PRODUCT NEWS

PN-E-006

SERIES EXPANSION

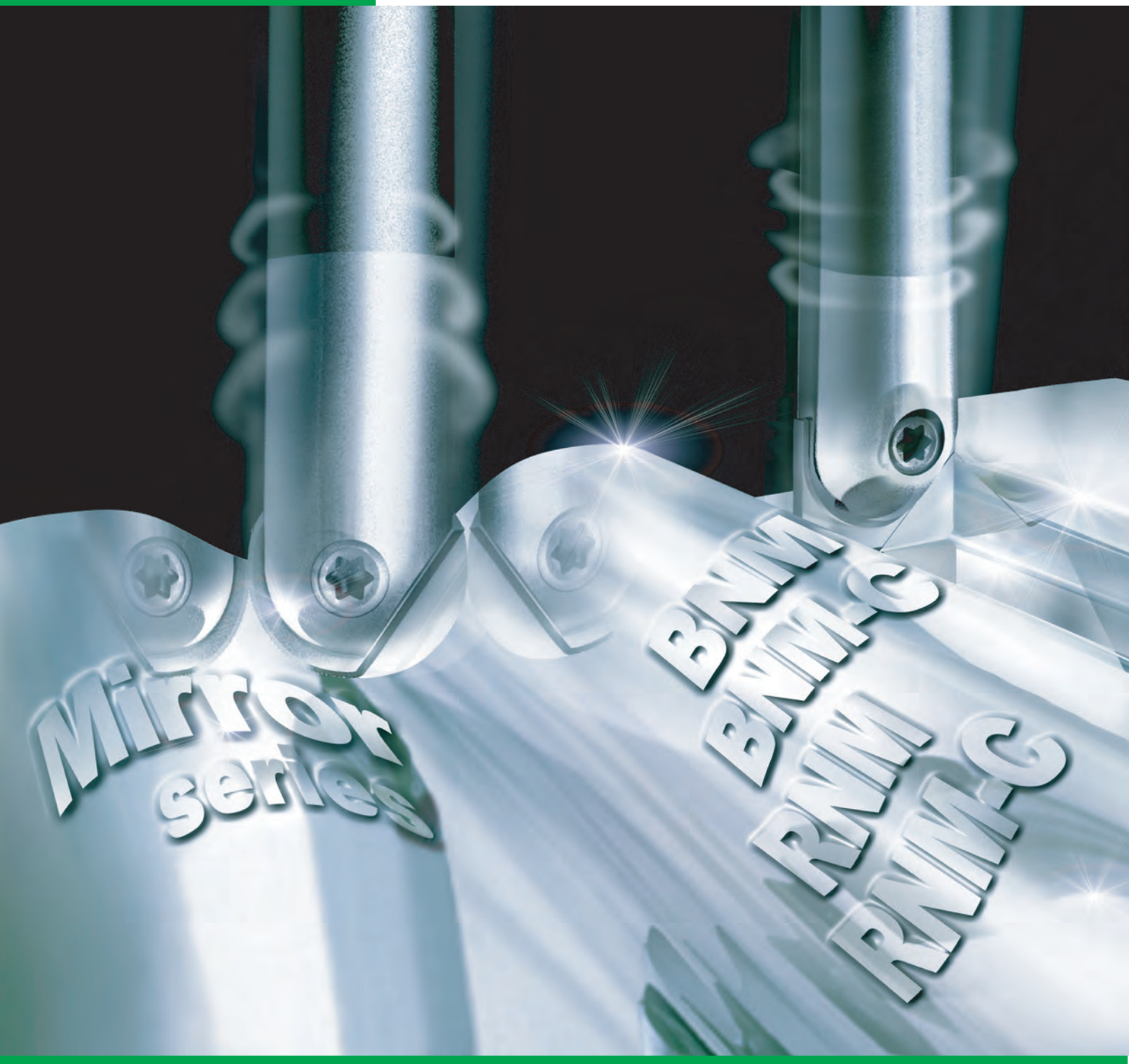
DIJET

BNM & RNM

MIRROR *Series*

“Mirror Ball & Mirror Radius”

High Precision Indexable Ball Nose End Mill & Radius End Mill



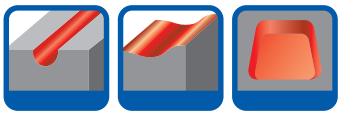
DIJET GmbH www.dijet.de

Mirror Ball

BNM

C-Body

High Precision Indexable Ball Nose End Mill



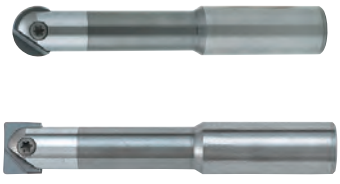
●Insert radius form accuracy is below ±0.010 mm when fixed to the holder
(accuracy below ± 0.006 mm on insert alone)

