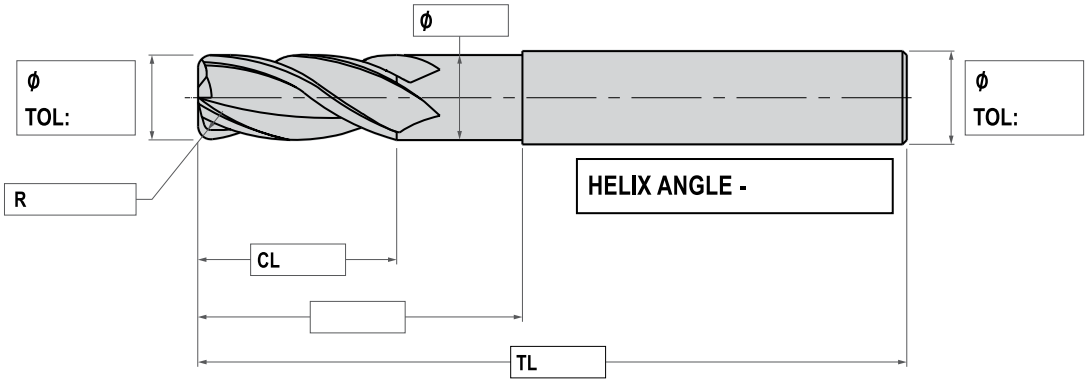
ENDMILL WITH CORNER RADIUS







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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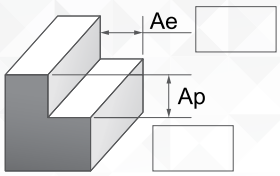
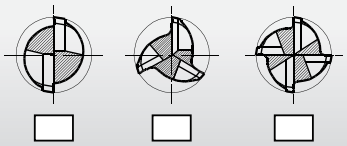
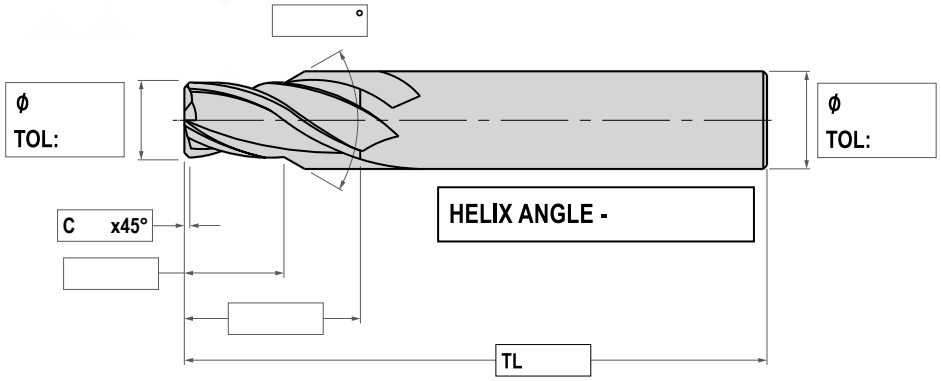
STEP ENDMILL



NUMBER OF FLUTE





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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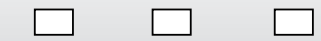
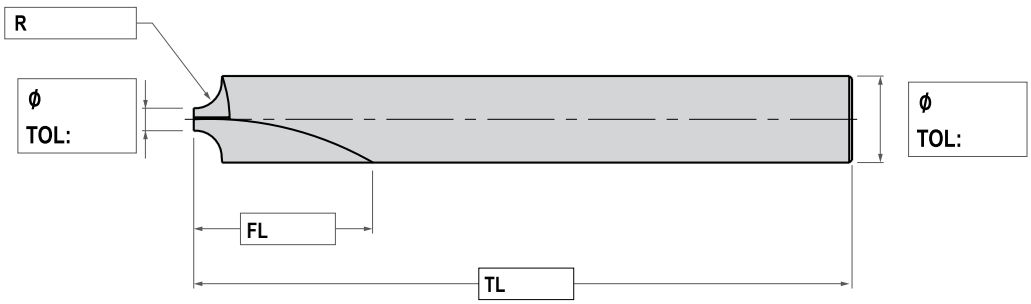
CORNER RADIUS CUTTER

NUMBER OF FLUTE

2 FLUTE 3 FLUTE 4 FLUTE





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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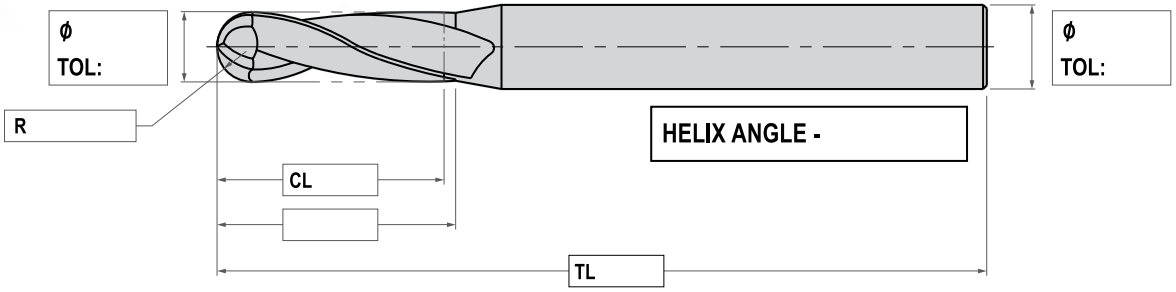
BALLNOSE

NUMBER OF FLUTE



Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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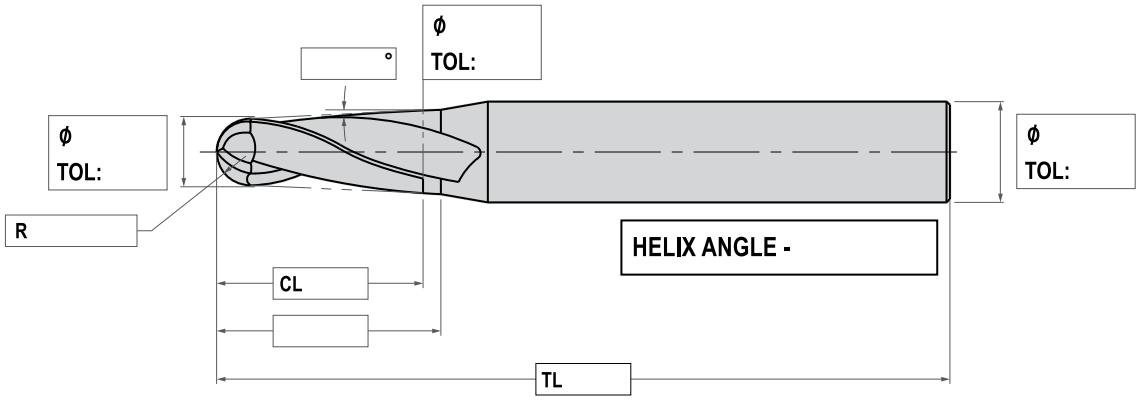
TAPER BALLNOSE

NUMBER OF FLUTE



Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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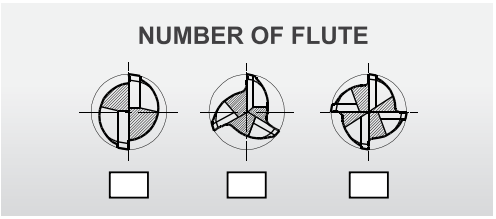
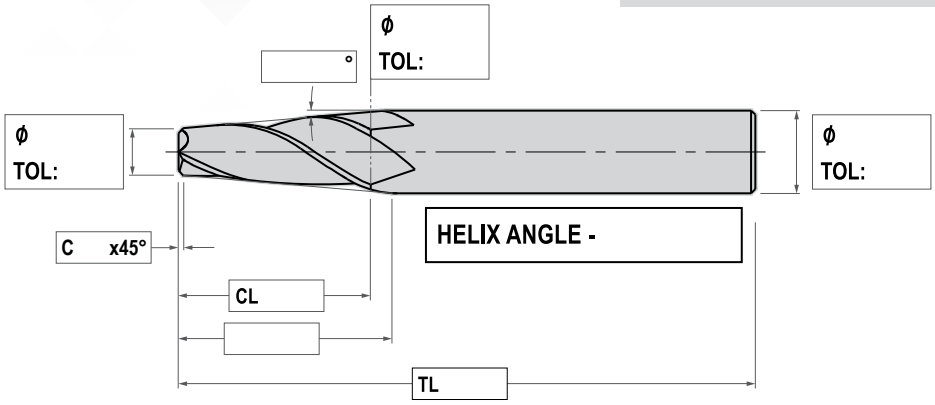
TAPER ENDMILL





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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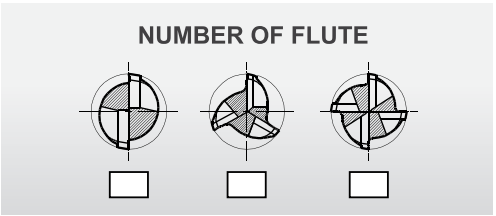
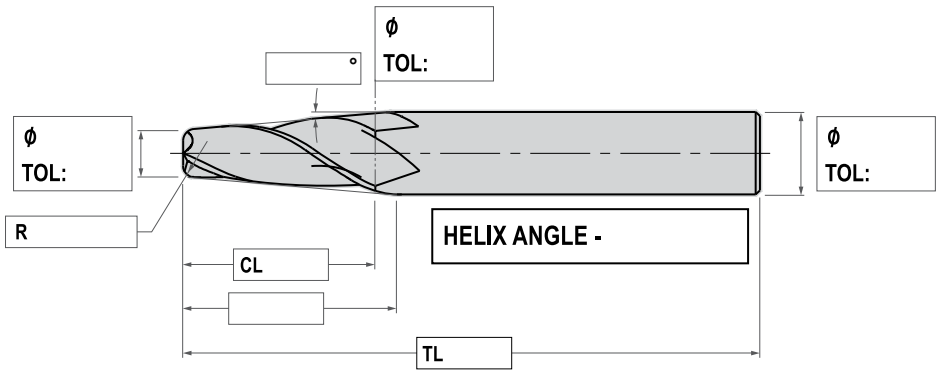
TAPER ENDMILL WITH CORNER RADIUS





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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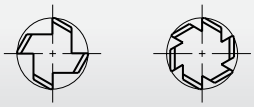
STEP REAMER

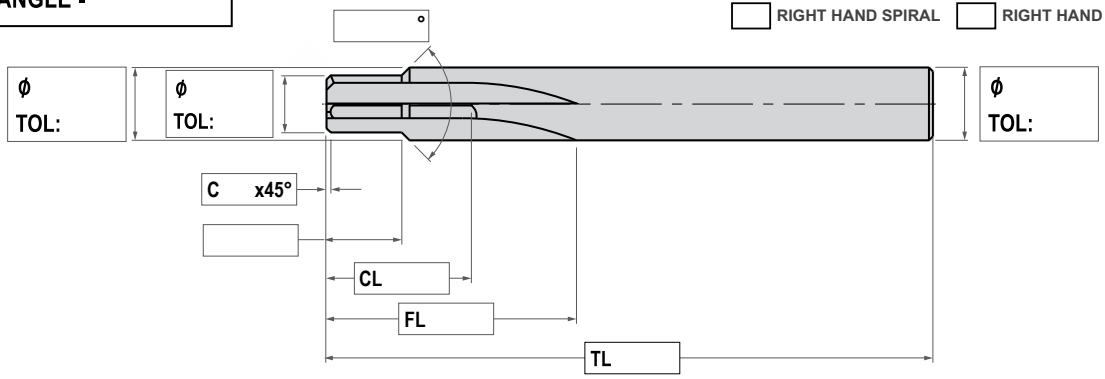
TYPE OF FLUTE

NUMBER OF FLUTE



LEFT HAND SPIRAL
RIGHT HAND SPIRAL
LEFT HAND CUTTING
RIGHT HAND CUTTING

HELIX ANGLE -



Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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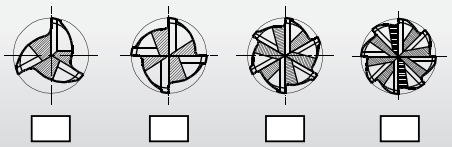
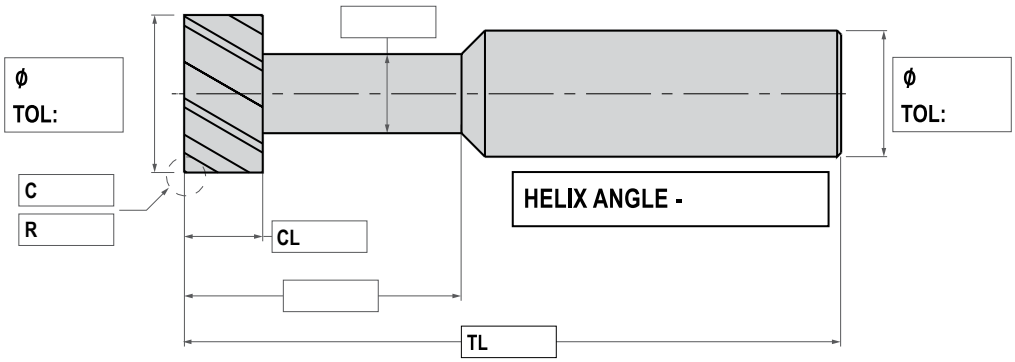
T-SLOT CUTTER

