

Multi functional milling cutters

BXD range of milling cutters for high performance machining of aluminium alloys and heat resistant materials.

- New offset shank type for deeper milling!
- Low resistance geometry and inserts with a rigid tool body. High aluminium removal rates of more than 3000 cc/min.
- **LC15TF**
New DLC-coated inserts for outstanding aluminium alloy machining performance.

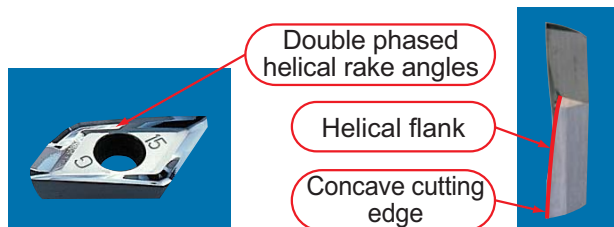


Milling Cutters for Aluminium and Difficult-to-cut Materials

BXD

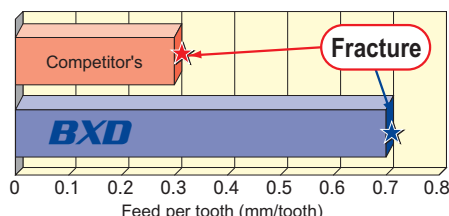
Features

Low Resistance & High Rigidity Inserts



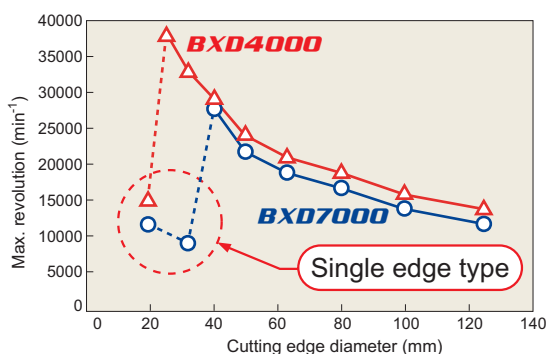
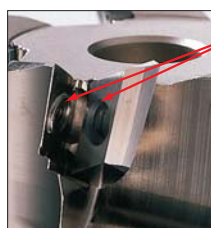
Fracture resistance of **BXD**

<Cutting conditions>
 Workpiece : DIN Ck55
 Cutting speed : 160m/min
 Width of cut : 5mm
 Depth of cut : 5mm



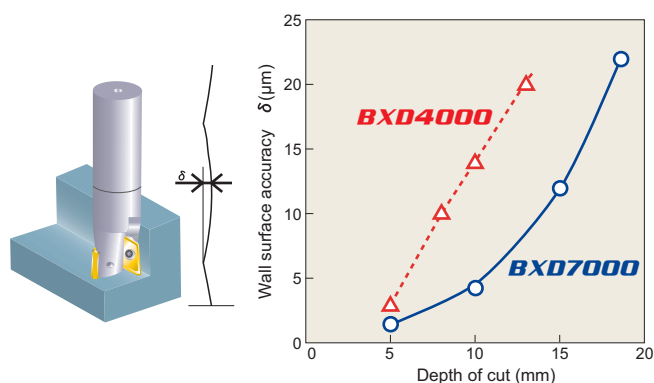
Secure High-revolution Milling!

Specially designed screws and Mitsubishi's proprietary "Anti Fly Insert" mechanism (AFI mechanism) guarantees secure and safe high revolution milling.



Excellent Wall Accuracy

Specially designed G-class inserts with a helical cutting edge for excellent wall accuracy.



Data obtained from performance tests with
 BXD4000R252SA25 and BXD7000R402SA20S
 Nose radius : R1.6

Revolution : 20,000 (min⁻¹)
 Feed per tooth : 0.2 (mm/tooth)
 Width of cut : 3 (mm)
 Workpiece : Aluminium Alloy
 Wet cutting

Wall surface accuracy varies depending on the diameter of the tool.



Multi functional milling

BXD for excellent ramping and overall performance.

