KORLOY TECH-NEWS

Quality, Performance, Value - Guaranteed!

PRO-X MILL

- Strong clamping due to concave design on the bottom of the insert
- Improved chip flow and less built up edge due to polished insert surface
- High insert rake angle provides reduced cutting load and good surface finish

KORLOY

PRO-X MILL

Code system

(inch)

PAX C A 5 250 H R - A

- **Pro-X Mill series**
- **Tool type**
  C : Cutter
  S : Shank
  M : Modular
- **Arbor type**
  M : Metric
  A : Inch
- **Insert I/C**
  5 : 19 size insert
  6 : 25 size insert
- **Tool diameter**
  ISO : mm
  ANSI : inch
- **Coolant type**
  H : Thru-hole
  Unmarked :
  No thru-hole
- **Hand of tool**
  R : Right
  L : Left
- **Nose R**
  A : 0.016~0.126
  B : 0.157~0.197

PAX M A 5 125 H R - A - M16

- **Pro-X Mill series**
- **Tool type**
  M : Modular
- **Arbor type**
  M : Metric
  A : Inch
- **Insert I/C**
  5 : 19 size insert
- **Tool diameter**
  ISO : mm
  ANSI : inch
- **Coolant type**
  H : Thru-hole
  Unmarked :
  No thru-hole
- **Hand of tool**
  R : Right
  L : Left
- **Nose R**
  A : 0.016~0.126
  B : 0.157~0.197
- **Screw Size**

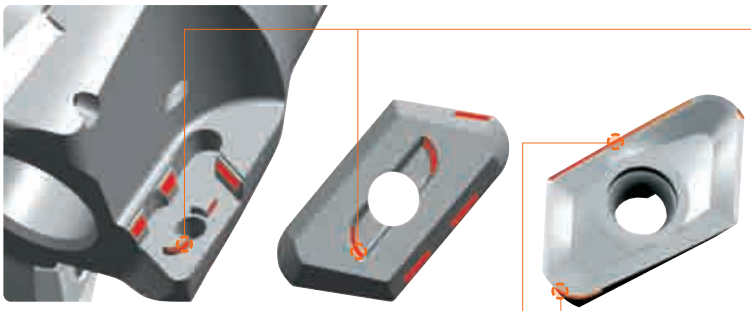
MAT M10 394 S075 S C (787)

- **Modular Adaptor**
- **Scew Size**
- **Neck Length**
- **Shank dia(ø)**
- **Neck Shape**
  S : Straight
  T : Taper
- **Shank Material**
  S : Steel
  C : Carbide
- **Shank Length**

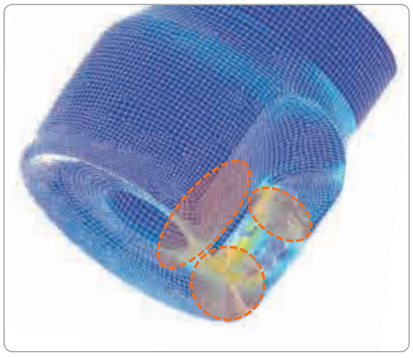
Features

- Strong clamping due to concave design on the botom of the insert
- Improved chip flow and less built up edge due to polished insert surface
- High insert rake angle provides reduced cuting load and good surface finish
- Specialy designed and optimized for high feed aluminum machining
- Suitable for square shoulder and curved surface machining

Clamping system for high speed



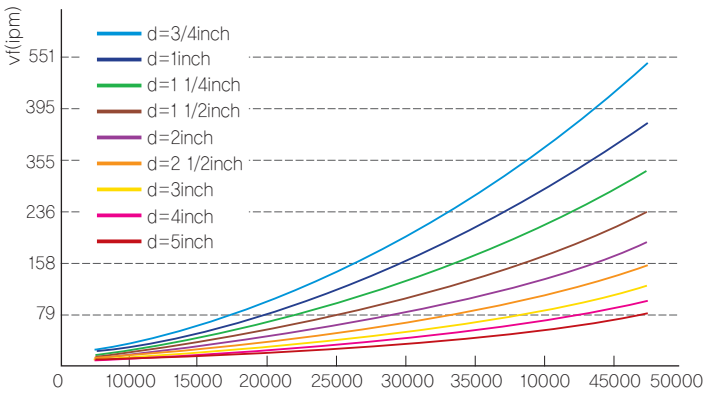
- Special design for strong clamping at high speed machining to prevent insert from flying out
- Chip Breaker 3 dimensional design for low cutting load
- Various inserts corner radii are available. (R0.016 ~ R0.197)



