PRODUCT NEWS

PN-U-010

TYPE
MAM, AMX, MAL, ALX

DIJET®

AERO-CHIPPER SERIES

High Precision & High Efficient machining on Aluminum & Titanium Alloy for Aerospace & Electric Vehicles

- Aero-Chipper Mini type ø .625“~ ø 1.50“ (ø 16mm~ø 42mm)
- Aero-Chipper type ø .750“~ ø 4.00“ (ø 20mm~ø 160mm)

For Electric Vehicle & Aerospace Industries

Machining on Aluminum and Titanium Alloys!

NEW
MINI INSERT
XOET type

www.dijetusa.com

FEATURES

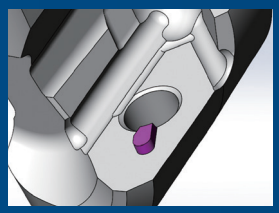
High precision & highly efficient machining possible for aluminum & titanium alloy in aerospace & electric vehicle tooling.

High efficiency

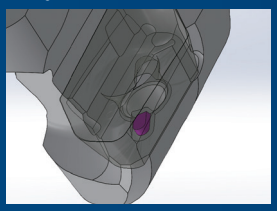
High metal removal rate.
High efficient machining possible.

Anti-movement keys

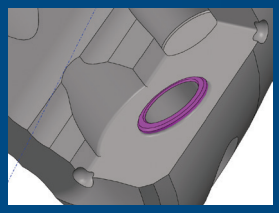
MAM



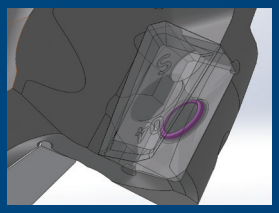
Key



MAL



Circle Key

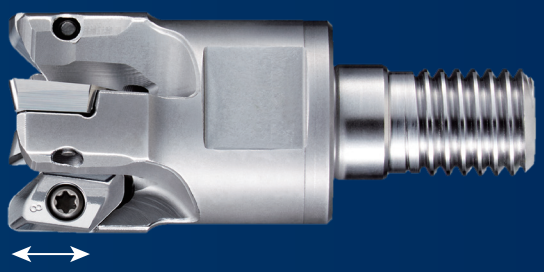


Inserts have keys, minimizing movement and allowing high velocity revolution.

Multi-purpose

Face milling, shoulder milling, ramping & helical interpolation are possible.

Aero-Chipper Mini MAM type



MAX. ap=8mm

Multi blades with small inserts.

High precision periphery ground inserts.

Capable of finishing with high accuracy on both side walls and bottom surfaces.

Four corner radii available: .016”, .031”, .062”, .078”

Aero-Chipper MAL type

MAX. ap=15mm

True 90 degrees shoulder milling with high accuracy inserts and body.

Ultra-rigid and improved body durability “G-Body” G-Body

Ten corner radii available: .008”, .016”, .031”, .047”, .062”, .078”, .098”, .118”, .126” & .158”

G-Body

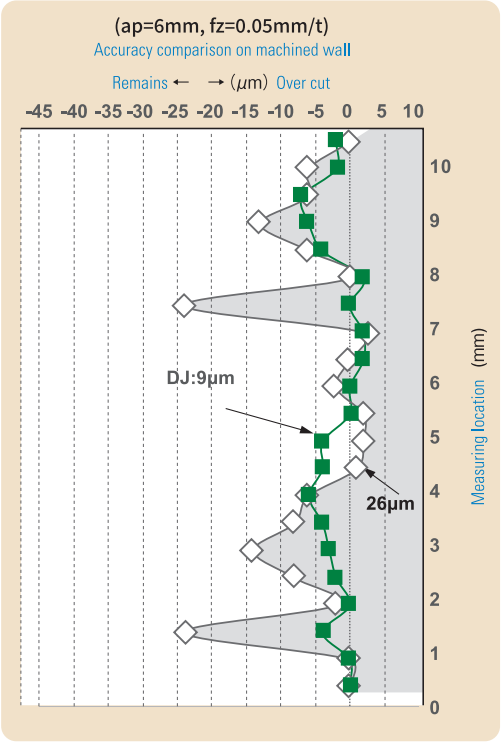
G-Body is a GN surface-hardened treatment on thermal resistant high strength steel giving a hardness over 65 HRC and secures insert pocket and holder against deformation improving body durability.

Aero-Chipper Mini

INCH METRIC

Cutting Performance

Machining accuracy



A7075 Material
Insert grade : FZ05 ●Tool dia. : Φ16

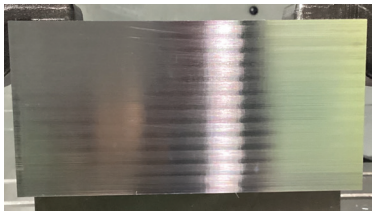
● Cutting conditions

ℓ=70(mm) Vf=1,200 (mm/min) n=12,000 (min-¹)
ap=6(mm)(2 passes) ae=0.5(mm)

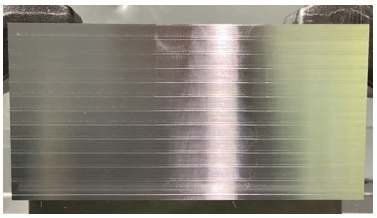
Aero-Chipper MINI showed
4 times better accuracy.

Comparison of machining surface quality

DIJET



Competitor Q



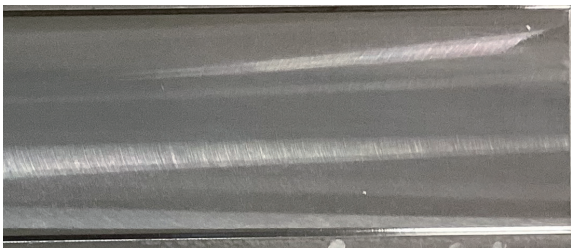
A7075 Material
Insert grade : FZ05 ●Tool dia. : Φ16

● Cutting conditions

ℓ=70(mm) Vf=1,200 (mm/min) n=12,000 (min-¹)
ap=4(mm) ae=0.5(mm)

Competitor Q has a line.
MAM achieved a beautiful finished surface.

Comparison of machining surface of slotting



A5052 Material
Insert grade : FZ05 ●Tool dia. : Φ25

● Cutting conditions

ℓ=150(mm) Vf=1,200 (mm/min) n=9,000 (min-¹)
ap=2.5(mm) ae=25(mm)

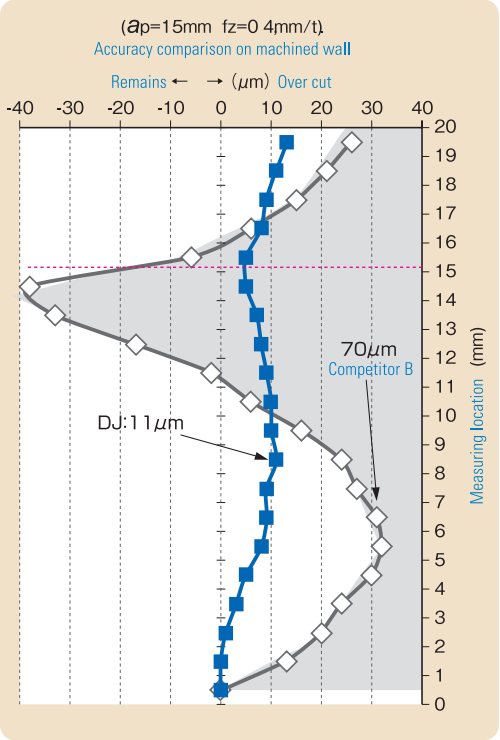
In case of groove processing
a surface of 3 tooth type Φ25 is better.

