

Milling Cutter Upgrade (MCU)

AHB

TOOLING & MACHINERY

COMPLETE METALWORKING SOLUTIONS

MOLDINO Milling Cutter Upgrade

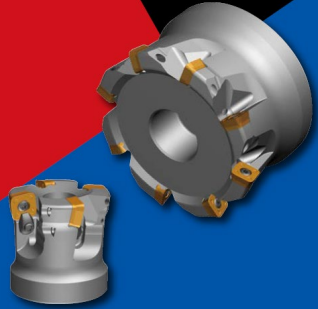
- a) KIT contents: 1pc cutter body and xx pcs inserts.
- b) MCU Line up: see next page
- c) Mitsubishi Materials USA standard stocked products only
- d) Use KIT Order No. on purchase orders; include promo code "PROMOMCU"
- e) Contact your local AHB Salesperson or Customer Service for additional details.
- f) This is a US only program
- g) Promotional offer is limited to Mitsubishi Materials USA standard stocked items while supplies last for 2022
- h) All MCU items are Non-refundable/Non-returnable
- i) If you have technical questions about MOLDINO products call 800-991-4225

MOLDINO Milling Cutter Upgrade

NEW

TR4D

High Feed Radius Mill



IASRF/ASRF-mini



Super Radius Indexable Mills with Four Corner Inserts



FEATURES

- Economical four corner inserts
- Insert design reduces cutting force during high feed rate machining
- Three types of chip breakers for various applications
- Three insert coatings for machining a wide range of materials

ARPF

Radius Precision ARPF

Additional lineup of helical cutting edge inserts



IASDF

NEW

Face Mills Ideal for High-Feed Rate Machining



FEATURES

- Inserts feature front/back eight-corner design
- One insert size fits all face mills from 2.5" to 6.0"
- 7mm thick inserts reduce breakage problems
- Multiple insert coatings available for working in a wide range of materials

TD4N

High Feed Radius Mill TD4N type



IASR/ASR MULTI



Innovative Indexable Multi-Flute Mills for High-Efficiency Machining



FEATURES

- Extraordinary metal removal and feed rates
- Mill and inserts are designed for maximum cutting rigidity
- One size insert fits all diameters 3/8" to 2.5" (16mm to 66mm)

ASM

Indexable Square End Mill

Super Excellent Mini ASM

All sizes are now coolant-through.



IRH2P/RH2P

NEW

High Accuracy Indexable Radius End Mills



FEATURES

- High accuracy ground inserts paired with high accuracy cutter bodies
- Designed for improved runout accuracy and stable cutting performance
- 2mm (0.0787") corner radius on inserts
- JP4005 coating for milling of hardened steels up to 62HRC

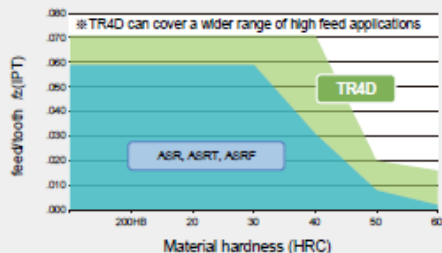
MOLDINO Milling Cutter Upgrade

TR4D

High Feed Radius Mill

NEW

Features 01 Pocket Stability



	Conventional	TR4D type
Cross-sectional area	 100%	 110%
Constraint area	 100%	 135%

Increased cross-sectional and constraint areas have added insert strength for high-load cutting applications.

Features 02 Insert Options

Insert Options - 3 geometries & 5 insert grades cover various applications.

SDNW120520TR	SDNW120520TR-P	SDMT120520TR NEW
		
The recommended default insert offers superior cutting edge strength. Ideal for general high-feed cutting.	Recommended for relatively continuous (uninterrupted) cutting with short overhangs. Ideal for pre-hardened steel (P20 and P21 materials).	Breaker type insert. Ideal for rough machining with low-rigidity work materials and low-horsepower M/C.

Features 03 Cutter body assortment

- Line up includes:
- Inch and metric shell mill coupling
 - Additional insert clamps are available for coarse pitch cutters when extreme rigidity is needed.
 - Multiple pitch options including a variable pitch design to reduce vibration.



Product info.

