



NTK CUTTING TOOLS

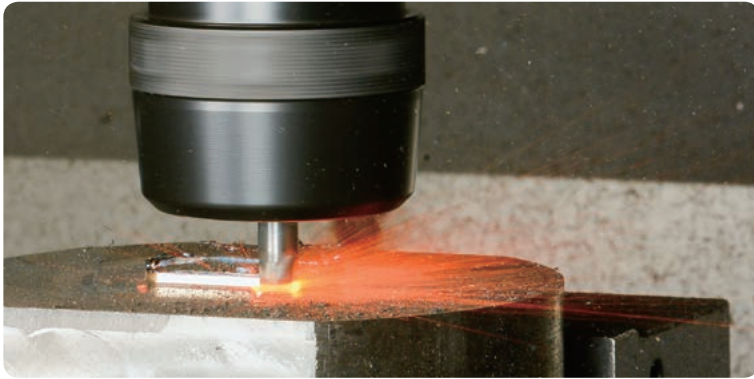
MILLING PRODUCT RANGE

For When Speed Is Everything





Ceramic Endmill (RCE) for HRSA Materials



Features

- *Extremely high speed machining for HRSA materials with our durable SiALON grade "SX9"*
- *More than 15 times higher productivity than a Carbide endmill*
- *4 flutes and 6 flutes are available*
- *Unique patent pending design provides toughness to the edge*

→18

NEW Ceramic Endmill (RCS) for Cast Iron/HRSA Materials



Features

- *Strong edge design ensures 5 times higher productivity than carbide tooling*
- *4, 6 and 8 flute designs*
- *Unique edge preparation has potential applications for Heat Resistant Super Alloy machining*

→18

HRSA materials and Hardened Materials

Features

- High performance milling cutter line that uses round-shaped inserts for machining both aerospace and hardened steels
- SX7, the new SiALON grade, has the best performance for high speed machining of high temperature alloys



AHM series →I12·I14
accel high speed mill



Gray / Ductile Cast Iron

XEM series



A.R.-4° R.R.0°

Features

- Large DOC is possible because of the fine pitch of inserts which results in higher productivity
- LNX Insert comes with special chipbreaker to reduce tool pressure
- Newly added Left-hand cutters

→I16

HVM series



A.R.-6° R.R.-10°

Features

- Extremely economical 8-corner inserts
- Covers various applications with 45, 75, and 88 degree angle milling cutters
- Ceramic inserts with chipbreaker and wiper are also available

→I18·I20·I22

JQ series



Features

- Capable of 90-degree shoulder milling
- A variety of cutter diameters as small as .787 (φ 20mm)

→I17

TRI series



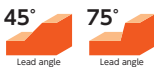
A.R.5° R.R.4°,7°,10°

Features

- Stable gray cast iron milling with lower cutting forces
- Maximizes ceramic insert potential and can mill faster than 3,200 SFM

→I24

HSM series



A.R.+12° R.R.0°

Features

- Positive inserts reduce tool pressure and produce excellent surface finish in addition to long tool life
- Best for milling thin parts thanks to reduced tool pressure

→I25·I26·I27

Aluminum

HFC series Adjustable type →I28
igh eed utter



Features

- **More teeth = More productivity**
- **Light weight aluminum body**
- **Adjustable edge height**
- **Produces outstanding surface finishes**
- **Internal coolant supply**
- **Inserts can be reground up to 4 times**
- **Guaranteed setup service is available**



HPC series →I32
igh performance utter



Features

- **A wide range of cutter diameters from ϕ .787" (20mm) to ϕ 3.937" (100mm)**
- **Strong rigid steel bodies**
- **With the fixed-type cutters, no time-consuming presetting is required**

Small Carbide Endmill for Swiss Machines



Features

- **The tool's sharpness creates a remarkable finish on machined surfaces.**
- **2, 3, and 4 flute designs with a selection of diameters to cover a variety of applications. (2 flute available in 2mm ϕ)**
- **40, 45, and 50mm lengths ideal for Swiss type lathes.**

Milling with NTK Grades by Application

General Guidelines for Successful Milling

- Select the best grade for the application
- Select cutter diameter 1.5 times greater than the workpiece width
- Eliminate any overhang to increase stability
- Choose the strongest nose radius
- No Coolant. Use compressed air
- Check clamp and part rigidity



Guidelines for Successful Milling by Material

Heat resistant alloy / PH stainless steel

- Down or climb milling where the chip thins upon exit is the preferred method for HNBA materials
- Reduce feed rate 50% upon entrance and exit
- Do not recut side walls as this can cause work hardening
- Use balanced shell mill adapter or shrink fit for end-mills
- As DOC gets thinner the feed must be increased to compensate for heat loss
- Use RPG geometries if tool pressure is a problem
- E01, E02 edge preparation recommended

Hardened Steel / Die mold / Chilled iron / Overlay

- Larger edge preparations need to be used
- Speed is reduced as hardness goes up

Cast Iron / Ductile Cast Iron

- Parts that are cast are more difficult to machine than forged • decrease feed rates by 25%
- Maximize feed rates for gray cast irons

Trouble shooting

Material	Insert Grade	NTK Grade	Problem	Solution					
				Speed	Feed	DOC	Edge Prep.	Insert Grade	Others
Hardened Steel	Ceramic	HC7 WA1	Chipping	—	↘	—	Wider	—	—
			Break	↘	↘	—	—	—	—
Cast Iron	Silicon Nitride	SX6 SP9	Chipping	↘	↘	—	Wider	—	—
			Break	↘	↘	↘	—	Tougher	Larger radius
			Thermal Crack	↘	↘	—	—	—	—
			Crater Wear	—	—	—	Sharper	—	—
Heat Resistant Alloy	SiAlON	SX9 SX7	Notching	↗	↗	Vary / ↘	Wider	—	Pre-chamfer parts
			Flank Wear	↘	↗	—	—	Harder	—
			Chipping	—	—	—	Wider	Tougher	—
			Break	↘	—	↘	—	Tougher	—
			Tool Pressure	—	—	—	—	—	Use RPG insert

Hard Milling with WA1

Mill hardened materials (HRC 45 - 62) Reduce costs and eliminate grinding

- Rapid metal removal rates
- Achieve outstanding surface finishes
- Increased tool life vs carbides
- Versatile round insert geometries provide clearance in every direction



Target Industries

- Mold Shops
- Food processing
- Tool & Die
- Forging
- Mining

Application Materials

- Tool Steels
- Chilled Irons
- Stellite
- Mold Steels
- Powered Metal
- Weld Overlays

Cutters



→I12



→I12



→I14

Insert

- Grade
WA1
- Shape
RPG: Low tool pressure
RNG: More rigidity

Recommend Cutting Conditions

INSERT	DOC	HRC 45-55		HRC 55-60		HRC 60-62	
		Cutting Speed (SFM)	Feed (IPT)	Cutting Speed (SFM)	Feed (IPT)	Cutting Speed (SFM)	Feed (IPT)
RPG-21.51	.030"	850 - 1000	.004"	700 - 900	.003"	550 - 800	.0025"
RPG-32	.045"	850 - 1200	.0045"	700 - 1100	.003"	550 - 1000	.0025"
RPG-43	.050"	850 - 1300	.005"	700 - 1200	.0035"	550 - 1100	.003"
RNG-32	.045"	850 - 1200	.0045"	700 - 1100	.0045"	550 - 1000	.0025"
RNG-43	.045"	850 - 1400	.0045"	700 - 1300	.045"	550 - 1200	.003"
RNG45	.075"	850 - 1400	.005"	700 - 1300	.004"	550 - 1200	.003

Note: Speeds and Feeds are approximately starting points

Guidelines for Success

- Minimize overhang and have ridged set-ups
- Keep cutter engagement to 1/2 to 5/8 of the cutter diameter
- Reduce feed upon entrance and exit of the cut by 25%
- Use air blast without coolant
- Use helical interpolation to ramp down into a cavity
- Increase feed rates in corners to compensate for heat loss
- Use climb milling
- Use shrink fit holders whenever possible
- Safety first-do not exceed SFM
- As DOC gets smaller speed should accelerate to compensate for heat loss
- Adjust speed to maximize plastic deformation

Machine power requirements ~ Quick Check Table ~

Calculation ※Assuming that normal cast iron is machined at a cutting speed of 2600 SFM

$$\text{Required mechanical power (hp)} = \text{○○\%} \times \text{○○hp}$$

Width of cutting a_e = __ % of the cutter diameter

The value __ hp determined from the applicable table below

(Example of calculation)

Cutter used : HVM ϕ 4"-10 teeth Width of cutting a_e =1.2"→This is 30% of the cutter diameter
Cutting conditions : 2600 SFM .008 IPT .118 DOC → The value 54hp in the table is located.

The required power (hp)=30%×54hp=16hp

HVM Series 	HSM Series 	XFM Series 																																																																																													
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HVM ϕ6" - 16 teeth <table border="1"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="4">Feed rate per tooth (IPT)</th> </tr> <tr> <th>.004</th> <th>.008</th> <th>.012</th> <th>.016</th> </tr> </thead> <tbody> <tr> <th rowspan="4">Depth of cut (inch)</th> <th>.039</th> <td>28</td> <td>43</td> <td>56</td> <td>67</td> </tr> <tr> <th>.079</th> <td>55</td> <td>85</td> <td>111</td> <td>134</td> </tr> <tr> <th>.118</th> <td>83</td> <td>127</td> <td>168</td> <td>203</td> </tr> <tr> <th>.157</th> <td>110</td> <td>170</td> <td>223</td> <td>270</td> </tr> </tbody> </table>			Feed rate per tooth (IPT)				.004	.008	.012	.016	Depth of cut (inch)	.039	28	43	56	67	.079	55	85	111	134	.118	83	127	168	203	.157	110	170	223	270	HSM ϕ6" - 10 teeth <table border="1"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="4">Feed rate per tooth (IPT)</th> </tr> <tr> <th>.004</th> <th>.008</th> <th>.012</th> <th>.016</th> </tr> </thead> <tbody> <tr> <th rowspan="4">Depth of cut (inch)</th> <th>.039</th> <td>16</td> <td>24</td> <td>32</td> <td>39</td> </tr> <tr> <th>.079</th> <td>32</td> <td>48</td> <td>66</td> <td>79</td> </tr> <tr> <th>.118</th> <td>48</td> <td>72</td> <td>98</td> <td>118</td> </tr> <tr> <th>.157</th> <td>64</td> <td>97</td> <td>130</td> <td>157</td> </tr> </tbody> </table>			Feed rate per tooth (IPT)				.004	.008	.012	.016	Depth of cut (inch)	.039	16	24	32	39	.079	32	48	66	79	.118	48	72	98	118	.157	64	97	130	157																																
			Feed rate per tooth (IPT)																																																																																												
		.004	.008	.012	.016																																																																																										
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	.118	48	72	98	118																																																																																										
	.157	64	97	130	157																																																																																										

Unit : kW

Tips for utilizing the above tables

- ① The assumption is that gray cast iron is machined at a cutting speed of 2600 SFM, with the cutter diameter shown as the width of cut (a_e = 100% of the cutter diameter).
- ② The required power becomes approximately half (50%) if the cutting width a_e or depth of cut a_p is halved. (The power is proportional to a_e or a_p .)
- ③ The required power is reduced to approximately 60% if the number of blades is halved.
- ④ Machines that have an output of 30 hp or greater are recommended.

*Please make use of the above tables, understanding that they are approximations as only a guide.

