
Y.T.
SINCE 1977

PICTURE INDEX

YIH TROUN ENTERPRISE CO.,LTD

COMPANY INTRODUCTION

Profile

Yih Troun set its first milestone in 1977 as a manufactures of Milling, Drilling, Turning cutters and Carbide cutting tools in Taiwan. Since its inception, over 35 years, Y.T. has always geared towards Research and Development of innovative insert type cutting tools, bearing the motto of “Increasing Production Efficiency” from our founder and president Mr. David Chen. Our trade mark products such as indexable slitting saw, UFO T-slot and thread milll products have led the company in the frontier and set a trade mark in the entire cutting tool industry.

Milestone

1977	Yih Troun established itself as a manufacturers of milling and turning holders.
1990	Started to import and distribute SECO(Sweden), Fraisa(Switzerland) and some other global wellknown brands in Taiwan.
1996	Started to export our own products, e.g.: Carbide cutting tools, Endmills, we also represented other domestic outstanding brands products for export.
2000	Innovated the “High Feed Cutter”, it obtained the patents of several countries and won excellent reputation in the relative business field in the world.
2005	Established the Insert producing department, innovating and producing different kinds of insert. The insert specifications grow into than 1000 items.
2006	Exclusively created the “Locking Saw Blade”, and gained the technological cooperation with National Taiwan University of Science and Technology.
2007	Won the “Top 100 Taiwan Enterprise Award”.
2008	Yih Troun became the guided Factory of Ministry of Economic Affairs, R.O.C. Applied the right of priority of world patent from UN.
2009	Yih Troun “Locking Saw Blade”, received the Taiwan R.O.C. patent approval.
2010	Established the world's most complete locking type saw blade and T-slot milling cutter. Indexable saw blade gain the Ringier innovation award 2010.
2012	Announced the patented “Indexable Countersink”, comprehensive range from ø4.0 ~ø110mm, It's approved by Taiwan,China and UN patents.
2013	The smallest indexable thread mill and taps are announced, min ø8.0mm with 2 flutes. Patent applications in progress.
2014 - 2016	Special invitation in “Emerging Industry Incubation-Accelerating Program”, received “Top 1,000 Taiwan D&B SME Award”, “Ringier Technology Innovation Awards”.
2017	German company "Yih Troun Cutting Tools GmbH" Set up.

Global Patent Certification

2000 Indexable High Feed Cutter - Global Patent
2007 Taiwan Top 100 Enterprise Award
2009 Taiwan Government Special Advisory for Factories
2009 Indexable Saw Blade - Global Patent
2010 Ringier Metal Industry Innovation Award
2012 Indexable Countersink - Global Patent
2013 Honorary member of Taiwan Mechinery Association
2014 Ringier Technology Innovation Awards, Indexable Tap - Global Patent
2015 ~ 2016 Top 1000 D&B SME Award

Indexable Tap | Indexable Tap | Spot Drill

Customer Base

High technology,quality & performance guarantee.

Having established its strong base in Taiwan, Y.T. has spread its wings in Asia regions such as Japan, China, Thailand, Malaysia, Indonesia, Vietnam and Philippines. It has also set its foothold in Germany, Poland, Italy, Australia, thus broadening its business operation at the Global market. Y.T. operates in Automotive, Electronic industries, in General machining and in Machine making industries.

TAIWAN

CHINA

UNITED NATIONS

COUNTRIES ISSUING FOR PATENT CERTIFICATION

JAPAN | CANADA | EUROPEAN ECONOMIC COMMUNITY | INDIA | KOREA | RUSSIA | THAILAND

New System For Hole Making

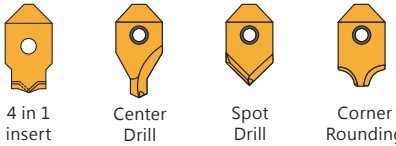
390 Insert Center Positioning Patent Design

Optimal Center Positioning Design

Insert taper profile is designed to optimize the center positioning to minimize the tolerance, which can reach the accuracy ±0.01mm and bear economical efficiency.

Applications

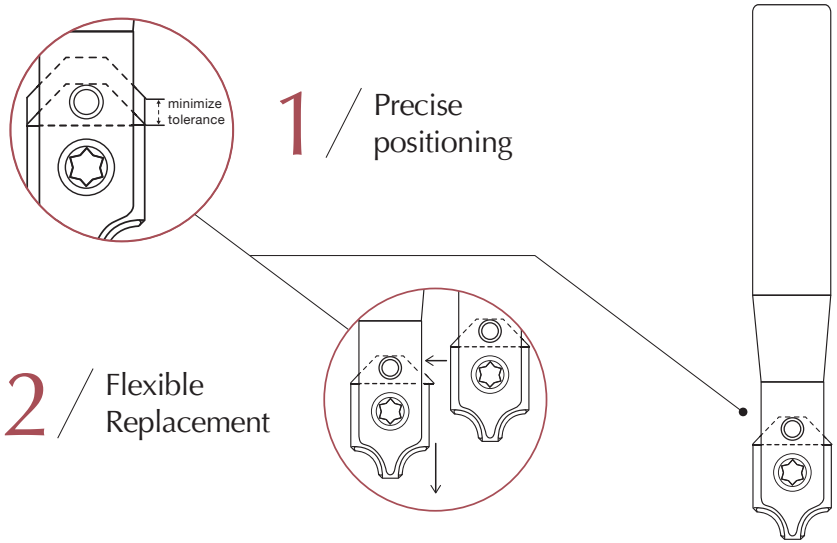
There are total 4 applications:
1.Center drill
2.Spot drill
3.Corner Rounding
4. 4 in 1 counterbore



Patent No.
M473882
M474588
M473881

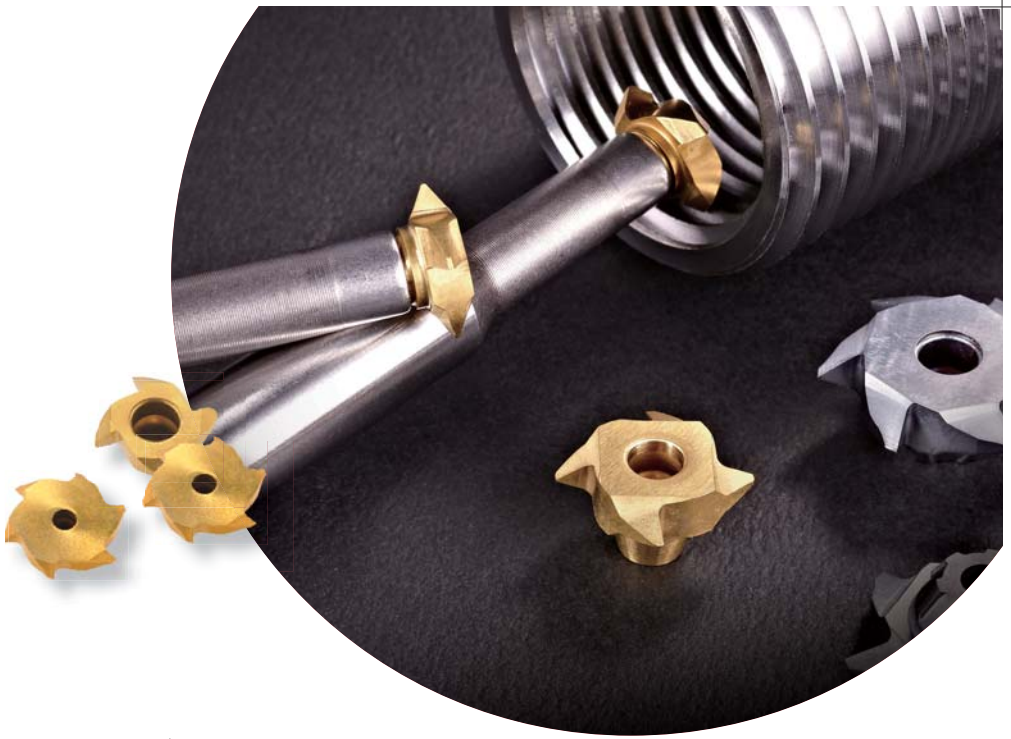
Patent No.
201310453057.2
201320772697.5

PCT Priority No.
PCT/ CN2013/086393



New Patent Design

UFO Family



Optimal Tapered Polygon Design

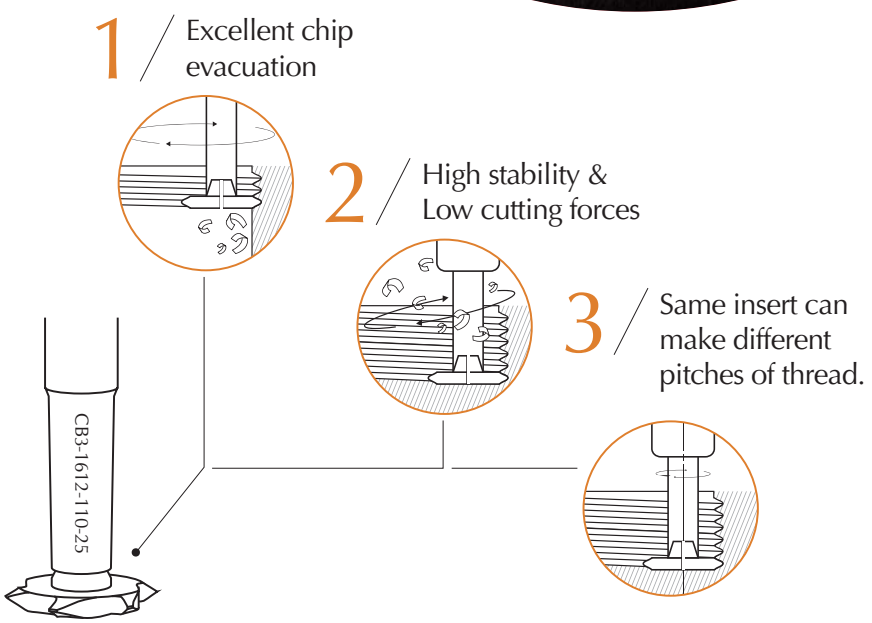
This unique UFO insert is designed with a taper polygon profile to optimize the stability and precision. It's an optimal center positioning with varieties of different UFO inserts, easy to change and easy to reach good tolerance.

Applications

8 different kinds of application are available in UFO family: T-slot, thread milling, radius, dovetail, chamfer, circlip, counterbore, gear machining.

Patent No.
M386953

Patent No.
ZL 2010 2 0112933.7



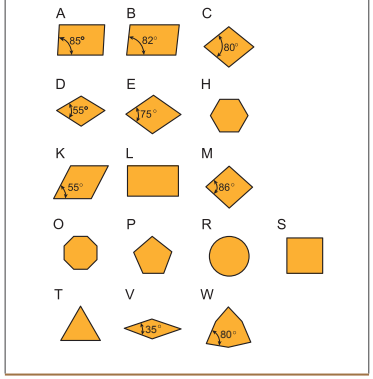
TECHNICAL GUIDE

Code Keys

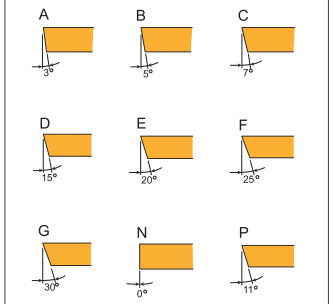
Insert-Metric series, extract from the international standard. Dimension is theory measurement. The normal size and tolerance of type code which on following list are different. Each insert actual tolerance pleases reference to insert list.

S	E	K	R	12	03	AF	T	N	ME12	6H
1	2	3	4	5	6	7	8	9	10	11

1. Shape



2. Side Clearance Angle



0 = Special

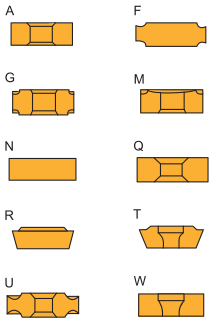
Code Keys

3.Tolerances

Tol.-Class	Tolerance +/-mm			For d,dimension mm									
	m	AE	d	3.175*	4.76	6.35	9.525	12.7	15.875	19.05	25.4	31.75	38.1
A	0.005	0.025	0.025	•	•	•	•	•	•	•	•	•	•
E	0.025	0.025	0.025	•	•	•	•	•	•	•	•	•	•
F	0.005	0.025	0.013	•	•	•	•	•	•	•	•	•	•
G	0.025	0.13	0.025	•	•	•	•	•	•	•	•	•	•
H	0.013	0.025	0.013	•	•	•	•	•	•	•	•	•	•
J	0.005	0.025	0.05	•	•	•	•						
	0.005	0.025	0.08					•					
	0.005	0.025	0.10						•	•			
	0.005	0.025	0.13								•		
	0.005	0.025	0.15									•	•
K	0.013	0.025	0.05	•	•	•	•						
	0.013	0.025	0.08					•					
	0.013	0.025	0.10						•	•			
	0.013	0.025	0.13								•		
	0.013	0.025	0.15									•	•
M	0.08	0.13	0.05	•	•	•	•						
	0.13	0.13	0.08					•					
	0.15	0.13	0.10						•	•			
	0.18	0.13	0.13								•		
	0.20	0.13	0.15									•	•
U	0.13	0.13	0.08	•	•	•	•						
	0.20	0.13	0.13					•					
	0.27	0.13	0.18						•	•			
	0.38	0.13	0.25								•	•	•

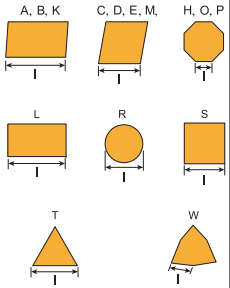
Inserts Code Keys

4. Type

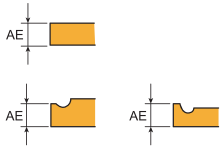


X=Special

5. Cutting edge length



6. Thickness



01=1,59 mm	04=4,76 mm
T1=1,98 mm	05=5,56 mm
02=2,38 mm	06=6,35 mm
03=3,18 mm	07=7,94 mm
T3=3,97 mm	08=8,00 mm
	09=9,52 mm

7. Thickness

1nd letter

A=45°
D=60°
E=75°
F=85°
P=90°

Z=Special

2nd letter

A=3°
B=5°
C=7°
D=15°
E=20°
F=25°
G=30°
N= 0°
P=11°

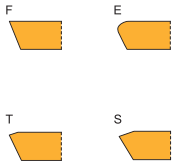
Z=Special

nose radius

M0*= round inserts
00= sharp
01= 0,1mm
02= 0,2mm
04= 0,4mm
08= 0,8mm
12= 1,2mm
etc

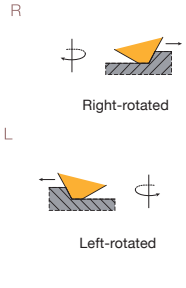
*Metric version

8. Cutting edge designation



Not mandatory information

9. Direction of cutting



Right-rotated

Left-rotated

Neutral
(R-and L-rotated)

10. Internal designation

Machining conditions
E = Easy
M = Medium
D = Difficult

11. For TAP only

Tolerance : 6H、8H

Insert Grades

Grades

Cemented carbide is an alloy of tungsten carbide (WC) and cobalt (Co). Cubic carbides like tantalum carbide (TaC),titanium car-bide (TiC) and niobium carbide (NbC) can also be added. Tungsten carbide is the main component and gives the hardness. Cobalt is the binder phase and gives the toughness. Cubic carbides are added in order to affect properties like hot hardness, deformation resistance and chemical wear resistance.

Most modern grades are coated with either CVD (Chemical Vapour Deposition) or PVD (physical Vapour Deposition) technique.

The coating improves the wear resistance of the grade.

With CVD-technique layers of titanium carbide (TiC), titanium nitride (TiN), titanium carbonitride (Ti(C,N)) and alumina (Al0) can be made.CVD-coated grades are suitable for wear resistance in demanding applications with high feed rates and intermediate to high cutting speed.

The common coating materials made by PVD-technique are titanium nitride (TiN), titanium carbonitride (Ti(C,N)) and titanium alu-minium nitride ((Ti,AL)N). PVD-coated grades are recommended for applications with low feed rate where high edge toughness is required. PVD-coated grades are suitable for applications with low to intermediate cutting speed.

	Grades	P Steel						M Stainless Steel					K Cast iron					N Non Ferrous Metal				S Heat resistant super alloys				H Hardened steel			
		P01	P10	P20	P30	P40	P50	M01	M10	M20	M30	M40	K01	K10	K20	K30	K40	N01	N10	N20	N30	S01	S10	S20	S30	S01	S10	S20	S30
PVD	B100																												
	B350																												
	C250																												
	C350																												
	F20																												
	F30																												

Insert Grades

PVD coated grades

	B100	B100 is a unique rare metal grade with great heat and cracking resistance. TiaIn
	B350	B350 has enhanced the toughness of the tungsten carbide to enable the durability. Specially used in the application of 390 design such as spot drill, center drill, 4-1 counterbore. TiaIn
	C250	C250 has a tough substrate in steel machining. Helica
	C350	C350 is the best recommend grade for steel machining. Especially in 390 system. (Spot Drill, 4-1 Counterbore, Corner Rounding) Helica
	F20	This substrate is in accordance to the ISO K, N classification. For application in Cast iron and non-ferrous metal such as Aluminum, copper or plastic ... etc. TiN
	F30	F30 is the substrate with new and heat-resistance coating suitable for cast iron. Helica

Uncoated Grades

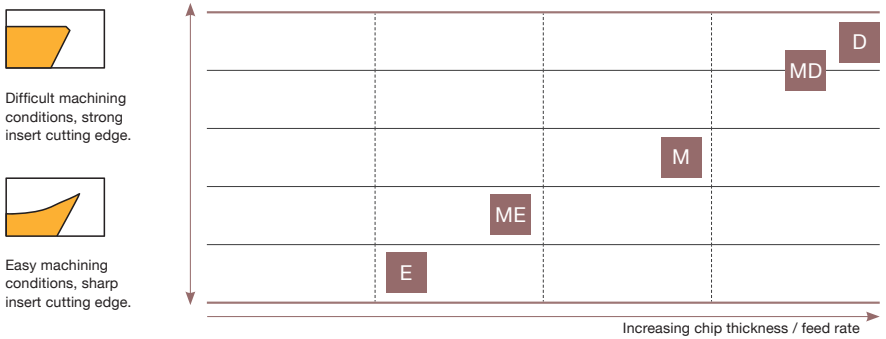
	CE K10	Hard,wear resistant grade for milling in Aluminum and Non-ferrous metal.

Insert Geometries

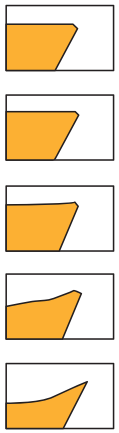
Designation system

The Y.T. designation system for milling inserts has been developed to provide

the user with better guidance concerning the fields of application for the various insert geometries.



Examples of different insert geometries for a specific insert type.



..AFTN-D Negative and very protected cutting edge

..AFTN-MD Negative and protected cutting edge

..AFTN-M Positive and protected cutting edge

..AFTN-ME Very positive and protected cutting edge

..AFN-E Very positive and very sharp cutting edge

UFO FAMILY SERIES

One Shank for Max.
Over 400 types inserts

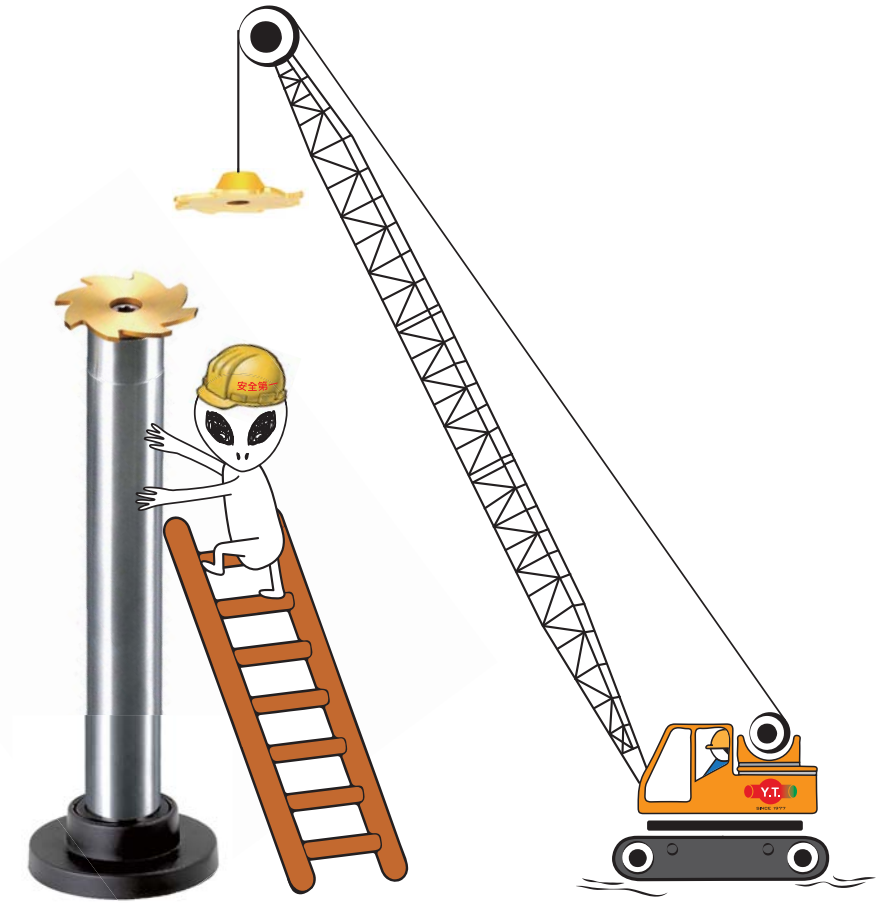
"UFO" design is the Y.T.'s innovative-patented insert positioning with tapered polygonal design to achieve higher centering accuracy.It is named after UFO space ship because of its insert design. The holders of the entire series can fit in different types of inserts: T-slot,Thread Milling,Taper Pipe Reamer,Radius,Double Corner,Concave Radius,Chamfer, Dovetail,Circlip,Back Boring,Gear Machining. The holders are available in different diameters and lengths.

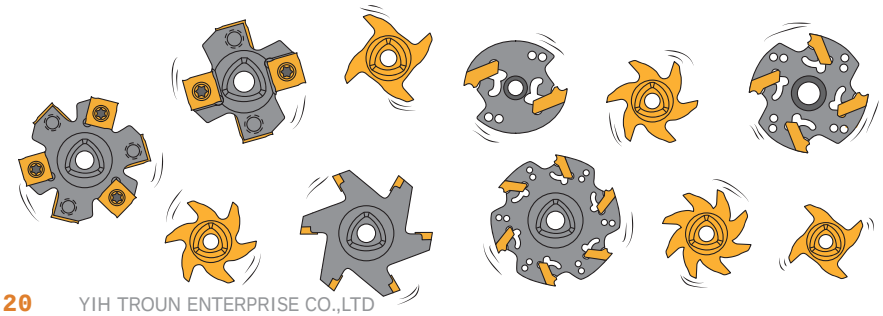
Video

Patent No.
M530197

Patent No.
ZL 201620538204.5

One holder can fit in Max. Over 400 types of inserts

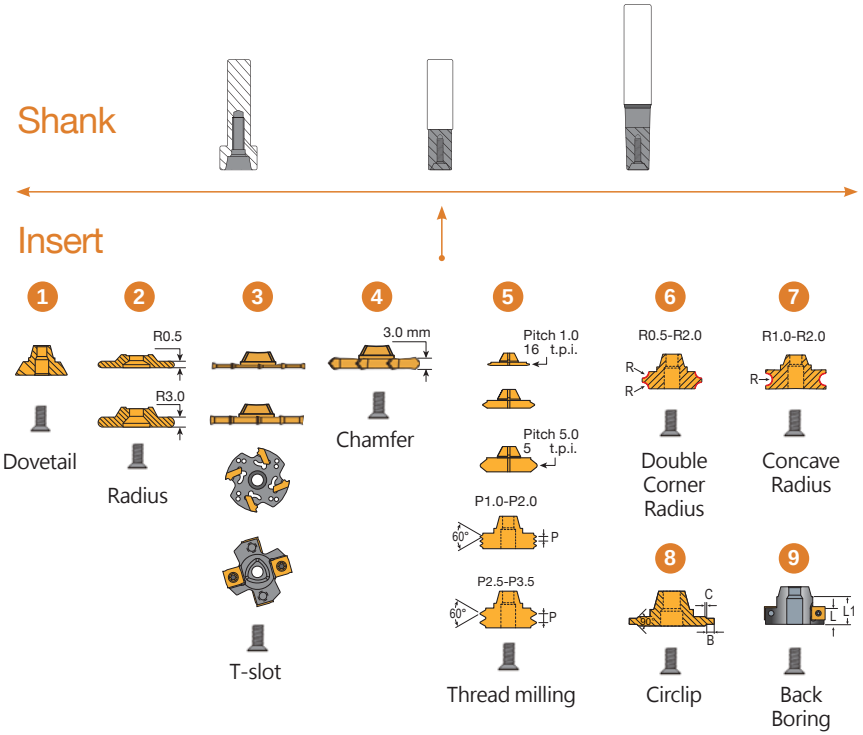




Design Of UFO Family

Shank

1. High precision pre-hardened steel HRC(60) shank with good stability and excellent strength.
2. Comprehensive toolholders with three different shank types,available in overhangs from 40~180mm.
3. Same shank can be fitted into move than 400 different inserts



Tapered Polygon

Capacity

Polygon positioning design has a greater capacity for torque than any other positioning design, the load is generated over a generous area which assure the strength of the shaft.

Multi Application

Tapered polygon design offers a simple connection with different inserts and applications.

Center Positioning

Higher sitting accurancy with taper design enhance cutting speed and insert toollife.

Taper Polygon Arbor

Y.T. taper polygon arbor can fit cutter directly without fitting any holders or chucks, which enhance the clamping strength and best accuracy,to improve the toollife of the insert.

More benefits for the end-user:

1. Cutter can fit directly on the arbor without any connecting holders or chucks, which can reach the best tolerance,and improve the toollife of the insert.

2. Polygon positioning design has a greater capacity for torque than any other positioning design, the load is generated over a generous area which assure the strength of the shank.

3. Reduce tool cost by saving connecting holders and chucks, meanwhile less connecting parts can increase the toollife of insert.

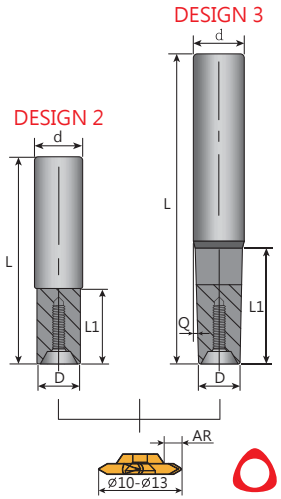
Applicable cutter size: ø18 ~ ø80 mm

Particularly suitable for:

- Big depth of cut or full cutting
- Poor machining condition(vibration)
- Difficult materirals

PRODUCT SPECIFICATIONS

UFO Family Common Toolholders



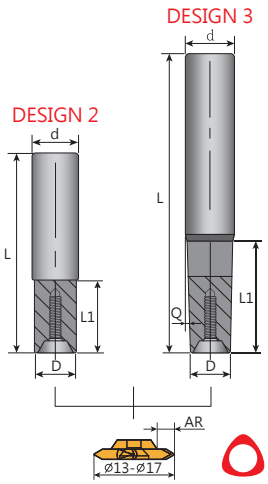
CB3 • HSS Shank

Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3-0606-55-12	6.5	6	55	10	-	2	0.01	ø10 ø11 ø12 ø13	C03012	T09P
CB3-0808-80-12	7.9	8	80				0.04			
CB3-1006-100-12	6.5	10	100	20	1°	3	0.05			
CB3-1008-100-12	7.9			30						

CB3W • Carbide Shank

Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3W-0808-80-12	7.9	8	80	10	-	2	0.08	ø10 ø11 ø12 ø13	C03012	T09P
CB3W-1008-100-12	7.9	10	100	30	1°	3	0.1			

• For Max. AR please refer to insert specification page.



CB3 • HSS Shank

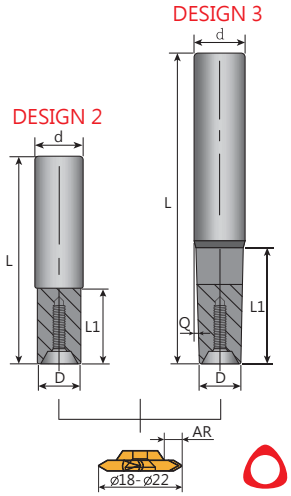
Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3-0808-55-15	7.9	8	55	10	-	2	0.03	ø13 ø14 ø15 ø16 ø17	C03012	T09P
CB3-1010-90-15	9.9	10	90				0.06			
CB3-1208-110-15	7.9	12	110	30	1°	3	0.05			
CB3-1210-120-15	9.9		120							

CB3W • Carbide Shank

Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3W-1010-90-15	9.9	10	90	10	-	2	0.3	ø13 ø14 ø15 ø16 ø17	C03012	T09P
CB3W-1208-110-15	7.9	12	110	30	1°	3	0.5			
CB3W-1210-120-15	9.9		120							

• For Max. AR please refer to insert specification page.

UFO Family Common Toolholders



CB3 • HSS Shank

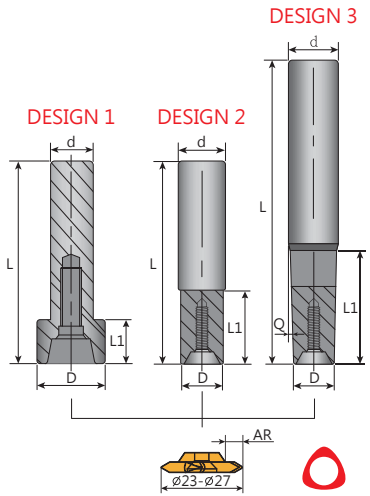
Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3-1010-80-20	9.8	10	80	12	-	2	0.12	ø 18 ø 19 ø 20 ø 21 ø 22	C03513	T10P
CB3-1010-100-20			100				0.15			
CB3-1210-90-20		12	90	25	3.2°	3	0.17			
CB3-1210-130-20			130	40	1.7°		0.20			
CB3-1612-150-20	11.8	16	150	55	2.4°		0.26			
CB3-1616-150-20	15.8			20	-	2	0.3			

CB3W • Carbide Shank

Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3W-1010-100-20	9.8	10	100	12	-	2	0.6	ø18 ø19 ø20 ø21 ø22	C03513	T10P
CB3W-1212-150-20	11.8	12	150	20	-	2	0.7			

• For Max. AR please refer to insert specification page.

UFO Family Common Toolholders



CB3 • HSS Shank

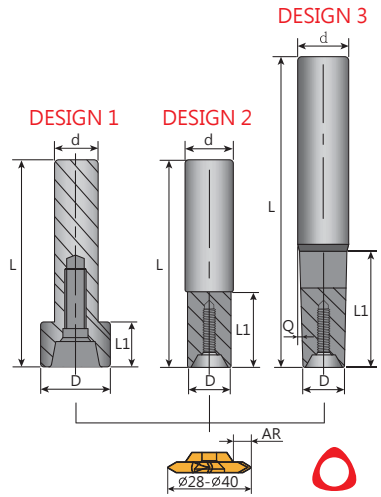
Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3-1012-50-25	11.8	10	50	10	-	1	-	ø23 ø24 ø25 ø26 ø27	C04014	T15P
CB3-1212-90-25		12	90	12	-	2	0.13			
CB3-1212-110-25			110		-		0.16			
CB3-1612-110-25		16		35	4.2°		0.22			
CB3-1612-150-25			150	55	2.4°	3	0.26			
CB3-2020-150-25	19.8	20		20	-	2	0.32			

CB3W • Carbide Shank

Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3W-1212-110-25	11.8	12	110	12	-	2	0.4	ø23 ø24 ø25 ø26 ø27	C04014	T15P
CB3W-1616-150-25	15.8	16	150	20			0.7			

• For Max. AR please refer to insert specification page.

UFO Family Common Toolholders



CB3 • HSS Shank

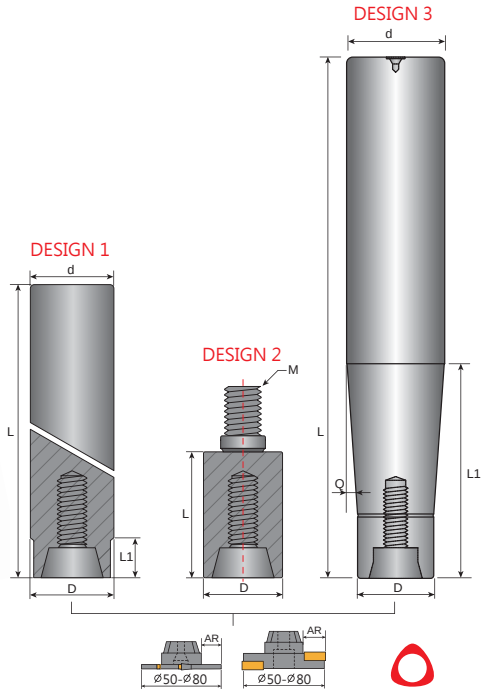
Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3-1016-50-30	15.8	10	50	10	-	1	-	ø28 ø29 ø30 ø32 ø35 ø40	C05016	T20P
CB3-1616-120-30		16	120	15		2	0.17			
CB3-1616-150-30			150				0.21			
CB3-2016-150-30		20		45	3.8°	3	0.24			
CB3-2016-180-30			180	70	2.0°		0.37			
CB3-2020-180-30	19.8			20	-	2	0.45			

CB3W • Carbide Shank

Order code	Dimensions(mm)					Design	KG	Insert	Screw	Key
	D	d	L	L1	Q					
CB3W-1616-150-30	15.8	16	150	15	-	3	0.8	ø28 ø29 ø30 ø32 ø35 ø40	C05016	T20P
CB3W-2016-180-30		20	180	70	2.0°	2	1.0			

• For Max. AR please refer to insert specification page.

UFO Family Common Toolholders

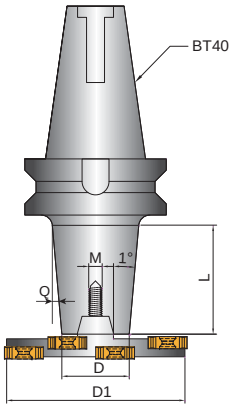


CB3

Order code	Dimensions(mm)						Design	KG	Insert	Screw	Key
	D	d	L	L1	M	Q					
CB3-2525-110	24.8	25	110	15	-	-	1	0.4	ø 50 ~ ø 80	M0830	-
CB3-2525-170			170		-	-		0.6			
CB3-25	25.0	-	40	-	12	-	2	0.2			
CB3-3225-110	24.8	32	110	40	-	10°	3	0.6			
CB3-3225-170			170	70	-	4°		0.8			

• For Max. AR please refer to insert specification page.

Taper Polygon BT Arbor



BT

Order code	Dimensions(mm)				KG	Screw	Key	
	D	D1	L	Q				
BT30-CB3-10-20	10	18-20	30	2°	0.6	C03512	T10P	
BT30-CB3-12-25	12	23-25	40		0.65	C04014	T15P	
BT40-CB3-12-25					1.4			
BT40-CB3-16-30	16	28-40	50		1.5	C05016	T20P	
BT50-CB3-16-30					3.6			
BT50-CB3-25-50	25	50-80	70		3.8	M0830	-	

UFO T-SLOT CUTTER

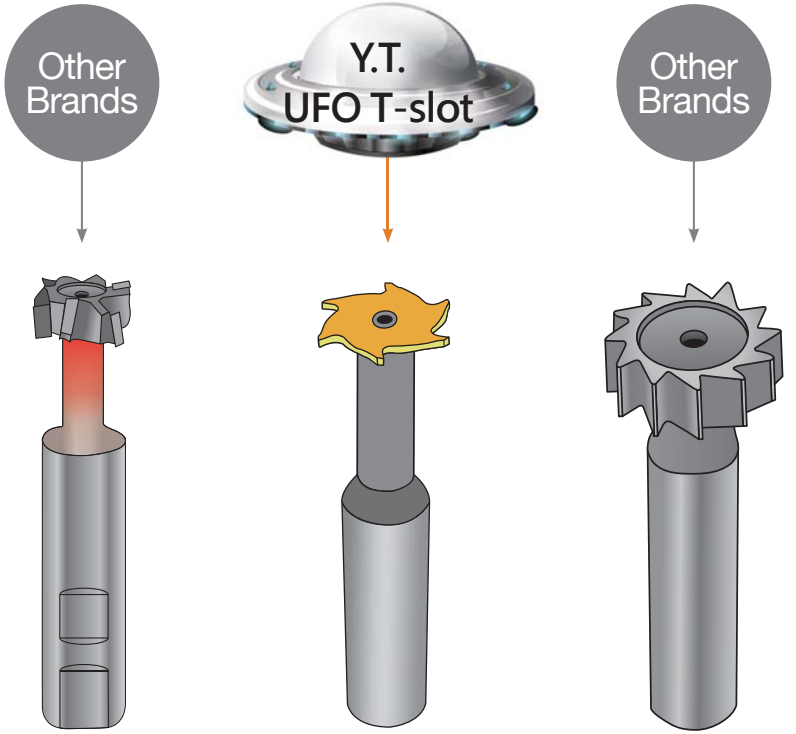
Features

- Available in materials (P K M N S H)
- Cost 200~300% DOWN
- Variety of Machines CNC Milling machine
- Efficiency 400% UP
- Durability 300% UP

Insert Design Inserts

1. Minimum thickness available from 0.5mm, and insert is available for every 0.1mm size.
2. 9 different types of inserts are available for selection, minimum insert diameter is 10mm.
3. The front-mounted insert are positioned in a taper seat for center-positioning, giving secure and continuous performance.
4. High productivity with many teeth.(4-8 teeth)

Product Introduction



Carbide brazed

1. Welding carbides on the cutter under high temperature will degrade the tool-holder hardness.
2. Insufficient hardness.

Toolholders Grade:HSS Hardness up to HRC 58°

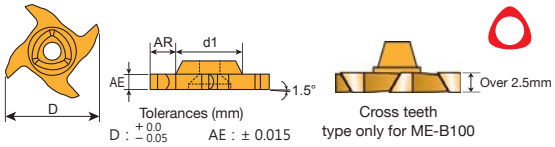
1. One tool-holder can fit in 400 different types of inserts.
2. Insert has patented geometry design.
3. Most suitable for high speed cutting.

Toolholders Grade:HSS

1. Insufficient hardness.
2. Hard to regrind.
3. Not suitable for high speed cutting.

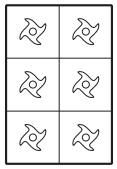
UFO T-slot Insert

- Toolholders P. 23
- Cutting Data P. 125 - 126



Dimensions in mm			
D	d1	AE	Max. AR
10	6.5	0.5-0.6	1.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0	

Inserts	Part No .	Grades									E	ME
		Carbide					Metal cermet		Uncoated			
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE		
4 flute inserts	3T0610-0.5-E								■			
	3T0610-0.6-E								■			
	3T0610-0.7-E								■			
	3T0610-0.8-E								■			
	3T0610-0.9-E								■			
	3T0610-1.0-E								■			
	3T0610-1.1-E								■			
	3T0610-1.2-E								■			
	3T0610-1.3-E								■			
	3T0610-1.4-E								■			
	3T0610-1.5-E								■			
	3T0610-1.6-E								■			
	3T0610-1.7-E								■			
	3T0610-1.8-E								■			
	3T0610-1.9-E								■			
	3T0610-2.0-E								■			
	3T0610-2.2-E								■			
	3T0610-2.5-E								■			
	3T0610-3.0-E								■			
4 flute inserts	3T0610-0.5-ME	◎			■							
	3T0610-0.6-ME	◎			■							
	3T0610-0.7-ME	◎			■							
	3T0610-0.8-ME	◎			■							
	3T0610-0.9-ME	◎			■							
	3T0610-1.0-ME	◎			■							
	3T0610-1.1-ME	◎			■							
	3T0610-1.2-ME	◎			■							
	3T0610-1.3-ME	◎			■							
	3T0610-1.4-ME	◎			■							
	3T0610-1.5-ME	◎			■							
	3T0610-1.6-ME	◎			■							
	3T0610-1.7-ME	◎			■							
	3T0610-1.8-ME	◎			■							
	3T0610-1.9-ME	◎			■							
	3T0610-2.0-ME	◎			■							
	3T0610-2.2-ME	◎			■							
	3T0610-2.5-ME	◎			■							
	3T0610-3.0-ME	◎			■							

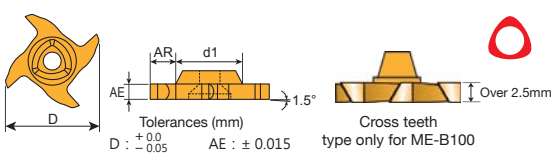


Inserts 6 PCS / Box
* M.O.Q: 12PCS

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0610-0.5-E, K10

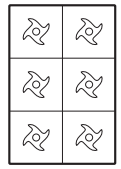
UFO T-slot Insert

- Toolholders P. 23
- Cutting Data P. 125 - 126



Dimensions in mm			
D	d1	AE	Max. AR
11	6.5	0.5-0.6	2.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0	

Inserts	Part No .	Grades									E	ME
		Carbide					Metal cermet		Uncoated			
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE		
4 flute inserts	3T0611-0.5-E								■			
	3T0611-0.6-E								■			
	3T0611-0.7-E								■			
	3T0611-0.8-E								■			
	3T0611-0.9-E								■			
	3T0611-1.0-E								■			
	3T0611-1.1-E								■			
	3T0611-1.2-E								■			
	3T0611-1.3-E								■			
	3T0611-1.4-E								■			
	3T0611-1.5-E								■			
	3T0611-1.6-E								■			
	3T0611-1.7-E								■			
	3T0611-1.8-E								■			
	3T0611-1.9-E								■			
	3T0611-2.0-E								■			
	3T0611-2.2-E								■			
	3T0611-2.5-E								■			
	3T0611-3.0-E								■			
4 flute inserts	3T0611-0.5-ME	◎			■							
	3T0611-0.6-ME	◎			■							
	3T0611-0.7-ME	◎			■							
	3T0611-0.8-ME	◎			■							
	3T0611-0.9-ME	◎			■							
	3T0611-1.0-ME	◎			■							
	3T0611-1.1-ME	◎			■							
	3T0611-1.2-ME	◎			■							
	3T0611-1.3-ME	◎			■							
	3T0611-1.4-ME	◎			■							
	3T0611-1.5-ME	◎			■							
	3T0611-1.6-ME	◎			■							
	3T0611-1.7-ME	◎			■							
	3T0611-1.8-ME	◎			■							
	3T0611-1.9-ME	◎			■							
	3T0611-2.0-ME	◎			■							
	3T0611-2.2-ME	◎			■							
	3T0611-2.5-ME	◎			■							
	3T0611-3.0-ME	◎			■							

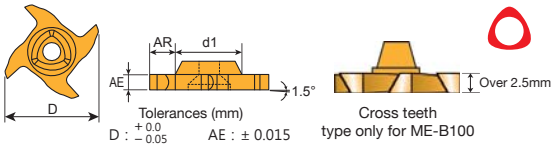


Inserts 6 PCS / Box
* M.O.Q: 12PCS

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0611-0.5-E, K10

UFO T-slot Insert

- Toolholders P. 23
- Cutting Data P. 125 - 126



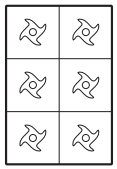
Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Cross teeth type only for ME-B100

Dimensions in mm			
D	d1	AE	Max. AR
12	6.5	0.5-0.6	2.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0	

Inserts	Part No .	Grades									E	ME
		Carbide					Metal cermet		Uncoated			
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE		
 4 flute inserts	3T0612-0.5-E								■			
	3T0612-0.6-E								■			
	3T0612-0.7-E								■			
	3T0612-0.8-E								■			
	3T0612-0.9-E								■			
	3T0612-1.0-E								■			
	3T0612-1.1-E								■			
	3T0612-1.2-E								■			
	3T0612-1.3-E								■			
	3T0612-1.4-E								■			
	3T0612-1.5-E								■			
	3T0612-1.6-E								■			
	3T0612-1.7-E								■			
	3T0612-1.8-E								■			
	3T0612-1.9-E								■			
	3T0612-2.0-E								■			
	3T0612-2.2-E								■			
	3T0612-2.5-E								■			
	3T0612-3.0-E								■			
 4 flute inserts	3T0612-0.5-ME	◎			■							
	3T0612-0.6-ME	◎			■							
	3T0612-0.7-ME	◎			■							
	3T0612-0.8-ME	◎			■							
	3T0612-0.9-ME	◎			■							
	3T0612-1.0-ME	◎			■							
	3T0612-1.1-ME	◎			■							
	3T0612-1.2-ME	◎			■							
	3T0612-1.3-ME	◎			■							
	3T0612-1.4-ME	◎			■							
	3T0612-1.5-ME	◎			■							
	3T0612-1.6-ME	◎			■							
	3T0612-1.7-ME	◎			■							
	3T0612-1.8-ME	◎			■							
	3T0612-1.9-ME	◎			■							
	3T0612-2.0-ME	◎			■							
	3T0612-2.2-ME	◎			■							
	3T0612-2.5-ME	◎			■							
	3T0612-3.0-ME	◎			■							

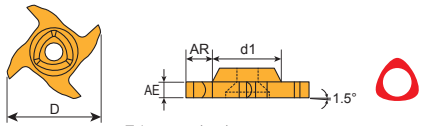


Inserts 6 PCS / Box

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0612-0.5-E, K10

UFO T-slot Insert

- Toolholders P. 24
- Cutting Data P. 125 - 126

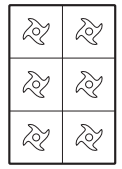


Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm			
D	d1	AE	Max. AR
13	7.9	0.5-0.6	2.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0	
		4.0	

Inserts	Part No .	Grades									E
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 4 flute inserts	3T0813-0.5-E								■		
	3T0813-0.6-E								■		
	3T0813-0.7-E								■		
	3T0813-0.8-E								■		
	3T0813-0.9-E								■		
	3T0813-1.0-E								■		
	3T0813-1.1-E								■		
	3T0813-1.2-E								■		
	3T0813-1.3-E								■		
	3T0813-1.4-E								■		
	3T0813-1.5-E								■		
	3T0813-1.6-E								■		
	3T0813-1.7-E								■		
	3T0813-1.8-E								■		
	3T0813-1.9-E								■		
	3T0813-2.0-E								■		
	3T0813-2.2-E								■		
	3T0813-2.5-E								■		
	3T0813-3.0-E								■		
	3T0813-4.0-E								■		



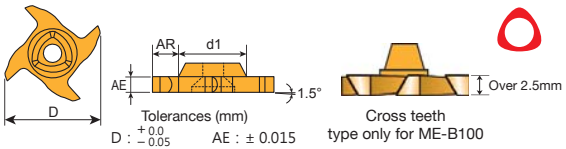
Inserts 6 PCS / Box

* M.O.Q: 12PCS

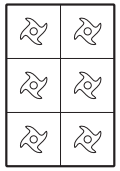
- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0813-0.5-E, K10

UFO T-slot Insert

- Toolholders P. 24
- Cutting Data P. 125 - 126



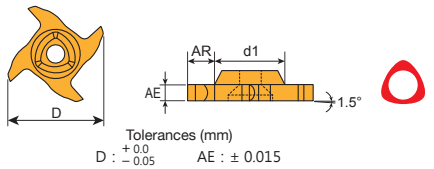
Dimensions in mm			
D	d1	AE	Max. AR
13	7.9	0.5-0.6	2.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0	
		4.0	

Inserts	Part No .	Grades									ME
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 4 flute inserts	3T0813-0.5-ME	◎									 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T0813-0.6-ME	◎									
	3T0813-0.7-ME	◎									
	3T0813-0.8-ME	◎									
	3T0813-0.9-ME	◎									
	3T0813-1.0-ME	◎									
	3T0813-1.1-ME	◎									
	3T0813-1.2-ME	◎									
	3T0813-1.3-ME	◎									
	3T0813-1.4-ME	◎									
	3T0813-1.5-ME	◎									
	3T0813-1.6-ME	◎									
	3T0813-1.7-ME	◎									
	3T0813-1.8-ME	◎									
	3T0813-1.9-ME	◎									
	3T0813-2.0-ME	◎									
	3T0813-2.2-ME	◎									
	3T0813-2.5-ME	◎									
	3T0813-3.0-ME	◎									
	3T0813-4.0-ME	◎									

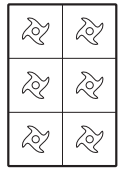
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0813-0.5-ME, B100

UFO T-slot Insert

- Toolholders P. 24
- Cutting Data P. 125 - 126



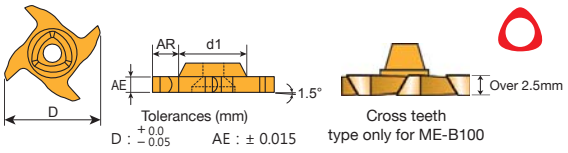
Dimensions in mm			
D	d1	AE	Max. AR
14	7.9	0.5-0.6	2.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0	
		4.0	

Inserts	Part No .	Grades									E
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 4 flute inserts	3T0814-0.5-E										 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T0814-0.6-E										
	3T0814-0.7-E										
	3T0814-0.8-E										
	3T0814-0.9-E										
	3T0814-1.0-E										
	3T0814-1.1-E										
	3T0814-1.2-E										
	3T0814-1.3-E										
	3T0814-1.4-E										
	3T0814-1.5-E										
	3T0814-1.6-E										
	3T0814-1.7-E										
	3T0814-1.8-E										
	3T0814-1.9-E										
	3T0814-2.0-E										
	3T0814-2.2-E										
	3T0814-2.5-E										
	3T0814-3.0-E										
	3T0814-4.0-E										

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0814-0.5-E, K10

UFO T-slot Insert

- Toolholders P. 24
- Cutting Data P. 125 - 126

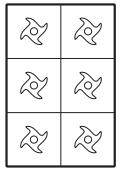


Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Cross teeth type only for ME-B100

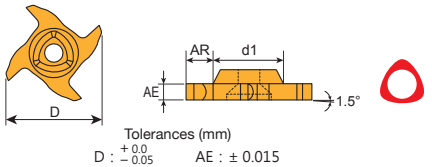
Dimensions in mm			
D	d1	AE	Max. AR
14	7.9	0.5-0.6	2.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0	
		4.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		ME
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 4 flute inserts	3T0814-0.5-ME	◎									 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T0814-0.6-ME	◎									
	3T0814-0.7-ME	◎									
	3T0814-0.8-ME	◎									
	3T0814-0.9-ME	◎									
	3T0814-1.0-ME	◎									
	3T0814-1.1-ME	◎									
	3T0814-1.2-ME	◎									
	3T0814-1.3-ME	◎									
	3T0814-1.4-ME	◎									
	3T0814-1.5-ME	◎									
	3T0814-1.6-ME	◎									
	3T0814-1.7-ME	◎									
	3T0814-1.8-ME	◎									
	3T0814-1.9-ME	◎									
	3T0814-2.0-ME	◎									
	3T0814-2.2-ME	◎									
	3T0814-2.5-ME	◎									
	3T0814-3.0-ME	◎									
	3T0814-4.0-ME	◎									

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0814-0.5-ME, B100

UFO T-slot Insert

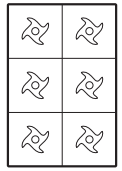
- Toolholders P. 24
- Cutting Data P. 125 - 126



Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

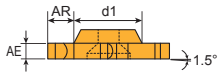
Dimensions in mm			
D	d1	AE	Max. AR
15	7.9	0.5-0.6	3.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0	
		4.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		E
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 4 flute inserts	3T0815-0.5-E								■		 Inserts 6 PCS / Box
	3T0815-0.6-E								■		
	3T0815-0.7-E								■		
	3T0815-0.8-E								■		
	3T0815-0.9-E								■		
	3T0815-1.0-E								■		
	3T0815-1.1-E								■		
	3T0815-1.2-E								■		
	3T0815-1.3-E								■		
	3T0815-1.4-E								■		
	3T0815-1.5-E								■		
	3T0815-1.6-E								■		
	3T0815-1.7-E								■		
	3T0815-1.8-E								■		
	3T0815-1.9-E								■		
	3T0815-2.0-E								■		
	3T0815-2.2-E								■		
	3T0815-2.5-E								■		
	3T0815-3.0-E								■		
	3T0815-4.0-E								■		

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0815-0.5-E, K10

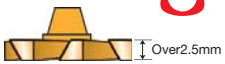
UFO T-slot Insert

- Toolholders P. 24
- Cutting Data P. 125 - 126



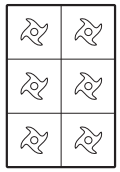
Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015



Cross teeth
type only for ME-B100

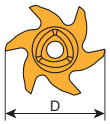
Dimensions in mm			
D	d1	AE	Max. AR
15	7.9	0.5-0.6	3.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0	
		4.0	

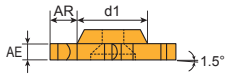
Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		ME
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 4 flute inserts	3T0815-0.5-ME	◎									 Inserts 6 PCS / Box
	3T0815-0.6-ME	◎									
	3T0815-0.7-ME	◎									
	3T0815-0.8-ME	◎									
	3T0815-0.9-ME	◎									
	3T0815-1.0-ME	◎									
	3T0815-1.1-ME	◎									
	3T0815-1.2-ME	◎									
	3T0815-1.3-ME	◎									
	3T0815-1.4-ME	◎									
	3T0815-1.5-ME	◎									
	3T0815-1.6-ME	◎									
	3T0815-1.7-ME	◎									
	3T0815-1.8-ME	◎									
	3T0815-1.9-ME	◎									
	3T0815-2.0-ME	◎									
	3T0815-2.2-ME	◎									
	3T0815-2.5-ME	◎									
	3T0815-3.0-ME	◎									
	3T0815-4.0-ME	◎									

- ▫ Steel ▫ Stainless Steel ◎ Steel/Stainless Steel ▪ Cast Iron ▫ Aluminum ▫ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0815-0.5-ME, B100

UFO T-slot Insert

- Toolholders P. 25
- Cutting Data P. 125 - 126

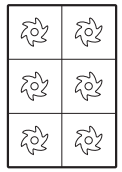




Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

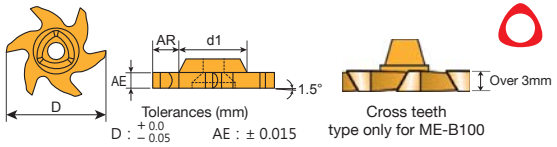
Dimensions in mm			
D	d1	AE	Max. AR
18	9.9	0.5-0.6	3.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		E
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1018-0.5-E								▫		 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T1018-0.6-E								▫		
	3T1018-0.7-E								▫		
	3T1018-0.8-E								▫		
	3T1018-0.9-E								▫		
	3T1018-1.0-E								▫		
	3T1018-1.1-E								▫		
	3T1018-1.2-E								▫		
	3T1018-1.3-E								▫		
	3T1018-1.4-E								▫		
	3T1018-1.5-E								▫		
	3T1018-1.6-E								▫		
	3T1018-1.7-E								▫		
	3T1018-1.8-E								▫		
	3T1018-1.9-E								▫		
	3T1018-2.0-E								▫		
	3T1018-2.2-E								▫		
	3T1018-2.5-E								▫		
	3T1018-3.0-E								▫		
	3T1018-3.5-E								▫		
	3T1018-4.0-E								▫		
	3T1018-4.2-E								▫		
	3T1018-4.5-E								▫		
	3T1018-5.0-E								▫		
	3T1018-6.0-E								▫		
	3T1018-8.0-E								▫		

- ▫ Steel ▫ Stainless Steel ◎ Steel/Stainless Steel ▪ Cast Iron ▫ Aluminum ▫ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1018-0.5-E, K10

UFO T-slot Insert

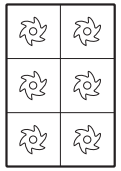
- Toolholders P. 25
- Cutting Data P. 125 - 126



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Cross teeth
type only for ME-B100

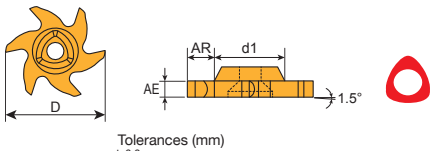
Dimensions in mm			
D	d1	AE	Max. AR
18	9.9	0.5-0.6	3.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									ME
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1018-0.5-ME	◎									 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T1018-0.6-ME	◎									
	3T1018-0.7-ME	◎									
	3T1018-0.8-ME	◎									
	3T1018-0.9-ME	◎									
	3T1018-1.0-ME	◎									
	3T1018-1.1-ME	◎									
	3T1018-1.2-ME	◎									
	3T1018-1.3-ME	◎									
	3T1018-1.4-ME	◎									
	3T1018-1.5-ME	◎									
	3T1018-1.6-ME	◎									
	3T1018-1.7-ME	◎									
	3T1018-1.8-ME	◎									
	3T1018-1.9-ME	◎									
	3T1018-2.0-ME	◎									
	3T1018-2.2-ME	◎									
	3T1018-2.5-ME	◎									
	3T1018-3.0-ME	◎									
	3T1018-3.5-ME	◎									
	3T1018-4.0-ME	◎									
	3T1018-4.2-ME	◎									
	3T1018-4.5-ME	◎									
	3T1018-5.0-ME	◎									
	3T1018-6.0-ME	◎									
	3T1018-8.0-ME	◎									

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1018-0.5-ME, B100

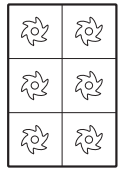
UFO T-slot Insert

- Toolholders P. 25
- Cutting Data P. 125 - 126



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

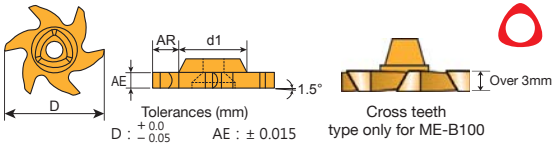
Dimensions in mm			
D	d1	AE	Max. AR
19	9.9	0.5-0.6	4.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									E
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1019-0.5-E								■		 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T1019-0.6-E								■		
	3T1019-0.7-E								■		
	3T1019-0.8-E								■		
	3T1019-0.9-E								■		
	3T1019-1.0-E								■		
	3T1019-1.1-E								■		
	3T1019-1.2-E								■		
	3T1019-1.3-E								■		
	3T1019-1.4-E								■		
	3T1019-1.5-E								■		
	3T1019-1.6-E								■		
	3T1019-1.7-E								■		
	3T1019-1.8-E								■		
	3T1019-1.9-E								■		
	3T1019-2.0-E								■		
	3T1019-2.2-E								■		
	3T1019-2.5-E								■		
	3T1019-3.0-E								■		
	3T1019-3.5-E								■		
	3T1019-4.0-E								■		
	3T1019-4.2-E								■		
	3T1019-4.5-E								■		
	3T1019-5.0-E								■		
	3T1019-6.0-E								■		
	3T1019-8.0-E								■		

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1019-0.5-E, K10

UFO T-slot Insert

- Toolholders P. 25
- Cutting Data P. 125 - 126



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Cross teeth
type only for ME-B100

Dimensions in mm			
D	d1	AE	Max. AR
19	9.9	0.5-0.6	4.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

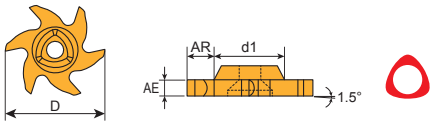
Inserts	Part No .	Grades									ME
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
6 flute inserts	3T1019-0.5-ME	◎									
	3T1019-0.6-ME	◎									
	3T1019-0.7-ME	◎									
	3T1019-0.8-ME	◎									
	3T1019-0.9-ME	◎									
	3T1019-1.0-ME	◎									
	3T1019-1.1-ME	◎									
	3T1019-1.2-ME	◎									
	3T1019-1.3-ME	◎									
	3T1019-1.4-ME	◎									
	3T1019-1.5-ME	◎									
	3T1019-1.6-ME	◎									
	3T1019-1.7-ME	◎									
	3T1019-1.8-ME	◎									
	3T1019-1.9-ME	◎									
	3T1019-2.0-ME	◎									
	3T1019-2.2-ME	◎									
	3T1019-2.5-ME	◎									
	3T1019-3.0-ME	◎									
	3T1019-3.5-ME	◎									
	3T1019-4.0-ME	◎									
	3T1019-4.2-ME	◎									
	3T1019-4.5-ME	◎									
	3T1019-5.0-ME	◎									
	3T1019-6.0-ME	◎									
	3T1019-8.0-ME	◎									

Inserts 6 PCS / Box
* M.O.Q: 12PCS

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1019-0.5-ME, B100

UFO T-slot Insert

- Toolholders P. 25
- Cutting Data P. 125 - 126



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm			
D	d1	AE	Max. AR
20	9.9	0.5-0.6	4.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

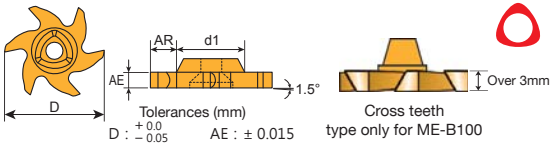
Inserts	Part No .	Grades									E
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
6 flute inserts	3T1020-0.5-E										
	3T1020-0.6-E										
	3T1020-0.7-E										
	3T1020-0.8-E										
	3T1020-0.9-E										
	3T1020-1.0-E										
	3T1020-1.1-E										
	3T1020-1.2-E										
	3T1020-1.3-E										
	3T1020-1.4-E										
	3T1020-1.5-E										
	3T1020-1.6-E										
	3T1020-1.7-E										
	3T1020-1.8-E										
	3T1020-1.9-E										
	3T1020-2.0-E										
	3T1020-2.2-E										
	3T1020-2.5-E										
	3T1020-3.0-E										
	3T1020-3.5-E										
	3T1020-4.0-E										
	3T1020-4.2-E										
	3T1020-4.5-E										
	3T1020-5.0-E										
	3T1020-6.0-E										
	3T1020-8.0-E										

Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1020-0.5-E, K10

UFO T-slot Insert

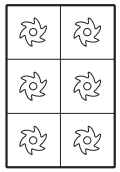
- Toolholders P. 25
- Cutting Data P. 125 - 126



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Cross teeth
type only for ME-B100

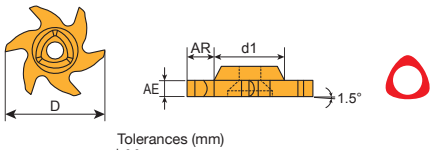
Dimensions in mm			
D	d1	AE	Max. AR
20	9.9	0.5-0.6	4.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		ME
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1020-0.5-ME	◎									 Inserts 6 PCS / Box
	3T1020-0.6-ME	◎									
	3T1020-0.7-ME	◎									
	3T1020-0.8-ME	◎									
	3T1020-0.9-ME	◎									
	3T1020-1.0-ME	◎									
	3T1020-1.1-ME	◎									
	3T1020-1.2-ME	◎									
	3T1020-1.3-ME	◎									
	3T1020-1.4-ME	◎									
	3T1020-1.5-ME	◎									
	3T1020-1.6-ME	◎									
	3T1020-1.7-ME	◎									
	3T1020-1.8-ME	◎									
	3T1020-1.9-ME	◎									
	3T1020-2.0-ME	◎									
	3T1020-2.2-ME	◎									
	3T1020-2.5-ME	◎									
	3T1020-3.0-ME	◎									
	3T1020-3.5-ME	◎									
	3T1020-4.0-ME	◎									
	3T1020-4.2-ME	◎									
	3T1020-4.5-ME	◎									
	3T1020-5.0-ME	◎									
	3T1020-6.0-ME	◎									
	3T1020-8.0-ME	◎									

