

PRODUCT NEWS

PN-E-006

SERIES EXPANSION



^{BNM & RNM} **MIRROR**Series

"Mirror Ball & Mirror Radius"

High Precision Indexable Ball Nose End Mill & Radius End Mill



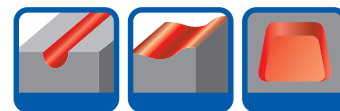
DIJET GmbH

www.dijet.de



High Precision Indexable Ball Nose End Mill

- Insert radius form accuracy is below ± 0.010 mm when fixed to the holder
(accuracy below ± 0.006 mm on insert alone)



Carbide shank holders

Cat. No.	stock	Dimensions(mm)									Parts		Insert	Fig.				
		ϕD_c	R	ℓ_1	ℓ_2	L	ϕD_1	θ	θ_k	ϕD_s	Screw	Wrench						
BNMS-060017S-S06C	●	6	3	—	17	60	5.5	—	—	6	FSW-2005H	A-06	BNM-060...	1				
BNMS-060030T-S10C	●			15	30	80		6°	4°14'	10				2				
BNMM-060035S-S06C	●			—	35	92		—	—	6				1				
BNML-060017S-S06C	●				17	120												
BNMS-080025S-S08C	●	8	4	—	25	90	7.5	—	—	8	FSW-2506H	A-07	BNM-080... RNM-080...	1				
BNMM-080035S-S08C	●			35	92													
BNML-080075S-S08C	●			75	140													
BNML-080095S-S08C	●			95	160													
BNML-080075T-S12C	●			20	75	132		2°	1°37'	12				2				
BNMS-100030S-S10C	●	10	5	—	30	100	9.5	—	—	10	FSW-3007H	A-08	BNM-100... RNM-100...	1				
BNMM-100043S-S10C	●				43	100												
BNML-100075S-S10C	●				75	140												
BNML-100080S-S10C	○				80	220												
BNML-100095S-S10C	●				95	160												
BNML-100140S-S10C	●				140	220												
BNML-100075T-S12C	●			32.1	75	132		1°30'	0°49'	2								
BNMS-120028S-S12C	●	12	6	—	28	84	11.5	—	—	12	FSW-3509H	A-10	BNM-120... RNM-120...	1				
BNMM-120053S-S12C	●				53	110												
BNML-120095S-S12C	●				95	160												
BNML-120100S-S12C	○				100	220												
BNML-120085T-S16C	●			33.8	85	145		2°	1°27'	16				2				
BNML-120130S-S12C	○			—	130	200		—	—	12				1				
BNML-120150S-S12C	○				150	220												
BNMS-160033S-S16C	●	16	8	—	33	93	15	—	—	16	FSW-4013H	A-15	BNM-160... RNM-160...	1				
BNMM-160063T-S20C	●				37.5	63				123					4°	2°5'	20	
BNML-160070S-S16C	●				70	140				16								
BNML-160090S-S16C	●				90	160												
BNML-160100S-S16C	○				100	220												
BNML-160100T-S20C	●			44.5	100	166		2°	1°15'	20				2				
BNML-160110S-S16C	●			—	110	180		—	—	16				1				
BNML-160150S-S16C	●				150	220												
BNMS-200039S-S20C	●	20	10	—	39	105	19	—	—	20	FSW-5016H	A-20W	BNM-200... RNM-200...	1				
BNMM-200075S-S20C	●				75	141												

All cutters are supplied without inserts or wrenches

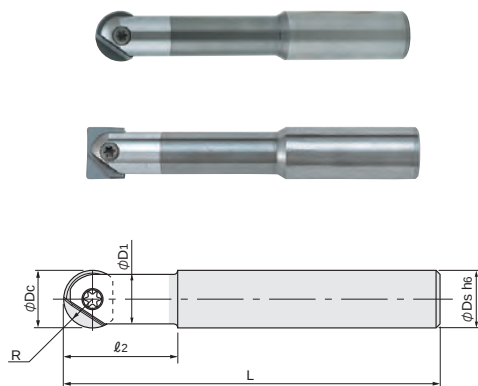


Fig 1

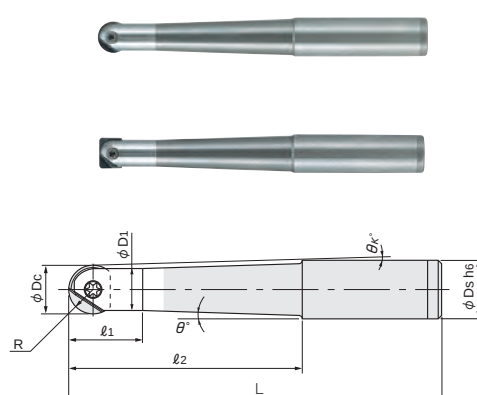


Fig 2

Carbide shank holders

Cat. No.	stock	Dimensions(mm)									Parts		Insert	Fig.
		φDc	R	ℓ1	ℓ2	L	φD1	θ	θk	φDs	Screw	Wrench		
BNML-200100S-S20C	○	20	10	—	100	220	19	—	—	20	FSW-5016H	A-20W	BNM-200...	1
BNML-200105S-S20C	●			105	180	2°		1°22'	25	RNM-200...				2
BNML-200115T-S25C	●			64.3	115									191
BNML-200125S-S20C	●			125	200									
BNML-200170S-S20C	●			170	250									
BNML-200220S-S20C	○			220	300			20						
BNMM-250090S-S25C	●	25	12.5	90	166	24	—	—	25	FSW-6020	A-30	BNM-250...	RNM-250...	1
BNML-250100S-S25C	○			100	220									
BNML-250140S-S25C	●			140	250									
BNML-250170S-S25C	○			170	250									
BNMM-300120S-S32C	●	30	15	120	200	29	—	—	32	FSW-8025S	A-30	BNM-300/320...	RNM-300...	
BNML-300100S-S32C	●			100	220									
BNML-300140S-S32C	●			140	250									
BNML-300170S-S32C	●			170	250									
BNML-300220S-S32C	○			220	300									

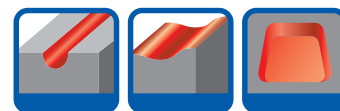
1 All cutters are supplied without inserts or wrenches.