NEW Solid Ceramic End Mill



Features

- Extremely high speed machining for HRSA materials with our durable SiAlON grade "SX9"
- More than 15 times higher productivity than a Carbide end mill
- 4, 6 and 8 flutes are available
- Unique patent pending design provides toughness to the edge

RCE for HRSA materials →I10



● Ceramic specialist's design

Helix angle

- Designed for the purpose of:
 - 4-flute: toughness
 - 6-flute: less tool pressure and better chip evacuation



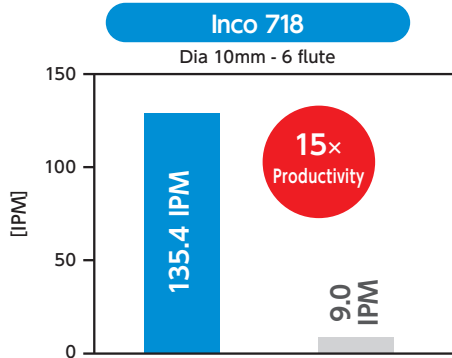
- SX9(SiAlON)**
 - Well balanced for toughness and wear resistance

Bottom edge

- Unique shape provides toughness

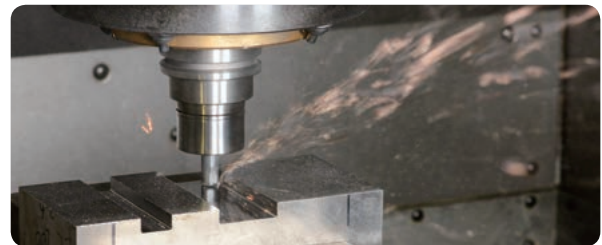
Flute

- Optimized for HRSA materials
- Excellent toughness



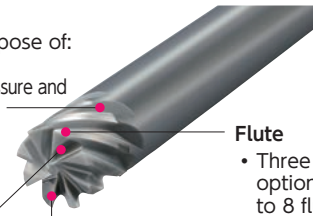
	SX9	Carbide
SFM	1970	130
IPT	.0012	←
DOC	.118	←

RCS for Cast iron / HRSA materials →I11



Helix angle

- Designed for the purpose of:
 - 4-flute: toughness
 - 6/8-flute: less tool pressure and better chip evacuation



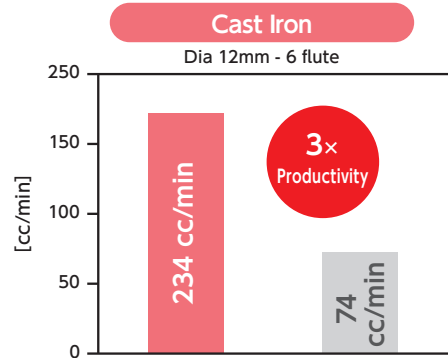
- Flute**
 - Three flute options up to 8 flute

End Gash

- Bigger end gash brings toughness

Edge

- Added chamfer provides toughness for cast iron machining



	SX9	Carbide
SFM	2300	360
IPT	.002	←
DOC	.138	.275

4-flute



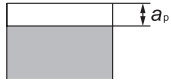


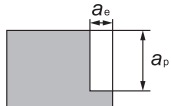


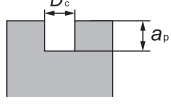





6-flute



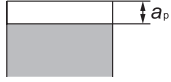


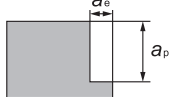


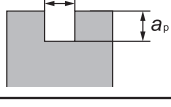


8-flute



● Recommend Cutting Conditions for HRSA material

Application	Grade	ϕD_c	Flute	Cutting Speed (SFM)			Feed (IPT)	Depth of cut (a_p —inch)	Width of cut (a_e —inch)	Coolant		
				500	2000	3500						
Face Milling 	SX9	3/8"	4/6/8		.0012	—	.056	—	DRY 			
		1/2"					.075					
		5/8"					.094					
		3/4"					.113					
		8mm					.047					
		10mm					.059					
		12mm					.071					
		16mm					.094					
		20mm					.118					
Side Milling 	SX9	3/8"	4/6/8		.0012	—	.187	.037	DRY 			
		1/2"					.250	.050				
		5/8"					.313	.063				
		3/4"					.375	.075				
		8mm					.157	.031				
		10mm					.197	.039				
		12mm					.236	.047				
		16mm					.315	.063				
		20mm					.394	.079				
Slotting 	SX9	3/8"	4		.0012	—	.094	—	DRY 			
		1/2"					.125					
		5/8"					.156					
		8mm					.079					
		10mm					.098					
		12mm	.118									
		16mm	.157									
		3/8"	6						.0012	—	DRY 	
		1/2"										.056
		5/8"										.075
		8mm										.094
		10mm										.047
		12mm	.059									
		16mm	.071									
		3/4"	8									
1/2"	.113											
5/8"	.094											
8mm	.047											
10mm	.059											
12mm	.071											
16mm	.094											
20mm	.118											

● Recommended cutting conditions for Cast Iron

Application	Grade	ϕD_c	Flute	Cutting Speed (SFM)			Feed (IPT)	Depth of cut (a_p —inch)	Width of cut (a_e —inch)	Coolant
				500	2000	3500				
Face Milling 	SX9	1/2"	4/6/8		.004	—	.094	—	DRY 	
		5/8"					.156			
		3/4"					.187			
		12mm					.118			
		16mm					.158			
		20mm					.197			
Side Milling 	SX9	1/2"	4/6/8		.004	—	.375	.083	DRY 	
		5/8"					.469	.104		
		3/4"					.563	.125		
		12mm					.354	.079		
		16mm					.472	.098		
		20mm					.591	.130		
Slotting 	SX9	1/2"	4/6/8		.004	—	.094	—	DRY 	
		5/8"					.156			
		3/4"					.187			
		12mm					.118			
		16mm					.157			
		20mm					.197			

For Maximum Productivity

- A continuous cut is recommended. An interrupted cut may cause chipping or breakage.
- When using a Hydraulic or Shrink chuck, blow air to the arbor body, DON'T blow air to the endmill itself.
- A Minimum speed of 980 SFM is required. (Don't run at lower speed.)
- A 1.5 degree ramping angle is recommended. Run at 50% lower feed rate when ramping cut.

When cutting HRSA materials

- Continue to machine even if you see BUE, removing BUE may cause chipping or breakage to the edge.
- High speed machining work hardens the material. For this reason, leave at least 0.3mm of material for a finishing process.

RCE for HRSA Materials

RCE-H4 (4-flute with Neck)

○ No center cutting edge



Slotting



Pocketing



Ramping



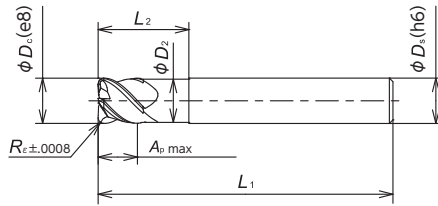
Z=4



35°



1.5°



Tolerances

$\phi D_c / \phi D_s$	e8	h6
3/8", 8mm, 10mm	-.00098/-0.00185"	+0/-0.00035"
1/2", 12mm	-.00126/-0.00232"	+0/-0.00043"

Heat Resistant Alloy S ● : 1st Choice ● : 2nd choice

Item Number	Grade	Flute	ϕD_c		ϕD_s		ϕD_2		R_e		A_p max		L_1		L_2	
			(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)
RCEI375H4R047S	●	4	3/8		3/8		.359		.047		9/32		2.50		3/4	
RCEI500H4R068S	●	4	1/2		1/2		.484		.068		3/8		2.75		1	
RCEM080H4R100S	●	4	.315	8	.315	8	.299	7.6	.039	1.0	.236	6	2.362	60	0.630	16
RCEM100H4R125S	●	4	.394	10	.394	10	.378	9.6	.049	1.25	.295	7.5	2.559	65	0.787	20
RCEM120H4R150S	●	4	.472	12	.472	12	.457	11.6	.059	1.5	.354	9	2.756	70	0.945	24

RCE-J6 (6-flute)

○ No center cutting edge



Face Milling



Side Milling



Profiling



Ramping



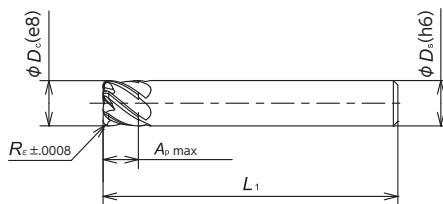
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40°



1.5°



Tolerances

$\phi D_c / \phi D_s$	e8	h6
3/8", 8mm, 10mm	-.00098/-0.00185"	+0/-0.00035"
1/2", 12mm	-.00126/-0.00232"	+0/-0.00043"

Heat Resistant Alloy S ● : 1st Choice ● : 2nd choice

Item Number	Grade	Flute	ϕD_c		ϕD_s		R_e		A_p max		L_1	
			(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)
RCEI375J6R047S	●	6	3/8		3/8		.047		9/32		2.50	
RCEI500J6R068S	●	6	1/2		1/2		.068		3/8		2.75	
RCEM080J6R100S	●	6	.315	8	.315	8	.039	1.0	.236	6	2.362	60
RCEM100J6R125S	●	6	.394	10	.394	10	.049	1.25	.295	7.5	2.559	65
RCEM120J6R150S	●	6	.472	12	.472	12	.059	1.5	.354	9	2.756	70

RCS for Cast Iron / HRSA Materials

RCS-H4

○ No center cutting edge



Slotting



Pocketing



Ramping



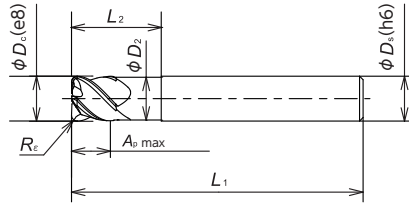
Z=4



35°



1.5°



Tolerances

$\phi D_c / \phi D_s$	e8	h6
1/2", 12mm, 5/8", 16mm	-.00126/-0.00232"	+0/-0.00043"

Cast Iron		K	●														
Heat Resistant Alloy		S	●	● : 1st Choice ● : 2nd choice													
	Item Number	Grade	Flute	ϕD_c		ϕD_s		R_c		$A_p \text{ max}$		L_1		L_2			
		SX9		(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)		
RCS-H4	RCSI500H4R068S	●	4	1/2		1/2		.484	12.3	.068	1.73	3/8	2.75	69.85	1	25.4	
	RCSI625H4R078S	●	4	5/8		5/8		.605	15.4	.078	1.98	.469	11.91	3	76.2	1.25	31.75
	RCSM120H4R150S	●	4	.472	12	.472	12	.457	11.6	.059	1.5	.354	9	2.76	70	.954	24
	RCSM160H4R200S	●	4	.630	16	.630	16	.610	15.5	.079	2.0	.472	12	2.95	75	1.26	32

RCS-J6 / RCS-J8

○ No center cutting edge



Face Milling



Side Milling



Profiling



Ramping



Z=6



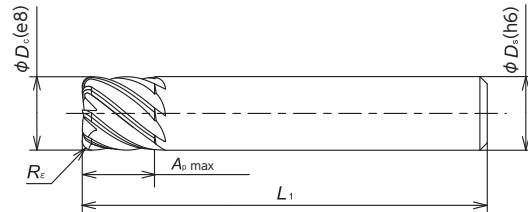
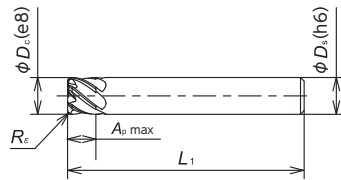
Z=8



40°



1.5°



Tolerances

$\phi D_c / \phi D_s$	e8	h6
1/2", 12mm, 5/8", 16mm	-.00126/-0.00232"	+0/-0.00043"
3/4", 20mm	-.00157/-0.00287"	+0/-0.00051"

Cast Iron		K	●										
Heat Resistant Alloy		S	●	● : 1st Choice ● : 2nd choice									
	Item Number	Grade	Flute	ϕD_c		ϕD_s		R_c		$A_p \text{ max}$		L_1	
		SX9		(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(mm)
RCS-J6	RCSI500J6R068S	●	6	1/2		1/2		.068	1.73	3/8	2.75		
	RCSI625J6R078S	●	6	5/8		5/8		.078	1.98	.469	11.91	3	
	RCSM120J6R150S	●	6	.472	12	.472	12	.059	1.5	.354	9	2.76	70
	RCSM160J6R200S	●	6	.630	16	.630	16	.079	2.0	.472	12	2.95	75
RCS-J8	RCSI750J8R094S	●	8	3/4		3/4		.094	2.38	.563	14.29	4.25	
	RCSM200J8R250S	●	8	.787	20	.787	20	.098	2.5	.984	15	4.33	110

● : Stock
 ● : Stock (Newly added)
 ■□□□ : While stocks last

R L : Stock (Right / Left-hand only)
 R L : Stock (Right / Left-hand only, Newly added)
 ☉ : Mirror finish

○ : 1-2 week delivery
 ○ : 1-2 week delivery (Newly added)
 ● : Coolant through

Ⓜ : 1-2 week delivery (Right / Left-hand only)
 Ⓜ : 1-2 week delivery (Right / Left-hand only, Newly added)

