KORLOY TECH-NEWS
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INCH

New Line-up!

Mold Finishing

Indexable endmill for the finest surface finishing

Laser Mill Series

Features

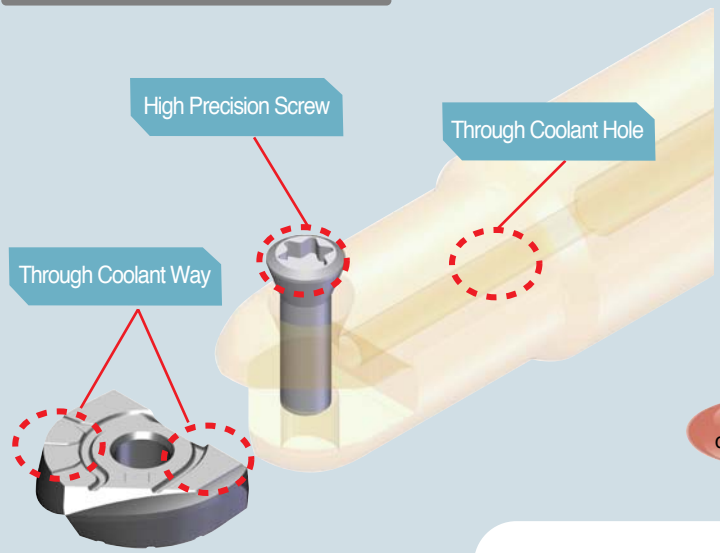
High accuracy of indexable endmill for mold finishing

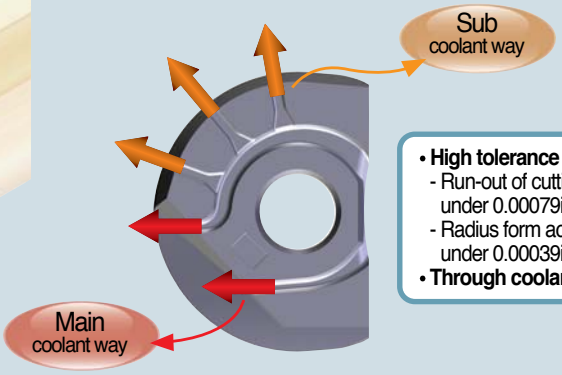
- Indexable endmill for fine finishing of mold.
- Long tool life has been achieved due to the excellent cutting performance of the grade.
- Optimum machining of mold has been achieved due to the MQL available system.
- Easy clamping with simple screw on system.
- Variety of holder line up : Steel shank, Carbide shank, Modular type.

KORLOY AMERICA Inc.

Laser Mill Series

Features

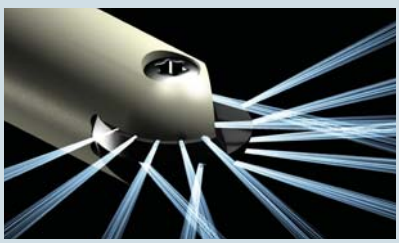




- **High tolerance insert**
  - Run-out of cutting edge : under 0.00079inch
  - Radius form accuracy : under 0.00039inch
- **Through coolant system**

Advantages of MQL system

(Minimum quantity lubricant)

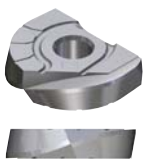


- **Environmental friendly system**
- **Decreased coolant cost**
- **Lubrication of cutting edge**
- **Improved chip control property**
  (Injection of coolant directly to the cutting edge)
- **Increased tool life & improved surface quality**

LBE

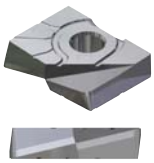
- Six types of inserts are available with one holder
- Single screw for clamping of insert
  : Easy clamping system
- Various types of holders
  (Steel shank, Carbide shank, Modular type)
- MQL applicable - Suitable for longer tool life & improving surface quality

Ball



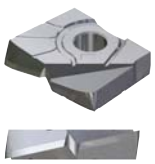
- Helical cutting edge
- Suitable for harder material with high feed
- **LBH : Ball type**

Corner Radius



- Helical cutting edge
- Variety of nose -R
- **LRH : Corner Radius type**

High Feed

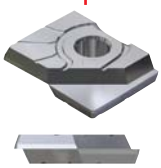


- Helical cutting edge
- Suitable for high feed
- **LFH : High feed**

Chamfer

- Straight cutting edge
- Center drilling and chamfering
- **LCF : Chamfer type**

