KORLOY TECH-NEWS

ITACHILE
Comercial Itachile LTDA

KORLOY is ISO9001 Certified
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No: 174-3

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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

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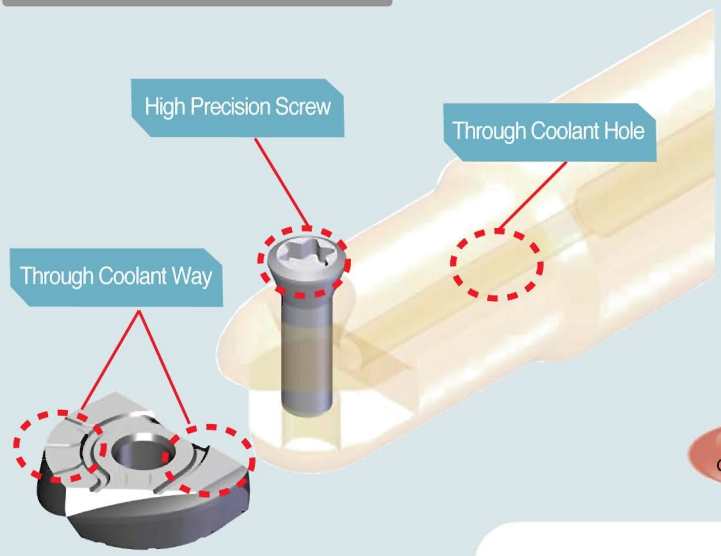
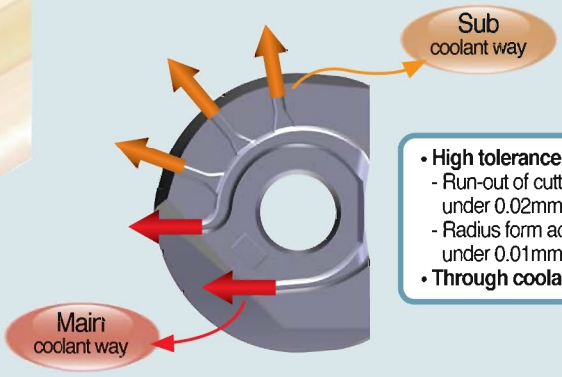
Features

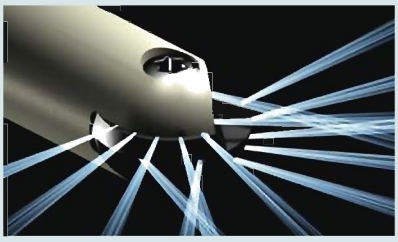




- **High tolerance insert**
  - Run-out of cutting edge : under 0.02mm
  - Radius form accuracy : under 0.01mm
- **Through coolant system**

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**

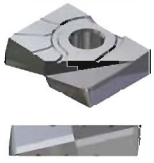
LBE

- 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

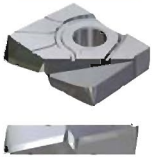
- Helical cutting edge
- Suitable for harder material with high feed
- **LBH : Ball type**

Corner Radius



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

High Feed

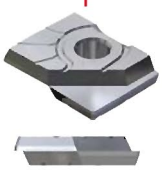


- Helical cutting edge
- Suitable for high feed
- **LFH : High feed**

Chamfer

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

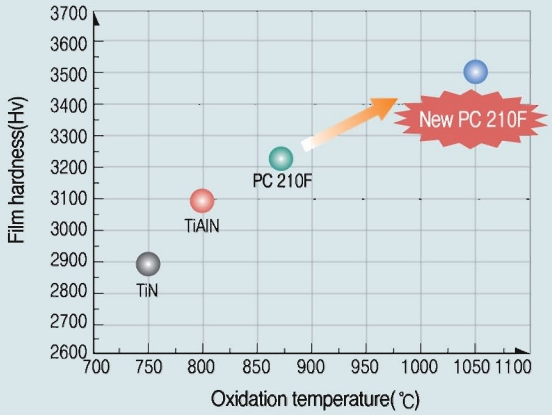
- Straight cutting edge
- Suitable for precise carving
- **LBS : Ball type**