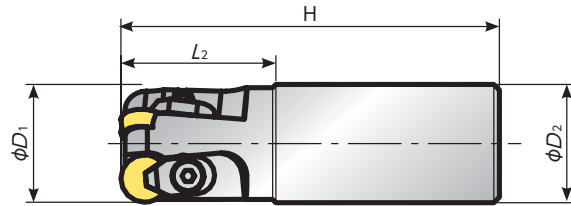


series

* Recommend using torque wrench @35lbs (4Nm)



A.R.+5°
R.R.-7°30'

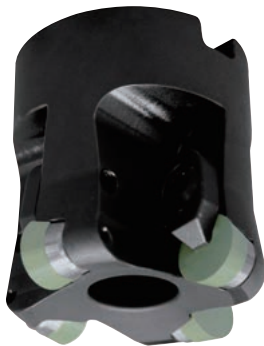


● Inch size cutters

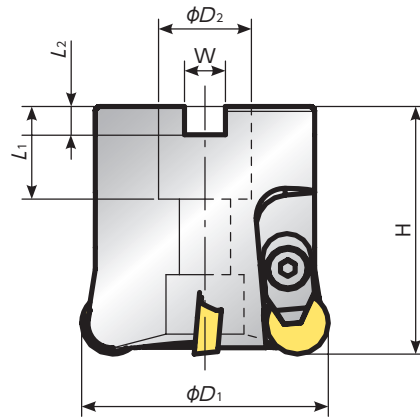
Item Number	Stock		Dimensions (inch)				Clamp	Clamp Screw	Weight (lbs)	Insert
			ϕD_1	D_2	H	L_2				
RPIW0625E0625R02	●	2	.625	.625	3.160	1.250	C-423978	S-3-48*1/4SHCS	0.2	RPG 21.5
RPIW075E075R02	●	2	.750	.750	3.270	1.220	AMS-3	AOB-3S	0.4	RPG 21.5
RPIW100E100R03	●	3	1.000	1.000	3.270	1.000	AMS-4	AOB-4S	0.6	RPG 32
RPIW125E125R03	●	3	1.250	1.250	4.000	1.640	AMS-5T	AOB-5S-T25	1.1	RPG 43
RPIW150E150R03	●	3	1.500	1.500	4.000	1.830			1.6	

● Metric size cutters

Item Number	Stock		Dimensions (mm)				Clamp	Clamp Screw	Weight (kg)	Insert
			ϕD_1	D_2	H	L_2				
JRPMW032E250R03	○	3	32	25	120	AMS-5T	AOB-5S-T25	0.4	RPG 43	
JRPMW032E320R03	○		32	32				0.6		
JRPMW040E320R03	○		40	32				0.7		



A.R.+5°
R.R.-2°30' ~ -5°



● Inch size cutters

Item Number	Stock		Dimensions (inch)						Shim	Shim Screw	Clamp	Clamp Screw	A.R.	R.R.	Weight (lbs)	Insert
			ϕD_1	H	D_2	W	L_1	L_2								
RPIW200S075R04	●	4	2.00	2.00	.750	.32	.75	.22	ARP42A	M3 * 8	AMS-5T	AOB-5S-T25	+5°	+5°	0.9	RPG 43
RPIW300S100R05	●	5	3.00	2.00	1.000	.38	.75	.22					+5°	+5°	2.0	
RPIW400S125R06	●	6	4.00	2.00	1.250	.50	.82	.30					+5°	+5°	4.2	

● Metric size cutters

Item Number	Stock		Dimensions (mm)						Shim	Shim Screw	Clamp	Clamp Screw	A.R.	R.R.	Weight (kg)	Insert
			ϕD_1	H	D_2	W	L_1	L_2								
JRPMW050S220R04	○	4	50	50	22	10.4	20	6.3	ARP42A	M3 * 8	AMS-5T	AOB-5S-T25	+5°	+5°	0.4	RPG 43
JRPMW063S220R04	○	4	63	50	22	10.4	20	6.3					+5°	+5°	0.6	
JRPMW080S254R05	○	5	80	50	25.4	9.5	25	6.0					+5°	+2°30'	0.9	

● Inserts

(inch)	IC	T	(inch)	IC	T
RPG 21.5	1/4	3/32	RPG 43	1/2	3/16
RPG 32	3/8	1/8			

● : 1st Choice ● : 2nd choice

	Steel	P							
	Stainless Steel	M							
	Cast Iron	K	●	●	●	●	●	●	
	Non-Ferrous Material	N							
	Heat Resistant Alloy	S	●	●	●	●	●	●	
Hardened Material	H						●	●	
Item Number	ISO Item Number	IC	Ceramics						
			SiALON				Whisker	Alumina - TiC	
			SX7	SX3	SX9	SX5	WA1	HC7	
RPG 21.5 E02	RPGN 060200 E004	1/4	●						
RPG 21.5 T0220	RPGN 060200 T00520	1/4		●	●	●	●		
RPG 21.5 T0320	RPGN 060200 T00820	1/4	●						
RPG 21.5 T0420	RPGN 060200 T01020	1/4					●		
RPG 32 E02	RPGN 090300 E004	3/8	●						
RPG 32 T0220	RPGN 090300 T00520	3/8		●	●	●	●		
RPG 32 T0320	RPGN 090300 T00820	3/8	●						
RPG 32 T0420	RPGN 090300 T01020	3/8					●		
RPG 43 E01	RPGN 120400 E002	1/2				●			
RPG 43 E02	RPGN 120400 E004	1/2	●						
RPG 43 T0220	RPGN 120400 T00520	1/2		●	●	●	●		
RPG 43 T0225	RPGN 120400 T00525	1/2			○				
RPG 43 T0320	RPGN 120400 T00820	1/2	●						
RPG 43 T0420	RPGN 120400 T01020	1/2				●	●	●	●
RPG 43 Z0620	RPGN 120400 Z01520	1/2						●	
RPG 43 Z0825	RPGN 120400 Z02025	1/2							●

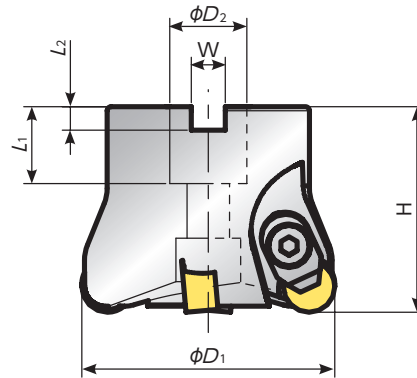
● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)									Feed (IPT)							Depth of Cut (inch)	
				200	700	1200	1700	2200	2700	3200	3700	.002	.003	.004	.005	.006	.007				
S Heat Resistant Alloys	SX7	●																		~.150	
	SX3	●																			~.150
	SX9	●																			~.150
H Hardened Steel	WA1	●	○																		~.150
	HRC 45-55 HC7	●	○																		~.150
	HRC 55-65 WA1	●	○																		~.150
	HRC 55-65 HC7	●	○																		~.150



*** Recommend using torque wrench @35lbs (4Nm)**

A.R.-5°
R.R.-10°

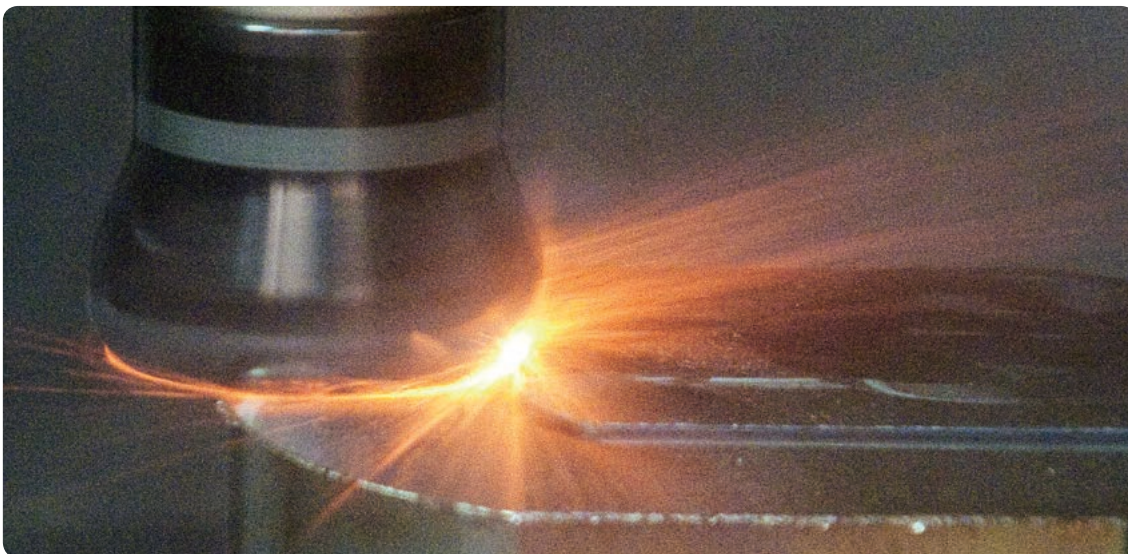


● Inch size cutters

Item Number	Stock	✳	Dimensions (inch)						Clamp	Clamp Screw	Weight (lbs)	Insert
			ϕD_1	H	ϕD_2	W	L ₁	L ₂				
RNIW200S075R04-43	●	4	2.00	2.00	.750	.32	.75	.22	AMS-6T	AOB-6S-T30	1.0	RNG 43
RNIW200S075R03	●	3	2.00	2.00	.750	.32	.75	.22			1.0	RNG 45
RNIW250S075R04	●	4	2.50	2.00	.750	.32	.75	.22			1.3	
RNIW300S100R05	●	5	3.00	2.00	1.000	.38	.75	.22			1.6	
RNIW400S125R06	●	6	4.00	2.00	1.250	.51	.82	.30			4.2	

● Metric size cutters

Item Number	Stock	✳	Dimensions (mm)						Clamp	Clamp Screw	Weight (kg)	Insert
			ϕD_1	H	ϕD_2	W	L ₁	L ₂				
JRNMW050S220R03	○	3	50	50	22	10.4	20	6.3	AMS-6T	AOB-6S-T30	0.4	RNG 45
JRNMW063S220R04	○	4	63	50	22	10.4	20	6.3			0.6	
JRNMW080S254R05	○	5	80	50	25.4	9.5	25	6.0			0.9	



● Inserts

(inch)	IC	T	(inch)	IC	T
RNG 43	1/2	3/16	RNG 45	1/2	5/16

● : 1st Choice ● : 2nd choice

Item Number	ISO Item Number	IC	Ceramics														
			SiAlON				Whisker	Silicon Nitride		Alumina - TiC							
			SX7	SX3	SX9	SX5	WA1	SX6	SP9	HC7							
RNG 43 E01	RNGN 120400 E002	1/2			●												
RNG 43 E02	RNGN 120400 E004	1/2	●	●													
RNG 43 T0220	RNGN 120400 T00520	1/2		●	●	●		●									
RNG 43 T0225	RNGN 120400 T00525	1/2			○			○									
RNG 43 T0320	RNGN 120400 T00820	1/2	●														
RNG 43 T0420	RNGN 120400 T01020	1/2			●			●									●
RNG 43 T0820	RNGN 120400 T02020	1/2								●							
RNG 43 T0825	RNGN 120400 T02025	1/2			○												
RNG 43 Z0825	RNGN 120400 Z02025	1/2															●
RNG 45 E01	RNGN 120700 E002	1/2			●					●							
RNG 45 E02	RNGN 120700 E004	1/2	●	●													
RNG 45 T0220	RNGN 120700 T00520	1/2		●	●	●		●		●							
RNG 45 T0225	RNGN 120700 T00525	1/2			○			○									
RNG 45 T0320	RNGN 120700 T00820	1/2	●														
RNG 45 T0420	RNGN 120700 T01020	1/2			●			●		●							●
RNG 45 T0620	RNGN 120700 Z01520	1/2								●							
RNG 45 Z0825	RNGN 120700 Z02025	1/2															●

● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)								Feed (IPT)						Depth of Cut (inch)
				200	700	1200	1700	2200	2700	3200	3700	.002	.003	.004	.005	.006	.007	
S Heat Resistant Alloys	SX7	●																~.150
	SX3	●																~.150
	SX9	●																~.150
H Hardened Steel	WA1	●	○															~.150
	HRC 45-55 HC7	●	○															~.150
	HRC 55-65 WA1	●	○															~.150
	HRC 55-65 HC7	●	○															~.150

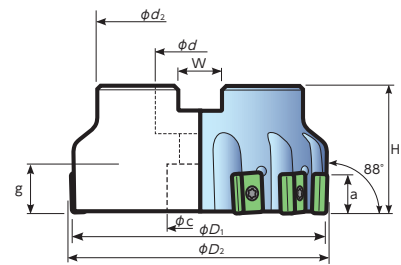
● : Stock ● : Stock (Newly added) ■ □ □ □ : While stocks last R L : Stock (Right / Left-hand only) R L : Stock (Right / Left-hand only, Newly added) ○ : 1-2 week delivery ○ : 1-2 week delivery (Newly added) ● : Coolant through ® L : 1-2 week delivery (Right / Left-hand only) ® L : 1-2 week delivery (Right / Left-hand only, Newly added)

XFM series

- Lead angle 88 degree - LNX324 (A.R.-4°, R.R.0°)



Left hand added!



