KORLOY TECH-NEWS

No : 77-1

Upgrade your High speed Machining Works with Indexable Ball-Endmill

MACH-MILL Tools

■ Features

■ BFE(for Finishing)

Designed for high productivity and high accuracy in metal mould making, aerospace and automotive industries.
Excellent cutting performance with high toughness and hardness insert in high speed operations
Special coupling system for high accuracy operations

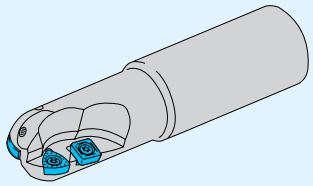
■ BRE(for Roughing)

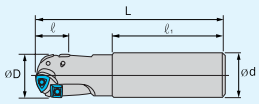
Designed for high productivity and high stability in metal mould making, aerospace and automotive industries.
Excellent cutting performance and chip control by adopting 'Right torsion applied flute' and 'Optimal cutting edge arrangement'
Excellent Anti-fracture & Durability of body adopted special surface treatment
Stable cutting performance with high rake angled inserts in high speed and feed operations

KORLOY is ISO9001 Certified ISO9001

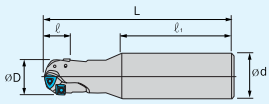
KORLOY Inc.

BRE (for Roughing)

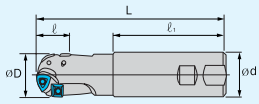




Pic.1



Pic.2



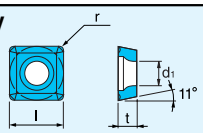
Pic.3
(Side lock type)

Cat. No.		STOCK	(mm)						Applicable Insert		Parts	
			Pic.	øD	ℓ	ℓ₁	L	ød	at Bottom seat	at Cylinderical seat	Screw	Wrench
BRE	20-S		1			75	125	20				
	20-M	●	1	20	20	75	150	20	(2PCS) ZDMT08T2-R10	(2PCS) SPMT060304	ETNA02506	TW07P
	20-L		2			100	200	25				
	20-SL		3			60	125	20				
	25-S		1	25	23	80	150	25				
	25-M	●	1	25	23	80	175	25	(2PCS) ZDMT1103-R12.5	(2PCS) SPMT060304	ETNA02506	TW07P
	25-L		2	25	23	100	200	32				
	25-SL		3	20	20	60	135	25				
	32-S		1			90	175					
	32-M	●	1	32	31	100	200	32	(2PCS) ZDMT13T3-R16	(2PCS) SDMT090308	ETNA0408	TW15S
	32-L		1			100	250					
	32-SL		3			75	150					
	40-S		1			90	175	42				
	40-M	●	1	40	41	100	200	42	(2PCS) ZPMT1604-R20	(2PCS) SPMT120408	ETNA0511	TW20S
	40-L		1			100	250	42				
	40-SL		3			80	160	32				
	50-S		1			100	200					
	50-L		1	50	45	200	300	42	(3PCS) ZPMT1604-R25	(2PCS) SPMT120408	ETNA0511	TW20S
	50-SL	●	3			150	250					
	63-S		1			100	200					
	63-L		1	63	52	200	300	42	(3PCS) ZPMT1604-R31.5	(2PCS) SPMT120408	ETNA0511	TW20S
	63-SL		3			150	250					

Insert

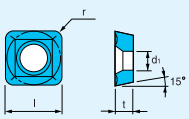
■ SPMT

Geometry



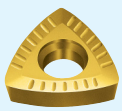
Cat. No.	l(=d)	t	r	d1
SPMT 060304	6.35	3.18	0.4	2.8
120408	12.7	4.76	0.8	5.6

■ SDMT

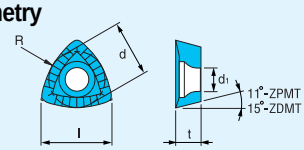


Cat. No.	l(=d)	t	r	d1
SDMT 090308	9.525	3.18	0.8	4.4

■ ZDMT, ZPMT

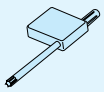
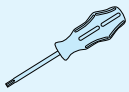