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1020-0.5-ME, B100

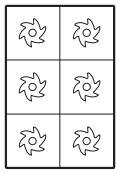
UFO T-slot Insert

- Toolholders P. 26
- Cutting Data P. 125 - 126



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

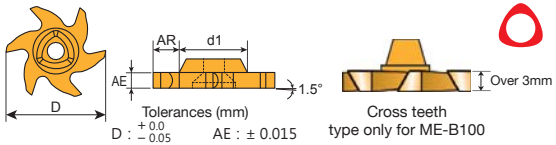
Dimensions in mm			
D	d1	AE	Max. AR
23	12	0.5-0.6	5.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		E
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1223-0.5-E								■		 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T1223-0.6-E								■		
	3T1223-0.7-E								■		
	3T1223-0.8-E								■		
	3T1223-0.9-E								■		
	3T1223-1.0-E								■		
	3T1223-1.1-E								■		
	3T1223-1.2-E								■		
	3T1223-1.3-E								■		
	3T1223-1.4-E								■		
	3T1223-1.5-E								■		
	3T1223-1.6-E								■		
	3T1223-1.7-E								■		
	3T1223-1.8-E								■		
	3T1223-1.9-E								■		
	3T1223-2.0-E								■		
	3T1223-2.2-E								■		
	3T1223-2.5-E								■		
	3T1223-3.0-E								■		
	3T1223-3.5-E								■		
	3T1223-4.0-E								■		
	3T1223-4.2-E								■		
	3T1223-4.5-E								■		
	3T1223-5.0-E								■		
	3T1223-6.0-E								■		
	3T1223-8.0-E								■		

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1223-0.5-E, K10

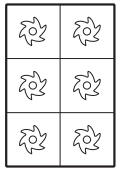
UFO T-slot Insert

- Toolholders P. 26
- Cutting Data P. 125 - 126



Dimensions in mm			
D	d1	AE	Max. AR
23	12	0.5-0.6	5.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		ME
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1223-0.5-ME	◎									
	3T1223-0.6-ME	◎									
	3T1223-0.7-ME	◎									
	3T1223-0.8-ME	◎									
	3T1223-0.9-ME	◎									
	3T1223-1.0-ME	◎									
	3T1223-1.1-ME	◎									
	3T1223-1.2-ME	◎									
	3T1223-1.3-ME	◎									
	3T1223-1.4-ME	◎									
	3T1223-1.5-ME	◎									
	3T1223-1.6-ME	◎									
	3T1223-1.7-ME	◎									
	3T1223-1.8-ME	◎									
	3T1223-1.9-ME	◎									
	3T1223-2.0-ME	◎									
	3T1223-2.2-ME	◎									
	3T1223-2.5-ME	◎									
	3T1223-3.0-ME	◎									
	3T1223-3.5-ME	◎									
	3T1223-4.0-ME	◎									
	3T1223-4.2-ME	◎									
	3T1223-4.5-ME	◎									
	3T1223-5.0-ME	◎									
	3T1223-6.0-ME	◎									
	3T1223-8.0-ME	◎									

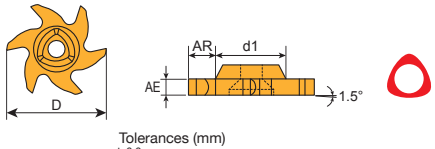


Inserts 6 PCS / Box
* M.O.Q: 12PCS

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1223-0.5-ME, B100

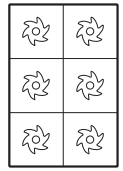
UFO T-slot Insert

- Toolholders P. 26
- Cutting Data P. 125 - 126



Dimensions in mm			
D	d1	AE	Max. AR
24	12	0.5-0.6	5.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		E
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1224-0.5-E										
	3T1224-0.6-E										
	3T1224-0.7-E										
	3T1224-0.8-E										
	3T1224-0.9-E										
	3T1224-1.0-E										
	3T1224-1.1-E										
	3T1224-1.2-E										
	3T1224-1.3-E										
	3T1224-1.4-E										
	3T1224-1.5-E										
	3T1224-1.6-E										
	3T1224-1.7-E										
	3T1224-1.8-E										
	3T1224-1.9-E										
	3T1224-2.0-E										
	3T1224-2.2-E										
	3T1224-2.5-E										
	3T1224-3.0-E										
	3T1224-3.5-E										
	3T1224-4.0-E										
	3T1224-4.2-E										
	3T1224-4.5-E										
	3T1224-5.0-E										
	3T1224-6.0-E										
	3T1224-8.0-E										

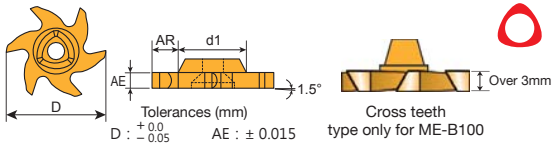


Inserts 6 PCS / Box
* M.O.Q: 12PCS

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1224-0.5-E, K10

UFO T-slot Insert

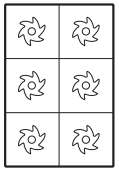
- Toolholders P. 26
- Cutting Data P. 125 - 126



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Cross teeth
type only for ME-B100

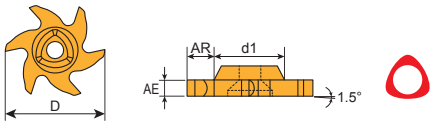
Dimensions in mm			
D	d1	AE	Max. AR
24	12	0.5-0.6	5.5
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									ME
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1224-0.5-ME	◎									 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T1224-0.6-ME	◎									
	3T1224-0.7-ME	◎									
	3T1224-0.8-ME	◎									
	3T1224-0.9-ME	◎									
	3T1224-1.0-ME	◎									
	3T1224-1.1-ME	◎									
	3T1224-1.2-ME	◎									
	3T1224-1.3-ME	◎									
	3T1224-1.4-ME	◎									
	3T1224-1.5-ME	◎									
	3T1224-1.6-ME	◎									
	3T1224-1.7-ME	◎									
	3T1224-1.8-ME	◎									
	3T1224-1.9-ME	◎									
	3T1224-2.0-ME	◎									
	3T1224-2.2-ME	◎									
	3T1224-2.5-ME	◎									
	3T1224-3.0-ME	◎									
	3T1224-3.5-ME	◎									
	3T1224-4.0-ME	◎									
	3T1224-4.2-ME	◎									
	3T1224-4.5-ME	◎									
	3T1224-5.0-ME	◎									
	3T1224-6.0-ME	◎									
	3T1224-8.0-ME	◎									

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1224-0.5-ME, B100

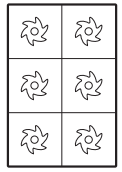
UFO T-slot Insert

- Toolholders P. 26
- Cutting Data P. 125 - 126



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

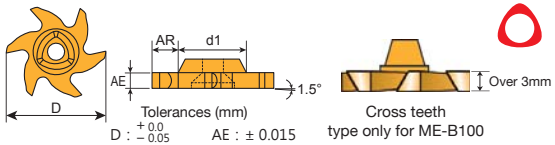
Dimensions in mm			
D	d1	AE	Max. AR
25	12	0.5-0.6	6.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									E
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1225-0.5-E								■		 Inserts 6 PCS / Box
	3T1225-0.6-E								■		
	3T1225-0.7-E								■		
	3T1225-0.8-E								■		
	3T1225-0.9-E								■		
	3T1225-1.0-E								■		
	3T1225-1.1-E								■		
	3T1225-1.2-E								■		
	3T1225-1.3-E								■		
	3T1225-1.4-E								■		
	3T1225-1.5-E								■		
	3T1225-1.6-E								■		
	3T1225-1.7-E								■		
	3T1225-1.8-E								■		
	3T1225-1.9-E								■		
	3T1225-2.0-E								■		
	3T1225-2.2-E								■		
	3T1225-2.5-E								■		
	3T1225-3.0-E								■		
	3T1225-3.5-E								■		
	3T1225-4.0-E								■		
	3T1225-4.2-E								■		
	3T1225-4.5-E								■		
	3T1225-5.0-E								■		
	3T1225-6.0-E								■		
	3T1225-8.0-E								■		

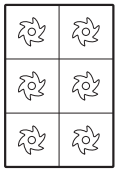
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1225-0.5-E, K10

UFO T-slot Insert

- Toolholders P. 26
- Cutting Data P. 125 - 126



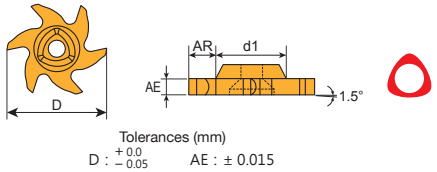
Dimensions in mm			
D	d1	AE	Max. AR
25	12	0.5-0.6	6.0
		0.7-0.8	
		0.9-1.0	
		1.1-1.2	
		1.3-1.4	
		1.5-1.6	
		1.7-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	
		6.0	
		8.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		ME
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 6 flute inserts	3T1225-0.5-ME	◎									 Inserts 6 PCS / Box
	3T1225-0.6-ME	◎									
	3T1225-0.7-ME	◎									
	3T1225-0.8-ME	◎									
	3T1225-0.9-ME	◎									
	3T1225-1.0-ME	◎									
	3T1225-1.1-ME	◎									
	3T1225-1.2-ME	◎									
	3T1225-1.3-ME	◎									
	3T1225-1.4-ME	◎									
	3T1225-1.5-ME	◎									
	3T1225-1.6-ME	◎									
	3T1225-1.7-ME	◎									
	3T1225-1.8-ME	◎									
	3T1225-1.9-ME	◎									
	3T1225-2.0-ME	◎									
	3T1225-2.2-ME	◎									
	3T1225-2.5-ME	◎									
	3T1225-3.0-ME	◎									
	3T1225-3.5-ME	◎									
	3T1225-4.0-ME	◎									
	3T1225-4.2-ME	◎									
	3T1225-4.5-ME	◎									
	3T1225-5.0-ME	◎									
	3T1225-6.0-ME	◎									
	3T1225-8.0-ME	◎									

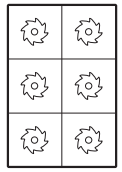
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1225-0.5-ME, B100

UFO T-slot Insert

- Toolholders P. 27
- Cutting Data P. 125 - 126



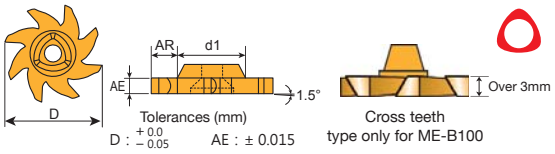
Dimensions in mm			
D	d1	AE	Max. AR
28	15.7	0.8-0.9	5.5
		1.0-1.1	
		1.2-1.3	
		1.4-1.5	
		1.6-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		E
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 8 flute inserts	3T1628-0.8-E										 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T1628-0.9-E										
	3T1628-1.0-E										
	3T1628-1.1-E										
	3T1628-1.2-E										
	3T1628-1.3-E										
	3T1628-1.4-E										
	3T1628-1.5-E										
	3T1628-1.6-E										
	3T1628-1.7-E										
	3T1628-1.8-E										
	3T1628-1.9-E										
	3T1628-2.0-E										
	3T1628-2.2-E										
	3T1628-2.5-E										
	3T1628-3.0-E										
	3T1628-3.5-E										
	3T1628-4.0-E										
	3T1628-4.2-E										
	3T1628-4.5-E										
	3T1628-5.0-E										

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1628-0.8-E, K10

UFO T-slot Insert

- Toolholders P. 27
- Cutting Data P. 125 - 126

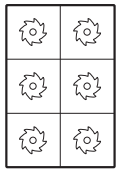


Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Cross teeth type only for ME-B100

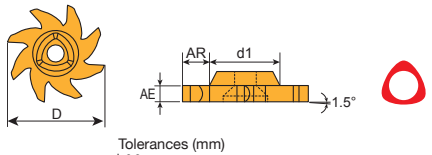
Dimensions in mm			
D	d1	AE	Max. AR
28	15.7	0.8-0.9	5.5
		1.0-1.1	
		1.2-1.3	
		1.4-1.5	
		1.6-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	

Inserts	Part No .	Grades									ME
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 8 flute inserts	3T1628-0.8-ME	◎									 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T1628-0.9-ME	◎									
	3T1628-1.0-ME	◎									
	3T1628-1.1-ME	◎									
	3T1628-1.2-ME	◎									
	3T1628-1.3-ME	◎									
	3T1628-1.4-ME	◎									
	3T1628-1.5-ME	◎									
	3T1628-1.6-ME	◎									
	3T1628-1.7-ME	◎									
	3T1628-1.8-ME	◎									
	3T1628-1.9-ME	◎									
	3T1628-2.0-ME	◎									
	3T1628-2.2-ME	◎									
	3T1628-2.5-ME	◎									
	3T1628-3.0-ME	◎									
	3T1628-3.5-ME	◎									
	3T1628-4.0-ME	◎									
	3T1628-4.2-ME	◎									
	3T1628-4.5-ME	◎									
	3T1628-5.0-ME	◎									

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1628-0.8-ME, B100

UFO T-slot Insert

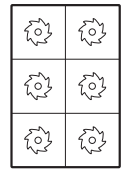
- Toolholders P. 27
- Cutting Data P. 125 - 126



Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

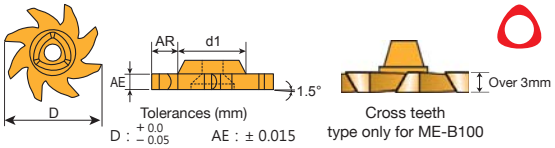
Dimensions in mm			
D	d1	AE	Max. AR
29	15.7	0.8-0.9	6.0
		1.0-1.1	
		1.2-1.3	
		1.4-1.5	
		1.6-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	

Inserts	Part No .	Grades									E
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 8 flute inserts	3T1629-0.8-E										 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T1629-0.9-E										
	3T1629-1.0-E										
	3T1629-1.1-E										
	3T1629-1.2-E										
	3T1629-1.3-E										
	3T1629-1.4-E										
	3T1629-1.5-E										
	3T1629-1.6-E										
	3T1629-1.7-E										
	3T1629-1.8-E										
	3T1629-1.9-E										
	3T1629-2.0-E										
	3T1629-2.2-E										
	3T1629-2.5-E										
	3T1629-3.0-E										
	3T1629-3.5-E										
	3T1629-4.0-E										
	3T1629-4.2-E										
	3T1629-4.5-E										
	3T1629-5.0-E										

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1629-0.8-E, K10

UFO T-slot Insert

- Toolholders P. 27
- Cutting Data P. 125 - 126

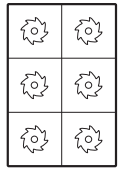


Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Cross teeth type only for ME-B100

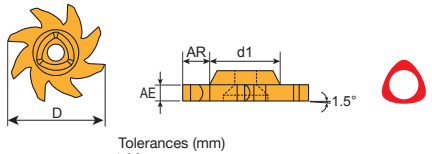
Dimensions in mm			
D	d1	AE	Max. AR
29	15.7	0.8-0.9	6.0
		1.0-1.1	
		1.2-1.3	
		1.4-1.5	
		1.6-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		ME
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 8 flute inserts	3T1629-0.8-ME	◎									 Inserts 6 PCS / Box * M.O.Q: 12PCS
	3T1629-0.9-ME	◎									
	3T1629-1.0-ME	◎									
	3T1629-1.1-ME	◎									
	3T1629-1.2-ME	◎									
	3T1629-1.3-ME	◎									
	3T1629-1.4-ME	◎									
	3T1629-1.5-ME	◎									
	3T1629-1.6-ME	◎									
	3T1629-1.7-ME	◎									
	3T1629-1.8-ME	◎									
	3T1629-1.9-ME	◎									
	3T1629-2.0-ME	◎									
	3T1629-2.2-ME	◎									
	3T1629-2.5-ME	◎									
	3T1629-3.0-ME	◎									
	3T1629-3.5-ME	◎									
	3T1629-4.0-ME	◎									
	3T1629-4.2-ME	◎									
	3T1629-4.5-ME	◎									
	3T1629-5.0-ME	◎									

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1629-0.8-ME, B100

UFO T-slot Insert

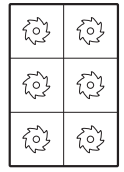
- Toolholders P. 27
- Cutting Data P. 125 - 126



Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

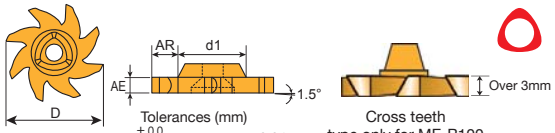
Dimensions in mm			
D	d1	AE	Max. AR
30	15.7	0.8-0.9	6.5
		1.0-1.1	
		1.2-1.3	
		1.4-1.5	
		1.6-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		E
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 8 flute inserts	3T1630-0.8-E								■		 Inserts 6 PCS / Box
	3T1630-0.9-E								■		
	3T1630-1.0-E								■		
	3T1630-1.1-E								■		
	3T1630-1.2-E								■		
	3T1630-1.3-E								■		
	3T1630-1.4-E								■		
	3T1630-1.5-E								■		
	3T1630-1.6-E								■		
	3T1630-1.7-E								■		
	3T1630-1.8-E								■		
	3T1630-1.9-E								■		
	3T1630-2.0-E								■		
	3T1630-2.2-E								■		
	3T1630-2.5-E								■		
	3T1630-3.0-E								■		
	3T1630-3.5-E								■		
	3T1630-4.0-E								■		
	3T1630-4.2-E								■		
	3T1630-4.5-E								■		
	3T1630-5.0-E								■		

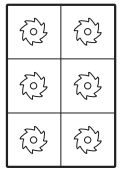
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1630-0.8-E, K10

UFO T-slot Insert

- Toolholders P. 27
- Cutting Data P. 125 - 126



Dimensions in mm			
D	d1	AE	Max. AR
30	15.7	0.8-0.9	6.5
		1.0-1.1	
		1.2-1.3	
		1.4-1.5	
		1.6-1.8	
		1.9-2.0	
		2.2-2.5	
		3.0-4.0	
		5.0	

Inserts	Part No .	Grades									ME
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
 8 flute inserts	3T1630-0.8-ME	◎									 Inserts 6 PCS / Box
	3T1630-0.9-ME	◎									
	3T1630-1.0-ME	◎									
	3T1630-1.1-ME	◎									
	3T1630-1.2-ME	◎									
	3T1630-1.3-ME	◎									
	3T1630-1.4-ME	◎									
	3T1630-1.5-ME	◎									
	3T1630-1.6-ME	◎									
	3T1630-1.7-ME	◎									
	3T1630-1.8-ME	◎									
	3T1630-1.9-ME	◎									
	3T1630-2.0-ME	◎									
	3T1630-2.2-ME	◎									
	3T1630-2.5-ME	◎									
	3T1630-3.0-ME	◎									
	3T1630-3.5-ME	◎									
	3T1630-4.0-ME	◎									
	3T1630-4.2-ME	◎									
	3T1630-4.5-ME	◎									
	3T1630-5.0-ME	◎									

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1630-0.8-ME, B100

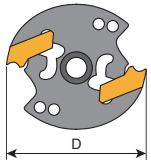
Features

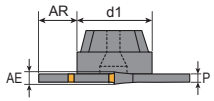
- Available in materials (P K M N S H)
- Cost 200~300% DOWN
- Variety of Machines CNC Milling machine
- Efficiency 400% UP
- Durability 300% UP

UFO T-slot Cutter

- Toolholders P. 27
- Insert P. 187 - 194
- Cutting Data P. 127 - 128

3T





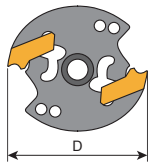
Order code	Dimensions(mm)						KG	MAX RPM	Insert LNGT	Key
	D	d1	AR	AE	P					
3T1632-1.4	32	16	7.5	1.4 1.5	1.2	2	0.05	8000	1414 1415	150.10-30
3T1632-1.6				1.6	1.4				1616	
3T1632-1.8				1.8	1.6				1818	
3T1632-2.0				2.0 2.2 2.5	1.75				2020 2022 2025	
3T1632-2.5				2.5 2.7 3.0	2.25				2525 2527 2530	
3T1632-3.0				3.0 3.2 3.5	2.7		0.06		3030 3032 3035	
3T1632-4.0				4.0 4.2 4.5	3.7				4040 4042 4045	
3T1632-5.0				5.0 5.2 5.5	4.5		0.065		5050 5052 5055	

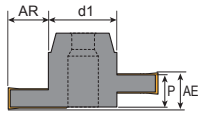
* Key 150.10-30 is not included

UFO T-slot Cutter

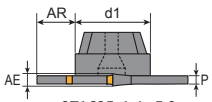
- Toolholders P. 27
- Insert P. 187 - 194
- Cutting Data P. 127 - 128

3T





3T1635-6.0, 3T1635-8.0



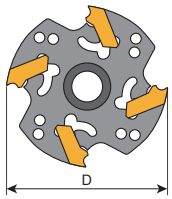
3T1635-1.4~5.0

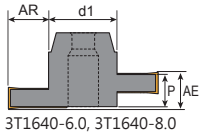
Order code	Dimensions(mm)						KG	MAX RPM	Insert LNGT	Key
	D	d1	AR	AE	P					
3T1635-1.4	35	16	9.0	1.4 1.5	1.2	2	0.05	8000	1414 1415	150.10-30
3T1635-1.6				1.6	1.4				1616	
3T1635-1.8				1.8	1.6				1818	
3T1635-2.0				2.0 2.2 2.5	1.75				2020 2022 2025	
3T1635-2.5				2.5 2.7 3.0	2.25				2525 2527 2530	
3T1635-3.0				3.0 3.2 3.5	2.7		0.06		3030 3032 3035	
3T1635-4.0				4.0 4.2 4.5	3.7				4040 4042 4045	
3T1635-5.0				5.0 5.2 5.5	4.5				5050 5052 5055	
3T1635-6.0				6.0	5.5		0.065		5050NS	
3T1635-8.0				8.0	7.5					

* Key 150.10-30 is not included

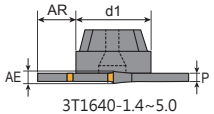
UFO T-slot Cutter

- Toolholders P. 27
- Insert P. 187 - 194
- Cutting Data P. 127 - 128





3T1640-6.0, 3T1640-8.0



3T1640-1.4~5.0

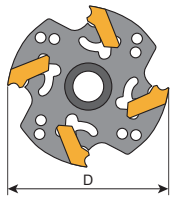
3T

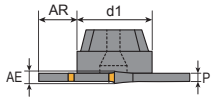
Order code	Dimensions(mm)						KG	MAX RPM	Insert LNGT	Key
	D	d1	AR	AE	P					
3T1640-1.4	40	16	11.5	1.4 1.5	1.2	4	0.06	7500	1414 1415	150.10-30
3T1640-1.6				1.6	1.4				1616	
3T1640-1.8				1.8	1.6				1818	
3T1640-2.0				2.0 2.2 2.5	1.75				2020 2022 2025	
3T1640-2.5				2.5 2.7 3.0	2.25				2525 2527 2530	
3T1640-3.0				3.0 3.2 3.5	2.7		0.07		3030 3032 3035	
3T1640-4.0				4.0 4.2 4.5	3.7				4040 4042 4045	
3T1640-5.0				5.0 5.2 5.5	4.5				5050 5052 5055	
3T1640-6.0				6.0	5.5		0.08		5050NS	
3T1640-8.0				8.0	7.5					

* Key 150.10-30 is not included

UFO T-slot Cutter

- Toolholders P. 28
- Insert P. 187 - 194
- Cutting Data P. 127 - 128





3T

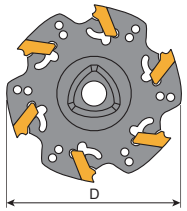
Order code	Dimensions(mm)						KG	MAX RPM	Insert LNGT	Key
	D	d1	AR	AE	P					
3T2550-1.4	50	25	12	1.4 1.5	1.2	4	0.07	7000	1414 1415	150.10-30
3T2550-1.6				1.6	1.4				1616	
3T2550-1.8				1.8	1.6				1818	
3T2550-2.0				2.0 2.2 2.5	1.75				2020 2022 2025	
3T2550-2.5				2.5 2.7 3.0	2.25				2525 2527 2530	
3T2550-3.0				3.0 3.2 3.5	2.7		0.08		3030 3032 3035	
3T2550-4.0				4.0 4.2 4.5	3.7				4040 4042 4045	
3T2550-5.0				5.0 5.2 5.5	4.5				5050 5052 5055	

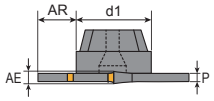
* Key 150.10-30 is not included

UFO T-slot Cutter

- Toolholders P. 28
- Insert P. 187 - 194
- Cutting Data P. 127 - 128

3T





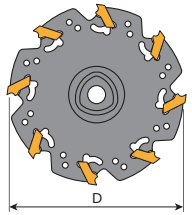
Order code	Dimensions(mm)						KG	MAX RPM	Insert LNGT	Key
	D	d1	AR	AE	P					
3T2560-1.4	60	25	17	1.4 1.5	1.2	6	0.08	6500	1414 1415	150.10-30
3T2560-1.6				1.6	1.4				1616	
3T2560-1.8				1.8	1.6				1818	
3T2560-2.0				2.0 2.2 2.5	1.75				2020 2022 2025	
3T2560-2.5				2.5 2.7 3.0	2.25				2525 2527 2530	
3T2560-3.0				3.0 3.2 3.5	2.7		0.09		3030 3032 3035	
3T2560-4.0				4.0 4.2 4.5	3.7				4040 4042 4045	
3T2560-5.0				5.0 5.2 5.5	4.5				5050 5052 5055	

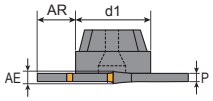
* Key 150.10-30 is not included

UFO T-slot Cutter

- Toolholders P. 28
- Insert P. 187 - 194
- Cutting Data P. 127 - 128

3T





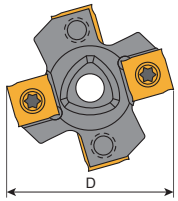
Order code	Dimensions(mm)						KG	MAX RPM	Insert LNGT	Key
	D	d1	AR	AE	P					
3T2580-1.4	80	25	27	1.4 1.5	1.2	8	0.08	6500	1414 1415	150.10-30
3T2580-1.6				1.6	1.4				1616	
3T2580-1.8				1.8	1.6				1818	
3T2580-2.0				2.0 2.2 2.5	1.75				2020 2022 2025	
3T2580-2.5				2.5 2.7 3.0	2.25				2525 2527 2530	
3T2580-3.0				3.0 3.2 3.5	2.7		0.09		3030 3032 3035	
3T2580-4.0				4.0 4.2 4.5	3.7				4040 4042 4045	
3T2580-5.0				5.0 5.2 5.5	4.5				5050 5052 5055	

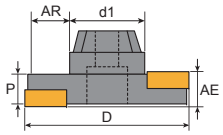
* Key 150.10-30 is not included

UFO T-slot Cutter

- Toolholders P. 28
- Insert P. 195 - 197
- Cutting Data P. 129 - 130

3TS



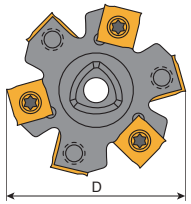


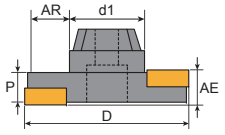
Order code	Dimensions(mm)						Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	d1	AR	AE	P							
3TS2550-4.0	50	25	12	4	3.4	4	2	0.15	17000	1102	T9354	908-T9
3TS2550-5.0				5	4.2					1103	T9355	908-T8
3TS2550-6.0				6	5					1203	T945	908-T15
3TS2550-7.0				7	6					1204	T946	
3TS2550-8.0				8	7					12045	T947	
3TS2550-10				10	9			0.20		1205	T948	
3TS2550-12				12	11					1207	T9411	

UFO T-slot Cutter

- Toolholders P. 28
- Insert P. 195 - 197
- Cutting Data P. 129 - 130

3TS



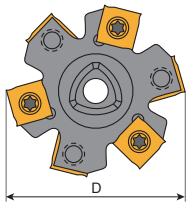


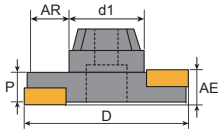
Order code	Dimensions(mm)						Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	d1	AR	AE	P							
3TS2560-4.0	60	25	17	4	3.4	6	3	0.2	15000	1102	T9354	908-T9
3TS2560-5.0				5	4.2					1103	T9355	908-T8
3TS2560-6.0				6	5					1203	T945	908-T15
3TS2560-7.0				7	6					1204	T946	
3TS2560-8.0				8	7					12045	T947	
3TS2560-10				10	9			0.3		1205	T948	
3TS2560-12				12	11					1207	T9411	

UFO T-slot Cutter

- Toolholders P. 28
- Insert P. 195 - 197
- Cutting Data P. 129 - 130

3TS



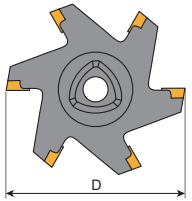


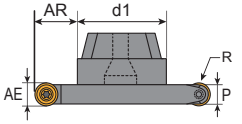
Order code	Dimensions(mm)						Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	d1	AR	AE	P							
3TS2580-4.0	80	25	27	4	3.4	8	4	0.2	14000	1102	T9354	908-T9
3TS2580-5.0				5	4.2					1103	T9355	908-T8
3TS2580-6.0				6	5					1203	T945	908-T15
3TS2580-7.0				7	6					1204	T946	
3TS2580-8.0				8	7	6	3	0.3		12045	T947	
3TS2580-10				10	9					1205	T948	
3TS2580-12				12	11					1207	T9411	

UFO T-slot Cutter

- Toolholders P. 28

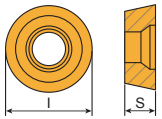
3T



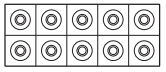


Order code	Dimensions(mm)						KG	MAX RPM	Insert RDKW RDKT RPKT	Screw	Key
	D	d1	AR	AE	P	R					
3T2560-R4	60	25	17	8	6.2	4R	0.30	13000	0803	C02506	T08P
3T2580-R4	80		27					12000			
3T2560-R5	60		17	10	8.0	5R	0.35	13000	10T3	C03006	T09P
3T2580-R5	80		27					12000			
3T2560-R6	60		17	12	10	6R	0.50	9500	1204	C03508	T15P
3T2580-R6	80		27					9000			

RDKT / RDKW / RPKT Insert



Tolerances (mm)
D=±0.04 S=±0.05



Inserts 10 PCS / Box

Dimensions in mm			
SIZE	S	I	R
0803	3.18	8	4
10T3	3.97	10	5
1204	4.7	12	6

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
	RDKW 0803MOT-MD	◎		■							
	RDKT 10T3MOT-M	◎		■							
	RPKT 1204MOT-M	◎		■							

- ■ Steel ■ Stainless Steel ■ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ■ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: RDKW 0803MOT-MD, B100

UFO THREAD MILLING

Features

- Available in materials: P K M N S H
- Cost 200~300% DOWN
- Variety of Machines: CNC Milling machine
- Efficiency 400% UP
- Durability 300% UP

New System For Thread Milling

UFO

Thread Milling

Optimal Center Positioning Design

This unique UFO thread milling insert has a tapered polygonal design to optimize the stability and tolerance of the insert. Special insert geometry design optimizes chip evacuation and reduce cutting force. It's the best choice to make a high precision thread with UFO thread milling.

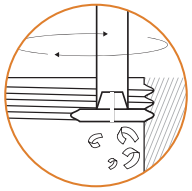
Applications

Metric, UN and Whitworth thread are available. Same shank can fit T-slot(min 0.5mm)、chamfer、Radius insert. Refer to Y.T. T-Slot and Saw Blade catalogue for more informations.

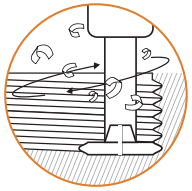
Patent No. M386953

Patent No. ZL 2010 2 0112933.7

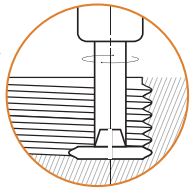
1 / Excellent chip evacuation

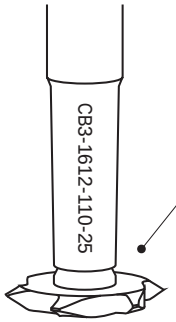


2 / High stability & Low cutting forces



3 / Same insert can make different pitches of thread.





Product Advantages

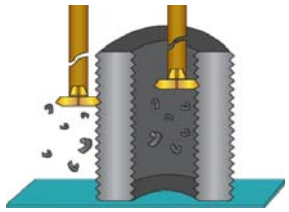
Indexable UFO thread mill - Excellent in chip evacuation and small cutting force.

Insert Design

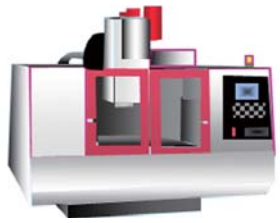
1. UFO thread milling insert dia. starts from M14/PITCH 1.5 it offers inserts for metric, UN and whitworth.
2. Unique tapered polygon design to get the excellent stability in high speed machining.
3. The front-mounted insert are positioned in a taper seat for center-positioning, giving secure and continuous performance.
4. High productivity with many teeth (4-6 teeth).

New

UFO thread mill is excellent in chip evacuation minimizes the problem of chip twining and tap breakage,reduces machine down time effectively, best choice for expensive components and reduces risk of tap breakage at the last stage of machining.



UFO thread mill inserts with single-point design has lower cutting force during machining, It's the first choice for medium to large threads in CNC M/C BT30 machining, thin-walled components and unstable conditions,such as milling thread with long overhangs.



Old

Machining with conventional HSS/ Carbide solid tap gets problems easily in chip evacuation, tap breakage on the parts and machining stopage,It takes time and cost to remove the breakage tap.

Advantages Of UFO Thread Milling

FIG.1

Same UFO thread milling insert for all holes and all pitches(only in V partial-profile insert). If use tap, it needs different taps for different holes and different pitches.

FIG.2

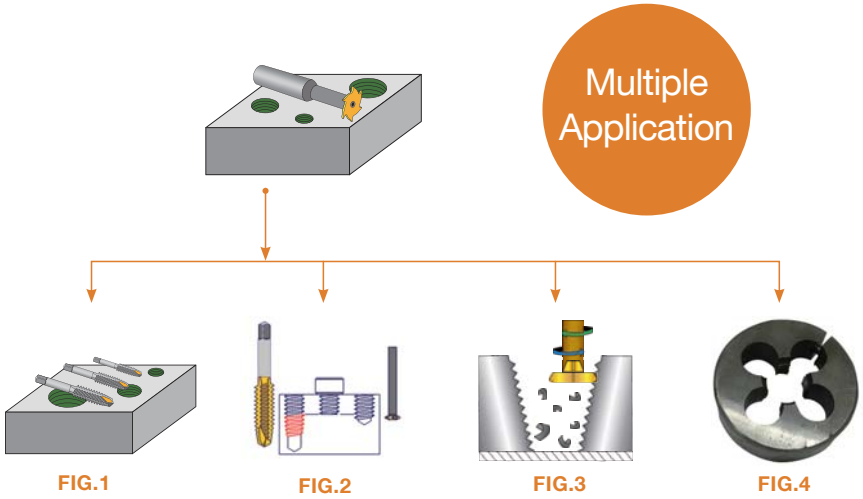
UFO thread milling can achieve full-bottom threading in a blind hole without any extra drill depth required. It's also easy to adjust the thread tolerance by programme and achieves better tolerance.

FIG.3

Same UFO thread milling inserts can be used in PT(NPT) thread without extra tool inventory. It provides better tool life an d less cutting force than PT tap.

FIG.4

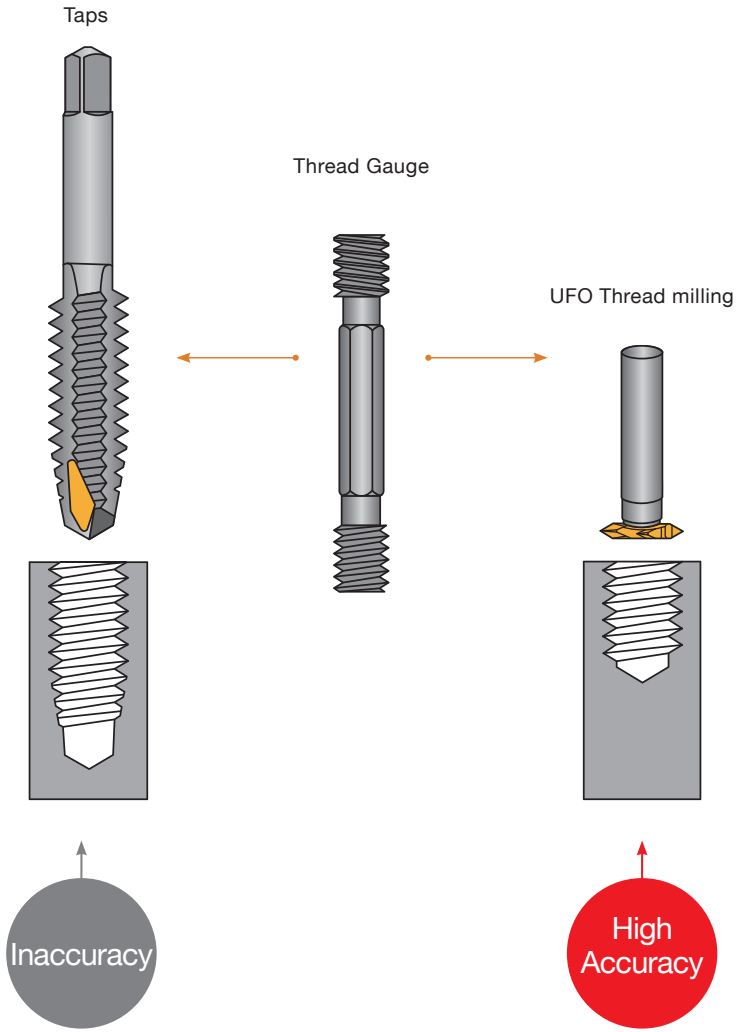
Same UFO thread milling insert is available for both external and internal threads.



Patent No. M386953

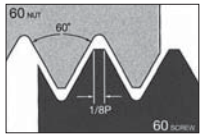
Patent No. ZL 2010 2 0112933.7

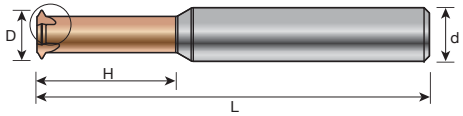
Advantages Of UFO Thread Milling



Solid Carbide Thread Milling (Single Pitch)-Partial Profile

- Cutting Data P. 131

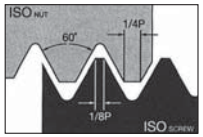


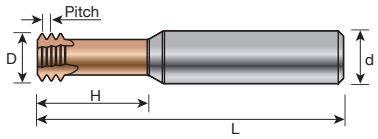


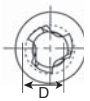
Order Number	Pitch Range		D	H	T	d	L
	MM	TPI					
AT0195-50	0.35-0.6	72-40	1.95	6.0	3	3	50
AT0245-50	0.5-0.8	48-32	2.45	7.7	3	3	50
AT0315-50	0.5-0.8	48-32	3.15	10	3	4	50
AT0400-50	0.5-1.0	48-24	4.0	12	3	4	50
AT0470-60	0.5-1.25	48-20	4.7	15	3	6	60
AT0600-60	0.5-1.25	48-20	6.0	18	3	6	60
AT0800-60	0.75-1.5	32-16	8.0	24	3	8	60
AT1000-80	1.0-2.5	24-10	10	30	4	10	80

Solid Carbide Thread Milling 2D (Multi-Pitch) MM

- Cutting Data P. 131



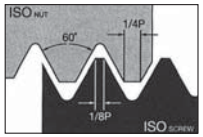


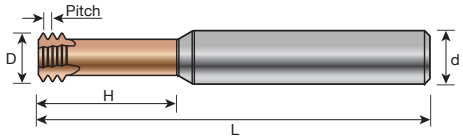


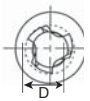
Thread Length Up To 2D

Order Number	Thread Size	Pitch	D	H	T	d	L
BT0240-50	M3.0 X 0.5	0.5	2.4	6.4	3	4	50
BT0275-50	M3.5 X 0.6	0.6	2.75	7.4	3	4	50
BT0315-60	M4 X 0.7	0.7	3.15	8.6	3	6	60
BT0400-60	M5 X 0.8	0.8	4.0	12.0	3	6	60
BT0475-60	M6 X 1.0	1.0	4.75	13.0	3	6	60
BT0600-60	M8 X 1.25	1.25	6.5	17.3	3	8	60
BT0790-60	M10 X 1.5	1.5	7.9	22.0	3	8	60
BT0950-80	M12 X 1.75	1.75	9.5	25.5	3	10	80

Solid Carbide Thread Milling 3D (Multi-Pitch) MM





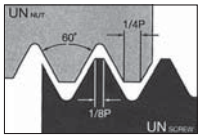


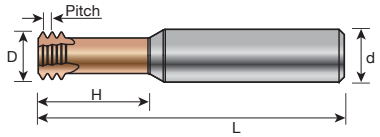
Thread Length Up To 3D

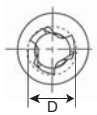
Order Number	Thread Size	Pitch	D	H	T	d	L
BTL0240-50	M3.0 X 0.5	0.5	2.4	9.3	3	4	50
BTL0315-60	M4.0 X 0.7	0.7	3.15	12.4	3	6	60
BTL0400-60	M5 X 0.8	0.8	4.0	15.6	3	6	60
BTL0475-60	M6 X 1.0	1.0	4.75	19.0	3	6	60
BTL0650-60	M8 X 1.25	1.25	6.5	24.3	3	8	60
BTL0790-60	M10 X 1.5	1.5	7.9	31.0	3	8	60
BTL0950-80	M12 X 1.75	1.75	9.5	36.5	3	10	80

Solid Carbide Thread Milling 2D (Multi-Pitch) UN

• Cutting Data P. 131



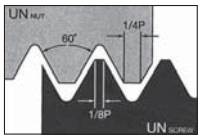


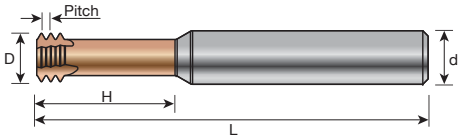


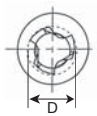
Thread Length Up To 2D

Order code	UNC	UNF	Pitch	D	H	T	d	L
UT404-50	No.5 - 40 UNC	No.6 - 40 UNF	40	2.46	7.1	3	4	50
UT364-50	-	No.8 - 36 UNF	36	3.31	8.8	3	4	50
UT324-50	No.6 - 32 UNC	-	32	2.57	7.3	3	4	50
UT326-60	No.8 - 32 UNC	No.10 - 32 UNF	32	3.22	10.1	3	6	60
UT286-60	-	1/4 - 28 UNF	28	5.2	14	3	6	60
UT246-60	No.10 - 24 UNC	-	24	3.55	10.4	3	6	60
UT248-60	-	5/16 - 24 UNF	24	6.65	16.7	3	8	60
UT206-60	1/4 - 20 UNC	7/16 - 20 UNF	20	4.85	13.7	3	6	60
UT208-60	-	7/16 - 20 UNF	20	7.95	24	3	8	60
UT186-60	5/16 - 18 UNC	-	18	5.95	16.5	3	6	60
UT168-60	3/8 - 16 UNC	-	16	6.9	21	3	8	60
UT148-60	7/16 - 14 UNC	-	14	7.95	23.5	3	8	60
UT1310-80	1/2 - 13 UNC	-	13	9.3	27	3	10	80

Solid Carbide Thread Milling 3D (Multi-Pitch) UN







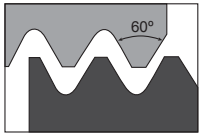
Thread Length Up To 3D

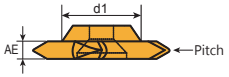
Order code	UNC	UNF	Pitch	D	H	T	d	L
UTL404-50	No.5 - 40 UNC	No.6 - 40 UNF	40	2.46	9.8	3	4	50
UTL324-60	No.6 - 32 UNC	-	32	2.57	10.7	3	4	50
UTL326-60	No.8 - 32 UNC	No.10 - 32 UNF	32	3.22	12.7	3	6	60
UTL286-60	-	1/4 - 28 UNF	28	5.2	19.3	3	6	60
UTL248-60	-	5/16 - 24 UNF	24	6.65	24.2	3	8	60
UTL206-60	1/4 - 20 UNC	7/16 - 20 UNF	20	4.85	19.4	3	6	60

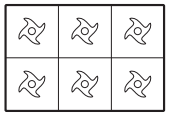
UFO Thread Milling Insert

• Toolholders P. 23
• Cutting Data P. 132 - 133

External / Internal





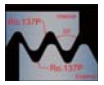


Inserts 6 pcs / box

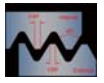
Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
12	6.5	3.2	-	16~10	55°	16.50	0.65"
		2.1	1.0~1.5	-	60°	14.00	-
		3.2	1.75~2.5				

Inserts	Part No .	Grades: Carbide B100	Carbide C200	Carbide C250	Carbide F20	Carbide F30	Metal cermet CE25	Metal cermet CE60	Uncoated	Uncoated K10	Uncoated CE
 55° BSW/BSF	3T1-0612-55-16~10TPI-E				■						
	3T1-0612-55-16~10TPI-ME	◎			■						
 60° ISO Metric(M,MF)	3T1-0612-60-1.0~1.5-E				■						
	3T1-0612-60-1.75~2.5-E				■						
	3T1-0612-60-1.0~1.5-ME	◎			■						
	3T1-0612-60-1.75~2.5-ME	◎			■						



BSW Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
BSF Defined by: B.S.2779:1956
Tolerance class: BSW-Medium class A, BSF-Medium class



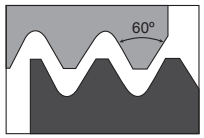
Defined by: R262 (DIN 13)
Tolerance class:6g/6H

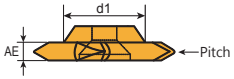
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1-0612-55-16~10TPI-E, F20
- Full Profile insert is not in standard stock,it needs to be ordered

UFO Thread Milling Insert

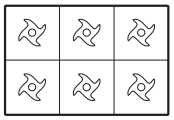
- Toolholders P. 24
- Cutting Data P. 132 - 133

External / Internal





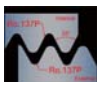
Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015



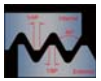
Inserts 6 pcs / box

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
15	7.9	4.0	-	11~8	55°	17.80	0.7"
		2.1	1.0~1.5				
		4.0	1.75~3.0	-	60°	17.00	-

Inserts	Part No .	Grades										E	ME
		Carbide					Metal cermet			Uncoated			
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE		
 55° BSW/BSF	3T1-0815-55-11~8TPI-E				■								
	3T1-0815-55-11~8TPI-ME	◎			■								
 60° ISO Metric(M,MF)	3T1-0815-60-1.0~1.5-E				■								
	3T1-0815-60-1.75~3.0-E				■								
	3T1-0815-60-1.0~1.5-ME	◎			■								
	3T1-0815-60-1.75~3.0-ME	◎			■								



BSW Defined by:
B.S.84:1956,
DIN 259, ISO228/1:1982
BSF Defined by:
B.S.2779:1956
Tolerance class: BSW-Medium
class A, BSF-Medium class



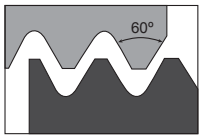
Defined by: R262 (DIN 13)
Tolerance class:6g/6H

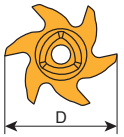
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1-0815-55-11~8TPI-E, F20
- Full Profile insert is not in standard stock,it needs to be ordered

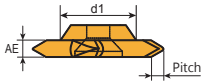
UFO Thread Milling Insert

- Toolholders P. 25
- Cutting Data P. 132 - 133

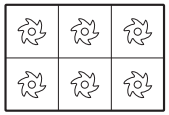
External / Internal







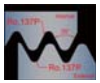
Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015



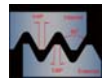
Inserts 6 pcs / box

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
20	9.9	4.6	-	11~6	55°	22.80	0.9"
		2.1	1.0~1.5				
		4.6	1.75~3.5	-	60°	22.00	-

Inserts	Part No .	Grades										E	ME
		Carbide					Metal cermet			Uncoated			
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE		
 55° BSW/BSF	3T1-1020-55-11~6TPI-E				■								
	3T1-1020-55-11~6TPI-ME	◎			■								
 60° ISO Metric(M,MF)	3T1-1020-60-1.0~1.5-E				■								
	3T1-1020-60-1.75~3.5-E				■								
	3T1-1020-60-1.0~1.5-ME	◎			■								
	3T1-1020-60-1.75~3.5-ME	◎			■								



BSW Defined by:
B.S.84:1956,
DIN 259, ISO228/1:1982
BSF Defined by:
B.S.2779:1956
Tolerance class: BSW-Medium
class A, BSF-Medium class



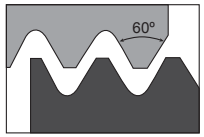
Defined by: R262 (DIN 13)
Tolerance class:6g/6H

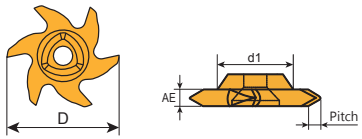
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1-1020-55-11~6TPI-E, F20
- Full Profile insert is not in standard stock,it needs to be ordered

UFO Thread Milling Insert

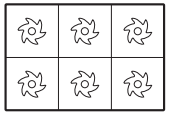
- Toolholders P. 26
- Cutting Data P. 132 - 133

External / Internal





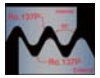
Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015



Inserts 6 pcs / box

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
25	12	4.6	-	11~5	55°	28.50	1.125"
		2.1	1.75~5.0	-	60°	27.00	-
		4.6	1.0~1.5				

Inserts	Part No .	Grades										
		Carbide					Metal cermet			Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE	
 55° BSW/BSF	3T1-1225-55-11~5TPI-E				■							
	3T1-1225-55-11~5TPI-ME	◎			■							
 60° ISO Metric(M,MF)	3T1-1225-60-1.0~1.5-E				■							
	3T1-1225-60-1.75~5.0-E				■							
	3T1-1225-60-1.0~1.5-ME	◎			■							
	3T1-1225-60-1.75~5.0-ME	◎			■							



BSW Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
BSF Defined by: B.S.2779:1956
Tolerance class: BSW-Medium class A, BSF-Medium class

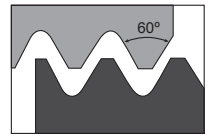
Defined by: R262 (DIN 13)
Tolerance class:6g/6H

- ■ Steel ■ Stainless Steel ■ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ■ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1-1225-55-11~5TPI-E, F20
- Full Profile insert is not in standard stock,it needs to be ordered

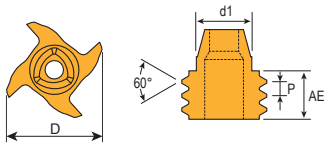
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 23
- Cutting Data P. 132 - 133

ISO



P1.0-P1.5

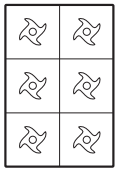


Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
10	6.5	4.0	1.0	-	60°	12.40	-
		4.5	1.25	-			
		5.5	1.5	-			

Inserts	Part No .	Grades										
		Carbide					Metal cermet			Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE	
 ISO Metric(M,MF)	3T0610-ISO1.0-E				■							
	3T0610-ISO1.25-E				■							
	3T0610-ISO1.5-E				■							
	3T0610-ISO1.0-ME	◎			■							
	3T0610-ISO1.25-ME	◎			■							
	3T0610-ISO1.5-ME	◎			■							

Defined by: R262 (DIN 13)
Tolerance class:6g/6H



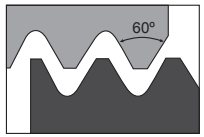
Inserts 6 PCS / Box
* M.O.Q: 12PCS

- ■ Steel ■ Stainless Steel ■ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ■ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0610-ISO1.0-E, F20

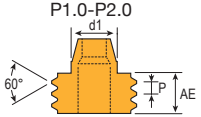
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 23
- Cutting Data P. 132 - 133

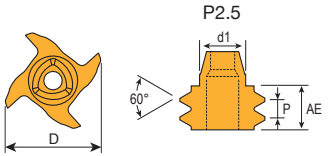
ISO



P1.0-P2.0



P2.5

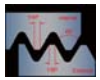


Tolerances (mm)

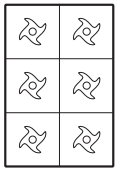
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
12	6.5	4.0	1.0	-	60°	14.00	-
		4.5	1.25	-			
		5.5	1.5	-			
		7.0	2.0	-			
		6.0	2.5	-			

Inserts	Part No .	Grades									E	ME
		Carbide					Metal cermet		Uncoated			
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE		
ISO Metric(M,MF)	3T0612-ISO1.0-E				■							
	3T0612-ISO1.25-E				■							
	3T0612-ISO1.5-E				■							
	3T0612-ISO2.0-E				■							
	3T0612-ISO2.5-E				■							
	3T0612-ISO1.0-ME	◎			■							
	3T0612-ISO1.25-ME	◎			■							
	3T0612-ISO1.5-ME	◎			■							
	3T0612-ISO2.0-ME	◎			■							
	3T0612-ISO2.5-ME	◎			■							



Defined by: R262 (DIN 13)
Tolerance class:6g/6H



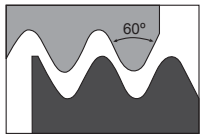
Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0612-ISO1.0-E, F20

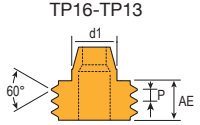
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 23
- Cutting Data P. 132 - 133

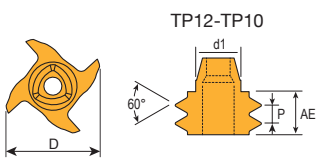
UNC



TP16-TP13



TP12-TP10



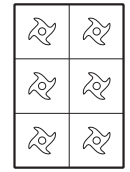
Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
12	6.5	5.5	-	16	60°	14.00	0.55"
		6.0	-	14			
		6.5	-	13			
		5.0	-	12			
		5.5	-	11			
		6.0	-	10			

Inserts	Part No .	Grades									E	ME
		Carbide					Metal cermet		Uncoated			
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE		
UNC/UNF	3T0612-UNC16-E				■							
	3T0612-UNC14-E				■							
	3T0612-UNC13-E				■							
	3T0612-UNC12-E				■							
	3T0612-UNC11-E				■							
	3T0612-UNC10-E				■							
	3T0612-UNC16-ME	◎			■							
	3T0612-UNC14-ME	◎			■							
	3T0612-UNC13-ME	◎			■							
	3T0612-UNC12-ME	◎			■							
	3T0612-UNC11-ME	◎			■							
	3T0612-UNC10-ME	◎			■							

Defined by: R262 (DIN 13)
Tolerance class:6g/6H



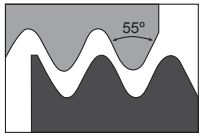
Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0612-UNC16-E, F20

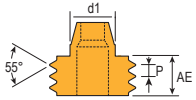
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 23
- Cutting Data P. 132 - 133

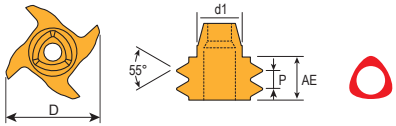
BSW



TP16-TP14



TP12-TP10

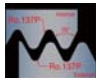


Tolerances (mm)

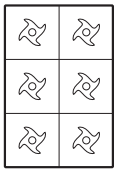
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
12	6.5	5.5	-	16	55°	16.51	0.65"
		6.0	-	14			
		5.0	-	12			
		5.0	-	11			
		6.0	-	10			

Inserts	Part No .	Grades: Carbide B100	C200	C250	F20	F30	Metal cermet CE25	CE60	Uncoated K10	CE
BSW/BSF	3T0612-BSW16-E				■					
	3T0612-BSW14-E				■					
	3T0612-BSW12-E				■					
	3T0612-BSW11-E				■					
	3T0612-BSW10-E				■					
	3T0612-BSW16-ME	◎			■					
	3T0612-BSW14-ME	◎			■					
	3T0612-BSW12-ME	◎			■					
	3T0612-BSW11-ME	◎			■					
	3T0612-BSW10-ME	◎			■					



BSW Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
BSF Defined by: B.S.2779:1956
Tolerance class: BSW-Medium
class A, BSF-Medium class



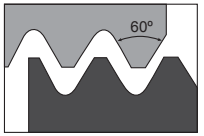
Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0612-BSW16-E, F20

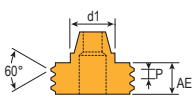
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 24
- Cutting Data P. 132 - 133

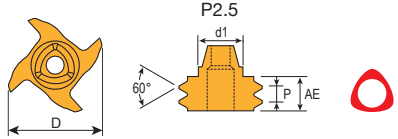
ISO



P1.0-P2.0



P2.5

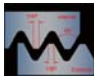


Tolerances (mm)

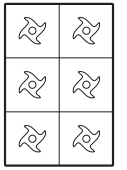
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
15	7.9	4.0	1.0	-	60°	17.30	-
		4.5	1.25	-			
		5.5	1.5	-			
		7.0	2.0	-			
		6.0	2.5	-			

Inserts	Part No .	Grades: Carbide B100	C200	C250	F20	F30	Metal cermet CE25	CE60	Uncoated K10	CE
ISO Metric (M,MF)	3T0815-ISO1.0-E				■					
	3T0815-ISO1.25-E				■					
	3T0815-ISO1.5-E				■					
	3T0815-ISO2.0-E				■					
	3T0815-ISO2.5-E				■					
	3T0815-ISO1.0-ME	◎			■					
	3T0815-ISO1.25-ME	◎			■					
	3T0815-ISO1.5-ME	◎			■					
	3T0815-ISO2.0-ME	◎			■					
	3T0815-ISO2.5-ME	◎			■					



Defined by: R262 (DIN 13)
Tolerance class:6g/6H



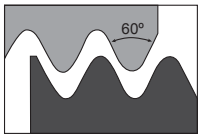
Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0815-ISO1.0-E, F20

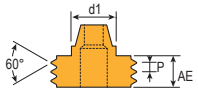
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 24
- Cutting Data P. 132 - 133

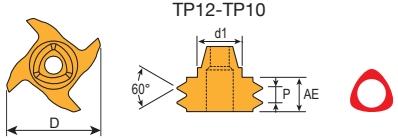
UNC



TP16-TP13



TP12-TP10



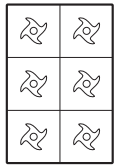
Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
15	7.9	5.5	-	16	60°	17.78	0.7"
		6.0	-	14			
		6.5	-	13			
		5.0	-	12			
		5.5	-	11			
		6.0	-	10			

Inserts	Part No .	Grades: Carbide B100	C200	C250	F20	F30	Metal cermet CE25	CE60	Uncoated K10	CE	E	ME
UNC/UNF	3T0815-UNC16-E				■							
	3T0815-UNC14-E				■							
	3T0815-UNC13-E				■							
	3T0815-UNC12-E				■							
	3T0815-UNC11-E				■							
	3T0815-UNC10-E				■							
	3T0815-UNC16-ME	◎			■							
	3T0815-UNC14-ME	◎			■							
	3T0815-UNC13-ME	◎			■							
	3T0815-UNC12-ME	◎			■							
	3T0815-UNC11-ME	◎			■							
	3T0815-UNC10-ME	◎			■							

Defined by: R262 (DIN 13)
Tolerance class:6g/6H



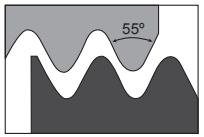
Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0815-UNC16-E, F20

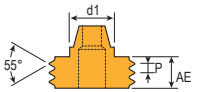
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 24
- Cutting Data P. 132 - 133

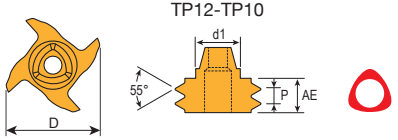
BSW



TP16-TP14



TP12-TP10

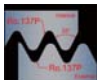


Tolerances (mm)

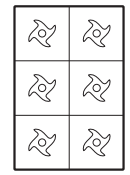
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
15	7.9	5.5	-	16	55°	18.03	0.71"
		6.0	-	14			
		5.0	-	12			
		5.0	-	11			
		6.0	-	10			

Inserts	Part No .	Grades: Carbide B100	C200	C250	F20	F30	Metal cermet CE25	CE60	Uncoated K10	CE	E	ME
BSW/BSF	3T0815-BSW16-E				■							
	3T0815-BSW14-E				■							
	3T0815-BSW12-E				■							
	3T0815-BSW11-E				■							
	3T0815-BSW10-E				■							
	3T0815-BSW16-ME	◎			■							
	3T0815-BSW14-ME	◎			■							
	3T0815-BSW12-ME	◎			■							
	3T0815-BSW11-ME	◎			■							
	3T0815-BSW10-ME	◎			■							



BSW Defined by:
B.S.84:1956,
DIN 259, ISO228/1:1982
BSF Defined by:
B.S.2779:1956
Tolerance class: BSW-Medium
class A, BSF-Medium class



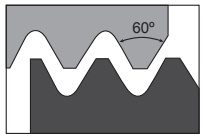
Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0815-BSW16-E, F20

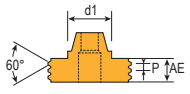
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 25
- Cutting Data P. 132 - 133

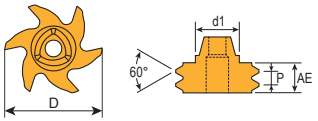
ISO



P1.0-P2.0



P2.5-P3.5

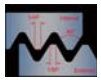


Tolerances (mm)

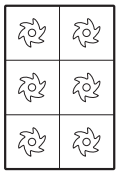
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
20	9.9	4.0	1.0	-	60°	23.00	-
		4.5	1.25	-			
		5.5	1.5	-			
		7.0	2.0	-			
		6.0	2.5	-			
		7.0	3.0	-			
		8.0	3.5	-			

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
ISO Metric (M,MF)	3T1020-ISO1.0-E				■						E
	3T1020-ISO1.25-E				■						E
	3T1020-ISO1.5-E				■						E
	3T1020-ISO2.0-E				■						E
	3T1020-ISO2.5-E				■						E
	3T1020-ISO3.0-E				■						E
	3T1020-ISO3.5-E				■						E
	3T1020-ISO1.0-ME	◎			■						ME
	3T1020-ISO1.25-ME	◎			■						ME
	3T1020-ISO1.5-ME	◎			■						ME
	3T1020-ISO2.0-ME	◎			■						ME
	3T1020-ISO2.5-ME	◎			■						ME
	3T1020-ISO3.0-ME	◎			■						ME
	3T1020-ISO3.5-ME	◎			■						ME



Defined by: R262 (DIN 13)
Tolerance class:6g/6H



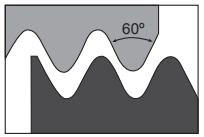
Inserts 6 PCS / Box

- Steel ☐ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1020-ISO1.0-E, F20

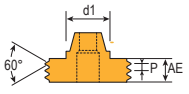
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 25
- Cutting Data P. 132 - 133

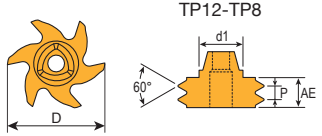
UNC



TP16-TP13



TP12-TP8

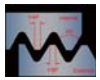


Tolerances (mm)

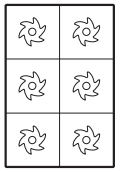
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
20	9.9	5.5	-	16	60°	22.86	0.9"
		6.0	-	14			
		6.5	-	13			
		5.0	-	12			
		5.5	-	11			
		6.0	-	10			
		6.5	-	9			
		7.0	-	8			

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
UNC/UNF	3T1020-UNC16-E				■						E
	3T1020-UNC14-E				■						E
	3T1020-UNC13-E				■						E
	3T1020-UNC12-E				■						E
	3T1020-UNC11-E				■						E
	3T1020-UNC10-E				■						E
	3T1020-UNC9-E				■						E
	3T1020-UNC8-E				■						E
	3T1020-UNC16-ME	◎			■						ME
	3T1020-UNC14-ME	◎			■						ME
	3T1020-UNC13-ME	◎			■						ME
	3T1020-UNC12-ME	◎			■						ME
	3T1020-UNC11-ME	◎			■						ME
	3T1020-UNC10-ME	◎			■						ME
	3T1020-UNC9-ME	◎			■						ME
	3T1020-UNC8-ME	◎			■						ME



Defined by: R262 (DIN 13)
Tolerance class:6g/6H



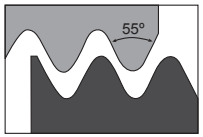
Inserts 6 PCS / Box

- Steel ☐ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1020-UNC16-E, F20

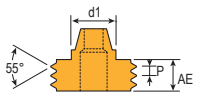
UFO Thread Milling Insert (Multi-Pitch)