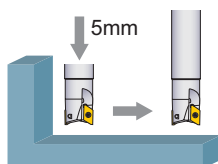
② Ramping

BXD4000 with $\phi 25\text{mm}$...20° ramping angle
 BXD7000 with $\phi 40\text{mm}$...13° ramping angle.

① Shoulder milling

③ Pocketing

No need for pre-machined holes when pocketing. Up to 5mm sinking depth is possible.



④ 3D copying

⑥ Face milling

⑤ Slotting

⑦ Helical cutting

Shank Type



Fig. 1: Straight shank

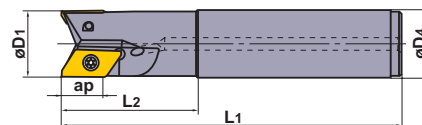
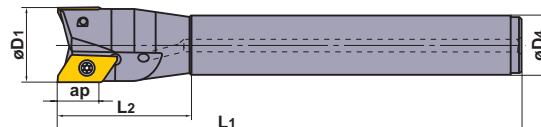


Fig. 2: Offset shank



Right hand tool holder only.

Type	Insert Corner	Type	Order Number	Stock	Number of Teeth	Dimensions (mm)					Ramping Angle (°)	Max. Allowable Revolution (min ⁻¹)	Figure			
						D1	ap	L1	L2	D4				Clamp Screw	Wrench	Insert
BXD4000	A	Standard	BXD4000R201SA20SA	●	1	20	15	110	35	20	28	15,000	1	TS4SL	①TKY15W	XDGT1550 PDR-G○○○
			252SA25SA	●	2	25	15	125	50	25	20	38,000	1	TS4SL	①TKY15W	
			282SA25SA	●	2	28	15	125	50	25	17	35,000	2	TS4SL	①TKY15W	
			322SA32SA	●	2	32	15	150	50	32	13	33,000	1	TS4SL	①TKY15W	
			352SA32SA	●	2	35	15	150	50	32	11	31,000	2	TS4SL	①TKY15W	
			403SA32SA	●	3	40	15	170	80	32	9	29,000	2	TS4SL	①TKY15W	
			403SA42SA	●	3	40	15	170	80	42	9	29,000	1	TS4SL	①TKY15W	
		Long	BXD4000R252SA25LA	●	2	25	15	170	80	25	20	38,000	1	TS4SL	①TKY15W	
	B	Standard	322SA32LA	●	2	32	15	200	80	32	13	33,000	1	TS4SL	①TKY15W	XDGT1550 PDR-G○○○
			BXD4000R282SA25ELA	●	2	28	15	220	50	25	17	35,000	2	TS4SL	①TKY15W	
			352SA32ELA	●	2	35	15	250	50	32	11	31,000	2	TS4SL	①TKY15W	
			403SA32ELA	●	3	40	15	250	65	32	9	29,000	2	TS4SL	①TKY15W	
			BXD4000R201SA20SB	●	1	20	15	110	35	20	28	15,000	1	TS4SL	①TKY15W	
			252SA25SB	●	2	25	15	125	50	25	20	38,000	1	TS4SL	①TKY15W	
			282SA25SB	●	2	28	15	125	50	25	17	35,000	2	TS4SL	①TKY15W	
		322SA32SB	●	2	32	15	150	50	32	13	33,000	1	TS4SL	①TKY15W		
B	Standard	352SA32SB	●	2	35	15	150	50	32	11	31,000	2	TS4SL	①TKY15W	XDGT1550 PDR-G○○○	
		403SA32SB	●	3	40	15	170	80	32	9	29,000	2	TS4SL	①TKY15W		
		403SA42SB	●	3	40	15	170	80	42	9	29,000	1	TS4SL	①TKY15W		
		BXD4000R252SA25LB	●	2	25	15	170	80	25	20	38,000	1	TS4SL	①TKY15W		
		322SA32LB	●	2	32	15	200	80	32	13	33,000	1	TS4SL	①TKY15W		
		BXD4000R282SA25ELB	●	2	28	15	220	50	25	17	35,000	2	TS4SL	①TKY15W		
		352SA32ELB	●	2	35	15	250	50	32	11	31,000	2	TS4SL	①TKY15W		
	403SA32ELB	●	3	40	15	250	65	32	9	29,000	2	TS4SL	①TKY15W			
A	Standard	BXD7000R251SA25SA	★	1	25	21	170	80	25	28	12,000	1	TS5S	②TKY25D	XDGT2206 PDRF-G○○○	
		321SA32SA	★	1	32	21	170	80	32	19	9,500	1	TS5S	②TKY25D		
		402SA42SA	★	2	40	21	170	80	42	13	28,000	1	TS5SL	②TKY25D		
	Long	BXD7000R251SA25SB	★	1	25	21	170	80	25	28	12,000	1	TS5S	②TKY25D	XDGT2206 PDRF-G○○○	
		321SA32SB	★	1	32	21	170	80	32	19	9,500	1	TS5S	②TKY25D		
		402SA42SB	★	2	40	21	170	80	42	13	28,000	1	TS5SL	②TKY25D		

