KORLOY
TECH-NEWS

High Feed Mill

HFM

Small Diameter Machining High Feed Tool

Stable machining, high efficiency milling tools
For small diameter machining.

▣ High Feed / High Efficiency Machining

Increase productivity through improved insert shape and size, high feed per tooth, and many cutting edges, for small diameter machining.

▣ High Speed / High Hardness Machining

Stable tool life through the combination of the reinforced toughness on corner and suitable grades of high hardness in the area of high speed and high hardness.

KORLOY

High Efficiency Milling Tool for Small Diameter Machining

High Feed Mill(HFM)

Insert

The need for high feed tooling has grown while the materials of molds tend to be harder. Small size tooling is required for the electronic parts and mold manufacturers to achieve high productivity.

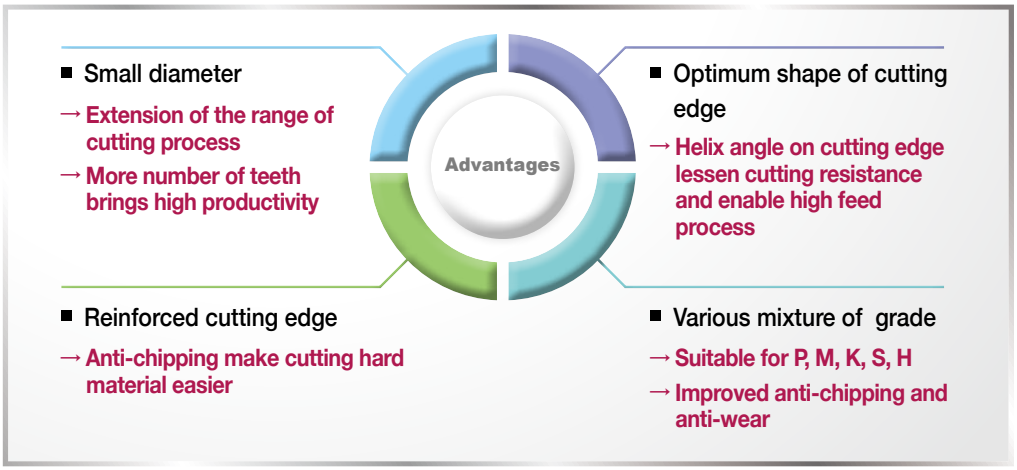
Shank

However, increasing productivity has been restricted due to the absence of small size high feed tools for high hardness steel.

HFM extends the range of process to small diameter, improving productivity with more number of teeth, compared to HRM(D).

Modular

High Helix angle on the cutting edge reduces cutting resistance, while the negative axial rake angle of holder reduces the contact surface on workpiece, reducing wear and vibration and increasing stability. Improved grades ensure stable tool life. Ultrafine grain substrate and specialized coating layer highly improve anti-chipping and anti-wear.



Code System

[Shank Type]

HFM	S	A	1	043	H	R	-	2	S	037
High Feed Mill	Tool type S : Shank	Inch type	Inscribed circle of insert 1:04type insert	Tool Dia. 043 : 0.438 inch	Coolant type No code : None H : Thru-hole	Hand R : Right L : Left		No. of tooth 2 : 2teeth	Shank length S : Standard type M : Middle type L : Long type	Shank Dia. 037 : 0.375inch

[Modular Type]

HFM	M	A	1	043	H	R	-	M06
High Feed Mill	Tool type M : Modular	Inch type	Inscribed circle of insert 1:04type insert	Tool Dia. 043 : 0.438 inch	Coolant type No code : None H : Thru-hole	Hand R : Right L : Left		M Dimensions

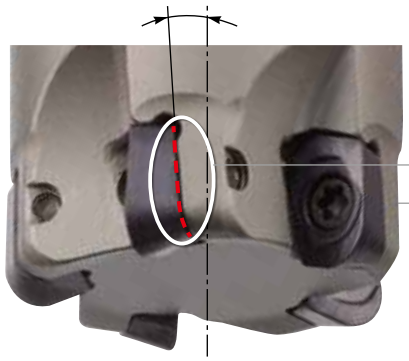
[Modular Adapter]

MAT	A	-	M06	-	118	-	S039	S	-	C	-	315
Modular Adapter	Inch type		M Dimensions M06		Neck length 118: 1.181 inch		Shank Dia. S039: Ø0.394inch	Neck type T : Taper S : straight		Adaptor material Unmarked : Steel C : Carbide		Adaptor length 315 : 3.150 inch

Features

- Apply helix cutting edge on insert, low cutting load and reinforce toughness on corner
- Increased rigidity with double relief angle (11, 13), prevent interference with high feed
- To apply the negative axial rake angle when set up the holder, increased chipping resistance
- Tool life is increased with suitable C/B and grade for every material

Axial rake angle '–'



Holder Setup

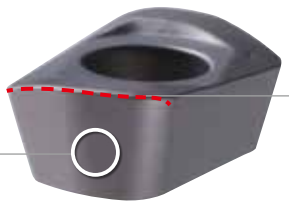
- To set up the negative axial rake angle, increased chipping resistance

No. of tooth

- Increased Tool life with increased flutes
- HRM(D) Ø0.75inch (2 flutes) ➔ HFM Ø0.75inch (5 flutes)

Relief angle

- 11, 13 double relief angle increase rigidity and prevent interference



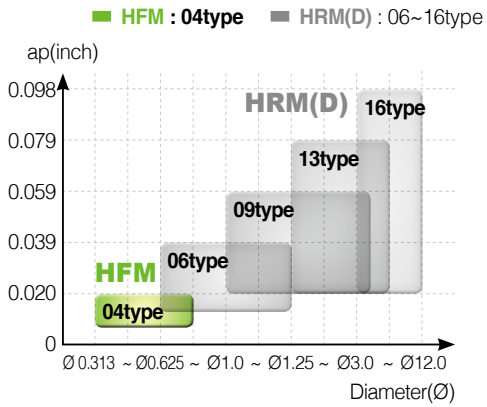
Major cutting edge

- Apply helix cutting edge
  - Improved sharpness of principle edge
  - Improved toughness of corner edge

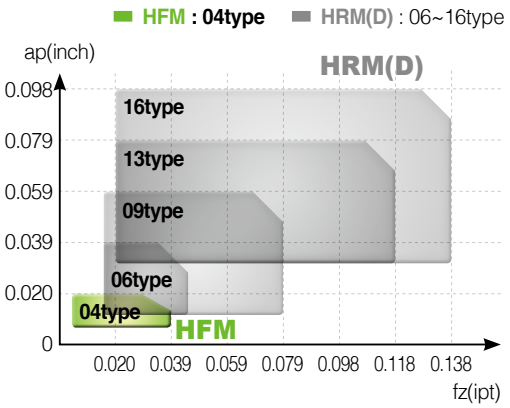
Application Area

- Good performance at machining small diameter (Ø0.313~Ø0.750) with small size and shape of HFM

Application Area (ap & Diameter)



Application Area (ap & fz)