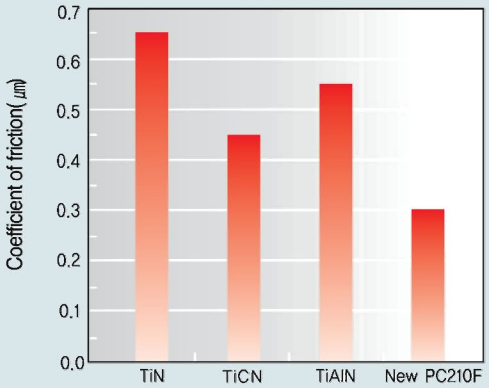


- Straight cutting edge
- Variety of nose-R
- **LR : Corner Radius type**

LBS, LR
: Order-made items

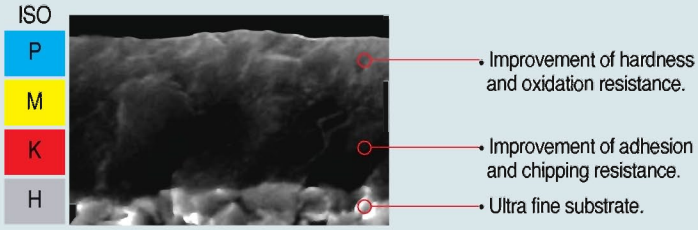
Features





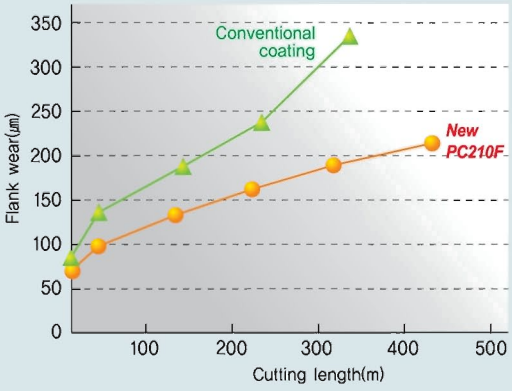
■ New PC210F

- 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 : LBH200
Workpiece : SKD11(HRC54)
vc : 300m/min
fz : 0.2mm/t
Air



Laser Mill Series

Laser Mill code system | Parts for each insert

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Laser Mill code system

| Insert |

LBH — Code for insert: LBH, LBS, LR, LRH, LFH, LCF

200 — Cutting diameter (Ø): Ø08, Ø10, Ø12, Ø16, Ø20, Ø25, Ø30, Ø32

| Modular head |

LBE 200 - MHD - M10

- LBE — Code for shank: LBH, LBS, LR, LRH, LFH, LCF. Available for all 6 inserts
- 200 — Diameter (Ø): Ø20
- MHD — Modular head adaptor
- M10 — Screw size

| General shank |

LBE 200 170 S - S20 - C

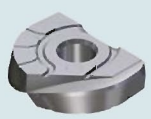
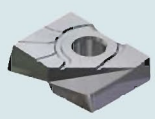
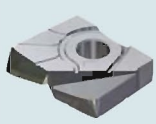
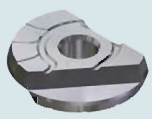
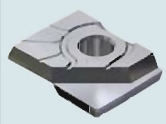
- LBE — Code for shank: LBH, LBS, LR, LRH, LFH, LCF. Available for all 6 inserts
- 200 — Cutting diameter (Ø): Ø08, Ø10, Ø12, Ø16, Ø20, Ø25, Ø30, Ø32
- 170 — Shank length
- S — Neck type: T : Taper, S : Straight
- S20 — Shank diameter (Ø)
- C — Shank material: None : Steel, C : Carbide

| Modular adaptor |

MAT - M10 - 110 - S25 T - C

- MAT — Modular adaptor
- M10 — Screw size
- 110 — Shank length
- S25 — Shank diameter (Ø)
- T — Neck type: T : Taper, S : Straight
- C — Shank material: None : Steel, C : Carbide