NUMBER OF FLUTE





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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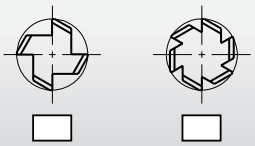
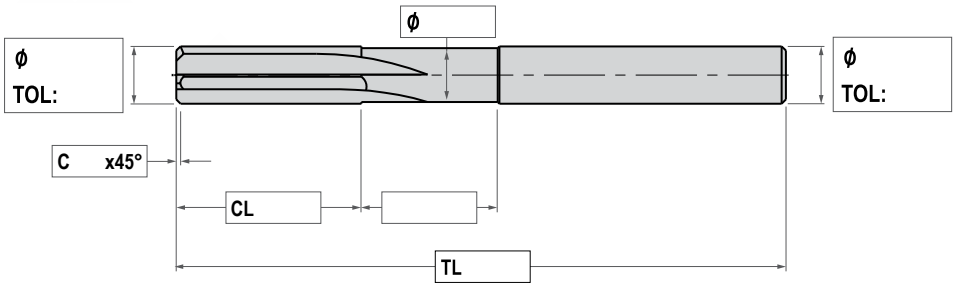
STRAIGHT FLUTE REAMER

NUMBER OF FLUTE





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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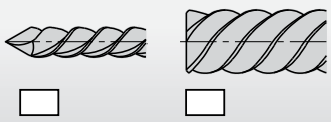
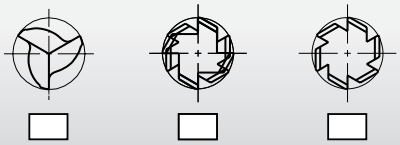
SPIRAL REAMER

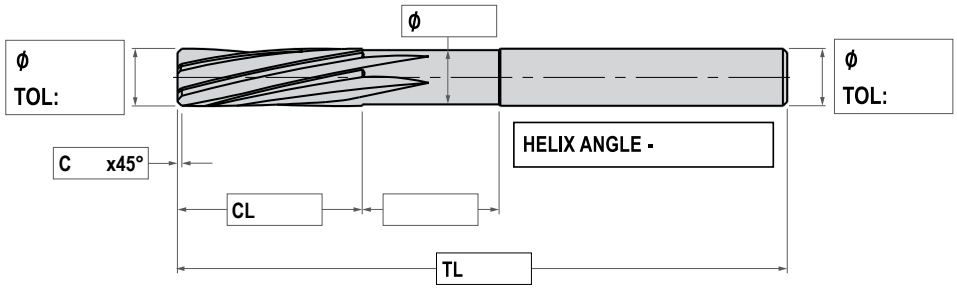
HIGH SPIRAL



NUMBER OF FLUTE



LEFT HAND SPIRAL
RIGHT HAND SPIRAL
LEFT HAND CUTTING
RIGHT HAND CUTTING



Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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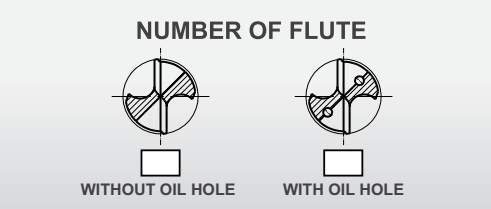
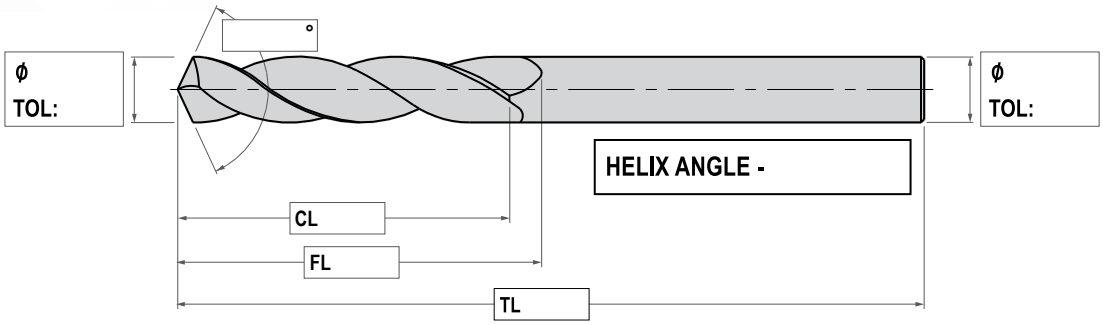
TWIST DRILL





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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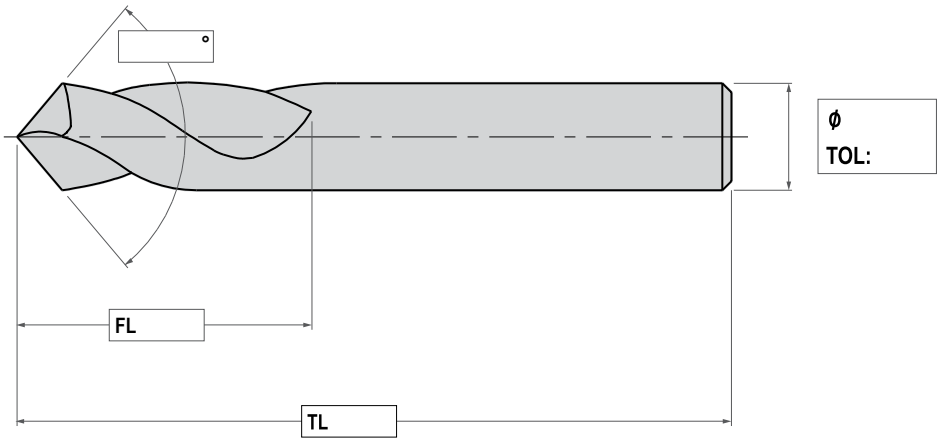
NC SPOT DRILL



Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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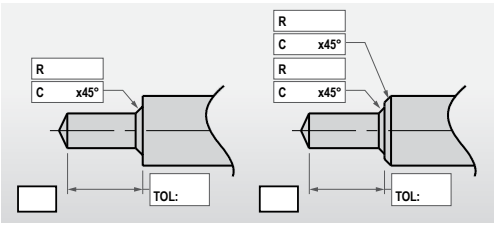
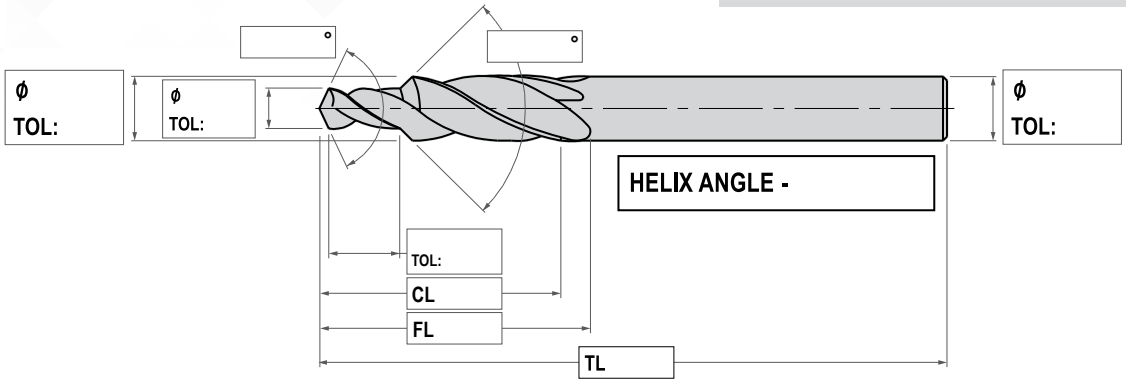
STEP TWIST DRILL





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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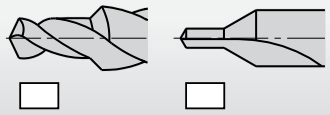
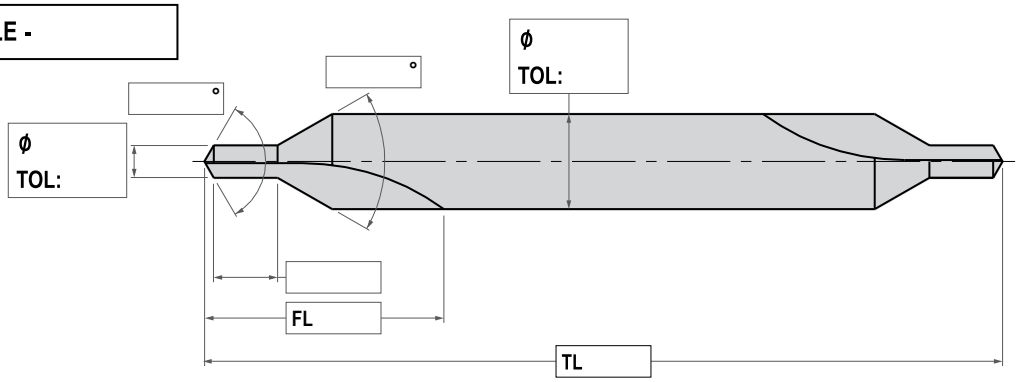
CENTER DRILL

TYPE OF FLUTE



HELIX ANGLE -



Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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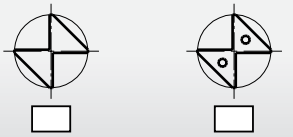
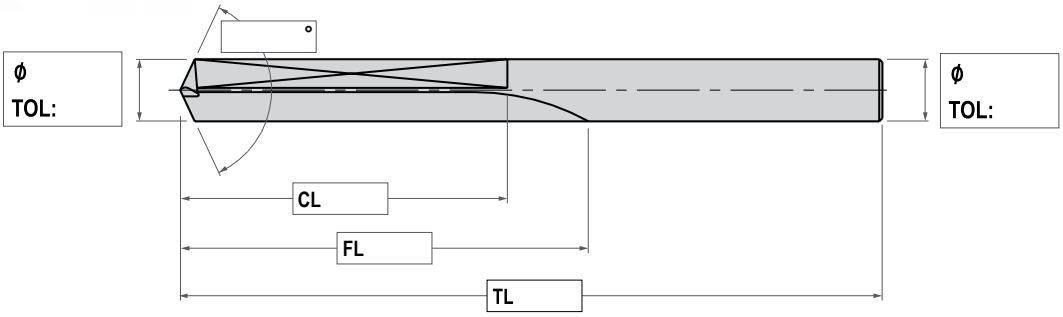
BURNISHING DRILL





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
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Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

HPMT
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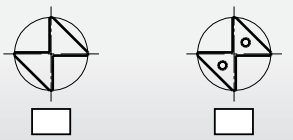
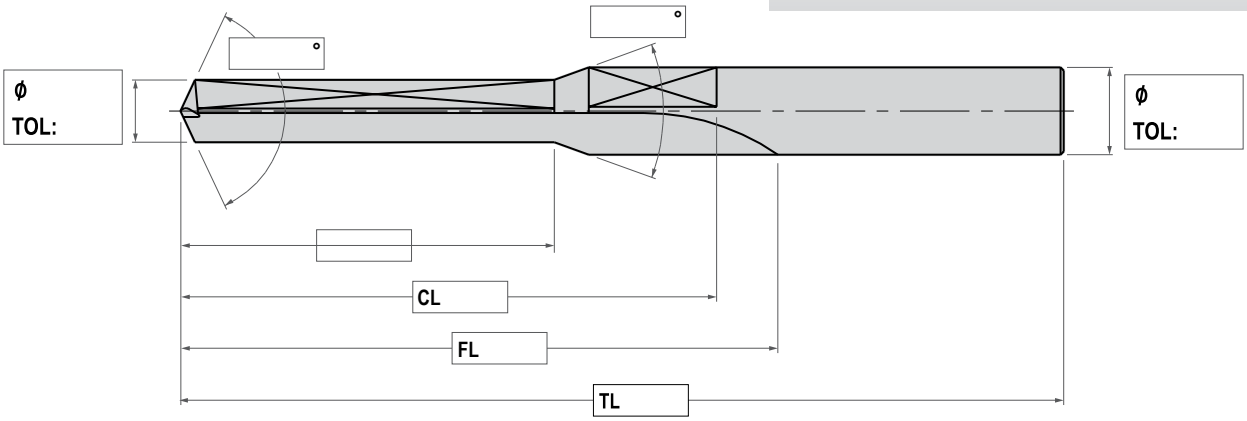
STEP BURNISHING DRILL





