



INDEXABLE TOOLING

VOLUME 2 | **HIGH FEED TOOLS**

INNOVATION. ACCURACY. PERFORMANCE.

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DIJET CARBIDE TOOLS

Meeting the Trust of Customers

The industrial world, which is making remarkable progress, poses various difficult problems toward tooling. Dijet has been meeting the trust of customers with continuous development of new tools and materials using our experience of more than 50 years as a total carbide tool manufacturer.



QM Series

A-1



QM GII Series

A-19



EXSKS-05, -07, -09

A-47



SKG 09

A-30



P-10 Facemill

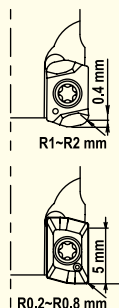
A-63



SKG -10, -14, -20

A-34



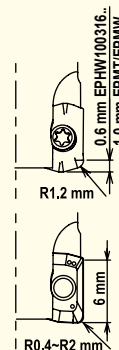

G-Body

High Feed QM Mini

Page

PME End Mill type - Inch ($\emptyset$ 3/8" - $\emptyset$ 5/8")	A-3
PME End Mill type - Metric ($\emptyset$ 10mm - $\emptyset$ 14mm)*	A-3
MPM Modular Head type - Inch ($\emptyset$ 1/2" - $\emptyset$ 1-1/4")	A-2
MPM Modular Head type - Metric ($\emptyset$ 10mm - $\emptyset$ 32mm)	A-2
Inserts	A-4
Magnetiser	A-4
Running Information	A-5

*Note: End mill style not G-body

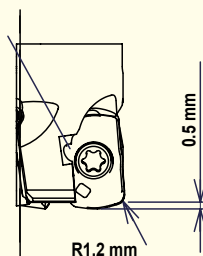

G-Body

High Feed QM Max

Page

QXPS End Mill type - Inch ($\emptyset$ 3/4" - $\emptyset$ 1-1/2")*	A-8
QXPS End Mill type - Metric ($\emptyset$ 16mm - $\emptyset$ 40mm)*	A-9
MQX Modular Head type - Inch ($\emptyset$ 3/4" - $\emptyset$ 1-1/4")	A-8
MQX Modular Head type - Metric ($\emptyset$ 16mm - $\emptyset$ 42mm)	A-8
QXP Face Mill type - Inch ($\emptyset$ 2")	A-9
QXP Face Mill type - Metric ($\emptyset$ 40mm - $\emptyset$ 66mm)	A-9
Inserts	A-10
Running Information	A-12

*Note: End mill style not G-body

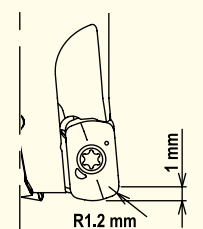
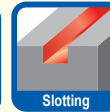

G-Body

High Feed QM Mini GII

Page

GMX-07 End Mill type - Inch ($\emptyset$ 1/2" - $\emptyset$ 5/8")	A-20
MXG-07 Modular Head type - Inch ($\emptyset$ 1/2" - $\emptyset$ 5/8")*	A-20
MXG-07 Modular Head type - Metric ($\emptyset$ 10mm - $\emptyset$ 16mm)*	A-20
Inserts	A-20
Running Information	A-21

*Note: Modular head style not G-body


G-Body

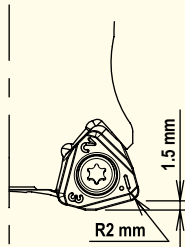
High Feed QM Max GII

Page

GMXS End Mill type - Inch ($\emptyset$ 5/8" - $\emptyset$ 1-1/4")*	A-24
GMXS End Mill type - Metric ($\emptyset$ 16mm - $\emptyset$ 32mm)*	A-24
GMX Face Mill type - Inch ($\emptyset$ 2")*	A-25
GMX Face Mill type - Metric ($\emptyset$ 50mm - $\emptyset$ 66mm)	A-25
MXG Modular Head type - Inch ($\emptyset$ 5/8" - $\emptyset$ 1-1/2")	A-26
MXG Modular Head type - Metric ($\emptyset$ 16mm - $\emptyset$ 42mm)	A-26
Inserts	A-25
Running Information	A-27

*Note: Not G-body

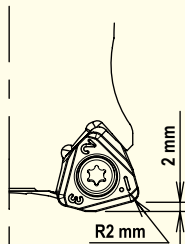




G-Body

High Feed Extreme - EXSKS-05 KATANA Page

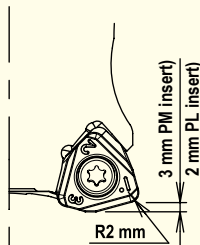
EXS End Mill type - Inch ($\varnothing$ 3/4" - $\varnothing$ 1-1/2")	A-49
EXSKS End Mill type - Metric ($\varnothing$ 20mm - $\varnothing$ 33mm)	A-49
EXSKS Face Mill type - Inch ($\varnothing$ 1-1/2" - $\varnothing$ 2.0")	A-50
EXSKS Face Mill type - Metric ($\varnothing$ 40mm - $\varnothing$ 63mm)	A-50
MEX Modular Head type - Inch ($\varnothing$ 3/4" - $\varnothing$ 1-1/2")	A-48
MEX Modular Head type - Metric ($\varnothing$ 20mm - $\varnothing$ 40mm)	A-48
Inserts	A-50
Running Information	A-51



G-Body

High Feed Extreme - EXSKS-07 Page

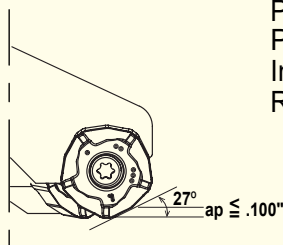
EXS End Mill type - Inch ($\varnothing$ 1-1/4" - $\varnothing$ 1-1/2")	A-50
EXSKS End Mill type - Metric ($\varnothing$ 32mm - $\varnothing$ 40mm)	A-50
EXSKS Face Mill type - Inch ($\varnothing$ 2.0" - $\varnothing$ 4.0")	A-49
EXSKS Face Mill type - Metric ($\varnothing$ 50mm - $\varnothing$ 100mm)	A-49
MEX Modular Head type - Inch ($\varnothing$ 1-1/4" - $\varnothing$ 1-1/2")	A-51
MEX Modular Head type - Metric ($\varnothing$ 32mm - $\varnothing$ 42mm)	A-51
Inserts	A-51
Running Information	A-52



G-Body

High Feed Extreme - EXSKS-09 Page

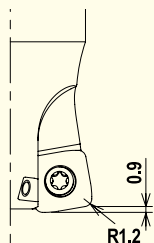
EXSKS Face Mill type - Inch ($\varnothing$ 2.0" - $\varnothing$ 6.0")	A-58
EXSKS Face Mill type - Metric ($\varnothing$ 50mm - $\varnothing$ 160mm)	A-59
Inserts	A-60
Running Information	A-61



High Feed P10 Face Mill Page

PNS Face Mill type - Inch ($\varnothing$ 2.0" - $\varnothing$ 10.0")	A-64
PNS Face Mill type - Metric ($\varnothing$ 50mm - $\varnothing$ 250mm)	A-65
Inserts	A-67
Running Information	A-68



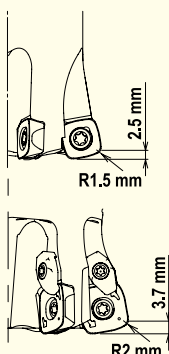
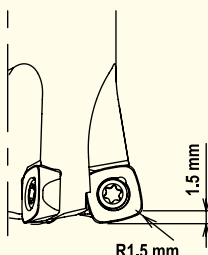

G-Body

High Feed SKG - 9mm

Page

SKGS End Mill type - Inch ($\varnothing$ 1" - $\varnothing$ 1-1/2")*	A-31
SKG End Mill type - Metric ($\varnothing$ 25mm - $\varnothing$ 40mm)*	A-31
MSG Modular Head type - Inch ($\varnothing$ 1.0" - $\varnothing$ 1-1/2")	A-30
MSG Modular Head type - Metric ($\varnothing$ 20mm - $\varnothing$ 42mm)	A-30
SKG Face Mill type - Inch ($\varnothing$ 2.0" - $\varnothing$ 3.0")	A-30
SKG Face Mill type - Metric ($\varnothing$ 40mm - $\varnothing$ 80mm)	A-30
Inserts	A-31
Running Information	A-32

*Note: End mill style not G-body


G-Body

High Feed SKG - 10mm

Page

SKGS End Mill type - Inch ($\varnothing$ 1" - $\varnothing$ 1-1/2")*	A-34
SKG Face Mill type - Inch ($\varnothing$ 2.0" - $\varnothing$ 3.0")	A-35
SKG Face Mill type - Metric ($\varnothing$ 50mm - $\varnothing$ 80mm)	A-35
MSG Modular Head type - Inch ($\varnothing$ 1.0" - $\varnothing$ 1-1/2")	A-34
MSG Modular Head type - Metric ($\varnothing$ 25mm - $\varnothing$ 42mm)	A-34
Inserts	A-36
Running Information	A-37