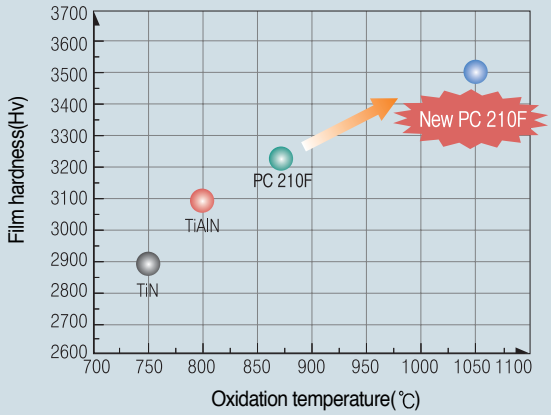
- Straight cutting edge
- Suitable for precise carving
- **LBS : Ball type**

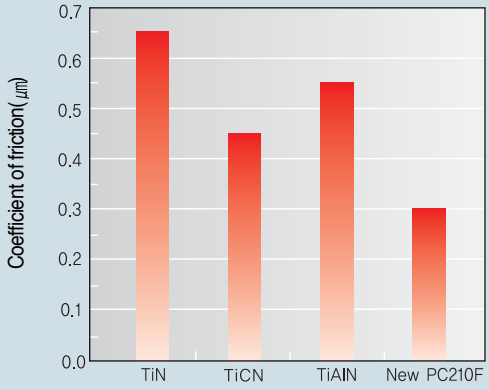


- Straight cutting edge
- Variety of nose-R
- **LR : Corner Radius type**

LBS, LR
: Order-made items

Features



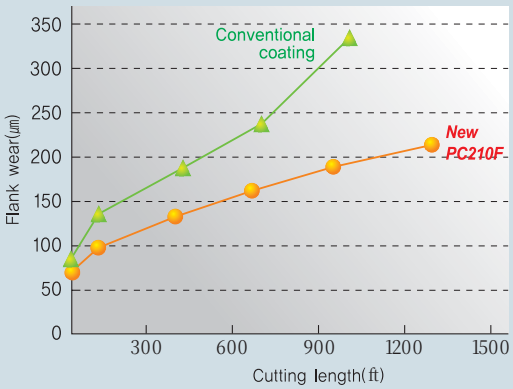


■ New PC210F

- Due to the ultra fine carbide, toughness of cutting edge has been increased.
- Special coating has been applied for high-speed machining & hardened workpiece.
- High quality of machined surface due to the excellent lubrication property of the film.

Cutting performance of PC210F

Insert : LBH0750
Workpiece : SKD11(HRC54)
vc : 1000sfm
fz : 0.008ipt
Coolant : Air



Laser Mill code system

I Insert I

LBH 0312

LBH	0312
Code for insert	Cutting diameter (Ø)
LBH, LBS, LR, LRH, LFH, LCF	Ø0.312, Ø0.375 Ø0.500, Ø0.625 Ø0.750, Ø1.000, Ø1.250

I Modular head I

LBEA 0312 - MHD - M06

LBEA	0312	MHD	M06
Code for shank	Diameter (Ø)	Modular head adaptor	Screw size
LBH, LBS, LR, LRH, LFH, LCF Available for all 6 inserts	Ø0.312inch		

I General shank I

LBEA 075 472 S - 075 - C

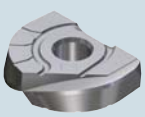
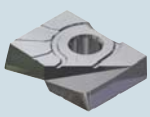
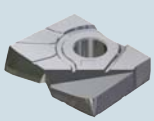
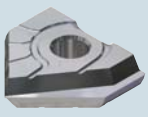
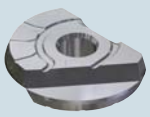
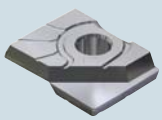
LBEA	075	472	S	075	C
Code for shank	Cutting diameter (Ø)	Shank length	Neck type	Shank diameter (Ø)	Shank material
LBH, LBS, LR, LRH, LFH, LCF Available for all 6 inserts	Ø0.312, Ø0.375 Ø0.500, Ø0.625 Ø0.750, Ø1.000, Ø1.250		T : Taper S : Straight		None : Steel C : Carbide

I Modular adaptor I

MATA - M10 - 275 - S075 T - C

MATA	M10	275	S075	T	C
Modular adaptor	Screw size	Shank length	Shank diameter (Ø)	Neck type	Shank material
				T : Taper S : Straight	None : Steel C : Carbide

Parts for each insert

Insert						Parts	
							
LBH	LRH	LFH	LCF	LBS	LR	Screw	Wrench
LBH0312	—	—	—	LBS0312	—	ETND02506	FTWP07S
LBH0375	LRH0375 -R □ □	LFH0375	—	LBS0375	LR0375 -R □ □	ETND0307F	TWP08S
LBH0500	LRH0500 -R □ □	LFH0500	—	LBS0500	LR0500 -R □ □	ETND03509	TWP10S
LBH0625	LRH0625 -R □ □	LFH0625	LCF0625-D90	LBS0625	LR0625 -R □ □	ETND0413	TWP15S
LBH0750	LRH0750 -R □ □	LFH0750	LCF0750-D90	LBS0750	LR0750 -R □ □	ETKD0516	TWP20
LBH1000	LRH1000 -R □ □	LFH1000	LCF1000-D90	LBS1000	LR1000 -R □ □	ETKD0620	TWP25
LBH1250	LRH1250 -R □ □	LFH1250	—	LBS1250	LR1250 -R □ □	ETGD0825	TWP40