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
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Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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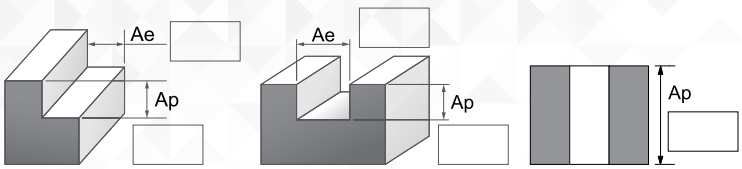
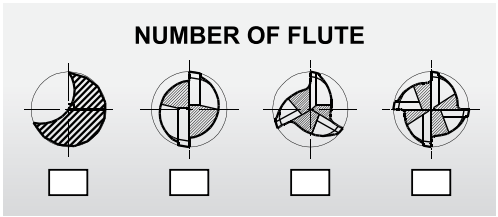
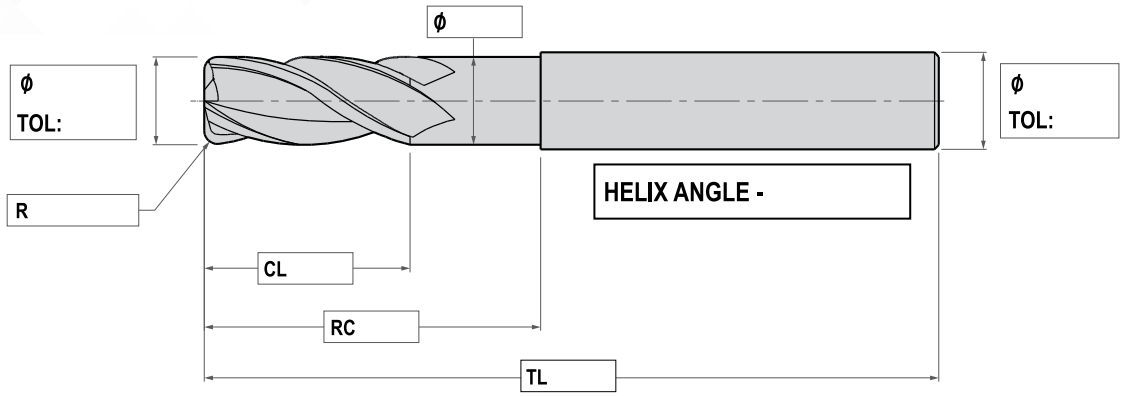
AL SE Standard Endmills







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

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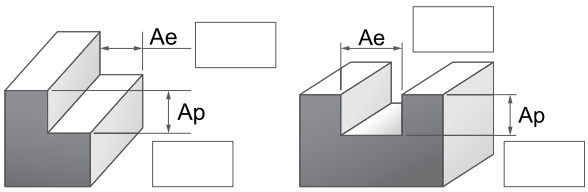
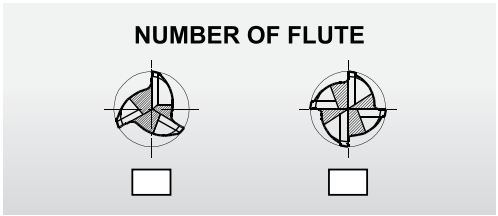
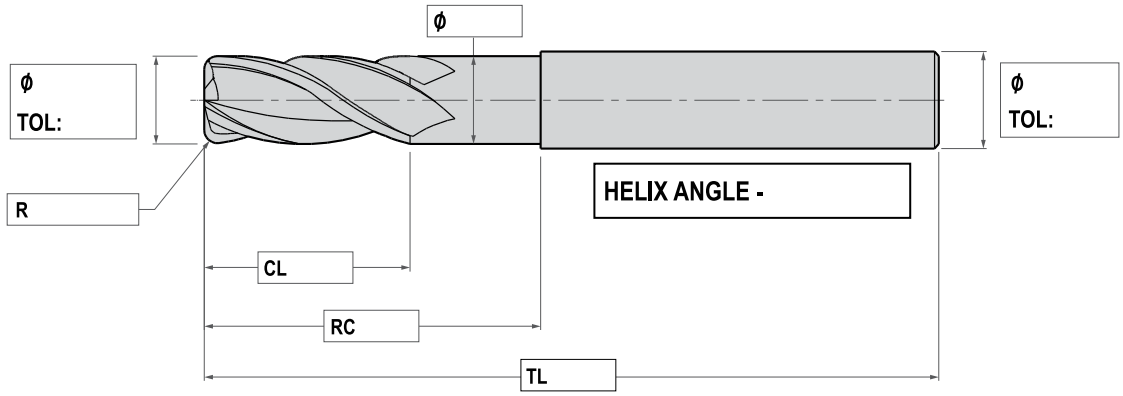
AL SE DP Standard Torus Endmills







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

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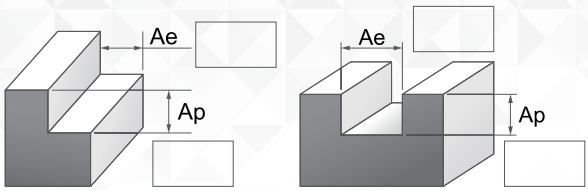
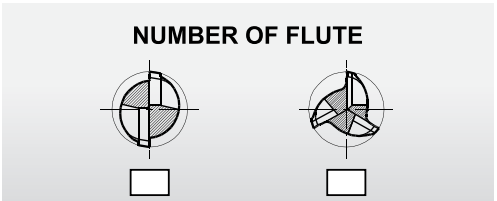
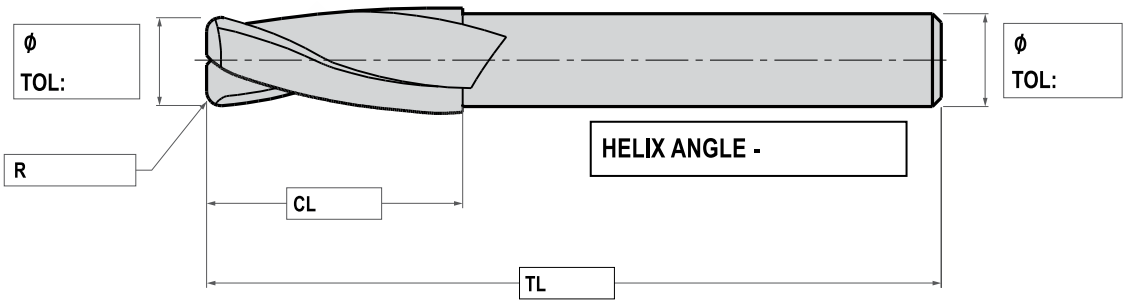
AL SE Endmills with Reduce Shank







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

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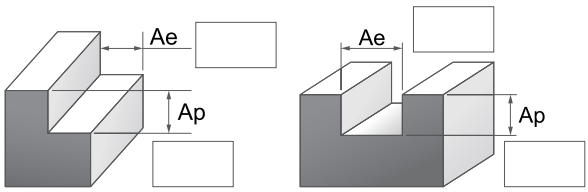
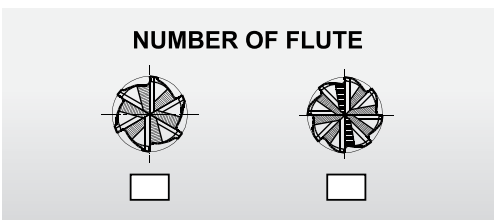
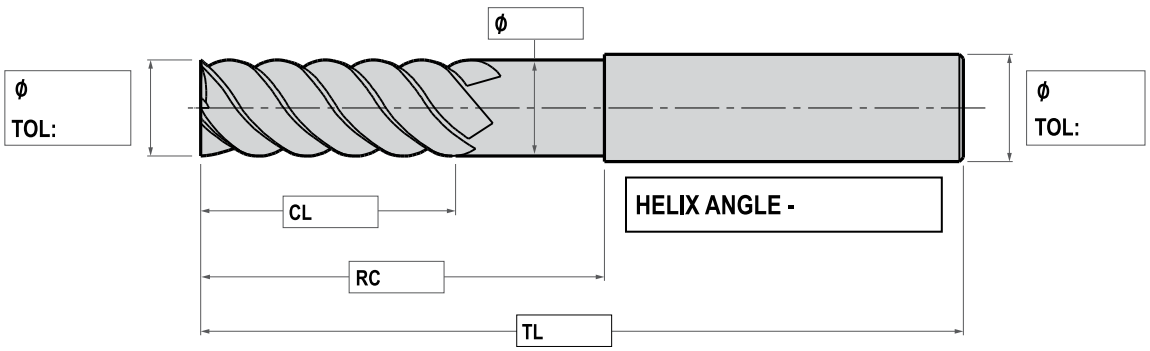
AL SE Multiflute Endmills







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

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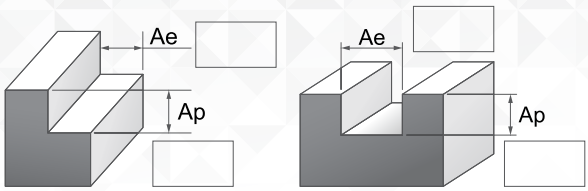
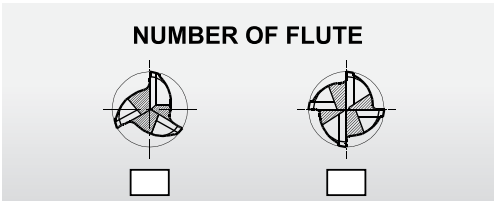
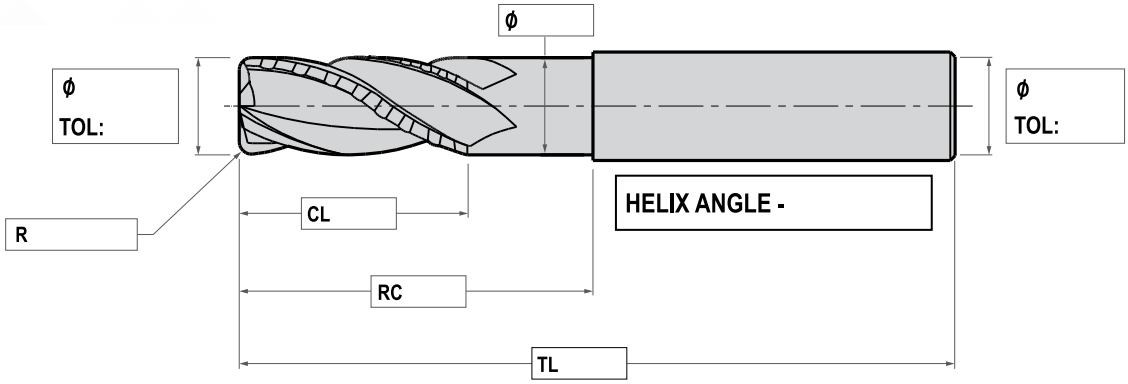
AL SE DP Torus Roughing Endmills







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

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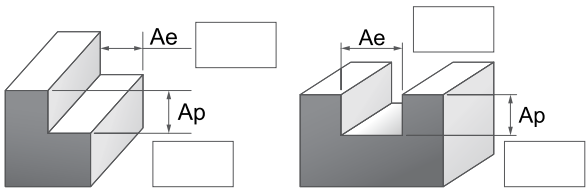
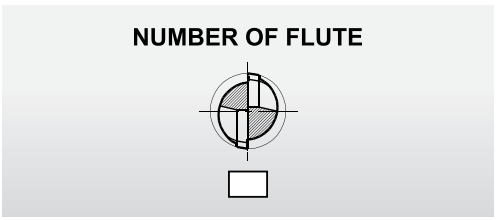
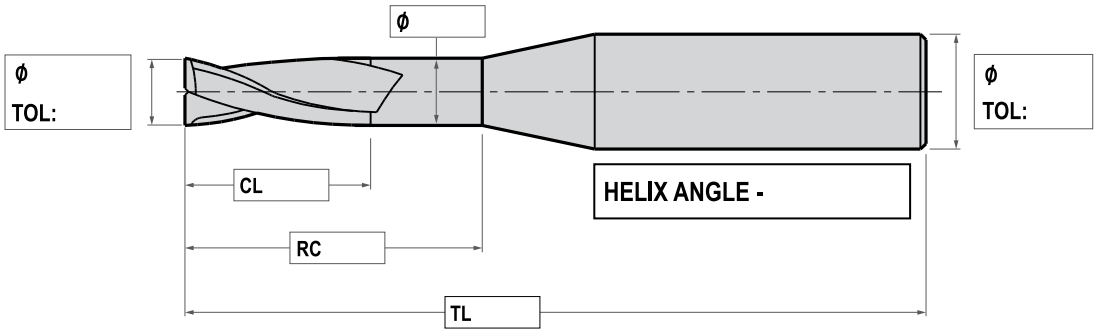
AL SE Miniature Endmills







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

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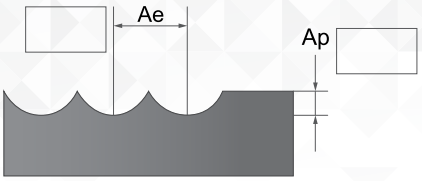
AL BN Standard Ballnose Cutters