2 when phi 32 insert mounted on Dc30 holder, the dimensions of l1, l2, L are 1mm longer than value above.

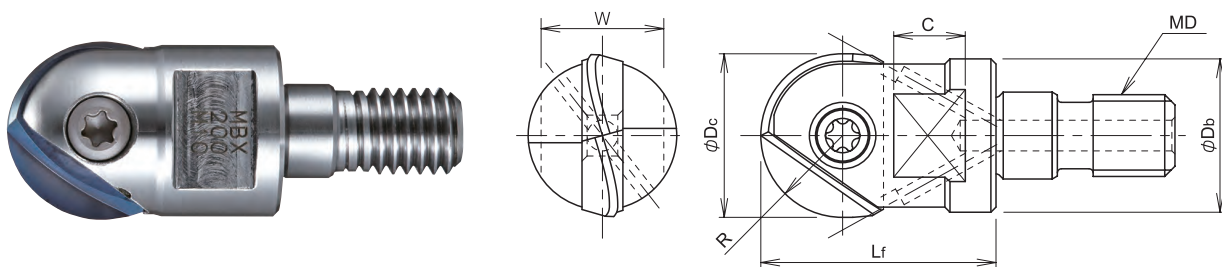
screw	torque (N · m)
FSW-2005H	0.5
FSW-2506H	0.9
FSW-3007H	1.2
FSW-3509H	2.0
FSW-4013H	3.0
FSW-5016H	4.0
FSW-6020	6.0
FSW-8025S	6.0

High Precision Indexable Ball Nose End Mill

- Insert radius form accuracy : below ± 0.010 mm when fixed to the Holder
(accuracy below ± 0.006 mm on Insert alone)
- O.D runout : below $15 \mu\text{m}$ when MBX Modular head fixed to MSN carbide shank



coolant thru



Modular head

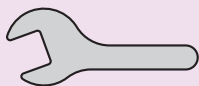
Cat. No.	stock	Dimensions (mm)							Parts		Insert
		ϕD_c	R	Lf	ϕD_b	MD	C	W	Screw	Wrench	
MBX-100-M6	●	10	5	18	9.7	M6	6.5	8	FSW-3007H	A-08	BNM-100...
MBX-120-M6	●	12	6	20	11.5	M6			FSW-3509H	A-10	BNM-120...
MBX-160-M8	●	16	8	23	15	M8	8	12	FSW-4013H	A-15	BNM-160...
MBX-200-M10	●	20	10	30	19	M10		14	FSW-5016H	A-20W	BNM-200...
MBX-250-M12	●	25	12.5	35	24	M12	10	17	FSW-6020	A-30	BNM-250...
MBX-300-M16	●	30	15	43	29	M16	12.5	22	FSW-8025S	A-30	BNM-300/320...

1 All cutters are supplied without inserts or wrenches.

2 when $\phi 32$ insert mounted on Dc30 holder, the dimensions of $\ell 1, \ell 2, L$ are 1mm longer than value above.

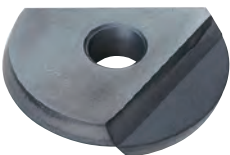
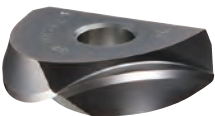
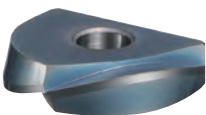
SCREW	torque (N · m)
FSW-3007H	1.2
FSW-3509H	2.0
FSW-4013H	3.0
FSW-5016H	4.0
FSW-6020	6.0
FSW-8025S	6.0

Spanner (for M6,M8)

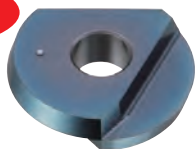
	Cat. No.	MD	Torque	Width across flat W	Thickness	Length
	DS-8	M6	8.0 N·m	8	4	85
	DS-12	M8	16 N·m	12	4	93

※ prevent over tightening by short grip

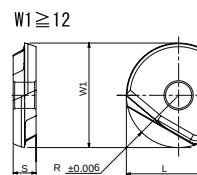
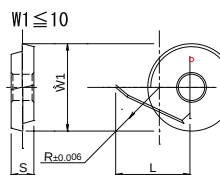
■ Mirror Ball Insert Recommendation

	Cat. No.	Shape	Features
	BNM		Neutral style geometry strictly for finish applications.
	BNM-SS		Sharp helical geometry Good for finishing and semi finishing high-temp alloys/hard materials.
	BNM-TS		Helical geometry Good for semi finishing hard materials up to 60 HRC.
	BNM-TG		Negative helical geometry Good for finishing hard material/weld up to 60 HRC.