- Clamping design as per FEM analysis
- Strong clamping of insert

PRO-X MILL

Centrifugal force as per RPM



- Screw Torque = 4N · m
- Indexable insert : 6.8g

- **Marking**
  - Designation
  - Max. RPM

• Max. RPM as per cutting diameter

Cutting diameter ØD(inch)		Max. RPM	
5000 type	6000 type	n(min⁻¹)	vc(sfm)
3/4	–	15,000	7,564
1	1	32,600	8,445
1 1/4	1 1/4	28,800	9,549
1 1/2	1 1/2	25,800	10,693
2	2	23,000	11,916
2 1/2	2 1/2	20,500	13,382
3	3	18,200	15,087
4	4	16,300	16,890
5	5	14,600	18,910

- In case of actual machining accidental breakage of insert or tool could happen even under the recommended RPM. A special cover or door is necessary to prevent damage from broken insert or broken tool.

• Recommended Cutting Condition

Workpiece		Cutting Speed vc(sfm)	Feed fz(ipt)
Aluminum alloy	Rm 〈 280 MPa	3960	0.012
	Rm 〉 280 MPa	3300	0.010
Copper alloy	Long chipping	1320	0.008
Thermo plastic	–	1150	0.006
Aluminum alloy	Si 〈 12%	3300	0.010
	Si ≥12%	–	–
Copper alloy	Short chipping	1650	0.008
Magnesium alloy	–	1480	0.008
Duroplastics	–	680	0.006

Application Examples

PAXSA5125HR-A

Workpiece : A6061
Cutting condition

	vc(sfm)	fz(ipt)	ap(inch)	ae(inch)
Inch	4290	0.008	0.32	0.5D

- Chip evacuation and good surface roughness

PAXCA5200HR-A

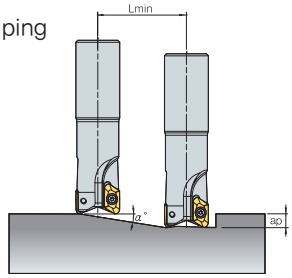
Workpiece : A6061
Cutting condition

	vc(sfm)	fz(ipt)	ap(inch)	ae(inch)
Inch	4290	0.01	0.4	0.5D

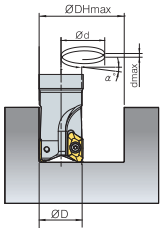
- Long tool life and no built-up edge & chipping

Pro-X Mill Ramping & Helical cutting technical data

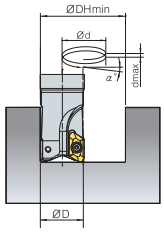
1. Ramping



2. Blind hole Helical cutting



3. Thru hole Helical cutting

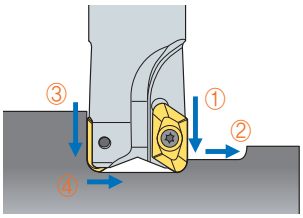


Designation		ØD(inch)	Ramping		Blind hole Helical cutting				Thru hole Helical cutting	
			α°(max)	Lmin(inch)	ØDHmax(inch)	dmax(inch)	ØDHmin(inch)	dmax(inch)	ØDHmin(inch)	dmax(inch)
PAXSA	5075HR	0.75	9.1	2.47	1.264	0.008	1.185	0.007	0.988	0.006
	5100HR	1	11.9	1.86	1.764	0.015	1.685	0.014	1.488	0.012
	5125HR	1.25	9.0	2.49	2.264	0.014	2.185	0.014	1.988	0.012
	5150HR	1.5	7.2	3.11	2.764	0.014	2.685	0.013	2.488	0.012
PAXCA	5200HR	2	5.2	4.36	3.764	0.013	3.685	0.013	3.488	0.012
	5250HR	2.5	4.0	5.61	4.764	0.013	4.685	0.013	4.488	0.012
	5300HR	3	3.3	6.86	5.764	0.013	5.685	0.013	5.488	0.012
	5400HR	4	2.4	9.36	7.764	0.013	7.685	0.013	7.488	0.012
	5500HR	5	1.9	11.86	9.764	0.013	9.685	0.013	9.488	0.012
PAXSA	6100HR	1	9.0	2.48	1.764	0.011	1.685	0.011	1.488	0.009
	6125HR	1.25	6.8	3.31	2.264	0.011	2.185	0.010	1.988	0.009
	6150HR	1.5	10.8	2.07	2.764	0.021	2.685	0.020	2.488	0.019
PAXCA	6200HR	2	7.7	2.91	3.764	0.020	3.685	0.020	3.488	0.019
	6250HR	2.5	6.0	3.74	4.764	0.020	4.685	0.019	4.488	0.019
	6300HR	3	4.9	4.57	5.764	0.020	5.685	0.019	5.488	0.019
	6400HR	4	3.6	6.24	7.764	0.019	7.685	0.019	7.488	0.019
	6500HR	5	2.9	7.91	9.764	0.019	9.685	0.019	9.488	0.019