Parts for each insert

Insert						Parts	
							
LBH	LRH	LFH	LCF	LBS	LR	Screw	Wrench
LBH080	—	—	—	LBS080	—	ETND02506F	TWP07S
LBH100	LRH100 -R □ □	LFH100	—	LBS100	LR100 -R □ □	ETND0307F	TWP08S
LBH120	LRH120 -R □ □	LFH120	—	LBS120	LR120 -R □ □	ETND03509	TWP10S
LBH160	LRH160 -R □ □	LFH160	LCF160-D90	LBS160	LR160 -R □ □	ETND0413	TWP15S
LBH200	LRH200 -R □ □	LFH200	LCF200-D90	LBS200	LR200 -R □ □	ETKD0516	TWP20
LBH250	LRH250 -R □ □	LFH250	LCF250-D90	LBS250	LR250 -R □ □	ETKD0620	TWP25
LBH300	LRH300 -R □ □	LFH300	—	LBS300	LR300 -R □ □	ETGD0825	TWP40
LBH320	LRH320 -R □ □	LFH320	—	LBS320	LR320 -R □ □	ETGD0825	TWP40

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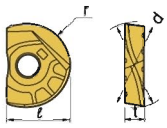
LBH INSERT

"R" accuracy ±0.005

Geometry



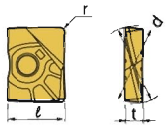
Available holder	Designation	Grade	Dimensions(mm)			
		PC210F	r	d	ℓ	t
LBE	LBH080	●	4	8	7	2.4
	LBH100	●	5	10	8.5	2.6
	LBH120	●	6	12	10	3
	LBH160	●	8	16	12	4
	LBH200	●	10	20	15	5
	LBH250	●	12.5	25	18.5	6
	LBH300	●	15	30	22.5	7
	LBH320	●	16	32	23.5	7

●Stock item, ○Under preparing for stock

LRH INSERT

"R" accuracy ±0.015

Geometry

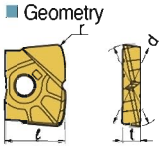


Available holder	Designation	Grade	Dimensions(mm)			
		PC210F	r	d	ℓ	t
LBE	LRH100-R05	●	0.5	10	8.5	2.6
	LRH100-R10	●	1.0			
	LRH100-R20	●	2.0			
	LRH120-R05	●	0.5	12	10	3
	LRH120-R10	●	1.0			
	LRH120-R20	●	2.0			
	LRH160-R05	●	0.5	16	12	4
	LRH160-R10	●	1.0			
	LRH160-R20	●	2.0			
	LRH160-R30	●	3.0			
	LRH200-R05	●	0.5	20	15	5
	LRH200-R10	●	1.0			
	LRH200-R20	●	2.0			
	LRH200-R30	●	3.0			
	LRH250-R05	●	0.5	25	18.5	6
	LRH250-R10	●	1.0			
	LRH250-R20	●	2.0			
	LRH250-R30	●	3.0			
	LRH300-R10	●	1.0	30	22.5	7
	LRH300-R20	●	2.0			
	LRH300-R30	●	3.0			
	LRH320-R10	●	1.0	32	23.5	7
	LRH320-R20	●	2.0			
	LRH320-R30	●	3.0			

●Stock item, ○Under preparing for stock

LFH INSERT

Geometry

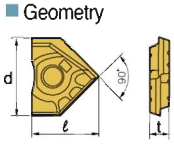


Available holder	Designation	Grade	Dimensions(mm)			
		PC210F	r	d	ℓ	t
LBE	LFH100	○	1.5	10	8.5	2.6
	LFH120	○	1.5	12	10	3
	LFH160	○	1.5	16	12	4
	LFH200	○	2.0	20	15	5
	LFH250	○	2.0	25	18.5	6
	LFH300	○	2.0	30	22.5	7
	LFH320	○	2.0	32	23.5	7

●Stock item, ○Under preparing for stock

LCF INSERT

Geometry



Available holder	Designation	Grade	Dimensions(mm)			
		PC210F	Angle	d	ℓ	t
LBE	LCF160-D90	○	90	16	13.7	4
	LCF200-D90	○	90	20	17	5
	LCF250-D90	○	90	25	21.5	6

●Stock item, ○Under preparing for stock

Laser Mill Series

Insert | Shank | Adaptor

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Steel Shank

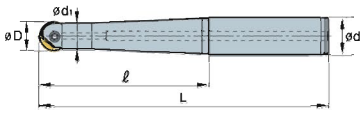


Fig. 1

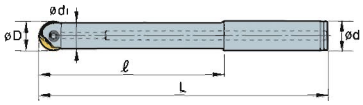
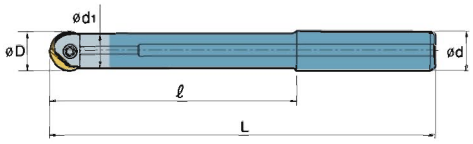