INCH METRIC

Aero-Chipper

Cutting Performance

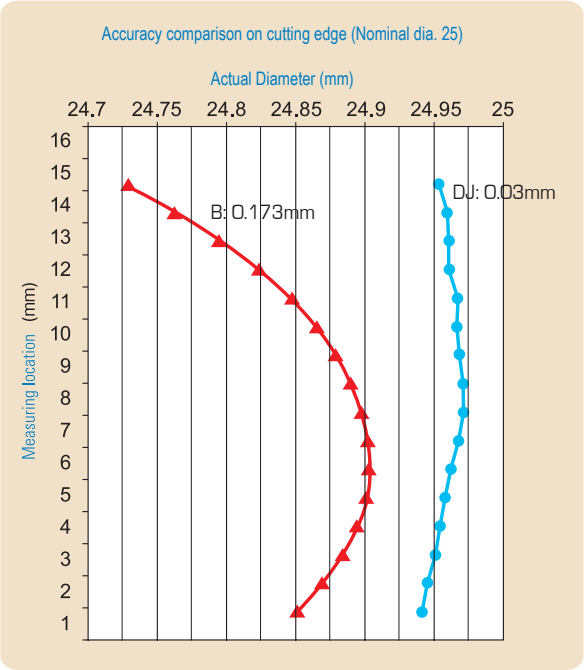
Machining accuracy



- Tool dia.: φ25
  MAL+MSN(carbide shank)
- Work material: A5056

n=20,000(min⁻¹)
Vc=1,570(m/min)
ap=15(mm) (2 passes)
ae=3(mm)
Wet,Down cut

Aero-Chipper showed
4 times better accuracy.



- Tool dia.: φ25
  MAL+MSN(carbide shank)
- Work material: A5056

n=20,000(min⁻¹)
Vc=1,570(m/min)
ap=15(mm) (2 passes)
ae=3(mm)
Wet,Down cut

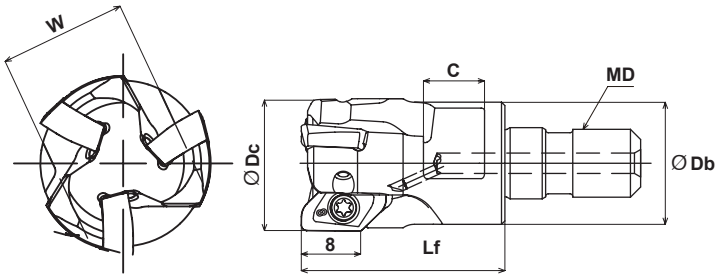
Aero-Chipper showed more precise dimension on diameter than competitor B.

Aero-Chipper Mini

INCH METRIC

MAM TYPE

Modular Heads



Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS						HEAD TORQUE LBS/FT	INSERT	Q	PARTS	
		Ø Dc	Lf	Ø Db	MD	C	W				Screw	Wrench
MAM-2062-M8	•	.625	.905	.551	M8	.315	.472	11.8	XOET0803**PDFR	2	TSW-2556H	T-08
MAM-3075-M10	•	.750	1.18	.708	M10	.354	.551	11.8		3		
MAM-3100-M12	•	1.00	1.38	.866	M12	.433	.748	14.7		3	TSW-2567H	
MAM-4100-M12	•	1.00	1.38	.866	M12	.433	.748	14.7		4		
MAM-5125-M16	•	1.25	1.69	1.14	M16	.472	.866	18.4		5		
MAM-6150-M16	•	1.50	1.69	1.26	M16	.551	1.02	18.4		6		

Note: Modular Head holders on page 18

Note: All cutters supplied without inserts, wrench, & moly.

Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS						HEAD TORQUE (Nm)	INSERT	Q	PARTS	
		Ø Dc	Lf	Ø Db	MD	C	W				Screw	Wrench
MAM-2016-M8	•	16	23	14	M8	8	12	16	XOET0803**PDFR	2	TSW-2556H	T-08
MAM-3020-M10	•	20	30	18	M10	9	14	16		3		
MAM-3025-M12	•	25	35	22	M12	11	19	20		3	TSW-2567H	
MAM-4025-M12	•	25	35	22	M12	11	19	20		4		
MAM-4028-M12	•	28	35	23.6	M12	11	19	20		4		
MAM-4030-M16	•	30	43	27	M16	12	22	25		4		
MAM-5032-M16	•	32	43	29	M16	12	22	25		5		
MAM-5035-M16	•	35	43	32	M16	14	26	25		5		
MAM-6040-M16	•	40	43	32	M16	14	26	25		6		
MAM-6042-M16	•	42	43	32	M16	14	26	25		6		

Note: Modular Head holders on page 18

Note: All cutters supplied without inserts, wrench, & moly.

Maximum Spindle Speed

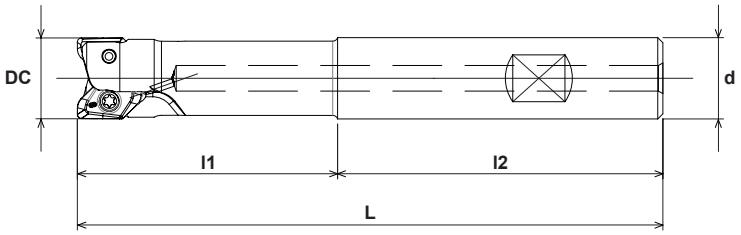
CATALOG NUMBER	MAXIMUM SPINDLE SPEED (min-1)
MAM-2062-M8 / MAM-2016-M8	40,000
MAM-3075-M10 / MAM-3020-M10	
MAM-3100-M12 / MAM-3025-M12	
MAM-4100-M12 / MAM-4025-M12	
MAM-4028-M12	36,000
MAM-4030-M16	34,000
MAM-5125-M16 / MAM-5032-M16	33,000
MAM-5035-M16	31,000
MAM-6150-M16 / MAM-6040-M16	28,000
MAM-6042-M16	27,000

Note: over 1,000 spindle speed, adjust arbor with holder to grade G6.3 of the machines balance quality requirements (JIS B 0905)

INCH METRIC

Aero-Chipper Mini

AMX TYPE — End Mills

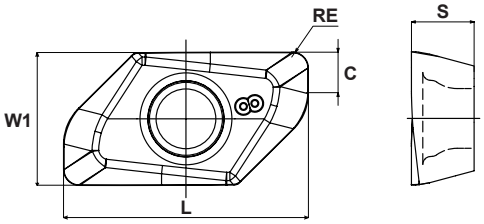


Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS					INSERT	Q	PARTS	
		Dc	L	l1	l2	d			Screw	Wrench
AMX-2062-1.25-S062NP	•	.625	3.75	1.25	2.50	.625	XOET0803**PDFR	2	TSW-2556H	T-08
AMX-2062-2.0-S062NP	•	.625	4.50	2.00	2.50	.625		2		
AMX-3075-1.5-S075NP	•	.750	4.50	1.50	3.00	.750		3		
AMX-3075-2.5-S075NP	•	.750	5.50	2.50	3.00	.750		3		
AMX-3100-2.0-S100NP	•	1.00	5.50	2.00	3.50	1.00		3	TSW-2567H	
AMX-3100-3.0-S100NP	•	1.00	6.50	3.00	3.50	1.00		3		
AMX-4100-2.0-S100NP	•	1.00	5.50	2.00	3.50	1.00		4		
AMX-4100-3.0-S100NP	•	1.00	6.50	3.00	3.50	1.00		4		
AMX-5125-2.5-S125NP	•	1.25	6.00	2.50	3.50	1.25		5		
AMX-5125-3.75-S125NP	•	1.25	7.25	3.75	3.50	1.25		5		

Note: All cutters are supplied without inserts, wrench & moly.