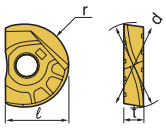
Laser Mill Series

Insert I Shank I Adaptor

LBH INSERT

"R" accuracy ±0.0002 inch

Geometry



Available holder	Designation	Grade	Dimensions(inch)			
		PC210F	r	d	ℓ	t
LBE	LBH0312		0.156	0.312	0.276	0.094
	LBH0375		0.188	0.375	0.327	0.102
	LBH0500		0.250	0.500	0.409	0.118
	LBH0625		0.313	0.625	0.472	0.157
	LBH0750		0.375	0.750	0.571	0.197
	LBH1000		0.500	1.000	0.736	0.236
	LBH1250		0.625	1.250	0.925	0.276

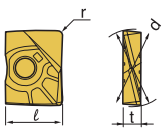
●Stock item, ○Under preparing for stock

LRH INSERT

"R" accuracy ±0.0002 inch

New

Geometry



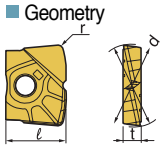
Available holder	Designation	Grade	Dimensions(inch)			
		PC210F	r	d	ℓ	t
LBE	LRH0375-R015	●	0.015	0.375	0.327	0.102
	LRH0375-R031	●	0.031			
	LRH0375-R062	●	0.063			
	LRH0500-R015	●	0.015	0.500	0.409	0.118
	LRH0500-R010	●	0.031			
	LRH0500-R062	●	0.063			
	LRH0625-R125	●	0.015	0.625	0.472	0.157
	LRH0625-R015	●	0.031			
	LRH0625-R031	●	0.063			
	LRH0625-R062	●	0.125			
	LRH0750-R125	●	0.015	0.750	0.571	0.197
	LRH0750-R015	●	0.031			
	LRH0750-R031	●	0.063			
	LRH0750-R062	●	0.125			
	LRH1000-R125	●	0.015	1.000	0.736	0.236
	LRH1000-R015	●	0.031			
	LRH1000-R031	●	0.063			
	LRH1000-R062	●	0.125			
	LRH1250-R031	●	0.031	1.250	0.925	0.276
	LRH1250-R062	●	0.063			
	LRH1250-R125	●	0.125			

●Stock item, ○Under preparing for stock

LFH INSERT

New

Geometry



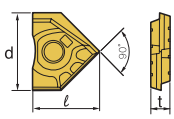
Available holder	Designation	Grade	Dimensions(inch)			
		PC210F	r	d	ℓ	t
LBE	LFH0375		0.039	0.375	0.327	0.102
	LFH0500		0.047	0.500	0.409	0.118
	LFH0625		0.059	0.625	0.472	0.157
	LFH0750		0.079	0.750	0.571	0.197
	LFH1000		0.079	1.000	0.736	0.236
	LFH1250		0.079	1.250	0.925	0.276

●Stock item, ○Under preparing for stock

LCF INSERT

New

Geometry



Available holder	Designation	Grade	Dimensions(inch)			
		PC210F	Angle	d	ℓ	t
LBE	LCF0625-D90		90°	0.625	0.539	0.157
	LCF0750-D90		90°	0.750	0.669	0.197
	LCF1000-D90		90°	1.000	0.846	0.236

●Stock item, ○Under preparing for stock

Steel Shank

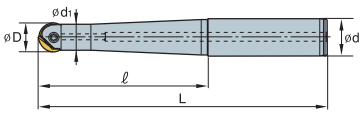


Fig. 1

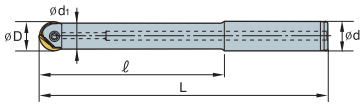
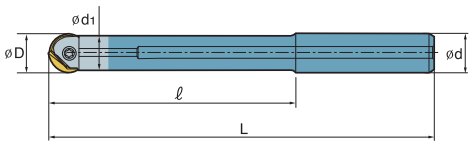