Fig. 2

Designation	Stock	Fig.	Dimensions(mm)					Parts		Insert Size(Ø)
			øD	ℓ	L	ød1	ød	Clamp screw	Wrench	
LBE080035T-S12	●	1	8	35	91	7.2	12	ETND02506F	TWP07S	8
LBE080055T-S12	●	1	8	55	111	7.2	12			
LBE080075T-S12	●	1	8	75	131	7.2	12			
LBE100035T-S12	●	1	10	35	91	9	12	ETND0307F	TWP08S	10
LBE100055T-S12	●	1	10	55	111	9	12			
LBE100075T-S12	●	1	10	75	131	9	12			
LBE120035S-S12	●	2	12	35	91	10.4	12	ETND03509	TWP10S	12
LBE120055T-S12	●	1	12	55	111	10.4	12			
LBE120085T-S16	●	1	12	85	145	10.4	16			
LBE160035S-S16	●	2	16	35	95	14	16	ETND0413	TWP15S	16
LBE160065T-S16	●	1	16	65	125	14	16			
LBE160100T-S20	●	1	16	100	170	14	20			
LBE200040S-S20	●	2	20	40	110	17.5	20	ETKD0516	TWP20	20
LBE200075T-S20	●	1	20	75	145	17.5	20			
LBE200115T-S25	●	1	20	115	195	17.5	25			
LBE250045S-S25	●	2	25	45	125	22	25	ETKD0620	TWP25	25
LBE250090T-S25	●	1	25	90	170	22	25			
LBE250135T-S32	●	1	25	135	225	22	32			
LBE300055S-S32	●	2	30	55	145	27	32	ETGD0825	TWP40	30
LBE300105T-S32	●	1	30	105	195	27	32			
LBE300160T-S32	●	1	30	160	250	27	32			
LBE320055S-S32	●	2	32	55	145	29	32	ETGD0825	TWP40	32
LBE320105T-S32	●	1	32	105	195	29	32			
LBE320160T-S32	●	1	32	160	250	29	32			

●Stock item, ○Under preparing for stock

Carbide Shank



Designation	Stock	Dimensions(mm)					Parts		Insert Size(Ø)
		øD	ℓ	L	ød1	ød	Clamp screw	Wrench	
LBE080080S-S08C	●	8	80	136	7.2	8	ETND02506F	TWP07S	8
LBE080100S-S08C	●	8	100	156	7.2	8			
LBE100080S-S10C	●	10	80	136	9	10	ETND0307F	TWP08S	10
LBE100120S-S10C	●	10	120	176	9	10			
LBE120100S-S12C	●	12	100	156	10.4	12	ETND03509	TWP10S	12
LBE120150S-S12C	●	12	150	206	10.4	12			
LBE160100S-S16C	●	16	100	160	14	16	ETND0413	TWP15S	16
LBE160150S-S16C	●	16	150	210	14	16			
LBE200120S-S20C	●	20	120	190	17.5	20	ETKD0516	TWP20	20
LBE200170S-S20C	●	20	170	240	17.5	20			
LBE250140S-S25C	●	25	140	220	22	25	ETKD0620	TWP25	25
LBE250170S-S25C	●	25	170	250	22	25			
LBE300140S-S32C	●	30	140	230	27	32	ETGD0825	TWP40	30
LBE300170S-S32C	●	30	170	260	27	32			
LBE320140S-S32C	●	32	140	230	29	32	ETGD0825	TWP40	32
LBE320170S-S32C	●	32	170	260	29	32			

●Stock item, ○Under preparing for stock

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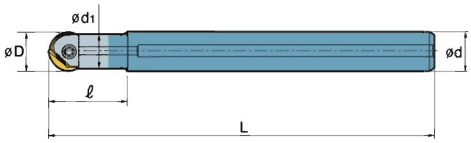
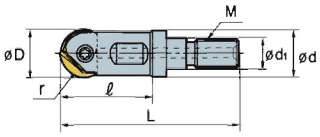
Carbide Shank