Features 04 Application

- Max feed per tooth: $f_z = .079$ IPT (2.0mm/tooth)
It is necessary to adjust the feed rate according to machining situation
- For best milling performance, recommend max cutting depth $a_p = .047$ inch (1.2mm)
- Number of corners: 4 corners (single-side)
Economical multi-corner
- Advantages of single sided inserts compared to double sided inserts.
 - 1) Large chip pocket for chip evacuation
 - 2) Optimized rake angle reduces chip jamming
 - 3) Higher damping security than a 2 sided insert.
 - 4) All corners can be fully used up
 - 5) Large ramping angle

Cutter Dia. (inch)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
2"	4 and 5 flutes	30 pcs	\$516.54
2.5"	4 and 6 flutes	40 pcs	\$688.72
3"	5 flutes	40 pcs	\$688.72
3"	7 flutes	50 pcs	\$860.90
4"	6 flutes	50 pcs	\$860.90
4"	8 flutes	60 pcs	\$1,033.07

Cutter Dia. (mm)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
50mm	3 and 4 flutes	30 pcs	\$516.54
63mm	4 flutes	30 pcs	\$516.54
63mm	5 flutes	40 pcs	\$688.72
80mm	5 flutes	40 pcs	\$688.72
100mm	6 flutes	50 pcs	\$860.90



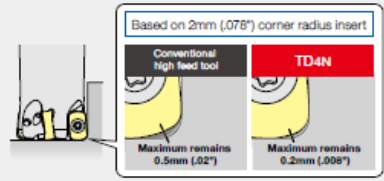
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Features 01 Reduces uncut portion on work pieces

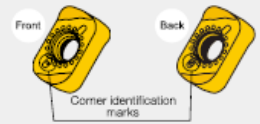
The cutting edge geometry of the TD4N is designed to minimize remaining stock in the uncut portion of the insert to reduce process variability and cycle time.

New insert design doubles usable corners from 2 to 4 without impacting edge security or performance.



Features 02 Economical 4-corner inserts with chip breakers for various applications

The TD4N is engineered to utilize both sides of the insert doubling cutting edges from 2 to 4 while maintaining performance and edge security of a single sided insert. As an added plus, the chip breaker rake angle was increased to reduce cutting forces and improve chip discharge.

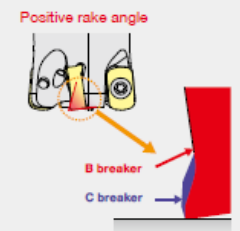


Features of insert breaker

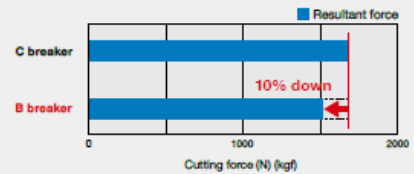
C breaker
First choice breaker for machine steel 30 to 50 HRC. Breaker is designed to be resistant to chip jamming, vibrations and crater wear.

B breaker
Designed for application that require low cutting resistance. The B breaker has a positive rake making it ideal for both stainless and low carbon steels.

Magnified view of cutting edge cross section



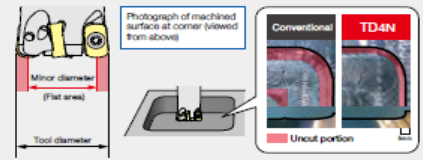
Cutting force comparison



Product info.

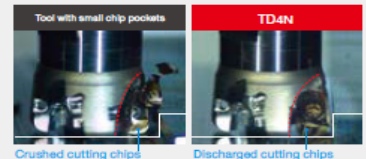
Features 03 Large minor cutting diameter minimized stock variation

Compared to conventional high feed tools, TD4N high feed cutters have a large minor diameter. The large minor diameter minimizes the uncut material in shoulders and enables an increased width of cut - ϕ - for improved cutter paths and floor blends without sacrificing performance.



Features 04 Excellent chip discharge characteristics

The next generation TD4N high feed cutter excels in chip control without sacrificing performance.



The TD4N insert is designed to curl the chip up and into the new chip pocket design before discharge. The breakthrough concept in high feed milling chip control minimizes the possibility of chip jamming especially when machining shoulders.

Cutter Dia. (inch)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
5/8"	2 flutes	20 pcs	\$357.87
3/4"	3 flutes	20 pcs	\$357.87
1"	4 flutes	20 pcs	\$357.87
1.25"	5 flutes	30 pcs	\$536.80
1.5"	6 flutes	30 pcs	\$536.80

Cutter Dia. (mm)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
16 & 18mm	2 flutes	20 pcs	\$357.87
20 & 22mm	3 flutes	20 pcs	\$357.87
25 & 28mm	4 flutes	20 pcs	\$357.87
32 & 35mm	5 flutes	30 pcs	\$536.80
40 & 42mm	6 flutes	30 pcs	\$536.80



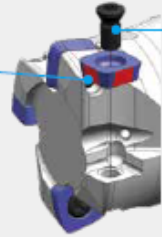
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Features 01 Improvements in clamp rigidity, which affects tool life.