Usage and Features of Chip Breakers

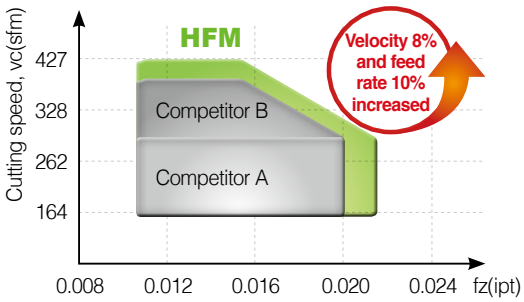
Chip Breaker	Cutting edge	Applications	Features
MF		• Fine finishing • Titanium & Inconel machining	Low cutting resistance C/B, suitable for light cutting
None C/B		• Super hard material machining	High toughness shape, suitable for hard die steel cutting

Performance Test

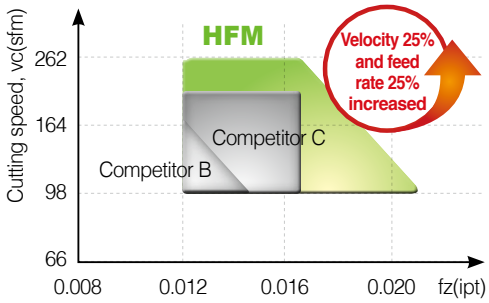
High speed machining

- Recommended grades have been applied according to workpiece
  - Better performance than competitors under high feed rate

■ Workpiece	D2(HRC40~45)
■ Insert	LPM(E)W0402□□R
■ Recommended grade	PC2505(1st), PC2510(2nd)



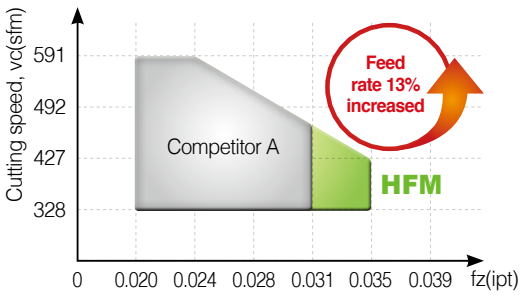
■ Workpiece	D2(Over HRC60)
■ Insert	LPM(E)W0402□□R
■ Recommended grade	PC2505(1st), PC2510(2nd)



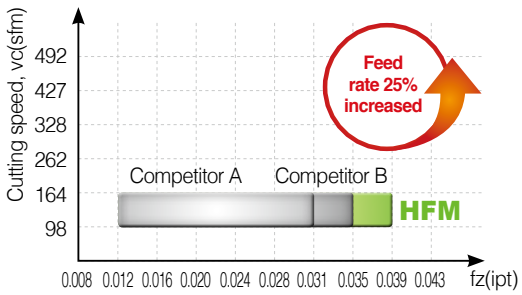
High feed machining

- High Helix and advanced technology have been applied to edge geometary.
  - Better performance than competitors under high feed rate

■ Workpiece	P20(HRC32), P21(HRC43)
■ Insert	LPMT0402□□R-MF
■ Recommended grade	PC5300(1st), PC2510(2nd)



■ Workpiece	R56400(HRC40~45)
■ Insert	LPMT0402□□R-MF
■ Recommended grade	PC5300(1st), PC5400(2nd)

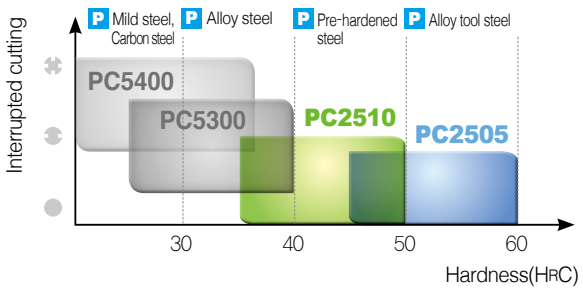


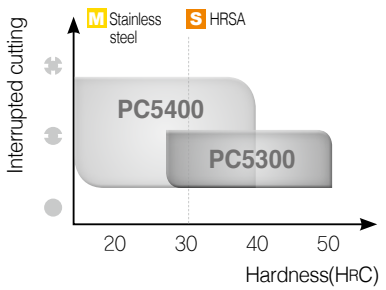
High hardness machining

- New Grades;PC2505 and PC2510 are the 1st recommendation for high hardened

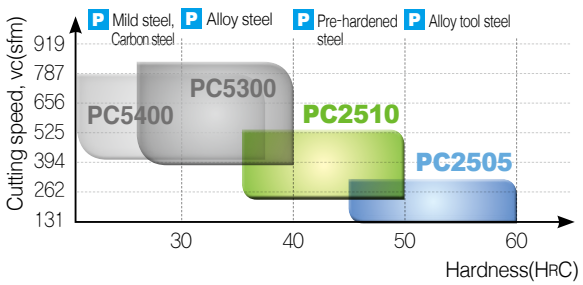
Grade	Hardness
PC2505	Over HRC45
PC2510	HRC35~50
PC5300	HRC20~40
PC5400	Under HRC37

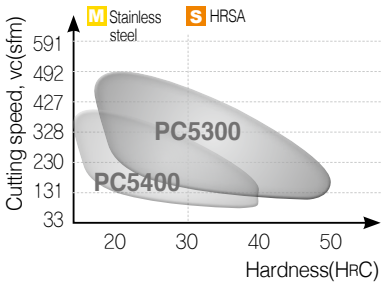
[Recommended grades according to interruption]





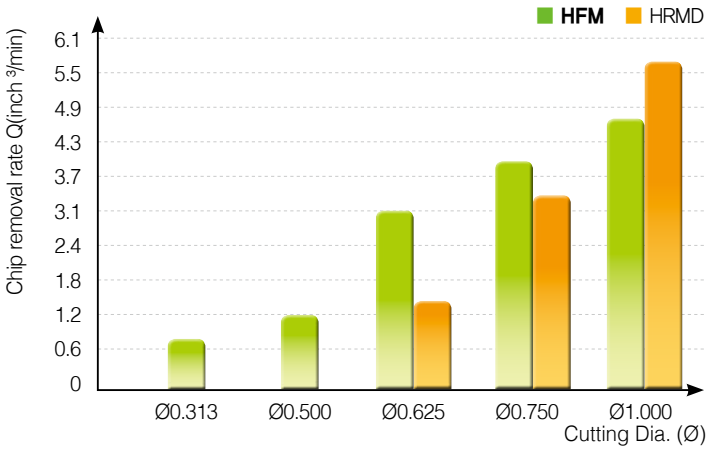
[Recommended grades according to velocity]





Performance Test

Effective machining



[Machining center]

- BT40 and under, HFM recommended
- BT50 and above, HRM(D) recommended

[Chip removal rate Q(inch³/min)]