- Lmin : when ap=0.394inch
- Lmin : Minimum inclination acutting length
  α°: Max. rampig angle
  ap : Depth of cut

$$L\,min = \frac{ap}{\tan \alpha^{\circ}} \text{ (inch)}$$

Plunging, Slotting, Drilling technical data



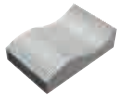
- When drilling, grooving machining sequence is ① → ② → ③ → ④
- When drilling, and grooving, decrease the feed and cutting speed 30%~50% from the recommended data.

• Cutting condition for drilling

Holder	ap(inch)	
	5000 Type	6000 Type
Ø3/4	0.315	-
Ø1	0.157	0.433
Ø1 1/4	0.157	0.236
Ø1 1/2~5	0.157	0.236

Insert		ap(inch)
XETK	19	0.157
	25	0.236

Machining examples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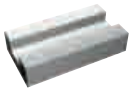
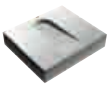
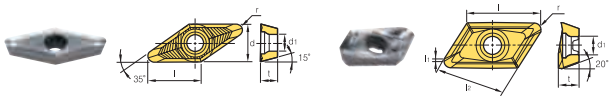
Helical cutting

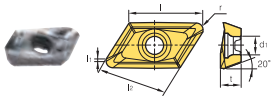

Slotting & Shouldering


Ramping

Applicable inserts



Designation		l	l2	l1	d	t	r	d1
VDKT	21.52.5N-MA	7/16	-	-	1/4	0.113	3/64	0.110
	11T220N-MA	0.264	-	-	1/4	0.113	0.079	0.110
XEKT	19M504FR-MA	0.709	0.646	0.055	-	0.197	0.016	0.173
	19M508FR-MA	0.709	0.646	0.039	-	0.197	0.031	0.173
	19M512FR-MA	0.709	0.646	0.024	-	0.197	0.047	0.173
	19M516FR-MA	0.689	0.646	0.020	-	0.197	0.063	0.173
	19M518FR-MA	0.689	0.646	0.020	-	0.197	0.071	0.173
	19M520FR-MA	0.689	0.646	0.020	-	0.197	0.079	0.173
	19M530FR-MA	0.669	0.646	0.028	-	0.197	0.118	0.173
	19M532FR-MA	0.669	0.646	0.020	-	0.197	0.126	0.173
	19M540FR-MA	0.650	0.646	0.020	-	0.197	0.157	0.173
	19M550FR-MA	0.630	0.646	0.016	-	0.197	0.197	0.173

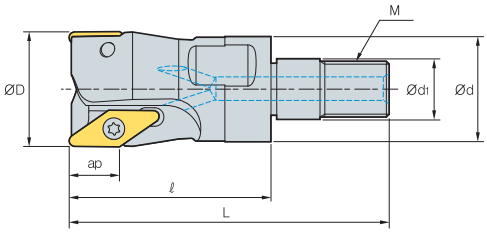


Designation		l	l2	l1	d	t	r	d1
XEKT	250604FR-MA	0.965	0.862	0.059	-	0.250	0.016	0.236
	250608FR-MA	0.965	0.862	0.047	-	0.250	0.031	0.236
	250612FR-MA	0.965	0.862	0.031	-	0.250	0.047	0.236
	250616FR-MA	0.965	0.862	0.016	-	0.250	0.063	0.236
	250620FR-MA	0.945	0.862	0.020	-	0.250	0.079	0.236
	250630FR-MA	0.933	0.862	0.024	-	0.250	0.118	0.236
	250632FR-MA	0.933	0.862	0.016	-	0.250	0.126	0.236
	250640FR-MA	0.898	0.862	0.047	-	0.250	0.157	0.236
	250650FR-MA	0.894	0.862	0.016	-	0.250	0.197	0.236