Note 1) The maximum allowable revolutions stated above are based on ISO15641. However, it is not recommended that BXD cutters are used in excess of the revolutions stated in the Operational Guidance, Table 1 printed on the back page of this leaflet.

Note 2) When using high revolution machining, please pay special attention to the balancing. The whole tool assembly should be balanced according to G6.3 based on ISO1940 quality grades.

Holder and insert corner radius combination

Holder	A Holder					B Holder	
	BXD4000R○○○○○○○A					BXD4000R○○○○○○○B	
Applicable insert Corner R (Re)	R 0.4	R 0.8	R 1.6	R 2.0	R 3.0	R 4.0	R 5.0
	XDGT.....-G04	XDGT.....-G08	XDGT.....-G16	XDGT.....-G20	XDGT.....-G30	XDGT.....-G40	XDGT.....-G50

Note Please only use the holder and insert corner radius combinations shown above.

BXD

Arbor Type



Fig. 1
ø40

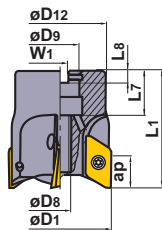


Fig. 2
ø50
ø63
ø80
ø100

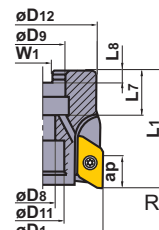
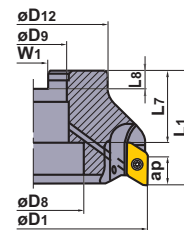


Fig. 3
ø125



Right hand tool holder
(R) only.

Set bolt

● The following clamp bolts are supplied with the respective cutter

Light alloy	Cast iron	General steel	Stainless steel	Hardened steel

Diameter		Set Bolt Order Number	Geometry	Geometry		
<i>BXD4000</i>	<i>BXD7000</i>					
φ 40	—	LS24H	①			
—	φ 50	HSC08030H				
φ 50, φ 63	φ 63	10030H				
φ 80	φ 80	12035H				
φ 100	φ 100	16040H				
φ 125	φ 125	MBA20040H	③			