XOET TYPE — Insert



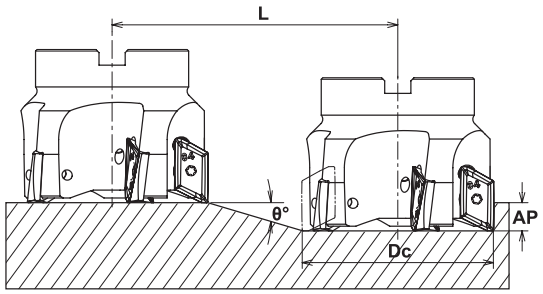
Specifications - Metric

CATALOG NUMBER	TOLERANCE	DIMENSIONS					UNCOATED
		L	W1	S	rε	C	FZ05
XOET080304PDFR	E	12.5	6.8	3.2	0.4	1.7	•
XOET080308PDFR		12.5	6.8	3.2	0.8	3	•
XOET080316PDFR		12.5	6.8	3.2	1.6	2.9	•
XOET080320PDFR		12.5	6.8	3.2	2	3	•

Aero-Chipper Mini

INCH METRIC

Recommended Cutting Data for Ramping



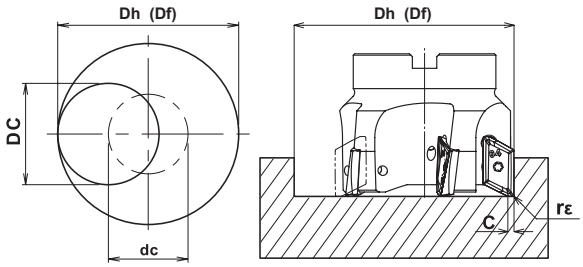
In case of ramping - apply 70% or less feed from standard cutting condition table.

	CATALOG NUMBER	Tool Diameter (Dc)	Effective Cutting Diameter	Max. Depth of Cut: AP	Ramping		Drilling
					Max. Ramp Angle	Total Cutting Length at Max. AP: L	Max. Depth of Cut
INCH	MAM-2062-M8/AMX-2062-*	.625”	.625”-2xR	.197”	18°	.606”	.098”
INCH	MAM-3075-M10/AMX-3075-*	.750”	.750”-2xR	.197”	14°	.791”	.098”
INCH	MAM-*100-M12/AMX-*100-*	1.00”	1.00”-2xR	.197”	10°	1.118”	.098”
INCH	MAM-5125-M16/AMX-5125-*	1.25”	1.25”-2xR	.197”	7°	1.602”	.098”
INCH	MAM-6150-M16	1.50”	1.50”-2xR	.197”	5°	2.252”	.098”
METRIC	MAM-2016-M8	16	16-2xR	5	18°	15.4	2.5
METRIC	MAM-3020-M10	20	20-2xR	5	14°	20.1	2.5
METRIC	MAM-*025-M12	25	25-2xR	5	10°	28.4	2.5
METRIC	MAM-4028-M12	28	28-2xR	5	8.5°	33.5	2.5
METRIC	MAM-4030-M16	30	30-2xR	5	7.5°	38	2.5
METRIC	MAM-5032-M16	32	32-2xR	5	7°	40.7	2.5
METRIC	MAM-5035-M16	35	35-2xR	5	6°	47.6	2.5
METRIC	MAM-6040-M16	40	40-2xR	5	5°	57.2	2.5
METRIC	MAM-6042-M16	42	42-2xR	5	5°	57.2	2.5

INCH METRIC

Aero-Chipper Mini

Recommended Cutting Data for Helical Interpolation



Down cutting is recommended, tool pass rotation should be counterclockwise.

Depth of cut per one circuit should not exceed max. depth of cut Ap.

Dh: through hole
Df: flat bottom

	Tool Diameter (Dc)	Effective Cutting Diameter	Max. Depth of Cut: AP	Through Hole		Flat Bottom			
				Min. Bore dia: Dh min	Max. Bore dia: Dh max	Min. Bore dia: Df min Radius 0.4mm	Min. Bore dia: Df min Radius 0.8mm	Min. Bore dia: Df min Radius 1.6mm	Min. Bore dia: Df min Radius 2.0mm
INCH	.625”	.625”-2xR	.197”	.778”	1.210”	1.132”	1.112”	1.053”	1.033”
	.750”	.750”-2xR	.197”	1.028”	1.460”	1.382”	1.362”	1.303”	1.283”
	1.00”	1.00”-2xR	.197”	1.528”	1.960”	1.882”	1.862”	1.803”	1.783”
	1.25”	1.25”-2xR	.197”	2.028”	2.460”	2.382”	2.362”	2.303”	2.283”
	1.50”	1.50”-2xR	.197”	2.528”	2.960”	2.882”	2.862”	2.803”	2.783”
METRIC	16	16-2xR	5	20	31	29	28.5	27	26.5
	20	20-2xR	5	28	39	37	36.5	35	34.5
	25	25-2xR	5	38	49	47	46.5	45	44.5
	28	28-2xR	5	44	55	53	52.5	51	50.5
	30	30-2xR	5	48	59	57	56.5	55	54.5
	32	32-2xR	5	52	63	61	60.5	59	58.5
	35	35-2xR	5	58	69	67	66.5	65	64.5
	40	40-2xR	5	68	79	77	76.5	75	74.5
	42	42-2xR	5	72	83	81	80.5	79	78.5

Recommended Cutting Data for Aero-Chipper Mini

Material	Insert Grade	SFM	Face Milling		Side Milling	
			ROUGHING	FINISHING	ROUGHING	FINISHING
Aluminum Alloy	FZ05	SFM	3,000-6,000	6,000	3,000-6,000	6,000
		IPT	.006”-.008”	.004”	.006”-.008”	.004”-.006”
		DOC	.080”-.120”	.015”	.310”	.12”
		WOC	70%	70%	up to 20% of Dc	.008”
Plastic (Free machining)	FZ05	SFM	1,000-1,500	2,000	1,200	1,500
		IPT	.015”	.004”	.020”	.004”-.008”
		DOC	.080”-.120”	.015”	.270”	.12”
		WOC	60%	60%	up to 15% of Dc	.008”

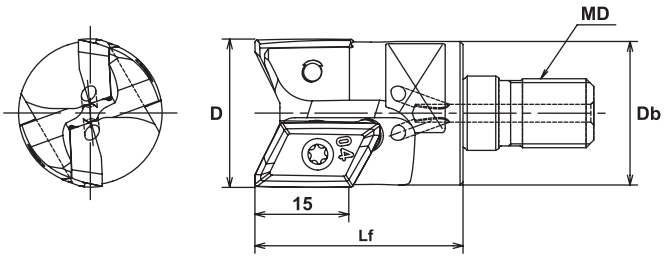
Aero-Chipper

INCH METRIC

MAL TYPE

Modular Heads

G-Body



Modular Head Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS				HEAD TORQUE		INSERT	Q	PARTS	
		D	Lf	Db	MD	Nm	lbs/ft			Screw	Wrench
MAL-1075-M10LG	•	.750	1.38	.728	M10	16	11.8	XOGT1605**PD*R	1	DSW-4075H	T-15
MAL-2100-M12	•	1.00	1.38	.945	M12	20	14.7		2	DSW-4085	
MAL-2125-M16LG	•	1.25	1.69	1.14	M16	25	18.4		2		
MAL-3150-M16	•	1.50	1.69	1.25	M16	25	18.4		3		

Note: Modular Head Holders on page 18.

Note: All cutters supplied without inserts, wrench, & moly.

Modular Head Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS				HEAD TORQUE		INSERT	Q	PARTS	
		D	Lf	Db	MD	Nm	lbs/ft			Screw	Wrench
MAL-1020-M10	•	20	35	19.5	M10	16	11.8	XOGT1605**PD*R	1	DSW-4075H	T-15
MAL-2025-M12	•	25	35	24	M12	20	14.7		2	DSW-4085	
MAL-2028-M12	•	28	35	24	M12	20	14.7		2		
MAL-2030-M16	•	30	43	28	M16	25	18.4		2		
MAL-2032-M16	•	32	43	29	M16	25	18.4		2		
MAL-2035-M16	•	35	43	29	M16	25	18.4		2		
MAL-3040-M16	•	40	43	32	M16	25	18.4		3		

Note: Modular Head Holders on page 18.

Note: All cutters supplied without inserts, wrench, & moly.