Fig. 2

Designation	Stock	Fig.	Dimensions(inch)					Parts		Insert Size(Ø)
			øD	ℓ	L	ød1	ød	Clamp screw	Wrench	
LBEA031138T-S050		2	0.312	1.378	3.583	0.283	0.500	ETND0206F	TWP07S	0.312
LBEA031217T-S050		2	0.312	2.165	4.370	0.283	0.500			
LBEA031295T-S050		2	0.312	2.953	5.157	0.283	0.500			
LBEA038138T-S050		2	0.375	1.378	3.583	0.335	0.500	ETND0307F	TWP08S	0.375
LBEA038217T-S050		2	0.375	2.165	4.370	0.335	0.500			
LBEA038295T-S050		2	0.375	2.953	5.157	0.335	0.500			
LBEA050138T-S050		1	0.500	1.378	3.583	0.433	0.500	ETND03509	TWP10S	0.500
LBEA050217T-S050		2	0.500	2.165	4.370	0.433	0.500			
LBEA050335T-S050		2	0.500	3.346	5.709	0.433	0.625			
LBEA063138S-S062		1	0.625	1.378	3.740	0.571	0.625	ETND0413	TWP15S	0.625
LBEA063256S-S062		2	0.625	2.559	4.921	0.571	0.625			
LBEA063394S-S062		2	0.625	3.937	6.693	0.571	0.750			
LBEA075157S-S075		1	0.750	1.575	4.331	0.689	0.750	ETKD0516	TWP20	0.750
LBEA075295S-S075		2	0.750	2.953	5.709	0.689	0.750			
LBEA075453S-S075		2	0.750	4.528	7.677	0.689	0.875			
LBEA100177S-S087		1	1.000	1.772	4.921	0.906	0.875	ETKD0620	TWP25	1.000
LBEA100354S-S087		1	1.000	3.543	6.693	0.906	0.875			
LBEA100531S-S087		2	1.000	5.315	8.858	0.906	1.250			
LBEA125217S-S125		1	1.250	2.165	5.709	1.142	1.250	ETGD0825	TWP40	1.250
LBEA125413T-S125		2	1.250	4.134	7.677	1.142	1.250			
LBEA125630T-S125		2	1.250	6.299	9.843	1.142	1.250			

●Stock item, ○Under preparing for stock

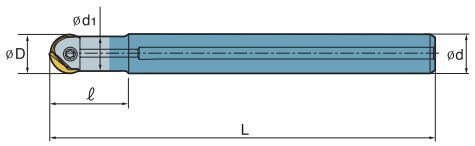
Carbide Shank



Designation	Stock	Fig.	Dimensions(inch)					Parts		Insert Size(Ø)
			øD	ℓ	L	ød1	ød	Clamp screw	Wrench	
LBEA031 315S-S031C		2	0.312	3.150	5.354	0.283	0.312	ETND0206F	TWP07S	0.312
LBEA031 394S-S031C		2	0.312	3.937	6.142	0.283	0.312			
LBEA038 315S-S038C		2	0.375	3.150	5.354	0.335	0.375	ETND0307F	TWP08S	0.375
LBEA038 472S-S038C		2	0.375	4.724	6.929	0.335	0.375			
LBEA050 394S-S050C		2	0.500	3.937	6.142	0.433	0.500	ETND0307F	TWP08S	0.500
LBEA050 591S-S050C		2	0.500	5.906	8.110	0.433	0.500			
LBEA063 394S-S063C		2	0.625	3.937	6.299	0.571	0.625	ETND0307F	TWP08S	0.625
LBEA063 591S-S063C		2	0.625	5.906	8.268	0.571	0.625			
LBEA075 472S-S075C		2	0.750	4.724	7.480	0.689	0.750	ETND0307F	TWP08S	0.750
LBEA075 669S-S075C		2	0.750	6.693	9.449	0.689	0.750			
LBEA100 551S-S100C		1	1.000	5.512	8.661	0.906	1.000	ETND0307F	TWP08S	1.000
LBEA100 669S-S100C		2	1.000	6.693	9.843	0.906	1.000			
LBEA125 551S-S125C		2	1.250	5.512	9.055	1.142	1.250	ETND0307F	TWP08S	1.250
LBEA125 669S-S125C		2	1.250	6.693	10.236	1.142	1.250			