*Note: End mill style not G-body

High Feed SKG - 14mm

Page

SKG Face Mill type - Inch ($\varnothing$ 2.0" - $\varnothing$ 6.0")	A-39
SKG Face Mill type - Metric ($\varnothing$ 50mm - $\varnothing$ 160mm)	A-39
Inserts	A-40
Running Information	A-41

High Feed SKG - 20mm

Page

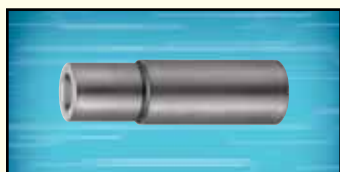
SKG Face Mill type - Inch ($\varnothing$ 3.0" - $\varnothing$ 5.0")	A-43
Inserts	A-43
Running Information	A-44



Carbide Shank Holder - MSN

Page

Inch - relieved	A-69
Metric - relieved and tapered	A-70
Metric - straight	A-72


G-Body

G-Body Steel Shank Holder - MGN

Page

Inch	A-74
Metric	A-74

Carbide Grade Information

A-76

Spare Parts Information

A-78



QM Mini

MPM Style High Feed Mill



- High speed and high efficient machining.
- Multiple insert choices - High Feed Milling, Shoulder Milling of steel & aluminum, Milling of high hardened steels, Finishing side & bottom face.
- Able to machine wide variety of materials including high temp alloys.
- Capable of running on low horse power & compact machines.
- G-body is a GN surface-hardening treatment on thermal resistant high strength steel giving a hardness over 65 HRC and secures insert pocket and holder against thermal deformation improving body durability.



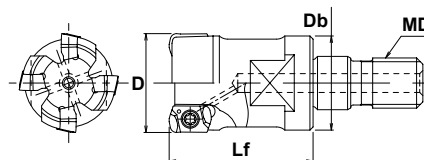
QM Mini

INCH

METRIC

QM MINI

New Generation of High Feed Mills
MPM Style - G Body

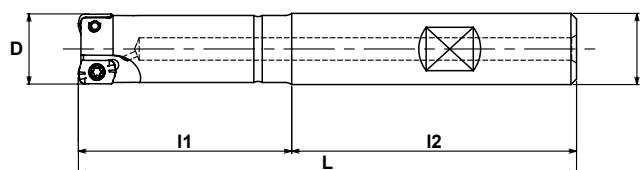



Specifications for Modular Heads

CATALOG NUMBER		STK	DIMENSIONS				HEAD TORQUE		INSERT	Q	PARTS	
			D	Lf	Db	MD	lbs./ft	Nm			Screw	Wrench
INCH	MPM-3050-M6	•	.500	.787	.452	M6	5.9	8	EOM**0602**ZER EOHW0602**ZTR YOHW0602**ZER-12 ZOMT0602**ZER-PL	3	DSW-1840H	T-06
	MPM-4062-M8	•	.625	.905	.590	M8	11.8	16		4		
	MPM-5075-M10	•	.750	1.18	.708	M10	11.8	16		5		
	MPM-6100-M12	•	1.00	1.37	.945	M12	14.7	20		6		
	MPM-8125-M16	•	1.25	1.69	1.14	M16	18.4	25		8		
METRIC	MPM-2010-M6	•	10	18	9.5	M6	5.9	8	EOM**0602**ZER EOHW0602**ZTR YOHW0602**ZER-12 ZOMT0602**ZER-PL	2	DSW-1840H	T-06
	MPM-2011-M6	•	11	18	9.7	M6	5.9	8		2		
	MPM-3012-M6	•	12	20	11.2	M6	5.9	8		3		
	MPM-3013-M6	•	13	20	11.5	M6	5.9	8		3		
	MPM-3015-M8	•	15	23	14	M8	5.9	8		3		
	MPM-4016-M8	•	16	23	15	M8	11.8	16		4		
	MPM-4017-M8	•	17	23	15	M8	11.8	16		4		
	MPM-4018-M8	•	18	23	15	M8	5.9	8		4		
	MPM-5020-M10	•	20	30	19	M10	11.8	16		5		
	MPM-5021-M10	•	21	30	19	M10	11.8	16		5		
	MPM-6025-M12	•	25	35	23.6	M12	14.7	20		6		
	MPM-7030-M16	•	30	43	29	M16	18.4	25		7		
	MPM-8032-M16	•	32	43	29	M16	18.4	25		8		

See page A-69 for Modular Head Shanks.

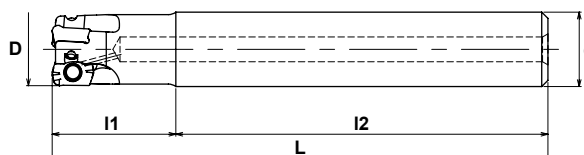
Note: All cutters are supplied without inserts, wrenches or moly.


INCH
METRIC
QM Mini
PME Style
G-Body

Specifications for End Mill - Inch

CATALOG NUMBER	STK	DIMENSIONS					INSERT	Q	PARTS	
		D	L	I1	I2	d			Screw	Wrench
PME-2037-1.0-S037LG*	•	.375	3.50	1.00	2.50	.375	EOM**0602**ZER EOHW0602**ZTR YOHW0602**ZER-12 ZOMT0602**ZER-PL	2	DSW-1840H	T-06
PME-3050-1.5-S050LG	•	.500	3.50	1.50	2.00	.500		3		
PME-3050-2.2-S050LG	•	.500	4.00	2.20	1.80	.500		3		
PME-4062-1.5-S062LG	•	.625	4.50	1.50	3.00	.625		4		
PME-4062-2.5-S062LG	•	.625	5.00	2.50	2.00	.625		4		

*Note: Recommended to use only high feed insert.

Note: All cutters are supplied without inserts, wrenches or moly.


Fig. 1

Fig. 2

Specifications for End Mill - Metric

CATALOG NUMBER	STK	DIMENSIONS					FIG.	INSERT	Q	PARTS	
		D	L	I1	I2	d				Screw	Wrench
PME2010S10	•	10	80	20	60	10	1	EOM**0602**ZER EOHW0602**ZTR YOHW0602**ZER-12 ZOMT0602**ZER-PL	2	DSW-1840H	T-06
PME3012S12	•	12	80	20	60	12	1		3		
PME3014S12	•	14	80	20	60	12	1		3		
PME2011S10-LS	•	11	120	33	87	10	2		2		
PME3013S12-LS	•	13	120	39	81	12	2		3		
PME3014S12-LS	•	14	120	42	78	12	2		3		

Note: All cutters are supplied without inserts, wrenches or moly.

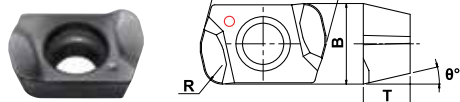


QM Mini

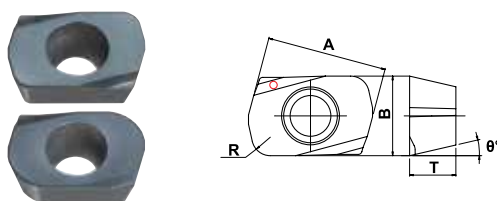
METRIC

INSERTS

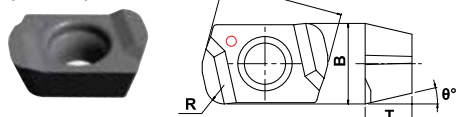
High feed insert
(EOMT)



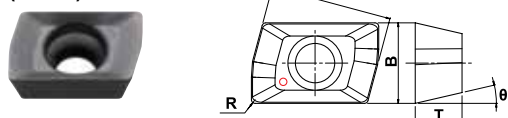
High hardened steel
(EOHW)



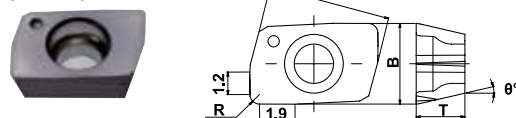
High feed insert for unfavorable condition
(EOMW)



Shoulder milling insert
(ZOMT)



"MIRROR INSERT" for finishing side & bottom face
(YOHW)



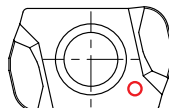
TYPE	CATALOG NUMBER	TOLERANCE	DIMENSIONS					PVD COATED						
			A	B	T	R	Ø	DS118	DS150	JC8118	DH102	JC7560	JC8015	JC8050
High feed insert	EOMT060210ZER	M	6.5	4.3	2.5	1.0	13°	•	•	•		•		•
	EOMT060220ZER	M	6.5	4.3	2.5	2.0	13°	•	•	•				•
High feed insert for unfavorable condition	EOMW060210ZER	M	6.5	4.3	2.5	1.0	13°			•		•		•
High hardened steel	EOHW060210ZTR	H	6.5	4.3	2.5	1.0	13°			•	•			
	EOHW060220ZTR	H	6.5	4.3	2.5	2.0	13°			•	•			
Shoulder milling insert	ZOMT060202ZER-PL	M	6.62	4.3	2.7	0.2	13°			•				•
	ZOMT060204ZER-PL	M	6.62	4.3	2.7	0.4	13°			•				•
	ZOMT060208ZER-PL	M	6.62	4.3	2.7	0.8	13°			•				•
"MIRROR INSERT" for finishing side & bottom face	YOHW060203ZER-12	H	6.5	4.3	2.6	0.3	13°				•		•	
	YOHW060205ZER-12	H	6.5	4.3	2.6	0.5	13°				•		•	
	YOHW060208ZER-12	H	6.5	4.3	2.6	0.8	13°				•		•	

DISCRIMINATION OF GRADE FOR MPM / PME INSERT

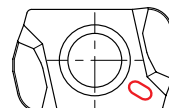
Each grade shows different mark around the hole for identification.