Maximum Spindle Speed

CATALOG NUMBER	MAXIMUM SPINDLE SPEED (min-1)
MAL-1075-M10 / MAL-1020-M10	15,000
MAL-2100-M12 / ALX-2100-** / MAL-2025-M10 / ALXM2025S25	40,000
MAL-2028-M12 / ALXM2028S25	36,000
MAL-2030-M16	34,000
MAL-2125-M16LG / ALX-2125-** / MAL-2032-M16 / ALXM2032S32	33,000
MAL-2035-M16 / ALXM2035S32	31,000
MAL-3150-M16 / MAL-3040-M16 / ALXM3040S32	28,000

Note: over 1,000 spindle speed, adjust arbor with holder to grade G6.3 of the machines balance quality requirements (JIS B 0905)

INCH METRIC

Aero-Chipper

ALX TYPE

End Mills

G-Body

Fig. 1

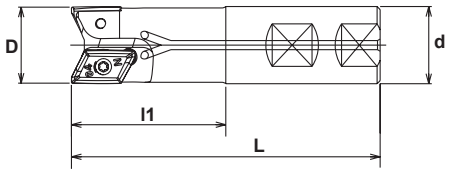
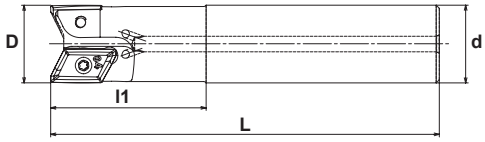


Fig. 2



Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS				FIG.	INSERT	Q	PARTS	
		D	l1	L	d				Screw	Wrench
ALX-1075-2.0-S075LG	•	.750	2.0	4.0	.750	1	XOGT1605**PD*R	1	DSW-4075H	T-15
ALX-2100-2.0-S100LG	•	1.00	2.0	4.0	1.00	1		2	DSW-4085	
ALX-2100-4.0-S100LG	•	1.00	4.0	6.0	1.00	1		2		
ALX-2125-2.0-S125LG	•	1.25	2.0	4.0	1.25	1		2		
ALX-2125-4.0-S125LG	•	1.25	4.0	6.0	1.25	1		2		

Note: All cutters supplied without inserts, wrench, & moly.

Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS				FIG.	INSERT	Q	PARTS	
		D	l1	L	d				Screw	Wrench
ALXM1020S20	•	20	35	110	20	2	XOGT1605**PD*R	1	DSW-4075H	T-15
ALXM2025S25	•	25	50	125	25	2		2	DSW-4085	
ALXM2028S25	•	28	50	125	25	2		2		
ALXM2032S32	•	32	50	150	32	2		2		
ALXM2035S32	•	35	50	150	32	2		2		
ALXM3040S32	•	40	80	170	32	2		3		

Note: All cutters supplied without inserts, wrench, & moly.

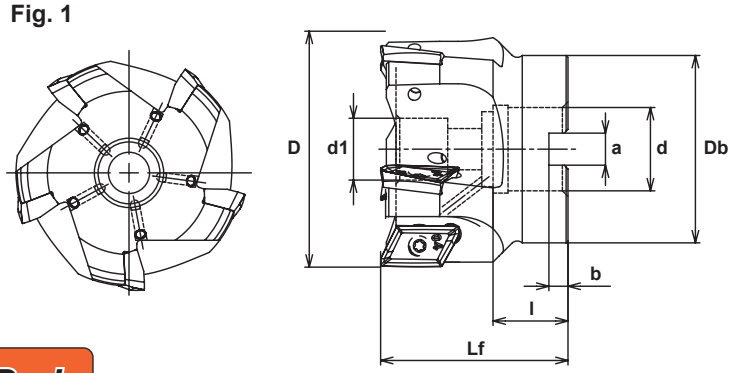
Aero-Chipper

INCH METRIC

ALX TYPE

Face Mills

Fig. 1



G-Body Specifications - Inch

G-Body

CATALOG NUMBER	STK	DIMENSIONS								FIG.	INSERT	Q	PARTS	
		D	Lf	Db	d	d1	a	b	l				Screw	Wrench
ALX-3200-75R-15	•	2.00	2.0	1.85	.750	.63	.319	.197	.75	1	XOGT1605**PD*R	3	DSW-4085	T-15
ALX-4200-75R-16LG	•	2.00	2.0	1.85	.750	.63	.319	.197	.75	1		4		
ALX-5300-100R-16LG	•	3.00	2.0	2.28	1.00	.827	.374	.236	.75	1		5		
ALX-5300-125R-16LG	•	3.00	2.5	2.85	1.25	1.02	.500	.315	1.25	1		5		

Note: All cutters supplied without inserts, wrench, & moly.

NP Body Specifications - Inch & Metric

	CATALOG NUMBER	STK	DIMENSIONS								FIG.	INSERT	Q	PARTS	
			D	Lf	Db	d	d1	a	b	l				Screw	Wrench
INCH	ALX-3200-75R-16NP-DD	•	2.00	2.0	1.85	.750	.63	.319	.197	.75	1	XOGT1605**PD*R	3	DSW-4085	T-15
	ALX-4200-75R-16NP	•	2.00	2.0	1.85	.750	.63	.319	.197	.75	1		4		
	ALX-3250-100R-16NP	•	2.50	2.0	2.28	1.00	.78	.374	.236	.75	1		3		
	ALX-4300-100R-16NP	•	3.00	2.0	2.28	1.00	.78	.374	.236	.75	1		4		
	ALX-4300-125R-16NP	•	3.00	2.5	2.83	1.25	1.02	.500	.315	1.25	1		4		
	ALX-5400-150R-16NP	•	4.00	2.75	3.78	1.50	1.26	.626	.393	1.41	1		5		
MM	ALX-3052R-22-16NP	•	52	50	47	22	16.5	10.4	6.3	20	1	XOGT1605**PD*R	3	DSW-4085	T-15
	ALX-7160R-200-16NP	•	160	70	100	50.8	72	19	11	43	1		7		

Note: All cutters supplied without inserts, wrench, & moly.

G-Body Specifications - Metric

G-Body

CATALOG NUMBER	STK	DIMENSIONS								FIG.	INSERT	Q	PARTS	
		D	Lf	Db	d	d1	a	b	l				Screw	Wrench
ALX-4050R	•	50	50	45	22.225	16.5	8.4	5	20	1	XOGT1605**PD*R	4	DSW-4085	T15
ALX-4050R-22	•	50	50	45	22	16.5	10.4	6.3	20	1		4		
ALX-5063R	•	63	50	50	22.225	16.5	8.4	5	20	1		5		
ALX-5063R-22	•	63	50	50	22	16.5	10.4	6.3	20	1		5		

Note: All cutters supplied without inserts, wrench, & moly.

INCH METRIC

Aero-Chipper

XOGT TYPE

Inserts

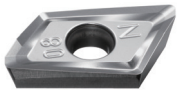


Fig. 1

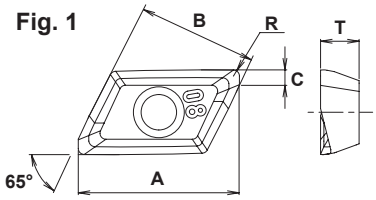
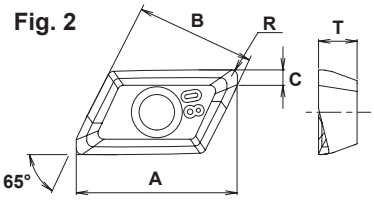