●Stock item, ○Under preparing for stock

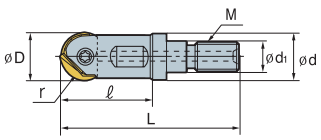
Carbide Shank

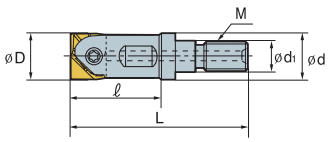


Designation	Stock	Fig.	Dimensions(inch)					Parts		Insert Size(Ø)
			øD	ℓ	L	ød1	ød	Clamp screw	Wrench	
LBEA031 079S-S031C-512		2	0.312	0.787	5.118	0.283	0.312	ETND0206F	TWP07S	0.312
LBEA031 079S-S031C-591		2	0.312	0.787	5.906	0.283	0.312			
LBEA038 038S-S038C-512		2	0.375	0.906	5.118	0.335	0.375	ETND0307F	TWP08S	0.375
LBEA038 038S-S038C-669		2	0.375	0.906	6.693	0.335	0.375			
LBEA050 098S-S050C-591		2	0.500	0.984	5.906	0.433	0.500	ETND0307F	TWP08S	0.500
LBEA050 098S-S050C-787		2	0.500	0.984	7.874	0.433	0.500			
LBEA063 118S-S063C-630		2	0.625	1.181	6.299	0.571	0.625	ETND0307F	TWP08S	0.625
LBEA063 118S-S063C-827		2	0.625	1.181	8.268	0.571	0.625			
LBEA075 138S-S075C-748		2	0.750	1.378	7.480	0.689	0.750	ETND0307F	TWP08S	0.750
LBEA075 138S-S075C-945		2	0.750	1.378	9.449	0.689	0.750			
LBEA100 157S-S100C-866		1	1.000	1.575	8.661	0.906	1.000	ETND0307F	TWP08S	1.000
LBEA100 157S-S100C-984		2	1.000	1.575	9.843	0.906	1.000			
LBEA125 197S-S125C-906		2	1.250	1.969	9.055	1.142	1.250	ETND0307F	TWP08S	1.250
LBEA125 197S-S125C-1024		2	1.250	1.969	10.236	1.142	1.250			

●Stock item, ○Under preparing for stock

Modular Head





Designation	Stock	Dimensions(inch)							Parts		Insert Size(Ø)
		M	øD	r	L	ℓ	ød	ød1	Clamp screw	Wrench	
LBEA0312-MHD-M06		M6	0.375	0.188	1.575	0.984	0.354	0.256	ETND0307F	TWP08S	0.312
LBEA0375-MHD-M06		M6	0.500	0.250	1.575	0.984	0.433	0.268	ETND03509	TWP10S	0.375
LBEA0500-MHD-M08		M8	0.625	0.313	1.850	1.181	0.571	0.335	ETND0413	TWP15S	0.500
LBEA0625-MHD-M10		M10	0.750	0.375	2.205	1.378	0.689	0.413	ETKD0516	TWP20	0.625
LBEA0750-MHD-M12		M12	1.000	0.500	2.717	1.772	0.906	0.492	ETKD0620	TWP25	0.750
LBEA1000-MHD-M16		M16	1.250	0.625	3.031	1.969	1.142	0.650	ETGD0825	TWP40	1.000

●Stock item, ○Under preparing for stock

Modular adaptor (Steel)

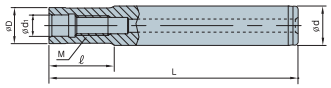


Fig 1. Straight Neck adaptor

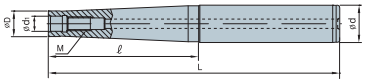
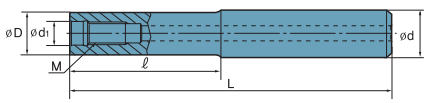


Fig 2. Taper Neck adaptor

Designation	Stock	Dimensions(inch)					
		M	øD	ød	ød1	L	ℓ
MATA-M06-078-S038S	●	M06	0.354	0.375	0.256	2.756	0.787
M06-157-S050T	●	M06	0.354	0.500	0.256	3.780	1.575
M06-255-S063T	●	M06	0.354	0.625	0.256	4.921	2.559
M6B-078-S050S	●	M06	0.433	0.500	0.256	2.992	0.787
M6B-157-S050S	●	M06	0.433	0.500	0.256	3.780	1.575
M6B-255-S063T	●	M06	0.433	0.625	0.256	4.921	2.559
M6B-315-S063T	●	M06	0.433	0.625	0.256	5.512	3.150
M08-078-S063S	●	M08	0.571	0.625	0.335	3.150	0.787
M08-157-S063T	●	M08	0.571	0.625	0.335	3.937	1.575
M08-255-S063T	●	M08	0.571	0.625	0.335	4.921	2.559
M08-315-S075T	●	M08	0.571	0.750	0.335	5.906	3.150
M08-433-S100T	●	M08	0.571	1.000	0.335	7.480	4.331
M10-118-S075S	●	M10	0.689	0.750	0.413	3.937	1.181
M10-196-S075T	●	M10	0.689	0.750	0.413	4.724	1.969
M10-275-S075T	●	M10	0.689	0.750	0.413	5.512	2.756
M10-354-S100T	●	M10	0.689	1.000	0.413	6.693	3.543
M10-433-S100T	●	M10	0.689	1.000	0.413	7.480	4.331
M10-511-S125T	●	M10	0.689	1.250	0.413	8.661	5.118
M12-118-S100S	●	M12	0.906	1.000	0.492	4.331	1.181
M12-196-S100T	●	M12	0.906	1.000	0.492	5.118	1.969
M12-275-S100T	●	M12	0.906	1.000	0.492	5.906	2.756
M12-354-S100T	●	M12	0.906	1.000	0.492	6.693	3.543
M12-433-S125T	●	M12	0.906	1.250	0.492	7.874	4.331
M12-689-S150T	●	M12	0.906	1.500	0.492	11.811	6.890
M16-137-S125S	●	M16	1.142	1.250	0.669	4.921	1.378
M16-216-S125T	●	M16	1.142	1.250	0.669	5.709	2.165
M16-315-S125T	●	M16	1.142	1.250	0.669	6.693	3.150
M16-472-S125T	●	M16	1.142	1.250	0.669	8.268	4.724
M16-689-S150T	●	M16	1.142	1.500	0.669	11.811	6.890