● Inch size cutters

Item Number	Stock		✳	Dimensions (inch)										Weight (lbs)	Insert
	R	L		φD ₁	φD ₂	H	a	φd	W	φd ₂	φc	g			
JXTM15IN-88-4%	●	●	4	1.50	1.55	1.75	.551	.750	.32	1.350	.610	—	1.0	LNX 324	
JXTM15IN-88-5%	●	●	5	1.50	1.55	1.75	.551	.750	.32	1.350	.610	—	1.0		
JXTM20IN-88-6%	●	●	6	2.00	2.05	2.00	.551	.750	.32	1.770	.610	—	1.0		
JXTM25IN-88-8%	●	●	8	2.50	2.55	2.00	.551	1.000	.38	2.000	.760	—	1.5		
JXTM30IN-88-10%	●	●	10	3.00	3.04	2.00	.551	1.000	.38	2.362	.827	.539	2.4		
JXTM40IN-88-13%	●	●	13	4.00	4.04	2.00	.551	1.500	.64	3.150	2.000	.870	3.9		
JXTM50IN-88-16%	●	●	16	5.00	5.04	2.00	.551	1.500	.64	3.740	2.000	.870	6.5		
JXTM60IN-88-18%	●	●	18	6.00	6.05	2.00	.551	2.000	.75	4.000	2.800	1.120	8.0		

* 8 corners can be used when using right and left hand cutter.

● Metric size cutters

Item Number	Stock		✳	Dimensions (mm)										Weight (kg)	Insert
	R	L		φD ₁	φD ₂	H	a	φd	W	φd ₂	φc	g			
JXTM080-88-10%	○		10	80	83	50	14	25.4	9.5	58	36	14	1.1	LNX 324	
JXTM100-88-13%	○		13	100	103	50	14	31.75	12.7	77	50	17	1.8		
JXTM125-88-16%	○		16	125	128	58	14	38.1	15.9	77	55	22	3.1		

● Spare Parts

Insert Screw	Wrench
LRIS-4 * 12	LLR-25S

● Screw Drivers (OP)

Bit	Handle	Handle & Bit
HLR-25S	XX2815-04	XX2815-04-25S

● Inserts

	Item Number	R	Silicon Nitride	
			SX6	SP9
	LNX 324-02 T0420 (LNX 324-08 T01020)	.031	●	●
	LNX 324-03 T0420 (LNX 324-12 T01020)	.047	●	●
LNX 324-04 T0420 (LNX 324-16 T01020)	.063	●	●	

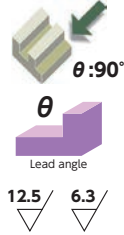
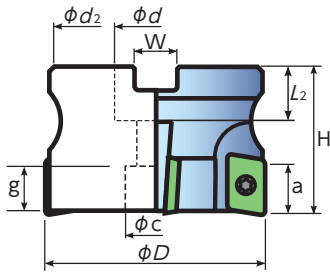
* Recommend using torque wrench @35lbs(4Nm)

* 8 corners can be used when using right and left hand cutter.

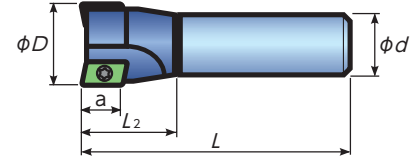
● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)								Feed (IPT)					Depth of Cut (inch)
				700	1200	1700	2200	2700	3200	3700	4200	.002	.004	.006	.008	.010	
Gray Cast Iron	SX6	●	●														~.300
	SP9	●	○														~.300
Ductile Iron	SP9	●	○														~.300

JQTS



JQTE



● JQTS Metric size cutters

Item Number	Stock		Dimensions (mm)								Weight (kg)	A.R.	R.R.	Insert Screw	Wrench	Insert	
			ϕD	H	L_2	a	ϕd	W	ϕd_2	ϕc							g
JQTS040-90-4R	●	4	40	40	18	14	16	8.4	35	12	4.2	0.2	+6°	-13°	FSI22-4.0*11	T-15A	
JQTS050-90-5R	●	5	50	40	22	14	22	10.4	45	18	10.7	0.3	+6°	-10°			
JQTS063-90-6R	●	6	63	50	22	14	22	10.4	58	18	14.5	1.4	+6°	-12°			

● JQTE Metric size cutters

Item Number	Stock		Dimensions (mm)					Weight (kg)	A.R.	R.R.	Insert Screw	Wrench	Insert
			ϕD	L	L_2	a	ϕd						
JQTE020-90-1R	●	1	20	100	30	14	20	0.2	+6°	-13°	FSI23-4.0*7	T-15A	
JQTE025-90-2R	●	2	25	100	30	14	25	0.3	+6°	-13°			
JQTE032-90-3R	○	3	32	110	35	14	32	0.5	+6°	-13°	FSI22-4.0*11		
JQTE040-90-4R	○	4	40	110	37	14	32	0.6	+6°	-13°			

● Inserts

Shape	Item Number	R	m	Silicon Nitride	
				SX6	SP9
 	APCW 160408 T01020	.031	.288	●	●
	APCW 160412 T01020	.047	.286	●	●
	APCW 160420 T01020	.079	.284	●	●
 	APCW 1604 PDTR	—	—	○	○
The insert must be installed in all insert pockets					

* Recommend using torque wrench @35lbs(4Nm)

● CBN Wiper Insert: Can install 1 or 2 CBN Wiper Inserts with ceramic insert.

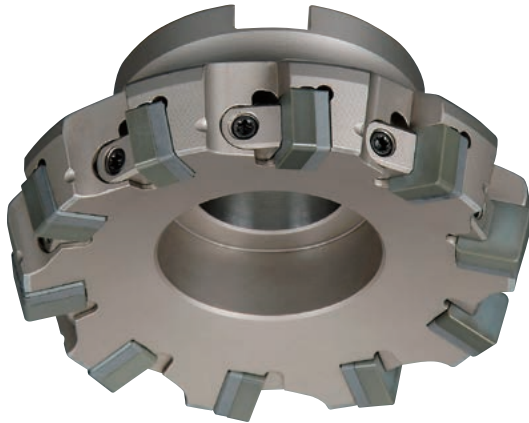
Shape	Item Number	B30	B52
 <p>* Slightly taller insert than ceramic inserts so can be installed in standard cutter.</p>	APCW 1604 PDSRCE	○	○

● Recommend Cutting Conditions

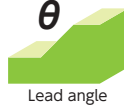
Work Material	Grade	Dry	Wet	Cutting Speed (SFM)							Feed (IPT)						Depth of Cut (inch)	
				700	1200	1700	2200	2700	3200	3700	4200	.002	.004	.006	.008	.010		.012
Gray Cast Iron	SX6	●	○															~.320
	SP9	●	●															~.320
Ductile Iron	SP9	●	○															~.320

HVM igh velocity ill series

● Lead angle 75 degree -SN43(A.R. -6° R.R. -10°)

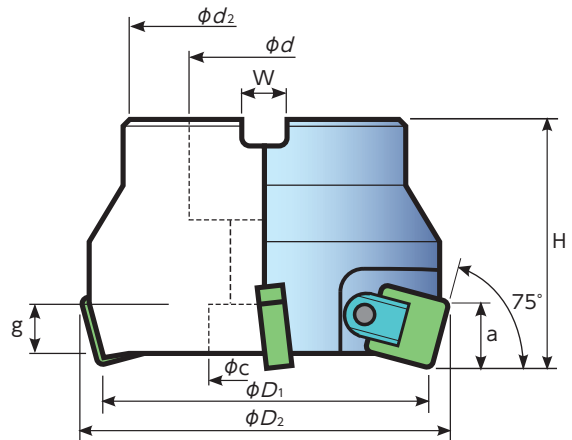


$\theta: 75^\circ$



θ

Lead angle



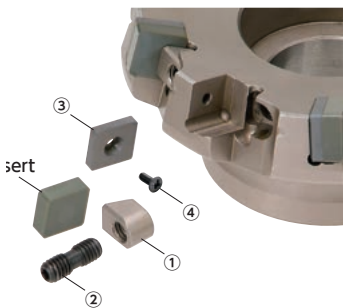
● Inch size cutters

Item Number	Stock		Dimensions (inch)									Weight (lbs)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g		
JFDX25IN-75-06R	●	6	2.50	2.732	2.00	.472	.750	.32	2.362	.669	.760	2.0	
JFDX30IN-75-08R	●	8	3.00	3.232	2.00	.472	1.000	.38	2.362	.827	.760	2.2	
JFDX40IN-75-10R	●	10	4.00	4.232	2.00	.472	1.500	.64	3.150	2.000	.850	3.3	
JFDX50IN-75-12R	●	12	5.00	5.232	2.00	.472	1.500	.64	3.740	2.000	.850	5.7	
JFDX60IN-75-16R	●	16	6.00	6.244	2.50	.472	2.000	.75	3.937	2.835	.945	8.8	

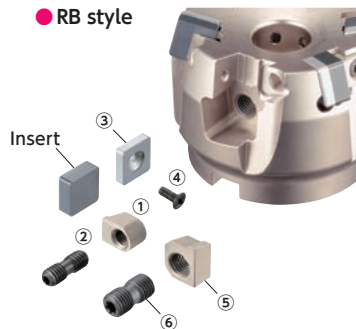
● Metric size cutters

Item Number	Stock		Dimensions (mm)									Weight (kg)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g		
JFDX063-75-06R	○	6	63	70	50	12	22.0	10.4	58	18	18.5	0.8	
JFDX080-75-08R	○	8	80	87	50	12	25.4	9.5	62	36	15.5	1.1	
JFDX080-75-08RB*	○	8	80	87	50	12	25.4	9.5	62	36	15.5	1.36	
JFDX080MM-75-08R	○	8	80	87	50	12	27.0	12.4	64	19	15.5	1.1	
JFDX100-75-10R	○	10	100	107	50	12	31.75	12.7	62	45	16.5	1.4	
JFDX100-75-10RB*	○	10	100	107	50	12	31.75	12.7	62	45	16.5	1.83	
JFDX100MM-75-10R	○	10	100	107	50	12	32.0	14.4	64	45	23.5	1.3	
JFDX125-75-12R	○	12	125	132	58	12	38.1	15.9	83	55	21.5	2.6	
JFDX125-75-12RB*	○	12	125	132	58	12	38.1	15.9	83	55	21.5	3.34	
JFDX125MM-75-12R	○	12	125	132	58	12	40.0	16.4	85	55	26.5	2.3	
JFDX160-75-16R	○	16	160	166	60	12	50.8	19	100	72	20.5	4.1	
JFDX160-75-16RB*	○	16	160	166	60	12	50.8	19	100	72	20.5	5.47	

* One insert pocket can be adjusted for height



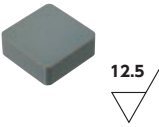
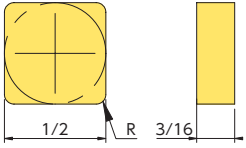
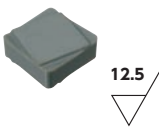
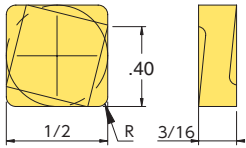
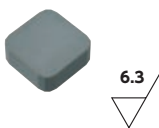
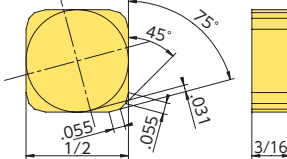
● RB style



● Spare Parts

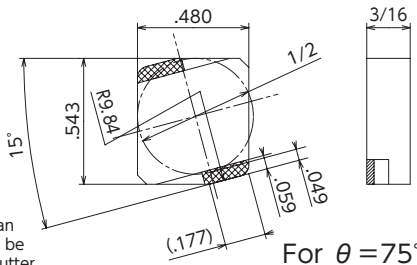
Wedge	Wedge Screw	Torx Wrench	Shim	Shim Screw
①	②		③	④
HLW175	WS0616-T15	T15	ASN423	M3×8
Wedge	Wedge Screw	Wrench		
⑤	⑥			
HLW177	WS0816-T25	LLR-T25		

● Inserts

Shape	Dimensions (inch)	Item Number	R	Silicon Nitride		Whisker
				SX6	SP9	WA1
 12.5		SNG 432 T0220	.031			●
		SNG 432 T0420	.031	●	●	●
		SNG 433 T0220	.047			●
		SNG 433 T0420	.047	●	●	●
		SNG 434 T0220	.063			●
		SNG 434 T0420	.063	●	●	●
 12.5 with chipbreaker		SNGF 433 TRCC413	.047	●		
		Reduce tool pressure				
SNGF 433 RT0425 C421	.047			●		
Reduce tool pressure						
 6.3 with wiper		SNG 43EN TN	—	●	●	
		The insert must be installed in all insert pockets				

* Recommend using torque wrench @35lbs(4Nm)

● CBN Wiper Insert: Can install 1 or 2 CBN Wiper Inserts with ceramic inserts.