Fig. 2



Insert Specifications

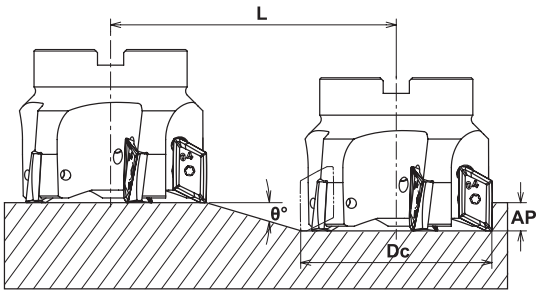
CATALOG NUMBER	TOLERANCE	FIG.	DIMENSIONS					PVD Coated	
			A	B	C	T	R	UNCOATED	PVD COATED
								FZ05	JC5118
XOGT160502PDFR	G	1	20.8	16.35	2.5	5	0.2	•	
XOGT160504PDFR	G	1	21.0	16.35	2.4	5	0.4	•	
XOGT160508PDFR	G	1	20.9	16.35	2.4	5	0.8	•	
XOGT160512PDFR	G	1	20.8	16.35	2.5	5	1.2	•	
XOGT160516PDFR	G	1	20.7	16.35	2.6	5	1.6	•	
XOGT160520PDFR	G	1	20.4	16.35	2.8	5	2.0	•	
XOGT160525PDFR	G	1	20.3	16.35	3.0	5	2.5	•	
XOGT160530PDFR*	G	1	19.8	16.35	3.3	5	3.0	•	
XOGT160532PDFR*	G	1	19.6	16.35	3.5	5	3.2	•	
XOGT160502PDER	G	2	20.8	16.35	2.5	5	0.2		•
XOGT160504PDER	G	2	21.1	16.35	2.4	5	0.4		•
XOGT160508PDER	G	2	20.9	16.35	2.4	5	0.8		•
XOGT160512PDER	G	2	20.8	16.35	2.5	5	1.2		•
XOGT160516PDER	G	2	20.7	16.35	2.6	5	1.6		•
XOGT160520PDER	G	2	20.4	16.35	2.8	5	2.0		•
XOGT160530PDER*	G	2	19.8	16.35	3.3	5	3.0		•
XOGT160532PDER*	G	2	19.6	16.35	3.5	5	3.2		•

*** Note: Body must be modified to .059" radius or .047" chamfer at corner to use these inserts.**

Aero-Chipper

INCH METRIC

Recommended Cutting Data for Ramping



In case of ramping - apply 70% or less feed from standard cutting condition table.

	CATALOG NUMBER	Tool Diameter (Dc)	Effective Cutting Diameter	Max. Depth of Cut: AP	Aluminum		Stainless, Titanium	
					Max. Ramp Angle	Total Cutting Length at Max. AP: L	Max. Ramp Angle	Total Cutting Length at Max. AP: L
INCH	MAL-1075-M10/ALX-1075*	.750”	.75” - 2xR	.315”	16°	1.10”	10°	1.77”
INCH	MAL-2100-M12/ALX-2100*	1.00”	1” - 2xR	.315”	11°	1.61”	9°	2.56”
INCH	MAL-2125-M16/ALX-2125*	1.25”	1.25” - 2xR	.315”	7°	2.56”	6°	2.99”
INCH	MAL-3150-M16	1.50”	1.5” - 2xR	.315”	5°	3.58”	5°	3.58”
INCH	ALX-*200*	2.00”	2” - 2xR	.315”	4°	4.49”	4°	4.49”
INCH	ALX-3250-100R-16NP	2.50”	2.5” - 2xR	.315”	3°	6.02”	3°	6.02”
INCH	ALX-*300*	3.00”	3” - 2xR	.315”	2.5°	7.18”	2.5°	7.18”
INCH	ALX-5400-150R-16NP	4.00”	4” - 2xR	.315”	2°	8.98”	2°	8.98”
METRIC	MAL-1020-M10/ALXM1020*	20	20 - 2xR	8	16°	28	10°	45
METRIC	MAL-2025-M12/ALXM2025*	25	25 - 2xR	8	11°	41	9°	51
METRIC	MAL-2028-M12/ALX2028*	28	28 - 2xR	8	9°	51	7°	65
METRIC	MAL-2030-M16	30	30 - 2XR	8	8°	57	6°	76
METRIC	MAL-2032-M16/ALXM2032*	32	32 - 2xR	8	7°	65	6°	76
METRIC	MAL-2035-M16/ALXM2035*	35	35 - 2xR	8	6°	76	6°	76
METRIC	MAL-3040-M16/ALXM3040*	40	40 - 2xR	8	5°	91	5°	91
METRIC	ALX-4050R-*	50	50 - 2xR	8	4°	114	4°	114
METRIC	ALX-3052-100R-16NP	52	52 - 2xR	8	3.5°	131	3.5°	131
METRIC	ALX-5063R-*	63	63 - 2xR	8	3°	153	3°	153
METRIC	ALX-7160R-200-16NP	160	160 - 2xR	8	1.5°	306	1.5°	306

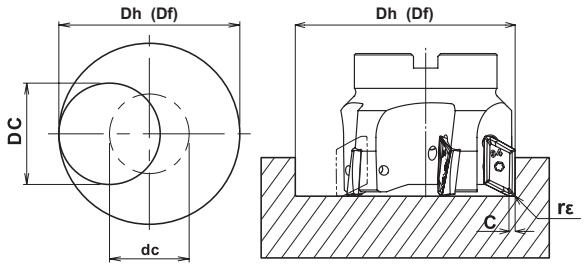
Drilling

Corner Radius R(mm)	Max. Depth of Cut
RE	Z
R2.5 or below	3mm (.118”)
R3/R3.2	2mm (.078”)
R4	1.5mm (.059”)

INCH METRIC

Aero-Chipper

Recommended Cutting Data for Helical Interpolation



Down cutting is recommended, tool pass rotation should be counterclockwise.

Depth of cut per one circuit should not exceed max. depth of cut Ap.

Dh: through hole
Df: flat bottom

Tool Diameter		R0.4mm ~ R1.6mm			R2.0mm			R2.5mm ~ R3.2mm			R4.0mm			Max. Depth of Cut	
		Min. Bore Dia: Dh min	Max. Bore Dia: Dh max	Min. Bore Dia: Df min	Min. Bore Dia: Dh min	Max. Bore Dia: Dh max	Min. Bore Dia: Df min	Min. Bore Dia: Dh min	Max. Bore Dia: Dh max	Min. Bore Dia: Df min	Min. Bore Dia: Dh min	Max. Bore Dia: Dh max	Min. Bore Dia: Df min	Aluminum	Stainless Titanium
INCH	.750”	.909”	1.406”	1.382”	.909”	1.406”	1.303”	.909”	1.406”	1.264”	.870”	1.406”	1.185”	.591”	.354”
	1.00”	1.409”	1.906”	1.882”	1.409”	1.906”	1.803”	1.370”	1.906”	1.764”	1.331”	1.906”	1.685”	.511”	.433”
	1.25”	1.909”	2.460”	2.382”	1.909”	2.460”	2.303”	1.870”	2.460”	2.264”	1.831”	2.460”	2.185”	.433”	.394”
	1.50”	2.409”	2.960”	2.843”	2.370”	2.960”	2.803”	2.370”	2.960”	2.764”	2.331”	2.960”	2.685”	.394”	.394”
	2.00”	3.409”	3.960”	3.843”	3.370”	3.960”	3.803”	3.370”	3.960”	3.764”	3.331”	3.960”	3.685”	.394”	.394”
	2.50”	4.409”	4.960”	4.843”	4.370”	4.960”	4.803”	4.330”	4.960”	4.764”	4.331”	4.960”	4.685”	.394”	.394”
	3.00”	5.409”	5.960”	5.843”	5.370”	5.960”	5.803”	5.330”	5.960”	5.764”	5.331”	5.960”	5.685”	.394”	.394”
	4.00”	7.409”	7.960”	7.843”	7.370”	7.960”	7.803”	7.330”	7.960”	7.764”	7.331”	7.960”	7.685”	.394”	.394”
METRIC	20	25	39	37	25	39	35	25	39	34	24	39	32	15	9
	25	35	49	47	35	49	45	34	49	44	33	49	42	13	11
	28	41	55	53	41	55	51	40	55	50	39	55	48	12	10
	30	45	59	56	45	59	55	44	59	54	43	59	52	11	10
	32	49	63	60	49	63	59	48	63	58	47	63	56	11	10
	35	56	69	67	55	69	65	54	69	64	53	69	62	11	11
	40	66	79	77	65	79	75	64	79	74	63	79	72	10	10
	50	85	99	96	84	99	95	84	99	94	82	99	92	10	10
	52	89	103	100	88	103	99	88	103	98	86	103	96	10	10
	63	111	125	122	110	125	121	109	125	120	108	125	118	10	10
	160	305	319	316	304	319	315	303	319	314	301	319	312	10	10