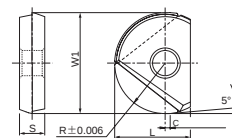
■ BNM

RADIUS ACCURACY
 $\pm 0.006\text{mm}$ 

● DH111, JC10000, KT9



● CBN (JBN245)



Cat. No.	PVD	CBN	diamond coating	uncoated	Dimensions(mm)				
	DH111	JBN245	JC10000	KT9	R	L	W1	C	S
BNM-060	●		○	●	3	6	5	-	2
BNM-080	●		○	●	4	8	7	-	2.4
BNM-100	●		○	●	5	10	8.5	-	2.6
BNM-120	●			●	6	12	10	-	3
BNM-160	●	○	○	●	8	16	12	0.8	4
BNM-200	●	○	○	●	10	20	15	1	5
BNM-250	●	○		●	12.5	25	18.5	1	6
BNM-300	●	○		○	15	30	22.5	1	7
BNM-320	●			○	16	32	23.5	-	7

1 2 inserts per case (JC10000 or JBN245 / 1 insert per case)

2 DH111 is recommended when wet cutting.

■ BNM-SS (Helical Geometry)

Sharp helical geometry good for finishing and semi finishing high-temp alloys & hard materials.

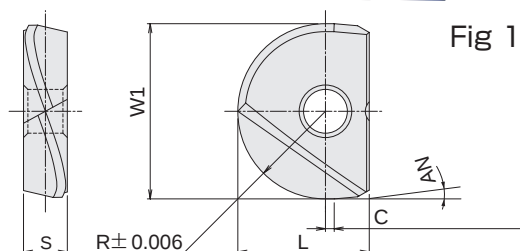
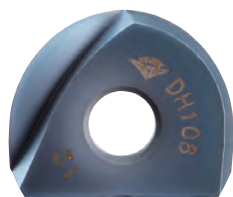


Fig 1

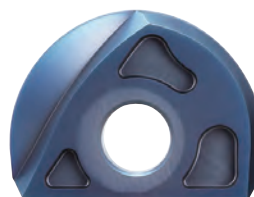
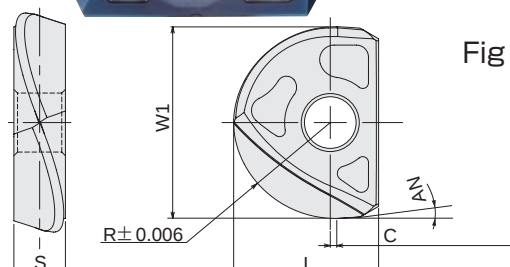
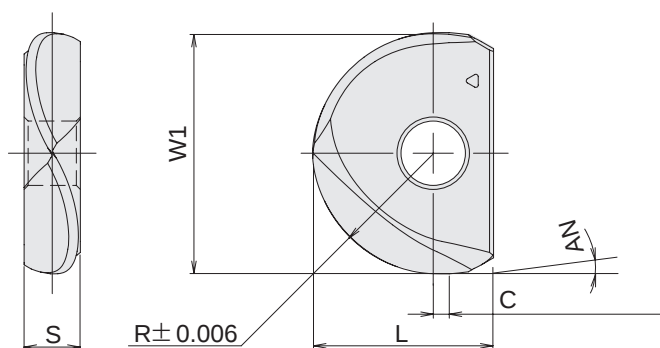
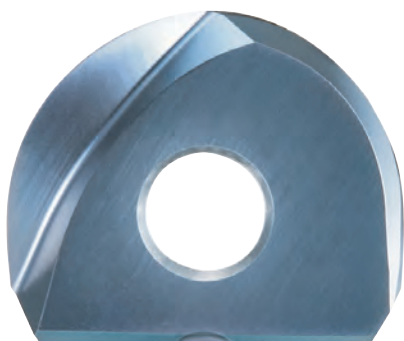
RADIUS ACCURACY
 $\pm 0.006\text{mm}$ 

Fig 2

Cat. No.	PVD coating		Dimensions(mm)						Fig.
	DH108	DS108	R	L	W1	S	C	AN	
BNM-060-SS	●	●	3	5	6	2	—	10°	1
BNM-080-SS	●	●	4	7	8	2.4	0.5	5°	
BNM-100-SS	●	●	5	8.5	10	2.6	1		
BNM-120-SS	●	●	6	10	12	3			
BNM-160-SS	●	●	8	12	16	4			
BNM-200-SS	●	●	10	15	20	5	7	2	
BNM-250-SS	●	●	12.5	18.5	25	6			
BNM-300-SS	○	○	15	22.5	30				
BNM-320-SS	●	●	16	23.5	32				

2 inserts per case

■BNM-TS (Helical Geometry)

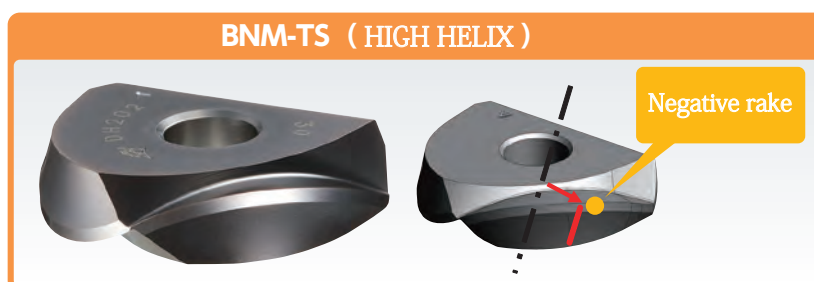
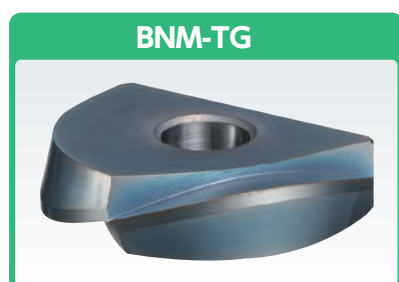
RADIUS ACCURACY
±0.006mm