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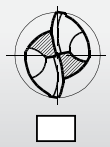

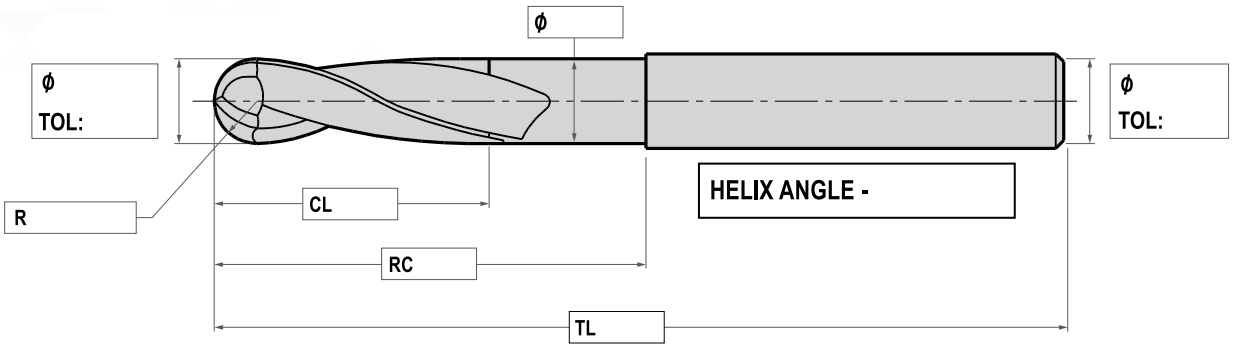

Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

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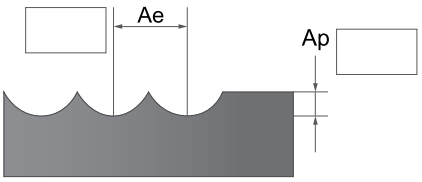
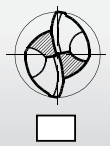
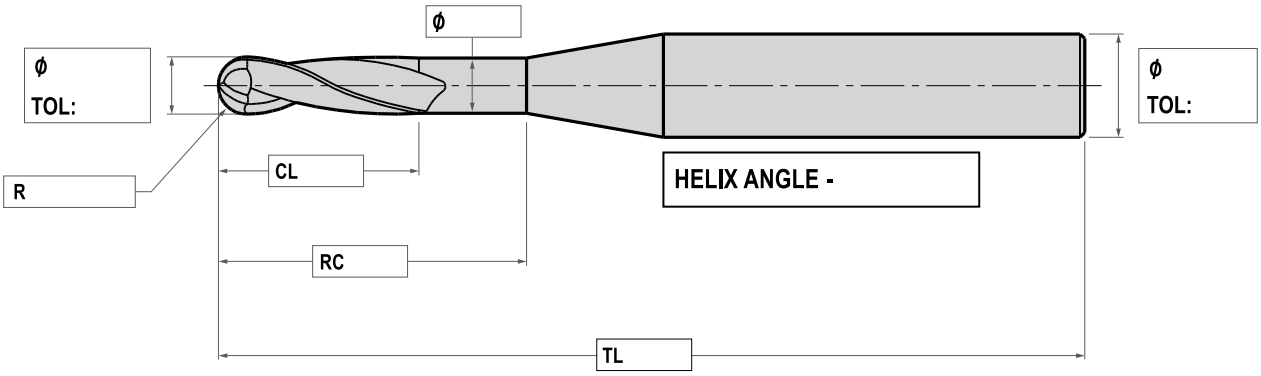
AL BN Standard Ballnose Cutters



NUMBER OF FLUTE





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

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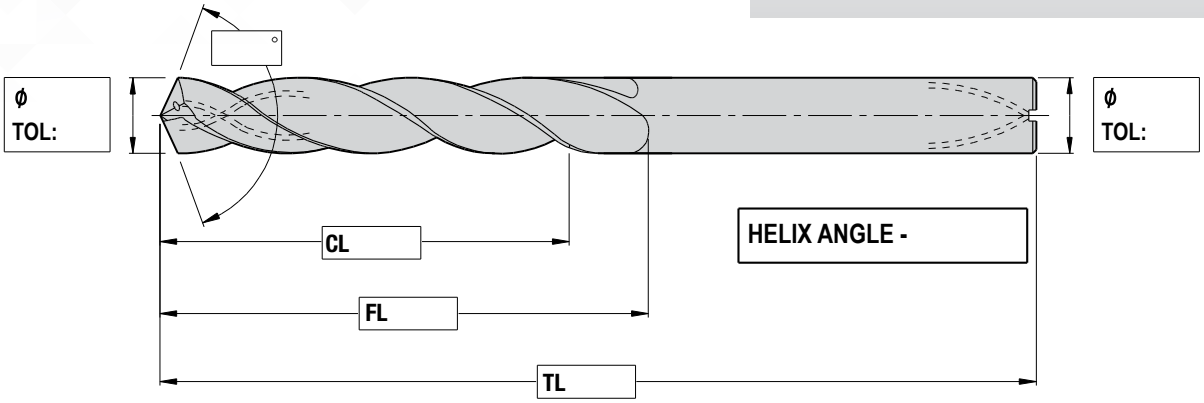
DR ALU Twist Drills

NUMBER OF FLUTE

WITHOUT OIL HOLE WITH OIL HOLE



Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

HPMT
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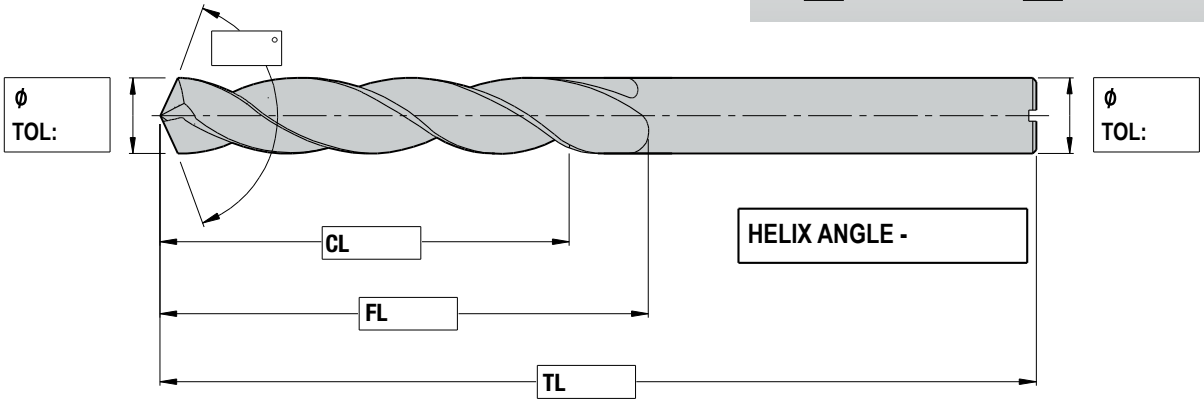
DR30 Twist Drills

NUMBER OF FLUTE

WITHOUT OIL HOLE WITH OIL HOLE



Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Flute Polished	Yes	No
Date:	Quantity:		Remark		

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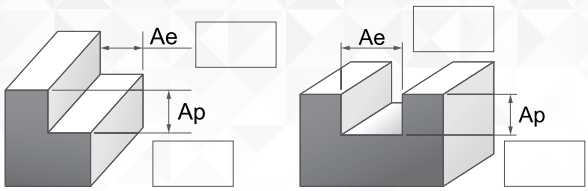
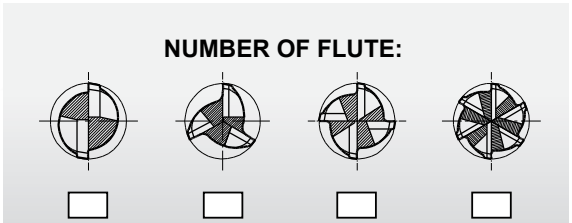
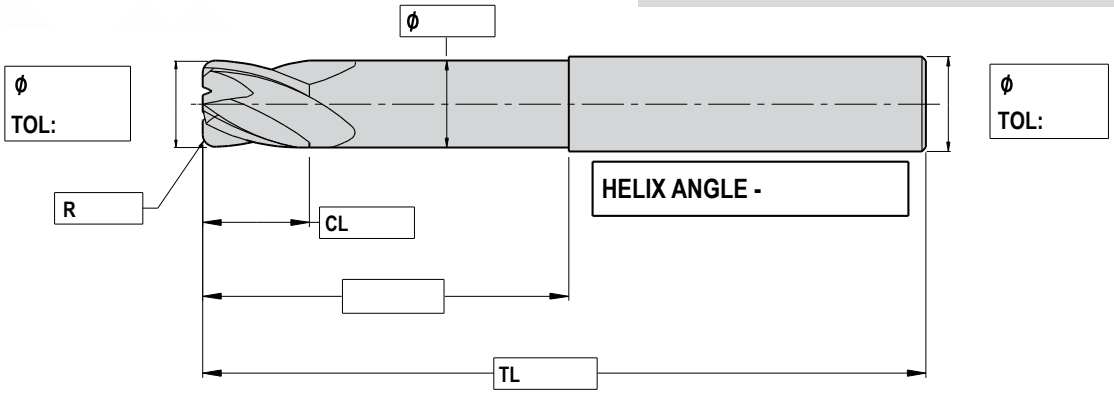
Hi-Feed Fin-Mill







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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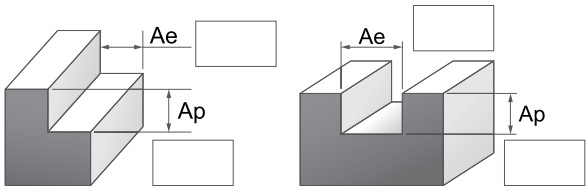
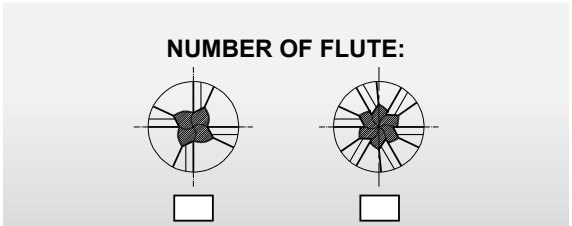
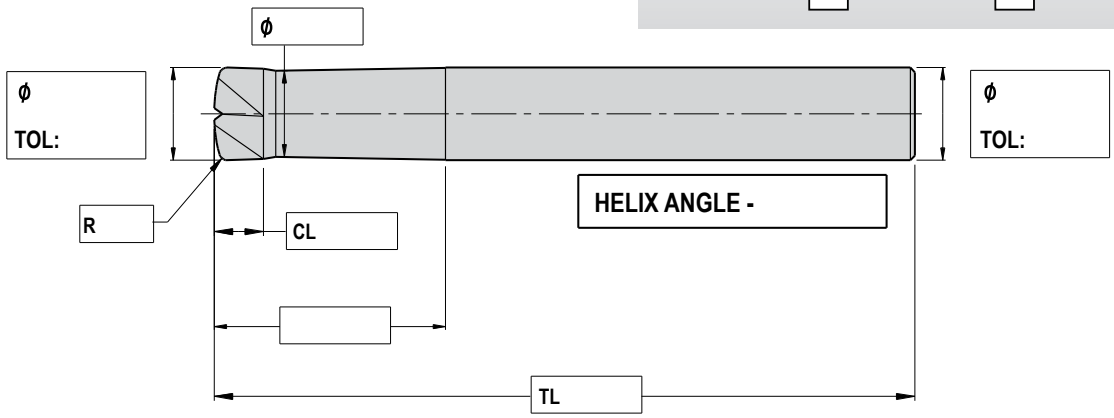
Hi-Feed Sweep-Mill







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

HPMT
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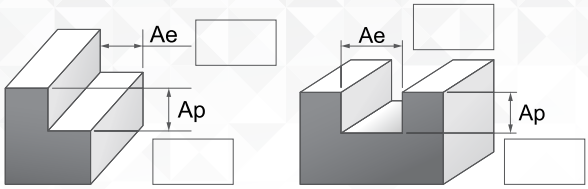
Hi-Feed Double R



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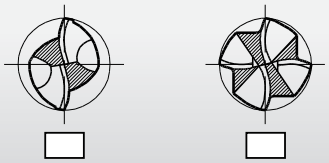