- Toolholders P. 25
- Cutting Data P. 132 - 133

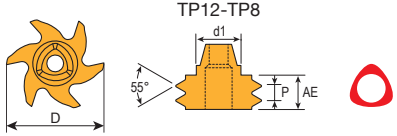
BSW



TP16-TP14



TP12-TP8

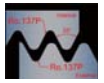


Tolerances (mm)

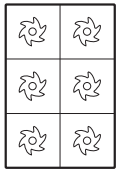
D : $^{+0.0}_{-0.05}$ AE : ± 0.015

Dimensions in mm							
D	d1	AE	Pitch mm	Pitch t.p.i	Angle	Minimum hole diameter MM	Minimum hole diameter INCH
20	9.9	5.5	-	16	55°	22.86	0.9"
		6.0	-	14			
		5.0	-	12			
		5.0	-	11			
		6.0	-	10			
		6.5	-	9			
		7.5	-	8			

Inserts	Part No .	Grades										
		Carbide					Metal cermet		Uncoated		E	ME
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE		
BSW/BSF	3T1020-BSW16-E				●							
	3T1020-BSW14-E				●							
	3T1020-BSW12-E				●							
	3T1020-BSW11-E				●							
	3T1020-BSW10-E				●							
	3T1020-BSW9-E				●							
	3T1020-BSW8-E				●							
	3T1020-BSW16-ME	◎			●							
	3T1020-BSW14-ME	◎			●							
	3T1020-BSW12-ME	◎			●							
	3T1020-BSW11-ME	◎			●							
	3T1020-BSW10-ME	◎			●							
	3T1020-BSW9-ME	◎			●							
	3T1020-BSW8-ME	◎			●							



BSW Defined by:
B.S.84:1956,
DIN 259, ISO228/1:1982
BSF Defined by:
B.S.2779:1956
Tolerance class: BSW-Medium
class A, BSF-Medium class

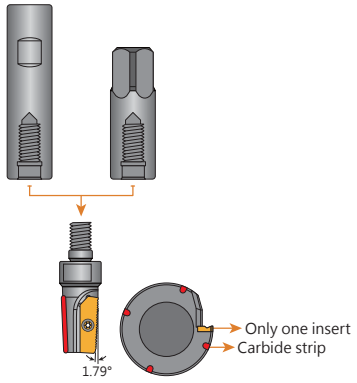


Inserts 6 PCS / Box

- ☐ Steel ☐ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1020-BSW16-E, F20

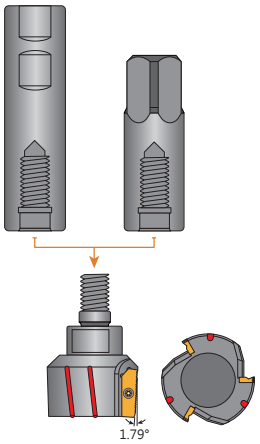
PRODUCT DESIGN

- One insert can fit in different size holders
- Patented carbide strip design on the cutter body for longer shank tool-life
- Using reaming process will reduce the resistance and prevent tap breakage



Can use 8 different types

RC & NPT
3/8",1/2",3/4",1"



Can use 6 different types

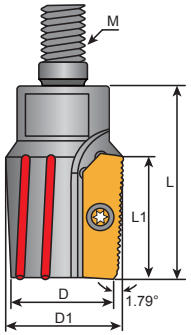
RC & NPT
1¼",1½",2"

Patent No. M442206 Patent No. ZL 2012 2 0187047.X PCT Priority No. PCT/CN2012/001022

PRODUCT SPECIFICATIONS

Indexable taper pipe reamer

- Used for Tapered pipe thread RC (BSPT)-Taper 1:16
- Common Insert TA (3/8" - 2")
- Combi holders see P. 96
- Insert details and cuttig data see P. 97

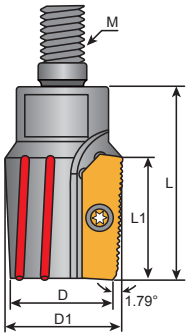


TA-RC

Order code	Dimensions(mm)					KG		Insert	Screw	Key
	D	D1	M	L	L1					
TA-RC-3/8"	14.10	15.34	M14	42	25	-	1	TA-2504	C03507	T10P
TA-RC-1/2"	17.95	19.18								
TA-RC-3/4"	23.39	24.63								
TA-RC-1"	29.70	30.94	M16				3			
TA-RC-1 1/4"	38.37	39.60								
TA-RC-1 1/2"	44.26	45.49								
TA-RC-2"	56.06	57.30		47						

Indexable taper pipe reamer

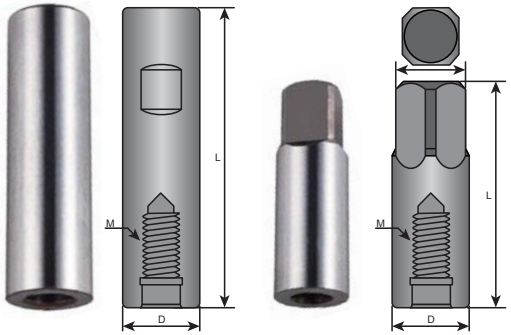
- Used for Tapered pipe thread RC (BSPT)-Taper 1:16
- Common Insert TA (3/8" - 2")
- Combi holders see P. 96
- Insert details and cuttig data see P. 97



TA-NPT

Order code	Dimensions(mm)					KG		Insert	Screw	Key
	D	D1	M	L	L1					
TA-NPT- 3/8"	14.22	15.46	M14	42	25	-	1	TA-2504	C03507	T10P
TA-NPT-1/2"	17.93	19.16								
TA-NPT-3/4"	23.28	24.51								
TA-NPT-1"	29.49	30.72	M16				3			
TA-NPT-1 1/4"	38.25	39.48								
TA-NPT-1 1/2"	44.32	45.55								
TA-NPT-2"	56.36	57.59		47						

Exclusive extendable holders - JIS/DIN/CBH



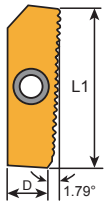
CBH JIS / DIN

Extendable Holder

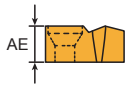
Order code	Dimensions(mm)			KG	
	D	L	M		
JIS-2020-60	20	60	M14	-	15
DIN-2020-60					16
CBH-2020-100		70			-
JIS-3232-78	32	78	M16		26
DIN-3232-78					24
CBH-3232-120		80			-

Reamer insert for taper pipe thread 1:16

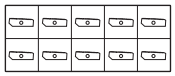
Carbide inserts TA series - RC(⅜"-2") · NPT(⅜"-2")



TA-2504-E



Tolerances(mm)
D:±0.02 AE:±0.01~0.015



Inserts 10 pcs / box

Dimensions in mm		
L1	D	AE
25.00	8	3.20

Inserts	Part No .	Grade											
		Carbide					Metal cermet			Uncoated		M	ME
		B100	C125	B150	F20	F30	CE25	CE60		K10	CE		
	TA-2504-M												
	TA-2504-ME												

TA

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: TA-2504-M, B100

Recommended Cutting Data And Insert Grade

- Selecting suitable insert grades table for taper pipe reamer

Material group No .	Cutting speed Vc(m/min)	Recom.feed Fz(mm/ tooth)		Grades		
		⅜ - 1"	1¼ - 2"	M	E	ME
1-2	15-20	0.1 0.2	0.1 0.2	B100	-	-
3	15-20	0.1 0.2	0.1 0.2	B100	-	-
4-5-6	10-15	0.1 0.2	0.1 0.2	B100	-	-
7	8-13	0.05 0.10	0.05 0.10	B100	-	-
8-11	8-13	0.1 0.2	0.1 0.2	B100	-	-
12-13	20-30	0.2 0.4	0.2 0.4	-	-	F20
14-15	20-30	0.2 0.4	0.2 0.4	-	-	F20

TECHNICAL GUIDE

Thread Infeed Depth Recommendation

Number of passes and infeed depths

The below recommended data is for steel

• External ISO - metric threads

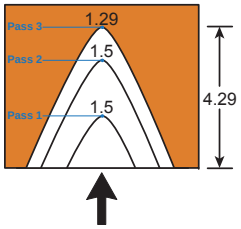
Pitch(mm)	6.0	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.75	1.5	1.25	1.0	0.80	0.75	0.50
Tot.inf.depth (mm)	3,82	3,52	3,19	2,87	2,53	2,23	1,92	1,60	1,25	1,13	0,93	0,81	0,65	0,52	0,48	0,48
Pass 1 (mm)	1,50	1,50	1,30	1,60	1,53	1,23	1,0	1,60	1,25	1,13	0,93	0,81	0,65	0,52	0,48	0,48
Pass 2 (mm)	1,30	1,20	1,10	1,37	1,0	1,0	0,92	-	-	-	-	-	-	-	-	-
Pass 3 (mm)	1,02	0,82	0,79	-	-	-	-	-	-	-	-	-	-	-	-	-

• Internal ISO-metric threads

Pitch(mm)	6.0	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.75	1.5	1.25	1.0	0.80	0.75	0.50
Tot.inf.depth (mm)	3,54	3,25	2,96	2,65	2,33	2,05	1,78	1,48	1,17	1,05	0,85	0,75	0,60	0,49	0,46	0,31
Pass 1 (mm)	1,50	1,30	1,60	1,50	1,33	1,10	1,0	1,48	1,17	1,05	0,85	0,75	0,60	0,49	0,46	0,31
Pass 2 (mm)	1,20	1,10	1,39	1,15	1,0	0,95	0,78	-	-	-	-	-	-	-	-	-
Pass 3 (mm)	0,84	0,85	-	-	-	-	-	-	-	-	-	-	-	-	-	-

• Internal-Inch threads

Pitch TPI	4.0	4.5	5.0	6.0	7.0	8.0	9.0	10	11	12	14	16	18	19	20	26	28
Tot.inf.depth (mm)	4,29	3,82	3,44	2,96	2,50	2,17	1,93	1,76	1,58	1,45	1,20	1,13	1,01	0,96	0,92	0,72	0,69
Pass 1 (mm)	1,50	1,50	1,50	1,60	1,40	1,20	1,10	1,76	1,58	1,45	1,20	1,13	1,01	0,96	0,92	0,72	0,69
Pass 2 (mm)	1,50	1,30	1,20	1,36	1,10	0,97	0,83	-	-	-	-	-	-	-	-	-	-
Pass 3 (mm)	1,29	1,02	0,74	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Example of thread infeed method

- On stainless steel,the infeed depth per pass should be decreased.
- The threading insert nose radius is relatively small and can be easily damaged if it is overloaded.

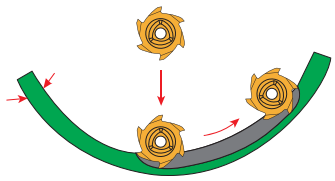
UFO

Internal Thread

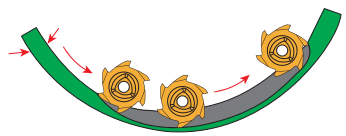
1

2

Best Recommended



Plunging Is Not Recommended



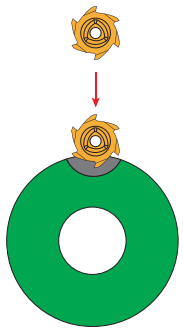
Ramping Is The Best Choice

External Thread

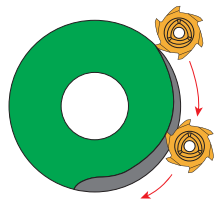
1

2

Best Recommended



Plunging Is Not Recommended



Ramping Is The Best Choice

About Thread Milling

In order to perform a thread milling operation, a milling machine with three-axis control capable of helical interpolation is required.Helical interpolation is a CNC function producing movement movement along helical path.This helical motion combines circular movement in one plane with a simultaneous linear motion in a plane perpendicular to the first. For example,the path from point A to point B (Fig.A) on the surface of the cylinder making a cicular movement in the xy plane with a linear displacement in the z direction.

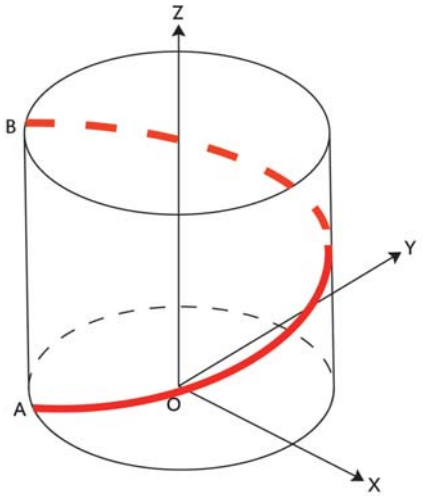
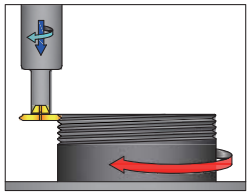


FIG.A

Thread Milling Methods

External

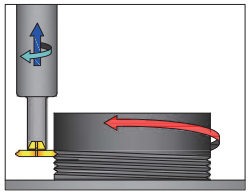
FIG.1



Best Recommended

Right Hand Thread-Climb Milling

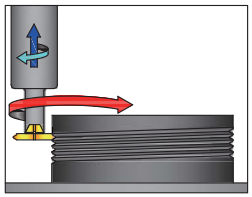
FIG.2



Best Recommended

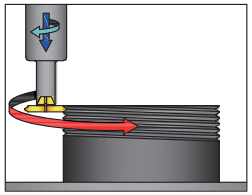
Left Hand Thread- Climb Milling

FIG.3



Right Hand Thread-
Conventional Milling

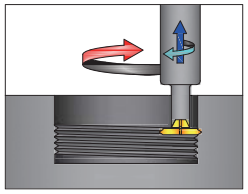
FIG.4



Left Hand Thread-
Conventional Milling

Internal

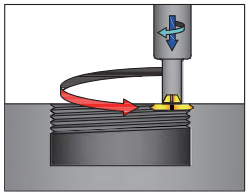
FIG.1



Best Recommended

Right Hand Thread-Climb Milling

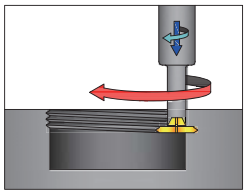
FIG.2



Best Recommended

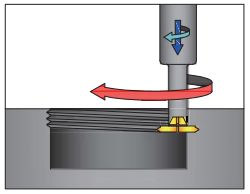
Left Hand Thread-Climb Milling

FIG.3



Right Hand Thread-
Conventional Milling

FIG.4



Left Hand Thread-
Conventional Milling

UFO

Internal Thread Milling Example Cnc Code

Method 1/Tool offset-cutter compensation

- Insert code / 3T1-0612-60-1.0~2.5
- Thread / M16*2.0P
- Milling / Climb milling / Internal thread
- CNC programme / Fanuc / Mitsubishi

FIG. 1

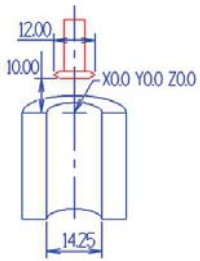
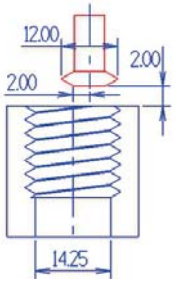


FIG. 2



Fanuc

G90 G0 G54 X0.0 Y0.0
G43 Z10.0 H1 S3978 M3 (On centerline of workpiece Fig1)
M7
G00 Z1.0 (Move to the starting point Fig 2)
G01 Z-6.0 F200
G41 D ? (cutter compensation)
G91 G03 X2.0 Y0.0 R2.0 F150
G03I-2.0 Z2.0 F630 (Thread milling)
G03I-2.0 Z2.0
G03I-2.0 Z2.0
G03I-2.0 Z2.0
G90 G01 X0.0 Y0.0 (Move out from workpiece,ready to retract)
G90 G00 Z50.0 M9 (Retract the tool)
G40 (Offset finish)
M30 (Programme finisch,check the quality of thread ,modify G41 D figure)

Exact cutting data
see page 131-133

Internal Thread Milling Example Cnc Code

Method 2: Reset the starting point(X) and (I)figure

- Insert code / 3T1-0612-60-1.0~2.5
- Thread / M16*2.0P
- Milling / Climb milling / Internal thread
- CNC programme / Fanuc / Mitsubishi

FIG. 1

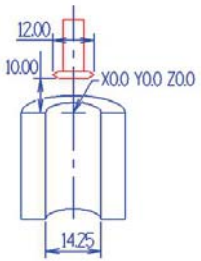
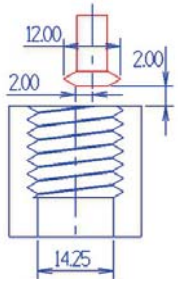


FIG. 2



Fanuc

G90 G0 G54 X0.0 Y0.0
G43 Z10.0 H1 S3978 M3 (On centerline of workpiece Fig1)
M7
G00 Z1.0 (Move to the starting point Fig 2)
G01 Z-6.0 F200
G91 G03 X2.0 Y0.0 R2.0 F150
G03 I-2.0 Z2.0 F630 (Thread milling)
G03 I-2.0 Z2.0
G03 I-2.0 Z2.0
G03 I-2.0 Z2.0
G90 G01 X0.0 Y0.0 (Move out from workpiece,ready to retract)
G90 G00 Z50.0 M9 (Retract the tool)
M30 (Programme finisch,check the quality of thread,modify X.I figure)

Exact cutting data
see page 131-133

External Thread Milling Example Cnc Code

Method 1/Tool offset-cutter compensation

- Insert code / 3T1-0612-60-1.0~2.5
- Thread / M16*2.0P
- Milling / Climb milling / External thread
- CNC programme / Fanuc/Mitsubishi

FIG. 1

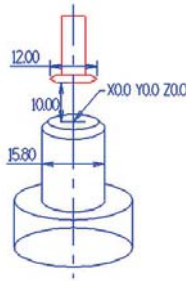
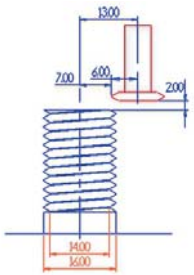


FIG. 2



Fanuc

G90 G0 G54 X0.0 Y0.0
G43 Z10.0 H1 S3978 M3 (On centerline of workpiece Fig1)
M7
G00 X13.0 Y0.0 (Move to the starting point Fig 2)
G41 D ? (cutter compensation)
G01 Z2.0 F200
G91 G02I-13.0 Z-2.0 F630 (Thread milling)
G02I-13.0 Z-2.0
G02I-13.0 Z-2.0
G02I-13.0 Z-2.0
G90 G01 X16.0 (Move out from workpiece,ready to retract)
G90 G00 Z50.0 M9 (Retract the tool)
G40 (Offset finish)
M30 (Programme finisch,check the quality of thread ,modify G41 D figure)

Exact cutting data see page 131-133

External Thread Milling Example Cnc Code

Method 2: Reset the starting point(X) and (I)figure

- Insert code / 3T1-0612-60-1.0~2.5
- Thread / M16*2.0P
- Milling / Climb milling / External thread
- CNC programme / Fanuc / Mitsubishi

FIG. 1

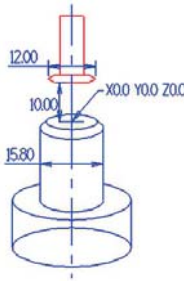
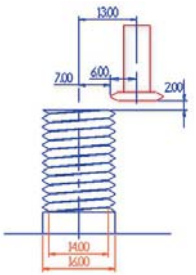


FIG. 2



Fanuc

G90 G0 G54 X0.0 Y0.0
G43 Z10.0 H1 S3978 M3 (On centerline of workpiece Fig1)
M7
G00 X13.0 Y0.0 (Move to the contour starting point Fig 2)
G01 Z2.0 F200
G91 G02 I-13.0 Z-2.0 F630 (Thread milling)
G02 I-13.0 Z-2.0
G02 I-13.0 Z-2.0
G02 I-13.0 Z-2.0
G90 G01 X16.0 (Move out from workpiece,ready to retract)
G90 G00 Z50.0 M9 (Retract the tool)
M30 (Programme finisch,check the quality of thread,modify X.I. figure)

Exact cutting data see page 131-133

Recommended Preparatory Drill Diameter

Size	Maximum drill diameter		
	4H	5H	6H
M1 x 0.25	0.77	0.78	0.80
M1 x 0.20	0.82	0.83	0.84
M1.1 x 0.25	0.87	0.88	0.90
M1.1 x 0.20	0.92	0.93	0.94
M1.2 x 0.25	0.97	0.98	1.00
M1.2 x 0.20	1.02	1.03	1.04
M1.4 x 0.30	1.12	1.14	1.16
M1.4 x 0.20	1.22	1.23	1.24
M1.6 x 0.35	1.28	1.30	1.32
M1.6 x 0.20	1.42	1.43	1.44
M1.7 x 0.35	1.38	1.40	1.42
M1.7 x 0.30	1.42	1.44	1.46
M1.7 x 0.25	1.47	1.48	1.50
M1.7 x 0.20	1.52	1.53	1.54
M1.8 x 0.35	1.48	1.50	1.52
M1.8 x 0.20	1.62	1.63	1.64
M2 x 0.40	1.63	1.65	1.67
M2 x 0.25	1.77	1.78	1.80
M2.2 x 0.45	1.79	1.81	1.83
M2.2 x 0.25	1.97	1.98	2.00
M2.3 x 0.40	1.93	1.95	1.97
M2.3 x 0.35	1.98	2.00	2.02
M2.3 x 0.25	2.07	2.08	2.10
M2.5 x 0.45	2.09	2.11	2.13
M2.5 x 0.35	2.18	2.20	2.22
M2.6 x 0.45	2.19	2.22	2.23
M2.6 x 0.35	2.28	2.30	2.32
M3 x 0.50	2.54	2.57	2.59
M3 x 0.35	2.68	2.70	2.72
M3.5 x 0.60	2.95	2.97	3.01
M3.5 x 0.35	3.18	3.20	3.22
M4 x 0.70	3.35	3.38	3.42
M4 x 0.50	3.54	3.57	3.59
M4.5 x 0.75	3.80	3.83	3.87
M4.5 x 0.50	4.04	4.07	4.09
M5 x 0.90	4.15	4.19	4.23
M5 x 0.80	4.25	4.29	4.33
M5 x 0.50	4.54	4.57	4.59
M5.5 x 0.90	4.65	4.69	4.73
M5.5 x 0.75	4.80	4.83	4.87
M5.5 x 0.50	5.04	5.07	5.09
M6 x 1.00	5.06	5.10	5.15
M6 x 0.75	5.30	5.33	5.37
M6 x 0.50	5.54	5.57	5.59
M7 x 1.00	6.06	6.10	6.15
M7 x 0.75	6.30	6.33	6.37
M7 x 0.50	6.54	6.57	6.59
M8 x 1.25	6.81	6.85	6.91

Size	Maximum drill diameter		
	4H	5H	6H
M8 x 1.00	7.06	7.10	7.15
M8 x 0.75	7.30	7.33	7.37
M8 x 0.50	7.54	7.57	7.59
M9 x 1.25	7.81	7.85	7.91
M9 x 1.00	8.06	8.10	8.15
M9 x 0.75	8.30	8.33	8.37
M9 x 0.50	8.54	8.57	8.59
M10 x 1.50	8.52	8.61	8.67
M10 x 1.25	8.81	8.85	8.91
M10 x 1.00	9.06	9.10	9.15
M10 x 0.75	9.30	9.33	9.37
M10 x 0.50	9.54	9.57	9.59
M11 x 1.50	9.52	9.61	9.67
M11 x 1.00	10.06	10.10	10.15
M11 x 0.75	10.30	10.33	10.37
M11 x 0.50	10.54	10.57	10.59
M12 x 1.75	10.31	10.37	10.44
M12 x 1.50	10.56	10.61	10.67
M12 x 1.25	10.81	10.85	10.91
M12 x 1.00	11.06	11.10	11.15
M12 x 0.75	11.30	11.33	11.37
M12 x 0.50	11.54	11.57	11.59
M13 x 1.75	11.31	11.37	11.44
M13 x 1.50	11.56	11.61	11.67
M13 x 1.25	11.81	11.85	11.91
M13 x 1.00	12.06	12.10	12.15
M13 x 0.75	12.03	12.33	12.37
M13 x 0.50	12.54	12.57	12.59
M14 x 2.00	12.07	12.13	12.21
M14 x 1.50	12.56	12.61	12.67
M14 x 1.25	-	-	12.91
M14 x 1.00	13.06	13.10	13.15
M14 x 0.75	13.30	13.33	13.37
M14 x 0.50	13.54	13.57	13.59
M15 x 2.00	13.07	13.13	13.21
M15 x 1.50	13.56	13.61	13.67
M15 x 1.25	13.81	13.85	13.91
M15 x 1.00	14.06	14.10	14.15
M15 x 0.75	14.30	14.33	14.37
M15 x 0.50	14.54	14.57	14.59
M16 x 2.00	14.07	14.13	14.21
M16 x 1.50	14.56	14.61	14.67
M16 x 1.00	15.06	15.10	15.15
M17 x 2.00	15.07	15.13	15.21
M17 x 1.50	15.56	15.61	15.67
M17 x 1.25	15.81	15.85	15.91
M17 x 1.00	16.06	16.10	16.15

Recommended Preparatory Drill Diameter

Size	Maximum drill diameter		
	4H	5H	6H
M17 x 0.75	16.30	16.33	16.37
M17 x 0.50	16.54	16.57	16.59
M18 x 2.50	15.57	15.64	15.74
M18 x 2.00	16.07	16.13	16.21
M18 x 1.50	16.56	16.61	16.67
M18 x 1.00	17.06	17.10	17.15
M19 x 2.50	16.57	16.64	16.74
M19 x 2.00	17.07	17.13	17.21
M19 x 1.50	17.56	17.61	17.67
M19 x 1.25	17.81	17.85	17.91
M19 x 1.00	18.06	18.10	18.15
M19 x 0.75	18.30	18.33	18.37
M19 x 0.50	18.54	18.57	18.59
M20 x 2.50	17.57	17.64	17.74
M20 x 2.00	18.07	18.13	18.21
M20 x 1.50	18.56	18.61	18.67
M20 x 1.00	19.06	19.10	19.15
M21 x 2.50	18.57	18.64	18.74
M21 x 1.50	19.56	19.61	19.67
M21 x 1.00	20.06	20.10	20.15
M22 x 2.50	19.57	19.64	19.74
M22 x 2.00	20.07	20.13	20.21
M22 x 1.50	20.56	20.61	20.67
M22 x 1.00	21.06	21.10	21.15
M23 x 2.50	20.57	20.64	20.74
M23 x 2.00	21.07	21.13	21.21
M23 x 1.50	21.56	21.61	21.67
M23 x 1.00	22.06	22.10	22.15
M24 x 3.00	21.06	21.15	21.25
M24 x 2.00	22.07	22.13	22.21
M24 x 1.50	22.56	22.61	22.67
M24 x 1.00	23.06	23.10	23.15
M25 x 3.00	22.06	22.15	22.25
M25 x 2.00	23.07	23.13	23.21
M25 x 1.50	23.56	23.61	23.67
M25 x 1.00	24.06	24.10	24.15
M26 x 3.00	23.06	23.15	23.25
M26 x 2.00	24.07	24.13	24.21
M26 x 1.50	24.56	24.61	24.67
M27 x 3.00	24.06	24.15	24.25
M27 x 2.50	24.57	24.64	24.74
M27 x 2.00	25.07	25.13	25.21
M27 x 1.50	25.56	25.61	25.67
M27 x 1.00	26.06	26.10	26.15
M28 x 3.00	25.06	25.15	25.25
M28 x 2.00	26.07	26.13	26.21
M28 x 1.50	26.56	26.61	26.67

Size	Maximum drill diameter		
	4H	5H	6H
M28 x 1.00	27.06	27.10	27.15
M30 x 3.50	26.56	26.66	26.77
M30 x 3.00	27.06	27.15	27.25
M30 x 2.00	28.07	28.13	28.21
M30 x 1.50	28.56	28.61	28.67
M30 x 1.00	29.06	29.10	29.15
M32 x 3.00	29.06	29.15	29.25
M32 x 2.00	30.07	30.13	30.21
M32 x 1.50	30.56	30.61	30.67
M33 x 3.50	29.56	29.66	29.77
M33 x 3.00	30.06	30.15	30.25
M33 x 2.00	31.07	31.13	31.21
M33 x 1.50	31.56	31.61	31.67
M33 x 1.00	32.06	32.10	32.15
M34 x 3.00	31.06	31.15	31.25
M34 x 2.00	32.07	32.13	32.21
M34 x 1.50	32.56	32.16	32.67
M34 x 1.00	33.06	33.10	33.15
M35 x 3.00	32.06	32.15	32.25
M35 x 1.50	33.56	33.61	33.67
M35 x 1.00	34.06	34.10	34.15
M36 x 4.00	32.04	32.14	32.27
M36 x 3.00	33.06	33.15	33.25
M36 x 2.00	34.07	34.13	34.21
M36 x 1.50	34.56	34.61	34.67
M36 x 1.00	35.06	35.10	35.15
M37 x 1.50	35.56	35.61	35.67
M37 x 1.00	36.06	36.10	36.15
M38 x 4.00	34.04	34.14	34.27
M38 x 3.00	35.06	35.15	35.25
M38 x 2.00	36.07	36.13	36.21
M38 x 1.50	36.56	36.61	36.67
M39 x 4.00	35.04	35.14	35.27
M39 x 3.00	36.06	36.15	36.25
M39 x 2.00	37.07	37.13	37.21
M39 x 1.50	37.56	37.61	37.67
M39 x 1.00	38.06	38.10	38.15
M40 x 4.00	36.04	36.14	36.27
M40 x 3.00	37.06	37.15	37.25
M40 x 2.00	38.07	38.13	38.21
M40 x 1.50	38.56	38.61	38.67
M40 x 1.00	39.06	39.10	39.15
M42 x 4.50	37.55	37.65	37.79
M42 x 4.00	38.04	38.14	38.27
M42 x 3.00	39.06	39.15	39.25
M42 x 2.00	40.70	40.13	40.21
M42 x 1.50	40.56	40.61	40.67

Recommended Preparatory Drill Diameter

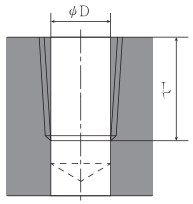
Size	Maximum drill diameter		
	4H	5H	6H
M45 x 4.50	40.55	40.65	40.79
M45 x 4.00	41.04	41.14	41.27
M45 x 3.00	42.06	42.15	42.25
M45 x 2.00	43.07	43.13	43.21
M45 x 1.50	43.56	43.61	43.67
M45 x 1.00	44.06	44.10	44.15
M46 x 1.50	44.56	44.61	44.67
M48 x 5.00	43.03	43.14	43.29
M48 x 4.00	44.04	44.14	44.27
M48 x 3.00	45.06	45.15	45.25
M48 x 2.00	46.07	46.13	46.21
M48 x 1.50	46.56	46.61	46.67
M48 x 1.00	47.06	47.10	47.15
M50 x 5.00	45.03	45.14	45.29
M50 x 3.00	47.06	47.15	47.25
M50 x 2.00	48.07	48.13	48.21
M50 x 1.50	48.56	48.61	48.67
M50 x 1.00	49.10	49.10	49.15
M52 x 5.00	47.00	47.10	47.20
M52 x 4.00	48.00	48.10	48.20
M52 x 3.00	49.00	49.10	49.20
M52 x 2.00	50.00	50.10	50.20
M52 x 1.50	50.50	50.60	50.60
M55 x 4.00	51.00	51.10	51.20
M55 x 3.00	52.00	52.10	52.20
M55 x 2.00	53.00	53.10	53.20
M55 x 1.50	53.50	53.60	53.60
M56 x 5.50	50.50	50.60	50.70
M56 x 4.00	52.00	52.10	52.20
M56 x 3.00	53.00	53.10	53.20
M56 x 2.00	54.00	54.10	54.20
M56 x 1.50	54.50	54.60	54.60
M58 x 4.00	54.00	54.10	54.20
M58 x 3.00	55.00	55.10	55.20
M58 x 2.00	56.00	56.10	56.20
M58 x 1.50	56.50	56.60	56.60
M60 x 5.50	54.50	54.60	54.70
M60 x 4.00	56.00	56.10	56.20
M60 x 3.00	57.00	57.10	57.20
M60 x 2.00	58.00	58.10	58.20
M60 x 1.50	58.50	58.60	58.60
M62 x 4.00	58.00	58.10	58.20
M62 x 3.00	59.00	59.10	59.20
M62 x 2.00	60.00	60.10	60.2

Size	Maximum drill diameter		
	4H	5H	6H
M62 x 1.50	60.5	60.6	60.6
M64 x 6.00	58	58.1	58.2
M64 x 4.00	60	60.1	60.2
M64 x 3.00	61	61.1	61.2
M64 x 2.00	62	62.1	62.2
M64 x 1.50	62.5	62.6	62.6
M65 x 4.00	61	61.1	61.2
M65 x 3.00	62	62.1	62.2
M65 x 2.00	63	63.1	63.2
M65 x 1.50	63.5	63.6	63.6
M68 x 6.00	62	62.1	62.2
M68 x 4.00	64	64.1	64.2
M68 x 3.00	65	65.1	65.2
M68 x 2.00	66	66.1	66.2
M68 x 1.50	66.5	66.6	66.6
M70 x 6.00	64	64.1	64.3
M70 x 4.00	66	66.1	66.2
M70 x 3.00	67	67.1	67.2
M70 x 2.00	68	68.1	68.2
M72 x 6.00	66	66.1	66.3
M72 x 4.00	68	68.1	68.2
M72 x 3.00	69	69.1	69.2
M72 x 2.00	70	70.1	70.2
M75 x 4.00	71	71.1	71.2
M75 x 3.00	72	72.1	72.2
M75 x 2.00	73	73.1	73.2
M76 x 2.00	74	74.1	74.2
M80 x 6.00	74	74.1	74.3
M80 x 4.00	76	76.1	76.2
M80 x 3.00	77	77.1	77.2
M80 x 2.00	78	78.1	78.2
M85 x 6.00	79	79.1	79.3
M85 x 4.00	81	81.1	81.2
M85 x 3.00	82	82.1	82.2
M85 x 2.00	83	83.1	83.2
M90 x 6.00	84	84.1	84.3
M90 x 4.00	86	86.1	86.2
M90 x 2.00	88	88.1	88.2
M95 x 6.00	89	89.1	89.3
M95 x 4.00	91	91.1	91.2
M95 x 2.00	93	93.1	93.2
M100x 6.00	94	94.1	94.3
M100x 4.00	96	96.1	96.2
M100x 2.00	98	98.1	98.2

RC (BSPT)
Recommended Thread Dia / T.p.i / Minimum Bore Dia

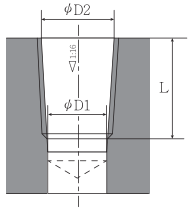
Hole forms 1 to 2, RC threads are best recommended.

1. Cylindrical drilling without reamer



Nom. size D		P Gg/1" (tpi)	ϕD	L
Rc	1/16"	28	6,15	7,85
	1/8"	28	8,15	7,85
	1/4"	19	10,85	11,65
	3/8"	19	14,3	12,05
	1/2"	14	17,8	15,9
	3/4"	14	23,2	16,75
	1"	11	29,2	19,65
	1 1/4"	11	37,8	21,95
	1 1/2"	11	43,7	21,95
	2"	11	55,2	26,25

2. Cylindrical drilling with reamer to form taper thread

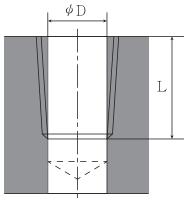


Nom. size D		P Gg/1" (tpi)	ϕD1	ϕD2	L
Rc	1/16"	28	6,1	6,56	7,85
	1/8"	28	8,1	8,57	7,85
	1/4"	19	10,75	11,45	11,65
	3/8"	19	14,25	14,95	12,05
	1/2"	14	17,7	18,63	15,9
	3/4"	14	23,1	24,12	16,75
	1"	11	29,1	30,29	19,65
	1 1/4"	11	37,6	38,95	21,95
	1 1/2"	11	43,5	44,85	21,95
	2"	11	55	56,66	26,25

NPT
Recommended Thread Dia / T.p.i / Minimum Bore Dia

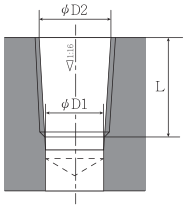
Hole forms 1 to 2, NPT threads are best recommended.

1. Cylindrical drilling without reamer



Nom. size D	P Gg/1" (tpi)	ϕ D	L
NPT 1/16"	27	6,15	8,3
1/8"	27	8,5	8,3
1/4"	18	11	12,15
3/8"	18	14,4	12,45
1/2"	14	17,8	16,3
3/4"	14	23,15	16,3
1"	11 1/2"	29,05	19,55
1 1/4"	11 1/2"	37,8	20,05
1 1/2"	11 1/2"	43,85	20,05
2"	11 1/2"	55,85	20,45

2. Cylindrical drilling with reamer to form taper thread



Nom. size D	P Gg/1" (tpi)	ϕ D1	ϕ D2	L
NPT 1/16"	27	5,95	6,39	8,3
1/8"	27	8,3	8,74	8,3
1/4"	18	10,75	11,36	12,15
3/8"	18	14,15	14,80	12,45
1/2"	14	17,45	18,32	16,3
3/4"	14	22,8	23,67	16,3
1"	11 1/2"	28,65	29,69	19,55
1 1/4"	11 1/2"	37,35	38,45	20,05
1 1/2"	11 1/2"	43,45	44,52	20,05
2"	11 1/2"	55,45	56,56	20,45

UFO
RADIUS
DOUBLE CORNER
CONCAVE RADIUS
CHAMFER
DOVETAIL
CIRCLIP

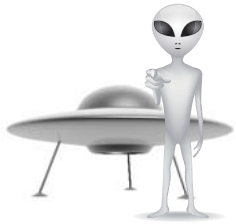
Video

Features

- Available in materials (P K M N S H)
- Cost 200~300% DOWN
- Variety of Machines CNC Milling machine
- Efficiency 400% UP
- Durability 300% UP

UFO R-groove Chamfer System

UFO



UFO Radius Cutter

Y.T. has R0.5 to R3.0 cutters now readily available in the stock as standard products. There will be no more need of customization and 6 flutes cutters will certainly boost efficiency.

UFO Dovetail Cutter

45˚ , 60˚ angles are available with 6 flutes.

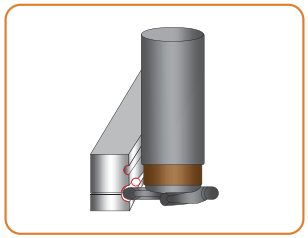
UFO Double Chamfer

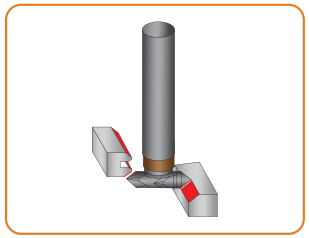
Up and down chamfering is available in same insert.Different angle and vadius are available:

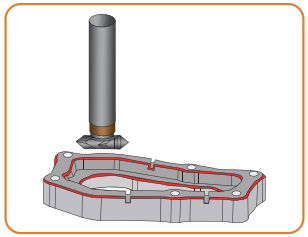
- 45° chamfer:min, insert dia, is 9.8mm with 4 teeth
- Radius:R0.5~R2.0 ,min. insert dia , is 9.8mm with 4 teeth.

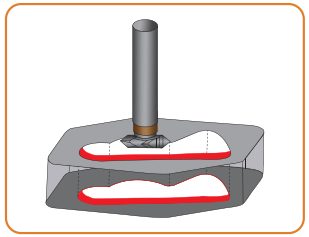
UFO Circlip Cutter

Standard circlip insert with width: 1.1~4.15 mm





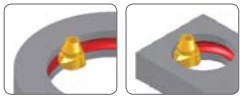


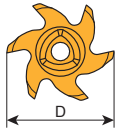


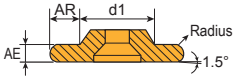
UFO Radius Insert

- Toolholders P. 25
- Cutting Data P. 125 - 126

O-ring





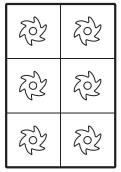


Tolerances (mm)

D : $^{+0.0}_{-0.05}$ AE : −0.01~0.02

Dimensions in mm				
D	d1	AE	R	Max. AR
20	9.9	1.0	0.5	4.5
		1.5	0.75	
		2.0	1.0	
		2.5	1.25	
		3.0	1.5	
		4.0	2.0	
		5.0	2.5	
		6.0	3.0	

Inserts	Part No .	Grades										
		Carbide					Metal cermet		Uncoated		E	ME
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE		
 6 flute inserts	3T1020-R0.5-E				●							
	3T1020-R0.75-E				●							
	3T1020-R1.0-E				●							
	3T1020-R1.25-E				●							
	3T1020-R1.5-E				●							
	3T1020-R2.0-E				●							
	3T1020-R2.5-E				●							
	3T1020-R3.0-E				●							
	3T1020-R0.5-ME	◎			●							
	3T1020-R0.75-ME	◎			●							
	3T1020-R1.0-ME	◎			●							
	3T1020-R1.25-ME	◎			●							
	3T1020-R1.5-ME	◎			●							
	3T1020-R2.0-ME	◎			●							
	3T1020-R2.5-ME	◎			●							
	3T1020-R3.0-ME	◎			●							

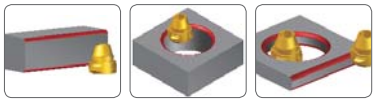


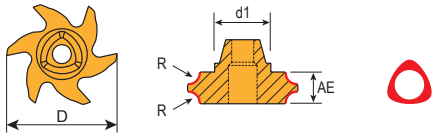
Inserts 6 PCS / Box

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1020-R0.5-E, F20

UFO Double Corner Radius Insert

- Toolholders P. 23, P. 25
- Cutting Data P. 125 - 126





Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : −0.01~0.02

Dimensions in mm				
D	d1	AE	R	Max. AR
9.8	6.5	3.0	0.5	1.0
		4.0	1.0	
11.8		3.0	0.5	1.5
		4.0	1.0	
		5.0	1.5	
19.8	9.9	3.0	0.5	4.5
		3.5	0.75	
		4.0	1.0	
		4.5	1.25	
		5.0	1.5	
		6.0	2.0	

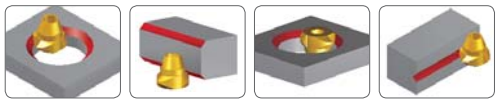
Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	E / ME
6 flute inserts	3T0610-DCR0.5-E				●						
	3T0610-DCR1.0-E				●						
	3T0612-DCR0.5-E				●						
	3T0612-DCR1.0-E				●						
	3T0612-DCR1.5-E				●						
	3T1020-DCR0.5-E				●						
	3T1020-DCR0.75-E				●						
	3T1020-DCR1.0-E				●						
	3T1020-DCR1.25-E				●						
	3T1020-DCR1.5-E				●						
	3T1020-DCR2.0-E				●						
	3T0610-DCR0.5-ME	◎			●						
	3T0610-DCR1.0-ME	◎			●						
	3T0612-DCR0.5-ME	◎			●						
	3T0612-DCR1.0-ME	◎			●						
	3T0612-DCR1.5-ME	◎			●						
	3T1020-DCR0.5-ME	◎			●						
	3T1020-DCR0.75-ME	◎			●						
	3T1020-DCR1.0-ME	◎			●						
	3T1020-DCR1.25-ME	◎			●						
	3T1020-DCR1.5-ME	◎			●						
	3T1020-DCR2.0-ME	◎			●						

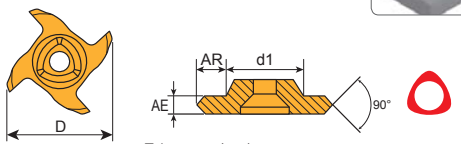
Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T0610-DCR0.5-E, F20

UFO Chamfer Insert

- Toolholders P. 23 - 24
- Cutting Data P. 125 - 126





Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : −0.01~0.02

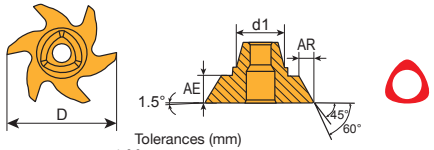
Dimensions in mm			
D	d1	AE	Max. AR
9.8	6.5	3	1
11.8	6.5	3.0	1.5
14.8	7.9	3.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	E / ME
4 flute inserts	3T0610-3-45-E				●						
	3T0612-3-45-E				●						
	3T0815-3-45-E				●						
	3T0610-3-45-ME	◎			●						
	3T0612-3-45-ME	◎			●						
	3T0815-3-45-ME	◎			●						

Inserts 6 PCS / Box

UFO Dovetail Insert

- Toolholders P. 25
- Cutting Data P. P. 125 - 126



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : −0.01~0.02

Dimensions in mm				
D	d1	AE	Angle	Max. AR
20	9.9	5.0	45°	3.0
			60°	2.5

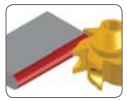
Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	E / ME
6 flute inserts	3T1020-45-E				●						
	3T1020-60-E				●						
	3T1020-45-ME	◎			●						
	3T1020-60-ME	◎			●						

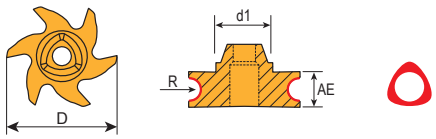
Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1020-45-E, F20

UFO Concave Radius Insert

- Toolholders P. 25
- Cutting Data P. 125 - 126





Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : −0.01~0.02

Dimensions in mm			
D	d1	AE	R
20	9.9	4.5	1.0
		5.0	1.25
		5.5	1.5
		6.5	2.0

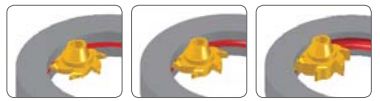
Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
6 flute inserts	3T1020-CR1.0-E				■						
	3T1020-CR1.25-E				■						
	3T1020-CR1.5-E				■						
	3T1020-CR2.0-E				■						
	3T1020-CR1.0-ME	◎			■						
	3T1020-CR1.25-ME	◎			■						
	3T1020-CR1.5-ME	◎			■						
	3T1020-CR2.0-ME	◎			■						

Inserts 6 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 3T1020-CR1.0-E, F20

UFO Circlip Insert

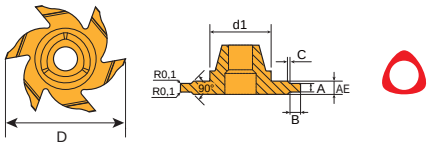
- Toolholders P. 25
- Cutting Data P. 125 - 126



DIN471 DIN472

Customized for the depth of B size.

* M.O.Q 12PCS on standard price



Tolerances (mm)
D : $^{+0.0}_{-0.05}$ AE : −0.01~0.02

Dimensions in mm						
D	d1	A	CA	B	C	AE
20	10	1.21	1.1	0.5	0.1	2.2
		1.41	1.3	0.85		
		1.71	1.6	1.0		
		1.96	1.85	1.25	0.2	3
		2.26	2.15	1.5		
		2.76	2.65	1.75		3.5
		3.26	3.15	1.75		4
		4.26	4.15	2.0		5

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
6 flute inserts	C3T1020-1.1-E								■		
	C3T1020-1.3-E								■		
	C3T1020-1.6-E								■		
	C3T1020-1.85-E								■		
	C3T1020-2.15-E								■		
	C3T1020-2.65-E								■		
	C3T1020-3.15-E								■		
	C3T1020-4.15-E								■		
	C3T1020-1.1-ME	◎			■						
	C3T1020-1.3-ME	◎			■						
	C3T1020-1.6-ME	◎			■						
	C3T1020-1.85-ME	◎			■						
	C3T1020-2.15-ME	◎			■						
	C3T1020-2.65-ME	◎			■						
	C3T1020-3.15-ME	◎			■						
	C3T1020-4.15-ME	◎			■						

Inserts 6 PCS / Box

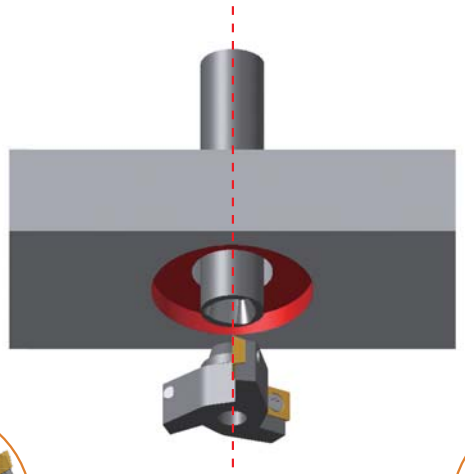
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: C3T1020-1.1-E, K10

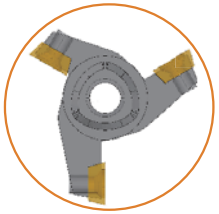
Features

- Available in materials: P K M N S H
- Cost 200~300% DOWN
- Variety of Machines: CNC Milling machine, Drilling M/C
- Efficiency 400% UP
- Durability 300% UP

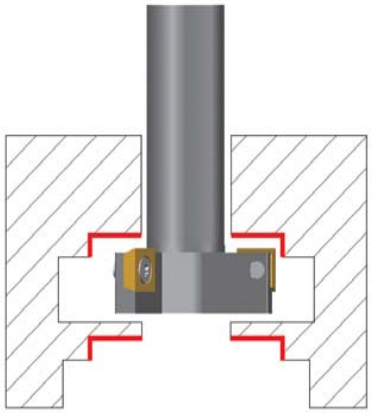
UFO A Type Back Boring Cutter

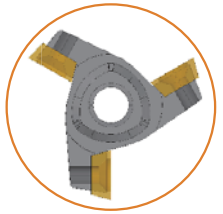
UFO





Inserts with unequal sitting distance. Applicable in cutter ø23-ø40 mm.



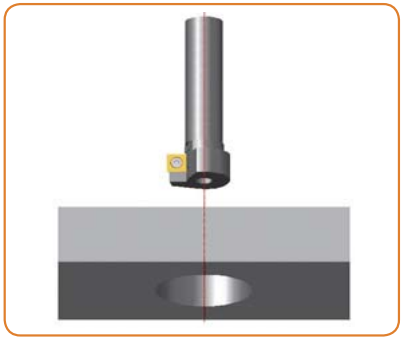


Inserts with equal sitting distance. Applicable in cutter ø17-ø22 mm

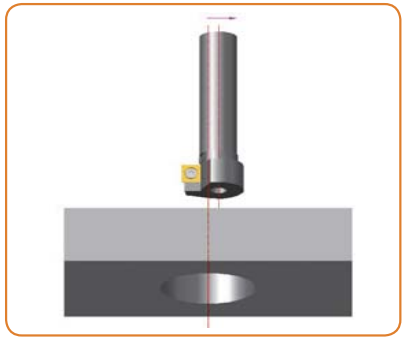
UFO
B Type
Back Boring
Cutter

UFO

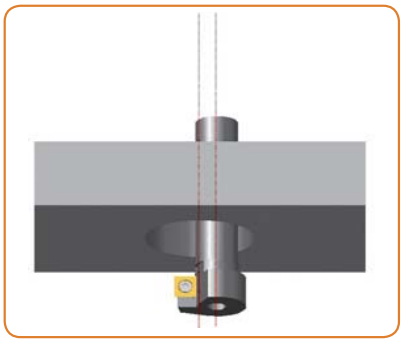
1. Centerline



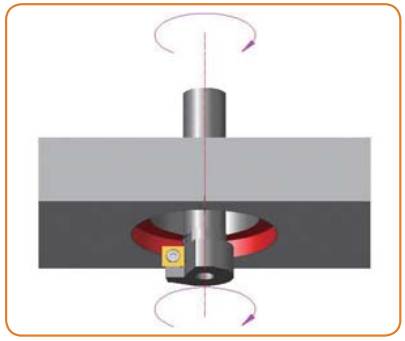
2. Tool displacement



3. Machining



4. Back to center line

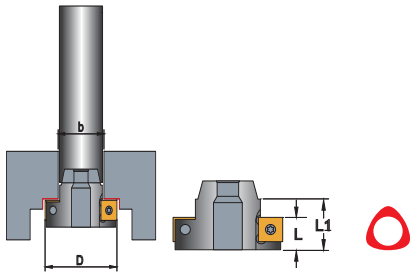


* Correct price and delivery time are based on current situation.

PRODUCT SPECIFICATIONS

UFO Back Boring Cutter - A Type

- Toolholders P. 25
- Insert P. 124
- Cutting Data P. 124

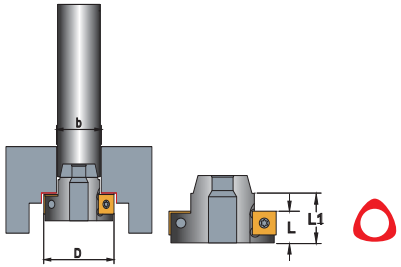


B3T

Order code		Dimensions(mm)					ZC	KG	MAX RPM	Insert SDET	Screw	Key
Shank	Cutter	b	D	L	L1							
CB3-1010-80-20 CB3-1010-100-20	B3T-1018	10.4	18	9	14	2	1	0.2	14000	0602	C02506	T08P
	B3T-1018.5		18.5									
	B3T-1019		19									
	B3T-1019.5		19.5			3						
	B3T-1020		20									
	B3T-1020.5		20.5									
	B3T-1021		21									
	B3T-1021.5		21.5									
	B3T-1022		22									

UFO Back Boring Cutter - A Type

- Toolholders P. 26 - 27
- Insert P. 124
- Cutting Data P. 124

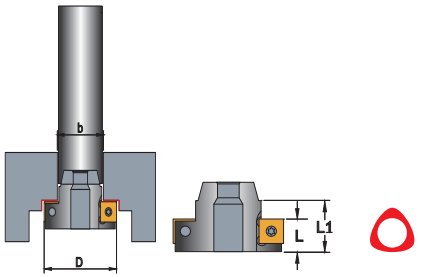


B3T

Order code		Dimensions(mm)										
Shank	Cutter	b	D	L	L1		ZC	KG	MAX RPM	Insert SDET	Screw	Key
CB3-1212-90-25 CB3-1212-110-25	B3T-1223	12.4	23	9	14	3	1	0.25	13000	0602	C02506	T08P
	B3T-1224		24									
	B3T-1225		25									
	B3T-1226		26									
	B3T-1227		27									
	B3T-1228		28									
	B3T-1229		29									
	B3T-1230		30									
CB3-1616-120-30 CB3-1616-150-30	B3T-1631	16.4	31	9	14	3	1	0.27	12500	0602	C02506	T08P
	B3T-1632		32									
	B3T-1633		33									
	B3T-1634		34									
	B3T-1635		35									
	B3T-1636		36	12	17			0.28	12000	09T3	C04011	T15P
	B3T-1637		37									
	B3T-1638		38									
	B3T-1639		39									
	B3T-1640		40									

UFO Back Boring Cutter - A Type

- Toolholders P. 28
- Insert P. 124
- Cutting Data P. 124



B3T

Order code		Dimensions(mm)										
Shank	Cutter	b	D	L	L1		ZC	KG	MAX RPM	Insert SDET	Screw	Key
CB3-2525-110 CB3-2525-170	B3T-2541	25.4	41	12	17	3	1	0.31	10000	09T3	C04011	T15P
	B3T-2542		42									
	B3T-2543		43									
	B3T-2544		44									
	B3T-2545		45									
	B3T-2546		46									
	B3T-2547		47									
	B3T-2548		48									
	B3T-2549		49									
	B3T-2550		50									
	B3T-2551		51					0.35				
	B3T-2552		52									
	B3T-2553		53									
	B3T-2554		54									
	B3T-2555		55									
	B3T-2556		56									
	B3T-2557		57									
	B3T-2558		58									
	B3T-2559		59									
	B3T-2560		60									

Recommended Insert Grade

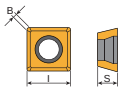
• UFO Back Boring Cutter Insert Grade Selection

Material group No.	Recom. feed fz mm/ tooth	Insert			
		SDET.....ME	SDET.....E		
1	0.04-0.08	B100	-	-	-
2		B100	-	-	-
3	0.04-0.07	B100	-	-	-
4		B100	-	-	-
5	0.04-0.06	B100	-	-	-
6		B100	-	-	-
7		B100	-	-	-
8	0.04-0.08	B100	-	-	-
9		B100	-	-	-
10	0.04-0.06	B100	-	-	-
11		B100	-	-	-
12	0.07-0.1	F30	-	-	-
13		F30	-	-	-
14	0.07-0.08	F30	-	-	-
15		F30	-	-	-
16	0.1-0.2	-	K10	-	-
17		-	K10	-	-
18		-	K10	-	-
19	0.04-0.06	B100	-	-	-
20	0.04-0.05	B100	-	-	-
21	0.03-0.04	B100	-	-	-
22	0.04-0.05	B100	-	-	-

Recommended Cutting Data - UFO Back Boring Cutter

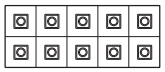
• Recommended Cutting speed, Vc(m/min)

Material group No.	Grades						
	B100	C250	F20	CE60	CE	K10	F30
	Feed , fz (mm/tooth)						
	0.04 0.06 0.08					0.08 0.10 0.12	0.08 0.10 0.12
	Cutting speed, v_c (m/min)						
1	16 18 20	-	-	-	-	-	-
2	16 18 20	-	-	-	-	-	-
3	14 12 10	-	-	-	-	-	-
4	14 12 10	-	-	-	-	-	-
5	12 10 8	-	-	-	-	-	-
6	12 10 8	-	-	-	-	-	-
7	8 - -	-	-	-	-	-	-
8	14 12 10	-	-	-	-	-	-
9	14 12 10	-	-	-	-	-	-
10	12 10 8	-	-	-	-	-	-
11	12 10 8	-	-	-	-	-	-
12	-	-	-	-	-	-	40 35 30
13	-	-	-	-	-	-	40 35 30
14	-	-	-	-	-	-	30 25 20
15	-	-	-	-	-	-	30 25 20
16	-	-	-	-	-	150 130 120	-
17	-	-	-	-	-	150 130 120	-
20	8 10 -	-	-	-	-	-	-
21	8 10 -	-	-	-	-	-	-
22	8 10 -	-	-	-	-	-	-



Tolerances (± mm)

	l	S
SDET	0,03	0,025



Inserts 10 PCS / Box

Size	Dimensions in mm		
	l	S	B
0602	6.0	2.3	1.0
09T3	9.0	3.97	1.2

Inserts	Part No .	Grades									
		Carbide					Metal cermet			Uncoated	
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE
	SDET060208N-ME	◎									
	SDET09T308TN-M	◎									

• Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron

• Correct price and stock are based on current situation

• Please specify model number and grade of insert, ie.: SDET060208N-ME, B100

Recommended Insert Grade - UFO T-slot Cutter / Radius / Chamfer / Dovetail / Circlip / Radius

Data Reference

• UFO T-slot Cutter Insert Grade Selection

Material group No .	Recom. feed fz mm/tooth ae/Dc = 10%	Grades			
		ME	E		
1	-	B100	-	-	-
2	-	B100	-	-	-
3	-	B100	-	-	-
4	-	B100	-	-	-
5	-	B100	-	-	-
6	-	B100	-	-	-
7	-	B100	-	-	-
8	-	B100	-	-	-
9	-	B100	-	-	-
10	-	B100	-	-	-
11	-	B100	-	-	-
12	-	F20	-	-	-
13	-	F20	-	-	-
14	-	F20	-	-	-
15	-	F20	-	-	-
16	-	-	K10	-	-
17	-	-	K10	-	-
18	-	-	-	-	-
19	-	-	-	-	-
20	-	B100	-	-	-
21	-	B100	-	-	-
22	-	B100	-	-	-

• Cutting Data - Side Milling

Data Reference

Operations	Ae / Dc	Recom. feed fz mm/tooth			Speed Factor
Radial Infeed	-	0.05	0.10	0.14	0.65
Side Milling	2%	0.21	0.44	0.65	1.20
	5%	0.14	0.28	0.41	1.10
	10%	0.10	0.20	0.30	1.00
	20%	0.07	0.14	0.21	0.90
	30%	0.06	0.12	0.18	0.85
Average Chip Thickness hm	-	0.03	0.06	0.09	-

Recommended Cutting Data - UFO T-slot Cutter / Radius / Chamfer / Dovetail / Circlip / Radius

Data Reference

• Recommended Cutting speed, Vc(m/min)

Material group No .	Grades						
	B100	C350	F20	CE60	CE	K10	F30
	Cutting speed, v_c (m/min)						
1	179 161 140	-	-	-	-	-	-
2	140 126 113	-	-	-	-	-	-
3	126 113 102	-	-	-	-	-	-
4	112 102 91	-	-	-	-	-	-
5	101 91 81	-	-	-	-	-	-
6	91 - -	-	-	-	-	-	-
7	40 - -	-	-	-	-	-	-
8	160 - 80	-	-	-	-	-	-
9	160 - 80	-	-	-	-	-	-
10	80 - 50	-	-	-	-	-	-
11	80 - 50	-	-	-	-	-	-
12	-	-	130 120 110	-	-	-	-
13	-	-	120 110 100	-	-	-	-
14	-	-	90 80 70	-	-	-	-
15	-	-	60 50 -	-	-	-	-
16	-	-	-	-	-	1150 950 850	-
17	-	-	-	-	-	950 780 700	-
18	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-
20	50 45 -	-	-	-	-	-	-
21	35 40 -	-	-	-	-	-	-
22	50 45 -	-	-	-	-	-	-

• Feed.fz (mm/tooth)

Data Reference

	Feed fz					
	Material group No.					
	1 2 3 4	5 6	8 9 10 11	12 13 14 15	16 17	20 21 22
0.5-0.7 mm	0.02-0.03	0.02-0.03	0.02-0.03	0.02-0.04	0.02-0.05	0.01-0.015
0.8-1.0 mm	0.02-0.03	0.02-0.03	0.02-0.03	0.02-0.04	0.02-0.05	0.01-0.02
1.1-1.3 mm	0.025-0.04	0.015-0.04	0.015-0.04	0.02-0.05	0.02-0.06	0.015-0.025
1.4-1.6 mm	0.025-0.04	0.02-0.03	0.02-0.04	0.025-0.06	0.03-0.07	0.02-0.03
1.7-2.2 mm	0.03-0.05	0.02-0.04	0.02-0.05	0.03-0.07	0.03-0.08	0.02-0.035
2.5-3.0 mm	0.03-0.05	0.03-0.045	0.03-0.05	0.03-0.08	0.04-0.10	0.025-0.04
3.5-4.0 mm	0.03-0.05	0.03-0.045	0.03-0.05	0.03-0.08	0.04-0.10	0.025-0.04
4.2-5.0 mm	0.04-0.07	0.03-0.06	0.04-0.07	0.05-0.10	0.05-0.10	0.025-0.05

Recommended Insert Grade - UFO T-slot Cutter

Data Reference

• UFO T-slot Cutter Insert Grade Selection

Material group No .	Recom. feed fz mm/tooth ae/Dc = 10%	Grades			
		LNGT EE	LNGT M	LNGT ME	
1	0.04-0.12	-	B100	B100	-
2	0.04-0.10	-	B100	B100	-
3	0.04-0.10	-	B100	B100	-
4	0.04-0.10	-	B100	B100	-
5	0.04-0.08	-	B100	B100	-
6	0.04-0.07	-	B100	B100	-
7	0.03-0.06	-	-	B100	-
8	0.04-0.12	-	-	B100	-
9	0.04-0.10	-	-	B100	-
10	0.04-0.09	-	-	B100	-
11	0.04-0.08	-	-	B100	-
12	0.04-0.12	-	-	F20	-
13	0.04-0.12	-	-	F20	-
14	0.04-0.11	-	-	F20	-
15	0.04-0.10	-	-	F20	-
16	0.06-0.13	F20	-	-	-
17	0.06-0.12	F20	-	-	-
20	0.06-0.08	-	-	B100	-
21	0.04-0.06	-	-	B100	-
22	0.04-0.07	-	-	B100	-

• Cutting Data - Side Milling

Data Reference

Operations	Ae / Dc	Recom. feed fz mm/tooth			Speed Factor
Radial Infeed	-	0.05	0.10	0.14	0.65
Side Milling	2%	0.21	0.44	0.65	1.20
	5%	0.14	0.28	0.41	1.10
	10%	0.10	0.20	0.30	1.00
	20%	0.07	0.14	0.21	0.90
	30%	0.06	0.12	0.18	0.85
Average Chip Thickness hm	-	0.03	0.06	0.09	-