PAMA2000

• AR : 7°-10°
• RR : -21°-9°

AA 0°



(inch)

Designation			ØD	Ød	Ød1	ℓ	L	M	ap	lbs
PAMA	2050HR-M06	1	0.500	0.433	0.256	1.299	1.870	M06	0.315	0.02
	2062HR-M08	2	0.625	0.571	0.335	1.417	2.087	M08	0.315	0.04
	2075HR-M10	2	0.750	0.709	0.413	1.417	2.205	M10	0.315	0.06
	2100HR-M12	3	1.000	0.886	0.492	1.614	2.480	M12	0.315	0.10
	2125HR-M16	4	1.250	1.122	0.669	1.772	2.717	M16	0.315	0.18

Note) Through coolant type between Ø1/2~Ø1 1/2

• Parts

Screw	Wrench
ETNA02505,* ETNA02506	TW 07S

*PAMA2050, 2062

• Available Adaptors

Designation		Available Adaptors
PAMA	2050HR-M06	MATA - M06
	2062HR-M08	MATA - M08
	2075HR-M10	MATA - M10
	2100HR-M12	MATA - M12
	2125HR-M16	MATA - M16

Designation : PAMA2125HR-M16
Modular Head Threading Measure size(M16)
=
Adaptor Spec. : MATA-M16-354-S125S-C
Adaptor Threading Measure(M16)

• Available Inserts

VDKT-MA

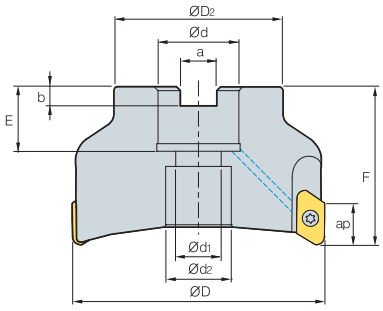
Designation	Uncoated
	H01
VDKT 21.52.5N-MA	●

● : Stock item ○ : Under preparing for stock

PAXCA5000/6000

• AR : 8°~17.5°
• RR : -9.5°~-5°

AA 0°



(inch)

Designation			ØD	ØD2	Ød	Ød1	Ød2	a	b	E	F	Max rpm	ap	lbs
PAXCA	5150HR-A,B	3	1.5	1.417	0.50	0.287	0.433	0.252	0.169	0.630	1.5	25,800	0.67	0.15
	5200HR-A,B	4	2.0	1.772	0.75	0.433	0.630	0.315	0.220	0.787	1.75	23,000	0.67	0.30
	5250HR-A,B	5(4)	2.5	1.772	0.75	0.433	0.630	0.315	0.220	0.787	1.75	20,500	0.67	0.56
	5300HR-A,B	5	3.0	2.205	1.00	0.551	0.827	0.374	0.236	0.866	2	18,200	0.67	1.00
	5400HR-A,B	6	4.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	16,300	0.67	2.30
	5500HR-A,B	7	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	14,600	0.67	3.20
	6200HR-A,B	2	2.0	1.772	0.50	0.287	0.433	0.252	0.169	0.630	1.75	23,000	0.91	0.32
	6250HR-A,B	3	2.5	1.772	0.75	0.433	0.630	0.315	0.220	0.787	2	20,500	0.91	0.53
	6300HR-A,B	4	3.0	2.205	1.00	0.551	1.260	0.374	0.236	0.866	2	18,200	0.91	0.73
	6400HR-A,B	5	4.0	2.874	1.25	0.709	1.024	0.510	0.319	0.866	2.5	16,300	0.91	1.70
	6400HR-A,B	5	4.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	16,300	0.91	1.90
	6500HR-A,B	6	5.0	3.386	1.50	0.827	1.220	0.626	0.394	1.181	2.5	14,600	0.91	3.06