Type	Insert Corner	Order Number	Stock	Number of Teeth	Dimensions (mm)								Weight (kg)	Max. Depth of Cut ap	Ramping Angle (°)	Max. Allowable Revolution (min ⁻¹)	Type (Fig.)				
	Re				R	D1	L1	L7	L8	D8	W1	D9						D11	D12	Clamp Screw	Wrench
BXD4000	A 0.4 3.2	BXD4000-040A03RA	●	3	40	50	18	5.6	M8	8.4	16	—	32	0.3	15	9	29000	1	TS4SL	①TKY15W	XDGT1550 PD-R-G
		-050A04RA	●	4	50	50	20	6.5	11	10.4	22	17	41	0.4	15	6	24000	2	TS4SL	①TKY15W	
		-063A05RA	●	5	63	50	20	6.5	11	10.4	22	17	50	0.7	15	5	21000	2	TS4SL	①TKY15W	
		-080A05RA	●	5	80	50	23	7	13	12.4	27	20	60	1.1	15	3	19000	2	TS4SL	①TKY15W	
		-100A06RA	●	6	100	63	26	8	17	14.4	32	26	70	2.0	15	3	16000	2	TS4SL	①TKY15W	
		-125B07RA	□	7	125	63	40	9	56	16.4	40	—	80	2.8	15	2	14000	3	TS4SL	①TKY15W	
		R08005CA	★	5	80	50	26	6	13	9.5	25.4	20	60	1.1	15	3	19000	2	TS4SL	①TKY15W	
		R10006DA	★	6	100	63	32	8	17	12.7	31.75	26	70	2.0	15	3	16000	2	TS4SL	①TKY15W	
		R12507EA	★	7	125	63	40	10	56	15.9	38.1	—	80	2.8	15	2	14000	3	TS4SL	①TKY15W	
	B 4.0 5.0	-040A03RB	●	3	40	50	18	5.6	M8	8.4	16	—	32	0.3	15	9	29000	1	TS4SL	①TKY15W	XDGT1550 PD-R-G
		-050A04RB	●	4	50	50	20	6.5	11	10.4	22	17	41	0.4	15	6	24000	2	TS4SL	①TKY15W	
		-063A05RB	●	5	63	50	20	6.5	11	10.4	22	17	50	0.7	15	5	21000	2	TS4SL	①TKY15W	
		-080A05RB	●	5	80	50	23	7	13	12.4	27	20	60	1.1	15	3	19000	2	TS4SL	①TKY15W	
		-100A06RB	●	6	100	63	26	8	17	14.4	32	26	70	2.0	15	3	16000	2	TS4SL	①TKY15W	
		-125B07RB	□	7	125	63	40	9	56	16.4	40	—	80	2.8	15	2	14000	3	TS4SL	①TKY15W	
		R08005CB	★	5	80	50	26	6	13	9.5	25.4	20	60	1.1	15	3	19000	2	TS4SL	①TKY15W	
		R10006DB	★	6	100	63	32	8	17	12.7	31.75	26	70	2.0	15	3	16000	2	TS4SL	①TKY15W	
		R12507EB	★	7	125	50	40	10	56	15.9	38.1	—	80	2.8	15	2	14000	3	TS4SL	①TKY15W	
BXD7000	A 0.8 3.0	BXD7000-050A02RA	★	2	50	50	18	5.6	9	8.4	16	14	41	0.4	21	9	22000	2	TS5SL	②TKY25D	XDGT2206 PDFR-G
		-063A03RA	★	3	63	50	20	6.5	11	10.4	22	17	45	0.5	21	7	19000	2	TS5SL	②TKY25D	
		-080A04RA	□	4	80	50	23	7	13	12.4	27	20	55	1.1	21	5	17000	2	TS5SL	②TKY25D	
		-100A05RA	□	5	100	63	26	8	17	14.4	32	26	70	2.0	21	4	14000	2	TS5SL	②TKY25D	
		-125B06RA	□	6	125	63	40	9	56	16.4	40	—	90	2.8	21	3	12000	3	TS5SL	②TKY25D	
		R08004CA	★	4	80	60	26	6	13	9.5	25.4	20	55	1.1	21	5	17000	2	TS5SL	②TKY25D	
		R10005DA	★	5	100	63	32	8	17	12.7	31.75	26	70	1.8	21	4	14000	2	TS5SL	②TKY25D	
		R12506EA	★	6	125	63	40	10	56	15.9	38.1	—	90	3.0	21	3	12000	3	TS5SL	②TKY25D	
	B 4.0 5.0	-050A02RB	★	2	50	50	18	5.6	9	8.4	16	14	41	0.4	21	9	22000	2	TS5SL	②TKY25D	XDGT2206 PDFR-G
		-063A03RB	★	3	63	50	20	6.5	11	10.4	22	17	45	0.5	21	7	19000	2	TS5SL	②TKY25D	
		-080A04RB	□	4	80	50	23	7	13	12.4	27	20	55	1.1	21	5	17000	2	TS5SL	②TKY25D	
		-100A05RB	□	5	100	63	26	8	17	14.4	32	26	70	2.0	21	4	14000	2	TS5SL	②TKY25D	
		-125B06RB	□	6	125	63	40	9	56	16.4	40	—	90	2.8	21	3	12000	3	TS5SL	②TKY25D	
		R08004CB	★	4	80	60	26	6	13	9.5	25.4	20	55	1.1	21	5	17000	2	TS5SL	②TKY25D	
		R10005DB	★	5	100	63	32	8	17	12.7	31.75	26	70	1.8	21	4	14000	2	TS5SL	②TKY25D	
		R12506EB	★	6	125	63	40	10	56	15.9	38.1	—	90	3.0	21	3	12000	3	TS5SL	②TKY25D	