Recommended Cutting Data - UFO T-slot Cutter

Data Reference

• Recommended Cutting speed, Vc(m/min)

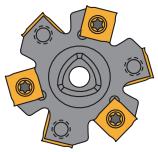
Material group No .	Grades						
	B100	C350	F20	CE60	CE	K10	F30
	Cutting speed, v_c (m/min)						
1	255 230 200	-	-	-	-	-	-
2	200 180 162	-	-	-	-	-	-
3	180 162 145	-	-	-	-	-	-
4	160 145 130	-	-	-	-	-	-
5	144 130 116	-	-	-	-	-	-
6	130 117 105	-	-	-	-	-	-
7	-	-	-	-	-	-	-
8	160 - 80	-	-	-	-	-	-
9	160 - 80	-	-	-	-	-	-
10	80 - 50	-	-	-	-	-	-
11	80 - 50	-	-	-	-	-	-
12	-	-	140 119 105	-	-	-	-
13	-	-	126 105 98	-	-	-	-
14	-	-	112 98 91	-	-	-	-
15	-	-	88 81 -	-	-	-	-
16	-	-	1150 950 850	-	-	-	-
17	-	-	950 780 700	-	-	-	-
20	50 45 -	-	-	-	-	-	-
21	35 40 -	-	-	-	-	-	-
22	50 45 -	-	-	-	-	-	-

• Feed.fz (mm/tooth)

Data Reference

	Feed fz					
	Material group No.					
	1 2 3 4	5 6	8 9 10 11	12 13 14 15	16 17	20 21 22
1.4-1.7 mm	0.02-0.03	0.015-0.025	0.02-0.03	0.02-0.04	0.02-0.04	0.015-0.025
1.8-2.2 mm	0.03-0.05	0.03-0.04	0.02-0.03	0.03-0.06	0.03-0.08	0.02-0.03
2.5-3.0 mm	0.03-0.06	0.03-0.05	0.03-0.05	0.03-0.08	0.03-0.10	0.03-0.04
3.0-3.5 mm	0.04-0.08	0.03-0.06	0.03-0.06	0.04-0.10	0.04-0.10	0.03-0.05
4.0-4.5 mm	0.04-0.08	0.03-0.06	0.03-0.06	0.04-0.10	0.04-0.10	0.03-0.05
5.0-5.5 mm	0.05-0.10	0.04-0.08	0.04-0.07	0.05-0.12	0.05-0.17	0.04-0.06

Recommended Insert Grade - UFO T-slot Cutter



Data Reference

• UFO T-slot Cutter Insert Grade Selection

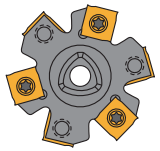
Material group No.	Recom. feed fz mm/ tooth	Insert			
		SNGX ... M	SNGX...ME	SNGX...EE	
1	0.14-0.30	C250/B100	B100	-	-
2	0.14-0.25	C250/B100	B100	-	-
3	0.14-0.22	C250/B100	B100	-	-
4	0.14-0.22	C250/B100	B100	-	-
5	0.14-0.20	C250/B100	B100	-	-
6	0.10-0.15	C250/B100	B100	-	-
7	0.10-0.13	C250/B100	B100	-	-
8	0.14-0.25	-	B100	-	-
9	0.14-0.22	-	B100	-	-
10	0.14-0.20	-	B100	-	-
11	0.10-0.15	-	B100	-	-
12	0.14-0.30	-	F30	-	-
13	0.14-0.22	-	F30	-	-
14	0.14-0.20	-	F30	-	-
15	0.10-0.15	-	F30	-	-
16	0.16-0.30	-	-	F20	-
17	0.16-0.25	-	-	F20	-
18	0.16-0.20	-	-	F20	-
19	0.14-0.20	-	B100	-	-
20	0.14-0.18	-	B100	-	-
21	0.10-0.13	-	B100	-	-
22	0.14-0.20	-	B100	-	-

• Cutting Data - Side Milling

Data Reference

Operations	Ae / Dc	Recom. feed fz mm/tooth			Speed Factor
Radial Infeed	-	0.05	0.10	0.14	0.65
Side Milling	2%	0.21	0.44	0.65	1.20
	5%	0.14	0.28	0.41	1.10
	10%	0.10	0.20	0.30	1.00
	20%	0.07	0.14	0.21	0.90
	30%	0.06	0.12	0.18	0.85
Average Chip Thickness hm	-	0.03	0.06	0.09	-

Recommended Cutting Data - UFO T-slot Cutter



Data Reference

• Recommended Cutting speed, Vc(m/min)

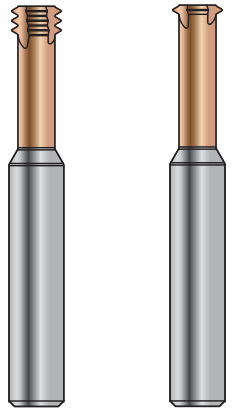
Material group No.	grades						
	B100	C250	F20	CE60	CE	K10	F30
	Feed fz (mm/tooth)						
	0.1 0.2 0.3	0.1 0.2 0.3	0.1 0.2 0.3				0.1 0.2 0.3
	Cutting SPEED, V_c (m/min)						
1	186 166 150	166 146 130	-	-	-	-	-
2	168 150 135	148 130 115	-	-	-	-	-
3	151 136 122	131 116 102	-	-	-	-	-
4	136 122 110	116 102 90	-	-	-	-	-
5	120 110 99	100 90 79	-	-	-	-	-
6	92 78 -	72 58 -	-	-	-	-	-
7	-	-	-	-	-	-	-
8	112 95 87	-	-	-	-	-	-
9	98 84 76	-	-	-	-	-	-
10	84 70 64	-	-	-	-	-	-
11	64 56 -	-	-	-	-	-	-
12	-	-	-	-	-	-	140 119 105
13	-	-	-	-	-	-	126 105 98
14	-	-	-	-	-	-	119 98 91
15	-	-	-	-	-	-	91 88 -
16	-	-	1150 950 850	-	-	-	-
17	-	-	950 780 700	-	-	-	-
18	-	-	950 780 700	-	-	-	-
19	55 45 -	-	-	-	-	-	-
20	55 45 -	-	-	-	-	-	-
21	46 38 -	-	-	-	-	-	-
22	55 45 -	-	-	-	-	-	-

Recommended Cutting Data - Solid Thread Milling

• Recommended Cutting speed, Vc(m/min)

Data Reference

Material group No .	Cutting speed, Vc(m/min)		
1	255	230	200
2	200	180	162
3	180	162	145
4	160	145	130
5	144	130	116
6	130	117	105
7	40	-	-
8	160	-	80
9	160	-	80
10	80	-	50
11	80	-	50
12	136	116	102
13	122	102	95
14	109	95	88
15	85	78	-
16	1150	950	850
17	950	780	700
18	950	780	700
19	-	-	-
20	50	45	-
21	35	40	-
22	50	45	-



• Feed.fz (mm/tooth)

Data Reference

Pitch mm (←Pitch)	Feed fz					
	Material group No.					
	1 2 3 4	5 6	8 9 10 11	12 13 14 15	16 17	20 21 22
1.0-1.5	0.04-0.06	0.03-0.05	0.04-0.06	0.04-0.07	0.05-0.08	0.03-0.04
1.75-2.5	0.05-0.07	0.04-0.06	0.05-0.07	0.05-0.08	0.06-0.09	0.04-0.05
3.0-4.0	0.06-0.0 8	0.05-0.07	0.06-0.08	0.06-0.09	0.07-0.1	0.05-0.06
5.0-6.0	0.06-0.08	0.05-0.07	0.06-0.08	0.06-0.09	0.07-0.1	0.05-0.06

Recommended Insert Grade - UFO Thread Milling Cutter

• UFO Thread Milling Cutter Insert Grade Selection

Data Reference

Material group No .	Recom. feed fz mm/tooth ae/Dc = 10%	Grades			
		ME	E		
1	-	B100	-	-	-
2	-	B100	-	-	-
3	-	B100	-	-	-
4	-	B100	-	-	-
5	-	B100	-	-	-
6	-	B100	-	-	-
7	-	B100	-	-	-
8	-	B100	-	-	-
9	-	B100	-	-	-
10	-	B100	-	-	-
11	-	B100	-	-	-
12	-	F20	-	-	-
13	-	F20	-	-	-
14	-	F20	-	-	-
15	-	F20	-	-	-
16	-	-	K10	-	-
17	-	-	K10	-	-
18	-	-	K10	-	-
19	-	B100	-	-	-
20	-	B100	-	-	-
21	-	B100	-	-	-
22	-	B100	-	-	-

• Feed.fz (mm/tooth)

Data Reference

Pitch mm	Feed fz					
	Material group No.					
	1 2 3 4	5 6	8 9 10 11	12 13 14 15	16 17	20 21 22
1.0-1.5	0.04-0.06	0.03-0.05	0.04-0.06	0.04-0.07	0.05-0.08	0.03-0.04
1.75-2.5	0.05-0.07	0.04-0.06	0.05-0.07	0.05-0.08	0.06-0.09	0.04-0.05
3.0-4.0	0.06-0.0 8	0.05-0.07	0.06-0.08	0.06-0.09	0.07-0.1	0.05-0.06
5.0-6.0	0.06-0.08	0.05-0.07	0.06-0.08	0.06-0.09	0.07-0.1	0.05-0.06

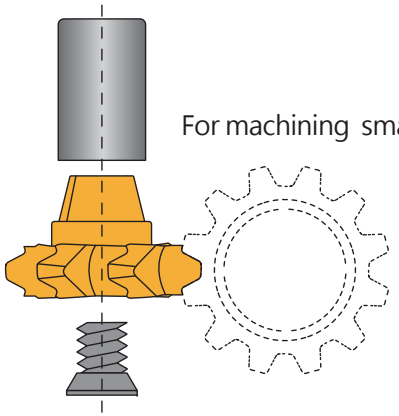
Recommended Cutting Data - UFO Thread Milling Cutter

• Recommended Cutting speed, Vc(m/min)

Data Reference

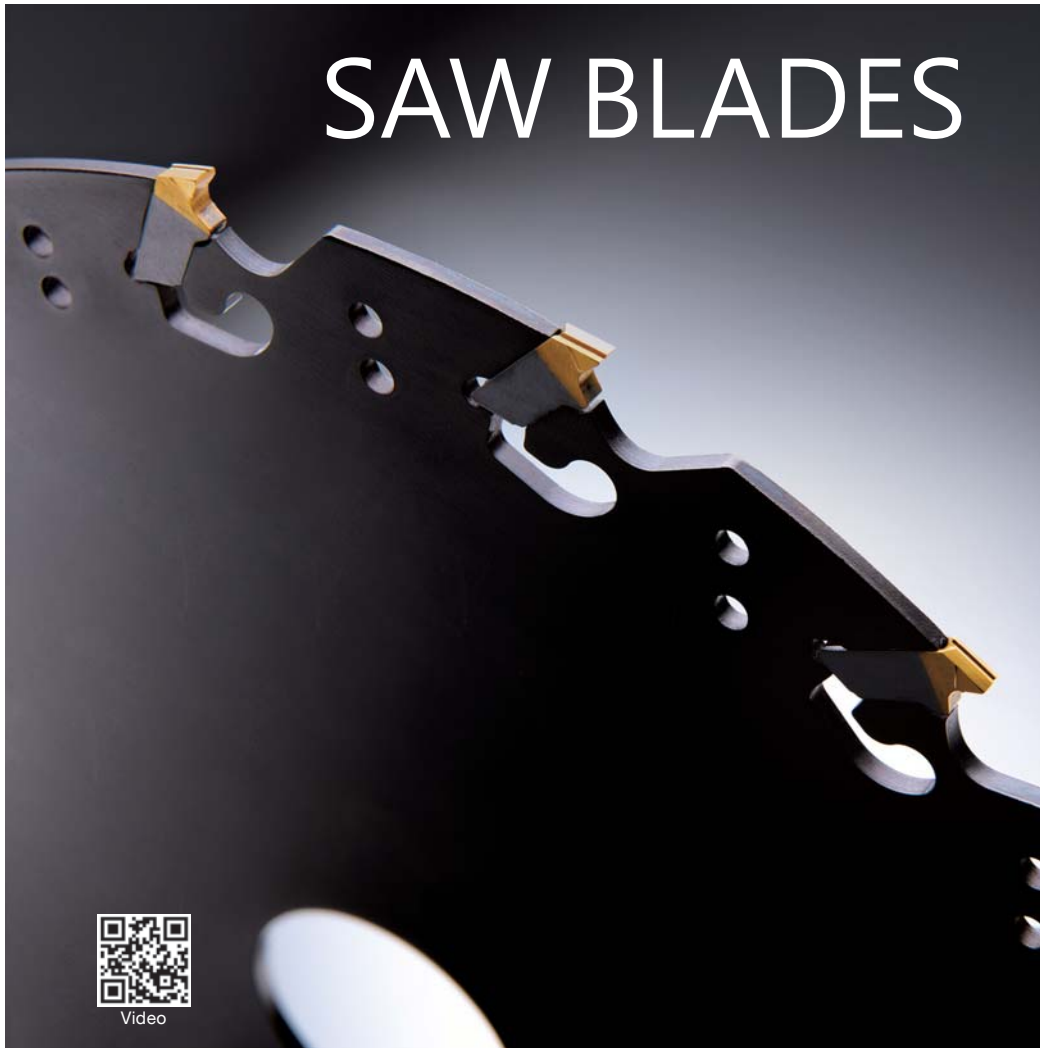
Material group No .	Grades						
	B100	C350	F20	CE60	CE	K10	F30
	Cutting speed, v_c (m/min)						
1	255 230 200	-	-	-	-	-	-
2	200 180 162	-	-	-	-	-	-
3	180 162 145	-	-	-	-	-	-
4	160 145 130	-	-	-	-	-	-
5	144 130 116	-	-	-	-	-	-
6	130 117 105	-	-	-	-	-	-
7	40 - -	-	-	-	-	-	-
8	160 - 80	-	-	-	-	-	-
9	160 - 80	-	-	-	-	-	-
10	80 - 50	-	-	-	-	-	-
11	80 - 50	-	-	-	-	-	-
12	-	-	136 116 102	-	-	-	-
13	-	-	122 102 95	-	-	-	-
14	-	-	109 95 88	-	-	-	-
15	-	-	85 78 -	-	-	-	-
16	-	-	-	-	-	1150 950 850	-
17	-	-	-	-	-	950 780 700	-
18	-	-	-	-	-	950 780 700	-
19	-	-	-	-	-	-	-
20	50 45 -	-	-	-	-	-	-
21	35 40 -	-	-	-	-	-	-
22	50 45 -	-	- - -	-	-	-	-

UFO Gear Milling Cutter - Applications



For machining small gears

SAW BLADES SERIES



Features

- Available in materials (P K M N S H)
- Cost 200~300% DOWN
- Variety of Machines CNC Milling machine
- Efficiency 300~500% UP
- Durability 300% UP

Traditional And New

"Yih Troun" New developed insert locking type(cassette type) prescision saw blades,first in the world.

1. Machining (cutting) speed increases 300% - 500%
2. Extending insert life with TIALN coating
3. Cut down the cost of cutting tools

Patent No. : M538848

Patent No. : ZL 2016 2 1300067.8

Old

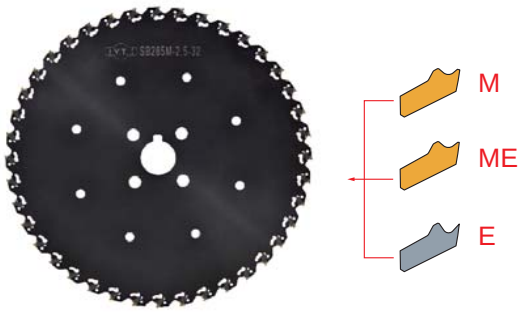
Solid type saw blade:

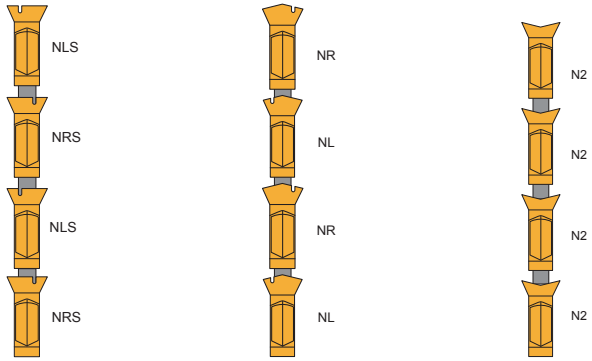
1. Raw material HSS : process speed will slow down, if speed up,the blade will be damaged easily.
2. Welding insert : welded by high temperature, the raw material of the body will be damaged easily

Multipurpose Saw Blades Applications

Patent No. : M538848

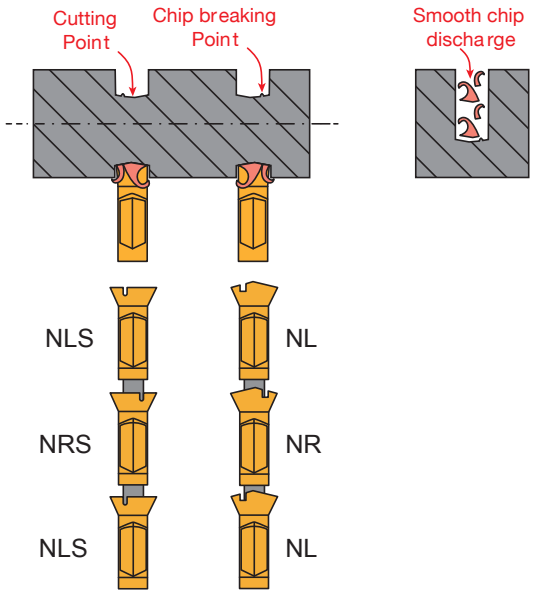
Patent No. : ZL 2016 2 1300067.8





Chips evacuation with different chip breaker position.

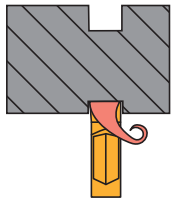
Y.T. Patent Chip Breaker System



Characteristics

- Insert has efficient chip breaking design to break the chips into two halves and the chips are easily discharged while machining deep grooves and slot applications.
- It has accurate center positioning design which enables stronger and steady cutter condition while machining and lessen vibration.
- The required power and resistance is comparatively small to increase machining efficiency.

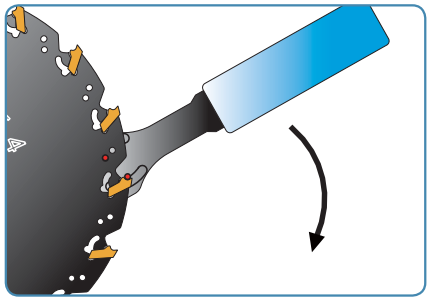
Other Brands



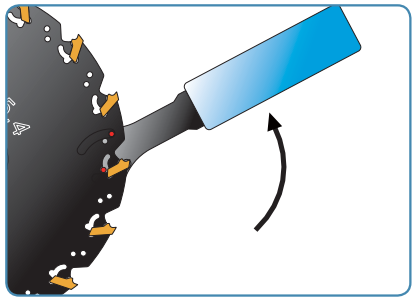
Characteristics

- While deep grooving the chips easily get stuck in the work-piece slot.
- Heavy vibration while machining large contact surface.
- Requires heavy power and machine resistance for machining.
- As a result there will be poor efficiency.

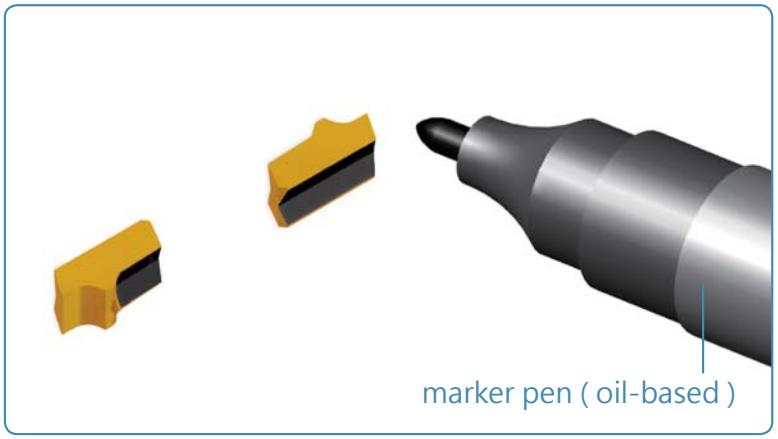
Change The Insert



Insert fit on



Insert fit off

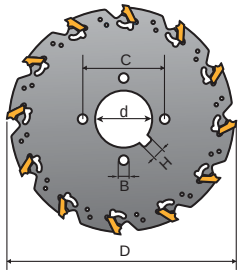


Using marker pen (oil-based) on each surface of insert for helping smoothly fit the insert into blade

PRODUCT SPECIFICATIONS

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200



SB

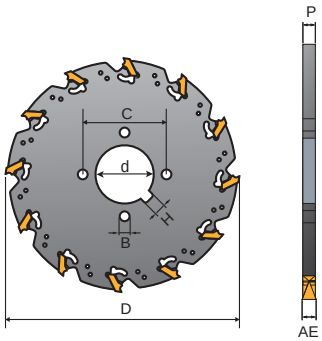
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB050-1.4-13	50	1.4 1.5	1.2	13	-	-	4	-	0.1	12000	1414 1415	150.10-30
SB050-1.4-12.7				12.7								
SB063-1.4-16	63			16			6			11000		
SB063-1.4-15.875				15.875								
SB080-1.4-22	80			22			8	6.35	0.15	8000		
SB080-1.4-25.4				25.4								
SB100-1.4-22	100			22			10			6300		
SB100-1.4-25.4				25.4								
SB100-1.4-27				27				7				
SB125-1.4-22	125			22			12	6.35	0.2	5000		
SB125-1.4-25.4				25.4								
SB125-1.4-32				32				8				

* Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SB



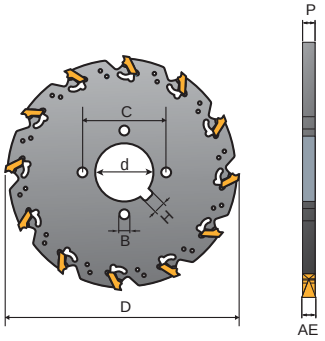
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB050-1.6-13	50	1.6	1.4	13	-	-	4	-	0.1	12000	1616	150.10-30
SB050-1.6-12.7				12.7								
SB063-1.6-16	63			16			6			11000		
SB063-1.6-15.875				15.875								
SB080-1.6-22	80			22			8	6.35	0.15	8000		
SB080-1.6-25.4				25.4								
SB100-1.6-22	100			22			10	6.35	0.15	6300		
SB100-1.6-25.4				25.4								
SB100-1.6-27				2.7				7				
SB125-1.6-22	125			22			12	6.35	0.2	5000		
SB125-1.6-25.4				25.4								
SB125-1.6-32				32				8				
SB160-1.6-25.4	160			25.4			16	6.35	0.25	4000		
SB160-1.6-32				32				8				
SB160-1.6-40				40				10				

*Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SB



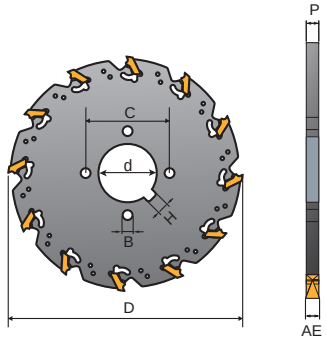
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB050-1.8-13	50	1.8	1.6	13	-	-	4	-	0.1	12000	1818	150.10-30
SB050-1.8-12.7				12.7								
SB063-1.8-16	63			16			6			11000		
SB063-1.8-15.875				15.875								
SB080-1.8-22	80			22			8	6.35	0.15	8000		
SB080-1.8-25.4				25.4								
SB100-1.8-22	100			22			10	6.35	0.15	6300		
SB100-1.8-25.4				25.4								
SB100-1.8-27				27				7				
SB125-1.8-22	125			22			12	6.35	0.2	5000		
SB125-1.8-25.4				25.4								
SB125-1.8-32				32				8				
SB160-1.8-25.4	160			25.4			16	6.35	0.25	4000		
SB160-1.8-32				32				8				
SB160-1.8-40				40				10				

*Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SB



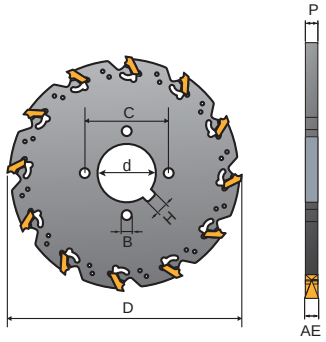
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB050-2-13	50	2.0 2.2 2.5	1.75	13	-	-	4	-	0.1	12000	2020 2022 2025	150.10-30
SB050-2-12.7				12.7								
SB063-2-16	63			16			6			11000		
SB063-2-15.875				15.875								
SB080-2-22	80			22			8	6.35	0.15	8000		
SB080-2-25.4				25.4								
SB100-2-22	100			22			10			6300		
SB100-2-25.4				25.4								
SB100-2-27				27				7				
SB125-2-22	125			22			12	6.35	0.2	5000		
SB125-2-25.4				25.4								
SB125-2-32				32				8				
SB160-2-25.4	160			25.4			16	6	0.25	4000		
SB160-2-32				32				8				
SB160-2-40				40				10				

* Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SB



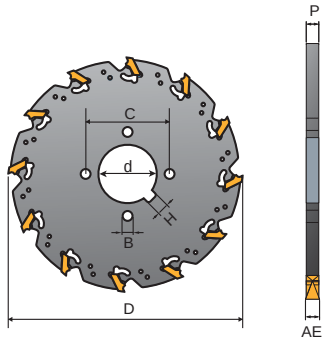
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB200-2-25.4	200	2.0 2.2 2.5	1.75	25.4	-	-	20	6.35	0.5	3200	2020 2022 2025	150.10-30
SB200M-2-25.4							26					
SB200-2-32				32	63	11	20	8				
SB200M-2-32							26					
SB200-2-40				40	90		20	10	0.5	3200		
SB200M-2-40							26					
SB250-2-25.4	250			25.4	-	-	26	6.35	0.7	2600		
SB250M-2-25.4							34					
SB250-2-32				32	63	11	26	8				
SB250M-2-32							34					
SB250-2-40				40	90		26	10				
SB250M-2-40							34					
SB285-2-32	285	-	-	32	63		28	8	0.8	2300		
SB285M-2-32							40					
SB050-2.5-13	50	2.5 2.7 3.0	2.25	13	-	-	4	-	0.1	12000	2525 2527 2530	150.10-30
SB050-2.5-12.7				12.7								

* Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SB



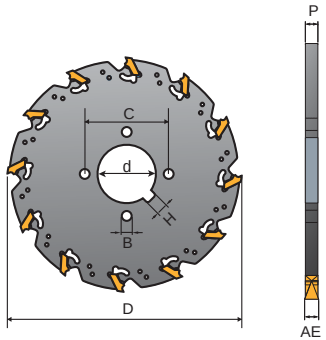
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB063-2.5-16	63	2.5 2.7 3.0	2.25	16	-	-	6	-	0.1	11000	2525 2527 2530	150.10-30
SB063-2.5-15.875				15.875								
SB080-2.5-22	80			22			8	6.35	0.15	8000		
SB080-2.5-25.4				25.4								
SB100-2.5-22	100			22			10			6300		
SB100-2.5-25.4				25.4								
SB100-2.5-27				27				7				
SB125-2.5-22	125			22			12	6.35	0.2	5000		
SB125-2.5-25.4				25.4								
SB125-2.5-32				32				8				
SB160-2.5-25.4	160			25.4			16	6.35	0.25	4000		
SB160-2.5-32				32				8				
SB160-2.5-40				40				10				
SB200-2.5-25.4	200			25.4			20	6.35	0.5	3200		
SB200M-2.5-25.4							26					

*Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SB



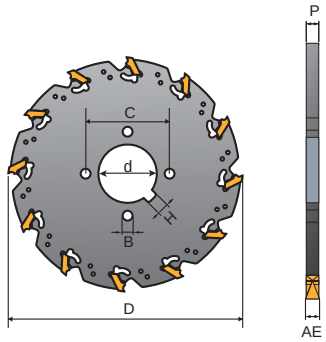
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB200-2.5-32	200	2.5 2.7 3.0	2.25	32	63	11	20	8	0.5	3200	2525 2527 2530	150.10-30
SB200M-2.5-32							26					
SB200-2.5-40				40	90		20	10				
SB200M-2.5-40							26					
SB250-2.5-25.4	250			25.4	-	-	26	6.35	0.7	2600		
SB250M-2.5-25.4							34					
SB250-2.5-32				32	63	11	26	8				
SB250M-2.5-32							34					
SB250-2.5-40				40	90		26	10				
SB250M-2.5-40							34					
SB300-2.5-25.4	300			25.4	-	-	26	6.35	1.5	2200		
SB300M-2.5-25.4							34					
SB300-2.5-32				32	63	11	30	8	1.5	2200		
SB300M-2.5-32							40					
SB300-2.5-40				40	90		30	10				
SB300M-2.5-40							40					

*Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SB



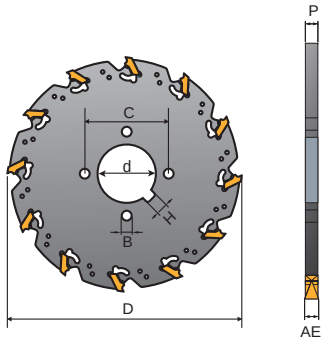
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB050-3-13	50	3.0 3.2 3.5	2.7	13	-	-	4	-	0.1	12000	3030 3032 3035	150.10-30
SB050-3-12.7				12.7								
SB063-3-16	63			16			6	-		11000		
SB063-3-15.875				15.875								
SB080-3-22	80			22			8	6.35	0.17	8000		
SB080-3-25.4				25.4								
SB100-3-22	100			22			10			6300		
SB100-3-25.4				25.4								
SB100-3-27				27				7				
SB125-3-22	125			22			12	6.35	0.2	5000		
SB125-3-25.4				25.4								
SB125-3-32				32				8				
SB160-3-25.4	160			25.4			16	6.35	0.25	4000		
SB160-3-32				32				8				
SB160-3-40				40				10				
SB200-3-25.4	200			25.4			20	6.35	0.6	3200		
SB200M-3-25.4							26					

* Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SB

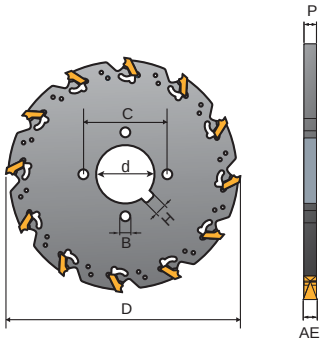


Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB200-3-32	200	3.0 3.2 3.5	2.7	32	63	11	20	8	0.6	3200	3030 3032 3035	150.10-30
SB200M-3-32							26					
SB200-3-40				40	90		20	10				
SB200M-3-40							26					
SB250-3-25.4	250			25.4	-	-	26	6.35	0.8	2600		
SB250M-3-25.4							34					
SB250-3-32				32	63	11	26	8				
SB250M-3-32							34					
SB250-3-40	250			40	90		26	10				
SB250M-3-40							34					
SB300-3-25.4	300			25.4	-	-	30	6.35	1.5	2200		
SB300M-3-25.4							40					
SB300-3-32				32	63	11	30	8	1.5	2200		
SB300M-3-32							40					
SB300-3-40				40	90		30	10				
SB300M-3-40							40					

* Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200



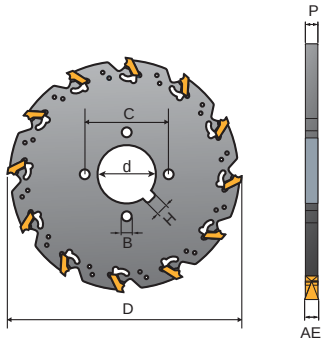
SB

Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB050-4-13	50	4.0 4.2 4.5	3.7	13	-	-	4	-	0.1	12000	4040 4042 4045	150.10-30
SB050-4-12.7				12.7								
SB063-4-16	63			16			6	-		11000		
SB063-4-15.875				15.875								
SB080-4-22	80			22			8	6.35	0.2	8000		
SB080-4-25.4				25.4								
SB100-4-22	100			22			10			6300		
SB100-4-25.4				25.4								
SB100-4-27				27				7				
SB125-4-22	125			22			12	6.35	0.3	5000		
SB125-4-25.4				25.4								
SB125-4-32				32				8				
SB160-4-25.4	160			25.4			16	6.35	0.38	4000		
SB160-4-32				32				8				
SB160-4-40				40				10				
SB200-4-25.4	200			25.4			20	6.35	1.2	3200		
SB200M-4-25.4							26					

*Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200



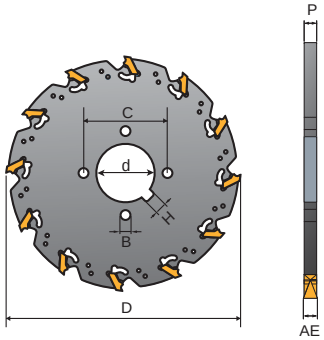
SB

Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB200-4-32	200	4.0 4.2 4.5	3.7	32	63	11	20	8	1.2	3200	4040 4042 4045	150.10-30
SB200M-4-32							26					
SB200-4-40				40	90			10				
SB200M-4-40							34					
SB250-4-25.4	250			25.4	-	-	26	6.35	1.3	2600		
SB250M-4-25.4							34					
SB250-4-32				32	63	11	26	8				
SB250M-4-32							34					
SB250-4-40				40	90		26	10				
SB250M-4-40							34					
SB300-4-25.4	300			25.4	-	-	30	6.35	1.8	2200		
SB300M-4-25.4							40					
SB300-4-32				32	63	11	30	8		-		
SB300M-4-32							40					
SB300-4-40				40	90		30	10				
SB300M-4-40							40					

*Key 150.10-30 is not included

Saw Blades

- Insert P. 187 - 194
- Cutting Data P. 198 - 200



SB

Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SB050-5-13	50	5.0 5.2 5.5	4.5	13	-	-	4	-	0.15	12000	5050 5052 5055	150.10-30
SB050-5-12.7				12.7								
SB063-5-16	63			16			6			11000		
SB063-5-15.875				15.875								
SB080-5-22	80			22			8	6.35	0.25	8000		
SB080-5-25.4				25.4								
SB100-5-22	100			22			10			6300		
SB100-5-25.4				25.4								
SB100-5-27				27				7				
SB125-5-22	125			22			12	6.35	0.35	5000		
SB125-5-25.4				25.4								
SB125-5-32				32				8				
SB160-5-25.4	160			25.4			16	6.35	0.43	4000		
SB160-5-32				32				8				
SB160-5-40				40				10				

*Key 150.10-30 is not included

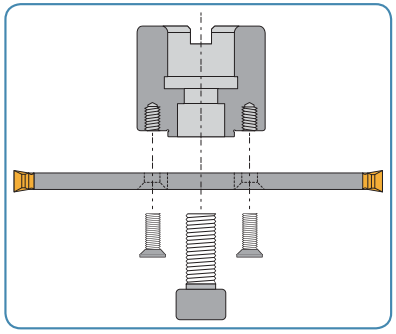
Features

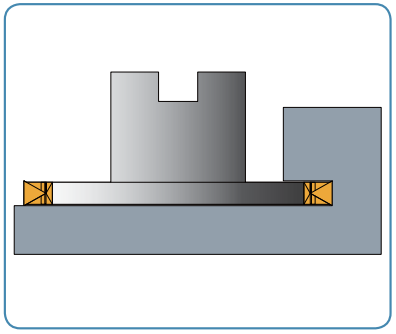
- Available in materials (P K M N S H)
- Cost 200~300% DOWN
- Variety of Machines CNC Milling machine
- Efficiency 300~500% UP
- Durability 300% UP

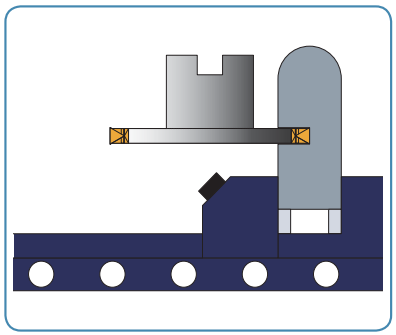
New System For T-Slot Milling

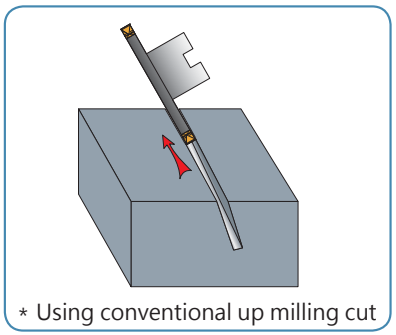
TRANSFORMER HOLDER

Slitting / Slotting / Cut-off









* Using conventional up milling cut

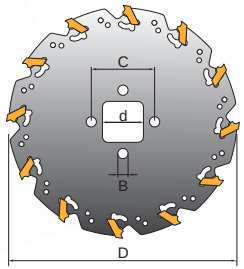
PRODUCT SPECIFICATIONS

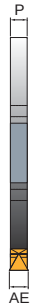
Saw Milling Cutters

- Combination Holder P. 159
- Insert P. 187 - 194
- Cutting Data P. 198 - 200

Saw

SBL





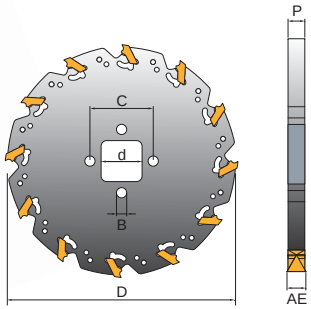
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SBL080-1.4-22	80	1.4	1.2	22	34	5	8	-	0.15	8000	1414	150.10-30
SBL100-1.4-22	100						10			6300		
SBL125-1.4-32	125	1.5		32	46	6	12		0.2	5000	1415	
SBL160-1.4-32	160						16		0.28	4000		
SBL080-1.6-22	80	1.6	1.4	22	34	5	8	-	0.15	8000	1616	150.10-30
SBL100-1.6-22	100						10			6300		
SBL125-1.6-32	125			32	46	6	12		0.2	5000		
SBL160-1.6-32	160						16		0.28	4000		

* Key 150.10-30 is not included

Saw Milling Cutters

- Combination Holder P. 159
- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SBL



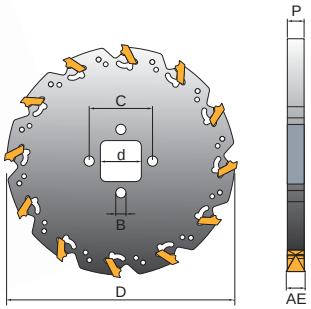
Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SBL080-1.8-22	80	1.8	1.6	22	34	5	8	-	0.15	8000	1818	150.10-30
SBL100-1.8-22	100						10			6300		
SBL125-1.8-32	125			32	46	6	12		0.2	5000		
SBL160-1.8-32	160						16		0.28	4000		
SBL080-2-22	80	2.0 2.2 2.5	1.75	22	34	5	8	-	0.15	8000	2020 2022 2025	150.10-30
SBL100-2-22	100						10			6300		
SBL125-2-32	125			32	46	6	12		0.2	5000		
SBL160-2-32	160						16		0.28	4000		
SBL080-2.5-22	80	2.5 2.7 3.0	2.25	22	34	5	8	-	0.15	8000	2525 2527 2530	150.10-30
SBL100-2.5-22	100						10			6300		
SBL125-2.5-32	125			32	46	6	12		0.2	5000		
SBL160-2.5-32	160						16		0.28	4000		

*Key 150.10-30 is not included

Saw Milling Cutters

- Combination Holder P. 159
- Insert P. 187 - 194
- Cutting Data P. 198 - 200

SBL

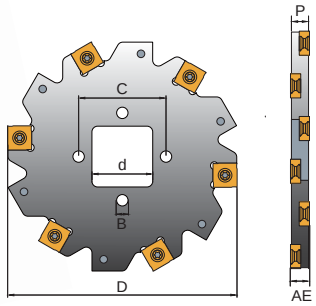


Order code	Dimensions(mm)							H	KG	MAX RPM	Insert LNGT	Key
	D	AE	P	d	C	B						
SBL080-3-22	80	3.0 3.2 3.5	2.7	22	34	5	8	-	0.17	8000	3030 3032 3035	150.10-30
SBL100-3-22	100						10			6300		
SBL125-3-32	125			32	46	6	12		0.22	5000		
SBL160-3-32	160						16		0.3	4000		
SBL080-4-22	80	4.0 4.2 4.5	3.7	22	34	5	8	-	0.2	8000	4040 4042 4045	150.10-30
SBL100-4-22	100						10			6300		
SBL125-4-32	125			32	46	6	12		0.25	5000		
SBL160-4-32	160						16		0.35	4000		
SBL080-5-22	80	5.0 5.2 5.5	4.5	22	34	5	8	-	0.22	8000	5050 5052 5055	150.10-30
SBL100-5-22	100						10			6300		
SBL125-5-32	125			32	46	6	12		0.25	5000		
SBL160-5-32	160						16		0.38	4000		

*Key 150.10-30 is not included

Side Milling Cutters

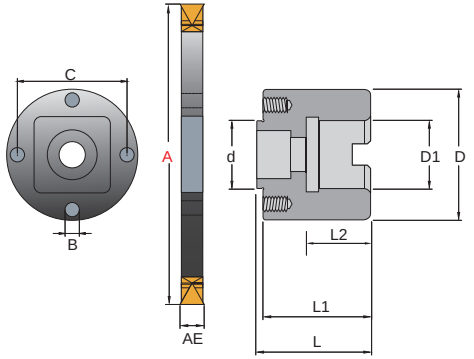
- Combination Holder P. 159
- Insert P. 195 - 197
- Cutting Data P. 201 - 202



STL

Order code	Dimensions(mm)							H	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	AE	P	d	C	B							
STL080-4-22	80	4	3.4	22	34	5	8	-	0.2	13700	1102	T9354	T09P
STL080-5-22		5	4.2								1103	T9355	T08P
STL100-4-22	100	4	3.4				10		0.5	12000	1102	T9354	T09P
STL100-5-22		5	4.2								1103	T9355	T08P
STL125-4-32	125	4	3.4	32	46	6	12		0.6	10900	1102	T9354	T09P
STL125-5-32		5	4.2								1103	T9355	T08P
STL160-4-32	160	4	3.4				16		0.7	8300	1102	T9354	T09P
STL160-5-32		5	4.2								1103	T9355	T08P

Combination Holder

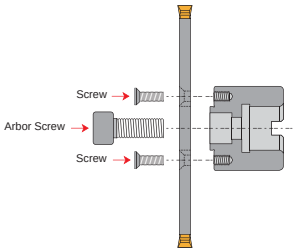


BL / BLL

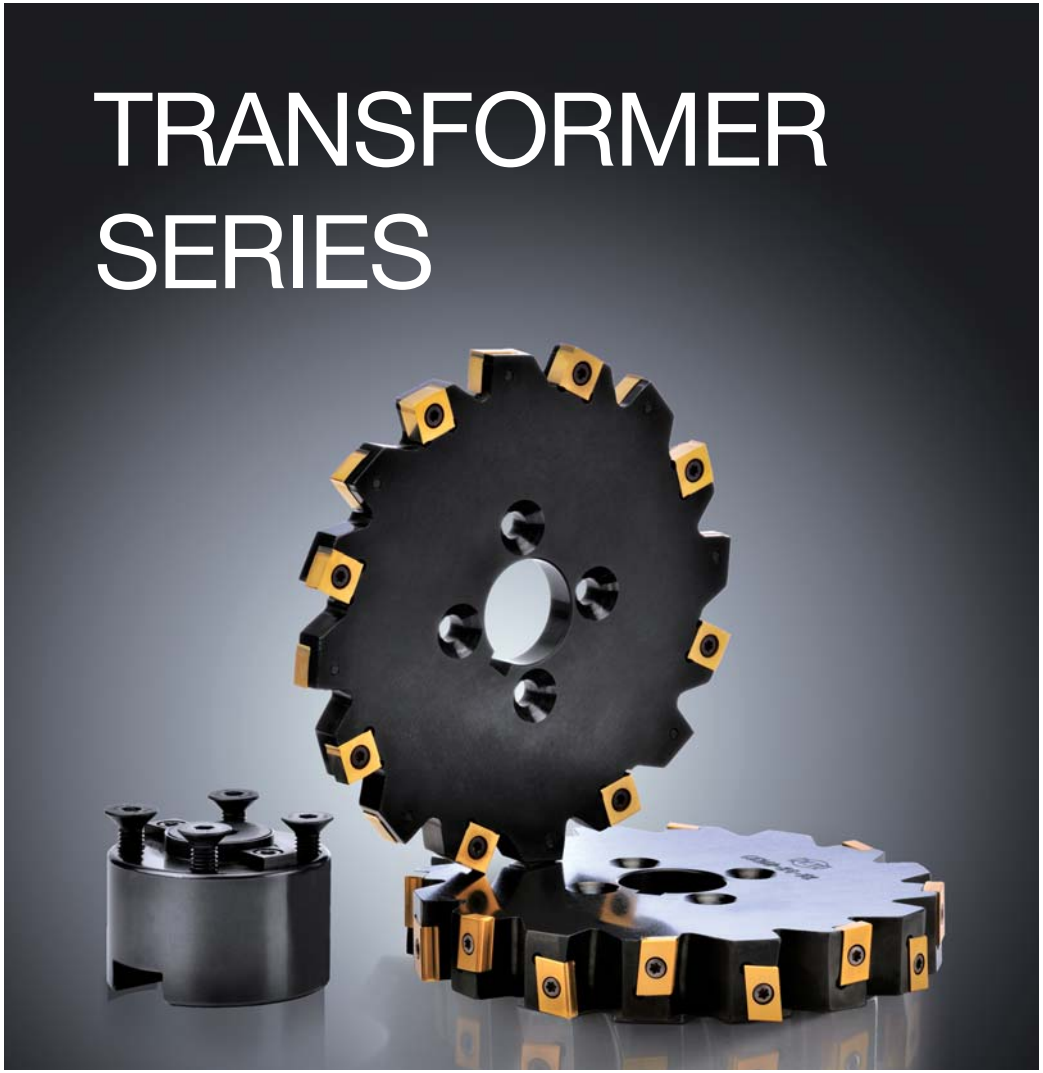
Order code	Dimensions(mm)									Screw (KG)	KG	Insert LNGT / SNGX / SNGW
	D	D1	d	C	B	L	L1	L2	A			
BL45-22	45	22	22	34	5	43	41.8	27	80	0.2	0.4	 AE 1-2mm
BL45-25.4		25.4				45	43.8		100			
BL58-31.75	58	31.75	32	46	6	55	53.8	28	125	0.5	0.55	
BL58-32		32							160			
BLL45-22	45	22	22	34	5	43	40.5	27	80	0.6	0.4	 AE 2.5-5mm
BLL45-25.4		25.4				45	42.5		100			
BLL58-31.75	58	31.75	32	46	6	55	52.5	28	125	0.7	0.55	
BLL58-32		32							160			

Standard Spare Parts

Holders	Screw	Holders	Screw	Arbor Screw
BL45-22	C90512	BLL45-22	C90512	M1035
BL45-25.4		BLL45-25.4		M1235
BL58-31.75	C90612	BLL58-31.75	C90612	M1235/M1635/ W2403
BL58-32		BLL58-32		M1635



TRANSFORMER SERIES



Features

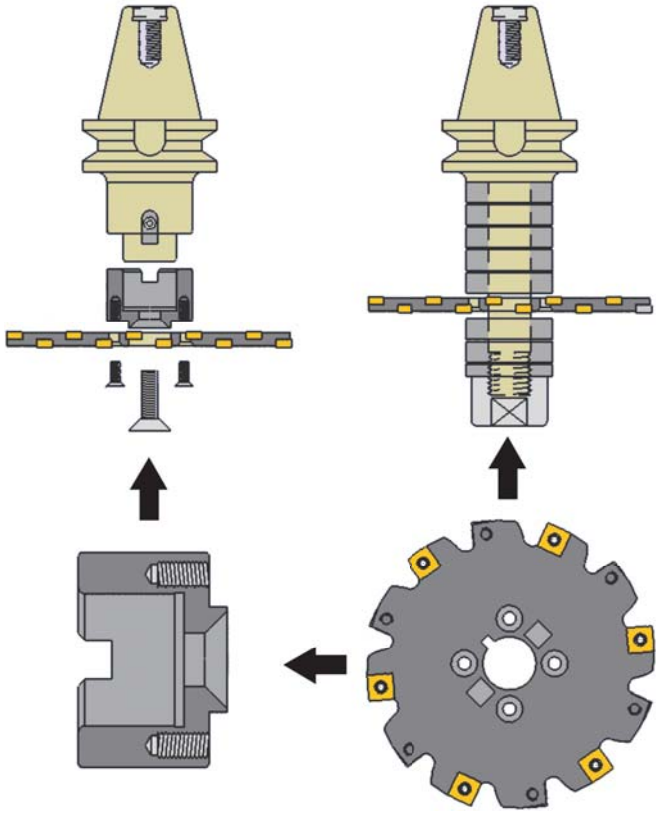
- Available in materials (P K M N S H)
- Cost 200~300% DOWN
- Variety of Machines CNC Milling machine
- Efficiency 300~500% UP
- Durability 300% UP

Product Introduction

Dia. range ø160 ~ ø250 / AE 6 ~ 30mm

Face Milling Arbor:
Better strength with shorter length and bigger diameter

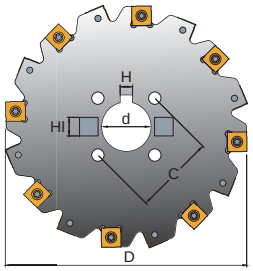
Side Milling Arbor:
Poor strength with longer length and smaller diameter

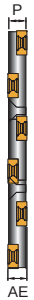


PRODUCT SPECIFICATIONS

Side Milling Cutters

- Combination Holder P. 165
- Insert P. 195 - 197
- Cutting Data P. 201 - 202



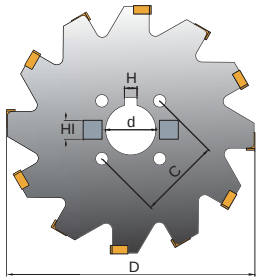


SCL

Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	AE	P	H	C	d							
SCL-160-6-32	160	6	5	8	52	32	16	8	0.8	8300	1203	T945	T15P
SCL-160-8-32		8	7								12045	T947	
SCL-160-10-32		10	9						1.1		1205	T948	
SCL-160-12-32		12	11						1.3		1207	T9411	
SCL-200-6-40	200	6	5	10	70	40	18	9	1.6	4200	1203	T945	
SCL-200-8-40		8	7						1.7		12045	T947	
SCL-200-10-40		10	9						1.8		1205	T948	
SCL-200-12-40		12	11						2.1		1207	T9411	
SCL-250-6-40	250	6	5				24	12	3.3	3800	1203	T945	
SCL-250-8-40		8	7						3.5		12045	T947	
SCL-250-10-40		10	9						3.7		1205	T948	
SCL-250-12-40		12	11						3.9		1207	T9411	

Disc Milling Cutters

- Combination Holder P. 165
- Insert P. 198
- Cutting Data P. 203

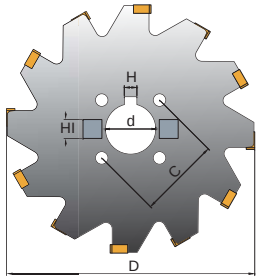


CEL

Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert CNGX	Screw	Key
	D	AE	P	H	C	d							
CEL160-14-32	160	14	12.5	8	52	32	12	6	1.7	6900	1005	C04011	T15P
CEL160-16-32		16	14.5										
CEL160-18-32		18	16.5						1.9		1305		
CEL160-20-32		20	18.5						2.0				
CEL160-22-32		22	20.5						2.1				
CEL160-25-32		25	23.5						2.3		1605		
CEL160-30-32		30	28.5						2.5				
CEL200-14-40	200	14	12.5	10	70	40	16	8	1.9	6100	1005		
CEL200-16-40		16	14.5						2.1				
CEL200-18-40		18	16.5						2.3		1305		
CEL200-20-40		20	18.5						2.5				
CEL200-22-40		22	20.5				12	6	2.7				
CEL200-25-40		25	23.5						3.0		1605		
CEL200-30-40		30	28.5						3.5				

Disc Milling Cutters

- Combination Holder P. 165
- Insert P. 198
- Cutting Data P. 203



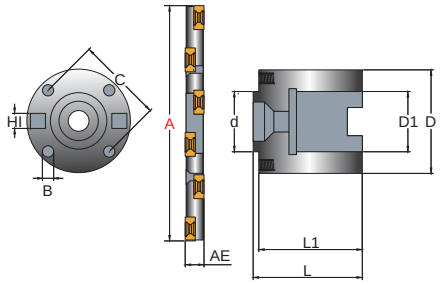
CEL

Order code	Dimensions(mm)								KG	MAX RPM	Insert CNGX	Screw	Key
	D	AE	P	H	C	d		Zc					
CEL250-14-40	250	14	12.5	10	70	40	20	10	2.9	5500	1005	C04011	T15P
CEL250-16-40		16	14.5						3.1				
CEL250-18-40		18	16.5						3.2		1305		
CEL250-20-40		20	18.5						3.5				
CEL250-22-40		22	20.5				16	8	3.9				
CEL250-25-40		25	23.5						4.2		1605		
CEL250-30-40		30	28.5						4.5				

CWL

Order code	Dimensions(mm)							KG	MAX RPM	Insert CNGX	Screw	Key
	D	AE	P	H	C	d						
CWL-160-32	160	12	16.5	8	52	32	16	1.9	6900	1305	C04011	T15P
CWL-200-40	200			10	70	40	20	2.3	6100			
CWL-250-40	250						24	3.2	5500			

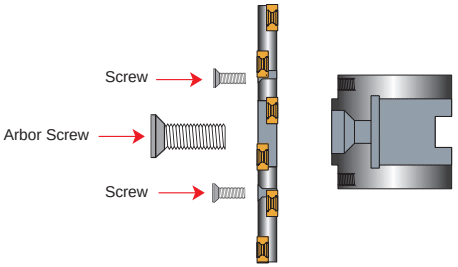
Combination Holders



BCL

Order code	Dimensions(mm)									KG
	D	D1	d	C	B	L	L1	A	Hl	
BCL65-32	65	32	32	52	8	45	39.5	160	12	0.8
BCL65-31.75		31.75								
BCL65-40		40								
BCL65-38.1		38.1								
BCL90-40	90	40	40	70	8	50	44.5	200 250	12	1.2
BCL90-38.1		38.1								
BCL90-50		50								
BCL90-50.8		50.8								

Standard Spare Parts



Holders	Screw	Arbor Screw
SCL-160-6-32	C90815	C901640
SCL-160-8-32		
SCL-160-10-32	C90820	
SCL-160-12-32		
SCL-200-6-40	C90815	
SCL-200-8-40		
SCL-200-10-40	C90820	
SCL-200-12-40		
SCL-250-6-40	C90815	
SCL-250-8-40		
SCL-250-10-40	C90820	
SCL-250-12-40		
CWL-160-32	C90825	
CWL-200-40		
CWL-250-40		

Holders	Screw	Arbor Screw
CEL160-14-32	C90820	C901640
CEL160-16-32		
CEL160-18-32	C90825	
CEL160-20-32	C90830	
CEL160-22-32		
CEL160-25-32		
CEL160-30-32	C90835	
CEL200-14-40	C90820	
CEL200-16-40		
CEL200-18-40	C90825	
CEL200-20-40	C90830	
CEL200-22-40		
CEL200-25-40		
CEL200-30-40	C90835	
CEL250-14-40	C90820	
CEL250-16-40		
CEL250-18-40	C90825	
CEL250-20-40	C90830	
CEL250-22-40		
CEL250-25-40		
CEL250-30-40	C90835	

SIDE MILLING CUTTER

Video

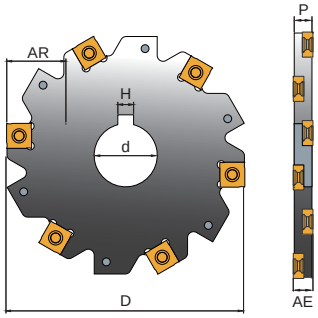
Features

- Available in materials (P K M N S H)
- Cost 200~300% DOWN
- Variety of Machines CNC Milling machine
- Efficiency 300~500% UP
- Durability 300% UP

PRODUCT SPECIFICATIONS

Side Milling Cutters

- Insert P. 195 - 197
- Cutting Data P. 201 - 202

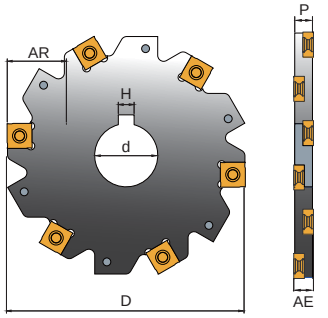


SC

Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	AE	AR	P	H	d							
SC-80-4-22	80	4	18	3.4	6.35	22	8	4	0.2	13700	1102	T9354	T09P
SC-80-5-22		5		4.2							1103	T9355	T08P
SC-80-6-22		6		5					0.3		1203	T945	T15P
SC-80-7-22		7		6							1204	T946	
SC-80-8-22		8		7							12045	T947	
SC-80-10-22		10		9					0.4		1205	T948	
SC-80-12-22		12		11					0.7		1207	T9411	
SC-100-4-27	100	4	28	3.4	7	27	10	5	0.5	12000	1102	T9354	T09P
SC-100-5-27		5		4.2							1103	T9355	T08P
SC-100-6-27		6		5					0.6		1203	T945	T15P
SC-100-7-27		7		6					0.7		1204	T946	

Side Milling Cutters

- Insert P. 195 - 197
- Cutting Data P. 201 - 202

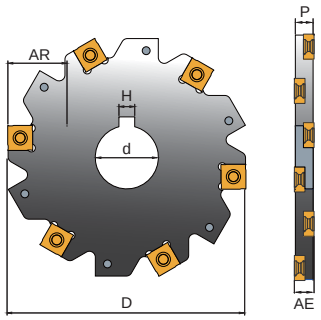


SC

Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	AE	AR	P	H	d							
SC-100-8-27	100	8	28	7	7	27	10	5	0.8	12000	12045	T947	T15P
SC-100-10-27		10		9					0.9		1205	T948	
SC-100-12-27		12		11					1.0		1207	T9411	
SC-125-4-32	125	4	33	3.4	8	32	12	6	0.5	10900	1102	T9354	T09P
SC-125-5-32		5		4.2							1103	T9355	T08P
SC-125-6-32		6		5					0.6		1203	T945	T15P
SC-125-7-32		7		6					0.7		1204	T946	
SC-125-8-32		8		7					0.8		12045	T947	
SC-125-10-32		10		9					0.9		1205	T948	
SC-125-12-32		12		11					1.0		1207	T9411	
SC-125-4-40		4		3.4	10	40			0.5		1102	T9354	T09P
SC-125-5-40		5		4.2							1103	T9355	T08P
SC-125-6-40		6		5					0.6		1203	T945	T15P
SC-125-7-40		7		6					0.7		1204	T946	
SC-125-8-40		8		7					0.8		12045	T947	
SC-125-10-40		10		9					0.9		1205	T948	
SC-125-12-40		12		11					1.0		1207	T9411	

Side Milling Cutters

- Insert P. 195 -197
- Cutting Data P. 201 - 202

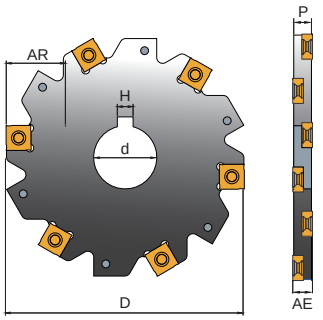


SC

Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	AE	AR	P	H	d							
SC-160-4-32	160	4	45	3.4	8	32	16	8	0.7	8300	1102	T9354	T09P
SC-160-5-32		5		4.2							1103	T9355	T08P
SC-160-6-32		6		5					0.8		1203	T945	T15P
SC-160-7-32		7		6							1204	T946	
SC-160-8-32		8		7							12045	T947	
SC-160-10-32		10		9					1.1		1205	T948	
SC-160-12-32		12		11					1.3		1207	T9411	
SC-160-4-40		4		3.4	10	40			0.7		1102	T9354	T09P
SC-160-5-40		5		4.2							1103	T9355	T08P
SC-160-6-40		6		5					0.8		1203	T945	T15P
SC-160-7-40		7		6							1204	T946	
SC-160-8-40		8		7							12045	T947	
SC-160-10-40		10		9					1.1		1205	T948	
SC-160-12-40		12		11					1.3		1207	T9411	

Side Milling Cutters

- Insert P. 195 -197
- Cutting Data P. 201 - 202



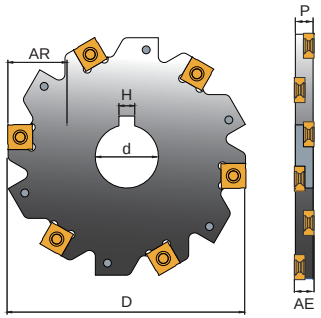
SC

Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	AE	AR	P	H	d							
SC-80-4-25.4	80	4	18	3.4	6.35	25.4	8	4	0.2	13700	1102	T9354	T09P
SC-80-5-25.4		5		4.2							1103	T9355	T08P
SC-80-6-25.4		6		5					0.3		1203	T945	T15P
SC-80-7-25.4		7		6							1204	T946	
SC-80-8-25.4		8		7							12045	T947	
SC-80-10-25.4		10		9					0.4		1205	T948	
SC-80-12-25.4		12		11					0.7		1207	T9411	
SC-100-4-25.4	100	4	28	3.4			10	5	0.5	12000	1102	T9354	T09P
SC-100-5-25.4		5		4.2							1103	T9355	T08P
SC-100-6-25.4		6		5					0.6		1203	T945	T15P
SC-100-7-25.4		7		6					0.7		1204	T946	
SC-100-8-25.4		8		7					0.8		12045	T947	
SC-100-10-25.4		10		9					0.9		1205	T948	
SC-100-12-25.4		12		11					1.0		1207	T9411	
SC-125-4-25.4	125	4	33	3.4			12	6	0.2	10900	1102	T9354	T09P
SC-125-5-25.4		5		4.2							1103	T9355	T08P
SC-125-6-25.4		6		5					0.3		1203	T945	T15P

Side Milling Cutters

- Insert P. 195 -197
- Cutting Data P. 201 - 202

SC

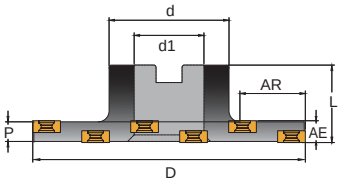


Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	AE	AR	P	H	d							
SC-125-7-25.4	125	7	33	6	6.35	25.4	12	6	0.3	10900	1204	T946	T15P
SC-125-8-25.4		8		7							12045	T947	
SC-125-10-25.4		10		9					0.4		1205	T948	
SC-125-12-25.4		12		11					0.7		1207	T9411	
SC-160-4-25.4	160	4	45	3.4			16	8		8300	1102	T9354	T09P
SC-160-5-25.4		5		4.2							1103	T9355	T08P
SC-160-6-25.4		6		5					0.8		1203	T945	T15P
SC-160-7-25.4		7		6							1204	T946	
SC-160-8-25.4		8		7							12045	T947	
SC-160-10-25.4		10		9					1.1		1205	T948	
SC-160-12-25.4		12		11					1.3		1207	T9411	
SC-160-4-31.75		4		3.4	8	31.75			0.7		1102	T9354	T09P
SC-160-5-31.75		5		4.2							1103	T9355	T08P
SC-160-6-31.75		6		5					0.8		1203	T945	T15P
SC-160-7-31.75		7		6							1204	T946	
SC-160-8-31.75		8		7							12045	T947	
SC-160-10-31.75		10		9					1.1		1205	T948	
SC-160-12-31.75		12		11					1.3		1207	T9411	