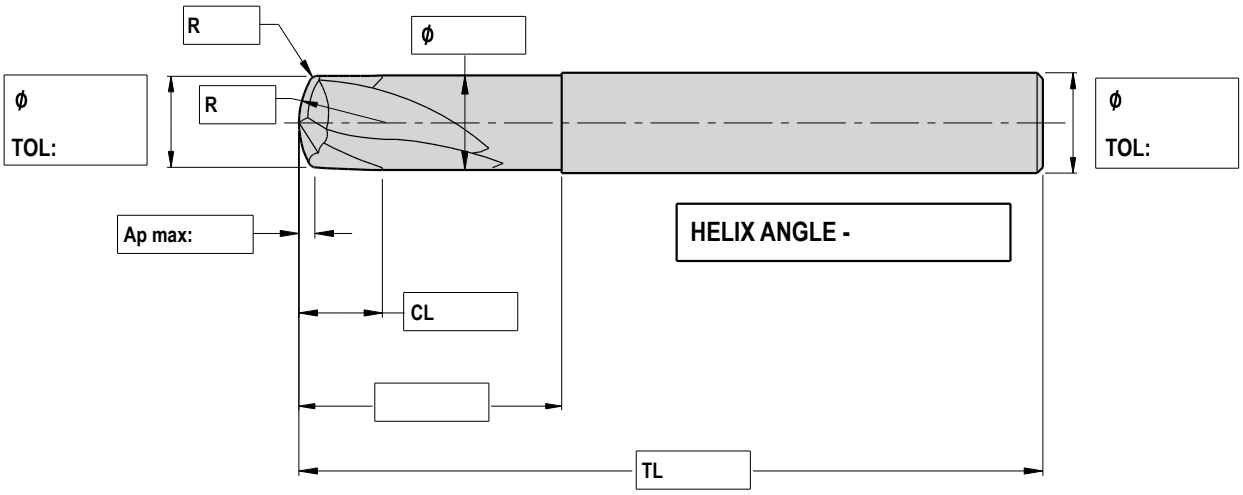

Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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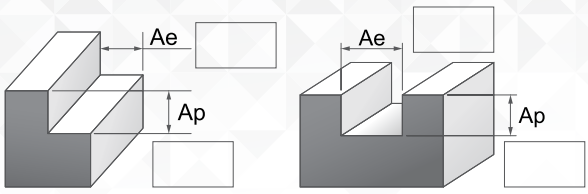
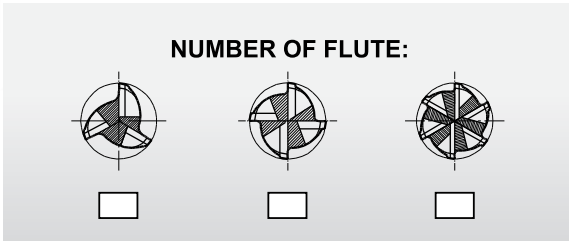
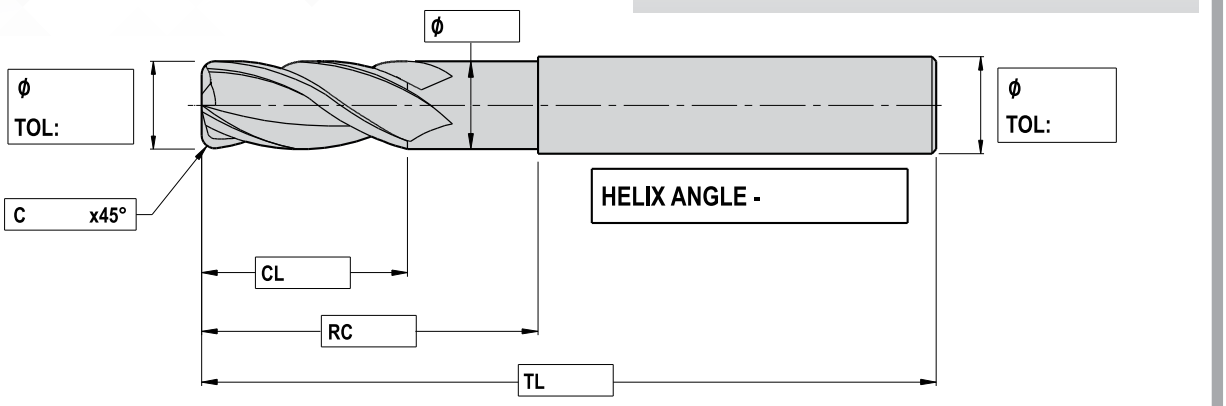
SE 45 DP NOVIANO







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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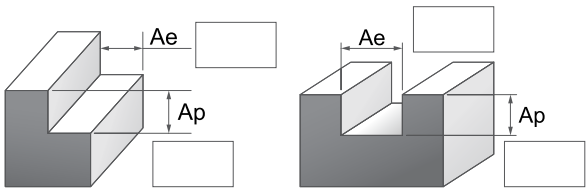
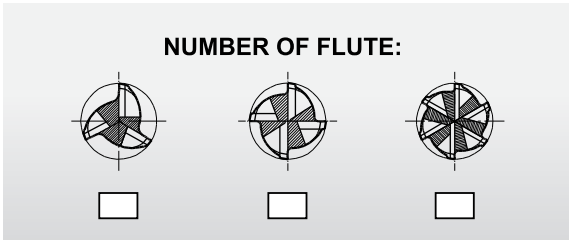
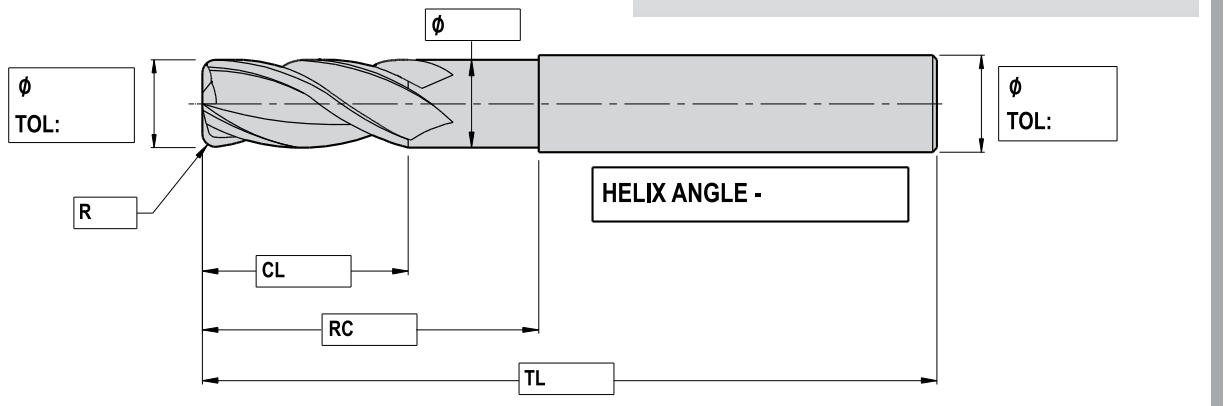
SE 45 DP NOVIANO with corner radius







Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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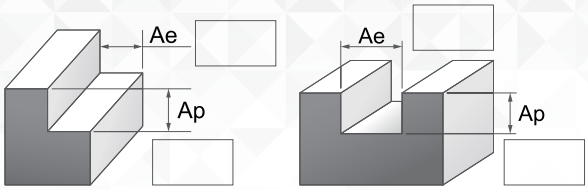
PLUNGE-MILL



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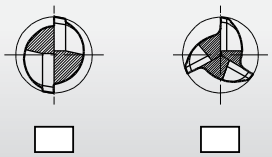

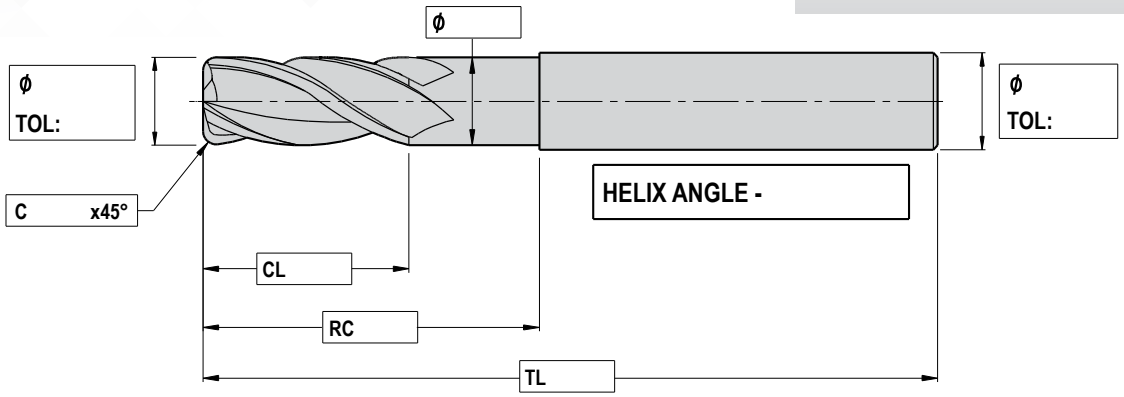

Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

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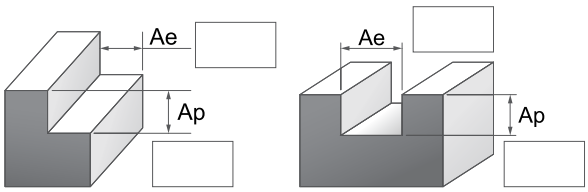
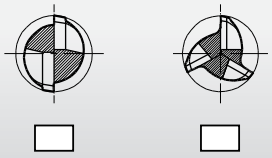
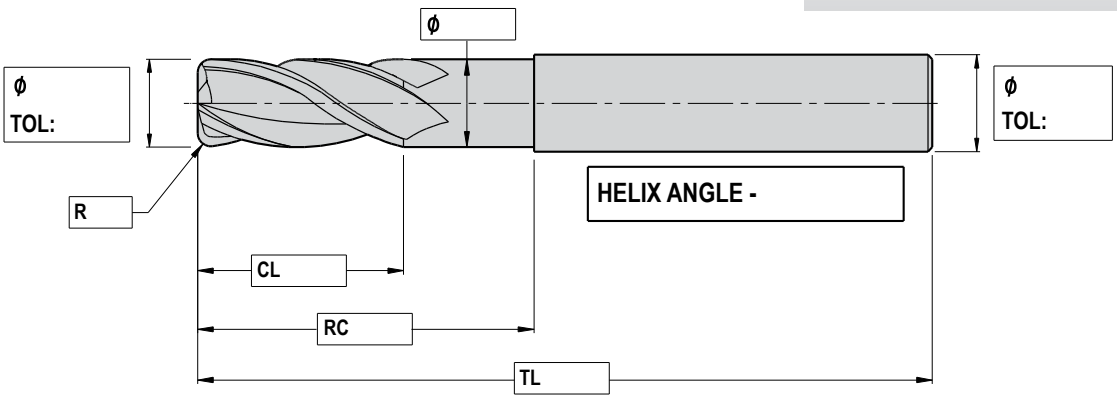
PLUNGE-MILL with corner radius



NUMBER OF FLUTE:





Customer's name			Material	UF	MG
Person (Mr / Ms)			Material to be cut		
Enquiry number			Coating		
Cutting conditions	Vc:	Vf:	Coolant	Dry	Wet
Date:	Quantity:		Remark		

HPMT INDUSTRIES SDN BHD

Warning – Safety Norms

Tools may shatter if broken. The wearing of eye protection is strongly advised in the vicinity of the working area.
The correct using condition and handling of the tools is essential to secure maximum useful life and hazard free operation.
Cutting tools have sharp edges and care must be taken, when handling, to avoid cuts/lacerations to unprotected hands.
The wearing of gloves is not recommended, as gloves may entangle with the rotating tools.
Tools may hurt the user's feet when falling off. Safety shoes should be put on at all time.

Sicherheitshinweise

Werkzeuge können splittern wenn sie zerbrechen. Schutzbrillen sollten im Arbeitsumfeld getragen werden.
Die richtige Werkzeuganwendung ist unbedingt erforderlich, um die beste Nutzung und problemfreie Einsâtze zu gewahrleisten.
Zerspanungswerkzeuge haben scharfe Kanten, deshalb muss Sorgfalt angewendet werden um Schnitte/Abschürfungen an den ungeschützten Händen zu vermeiden.
Das Tragen von Handschuhen ist nicht zu empfehlen, da Handschuhe sich mit den rotierenden Werkzeugen verwickeln können.
Die Füße des Benutzers können verletzt werden, wenn die Werkzeuge herunterfallen. Deshalb sollten Sicherheitsschuhe immer getragen werden.

Avis de sécurité

Tout outil peut s'effriter lorsqu'il se casse. L'utilisation de lunettes protectrices dans l'aire de travail est recommandée.
L'emploi et l'utilisation correcte de l'outil de coupe est essentiel afin de garantir une longue utilisation sans problèmes.
Les outils coupants ont des arrêtes aigues et des précautions sont à prendre afin d'éviter des coupures/lacérations aux mains non protégées.
L'emploi de gants n'est pas recommandé du fait que les gants peuvent s'enchêveter avec les outils en rotation.
Les outils peuvent blesser les pieds de l'utilisateur lorsqu'ils tombent. Des souliers de protection doivent être portés à tout moment.