Geometry

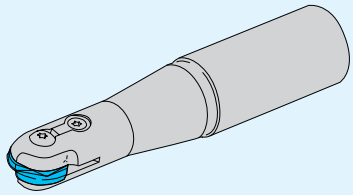


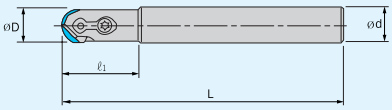
Cat. No.	l	d	t	R	d₁
ZDMT 08T2-R10	8.4	6.75	2.78	10	2.8
1103-R12.5	10.6	6.75	3.18	12.5	2.8
13T3-R16	13.2	10.5	3.97	16	4.4
ZPMT 1604-R20	16.1	12.7	4.76	20	
1604-R25	16.9	12.7	4.76	25	5.6
1604-R31.5	17.4	12.7	4.76	31.5	

Parts

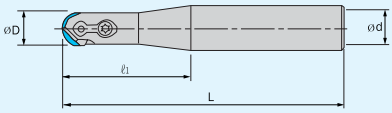
Holders	screw	wrench 	wrench 
BRE20	ETNA020506	TW07P	–
BRE25	ETNA020506	TW07P	–
BRE32	ETNA0408	–	TW15S
BRE40	ETNA0511	–	TW20S
BRE50	ETNA0511	–	TW20S
BRE63	ETNA0511	–	TW20S

BFE (for Finishing)





Pic.1

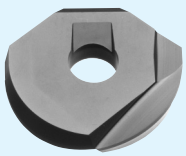


Pic.2

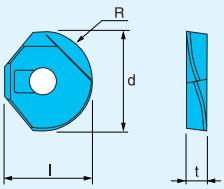
Cat. No.	STOCK	Pic.	øD	ℓ1	L	ød (mm)	Applicable Insert	Parts: Screw for insert	Clamp	Screw for clamp	E-ring	Wrench
BFE 16-S		1		36	140	16						
16-M	●	2	16	65	170	20	RC16	FTGA0513	CBH4.5R1	CTX04513	ER03	TW20
16-L		2		65	200	25						
20-S		1		45	160	20						
20-M	●	2	20	80	200	25	RC20	FTGA0517	CBH4.5R2	CTX04513	ER03	TW20
20-L		2		80	250	25						
25-S		1		45	160	25						
25-M	●	2	25	90	210	32	RC25	FTGA0621	CBH5R1	CTX0517	ER04	TW20
25-L		2		90	300	32						
30-S		2		65	175							
30-M	●	2	30	100	250	32	RC30	FTGA0826	CBH6R1	CTX0621	ER05	TW25
30-L		2		100	350							
32-S		1		56	175							
32-M	●	1	32	100	250	32	RC32	FTGA0826	CBH6R1	CTX0621	ER05	TW25
32-L		1		100	350							

Insert

■ RC



Geometry

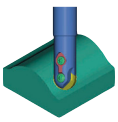
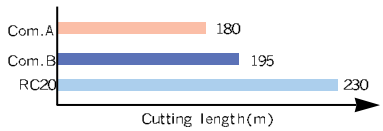
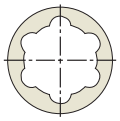
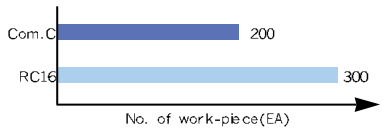


Cat. No.	l	d	t	R
RC16	15.8	16	3.5	8
RC20	17.8	20	4	10
RC25	22	25	5	12.5
RC30	26.8	30	6	15
RC32	27.8	32	6	16

Parts

Screw		FTGA0513 FTGA0517 FTGA0621 FTGA0826
Clamp		CBH4.5R1 CBH4.5R2 CBH5R1 CBH6R1
Screw for Clamp		CTX04513 CTX04513 CTX0517 CTX0621
C-ring		ER03 ER03 ER04 ER05
Wrench		TW20 TW20 TW20 TW25

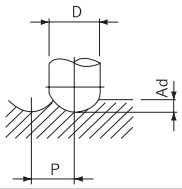
Application Example

Shape of workpiece	work piece material	Tool	cutting conditions	Result
	HRC35	BFE20-M RC20 Competitor ϕ 20	V = 200 ~ 150m/min d = 2 ~ 3mm RPM = 3183 ~ 3979 Pitch = 1.0mm F = 1273 ~ 1592 Compressed Air Blow	
	HRC20 CV-outace	BFE16 RC16 Competitor ϕ 16	V = 210 ~ 220m/min d = 3 ~ 35mm RPM = 4000 F = 800mm/min Compressed Air Blow	