Side Milling Cutters

- Insert P. 195 -197
- Cutting Data P. 201 - 202

ST

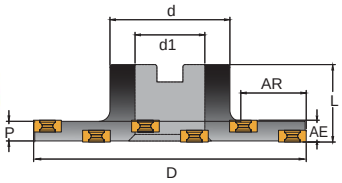


Order code	Dimensions(mm)								Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	AE	AR	P	d	d1	L							
ST-80-6-22	80	6	16.5	5	40	22	35	8	4	0.6	13700	1203	T945	T15P
ST-80-7-22		7		6								1204	T946	
ST-80-8-22		8		7								12045	T947	
ST-80-10-22		10		9						0.8		1205	T948	
ST-80-12-22		12		11						0.9		1207	T9411	
ST-100-6-27	100	6	26.5	5		27	35	10	5	0.7	12000	1203	T945	
ST-100-7-27		7		6								1204	T946	
ST-100-8-27		8		7						0.8		12045	T947	
ST-100-10-27		10		9								1205	T948	
ST-100-12-27		12		11						0.9		1207	T9411	
ST-125-6-32	125	6	30.5	5	55	32	35	12	6	1.5	10900	1203	T945	
ST-125-7-32		7		6								1204	T946	
ST-125-8-32		8		7								12045	T947	
ST-125-10-32		10		9						1.6		1205	T948	
ST-125-12-32		12		11								1207	T9411	
ST-160-6-32	160	6	48	5				16	8	2.0	8300	1203	T945	
ST-160-7-32		7		6								1204	T946	
ST-160-8-32		8		7								12045	T947	
ST-160-10-32		10		9						2.1		1205	T948	
ST-160-12-32		12		11								1207	T9411	

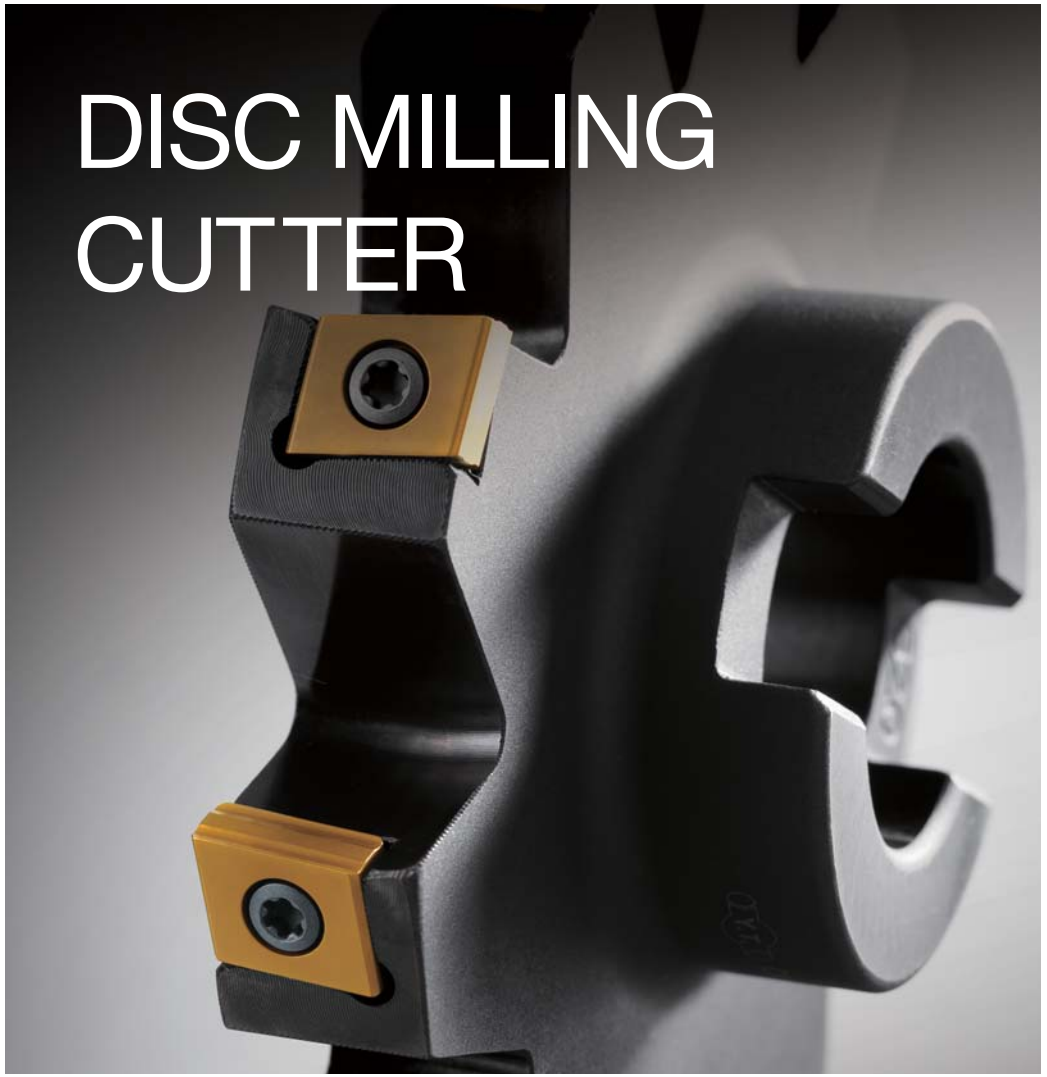
Side Milling Cutters

- Insert P. 195 -197
- Cutting Data P. 201 - 202

ST



Order code	Dimensions(mm)								Zc	KG	MAX RPM	Insert SNGX SNGW	Screw	Key
	D	AE	AR	P	d	d1	L							
ST-80-6-25.4	80	6	16.5	5	40	25.4	35	8	4	0.6	13700	1203	T945	T15P
ST-80-7-25.4		7		6								1204	T946	
ST-80-8-25.4		8		7								12045	T947	
ST-80-10-25.4		10		9						0.8		1205	T948	
ST-80-12-25.4		12		11						0.9		1207	T9411	
ST-100-6-25.4	100	6	26.5	5				10	5	0.7	12000	1203	T945	
ST-100-7-25.4		7		6								1204	T946	
ST-100-8-25.4		8		7						0.8		12045	T947	
ST-100-10-25.4		10		9								1205	T948	
ST-100-12-25.4		12		11						0.9		1207	T9411	
ST-125-6-31.75	125	6	30.5	5	55	31.75		12	6	1.5	10900	1203	T945	
ST-125-7-31.75		7		6								1204	T946	
ST-125-8-31.75		8		7								12045	T947	
ST-125-10-31.75		10		9						1.6		1205	T948	
ST-125-12-31.75		12		11								1207	T9411	
ST-160-6-31.75	160	6	48	5				16	8	2.0	8300	1203	T945	
ST-160-7-31.75		7		6								1204	T946	
ST-160-8-31.75		8		7								12045	T947	
ST-160-10-31.75		10		9						2.1		1205	T948	
ST-160-12-31.75		12		11								1207	T9411	



Features

Available in materials P K M N S H

Cost 100~300% DOWN

Variety of Machines CNC Milling machine

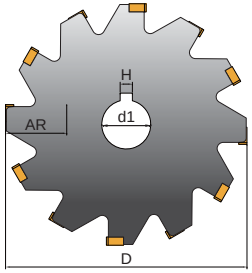
Efficiency 300~500% UP

Durability 300% UP

PRODUCT SPECIFICATIONS

Disc Milling Cutters

- Insert P. 198
- Cutting Data P. 203

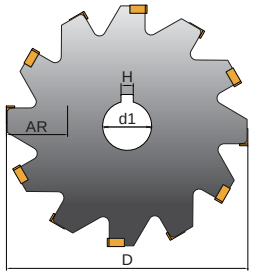


CE

Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert CNGX	Screw	Key
	D	AE	AR	P	H	d1							
CE080-14-22	80	14	16	12.5	6	22	8	4	0.65	13700	1005	C04011	T15P
CE080-16-22		16		14.5					0.7				
CE080-18-22		18		16.5					0.8		1305		
CE080-20-22		20		18.5					1.0				
CE080-22-22		22		20.5					1.2				
CE080-25-22		25		23.5					1.4		1605		
CE080-30-22		30		28.5					1.5				
CE100-14-27	100	14	26	12.5	7	27			0.9	12000	1005		
CE100-16-27		16		14.5					1.0				
CE100-18-27		18		16.5					1.1		1305		

Disc Milling Cutters

- Insert P. 198
- Cutting Data P. 203



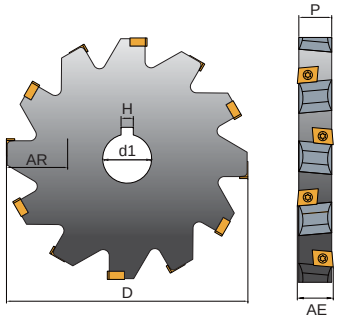
CE

Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert CNGX	Screw	Key
	D	AE	AR	P	H	d1							
CE100-20-27	100	20	26	18.5	7	27	8	4	1.2	12000	1305	C04011	T15P
CE100-22-27		22		20.5					1.4				
CE100-25-27		25		23.5					1.6		1605		
CE100-30-27		30		28.5					1.9				
CE125-14-32	125	14	30	12.5	8	32	12	6	1.3	10900	1005		
CE125-16-32		16		14.5					1.5				
CE125-18-32		18		16.5					1.7		1305		
CE125-20-32		20		18.5					1.9				
CE125-22-32		22		20.5					2.3				
CE125-25-32		25		23.5					2.5		1605		
CE125-30-32		30		28.5					2.8				
CE080-14-25.4	80	14	16	12.5	6.35	25.4	8	4	0.65	13700	1005	C04011	T15P
CE080-16-25.4		16		14.5					0.7				
CE080-18-25.4		18		16.5					0.8		1305		
CE080-20-25.4		20		18.5					1.0				
CE080-22-25.4		22		20.5					1.2				

Disc Milling Cutters

- Insert P. 198
- Cutting Data P. 203

CE

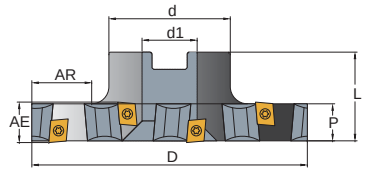


Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert CNGX	Screw	Key
	D	AE	AR	P	H	d1							
CE080-25-25.4	80	25	16	23.5	6.35	25.4	8	4	1.4	13700	1605	C04011	T15P
CE080-30-25.4		30		28.5					1.5				
CE100-14-25.4	100	14	26	12.5					0.9	12000	1005		
CE100-16-25.4		16		14.5					1.0				
CE100-18-25.4		18		16.5					1.1		1305		
CE100-20-25.4		20		18.5					1.2				
CE100-22-25.4		22		20.5					1.4				
CE100-25-25.4		25		23.5					1.6		1605		
CE100-30-25.4		30		28.5					1.9				
CE125-14-25.4	125	14		12.5			12	6	1.3		1005		
CE125-16-25.4		16		14.5					1.5				
CE125-18-25.4		18		16.5					1.7		1305		
CE125-20-25.4		20		18.5					1.9				
CE125-22-25.4		22		20.5					2.3				
CE125-25-25.4		25		23.5					2.5		1605		
CE125-30-25.4		30		28.5					2.8				

Disc Milling Cutters

- Insert P. 198
- Cutting Data P. 203

CW

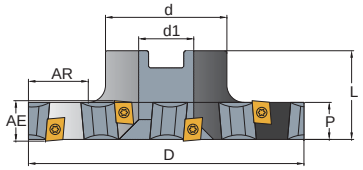


Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert CNGX	Screw	Key
	D	E	AR	P	d	d1	L						
CW080-14-22	80	14	16.5	12.5	40	22	35	8	4	0.75	13700	1005	C04011	T15P
CW080-16-22		16		14.5						0.8				
CW080-18-22		18		16.5						0.9		1305		
CW080-20-22		20		18.5						1.1				
CW080-22-22		22		20.5						1.3				
CW080-25-22		25		23.5						1.55		1605		
CW080-30-22		30		28.5			40			1.7				
CW100-14-27	100	14	26.5	12.5	45	27	35			1.0	10900	1005		
CW100-16-27		16		14.5						1.1				
CW100-18-27		18		16.5						1.2		1305		
CW100-20-27		20		18.5						1.3				
CW100-22-27		22		20.5						1.6				
CW100-25-27		25		23.5						1.8		1605		
CW100-30-27		30		28.5			40			2.3				
CW125-14-32	125	14	30	12.5	55	32	35	12	6	1.5	10900	1005		
CW125-16-32		16		14.5						1.7				

Disc Milling Cutters

- Insert P. 198
- Cutting Data P. 203

CW

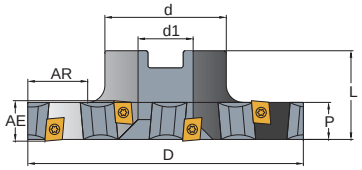


Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert CNGX	Screw	Key
	D	E	AR	P	d	d1	L						
CW125-18-32	125	18	30	16.5	55	32	35	6	1.9	10900	1305	C04011	T15P
CW125-20-32		20		18.5					2.1				
CW125-22-32		22		20.5					2.5				
CW125-25-32		25		23.5					2.8		1605		
CW125-30-32		30		28.5			40		3.4				
CW080-14-25.4	80	14	16.5	12.5	40	25.4	35	4	0.75	13700	1005	C04011	T15P
CW080-16-25.4		16		14.5					0.8				
CW080-18-25.4		18		16.5					0.9		1305		
CW080-20-25.4		20		18.5					1.1				
CW080-22-25.4		22		20.5					1.3				
CW080-25-25.4		25		23.5					1.55		1605		
CW080-30-25.4		30		28.5			40		1.7				
CW100-14-25.4	100	14	26.5	12.5	45		35		1.0	12000	1005		
CW100-16-25.4		16		14.5					1.1				
CW100-18-25.4		18		16.5					1.2		1305		
CW100-20-25.4		20		18.5					1.3				

Disc Milling Cutters

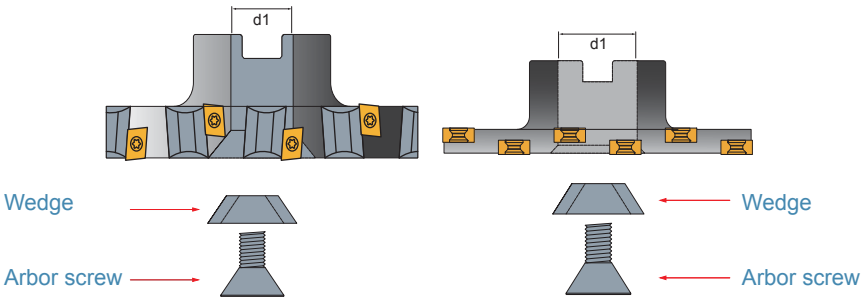
- Insert P. 198
- Cutting Data P. 203

CW



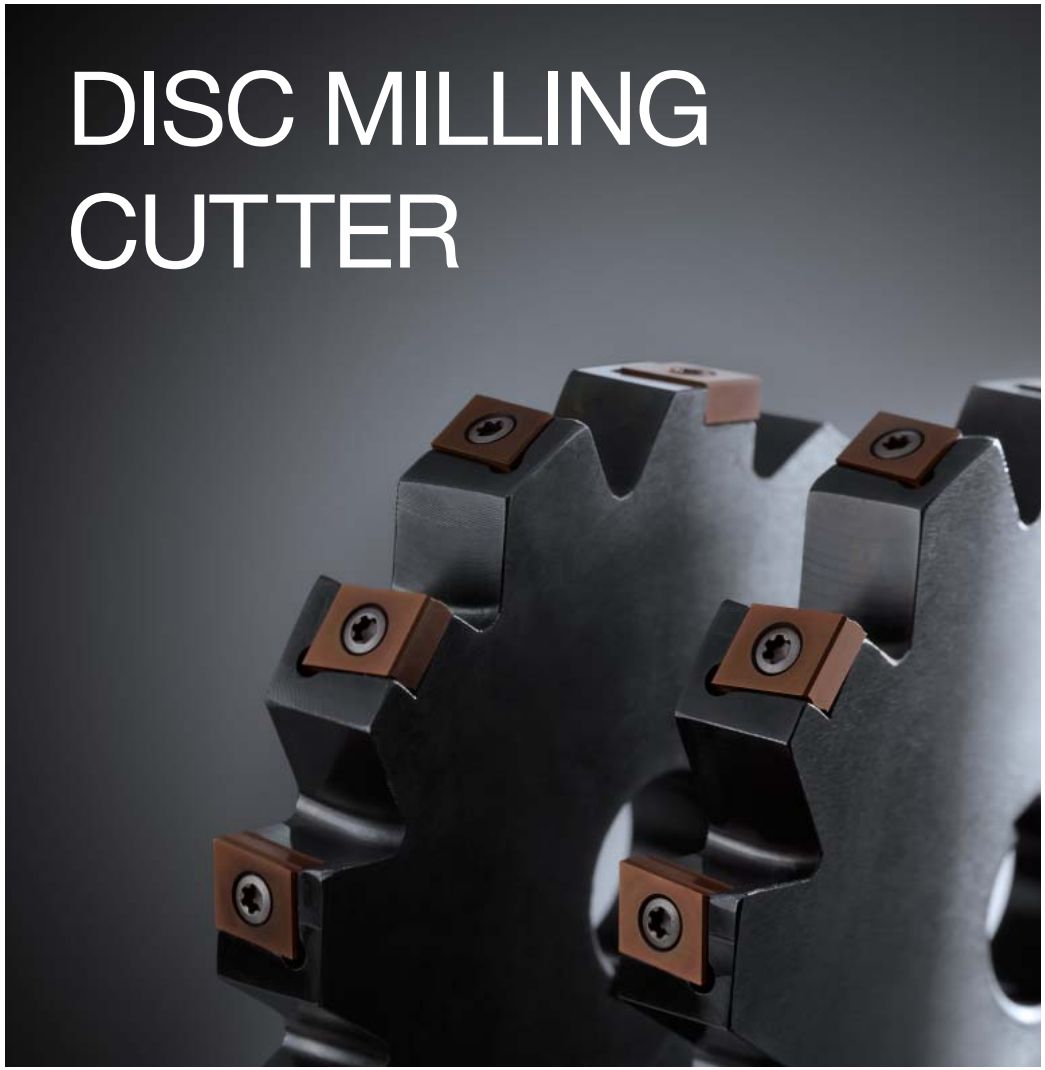
Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert CNGX	Screw	Key
	D	E	AR	P	d	d1	L						
CW100-22-25.4	100	22	26.5	20.5	45	25.4	35	4	1.6	12000	-	C04011	T15P
CW100-25-25.4		25		23.5					1.8		1605		
CW100-30-25.4		30		28.5			40		2.3				
CW125-14-31.75	125	14	30	12.5	55	31.75	35	6	1.5	10900	1005		
CW125-16-31.75		16		14.5					1.7				
CW125-18-31.75		18		16.5					1.9		1305		
CW125-20-31.75		20		18.5					2.1				
CW125-22-31.75		22		20.5					2.5				
CW125-25-31.75		25		23.5					2.8		1605		
CW125-30-31.75		30		28.5			40		3.4				

Mounting Dimensions



Dimension(mm)		
cutter dimension d1	Arbor screw	Wedge
ST Ø22	C901035	WE30
ST Ø27	C901235	
ST Ø32	C901635	WE45
ST Ø25.4	C901235	WE30
ST Ø31.75	C901235, C901635	WE30, WE45
CW Ø22	C901035	WE30
CW Ø27	C901235	
CW Ø32	C901635	WE45
CW Ø40	C901640	WE63
CW Ø25.4	C901235	WE30
CW Ø31.75	C901235, C901635	WE30, WE45
CW Ø38.1	C901635	WE63
CW Ø50.8		

DISC MILLING CUTTER

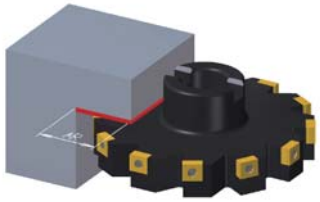


Features

Product Advantages

The inserts of back milling and side grooving cutter can be used up to 4 corners.

Back milling Cutter



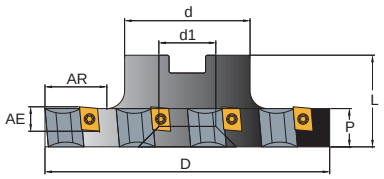
Double side cutter

PRODUCT SPECIFICATIONS

Back milling Cutter

- Insert P. 198
- Cutting Data P. 203

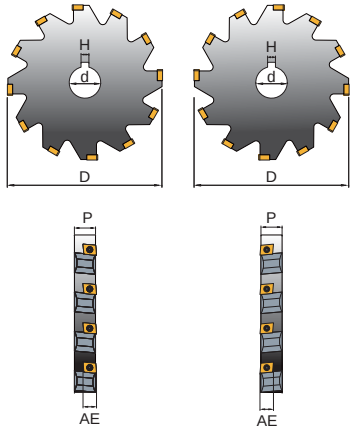
CB



Order code	Dimensions(mm)								KG	MAX RPM	Insert CNGX	Screw	Key
	D	AE	P	d	d1	L	AR						
CB-100-27	100	12	16.5	45	27	35	25	10	1.2	12000	1305	C04011	T15P
CB-125-32	125			55	32		30	12	1.9	10900			

Double side cutter

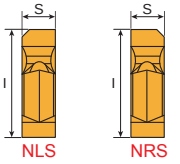
- Insert P. 198
- Cutting Data P. 203



CDL/CDR

Order code	Dimensions(mm)							KG	MAX RPM	Insert CNGX	Screw	Key
	D	AE	P	d	H	L/R						
CDL-100-27	100	12	16.5	27	7	L	10	1.1	12000	1305	C04011	T15P
CDR-100-27						R						
CDL-125-32	125			32	8	L	12	1.7	10900			
CDR-125-32						R						
CDL-160-40	160			40	10	L	16	1.9	6900			
CDR-160-40						R						

LNGT Insert



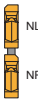
Tolerances ±0.03 (mm)

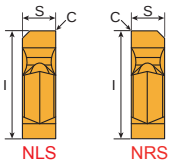
Inserts 10 PCS / Box

Dimensions in mm		
SIZE	S	I
1.2	1.4	9
1.2	1.5	
1.4	1.6	
1.6	1.8	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	EE
NLS	LNGT 1414NLS-EE										
	LNGT 1415NLS-EE										
	LNGT 1616NLS-EE										
	LNGT 1818NLS-EE										
NRS	LNGT 1414NRS-EE										
	LNGT 1415NRS-EE										
	LNGT 1616NRS-EE										
	LNGT 1818NRS-EE										

Inserts Sequencing Position
(one left after than one right)





Tolerances ±0.03 (mm)

Inserts 10 PCS / Box

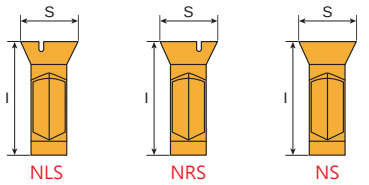
Dimensions in mm			
SIZE	S	I	C
1.2	1.4	9	0.03
1.2	1.5		
1.4	1.6		
1.6	1.8		

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	M / ME
NLS	LNGT 1414NLS-M										
	LNGT 1415NLS-M										
	LNGT 1616NLS-M										
	LNGT 1818NLS-M										
	LNGT 1414NLS-ME	◎									
	LNGT 1415NLS-ME	◎									
	LNGT 1616NLS-ME	◎									
	LNGT 1818NLS-ME	◎									
NRS	LNGT 1414NRS-M										
	LNGT 1415NRS-M										
	LNGT 1616NRS-M										
	LNGT 1818NRS-M										
	LNGT 1414NRS-ME	◎									
	LNGT 1415NRS-ME	◎									
	LNGT 1616NRS-ME	◎									
	LNGT 1818NRS-ME	◎									

Inserts Sequencing Position
(one left after than one right)

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: LNGT 1414NLS-M, B100

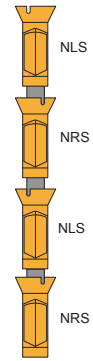
LNGT Insert



Tolerances ±0.03 (mm)

Dimensions in mm		
SIZE	S	I
1.75	2.0 2.2 2.5	9
2.2	2.5 2.7 3.0	
2.7	3.0 3.2 3.5	
3.7	4.0 4.2 4.5	
4.5	5.0 5.2 5.5	

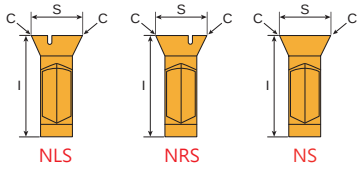
Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
NLS	LNGT 2020NLS-EE										Inserts Sequencing Position (one left after than one right)
	LNGT 2022NLS-EE										
	LNGT 2025NLS-EE										
	LNGT 2525NLS-EE										
	LNGT 2527NLS-EE										
	LNGT 2530NLS-EE										
	LNGT 3030NLS-EE										
	LNGT 3032NLS-EE										
	LNGT 3035NLS-EE										
	LNGT 4040NLS-EE										
	LNGT 4042NLS-EE										
	LNGT 4045NLS-EE										
	LNGT 5050NLS-EE										
	LNGT 5052NLS-EE										
	LNGT 5055NLS-EE										
NRS	LNGT 2020NRS-EE										
	LNGT 2022NRS-EE										
	LNGT 2025NRS-EE										
	LNGT 2525NRS-EE										
	LNGT 2527NRS-EE										
	LNGT 2530NRS-EE										
	LNGT 3030NRS-EE										
	LNGT 3032NRS-EE										
	LNGT 3035NRS-EE										
	LNGT 4040NRS-EE										
	LNGT 4042NRS-EE										
	LNGT 4045NRS-EE										
	LNGT 5050NRS-EE										
	LNGT 5052NRS-EE										
	LNGT 5055NRS-EE										
NS	LNGT 5050NS-EE										



Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: LNGT 2020NLS-EE, F20

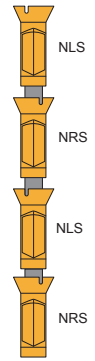
LNGT Insert



Tolerances ±0.03 (mm)

Dimensions in mm			
SIZE	S	I	C
1.75	2.0 2.2 2.5	9	0.05
2.2	2.5 2.7 3.0		
2.7	3.0 3.2 3.5		
3.7	4.0 4.2 4.5		
4.5	5.0 5.2 5.5		

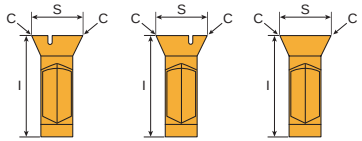
Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
NLS	LNGT 2020NLS-M										Inserts Sequencing Position (one left after than one right)
	LNGT 2022NLS-M										
	LNGT 2025NLS-M										
	LNGT 2525NLS-M										
	LNGT 2527NLS-M										
	LNGT 2530NLS-M										
	LNGT 3030NLS-M										
	LNGT 3032NLS-M										
	LNGT 3035NLS-M										
	LNGT 4040NLS-M										
	LNGT 4042NLS-M										
	LNGT 4045NLS-M										
	LNGT 5050NLS-M										
	LNGT 5052NLS-M										
	LNGT 5055NLS-M										
NRS	LNGT 2020NRS-M										
	LNGT 2022NRS-M										
	LNGT 2025NRS-M										
	LNGT 2525NRS-M										
	LNGT 2527NRS-M										
	LNGT 2530NRS-M										
	LNGT 3030NRS-M										
	LNGT 3032NRS-M										
	LNGT 3035NRS-M										
	LNGT 4040NRS-M										
	LNGT 4042NRS-M										
	LNGT 4045NRS-M										
	LNGT 5050NRS-M										
	LNGT 5052NRS-M										
	LNGT 5055NRS-M										
NS	LNGT 5050NS-M										



Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: LNGT 2020NLS-M, B100

LNGT Insert

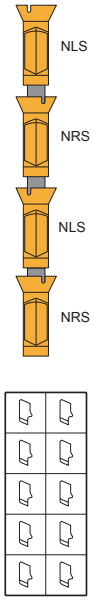


NLS NRS NS

Tolerances ±0.03 (mm)

Dimensions in mm			
SIZE	S	I	C
1.75	2.0 2.2 2.5	9	0.05
2.2	2.5 2.7 3.0		
2.7	3.0 3.2 3.5		
3.7	4.0 4.2 4.5		
4.5	5.0 5.2 5.5		

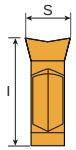
Inserts	Part No .	Grades									ME
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
NLS	LNGT 2020NLS-ME	◎									Inserts Sequencing Position (one left after than one right)
	LNGT 2022NLS-ME	◎									
	LNGT 2025NLS-ME	◎									
	LNGT 2525NLS-ME	◎									
	LNGT 2527NLS-ME	◎									
	LNGT 2530NLS-ME	◎									
	LNGT 3030NLS-ME	◎									
	LNGT 3032NLS-ME	◎									
	LNGT 3035NLS-ME	◎									
	LNGT 4040NLS-ME	◎									
	LNGT 4042NLS-ME	◎									
	LNGT 4045NLS-ME	◎									
	LNGT 5050NLS-ME	◎									
	LNGT 5052NLS-ME	◎									
	LNGT 5055NLS-ME	◎									
NRS	LNGT 2020NRS-ME	◎									
	LNGT 2022NRS-ME	◎									
	LNGT 2025NRS-ME	◎									
	LNGT 2525NRS-ME	◎									
	LNGT 2527NRS-ME	◎									
	LNGT 2530NRS-ME	◎									
	LNGT 3030NRS-ME	◎									
	LNGT 3032NRS-ME	◎									
	LNGT 3035NRS-ME	◎									
	LNGT 4040NRS-ME	◎									
	LNGT 4042NRS-ME	◎									
	LNGT 4045NRS-ME	◎									
	LNGT 5050NRS-ME	◎									
	LNGT 5052NRS-ME	◎									
	LNGT 5055NRS-ME	◎									
NS	LNGT 5050NS-ME	◎									



Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: LNGT 2020NLS-ME, B100

LNGT Insert

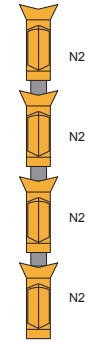


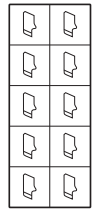
N2

Tolerances ±0.03 (mm)

Dimensions in mm		
SIZE	S	I
1.4	1.6	9
1.6	1.8	
1.75	2.0 2.2 2.5	
2.2	2.5 2.7 3.0	
2.7	3.0 3.2 3.5	
3.7	4.0 4.2 4.5	
4.5	5.0 5.2 5.5	

Inserts	Part No .	Grades									EE
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
N2	LNGT 1616N2-EE										Inserts Sequencing Position
	LNGT 1818N2-EE										
	LNGT 2020N2-EE										
	LNGT 2022N2-EE										
	LNGT 2025N2-EE										
	LNGT 2525N2-EE										
	LNGT 2527N2-EE										
	LNGT 2530N2-EE										
	LNGT 3030N2-EE										
	LNGT 3032N2-EE										
	LNGT 3035N2-EE										
	LNGT 4040N2-EE										
	LNGT 4042N2-EE										
	LNGT 4045N2-EE										
	LNGT 5050N2-EE										
	LNGT 5052N2-EE										
	LNGT 5055N2-EE										

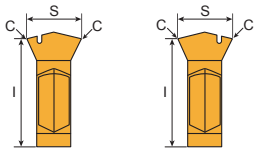




Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: LNGT 1616N2-EE, F20

LNGT Insert



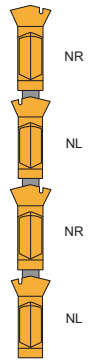
NL NR

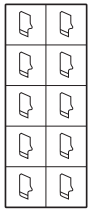
Tolerances ±0.03 (mm)

Dimensions in mm			
SIZE	S	I	C
1.75	2.0 2.2 2.5	9	0.05
2.2	2.5 2.7 3.0		
2.7	3.0 3.2 3.5		
3.7	4.0 4.2 4.5		
4.5	5.0 5.2 5.5		

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
NL	LNGT 2020NL-M	■									
	LNGT 2022NL-M	■									
	LNGT 2025NL-M	■									
	LNGT 2525NL-M	■									
	LNGT 2527NL-M	■									
	LNGT 2530NL-M	■									
	LNGT 3030NL-M	■									
	LNGT 3032NL-M	■									
	LNGT 3035NL-M	■									
	LNGT 4040NL-M	■									
	LNGT 4042NL-M	■									
	LNGT 4045NL-M	■									
	LNGT 5050NL-M	■									
	LNGT 5052NL-M	■									
	LNGT 5055NL-M	■									
NR	LNGT 2020NR-M	■									
	LNGT 2022NR-M	■									
	LNGT 2025NR-M	■									
	LNGT 2525NR-M	■									
	LNGT 2527NR-M	■									
	LNGT 2530NR-M	■									
	LNGT 3030NR-M	■									
	LNGT 3032NR-M	■									
	LNGT 3035NR-M	■									
	LNGT 4040NR-M	■									
	LNGT 4042NR-M	■									
	LNGT 4045NR-M	■									
	LNGT 5050NR-M	■									
	LNGT 5052NR-M	■									
	LNGT 5055NR-M	■									

Inserts Sequencing Position
(one left after than one right)

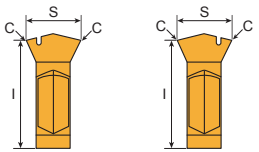




Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: LNGT 2020NL-M, B100

LNGT Insert



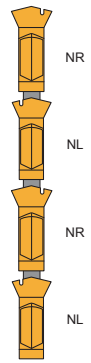
NL NR

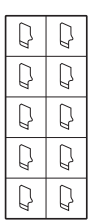
Tolerances ±0.03 (mm)

Dimensions in mm			
SIZE	S	I	C
1.75	2.0 2.2 2.5	9	0.05
2.2	2.5 2.7 3.0		
2.7	3.0 3.2 3.5		
3.7	4.0 4.2 4.5		
4.5	5.0 5.2 5.5		

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
NL	LNGT 2020NL-ME	◎			■						
	LNGT 2022NL-ME	◎			■						
	LNGT 2025NL-ME	◎			■						
	LNGT 2525NL-ME	◎			■						
	LNGT 2527NL-ME	◎			■						
	LNGT 2530NL-ME	◎			■						
	LNGT 3030NL-ME	◎			■						
	LNGT 3032NL-ME	◎			■						
	LNGT 3035NL-ME	◎			■						
	LNGT 4040NL-ME	◎			■						
	LNGT 4042NL-ME	◎			■						
	LNGT 4045NL-ME	◎			■						
	LNGT 5050NL-ME	◎			■						
	LNGT 5052NL-ME	◎			■						
	LNGT 5055NL-ME	◎			■						
NR	LNGT 2020NR-ME	◎			■						
	LNGT 2022NR-ME	◎			■						
	LNGT 2025NR-ME	◎			■						
	LNGT 2525NR-ME	◎			■						
	LNGT 2527NR-ME	◎			■						
	LNGT 2530NR-ME	◎			■						
	LNGT 3030NR-ME	◎			■						
	LNGT 3032NR-ME	◎			■						
	LNGT 3035NR-ME	◎			■						
	LNGT 4040NR-ME	◎			■						
	LNGT 4042NR-ME	◎			■						
	LNGT 4045NR-ME	◎			■						
	LNGT 5050NR-ME	◎			■						
	LNGT 5052NR-ME	◎			■						
	LNGT 5055NR-ME	◎			■						

Inserts Sequencing Position
(one left after than one right)

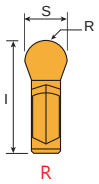




Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: LNGT 2020NL-ME, B100

LNGT Insert

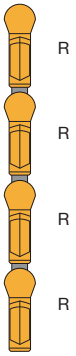


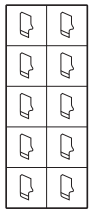
Dimensions in mm			
SIZE	S	I	R
1.5	1.5	9	0.75
2.0	2.0		1.0
2.5	2.5		1.25
3.0	3.0		1.5

Tolerances ±0.03 (mm)

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE
R	LNGT 1415R075-ME	◎									
	LNGT 2020R100-ME	◎									
	LNGT 2525R125-ME	◎									
	LNGT 3030R150-ME	◎									

Inserts Sequencing Position

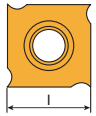


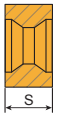


Inserts 10 PCS / Box

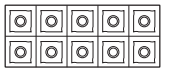
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: LNGT 1415R075-ME, B100

SNGX Insert





Tolerances (mm)
I=±0.025 S=±0.025



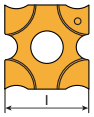
Inserts 10 PCS / Box

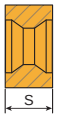
Dimensions in mm		
SIZE	S	I
1102	2.3	11.0
1103	2.7	
1203	3.2	12.7
1204	4.0	
12045	4.5	
1205	5.4	
1207	7.0	

Inserts	Part No .	Cutting Rake	Port. Chamfer		Grades									
			Width mm	Angle	Carbide					Metal cermet		Uncoated		
					B100	C200	C250	F20	F30	CE25	CE60	K10	CE
E	SNGX 1102-E	25 °	-	-										
	SNGX 1103-E													
	SNGX 1203-E													
	SNGX 1204-E													
	SNGX 12045-E													
	SNGX 1205-E													
	SNGX 1207-E													
	SNGX 1102-ME	15 °	-	-	◎									
	SNGX 1103-ME				◎									
	SNGX 1203-ME				◎									
	SNGX 1204-ME				◎									
	SNGX 12045-ME				◎									
	SNGX 1205-ME				◎									
	SNGX 1207-ME				◎									
M	SNGX 1102T-M	15 °	0.15	10										
	SNGX 1103T-M													
	SNGX 1203T-M													
	SNGX 1204T-M													
	SNGX 12045T-M													
	SNGX 1205T-M													
	SNGX 1207T-M													

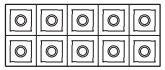
- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: SNGX 1102-E, F20

SNGW Insert





Tolerances (mm)
I=±0.025 S=±0.025



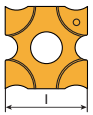
Inserts 10 PCS / Box

Dimensions in mm		
SIZE	S	I
1102	2.3	11.0
1103	2.7	
1203	3.2	12.7
1204	4.0	
12045	4.5	
1205	5.4	
1207	7.0	

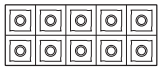
Inserts	Part No .	Cutting Rake	Port. Chamfer		Grades									
			Width mm	Angle	Carbide					Metal cermet		Uncoated	
					B100	C200	C250	F20	F30	CE25	CE60	K10	CE
E	SNGW 1102-E	25°	-	-				■					
	SNGW 1103-E							■					
	SNGW 1203-E							■					
	SNGW 1204-E							■					
	SNGW 12045-E							■					
	SNGW 1205-E							■					
	SNGW 1207-E							■					
M	SNGW 1102-ME	15°	-	-	◎				■				
	SNGW 1103-ME				◎				■				
	SNGW 1203-ME				◎				■				
	SNGW 1204-ME				◎				■				
	SNGW 12045-ME				◎				■				
	SNGW 1205-ME				◎				■				
	SNGW 1207-ME				◎				■				
	SNGW 1102T-M	15°	0.15	10	■								
	SNGW 1103T-M				■								
	SNGW 1203T-M				■								
	SNGW 1204T-M				■								
	SNGW 12045T-M				■								
	SNGW 1205T-M				■								
	SNGW 1207T-M				■								

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: SNGW 1102-E, F20

SNGW Insert - R0.4~R3.0



Tolerances (mm)
I=±0.025 S=±0.025



Inserts 10 PCS / Box

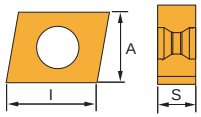
Dimensions in mm			
SIZE	S	I	R
1102	2.3	11.0	0.4
1102			0.8
1103	2.7	12.7	0.4
1103			0.8
1203	3.2		0.4
1203			0.8
1203			1.2
1204	4.0		0.4
1204			0.8
1204			1.2
1204			1.6
12045	4.5		0.4
12045			0.8
12045			1.2

Dimensions in mm			
SIZE	S	I	R
12045	4.5	12.7	1.6
12045			2.0
1205	5.4		0.4
1205			0.8
1205			1.2
1205			1.6
1205			2.0
1205			2.5
1207	7.0		0.4
1207			0.8
1207			1.2
1207			1.6
1207			2.0
1207			2.5
1207			3.0

Inserts	Part No .	Cutting Rake	Port. Chamfer		Grades									
			Width mm	Angle	Carbide					Metal cermet		Uncoated	
					B100	C200	C250	F20	F30	CE25	CE60	K10	CE
ME	SNGW 1102R04-ME	15°			◎				■				
	SNGW 1102R08-ME				◎				■				
	SNGW 1103R04-ME				◎				■				
	SNGW 1103R08-ME				◎				■				
	SNGW 1203R04-ME				◎				■				
	SNGW 1203R08-ME				◎				■				
	SNGW 1203R12-ME				◎				■				
	SNGW 1204R04-ME				◎				■				
	SNGW 1204R08-ME				◎				■				
	SNGW 1204R12-ME				◎				■				
	SNGW 1204R16-ME				◎				■				
	SNGW 12045R04-ME				◎				■				
	SNGW 12045R08-ME				◎				■				
	SNGW 12045R12-ME				◎				■				
	SNGW 12045R16-ME				◎				■				
	SNGW 12045R20-ME				◎				■				
	SNGW 1205R04-ME				◎				■				
	SNGW 1205R08-ME				◎				■				
	SNGW 1205R12-ME				◎				■				
	SNGW 1205R16-ME				◎				■				
	SNGW 1205R20-ME				◎				■				
	SNGW 1205R25-ME				◎				■				
	SNGW 1207R04-ME				◎				■				
	SNGW 1207R08-ME				◎				■				
	SNGW 1207R12-ME				◎				■				
	SNGW 1207R16-ME				◎				■				
	SNGW 1207R20-ME				◎				■				
	SNGW 1207R25-ME				◎				■				
	SNGW 1207R30-ME				◎				■				

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: SNGW 1102R04-ME, F20

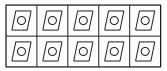
CNGX Insert



Tolerances ±0.03 (mm)

Dimensions in mm			
SIZE	S	I	A
1005	5.4	10.0	10
1305		12.7	
1605		16.0	

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE
	CNGX 1005-E				■					
	CNGX 1305-E				■					
	CNGX 1605-E				■					
	CNGX 1005-ME	◎				■				
	CNGX 1305-ME	◎				■				
	CNGX 1605-ME	◎				■				
	CNGX 1005T-M	■		■						
	CNGX 1305T-M	■		■						
	CNGX 1605T-M	■		■						



Inserts 10 PCS / Box

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: CNGX 1005-E, F20

Recommendtion-LNGT Insert

LNGT Instert Grade Selection

Data reference

Material group No.	Recom. feed fz mm/ tooth	Insert			
		LNGT ... M	LNGT...ME	LNGT...EE	
1	0.04-0.12	B100	B100	-	-
2	0.04-0.10	B100	B100	-	-
3	0.04-0.10	B100	B100	-	-
4	0.04-0.10	B100	B100	-	-
5	0.04-0.08	B100	B100	-	-
6	0.04-0.07	B100	B100	-	-
7	0.03-0.06	-	B100	-	-
8	0.04-0.12	-	B100	-	-
9	0.04-0.10	-	B100	-	-
10	0.04-0.09	-	B100	-	-
11	0.04-0.08	-	B100	-	-
12	0.04-0.12	-	F20	-	-
13	0.04-0.12	-	F20	-	-
14	0.04-0.11	-	F20	-	-
15	0.04-0.10	-	F20	-	-
16	0.06-0.13	-	-	F20	-
17	0.06-0.12	-	-	F20	-
18	0.06-0.11	-	-	F20	-
19	0.06-0.09	-	B100	-	-
20	0.06-0.08	-	B100	-	-
21	0.04-0.06	-	B100	-	-
22	0.04-0.07	-	B100	-	-

Recommendtion-LNGT Insert

• LNGT Instert Recommended Cutting speed, Vc(m/min)

Data reference

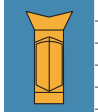
Material group No.	grades						
	B100	C250	F20	CE60	CE	K10	F30
	Feed , fz (mm/tooth)						
	0.02 0.04 0.06		0.04 0.08 0.12				
	Cutting SPEED, V_c (m/min)						
1	179 161 140	-	-	-	-	-	-
2	140 126 113	-	-	-	-	-	-
3	126 113 102	-	-	-	-	-	-
4	112 102 91	-	-	-	-	-	-
5	101 91 81	-	-	-	-	-	-
6	91 - -	-	-	-	-	-	-
7	-	-	-	-	-	-	-
8	108 89 79	-	-	-	-	-	-
9	92 76 66	-	-	-	-	-	-
10	76 60 54	-	-	-	-	-	-
11	54 45 -	-	-	-	-	-	-
12	-	-	140 119 105	-	-	-	-
13	-	-	126 105 98	-	-	-	-
14	-	-	112 98 91	-	-	-	-
15	-	-	88 81 -	-	-	-	-
16	-	-	1150 950 850	-	-	-	-
17	-	-	950 780 700	-	-	-	-
18	-	-	950 780 700	-	-	-	-
19	50 45 -	-	-	-	-	-	-
20	50 45 -	-	-	-	-	-	-
21	35 40 -	-	-	-	-	-	-
22	50 45 -	-	-	-	-	-	-

• Cutting Data-Side Milling

Data reference

Operations	ae/Dc	Recom. feed fz mm/tooth			Speed factor
Radial infeed	-	0.05	0.1	0.14	0.65
Side milling	2%	0.21	0.44	0.65	1.20
	5%	0.14	0.28	0.41	
	10%	0.10	0.20	0.30	
	20%	0.07	0.14	0.21	
	30%	0.06	0.12	0.18	
Average chip thickness		0.03	0.06	0.09	-

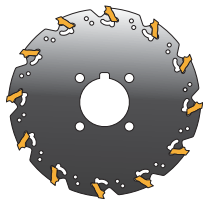
• Type Of Insert



Style	Width of slot mm
1.5N	1.5
2.0N	2.0
2.5N	2.5
3.0N	3.0
4.0N	4.0
5.0N	5.0

Recommendtion-LNGT Insert

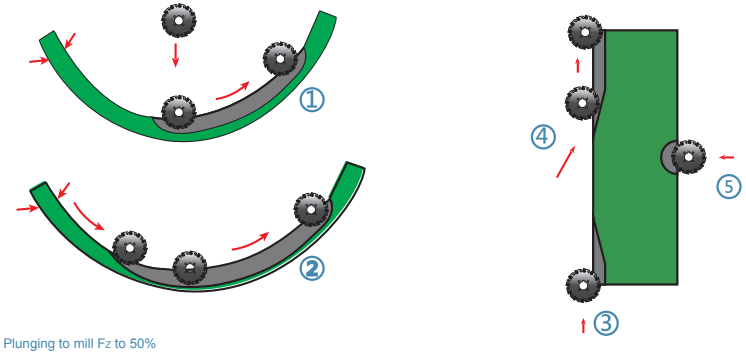
Feed.f_z (mm/th)



• fz (mm/tooth)

Data reference

AE	Feed fz					
	Material group No					
	1 2 3 4	5 6	8 9 10 11	12 13 14 15	16 17 18	19 20 21 22
1.4-1.7 mm	0.02-0.03	0.015-0.025	0.02-0.03	0.02-0.04	0.02-0.04	0.015-0.025
1.8-2.2 mm	0.03-0.05	0.03-0.04	0.02-0.03	0.03-0.06	0.03-0.08	0.02-0.03
2.5-3.0 mm	0.03-0.06	0.03-0.05	0.03-0.05	0.03-0.08	0.03-0.1	0.03-0.04
3.0-3.5 mm	0.04-0.08	0.03-0.06	0.03-0.06	0.04-0.1	0.04-0.1	0.03-0.05
4.0-4.5 mm						
5.0-5.5 mm	0.05-0.1	0.04-0.08	0.04-0.07	0.05-0.12	0.05-0.17	0.04-0.06



1 . Plunging to mill Fz to 50%
2 . Ramping to mill Fz to 100%
3 . Mill Fz to 100%
4 . Ramping Fz to 100%
5 . Plunging to mill Fz to 50%

Recommendtion-SNGX Insert

SNGX Insert Grade Selection

Data reference

Material group No.	Recom. feed fz mm/ tooth	Insert			
		SNGX ... M	SNGX...ME	SNGX...EE	
1	0.14-0.30	C250/B100	B100	-	-
2	0.14-0.25	C250/B100	B100	-	-
3	0.14-0.22	C250/B100	B100	-	-
4	0.14-0.22	C250/B100	B100	-	-
5	0.14-0.20	C250/B100	B100	-	-
6	0.10-0.15	C250/B100	B100	-	-
7	0.10-0.13	C250/B100	B100	-	-
8	0.14-0.25	-	B100	-	-
9	0.14-0.22	-	B100	-	-
10	0.14-0.20	-	B100	-	-
11	0.10-0.15	-	B100	-	-
12	0.14-0.30	-	F30	-	-
13	0.14-0.22	-	F30	-	-
14	0.14-0.20	-	F30	-	-
15	0.10-0.15	-	F30	-	-
16	0.16-0.30	-	-	F20	-
17	0.16-0.25	-	-	F20	-
18	0.16-0.20	-	-	F20	-
19	0.14-0.20	-	B100	-	-
20	0.14-0.18	-	B100	-	-
21	0.10-0.13	-	B100	-	-
22	0.14-0.20	-	B100	-	-

Recommendtion-SNGX SNGW Insert

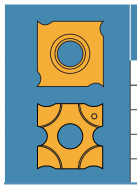
• Recommended Cutting speed, Vc(m/min) **Data reference**

Material group No.	grades											
	B100			C250			F20	CE60	CE	K10	F30	
	Feed fz (mm/tooth)											
	0.1	0.2	0.3	0.1	0.2	0.3	0.1 0.2 0.3				0.1	0.2 0.3
	Cutting SPEED, V_c (m/min)											
1	186	166	150	166	146	130	-	-	-	-	-	
2	168	150	135	148	130	115	-	-	-	-	-	
3	151	136	122	131	116	102	-	-	-	-	-	
4	136	122	110	116	102	90	-	-	-	-	-	
5	120	110	99	100	90	79	-	-	-	-	-	
6	92	78	-	72	58	-	-	-	-	-	-	
7	-			-			-	-	-	-	-	
8	112	95	87	-			-	-	-	-	-	
9	98	84	76	-			-	-	-	-	-	
10	84	70	64	-			-	-	-	-	-	
11	64	56	-	-			-	-	-	-	-	
12	-			-			-	-	-	-	140	119 105
13	-			-			-	-	-	-	126	105 98
14	-			-			-	-	-	-	119	98 91
15	-			-			-	-	-	-	91	88 -
16	-			-			1150 950 850	-	-	-	-	
17	-			-			950 780 700	-	-	-	-	
18	-			-			950 780 700	-	-	-	-	
19	55	45	-	-			-	-	-	-	-	
20	55	45	-	-			-	-	-	-	-	
21	46	38	-	-			-	-	-	-	-	
22	55	45	-	-			-	-	-	-	-	

• Cutting Data-Side Milling **Data reference**

Operations	Ae / Dc	Recom. feed fz mm/tooth			Speed Factor
Radial Infeed	-	0.05	0.10	0.14	0.65
Side Milling	2%	0.21	0.44	0.65	1.20
	5%	0.14	0.28	0.41	1.10
	10%	0.10	0.20	0.30	1.00
	20%	0.07	0.14	0.21	0.90
	30%	0.06	0.12	0.18	0.85
Average Chip Thickness hm	-	0.03	0.06	0.09	-

• Type Of Insert



Style	Width of slot mm
1203	6
1204	7
12045	8
1205	10
1207	12

Recommendtion-CNGX Insert

CNGX Instert Grade Selection

Material group No.	Recom. feed fz mm/ tooth	Insert			
		CNGX ... M	CNGX...ME	CNGX...E	
1	0.2-0.4	C250/B100	B100	-	-
2		C250/B100	B100	-	-
3	0.2-0.35	C250/B100	B100	-	-
4		C250/B100	B100	-	-
5	0.2-0.32	C250/B100	B100	-	-
6		C250/B100	B100	-	-
7	0.15-0.3	C250/B100	B100	-	-
8	0.2-0.4	-	B100	-	-
9		-	B100	-	-
10	0.2-0.33	-	B100	-	-
11		-	B100	-	-
12	0.22-0.4	-	F30	-	-
13		-	F30	-	-
14	0.2-0.35	-	F30	-	-
15		-	F30		-
16	0.22-0.42	-	-	F20	-
17		-	-	F20	-
18		-	-	F20	-
19	0.2-0.3	-	B100	-	-
20		-	B100	-	-
21	0.15-0.25	-	B100	-	-
22	0.2-0.25	-	B100	-	-

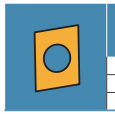
• Recommended Cutting speed, Vc(m/min) **Data reference**

Material group No.	grades											
	B100			C250			F20		CE60	CE	K10	F30
	Feed fz (mm/tooth)											
	0.15	0.20	0.40	0.15	0.20	0.40	0.15 0.20 0.40					0.1 0.2 0.3
	Cutting SPEED, V_c (m/min)											
1	162	140	123	162	140	123	-		-	-	-	-
2	146	123	105	146	123	105	-		-	-	-	-
3	120	101	92	120	101	92	-		-	-	-	-
4	109	92	84	109	92	84	-		-	-	-	-
5	90	78	70	90	78	70	-		-	-	-	-
6	63	56	-	64	56	-	-		-	-	-	-
7	-			28	-	-	-		-	-	-	-
8	112	95	87	-			-		-	-	-	-
9	98	84	76	-			-		-	-	-	-
10	84	70	64	-			-		-	-	-	-
11	64	56	-	-			-		-	-	-	-
12	-			-			-		-	-	-	140 119 105
13	-			-			-		-	-	-	126 105 98
14	-			-			-		-	-	-	119 98 91
15	-			-			-		-	-	-	91 84 -
16	-			-			805 665 595		-	-	-	-
17	-			-			665 549 490		-	-	-	-
18	-			-			-		-	-	-	-
19	40	37	-	-			-		-	-	-	-
20	40	37	-	-			-		-	-	-	-
21	35	30	-	-			-		-	-	-	-
22	40	37	-	-			-		-	-	-	-

• Cutting Data-Side Milling **Data reference**

Operations	Ae / Dc	Recom. feed fz mm/tooth			Speed Factor
Radial Infeed	-	0.05	0.10	0.14	0.65
Side Milling	2%	0.21	0.44	0.65	1.20
	5%	0.14	0.28	0.41	1.10
	10%	0.10	0.20	0.30	1.00
	20%	0.07	0.14	0.21	0.90
	30%	0.06	0.12	0.18	0.85
Average Chip Thickness hm	-	0.03	0.06	0.09	-

• Type Of Insert



Style	Width of slot mm
1005	14-16
1305	18-24
1605	25-30

CENTER SERIES

- CENTER/SPOT DRILL IN MILLING AND TURNING

Features Description

A very precise eccentricity±0.01mm enhence the toollife of tap and drill、special carbide insert with unique geometry improve the strength of insert tip.

Center Drill: dia. 1.6-6 mm
Spot Drill: dia. 8-16 mm

SPOT DRILL - 390 SYSTEM

Video

Patent No.
M473882
M474588
M473881

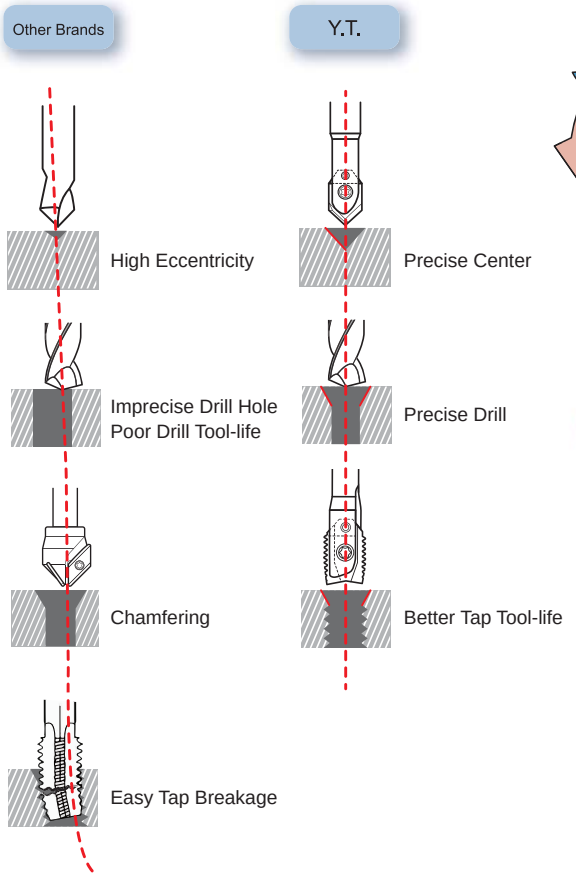
Patent No.
201310453057.2
201320772697.5

PCT Priority No.
PCT/ CN2013/086393

Features

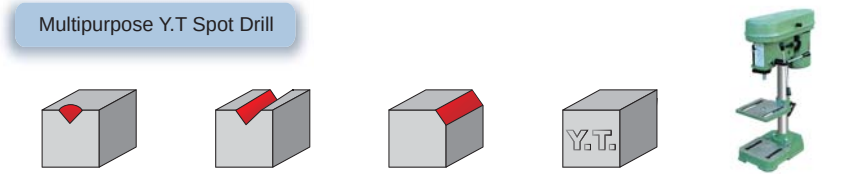
- Available in materials (P K M N S H)
- Cost 300~500% DOWN
- Variety of Machines — Milling / Turning / Drilling
- Efficiency 300% UP
- Durability 300% UP

Product Design



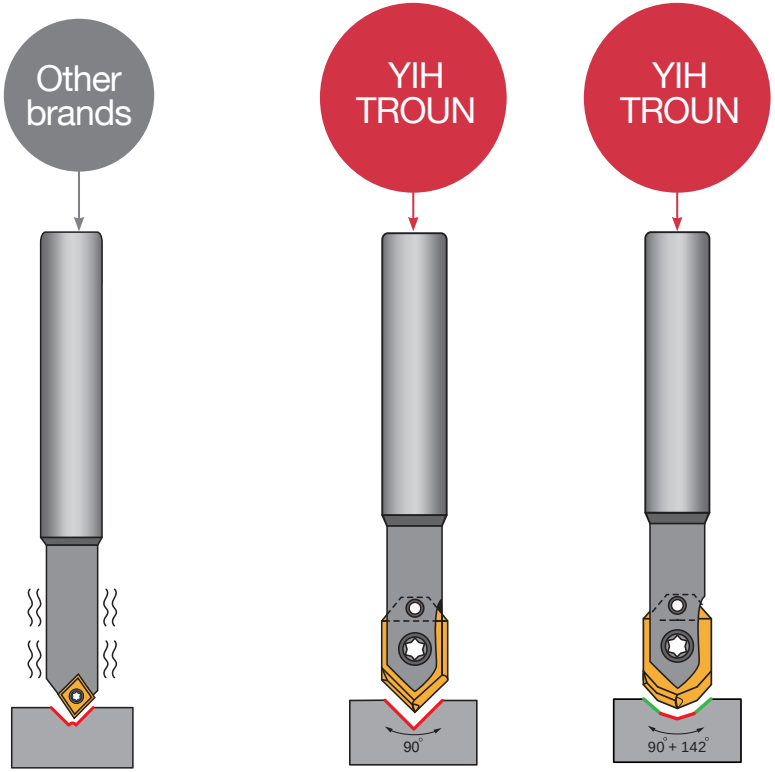
Spot Drill

Multipurpose Y.T Spot Drill



Spotting and Chamfering in one step | Grooving | Side Chamfering | Engraving | Can be used in M/C and drilling machine

Product Introduction



The minimum eccentricity is 0.3 mm

1. The chamfer used for centering is likely to break.
2. The non-centric is too big with this type of tool.
3. The speed of the chamfer tool with one flute is too slow.

The maximum eccentricity is ±0.01mm

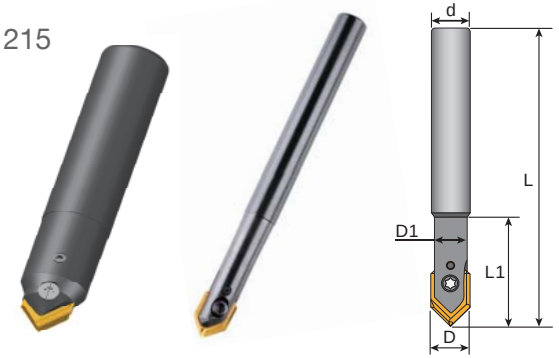
1. The centering is accurate and close to perfection,which help drill toollife.
2. The speed can be up to 300%~1000% faster with special carbide insert.
3. Can also be used in chamfering with 2 flutes.

1. The centering is accurate and close to perfection,which help drill toollife.
2. 142° is perfect for carbide drill and HSS Drill.
3. Spot and chamfer in one step.

PRODUCT SPECIFICATIONS

Spot Drill Toolholders

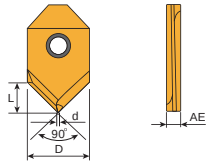
- Insert P. 210
- Cutting Data P. 211 - 215



13

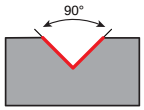
Order code	Dimensions(mm)						KG	Insert	Screw	Key
	D	D1	d	L	L1	L2				
13-0808-60	8	7.8	8	60	20	-	0.13	23-0802	C02506 S025025	T08P L013
13-0808-85				85			0.15			
13-1008-60	8	9.8	10	60	20		0.13			
13-1010-65	10	9.8	10	65	20		0.15	23-1002	C03008 S02503	T09P L013
13-1010-100				100			0.18			
13-1010-150				150			0.18			
13-1210-65		11.7	12	65			0.2			
13-1212-80	12	11.7	12	80	30		0.25	23-1203	C03010 S0304	T09P L015
13-1212-110				110			0.3			
13-1212-160				160			0.35			
13-1612-80		15.7	16	80	28		0.3			
13-1616-100	16	15.3	16	100	35		0.35	23-1603	C03512 S0405	T10P L02
13-1616-130				130			0.4			
13-1616-180				180			0.45			

23 Insert



Tolerances (mm)

D：±0.05~0.08　AE：± 0.01~0.02

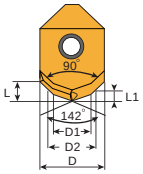


Dimensions in mm				
D	d	L	AE	angle
8	0.7	4	2.0	90°
10	0.8	5	2.5	
12	0.9	6	3.0	
16	1.0	8	3.0	

Inserts	Part No .	Grades										
		Carbide					Metal cermet			Uncoated		
		C125	B350	C350	F20	F30	CE25	CE60		K10	CE	
	23-0802-90-E				●							
	23-1002-90-E				●							
	23-1203-90-E				●							
	23-1603-90-E				●							
	23-0802-90-ME		◎	●								
	23-1002-90-ME		◎	●								
	23-1203-90-ME		◎	●								
	23-1603-90-ME		◎	●								

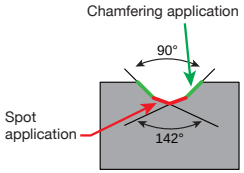
Inserts 10 PCS / Box

A23 Insert



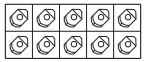
Tolerances (mm)

D：±0.05~0.08　AE：± 0.01~0.02



Dimensions in mm							
D	L	D1	D2	L1	AE	M	angle
8	2.8	3.3	4.2	1.02	2.0	M4 x 0.7	90° 142°
10	3.5	4.2	5.25	1.25	2.5	M5 x 0.8	
12	4.2	5.0	6.3	1.55	3.0	M6 x 1.0	
16	5.6	6.8	8.4	1.97	3.0	M8 x 1.25	
16	5.1	8.5	10.5	2.46	3.0	M10 x 1.5	

Inserts	Part No .	Grades									
		Carbide					Metal cermet			Uncoated	
		C125	B350	C350	F20	F30	CE25	CE60		K10	CE
	A23-0802-M4-ME		◎	●							
	A23-1002-M5-ME		◎	●							
	A23-1203-M6-ME		◎	●							
	A23-1603-M8-ME		◎	●							
	A23-1603-M10-ME		◎	●							



Inserts 10 PCS / Box

- ■ Steel ■ Stainless Steel ■ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ■ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: A23-0802-M4-ME, B350

Recommended Cutting Data And Insert Grade

- Spot Drill recommended cutting speed, Vc (m/min), Feed,fz(mm/ tooth). The effective no. of teeth is calculated with 1 flute.