Recommended Cutting Data for Aero-Chipper

Material	Insert Grade	SFM	Face Milling		Side Milling	
			ROUGHING	FINISHING	ROUGHING	FINISHING
Aluminum Alloy	FZ05	SFM	1,500-4,000	3,000-5,000	1,500-4,000	3,000 - 5,000
		IPT	.015”-.025”	.004”	.015”-.025”	.004”-.008”
		DOC	.060”-.120”	.020”	.590”	.200”
		WOC	70%	70%	up to 20% of Dc	.008”
Stainless Steel	JC5118	SFM	400	480	500	650
		IPT	.004”	.004”	.004”	.004”
		DOC	.040”-.080”	.008”	.200”	.100”
		WOC	60%	60%	up to 5% of Dc	.008”
Titanium Alloy	JC5118	SFM	200	240	600	780
		IPT	.003”	.003”	.003”	.003”
		DOC	.060”-.120”	.006”	.300”	.120”
		WOC	40%	40%	up to 5% of Dc	.008”

Aero-Chipper Mini

INCH METRIC

Cutting Data

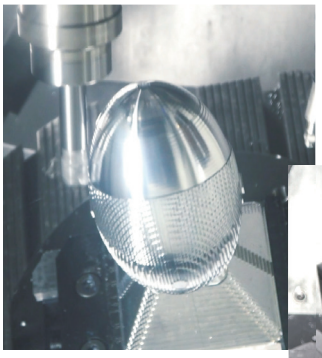
Pocket milling for aluminum alloy

Work	Part Name		Parts
	Material		A5083
	Hardness		-
Tool	Tool No.		MAM-4025-M12
	Insert No. / Grade		XOET080308PDFR (FZ05)
Cutting Conditions	Spindle Speed	n	11,600 (min-1)
	Cutting Speed	Vc	910 (m/min)
	Feed Speed	Vf	9,600 (mm/min)
	Feed	fz	0.2 (mm/t)
	a_p		1.5 (mm)
	a_e		15 (mm)
	Coolant		Water coolant (internal)
	Machine		Vertical MC

Result

Aero-Chipper Mini removed maximum Q=216cm^3.
No chattering even on thin shape work.

Rugby ball in aluminum alloy



Work	Part Name		Rough Machining of Base	Semi-finishing of Curved Surface
	Material		A5083	
	Hardness		-	
Tool	Tool No.		MAM-2016-M8	
	Insert No. / Grade		XOET080308PDFR (FZ05)	
Cutting Conditions	Spindle Speed	n	12,000 (min-1)	
	Cutting Speed	Vc	603 (m/min)	
	Feed Speed	Vf	4,800 (mm/min)	
	Feed	fz	0.2 (mm/t)	
	a_p		4 (mm)	3 (mm)
	a_e		3 (mm)	0.5 (mm)
	Coolant		Water coolant (internal)	
	Machine		Vertical MC (5 axis)	

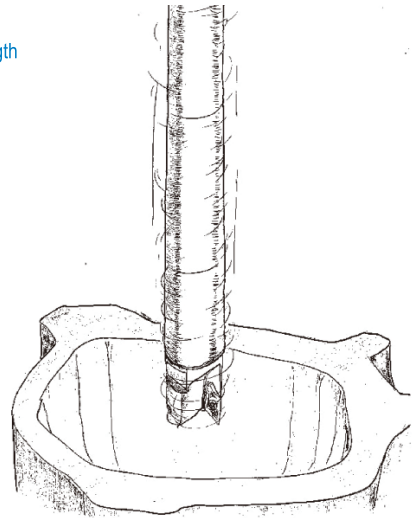
Result

Able to semi finish with 5 axis machine.

Cutting Data

Pocket milling on aluminum alloy

338mm
over hung length



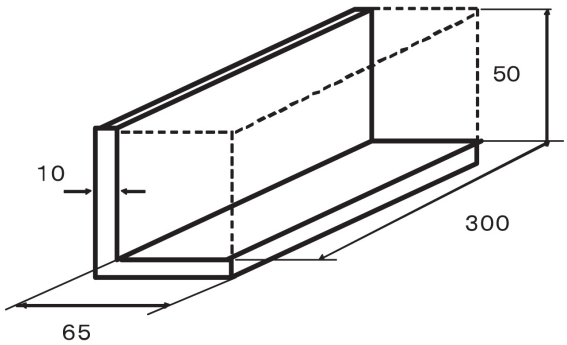
Work	Part Name		Engine housing
	Material		A6061
	Hardness		-
Tool	Tool No.		MAM-2032-M16
	Insert No. / Grade		XOGT160508PDFR (JC5118)
Cutting Conditions	Spindle Speed	n	1,600 (min-1)
	Cutting Speed	Vc	100 (m/min)
	Feed Speed	Vf	800 (mm/min)
	Feed	fz	0.32 (mm/t)
	a_p		0.2 (mm)
	a_e		21 (mm)
	Coolant		Water coolant (internal)
	Machine		Vertical MC

Result

Successful machining of 10D overhang from rough machining to finishing in one shot.

Titanium alloy (thin shape work)

100mm
over hung length



Work	Part Name		Aircraft parts
	Material		Ti-6Al-4V
	Hardness		41HRC
Tool	Tool No.		ALX5063R
	Insert No. / Grade		XOGT160508PDFR (JC5118)
Cutting Conditions	Spindle Speed	n	200 (min-1)
	Cutting Speed	Vc	40 (m/min)
	Feed Speed	Vf	100 (mm/min)
	Feed	fz	0.1 (mm/t)
	a_p		8 (mm)
	a_e (4 passes)		40/20/10/5 (mm)
	Coolant		Water soluble (external)
	Machine		Vertical MC

Result

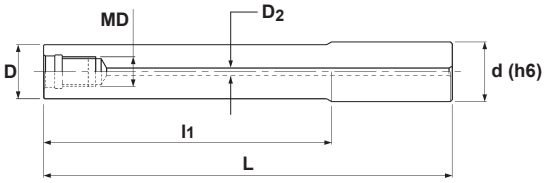
Aero-Chipper removed maximum Q=32cm³.
No chatter even on such a thin shape work piece.

Modular Head Holders

INCH

MSN TYPE

Solid Carbide Coolant Thru



Specifications

CATALOG NUMBER	STK	DIMENSIONS					
		D	l1	L	d	MD	D2
MSN-M8-0.5-S062C	•	.591	.500	3.50	.625	M8	.157
MSN-M8-1.0-S062C	•	.591	1.00	4.00	.625	M8	.157
MSN-M8-2.0-S062C	•	.591	2.00	5.00	.625	M8	.157
MSN-M8-4.0-S062C	•	.591	4.00	7.00	.625	M8	.157
MSN-M8-6.0-S062C	•	.591	6.00	9.00	.625	M8	.157
MSN-M10-0.5-S075C	•	.728	.500	3.50	.750	M10	.157
MSN-M10-1.0-S075C	•	.728	1.00	4.00	.750	M10	.157
MSN-M10-2.0-S075C	•	.728	2.00	5.00	.750	M10	.157
MSN-M10-3.0-S075C	•	.728	3.00	6.00	.750	M10	.157
MSN-M10-4.0-S075C	•	.728	4.00	7.00	.750	M10	.157
MSN-M10-5.0-S075C	•	.728	5.00	8.00	.750	M10	.157
MSN-M10-6.0-S075C	•	.728	6.00	9.00	.750	M10	.157
MSN-M12-0.5-S100C	•	.945	.500	3.50	1.00	M12	.236
MSN-M12-1.0-S100C	•	.945	1.00	4.00	1.00	M12	.236
MSN-M12-2.0-S100C	•	.945	2.00	5.00	1.00	M12	.236
MSN-M12-3.0-S100C	•	.945	3.00	6.00	1.00	M12	.236
MSN-M12-4.0-S100C	•	.945	4.00	7.00	1.00	M12	.236
MSN-M12-5.0-S100C	•	.945	5.00	8.00	1.00	M12	.236
MSN-M12-6.0-S100C	•	.945	6.00	9.00	1.00	M12	.236
MSN-M12-8.0-S100C	•	.945	8.00	11.00	1.00	M12	.236
MSN-M16-0.5-S125C	•	1.14	.500	3.50	1.25	M16	.315
MSN-M16-1.0-S125C	•	1.14	1.00	4.00	1.25	M16	.315
MSN-M16-2.0-S125C	•	1.14	2.00	5.00	1.25	M16	.315
MSN-M16-4.0-S125C	•	1.14	4.00	7.00	1.25	M16	.315
MSN-M16-6.0-S125C	•	1.14	6.00	9.00	1.25	M16	.315
MSN-M16-8.0-S125C	•	1.14	8.00	11.00	1.25	M16	.315