JC8118/DS118



JC8050/JC7560/DS150



MAGNETISER



- Magnetizing and demagnetizing the wrench can easily be done by inserting the tip into the magnetizer and rubbing lightly.
- Do not use in the vicinity of the equipment that can be influenced with magnetism.

CATALOG NUMBER	STOCK
MAGNETISER	•

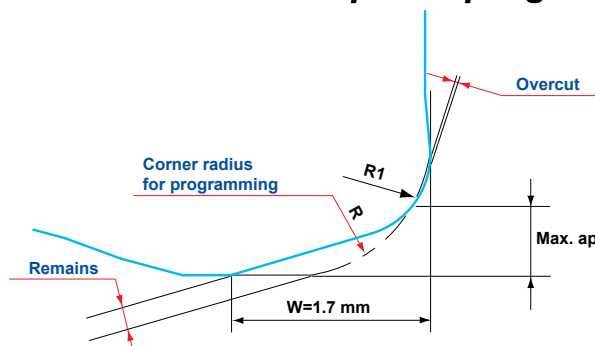


INCH

METRIC

QM Mini

Definition of corner shape for programming

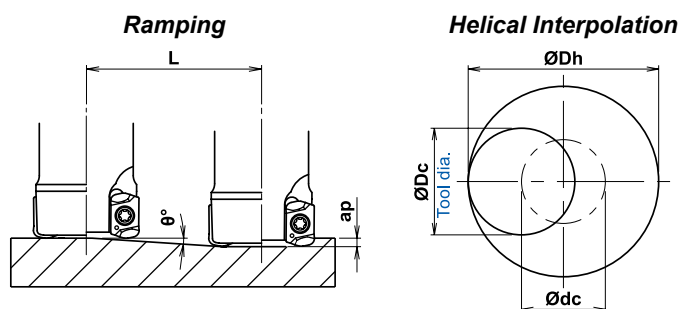


(mm)

CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R1.0 (Standard)	0	0.17
R1.5	0.09	0.08
R2.0	0.30	0

***Note:** When using insert EO**060220.. use 2mm R, overcut & remains will be 0.

Recommended Data for Profile Milling



- Calculation of tool pass dia.

$$\text{Ødc} = \text{ØDh} - \text{ØDc}$$

Tool pass dia. Bore dia. Tool Dia.

- Depth of cut per one circuit should not exceed max. depth of cut ap.
- Down cutting is recommended, so tool pass rotation should be counterclockwise.

- In case of ramping and helical interpolation, apply 70% or less feed (F) from standard cutting condition table.
- In case of drilling, apply 50% or less Z axis feed speed from standard cutting condition table.
- Long consecutive chips may come out in case of drilling, confirm safe cutting conditions.

	CATALOG NUMBER	TOOL DIAMETER Dc	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: ap	RAMPING		HELICAL INTERPOLATION	
					MAX. RAMP ANGLE θ°	TOTAL CUTTING LENGTH AT MAX AP: L	MIN. BORE DIAMETER: Dh min	MAX. BORE DIAMETER: Dh max
INCH	PME-2037-1.0-S037LG	.375	.247	.012	2°20'	.30	.55	.67
	MPM/PME-3050-***	.500	.366	.012	1°30'	.45	.80	.92
	MPM/PME-4062-***	.625	.491	.016	1°	.90	1.05	1.17
	MPM-5075-M10	.750	.616	.016	0°48'	1.12	1.30	1.42
	MPM-6100-M12	1.00	.866	.016	0°30'	1.80	1.80	1.92
	MPM-8125-M16	1.25	1.116	.016	0°24'	2.25	2.3	2.42
METRIC	MPM/PME-2010-***	10	6.6	0.3	2°18'	7.5	15	18
	MPM/PME-2011-***	11	7.6	0.3	1°54'	9	17	20
	MPM/PME-3012-***	12	8.5	0.3	1°36'	10.7	19	22
	MPM/PME-3013-***	13	9.5	0.3	1°24'	12.3	21	24
	PME3014***	14	10.5	0.4	1°18'	13.2	23	26
	MPM-3015-M8	15	11.5	0.4	1°12'	19.1	25	28
	MPM-4016-M8	16	12.5	0.4	1°	22.9	27	30
	MPM-4017-M8	17	13.5	0.4	0°54'	25.5	29	32
	MPM-4018-M8	18	14.5	0.4	0°51'	27	31	34
	MPM-5020-M10	20	16.5	0.4	0°45'	30.6	35	38
	MPM-5021-M10	21	17.5	0.4	0°42'	32.7	37	40
	MPM-6025-M12	25	21.5	0.4	0°30'	45.8	45	48
	MPM-7030-M16	30	26.5	0.4	0°27'	50.9	55	58
	MPM-8032-M16	32	28.5	0.4	0°24'	57.3	59	62



QM Mini

Recommended Cutting Data for QM Mini

Material	Parameters	High Feed			Square Shoulder	Finish	
		EOMT	EOMW	EOHW	ZOMT	YOHW Side	YOHW Bottom
Gray Cast Iron	SFM	700	700	800	700	1,200	720
	IPT	.030"	.030"	.030"	.008"	.006"	.007"
	DOC	.015"	.015"	.015"	.030"	.030"	.005"
	WOC	70%	70%	70%	.008"	.004"	60%
	Grade	JC8118	JC8118	JC8118	JC8118	JC8015, DH102	JC8015, DH102
Nodular Cast Iron	SFM	650	650	750	650	1,100	660
	IPT	.025"	.025"	.025"	.008"	.006"	.007"
	DOC	.015"	.015"	.015"	.030"	.030"	.005"
	WOC	70%	70%	70%	.008"	.004"	60%
	Grade	JC8118	JC8118	JC8118	JC8118	JC8015, DH102	JC8015, DH102
Carbon Steel	SFM	600	600	700	600	1,000	600
	IPT	.020"	.020"	.020"	.008"	.006"	.007"
	DOC	.015"	.015"	.015"	.025"	.025"	.005"
	WOC	70%	70%	70%	.008"	.004"	60%
	Grade	JC8050, JC7560	JC8050, JC7560	JC8118	JC8050	JC8015, DH102	JC8015, DH102
Low Alloy Steel	SFM	550	550	650	550	1,000	600
	IPT	.020"	.020"	.020"	.025"	.006"	.007"
	DOC	.015"	.015"	.015"	.025"	.025"	.005"
	WOC	60%	60%	60%	.008"	.004"	60%
	Grade	JC8050, JC7560	JC8050, JC7560	JC8118	JC8050	JC8015, DH102	JC8015, DH102
Mold Steel	SFM	500	500	600	500	900	540
	IPT	.020"	.020"	.020"	.006"	.005"	.006"
	DOC	.015"	.015"	.015"	.025"	.025"	.005"
	WOC	60%	60%	60%	.008"	.004"	60%
	Grade	JC8118, JC8050	JC8118, JC8050	JC8118	JC8118	JC8015, DH102	JC8015, DH102
Tool & Die Steel (40-50 HRC)	SFM	400	400	500	400	750	450
	IPT	.010"	.010"	.012"	.006"	.005"	.006"
	DOC	.010"	.010"	.012"	.025"	.020"	.004"
	WOC	60%	60%	60%	.008"	.004"	40%
	Grade	JC8118, JC8050	JC8118, JC8050	DH102	JC8118	DH102	DH102
Hardened Die Steel (50-60 HRC)	SFM	*	*	250	*	600	360
	IPT	*	*	.006"	*	.004"	.005"
	DOC	*	*	.008"	*	.020"	.004"
	WOC	*	*	40%	*	.003"	40%
	Grade	*	*	DH102	*	DH102	DH102
Stainless Steel	SFM	300	*	*	300	250	150
	IPT	.020"	*	*	.006"	.005"	.006"
	DOC	.015"	*	*	.020"	.025"	.005"
	WOC	60%	*	*	.008"	.004"	60%
	Grade	JC8050	*	*	JC8050	JC8015, DH102	JC8015, DH102
Titanium	SFM	200	*	*	200	300	180
	IPT	.015"	*	*	.004"	.003"	.004"
	DOC	.010"	*	*	.020"	.020"	.004"
	WOC	60%	*	*	.006"	.003"	60%
	Grade	DS150	*	*	JC8050	JC8015, DH102	JC8015, DH102
Inconel	SFM	100	*	*	100	200	120
	IPT	.010"	*	*	.003"	.003"	.004"
	DOC	.010"	*	*	.015"	.015"	.003"
	WOC	60%	*	*	.004"	.003"	40%
	Grade	DS118	*	*	JC8050	JC8015, DH102	JC8015, DH102
Graphite	SFM	*	*	600	*	*	*
	IPT	*	*	.020"	*	*	*
	DOC	*	*	.010"	*	*	*
	WOC	*	*	20%	*	*	*
	Grade	*	*	DH102	*	*	*

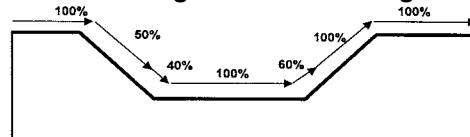
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern



QM Max

MQX Style High Feed Mill



- High speed and high efficient machining.
- Multiple insert choices - High Feed Milling, Shoulder Milling of steel & aluminum, Milling of high hardened steels, Finishing side & bottom face.
- Low cutting force good for long reach applications.
- Able to machine most materials.
- G-body is a GN surface-hardening treatment on thermal resistant high strength steel giving a hardness over 65 HRC and secures insert pocket and holder against thermal deformation improving body durability.