Recommendation

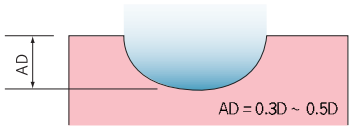
■ BFE (for Finishing)

Work Piece	Hardness	m/min	mm/tooth	Operation
Cast iron		100 ~ 200	0.2 ~ 0.4	Ad ≦ 0.1D p ≦ 0.1D D = Cutting Diameter P = Pitch
Carbon Steel, Alloy Steel	~ H_RC30	120 ~ 250	0.1 ~ 0.3	
Carbon Steel, Alloy Steel	H_RC30 ~ 40	100 ~ 200	0.1 ~ 0.3	
Mould Steel	H_RC40 ~ 45	80 ~ 120	0.1 ~ 0.2	

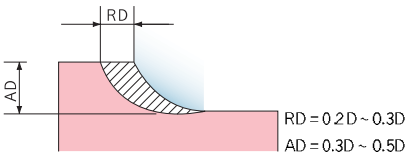


■ BRE (for Roughing)

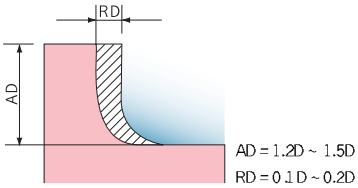
· Operations



CASE1



CASE2

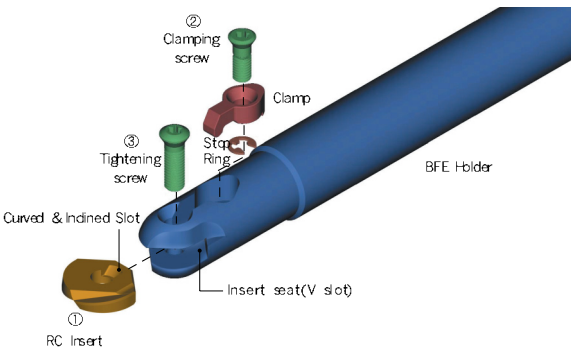


CASE3

Work Piece	Operation	Speed(m/min)	Feed(mm/tooth)	Grade
Carbon steels	CASE 1	120 ~ 220	0.1 ~ 0.4	NCM325
	CASE 2	120 ~ 220	0.2 ~ 0.4	NCM325
	CASE 3	100 ~ 180	0.1 ~ 0.3	NCM325
Alloy steels	CASE 1	100 ~ 200	0.1 ~ 0.4	NCM325
	CASE 2	100 ~ 200	0.2 ~ 0.4	NCM325
	CASE 3	80 ~ 160	0.1 ~ 0.3	NCM325
Tool steels	CASE 1	80 ~ 150	0.1 ~ 0.3	NCM325
	CASE 2	80 ~ 150	0.15 ~ 0.35	NCM325
	CASE 3	60 ~ 120	0.1 ~ 0.3	NCM325
HR35-45 (High hardened steel)	CASE 1	60 ~ 120	0.1 ~ 0.2	NCM325
	CASE 2	60 ~ 120	0.1 ~ 0.3	NCM325
	CASE 3	50 ~ 80	0.1 ~ 0.2	NCM325
Cast iron	CASE 1	100 ~ 180	0.2 ~ 0.5	NCM320K
	CASE 2	100 ~ 180	0.2 ~ 0.5	NCM320K
	CASE 3	80 ~ 160	0.15 ~ 0.4	NCM320K

■ Assembling and Setting Instruction

◆ B F E Assembly



◆ Setting Method

Follow below instructions for runout control and stable operation.

1. Clean the insert seat carefully.
2. Put an Insert(①) into the Insert seat on Holder. (The 'Curved & Inclined Slot' should face the Clamp.)
3. Push the Insert into V Slot and tighten the Screw(②-Clamping Screw) lightly.
4. Tighten the Screw(③-Tightening Screw) completely.
5. Tighten the Screw(②-Clamping Screw) completely.

◆ Unsetting Method

1. Loosen and pull out the Screw (③-Tightening Screw).
2. Loosen the Screw(②-Clamping Screw) lightly until you can pull out the Insert.
3. Pull out the Insert from Insert seat completely.

◆ Notice

※ Do not set the opposite side of the Curved & Inclined Slot facing the Clamp.

※ Apply a Grease to the Screw head and thread.

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