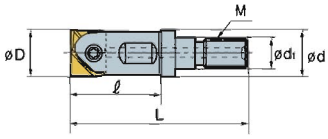


Designation	Stock	Dimensions(mm)					Parts		Insert Size(Ø)
		øD	ℓ	L	ød1	ød	Clamp screw	Wrench	
LBE080020S-S08C-130	●	08	20	130	7.2	8	ETND02506F	TWP07S	8
LBE080020S-S08C-150	●	08	20	150	7.2	8	ETND02506F	TWP07S	8
LBE100023S-S10C-130	●	10	23	130	9	10	ETND0307F	TWP08S	10
LBE100023S-S10C-170	●	10	23	170	9	10	ETND0307F	TWP08S	10
LBE120025S-S12C-150	●	12	25	150	10.4	12	ETND03509	TWP10S	12
LBE120025S-S12C-200	●	12	25	200	10.4	12	ETND03509	TWP10S	12
LBE160030S-S16C-160	●	16	30	160	14	16	ETND0413	TWP15S	16
LBE160030S-S16C-210	●	16	30	210	14	16	ETND0413	TWP15S	16
LBE200035S-S20C-190	●	20	35	190	17.5	20	ETKD0516	TWP20	20
LBE200035S-S20C-240	●	20	35	240	17.5	20	ETKD0516	TWP20	20
LBE250040S-S25C-220	●	25	40	220	22	25	ETKD0620	TWP25	25
LBE250040S-S25C-250	●	25	40	250	22	25	ETKD0620	TWP25	25
LBE300050S-S32C-230	●	30	50	230	27	32	ETGD0825	TWP40	30
LBE300050S-S32C-260	●	30	50	260	27	32	ETGD0825	TWP40	30
LBE320050S-S32C-230	●	32	50	230	29	32	ETGD0825	TWP40	32
LBE320050S-S32C-260	●	32	50	260	29	32	ETGD0825	TWP40	32

●Stock item, ○Under preparing for stock

Modular Head





Designation	Stock	Dimensions(mm)							Parts		Insert Size(Ø)
		M	øD	r	L	ℓ	ød1	ød	Clamp screw	Wrench	
LBE100-MHD-M06	●	M06	10	5	40	25	6.5	9.5	ETND0307F	TWP08S	10
LBE120-MHD-M06	●	M06	12	6	40	25	6.5	11	ETND03509	TWP10S	12
LBE160-MHD-M08	●	M08	16	8	47	30	8.5	14.5	ETND0413	TWP15S	16
LBE200-MHD-M10	●	M10	20	10	56	35	10.5	18	ETKD0516	TWP20	20
LBE250-MHD-M12	●	M12	25	12.5	69	45	12.5	22.5	ETKD0620	TWP25	25
LBE300-MHD-M16	●	M16	30	15	77	50	17	28	ETGD0825	TWP40	30
LBE320-MHD-M16	●	M16	32	16	77	50	17	29	ETGD0825	TWP40	32

●Stock item, ○Under preparing for stock

Modular adaptor (Steel)

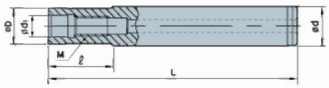


Fig 1. Straight Neck adaptor

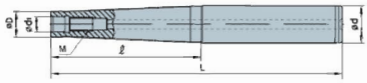
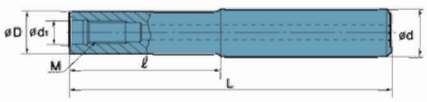