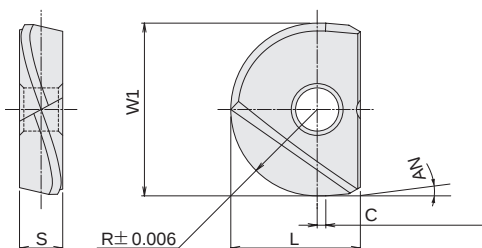
Cat. No.	PVDcoating	Dimensions(mm)					
	DH102	R	W1	L	S	C	AN
BNM-060-TS	●	3	6	5	2	—	10°
BNM-080-TS	●	4	8	7	2.4	0.5	5°
BNM-100-TS	●	5	10	8.5	2.6	1	
BNM-120-TS	●	6	12	10	3	1.5	
BNM-160-TS	●	8	16	12	4		
BNM-200-TS	●	10	20	15	5	2	
BNM-250-TS	●	12.5	25	18.5	6		
BNM-300-TS	○	15	30	22.5	7		
BNM-320-TS	●	16	32	23.5			

2 inserts per case

■BNM-TS

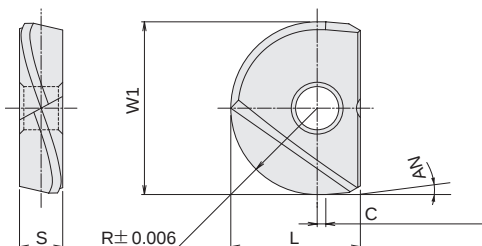
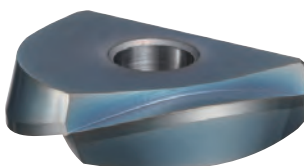
Good for semi finishing high hardened materials



RADIUS ACCURACY
 ± 0.006 mm

■ BNM-S (Helical Geometry)

Cat. No.	Uncoated	DLCcoating	Dimensions (mm)					
	FZ05	JC20003	R	L	W1	S	C	AN
BNM-060-S	●	○	3	5	6	2	—	10°
BNM-080-S	●	○	4	7	8	2.4	0.5	5°
BNM-100-S	●	○	5	8.5	10	2.6	1	
BNM-120-S	●	○	6	10	12	3		
BNM-160-S	●	○	8	12	16	4		
BNM-200-S	●	○	10	15	20	5		
BNM-250-S	○	○	12.5	18.5	25	6		
BNM-300-S	○	○	15	22.5	30	7		

RADIUS ACCURACY
 ± 0.006 mm

■ BNM-TG (Helical Geometry)

Cat. No.	PVDcoating	Dimensions (mm)					
	DH102	R	L	W1	S	C	AN
BNM-060-TG	●	3	5	6	2	—	10°
BNM-080-TG	●	4	7	8	2.4	0.5	5°
BNM-100-TG	●	5	8.5	10	2.6	1	
BNM-120-TG	●	6	10	12	3	1.5	
BNM-160-TG	●	8	12	16	4		
BNM-200-TG	●	10	15	20	5	2	
BNM-250-TG	●	12.5	18.5	25	6		
BNM-300-TG	○	15	22.5	30	7		
BNM-320-TG	●	16	32	32			

2 inserts per case

■ Controlled Torque Wrenches (with replaceable blade)

Wrenches are pre-set to protect screws and bodies against damage during both the tightening and loosening process



● Controlled Torque Wrenches (with replaceable blade)

Cat. No.	Torque #	Screw torque	Replacement blade	Applicable inserts
TQC-06	T6	0.5Nm	B-06	BNM○-06... RNM○-06...
TQC-07	T7	0.9Nm	B-07	BNM○-08... RNM○-08...
TQC-08	T8	1.2Nm	B-08	BNM○-10... RNM○-10...
TQC-10	T10	2.0Nm	B-10	BNM○-12... RNM○-12...

● Replacement blade

Cat. No.	Torque #	Applicable wrench
B-06	T6	TQC-06
B-07	T7	TQC-07
B-08	T8	TQC-08
B-10	T10	TQC-10

★ Insert mounting information

1. Make sure the insert seat on body is carefully cleaned.
2. Make sure insert itself is clean, especially hole and face location.
3. Change insert screw when threads start to wear.
(approximately every 10-15 inserts)
4. Do not over tighten screw, see table for torque specifications.

tool dia.(mm)	recommended torque
φDc	N·m
6	0.5
8	0.9
10	1.2
12	2.0
16	3.0
20	4.0
25	5.0
30	6.0
32	6.0

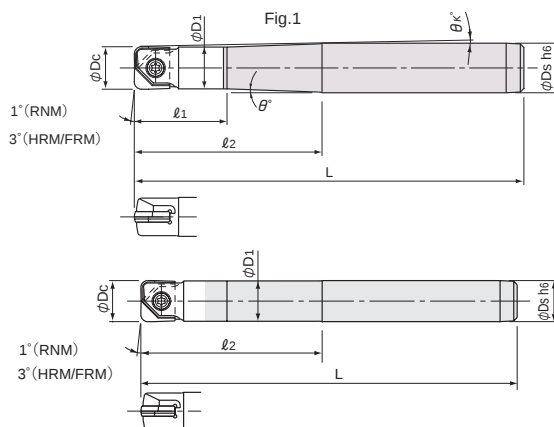
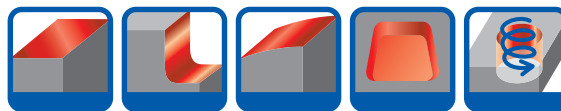
■ Grade selection guide