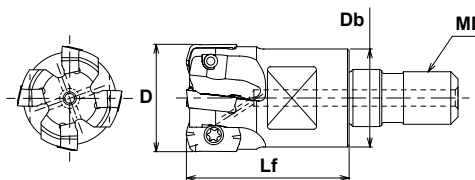


QM Max

INCH

METRIC

New Generation of High Feed Mills MQX Style

G-Body


Specifications

CATALOG NUMBER		STK	DIMENSIONS				HEAD TORQUE		INSERT	Q	PARTS	
			D	Lf	Db	MD	lbs./ft	Nm			Screw	Wrench
INCH	MQX-3075-M10	•	.750	1.18	.708	M10	11.8	16	EPMT1003**ZER EPMW100312Z*R EPHW100316ZTR ZPMT1003**ZER** YPHW1003**Z*R**	3	TSW-2556H	T-08
	MQX-5100-M12	•	1.00	1.38	.809	M12	14.7	20		5	DSW-2563H	T-08
	MQX-5125-M16	•	1.25	1.69	1.14	M16	18.4	25		5		
METRIC	MQX-2016-M8	•	16	23	14	M8	11.8	16		2	TSW-2556H	T-08
	MQX-2017-M8	•	17	23	14	M8	11.8	16		2		
	MQX-3020-M10	•	20	30	18	M10	11.8	16		3		
	MQX-4020-M10	•	20	30	18	M10	11.8	16		4		
	MQX-4021-M10	•	21	30	18	M10	11.8	16		4	DSW-2563H	T-08
	MQX-4025-M12	•	25	35	22.5	M12	14.7	20		4		
	MQX-5025-M12	•	25	35	22.5	M12	14.7	20		5		
	MQX-4026-M12	•	26	35	22.5	M12	14.7	20		4		
	MQX-5026-M12	•	26	35	22.5	M12	14.7	20		5		
	MQX-5028-M12	•	28	35	23.6	M12	14.7	20		5		
	MQX-5030-M16	•	30	43	27	M16	18.4	25		5		
	MQX-5032-M16	•	32	43	29	M16	18.4	25		5		
	MQX-6032-M16	•	32	43	29	M16	18.4	25		6		
	MQX-5035-M16	•	35	43	29	M16	18.4	25		5		
	MQX-6035-M16	•	35	43	29	M16	18.4	25		6		
	MQX-6040-M16	•	40	43	32	M16	18.4	25		6		
	MQX-7040-M16	•	40	43	32	M16	18.4	25		7		
	MQX-6042-M16	◦	42	43	32	M16	18.4	25		6		

See page A-69 for Modular Head Shanks.

◦ - longer delivery may apply.

Note: All cutters are supplied without inserts, wrenches or moly.

QXPS Style



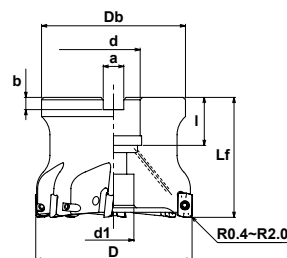
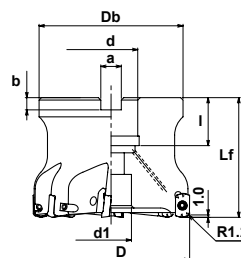
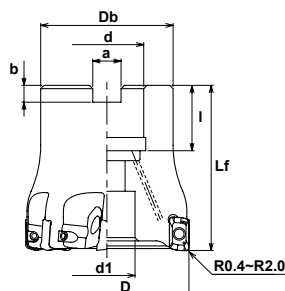
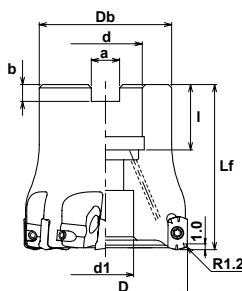
Specifications - Inch

CATALOG NUMBER		STK	DIMENSIONS				INSERT	Q	PARTS	
			D	L	L2	d			Screw	Wrench
QXPS-3075-1.5-S075NP	•		.750	3.50	1.50	.750	EPMT1003**ZER EPMW100312Z*R EPHW100316ZTR ZPMT1003**ZER** YPHW1003**Z*R**	3	TSW-2556H	T-08
QXPS-3075-2.0-S075NP	•		.750	5.00	2.00	.750		3		
QXPS-3075-3.0-S075NP	•		.750	6.25	3.00	.750		3		
QXPS-4100-1.8-S100NP	•		1.00	4.00	1.80	1.00		4	DSW-2563H	T-08
QXPS-4100-2.0-S100NP	•		1.00	7.00	2.00	1.00		4		
QXPS-4100-3.0-S100NP	•		1.00	8.00	3.00	1.00		4		
QXPS-5125-3.0-S125NP	•		1.25	5.50	3.00	1.25		5		
QXPS-5125-4.75-S125NP	•		1.25	8.00	4.75	1.25		5		
QXPS-6150-3.0-S125NP	•		1.50	5.50	3.00	1.50		6		
QXPS-6150-4.75-S125NP	•		1.50	8.00	4.75	1.50		6		

Note: All cutters are supplied without inserts, wrenches or moly.


INCH
METRIC
QM Max

QXP Style

G-Body
Fig. 1
High Feed Milling
Shoulder Milling
Fig. 2
High Feed Milling
Shoulder Milling


Specifications

	CATALOG NUMBER	STK	DIMENSIONS								FIG.	INSERT	Q	PARTS	
			D	Lf	Db	d	d1	a	b	l				Screw	Wrench
INCH	QXP-8200R-075	•	2.00	2.00	1.77	.750	.63	.319	.197	.750	1	EPMT1003**ZER EPMW100312Z*R EPHW100316ZTR ZPMT1003**ZER-** YPHW1003**Z*R-**	8	DSW-2563H	T-08
METRIC	QXP-6040R-16	•	40	45	35	16	14	8.4	5.6	18	1	EPMT1003**ZER EPMW100312Z*R EPHW100316ZTR ZPMT1003**ZER-** YPHW1003**Z*R-**	6	DSW-2563H	T-08
	QXP-7040R-16	•	40	45	35	16	14	8.4	5.6	18	1		7		
	QXP-7050R-22	•	50	50	40	22	17	10.4	6.3	20	1		7		
	QXP-8050R	•	50	50	40	22.225	17	8.4	5	20	1		8		
	QXP-8050R-22	•	50	50	40	22	17	10.4	6.3	20	1		8		
	QXP-8052R-22	◦	52	50	40	22	17	10.4	6.3	20	1		8		
	QXP-8063R	•	63	50	48	22.225	17	8.4	5	20	1		8		
	QXP-8063R-22	•	63	50	48	22	17	10.4	6.3	20	1		8		
	QXP-8066R	•	66	50	60	22.225	17	8.4	5	20	2		8		
	QXP-8066R-27	◦	66	50	48	27	20	12.4	7	22	2		8		

◦ - longer delivery may apply.

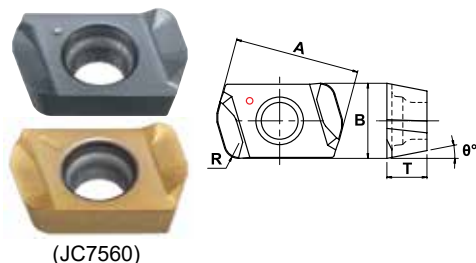
Note: All cutters are supplied without inserts, wrenches or moly.