- Ø0.313~Ø0.750, HFM recommende
- Ø0.750 and above, HRM(D) recommended

Recommended Cutting Conditions

※Recommended chip breaker :
● First ○ Second

Workpiece					HB (HRC)	Grade	Cutting conditions				Chip breaker	
Workpiece		USA (AISI)	GER (DIN)	KOR (KS)			vc (sfm)	fz (ipt)	ap (inch)	ae (inch)	MF	None C/B
P	Mild steel	1020	C22	S20C	120~180	PC5400 (PC5300)	328.1 ~721.8	0.020 ~0.039	0.020	0.7D~0.1D	●	-
	Carbon steel	1045	C45	S45C	200	PC5400 (PC5300)	328.1 ~656.2	0.020 ~0.039	0.020	0.7D~0.1D	●	-
	Alloy steel	4140	41CrMo4	SCM440	270(28)	PC5300	328.1 ~656.2	0.020 ~0.039	0.020	0.7D~0.1D	●	-
	Pre-hardened steel	P20 (Improved)	1.2738 (Improved)	KP4M	300(32)	PC5300 (PC2510) New	328.1 ~590.6	0.020 ~0.035	0.016	0.7D~0.1D	●	○
		P21 (Improved)	-	NIMAX	370(40)	PC5300 (PC2510) New	328.1 ~590.6	0.020 ~0.035	0.016	0.7D~0.1D	●	○
		P21 (Improved)	-	CENA1	370(40)	PC5300 (PC2510) New	328.1 ~590.6	0.020 ~0.035	0.016	0.7D~0.1D	●	○
		P21 (Improved)	-	NAK80	400(43)	PC5300	328.1 ~524.9	0.020 ~0.028	0.016	0.7D~0.1D	○	-
							328.1 ~590.6	0.020 ~0.035	0.016	0.7D~0.1D	-	●
		420	X30Cr13	STAVAX	510(52)	PC2510 (PC5300) New	262.5 ~492.1	0.012 ~0.024	0.016	0.7D~0.1D	●	-
	Alloy tool steel	D2 H13	X155CrVMo12-1 X40CrMoV5-1	STD11 STD61	- (40~50)	PC2510 (PC2505) New New	262.5 ~426.5	0.012 ~0.022	0.012	0.7D~0.1D	-	●
		D2	X155CrVMo12-1	STD11 (Cold forging)	630(60)	PC2505 New	98.4 ~246.1	0.012 ~0.020	0.008	0.7D~0.1D	-	●
M	Stainless steel	316	X5CrNiMo17-12-2	STS316	Under 270	PC5400 (PC5300)	229.7 ~492.1	0.020 ~0.028	0.020	0.7D~0.1D	●	-
K	Gray cast iron, Ductile cast iron	65-45-12	GGG40.3	GCD450	Tensile Strength Over 450Mpa	PC5300	426.5 ~721.8	0.024 ~0.031	0.016	0.7D~0.1D	●	-
S	HRSA Fe series	N09901	- (WS 2.4662)	Incoloy901	- (25~35)	PC5300 (PC5400)	98.4 ~328.1	0.012 ~0.020	0.012	0.4D~0.7D	●	○
	HRSA Ni or Co series	N07718	NiCr19FeNbMo (WS 2.4668)	Inconel718	- (35~45)	PC5300 (PC5400)	65.6 ~164.0	0.012 ~0.024	0.012	0.4D~0.7D	●	○
	Titanium	R56400	TiAl6V4	Ti-6Al-4V	- (40~45)	PC5300	98.4 ~164.0	0.016 ~0.039	0.012	0.7D~0.1D	●	-

Cutting Performance

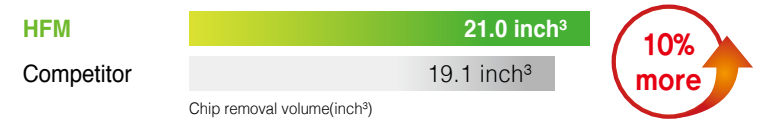
[HFM]

[Competitor]

- Chip removal rate Q(inch³/min) : 0.702
- Cutting time(min) : 30

Carbon steel [1045(AISI) / C45(DIN) / SM45C(KS), HB200]

- Workpiece: Mold
- Cutting conditions: vc(sfm) = 492, fz(ipt) = 0.024, ap(inch) = 0.016, ae(inch) = 0.197, dry
- Tools: Insert LPMT040210R-MF (PC5300)
  Holder HFMSA1037HR-2S037



Wear-resistance & anti-chipping increased due to helix cutting edge when machining carbon steel

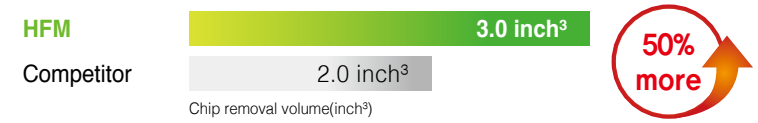
[HFM]

[Competitor]

- Chip removal rate Q(inch³/min) : 0.915
- Cutting time(min) : 3.29

Pre-hardened steel [P21(Improved) (AISI) / NAK80(KS), HRC40~41]

- Workpiece: Mold
- Cutting conditions: vc(sfm) = 328, fz(ipt) = 0.050, ap(inch) = 0.012, ae(inch) = 0.394, dry
- Tools: Insert LPMT040210R-MF (PC5300)
  Holder HFMSA1062HR-4S062



Anti-chipping in high feed increased due to optimized cutting edge when machining pre-hardened steel

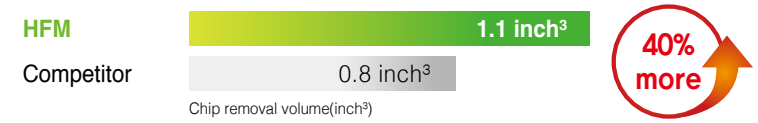
[HFM]

[Competitor]

- Chip removal rate Q(inch³/min) : 0.873
- Cutting time(min) : 1.26

Pre-hardened steel [420(AISI) / X30Cr13(DIN) / STAVAX(KS), HRC50~51]

- Workpiece: Mold
- Cutting conditions: vc(sfm) = 656, fz(ipt) = 0.024, ap(inch) = 0.012, ae(inch) = 0.394, dry
- Tools: Insert LPMT040210R-MF (PC2510)
  Holder HFMSA1062HR-4S062



Wear-resistance increased comparing to competitors when machining pre-hardened steel

Cutting Performance

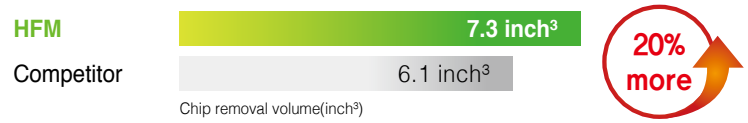
[HFM]

[Competitor]

- Chip removal rate Q(inch³/min) : 0.293
- Cutting time(min) : 25

Alloy tool steel [D2(AISI) / X155CrVMo12-1(DIN) / STD11(KS), HRC40~45]

- Workpiece: Mold
- Cutting conditions: vc(sfm) = 262, fz(ipt) = 0.020, ap(inch) = 0.012, ae(inch) = 0.394, dry
- Tools: Insert LPMW040210R (PC2510)
  Holder HFMSA1062HR-4S062



Anti-breakage increased due to optimized shape and grade when machining alloy tool steel

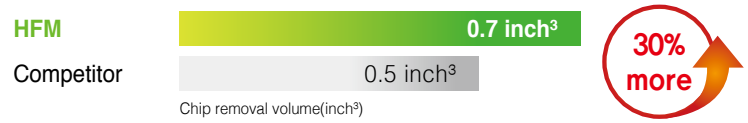
[HFM]