Dimensions (inch)	Item Number	R	CBN	
			B30	B52
 *Slightly taller insert than ceramic inserts so can be installed in standard cutter.	FDX 1204-75-50R	—	●	●

● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)								Feed (IPT)						Depth of Cut (inch)
				700	1200	1700	2200	2700	3200	3700	4200	.002	.004	.006	.008	.010	.012	
K	SX6	●	●														~.220	
Gray Cast Iron	SP9	●	○														~.220	
Ductile Iron	SP9	●	○														~.220	

Inserts(SNG) →E13

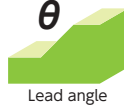
HVM series

High velocity mill series

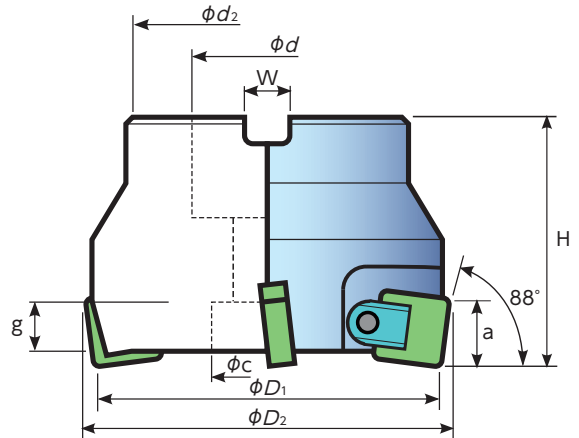
● Lead angle 88 degree -SN43 (A.R. -6° R.R. -10°)



$\theta: 88^\circ$



12.5 / 6.3

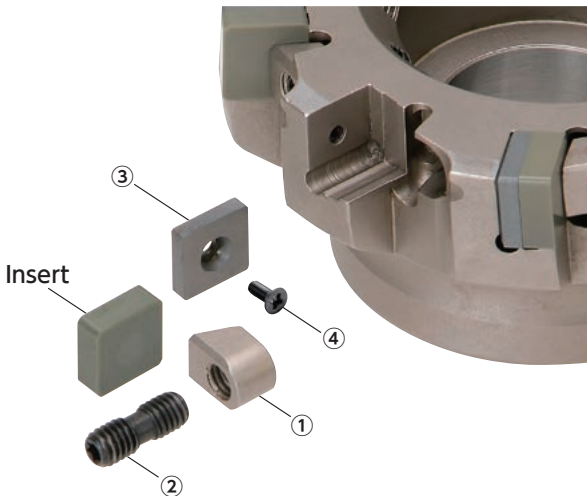


● Inch size cutters

Item Number	Stock		Dimensions (inch)									Weight (lbs)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g		
JFDX25IN-88-06R	●	6	2.50	2.531	2.00	.472	.750	.32	2.362	.669	.760	1.8	
JFDX30IN-88-08R	●	8	3.00	3.031	2.00	.472	1.000	.38	2.362	.827	.760	2.1	
JFDX40IN-88-10R	●	10	4.00	4.031	2.00	.472	1.500	.64	3.150	2.000	.850	3.2	
JFDX50IN-88-12R	●	12	5.00	5.031	2.00	.472	1.500	.64	3.740	2.000	.850	5.8	

● Metric size cutters


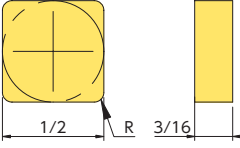

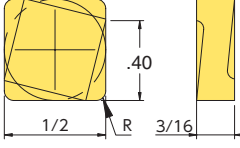

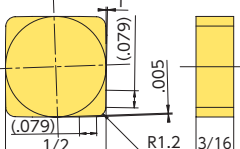
Item Number	Stock		Dimensions (mm)									Weight (kg)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g		
JFDX063-88-06R	○	6	63	64	50	12	22.0	10.4	58	18	13	0.8	
JFDX080-88-08R	○	8	80	81	50	12	25.4	9.5	62	36	13.5	1.0	
JFDX080MM-88-08R		8	80	81	50	12	27.0	12.4	64	19	13.5	1.1	
JFDX100-88-10R	○	10	100	101	50	12	31.75	12.7	62	45	16.5	1.4	
JFDX100MM-88-10R		10	100	101	50	12	32.0	14.4	64	45	23.5	1.3	
JFDX125-88-12R	○	12	125	126	58	12	38.1	15.9	83	55	21.5	2.6	
JFDX125MM-88-12R		12	125	126	58	12	40.0	16.4	85	55	26.5	2.5	
JFDX160-88-16R		16	160	156	60	12	50.8	19	100	72	20.5	4.1	



● Spare Parts

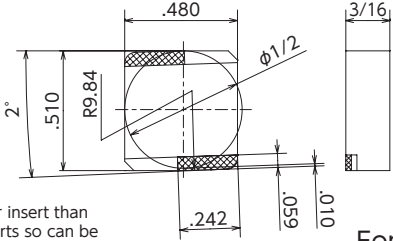
Wedge	Wedge Screw	Torx Wrench	Shim	Shim Screw
①	②		③	④
HLW175	WS0616-T15	T-15A	ASN423	M3×8

● Inserts

Shape	Dimensions (inch)	Item Number	R	Silicon Nitride		Whisker
				SX6	SP9	WA1
 12.5°		SNG 432 T0220	.031			●
		SNG 432 T0420	.031	●	●	●
		SNG 433 T0220	.047			●
		SNG 433 T0420	.047	●	●	●
		SNG 434 T0220	.063			●
		SNG 434 T0420	.063	●	●	●
 12.5° with chipbreaker		SNGF 433 TRCC413 Reduce tool pressure	.047	●		
		SNGF 433 RT0425 C421 Reduce tool pressure	.047		●	
 6.3° with wiper		SNEN 1204ZN T01025 The insert must be installed in all insert pockets	—	●	●	

* Recommend using torque wrench @35lbs (4Nm)

● CBN Wiper Insert: Can install 1 or 2 CBN Wiper Inserts with ceramic inserts.

Dimensions (inch)	Item Number	R	CBN	
			B30	B52
 * Slightly taller insert than ceramic inserts so can be installed in standard cutter. For $\theta = 88^\circ$	FDX 1204-88-50R	—	●	●

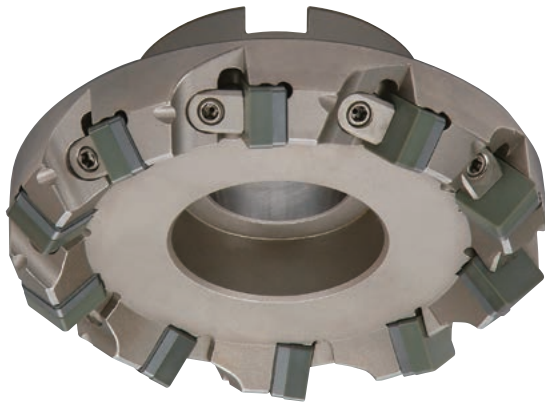
● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)									Feed (IPT)						Depth of Cut (inch)
				700	1200	1700	2200	2700	3200	3700	4200	.002	.004	.006	.008	.010	.012		
K	SX6	●	●																~.220
Gray Cast Iron	SP9	●	○																~.220
Ductile Iron	SP9	●	○																~.220

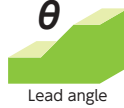
Inserts(SNG) **E13**

HVM igh-velocity-ill series

● Lead angle 45 degree -SN43 (A.R. -6° R.R. -10°)

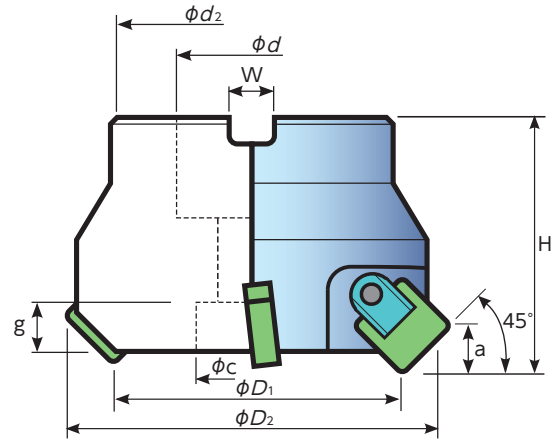


$\theta : 45^\circ$



Lead angle

12.5 / 6.3

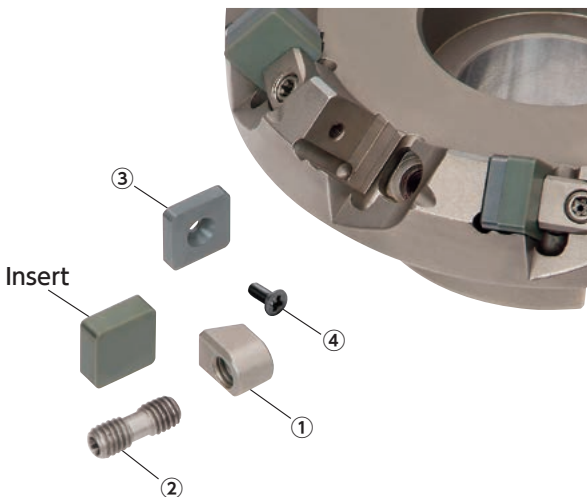


● Inch size cutters

Item Number	Stock		Dimensions (inch)									Weight (lbs)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g		
JFDX25IN-45-06R	●	6	2.50	3.129	2.00	.315	.750	.32	2.362	.669	.445	2.2	
JFDX30IN-45-08R	●	8	3.00	3.629	2.00	.315	1.000	.38	2.362	.827	.445	2.8	
JFDX40IN-45-10R	●	10	4.00	4.629	2.00	.315	1.500	.64	3.150	2.000	.535	3.9	
JFDX50IN-45-12R	●	12	5.00	5.629	2.00	.315	1.500	.64	3.740	2.000	.535	4.1	

● Metric size cutters


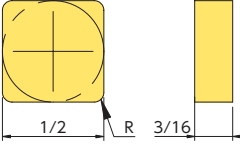

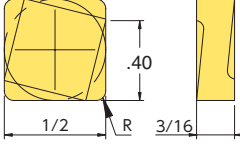

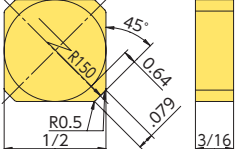
Item Number	Stock		Dimensions (mm)									Weight (kg)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g		
JFDX063-45-06R	○	6	63	72	50	8	22.0	10.4	58	18	10.5	0.9	
JFDX080-45-08R	○	8	80	95	50	8	25.4	9.5	62	36	10.5	1.2	
JFDX080MM-45-08R	●	8	80	95	50	8	27.0	12.4	64	19	10.5	1.3	
JFDX100-45-10R	○	10	100	120	50	8	31.75	12.7	62	45	8.5	1.7	
JFDX100MM-45-10R	●	10	100	120	50	8	32.0	14.4	64	45	8.5	1.5	
JFDX125-45-12R	○	12	125	146	58	8	38.1	15.9	83	55	13.5	2.8	
JFDX125MM-45-12R	●	12	125	146	58	8	40.0	16.4	85	55	13.5	2.9	



● Spare Parts

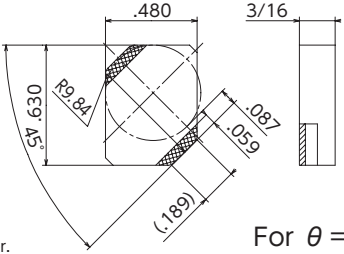
Wedge	Wedge Screw	Torx Wrench	Shim	Shim Screw
①	②		③	④
HLW175	WS0616-T15	T15	ASN423	M3×8

● Inserts

Shape	Dimensions (inch)	Item Number	R	Silicon Nitride		Whisker
				SX6	SP9	WA1
 12.5		SNG 432 T0220	.031			●
		SNG 432 T0420	.031	●	●	●
		SNG 433 T0220	.047			●
		SNG 433 T0420	.047	●	●	●
		SNG 434 T0220	.063			●
		SNG 434 T0420	.063	●	●	●
 12.5 with chipbreaker		SNGF 433 TRCC413	.047	●		
		Reduce tool pressure				
SNGF 433 RT0425 C421	.047			●		
Reduce tool pressure						
 6.3 with wiper		SNG 43AN TW	—	●	●	
		The insert must be installed in all insert pockets				

* Recommend using torque wrench @35lbs (4Nm)

● CBN Wiper Insert: Can install 1 or 2 CBN Wiper Inserts with ceramic inserts.