METRIC

Modular Head Holders

MSN TYPE

Solid Carbide Coolant Thru

Fig. 1

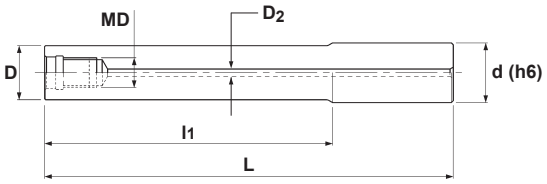
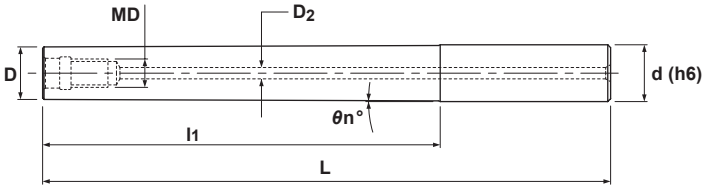


Fig. 2



Specifications

CATALOG NUMBER	STK	DIMENSIONS							FIG.
		D	l1	L	d	θn°	MD	D2	
MSN-M8-20-S16C	•	15.5	20	75	16	-	M8	4	1
MSN-M8-40-S16C	•	15.5	40	95	16	-	M8	4	1
MSN-M8-40T-S20C	•	14.5	40	100	20	3°30’	M8	4	2
MSN-M8-77T-S20C	•	14.5	77	143	20	1°45’	M8	4	2
MSN-M8-80-S16C	•	15.5	80	135	16	-	M8	4	1
MSN-M8-120-S16C	•	15.5	120	175	16	-	M8	4	1
MSN-M8-152-S16C	•	15.5	152	207	16	-	M8	4	1
MSN-M10-20-S20C	•	19.5	20	80	20	-	M10	4	1
MSN-M10-40-S20C	•	19.5	40	100	20	-	M10	4	1
MSN-M10-40T-S20C	•	18.5	40	100	20	0°43’	M10	4	2
MSN-M10-70-S20C	•	19.5	70	130	20	-	M10	4	1
MSN-M10-85T-S25C	•	18.5	85	161	25	2°	M10	4	2
MSN-M10-90-S20C	•	19.5	90	150	20	-	M10	4	1
MSN-M10-90T-S20C	•	18.5	90	150	20	0°19’	M10	4	2
MSN-M10-140-S20C	•	19.5	140	200	20	-	M10	4	1
MSN-M10-140T-S20C	•	18.5	140	200	20	0°12’	M10	4	2
MSN-M10-160-S20C	•	19.5	160	220	20	-	M10	4	1
MSN-M10-210-S20C	•	19.5	210	270	20	-	M10	4	1
MSN-M12-25-S25C	•	24	25	90	25	-	M12	6	1
MSN-M12-55-S25C	•	24	55	120	25	-	M12	6	1
MSN-M12-70-S25C	•	25	70	135	24	-	M12	6	1
MSN-M12-100T-S32C	•	23.5	100	180	32	2°	M12	6	2
MSN-M12-105-S25C	•	24	105	170	25	-	M12	6	1
MSN-M12-135-S25C	•	24	135	215	25	-	M12	6	1
MSN-M12-155-S25C	•	24	155	220	25	-	M12	6	1
MSN-M12-200-S25C	•	24	200	265	25	-	M12	6	1

Modular Head Holders

METRIC

MSN TYPE

Solid Carbide Coolant Thru

Fig. 1

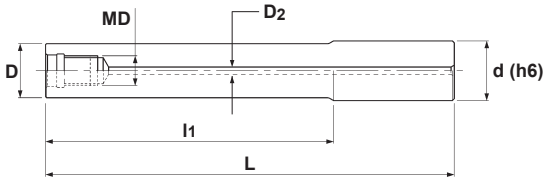
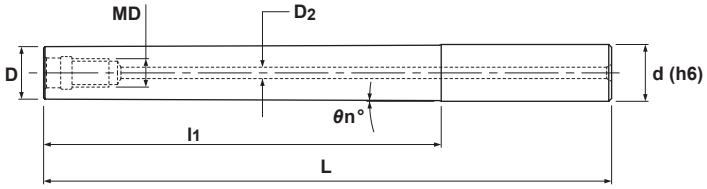


Fig. 2



Specifications

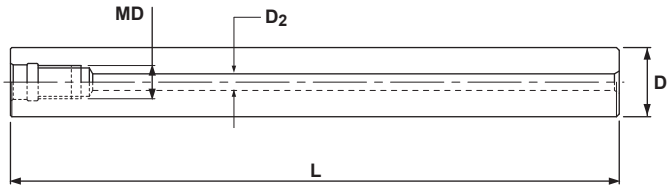
CATALOG NUMBER	STK	DIMENSIONS							FIG.
		D	l1	L	d	θn°	MD	D2	
MSN-M16-25-S32C	•	29	25	90	32	-	M16	8	1
MSN-M16-55-S32C	•	29	55	120	32	-	M16	8	1
MSN-M16-77-S32C	•	29	77	157	32	-	M16	8	1
MSN-M16-97-S32C	•	29	97	177	32	-	M16	8	1
MSN-M16-105-S32C	•	29	105	170	32	-	M16	8	1
MSN-M16-117T-S32C	•	29	117	197	32	0°38’	M16	8	2
MSN-M16-127-S32C	•	29	127	207	32	-	M16	8	1
MSN-M16-127T-S32C	•	29	127	207	32	0°30’	M16	8	2
MSN-M16-155-S32C	•	29	155	220	32	-	M16	8	1
MSN-M16-177-S32C	•	29	177	257	32	-	M16	8	1
MSN-M16-177T-S32C	•	29	177	257	32	0°23’	M16	8	2
MSN-M16-195-S32C	•	29	195	260	32	-	M16	8	1
MSN-M16-197T-S32C	•	29	197	277	32	0°23’	M16	8	2
MSN-M16-225-S32C	•	29	225	290	32	-	M16	8	1
MSN-M16-245-S32C	•	29	245	310	32	-	M16	8	1
MSN-M16-295-S32C	•	29	295	360	32	-	M16	8	1

METRIC

Modular Head Holders

MSN TYPE

Solid Carbide Coolant Thru



Specifications

CATALOG NUMBER	STK	DIMENSIONS			
		D	L	MD	D2
MSN-M8-87S-S14C	•	14	87	M8	3
MSN-M8-137S-S14C	•	14	137	M8	3
MSN-M8-97S-S15C	•	15	97	M8	4
MSN-M8-147S-S15C	•	15	147	M8	4
MSN-M8-197S-S15C	•	15	197	M8	4
MSN-M8-107S-S16C	•	16	107	M8	4
MSN-M8-157S-S16C	•	16	157	M8	4
MSN-M10-130S-S18C	•	18	130	M10	4
MSN-M10-190S-S18C	•	18	190	M10	4
MSN-M10-240S-S18C	•	18	240	M10	4
MSN-M10-130S-S20C	•	20	130	M10	4
MSN-M10-190S-S20C	•	20	190	M10	4
MSN-M10-250S-S20C	•	20	250	M10	4
MSN-M12-185S-S23C	•	23	185	M12	6
MSN-M12-265S-S23C	•	23	265	M12	6
MSN-M12-185S-S24C	•	24	185	M12	6
MSN-M12-265S-S24C	•	24	265	M12	6
MSN-M12-145S-S25C	•	25	145	M12	6
MSN-M12-215S-S25C	•	25	215	M12	6
MSN-M12-285S-S25C	•	25	285	M12	6
MSN-M16-160S-S28C	•	28	160	M16	8
MSN-M16-230S-S28C	•	28	230	M16	8
MSN-M16-310S-S28C	•	28	310	M16	8
MSN-M16-157S-S32C	•	32	157	M16	8
MSN-M16-217S-S32C	•	32	217	M16	8
MSN-M16-287S-S32C	•	32	287	M16	8
MSN-M16-357S-S32C	•	32	357	M16	8