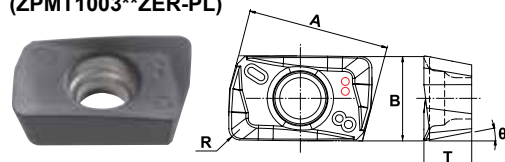
QM Max

METRIC

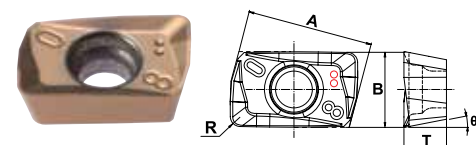
High feed insert
(EPMT1003**ZER)



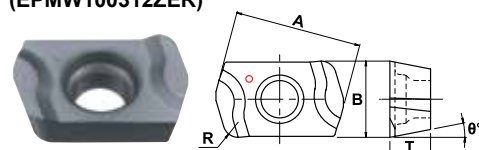
Shoulder insert from semi-finishing to side and bottom finishing
(ZPMT1003**ZER-PL)



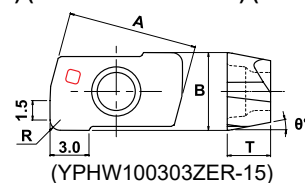
Shoulder insert for TiAlloy
(ZPMT1003**ZER-SL)



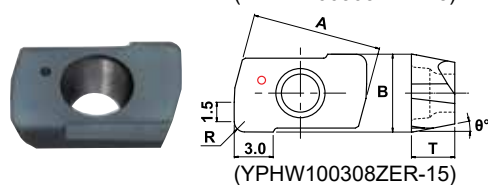
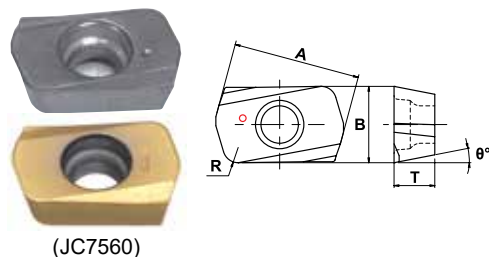
High feed insert for unfavorable conditions
(EPMW100312ZER)



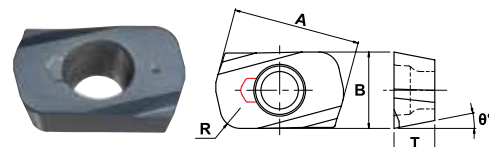
"Mirror Insert" for finishing side & bottom face
(YPHW1003**ZER-15) (YPHW100308ZTR-F1) (YPHW100308ZER-F)



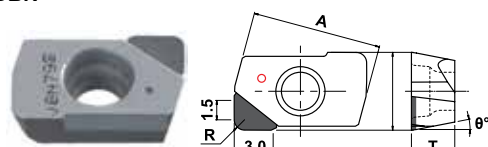
High feed insert for unfavorable conditions
(EPMW100312ZTR)



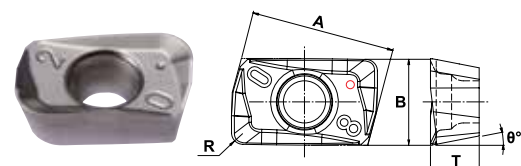
For high hardened steel
(EPHW1003**ZTR)



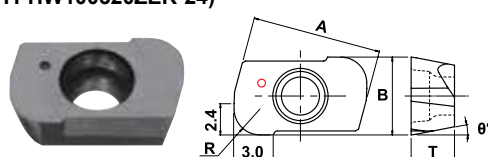
CBN



Shoulder insert for aluminum
(ZPMT1003**ZER-NL)



"Mirror Insert" for finishing side & bottom face and contouring
(YPHW100320ZER-24)




METRIC
QM Max

INSERTS

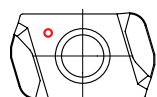
Specifications for inserts

CATALOG NUMBER	TOLERANCE	DIMENSIONS					COATED								CBN	CERMET	UNCOATED
							PVD COATED										
		A	B	T	R	Ø	DS118	DS150	JC8118	DH102	JC7560	JC8015	JC8050	JC7518	JBN795	CX75	FC18
EPMT100312ZER	M	10	6	3.2	1.2	11°	•	•	•		•		•				
EPMT100320ZER	M	10	6	3.2	2.0	11°			•								
EPMW100312ZER	M	10	6	3.2	1.2	11°			•				•				
EPMW100312ZTR	M	10	6	3.2	1.2	11°			•		•		•				
EPHW100316ZTR	H	10	6	3.2	1.6	11°			•	•							
EPHW100320ZTR	H	10	6	3.2	2.0	11°			•	•							
ZPMT100304ZER-NL	M	10.08	6	3.4	0.4	11°											•
ZPMT100308ZER-NL	M	10.08	6	3.4	0.8	11°											•
ZPMT100316ZER-NL	M	10.08	6	3.4	1.6	11°											•
ZPMT100320ZER-NL	M	10.08	6	3.4	2.0	11°											•
ZPMT100304ZER-PL	M	10.08	6	3.4	0.4	11°			•	•			•			•	
ZPMT100308ZER-PL	M	10.08	6	3.4	0.8	11°			•	•			•			•	
ZPMT100316ZER-PL	M	10.08	6	3.4	1.6	11°			•				•				
ZPMT100320ZER-PL	M	10.08	6	3.4	2.0	11°			•	•			•			•	
ZPMT100304ZER-SL	M	10.08	6	3.4	0.4	11°	•							•			
ZPMT100308ZER-SL	M	10.08	6	3.4	0.8	11°	•							•			
ZPMT100320ZER-SL	M	10.08	6	3.4	2.0	11°	•							•			
YPHW100303ZER-15	H	10.06	6	3.35	0.3	11°				•		•				•	
YPHW100308ZER-15	H	10.06	6	3.35	0.8	11°				•						•	
YPHW100308ZER-F	H	10.06	6	3.35	0.8	11°						•					
YPHW100308ZTR-F1	H	10.06	6	3.35	0.8	11°									•		
YPHW100320ZER-24	H	10.06	6	3.35	2.0	11°				•		•					

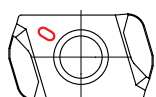
Grade Markings:



• EPMT10, EPMW10-ZER/ ZTR

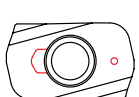


JC8118 / DS118

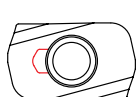


JC8050 / JC7560 / DS150

• EPHW1003**ZTR

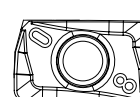


JC8118

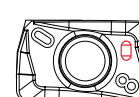


DH102

• ZMPT1003-**

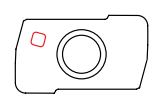

JC8118 / JC7518
DS118 / FC18


DH102

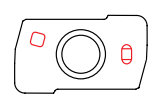


JC8050 / CX75

• YPHW100303ZER-15

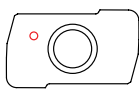


DH102 / CX75



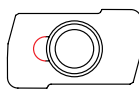
JC8015

• YPHW100308ZER-15



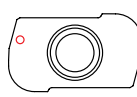
DH102 / CX75

• YPHW100308ZER-F

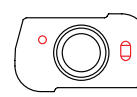


JC8015

• YPHW100320ZER-24



DH102



JC8015



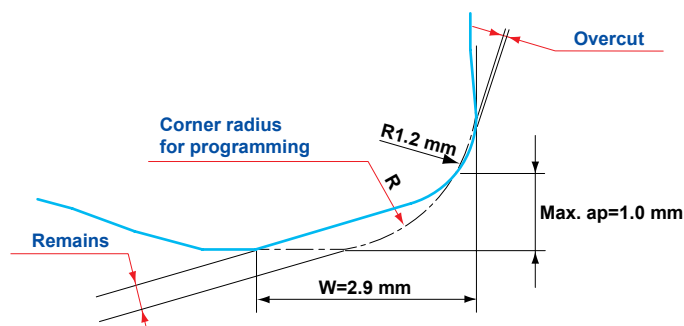
QM Max

INCH

METRIC

Definition of corner shape for programming

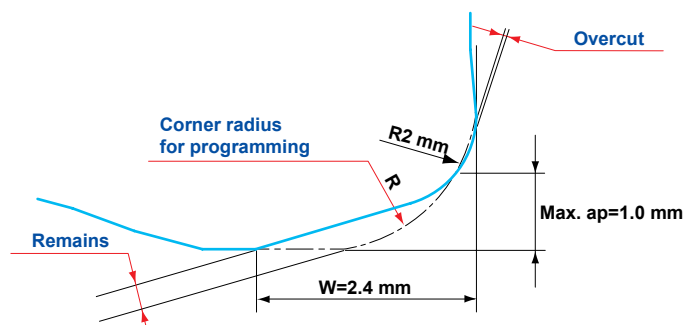
EPMT/W Insert w/1.2mm Corner Radius



(mm)

CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R1.0	0	0.57
R1.5 (Standard)	0	0.45
R2.0	0.04	0.33
R2.5	0.21	0.21
R3.0	0.40	0.09

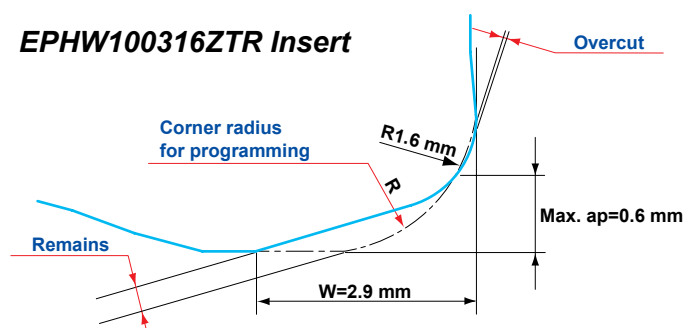
EPMT Insert w/2.0mm Corner Radius



(mm)

CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R1.0	0	0.51
R1.5	0	0.31
R2.0 (Standard)	0	0.13
R2.5	0.12	0.04
R3.0	0.32	0

EPHW100316ZTR Insert



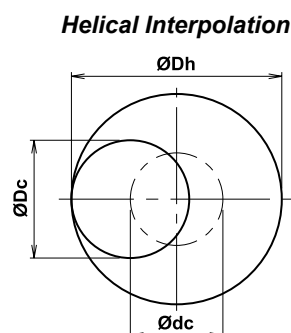
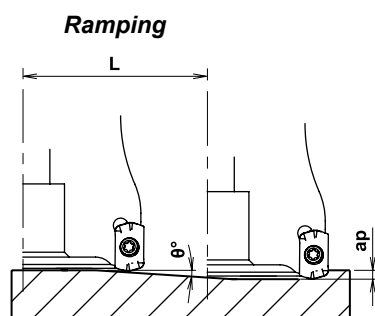
(mm)

CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R1.0	0	0.42
R1.5 (Standard)	0	0.33
R2.0	0.01	0.23
R2.5	0.17	0.14
R3.0	0.37	0.05

***Note:** When using insert EPHW100320ZTR, use R2.0, overcut & remains will be 0.


INCH
METRIC
QM Max

Recommended Data for Profile Milling



- Calculation of tool pass dia.

$$\text{Tool pass dia.} = \text{Bore dia.} - \text{Tool Dia.}$$

Tool pass dia. Bore dia. Tool Dia.