• Available to use (FMRMA, LBEA, PAMA, AMMA, RM4PMA, HRMMA, PAXMA) • S : Straight type • T : Taper type ●Stock item, ○Under preparing for stock

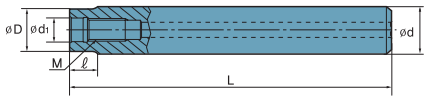
Modular adaptor (Carbide)



Designation	Stock	Dimensions(inch)					
		M	øD	ød	ød1	L	ℓ
MATA-M08-315-S063S-C	●	M08	0.571	0.625	0.335	5.906	3.150
M08-433-S063S-C	●	M08	0.571	0.625	0.335	7.087	4.331
M08-590-S063S-C	●	M08	0.571	0.625	0.335	9.843	5.906
M10-354-S075S-C	●	M10	0.689	0.750	0.413	6.693	3.543
M10-433-S075S-C	●	M10	0.689	0.750	0.413	7.874	4.331
M10-689-S075S-C	●	M10	0.689	0.750	0.413	11.811	6.890
M12-354-S100S-C	●	M12	0.906	1.000	0.492	6.693	3.543
M12-433-S100S-C	●	M12	0.906	1.000	0.492	7.874	4.331
M12-689-S100S-C	●	M12	0.906	1.000	0.492	11.811	6.890
M16-354-S125S-C	●	M16	1.142	1.250	0.669	7.087	3.543
M16-472-S125S-C	●	M16	1.142	1.250	0.669	8.268	4.724
M16-689-S125S-C	●	M16	1.142	1.250	0.669	11.811	6.890

• Available to use (FMRMA, LBEA, PAMA, AMMA, RM4PMA, HRMMA, PAXMA) ●Stock item, ○Under preparing for stock

Modular adaptor (Carbide)



Designation	Stock	Dimensions(inch)					
		M	øD	ød	ød1	ℓ	L
MATA-M08-394-S063S-C-590	●	M08	0.571	0.625	0.335	5.906	0.394
M08-394-S063S-C-708	●	M08	0.571	0.625	0.335	7.087	0.394
M08-394-S063S-C-984	●	M08	0.571	0.625	0.335	9.843	0.394
M10-394-S075S-C-669	●	M10	0.689	0.750	0.413	6.693	0.394
M10-394-S075S-C-787	●	M10	0.689	0.750	0.413	7.874	0.394
M10-394-S075S-C-1181	●	M10	0.689	0.750	0.413	11.811	0.394
M12-059-S100S-C-669	●	M12	0.906	1.000	0.492	6.693	0.591
M12-059-S100S-C-787	●	M12	0.906	1.000	0.492	7.874	0.591
M12-059-S100S-C-1181	●	M12	0.906	1.000	0.492	11.811	0.591
M16-078-S125S-C-708	●	M16	1.142	1.250	0.669	7.087	0.787
M16-078-S125S-C-826	●	M16	1.142	1.250	0.669	8.268	0.787
M16-078-S125S-C-1181	●	M16	1.142	1.250	0.669	11.811	0.787

•Available to use (FMRMA, LBEA, PAMA, AMMA, RM4PMA, HRMMA, PAXMA)

●Stock item, ○Under preparing for stock

Important cutting formulas

Cutting speed

$$vc = \frac{\pi \times D \times n}{1000} \text{ (m/min)}$$

Feed per minute

$$vf = fz \times n \times z \text{ (mm/min)}$$

RPM

$$n = \frac{vc \times 1000}{\pi \times D} \text{ (min}^{-1}\text{)}$$

Chip removal amount

$$Q = \frac{ap \times ae \times vf}{1000} \text{ (cm}^3\text{/min)}$$

Feed per tooth

$$fz = \frac{vf}{n \times z} \text{ (mm/t)}$$

Power requirement

$$Pc = \frac{Q \times kc}{1000} \text{ (kW)} \quad H = \frac{Pc}{0.75} \text{ (HP)}$$

n = RPM(min^{-1})
vc = Cutting speed(m/min)
D = Cutting diameter(mm)
vf = Feed per minute(mm/min)
fz = Feed per tooth(mm/t)
z = Number of tooth
Pc = Power requirement(kW)
H = Horsepower requirement(HP)
Q = Chip removal amount(cm^3/min)
ap = Axial depth of cut(mm)
ae = Radial depth of cut(mm)
kc = Specific cutting resistance(kg/mm^2)
η = Mechanical efficiency(%)