Material	Cat. No. / Grade										
	BNM					BNM-S		BNM-SS		BNM-TG	BNM-TS
	DH103	DH111	JC10000	KT9	JBN245	FZ05	JC20003	DH108	DS108	DH102	DH102
Carbon steel below 250HB	○	◎ ☆						◎			
Cast steel below 285HB	○	◎ ☆						◎			
Tool and Die steel below 255HB	○	◎ ☆						◎			
Mold steel 30~36HRC	◎	○						◎			
Mold steel 38~43HRC	◎	○						◎			
Hardened die steel 42~52HRC	◎	○						◎		○	○
Hardened die steel 55~62HRC								○		◎	◎
HSS 63~70HRC										◎	◎
Gray cast iron 160~260HB	◎	○			★			○		◎	◎
Nodular cast iron 170~300HB	◎	○			★			○		◎	◎
Stainless steel (304, 316, 317) 17Cr	○	◎ ☆						◎	○		
Stainless steel (403, 420J2, 430) 13Cr	○	◎ ☆						◎	○		
Aluminium (A5052)				◎		◎	◎				
Aluminium (A7075)				◎		◎	◎				
Aluminium alloys (below Si 13%)				◎		◎	◎				
Copper alloys				◎		◎	◎				
Graphite			○				◎				
Titanium alloy (Ti-6Al-4V) 35~43HRC	○	◎ ☆						◎	◎		
Inconel (INC0718) 35~43HRC	○	◎ ☆						◎	◎		

◎ : First choice, ○ : Second choice, ☆ : Wet cutting, ★ : High speed machining

C-Body

High Precision Indexable Radius End Mill with 2 effective cutting edges



Carbide shank holders

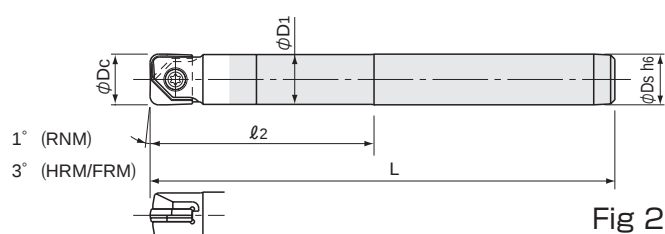
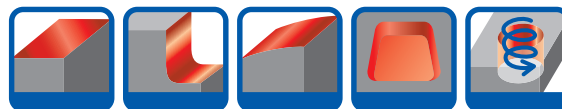
Cat. No.	stock	Dimensions(mm)								Parts		Insert	Fig.	
		ϕD_c	ℓ_1	ℓ_2	L	ϕD_1	θ°	θ_k	ϕD_s	Screw	Wrench			
RNMS-060015U-S06C	●	6	—	15	60	5.7	—	—	6	FSW-2005H	A-06	RNM-060... HRM-060... FRM-060...	2	
RNMM-060030U-S06C	●			30	80									
RNMS-080020U-S08C	●	8	—	20	70	7.6	2°	2°12'	8	FSW-2506H	A-07	RNM-080... HRM-080/090... FRM-080...	1	
RNMM-080040U-S08C	●			40	90									
RNMM-080053T-S12C	●			20	53	110			7.8					12
RNML-080075S-S08C	●			75	140	8								
RNMS-100025U-S10C	●	10	—	25	75		9.5	—	—	10	FSW-3007H	A-08	RNM-100... HRM-100/110... FRM-100...	2
RNMM-100050U-S10C	●			50	100	10								
RNMM-100050S-S10C	●			22.5	53		110			9.8				
RNMM-100053T-S12C	●					75	140							
RNML-100075S-S10C	●	12	—	30	80	11.5	—	—	12	FSW-3509H	A-10	RNM-120/130... HRM-120/130... FRM-120...	2	
RNMS-120030U-S12C	●			60	110									11.8
RNMM-120060U-S12C	●			53	110	12								
RNMM-120053S-S12C	●			95	160				15.5					
RNML-120095S-S12C	●	16	—	35	90	15.8	16	FSW-4013H		A-15	RNM-160/170... HRM-160/170... FRM-160/170...	2		
RNMS-160035U-S16C	●			70	140				15.8					
RNMM-160070S-S16C	●			90	160	12								
RNMM-160090S-S16C	●			120	210				15.8					
RNML-160120S-S16C	●	150	220	15.8										
RNML-160150S-S16C	○													

All cutters are supplied without inserts or wrenches

Screw	Torque (N·m)
FSW-2005H	0.5
FSW-2506H	0.9
FSW-3007H	1.2
FSW-3509H	2.0
FSW-4013H	3.0