Dimensions (inch)	Item Number	R	CBN	
			B30	B52
 * Slightly taller insert than ceramic inserts so can be installed in standard cutter. For $\theta = 45^\circ$	FDX 1204-45-50R	—	●	●

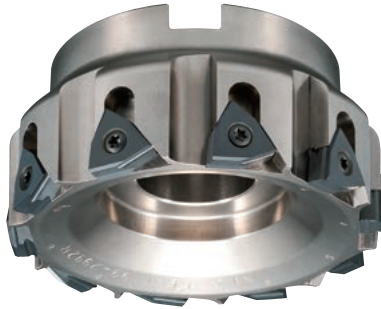
● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)								Feed (IPT)						Depth of Cut (inch)
				700	1200	1700	2200	2700	3200	3700	4200	.002	.004	.006	.008	.010	.012	
K	SX6	●	○														~.220	
Gray Cast Iron	SP9	●	○														~.220	
Ductile Iron	SP9	●	○														~.220	

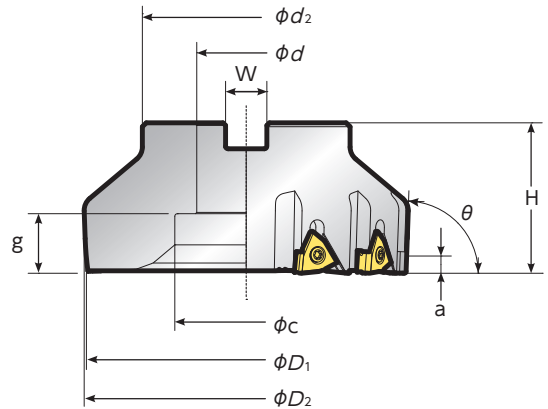
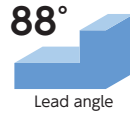
Inserts(SNG) ➔E13

TRI series

● Lead angle 88 degree



A. R. 5°
R. R. 4°, 7°, 10°



● Metric size cutters

Item Number	Stock		Dimensions (mm)										Weight (kg)	Rake angle (°)		Insert Screw	Wrench
			ϕD_1	ϕD_2	H	a *1	a *2	ϕd	W	ϕd_2	ϕc	g		A.R.	R.R.		
JWNXM063C2200R06-A	○	6	63	63	50	5.5	4.5	22	10.4	60	18	15.5	0.9	+5	+4	FSI26-4.0 * 12-LH	LLR-T15
JWNXM080A2540R08-A	○	8	80	80	50	5.5	4.5	25.4	9.5	60	36	15	1.1	+5	+7		
JWNXM100A3175R10-A	○	10	100	100	50	5.5	4.5	31.75	12.7	80	50	18	1.8	+5	+10		
JWNXM125A3810R12-A	○	12	125	125	58	5.5	4.5	38.1	15.9	80	55	23	3	+5	+10		
JWNXM160A5080R16-A	○	16	160	160	60	5.5	4.5	50.8	19	100	72	22	4.9	+5	+10		

* 1 Dimension when set the insert [WNX44-C10T01020]
* 2 Dimension when set the insert [WNX44-R12T01020]

● Insert

Shape	Dimensions (inch)	Item number	C or f_ϵ	Silicon Nitride	
				SX6	SP9
		WNX44-C10T0420	C .040	○	○
		WNX44-R12T0420	R .0472	○	○

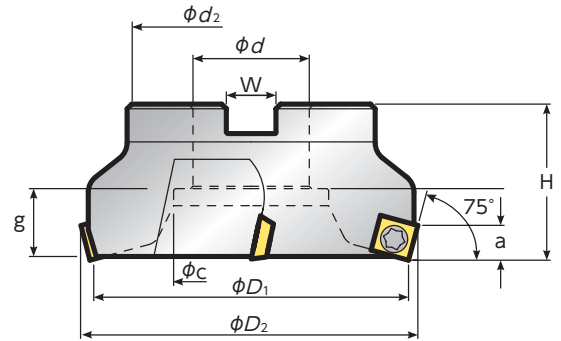
* Recommend using torque wrench @35lbs (4Nm)

○ : New standard stock items

● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)									Feed (IPT)						Depth of Cut (inch)		
				700	1200	1700	2200	2700	3200	3700	4200	.002	.004	.006	.008	.010	.012				
K	SX6	●	●																		~.220
Gray Cast Iron	SP9	●	○																		~.220
Ductile Iron	SP9	●	○																		~.220

● Lead angle 75 degree - SDW43 (A.R.+12° ,R.R.0°)



● Inch size cutters

Item Number	Stock		Dimensions (inch)									Weight (lbs)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g		
E250R100-SDW43-4C	●	4	2.500	2.780	2.000	.360	1.000	.38	2.290	.820	.787	1.9	
E300R100-SDW43-5C	●	5	3.000	3.280	2.000	.360	1.000	.38	2.290	.820	.787	2.4	
E400R150-SDW43-6C	●	6	4.000	4.280	2.000	.360	1.500	.64	3.200	2.000	.875	3.7	
E500R150-SDW43-7C	●	7	5.000	5.280	2.000	.360	1.500	.64	3.200	2.000	.875	5.4	

● Metric size cutters

Item Number	Stock		Dimensions (mm)									Weight (kg)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g		
JSDW063-75-04R	○	4	63	70.6	50	9.1	22	10.4	58	18	14	0.8	
JSDW080-75-05R	○	5	80	83.3	50	9.1	25.4	9.5	62	36	15.5	1.0	
JSDW100-75-06R	○	6	100	108.7	50	9.1	31.75	12.7	58	45	16.5	1.3	
JSDW125-75-07R	○	7	125	134.1	58	9.1	38.1	15.9	79	55	21.5	2.5	
JSDW160-75-10R	○	10	160	165	68	9.1	50.8	19	100	72	28.5	4.0	

● CBN Wiper Insert: Can install 1 or 2 CBN Wiper Inserts with ceramic inserts.

Shape	Item Number	CBN	
		B30	B52
<p>* Slightly taller insert than ceramic inserts so can be installed in standard cutter.</p> <p>For $\theta = 75^\circ$</p>	SDW 1204-75-50R	○	○

● Spare Parts

Insert Screw	Torx Wrench
<p>FSI21-5.0*12.45</p>	<p>T20</p>

● Inserts

Item Number	R	Fig.	Silicon Nitride	
			SX6	SP9
SDCW 432 T0420	.031	1	●	○
SDCW 433 T0420	.047	1	●	
SDCW 434 T0420	.063	1	●	
SDCW 43EER T0420*	—	2	●	○

Fig.1: SDCW43 Fig.2: SDCW43EE with wiper

* Recommend using torque wrench @35lbs (4Nm)

* The insert must be installed in all insert pockets

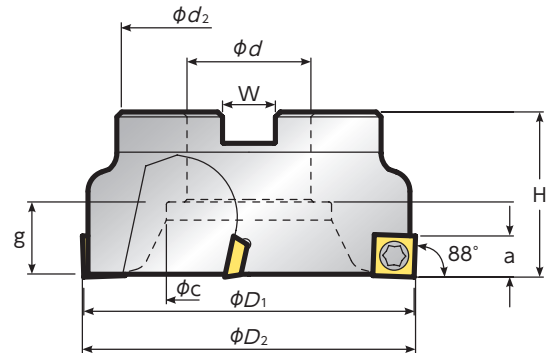
● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)							Feed (IPT)						Depth of Cut (inch)
				700	1200	1700	2200	2700	3200	3700	4200	.002	.004	.006	.008	.010	
Gray Cast Iron	SX6	●	●														~.220
	SP9	●	○														~.220
Ductile Iron	SP9	●	○														~.220

HSM series

High speed hear-ill

● Lead angle 88 degree - SDW43 (A.R.+12°, R.R.0°)



● Inch size cutters

Item Number	Stock		Dimensions (inch)										Weight (lbs)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g			
P250R100-SDW43-4C	●	4	2.500	2.590	2.000	.400	1.000	.38	2.290	.820	.787	1.7		
P300R100-SDW43-6C	●	6	3.000	3.070	2.000	.400	1.000	.38	2.290	.820	.787	2.2		
P400R150-SDW43-8C	●	8	4.000	4.070	2.000	.400	1.500	.64	3.200	2.000	.875	3.5		
P500R150-SDW43-10C	●	10	5.000	5.070	2.000	.400	1.500	.64	3.200	2.000	.875	5.2		

● Spare Parts

Insert Screw	Torx Wrench
FSI21-5.0*12.45	T-20

● Inserts

Item Number	R	Fig.	Silicon Nitride	
			SX6	SP9
SDCW 432 T0420	.031	1	●	○
SDCW 433 T0420	.047	1	●	
SDCW 434 T0420	.063	1	●	
SDCW 43PE T0420R*	.031	2	●	

Fig.1: SDCW43

Fig.2: SDCW43PE with wiper

* Recommend using torque wrench @35lbs(4Nm)

* The insert must be installed in all insert pockets

● Recommend Cutting Conditions

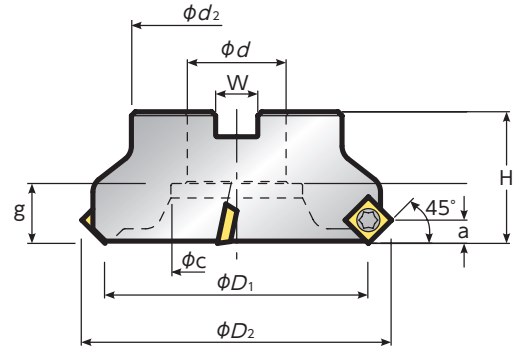
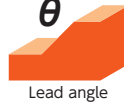
Work Material	Grade	Dry	Wet	Cutting Speed (SFM)								Feed (IPT)						Depth of Cut (inch)
				700	1200	1700	2200	2700	3200	3700	4200	.002	.004	.006	.008	.010	.012	
Gray Cast Iron	SX6	●	●															
	SP9	●	○															
Ductile Iron	SP9	●	○															

Inserts(SDCW) **E12**

● Lead angle 45 degree - SDW43 (A.R.+12°, R.R.0°)



$\theta : 45^\circ$



● Inch size cutters

Item Number	Stock	✳	Dimensions (inch)										Weight (lbs)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g			
A300R100-SDW43-6C	●	6	3.000	3.740	2.000	.260	1.000	.38	2.290	.820	.787	2.3	SDCW 43	
A400R150-SDW43-7C	●	7	4.000	4.740	2.000	.260	1.500	.64	3.200	2.000	.875	3.3		
A500R150-SDW43-8C	●	8	5.000	5.740	2.000	.260	1.500	.64	3.810	2.120	.871	5.0		

● Metric size cutters

Item Number	Stock	✳	Dimensions (mm)										Weight (kg)	Insert
			ϕD_1	ϕD_2	H	a	ϕd	W	ϕd_2	ϕc	g			
JSDW080-45-06R	○	6	80	95.0	50	6.6	25.4	9.5	62	36	18	1.1	SDCW 43	
JSDW100-45-07R	○	7	100	120.4	50	6.6	31.75	12.7	58	45	16	1.4		
JSDW125-45-08R	○	8	125	145.8	58	6.6	38.1	15.9	79	55	21	2.6		

● CBN Wiper Insert: Can install 1 or 2 CBN Wiper Inserts with ceramic inserts.