• A type : Insert NoseR 0.016~0.126 B type : Insert NoseR 0.157~0.197
Note) Through coolant type between Ø1 1/2~Ø5

• Parts

	Screw	Wrench
5000Type	PTKA0408	TW 15S
6000Type	FTGA0513-P	TW 20-100

• Available Inserts

XEKT-MA

Type	Designation	Coated PD2000	Uncoated H01
5000Type	XEKT 19M504FR-MA	●	●
	19M508FR-MA	●	●
	19M512FR-MA	●	●
	19M516FR-MA	●	●
	19M518FR-MA	●	
	19M520FR-MA	●	●
	19M530FR-MA	●	●
	19M532FR-MA	●	●
	19M540FR-MA	●	●
	19M550FR-MA	●	●
6000Type	XEKT 250604FR-MA		●
	250608FR-MA		●
	250612FR-MA		●
	250616FR-MA		●
	250620FR-MA		●
	250630FR-MA		●
	250632FR-MA		●
	250640FR-MA		●
	250650FR-MA		●

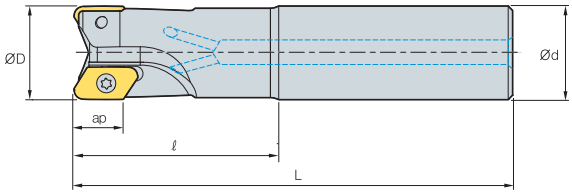
● : Stock item ○ : Under preparing for stock

PRO-X MILL

PAXSA5000/6000

• AR : 5°~10°
• RR : -14°~-5°

AA 0°



(inch)

Designation			ØD	Ød	ℓ	L	Max rpm	ap	lbs
PAXSA	5075HR-A,B	1	0.75	0.75	2.36	5.12	15,000	0.67	0.53
	5100HR-A,B	2	1	1	2.36	5.51	32,600	0.67	0.88
	5125HR-A,B	2	1.25	1.25	2.76	5.91	28,800	0.67	1.63
	5150HR-A,B	3	1.5	1.5	2.76	6.30	25,800	0.67	2.21
PAXSA	6100HR-A,B	1	1	1	2.36	5.51	32,600	0.91	0.93
	6125HR-A,B	1	1.25	1.25	2.76	5.91	28,800	0.91	1.68
	6150HR-A,B	2	1.5	1.5	2.76	6.30	25,800	0.91	2.65

• A type : Insert NoseR 0.016~0.126, B type : Insert NoseR 0.157~0.197
Note) Through coolant type between Ø3/4~Ø1 1/2

• Parts

	Screw	Wrench
5000Type	PTKA0408	TW 15S
6000Type	FTGA0510-P(Ø1.0~Ø1.25)	TW20-100
	FTGA0513-P(Ø1.5)	

• Available Inserts

XEKT-MA

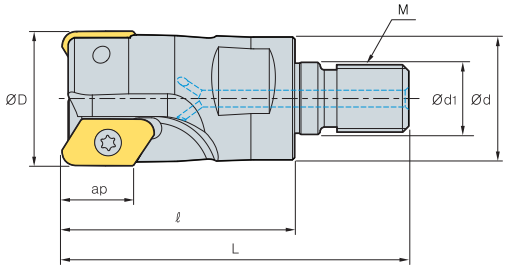
Type	Designation	Coated PD2000	Uncoated H01
5000Type	XEKT 19M504FR-MA	●	●
	19M508FR-MA	●	●
	19M512FR-MA	●	●
	19M516FR-MA	●	●
	19M518FR-MA	●	
	19M520FR-MA	●	●
	19M530FR-MA	●	●
	19M532FR-MA	●	●
	19M540FR-MA	●	●
	19M550FR-MA	●	●
6000Type	XEKT 250604FR-MA		●
	250608FR-MA		●
	250612FR-MA		●
	250616FR-MA		●
	250620FR-MA		●
	250630FR-MA		●
	250632FR-MA		●
	250640FR-MA		●
	250650FR-MA		●

● : Stock item ○ : Under preparing for stock

PAXMA5000

• AR : 6°~8°
• RR : -7°~-5°

AA 0°



(inch)