- Size of insert holding screw was increased.
- Larger contact surface with holder

Broader holder contact surface increases clamp rigidity.



Increased screw strength: M2.5 → M3.0

Features 02 3 types of chip breakers for various applications.

- Economical 4-corner inserts.
- In addition to the conventional free-cutting breaker, an LF breaker with the emphasis on further cutting performance has been added. This expands the applicable range for high-feed-rate machining.

Cutting force 100%	93%	85%
SPNW General edge type	SPMT Sharp edge type	SPMT-LF Ultra sharp edge type

Cutter Dia. (inch)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
3/4"	2 flutes	10 pcs	\$179.55
1"	3 flutes	10 pcs	\$179.55
1.25"	3 or 4 Flutes	20 pcs	\$359.10
1.5"	3 or 5 flutes	20 pcs	\$359.10
2" (Shell Mill)	7 flutes	20 pcs	\$359.10
2.5"(Shell Mill)	8 flutes	20 pcs	\$359.10

Cutter Dia. (mm)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
20mm	2 flutes	10 pcs	\$179.55
25mm	3 flutes	10 pcs	\$179.55
25mm (Long Shank)	3 Flutes	20 pcs	\$359.10
32mm	3 or 4 Flutes	20 pcs	\$359.10
40mm	3 or 5 flutes	20 pcs	\$359.10
40 mm (Shell Mill)	5 flutes	20 pcs	\$359.10
50 mm (Shell Mill)	7 flutes	20 pcs	\$359.10
63mm (Shell Mill)	8 flutes	20 pcs	\$359.10



Product info.

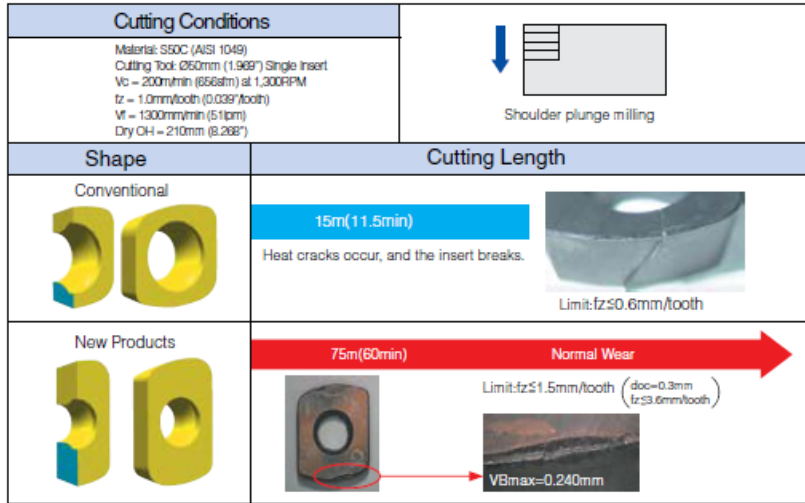


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1. Small Inserts Increase Breakage Resistance and Feed Rates

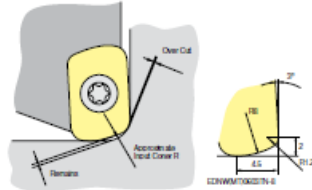
Even though the inserts for the IASR/ASR-Multi are smaller than conventional tools, breakage resistance has been greatly improved. This allows for feed rates as high as 1.5mm per tooth (0.059" per tooth).



2. Programming Information

When programming insert shape, please refer to the approximate R in the diagram below.