[Competitor]

- Chip removal rate Q(inch³/min) : 0.085
- Cutting time(min) : 7.85

Alloy tool steel [D2(AISI) / X155CrVMo12-1(DIN) / STD11(KS), HRC60]

- Workpiece: Mold
- Cutting conditions: vc(sfm) = 246, fz(ipt) = 0.016, ap(inch) = 0.006, ae(inch) = 0.197, dry
- Tools: Insert LPMW040210R (PC2505)
  Holder HFMSA1037HR-2S037



Wear-resistance increased due to optimized shape and grade when machining alloy tool steel

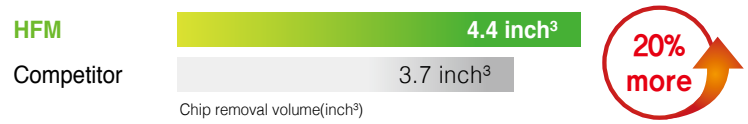
[HFM]

[Competitor]

- Chip removal rate Q(inch³/min) : 0.439
- Cutting time(min) : 10.05

HRSA [R56400(AISI) / TiAl6V4(DIN) / Ti-6Al-4V(KS), HRC48]

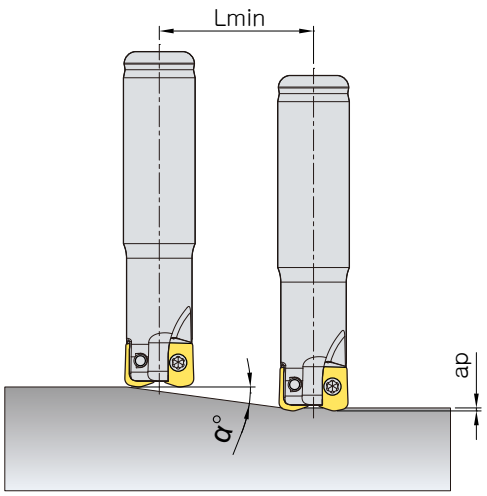
- Workpiece: Aviation parts
- Cutting conditions: vc(sfm) = 164, fz(ipt) = 0.047, ap(inch) = 0.012, ae(inch) = 0.394, wet
- Tools: Insert LPMT040210R-MF (PC5300)
  Holder HFMSA1062HR-4S062



Wear-resistance increased due to optimized shape of cutting edge when machining HRSA

Ramping and Helical cutting

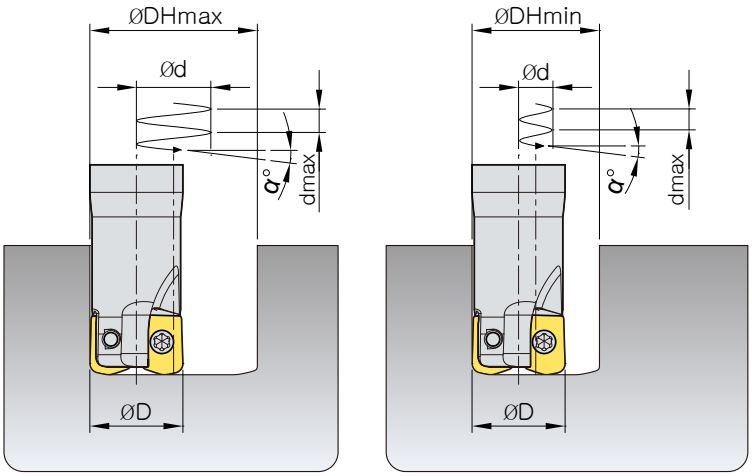
Ramping



$$Lmin = \frac{ap}{\tan \alpha^{\circ}} (inch)$$

※ Lmin: Min. inclination cutting length
α° : Max. ramping angle
ap : Depth of cut

Helical cutting



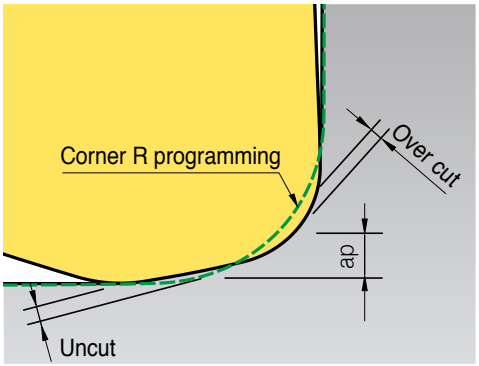
- ØD = Tool Dia.(inch)
- Ød = Tool path(inch) = ØDHmin, max - ØD
- ØDHmin(Min diameter, inch) = ØD × 2 - 5.4
- ØDHmax(Max diameter, inch) = ØD×2 - 2

(inch)

Designation	Tool Dia.ØD		Depth of cut ap	Ramping		Helical cutting			
	ØD (Inch)	ØD (mm)		Max ramping angle α(°)	Lmin	Max diameter ØDHmax	Max pitch dmax	Min diameter ØDHmin	Max pitch dmax
HFMSA1037	0.375	9.525	0.016 ~0.021	3.5	0.256	0.709	0.016	0.591	0.016
HFMSA1043	0.438	11.113	0.016 ~0.021	3.1	0.295	0.787	0.016	0.669	0.016
HFMSA1050	0.500	12.700	0.016 ~0.021	2.7	0.335	0.866	0.016	0.748	0.016
HFMSA1056	0.563	14.288	0.016 ~0.021	2.2	0.374	0.945	0.016	0.827	0.016
HFMSA1062	0.625	15.875	0.016 ~0.021	1.8	0.413	1.024	0.016	0.906	0.016
HFMSA1068	0.688	17.463	0.016 ~0.021	1.7	0.453	1.102	0.016	0.984	0.016
HFMSA1075	0.750	19.050	0.016 ~0.021	1.4	0.492	1.181	0.016	1.063	0.016
HFMSA1081	0.813	20.638	0.016 ~0.021	1.3	0.531	1.260	0.016	1.142	0.016
HFMMA1100	1.000	25.400	0.016 ~0.021	1.1	0.571	1.339	0.016	1.220	0.016
HFMMA1106	1.063	26.988	0.016 ~0.021	1.0	0.610	1.417	0.016	1.299	0.016
HFMMA1118	1.188	30.163	0.016 ~0.021	0.9	0.650	1.496	0.016	1.378	0.016
HFMMA1125	1.250	31.750	0.016 ~0.021	0.8	0.689	1.575	0.016	1.457	0.016
HFMMA1131	1.313	33.338	0.016 ~0.021	0.8	0.846	1.890	0.016	1.772	0.016

- Adjust feed to under 70% of recommended cutting condition when ramping & helical cutting
- In helical ramping, max. cutting depth(dmax) per 1 helical revolution of cutter should not exceed max. cutting depth(ap) as per insert size
- In ramping, max. cutting depth per 1 ramping process of cutter should not exceed max. depth of cut as per used insert size