Note 1) The maximum allowable revolutions stated above are based on ISO15641. However, it is not recommended that BXD cutters are used in excess of the revolutions stated in the Operational Guidance, Table 1 printed on the back page of this leaflet.

Note 2) When using high revolution machining, please pay special attention to the balancing. The whole tool assembly should be balanced according to G6.3 based on ISO1940 quality grades.

● : Inventory maintained. ★ : Inventory maintained in Japan. □ : Non stock, produced to order only.

Insert

Work Material		P	Steel			Cutting Conditions (Guide):								
		M	Stainless Steel			●:Stable Cutting ●:General Cutting ✖:Unstable Cutting								
		K	Cast Iron			Honing:								
		N	Non-ferrous Metal			E:Round F:Sharp								
		S	Heat-resistant Alloy, Titanium Alloy											
		H	Hardened Steel											
Cutter Type	Shape	Order Number	Class	Honing	Coated		Carbide	Dimensions (mm)					Geometry	
					VP15TF	LC15TF			TF15		L1	L4		S1
BXD4000		XDGT1550PDFR-G04	G	F	●			●	22	16	5	1.5	0.4	
		1550PDFR-G08	G	F	●			●	22	16	5	1.1	0.8	
		1550PDFR-G12	G	F	●			●	22	16	5	0.7	1.2	
		1550PDFR-G16	G	F	●			●	22	16	5	0.4	1.6	
		1550PDFR-G20	G	F	●			●	21.7	16	5	0.2	2.0	
		1550PDFR-G30	G	F	●			●	20	16	5	0.6	3.0	
		1550PDFR-G32	G	F	●			●	20	16	5	0.4	3.2	
		1550PDFR-G40	G	F	●			●	19	16	5	0.5	4.0	
		1550PDFR-G50	G	F	●			●	18	16	5	0.4	5.0	
		XDGT1550PDER-G04	G	E	●				22	16	5	1.5	0.4	
		1550PDER-G08	G	E	●				22	16	5	1.1	0.8	
		1550PDER-G12	G	E	●				22	16	5	0.7	1.2	
		1550PDER-G16	G	E	●				22	16	5	0.4	1.6	
		1550PDER-G20	G	E	●				21.7	16	5	0.2	2.0	
		1550PDER-G30	G	E	●				20	16	5	0.6	3.0	
		1550PDER-G32	G	E	●				20	16	5	0.4	3.2	
		1550PDER-G40	G	E	●				19	16	5	0.5	4.0	
		1550PDER-G50	G	E	●				18	16	5	0.4	5.0	
BXD7000		XDGT2206PDFR-G08	G	F	□			●	30	22	6.35	2.0	0.8	
		2206PDFR-G16	G	F	□			★	30	22	6.35	1.2	1.6	
		2206PDFR-G20	G	F	□			★	30	22	6.35	0.8	2.0	
		2206PDFR-G30	G	F	□			★	29	22	6.35	0.6	3.0	
		2206PDFR-G40	G	F	□			★	27.5	22	6.35	0.9	4.0	
		2206PDFR-G50	G	F	□			★	27	22	6.35	0.4	5.0	