■Carbide shank holders

Cat. No.	stock	Dimensions(mm)									Parts		Insert	Fig.
		φDc	R	ℓ1	ℓ2	L	φD1	θ	θk	φDs	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···	
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									
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'	12				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				2
BNML-160070S-S16C	●			—	70	140		—	—	16				1
BNML-160090S-S16C	●				90	160								
BNML-160100S-S16C	○				100	220								
BNML-160100T-S20C	●			44.5		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

● : Standard stock ○ : Stock in Japan



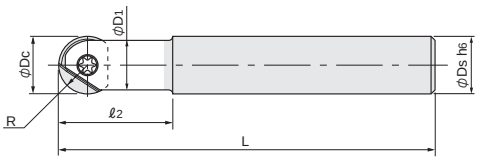


Fig 1

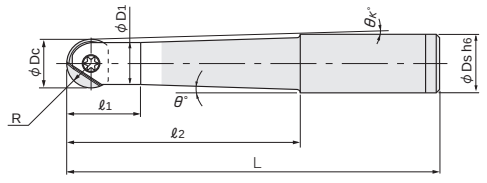


Fig 2

■Carbide shank holders

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

1 All cutters are supplied without inserts or wrenches.
2 when φ 32 insert mounted on Dc30 holder, the dimensions of ℓ 1, ℓ 2, L are 1mm longer than value above.

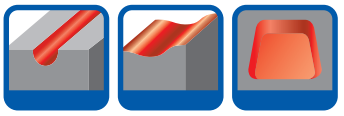
screw	torque (N・m)
FSW-2005H	0.5
FSW-2506H	0.9
FSW-3007H	1.2
FSW-3509H	2.0
FSW-4013H	3.0
FSW-5016H	4.0
FSW-6020	6.0
FSW-8025S	6.0

FINISHING PROFILING

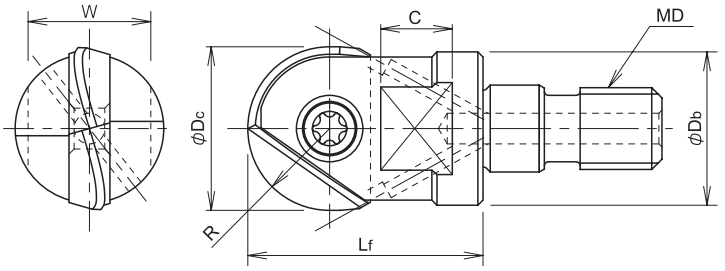
Mirror Ball MBX

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 runont : below 15 μm when MBX Modular head fixed to MSN carbide shank



coolant thru



■ Modular head

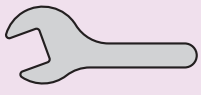
Cat. No.	stock	Dimensions (mm)							Parts		Insert
		ϕDc	R	Lf	ϕDb	MD	C	W	Screw	Wrench	
MBX-100-M6	●	**10**	5	18	9.7	M6	6.5	8	FSW-3007H	A-08	BNM-100···
MBX-120-M6	●	**12**	6	20	11.5	M6			FSW-3509H	A-10	BNM-120···
MBX-160-M8	●	**16**	8	23	15	M8	8	12	FSW-4013H	A-15	BNM-160···
MBX-200-M10	●	**20**	10	30	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 ϕ32 insert mounted on Dc30 holder, the dimensions of ℓ1, ℓ2, 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)

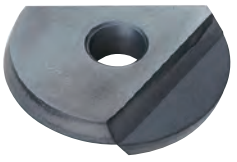
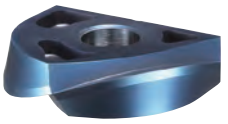
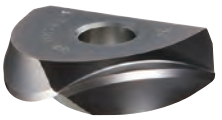
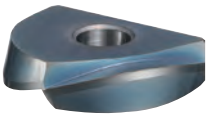


Cat. No.	MD	Torque	Width across flat W	Thickness	Length
DS-8	M6	8.0 N·m	8	4	85
DS-12	M8	16 N·m	12	4	93