Corner R programming



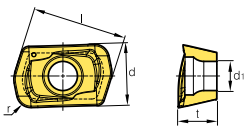
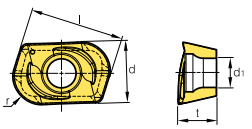
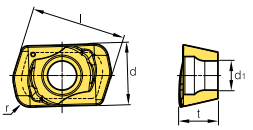
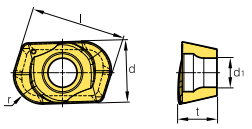
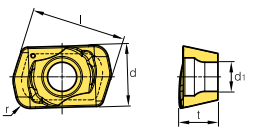
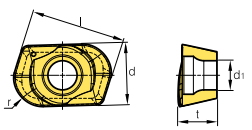
(inch)

Insert	Corner R programming	Cutting conditions		Over Cut	Uncut
		Nose R	Max. ap		
LPMT040210R-MF LPMW040210R LPEW040210R	R0.039	0.039	0.016	0.000	0.007
	R0.059			0.004	0.003
	R0.079			0.012	0.000
LPMT040220R-MF LPMW040220R LPEW040220R	R0.039	0.079	0.020	0.000	0.016
	R0.059			0.000	0.008
	R0.079			0.000	0.000

- When using CNC program, overcut & uncut occurs on the corner processing site if entering the correct program corner R value for each insert
- To prevent overcut, you will need to complete a CNC program considering the above overcut

Insert

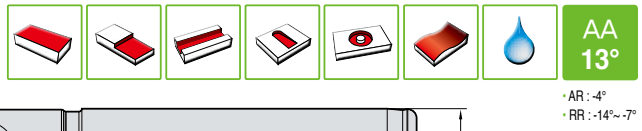
(inch)

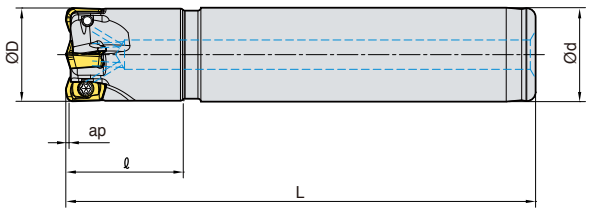
Designation		Usage	Coated				Dimensions(inch)					Depth of cut	Configuration
			PC5300	PC5400	PC2510	PC2505	l	d	t	r	d_1	ap	
LPMT	040210R-MF	Fine finishing	●	●	●	-	0.252	0.165	0.102	0.039	0.079	0.016	
	040220R-MF		●	●	●	-	0.252	0.165	0.102	0.079	0.079	0.020	
LPMW	040210R	High hardness material machining	●	-	●	●	0.252	0.165	0.102	0.039	0.079	0.016	
	040220R		●	-	●	●	0.252	0.165	0.102	0.079	0.079	0.020	
LPEW	040210R	High hardness material machining	●	-	●	●	0.252	0.165	0.102	0.039	0.079	0.016	
	040220R		●	-	●	●	0.252	0.165	0.102	0.079	0.079	0.020	

Parts

Specification	Screw	Wrench
Ø0.313~Ø0.375	FTKA01840	TW06S-A
Ø0.438~Ø1.313	FTKA01842	

HFMSA1000 (Shank)





(inch)

Designation			ØD(Inch)	ØD(mm)	Ød	ℓ	L	ap	kg
HFMSA	1031HR-1S037	1	0.313	7.938	0.375	0.787	3.150	0.016~0.020	0.07
	1031HR-1M037	1	0.313	7.938	0.375	0.984	3.937	0.016~0.020	0.07
	1031HR-1L037	1	0.313	7.938	0.375	1.378	4.724	0.016~0.020	0.07
	1037HR-2S031	2	0.375	9.525	0.312	0.787	3.150	0.016~0.020	0.07
	1037HR-2M031	2	0.375	9.525	0.312	0.984	3.937	0.016~0.020	0.09
	1037HR-2L031	2	0.375	9.525	0.312	1.378	4.724	0.016~0.020	0.09
	1037HR-2S037	2	0.375	9.525	0.375	0.787	3.150	0.016~0.020	0.09
	1037HR-2M037	2	0.375	9.525	0.375	0.984	4.134	0.016~0.020	0.11
	1037HR-2L031	2	0.375	9.525	0.375	1.378	4.724	0.016~0.020	0.13
	1043HR-2S037	2	0.438	11.113	0.375	0.787	3.150	0.016~0.020	0.09
	1043HR-2M037	2	0.438	11.113	0.375	0.984	4.134	0.016~0.020	0.13
	1043HR-2L037	2	0.438	11.113	0.375	1.378	4.724	0.016~0.020	0.15
	1050HR-3S037	3	0.500	12.700	0.375	0.787	3.150	0.016~0.020	0.11
	1050HR-3M037	3	0.500	12.700	0.375	0.984	4.134	0.016~0.020	0.13
	1050HR-3L037	3	0.500	12.700	0.375	1.378	4.724	0.016~0.020	0.15
	1050HR-3S050	3	0.500	12.700	0.500	0.787	3.150	0.016~0.020	0.13
	1050HR-3M050	3	0.500	12.700	0.500	0.984	4.134	0.016~0.020	0.18
	1050HR-3L050	3	0.500	12.700	0.500	1.378	4.724	0.016~0.020	0.20

Available Inserts


LPMT-MF


LPMW


LPEW

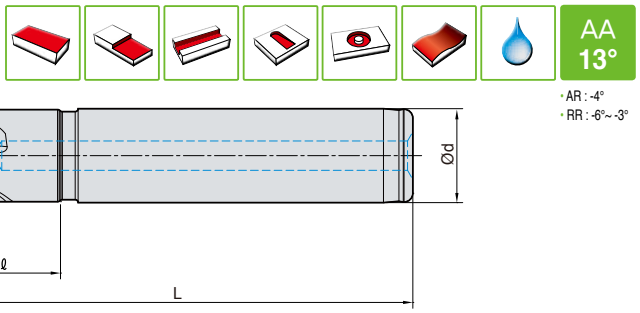
Designation		Usage	Coated			
			PC5300	PC5400	PC2510	PC2505
LPMT	040210R-MF	Fine finishing	●	●	●	-
	040220R-MF		●	●	●	-
LPMW	040210R	High hardness material machining	●	-	●	●
	040220R		●	-	●	●
LPEW	040210R	High hardness material machining	●	-	●	●
	040220R		●	-	●	●

● :Stock item

Parts

Specification	Screw	Wrench
Ø0.313~Ø0.375	FTKA01840	TW06S-A
Ø0.438~Ø0.813	FTKA01842	

HFMSA1000 (Shank)



(inch)