Avviso di sicurezza

Utensili possono scheggiarsi quando si rompono. Pertanto è consigliato di portare degli occhiali di protezione nell'area di lavoro.
L'impiego e la manutenzione corretta dell'utensile è essenziale per assicurarne la longevità e lavorare senza problemi.
Utensili da taglio hanno taglienti vivi e bisogna prendere delle cautele al fine di evitare dei tagli/lacerazioni sulle mani non protette.
Non si raccomanda di portare dei guanti dato che questi possono attorcigliarsi con gli utensili in rotazione.
Quando utensili cadono, possono ferire i piedi dell'utente. Pertanto le scarpe di protezione sono da portarsi ad ogni momento.

警告 – 安全规范

刀具破损时会碎裂，在操作场所内请务必戴上眼睛保护措施。
正确保管及使用刀具，除了可以确保操作安全无虑、而且增加刀具使用寿命。
切削刀具的刃口锋利，操作使用时请务必小心，以避免对无保护双手割伤或损破。
不建议戴上手套，因手套可能会被旋转机器卷入。
刀具掉落时会伤及使用者的只脚，全程应穿上安全鞋。

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Description of the ICONS

1. Tool Material (Tungsten Carbide)

Solid Carbide

2. Corner Form

Sharp corner Edge

Corner Edge Radius
Tolerance of the Radius

Chamfer

Full Radius
Tolerance of the Radius

3. Cutting Geometry

Display Rake Angle

No Vibration

Display Helix Angle
of Flute

Taper Angle

4, 5 & 6. Z , Constructional length & Shank design

2 Flutes
3 Flutes
4 Flutes

Short
Standard
Long
Extra Long

HA = Plain Shank
HB = Weldon Shank
HE = Whistle Notch Shank

7. DR

Without Oil Hole

Internal Oil Hole

Drilling Depth

8. Coatings

Type of Coating	Coating Material	Hardness	Oxidation Resistance Temperature	Coefficient of Friction	Standard Thickness	Application Area	Coating Colour
T...n	Uncoated	-/-	-/-	-/-	-/-	-/-	-/-
B0819 HPT	ALTIN (Monolayer)	(HV 0.05) 3,300	≥ 900°C ≤ 1,000°C	0.3	3 µm	Suitable for medium and high speed, wet and drymachining and good for machining steel with hardness up to HRC 52.	Blue-Black
B0909 HSC	TiSi Based (Multilayer)	(HV 0.05) 3,600	≤ 1,200°C	0.3	2.5 - 3.5 µm	Suitable for high speed (wet/dry) and hard machining for difficult materials above HRC 52. Suitable for high speed machining with hardened steels above HRC 60	Copper
G6110 HPT	AlCrN (Monolayer)	(HV 0.05) 3,200	≤ 1,100°C	0.35	2.5 - 3.5 µm	Suitable for low to medium high speed, wet and dry machining and good for machining steel with hardness and high temperature alloy up to HRC 52.	Blue-Grey
D0700 HSC	T:AC DLC (PVD)	(GPA) 60 -95	700°C	0.1	1.2 µm	Suitable for machining graphite and composite reinforced plastic fiber glass (CRP) (e.g. graphite electrodes, crucibles, boats)	Shiny Black
DCT01 HSC	Diamond (Monolayer)	(GPA) 40 -90	≤ 600°C	0.15 - 0.20	4 - 6 µm	Suitable for machining graphite and composite reinforced plastic fiber glass (CRP) (e.g. graphite electrodes, crucibles, boats)	Dark Grey
DCT02 HSC	Diamond (Monolayer)	(GPA) 40 -90	≤ 600°C	0.15 - 0.20	8 - 10 µm	Suitable for machining graphite and composite reinforced plastic fiber glass (CRP) (e.g. graphite electrodes, crucibles, boats)	Dark Grey
D0120 HSC	TiSi Based (Multilayer)	(HV 0.05) 3,600	≤ 1,200°C	0.3	2 - 3 µm	Suitable for high performance drilling in difficult machinning material.	Copper

* HSC = High Speed Cutting | HPT = High Performance Tools

Description of the ICONS

Beschreibung der Symbole	图标说明（刀具规格）	Descriptions des symboles	Descrizione dei simboli
1. Werkstoffe (Vollhartmetall)	刀具材质(钨钢)	Matières de coupe (carbures monobloc)	Materiali da taglio (metallo duro integrale)
VHM	硬质合金	Carbures monobloc	Metallo duro
2. Eckenformen	刃鼻形式	Formes des angles	Forme degli angoli
Scharfe Schneidecken	直角	Angles vifs	Angolo acuto/vivo
Eckenradius - Torusfräser Radius - Toleranz	圆弧鼻角 圆弧公差	Angles à rayon - toriques tolérance des rayons	Angolo a raggio - toroidale tolleranza del raggio
Radius - Fräser Radius - Toleranz	球头 圆弧公差	Bout hémisphérique tolérance des rayons	a raggio tolleranza del raggio
Chamfer	倒角	Chamfer	Chamfer
3. Schneidengeometrien	刃口几何设计	Géometries de coupe	Geometrie da taglio
Größe des Spanwinkels	前角	Indique la valeur de l'angle de coupe	Indica il valore dell'angolo di taglio
Größe des Drallwinkels	螺旋角	Indique la valeur de l'angle d'hélice	Indica il valore dell'angolo dell'elica
Verjüngungswinkel	锥度	angle du cône	angolo di conicità
Keine Vibrationen	无振动	Pas de vibrations	senza vibrazioni
4. Z	刃数	Z	
2 nutig 3 nutig 4 nutig	2 刃 3 刃 4 刃	2 goujures 3 goujures 4 goujures	2 taglienti 3 taglienti 4 taglienti
5. Längen	长度规格	Longueurs	
Kurz Standard Lang Extra-lang	短 标准 中长 加长	Courte Standard Longue Extra-longue	Corta Standard Lunga Extra-lunga
6. Schaftarten	刀柄形式	Types de queues	
HA = Zylinderschaft HB = Zylinderschaft mit Weldon Fläche HE = Zylinderschaft mit	HA = 平刀柄 HB = 平侧楔刀柄 HE = 斜侧楔刀柄	HA = queue cylindrique HB = queue cylindrique et méplat Weldon HE = queue cylindrique et	HA = codolo cilindrico HB = codolo cilindrico con piano Weldon HE = codolo cilindrico con

Description of the ICONS

Beschreibung der Symbole	图标说明（刀具规格）	Descriptions des symboles	Descrizione dei simboli
7. DR	钻头	DR	DR
Ohne Ölbohrung	无油孔	Sans Trou D'huile	Senza Foro Di Olio
Interne Ölbohrung	内部油孔	Trou D'huile Interne	Olio Di Foro Interno
Bohrung Tiefe	钻孔深度	La Profondeur De Forage	Perforazione Profondità
8. Oberflächen-Beschichtungen	表面涂层	Revêtements des surfaces	Tipi dirivestimenti
Unbeschichtet	硬质合金	sans revêtement	senza rivestimento
Schichtmaterial: AlTiN (einschichtig) Mikrohärte (HV 0,05): 3,300 Max. Anwendungstemperatur: ≥ 900°C ≤ 1000°C Reibungskoeffizient 0.3 Schichtdicke : 3 µm	涂层材料 = 氮化铝钛（单层膜） 微硬度（HV 0.05）：3,300 最高工作温度：≥ 900℃ ≤ 1000° C 摩擦系数：0.3 厚度：3 微米	Revêtement = AlTiN (Monocouche) Dureté (HV 0,05): 3,300 Température max. d'utilisation: ≥ 900°C ≤ 1000°C Coefficient de friction: 0,25 Épaisseur du revêtement: 3 microns	Rivestimento AlTiN = (monostrato) Microdurezza (HV 0,05): 3,300 Temperatura massima di lavoro: ≥ 900°C ≤ 1000°C Coefficiente di frizione: 0,25 Spessore del rivestimento: 3 microns
Schichtmaterial:TiSi basierend (mehrlagig) Mikrohärte (HV 0,05): 3,600 Max. Anwendungstemperatur: ≥ 1200°C Reibungskoeffizient 0.3 Schichtdicke : 2.5 ~ 3.5 µm	涂层材料 = 钛矽基层(多层次涂层) 微硬度（HV 0.05）：3,600 最高工作温度：≥ 1200℃ 摩擦系数：0.3 厚度：2.5 ~ 3.5微米	Revêtement = à base de TiSi (multi couches) Dureté (HV 0,05): 3,600 Température max. d'utilisation: ≥ 1200°C Coefficient de friction: 0,3 Épaisseur du revêtement: 2.5 ~ 3.5 microns	Rivestimento = a base di TiSi (multi strato) Microdurezza (HV 0,05): 3,600 Temperatura massima di lavoro: ≥ 1200°C Coefficiente di frizione: 0,25 Spessore del rivestimento: 2.5 ~ 3.5 microns
Schichtmaterial:AlCrN (einschichtig) Mikrohärte (HV 0,05): 3,200 Max. Anwendungstemperatur: ≤ 1100°C Reibungskoeffizient 0.35 Schichtdicke : 2.5 ~ 3.5 µm	涂层材料 = 氮化铬铝（单层膜） 微硬度（HV 0.05）：3,200 最高工作温度：≤ 1100° C 摩擦系数：0.35 厚度：2.5 ~ 3.5微米	Revêtement = AlCrN (monocouche) Dureté (HV 0,05): 3,200 Température max. d'utilisation: ≤ 1100°C Coefficient de friction: 0,35 Épaisseur du revêtement: 2.5 ~ 3.5 microns	Rivestimento = AlCrN (monostrato) Microdurezza (HV 0,05): 3,200 Temperatura massima di lavoro: ≤ 1100°C Coefficiente di frizione: 0,35 Spessore del rivestimento: 2.5 ~ 3.5 microns
Schichtmaterial:T:AC DLC (PVD) Härte (GPA): 60 - 95 Max. Anwendungstemperatur: 700°C Reibungskoeffizient 0.1 Schichtdicke : 1 µm	涂层材料 = T:AC DLC PVD 涂层微硬度（GPA）：60 – 95 最高工作温度：700° C 摩擦系数：0.1 厚度：1微米	Revêtement = T:AC DLC (PVD) Dureté (GPA): 60 - 95 Température max. d'utilisation: 700°C Coefficient de friction: 0,1 Épaisseur du revêtement: 1 microns	Rivestimento = T:AC DLC (PVD) Durezza (GPA): 60 - 95 Temperatura massima di lavoro: 700°C Coefficiente di frizione: 0,1 Spessore del rivestimento: 1 microns
Schichtmaterial: Diamanten (einschichtig) Härte (GPA): 40 - 90 Max. Anwendungstemperatur: 600°C Reibungskoeffizient 0.15 - 0.20 Schichtdicke : 4 - 6 µm	涂层材 = 钻石（单层膜） 微硬度（GPA）：40 – 90 最高工作温度（° C）≤ 600 摩擦系数 = 0.15 – 0.20 厚度：4 ~ 6 微米	Revêtement = diamanté (monocouche) Dureté (GPA) : 40 - 90 Température max. d'utilisation: (°C) ≤ 600 Coefficient de friction = 0,15 - 0,20 Épaisseur: 4 ~ 6 microns	Rivestimento = diamanti (monostrato) Durezza (GPA) : 40 - 90 Temperatura massima di lavoro (°C) ≤ 600 Coefficiente di frizione = 0,15 - 0,20 Spessore rivestimento: 4 ~ 6 micron
Schichtmaterial: Diamanten (einschichtig) Härte (GPA): 40 - 90 Max. Anwendungstemperatur: 600°C Reibungskoeffizient 0.15 - 0.20 Schichtdicke : 8 - 10 µm	涂层材 = 钻石（单层膜） 微硬度（GPA）：40 – 90 最高工作温度（° C）≤ 600 摩擦系数 = 0.15 – 0.20 厚度：8 ~ 10 微米	Revêtement = diamanté (monocouche) Dureté (GPA) : 40 - 90 Température max. d'utilisation: (°C) ≤ 600 Coefficient de friction = 0,15 - 0,20 Épaisseur: 8 ~ 10 microns	Rivestimento = diamanti (monostrato) Durezza (GPA) : 40 - 90 Temperatura massima di lavoro (°C) ≤ 600 Coefficiente di frizione = 0,15 - 0,20 Spessore rivestimento: 8 ~ 10 micron
Schichtmaterial: TiSi basierend (mehrlagig) Mikrohärte (HV 0,05): 3,600 Max. Anwendungstemperatur: 1200°C Reibungskoeffizient 0.3 Schichtdicke : 2~3 µm	涂层材料 = 钛矽基层（多层次涂层） 微硬度（HV 0.05）：3,600 最高工作温度：≥ 1200℃ 摩擦系数：0.3 厚度：2 ~ 3 微米	Revêtement = à base de TiSi (multi couches) Dureté (HV 0,05): 3,600 Température max. d'utilisation: ≥ 1200°C Coefficient de friction: 0,3 Épaisseur du revêtement: 2 ~ 3 microns	Rivestimento = a base di TiSi (multi strato) Microdurezza (HV 0,05): 3,600 Temperatura massima di lavoro: ≥ 1200°C Coefficiente di frizione: 0,25 Spessore del rivestimento: 2 ~ 3 microns