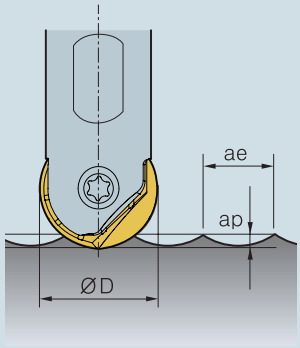
Recommended cutting condition

Workpiece	Hardness (H_RC)	vc (sfm)	fz (ipt)	ap(inch)	ae(inch)
Carbon & Alloy steel	Under 30	350 ~ 800	0.008 ~ 0.01	0.0028D	0.0028D
Carbon & Alloy steel	30 ~ 40	250 ~500	0.004 ~ 0.01	0.0028D	0.0028D
Die Tool steel, Pre-hardened steel	30 ~ 40	250 ~500	0.004 ~ 0.008	0.002D	0.002D
GC, GCD	-	350 ~ 650	0.01 ~ 0.015	0.0028D	0.0028D
Hardened steel	50 ~ 60	350 ~ 500	0.004 ~ 0.01	0.0012D	0.0012D
Stainless steel	-	250 ~ 500	0.004 ~ 0.01	0.002D	0.002D
Aluminum Alloy	-	650 ~ 1000	0.006 ~ 0.020	0.006D	0.006D

Practical cutting speed calculation formulas

R(inch) \ ae(inch)	h(surface roughness) (㎛)									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
5	0.3	1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3	25.0
6	0.2	0.8	1.9	3.3	5.2	7.5	10.2	13.3	16.9	20.8
8	0.2	0.6	1.4	2.5	3.9	5.6	7.7	10.0	12.7	15.6
10	0.1	0.5	1.1	2.0	3.1	4.5	6.1	8.0	10.1	12.5
12.5	0.1	0.4	0.9	1.6	2.5	3.6	4.9	6.4	8.1	10.0
15	0.1	0.3	0.8	1.3	2.1	3.0	4.1	5.3	6.8	8.3
16	0.1	0.3	0.7	1.3	2.0	2.8	3.8	5.0	6.3	7.8

• Formula of surface roughness : **h(surface finish)** = $\frac{(ae)^2}{8R} \times 1000(\mu m)$



- Practical cutting speed calculation formulas

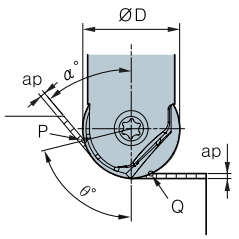
1. θ° Using : Calculating cutting speed at P point
   (Cutting speed according to depth of cut when ramping)
   • Formula : Practical cutting speed

$$vc = \frac{\pi \times D \sin\theta \times n}{12} \text{ (sfm)}$$

$$\theta = \cos^{-1}\left(\frac{D - 2ap}{D}\right) + 90 - \alpha^\circ$$

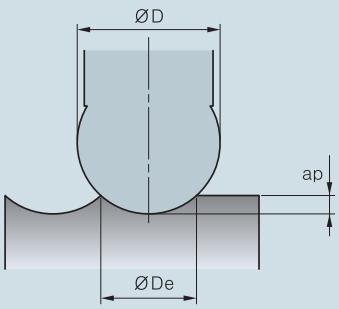
2. In case of using ap : Calculating cutting speed at Q point
   • Formula : Practical cutting speed