※ prevent over tightening by short grip

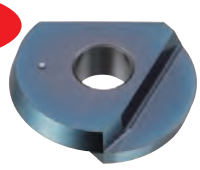
● : Standard stock ○ : Stock in Japan

■ Mirror Ball Insert Recommendation

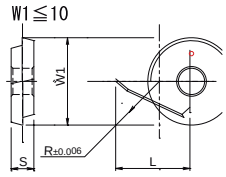
	Cat. No.	Shape	Features
	BNM		Neutral style geometry strictly for finish applications.
	BNM-SS		Sharp helical geometry Good for finishing and semi finishing high-temp alloys/hard materials.
	BNM-TS		Helical geometry Good for semi finishing hard materials up to 60 HRC.
	BNM-TG		Negative helical geometry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

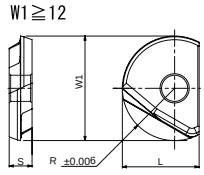
■BNM

RADIUS ACCURACY ±0.006mm

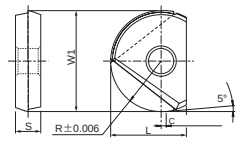


●DH111、JC10000、KT9





●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.

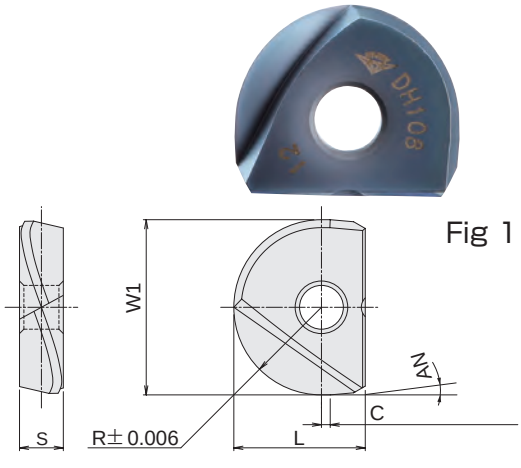


Fig 1

RADIUS ACCURACY ±0.006mm

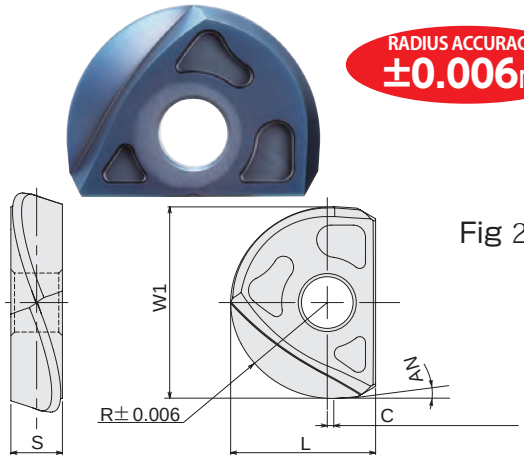


Fig 2

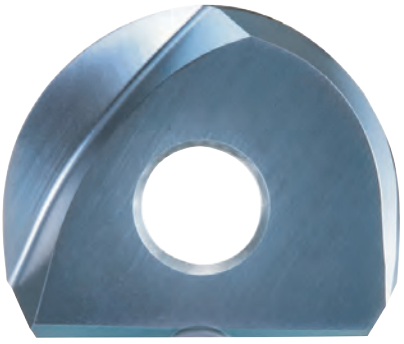
Cat. No.	PVD coating		Dimensions(mm)						Fig.
	DH108	DS108	R	L	W1	S	C	AN	
BNM-060-SS	●	●	3	5	6	2	—	10°	1
BNM-080-SS	●	●	4	7	8	2.4	0.5	5°	
BNM-100-SS	●	●	5	8.5	10	2.6	1		
BNM-120-SS	●	●	6	10	12	3			
BNM-160-SS	●	●	8	12	16	4			
BNM-200-SS	●	●	10	15	20	5			2
BNM-250-SS	●	●	12.5	18.5	25	6			
BNM-300-SS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

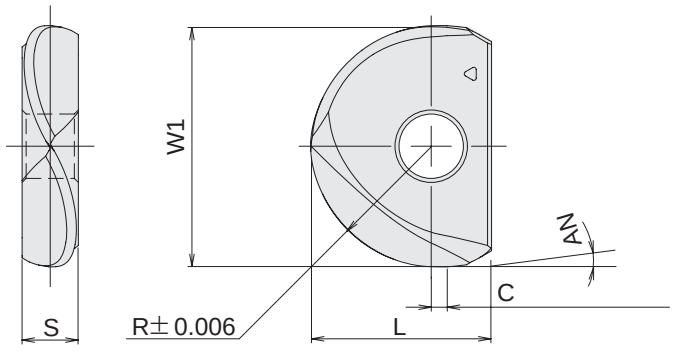
2 inserts per case

● : Standard stock ○ : Stock in Japan

■BNM-TS (Helical Geometry)