Fig 2. Taper Neck adaptor

Designation	Stock	Fig.	Dimensions(mm)					
			M	øD	ød1	ød	ℓ	L
MAT-M06-020-S10S	●	1	M06	9.5	6.5	10	20	70
M06-040-S12T	●	2	M06	9.5	6.5	12	40	96
M06-065-S16T	●	2	M06	9.5	6.5	16	65	125
M6B-020-S12S	●	1	M06	11	6.5	12	20	76
M6B-040-S12S	●	1	M06	11	6.5	12	40	96
M6B-065-S16T	●	2	M06	11	6.5	16	65	125
M6B-080-S16T	●	2	M06	11	6.5	16	80	140
M08-020-S16S	●	1	M08	14.5	8.5	16	20	80
M08-040-S16T	●	2	M08	14.5	8.5	16	40	100
M08-065-S16T	●	2	M08	14.5	8.5	16	65	125
M08-080-S20T	●	2	M08	14.5	8.5	20	80	150
M08-110-S25T	●	2	M08	14.5	8.5	25	110	190
M10-030-S20S	●	1	M10	18	10.5	20	30	100
M10-050-S20T	●	2	M10	18	10.5	20	50	120
M10-070-S20T	●	2	M10	18	10.5	20	70	140
M10-090-S25T	●	2	M10	18	10.5	25	90	170
M10-110-S25T	●	2	M10	18	10.5	25	110	190
M10-130-S32T	●	2	M10	18	10.5	32	130	220
M12-030-S25S	●	1	M12	22.5	12.5	25	30	110
M12-050-S25T	●	2	M12	22.5	12.5	25	50	130
M12-070-S25T	●	2	M12	22.5	12.5	25	70	150
M12-090-S25T	●	2	M12	22.5	12.5	25	90	170
M12-110-S32T	●	2	M12	22.5	12.5	32	110	200
M12-175-S40T	●	2	M12	22.5	12.5	40	175	300
M16-035-S32S	●	1	M16	28.5	17	32	35	125
M16-055-S32T	●	2	M16	28.5	17	32	55	145
M16-080-S32T	●	2	M16	28.5	17	32	80	170
M16-120-S32T	●	2	M16	28.5	17	32	120	210
M16-175-S40T	●	2	M16	28.5	17	40	175	300

•Available to use (FMRM, LBE, PAM, AMM, RM4PM, HRMM, PAXM) •S : Straight type •T : Taper type ●Stock item, ○Under preparing for stock

Modular adaptor (Carbide)



Designation	Stock	Dimensions(mm)					
		M	øD	ød1	ød	ℓ	L
MAT-M08-080-S16S-C	●	M08	14.5	8.5	16	80	150
M08-110-S16S-C	●	M08	14.5	8.5	16	110	180
M08-150-S16S-C	●	M08	14.5	8.5	16	150	250
M10-090-S20S-C	●	M10	18	10.5	20	90	170
M10-110-S20S-C	●	M10	18	10.5	20	110	200
M10-175-S20S-C	●	M10	18	10.5	20	175	300
M12-090-S25S-C	●	M12	22.5	12.5	25	90	170
M12-110-S25S-C	●	M12	22.5	12.5	25	110	200
M12-175-S25S-C	●	M12	22.5	12.5	25	175	300
M16-090-S32S-C	●	M16	28.5	17	32	90	180
M16-120-S32S-C	●	M16	28.5	17	32	120	210
M16-175-S32S-C	●	M16	28.5	17	32	175	300

•Available to use (FMRM, LBE, PAM, AMM, RM4PM, HRMM, PAXM) ●Stock item, ○Under preparing for stock

Laser Mill Series

Adaptor | Important cutting formulas | Recommended cutting condition

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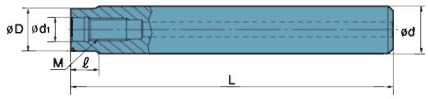
Modular adaptor (Carbide)



Designation	Stock	Dimensions(mm)					
		M	øD	ød1	ød	ℓ	L
MAT-M08-010-S16S-C-150	●	M08	14.5	8.5	16	10	150
M08-010-S16S-C-180	●	M08	14.5	8.5	16	10	180
M08-010-S16S-C-250	●	M08	14.5	8.5	16	10	250
M10-010-S20S-C-170	●	M10	18	10.5	20	10	170
M10-010-S20S-C-200	●	M10	18	10.5	20	10	200
M10-010-S20S-C-300	●	M10	18	10.5	20	10	300
M12-012-S25S-C-170	●	M12	22.5	12.5	25	15	170
M12-012-S25S-C-200	●	M12	22.5	12.5	25	15	200
M12-012-S25S-C-300	●	M12	22.5	12.5	25	15	300
M16-020-S32S-C-180	●	M16	28.5	17	32	17	180
M16-020-S32S-C-210	●	M16	28.5	17	32	17	210
M16-020-S32S-C-300	●	M16	28.5	17	32	17	300