Description of the ICONS

Beschreibung der Symbole | 图标说明 (刀具规格) | Descriptions des symboles | Descrizione dei simboli

9. Tolerances | Toleranzen | 公差 | Tolérances | Tolleranze

Ø mm	Tol. µm					
	HPMT	h6	h7	h9	m7	H7
0.1 ~ 2.9	- 0 / -20	0 / - 6	0 / - 6	0 / - 25	+ 12 / + 2	+ 10 / 0
3.0 ~ 6.0	- 0 / - 25	0 / - 8	0 / - 12	0 / - 30	+ 16 / + 4	+ 12 / 0
6.0 ~ 10.0	- 0 / - 30	0 / - 9	0 / - 15	0 / - 36	+ 21/ + 6	+ 15/ 0
10.0 ~ 18.0	- 0 / - 30	0 / - 11	0 / - 18	0 / - 43	+ 25 / + 7	+ 18 / 0
18.0 ~ 30.0	- 0 / - 30	0 / - 13	0 / - 21	0 / - 52	+ 29 / + 8	+ 21 / 0

No.	Material Groups	Materialgruppen	材质主类
M02	Aluminium commercial pure Al-Alloys wrought	Aluminiumlegierungen, rein	铝（商业等级纯度）、 精炼铝合金
M03	Copper pure	Reinkupfer	纯铜
M04	Zinc-Alloys, Magnesium alloys	Zink-Legierungen	锌合金
M05	Aluminium-Slilicon Alloys Cast, below 10% Si	Al-Si Legierungen Alu-Guß < 10% Si	铝－硅合金铸件, 硅含量小于10%
M06	Aluminium-Slilicon Alloys Cast, 10%-14% Si	Al-Si Legierungen Alu-Guß 10% bis 14% Si	铝－硅合金铸件, 硅含量10% ~ 14%
M07	Aluminium-Slilicon Alloys Cast, more than 14% Si	Al-Si Legierungen Alu-Guß mit mehr als 14% Si	铝－硅合金铸件, 硅含量大于14%
M08	Brass	Messing	黄铜
M09	Bronze	Bronze	青铜
M10	Cast iron GG 10 ... GG 20 Cobalt Chrome	Gußeisen, weich GG 10 ... GG 20	软质铸铁 GG10.....GG20
M11	Cast iron GG 25 ... GG 35	Gußeisen GG 25 ... GG 35	铸铁 GG25.....GG35
M12	Nodular iron (SG-iron) GGG40-GGG50	Gußeisen mit Kugelgraphit GGG40 - GGG50	球墨铸铁 GGG40 ~ GGG50
M13	Nodular iron (SG-iron) GGG60-GGG90	Gußeisen mit Kugelgraphit GGG60 - GGG90	球墨铸铁 GGG60 ~ GGG90
M14	Malleable iron	Temperguß	可锻铸铁
M15	Steel and Cast Steel up to 700 N/mm²-210 HB	Stahl und Stahlguß bis 700 N/mm² - 210 HB	钢材或铸钢, 抗拉强度 < 700N/mm², 布氏强度 < 210HB
M18	Steel and Cast Steel from 700 N/mm² up to 1000 N/mm² ~ 30 HRC-210-295 HB	Stahl und Stahlguß von 700 N/mm² bis 1000 N/mm² ~ 30 HRC - 210 - 295 HB	钢材或铸钢, 抗拉强度 700 ~ 1000N/mm², 洛氏硬度 <30 HRC, 布氏强度 210 ~ 295HB
M22	Steel from 1300 N/mm² to 1600 N/mm² spring steel - hard wearing resistant steel ~40 HRc - 360 - 440 HB	Stähle von 1300 N/mm² bis 1600 N/mm² Federbandstahl - hart ~ 40 HRC - 360 - 440 HB	钢材或铸钢, 抗拉强度 1300 ~ 1600N/mm², 硬质弹簧钢; 耐磨钢, 洛氏硬度 <40 HRC, 布氏强度 360 ~ 440HB
M25	Steel from 1000 N/mm² to 1300 N/mm² ~35 HRC - 295 - 360 HB	Stähle von 1000 N/mm² bis 1300 N/mm² ~ 35 HRC - 295 - 360 HB	钢材或铸钢, 抗拉强度达 1300N/mm², 洛氏硬度 <35 HRC, 布氏强度 295 ~ 360HB
M31	Heat-Resistant Steel	Hitzebeständige Stähle	耐热钢
M16	Stainless Steel up to 35 HRC	Rostfreie Stähle	不锈钢,沃斯田铁系SUS300
M20	Stainless Steel more than 35 HRC	Rostfreie Stähle (≤ 2% Ni)	不锈钢,麻田散铁系SUS400
M17	Titanium commercial Titanium alloys up to 35 HRC	Titanium, rein Titanium Legierungen bis 700 N/mm²	钛（商业等级）、钛合金, 抗拉强度 < 700N/mm², 布氏强度 < 210HB
M19	Ni and Co Alloys up to 900 N/mm² - 266 HB	Ni- und Co-Legierungen bis 900 N/mm² - 266 HB	镍、钴基合金钢, 抗拉强度 < 900N/mm², 布氏强度 < 266HB
M21	Titanium commercial Titanium alloys over 35 HRC	Titanium, rein Titanium Legierungen über 700 N/mm²	钛-商业等级、钛合金,抗拉强度 >于700N/mm², 布氏强度 < 210HB
M23	Ni and Co Alloys up to 1200 N/mm² ~ 35 HRC - 266 - 352 HB	Ni- und Co-Legierungen bis 1200 N/mm² ~ 35 HRC - 266 - 352 HB	镍、钴基合金钢, 抗拉强度 < 1200N/mm², 洛氏硬度 <35 HRC, 布氏强度 266 ~ 352HB
M24	Ni and Co Alloys more than 1200 N/mm² ~ 45 HRC-> 352 HB	Ni- und Co-Legierungen über 1200 N/mm² ~ 45 HRC - > 352 HB	镍、钴基合金钢, 抗拉强度 > 1200N/mm², 洛氏硬度 < 45 HRC, 布氏强度 > 352HB
M32	Nickel base alloys pre-hardened (e.g INCONEL 718)	Nickel Legierungen (z.B. INCONEL 718)	预硬镍基合金 (例: 铬镍基合金 718)
M26	Hardened Steel ~ 52 HRC	Gehärtete Stähle ~ 52 HRC	预硬钢, 洛氏硬度 < 52HRC
M27	Chilled cast iron	Hartguß	冷硬铸铁
M28	Hardened Steel ~ 52 - 65 HRC	Gehärtete Stähle ~ 52 - 65 HRC	预硬钢, 洛氏硬度 52 ~ 65HRC
M33	Hardened Steel ~ 63 - 68 HRC	Gehärtete Stähle ~ 63 - 68 HRC	高硬度钢 ~ 63 ~ 68 HRC
M01	Thermoplastics without fillers	Thermoplaste	热塑性塑料（无纤维）
M29	Plastic, reinforced with organic fillers	Kunststoffe mit organischer Füllung	塑料（生化纤维加劲）
M30	Graphite	Grafit	石墨

Groupes matière	Gruppi materiali
Alliages d'aluminium, pures	Leghe di alluminio
Cuivres non alliés	Rame senza leghe
Allianges de zinc	Leghe di zinco
Alliages d'aluminium avec < 10% Si	Leghe di alluminio-silicio con < 10% Si
Alliages d'aluminium avec Si entre 10% et 14%	Leghe di alluminio-silicio con Si tra 10% e 14%
Alliages d'aluminium avec plus de 14% de Si	Leghe di alluminio-silicio con più di 14% di Si
Laitons	Ottone
Bronzes	Bronzi
Fontes, douces GG 10 ... GG 20	Ghise, dolci GG 10 ... GG 20
Fontes GG 25 ... GG 35	Ghise GG 25 ... GG 35
Fontes nodulaires GGG40 - GGG50	Ghise sferoidali GGG40 - GGG50
Fontes nodulaires GGG60 - GGG90	Ghise sferoidali GGG60 - GGG90
Fontes malléables	Ghise speciali
Aciers et aciers coulés jusqu'à 700 N/mm²	Acciai ed acciai fusi fino a 700 N/mm² - 210 HB
Aciers et aciers coulés de 700 N/mm² à 1000 N/mm² ~ 30 HRC - 210 - 295 HB	Acciai ed acciai fusi da 700 N/mm² a 1000 N/mm² ~ 30 HRC - 210 - 295 HB
Aciers de 1000 N/mm² à 1600 N/mm² aciers à ressort - dur aciers résistants à l'usure ~ 40 HRC - 360 - 440 HB	Acciai da 1300 N/mm² a 1600 N/mm² acciai a molla - duri acciai resistenti all'usura ~ 40 HRC - 360 - 440 HB
Aciers de 1000 N/mm2 à 1300 N/mm² ~ 35 HRC - 295 - 360 HB	Acciai da 1000 N/mm2 a 1300 N/mm² ~ 35 HRC - 295 - 360 HB
Acier résistant à la chaleur	Acciai refrattari
Aciers inoxydables	Acciai inossidabili
Aciers inoxydables, ferritiques	Acciai inossidabili, ferritici
Titane, pure Allliages de titane jusquà 700 N/mm²	Titanio Leghe di titanio fino a 700 N/mm²
Alliages de Ni et Co jusqu'à 900 N/mm² - 266 HB	Leghe al Ni e Co fino a 900 N/mm² - 266 HB
Titane, pure Allliages de titane > 700 N/mm²	Titanio Leghe di titanio oltre 700 N/mm²
Alliages de Ni et Co jusqu'à 1200 N/mm² ~ 35 HRC - 266 - 352 HB	Leghe al Ni e Co fino a 1200 N/mm² ~ 35 HRC - 266 - 352 HB
Alliages de Ni et Co au delas de1200 N/mm² ~ 45 HRC - > 352 HB	Leghe al Ni e Co oltre 1200 N/mm² ~ 45 HRC- > 352 HB
Alliages à base de nickel pré-durcis (e.g INCONEL 718)	Leghe al Ni pretrattate (p.es. INCONEL 718)
Aciers trempés ~ 52 HRC	Acciai temperati ~ 52 HRC
Fontes dures	Ghise dure
Aciers trempés ~ 52 - 65 HRC	Acciai temperati ~ 52 - 65 HRC
Aciers trempés ~ 63 - 68 HRC	Acciai temperati ~ 63 - 68 HRC
Thermoplastiques	Termoplastici
Matières plastiques avec composants organiques	Materiali plastici con fibre organiche
Graphite	Grafite