RADIUS ACCURACY ±0.006mm



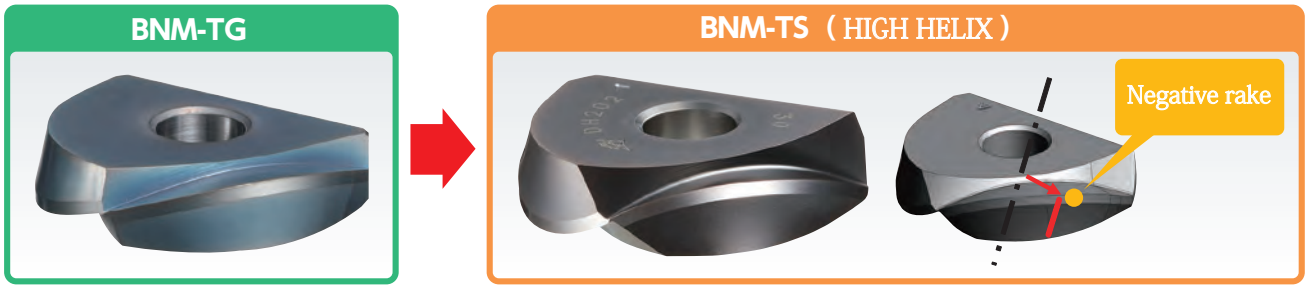


Cat. No.	PVDcoating	Dimensions(mm)					
	DH102	R	W1	L	S	C	AN
BNM-060-TS	●	3	6	5	2	—	10°
BNM-080-TS	●	4	8	7	2.4	0.5	5°
BNM-100-TS	●	5	10	8.5	2.6	1	
BNM-120-TS	●	6	12	10	3	1.5	
BNM-160-TS	●	8	16	12	4		
BNM-200-TS	●	10	20	15	5	2	
BNM-250-TS	●	12.5	25	18.5	6		
BNM-300-TS	○	15	30	22.5	7		
BNM-320-TS	●	16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

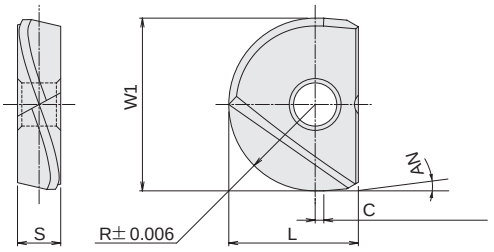
2 inserts per case

■BNM-TS

Good for semi finishing high hardened materials



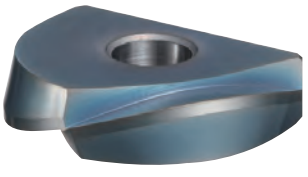
RADIUS ACCURACY ±0.006mm

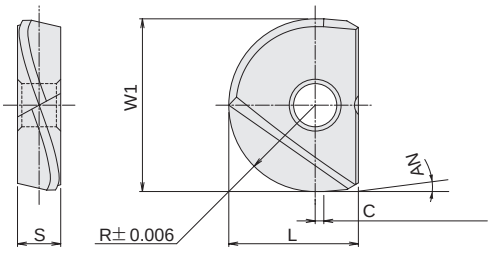


■BNM-S (Helical Geometry)

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 ±0.006mm





■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

● : Standard stock ○ : Stock in Japan

■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	○	◎ ☆						◎	○		
Alminium (A5052)				◎		◎	◎				
Alminium (A7075)				◎		◎	◎				
Alminium alloys (below Si 13%)				◎		◎	◎				
Copper alloys				◎		◎	◎				
Graphite			○				◎				
Titanium alloy (Ti-6Al-4V) 35~43HRC	○	◎ ☆						◎	◎		
Inconel (INCO718) 35~43HRC	○	◎ ☆						◎	◎		

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

Please scan the QR code for recommended cutting conditions

Mirror Ball

Mirror Radius

HEADQUARTER
DIJET Industrial Co.Ltd.
2-1-18, Kami-Higashi,
Hirano-ku, Osaka 547-0002, Japan
Phone: +81-6-6791-6781
Fax: +81-6-6793-1221
www.dijet.co.jp

MAIN OFFICE EUROPE
DIJET GmbH
Immemannstraße 9
40210 Düsseldorf, Germany
Phone: +49-211-50088820
Fax: +49-211-50088823
www.dijet.de

ISO9001 JQA-2089 ISO14001 JQA-EM1580

DIJET EUROPE

Web : www.dijet.de