Shape	Item Number	CBN	
		B30	B52
<p>* Slightly taller insert than ceramic inserts so can be installed in standard cutter. For $\theta = 45^\circ$</p>	SDW 1204-45-50R	●	●

● Spare Parts

Insert Screw FSI21-5.0*12.45	Torx Wrench T20
-------------------------------------	------------------------

● Inserts

Item Number	R	Fig.	Silicon Nitride	
			SX6	SP9
SDCW 432 T0420	.031	1	●	○
SDCW 433 T0420	.047	1	●	
SDCW 434 T0420	.063	1	●	
SDCW 43AE T0420*	—	2	●	○

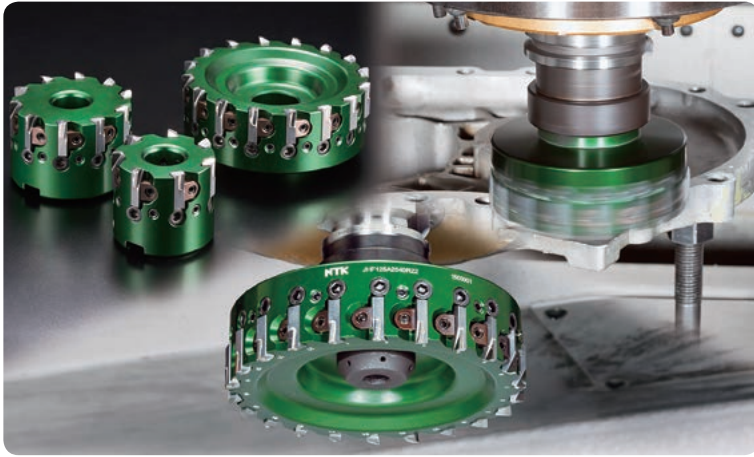
* Recommend using torque wrench @35lbs (4Nm)

* The insert must be installed in all insert pockets

● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)							Feed (IPT)						Depth of Cut (inch)	
				700	1200	1700	2200	2700	3200	3700	4200	.002	.004	.006	.008	.010		.012
K	SX6	●	●															~.200
Gray Cast Iron	SP9	●	○															~.200
Ductile Iron	SP9	●	○															~.200

HFC series Adjustable type



Features

- **More teeth = More productivity**
- **Light weight aluminum body**
- **Adjustable edge height**
- **Produces outstanding surface finishes**
- **Internal coolant supply**
- **Inserts can be reground up to 4 times**
- **Guaranteed setup service is available**

● Cutter




	Item Number	Stock		Weight	Dimensions								Max RPM	Arbor style	Arbor bolt	Recommended tightening torque			
					ϕD		h		ϕd		b					a		N • m	lb • ft
					inch	mm	inch	mm	inch	mm	inch	mm				inch	mm		
JHF050C2200R07	●	7	0.5	1.969	50	1.772	45	.866	22.0	.409	10.4	.409	6.3	20,000	FMC22	CS1040A	20	14.8	
JHF063C2200R10	●	10	0.8	2.480	63	1.772	45	.866	22.0	.409	10.4	.409	6.3	20,000	FMC22	CS1040A	20	14.8	
JHF080A2540R12	●	12	1.1	3.150	80	1.772	45	1.000	25.4	.374	9.5	.374	6.0	18,000	FMA25.4	MBC-M12	40	29.5	
JHF100A2540R16	●	16	1.6	3.937	100	1.772	45	1.000	25.4	.374	9.5	.374	6.0	18,000	FMA25.4	MBC-M12	40	29.5	
JHF125A2540R22	●	22	2.4	4.921	125	1.772	45	1.000	25.4	.374	9.5	.374	6.0	15,000	FMA25.4	MBC-M12	40	29.5	

* Includes inserts and parts

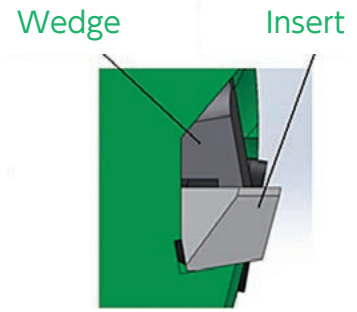
● Insert

	Item Number	PCD	Corner angle	Max DOC		A.R.	r_e		Wiper	
				PD1	inch		mm	inch		mm
For Standard use	HFT802006C05	●	90°	.295	7.5	6°	.02 chamfer	C0.5	Yes (Rounded)	
	HFT802006R04	●	90°	.295	7.5	6°	R .016	R0.4	Yes (Rounded)	
For less tool pressure	HFT70201W05	●	90°	.256	6.5	10°	Double chamfer		Yes (Straight)	

● Spare Parts

Item number	Arbor bolt	Wedge	Axial set screw		Wedge set screw	
			Screw	Screwdriver	Screw	Screwdriver
JHF050C2200R07	CS1040A	HLW179	CS0510A	LW-4	WS0512	LW-2.5
JHF063C2200R10						
JHF080A2540R12	MBC-M12			LW-4		LW-2.5
JHF100A2540R16						
JHF125A2540R22						

● Safety clamp mechanism



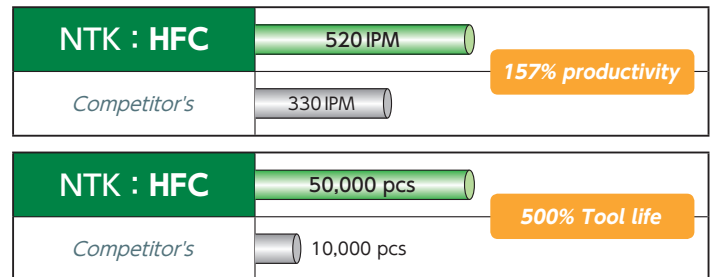
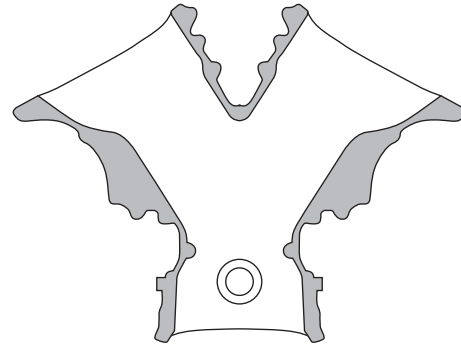
● Unique sphenoidal pocket prevents inserts from becoming dislodged

● Field Result

Part : Chain Cover
Material : ADC12

Cutter : JHF125A2540R22
Insert : HFT802006C05 PD1

	NTK	Competitor's
Number of edges	22	14
RPM	10,000	10,000
SFM	12,877	←
IPM	520	330
IPT	.0024	←
DOC	.111 (1 Pass)	.080+.031 (2 Passes)
Tool life	50,000pcs	10,000pcs



● Recommend Cutting Conditions

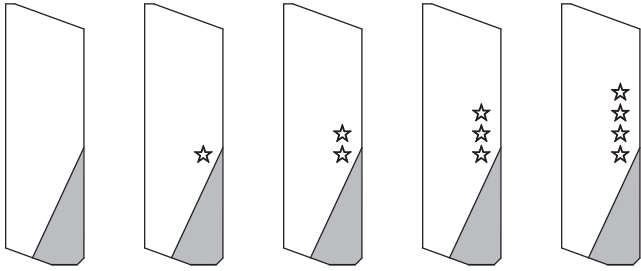
Work Material	Grade	Dry	Wet	Cutting Speed (SFM)											Feed (IPT)						Depth of Cut (inch)			
				1000	3000	5000	7000	9000	11000	13000	15000	17000	19000	.002	.004	.006	.008	.010	.012					
N																								
Aluminum Alloy (Si ≤ 13)	PD1	○	●																					-.250
Aluminum Alloy (Si ≥ 13)	PD1	○	●																					-.250

NTK Regrind Program

- Inserts can be reground up to (4*) times
- The cutter's diameter and height of the insert will change by .004" after each regrind
- The set of inserts placed back into the cutter must have the same amount of stars indicating number of regrinds

*The number of regrinds per insert may vary depending upon cutting conditions

Each insert will be marked with a star to indicate how many times it has been reground.



New

After 1st
regrinding

After 2nd
regrinding

After 3rd
regrinding

After 4th
regrinding

1 Send the inserts back to our NTK Wixom office with the appropriate paperwork. Minimum order is 30 pcs. (Note: Send in inserts with the same amount of regrind stars.) For orders greater than 50 pcs, NTK will manage the inserts in lots for regrind process.



2 Delivery will be 6-8 weeks upon receiving your inserts



3 The insert number will be changed to the following HFT802006C05 RPD1



4 When installing NTK inserts into a cutter, please make sure that all the inserts have the same number of regrind stars

NTK's Worry free guaranteed setting

- NTK offers cleaning, resetting and rebalancing service to customer for new and reground inserts.
- NTK's guaranteed setting provides stable and worry free operation.

Re-setting



±.002mm height run out
(±.00008")

Re-balancing



Balance grade: G 2.5

Adjusting and handling instructions for High Feed Cutter

Operational procedure

1. Loosen the axial adjustment screw
2. Install the inserts (initially tighten)
3. Clean the inserts
4. Adjust height of inserts (initial)
5. Tighten the wedge set screw
6. Adjust height of inserts (final)

Tools for setup

- Tool presetter
- Air blower
- Clay
- 4.0mm Hex wrench
- 2.5mm Hex torque-wrench



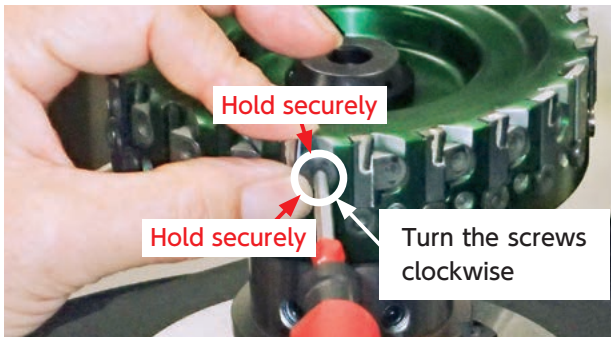
1. Loosen the axial adjustment screw



Turn the screws counterclockwise

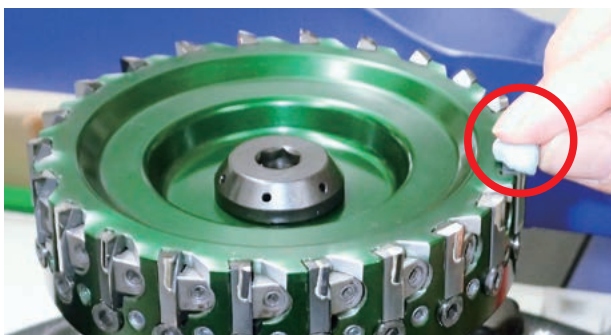
Loosen axial set screw until the screw head is 1 to 2 mm from cutter body.
Clean up insert pocket using air.

2. Install the inserts (initially tighten)



Install the insert to cutter pocket. Tighten wedge set screw with 1Nm torque while pushing insert to cutter center using two fingers. (do not overtighten)

3. Clean the inserts



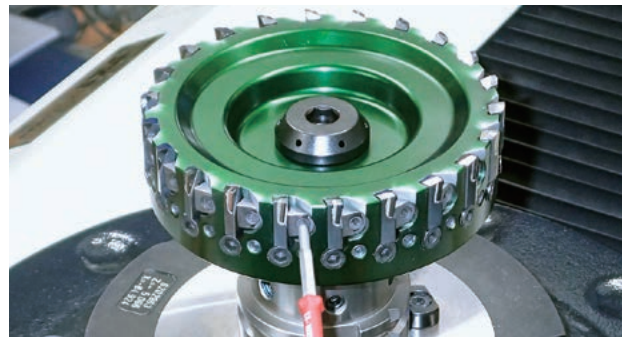
Clean up insert edges using clay.

4. Adjust height of inserts (initial)



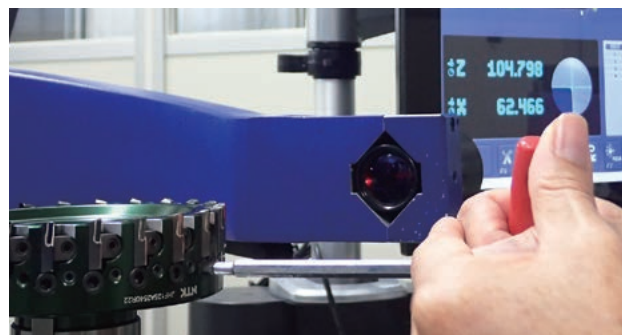
Tighten axial set screw of each insert until you reach around 44.980 mm height dimension.
Adjust other inserts within 0.01mm range.