Programming Information	Approximate Input Corner R		Over Cut		Remains	
	mm	inch	mm	inch	mm	inch
EPNW(MT) 0603TN-8	2.0	0.0787	0.000	0.0000	0.497	0.0196



Cutter Dia. (inch)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
5/8"	2 flutes	10 pcs	\$172.18
3/4"	3 flutes	10 pcs	\$172.18
1"	4 Flutes	10 pcs	\$175.46
1" (Long Shank)	4 flutes	20 pcs	\$344.36
1.25"	5 flutes	20 pcs	\$344.36
1.5"	6 flutes	20 pcs	\$344.36
2" (Shell Mill)	7 flutes	20 pcs	\$344.36
2.5" (Shell Mill)	8 flutes	20 pcs	\$344.36

Cutter Dia. (mm)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
16mm	2 flutes	10 pcs	\$172.18
20mm	3 flutes	10 pcs	\$172.18
20mm (Long Shank)	3 Flutes	20 pcs	\$344.36
25mm	4 Flutes	10 pcs	\$175.46
25mm (Long Shank)	4 flutes	20 pcs	\$344.36
30 mm	4 flutes	20 pcs	\$344.36
32 mm	5 flutes	20 pcs	\$344.36
40 mm	6 flutes	20 pcs	\$344.36
52 mm (Shell Mill)	7 flutes	20 pcs	\$344.36
66 mm (Shell Mill)	8 flutes	20 pcs	\$344.36



Product info.



MOLDINO Milling Cutter Upgrade

Features **01** 2 types of applications by changing inserts

High-efficient tooling system to match cutting depth or cutting shape

- 1 Steel Shank type
- 2 Carbide Shank
- 3 Modular Arbor



EDMT-type insert for machining efficiency



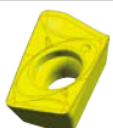
Utilizes RE2.0mm(.079") cutting edge shape.

- ▶ Does not leave excess at edges.
- ▶ Low cutting resistance

Work material : S50C
Tools : ASMM0710R-2(φ10-2NT)
+ASC10-6.5-114-49
Cutting Conditions : Vc=100m/min
Vf=6, 115mm/min
Dp X Ge=0.25x5mm
Tool overhang 50mm



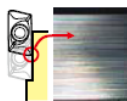
JDMT-type insert for high-grade machined surfaces



Utilizes Fine Wall (FW) shape.

- ▶ Decrease unevenness of machined surfaces
- ▶ Decrease burring

Work material : S50C
Tools : ASM0712S12R-2(φ12-3NT)
+ASC10-6.5-114-49
Cutting Conditions : Vc=200m/min
Vf=80mm/min
Dp X Ge=5x0.5mmx2
Tool overhang 25mm



Indexable Square End Mill

ASM

Super Excellent Mini ASM



Product info.

Cutter Dia. (Inch)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
3/8"	2 flutes	10 pcs	\$155.74
3/8" (SD Insert)	2 flutes	10 pcs	\$189.76
1/2"	3 flutes	10 pcs	\$155.74
1/2" (SD Insert)	3 flutes	10 pcs	\$189.76
5/8"	4 flutes	10 pcs	\$165.38
5/8" (SD Insert)	4 flutes	10 pcs	\$201.50
3/4"	5 flutes	10 pcs	\$185.40
3/4" (SD Insert)	5 flutes	10 pcs	\$225.90
3/4" (Long Shank)	5 flutes	20 pcs	\$311.47
3/4" (Long Shank & SD Insert)	5 flutes	20 pcs	\$379.51
1"	6 flutes	20 pcs	\$311.47
1" (SD Insert)	6 flutes	20 pcs	\$379.51
1.25"	8 flutes	20 pcs	\$311.47
1.25 (SD Insert)	8 flutes	20 pcs	\$379.51

Cutter Dia. (mm)	No. of Flutes.	Insert Qty. (pcs)	KIT Manufacture Suggested Retail Price(US\$)
10mm	2 flutes	10 pcs	\$155.74
10mm (SD Insert)	2 flutes	10 pcs	\$189.76
12mm	3 flutes	10 pcs	\$155.74
12mm (SD Insert)	3 flutes	10 pcs	\$189.76
16mm	4 flutes	10 pcs	\$165.38
16mm (SD Insert)	4 flutes	10 pcs	\$201.50
20mm	5 flutes	10 pcs	\$185.40
20mm (SD Insert)	5 flutes	10 pcs	\$225.90
20mm (Long Shank)	5 flutes	20 pcs	\$311.47
20mm (Long Shank & SD Insert)	5 flutes	20 pcs	\$379.51



MOLDINO Milling Cutter Upgrade



Features 01 Mounting runout accuracy of 0.02mm (.0008") or less

- Unique clamp mechanism complete with a high-accuracy body and mounting screw allows inserts to be attached firmly with high accuracy.

Features 02 R accuracy of insert is ±0.01mm (.0004") or less

- SG and SW types with a helical cutting edge use the tool axis center as a reference for the radius accuracy.