Designation			ØD(Inch)	ØD(mm)	Ød	ℓ	L	ap	kg
HFMSA	1056HR-3S056	3	0.563	14.288	0.563	0.787	3.150	0.016~0.020	0.15
	1056HR-3M056	3	0.563	14.288	0.563	0.984	4.134	0.016~0.020	0.20
	1056HR-3L056	3	0.563	14.288	0.563	1.575	4.724	0.016~0.020	0.22
	1062HR-4S062	4	0.625	15.875	0.625	0.787	3.150	0.016~0.020	0.24
	1062HR-4M062	4	0.625	15.875	0.625	0.984	4.134	0.016~0.020	0.31
	1062HR-4L062	4	0.625	15.875	0.625	1.575	4.724	0.016~0.020	0.35
	1068HR-4S062	4	0.688	17.463	0.625	0.787	3.150	0.016~0.020	0.24
	1068HR-4M062	4	0.688	17.463	0.625	0.984	4.134	0.016~0.020	0.33
	1068HR-4L062	4	0.688	17.463	0.625	1.575	4.724	0.016~0.020	0.37
	1075HR-4S075	4	0.750	19.050	0.750	0.787	3.150	0.016~0.020	0.37
	1075HR-4M075	4	0.750	19.050	0.750	0.984	4.134	0.016~0.020	0.49
	1075HR-4L075	4	0.750	19.050	0.750	1.575	4.724	0.016~0.020	0.57
	1075HR-5S075	5	0.750	19.050	0.750	0.787	3.150	0.016~0.020	0.37
	1075HR-5M075	5	0.750	19.050	0.750	0.984	4.134	0.016~0.020	0.51
	1075HR-5L075	5	0.750	19.050	0.750	1.575	4.724	0.016~0.020	0.60
	1081HR-5S075	5	0.813	20.638	0.750	0.787	3.150	0.016~0.020	0.37
	1081HR-5M075	5	0.813	20.638	0.750	0.984	4.134	0.016~0.020	0.51
	1081HR-5L075	5	0.813	20.638	0.750	1.575	4.724	0.016~0.020	0.60

Available Inserts


LPMT-MF


LPMW


LPEW

Designation		Usage	Coated			
			PC5300	PC5400	PC2510	PC2505
LPMT	040210R-MF	Fine finishing	●	●	●	-
	040220R-MF		●	●	●	-
LPMW	040210R	High hardness material machining	●	-	●	●
	040220R		●	-	●	●
LPEW	040210R	High hardness material machining	●	-	●	●
	040220R		●	-	●	●

● : Stock item

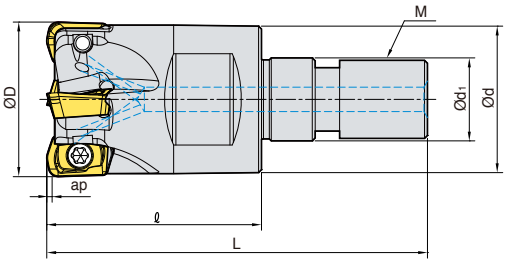
Parts

Specification	Screw	Wrench
Ø0.313~Ø0.375	FTKA01840	TW06S-A
Ø0.438~Ø0.813	FTKA01842	

HFMMA (Modular)

AA 13°

- AR : -4°
- RR : -14°~ -3°



(inch)

Designation			ØD(Inch)	ØD(mm)	Ød	Ød1	ℓ	L	M	ap	kg
HFMMA	1031HR-M06	1	0.313	7.938	0.295	0.256	0.669	1.260	M6	0.016~0.020	0.02
	1037HR-M06	2	0.375	9.525	0.374	0.256	0.669	1.260	M6	0.016~0.020	0.02
	1043HR-M06	2	0.438	11.113	0.433	0.256	0.669	1.260	M6	0.016~0.020	0.02
	1050HR-M06	3	0.500	12.700	0.433	0.256	0.748	1.339	M6	0.016~0.020	0.02
	1062HR-M08	4	0.625	15.875	0.571	0.335	0.866	1.535	M8	0.016~0.020	0.07
	1068HR-M08	4	0.688	17.463	0.571	0.335	0.866	1.535	M8	0.016~0.020	0.07
	1075HR-M10	5	0.750	19.050	0.709	0.413	0.984	1.811	M10	0.016~0.020	0.13
	1081HR-M10	5	0.813	20.638	0.709	0.413	0.984	1.811	M10	0.016~0.020	0.13
	1100HR-M12	6	1.000	25.400	0.906	0.492	1.063	2.008	M12	0.016~0.020	0.24
	1106HR-M12	6	1.063	26.988	0.906	0.492	1.063	2.008	M12	0.016~0.020	0.24
	1118HR-M16	7	1.188	30.163	1.142	0.669	1.181	2.362	M16	0.016~0.020	0.37
	1125HR-M16	8	1.250	31.750	1.142	0.669	1.181	2.362	M16	0.016~0.020	0.40
	1131HR-M16	8	1.313	33.338	1.142	0.669	1.181	2.362	M16	0.016~0.020	0.40

Available Inserts

LPMT-MF

LPMW

LPEW

Designation		Usage	Coated			
			PC5300	PC5400	PC2510	PC2505
LPMT	040210R-MF	Fine finishing	●	●	●	-
	040220R-MF		●	●	●	-
LPMW	040210R	High hardness material machining	●	-	●	●
	040220R		●	-	●	●
LPEW	040210R	High hardness material machining	●	-	●	●
	040220R		●	-	●	●

● : Stock item

Parts

Specification	Screw	Wrench	Holder Dia.
Ø0.313~Ø0.375	FTKA01840	TW06S-A	Ø0.313~Ø0.375
Ø0.438~Ø1.313	FTKA01842		Ø0.438~Ø1.313

MATA (Steel Shank type)

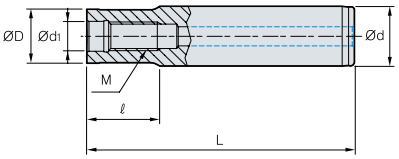


Fig. 1

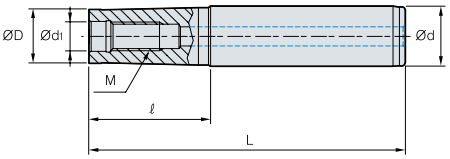


Fig. 2

(inch)

Designation		ØD	Ød	Ød1	ℓ	L	M	Fig.
MATA-	M06-078-S038S	0.354	3/8	0.256	0.787	2.756	M06	1
	M06-157-S050T	0.354	1/2	0.256	1.575	3.780	M06	1
	M06-255-S063T	0.354	5/8	0.256	2.559	4.921	M06	1
	M6B-078-S050S	0.433	1/2	0.256	0.787	2.992	M06	1
	M6B-157-S050S	0.433	1/2	0.256	1.575	3.780	M06	1
	M6B-255-S063T	0.433	5/8	0.256	2.559	4.921	M06	1
	M6B-315-S063T	0.433	5/8	0.256	3.150	5.512	M06	1
	M08-078-S063S	0.571	5/8	0.335	0.787	3.150	M08	2
	M08-157-S063T	0.571	5/8	0.335	1.575	3.937	M08	2
	M08-255-S063T	0.571	5/8	0.335	2.559	4.921	M08	2
	M08-315-S075T	0.571	3/4	0.335	3.150	5.906	M08	2
	M08-433-S100T	0.571	1	0.335	4.331	7.480	M08	2
	M10-118-S075S	0.689	3/4	0.413	1.181	3.937	M10	2
	M10-196-S075T	0.689	3/4	0.413	1.969	4.724	M10	2
	M10-275-S075T	0.689	3/4	0.413	2.756	5.512	M10	2
	M10-354-S100T	0.689	1	0.413	3.543	6.693	M10	2
	M10-433-S100T	0.689	1	0.413	4.331	7.480	M10	2
	M10-511-S125T	0.689	1 1/4	0.413	5.118	8.661	M10	2
	M12-118-S100S	0.906	1	0.492	1.181	4.331	M12	2
	M12-196-S100T	0.906	1	0.492	1.969	5.118	M12	2
	M12-275-S100T	0.906	1	0.492	2.756	5.906	M12	2
	M12-354-S100T	0.906	1	0.492	3.543	6.693	M12	2
	M12-433-S125T	0.906	1 1/4	0.492	4.331	7.874	M12	2
	M12-689-S150T	0.906	1 1/2	0.492	6.890	11.811	M12	2
	M16-137-S125S	1.142	1 1/4	0.669	1.378	4.921	M16	2
	M16-216-S125T	1.142	1 1/4	0.669	2.165	5.709	M16	2
	M16-315-S125T	1.142	1 1/4	0.669	3.150	6.693	M16	2
	M16-472-S125T	1.142	1 1/4	0.669	4.724	8.268	M16	2
	M16-689-S150T	1.142	1 1/2	0.669	6.890	11.811	M16	2