C-Body

Precision Indexable Radius End Mill with 2 effective cutting edges



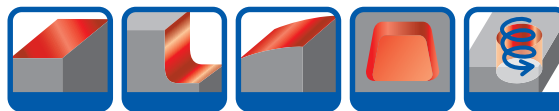
■ Carbide shank holders

Cat. No	Stock	Dimensions(mm)					Parts		Insert	Fig.
		ϕD_c	ℓ_2	L	ϕD_1	ϕD_s	Screw	Wrench		
RNMS-200040U-S20C	○	20	40	105	19.5	20	FSW-5016H	A-20W	RNM-200/210... HRM-200/220... FRM-200/210...	2
RNMM-200075S-S20C	●		75	141	19.8					
RNMM-200105S-S20C	●		105	180						
RNML-200150S-S20C	●		150	220						
RNML-200170S-S20C	●		170	250						
RNMM-250090S-S25C	●	25	90	166	24.8	25	FSW-6020	A-30	RNM-250/260... FRM-250...	
RNMM-250140S-S25C	○		140	220						
RNML-250190S-S25C	○		190	260						
RNMM-300106S-S32C	○	30	106	186	29.8	32	FSW-8025S	A-30	RNM-300... FRM-300...	
RNMM-320106S-S32C	○	32			31.8					

All cutters are supplied without inserts or wrenches

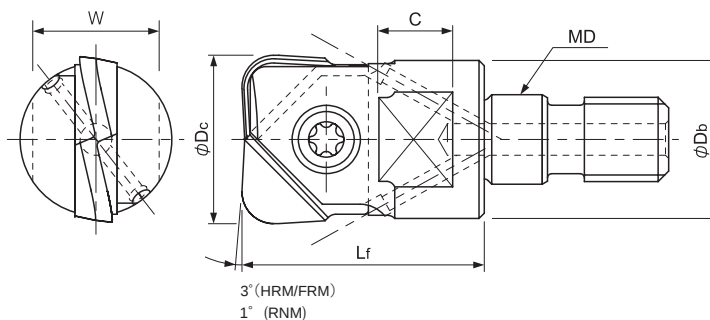
Screw	Torque (N · m)
FSW-5016H	4.0
FSW-6020	5.0
FSW-8025S	6.0

Precision Indexable Radius End Mill with 2 effective cutting edges



- RNM/Corner radius accuracy : below $\pm 0.010\text{mm}$, Bottom edge run out from radius to radius : below $5\text{ }\mu\text{m}$
- HRM/Corner radius accuracy : $\pm 0.015\text{mm}$
- FRM/Corner radius accuracy : $\pm 0.010\text{mm}$
- O.D. run out / Modular head+MSN shank : below $15\text{ }\mu\text{m}$

coolant thru



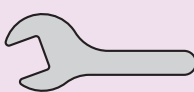
Modular Head

Cat. No.	Stock	Dimensions(mm)						Parts		Insert
		ϕD_c	Lf	ϕD_b	MD	C	W	Screw	Wrench	
MRX-100-M6	●	10	18	9.7	M6	6.5	8	FSW-3007H	A-08	RNM-100...; HRM-100/110... FRM-100...
MRX-120-M6	●	12	20	11.5	M6			FSW-3509H	A-10	RNM-120/130... HRM-120/130... FRM-120...
MRX-160-M8	●	16	23	15	M8	8	12	FSW-4013H	A-15	RNM-160/170... HRM-160/170... FRM-160/170...
MRX-200-M10	●	20	30	18.5	M10		14	FSW-5016H	A-20W	RNM-200/210... HRM-200/220... FRM-200/210...
MRX-250-M12	●	25	35	24	M12	10	17	FSW-6020	A-30	RNM-250/260... FRM-250...
MRX-300-M16	○	30	43	29	M16	12.5	22	FSW-8025S	A-40	RNM-300... FRM-300...
MRX-320-M16	●	32		30	M16					RNM-320... FRM-320...

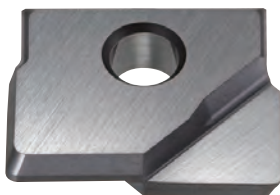
All cutters are supplied without inserts or wrenches

Screw	Torque (N · m)
FSW-3007H	1.2
FSW-3509H	2.0
FSW-4013H	3.0
FSW-5016H	4.0
FSW-6020	5.0
FSW-8025S	6.0

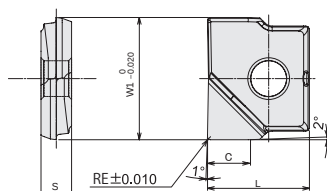
Spanner (for M6,M8)

	Cat. No.	MD	Torque	Width across flat W	Thickness	Length
	DS-08	M6	8.0N·m	8	4	85
	DS-12	M8	16N·m	12	4	93