Material group	 Cutting Speed Vc(m/min)	Feed,Fz(mm/ tooth)		Grades	
		D:8~10mm	D:12~16mm	ME	E
1-2	50-70	0.10 0.13	0.11 0.14	B350/C350	-
3	50-70	0.10 0.13	0.11 0.14	B350/C350	-
4-5-6	45-60	0.08 0.10	0.10 0.12	B350/C350	-
7	25-30	0.06 0.08	0.06 0.08	B350	-
8-9	35-45	0.08 0.10	0.10 0.12	B350	-
10-11	35-40	0.07 0.09	0.09 0.12	B350	-
12-13	70-90	0.12 0.15	0.13 0.16	C350	-
14-15	60-80	0.10 0.14	0.10 0.15	C350	-
16-18	200-300	0.12 0.15	0.13 0.16	-	F20

Spot Drill

How to Fit Insert - Screw A.B.C.

Screwing the Insert

Step 1: • Put the insert into the slot of shank and press it with the finger

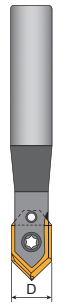
• Fully tighten the screw A first

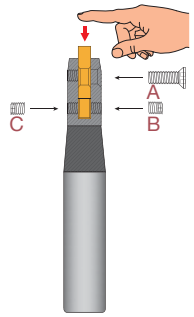
Step 2: Half tighten the screw B on one side

Step 3: Half tighten the screw C on other side

Step 4: Fully tighten the screw B again (Important)

Step 5: Fully tighten the screw C again (Important)

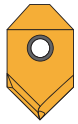


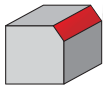


Standard spare parts

Insert dimension (D mm) 	Screw A 	Screw B/C 	Key 	Key 
8	C02506	S025025	T08P	L013
10	C03008	S02503	T09P	L013
12	C03010	S0304	T09P	L015
16	C03512	S0405	T10P	L02

Recommended Cutting Data



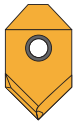


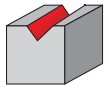
Side Chamfering

Chamfering Application

Material		Steel		Heat Treatment		Stainless		Inconel		Cast		Aluminium	
Using Insert		C350		C350		B350		B350		C350		F20	
Insert	Cut Depth	S	F	S	F	S	F	S	F	S	F	S	F
ø8	1C	4800	720	2000	240	2400	280	1600	190	3200	640	8000	2000
ø10	1C	3800	570	1600	190	1900	220	1300	160	2550	510	6300	1500
	2C	3800	450	1600	160	1900	190	1300	130	2550	400	6300	1260
ø12	1C	3200	480	1300	150	1600	190	1050	125	2100	420	5300	1250
	2C	3200	380	1300	130	1600	160	1050	105	2100	340	5300	1050
	3C	3200	320	1300	100	1600	130	1050	85	2100	250	530	850
ø16	1C	2400	360	1000	120	1200	145	800	95	1600	320	4000	960
	2C	2400	290	1000	100	1200	120	800	80	1600	255	4000	800
	3C	2400	240	1000	80	1200	100	800	65	1600	190	4000	480
	4C	2000	160	800	65	1000	80	600	50	1400	140	3500	420

Recommended Cutting Data



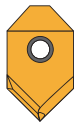


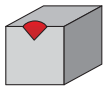
Grooving

V Groove Application

Material		Steel		Heat Treatment		Stainless		Inconel		Cast		Aluminium	
Using Insert		C350		C350		B350		B350		C350		F20	
Insert	Cut Depth	S	F	S	F	S	F	S	F	S	F	S	F
ø8	2mm	4800	380	1200	95	2400	140	1400	85	4000	640	8000	2400
ø10	2mm	3800	300	950	75	1900	115	1100	65	3200	500	6400	1920
	3mm	3800	230	950	55	1900	750	1100	45	3200	380	6400	1500
ø12	2mm	3200	260	800	65	1600	95	900	55	2650	420	5300	1600
	3mm	3200	190	800	50	1600	65	900	35	2650	320	5300	1300
ø16	2mm	2400	190	600	50	1200	70	700	40	2000	320	4000	1200
	3mm	2400	145	600	35	1200	50	700	30	2000	240	4000	960
	4mm	2400	100	600	25	1200	25	700	20	2000	200	4000	800

Recommended Cutting Data

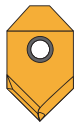


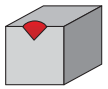


Spotting and Chamfering
in one step

Spot Application													
Material		Steel		Heat Treatment		Stainless		Inconel		Cast		Aluminium	
Using Insert		C350		C350		B350		B350		C350		F20	
Insert	Cut Depth	S	F	S	F	S	F	S	F	S	F	S	F
ø8	1mm	2000	300	800	95	1600	160	1000	100	2800	560	6000	1200
	2mm	2000	250	800	80	1600	120	1000	75	2800	490	6000	1050
	3mm	2000	250	800	80	1600	120	1000	75	2800	490	6000	1050
	4mm	2000	200	800	65	1600	80	1000	50	2800	420	6000	900
ø10	1mm	1600	240	650	80	1300	130	800	80	2200	440	4800	960
	2mm	1600	200	650	65	1300	100	800	60	2200	38/5	4800	840
	3mm	1600	200	650	65	1300	100	800	60	2200	385	4800	840
	4mm	1600	160	650	50	1300	65	800	40	2200	330	4800	720
	5mm	1300	130	500	40	1000	50	650	30	1900	285	4200	630
ø12	1mm	1300	200	550	65	1050	105	650	65	1850	370	4000	800
	2mm	1300	160	550	55	1050	80	650	50	1850	315	4000	700
	3mm	1300	160	550	55	1050	80	650	50	1850	315	4000	700

Recommended Cutting Data





Spotting and Chamfering
in one step

Spot Application													
Material		Steel		Heat Treatment		Stainless		Inconel		Cast		Aluminium	
Using Insert		C350		C350		B350		B350		C350		F20	
Insert	Cut Depth	S	F	S	F	S	F	S	F	S	F	S	F
ø12	4mm	1300	130	550	45	1050	50	650	35	1850	280	4000	600
	5mm	1050	105	400	45	800	40	530	30	1600	240	3500	525
	6mm	1050	85	400	30	800	30	530	20	1600	200	3500	430
ø16	1mm	1000	150	400	45	800	80	500	50	1400	280	3000	600
	2mm	1000	125	400	40	800	60	500	40	1400	245	3000	525
	3mm	1000	125	400	40	800	60	500	40	1400	245	3000	525
	4mm	1000	100	400	30	800	40	500	25	1400	210	3000	450
	5mm	800	80	300	25	600	30	400	20	1200	180	2600	390
	6mm	800	65	300	20	600	25	400	16	1200	150	2600	325
	7mm	800	65	300	20	600	25	400	16	1200	150	2600	325
	8mm	800	50	300	15	600	18	400	12	1200	120	2600	260

CENTER DRILL - 390 SYSTEM

Surface Finish Ra < 0.5 μm

Video

Patent No.
M473882
M474588
M473881

Patent No.
201310453057.2
201320772697.5

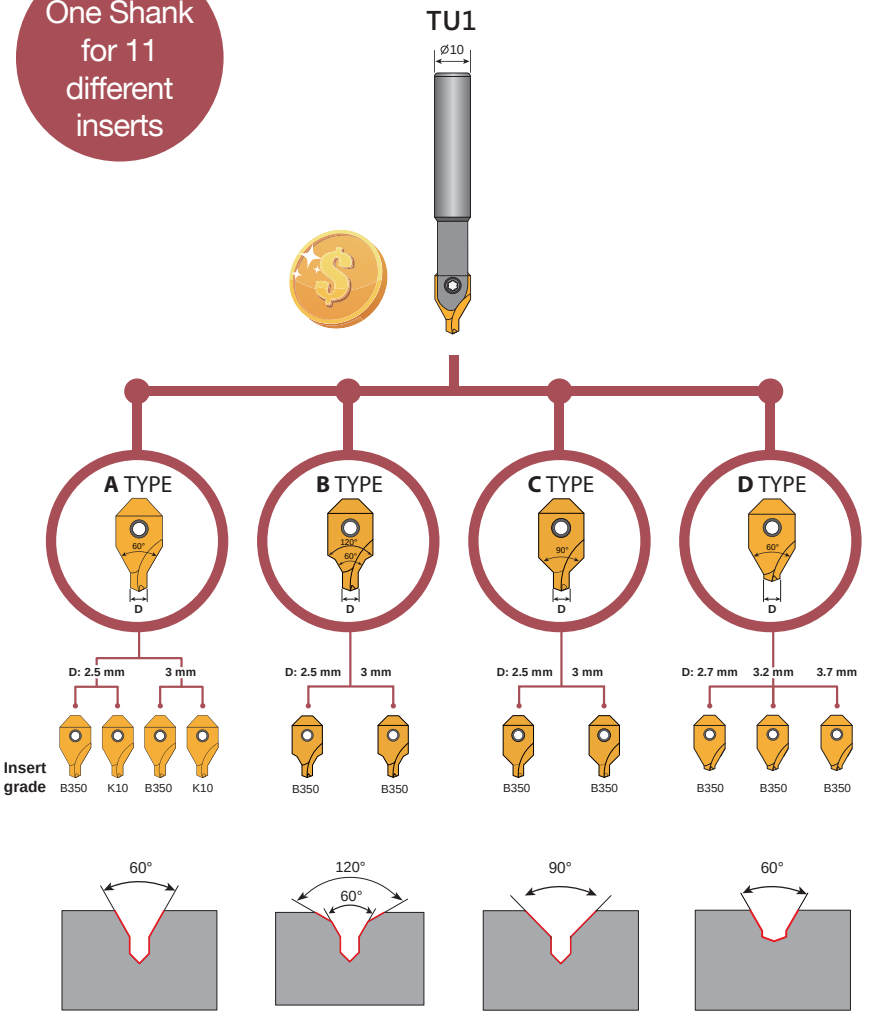
PCT Priority No.
PCT/ CN2013/086393

Features

- Available in materials (P K M N S H)
- Cost **300~500%** DOWN
- Variety of Machines Milling / Turning
- Efficiency **300%** UP
- Durability **300%** UP

Product (Design)

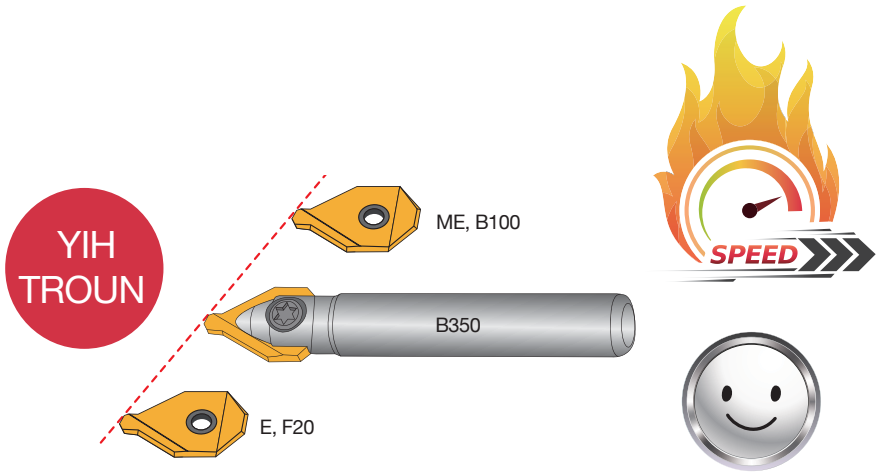
One Shank for 11 different inserts



TECHNICAL GUIDE

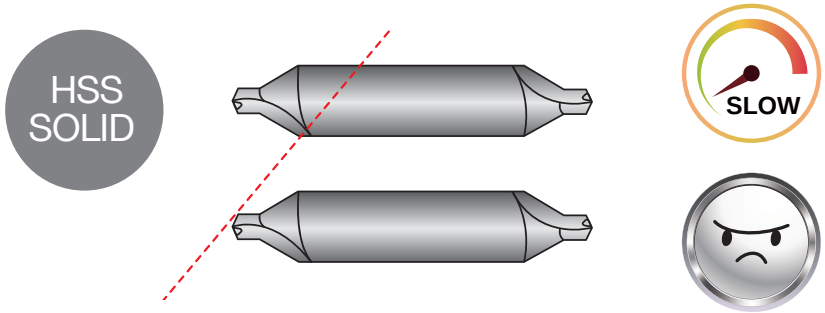
Indexable center drill

- Carbide insert with higher toollife
- Only change a new insert without reseting every time
- For big drill depth please refer to the technical information at page 239



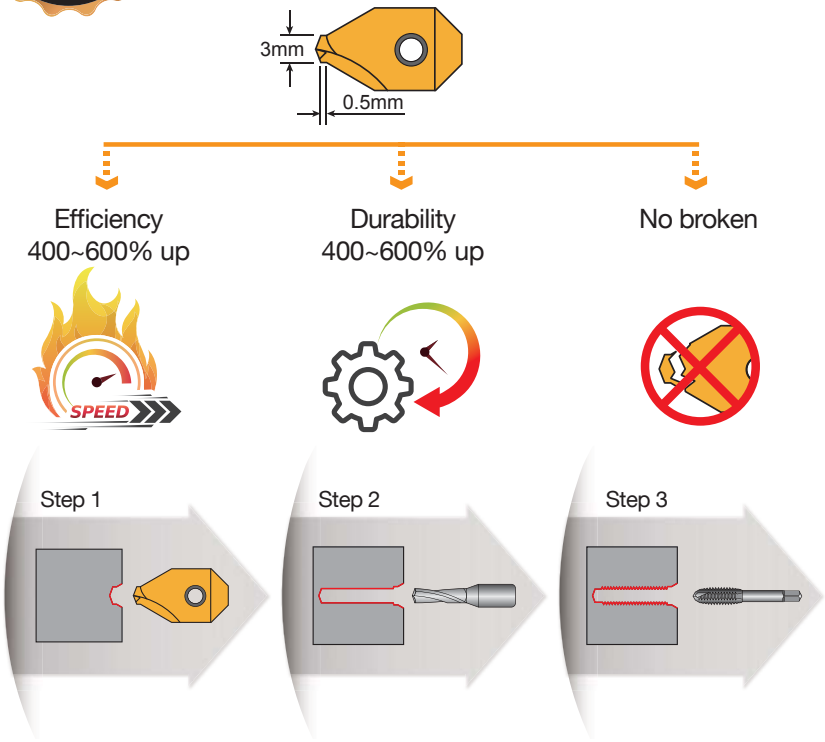
Solid center drill

- Poor toollife with HSS center drill
- Need to re-set every time



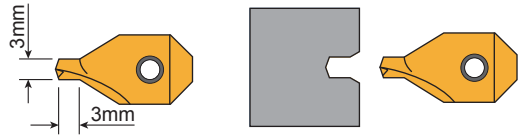
Traditional and New

Dedicated Hole Center Drill for Hole Shaft



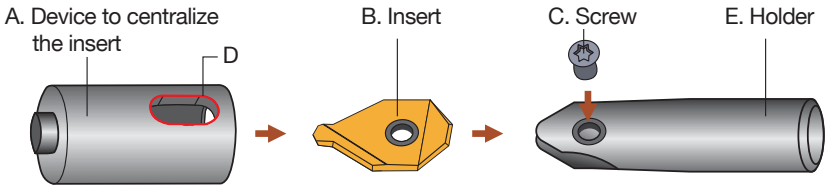
Old

Standard Center Drill



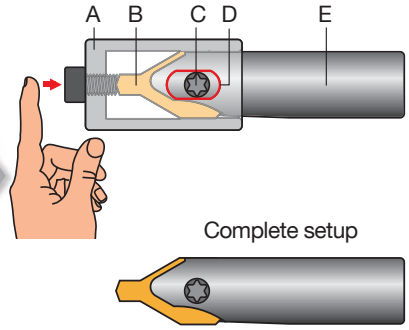
Device to centralize the insert: Methods to mount

Fitting inserts with device is neccessary on the machine



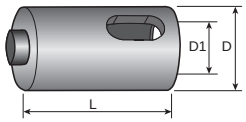
Mounting Steps

Step 1. Place the insert **B** into the holder **E**
Step 2. Place the center drill (**B+E**) into the device **A**, press device **A** with the finger
Step 3. Place the screw hole of the holder **E** parallel to the device slot **D**
Step 4. Mount the screw **C**
Step 5. Complete setup



Device to centralize the insert

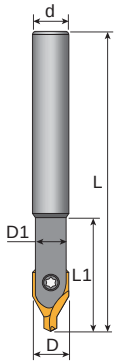
Video



Order code	D	D1	L
GA-0814	15	8.2	25
GA-1016	16	10.2	30
GA-1218	18	12.2	33
GA-1622	22	16.2	38

Center Drill Toolholders (Milling And Turning)

- Insert P. 222 - 224
- Cutting Data P. 225

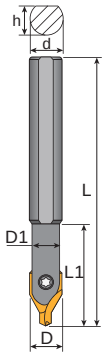


TU 1

Order code	Dimensions(mm)					KG	Insert	Screw	Key
	D	D1	d	L	L1				
TU1-0808-60	8	8.2	8	60	20	0.11	080216 080220	C02506	T08P
TU1-1010-65	10	10.2	10	65	25	0.14	100225 100230	C03009	T09P
TU1-1212-65	12	12.2	12	65	30	0.23	120340 120350	C03010	
TU1-1616-70	16	16.2	16	70	35	0.3	160350 160360	C03512	T10P

Center Drill Toolholders (Turning)

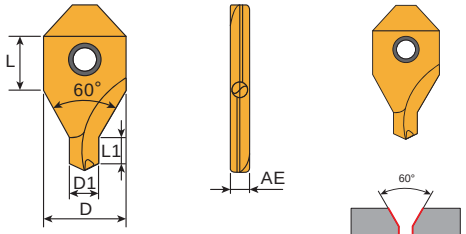
- Insert P. 222 - 224
- Cutting Data P. 225



TU

Order code	Dimensions(mm)						KG	Insert	Screw	Key
	D	D1	d	L	L1	h				
TU-0808-85	8	8.2	8	85	20	7.5	0.14	080216 080220	C02506	T08P
TU-1010-100	10	10.2	10	100	25	9.3	0.18	100225 100230	C03009	T09P
TU-1212-110	12	12.2	12	110	30	11.5	0.3	120340 120350	C03010	
TU-1616-130	16	16.2	16	130	35	15.5	0.4	160350 160360	C03512	T10P

A 24 Insert



Tolerances (mm)

D：±0.05~0.08　AE：± 0.01~0.02

Dimensions in mm					
D	L	AE	D1	L1	angle
8	4	2.0	1.6	1.6	60°
			2.0	2.0	
10	5	2.5	2.5	2.5	
			3.0	3.0	
12	5	3.0	4.0	4.0	
			5.0	5.0	
16	6	3.0	5.0	5.0	
			6.0	6.0	

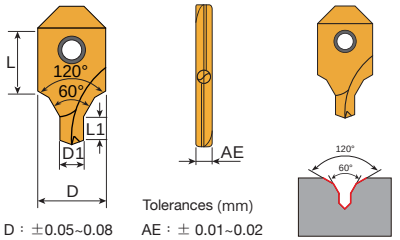
Inserts	Part No .	Grades										
		Carbide					Metal cermet			Uncoated		
		C125	B350	C350	F20	F30	CE25	CE60		K10	CE	
	A24-080216-60-E											
	A24-080220-60-E											
	A24-100225-60-E											
	A24-100230-60-E											
	A24-120340-60-E											
	A24-120350-60-E											
	A24-160350-60-E											
	A24-160360-60-E											
	A24-080216-60-ME											
	A24-080220-60-ME											
	A24-100225-60-ME											
	A24-100230-60-ME											
	A24-120340-60-ME											
	A24-120350-60-ME											
	A24-160350-60-ME											
	A24-160360-60-ME											

Inserts 6 PCS / Box
Only for insert:A24-16***

Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: A24-080216-60-E, K10

B 24 Insert



Tolerances (mm)

D：±0.05~0.08　AE：± 0.01~0.02

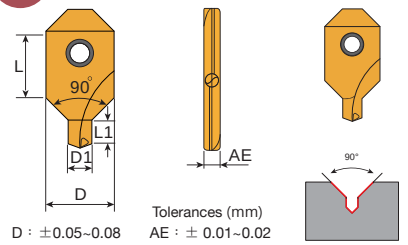
Dimensions in mm					
D	L	AE	D1	L1	angle
8	4	2.0	1.6	1.6	120° 60°
			2.0	2.0	
10	5	2.5	2.5	2.5	
			3.0	3.0	
12	5	3.0	4.0	4.0	
			5.0	5.0	
16	6	3.0	5.0	5.0	
			6.0	6.0	

Inserts	Part No .	Grades										
		Carbide					Metal cermet			Uncoated		
		C125	B350	C350	F20	F30	CE25	CE60		K10	CE	
	B24-080216-120-ME											
	B24-080220-120-ME											
	B24-100225-120-ME											
	B24-100230-120-ME											
	B24-120340-120-ME											
	B24-120350-120-ME											
	B24-160350-120-ME											
	B24-160360-120-ME											

Inserts 6 PCS / Box
Only for insert:B24-16***

Inserts 10 PCS / Box

C 24 Insert



Tolerances (mm)

D：±0.05~0.08　AE：± 0.01~0.02

Dimensions in mm					
D	L	AE	D1	L1	angle
8	4	2.0	1.6	1.6	90°
			2.0	2.0	
10	5	2.5	2.5	2.5	
			3.0	3.0	
12	5	3.0	4.0	4.0	
			5.0	5.0	
16	6	3.0	5.0	5.0	
			6.0	6.0	

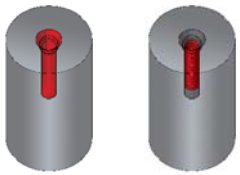
Inserts	Part No .	Grades										
		Carbide					Metal cermet			Uncoated		
		C125	B350	C350	F20	F30	CE25	CE60		K10	CE	
	C24-080216-90-ME											
	C24-080220-90-ME											
	C24-100225-90-ME											
	C24-100230-90-ME											
	C24-120340-90-ME											
	C24-120350-90-ME											
	C24-160350-90-ME											
	C24-160360-90-ME											

Inserts 6 PCS / Box
Only for insert:C24-16***

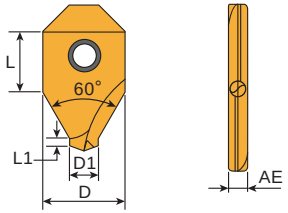
Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: C24-080216-90-ME, B350

D 24 Insert



Center drill specialize for
pre-drilling and pre-tapping

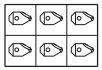


Tolerances (mm)

D：±0.05~0.08　　AE：± 0.01~0.02

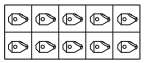
Dimensions in mm					
D	L	AE	D1	L1	angle
8	4	2.0	1.7	0.6	60°
			2.2	0.6	
10	5	2.5	2.7	0.6	
			3.2	0.7	
			3.7	0.7	
12	5	3.0	4.3	0.8	
			5.3	1.0	
16	6	3.0	5.3	1.0	
			6.3	1.1	

Inserts	Part No .	Grades										
		Carbide					Metal cermet			Uncoated		ME
		C125	B350	C350	F20	F30	CE25	CE60		K10	CE	
	D24-080217-60-ME		◎									
	D24-080222-60-ME		◎									
	D24-100227-60-ME		◎									
	D24-100232-60-ME		◎									
	D24-100237-60-ME		◎									
	D24-120343-60-ME		◎									
	D24-120353-60-ME		◎									
	D24-160353-60-ME		◎									
	D24-160363-60-ME		◎									



Inserts 6 PCS / Box

Only for insert:D24-16***



Inserts 10 PCS / Box

- ☐ Steel ☐ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: D24-080217-60-ME, B350

Recommended Cutting Data And Insert Grade

- Center Drill recommended cutting speed, Vc (m/min), Feed,fz(mm/ tooth). The effective no. of teeth is calculated with 1 flute.

Material group	Cutting Speed Vc(m/min)	CNC lathe M/C Vc(m/min)	Feed,Fz(mm/ tooth)		Grades	
			D1:1.5~2.5mm	D1:3~5mm	ME	E
1-2	15-20	50-120	0.03 0.06	0.05 0.10	B350	-
3	12-18		0.03 0.06	0.05 0.10	B350	-
4-5-6	10-15		0.03 0.06	0.05 0.10	B350	-
7	5-10	22-30	0.03 0.06	0.05 0.08	B350	-
8-9	8-12		0.03 0.06	0.05 0.09	B350	-
10-11	5-10		0.03 0.06	0.03 0.08	B350	-
12-13	20-25	60-80	0.05 0.08	0.06 0.13	B350	-
14-15	15-20		0.05 0.08	0.06 0.13	B350	-
16-18	30-50	300-800	0.05 0.08	0.06 0.13	-	F20

Surface Finishing Test Result

Holder	TU-1010-100
Insert	24-100225-60-ME, B100
S	1600 min^{-1}
f	0.05 mm/rev
Material	ScM440

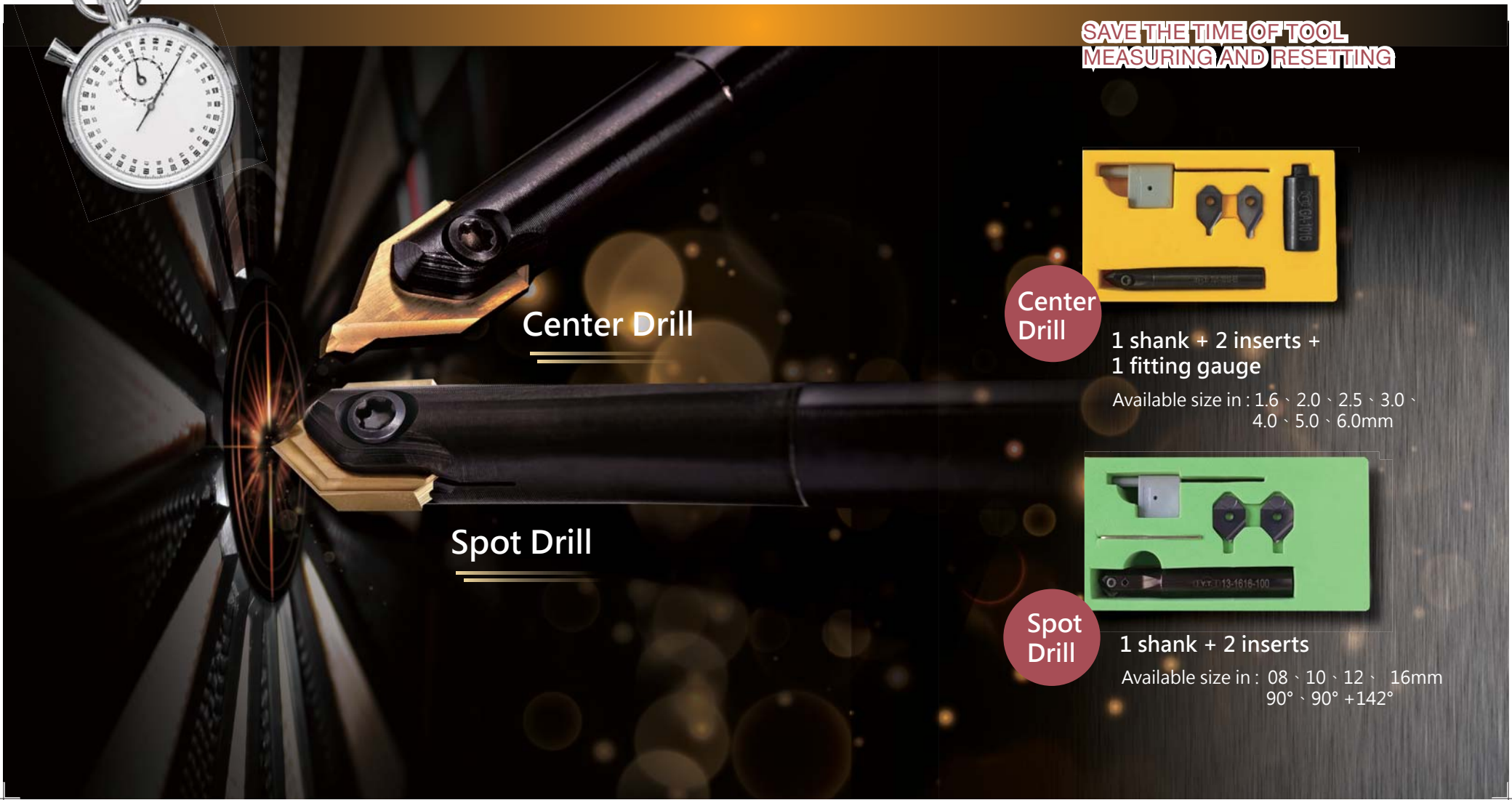
TRY ME Box

(1 shank + 2 inserts)

- Try me box with 1 holder+2insert is a good chane to test the accarate (tolerance ± 0.01) indexable center drill and spot drill
- For the tool specification please refer to: sport drill p.209-210 center drill p.220-224

Convenient ,
Durable ,
Efficiency

SPEED



SAVE THE TIME OF TOOL MEASURING AND RESETTING

Center Drill

1 shank + 2 inserts +
1 fitting gauge

Available size in : 1.6、2.0、2.5、3.0、
4.0、5.0、6.0mm

Spot Drill

1 shank + 2 inserts

Available size in : 08、10、12、 16mm
90°、90° +142°

COUNTER BORE SERIES

Features Description

Patent design with carbide strip on the head to improve cutter toollife.Most economical with 4 cutting edge insert. 4 in 1 counterbore reduce machinging process from 4 steps to 2 steps.

Counter Bore : M8-M36
Counter Bore with chamfer: M8-M36
4 In 1 Counter Bore: M3-M12

4 IN 1 COUNTER BORE

Video

Patent No.
M473882
M474588
M473881

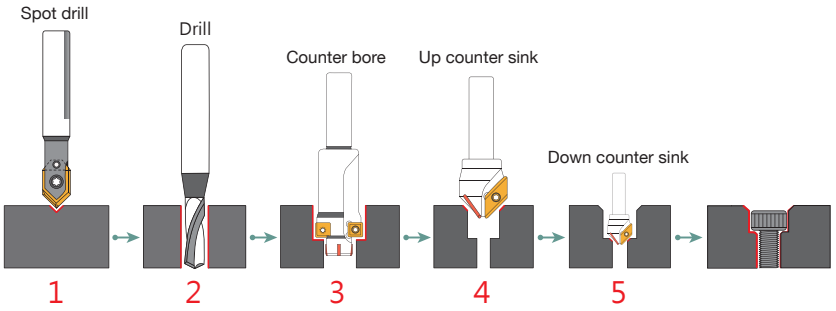
Patent No.
201310453057.2
201320772697.5

PCT Priority No.
PCT/ CN2013/086393

Features

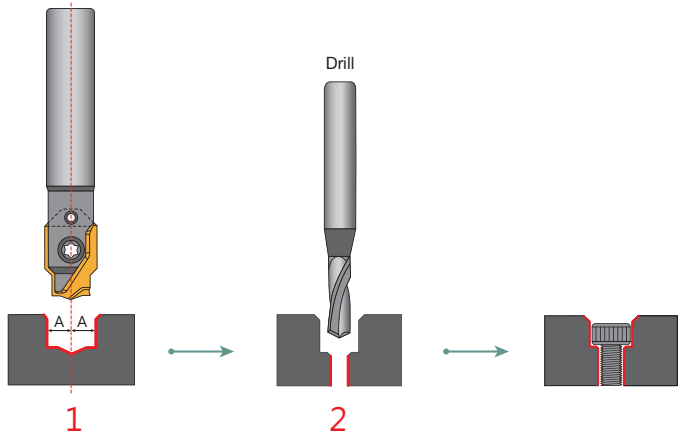
- Available in materials (P K M S H)
- Cost 300~500% DOWN
- Variety of Machines: Milling / Drilling / Radial drilling
- Efficiency 300% UP
- Durability 300% UP

Standard Procedure: Need 5 Tools



New Procedure: Need Only 2 Tools

4 in 1 counter bore = 1+3+4+5



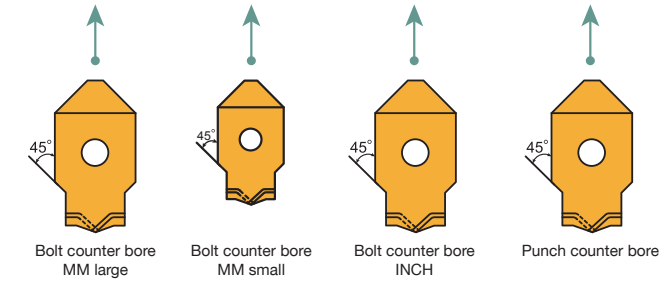
- Accurate spot drill, no vibration.
- Center of bore and counter bore is synchronized.
- Just need 3 seconds.

Product Design

4 main functions

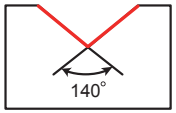
- Bolt counter bore
- 140° spot drill
- Standard punch
- 1 shank for different types of inserts

* Patent Pending



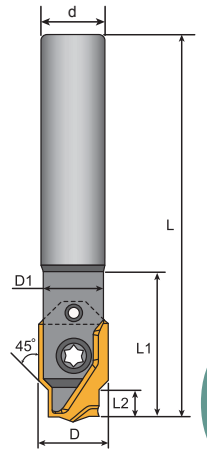
Bolt counter bore MM large | Bolt counter bore MM small | Bolt counter bore INCH | Punch counter bore

Can make 140° Spot for accurate drilling



4 In 1 Counter Bore Shank

- Insert P. 234 - 236
- Cutting Data P. 238



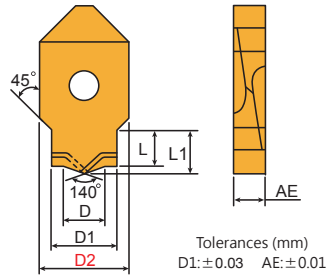
14

Order code	Screw Dimensions		Dimensions (mm)						KG	Screw	Key
	MM	INCH	D	D1	d	L	L1	L2			
14-0803-70	3.0 3.5	1/8	8	7.4	8	70	15	3.1 3.6	0.12	C02506 S025025	T08P L013
14-0803-90		-				90	20		0.13		
14-1004-80	4.0	3/16	10	9.4	10	80	16	4.2	0.13	C03007 S02503	T09P L013
14-1004-100						100	21		0.15		
14-1206-80	5.0 6.0	-	12	11.3	12	80	20	5.3 6.4	0.18	C03008 S0303	T09P L015
14-1206-110		1/4				110	25		0.21		
14-1208-80	7.0 8.0	5/16	16	15.4	16	80	22	8.4	0.19	C03510 S0405	T10P L02
14-1608-100		-				100	25	7.4 8.4	0.25		
14-1608-130		5/16				130	30		0.32		
14-2010-100	10 12	3/8	20	19.0	20	100		10.3	0.26	C04012 S0506	T15P L025
14-2010-140						140	35		0.34		

Counterbore

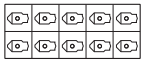
4 In 1 Counter Bore Insert

MM / INCH standard size dimensions- DIN373



Tolerances (mm)
D1:±0.03 AE:±0.01

Inserts 6 PCS / Box
Only for insert :26-20***



Inserts 10 PCS / Box

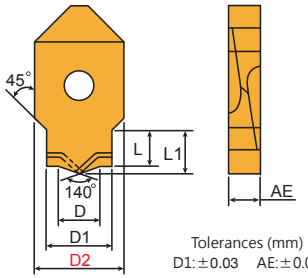
Dimensions in mm							
D	D1	D2	L	L1	AE	MM	INCH
3.6	5.8	8	3.1	3.7	2.0	M3.0	1/8
4.1	6.3		3.6	4.3		M3.5	-
4.6	7.4	10	4.2	5.0	2.5	M4.0	-
5.6	9.3	12	5.3	6.2	3.0	M5.0	3/16
6.7	10.4		6.4	7.4		M6.0	1/4
7.7	11.5	16	7.4	8.4		M7.0	-
8.7	13.5		8.4	9.8		M8.0	5/16
10.8	16.5	20	10.3	12.0	3.5	M10	3/8
13.3	19.0		12.3	14.5		M12	-

Inserts	Order code	Grades										Corresponding shank
		Carbide					Metal cermet			Uncoated		
		C125	B350	C350	F20	F30	CE25	CE60		K10	CE	
	26-0803-E				■							14-0803-70 14-0803-90
	26-0803-M		◎	■		■						
	26-0835-E				■							
	26-0835-M		◎	■		■						
	26-1004-E				■							14-1004-80 14-1004-100
	26-1004-M		◎	■		■						
	26-1205-E				■							14-1206-80 14-1206-110
	26-1205-M		◎	■		■						
	26-1206-E				■							
	26-1206-M		◎	■		■						
	26-1607-E				■							14-1208-80 14-1608-100 14-1608-130
	26-1607-M		◎	■		■						
	26-1608-E				■							
	26-1608-M		◎	■		■						
	26-2010-E				■							14-2010-100 14-2010-140
	26-2010-M		◎	■		■						
	26-2012-E				■							
	26-2012-M		◎	■		■						

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 26-0803-E, F20

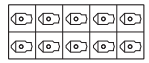
4 In 1 Counter Bore Insert

MM large size dimensions- DIN373



Tolerances (mm)
D1:±0.03 AE:±0.01

Inserts 6 PCS / Box
Only for insert :26-20***



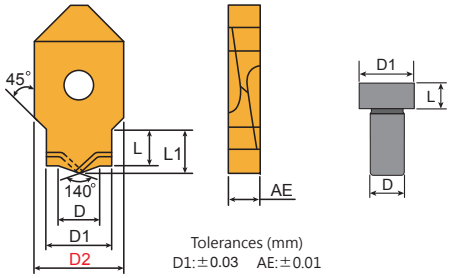
Inserts 10 PCS / Box

Dimensions in mm						
D	D1	D2	L	L1	AE	MM
3.8	6.5	8	3.1	3.7	2.0	M3
4.8	8.0	10	4.2	5.0	2.5	M4
5.8	10	12	5.3	6.2	3.0	M5
6.9	11		6.4	7.4		M6
9.3	15	16	8.4	9.8		M8
11.3	18	20	10.3	12	3.5	M10

Inserts	Order code	Grades										Corresponding shank
		Carbide					Carbide			Uncoated		
		C125	B350	C350	F20	F30	CE25	OE60		K10	CE	
	26-0803S-E				■							14-0803-70 14-0803-90
	26-0803S-M		◎	■		■						
	26-1004S-E				■							14-1004-80 14-1004-100
	26-1004S-M		◎	■		■						
	26-1205S-E				■							14-1206-80 14-1206-110
	26-1205S-M		◎	■		■						
	26-1206S-E				■							
	26-1206S-M		◎	■		■						
	26-1608S-E				■							14-1208-80 14-1608-100 14-1608-130
	26-1608S-M		◎	■		■						
	26-2010S-E				■							14-2010-100 14-2010-140
	26-2010S-M		◎	■		■						

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 26-0803S-E, F20

4 In 1 Punch Counter Bore Inserts

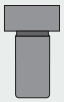


Tolerances (mm)
D1:±0.03 AE:±0.01

Inserts 6 PCS / Box
Only for insert :27-20***

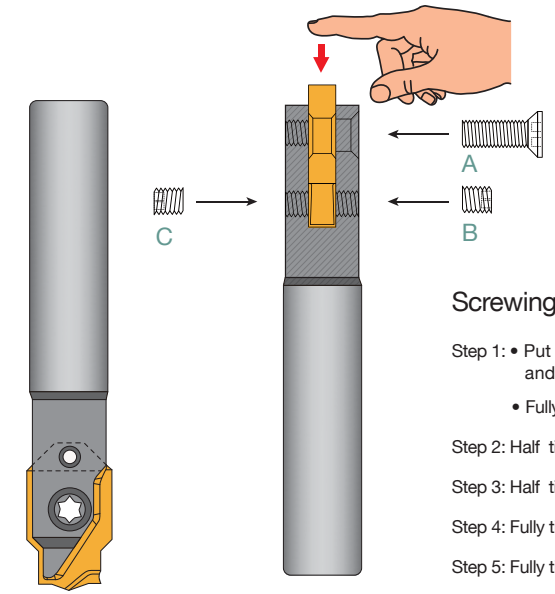
Inserts 10 PCS / Box

Dimensions in mm						
D	D1	D2	L	L1	AE	MM
5.0	8	10	5	-	2.5	M5.0
5.5						M5.5
6.0	10	12	6	-	3.0	M6.0
6.5						M6.5
7.0	11		8	-		M7.0
7.5						M7.5
8.0	13	16				M8.0
9.0	14					M9.0
10	15					M10
11	16	20			3.5	M11
12	17					M12
14	19					M14

Inserts	Order code	Grades										Corresponding shank
		Carbide					Metal cermet			Uncoated		
		C125	B350	C350	F20	F30	CE25	CE60		K10	CE	
	27-1005-M			■								14-1004-80 14-1004-100
	27-10055-M			■								
	27-1206-M			■								14-1206-80 14-1206-110
	27-12065-M			■								
	27-1207-M			■								
	27-12075-M			■								
	27-1608-M			■								14-1208-80 14-1608-100 14-1608-130
	27-1609-M			■								
	27-1610-M			■								
	27-2011-M			■								14-2010-100 14-2010-140
	27-2012-M			■								
	27-2014-M			■								

- ■ Steel ■ Stainless Steel ■ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ■ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 27-1005-M, C350

How to Fit Insert - Screw A.B.C.



Screwing the Insert

Step 1: • Put the insert into the slot of shank and press it with the finger
• Fully tighten the screw A first

Step 2: Half tighten the screw B on one side

Step 3: Half tighten the screw C on other side

Step 4: Fully tighten the screw B again

Step 5: Fully tighten the screw C again

Standard spare parts

Insert dimension D2 (mm)	Screw A	Screw B/C	Key	Key
8	C02506	S025025	T08P	L013
10	C03007	S02503	T09P	
12	C03008	S0304		L015
16	C03510	S0404	T10P	L02
20	C04012	S0506	T15P	L025

Recommended Cutting Data And Insert Grade

Recommended cutting speed, Vc(m/min), Feed, fz(mm/tooth).The effective no. of teeth is calculated with 1 flute.

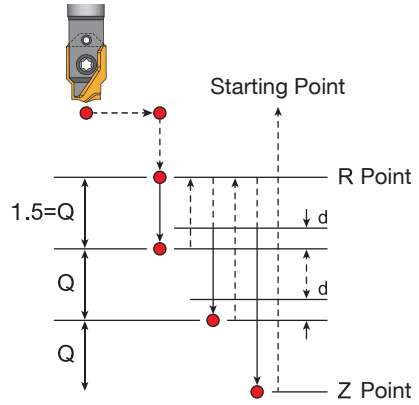
Material group	 Cutting Speed Vc(m/min)	Feed,Fz (mm/ tooth)				Grades	
		140°				M	E
		(D2) 8	(D2) 10	(D2) 12	(D2) 16-20		
1-2	50-70	0.06 0.08	0.06 0.08	0.07 0.09	0.07 0.09	B350/C350	-
3	50-70	0.06 0.08	0.06 0.08	0.07 0.09	0.07 0.09	B350/C350	-
4-5-6	45-60	0.05 0.07	0.05 0.07	0.06 0.08	0.06 0.08	B350/C350	-
7	25-30	0.04 0.06	0.04 0.06	0.05 0.07	0.05 0.07	B350	-
8-9	35-45	0.06 0.08	0.06 0.08	0.07 0.09	0.07 0.09	B350	-
10-11	35-40	0.05 0.07	0.05 0.07	0.06 0.08	0.06 0.08	B350	-
12-13	70-90	0.12 0.15	0.12 0.15	0.13 0.16	0.13 0.16	F30	-
14-15	60-80	0.11 0.14	0.11 0.14	0.12 0.15	0.12 0.15	F30	-
16-18	100-150	0.10 0.13	0.10 0.13	0.11 0.14	0.11 0.14	-	F20

• While using for spot drill, RPM and FEED can be increased to 50%.

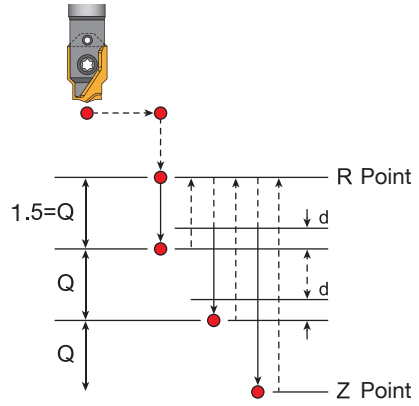
4 In 1 Counter Bore Program Description

Peck drilling (CNC No.G83)

CNC No.G83(G98)

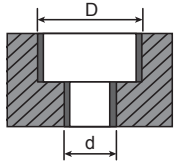
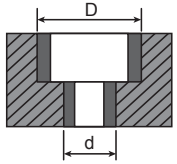
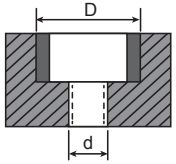


CNC No.G83(G99)



• The G83 cycle or peck drilling is for deep drilling or milling with chip breaking. The retracts in this cycle clear the hole of chips and cut off any long stringers (which are common when drilling in aluminum). This cycle takes a Q number which represents a "delta" increment along the Z-axis.
Program: G83 X_Y_ Z_A_R_L_Q_. It is an error if: The Q negative or zero. Peck drilling is not necessary in cast iron machining.

Bolt counter bore dimensions (DIN 373 - ISO 4205)

Screw Dimensions	Standard (D x d)	Large (D x d)	Screw (D x d)
Dimension			
M1.0	2.1 x 1.1	2.2 x 1.2	2.2 x 0.75
M1.2	2.4 x 1.3	2.5 x 1.4	2.5 x 0.95
M14	2.7 x 1.5	2.8 x 1.6	2.8 x 1.1
M1.5-M1.6	3.2 x 1.7	3.3 x 1.8	3.3 x 1.25
M1.7	3.7 x 1.8	3.8 x 1.9	3.8 x 1.3
M2.0	4.2 x 2.2	4.3 x 2.4	4.3 x 1.6
M2.2	4.6 x 2.4	4.8 x 2.6	4.8 x 2.6
M2.3	5.0 x 2.7	5.2 x 2.9	5.0 x 1.9
M2.5-M2.6	5.4 x 2.8	5.5 x 3.0	5.5 x 2.1
M3.0	5.8 x 3.2	6.0 x 3.4	6.0 x 2.5
M3.5	6.3 x 3.7	6.5 x 3.9	6.5 x 2.9
M4.0	7.4 x 4.3	8.0 x 4.5	8.0 x 3.3
M5.0	9.3 x 5.3	10.0 x 5.5	10.0 x 4.2
M6.0	10.4 x 6.4	11.0 x 6.6	11.0 x 5.0
M8.0	13.5 x 8.4	15.0 x 9.0	15.0 x 6.8
M10	16.5 x 10.5	18.0 x 11	18.0 x 8.5
M12	19.0 x 13	20.0 x 14	20.0 x 10.2
M14	24.0 x 15	24.0 x 16	-
M16	26.0 x 17	26.0 x 18	-

Machines And Tools Application

Suitable for various kinds of machines

Features

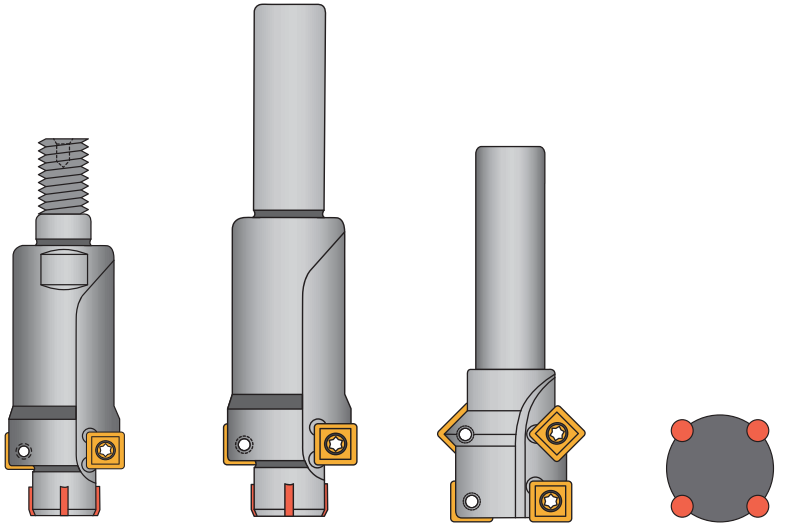
- Available in materials (P K M S H)
- Cost 300~500% DOWN
- Combination type is available max. 300mm
- Variety of Machines Milling / Drilling / Radial drilling
- Efficiency 300% UP
- Durability 300% UP

Product Design

CBK

Counter bore tools application for bolts, nuts & screws

Patent No. ZL 01 2 23413.3

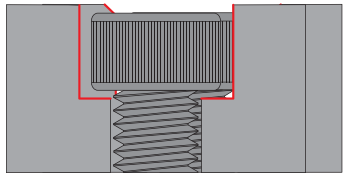


HBM | CBK | CBI | CBK

better cutter toollife
with patented carbide strip

Counterbore

Screw M8~M36

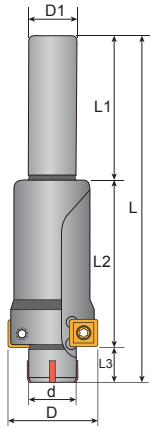


counterbore | counterbore + chamfer

PRODUCT SPECIFICATIONS

Counterbore Toolholders

- Insert P. 247
- Cutting Data P. 247



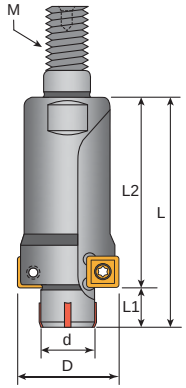
CBK

DIN 974

Order code	Dimensions(mm)								KG	MAX RPM	Insert	Screw	Key
	D	d	D1	L	L1	L2	L3						
CBK-08	14	8.4	10	70	30	32	8	2	0.2	25000	SDET 060208	C025045	T08P
CBK-08S	15	8.9											
CBK-10	18	10.9										C02506	
CBK-10S	20												
CBK-12		13.4	12	80	35	37			0.3	22000			
CBK-12S	22												
CBK-14	24	14.9									SDET 09T	C04007	T15P
CBK-14S	25	15.4											
CBK-16	26	17.4		90	38	44			0.35	17000		C04008	
CBK-16S	27												

Counterbore Combi Cutters

- Insert P. 247
- Cutting Data P. 247



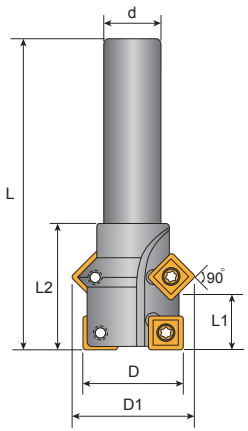
HBM

DIN 974

Order code	Dimensions(mm)							KG	MAX RPM	Insert	Screw	Key
	D	d	L	L1	L2	M						
HBM-16	26	17.4	48	8	40	16	2	0.5	17000	SDET09T	C04008	T15P
HBM-18	29	19.4	53		45		3					
HBM-20	33	21.9	56		48			0.7	15000			
HBM-22	36	23.4	60	10	50						C04011	
HBM-24	40	25.9	62		52			0.9	12000			
HBM-30	50	32.9										
HBM-36	58	38.8						1.0	10000			

Counterbore + Chamfer Toolholders

- Insert P. 247
- Cutter Data P. 247

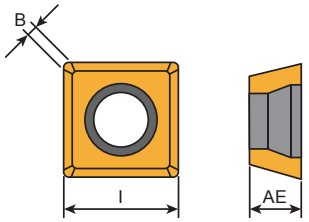


CBI

DIN 974-1

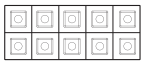
Order code	Dimensions(mm)							Zc	KG	MAX RPM	Insert	Screw	Key
	D	d	D1	L	L1	L2							
CBI-08	15	10	20.0	65	9	23	4	2	0.2	25000	SDET 060208	C025045	T08P
CBI-10	18		22.0		11								
CBI-12	20	12	23.8	70	13				0.3	22000	SDET09T	C04007	T15P
CBI-14	24		31.4		15	30							
CBI-16	26		33.4	80	16.5	33			0.35	17000		C04008	
CBI-18	29	16	35.4		19.5	36			0.4	16000			
CBI-20	33		37.4		21							C04011	
CBI-22	36	20	40.4	90	23.5	40			0.5	15000			
CBI-24	40		44.4		25	43							
CBI-30	50	25	53.4	100	34	50	6	4	0.6	14000			
CBI-36	58		61.4	110	38	60							

SDET / SEHT Inserts



Tolerances (mm)

	I	AE	B
SDET	±0,03	±0,025	±0,03



Inserts 10 PCS / Box

Size	Dimensions in mm		
	I	AE	B
0602	6.0	2.3	1.0
09T3	9.0	3.97	1.2

Inserts	Part No .	Grades									
		Carbide					Metal cermet			Uncoated	
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE
	SDET060208N-ME	◎									
	SDET09T308TN-M	◎									

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: SDET060208N-ME, B100

Counterbore

Recommended Cutting Data and Insert Selection

- Recommended Cutting Speed, Vc (m/min), Feed,fz(mm/ tooth)

Data Reference

Material group	Cutting Speed Vc(m/min)	Feed,Fz(mm/ tooth)		Insert Grade Selection	
		M8 - M12	M14 - M36	M	ME
1-2	40-70	0.06 0.10	0.10 0.15	B100 C250	B100
3	35-60	0.06 0.10	0.08 0.12	B100 C250	B100
4-5-6	30-55	0.06 0.10	0.08 0.10	B100 C250	B100
7	20-30	0.06 0.08	0.06 0.08	B100 C250	B100
12-13	40-70	0.08 0.12	0.10 0.15	F30	F30
14-15	35-65	0.08 0.10	0.10 0.15	F30	F30

CHAMFER KING SERIES

Features Description

The indexable countersink with carbide insert can be used in all kinds of machines, include drilling machine, electric hand tool...etc. The patented unique design "carbide strip"enhance the cutter toollife. Available from dia.4-110mm.

INDEXABLE CHAMFER KING

Features

- Available in materials: P K M N S H
- Cost 300~500% DOWN
- Combination type is available max. 300mm
- Variety of Machines Milling / drilling / lathe / electric hand tool
- Efficiency 300% UP
- Durability 500~1000% UP

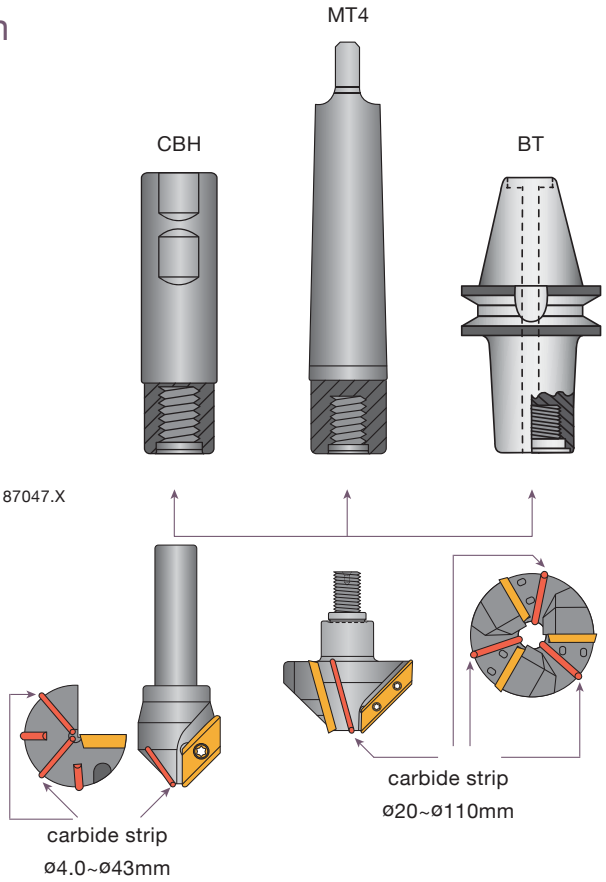
Product Design

CUTTING. RANGE ø4.0~ø110 mm

Patent No. M442206

Patent No. ZL 2012 2 0187047.X

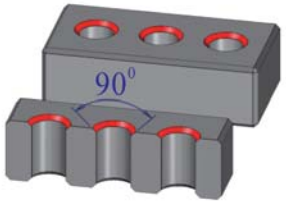
PCT Priority No. PCT/CN2012/001022



Carbide Strip Cutter With Carbide Insert:

- Special design for unstable drilling machine and electric hand tool. Lower RPM is required.
- Carbide strip supports better toollife.
- Carbide insert has a better toolife. It's economic with 2 cutting edges, one insert grade for all materials.
- Patented carbide strip cutter design has an excellent chamfering surface.

Geometries Application



Standard chamfer with 90°

- Excellent Design
- No burrs.

Chamfer cutter with longer shank

Chamfer with 120° used for tap holes,which reduce the loss of threads.

PIN

Chamfer with 60° used for deburring before "pin". 60° chamfer is easier than 90° or 120° to locate the pin.