- S : Straight Neck Adapter
- T : Taper Neck Adapter

MATA-C (Carbide Shank type)

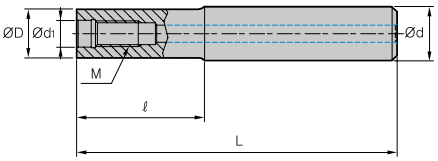


Fig. 1

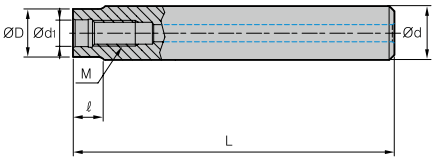
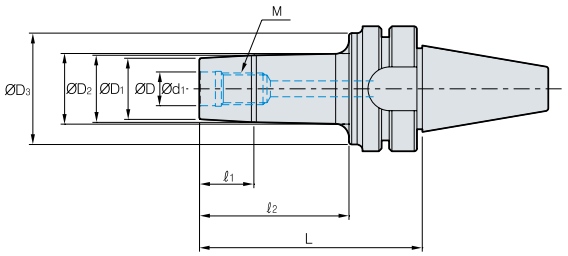


Fig. 1

(inch)

	Designation	ØD	Ød	Ød1	ℓ	L	M	Fig
MATA-	M06-118-S039S-C-315	0.374	0.394	0.256	1.181	3.150	M06	1
	M06-196-S039S-C-393	0.374	0.394	0.256	1.969	3.937	M06	1
	M06-315-S039S-C-511	0.374	0.394	0.256	3.150	5.118	M06	1
	M06B-118-S039S-C-315	0.433	0.394	0.256	1.181	3.150	M06	1
	M06B-196-S039S-C-393	0.433	0.394	0.256	1.969	3.937	M06	1
	M06B-315-S039S-C-511	0.433	0.394	0.256	3.150	5.118	M06	1
	M08-315-S063S-C	0.571	5/8	0.335	3.150	5.906	M08	1
	M08-433-S063S-C	0.571	5/8	0.335	4.331	7.087	M08	1
	M08-590-S063S-C	0.571	5/8	0.335	5.906	9.843	M08	1
	M08-394-S063S-C-590	0.571	5/8	0.335	0.394	5.906	M08	2
	M08-394-S063S-C-708	0.571	5/8	0.335	0.394	7.087	M08	2
	M08-394-S063S-C-984	0.571	5/8	0.335	0.394	9.843	M08	2
	M10-354-S075S-C	0.689	3/4	0.413	3.543	6.693	M10	1
	M10-433-S075S-C	0.689	3/4	0.413	4.331	7.874	M10	1
	M10-689-S075S-C	0.689	3/4	0.413	6.890	11.811	M10	1
	M10-394-S075S-C-669	0.689	3/4	0.413	0.394	6.693	M10	2
	M10-394-S075S-C-787	0.689	3/4	0.413	0.394	7.874	M10	2
	M10-394-S075S-C-1181	0.689	3/4	0.413	0.394	11.811	M10	2
	M12-354-S100S-C	0.906	1	0.492	3.543	6.693	M12	1
	M12-433-S100S-C	0.906	1	0.492	4.331	7.874	M12	1
	M12-689-S100S-C	0.906	1	0.492	6.890	11.811	M12	1
	M12-059-S100S-C-669	0.906	1	0.492	0.591	6.693	M12	2
	M12-059-S100S-C-787	0.906	1	0.492	0.591	7.874	M12	2
	M12-059-S100S-C-1181	0.906	1	0.492	0.591	11.811	M12	2
	M16-354-S125S-C	1.142	1 1/4	0.669	3.543	7.087	M16	1
	M16-472-S125S-C	1.142	1 1/4	0.669	4.824	8.268	M16	1
	M16-689-S125S-C	1.142	1 1/4	0.669	6.890	11.811	M16	1
	M16-078-S125S-C-708	1.142	1 1/4	0.669	0.787	70.87	M16	2
	M16-078-S125S-C-826	1.142	1 1/4	0.669	0.787	8.268	M16	2
	M16-078-S125S-C-1181	1.142	1 1/4	0.669	0.787	11.811	M16	2

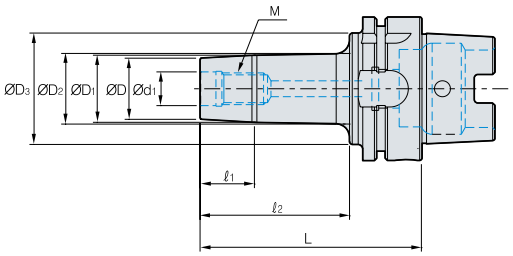
BT30 / BT40 / BT50



(inch)