- Depth of cut per one circuit should not exceed max. depth of cut ap.
- Down cutting is recommended, so tool pass rotation should be counterclockwise.

- In case of ramping and helical interpolation, apply 70% or less feed (F) from standard cutting condition table.
- In case of drilling, apply 50% or less Z axis feed speed from standard cutting condition table.
- Long consecutive chips may come out in case of drilling, confirm safe cutting conditions.

	CATALOG NUMBER	TOOL DIAMETER Dc	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: ap	RAMPING		HELICAL INTERPOLATION	
					MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX AP: L	MIN. BORE DIAMETER: Dh min	MAX. BORE DIAMETER: Dh max
INCH	MQX/QXPS-*075	.750	.520	.031	1°30'	1.20	1.11	1.42
	MQX/QXPS-*100	1.00	.768	.031	1°	1.80	1.61	1.92
	MQX/QXPS-*125	1.25	1.018	.031	0°54'	1.97	2.11	2.42
	QXPS-6150-*	1.50	1.268	.031	0°36'	2.96	2.61	2.92
	QXP-8200R-075	2.00	1.768	.039	0°24'	5.59	3.61	3.92
METRIC	MQX/QXP-2016	16	10.2	0.8	1°48'	25.5	22	30
	MQX-2017-M8	17	11.2	0.8	1°36'	28.6	24	32
	MQX/QXP-*020	20	14.1	0.8	1°24'	32.7	30	38
	MQX-4021-M10	21	15.1	0.8	1°18'	35.3	32	40
	MQX/QXP-*025	25	19.1	0.8	1°	45.8	40	48
	MQX-*026-M12	26	20.1	0.8	0°57'	48.2	42	50
	MQX-5028-M12	28	22.1	0.8	0°51'	53.9	46	54
	MQX-5030-M16	30	24.1	0.8	0°48'	57.3	50	58
	MQX/QXP-*032	32	26.1	0.8	0°42'	65.5	54	62
	MQX-*035-M16	35	29.1	0.8	0°36'	76.4	60	68
	MQX/QXP-*040	40	34.1	0.8	0°30'	91.7	70	78
	MQX-6042-M16	42	36.2	0.8	0°27'	101.9	74	82
	QXP-*040R-16	40	34.1	1	0°30'	114.6	70	78
	QXP-8050R	50	44.1	1	0°24'	143.2	90	98
	QXP-*050R-22	50	44.1	1	0°24'	143.2	90	98
	QXP-8052R-22	52	46.1	1	0°21'	163.7	94	102
	QXP-8063R	63	57.1	1	0°18'	191	116	124
	QXP-8063R-22	63	57.1	1	0°18'	191	116	124
	QXP-8066	66	60.1	1	0°18'	191	122	130
	QXP-8066R-27	66	60.1	1	0°18'	191	122	130



QM Max

Recommended Cutting Data for QM Max - Face & Shoulder Milling

Material	Parameters	Face Milling				Shoulder Milling
		EPMT	EPMW-ZER	EPMW-ZTR	EPHW	ZPMT
Gray Cast Iron	SFM	700	700	700	*	700
	IPT	.025"	.030"	.030"	*	.008"
	DOC	.035"	.035"	.035"	*	.050"
	WOC	70%	70%	70%	*	60%
	Grade	JC8118/JC8050	JC8118	JC8118	*	JC8118 / DH102
Nodular Cast Iron	SFM	650	650	650	*	650
	IPT	.025"	.030"	.030"	*	.008"
	DOC	.035"	.035"	.035"	*	.050"
	WOC	70%	70%	70%	*	60%
	Grade	JC8118/JC8050	JC8118	JC8118	*	JC8118 / DH102
Carbon Steel	SFM	600	600	600	*	600
	IPT	.025"	.030"	.030"	*	.006"
	DOC	.030"	.030"	.030"	*	.040"
	WOC	70%	70%	70%	*	60%
	Grade	JC8050/JC7560	JC8050	JC8050/JC7560	*	JC8050 / JC8118
Low Alloy Steel	SFM	550	550	550	*	550
	IPT	.025"	.025"	.025"	*	.006"
	DOC	.025"	.025"	.025"	*	.040"
	WOC	60%	60%	60%	*	60%
	Grade	JC8050/JC7560	JC8050	JC8050/JC7560	*	JC8050 / JC8118
Mold Steel	SFM	500	500	500	*	500
	IPT	.025"	.025"	.025"	*	.006"
	DOC	.025"	.025"	.025"	*	.040"
	WOC	60%	60%	60%	*	60%
	Grade	JC8118/JC8050	JC8118/JC8050	JC8118/JC8050	*	JC8118 / JC8050
Tool & Die Steel (40-50 HRC)	SFM	400	400	400	500	400
	IPT	.015"	.020"	.020"	.020"	.005"
	DOC	.020"	.020"	.020"	.020"	.035"
	WOC	60%	60%	60%	60%	60%
	Grade	JC8118/JC8050	JC8118/JC8050	JC8118/JC8050	JC8118	JC8118 / DH102
Hardened Die Steel (50-60 HRC)	SFM	*	*	*	250	200
	IPT	*	*	*	.012"	.004"
	DOC	*	*	*	.010"	.030"
	WOC	*	*	*	40%	40%
	Grade	*	*	*	DH102	DH102
Stainless Steel	SFM	300	*	*	*	300
	IPT	.020"	*	*	*	.006"
	DOC	.020"	*	*	*	.030"
	WOC	60%	*	*	*	60%
	Grade	JC8050/JC7560	*	*	*	JC8050 / JC7518
Titanium	SFM	200	*	*	*	200
	IPT	.015"	*	*	*	.006"
	DOC	.020"	*	*	*	.030"
	WOC	60%	*	*	*	60%
	Grade	DS150/JC8050	*	*	*	DS150 / JC7518
Inconel	SFM	100	*	*	*	100
	IPT	.010"	*	*	*	.006"
	DOC	.015"	*	*	*	.030"
	WOC	60%	*	*	*	60%
	Grade	DS118/JC8118	*	*	*	DS118 / JC7518
Aluminum ZPMT100308ZER-NL	SFM	*	*	*	*	1,500
	IPT	*	*	*	*	.008"
	DOC	*	*	*	*	.050"
	WOC	*	*	*	*	60%
	Grade	*	*	*	*	FC18
Graphite	SFM	*	*	*	600	*
	IPT	*	*	*	.025"	*
	DOC	*	*	*	.025"	*
	WOC	*	*	*	25%	*
	Grade	*	*	*	DH102	*

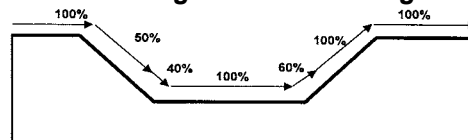
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern



QM Max

Recommended Cutting Data for QM Max - Side Finishing

Material	Parameters	ZPMT-PL	YPHW-F	YPHW-15/-24	YPHW-F1	ZPMT-NL	ZPMT-SL
Gray Cast Iron	SFM	1,200	1,200	1,200	2,500	*	*
	IPT	.010"	.008"	.008"	.004"	*	*
	DOC	.125"	.080"	.040"	.030"	*	*
	WOC	.010"	.008"	.008"	.004"	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	JBN795	*	*
Nodular Cast Iron	SFM	1,100	1,100	1,100	2,500	*	*
	IPT	.010"	.008"	.008"	.004"	*	*
	DOC	.080"	.080"	.040"	.030"	*	*
	WOC	.010"	.008"	.008"	.004"	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	JBN795	*	*
Carbon Steel	SFM	1,000	1,000	1,000	*	*	*
	IPT	.010"	.008"	.008"	*	*	*
	DOC	.125"	.080"	.040"	*	*	*
	WOC	.008"	.008"	.008"	*	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	*	*	*
Low Alloy Steel	SFM	1,000	1,000	1,000	*	*	*
	IPT	.008"	.008"	.008"	*	*	*
	DOC	.125"	.080"	.040"	*	*	*
	WOC	.008"	.008"	.008"	*	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	*	*	*
Mold Steel	SFM	900	900	900	*	*	*
	IPT	.008"	.008"	.008"	*	*	*
	DOC	.125"	.080"	.040"	*	*	*
	WOC	.010"	.008"	.008"	*	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	*	*	*
Tool & Die Steel (40-50 HRC)	SFM	750	750	750	2,000	*	*
	IPT	.006"	.006"	.006"	.004"	*	*
	DOC	.100"	.080"	.040"	.020"	*	*
	WOC	.008"	.008"	.008"	.003"	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	JBN795	*	*
Hardened Die Steel (50-60 HRC)	SFM	600	600	600	1,500	*	*
	IPT	.004"	.004"	.004"	.003"	*	*
	DOC	.080"	.060"	.030"	.015"	*	*
	WOC	.004"	.004"	.004"	.003"	*	*
	Grade	DH102	JC8015	DH102	JBN795	*	*
Stainless Steel	SFM	250	250	250	*	*	*
	IPT	.008"	.008"	.008"	*	*	*
	DOC	.080"	.060"	.030"	*	*	*
	WOC	.008"	.008"	.008"	*	*	*
	Grade	JC7518 / JC8118	JC8015	JC8015 / DH102	*	*	*
Titanium	SFM	*	*	*	*	*	300
	IPT	*	*	*	*	*	.005"
	DOC	*	*	*	*	*	.040"
	WOC	*	*	*	*	*	.004"
	Grade	*	*	*	*	*	DS118
Inconel	SFM	*	*	*	*	*	300
	IPT	*	*	*	*	*	.005"
	DOC	*	*	*	*	*	.040"
	WOC	*	*	*	*	*	.004"
	Grade	*	*	*	*	*	DS118
Aluminum	SFM	*	*	*	*	2,000	*
	IPT	*	*	*	*	.008"	*
	DOC	*	*	*	*	.080"	*
	WOC	*	*	*	*	.010"	*
	Grade	*	*	*	*	FC18	*

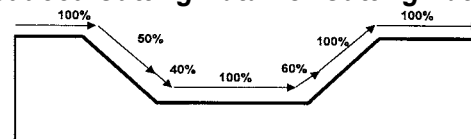
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
3. If machine does not have enough power, reduce DOC or spindle speed & feed.
4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern



QM Max

Recommended Cutting Data for QM Max - Bottom Finishing

Material	Parameters	ZPMT-PL	YPHW-F	YPHW-15/-24	YPHW-F1	ZPMT-NL	ZPMT-SL
Gray Cast Iron	SFM	840	840	840	1,750	*	*
	IPT	.008"	.010"	.012"	.004"	*	*
	DOC	.008"	.008"	.010"	.003"	*	*
	WOC	60%	60%	60%	60%	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	JBN795	*	*
Nodular Cast Iron	SFM	770	770	770	1,750	*	*
	IPT	.008"	.010"	.012"	.004"	*	*
	DOC	.008"	.008"	.010"	.003"	*	*
	WOC	60%	60%	60%	60%	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	JBN795	*	*
Carbon Steel	SFM	700	700	700	*	*	*
	IPT	.010"	.010"	.012"	*	*	*
	DOC	.008"	.008"	.010"	*	*	*
	WOC	60%	60%	60%	*	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	*	*	*
Low Alloy Steel	SFM	700	700	700	*	*	*
	IPT	.008"	.010"	.012"	*	*	*
	DOC	.006"	.008"	.010"	*	*	*
	WOC	60%	60%	60%	*	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	*	*	*
Mold Steel	SFM	630	630	630	*	*	*
	IPT	.006"	.008"	.010"	*	*	*
	DOC	.006"	.008"	.010"	*	*	*
	WOC	60%	60%	60%	*	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	*	*	*
Tool & Die Steel (40-50 HRC)	SFM	525	525	525	1,400	*	*
	IPT	.006"	.006"	.008"	.004"	*	*
	DOC	.005"	.008"	.008"	.003"	*	*
	WOC	60%	60%	60%	60%	*	*
	Grade	JC8118 / DH102	JC8015	DH102	JBN795	*	*
Hardened Die Steel (50-60 HRC)	SFM	420	420	420	1,050	*	*
	IPT	.004"	.004"	.006"	.003"	*	*
	DOC	.004"	.005"	.005"	.003"	*	*
	WOC	40%	40%	40%	60%	*	*
	Grade	DH102	JC8015	DH102	JBN795	*	*
Stainless Steel	SFM	175	175	175	*	*	*
	IPT	.008"	.010"	.012"	*	*	*
	DOC	.006"	.008"	.010"	*	*	*
	WOC	60%	60%	60%	*	*	*
	Grade	JC8118 / DH102	JC8015	JC8015 / DH102	*	*	*
Titanium	SFM	*	*	*	*	*	210
	IPT	*	*	*	*	*	.005"
	DOC	*	*	*	*	*	.006"
	WOC	*	*	*	*	*	40%
	Grade	*	*	*	*	*	DS118
Inconel	SFM	*	*	*	*	*	70
	IPT	*	*	*	*	*	.003"
	DOC	*	*	*	*	*	.005"
	WOC	*	*	*	*	*	40%
	Grade	*	*	*	*	*	DS118
Aluminum	SFM	*	*	*	*	1,400	*
	IPT	*	*	*	*	.008"	*
	DOC	*	*	*	*	.080"	*
	WOC	*	*	*	*	.010"	*
	Grade	*	*	*	*	FC18	*

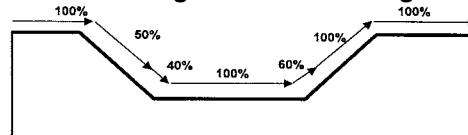
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern



QM Max

Recommended Cutting Data for QM Max - Vertical Side Finishing

Material	Parameters	YPHW-15	YPHW-F
Gray Cast Iron	SFM	1,800	1,800
	IPT	.006"	.006"
	Peck Feed	.020" x D	.020" x D
	WOC	< .008"	< .008"
	Grade	JC8015 / DH102	JC8015
Nodular Cast Iron	SFM	1,800	1,800
	IPT	.006"	.006"
	Peck Feed	.020" x D	.020" x D
	WOC	< .008"	< .008"
	Grade	JC8015 / DH102	JC8015
Carbon Steel	SFM	1,480	1,480
	IPT	.007"	.007"
	Peck Feed	.020" x D	.020" x D
	WOC	< .008"	< .008"
	Grade	JC8015 / DH102	JC8015
Low Alloy Steel	SFM	1,310	1,310
	IPT	.007"	.007"
	Peck Feed	.020" x D	.020" x D
	WOC	< .008"	< .008"
	Grade	JC8015 / DH102	JC8015
Mold Steel	SFM	1,150	1,150
	IPT	.006"	.006"
	Peck Feed	.020" x D	.020" x D
	WOC	< .008"	< .008"
	Grade	JC8015 / DH102	JC8015
Tool & Die Steel (40-50 HRC)	SFM	560	560
	IPT	.004"	.004"
	Peck Feed	.020" x D	.020" x D
	WOC	< .006"	< .006"
	Grade	DH102	JC8015
Hardened Die Steel (50-60 HRC)	SFM	*	*
	IPT	*	*
	Peck Feed	*	*
	WOC	*	*
	Grade	*	*
Stainless Steel	SFM	*	*
	IPT	*	*
	Peck Feed	*	*
	WOC	*	*
	Grade	*	*
Titanium	SFM	*	*
	IPT	*	*
	Peck Feed	*	*
	WOC	*	*
	Grade	*	*
Inconel	SFM	*	*
	IPT	*	*
	Peck Feed	*	*
	WOC	*	*
	Grade	*	*

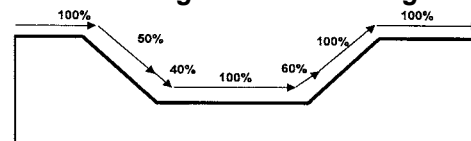
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
3. If machine does not have enough power, reduce DOC or spindle speed & feed.
4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern

[illegible]



QM Mini GII

MXG Mini Style High Feed Mill



- Double sided high feed insert with 4 cutting edges.
- Low cutting force with optimum cutting edge.
- Capable of running on low horse power machines and compact machines.
- Excellent in ramping, helical interpolation and high efficient pocket milling.
- High rigid design for stability.



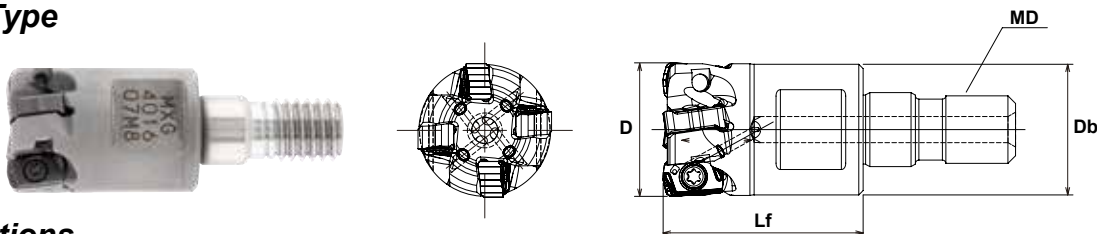
QM Mini GII

INCH

METRIC

MODULAR HEAD

MXG-07 Type



Specifications

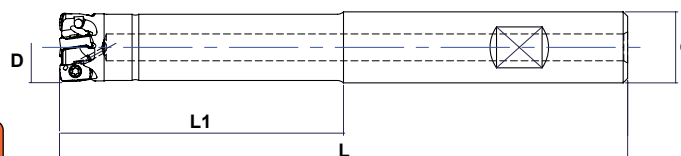
	CATALOG NUMBER	STK	DIMENSIONS				Q	Head Torque		INSERT	PARTS	
			D	Lf	Db	MD		lbs/ft	Nm		Screw	Wrench
INCH	MXG-3050-07-M6	•	.500	.787	.441	M6	3	5.9	8	ENMU07T207ZER-PM	TSW-2044H	T-06
	MXG-4062-07-M8	•	.625	.905	.590	M8	4	11.8	16			
METRIC	MXG-2010-07-M6	•	10	18	9.5	M6	2	5.9	8			
	MXG-3012-07-M6	•	12	20	11.2	M6	3	5.9	8			
	MXG-3013-07-M6	•	13	20	11.2	M6	3	5.9	8			
	MXG-4016-07-M8	•	16	23	15.0	M8	4	11.8	16			

See page A-69 for Modular Head Shanks.