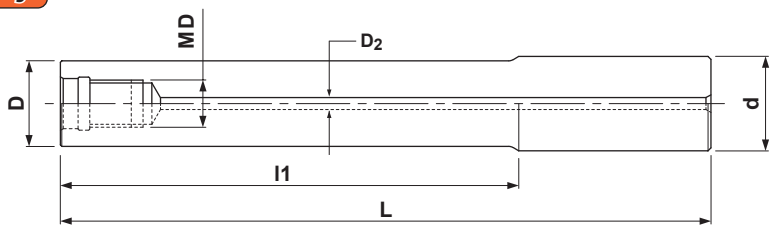
Modular Head Holders

INCH METRIC

MGN TYPE

G-Body Coolant Thru

G-Body



Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS					
		D	l1	L	d	MD	D2
MGN-M8-0.5-S062	•	.591	.500	3.50	.625	M8	.157
MGN-M8-1.0-S062	•	.591	1.00	4.00	.625	M8	.157
MGN-M8-2.0-S062	•	.591	2.00	5.00	.625	M8	.157
MGN-M10-0.5-S075	•	.728	.500	3.50	.750	M10	.157
MGN-M10-1.0-S075	•	.728	1.00	4.00	.750	M10	.157
MGN-M10-2.0-S075	•	.728	2.00	5.00	.750	M10	.157
MGN-M12-0.5-S100	•	.945	.500	3.50	1.00	M12	.236
MGN-M12-1.0-S100	•	.945	1.00	4.00	1.00	M12	.236
MGN-M12-2.0-S100	•	.945	2.00	5.00	1.00	M12	.236
MGN-M12-3.0-S100	•	.945	3.00	6.00	1.00	M12	.236
MGN-M16-0.5-S125	•	1.14	.500	3.50	1.25	M16	.315
MGN-M16-1.0-S125	•	1.14	1.00	4.00	1.25	M16	.315
MGN-M16-2.0-S125	•	1.14	2.00	5.00	1.25	M16	.315
MGN-M16-3.0-S125	•	1.14	3.00	6.00	1.25	M16	.315

Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS					
		D	l1	L	d	MD	D2
MGN-M8-17-S16	•	15.5	17	97	16	M8	4
MGN-M10-30-S20	•	19	30	100	20	M10	4
MGN-M12-35-S25	•	24	35	105	25	M12	4
MGN-M12-85-S25	•	24	85	165	25	M12	4
MGN-M16-37-S32	•	29	37	107	32	M16	6
MGN-M16-77-S32	•	29	77	157	32	M16	6

PROPER MOUNTING OF MODULAR HEADS

■ **Cleaning**
Remove dirt and chips with air from the connecting thread and face of modular head and MSN/MGN shank holder.

■ **Initial Tightening**
Tighten by hand until the head and the shank holder faces touch.

■ **Final Tightening**
Tighten slowly with torque control spanner wrench or DIJET DS type spanner wrench and confirm that there is no gap.
Attention: Final tightening without initial tightening cause connecting thread damage.

Thread	Tightening torque	Spanner size
M6	8N · m	8 ✧
M8	16N · m	10, 12 ✧
M10	16N · m	14, 15
M12	20N · m	17, 19
M16	25N · m	22, 26

Modular heads are supplied without spanner wrench.

In case of choosing torque control spanner wrench, confirm that the wrench size is matched to the dimensions W & C of each modular head. (There are some cases that modifying the thickness of spanner wrench is necessary)

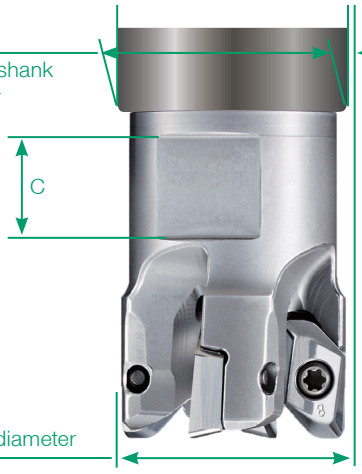
✧ = DIJET stocks DS-8 and DS-12 type spanner wrenches.

SELECTION OF MSN CARBIDE SHANK HOLDER

Ø Dc – Ø D1 ≥ 1mm

When using modular head over Ø 16mm, **please select MSN carbide shank which the diameter (Ø D1) is 1 mm or smaller than modular head (Ø Dc)**.
Wrong selection can cause damage to the carbide shank.

Coolant or air blow is recommended to remove the chips.



Caution for mounting in shrink fit holder.
When you use a carbide shank and a modular head on a shrink fit holder, please shrink fit only the carbide shank without mounting the modular head. Mount the modular head on the shank after shrink fit operation is complete.

In case of shrink fit MSN shank + modular head together, it will be difficult to loosen due to heat dissipation.

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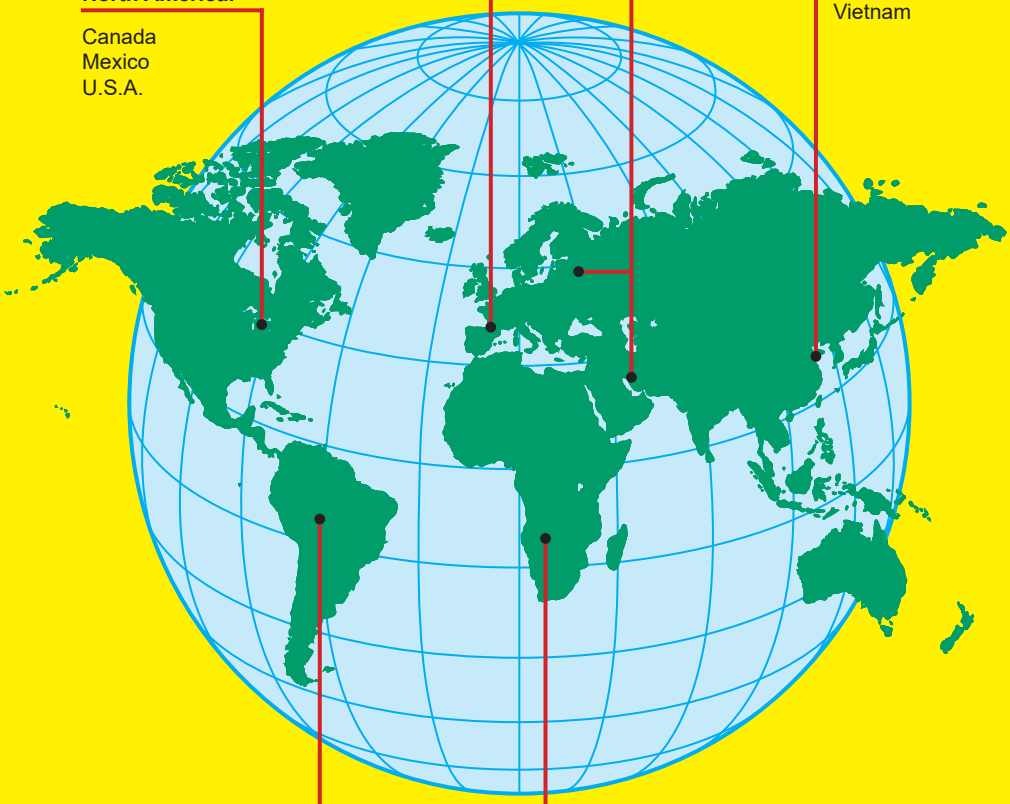

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