Designation			ØD	Ød	Ød1	ℓ	L	M	ap	lbs
PAXMA	5100HR-A,B-M12	2	1.00	0.906	0.492	2.165	3.110	M12	0.67	0.12
	5125HR-A,B-M16	2	1.25	1.142	0.669	2.165	3.228	M16	0.67	0.24
	5150HR-A,B-M16	3	1.50	1.142	0.669	2.165	3.228	M16	0.67	0.32

• A type : Insert NoseR 0.016~0.126 B type : Insert NoseR 0.157~0.197
Note) Through coolant type between Ø1~Ø1 1/2

• Parts

Screw	Wrench
PTKA0407/PTKA0408	TW 15S

• Available Adaptors

Designation	Available Adaptors
PAXMA 5100HR-A,B-M12	MATA - M12
5125HR-A,B-M16	MATA - M16
5150HR-A,B-M16	MATA - M16

Designation : PAXMA5125HR-M16
Modular Head Threading Measure size(M16)
=
Adaptor Spec. : MATA-M16-354-S125S-C
Adaptor Threading Measure(M16)

• Available Inserts

XEKT-MA

Designation		Coated	Uncoated
		PD2000	H01
XEKT	19M504FR-MA	●	●
	19M508FR-MA	●	●
	19M512FR-MA	●	●
	19M516FR-MA	●	●
	19M518FR-MA	●	
	19M520FR-MA	●	●
	19M530FR-MA	●	●
	19M532FR-MA	●	●
	19M540FR-MA	●	●
	19M550FR-MA	●	●

● : Stock item ○ : Under preparing for stock

MATA (Steel Shank type)

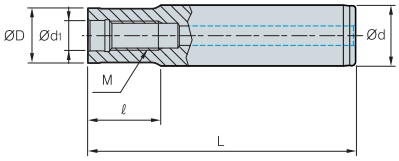


Fig. 1

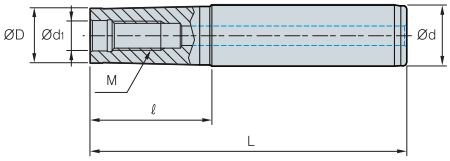


Fig. 2

(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	M08	1
	M6B-157-S050S	0.433	1/2	0.256	1.575	3.780	M10	1
	M6B-255-S063T	0.433	5/8	0.256	2.559	4.921	M12	1
	M6B-315-S063T	0.433	5/8	0.256	3.150	5.512	M16	1
	M08-078-S063S	0.571	5/8	0.335	0.787	3.150	M06	2
	M08-157-S063T	0.571	5/8	0.335	1.575	3.937	M06	2
	M08-255-S063T	0.571	5/8	0.335	2.559	4.921	M06	2
	M08-315-S075T	0.571	3/4	0.335	3.150	5.906	M06	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	M08	2
	M10-196-S075T	0.689	3/4	0.413	1.969	4.724	M08	2
	M10-275-S075T	0.689	3/4	0.413	2.756	5.512	M08	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	M10	2
	M12-196-S100T	0.906	1	0.492	1.969	5.118	M10	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	M12	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)

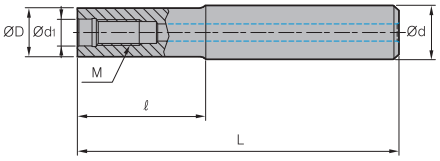


Fig. 1

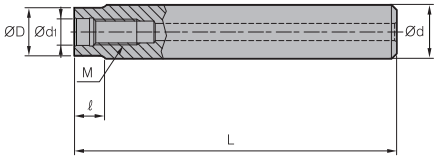


Fig. 2

(inch)

Designation		ØD	Ød	Ød1	ℓ	L	M	Fig.
MATA	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	5.890	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

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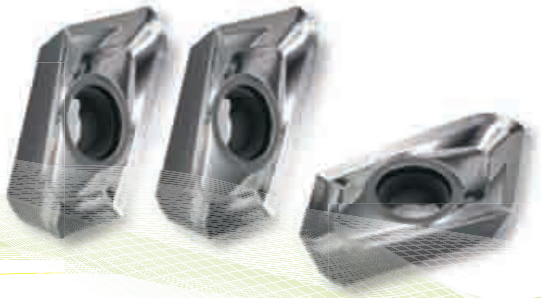

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