Designation		ØD	ØD1	ØD2	ØD3	Ød1	ℓ1	ℓ2	L	M
BT30-	MAT-M06-053	0.433	0.461	0.512	1.181	0.256	0.197	0.827	2.087	06
	MAT-M08-057	0.571	0.618	0.689	1.378	0.335	0.276	0.984	2.244	08
	MAT-M10-062	0.709	0.776	0.945	1.496	0.413	0.276	1.181	2.441	10
	MAT-M12-067	0.906	0.972	1.083	1.614	0.492	0.394	1.378	2.638	12
	MAT-M16-067	1.142	1.248	1.319	1.614	0.669	0.394	1.378	2.638	16
BT40-	MAT-M06-062	0.433	0.461	0.551	1.575	0.256	0.197	0.984	2.441	08
	MAT-M06-077	0.433	0.461	0.551	1.575	0.256	0.197	1.575	3.031	06
	MAT-M06-092	0.433	0.461	0.551	1.575	0.256	0.197	2.165	3.622	06
	MAT-M08-067	0.571	0.618	0.748	1.732	0.335	0.276	1.181	2.638	08
	MAT-M08-082	0.571	0.618	0.748	1.732	0.335	0.276	1.772	3.228	08
	MAT-M08-097	0.571	0.618	0.748	1.732	0.335	0.276	2.362	3.819	08
	MAT-M10-072	0.709	0.776	0.906	1.969	0.413	0.394	1.378	2.835	10
	MAT-M10-087	0.709	0.776	0.906	1.969	0.413	0.394	1.969	3.425	10
	MAT-M10-102	0.709	0.776	0.906	1.969	0.413	0.394	2.559	4.016	10
	MAT-M12-077	0.906	0.972	1.181	2.165	0.492	0.394	1.575	3.031	12
	MAT-M12-092	0.906	0.972	1.181	2.165	0.492	0.512	2.165	3.622	12
	MAT-M12-107	0.906	0.972	1.181	2.165	0.492	0.512	2.756	4.213	12
	MAT-M16-077	1.142	1.248	1.457	2.165	0.669	0.512	1.575	3.031	16
	MAT-M16-092	1.142	1.248	1.457	2.165	0.669	0.512	2.165	3.622	16
	MAT-M16-107	1.142	1.248	1.457	2.165	0.669	0.512	2.756	4.213	16
BT50-	MAT-M06-083	0.433	0.461	0.591	1.575	0.256	0.197	1.378	3.268	06
	MAT-M06-098	0.433	0.461	0.591	1.575	0.256	0.197	1.969	3.858	06
	MAT-M06-113	0.433	0.461	0.591	1.575	0.256	0.197	2.559	4.449	06
	MAT-M08-088	0.571	0.618	0.787	1.772	0.335	0.276	1.575	3.465	08
	MAT-M08-103	0.571	0.618	0.787	1.772	0.335	0.276	2.165	4.055	08
	MAT-M08-118	0.571	0.618	0.787	1.772	0.335	0.276	2.756	4.646	08
	MAT-M10-093	0.709	0.776	0.984	2.165	0.413	0.394	1.772	3.661	10
	MAT-M10-113	0.709	0.776	0.984	2.165	0.413	0.394	2.559	4.449	10
	MAT-M10-128	0.709	0.776	0.984	2.165	0.413	0.394	3.150	5.039	10
	MAT-M12-103	0.906	0.972	1.299	2.559	0.492	0.394	2.165	4.055	12
	MAT-M12-118	0.906	0.972	1.299	2.559	0.492	0.512	2.756	4.646	12
	MAT-M12-133	0.906	0.972	1.299	2.559	0.492	0.512	3.346	5.236	12
	MAT-M16-103	1.142	1.248	1.614	3.346	0.669	0.512	2.165	4.055	16
	MAT-M16-118	1.142	1.248	1.614	3.346	0.669	0.512	2.756	4.646	16
	MAT-M16-133	1.142	1.248	1.614	3.346	0.669	0.512	3.346	5.236	16

HSK63A / HSK100A



(inch)

Designation		ØD	ØD1	ØD2	ØD3	Ød1	ℓ1	ℓ2	L	M
HSK63A-	MAT-M06-061	0.433	0.461	1.063	1.575	0.256	0.197	0.984	2.402	06
	MAT-M06-076	0.433	0.461	1.063	1.575	0.256	0.197	1.575	2.992	06
	MAT-M06-091	0.433	0.461	1.063	1.575	0.256	0.197	2.165	3.583	06
	MAT-M08-066	0.571	0.618	1.201	1.732	0.335	0.276	1.181	2.598	08
	MAT-M08-081	0.571	0.618	1.201	1.732	0.335	0.276	1.772	3.189	08
	MAT-M08-096	0.571	0.618	1.201	1.732	0.335	0.276	2.362	3.780	08
	MAT-M10-071	0.709	0.776	1.339	1.969	0.413	0.394	1.378	2.795	10
	MAT-M10-086	0.709	0.776	1.339	1.969	0.413	0.394	1.969	3.386	10
	MAT-M10-101	0.709	0.776	1.339	1.969	0.413	0.394	2.559	3.976	10
	MAT-M12-076	0.906	0.972	1.437	2.165	0.492	0.394	1.575	2.992	12
	MAT-M12-091	0.906	0.972	1.437	2.165	0.492	0.512	2.165	3.583	12
	MAT-M12-106	0.906	0.972	1.437	2.165	0.492	0.512	2.756	4.173	12
	MAT-M16-076	1.142	1.248	1.516	2.165	0.669	0.512	1.575	2.992	16
	MAT-M16-091	1.142	1.248	1.516	2.165	0.669	0.512	2.165	3.583	16
	MAT-M16-106	1.142	1.248	1.516	2.165	0.669	0.512	2.756	4.173	16
HSK100A-	MAT-M06-074	0.433	0.461	0.591	1.575	0.256	0.197	1.378	2.913	06
	MAT-M06-089	0.433	0.461	0.591	1.575	0.256	0.197	1.969	3.504	06
	MAT-M06-104	0.433	0.461	0.591	1.575	0.256	0.197	2.559	4.094	06
	MAT-M08-079	0.571	0.618	0.787	1.772	0.335	0.276	1.575	3.110	08
	MAT-M08-094	0.571	0.618	0.787	1.772	0.335	0.276	2.165	3.701	08
	MAT-M08-109	0.571	0.618	0.787	1.772	0.335	0.276	2.756	4.291	08
	MAT-M10-084	0.709	0.776	0.984	2.165	0.413	0.394	1.772	3.307	10
	MAT-M10-104	0.709	0.776	0.984	2.165	0.413	0.394	2.559	4.094	10
	MAT-M10-119	0.709	0.776	0.984	2.165	0.413	0.394	3.150	4.685	10
	MAT-M12-094	0.906	0.972	1.299	2.559	0.492	0.394	2.165	3.701	12
	MAT-M12-109	0.906	0.972	1.299	2.559	0.492	0.512	2.756	4.291	12
	MAT-M12-124	0.906	0.972	1.299	2.559	0.492	0.512	3.346	4.882	12
	MAT-M16-094	1.142	1.248	1.614	3.346	0.669	0.512	2.165	3.701	16
	MAT-M16-109	1.142	1.248	1.614	3.346	0.669	0.512	2.756	4.291	16
	MAT-M16-124	1.142	1.248	1.614	3.346	0.669	0.512	3.346	4.882	16

KORLOY

Holystar B/D, 1350, Nambusunhwan-ro, Geumcheon-gu, Seoul, 08536, Korea
Tel : +82-2-522-3181 Fax : +82-2-522-3184, +82-2-3474-4744 Web : www.korloy.com E-mail : export@korloy.com

KORLOY AMERICA
620 Maple Avenue, Torrance, CA 90503, USA
Tel : +1-310-782-3800 Toll Free : +1-888-711-0001 Fax : +1-310-782-3885
www.korloyamerica.com E-mail : sales@korloy.us

KORLOY INDIA
Plot NO.415, Sector 8, IMT Manesar, Gurgaon 122051, Haryana, INDIA
Tel : +91-124-4391790 Fax : +91-124-4050032
www.korloyindia.com E-mail : sales.kip@korloy.com

KORLOY EUROPE
Gablonzer Str. 25-27, 61440 Oberursel, Germany
Tel : +49-6171-277-83-0 Fax : +49-6171-277-83-59
www.korloyeurope.com E-mail : sales@korloyeurope.com

KORLOY BRASIL
Av. Aruana 280, conj.12, WLC, Alphaville, Barueri,
CEP06460-010, SP, Brasil
Tel : +55-11-4193-3810 E-mail : vendas@korloy.com