Applicable Machine And Tools

A. Drilling machine

B. Milling machine

C. Radial drilling machine

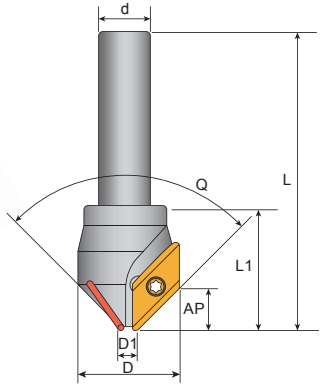
D. Electric Hand Tool

E. Conventional milling machine

PRODUCT SPECIFICATIONS

Chamfer King Toolholders

- Insert P. 259
- Cutting Data P. 260 - 261



CI

• 60°

Order code	Dimensions(mm)						Q		KG	MAX RPM	Insert	Screw	Key
	D1	D	d	L	AP	L1							
CI-17-60°	7	17	10	65	8.5	27	60°	1	0.2	35000	XDGT120308	C03506	T10P
CI-31-60°	15.5	31	12	78	13	35			0.3	25000	XDGT190408	C04011	T15P

• 90°

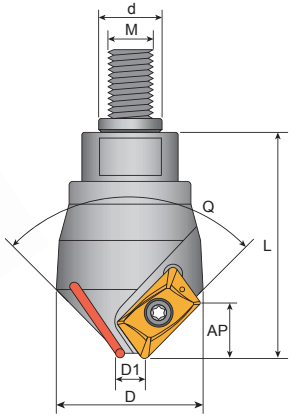
Order code	Dimensions(mm)						Q		KG	MAX RPM	Insert	Screw	Key
	D1	D	d	L	AP	L1							
CI-12-90°	4	10	10	60	3	14	90°	1	0.1	45000	ADGT060204	C01804	T06P
CI-12-90° L				90					0.15				
CI-22-90°	5.5	22		65	8	27			0.2	35000	XDGT120308	C03506	T10P
CI-36-90°	15	36	12	78	10	38			0.3	25000	XDGT190408	C04011	T15P

• 120°

Order code	Dimensions(mm)						Q		KG	MAX RPM	Insert	Screw	Key
	D1	D	d	L	AP	L1							
CI-26-120°	7	26	10	65	5	27	120°	1	0.2	35000	XDGT120308	C03506	T10P
CI-39-120°	11	39	12	78	8	35			0.3	25000	XDGT190408	C04011	T15P

Chamfer King Toolholders

- Combi holders P. 257 - 258
- Insert P. 259
- Cutting Data P. 260 - 261



HCI

• 60°

Order code	Dimensions(mm)						Q		KG	MAX RPM	Insert	Screw	Key
	D1	D	d	L	AP	M							
HCI-17-60°	7	17	12	37	8.5	6	60°	1	0.2	35000	XDGT120308	C03506	T10P
HCI-31-60°	15.5	31	16	45	13	8			0.3	25000	XDGT190408	C04011	T15P

• 90°

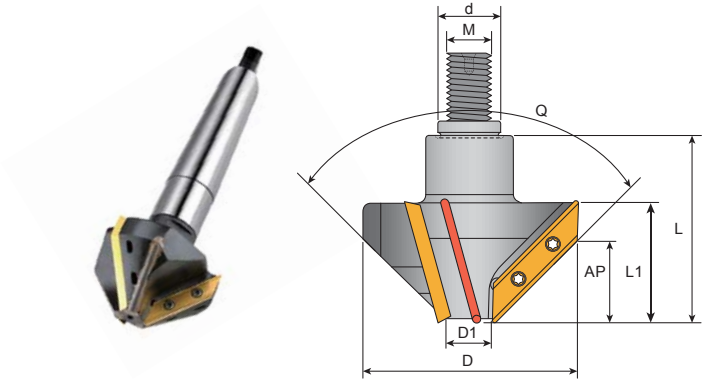
Order code	Dimensions(mm)						Q		KG	MAX RPM	Insert	Screw	Key
	D1	D	d	L	AP	M							
HCI-12-90°	4	10	10	24	3	6	90°	1	0.1	45000	ADGT060204	C01803	T06P
HCI-22-90°	5.5	22	12	37	8				0.2	35000	XDGT120308	C03506	T10P
HCI-36-90°	15	36	16	48	10	8			0.3	25000	XDGT190408	C04011	T15P

• 120°

Order code	Dimensions(mm)						Q		KG	MAX RPM	Insert	Screw	Key
	D1	D	d	L	AP	M							
HCI-26-120°	7	26	12	37	5	6	120°	1	0.2	35000	XDGT120308	C03506	T10P
HCI-39-120°	11	39	16	45	8	8			0.3	25000	XDGT190408	C04011	T15P

Chamfer King Toolholders

- Combi holders P. 257 - 258
- Insert P. 259
- Cutting Data P. 260 - 261

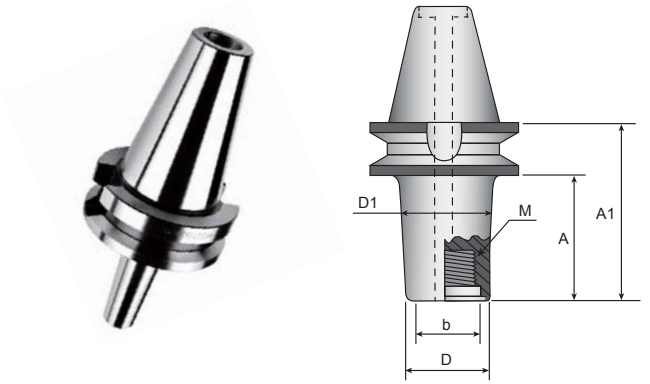


HCI

- 90°

Order code	Dimensions(mm)									KG	MAX RPM	Insert	Screw	Key
	D1	D	d	L	AP	L1	M	Q						
HCI-76-90°	20	76	30	65	28	41	16	90°	3	1.5	13700	XDGT400408	C04011	T15P
HCI-110-90°	55	110								2.5	10900			

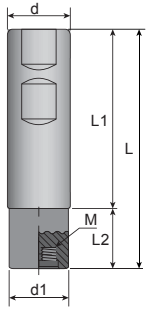
BT Arbor (Screw Type)



BT

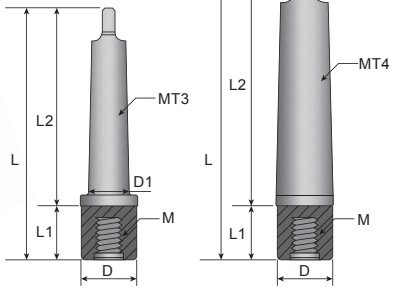
Order code	Dimensions(mm)					M
	D	A	A1	b	D1	
BT40-2380A	23	53	78	14	28	M12
BT40-23120A		93	118		31	
BT40-3080A	30	53	78	22	35	M16
BT40-30120A		93	118		38	
BT40-4080A	40	53	78	28	45	M18
BT40-40120A		93	118		48	
BT50-2380A	23	42	77	14	28	M12
BT50-23120A		82	117		31	
BT50-3080A	30	42	77	22	35	M16
BT50-30120A		82	117		38	
BT50-4080A	40	42	77	28	45	M18
BT50-40120A		82	117		48	
BT50-5080A	50	42	77	36	55	M25
BT50-50120A		82	117		58	
BT50-50160A		122	157		61	

Chamfer King Combi Toolholders



CBH

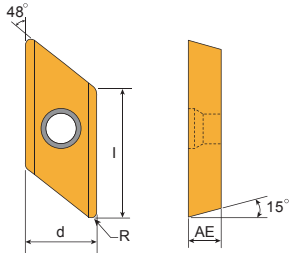
Order code	Dimensions(mm)					
	d	d1	L1	L2	L	M
CBH-1009-100	10	9	60	20	80	M6
CBH-1211-120	12	11	80		100	
CBH-1211-140			100		120	
CBH-1616-100	16	16	-	-	70	M8
CBH-1615-120		15	70	20	90	
CBH-1615-150			95	25	120	
CBH-3232-120	32	32	-	-	80	M16
CBH-3230-140		30	80	20	100	
CBH-3230-200			130	30	160	
CBH-3230-240			170		200	
CBH-3230-300			210	50	260	



MTH

Order code	Dimensions(mm)						
	D	D1	L	L1	L2	M	MT
MTH-3	30	23.83	140	40	100	M16	3
MTH-4	31.6	-	165		125	M16	4

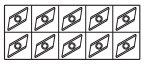
Chamfer King Inserts



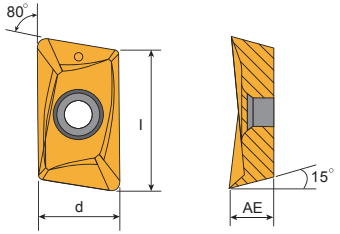
Tolerances (mm)

	d	AE	l
XDGT12	±0.03	±0.025	±0.03
XDGT19	±0.03	±0.025	±0.03
XDGT40	±0.03	±0.025	±0.03

Size	Dimensions in mm				
	l	d	AE	Q	Q1
12	12	8.5	3.18	-	-
19	19	10.6	4.76	-	-
40	40	10.6	4.76	-	-

Inserts	Part No .	Grades										
		Coated					cermet			Uncoated		ME
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE	
	XDGT120308TR-ME-C	★										 Inserts 10 PCS / Box
	XDGT190408TR-ME	★										
	XDGT400408TR-ME	★										 Inserts 2 PCS / Box

★ All Materials



Tolerances (mm)

	d	AE
ADGT	±0.03	±0.025

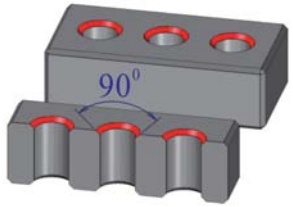
Size	Dimensions in mm		
	d	l	AE
0602	4.05	6.95	2.4

Inserts	Part No .	Grades										
		Coated					cermet			Uncoated		ME
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE	
	ADGT060204TR-ME-C	★										 Inserts 10 PCS / Box

★ All Materials

Chamfer

TECHNICAL GUIDE



- Cutting data table for chamfering in hole

Dia. of Hole (ψmm)	Material group											
	Steel	Harden steel	Stainless steel	Cast iron			Aluminum			Titanium alloy Ni based superalloy Co-based superalloys		
	1 2 3 4 5 6	7	8 9 10 11	12 13 14 15			16 17 18			19 20 21 22		
	Vc:20 m/min Fz:0.1 mm/tooth			Vc:15m/min Fz:0.12mm/tooth			Vc:50m/min Fz:0.15mm/tooth			Vc:20m/min Fz:0.1mm/tooth		
	RPM rev/min	Feed mm/min		RPM rev/min	Feed mm/min		RPM rev/min	Feed mm/min		RPM rev/min	Feed mm/min	
		1 Tooth	3 Teeth		1Tooth	3Teeth		1Tooth	3Teeth		1Tooth	3Teeth
5~7	1062	106	-	796	96	-	2654	398	-	796	80	-
8~10	708	71	-	531	64	-	1769	265	-	531	53	-
11~13	531	53	-	398	48	-	1327	199	-	398	40	-
14~16	425	42	-	318	38	-	1062	159	-	318	32	-
17~19	354	35	-	265	32	-	885	133	-	265	27	-
20~22	303	30	91	227	27	82	758	114	341	227	23	68
23~25	265	27	80	199	24	72	663	100	299	199	20	60
26~28	236	24	71	177	21	64	590	88	265	177	18	53
29~31	212	21	64	159	19	57	531	80	239	159	16	48
32~34	193	19	58	145	17	52	483	72	217	145	14	43
35~37	177	18	53	133	16	48	442	66	199	133	13	40
38~40	163	16	49	122	15	44	408	61	184	122	12	37
41~43	152	-	45	114	-	41	379	-	171	114	-	34
44~46	142	-	42	106	-	38	354	-	159	106	-	32
47~49	133	-	40	100	-	36	332	-	149	100	-	30
50~52	125	-	37	94	-	34	312	-	141	94	-	28
53~55	118	-	35	88	-	32	295	-	133	88	-	27
56~58	112	-	34	84	-	30	279	-	126	84	-	25

Dia. of Hole (ψmm)	Material group											
	Steel	Harden steel	Stainless steel	Cast iron			Aluminum			Titanium alloy Ni based superalloy Co-based superalloys		
	1 2 3 4 5 6	7	8 9 10 11	12 13 14 15			16 17 18			19 20 21 22		
	Vc:20 m/min Fz:0.1 mm/tooth			Vc:15m/min Fz:0.12mm/tooth			Vc:50m/min Fz:0.15mm/tooth			Vc:20m/min Fz:0.1mm/tooth		
	RPM rev/min	Feed mm/min		RPM rev/min	Feed mm/min		RPM rev/min	Feed mm/min		RPM rev/min	Feed mm/min	
		1 Tooth	3 Teeth		1Tooth	3Teeth		1Tooth	3Teeth		1Tooth	3Teeth
59~61	106	-	32	80	-	29	265	-	119	80	-	24
62~64	101	-	30	76	-	27	253	-	114	76	-	23
65~67	97	-	29	72	-	26	241	-	109	72	-	22
68~70	92	-	28	69	-	25	231	-	104	69	-	21
71~73	88	-	27	66	-	24	221	-	100	66	-	20
74~76	85	-	25	64	-	23	212	-	96	64	-	19
77~79	82	-	24	61	-	-	204	-	92	61	-	18
80~82	79	-	24	59	-	-	197	-	88	59	-	18
83~85	76	-	23	57	-	-	190	-	85	57	-	17
86~88	73	-	22	55	-	-	183	-	82	55	-	16
89~91	71	-	21	53	-	-	177	-	80	53	-	16
92~94	68	-	21	51	-	-	171	-	77	51	-	15
95~97	66	-	20	50	-	-	166	-	75	50	-	15
98~100	64	-	19	48	-	-	161	-	72	48	-	14
101~103	62	-	19	47	-	-	156	-	70	47	-	14
104~106	61	-	18	45	-	-	152	-	68	45	-	14
107~109	59	-	18	44	-	-	147	-	66	44	-	13
110	58	-	17	43	-	-	145	-	65	43	-	13

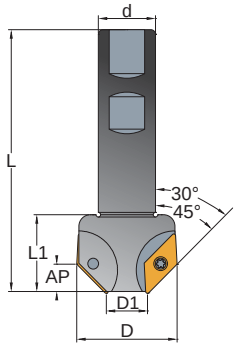
DOVETAIL & CHAMFER MILLING CUTTERS SERIES

Features

- Available in materials (P K M N S H)
- Cost 100~300% DOWN
- Variety of Machines CNC Milling machine
- Efficiency 300% UP
- Durability 300% UP

Chamfer Milling Cutter

- Insert P. 277
- Cutting Data P. 277 - 278

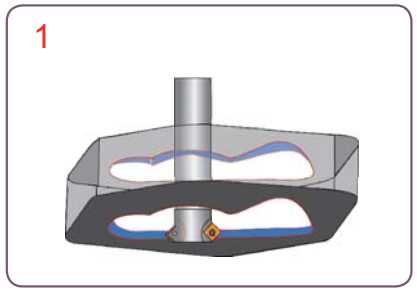


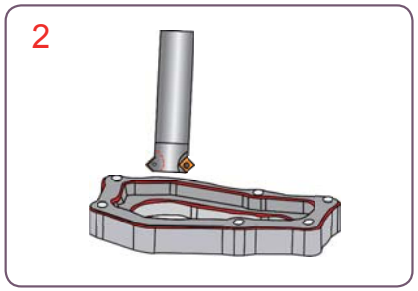
C

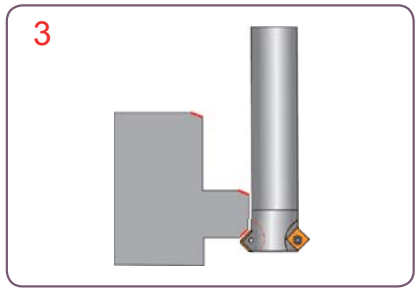
Order code	Dimensions(mm)							KG	MAX RPM	Insert	Screw	Key
	D	D1	d	L	AP	L1						
C-1124-30°	24	10	20	80	10	30	2	0.3	35000	XDGT1203	C03506	T10P
C-1633-30°	30	16	25	95	14	35		0.5	25000	XDGT1904	C04011	T15P
C-2260-30°	60	22	32	120	33	55	3	1.1	8500	XDGT4004		
C-1128-45°	28	10	20	80	8	30	2	0.3	35000	XDGT1203	C03506	T10P
C-1740-45°	40	17	25	95	11	35	3	0.5	25000	XDGT1904	C04011	T15P
C-1770-45°	70	17	32	120	28	50		1.1	8500	XDGT4004		

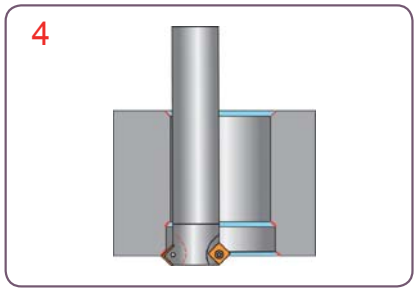
Product Application

Type of operation





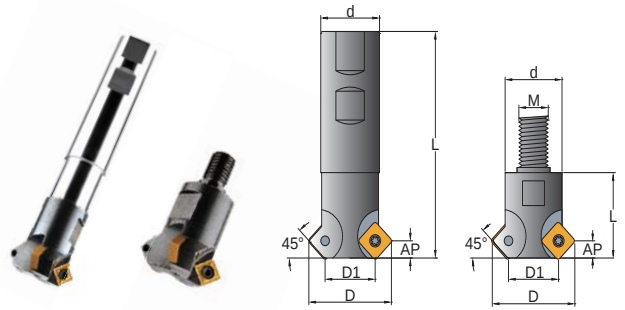




Two-Side Chamfer Milling Cutter

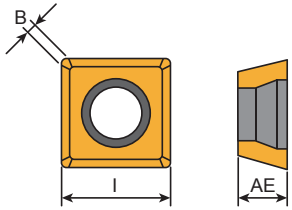
- Insert P. 266
- Cutting Data P. 266
- Combi Toolholders P. 286 - 289

MC



Order code	Dimensions(mm)							KG	MAX RPM	Insert	Screw	Key
	D	D1	d	L	AP	M						
MC-1218	18	11	12	90	3	-	2	0.15	35000	SD-06	C025045	T08P
MC-1625	25	19	16	100		-	3	0.25	25000			
MC-2032	32	22	20		6	-	2	0.45	17000	SD-09	C04011	T15P
MC-3245	45	32	32	110		-	3	0.7	14000	SE-13T3	C03508	T10P
HMC-18	18	11	11	20	3	6	2	0.15	35000	SD-06	C025045	T08P
HMC-25	25	19	15	30		8	3	0.2	25000			
HMC-32	32	22	19		6	10	2	0.3	17000	SD-09	C04011	T15P
HMC-45	45	32	31	40		16	3	0.5	14000	SE13T3	C03508	T10P

SDET / SEHT Inserts



Tolerances (mm)

	I	AE	B
SDET	±0,03	±0,025	±0,03

Inserts 10 PCS / Box

Size	Dimensions in mm		
	I	AE	B
0602	6.0	2.3	1.0
09T3	9.0	3.97	1.2
13T3	13.4	3.97	1.5

Inserts	Part No .	Grades										
		Carbide					Metal cermet			Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE	
	SDET060208N-ME	◎				■						
	SDET09T308TN-M	◎		■								
	SDET09T308TN-ME	◎				■						
	SEHT13T3AFTN-M	◎		■								
	SEHT13T3AFTN-ME	◎				■						

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: SDET060208N-ME, B100

Recommended Insert Grade

Material Group No.	Recom. feed fz mm/ tooth	Insert			
		SDET... M SEHT... M	SDET...ME SEHT...ME		
1	0.08-0.20	C250/B100	B100	-	-
2	0.08-0.18	C250/B100	B100	-	-
3	0.08-0.18	C250/B100	B100	-	-
4	0.08-0.15	C250/B100	B100	-	-
5	0.06-0.13	C250/B100	B100	-	-
6	0.06-0.12	C250/B100	B100	-	-
7	0.08-0.18	C250/B100	B100	-	-
8	0.08-0.15	-	B100	-	-
9	0.07-0.13	-	B100	-	-
10	0.06-0.12	-	B100	-	-
11	0.10-0.22	-	B100	-	-
12	0.10-0.22	-	F30	-	-
13	0.10-0.15	-	F30	-	-
14	0.10-0.15	-	F30	-	-
15	0.05-0.20	-	F30	-	-
16	0.05-0.20	-	-	-	-
17	0.06-0.10	-	-	-	-
18	0.06-0.15	-	-	-	-
19	0.05-0.08	-	B100	-	-
20	0.05-0.08	-	B100	-	-
21	0.06-0.10	-	B100	-	-
22	0.05-0.06	-	B100	-	-

Features

Available in materials (P M N S H)

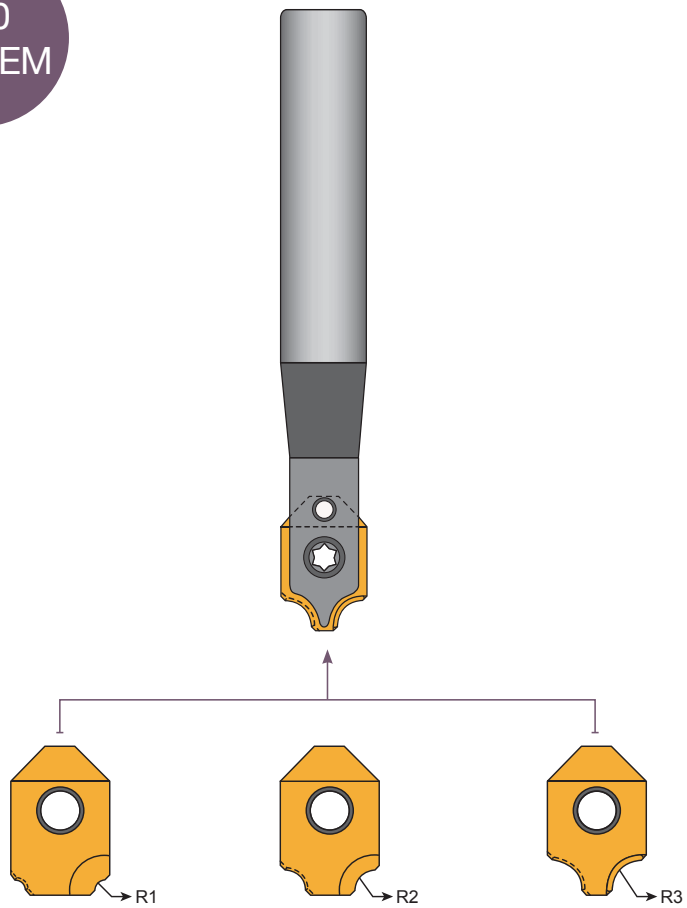
Cost 300~500% DOWN

Variety of Machines Milling

Efficiency 300% UP

Durability 300% UP

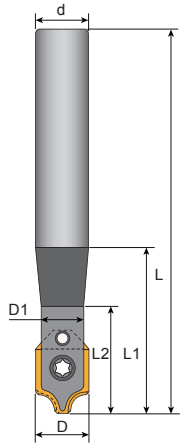
390
SYSTEM



R1~R10

Indexable Corner Rounding Toolholders (Milling)

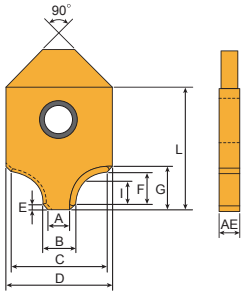
- Insert P. 270
- Cutting Data P. 272



15

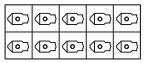
Order code	Dimensions(mm)						KG	Insert	Screw	Key
	D	D1	d	L	L1	L2				
15-1616-100-R1-3	16	14	16	100	30	25	0.26	R1-3	C03510 S0404	T10P L02
15-1616-130-R1-3				130			0.29			
15-1616-100-R4-5				100			0.26	R4-5		
15-1616-130-R4-5				130			0.29			
15-2525-110-R6-8	25	22	25	110	35	30	0.50	R6-8	C04017 S0508	T15P L025
15-2525-140-R6-8				140			0.65			
15-2525-110-R9-10				110			0.50	R9-10		
15-2525-140-R9-10				140			0.65			

25 Carbide Inserts



Tolerances (mm)
D : ±0.05~0.08 AE : ±0.01~0.02

Inserts 6 PCS / Box
Only for insert :25-25***



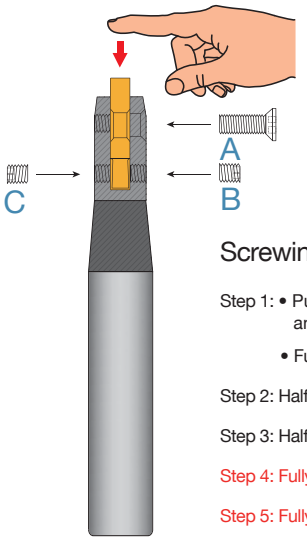
Inserts 10 PCS / Box

Dimensions in mm											
R	A	B	C	D	E	F	G	H	I	L	AE
1.0	12.0	13.29	15.17	16.55	0.64	0.96	2.33	13.86	1.30	21.5	3.0
1.5	11.0	12.29	15.16		0.67	1.47	2.85	13.15	1.69		
2.0	10.0	11.30	15.15	16.54	0.68	1.97	3.36	12.27	2.09		
2.5	9.00	10.31		16.51	0.67	2.47	3.85	11.74	2.39		
3.0	7.94	9.28	15.14	16.52	0.64	3.01	4.39	10.98	2.74		
4.0	6.00	7.29	15.09	16.44	0.67	3.97	5.37	9.58	3.45		
5.0	4.92	5.14	15.04	16.58	0.66	4.99	6.36	8.04	4.17		
6.0	11.2	12.38	24.15	25.31	0.58	5.96	7.16	15.84	4.76	30.0	3.5
7.0	9.20	10.30	24.08	25.18	0.55	6.96	8.14	14.35	5.44		
8.0	7.06	8.20	24.32		0.54	7.97	9.13	12.95	6.20		
9.0	4.80	5.93	23.98		0.56	9.00	10.18	11.22	6.93		
10.0	3.00	3.78	23.96		0.59	10.0	11.23	9.70	7.69		

Inserts	Part No .	Grades									
		Carbide					Metal cermet			Uncoated	
		C125	C200	C350	F20	F30	CE25	CE60		K10	CE
	25-1603-R1.0-E				■						
	25-1603-R1.5-E				■						
	25-1603-R2.0-E				■						
	25-1603-R2.5-E				■						
	25-1603-R3.0-E				■						
	25-1603-R4.0-E				■						
	25-1603-R5.0-E				■						
	25-2503-R6.0-E				■						
	25-2503-R7.0-E				■						
	25-2503-R8.0-E				■						
	25-2503-R9.0-E				■						
	25-2503-R10-E				■						
	25-1603-R1.0-ME			◎							
	25-1603-R1.5-ME			◎							
	25-1603-R2.0-ME			◎							
	25-1603-R2.5-ME			◎							
	25-1603-R3.0-ME			◎							
	25-1603-R4.0-ME			◎							
	25-1603-R5.0-ME			◎							
	25-2503-R6.0-ME			◎							
	25-2503-R7.0-ME			◎							
	25-2503-R8.0-ME			◎							
	25-2503-R9.0-ME			◎							
	25-2503-R10-ME			◎							

- ■ Steel ■ Stainless Steel ◎ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ◎ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: 25-1603-R1.0-E, F20

How to Fit Insert - Screw A.B.C.



Screwing the Insert

Step 1: • Put the insert into the slot of shank and press it with the finger
• Fully tighten the screw A first

Step 2: Half tighten the screw B on one side

Step 3: Half tighten the screw C on other side

Step 4: Fully tighten the screw B again (Important)

Step 5: Fully tighten the screw C again (Important)

Chamfer

Standard spare parts

Insert dimension (D mm) 	Screw A 	Screw B/C 	Key 	Key 
16	C03510	S0404	T10P	L02
25	C04017	S0508	T15P	L025

Recommended Cutting Data And Insert Grade

Material group No .	Recom. feed fz mm/tooth ae/Dc = 10%	Geometry	
		ME	E
1	0.10-0.12	C350	-
2	0.10-0.12	C350	-
3	0.08-0.12	C350	-
4	0.07-0.10	C350	-
5	0.07-0.10	C350	-
6	0.06-0.08	C350	-
7	0.05-0.06	C350	-
8	0.10-0.12	C350	-
9	0.10-0.12	C350	-
10	0.08-0.10	C350	-
11	0.08-0.10	C350	-
12	0.12-0.15	C350	-
13	0.12-0.15	C350	-
14	0.10-0.12	C350	-
15	0.10-0.12	C350	-
16	0.08-0.10	-	F20
17	0.08-0.10	-	F20
18	0.08-0.10	-	F20

• Corner Rounder recommended cutting speed, Vc (m/min), Feed,fz(mm/ tooth) in CHAMFERING process. The effective no. of teeth is calculated with 2 flutes.

Material group No .	Grades							
	C250	C350			CE60	F20		
		0.07	0.10	0.14				
1	-	207	186	167	-	-		
2	-	186	167	150	-	-		
3	-	167	150	135	-	-		
4	-	150	135	120	-	-		
5	-	135	120	109	-	-		
6	-	120	108	97	-	-		
7	-	48	43	-	-	-		
8	-	110	96	85	-	-		
9	-	96	85	74	-	-		
10	-	85	74	64	-	-		
11	-	74	64	56	-	-		
12	-	170	145	125	-	-		
13	-	155	125	115	-	-		
14	-	110	90	82	-	-		
15	-	110	90	-	-	-		
16	-	-			-	1080	900	780
17	-	-			-	950	900	770
18	-	-			-	950	900	770

DOVETAIL MILLING CUTTERS SERIES

Features

Available in materials P K M N S H

Cost 100~300% DOWN

Variety of Machines CNC Milling machine

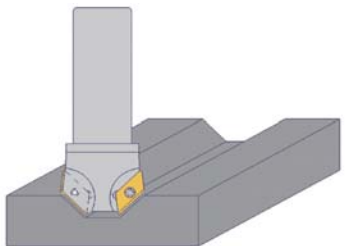
Efficiency 300% UP

Durability 300% UP

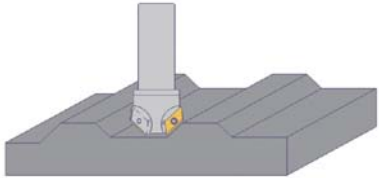
Product Application

Type of operation

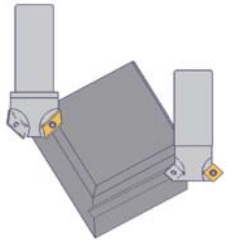
1



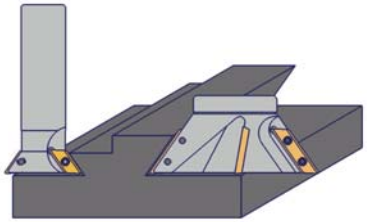
2



3



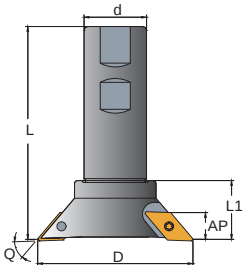
4



PRODUCT SPECIFICATIONS

Dovetails

- Insert P. 277
- Cutting Data P. 277 - 278



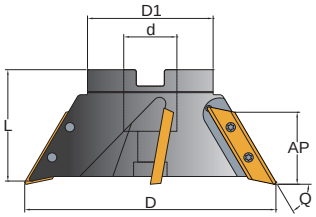
XD

Order code	Dimensions(mm)							KG	MAX RPM	Insert	Screw	Key
	D	d	Q	L	AP	L1						
XD2040-50	40	20	50	100	10	30	2	0.5	17000	XDGT 120308	C03507	T10P
XD2040-55			55		10.5							
XD2040-60			60		11							
XD3260-50	60	32	50	110	14		3	0.9	7500	XDGT 190408	C04011	T15P
XD3260-55			55		15							
XD3260-60			60		16							
XD3280-50	80		50		14		4	1.2	6500			
XD3280-55			55		15							
XD3280-60			60		16							

Dovetail Milling Cutter

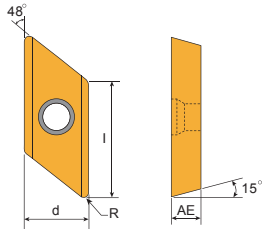
- Insert P. 277
- Cutting Data P. 277 - 278

XV



Order code	Dimensions(mm)							KG	MAX RPM	Insert	Screw	Key
	D	D1	d	L	AP	Q						
XV120-50-25.4	120	60	25.4	55	31	50	4	1.2	6000	XDGT 400408	C04011	T15P
XV120-55-25.4					33	55						
XV120-60-25.4					35	60						
XV120-50-27			27		31	50						
XV120-55-27					33	55						
XV120-60-27					35	60						

Recommended Insert Grade

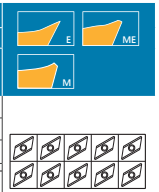


Tolerances (mm)

	d	AE	l
XDGT12	±0.03	±0.025	±0.03
XDGT19	±0.03	±0.025	±0.03
XDGT40	±0.03	±0.025	±0.03

Size	Dimensions in mm				
	l	d	AE	Q	Q1
12	12	8.5	3.18	-	-
19	19	10.6	4.76	-	-
40	40	10.6	4.76	-	-

Inserts	Part No .	Grades										
		Coated					cermet			Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE	
	XDGT120308R-E				●							
	XDGT120308R-ME	◎				●						
	XDGT120308TR-M	◎		●								
	XDGT190408R-E				●							
	XDGT190408R-ME	◎				●						
	XDGT190408TR-M	◎		●								
	XDGT400408R-E				●							
	XDGT400408R-ME	◎				●						
	XDGT400408TR-M	◎		●								



Inserts 10 PCS / Box

Inserts 2 PCS / Box

- ■ Steel ■ Stainless Steel ■ Steel/Stainless Steel ■ Cast Iron ■ Aluminum ■ Steel/Cast Iron ■ Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: XDGT120308R-E, F20

XDGT Instert Grade Selection

Data reference

Material Group No.	Recom. feed fz mm/ tooth	Insert			
		XDGT ... M	XDGT ... ME	XDGT ... E	
1	0.08-0.25	C250/B100	B100	-	-
2	0.08-0.25	C250/B100	B100	-	-
3	0.08-0.25	C250/B100	B100	-	-
4	0.08-0.25	C250/B100	B100	-	-
5	0.06-0.20	C250/B100	B100	-	-
6	0.06-0.20	C250/B100	B100	-	-
7	0.08-0.15	C250/B100	B100	-	-
8	0.08-0.15	-	B100	-	-
9	0.07-0.15	-	B100	-	-
10	0.06-0.15	-	B100	-	-
11	0.10-0.15	-	B100	-	-
12	0.10-0.25	-	F30	-	-
13	0.10-0.25	-	F30	-	-
14	0.10-0.20	-	F30	-	-
15	0.05-0.20	-	F30	-	-
16	0.05-0.25	-	-	F20	-
17	0.06-0.25	-	-	F20	-
18	0.06-0.25	-	-	F20	-
19	0.05-0.08	-	B100	-	-
20	0.05-0.08	-	B100	-	-
21	0.06-0.08	-	B100	-	-
22	0.05-0.08	-	B100	-	-

Recommended Cutting Data

• Recommended Cutting speed, Vc(m/min)

Data reference

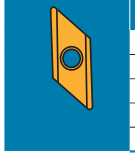
Material group No.	Grades											
	B100			C250			F20			CE60	CE	K10	F30		
	Feed fz (mm/tooth)														
	0.08	0.15	0.20	0.08	0.15	0.20	0.08	0.15	0.25				0.08	0.15	0.25
	Cutting SPEED, V_c (m/min)														
1	240	190	170	192	152	136	-			-	-	-	-		
2	210	165	145	168	132	116	-			-	-	-	-		
3	170	148	125	136	118	100	-			-	-	-	-		
4	155	130	105	124	104	84	-			-	-	-	-		
5	135	115	-	108	92	-	-			-	-	-	-		
6	115	90	-	92	72	-	-			-	-	-	-		
7	40	35		32	28	-	-			-	-	-	-		
8	108	89	79	-			-			-	-	-	-		
9	92	76	66	-			-			-	-	-	-		
10	76	60	54	-			-			-	-	-	-		
11	54	45	-	-			-			-	-	-	-		
12	-			-			-			-	-	-	170	145	125
13	-			-			-			-	-	-	155	125	115
14	-			-			-			-	-	-	110	90	-
15	-			-			-			-	-	-	90	70	-
16	-			-			1080	900	780	-	-	-	-		
17	-			-			950	900	770	-	-	-	-		
18	-			-			1080	900	780	-	-	-	-		
19	50	40	-	40	32	-	-			-	-	-	-		
20	35	30	-	28	24	-	-			-	-	-	-		
21	50	40	-	40	32	-	-			-	-	-	-		
22	50	40	-	40	32	-	-			-	-	-	-		

• Cutting Data

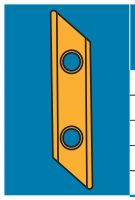
Data reference

Operations	Ae/Dc	Recom. feed fz mm/tooth			Speed factor
Full engagement	100%	0.02	0.07	0.12	1.00
Side milling	5%	0.06	0.20	0.34	1.60
	10%	0.04	0.14	0.25	1.50
	25%	0.03	0.09	0.16	1.30
Average chip thickness	-	0.01	0.04	0.08	-

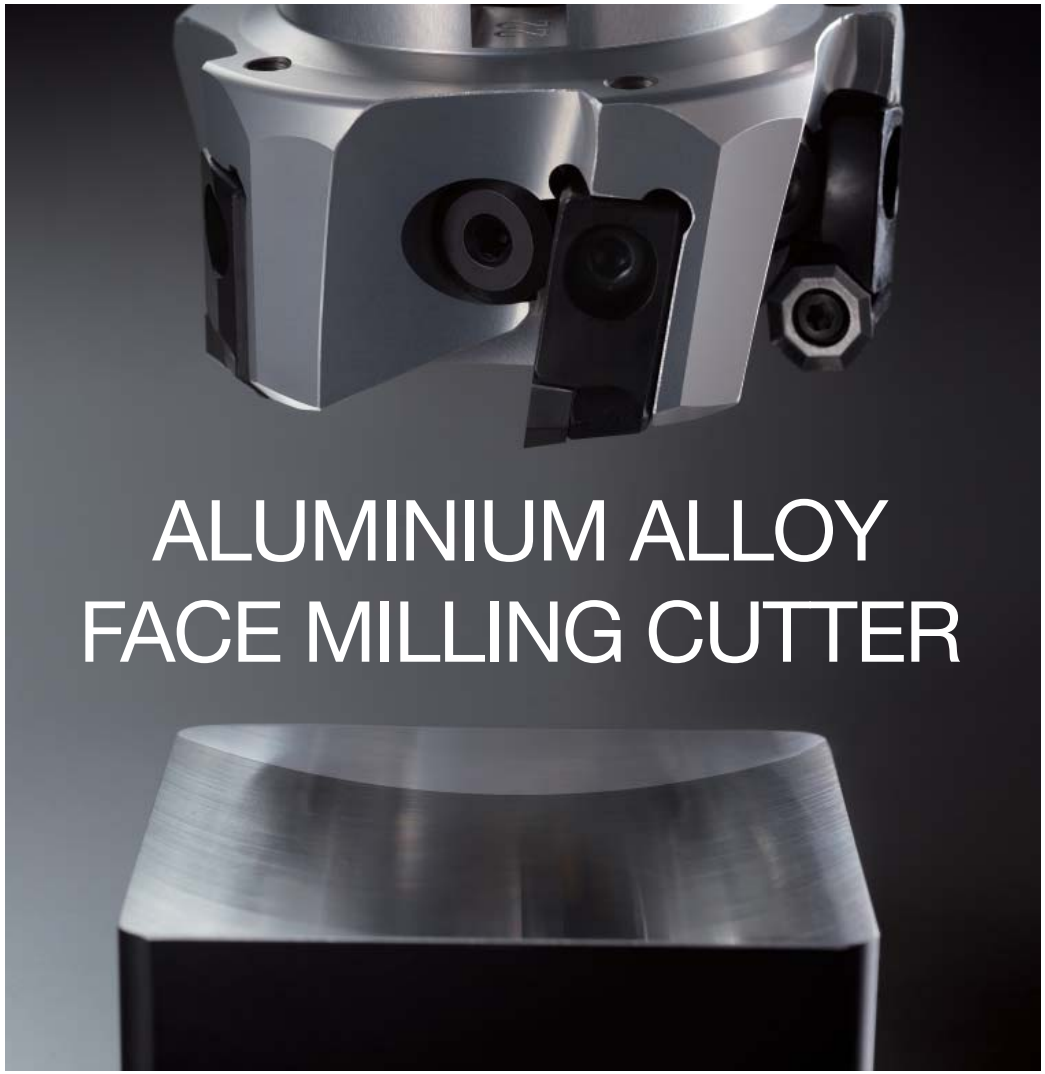
• Type Of Insert



Style	Length of insert edge mm
120308	11
190408	18
-	-
-	-
-	-



Style	Length of insert edge mm
400408	39
-	-
-	-
-	-
-	-



ALUMINIUM ALLOY FACE MILLING CUTTER

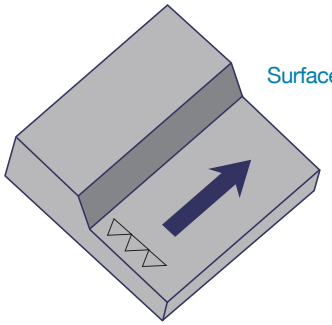
Features

- Available in materials (N)
- Cost 150% DOWN
- Variety of Machines CNC Milling machine
- Efficiency 150% UP
- Durability 150% UP

Product Design

Clamping By A Wedge Centre-Lock Clamping

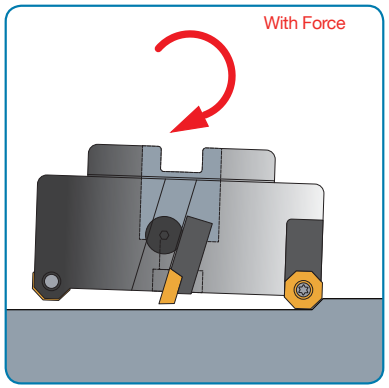
The Insert Are Held In Position By A Wedge And A Screw Which Clamps The Wedge (Example Shows Milling Cutter With Cassettes)

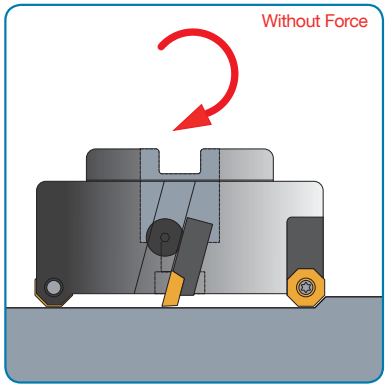


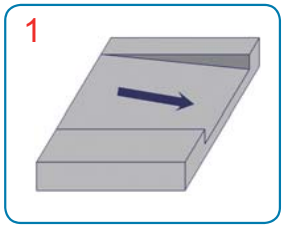
Surface Finish Ra < 10 μm

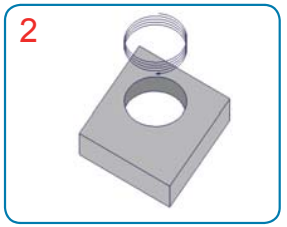
Features Description

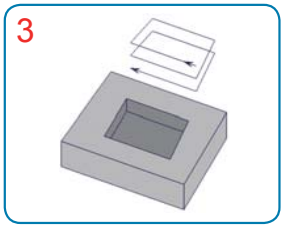
The Suggestion For The Octagon Milling Tool







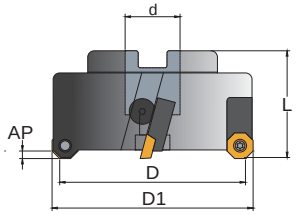




PRODUCT SPECIFICATIONS

Aluminium Alloy Face Milling Cutters

- Insert P. 283
- Cutting Data P. 283 - 284



MO

Order code	Dimensions(mm)						KG	MAX RPM	Insert ODGT	Screw	Key
	D	D1	d	L	AP						
MO-080R-AL-C-22	80	92	22	50	3	5	0.7	4600	ODGT 0504	C04011	T15P
MO-100R-AL-C-27	100	112	27			6	0.9	4100			
MO-125R-AL-C-27	125	137				7	1.8	3600			
MO-160R-AL-C-32	160	172	32	60		8	2.3	3100			
MO-200R-AL-C-40	200	212	40			10	3.2	2800			
MO-250R-AL-C-40	250	262				12	4.8	2500			
MO-300R-AL-C-40	300	312				14	7.2	2200			

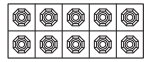
Insert - ODGT

Tolerances ±0.03 (mm)

Dimensions in mm		
SIZE	S	I
0504	4.7	12.7

Inserts	Part No .	Grades									
		Carbide					Metal cermet		Uncoated		
		B100	C200	C250	F20	F30	CE25	CE60	K10	CE	
	ODGT050408N-E								■		

Inserts Sequencing Position
(one left after than one right)



Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel Cast Iron Aluminum Steel/Cast Iron Steel/Stainless Steel/Cast Iron
- Correct price and stock are based on current situation
- Please specify model number and grade of insert, ie.: ODGT050408N-E, K10

Standard Spare Parts

For Cutter					
					
MO-080~300	OD05AR	C04011	SL16	CX5015	S0610

Recommended Insert Grade

Data reference

Material group No.	Recom. feed fz mm/ tooth	Insert			
		ODGT05 ... M	ODGT05...ME	ODGT05...E	
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
6	-	-	-	-	-
7	-	-	-	-	-
8	-	-	-	-	-
9	-	-	-	-	-
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
13	-	-	-	-	-
14	-	-	-	-	-
15	-	-	-	-	-
16	0.06-0.13	-	-	K10	-
17	0.06-0.12	-	-	K10	-
18	0.06-0.11	-	-	K10	-
19	-	-	-	-	-
20	-	-	-	-	-
21	-	-	-	-	-
22	-	-	-	-	-

Recommended Cutting Data

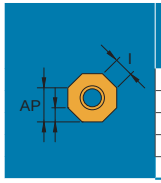
• Recommended Cutting speed, Vc(m/min) **Data reference**

Material group No.	Grades						
	B100	C250	F20	CE60	CE	K10	F30
	Feed fz (mm/tooth)						
						0.13 0.25 0.40	
	Cutting SPEED, V_c (m/min)						
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-
16	-	-	-	-	-	1200 1000 850	-
17	-	-	-	-	-	1050 850 750	-
18	-	-	-	-	-	1200 1000 850	-
19	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-

• Surface Finisn **Data reference**

Type Of Insert	Feed mm / Rev <=	Ra um
ODGT050408	1.5	<1.5

• Type Of Insert



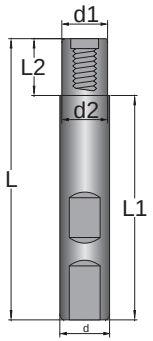
Insert Size	Max D.O.C. AP
5	3.5(8.5)
-	-
-	-
-	-
-	-

Features

- Maximum Run Out At 3XD Is 5μm
- Cost **150%** DOWN
- Variety of Machines CNC Milling machine
- Efficiency **150%** UP
- Durability **150%** UP

PRODUCT SPECIFICATIONS

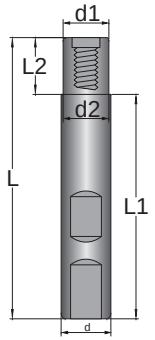
Combimaster Toolholders



CBH

Order code	Dimensions(mm)						
	d	d1	d2	L1	L2	L	M
CBH-1010-80	10.0	10	10	-	-	60	M6
CBH-1009-100		9	9	60	20	80	
CBH-1212-80	12.0	12	12	-	-	60	
CBH-1211-100		11	11	60	20	80	
CBH-1211-120				80		100	
CBH-1211-140				100		120	
CBH-1616-100	16.0	16	16	-	-	70	M8
CBH-1615-120		15	15	70	20	90	
CBH-1615-150				95	25	120	

Combimaster Toolholders

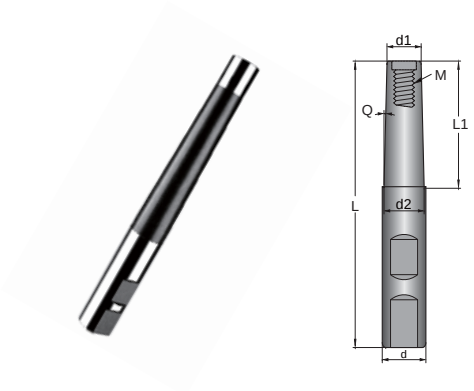


CBH

Order code	Dimensions(mm)						
	d	d1	d2	L1	L2	L	M
CBH-2020-100	20	20	20	-	-	70	M10
CBH-2019-120		19	19	70	20	90	
CBH-2019-160				95	25	120	
CBH-2523-130	25	23	23	70	20	90	M12
CBH-2523-170				100	30	130	
CBH-2523-210				140		170	
CBH-2523-240				170		200	
CBH-2525-110		25	25	-	-	70	
CBH-3232-120	32	32	32	-	-	80	M16
CBH-3230-140		30	30	80	20	100	
CBH-3230-200				130	30	160	
CBH-3230-240				170		200	
CBH-3230-300				210	50	260	
CBH-4240-220	42	40	40	130	20	150	M18
CBH-50.849-215	50.8	49	49				M25
CBH-50.849-265				170	30	200	

Combimaster Toolholders

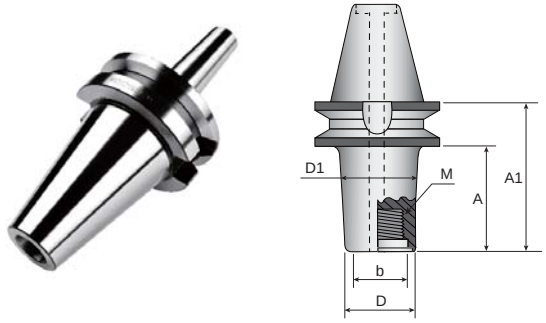
CBH



Order code	Dimensions(mm)						
	d	d1	d2	L1	L	M	Q
CBH-1209-120	12	9	11.9	40	100	M6	2 °
CBH-1611-120	16	11	15.5				
CBH-1611-150				60	130		2.5 °
CBH-2015-160	20	15	19.5			M8	2 °
CBH-2015-180				70	150		
CBH-2015-230				80	200		
CBH-2519-180	25	19	24	70	150	M10	
CBH-2519-220				90	190		
CBH-3223-200	32	23	28	75	160	M12	2 °
CBH-3223-240			31.5	80	200		
CBH-3230-240		30	39			M16	2.5 °
CBH-3230-280				110	240		2 °
CBH-4232-280	42	32	41.5				
CBH-4232-340				120	300		
CBH-4232-410				150	370		

Face Milling Arbor

BT



Order code	Dimensions(mm)					
	D	A	A1	b	D1	M
BT40-2380A	23	53	78	14	28	M12
BT40-23120A		93	118		31	
BT40-3080A	30	53	78	22	35	M16
BT40-30120A		93	118		38	
BT40-4080A	40	53	78	28	45	M18
BT40-40120A		93	118		48	
BT50-2380A	23	42	77	14	28	M12
BT50-23120A		82	117		31	
BT50-3080A	30	42	77	22	35	M16
BT50-30120A		82	117		38	
BT50-4080A	40	42	77	28	45	M18
BT50-40120A		82	117		48	
BT50-5080A	50	42	77	36	55	M25
BT50-50120A		82	117		58	
BT50-50160A		122	157		61	

• RELEVANT INFORMATION

APPENDIX

Features Description

In the following appendix you can find the trouble shooting solutions, material classification groups and choose the proper grade inserts, and cutting calculation data.

Troubleshooting

	Problem	Possible cause	Solution
	Flank wear	1. Cutting speed too high 2. Feed,fz too low, 3. chip is too thin 4. Insufficient coolant	1. Reduce cutting speed/use coated insert 2. Increase feed rate 3. Increase coolant flow rate
	Chipping of cutting edge	1. Chip is too thick 2. Vibration	1. Reduce feed rate or Increas RPM 2. Use the tangential arc method 3. Check stability, minimize tool overhang 4. Increase number of infeed passes 5. Use a full-profile insert 6. Check toolholder run-out or insert mounting tolerance
	Material build up on the cutting edge	1. Unsuitable carbide grade 2. Cutting zone temperature is too low 3. Very sticky material, such as low-carbon steel, stain less ste-els, and aluminum	1. Use a coated carbide grade 2. Use correct cutting data 3. Use oil mist or cutting sluid
Excessive wear causing short tool life	Excessive wear causing short tool life	1. Vibration 2. Re-cutting of chips 3. Burr formation on component 4. Poor surface finish 5. Heat generation 6. Excessive noise	1. Increase feed,fz 2. Reduce speed 3. Down milling 4. Evacuate chips effectively using 5. compressed air 6. Check recommended cutting data

	Problem	Possible cause	Solution
Vibration	Vibration	1. Weak fixturing 2. Tool overhang too long 3. Feed rate is too high	1. Use correct cutting data 2. Check clamping of workpiece and tool 3. Minimize overhang 4. Check tool holder run out 5. Choose a tool with fewer teeth 6. Increase number of infeed passes 7. Use up-milling in finishing
	Insufficient thread accuracy	Tool deflection	Reduce feed rate Execute a"zero"cut, and make sure the tool in correct center line

Material Classification Group

• Steel

mat. group No .	Workpiece materials into material groups						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
1	1.1133	G 28 Mn6	1.1165	20 Mn5	120 M 19	20 M 5	SMnC 420
	1.1165	C10	1.0301	30 Mn5	120 M 36		SMn 1 H; SCMn 2
	1.0301			C 10	045 M 10	AF 34 C 10; XC 10	S 10 C
	1.0401	C22+N	1.0402	C 15	080 M 15	AF3 7 C 12; XC 18	
	1.0402	C25+N	1.0406	C 22	050 A 20	C 20	
	1.0406	C 10E	1.1121	C 25	070 M 26	AF 50 C 30	S 25 C
	1.1121	C 15R	1.1141	Ck 10	040 A 10	XC 10	S 10 C; S 9 CK
	1.1141	C 22E	1.1151	Ck 15	080 M 15	XC 15; XC 18	S 15 C; S 15 CK
	1.1151			Ck 22	040 A 22	XC25; XC 18	S 22 C; S 20 CK
	1.1158	S235JR	1.0037	Ck 25	060 A 25	XC 25	S 25 C
	1.0037	S235JRG2	1.0038	St 37-2		E24-2	STKM 12 C
	1.0116	S275J0H	1.0149	St 37-3	4360-40 C	E 24-3; E 24-4	
	1.0044	S275J2G3	1.0144	St 44-2	4360-43 B	E 28-2	SM 41 B
	1.0144			St 44-3 N	4360-43 C	E 28-3; E 28-4	SM 41 C
2	1.0721	10 S 20	1.0721	10 S 20	210 M 15	10 F 1	
	1.0722			10 SPb 20		10 PbF 2	
	1.0723	15 SMn13	1.0725	15 S 20	210 A 15		SUM 32
	1.0726	35 S20	1.0726	35 S 20	212 M 36	35 MF 4	
	1.0727	46 S20	1.0727	46 S 20	212 M 44	45 MF 4	
	1.0728	60 S20	1.0728	60 S 20		60 MF 4	
	1.0711			9 S 20	220 M 07		SUM 21
	1.0715	11 SMn30	1.0715	9 SMn 28	230 M 07	S 250	SUM 22
	1.0736	11 Smn37	1.0736	9 SMn 36	240 M 07	S 300	
	1.0718	11 SMnPb30	1.0718	9 SMnPb 28		S 250 Pb	SUM 22 L
	1.0737	11 SMnPb37	1.0737	9 SMnPb 36		S 300 Pb	
3	1.5622			14 Ni 6		16 N 6	
	1.5423			16 Mo 5	1503-245-420		SB 450 M
	1.1167	G 28 Mn6+QT	1.1165	36 Mn 5	150 M 36	40 M 5	SMn 438 (H); SCMn 3
	1.1157			40 Mn 4	150 M 36	35 M 5	
	1.0528			C 30	080 A 30	C 30	S 30 C
	1.0501	C35+N		C 35	060 A 35	AF 55 C 35	
	1.0511	C40+N		C 40	080 M 40	AF 60 C 40	S 40 C
	1.0503	E 335	1.0503	C 45	080 M 46	AF 65 C 45	S 45 C
	1.0540	C50+N		C 50	080 M 50	C 50	S 50 C
	1.1178	C 30E	1.1178	Ck 30	060 A 30		S 30 C
	1.1181	C 35E	1.1181	Ck 35	080 M 36	XC 38 H1:XC 32	S 35 C
	1.1186	C 40E	1.1186	Ck 40	080 M 40	XC 42 H1	S 40 C
	1.1206	C 50E	1.1206	Ck 50	080 M 50	XC 48 H1	
	1.1203	C 55E	1.1203	Ck 55	070 M 55	XC 55	S 55 C
	1.0570	S355JR	1.0570	St 52-3	4360-50 C	E 36-3; E 36-4	SM 50 YA
	1.0535	E 360	1.0070	St 70-2		A 70-2	
4	1.5680			12 Ni 19		Z 18 N 5	SNC 415 (H)
	1.7012			13 Cr 2			SNC 815 (H)
	1.7335	13 CrMo 4 5	1.7335	13 CrMo 4 4	1501-620 Gr. 27	15 CD 3.5	SCr 415 (H)
	1.7715			14 MoV 6 3	1503-660-440		SCM 415 (H)
	1.5732			14 NiCr 10		14 NC 11	
	1.5752	14 NiCr 14	1.5752	14 NiCr 14	655 M 13	12 NC 15	
	1.7015			15 Cr 3	523 M 15	12 C 3	
	1.7262			15 CrMo 5		12 CD 4	SNC 22
	1.8521			15 CrMoV 5 9			
	1.5919			15 CrNi 6	S 107	16 NC 6	SCR 415
	1.5415	16 Mo 3	1.5415	15 Mo 3	1501-240	15 D 3	
	1.2735			15 NiCr 14		10 NC 12	
	1.7337			16 CrMo 44	1501-620 Gr. 27	15 CD 4.5	
	1.7131	16 MnCr 5	1.5715	16 MnCr 5	527 M 17	16 MC 5	
	1.7139	16 MnCrS 5	1.7139	16 MnCrS 5			SCM 421
	1.5920			18 CrNi 8		20 NC 6	SMnC 420 (H)
	1.6587	17 CrNiMo 6	1.6587	18 CrNiMo 6	820 A 16	18 NCD 6	SMnC 21H
	1.7311			20 CrMo 2			
	1.7264	20 CrMo 5	1.7264	20 CrMo 5		18 CD 4	
	1.7147	20 MnCr 5	1.7147	20 MnCr 5		20 MC 5	SCR 420H
	1.7149	20 MnCrS 5	1.7149	20 MnCrS 5		20 MnCrS 5	
	1.7321			20 MoCr 4			
	1.7323			20 MoCrS 4			
	1.2162			21 MnCr 5		20 NC 5	

• Steel

Workpiece materials into material groups							
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form
G 22 Mn 3		1022; 1518	G10220				
		1330	G13300				
C 10		1010	G10100				
C 15; C 16	1350	1015	G10170				
C 20; C 21	1450	1023	G10200				
C 25		1025					
C 10	1265	1010	G10100				
15; C 16	1370	1015	G10170				
C 20		1022					
C 25		1025	G10250				
Fe 360 B	1311						
Fe 360 D FF	1312; 1313	A 573 Gr. 58					
Fe 430 B FN	1412	A 570 Gr. 40					
Fe 430 D FF	1412; 1414	A 573 Gr. 70					
CF 10 S 20		1108					
CF 10 SPb 20		11 L 08					
	1922						
	1957	1140	G11400				
	1973	1146	G11460				
CF 9 S 22		1212	G12120				
CF 9 SMn 28	1912	1213	G12130				
CF 9 SMn 36		1215	G12150				
CF 9 SMnPb 28	1914	12 L 13	G12134				
CF 9 SMnPb 36	1926	12 L 14	G12144				
14 Ni 6		A 350-LF 5					
16 Mo 5		4520	G45200				
	2120	1335	G13350				
		1039	G10390				
C 35	1550	1035	G10350				
C 40		1040					
C 45	1650	1045	G10430				
		1049					
		1030					
C 35	1572	1035	G10340				
C 40		1040					
		1050					
C 50		1055					
Fe 510 B; C; D	2172; 2132						
Fe 690	1655	1055					
		2515					
14 CrMo 4 5	2216	A 182-F11; F12					
16 NiCr 11		3415					
		3310; 9314	G 33106				
		5015	G 50150				
12 CrMo 4							
16 CrNi 4		4320					
16 Mo 3	2912	A 204 Gr. A					
		P6	T 51605				
14 CrMo 4 5	2216	A 387 Gr.12 Cl.2					
16 MnCr 5	2511	5115	G51170				
18 NiCrMo 7							
20 MnCr 5							
		5120	G51200				
		5120 H					

• Steel

mat. group No .	Workpiece materials into material groups						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
4	1.6523	20 NiCrMoS 2 2	1.6526	21 NiCrMo 2	805 M 20	20 NCD 2	SNCM 220 (H)
	1.7271			23 CrMoB 3 3			
	1.7218	25 CrMo 4	1.7218	25 CrMo 4	1717 CDS 110	25 CD 4 S	SCM 420; SCM 430
	1.7325			25 MoCr 4			
	1.7326			25 MoCrS 4			
	1.7030	28 Cr4	1.7030	28 Cr 4	530 A 30		
	1.6513			28 NiCrMo4			SNCM 431
	1.7707			30 CrMoV 9			
	1.6580			30 CrNiMo 8	823 M 30	30 CND 8	SNC 836
	1.8519	31 CrMoV 9	1.8519	31 CrMov 9		32 CDV 12	
	1.5755			31 NiCr 14	653 M 31	30 NC 11	
	1.7020			32 Cr 2			SCr 430 (H)
	1.7361			32 CrMo 12	722 M 24	30 CD 12	SCM 432;
	1.7033	34 Cr 4	1.7033	34 Cr 4	530 A 32	32 C 4	SCCrM3
	1.7220	34 CrMo 4	1.7220	34 CrMo 4	708 A 37	35 CD 4	
	1.2330			35 CrMo 4	708 A 37	34 CD 4	
	1.5864			35 NiCr 18			
	1.6511	36CrNiMo4+TA		36 CrNiMo 4	816 M 40	40 NCD 3	
	1.5736			36 NiCr 10		35 NC 11	
	1.5710			36 NiCr 6	640 A 35	35 NC 6	
	1.7034			37 Cr 4	530 A 36	38 C 4	
	1.5122			37 MnSi 4			
	1.7003	38 Cr2	1.7003	38 Cr 2		38 C 2	
	1.5120			38 MnSi 4			
	1.8523			39 CrMoV 13 9	897 M 39		
	1.2311			40 CrMnMo 7			
	1.2312			40 CrMnMoS 8 6		40 CMD 8S	SCr 440 (H)
	1.2738			40 CrMnNiMo 8		40 CND 8	SCM 440
	1.7035	41 Cr 4	1.7035	41 Cr4	530 M 40	42 C 4	SCr 440
	1.7223			41 CrMo 4	708 M 40	42 CD 4 TS	SCM 440 (H)
	1.7045			42 Cr 4	530 A 40	42 C 4 TS	
	1.7225	42 CrMo 4	1.7225	42 CrMo 4	708 M 40	42 CD 4	
	1.7561			42 CrV 6			
	1.5223			42 MnV 7			
	1.3563			43 CrMo 4			
	1.3561			44 Cr 2			
	1.7006			46 Cr 2		42 C 2	
	1.5121			46 MnSi 4			SCM 445 (H)
	1.3565			48 CrMo 4			SUP 10
	1.7228			50 CrMo 4	708 A 47		
	1.8159	50 CrV 4	1.8159	50 CrV 4	735 A 50	50 CV 4	
	1.5131	50 MnSi4	1.5131	50 MnSi 4			SUP 9(A)
	1.5141			53 MnSi 4			
	1.7176	55 Cr 3	1.7176	55 Cr3	527 A 60	55 C 3	
	1.0904	55 SiCr7	1.7100	55 Si 7	250 A 53	55 S 7	SUP 7
	1.2103			58 SiCr 8			
	1.0961			60 SiCr 7		60 SC 7	
	1.2101			62 SiMnCr4			
	1.1730			C 45W		Y3 42	
	1.1820			C 55W			SK7
	1.0601	C60+N	1.0601	C 60	080 A 62	CC 55	
	1.1740			C 60W		Y3 55	
	1.1744			C 67W			
	1.1520			C 70W1			
	1.1620			C 70W2			
	1.1750	C 75 W	1.1750	C 75W	BW 1A		SKC 3; SK 5;
	1.1525			C 80W1		Y1 90; Y1 80	SK 6
	1.1625			C 80W2	BW 1 B	Y1 80	SK 5
	1.1830			C 85W		Y3 90	S 45 C
	1.1191	C 45E	1.1191	Ck 45	080 M 46	XC 42	S 58 C
	1.1221	C 60E	1.1221	Ck 60	080 A 62	XC 60	
	1.1231	C 67S	1.1231	Ck 67	060 A 67	XC 68	
	1.1248	C 75S	1.1248	Ck 75	060 A 78	XC 75	
	1.8159			GS-50 CrV 4			
	1.0060	E 335	1.0060	St 60-2	4360-SSE; SSC	A 60-2	SM 58

• Steel

Workpiece materials into material groups							
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form
20 NiCrMo 2	2506	8620	G86170				
25 CrMo 4 (KB)	2225	4130	G41300				
		5130					
30 NiCrMo 8							
32 CrMo 12	2240						
34 Cr 4 (KB)		5132	G51320				
35 CrMo 4	2234	4135; 4137	G41350				
35 CrMo 4	2234	4135	T 51620				
38 NiCrMo 4 (KB)		9840	G98400				
35 NiCr 9		3435					
		3135					
38 Cr 4		5135					
38 Cr 2							
36 CrMoV 13 9							
		P 20					
		P 20+S					
		P 20+Ni					
41 Cr 4		5140	G51400				
41 CrMo 4	2244	4142; 4140	G41420				
42 Cr 4	2244 *)	5140					
42 CrMo 4	2244	4142; 4140	G41400				
45 Cr 2		5045					
		5045					
		4150	G41470				
51 CrV 4	2230	6150	H61500				
55 Cr 3	2253	5155	G51550				
55 Si 8	2085; 2090	9255					
60 SiCr 8		9262					
C60		1060	G10600				
		W1	T72301				
C 80 KU		W 108					
C 80 KU							
C 45	1672		G10420				
C 60	1665; 1678	1064	G10640				
C 70	1770	1070	G10700				
C 75	1774; 1778	1078; 1080	G10780				
		6150H					
Fe 590; Fe 60-2							

• Steel

mat. group No .	Workpiece materials into material groups						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
4	1.4006	X 12 Cr 13	1.4006	X 10 Cr 13	410 S 21	Z 12 C 13	SUS 410
	1.4724	X 10 CrAl 13	1.4724	X 10 CrAl 13	BH 12	Z 10 C 13	SUS 405
	1.4762	X 10 CrAl 24	1.4762	X 10 CrAl 24		Z 10 CAS 24	SUH 442
	1.4006	X 12 Cr 13	1.4006	X 12 Cr 13	410 S 21		SUS 410
	1.4104	X 14 CrMoS 17	1.4104	X 12 CrMoS 17	411 S 29	Z 10 CF 17	SUS 430 F
	1.4005	X 12 CrS 13	1.4005	X 12 CrS 13	416 S 21	Z 12 CF 13	SUS 416
	1.4024	X 12 Cr 13	1.4024	X 15 Cr 13	420 S 29	Z 12 C 13	SUS 410 J 1
	1.4521	X 2 CrMoTi18 2	1.4521	X 2 CrMoTi18 2			
	1.4521	X 2 CrMoTi18 2	1.4521	X 2 CrMoTi18 2			
	1.4003	X 2 CrNi 13	1.4003	X 2 CrNi 12			
	1.4313	X 3 CrNIMo 13 3	1.4313	X 5 CrNi 13 4	425 C 11	Z 5 CN 13.4	SCS 5
	1.4512	X 5 CrTi 12	1.4512	X 5 CrTi 12	409 S 19	Z 6 CT 12	SUH 409
	1.4000	X 6 Cr 13	1.4000	X 6 Cr 13	403 S 17	Z 6 C 12	SUS 403
	1.4016	X 6 Cr 17	1.4016	X 6 Cr 17	430 S 15	Z 8 C 17	SUS 430
	1.4002	X 6 CrAl 13	1.4002	X 6 CrAl 13	405 S 17	Z 6 CA 13	SUS 405
	1.2341	X 6 CrMo 4	1.2341	X 6 CrMo 4			
	1.4510	X 6 CrTi 17	1.4510	X 6 CrTi 17		Z 8 CT 17	SUS 430 LX
	1.4511	X 3 CrNb 17	1.4511	X 8 CrNb 17		Z 8 CNb 17	SUS 430 LX
5	1.7380	10 CrMo 9 10	1.7380	10 CrMo 9 10	1501-622 Gr. 31; 45	10 CD 9. 10	
	1.3505	100 Cr 6	1.3505	100 Cr 6	534 A 99	100 C 6	SUJ 2
	1.2510			100 MnCrW 4	BO 1	90 MWCV 5	SKS 3
	1.2833			100 V 1	BW 2	Y1 105 V	SKS 43
	1.2419	105 WCr 6	1.2419	105 WCr 6		105 WC 13	SKS 31
	1.2210	107 CrV 3	1.2210	115 CrV 3		100 C 3	
	1.2516			120 WV 4	BF 1	110 WC 20	
	1.7735	14 CrMoV 6 9	1.7735	14 CrMoV 6 9		20 CDV 5.07	
	1.5860			14 NiCr 18			
	1.7709			21 CrMoV 5 7			
	1.6746			32 NiCrMo 14 5	830 M 31	35 NCD 14	
	1.8504	34 CrAl 6	1.8504	34 CrAl 6			
	1.8507			34 CrAlMo 5	905 M 31	30 CAD 6.12	
	1.8550	34 CrAlNi 7	1.8550	34 CrAlNi 7		34 CAND 7	
	1.8506			34 CrAlS 5			
	1.6582	34 CrNiMo 6	1.6582	34 CrNiMo 6	817 M 40	35 NCD 6	SNCM 447
	1.6546			40 NiCrMo 2 2	311-Type 7	40 NCD 2	SNCM 240
	1.6565			40 NiCrMo 6	311-Type 6		SNCM 439
	1.8509	41 CrAlMo 7 10	1.8509	41 CrAlMo 7	905 M 39	40 CAD 6.12	SACM 645
	1.2542			45 WCrV 7	BS 1		
	1.2721			50 NiCr 13			
	1.8161			58 CrV 4			
	1.2826			60 MnSiCr 4			
	1.2550			60 WCrV 7		55 WC 20	
	1.7103			67 SiCr 5			
	1.2108			90 CrSi 5			
	1.1273			90 Mn 4			
	1.2842	90 MnCrV 8	1.2842	90 MnCrV 8	BO 2	90 MV 8	
	1.1545	C 105U	1.1545	C 105 W1		Y1 105	
	1.1645			C 105 W2		Y1 105	SK 3
	1.1654			C 110 W			
	1.1663			C 125 W		Y2 120	SK 2
	1.1673			C 135 W		Y2 140	SK 1
	1.1274	C 100S	1.1274	Ck 101	060 A 96		SUP 4
	1.2887			GS-34 CoCrMoV 19 12			
	1.2392			G-X 28 CrMoV 5 1			
	1.2606			G-X 37 CrMoW 5 1			
	1.4749	X 18 CrN 28	1.4749	X 18 CrN 28		Z 18 C 25	
	1.2764			X 19 NiCrMo 4			
	1.4021	X 20 Cr 13	1.4021	X 20 Cr 13	420 S 37	Z 20 C 13	SUS 420 J1
	1.4935	X 20 CrMoWV 12 1	1.4935	X 20 CrMoWV 12 1			
	1.4057	X 20 CrNi 17 2	1.4057	X 20 CrNi 17 2	431 S 29	Z 15 CN 16.02	SUS 431
	1.4923	X 22 CrMoV 12 1	1.4923	X 22 CrMoV 12 1	762	Z 21 CDV 12	
	1.4028	X 30 Cr 13	1.4028	X 30 Cr 13	420 S 45	Z 30 C 13	SUS 420 J 2
	1.2316	X 38 CrMo 16	1.2316	X 36 CrMo 17		Z 35CD17	
	1.4418	X 4 CrNiMo 16 5	1.4418	X 4 CrNiMo 16 5		Z 6 CND 16.05.01	
	1.4031	X 39 Cr 13	1.4031	X 40 Cr 13	(420 S 45)	Z 40 C 14	SUS 420