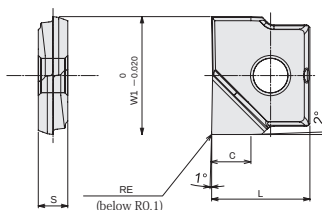
※prevent over tightening by short grip



Corner radius accuracy
 $\pm 0.010\text{mm}$



● RNM-□□□-R□



■ RNM

Cat. No.	PVD coating		Diamond coating	Uncoated	Dimensions(mm)				
	DH103 (Z05)	JC8015 (Z10~20)			RE	L	W1	S	C
RNM-060-R03	●	●			0.3	5	6	2	2
RNM-060-R05	●	●			0.5				
RNM-060-R10	●	●			1				
RNM-080-R03	●	●		○	0.3	7	8	2.4	2.7
RNM-080-R05	●	●	●	●	0.5				
RNM-080-R10	●	●	●	●	1				
RNM-100-R0		●			※	8.5	10	2.6	3.3
RNM-100-R03	●	●		○	0.3				
RNM-100-R05	●	●	●		0.5				
RNM-100-R10	●	●	○	●	1				
RNM-100-R15		○		●	1.5				
RNM-100-R20	●	●		○	2				
RNM-120-R0		●			※	10	12	3	4
RNM-120-R03	●	●		○	0.3				
RNM-120-R05	●	●		●	0.5				
RNM-120-R10	●	●	○	●	1				
RNM-120-R15	●	●	○	○	1.5				
RNM-120-R20	●	●		●	2				
RNM-130-R03		○			0.3	10	13	3	4
RNM-130-R05		○			0.5				
RNM-130-R10		○			1				
RNM-130-R20		○			2				
RNM-160-R0		●			※	12	16	4	5.3
RNM-160-R03	●	●		●	0.3				
RNM-160-R05	●	●		●	0.5				
RNM-160-R10	●	●		●	1				
RNM-160-R15	●	●		●	1.5				
RNM-160-R20	●	●		○	2				
RNM-170-R03		○			0.3	12	17	4	5.3
RNM-170-R05		○			0.5				
RNM-170-R10		●			1				
RNM-170-R20		○			2				
RNM-200-R0		●			※	15	20	5	6.7
RNM-200-R03	●	●		○	0.3				
RNM-200-R05	●	●		○	0.5				
RNM-200-R10	●	●		●	1				

2 inserts per case (JC10000 / 1 insert per case)

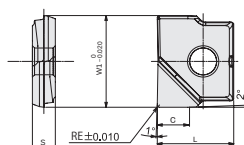
※ Corner Radius below R0.1

Change on the appearance of RNM type

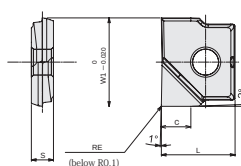
Conventional



NEW

switched to new geometry
after the stock run outCorner radius accuracy
 ± 0.010 mm

●RNM-□□□-R0

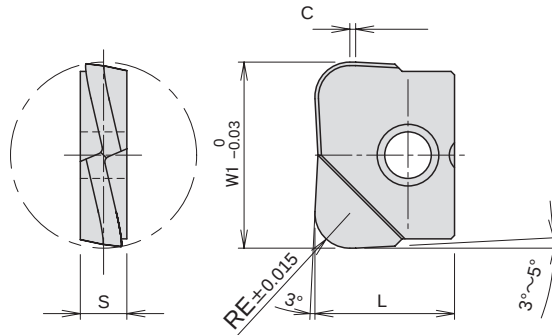


■ RNM

Cat. No.	PVD coating		Diamond coating	Uncoated	Dimensions(mm)				
	DH103 (Z05)	JC8015 (Z10~20)			RE	L	W1	S	C
RNM-200-R15	●	●		○	1.5	6.7	20	15	5
RNM-200-R20	●	●		○	2				
RNM-200-R30		●			3				
RNM-210-R03	○				0.3	6.7	21	15	5
RNM-210-R05	○				0.5				
RNM-210-R10	○				1				
RNM-210-R20	○				2				
RNM-250-R0		●			※	8.3	25	18.5	6
RNM-250-R03	●	●			0.3				
RNM-250-R05	●	●			0.5				
RNM-250-R10	●	●			1				
RNM-250-R15	○	○			1.5				
RNM-250-R20	●	●			2				
RNM-250-R30		●			3				
RNM-260-R03		○			0.3	8.3	26	18.5	6
RNM-260-R05		○			0.5				
RNM-260-R10		●			1				
RNM-260-R20		●			2				
RNM-300-R03	○	○			0.3	10	30	22.5	7
RNM-300-R05	○	○			0.5				
RNM-300-R10	○	○			1				
RNM-300-R15		○			1.5				
RNM-300-R20	○	○			2				
RNM-300-R30		○			3				
RNM-320-R03	●	●			0.3	10.7	32	23.5	7
RNM-320-R05	●	●			0.5				
RNM-320-R10	●	●			1				
RNM-320-R15		○			1.5				
RNM-320-R20	●	●			2				
RNM-320-R30		○			3				

2 inserts per case (JC10000 / 1 insert per case)

※ Corner Radius below R0.1

Corner radius accuracy
±0.015mm

■ HRM (High Feed Geometry)

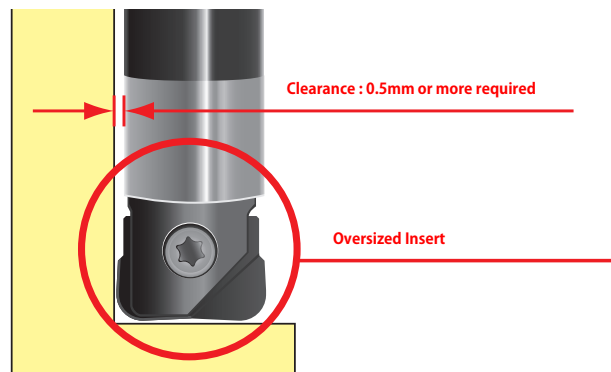
Cat. No.	PVD coating	Dimensions(mm)				
	JC8015	RE	L	W1	S	C
HRM-060-R05	●	0.5	5	6	2	—
HRM-060-R10	●	1				
HRM-060-R15	●	1.5				
HRM-080-R20	●	2	7	8	2.4	0.3
HRM-090-R20	●			9		
HRM-100-R20	●		8.5	10	2.6	
HRM-110-R20	●			11		
HRM-120-R20	●		10	12	3	0.5
HRM-130-R20	●			13		
HRM-160-R20	●	3	12	16	4	
HRM-160-R30	●			17		
HRM-170-R30	●					
HRM-200-R20	●	2	15	20	5	
HRM-200-R30	●	3		22		
HRM-220-R30	●					