5. Tighten the wedge set screw



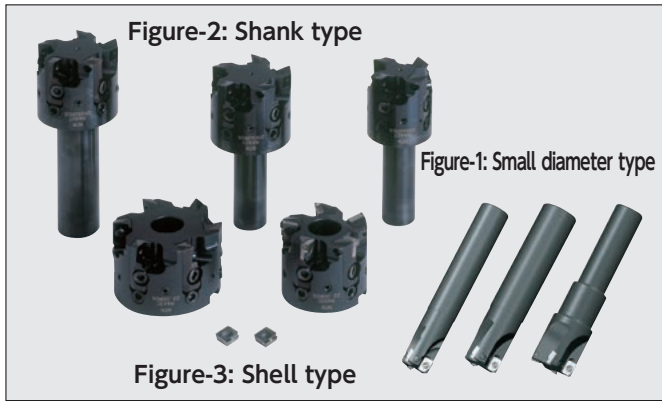
Tighten wedge set screws with 4Nm torque.

6. Adjust height of inserts (final)



Tighten axial set screws to get 45.000 mm height dimension.
Adjust other inserts within +/- 0.002 mm range.

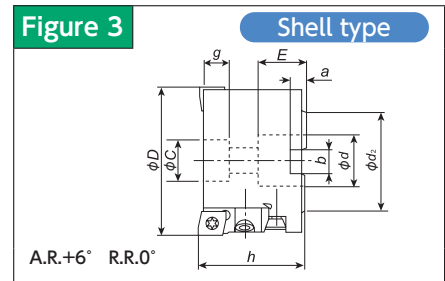
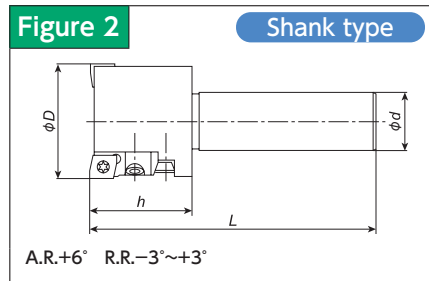
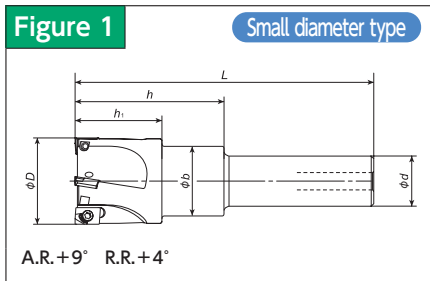
HPC series Fixed type/Adjustable type



Features

- **A wide range of sizes**
The diameters range from $\phi .787''$ - $\phi 3.937''$ for the HPC series
- **Excellent rigidity (HPC)**
The material for the HPC body is steel, achieving exceptional reliability

HPC (steel body) $\phi 20 - \phi 100$ ($\phi .787'' - \phi 3.937''$)



● Metric size Cutters

Figure	Item number	Stock		ϕD	h	ϕd	L	h_1	E	ϕb	b	a	ϕd_2	ϕc	g	Weight (kg)	Max. RPM allowed (RPM)	Item number of applicable insert	
Fixed type	1	RD020T20070R03	○	3	20	30	20	100	30	-	-	-	-	-	-	0.23	18,000	HDA style	
		RD025T25070R03	○	3	25	40	25	110	40	-	-	-	-	-	-	0.37	18,000		
		RD030T20060R04	○	4	30	60	20	120	35	-	25	-	-	-	-	0.33	18,000		
		RD032T20060R04	○	4	32	60	20	120	35	-	26	-	-	-	-	0.36	18,000		
		RD035T20060R04	○	4	35	60	20	120	35	-	28	-	-	-	-	0.36	18,000		
	2	RA040T20060R04K	○	4	40	45	20	105	-	-	-	-	-	-	-	0.45	18,000	HAL style HAT style HAN style HLA style	
		RA040T25080R04K	○	4	40	45	25	125	-	-	-	-	-	-	-	0.6	18,000		
		RA050T20060R05K	○	5	50	45	20	105	-	-	-	-	-	-	-	0.6	18,000		
		RA050T25080R05K	○	5	50	45	25	125	-	-	-	-	-	-	-	0.75	18,000		
		RA050T32080R05K	○	5	50	45	32	125	-	-	-	-	-	-	-	0.9	18,000		
3	RA050C22.00R05K	○	5	50	45	22	-	-	20	-	10.4	6.3	42	18	11	0.4	18,000		
	RA063C22.00R06K	○	6	63	45	22	-	-	20	-	10.4	6.3	42	18	11	0.73	18,000		
	RA080A25.40R07K	○	7	80	43	25.4	-	-	26	-	9.5	6.0	50	38.9	15	0.95	15,000		
	RA100A31.75R09K	○	9	100	45	31.75	-	-	32	-	12.7	8.0	60	61	11	1.6	10,000		
	Adjustable type	2	RA040T20060R04	○	4	40	45	20	105	-	-	-	-	-	-	-	0.45		18,000
RA040T25080R04			○	4	40	45	25	125	-	-	-	-	-	-	-	0.60	18,000		
RA050T20060R05			○	5	50	45	20	105	-	-	-	-	-	-	-	0.60	18,000		
RA050T25080R05			○	5	50	45	25	125	-	-	-	-	-	-	-	0.75	18,000		
RA050T32080R05			○	5	50	45	32	125	-	-	-	-	-	-	-	0.90	18,000		
3		RA050C22.00R05	○	5	50	45	22	-	-	20	-	10.4	6.3	42	18	11	0.40	18,000	
		RA063C22.00R06	○	6	63	45	22	-	-	20	-	10.4	6.3	42	18	11	0.73	18,000	
		RA080A25.40R07	○	7	80	43	25.4	-	-	26	-	9.5	6.0	50	38.9	15	0.95	15,000	
		RA100A31.75R09	○	9	100	45	31.75	-	-	32	-	12.7	8.0	60	61	11	1.6	10,000	

● Recommend Cutting Conditions

Work Material	Grade	Dry	Wet	Cutting Speed (SFM)										Feed (IPT)					Depth of Cut (inch)								
				1000	3000	5000	7000	9000	11000	13000	15000	17000	19000	.002	.004	.006	.008	.010		.012							
N	PD1	○	●																								
Aluminum Alloy (Si ≤ 13)	TM1	○	●																								
Aluminum Alloy (Si ≥ 13)	PD1	○	●																								
	TM1	○	●																								

● Inserts

Shape	Item number	Corner angle	w	T	Cutting edge length	A. R.	R. R.	r _ε	Wiper	PCD	PVD coated carbide	Cutter Type (figure)
										PD1	TM1	
	HDA4015R04	0°	6.7	3.4	4.0	+9°	+4°	0.4	Provided	●		1
	HDA4505R04	0°	6.7	3.4	Min. 5.0	+9°	+4°	0.4	Provided		○	1
	HAL3515R04	0°	10	4.0	3.5	+6°	0°	0.4	Provided	●		2 3
	HAT6021R04		10		6.0			0.4		●		
	HAT6021C05		10		6.0			C0.5		○		
	HRT6021R04 Regrindable		10.2		Min. 6.0			0.4		○		
	HAL3515C05	0°	10	4.0	3.5	+6°	0°	C0.5	Provided	○		2 3
	HRL3515R04 Regrindable				Min. 3.5			0.4		○		
	HAN9521R04N	0°	10	4.0	Min. 6.0	+6°	-3°	0.4	Provided		○	2 3
	HLA8521R04	0°	10.078	4.0	Min. 6.0	+6°	+3°	0.4	Provided		○	2 3

* Recommend using torque wrench @35lbs (4Nm)

● Spare Parts

Item number	Cartridge	Axial setscrew	Cartridge setscrew	Insert clamping screw	Handle	Torx screwdriver	Hex-screwdriver	Clamping bolt
RD020T20070R03				FSI0306A	2814HS (OP)	U107T10 (OP)		
RD025T25070R03				FSI0307A				
RD030T20060R04					2814HS (OP)	U107T15 (Torx) (OP)	U104-40 (Hex) (OP)	
RD032T20060R04								
RD035T20060R04								
RA040T20060R04/K	RA06P03NC	CS0510A	CS0510T	FSI035104A	2814HS (OP)	U107T15 (Torx) (OP)	U104-40 (Hex) (OP)	CS1040A (OP) (coolant through) MBC-M12(OP) MBC-M16(OP)
RA040T25080R04/K								
RA050T20060R05/K								
RA050T25080R05/K								
RA050T32080R05/K								
RA050C22.00R05/K								
RA063C22.00R06/K								
RA080A25.40R07/K								
RA100A31.75R09/K								

● : Stock
 ● : Stock (Newly added)
 ■□□□ : While stocks last
 R L : Stock (Right / Left-hand only)
 R L : Stock (Right / Left-hand only, Newly added)
 ☉ : Mirror finish
 ○ : 1-2 week delivery
 ○ : 1-2 week delivery (Newly added)
 ☉ : Coolant through
 Ⓜ : 1-2 week delivery (Right / Left-hand only)
 Ⓜ : 1-2 week delivery (Right / Left-hand only, Newly added)

Insert Presetting and PCD Damage Preventative Measures for HPC

■ Be sure to clean all the insert pockets before carrying out the following steps:

● **Step1: Preventative measures against insert chipping**

Attach a piece of adhesive tape (preferably, a tape low in adhesion) to the end of a dial gauge's probe.

● **Step2: Mounting inserts**

For HPC: First, install the cartridges to the body, then, tighten each insert with the insert clamping screw at 3 N·m.

[Caution: If you mount inserts in a cartridge first, it's not possible to install the cartridges to the body.]

● **Step3: Temporary tightening (using a torque-wrench)**

Tighten set screw (1) first, at 4 N·m.

● **Step4: Setting**

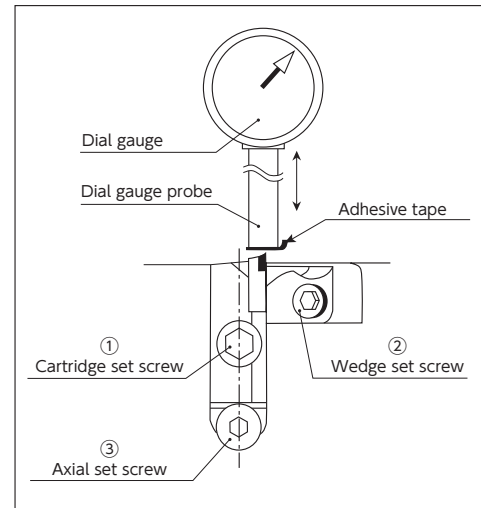
While watching the reading on the dial gauge, rotate set screw (2) so that the insert with the highest cutting edge is lifted by +0.03 mm. Next, with this position as the reference, set the cutting edges of all other inserts with variations in run out to stay within +/- 5 microns (10 microns in terms of range).

● **Step5**

Remove the probe from the dial gauge.

● **Step6: Tightening set screws (using a torque wrench)**

For HPC, tighten set screw (1) at 8 N·m.



■ **Supplemental explanation**

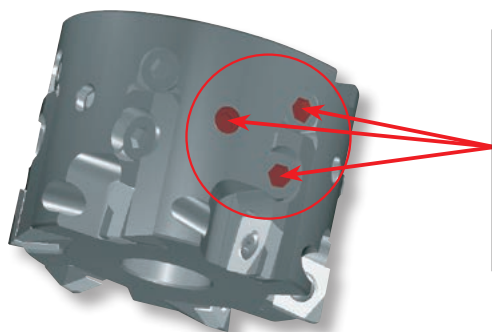
1. Even after the set screws have been tightened, the run out of the cutting edges should stay within approximately +/- 10 microns (20 microns in terms of range).
2. In the above case, NTK standard inserts (excluding some of them; see the note below for details.) and re-ground NTK inserts will not affect the tool life and surface finish.

HPC Fixed Type

No need for pre-setting

No need for cutting edge adjustments!

(The only requirement is clamping and unclamping of the inserts with the clamping bolt)



[Note]

The holes for the axial setscrews and balance adjusting screws are filled with a special material, thus, no screwdrivers and hex-wrenches can be inserted in them.

※The color of the special material is different from the color of the actual product body.



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