Features 03 Blade diameter tolerance for inserts is 0 to -0.02mm (.0008")

Features 04 Sharp cutting edge allows for smooth surface finishes.

- SG and SW types with helical cutting edges reduce vibrations and enable smooth cutting performance.

Features 05 New coating material for longer tool life.

- Multi-layer coating provides long life.
- TH308: Excellent for high-speed, high-performance machining of hardened steel or pre-hardened steel.
- PN215: Reduces material sticking to coating to achieve good machining surfaces when machining carbon, alloy, and stainless steels.

※For details regarding cutting performance, see p.18 and 19.

Proper use of helical cutting edge inserts

How to select helical cutting edge inserts

SG type

High-efficiency machining.
Application : semi-finishing to finishing



Suitable for machining of 3-dimensional shapes including flat surfaces and angled surfaces.



SW type

High-accuracy machining of vertical walls
Application : Finishing

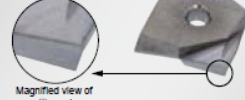


Suitable for high-accuracy finishing of vertical side surfaces (Vertical walls) which will be used as reference surfaces.



SQ type

Application : Corner R removal



Suitable for removing remaining corner material after rough machining.



Cutter Dia. (mm)	Insert Qty. (pcs)	KIT Suggested Retail Price(US\$)
8mm	2 pcs	\$161.12
8mm (Carbide Shank)	4 pcs	\$322.25
10mm	2 pcs	\$172.23
10mm (Carbide Shank)	4 pcs	\$344.46
12mm	2 pcs	\$180.57
12mm (Carbide Shank)	4 pcs	\$361.14
16mm	2 pcs	\$188.91
16mm (Carbide Shank)	6 pcs	\$566.73
20mm	2 pcs	\$197.23
20mm (Carbide Shank)	6 pcs	\$591.69
25mm	2 pcs	\$227.79
25mm (Carbide Shank)	8 pcs	\$911.13

Cutter Dia. (Inch)	Insert Qty. (pcs)	KIT Suggested Retail Price(US\$)
3/8"	2 pcs	\$141.68
3/8" (Carbide Shank)	6 pcs	\$425.04
1/2"	2 pcs	\$155.57
1/2" (Carbide Shank)	6 pcs	\$466.71
3/4"	4 pcs	\$327.82
3/4" (Carbide Shank)	8 pcs	\$655.64
1"	4 pcs	\$377.82
1" (Carbide Shank)	10 pcs	\$944.55

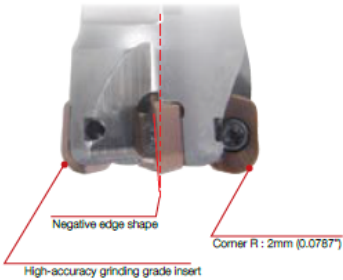


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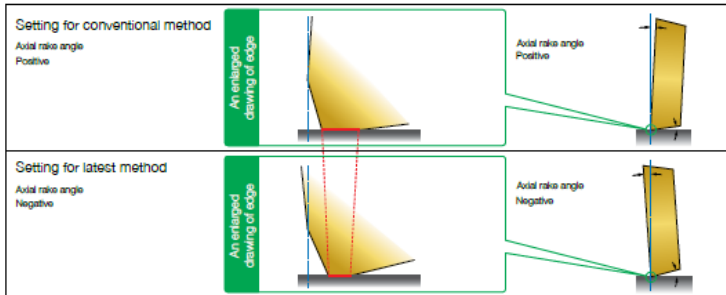


1. Key Product Details



- Combination of high-accuracy ground inserts (H grade) and high-accuracy bodies improves edge runout accuracy and stable cutting performance.
- RH2P adopts a corner radius of 2mm (0.0787") to reduce the remains by approximately corner R.
- RH2P adopts an exclusive negative edge shape.
- By having a negative setting of the rake angle against the axial direction, RH2P improves toughness of edges and reduces wear.