• Steel

Workpiece materials into material groups							
UNI	SS	AISI/ASTM	UNS	Condition	Misc.Brands	Structure	Form
X 12 Cr 13	2302	410; CA-15	S41000			Martensite	
X 10 CrAl 12		405	S40500			Ferrite	
X 16 Cr 26		446	S44600			Ferrite	
	2302	410 S	S41000			Martensite	
X 10 CrS 17	2383	430 F	S43020			Ferrite	
X 12 CrS 13	2380	416	S41600			Martensite	
			J91201			Martensite	
	2326	444				Ferrite	
	2326	444				Ferrite	
		309	S40977			Ferrite	
X 6 CrNi 13 04	2385		S41500		F6NM	Martensite	
X 6 CrTi 12		409 L	S40900			Ferrite	
X 6 Cr 13	2301	403	S41008			Ferrite	
X 8 Cr 17	2320	430	S43000			Ferrite	
X 6 CrAl 13		405	S40500			Ferrite	
X 6 CrTi 17		430 Ti	S43036			Ferrite	
X 6 CrNb 17		430 Nb				Ferrite	
12 CrMo 9 10	2218	A 182-F22	J 21890				
100 Cr 6	2258	52100	G51986				
95 MnWCr 5 KU	2140	O1	T31501				
102 V 2 KU		W 210	T 72302				
107 WCr 5 KU							
107 CrV 3 KU		L2	T61202				
110 W 4 KU							
34 CrAlMo 7		A 355 Cl. D	K 23545				
			K 52440				
			K 23745				
35 NiCrMo 6 (KW)	2541	4340					
40 NiCrMo 2 (KB)		8740	G87400				
		4340					
41 CrAlMo 7	2940	A 355 Cl. A	K 24065				
45 WCrV 8 KU	2710	S1	T41901				
55 WCrV 8 KU							
90 MnVCr 8 KU		O2	T31502				
C 100 KU	1880	W 110					
C 100 KU							
C 120 KU		W 112					
C 140 KU							
	1870	1095	G10950				
	2322	446	S44600			Ferrite	
X 20 Cr 13	2303	420	S42000			Martensite	
			S42200			Martensite	
X 16 CrNi 16	2321-03	431	S43100			Martensite	
X 22 CrMoV 12 1	2317					Martensite	
X 30 Cr 13	2304	420	J91153			Martensite	
X 38 CrMo 16 1 KU		422					
	2387		-			Martensite	
X 40 Cr 14	2304,2314	420	S40280			Martensite	

• Steel

mat. group No .	Workpiece materials into material groups						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
5	1.4034	X 45 Cr 13	1.4034	X 45 Cr 13	(420 S 45)	Z 40 C 14	
	1.4873	X 45 CrNiW 18 9	1.4873	X 45 CrNiW 18 9	331 S 40	Z 35 CNWS 18.09	SUH 31
	1.2767	X 45 NiCrMo 4	1.2767	X 45 NiCrMo 4	EN 20B	45 NCD 17	
	1.4109	X 70 CrMo 15	1.4109	X 65 CrMo 14		Z 70 D 14	SUS 440A
	1.4747	X 80 CrNiSi 20	1.4747	X 80 CrNiSi 20	443 S 65	Z 80 CSN 20.02	SUH 4
	1.4112	X 90 CrMoV 18	1.4112	X 90 CrMoV 18	409 S 19	Z 2 CND 18 05	SUS 440 B
6	1.2711	54 NiCrMoV 6	1.2711	54 NiCrMoV 6	BH 224	55 NCDV 6	
	1.2713			55 NiCrMoV 6		55 NCDV 7	SKT 4
	1.2744			57 NiCrMoV 7 7			
	1.2762			75 CrMoNiW 6 7			
	1.2369			81 CrMov 42 16			
	1.2880			G-X 165 CrCoMo 12			
	1.2601			G-X 165 CrMoV 12			
	1.2201			G-X 165 CrV 12			
	1.3207	HS 10-4-3-10	1.3207	S 10-4-3-10	BT 42	Z 130 WKCDV 10-4-3-10	SKH 57
	1.3318	HS 12-1-2	1.3318	S 12-1-2			
	1.3302	HS 12-1-4	1.3302	S 12-1-4			
	1.3202	HS 12-1-4-5	1.3202	S 12-1-4-5			
	1.3355	HS 18-0-1	1.3355	S 18-0-1	BT 1	Z 80 WCV 18-04-01	SKH 2
	1.3265	HS 18-1-2-10	1.3265	S 18-1-2-10	BT 5		SKH 4 A
	1.3257	HS 18-1-2-15	1.3257	S 18-1-2-15			
	1.3255	HS 18-1-2-5	1.3255	S 18-1-2-5	BT 4	Z 80 WKCV 18-05-04-0	SKH 3
	1.3247	HS 2-10-1-8	1.3247	S 2-10-1-8	BM 42	Z 110 DKCWV 09-08-04	SKH 51
	1.3346	HS 2-9-1	1.3346	S 2-9-1	BM 1	Z 85 DCWV 08-04-02-0	
	1.3348	HS 2-9-2	1.3348	S 2-9-2		Z 100 DCWV 09-04-02-	
	1.3249			S 2-9-2-8	BM 34		
	1.3333	HS 3-3-2	1.3333	S 3-3-2			
	1.3343	HS 6-5-2	1.3343	S 6-5-2	BM 2	Z 85 WDCV 06-05-04-0	SKH 9; SKH 51
	1.3243	HS 6-5-2-5	1.3243	S 6-5-2-5		Z 85 WDKCV 06-05-05-04-02	SKH 53
	1.3344	HS 6-5-3	1.3344	S 6-5-3	BM 4	Z 120 WDCV 06-05-04-	SKH 52; SKH 53
	1.3345	S 6-5-3C	1.3345	S 6-5-3C			SKH 55
	1.3246	HS 7-4-2-5	1.3246	S 7-4-2-5		Z 110 WKCDV 07-05-04	
	1.2363	X 100 CrMoV 5	1.2363	X 100 CrMoV 5 1	BA 2	Z 100 CDV 5	SKD 12
	1.4125	X 105 CrMo 17	1.4125	X 105 CrMo 17		Z 100 CD 17	SUS 440 C
	1.2379	X 155 CrVMo 12 1		X 155 CrVMo 12 1	BD 2	Z 160 CDV 12	SKD 11
	1.2601			X 165 CrMoV 12			
	1.2709			X 2 NiCoMoTi 18 9 5		Z 2 NKD 19-09	
	1.2080	X 210 Cr 12	1.2080	X 210 Cr 12	BD 3	Z 200 C 12	SKD 1
	1.2436			X 210 CrW 12			SKD 2
	1.2706			X 3 NiCrMo 18 8 5		E-Z 2 NKD 18	
	1.2567			X 30 WCrV 5 3		Z 32 WCV 5	SKD 4
	1.2581			X 30 WCrV 9 3	BH 21	Z 30 WCV 9	SKD 5
	1.2885			X 32 CrMoCoV 3 3 3			
	1.2365			X 32 CrMoV 3 3	BH 10	32 DCV 28	SKD 7
	1.2343			X 38 CrMoV 5 1	BH 11	Z 38 CDV 5	SKD 6
	1.2367			X 38 CrMoV 5 3			
	1.2344	X 40 CrMoV 5 1	1.2344	X 40 CrMoV 5 1	BH 13	Z 40 CDV 5	SKD61
Hardened steel							
7	1.3401	X 120 Mn 12	1.3401	X 120 Mn 12	BW 10	Z 120 M 12	SC MnH 1
Stainless steel							
8	1.4305	X 8 CrNiS 18 9	1.4305	X 10 CrNis 18 9	303 S 31	Z 10 CNF 18.09	SUS 303
	1.4310	X 9 CrNi 18 8	1.4310	X 12 CrNi 17 7	301 S 21	Z 12 CN 17.07	SUS 301
	1.4300	X 12 CrNi 18 8	1.4300	X 12 CrNi 18 8	302 S 25	Z 12 CN 18	SUS 302
	1.4546	X 5 CrNiNb 18 10	1.4546	X 5 CrNiNb 18 10	347 S 31		
	1.4301	X 5 CrNi 18 9	1.4301	X 6 CrNi 18 10	304 S 31	Z 6 CN 18.09	SUS 304
	1.4948	X 6 CrNi 18 11	1.4948	X 6 CrNi 18 11	304 S 51	Z 6 CN 18.09	SUS 304 H
	1.4303	X 4 CrNi 18 11	1.4303	X 6 CrNi 18 12	305 S 19	Z 8 CN 18.11 FF	SUS 305
	1.4550	X 6 CrNiNb 18 10	1.4550	X 6 CrNiNb 18 10	347 S 31	Z 6 CNNb 18.10	SUS 347
9	1.4583	X 5 CrNiMoNb 19 11 2	1.4583	X 10 CrNiMoNb 18 12	318 C 17	Z 6 CNDNb 17.13	SCS 22
	1.4335	X 12 CrNi 25 21	1.4335	X 12 CrNi 25 21	310 S 24	Z 12 CN 25.20	SUH 310; SUS 310 S
	1.4541	X 6 CrNiTi 18 10	1.4878	X 12 CrNiTi 18 9	321 S 51	Z 6 CNT 18.12	SUS 321
	1.4962	X 12 CrNiWTi 16 3	1.4962	X 12 CrNiWTi 16 3		Z 6 CNNb 18.10	
	1.4828	X 15 CrNiSi 20 12	1.4828	X 15 CrNiSi 20 12	309 S 24	Z 17 CNS 20.12	SUH 309
	1.4306	X 2 CrNi 19 11	1.4306	X 2 CrNi 19 11	304 S 12	Z 2 CN 18.10	SUS 304 L
	1.4404	X 2 CrNiMo 17 12 2	1.4404	X 2 CrNiMo 17 13 2	316 S 11	Z 2 CND 17.12.02	SUS 316 L
	1.4435	X 3 CrNiMo 18 14 3	1.4435	X 2 CrNiMo 18 14 3	316 S 12	Z 2 CND 17.13	SCS 16; SUS 316 L
	1.4438	X 2 CrNiMo 18 15 4	1.4438	X 2 CrNiMo 18 16 4	317 S 12	Z 2 CND 19.15.4	SUS 317L

• Steel

Workpiece materials into material groups							
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form
	[2304]	-				Martensite	
X 45 CrNiW 18 9		SAE HNV 3				Martensite	
42 NiCrMo 15 7		6F7					
		440 A	S44002			Martensite	
X 80 CrSiNi 20		SAE HNV 6	S65006	sol. treated		PH	
X_CrTi 12	2327	440 B	S44003			Martensite	
		6F2	T61206				
		L6					
HS 10-4-3-10							
			T12015				
		T15	T12001				
HS 18-0-1		T1	T12005				
HS 18-1-2-10		T5					
			T12004				
HS 18-1-1-5		T4	T11342				
HS 2-9-1-8		M42	T11301				
HS 1-8-1		H41; M1	T11307				
HS 2-9-2	2782	M7	T11333				
		M33;M34					
HS 3-3-2			T11302				
HS 6-5-2	2722	M2					
HS 6-5-2-5	2723	M35	T11323				
HS 6-5-3		M3 Cl.2	T11323				
		M3	T11341			Martensite	
HS 7-4-2-5		M41	T30102				
X 100 CrMoV 5 1 KU	2260	A2	S44004				
X 105 CrMo 17		440 C	T30402				
X 155 CrVMo 12 1 KU		D2					
X 166 CrMoW 12 KU	2310						
		18 MAR 300	T30403				
X 210 Cr 13 KU		D3					
X 215 CrW 12 1 KU	2312		K 93120				
X30 WCrV 5 3 KU			T20821				
X30 WCrV 9 3 KU		H21					
			T20810				
30 CrMoV 12 12 KU		H10	T20811				
X37 CrMoV 5 1 KU		H11					
			T20813				
X 40 CrMo 5 1 1 KU	2242	H13					
Hardened steel							
	2183	A128 Grade A					
Stainless steel							
X 10 CrNi 18 09	2346	303	S30300			Austenite	
X 12 CrNi 17 07	(2331)	301	S30100			Austenite	
	2331	302	S30200			Austenite	
X 6 CrNiNb 18 11		348	S34800			Austenite	
X 5 CrNi 18 11	2333	304; 304 H	S30400			Austenite	
X 5 CrNi 18 10 KW	2333	304 H	S30480			Austenite	
X 7 CrNi 18 10	2333	308; 305	S30500			Austenite	
X 6 CrNiNb 18 11	2338	347	S34700			Austenite	
X 6 CrNiMoNb 17 13	2361	318	S31008			Austenite	
X 6 CrNi 26 20	2337	310 S	S32100			Austenite	
X 6 CrNiTi 18 11		321; 321H	S34700			Austenite	
		347 H	S30900			Austenite	
	2352	309	S30403			Austenite	
X 3 Cr Ni 18 11	2348	304 L	S31603			Austenite	
X 2 CrNiMo 17 12 2	2353	316 L	S31603			Austenite	
X 2 CrNiMo 17 13 2	2367	316 L	S31703			Austenite	
X 2 CrNiMo 18 16		317 L				Austenite	

• Stainless steel

mat. group No .	Workpiece materials into material groups						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
9	1.4311	X 2 CrNiN 18 10	1.4311	X 2 CrNiN 19 11	304 S 62	Z 2 CN 18. 10 Az	SUS 304 LN
	1.4436	X 5 CrNiMo 17 13 3	1.4436	X 5 CrNiMo 17 13 3	316 S 33	Z 6 CND 18.12.03	SUS 316
	1.4308	X 5 CrNi 19 10	1.4308	X 6 CrNi 18 9	304 C 15	Z 6 CN 18.10M	SUS 13
	1.4580	X 6 CrNiMoNb 17 12 2	1.4580	X 6 CrNiMoNb 17 12 2	318 S 17	Z 6 CNDNb 17.12	
	1.4571	X 6 CrNiMoTi 17 12 2	1.4571	X 6 CrNiMoTi 17 12 2	320 S 31	Z 6 CNDT 17.12	SUS 316 Ti
10	1.4841	X 15 CrNiSi 25 20	1.4841	X 15 CrNiSi 25 20	314 S 25	Z 15 CNS 25.20	SUH 310
	1.4401	X 5 CrNiMo 17 12 2	1.4401	X 5 CrNiMo 18 10	316 S 31	Z 3 CND 17.11.1	SUS 316
11	1.4547	X 1 CrNiMoN 20 18 7	1.4547	X 1 CrNiMoN 20 18 7	X1 CrNiMoN 20 18 7		
	1.4563	X 1 NiCrMoCuN 31 27 4	1.4563	X 1 NiCrMoCuN 31 27 4			
	1.4876	X 10 NiCrAlTi 32 20	1.4876	X 10 NiCrAlTi 32 20	Z 10 NC 32 21	Incoloy 800	NCF 800
	1.4864	X 12 NiCrSi 35 16	1.4864	X 12 NiCrSI 36 16	NA 17	Z 20 NCS 33.16	SUH 330
	1.4410	X 2 CrNimON 25 7 4	1.4410	X 2 CrNiMoN 25 7 4		Z 3 CHD 25.07 Az	
	1.4507	X 2 CrMoNICuN 25 6 3	1.4507	X 2 CrMoNiCuN 25 6 3			
	1.4501	X 2 CrNiMoCuWN 25 7 4	1.4501	X 2 CrNiMoCuWN 25 7 4		Z 3 CND 25.06 Az	
	1.4406	X 2 CrNiMoN 17 11 2	1.4406	X 2 CrNiMoN 17 12 2	316 S 61	Z 3 CND 17.12 Az	SUS 316 LN
	1.4429	X 2 CrNiMoN 17 13 3	1.4429	X 2 CrNiMoN 17 13 3	316 S 62	Z 3 CND 17.13 Az	SUS 316 LN
	1.4439	X 2 CrNiMoN 17 13 5	1.4439	X 2 CrNiMoN 17 13 3	(316 S 63)	Z 3 CHD 18.14.05Az	(SUS 316LN)
	1.4462	X 2 CrNiMoN 22 5 3	1.4462	X 2 CrNiMoN 22 5	332 S 15	Z 2 CHD 22.05 Az	
	1.4462	X 2 CrNiMoN 22 5	1.4462	X 2 CrNiMoN 22 5	318 S 13	Z 2 CHD 22.05 Az	SUS 329 J 3L
	1.4652	X 1 CrNiMoN 25 22 8	1.4652	X 2 CrNiMoN 25 22 7			
	1.4362	X 2 CrNiN 23 4	1.4362	X 2 CrNiN 23 4			
	1.4539	X 2 NiCrMoCu 25 20 5	1.4539	X 2 NiCrMoCu 25 20 5	904 S 13		
	1.4539	X 1 NiCrMoCu 25 20 5	1.4539	X 2 NiCrMoCu 25 20 5		Z 2 NCDU 25 20	
	1.4540	X 4 CrNiCuNb 16 4	1.4540	X 4 CrNiCuNb 16 4			
	1.4460	X 3 CrNiMo 27 5 2	1.4460	X 4 CrNiMo 27 5 2		Z 4 CNUNb 16.4 M	
	1.4542	X 5 CrNiCnNb 16 4	1.4548	X 5 CrNiCuNb 17 4		Z 3 CND 25.7 Az	SUS 329 J 1
						Z 6 CNU 17.4	SUS 24;SUS 630
Cast iron							
12	0.6100	EN-GJL-100	0.6100	GG-10	Grade 100	Ft 10 D	FC 100
	0.6150	EN-GJL-150	0.6150	GG-15	Grade 150	Ft 15 D	FC 150
	0.7033	EN-GJS-350-22	0.7033	GGG-35.3	Grade 350/22	FGS 370-17	FCD 350-22L
	0.7040	EN-GJS-400-15	0.7040	GGG-40	Grade 420/12	FGS 400-12	FCD 400-18L
	0.7043	EN-GJS-400-18	0.7043	GGG-40.3	Grade 370/17	FGS -370-17	
		EN-GJMB-350-10	0.8135	GTS-35-10	B 340/12	B 340/12	FCMB35-10
		EN-GJMB-450-6	0.8145	GTS-45-06	P 440/7	P 440/7	PCMP45-06
		EN-GJMB-550-4	0.8155	GTS-55-04	P 540/5	P 540/5	PCMP55-04
13	0.6200	EN-GJL-200	0.6200	GG-20	Grade 220	Ft 20 D	FC 200
	0.6250	EN-GJL-250	0.6250	GG-25	Grade 260	Ft 25 D	FC 250
	0.7050	EN-GJS-500-7	0.7050	GGG-50	Grade 500/7	FGS 500-7	FCD 500-7
	0.7060	EN-GJS-600-3	0.7060	GGG-60	Grade 600/3	FGS 600-3	FCD 600-3
	0.7660	EN-GJSA-XNiCr20-2	0.7660	GGG-NiCr 20 2	Grade S2	FGS Ni20 Cr2	
	0.7661	EN-GJSA-XNiCr20-3	0.7661	GGG-NiCr 20 3	Grade S2B	FGS Ni20 Cr3	
	0.7652	EN-GJLA-XNiMn 13-7	0.7652	GGG-NiMn 13 7	Grade S6	FGS Ni13 Mn7	
	0.6660	EN-GJLA-XNiCr 20-2	0.6660	GGL-NiCr 20 2	Grade F2	FGL Ni20 Cr2	
	0.6661	EN-GJLA-XNiCr 20-3	0.6661	GGL-NiCr 20 3		FGL Ni20 Cr3	
		EN-GJMB-600-3	0.8165	GTS-65-02	P 570/3	P 570/3	PCMP60-03
14	0.6300	EN-GJL-300	0.6300	GG-30	Grade 300	Ft 30 D	FC 300
	0.7070	EN-GJS-700-2	0.7070	GGG-70	Grade 700/2	FGS 700-2	FCD 700-2
	0.6655	EN-GJLA-XNiCuCr15-6-2	0.6655	GGL-NiCuCr 15 6 2	Grade F1	FGL Ni15 Cu6 Cr2	
	0.6655	EN-GJLA-XNiCuCr15-6-3	0.6656	GGL-NiCuCr 15 6 3		FGL Ni15 Cu6 Cr3	
	0.6657	EN-GJMB-700-2	0.8170	GTS-70-02	P 690/2	P 690/2	PCMP70-02
15	0.6350	EN-GJL-350	0.6350	GG-35	Grade 350	Ft 35 D	FC 350
	0.6040	-	0.6040	GG-40	Grade 400	Fgl 400	
	0.7080	EN-GJS-800-2	0.7080	GGG-80		FGS 800-2	FCD 800-2
	0.7670	EN-GJSA-XNi22	0.7670	GGG-Ni 22		FGS Ni22	
	0.7683	EN-GJSA-XNi35	0.7683	GGG-Ni 35		FGS Ni35	
	0.7677	-	0.7677	GGG-NiCr 30 1		FGS Ni30 Cr1	
	0.7676	EN-GJSA-XNiCr30-3	0.7676	GGG-NiCr 30 3	Grade S3	FGS Ni30 Cr3	
	0.7683	EN-GJSA-XNiCr35-3	0.7683	GGG-NiCr 35 3		FGS Ni35 Cr3	
	0.7673	EN-GJSA-XNiMn23-4	0.7673	GGG-NiMn 23 4	Grade S2M	FGS Ni23 Mn4	
	0.7665	EN-GJSA-XNiSiCr20-5-2	0.7665	GGG-NiSiCr 20 5 2		FGS Ni20 Si5 Cr2	
	0.7680	EN-GJSA-XNiSiCr30-5-5	0.7680	GGG-NiSiCr 30 5 5		FGS Ni30 Si5 Cr5	
	0.6676	EN-GJSA-XNiCr30-3	0.6676	GGL-NiCr 30 3	Grade F3	FGL Ni30 Cr3	
	0.6667	EN-GJSA-XNiSiCr20-5-3	0.6667	GGL-NiSiCr 20 5 3		FGL Ni20 Si5 Cr3	A1200
	0.6680	-	0.6680	GGL-NiSiCr 30 5 5		FGL Ni30 Si5 Cr5	(A1050)

• Stainless steel

Workpiece materials into material groups							
UNI	SS	AISI/ASTM	UNS	Condition	Misc.Brands	Structure	Form
X 2 CrNiN 18 11	2371	304 LN	S30453			Austenite	
X 5 CrNiMo 17 13 2	2343	316	S31600			Austenite	
	2333	CF8				Austenite	
X 6 CrNiMoNb 17 12		316 Cb	S31640			Austenite	
X 6 CrNiMoTi 17 12	2350	316 Ti				Austenite	
X 16 CrNiSi 25 20		314; 310	S31000	314 S 25		Austenite	
X 5 CrNiMo 17 12	2347	316	S31600	316 S 31		Austenite	
X 1 CrNiMoN 20 18 7	2778		S31254		254 SMO	Super austenite	
			N08028		Sanicro 28	Super austenite	
			N08800	Sol. treated	Alloy 800	PH	
		330	N08330		Incoloy DS	Austenite	
X 2 CrNiMoN 25 7 4	2328	F 53	S32750		SAF 2507	Super duplex	
		255	S32550		Ferralium	Super duplex	
		F 55	S32760		Zeron 100	Super duplex	
X 2 CrNiMoN 17 12		316 LN	S 31653			Austenite	
X 2 CrNiMoN 17 13 3	2375	316 LN	S31653			Austenite	
		(316 LN)	(S31653)			Austenite	
X 2 CrNiMoN 22 5	2377	329 LN	S31803		SAF 2205	Duplex	
X 2 CrNiMoN 22 5	2377	318	S32205		SAF 2205	Duplex	
			S32654		654 SMO	Super austenite	
	2327	-	S32304		SAF 2304	Duplex	
	2562	904L	N08904			Super austenite	
	2564	CN7M				Super austenite	
		XM-12	S15500	Sol. treated	15-5-PH	PH	
X 3 CrNiMo 27 5 2	2324	329	S32900			Duplex	
		630	S17400	Sol. treated	17-4-PH	Super austenite	
Cast iron							
G10	01 10-00	A18 20 B	F11401			GCI	
G15	01 15-00	A48 25 B	F11601			GCI	
	07 17-15					DCI	
GS 400-12	07 17-02	60-40-18	F32800			DCI	
GSO 42/17	07 17-12	60-40-18	F32800			DCI	
B 35-12	08 15-00	A47 32510	F22200			Martensite	
P 45-06	08 52-00	A220 45008	F23130			Martensite	
P 55-04	08 54-00	A220 60004	F24130			Martensite	
G20	01 20-00	A48 30 B	F12101			GCI	
G25	01 25-00	A48 35 B	F12401			GCI	
GS 500-7	07 27-02	A536 80-55-6	F33800			DCI	
GS 600-3	07 32-03	A476 80-60-03	F34100			DCI	
		A436 Type D-2	F43000			Austenite	
		A436 Type D-2B	F43001			Austenite	
	07 72-00	-	-			Austenite	
	05 23-00	A436 Type 2	F41002			Austenite	
		A436Type 2b	F41003			Austenite	
P65-02	08 56-00	A220 70003	F24830			Martensite	
G30	01 30-00	A48 45 B	F13101			GCI	
GS 700-2	07 37-01	A536 100-70-03	F34800			DCI	
		A436 Type 1	F41000			Austenite	
		A436 Type 1b	F41001			Austenite	
P 70-02	08 62-00	A220 90001	F26230			Martensite	
	01 35-00	A48 50 B	F13502			GCI	
G35	01 40-00	A278 60 B	F14102			GCI	
		A536 120-90-02	F36200			Martensite	
GS 800-2		A439 Type D-2B				Austenite	
		A439 Type D-5	F43006			Austenite	
		A436 Type D-3A	F43004			Austenite	
		A436 Type D-3	F43003			Austenite	
		A436 Type D-5B	F43007			Austenite	
		A439 Type D-2M	F43010			Austenite	
		Nicrosilal Spheronic	-			Austenite	
		A439 Type D-4	F43005			Austenite	
		A436 Type 3	F41001			Austenite	
		Nicrosilal				Austenite	
		A436 Type D-4				Austenite	

Appendix

• Non-Ferrous metal

mat. group No .	Workpiece materials into material groups						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
16	3.0205	AW-1200	Al99	Al99	1C/1200	A-4/1200	A1200
	3.0255	AW-1050A	Al99.5	Al99.5	1B/1050A	A-5/1050A	(A1050)
	3.0275	AW-1070	Al99.7	Al99.7		A-7/1070	
	3.0285	AW-1080	Al99.8	Al99.8	1A	A-8/1080	
	3.1305			AlCu2.5Mg0.5	2L69	A-U2G	
	3.1655	AW-2011	AlCuBiPb	AlCuBiPb	FC1/2011	A-U5PbBi/2011	A2011
	3.1325	AW-2024	AlCuMg1	AlCuMg1	H14	A-U4G/2024	A2017
	3.1355			AlCuMg2	2L97/98	A-U4G1	
	3.1255	AW-2014	AlCuSiMn	AlCuSiMn	H15/2014	A-U4SG/2014	
	3.3315	AW-5005A	AlMg1	AlMg1	N41/5005	A-G0.6	
	3.3316			AlMg1.5		A-G1.5	
	3.3211	AW-6061	AlMg1SiCu	AlMg1SiCu	H20	(6061)	A6061
	3.3523	AW-5052	AlMg2.5	AlMg2.5	(N4)	A-G2.5C/5052	A5052
	3.3537	AW-5454	AlMg2.7Mn	AlMg2.7Mn	N51/5454	A-G2.5MC/5454	A5454
	3.3525	AW-5251	AlMg2Mn0.3	AlMg2Mn0.3	N4 /5251	A-G2M	
	3.3527	AW-5049	AlMg2Mn0.8	AlMg2Mn0.8		A-G2Mn0.8	
	3.3535	AW-5754	AlMg3	AlMg3		A-G3M	
	3.3345			AlMg4.5			A5082
	3.3547	AW-5083	AlMg4.5Mn	AlMg4.5Mn	N8/5083	A-G4.5MC	
	3.3545	AW-5086	AlMg4Mn	AlMg4Mn	(N5/6)	A-G4MC-5086	
	3.3206	AW-6060	AlMgSi0.5	AlMgSi0.5	(H9)/(6060)	A-GS/6060	
	3.3210	AW-6063	AlMgSi0.7	AlMgSi0.7	(H10)	A-GSUC/6061	(A6063
	3.2315	AW-6082	AlMgSi1	AlMgSi1	H30/6082	A-SGM0.7/6082	
	3.0615			AlMgSiPb		A-SGPb	
	3.0505	AW-3105	AlMn0.5Mg0.5	AlMn0.5Mg0.5	N31		
	3.0525	AW-3005	AlMn0.5Mg0.5	AlMn0.5Mg0.5		A-MG0.5/3005	-
	3.0515	AW-3103	AlMn1	AlMn1	N3/3103		
	3.0517	AW-3003	AlMn1Cu	AlMn1Cu		A-M1/3003	A3003
	3.0526	AW-3004	AlMn1Mg1	AlMn1Mg1		A-M1G/3004	-
	3.4335	AW-7020	AlZn4.5Mg1	AlZn4.5Mg1	H17/7020	A-Z5G/7020	
	3.4345			AlZnMgCu0.5		A-Z4GU	
	3.4365	AW-7075		AlZnMgCu1.5	2L95/96	A-Z5GU/7075	A7075
	3.1841	AC-21100	AlCu4Ti	G-AlCu4Ti			
	3.1371	AC-21000	AlCu4TiMg	G-AlCu4TiMg	2L91/92	A-U5GT	
	3.3541	AC-51100	AlMg3	G-AlMg3		A-G3T	
	3.3241			G-AlMg3Si			
	3.3261	AC-51400	AlMg5(Si)	G-AlMg5			
	3.3555	AC-51400	AlMg5	G-AlMg5	LM5		
	3.3292	AC-51200	AlMg9	G-AlMg9			
	3.2381	AC-43400	AlSi10Mg(Fe)	G-AlSi10Mg	LM9	A-S10G	
	3.2341	AC-42000		G-AlSi5Mg	LM25	A-S7G	
	3.2151	AC-45000	AlSi6Cu4	G-AlSi6Cu4			
	3.2371	AC-42100	AlSi7Mg	G-AlSi7Mg	2L99	A-S7GO3	
	3.2161	AC-46200	AlSi8Cu3(Si)	G-AlSi8Cu3			
	3.2373	AC-43200	AlSi9Mg	G-AlSi9Mg		A-S10G	
	3.5106			G-MgAg3Se2Zr1			
	3.5314	MG-P-62	MgAl3Zn	G-MgAl3Zn	MAG-E-111	G-A3-Z1	
	3.5662	MC 21230	MgAl6Mn	G-MgAl6Mn			
	3.5612	MG-P-63	MgAl6Zn	G-MgAl6Zn	MAG-E-121	G-A6-Z1	
	3.5812	MG-P-61	MgAl8Zn	G-MgA18Zn	MAG1-M	G-A9	
	3.5812	MC 21110	MgAl8Zn1	G-MgAl8Zn1	A82	G-A92	
	3.5912	MC 21120	MgAl9Zn	G-MgAl9Zn1	MAG3	G-A92	
	3.5200			G-MgMn2	MAG-E-101	G-M2	
	3.5103	MB 65110	MgSe3Zn2Zr1	G-MgSe3Zn2Zr1	MAG6-TE	ZRE1	
	3.5105			G-MgTh3Zn2Zr1			
17	3.2383	AC-43200	AlSi10Mg(Cu)	G-AlSi10Mg(Cu)			
	3.2382	AC-44200	AlSi12	GD-AlSi12			
		AC-46100	AlSi11Cu2(Fe)		LM9		ADC12
		AC-47100	AlSi12Cu1(Fe)				
			AlSi17Cu5				ADC14
18		CW004A		Cu			
	2.1203	CW013A	CuAg0.1	CuAg0.1	Cu-Ag-4		
	2.0940.01	CC331G		CuAl10Fe	AB1	CuAl10Fe	
		CC333G-GZ		CuAl10Fe5Ni5			
	2.0975.01	CC333G		CuAl10Ni	AB2	CuAl10Ni5Fe5	

• Non-Ferrous metal

Workpiece materials into material groups							
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form
	4010		AA1200				
	4007		AA1050A				
	4005		AA1070A				
	4004		AA1080A				
			AA2117				
	4355		AA2011				
			AA2017A				
			AA2024				
	4338		AA2014				
	4106		AA5005A				
			AA5050B				
			AA6061				
	4120		AA5052				
			AA5454				
			AA5251				
	4115		AA5049				
	4125		AA5754				
			AA5082				
	4140		AA5083				
			AA5086				
	4103		AA6060				
	4104,4107		AA6005				
	4212		AA6082				
			AA6012				
			AA3105				
			AA3005				
	4054		AA3103				
			AA3003				
			AA3004				
	4425		AA7020				
			AA7022				
			AA7075				
	4337	204	A02040				
		5140	A05140				
		5056A					
	4163						
	4253	B85	A13600				
	4244	B26					
	4245		A13560				
	4251	A380					
		359,2					
		4418					
			AZ31B				
	4633		AM60A				
			AZ61A				
			AZ80A				
	4637	4437	AZ81A				
	4635		AZ91A/B				
		4442	M1A				
			B80				
			B80				
		A413.2					
		A384.0					
			AA384				
		B390.0					
	5015						
	5030		C11600				
	5710	CA952	C95200				
	5716	CA955	C95500				

• Non-Ferrous metal

mat. group No .	Workpiece materials into material groups						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
	2.0966	CW307G	CuAl10Ni5Fe4	CuAl10Ni5Fe4	Ca104	CuAl10Ni	C6301
	2.0978	CW308G	CuAl11Ni6Fe6	CuAl11Ni6Fe5			
	2.0916			CuAl5			
	2.0918	CW300G	CuAl5As	CuAl5As			C60800
	2.0932			CuAl8 Fe3			C6140
	2.1291			CuCr			C18400
	2.1310	CW107C	CuFe2P	CuFe2P			C19400
	2.0853	CW109C	CuNi1Si	CuNi1.5Si			
	2.0872		CuNi10Fe1Mn	CuNi10Fe1Mn	CZ102	CuNi10Fe1Mn	
				CuNi10Zn45			C70600
	2.0780	CW406J	CuNi12Zn30Pb1	CuNi12Zn30Pb1			C79300
	2.0790		CW408J	CuNi18Zn19Pb		CuNi18Zn19Pb1	C76300
	2.0790	CW408J	CuNi18Zn19Pb1	CuNi18Zn19Pb1		CuNi18Zn19Pb1	C76300
	2.0740	CW409J	CuNi18Zn20	CuNi18Zn20	Ns106	CuNi18Zn20	C7451
	2.0742	CW410J	CuNi18Zn27	CuNi18Zn27	NS107		C75200
	2.0822			CuNi20			C77000
	2.0830			CuNi25	CN105	CuNi25	
	2.0835			CuNi30			C71300
	2.0883			CuNi30Fe2Mn2			C71580
				CuNi30FeMn			
	2.0882	CW354H	CuNi30Mn1Fe	CuNi30Mn1Fe	CN107	CuNi30Mn1Fe	
	2.0857	CW112C	CuNi3Si	CuNi3Si			C70600
	2.0842			CuNi44Mn1		CuNi44Mn	C70250
				CuNi5Fe1Mn		CuNi5Fe1Mn	C72150
	2.0875	CW351H	CuNi9Sn2	CuNi9Sn2			C72500
	2.1176	CW352H		CuPb10Sn	LB2	CuSn10Pb10	C93700
	2.1183	CC496K-GZ		CuPb15Sn			C93800
	2.1160	CW113C	Cupb1p	CuPb1P			C19000
	2.1189			CuPb20Sn			C94100
	2.1050.01	CC480K		CuSn10	CT1	CuSn10	C90700
	2.1087			CuSn10Zn			C90500
	2.1051.01	CC483K		CuSn12	PB2	CuSn12	C5465
				CuSn14		CuSn14	C5475
	2.1016	CW450K	CuSn4	CuSn4	PB101	CuSn4p	C5111
			CW451K	CuSn5			C51100
	2.1020	CW452K	CuSn6	CuSn6	PB103	CuSn6	C51900
18	2.1080			CuSn6Zn6			C5428
				CuSn7			C93200
	2.1090.03	CC493K-GZ		CuSn7ZnPb			C83600
	2.1030	CW453K	CuSn8	CuSn8	PB104	CuSn8P	C52100
	2.0230	CW501L	CuZn10	CuZn10	CZ101	CuZn10	C22000
	2.0240	CW502L	CuZn15	CuZn15	CZ102	CuZn15	C23000
	2.0250	CW503L	CuZn20	CuZn20	CZ103		C24000
	2.0460	CW702R	CuZn20Al2	CuZn20Al2	CZ110	CuZn22Al2	C68700
				CuZn25All5			C86300
	2.0261	CW504L	CuZn28	CuZn28	CZ105		C25600
	2.0470	CW706R	CuZn28Sn1	CuZn28Sn1		CuZn29Sn1	C44300
	2.0265	CW505L	CuZn30	CuZn30	CZ106	CuZn30	C26000
				CuZn30AlFeMn		CuZn30AlFeMn	
	2.0490	CW708R	CuZn31Si1	CuZn31Si1			
	2.0280	CW506L	CuZn33	CuZn33	CZ107		C26800
	2.0592.01	CC765S		CuZn35Al1	HTB1	CuZn30AlFeMn	C96500
	2.0540	CW710R	CuZn35Ni2	CuZn35Ni2			
	2.0335	CW507L	CuZn36	CuZn36	CZ108	CuZn36	C27200
	2.0331	CW601N	CuZn35Pb2	CuZn36Pb1.5	CZ131	CuZn35Pb2	C34200
	2.0375	CW602N	CuZn36Pb3	CuZn36Pb3	CZ124	CuZn36Pb3	C36000
	2.0321	CW508L	CuZn37	CuZn37	CZ108	CuZn37	C27200
	2.0332	CW604N	CuZn37Pb0.5	CuZn37Pb0.5	CZ118		C33500
	2.0371	CW607N	CuZn38Pb1.5	CuZn38Pb1.5	CZ119	(CuZn38Pb2)	C35300
	2.0530	CW717R	CuZn38Sn1	CuZn38Snl			C46400
	2.0525	CW715R	CuZn38SnAl	CuZn38SnAl			C47000
				CuZn39AlFeMn			
	2.0372	CW610N	CuZn39Pb0.5	CuZn39Pb0.5	CZ123	CuZn39Pb0.8	C36500
	2.0380	CW612N	CuZn39Pb2	CuZn39Pb2	CZ128		C37700
	2.0401	CW614N	CuZn39Pb3	CuZn39Pb3	CZ121	CuZn39Pb3	C38500
	2.0360	CW509	CuZn40	CuZn40	CZ109	CuZn40	C28000
	2.0550	CW713R		CuZn40A12			C67410

• Non-Ferrous metal

Workpiece materials into material groups							
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form
			C62730				
			C60800				
			C18400				
			C19400				
	5667		C70600				
			C79300				
			C76300				
			C76300				
			C75200				
			C77000				
			C71300				
CuNi30			C71580				
	5682		C70600				
			C70250				
			C72150				
			C72500				
	5640	CA937	C93700				
			C93800				
			C19000				
			C94100				
	5443		C90700				
	5458		C90500				
	5465	CA907					
	5475		C91000				
			C51100				
			C51000				
	5428		C51900				
CuSn7			C93200				
			C83600				
			C52100				
			C22000				
	5112		C23000				
			C24000				
	5217		C68700				
			C86300				
			C25600				
	5220		C44300				
	5122		C26000				
			C26800				
	5256	CA865	C96500				
			C27200				
			C34200				
			C36000				
	5150		C27200				
			C33500				
	5165		C35300				
			C46400				
			C47000				
			C36500				
			C37700				
	5170		C38500				
			C28000				
			C67410				

• Non-Ferrous metal

mat. group No .	Workpiece materials into material groups						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
18	2.0572 2.0580 2.0402 2.0410 2.0220	CW723R CW720R CW612N CW622N CW500L	CuZn40Mn1 CuZn40Mn1Pb CuZn40Pb2 CuZn44Pb2 CuZn5	CuZn40Mn1 CuZn40Mn1Pb CuZn40Pb2 CuZn44Pb2 CuZn5	CZ136 CZ120 CZ104 CZ125	CuZn39Pb2	C2100
Heat resistant super alloys / Titanium alloys							
19	X2NiCrAlTi3220		1.4876				
20							
21	NiMo30 NiMo30 NiMo16Cr15W NiMo16Cr16Ti NiCr21Fe18Mo9		2.4810 2.4810 2.4602 2.4819 2.4610 2.4619 2.4665				

• Non-Ferrous metal

Workpiece materials into material groups							
UNI	SS	AISI/ASTM	UNS	Condition	Misc.Brands	Structure	Form
	5168 5272		C37800 C68700 C21000		AMPCO 15 AMPCO 18 AMPCO 18.136 AMPCO 18.22 AMPCO 18.23 AMPCO 21 AMPCO 22 AMPCO 25 AMPCO 26 AMPCO 45 AMPCO 483 AMPCO 642 AMPCO 673 AMPCO 674 AMPCO 8 AMPCO 863 AMPCO M4		
Heat resistant super alloys / Titanium alloys							
			S66286 S35000 S35000 S35500 S45500 N08800 N19909 R30155 R30155	Precip.hardened heat treated	A286 AM350 AM350 AM355 Custom 455 Discalloy Incoloy 800 Incoloy 801 Incoloy 909 Lapelloy M-308 N-155 N-155		cast bar,forge,ring
			R30195		Air Resist 13 FSX-414 H531 Haynes 188 Haynes 188 Haynes 25 Mar-M-302 Mar-M-509 MP159 MP35N Stellite 21 Stellite 30 Stellite 31 W152 W162		bar,forge,ring tube
			N10665 N10002 N10002 N10276 N06455 N06007 N06985 N10003 N10003 N06635 N10004 N06002		Astroloy GTD222 Hastelloy B-2 Hastelloy C Hastelloy C Hastelloy C-22 Hastelloy C-276 Hastelloy C-4 Hastelloy G Hastelloy G-3 Hastelloy N Hastelloy N Hastelloy S Hastelloy W Hastelloy X		all forms plate cast bar,forge, ring cast all forms all forms

• Heat resistant super alloys / Titanium alloys

mat. group No .	Workpiece materials into material groups						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
21	2.4816 2.4851 2.4856 2.4856 2.4856 2.4668 2.4668 2.4668 2.4669 2.4669 2.4061 2.4634 2.4636 2.4650 2.4631 2.4632 2.4662 ppm 2.4654 2.4654	NiCr15Fe NiCr22Mo9Nb NiCr22Mo9Nb NiCr22Mo9Nb NiFe38Cr16Nb NiCr19Fe19Nb5Mo3 NiCr19Fe19Nb5Mo3 NiCr19Fe19Nb5Mo3 Ni99.6 NiCr20TiAl NiCr19Co18Mo4Ti3Al3 NiCr20Co13Mo4Ti3Al NiCr20Co13Mo4Ti3Al					
22	3.7024 3.7024 3.7124 3.7164 3.7164 3.7164 3.7164	 TiCu2 TiAl5Sn2.5 TiAl5Sn2.5 TiAl5Sn2.5 TiAl6V4 TiAl6V4 TiAl6V4 TiAl6V4 TiAl6V4		TiV10Fe2A13			

• Heat resistant super alloys / Titanium alloys

Workpiece materials into material groups							
UNI	SS	AISI/ASTM	UNS	Condition	Misc.Brands	Structure	Form
			N06600		IN 100 Inconel 600		IN 100 all forms
			N06601		Inconel 601		all forms
			N06625		Inconel 625		bar,forge,ring
			N06625		Inconel 625		tube
			N06625		Inconel 625		cast
			N09706		Inconel 706		
					Inconel 708		bar,forge,ring
			N07713		Inconel 713		
					Inconel 713LC		
			N07718		Inconel 718		bar,forge,ring
			N07718		Inconel 718		tube
			N07718		Inconel 718		cast
					Inconel 901		
			N07750	Sol.treated	Inconel X-750		
			N07750	precip.hardened	Inconel X-750		
					Mar-M-200		
					Mar-M-247		all forms
					Mod.IN 100		
					Mod.IN 792		
			N02205		Nickel 201		
					Nimonic 101		
					Nimonic 105		
					Nimonic 115		
			N07263		Nimonic 263		
			N07080		Nimonic 80A		
					Nimonic 81		
					Nimonic 86		
			N07090		Nimonic 90		
			N09901		Nimonic 901		
					Nimonic 91		
					René 95		
			N03260		TD Nickel		
			N07500		Udimet 500		
					Udimet 520		
					Udimet 700		
					Udimet 720		
			N07001		Waspalloy		bar, forge
			N07001		Waspalloy		cast
					Ti (pure)	Ti (α)	pure - tube
		AMS 4900, -01, -21			Ti (pure) (grd 1-4)	Ti (α)	pure - plate, bar, forge
		AMS 4986			Ti 10V-2Fe-3Al	Ti (β)	
		ASTM Grade 21	R58210		Ti 15Mo-3Nb-3Al-0.2Si	Ti (β)	
		AMS 4995	R58650		Ti 17	Ti ($\alpha+\beta$)	
					Ti 2Cu	Ti (α)	
		AMS 4943	R56320	annealed	Ti 3Al-2.5V	Ti ($\alpha+\beta$)	tube
		AMS 4943	R56320		Ti 3Al-2.5V	Ti ($\alpha+\beta$)	bar, forge
		AMS 4910	R54520	ELI	Ti 5Al-2.5Sn	Ti (α)	
		AMS 4909	R54521		Ti 5Al-2.5Sn	Ti (α)	
		AMS 4910	R54520	annealed	Ti 5Al-2.5Sn	Ti (α)	
		AMS 4919	R54620	annealed	Ti 6-2-4-2	Ti (α)	
		AMS 4919	R54621	precip.hardened	Ti 6-2-4-2	Ti (α)	
		AMS 4981	R56260	annealed	Ti 6-2-4-6	Ti ($\alpha+\beta$)	
		AMS 4981	R56260	precip.hardened	Ti 6-2-4-6	Ti ($\alpha+\beta$)	
		AMS 4920	R56400	annealed	Ti 6Al-4V	Ti ($\alpha+\beta$)	
		AMS 4920, Grd 5	R56400	annealed	Ti 6Al-4V	Ti ($\alpha+\beta$)	
		AMS 4981	R56401	ELI	Ti 6Al-4V	Ti ($\alpha+\beta$)	EL1
		AMS 4920	R5640		Ti 6Al-4V	Ti ($\alpha+\beta$)	extrusion
		AMS 4920	R56400	precip.hardened	Ti 6Al-4V	Ti ($\alpha+\beta$)	

Insert Screw Dimensions And Torque Values

Screw 	Th 	Nm	ISO Size	Key 
C01804	M1.8(4h)	0.5	6IP	T06P
C025045	M2.5(4h)	1.2	8IP	T08P
C02506	M2.5(4h)	1.2	8IP	T08P
C03006	M3.0(4h)	2.0	9IP	T09P
C03007	M3.0(4h)	2.0	9IP	T09P
C03008	M3.0(4h)	2.0	9IP	T09P
C03010	M3.0(4h)	2.0	9IP	T09P
C03012	M3.0(4h)	2.0	9IP	T09P
C03505	M3.5(4h)	3.0	10IP	T10P
C03506	M3.5(4h)	3.0	10IP	T10P
C03507	M3.5(4h)	3.0	10IP	T10P
C03508	M3.5(4h)	3.5	15IP	T15P
C03510	M3.5(4h)	3.0	10IP	T10P
C03511	M3.5(4h)	3.0	10IP	T10P
C03512	M3.5(4h)	3.0	10IP	T10P
C03513	M3.5(4h)	3.0	10IP	T10P
C04011	M4.0(4h)	4.0	15IP	T15P
C04013	M4.0(4h)	4.0	15IP	T15P
C04014	M4.0(4h)	4.0	15IP	T15P
C04016	M4.0(4h)	4.0	15IP	T15P
C04017	M4.0(4h)	4.0	15IP	T15P
C04511	M4.5(4h)	5.0	20IP	T20P
C05013	M5.0(4h)	6.0	20IP	T20P

• Always apply solid lubricant paste to screw prior to use.

Cutting Data Calculation

• Nomenclature and formulae

RPM

$$n = \frac{vc \cdot 1000}{\pi . D} \quad (rev/min)$$

Cutting speed

$$v_c = \frac{n \cdot \pi \cdot D}{1000} \quad (m/min)$$

Feed speed

$$v_f = n \cdot z \cdot f_z \quad (mm/min)$$

$$v_f = n \cdot z_c \cdot f_z \quad (mm/min)$$

Feed per revolution

$$f = z \cdot f_z \quad (mm/rev)$$

$$f = z \cdot f_z \quad (mm/rev)$$

Metal removal rate

$$Q = \frac{a_e \cdot a_p \cdot v_f}{1000} \quad (cm^3/min)$$

Cutting speed and RPM for copying

$$v_c = \frac{n \cdot \pi \cdot Dw}{1000} \quad (m/min)$$

$$v_c = \frac{v_c \cdot 1000}{\pi \cdot Dw} \quad (RPM)$$

$$Dw = 2 \cdot \sqrt{a_p (D - a_p)} \quad (RPM)$$

Feed speed in tapping

$$vf = n \cdot pitch \quad (mm/min)$$

a_e = Width of cut mm/radial depth of cut	(mm)
a_p = Depth of cut mm/axial depth of cut	(mm)
D = Cutter diameter	(mm)
f = Feed per revolution	(mm/rev)
f_z = Feed per tooth	(mm/tooth)
z_c = Effective No. of teeth for calculation of feed speed or feed per rev (see below)	
n = RPM	(rev/min)
Q = Material removal rate	(cm^3/min)
v_c = Cutting speed	(m/min)
v_f = Feed speed	(mm/min)
z = No of teeth	

Effective No. of teeth (Zc)

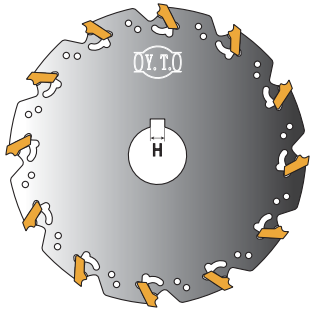
The effective No. of teeth (Zc) is used to calculate the feed speed (vf)and the feed per revolution (f). For most of the cutters the effectiveNo. of teeth (Zc) is equal to the No. of teeth in the cutter (z), but for some of the cutters Zc is less than z.

Especially in spot drill, the K need to be calculated with 1 flute in centering process and 2 flutes in chamfering process.

TECHNICAL GUIDE

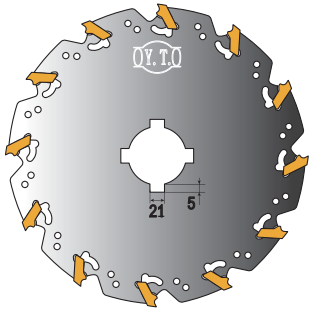
Standard Keyway And Pin Hole Figures

FIG.1



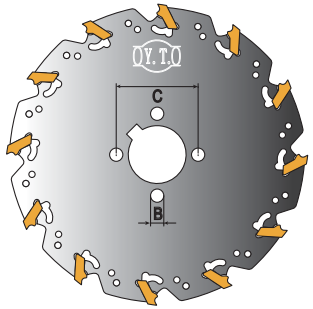
H

FIG.2



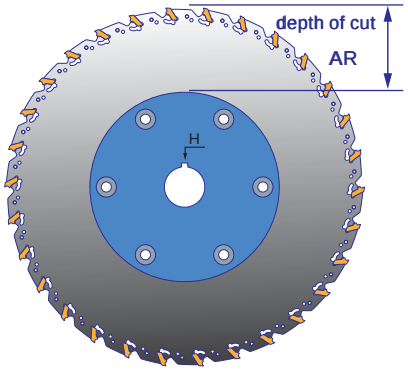
H

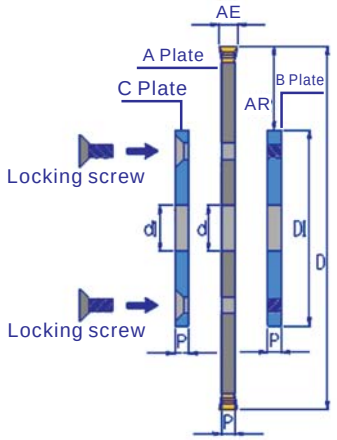
FIG.3



C B

Vibrations Solution

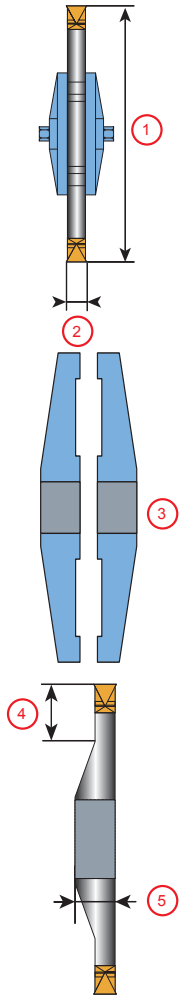




- Improve The Stability of Cutter and Workpiece
- MInimize Tool Overhang
- Mirimize The Dia of Cutter
- Increase The Thickness of Cutter

Trouble Shooting

The Strategy For Vibrations And Unstable Machining



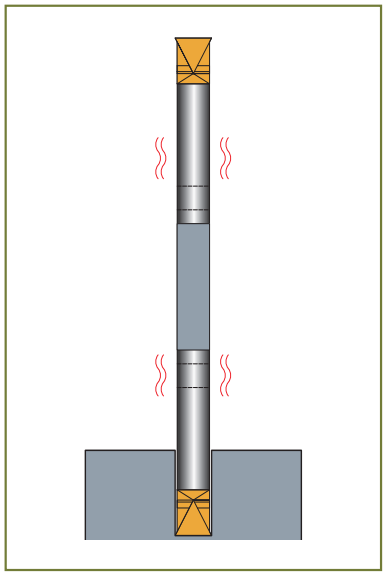
1. Reduce The Diameter Of The Saw Blades
2. Increase The Thickness Of The Saw Blades
3. Change To Bigger Flange
4. Reduce The Length Of The Efficient Blade
5. Increase Body Thickness

Attention :

1. Please Follow The Trouble Shooting Above In Order To Obtain Better Cutting Surfaces
2. Must Conform To THE Speed Factor

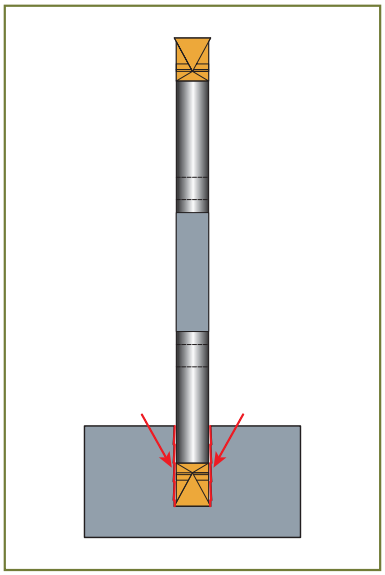
Trouble Shooting

Vibrations

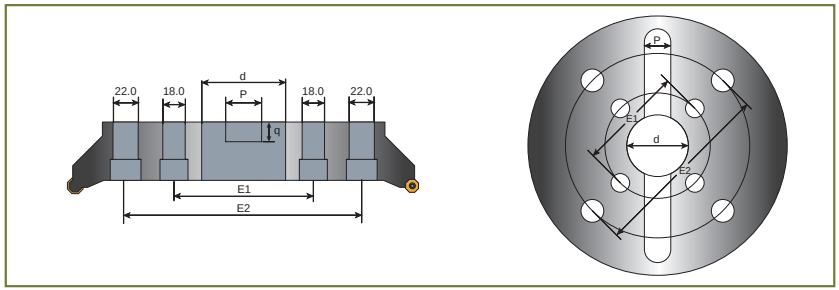


- Improve The Stability Of Cutter And Workpiece
- Change Cutter Positioning
- Minimize Tool Overhang
- Reduce The Cutting Speed
- Increase The Feed Rate
- Reduce The Depth Of Cut

Poor Surface Finish



- Improve The Stability Of Cutter And Workpiece
- Minimize Tool Overhang
- Reduce The Feed Rate
- Increase The Cutting Speed
- Use A Coolant
- Use Wiper Insert

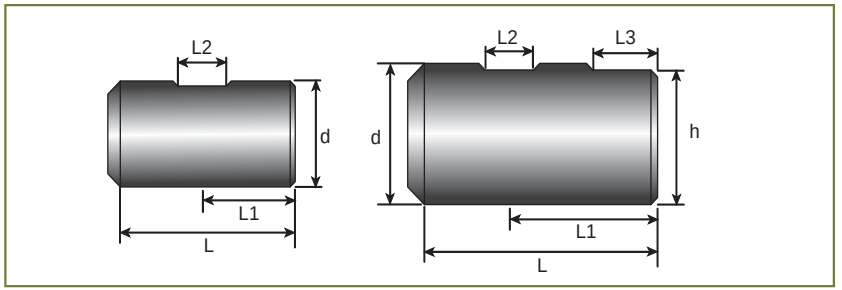


Dimensions Of Mounting Metric Size

Dimensions In mm				
d	p	q	E1	E2
16	8.7	7	-	-
22	10.7	7.5	-	-
27	12.7	8	-	-
32	14.7	9	-	-
40	16.7	10	-	-
60	26	15	101.6	-
60	26	15	101.6	177.8

Dimensions Of Mounting Inch Size

Dimensions In mm				
d	p	q	E1	E2
25.4	10.3	7	-	-
31.75	13	9	-	-
38.1	16.2	11	-	-
50.8	19.3	12	-	-
47.625	25.7	15	101.6	-
47.625	25.7	15	101.6	177.8

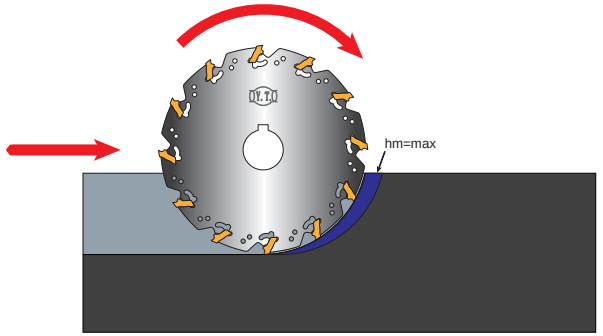


Dimensions Of Mounting Metric Size

Dimensions In mm					
d	L	L1	L2	L3	h
6	36	18	4.2	-	-
8	36	18	5.5	-	-
10	40	20	7	-	-
12	45	22.5	8	-	-
16	48	24	10	-	14.2
20	50	25	11	-	18.2
25	56	32	12	17	23
32	60	36	14	19	30
40	70	40	14	19	38

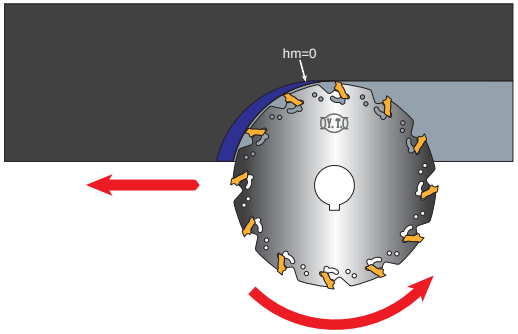
Climb & Conventional Milling

Climb Milling



Climb Milling : Entrance With Max Chip Thickness

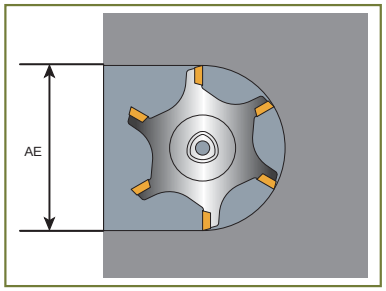
Conventional Milling



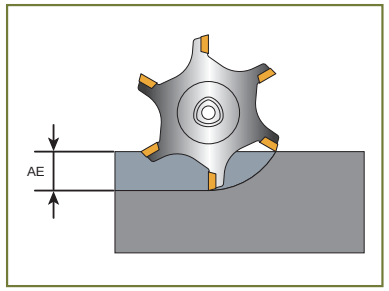
Conventional Milling : Entrance With Max Chip Thickness 0 mm

Cutting Data

Slot Milling



Side Milling



Relative Engagement Of The Cutter Diameter	Multiply The Feed Per Tooth By The Following Factor
30%	1.25
20%	1.5
10%	2.0
5%	3.0

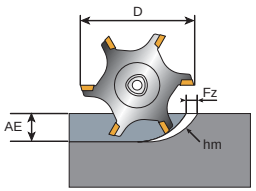
This Table Can Be Used For Cutters With Cutting Edge Angle = 90°

AE / D %	Feed Per Tooth / mm (fz)													Speed factor
	0.03	0.06	0.08	0.10	0.15	0.20	0.25	0.30	0.40	0.50	0.60	0.80	1.00	
	Average Chip Thickness mm (hm)													
Width Of Cut Up To And Inchding D / 2														
2 (0.02)	-	-	-	-	0.02	0.03	0.04	0.04	0.06	0.07	0.08	0.11	0.14	1.8
3 (0.03)	-	-	-	0.02	0.03	0.03	0.04	0.05	0.07	0.09	0.10	0.14	0.17	1.7
5 (0.05)	-	-	0.02	0.02	0.03	0.04	0.06	0.07	0.09	0.11	0.13	0.18	0.22	1.6
10 (0.10)	-	0.02	0.02	0.03	0.05	0.06	0.08	0.09	0.12	0.16	0.19	0.25	0.31	1.5
15 (0.15)	0.011	0.02	0.03	0.04	0.06	0.08	0.09	0.11	0.15	0.19	0.23	0.30	-	1.4
20 (0.20)	0.013	0.03	0.03	0.04	0.06	0.09	0.11	0.13	0.17	0.22	0.26	-	-	1.35
30 (0.30)	0.016	0.03	0.04	0.05	0.08	0.10	0.13	0.16	0.21	0.26	0.31	-	-	1.3
40 (0.40)	0.018	0.04	0.05	0.06	0.09	0.12	0.15	0.18	0.23	0.29	-	-	-	1.25
50 (0.50)	0.02	0.04	0.05	0.06	0.10	0.13	0.16	0.19	0.25	0.32	-	-	-	1.2
Slot Milling (Width Of Cut = D)														
100 (1.0)	0.02	0.04	0.05	0.06	0.10	0.13	0.16	0.19	0.25	0.32	-	-	-	1.0

Instead Of Using The Table Above For Calculating hm And fz The Following Formulae Could Be Used If (AE / D) < 30%

$$hm = fz \cdot \sqrt{\frac{AE}{D}}$$

$$fz = hm \cdot \sqrt{\frac{D}{AE}}$$



Appendix