$$vc = \frac{2\pi n\sqrt{ap(D-ap)}}{12}$$



Actual diameter data

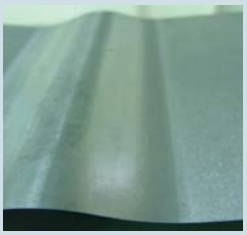
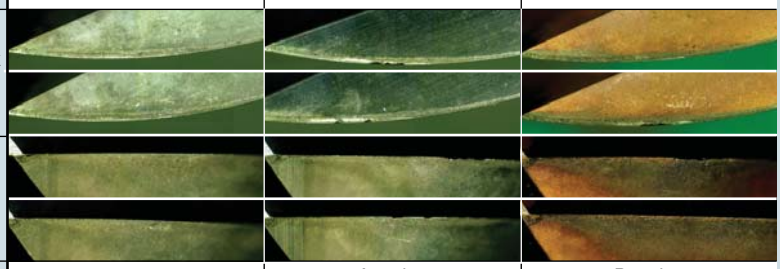
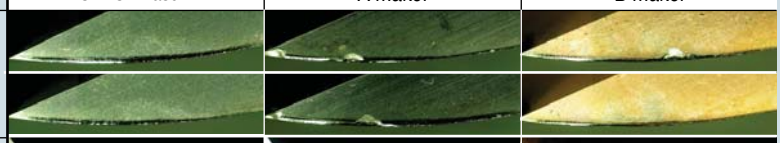
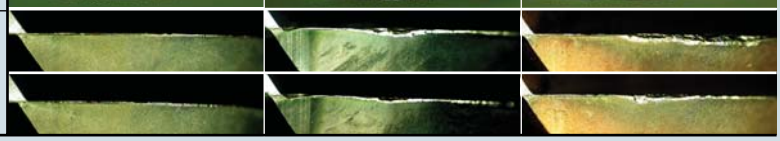
ap(inch) \ ØD(inch)	Ø08	Ø10	Ø12	Ø16	Ø20	Ø25	Ø30
0.0039	0.0709	0.0787	0.0866	0.0984	0.1102	0.1260	0.1378
0.0079	0.0984	0.1102	0.1220	0.1417	0.1575	0.1772	0.1929
0.0118	0.1181	0.1339	0.1457	0.1693	0.1929	0.2126	0.2362
0.0197	0.1535	0.1732	0.1890	0.2205	0.2441	0.2756	0.3031
0.0394	0.2087	0.2362	0.2598	0.3031	0.3425	0.3858	0.4252
0.0591	0.2441	0.2795	0.3110	0.7598	0.4134	0.4685	0.5157
0.0787	0.2717	0.3150	0.3504	0.4173	0.4724	0.5354	0.5906
0.0984	0.2913	0.3425	0.3819	0.4567	0.5197	0.5906	0.6535
0.1181	0.3031	0.3622	0.4094	0.4921	0.5630	0.6378	0.7087
0.1378	0.3110	0.3740	0.4291	0.5197	0.5984	0.6811	0.7598
0.1575	0.3150	0.3858	0.4449	0.5472	0.6299	0.7205	0.8031
0.1969			0.4646	0.5827	0.6811	0.7874	0.8819
0.2362			0.4724	0.6102	0.7205	0.8425	0.9449
0.2756				0.6260	0.7520	0.8819	1.0000
0.3150				0.6299	0.7717	0.9173	1.0433
0.3937					0.7874	0.9646	1.1142



• Formula of actual diameter

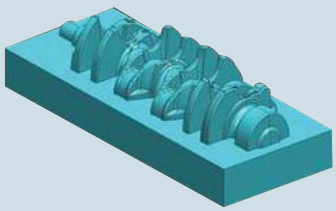
$$De = 2\sqrt{ap(D-ap)}$$

Wear resistance test

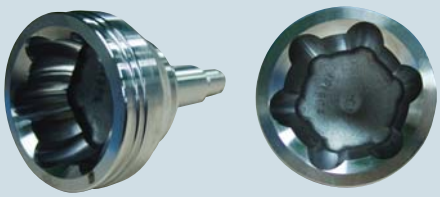
Cutting Condition			Insert		
			KORLOY Laser Mill	A maker	B maker
 Cutting time : 15hours	4140(HRC30), Air vc :1500sfm fz : 0.01ipt ap : 0.06inch ae : 0.04inch vf(inch/min) : 140 n(min⁻¹) : 6000	Front, back view			
		Top view			
			KORLOY Laser Mill	A maker	B maker
 Cutting time : 8hours	D2(HRC50), Air vc : 1250sfm fz : 0.01ipt ap : 0.08inch ae : 0.08inch vf(inch/min) : 120 n(min⁻¹) : 4000	Front, back view			
		Top view			

Application examples

Crank Shaft

	Specifications	Workpiece
Holder	LBEA063138S-062	
Insert	LBH0625 (PC210F)	
Workpiece	4140 (HRC 40)	
Cutting condition	vc : 1250sfm ap : 0.02inch n(min⁻¹) : 6000 MQL fz : 0.01ipt ae : 0.01inch vf(inch/min) : 120	

CV-Joint

	Specifications	Workpiece
Holder	LBEA075157S-S075	
Insert	LBH0750 (PC210F)	
Workpiece	1053 (HRC 35)	
Cutting condition	vc : 2000sfm ap : 0.02inch n(min⁻¹) : 9000 Air fz : 0.01ipt ae : 0.01inch vf(inch/min) : 180	

Bumper Mold

	Specifications	Workpiece
Holder	LBEA100177S-S087	
Insert	LBH1000 (PC210F)	
Workpiece	H11 (HRC30~35)	
Cutting condition	vc : 2000sfm ap : 0.02inch n(min⁻¹) : 9000 Air fz : 0.01ipt ae : 0.01inch vf(inch/min) : 180	

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May. 2008

Warning

※ Safety instruction

- Use glasses safely and face cover with protective equipment. If cutting condition and use method are inaccurate, you may be injured by broken tools or scattered chips.
- Excessive cutting load may influence badly on both tool and machine. Make suitable tool replacement for preventing failure of machining.
- After machine stopped, clean remained chips from machine with special cleaning equipment.
- Keep safety distance from acute and hot chip during machining.
- Make precaution for prevention of fire in advance when you use insoluble cutting oil.
- Assembled parts may be scattered at high speed cutting. Please use protective equipment.