2. Wear reduction effect of negative edge shape



3. Comparison between ASM and RH2P

ASM type	Category	RH2P type
For high-feed processing Shoulder face milling processing	Inserts	For high-feed processing
Type of low cutting resistance with breaker	Edge shape	Flat type inserts high-toughness
M grade	Accuracy	H grade
<ul style="list-style-type: none"> • ASM can perform high-feed processing and shoulder face milling processing. • Low cutting force due to inserts has breaker. • Economical inserts (M grade). 	Features	<ul style="list-style-type: none"> • RH2P performs high-accuracy processing by combination of high-accuracy-ground inserts and H-accuracy bodies. • Edge toughness is fine, due to flat type inserts. • RH2P reduces the wear of flank, by adopting the negative edge shape.
<ul style="list-style-type: none"> • For roughing process for carbon steel and stainless steel. • Shoulder face milling as depth of cut under 2mm (0.0787"). 	Recommended cutting applications	<ul style="list-style-type: none"> • For roughing process and semi-finishing process of pre-hardened steel. • For roughing process and semi-finishing process of hardened steel (over 55HRC). • For unstable cutting (for example interrupted materials).

Cutter Dia. (mm)	Insert Qty. (pcs)	KIT Suggested Retail Price(US\$)
10mm	10 pcs	\$206.77
12mm	10 pcs	\$206.77
16mm	20 pcs	\$413.53
20mm	20 pcs	\$413.53
25mm	20 pcs	\$413.53
32mm	30 pcs	\$620.30




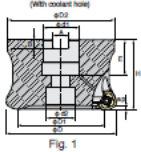
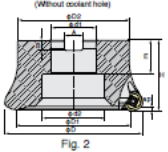
Cutter Dia. (Inch)	Insert Qty. (pcs)	KIT Suggested Retail Price(US\$)
3/8"	10 pcs	\$206.77
1/2"	10 pcs	\$206.77
5/8"	10 pcs	\$206.77
3/4"	20 pcs	\$413.53
1"	20 pcs	\$413.53
1.25"	20 pcs	\$413.53



Product info.

MOLDINO Milling Cutter Upgrade

IASDF

IASDF	Face Mill Style Inch	 The Edge To Innovation
 Max ap 3mm (0.118")	  	
D -0.15/-0.25		

Cutter Dia. (Inch)	Insert Qty. (pcs)	KIT Suggested Retail Price(US\$)
2.5"	20 pcs	\$693.82
3"	20 pcs	\$693.82
4"	30 pcs	\$1,040.73
5"	30 pcs	\$1,040.73
6"	40 pcs	\$1,387.64


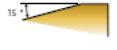

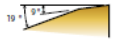
IASDF-Inch (Face Mill Style)

Part No.	Flutes	ØD	ØD1	H	Ød1	Ød2	ØD2	E	A	B	Fig	Insert
IASDF5040R-4U	4	2.5	1.600	1.969	0.75	0.630	2.382	1.024	0.32	0.197	1	SNMU1607EN-C
IASDF5048R-4U	4	3.0	2.191	2.480	1.00	0.827	2.756	1.378	0.38	0.236	1	SNMU1607EN-C
IASDF5064R-5U	5	4.0	3.100	2.756	1.50	1.240	3.543	1.378	0.63	0.394	1	SNMU1607EN-C
IASDF5080R-6U	6	5.0	4.191	2.756	1.50	1.969	3.937	1.378	0.63	0.394	2	SNMU1607EN-C
IASDF5096R-8U	8	6.0	5.192	2.756	1.50	2.165	4.184	1.378	0.63	0.394	2	SNMU1607EN-C

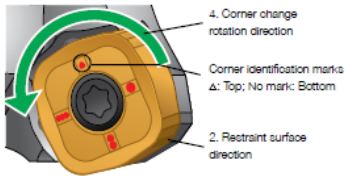
BREAKER SHAPES

B breaker for lower cutting force is now available.

- Positive edge geometry realizes 10% lower cutting force than before.
- B breaker has better performance in less rigidity set-up.

	Item Code	Breaker Shape	Cross-section Shape	Application
C Breaker	SNMU1607EN-C			<ul style="list-style-type: none"> • Suitable for general machining in steels • Interrupted machining
B Breaker	SNMU1607EN-B			<ul style="list-style-type: none"> • Machining with less rigidity set-up • Parts-making in less rigidity cramping • Suitable for stainless steel machining

Insert Replacement Procedure



1. Clean the place where the insert will be attached so that there are no foreign materials such as cutting chip stuck on.
2. Apply anti-seize agent to the thread portion of the clamp screw, and while pressing the insert against the restraint surface, tighten the screw to the appropriate torque. (Recommended tightening torque: 4.9Nm)
3. After tightening, check that there are no gaps between the insert and the base or the restraint surface.
4. Change the insert corner by turning the insert in a counterclockwise direction.



Product info.

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