2 inserts per case

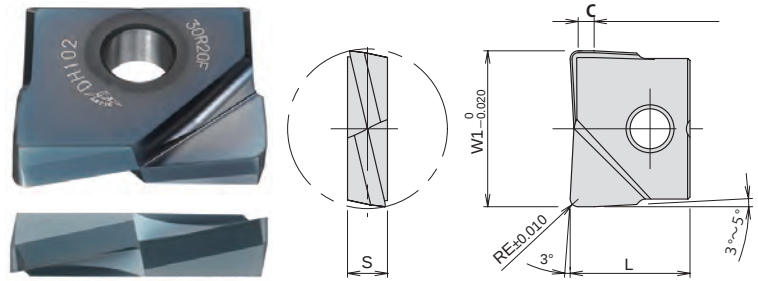
Mirror Radius Oversized insert

recommended to use oversized insert (※) for increasing side clearance to prevent the damage of shank by sticking chips

(※) HRM-090-R20, HRM-110-R20, HRM-130-R20,
HRM-170-R30, HRM-220-R30



- High feed insert with helical geometry
- Smaller side wiper for less deflection
- From semi-finish to finish



Corner radius accuracy
±0.010mm

■ FRM (High Feed Geometry)

Cat. No.	PVDcoating		Dimensions(mm)					
	DH102	JC8015	RE	L	W1	S	C	
FRM-060-R03	○		0.3	5	6	2	0.8	
FRM-060-R05	●	●	0.5					
FRM-060-R10	●	●	1					
FRM-080-R03	○		0.3	7	8	2.4	1.2	
FRM-080-R05	●	●	0.5					
FRM-080-R10	●	●	1					
FRM-100-R03	○		0.3	8.5	10	2.6	1.5	
FRM-100-R05	●	●	0.5					
FRM-100-R10	●	●	1					
FRM-100-R20	●		2					
FRM-120-R03	○		0.3	10	12	3		
FRM-120-R05	●	●	0.5					
FRM-120-R10	●	●	1					
FRM-120-R20	●	●	2					
FRM-120-R30	●		3					
FRM-160-R03	○		0.3	12	16	4	2	
FRM-160-R05	●	●	0.5					
FRM-160-R10	●	●	1					
FRM-160-R15	●		1.5					
FRM-160-R20	●	●	2		17			
FRM-160-R30	●		3					
FRM-170-R10	○	○	1		17			
FRM-200-R03	○		0.3	15	20	5		
FRM-200-R05	●	●	0.5					
FRM-200-R10	●	●	1					
FRM-200-R15	●		1.5					
FRM-200-R20	●	●	2					
FRM-200-R30	●		3					
FRM-210-R10	○	●	1		21			

Cat. No.	PVDcoating		Dimensions(mm)						
	DH102	JC8015	RE	L	W1	S	C		
FRM-250-R03	○		0.3	18.5	25	6	2.5		
FRM-250-R05	●		0.5						
FRM-250-R10	●	●	1						
FRM-250-R20	●	●	2						
FRM-250-R30	●		3						
FRM-300-R03	○		0.3	22.5	30	7	3		
FRM-300-R05	○		0.5						
FRM-300-R10	○	○	1						
FRM-300-R20	○	○	2						
FRM-300-R30	○		3						
FRM-320-R03	○		0.3	23.5	32				
FRM-320-R05	○		0.5						
FRM-320-R10	●	●	1						
FRM-320-R20	●	●	2						
FRM-320-R30	●		3						

2 inserts per case

■ Grade selection guide

Material	Insert	Grade	RNM				HRM	FRM	
			DH103	JC8015	JC10000	KT9	JC8015	DH102	JC8015
Carbon steel below 250HB	RNM HRM FRM	JC8015		◎			◎		◎
Cast steel below 285HB	RNM HRM FRM	JC8015		◎			◎		◎
Tool and Die steel below 255HB	RNM HRM FRM	JC8015		◎			◎		◎
Mold steel 30~36HRC	RNM HRM FRM	DH103 JC8015	○	◎			◎		◎
Mold steel 38~43HRC	RNM HRM FRM	DH103 JC8015	○	◎			◎		◎
Hardened die steel 42~52HRC	HRM FRM	DH102 JC8015		○			○	◎	○
Hardened die steel 55~62HRC	FRM	DH102						◎	
HSS 63~70HRC	FRM	DH102	○					◎	
Gray cast iron 160~260HB	RNM HRM FRM	DH102 DH103 JC8015	◎	○			○	◎	○
Nodular cast iron 170~300HB	RNM HRM FRM	DH102 DH103 JC8015	◎	○			○	◎	○
Stainless steel (304, 316, 317) 13Cr	RNM HRM FRM	JC8015	○	◎			◎	○	◎
Stainless steel (403, 420J2, 430) 13Cr	RNM HRM FRM	JC8015	○	◎			◎	○	◎
Aluminium (A5052)	RNM	KT9				◎			
Aluminium (A7075)	RNM	KT9				◎			
Aluminium alloys below Si 13%	RNM	KT9				◎			
Copper alloys	RNM	KT9				◎			
Graphite	RNM	JC10000			◎				
Titanium alloy (Ti-6Al-4V) 35~43HRC	HRM FRM	JC8015					◎		◎
Inconel (INC0718) 35~43HRC	HRM FRM	JC8015					◎		◎

◎: First choice、○: Second choice、☆: Wet cutting、★: High speed machining

Please scan the QR code for
recommended cutting conditions

Mirror Ball



Mirror Radius



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