BXD**Recommended Cutting Conditions**

	Work Material	Hardness	Insert Grade	Cutting Speed (m/min)	Feed per Tooth (mm/tooth)
N	Aluminium Alloy	—	LC15TF TF15	1000 (200—3000)	0.3 (0.1—0.5)
S	Titanium Alloy	—	VP15TF	40 (30—60)	0.1 (0.1—0.3)
	Heat-resistant Alloy	—	VP15TF	30 (20—40)	0.15 (0.1—0.2)
M	Stainless Steel	≤270HB	VP15TF	140 (120—160)	0.2 (0.1—0.3)
P	Mild Steel	≤180HB	VP15TF	180 (150—200)	0.15 (0.1—0.2)
	Carbon Steel, Alloy Steel	≤280HB	VP15TF	150 (120—200)	0.15 (0.1—0.2)
		280—350HB	VP15TF	140 (120—160)	0.15 (0.1—0.2)
H	Hardened Steel	40—60HRC	VP15TF	70 (50—100)	0.1 (0.05—0.15)

- Figures above are guide lines for optimum general use. They may vary depending on machine rigidity, work clamping and length of tool overhang.
- When using ø20 shank type, set the table feed at under 0.05mm/tooth and maintain observation during cutting.
- Please adjust the table feed when using long- and extra-long- shank types.
- Please adjust the table feed when ramp machining (Recommended feed: 0.05mm/tooth under).

Operational Guidance

- Use only the prescribed inserts and parts.
- The maximum guaranteed revolution for safety purposes is determined using ISO 15641:2001
- Ensure that the cutter operates under the maximum allowable revolution. Even when operating under the maximum allowable revolution, if the spindle revolution is equal to or higher than the values shown in the following table, we recommend that the balance quality grade (with arbor) conforms to G40 or higher based on "JIS B 9095".

Cutting Edge Diameter (mm)	φ 25	φ 32	φ 40	φ 50	φ 63	φ 80	φ 100	φ 125
Revolution (min ⁻¹)	12,000	9,500	8,500	7,600	6,800	6,000	5,400	4,800

- Please use a special clamping bolt when using the arbor type with through coolant holes.
- Cutting tools have sharp edges and handling them with bare hands may cause injuries. Always wear protection such as gloves when handling indexable inserts.
- Always apply the recommended clamp torque values as shown below.

BXD4000 : 4 - 5N·m (41 - 51kgf·cm)

BXD7000 : 7 - 8N·m (71 - 82kgf·cm)

www.mitsubishicarbide.com**MMC HARTMETALL GmbH**

Comeniusstr. 2, 40670 Meerbusch, Germany
 Tel. +49-2159-91890 Fax +49-2159-918966
 e-mail marketing@mmchg.de

MMC HARDMETAL U.K. LTD.

Mitsubishi House, Galena Close, Tamworth, B77 4AS, U.K.
 Tel. +44-1827-312312 Fax +44-1827-312314
 e-mail sales@mitsubishicarbide.co.uk

MMC METAL FRANCE S.A.R.L.

6, rue Jacques Monod, 91893 Orsay Cedex, France
 Tel. +33-1-69 35 53 53 Fax +33-1-69 35 53 50
 e-mail mmf-sales@mmc-metal-france.fr

MITSUBISHI MATERIALS ESPAÑA, S.A.

C/Emperador 2, 46136 Museros, Valencia, Spain
 Tel. +34-96-144-1711 Fax +34-96-144-3786
 e-mail mme@mmevalencia.com

MMC ITALIA S.r.l.

V.le delle Industrie 20/5, 20020 Arese (Mi)
 Tel. +39-02 93 77 03 1 Fax +39-02 93 58 90 93
 e-mail info@mmc-italia.it

MMC HARDMETAL POLAND Sp. z o.o.

Armii Karłowej 61, Wrocław, Poland
 Tel. +48-71-3351-620 Fax +48-71-3351-620
 e-mail mmc@mhpl.pl

MITSUBISHI HARDMETAL RUSSIA OOO LTD.

ul. Bolschaja Pochtovaja, d.36, str.1 105082 Moscow, Russia
 Tel. +007-095-72558-85 Fax +007-095-72558-85
 e-mail mmc-moscow@lescom.ru