APPENDIX

		GERMANY		ITALY	FRANCE	USA	JAPAN	
ISO	Materials	W.Nr.	DIN	UNI	AFNOR	AISI/SAE/ASTM	JIS	HPMT
N -non- Ferrous metals	Pure aluminium	3.0205	Al99				A1200	M02
		3.0305	Al99.9					M02
	Al wrought alloys	3.0505	AlMn0.5Mg0.5				A3105	M02
		3.0915	AlFeSi					M05
		3.3315	AlMg1				A5005	M02
		3.3525	AlMg2Mn0.3					M02
		3.3527	AlMg2Mn0.8					M02
		3.3545	AlMg4Mn				A5086	M02
		3.3555	AlMg5				A5056	M02
		3.0615	AlMgSiPb					M05
		3.1255	AlCuSiMn				A2014	M05
		3.1325	AlCuMg1				A2017	M02
		3.1355	AlCuMg2				A2024	M02
		3.1645	AlCuMgPb					M02
		3.4335	AlZn4.5Mg1				A7N01	M02
	Al Casting alloys	3.1371	G-AlCu4TiMg				AC1B	M05
		3.2134	G-AlSi5Cu1Mg				AC4D	M05
		3.3241	G-AlMg3Si					M05
		3.3261	G-AlMg5Si					M05
		3.3541	G-AlMg3					M05
		3.2373	G-AlSi9Mg				AC4A	M07
		3.2381	G-AlSi10Mg					M07
		3.2383	G-AlSi10Mg(Cu)				ADC3	M07
		3.2581	G-AlSi12				AC3A	M07
		3.2583	G-AlSi12(Cu)				ADC1	M07
	Pure copper	2.0060	E-Cu57					M03
		2.0065	E-Cu58					M03
	Cu wrought alloys	2.1525	CuSi3Mn					M03
		2.0855	CuNi2Si					M03
		2.1247	CuBe2					M03
		2.1285	CuCo2Be					M03
	Brass	2.0240	CuZn15					M08
		2.0250	CuZn20					M08
		2.0265	CuZn30					M08
		2.0280	CuZn33					M08
		2.0321	CuZn37					M08
		2.0360	CuZn40					M08
		2.0410	CuZn44Pb2					M08
		2.0550	CuZn40Al2					M08
	Bronze	2.1016	CuSn4					M09
		2.1020	CuSn6					M09
		2.1030	CuSn8					M09
		2.1086	G-CuSn10Zn					M09
		2.0978	CuAl11Ni6Fe5					M09
		2.0940	CuAl10Fe					M09
		2.0882	CuNi30Mn1Fe					M09
	Magnesium alloys	3.5312	MgAl3Zn					M04
		3.5632	MgAl6Zn3					M04
		3.5912	MgAl9Zn1					M04
		3.5161	MgZn6Zr					M04
	Cobalt chrome		Co28Cr6Mo					M10
P - Steel	Unalloyed steel	1.0038	Rst 37-2		E 24-2 Ne	A570.36	STKM 12AC	M15
	Mild/magnetic	1.1015	RFe60					M15
		1.1014	Rfe80					M15
		1.1013	Rfe100					M15
	Structural	1.0037	St 37-2	Fe360B	E 24-2	1015	STKM12C	M15
		1.0044	St 44-2	Fe430B	E 28-2	1020	SM400C	M15
		1.0050	St 50-2	Fe490	A 50-2	A 570(50)	SS490	M15
		1.0060	St 60-2	Fe590	A 60-2	A 572(65)	SM570	M15
		1.0570	St 52-3	Fe510B	E 36-3	1024		M15
	Case hardening	1.0301	C10	C10	C10	1010	S10C	M15
		1.0401	C15	C15	C18	1015	S15C	M15
		1.7131	16MnCr5	16MnCr5	16 MC 5	5115		M15
		1.7147	20MnCr5	20MnCr5	20 MC 5	5120	SMnC420H	M15
		1.7243	18CrMo4	18CrMo4				M15
		1.5919	15CrNi6	16CrNi4	16 NC 6			M15
		1.6523	20NiCrMo2	20NiCrMo2	20 NCD 2	8620		M18
		1.6587	17CrNiMo6	18CrNiMo7	18 NCD 6			M18
	Nitriding	1.8515	31CrMo12	31CrMo12	30 CD 12			M18
		1.8519	31CrMoV9	31CrMoV10				M18
		1.8507	34CrAlMo7	34CrAlMo7	30 CAD 6.12			M18
		1.8509	41CrAlMo7	41CrAlMo7	40 CAD 6.12		SACM645	M18
	Free cutting	1.0711	9S20	9S20		1212		M18
		1.0715	9SMn28	9SMn28	S 250	1213	SUM22	M18
		1.0718	9SMnPb28	9SMnPb28	S 250 Pb	12 L 13	SUM22L	M18
		1.0726	35S20	35S20	35 MF 4	1140		M18
		1.0736	9SMn36	9SMn36	S300	1215	SUM25	M18
		1.0737	9SMnPb36	9SMnPb36	S 300 Pb	12 L 14		M18
	Heat-treatable	1.0406	C25	C25	AF 50 C 30	1025		M25
		1.0528	C30	C30		1030		M25
		1.0501	C35	C35	AF 55 C 35	1035	S35C	M25
		1.0511	C40	C40	AF 60 C 40	1040		M25
		1.1191	C45	C45	AF 65 C 45	1045	S45C	M25
		1.0540	C50	C50		1050		M25
		1.1203	C55	C55	C54	1055	S55C	M25
		1.1221	C60	C60	C60	1060	S58C	M25
		1.7035	41Cr4	41Cr4	41Cr4	5140	SCr440(H)	M25
		1.8159	51CrV4	51CrV4	50 CV 4	6145	SUP10	M25
		1.7218	25CrMo4	25CrMo4	25 CD 4	4130	SCM420	M25
		1.7220	34CrMo4	34CrMo4	35 CD 4	4137	SCM432	M25
		1.7225	42CrMo4	42CrMo4	42 CD 4		SCM440	M25
		1.7228	50CrMo4	50CrMo4	50CrMo4	4150	SCM445(H)	M25
		1.6580	30CrNiMo8	30CrNiMo8	30 NCD 8		SNCM431	M25
		1.6582	34CrNiMo6	34CrNiMo6	35 NCD 6	4337	SNC447	M25
		1.6511	36CrNiMo4	36CrNiMo4	40 NCD 3	4340		M25
		1.6773	36CrNiMo16	36CrNiMo16				M25
	Ball bearing	1.3505	100Cr6	100Cr6	100C6	52100		M25
		1.3536	100CrMo7-3	100CrMo7				M25
	Spring	1.1231	Ck67	Ck67	XC 68			M22
		1.1248	Ck75	Ck75		1078		M22
		1.1269	Ck85	Ck85	C90			M22
		1.1274	Ck101	Ck100	C100		SUP4	M22
		1.5021		48Si7				M22

			GERMANY	ITALY	FRANCE	USA	JAPAN	
ISO	Materials	W.Nr.	DIN	UNI	AFNOR	AISI/SAE/ASTM	JIS	HPMT
P - Steel	Spring	1.5026	55Si7	55Si7	56SC7			M22
		1.5027		60Si7	60Si7			M22
		1.7108	60SiCr7	60SiCr7				M22
		1.8159	50CrV4	50CrV4	50 CV 4		SUP10	M22
		1.7176	55Cr3	55Cr3	55 C 3	5155	SUP9(A)	M22
		1.7701	51CrMoV4	51CrMoV4				M22
	Superficial Hardening	1.1183	Cf35	C36	XC 68 H1TS			M22
		1.1193	Cf45	C43	XC 42 H1TS			M22
		1.1213	Cf53	C53	XC 48 H1TS	1050		M22
		1.7005	45Cr2	45Cr2				M32
		1.7043	38Cr4	38Cr4				M32
		1.7034	37Cr4	36CrMn4	38 C 4	5135	SCr435H	M32
		1.7223	41CrMo4	41CrMo4	42 CD 4 TS	4140	SCM440	M32
	Hot-work	1.2767	45NiCrMo16	40NiCrMoV16 KU	Y35NCD16			M32
		1.2713	55NiCrMoV7	55NiCrMoV7 KU	55NiCrMoV7			M32
		1.2311		35CrMo8 KU				M32
		1.2365	32CrMoV12-28	30CrMoV12-27 KU	32CDV12-28	H10		M32
		1.2343	X38CrMoV5-1	X37CrMoV5-1 KU	Z38CDV5	H11	SKD2	M32
		1.2344	X40CrMoV5-1	X40CrMoV5-1-1 KU	Z40CDV5	H13	SKD61	M32
		1.2567	X30WCrV5-3	X30WCrV5-3 KU	Z32WCV5		SKD4	M32
		1.2581	X30WCrV9-3	X30WCrV9-3 KU	Z30WCV9	H21	SKD5	M32
M- Stainless Steel	Ferritic stainless	1.4002	X6CrAl13	X6CrAl13	Z 8 CA 12	405	SUS405	M16
		1.4512	X2CrTi12	X6CrTi12	Z 3 CT 12	409	SUS409	M16
		1.4016	X6Cr17	X8Cr17	Z 8 C 17	430	SUS430	M16
		1.4104	X14CrMoS17	X10CrS17	Z 13 CF 17	430F	SUS430F	M16
	Martensitic stainless steel	1.4006	X12Cr13	X12Cr13	Z 10 C 13	410	SUS410	M16
		1.4005	X12CrS13	X12CrS13	Z 11 CF 13	416	SUS416	M16
		1.4021	X20Cr13	X20Cr13	Z 20 C 13	420	SUS420J1	M16
		1.4028	X30Cr13	X30Cr13	Z 30 C 13	420F	SUS420J2	M16
		1.4057	X17CrNi16-2	X16CrNi16	Z 15 CN 16-02	431	SUS431	M16
		1.4125	X105CrMo17		Z 100 CD 17	440C	SUS440C	M16
	Precipitation hardening	1.4542	X5CrNiCuNb16-4		Z 7 CNU 15-05	630	SUS630/SCS24	M20
	Austenitic stainless steel	1.4319	X3CrNiN17-8	X10CrNi1809		302	SUS302	M16
		1.4305	X8CrNiS18-9	X10CrNiS1809	Z 8 CNF 18-09	303	SUS303	M16
		1.4301	X5CrNi18-10	X5CrNi1810	Z 4 CN 19-10 FF	304	SUS304	M16
		1.4306	X2CrNi19-11	X2CrNi1811	Z 1 CN 18-12	304L	SUS304L/SCS19	M16
		1.4303	X4CrNi18-12	X8CrNi1812	Z 5 CN 18-11 FF	305	SUS305J1	M16
		1.4828	X15CrNiSi20-12	X16CrNi2314	Z 9 CN 24-13	309	SUH309	M16
		1.4841	X15CrNiSi25-20	X22CrNiSi2520	Z 15 CNS 25-20	310	SUH310	M16
		1.4401	X5CrNiMo17-12-2	X5CrNiMo1712	Z 3 CND 17-11-01	316	SUS316	M16
		1.4404	X2CrNiMo17-12-2	X2CrNiMo1712	Z 2 CND 17-12	316L	SUS316L	M16
		1.4541	X6CrNiTi18-10	X6CrNiTi1811	Z 6 CNT 18-10	321	SUS321	M16
		1.4550	X6CrNiNb18-10	X6CrNiNb1811	Z 6 CNNb 18-10	347	SUS347	M16
	Duplex	1.4462	X2CrNiMoN22-5-3	X2CrNiMoN22-5-3	Z 3 CND 22-05 Az		SUS329J3L	M20
		1.4501	X2CrNiMoCuWN25-7-4	X2CrNiMoCuWN25-7-4				M20
K - Cast iron	Grey cast iron	0.6010	GG10	GG10	Ft10D	A48-20B	FC10	M10
		0.6015	GG15	GG15	Ft15D	A48-25B	FC15	M10
		0.6020	GG20	GG20	Ft20D	A48-30B	FC20	M10
		0.6025	GG25	GG25	Ft25D	A48-40B	FC25	M11
		0.6030	GG30	GG30	Ft30D	A48-45B	FC30	M11
		0.6035	GG35	GG35	Ft35D	A48-50B	FC35	M11
		0.6040	GG40	GG40	Ft40D	A48-60B		M11
	Nodular cast iron	0.7040	GGG40	GS400-15	FGS400-12	60-40-18	FCD40	M12
		0.7050	GGG50	GS500-7	FGS500-7	65-45-12	FCD50	M12
		0.7060	GGG60	GS600-3	FGS600-3	80-55-06	FCD60	M13
		0.7070	GGG70	GS700-2	FGS700-2	100-70-03	FCD70	M13
	Malleable cast iron	0.8035	GTW35-04					M14
		0.8055	GTS55-05					M14
	Austempered ductible iron		EN-GJS-800-8					M14
			EN-GJS-1000-5					M14
			EN-GJS-1200-2					M14
			EN-GJS-1400-1					M14
S- superalloys and titanium	Pure titanium	3.7024	Ti99.5					M17
		3.7034	Ti99.7					M17
	Titanium alloys	3.7165	TiAl6V4					M17
		3.7174	TiAl6V4Sn2					M21
		3.7185	TiAl4Mo4Sn2					M21
		3.7195	TiAl 3 V 2.5					M21
		3.7124	TiCu2					M17
	Pure Nickel	1.3911	RNi24					M19
		1.3926	RNi12					M24
	Nickel alloys	2.4858	NiCr21Mo (Incoloy 825)					M24
		2.4668	NiCr19Fe19NbMo (Inconel 718)					M32
		2.4642	NiC29Fe				Inconel 690	M24
		2.4856	NiCr22Mo9Nb				inconel 625	M24
		2.4630	Ni-Cr20Ti (Nimonic 75)					M23
		2.4665	NiCr22Fe18Mo (Hastelloy X)					M23
		2.4610	NiMo16cR16Ti				Hastelloy C4	M23
		2.4360	NiCu30Fe				Monel 400	M19
H - hardened steel	Ball bearing	1.3505	100Cr6	100Cr6	100C6	52100		M28
		1.3536	100CrMo7-3	100CrMo7				M28
	Hot-work	1.2767	45NiCrMo16	40NiCrMoV16 KU	Y35NCD16			M28
		1.2713	55NiCrMoV7	55NiCrMoV7 KU	55NiCrMoV7			M28
		1.2311		35CrMo8 KU				M28
		1.2365	32CrMoV12-28	30CrMoV12-27 KU	32CDV12-28	H10		M28
		1.2343	X38CrMoV5-1	X37CrMoV5-1 KU	Z38CDV5	H11	SKD2	M28
		1.2344	X40CrMoV5-1	X40CrMoV5-1-1 KU	Z40CDV5	H13	SKD61	M26
		1.2567	X30WCrV5-3	X30WCrV5-3 KU	Z32WCV5		SKD4	M26
		1.2581	X30WCrV9-3	X30WCrV9-3 KU	Z30WCV9	H21	SKD5	M26
		1.1545	C 105 W1		Y1 105		SK 3	M26
		1.2762	75 CrMoNW 6 7					M26
		1.4841	X15 CrNiSi 25 20		Z15 CNS 25-20			M28
		0.9630	G-X 300 CrNiSi 9 5 2					M27
		0.9625	G-X 330 NI Cr 4 2					M27
Graphite Thermoplastics without fillers Plastic, reinforced with fillers organic fillers								M30 M01 M29

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