• Available to use (FMRM, LBE, PAM, AMM, RM4PM, HRMM, PAXM)

●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

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

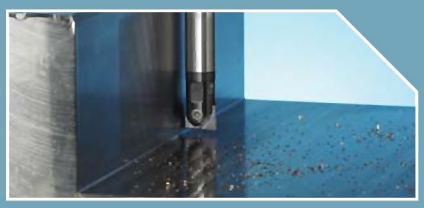
Power requirement

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

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 (m/min)	fz (mm/t)	ap(mm)	ae(mm)
Carbon & Alloy steel	Under 30	100 ~ 250	0.2 ~ 0.3	0.07D	0.07D
Carbon & Alloy steel	30 ~ 40	80 ~ 150	0.1 ~ 0.3	0.07D	0.07D
Die Tool steel, Pre-hardened steel	30 ~ 40	80 ~ 150	0.1 ~ 0.2	0.05D	0.05D
GC, GCD	-	100 ~ 200	0.3 ~ 0.35	0.07D	0.07D
Hardened steel	50 ~ 60	100 ~ 150	0.1 ~ 0.3	0.03D	0.03D
Stainless steel	-	80 ~ 150	0.1 ~ 0.3	0.05D	0.05D
Aluminum Alloy	-	200 ~ 300	0.15 ~ 0.4	0.15D	0.15D



Laser Mill Series

Practical cutting speed calculation formulas | Actual diameter data

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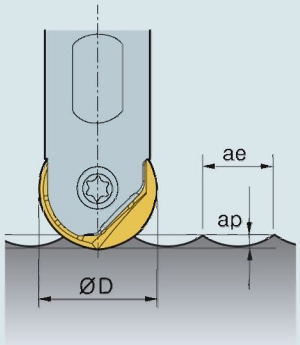
Practical cutting speed calculation formulas

R(mm) \ ae(mm)	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 : $h(\text{surface finish}) = \frac{(ae)^2}{8R} \times 1000(\mu m)$



- Practical cutting speed calculation formulas

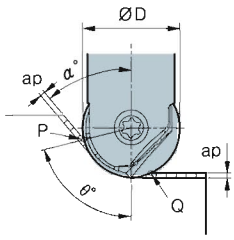
1. θ ° Using : Calculating cutting speed at P point
   (Cutting speed according to depth of cut when ramping)
   • Formula : Practical cutting speed

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

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

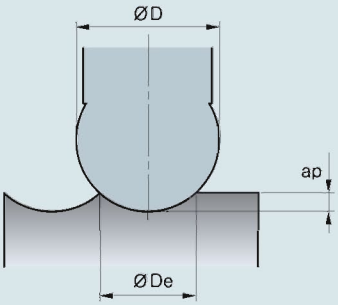
2. In case of using ap : Calculating cutting speed at Q point
   • Formula : Practical cutting speed

$$vc = \frac{2\pi n\sqrt{ap(D-ap)}}{1000}$$



Actual diameter data

ap \ ØD	Ø08	Ø10	Ø12	Ø16	Ø20	Ø25	Ø30	Ø32
0.1	1.8	2.0	2.2	2.5	2.8	3.2	3.5	3.6
0.2	2.5	2.8	3.1	3.6	4.0	4.5	4.9	5.0
0.3	3.0	3.4	3.7	4.3	4.9	5.4	6.0	6.2
0.5	3.9	4.4	4.8	5.6	6.2	7.0	7.7	7.9
1.0	5.3	6.0	6.6	7.7	8.7	9.8	10.8	11.1
1.5	6.2	7.1	7.9	9.3	10.5	11.9	13.1	13.5
2.0	6.9	8.0	8.9	10.6	12.0	13.6	15.0	15.5
2.5	7.4	8.7	9.7	11.6	13.2	15.0	16.6	17.2
3.0	7.7	9.2	10.4	12.5	14.3	16.2	18.0	18.7
3.5	7.9	9.5	10.9	13.2	15.2	17.3	19.3	20.0
4.0	8.0	9.8	11.3	13.9	16.0	18.3	20.4	21.2
5.0			11.8	14.8	17.3	20.0	22.4	23.2
6.0			12.0	15.5	18.3	21.4	24.0	25.0
7.0				15.9	19.1	22.4	25.4	26.5
8.0				16.0	19.6	23.3	26.5	27.7
10.0					20.0	24.5	28.3	29.7



• Formula of actual diameter

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

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Laser Mill Series

Wear resistance test | Application examples

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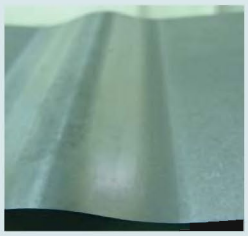
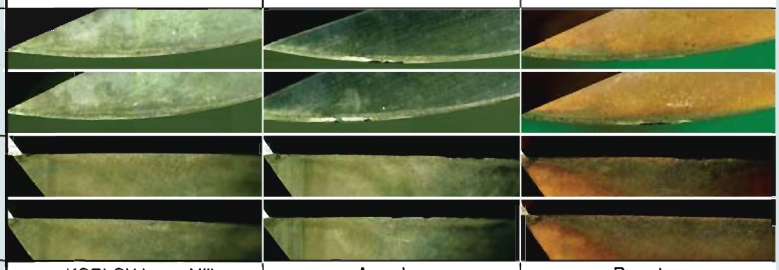
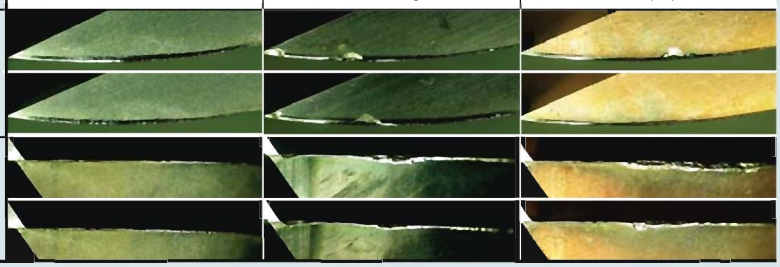
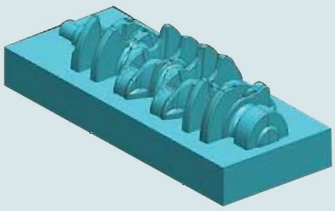
Wear resistance test

Cutting Condition			Insert		
			KORLOY Laser Mill	A maker	B maker
 Cutting time : 15hours	NAK80(HRC30), Air vc :376m/min fz : 0.33mm/t ap : 0.5mm ae : 0.5mm vf(mm/min) : 4000 n(min⁻¹) : 6000	Front, back view			
		Top view			
			KORLOY Laser Mill	A maker	B maker
Cutting time : 8hours	SKD11(HRC50), Air vc : 251m/min fz : 0.38mm/t ap : 0.5mm ae : 0.3mm vf(mm/min) : 3000 n(min⁻¹) : 4000	Front, back view			
		Top view			

Application examples

Crank Shaft

	Specifications		Workpiece
Holder	LBE200115T-S25		
Insert	LBH200 (PC210F)		
Workpiece	SCM440 (HRC 40)		
Cutting condition	vc : 376m/min ap : 0.5mm n(min⁻¹) : 6000 MQL	fz : 0.25mm/t ae : 0.2mm vf(mm/min) : 3000	

CV-Joint

	Specifications		Workpiece
Holder	LBE230-HSKC63		
Insert	LBH230 (PC210F)		
Workpiece	SM53C (HRC 35)		
Cutting condition	vc : 700m/min ap : 0.5mm n(min⁻¹) : 9000 Air	fz : 0.25mm/t ae : 0.2mm vf(mm/min) : 4500	

Bumper Mold

	Specifications		Workpiece
Holder	LBE250170S-S25C		
Insert	LBH250 (PC210F)		
Workpiece	KP4MA (HRC30~35)		
Cutting condition	vc : 700m/min ap : 0.5mm n(min⁻¹) : 9000 Air	fz : 0.25mm/t ae : 0.2mm vf(mm/min) : 4500	

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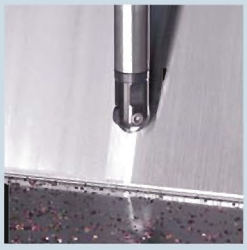

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