Note: All cutters are supplied without inserts, wrenches or moly.

END MILL

GMX Type


G-Body


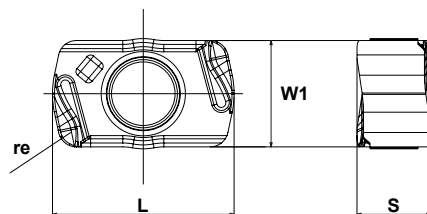
Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS				INSERT	Q	PARTS	
		D	L1	L	d			Screw	Wrench
GMX-3050-07-1.5-S050LG	•	.500	1.50	3.50	.500	ENMU07T207ZER-PM	3	TSW-2044H	T-06
GMX-3050-07-2.2-S050LG	•	.500	2.20	4.00	.500		3		
GMX-4062-07-1.5-S062LG	•	.625	1.50	4.50	.625		4		
GMX-4062-07-2.5-S062LG	•	.625	2.50	5.00	.625		4		

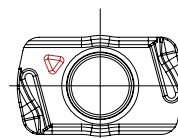
Note: All cutters are supplied without inserts, wrenches or moly.

INSERTS

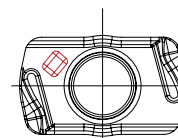
ENMU07 Type



GRADE MARKINGS



JC8118



JC8050

Specifications - Metric

CATALOG NUMBER	STK	TOLERANCE	DIMENSIONS				PVD COATED	
			L	W1	S	re	JC8050	JC8118
ENMU07T207ZER-PM	•	M	7	4.1	2.85	0.7	•	•

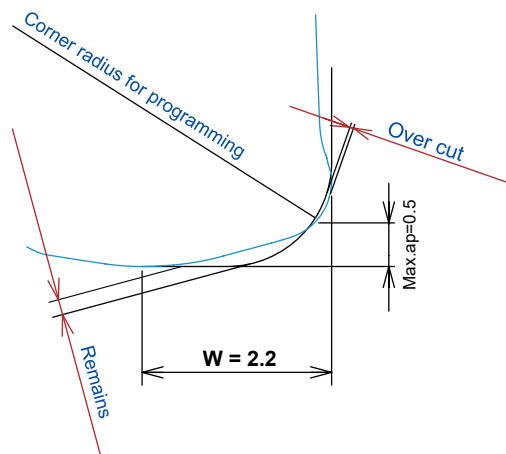


INCH

METRIC

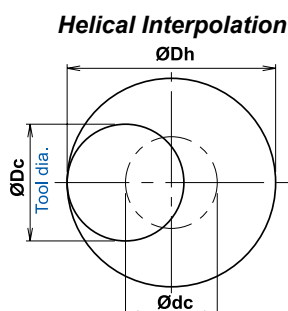
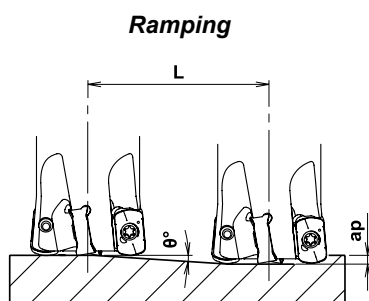
QM Mini GII

Definition of corner shape for programming



(mm)		
CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
1.0 (Standard)	0	0.21
1.5	0.15	0.10
2.0	0.85	0.01

Recommended Data for Profile Milling



- Calculation of tool pass dia.

$$\text{Tool pass dia.} = \text{Bore dia.} - \text{Tool Dia.}$$

Tool pass dia. Bore dia. Tool Dia.

- Depth of cut per one circuit should not exceed max. depth of cut ap.
- Down cutting is recommended, so tool pass rotation should be counterclockwise.

- In case of ramping and helical interpolation, apply 70% or less feed (F) from standard cutting condition table.

TOOL DIAMETER Dc		EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION		
				MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX AP: L	THROUGH HOLE MIN. BORE DIA.	BLIND HOLE MIN. BORE DIA.	THROUGH HOLE MAX. BORE DIA.
INCH	.500"	.323"	.020"	1.1°	1.04"	.800"	.840"	.960"
	.625"	.444"	.020"	0.9°	1.27"	1.05"	1.09"	1.21"
METRIC	10	5.5	0.5	1.1°	20	15	16	19
	12	7.5	0.5	1.2°	23	19	20	23
	13	8.4	0.5	1.1°	26	21	22	25
	16	11.4	0.5	0.9°	31.8	27	28	31



QM Mini GII

Recommended Cutting Data for MXG-07

Material	Grade	SFM	IPT	DOC	WOC
Gray Cast Iron (160-260HB)	JC8118	650	.024" - .039"	.010" - .016"	Dc - .200"
Nodular Cast Iron (170-300HB)	JC8118	600	.024" - .039"	.010" - .012"	Dc - .200"
Carbon Steel (below 250HB)	JC8050	550	.024" - .039"	.010" - .016"	Dc - .200"
Low Alloy Steel (below 255HB)	JC8050	500	.024" - .039"	.010" - .016"	Dc - .200"
Mold Steel (30-36HRC)	JC8050	500	.024" - .039"	.008" - .012"	Dc - .200"
Mold Steel (38-43HRC)	JC8118	350	.020" - .035"	.008" - .012"	Dc - .200"
Tool & Die Steel (42-52HRC)	JC8118	300	.014" - .022"	.008" - .012"	Dc - .200"
Stainless (Austenitec)	JC8050	400	.020" - .032"	.008" - .012"	Dc - .200"
Stainless (Martensitec)	JC8050	500	.024" - .039"	.008" - .012"	Dc - .200"
Stainless (Super Duplex)	JC8050	250	.012" - .020"	.008" - .012"	Dc - .200"
Titanium	JC8050	200	.015" - .020"	.008" - .012"	Dc - .200"
Inconel	JC8118	100	.010" - .015"	.008" - .012"	Dc - .200"

NOTE: 1. Please adjust cutting conditions according to machine rigidity or work rigidity.

2. In case of chatter occurring, recommend to reduce ap or rpm and keep feed per tooth.

3. ap should be reduced when using on low rigidity machine.

4. Use air blow.



QM Max GII

MXG Style High Feed Mill



- Double sided high feed insert with 4 cutting edges.
- Inserts available in 4 different shapes.
- Insert chipbreaker and grade combinations allows for machining from general steel to hard-to-cut materials such as hardened die steel (up to 62 HRC), high strength stainless steel, titanium alloy & inconel.
- Excellent in ramping, helical interpolation and high efficient pocket milling.
- G-body is a GN surface-hardening treatment on thermal resistant high strength steel giving a hardness over 65 HRC and secures insert pocket and holder against thermal deformation improving body durability.

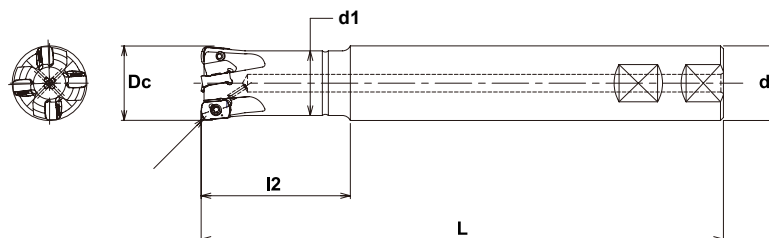


QM Max GII

INCH

METRIC

End Mill GMXS Style

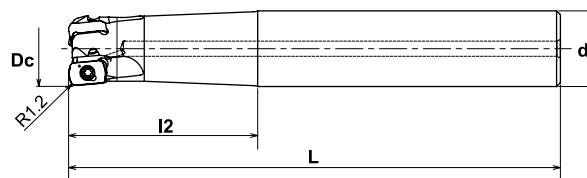


Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS					INSERT	Q	PARTS	
		Dc	d1	I2	L	d			Screw	Wrench
GMXS-2062-1.5-S062NP	•	.625	.551	1.50	3.50	.625	ENMU100412ZER-** ENMU100312ZER-HL ENMQ100312ZER	2	TSW-2567H	T-08
GMXS-2062-2.0-S062NP	•	.625	.551	2.00	5.00	.625		2		
GMXS-2062-3.0-S062NP	•	.625	.551	3.00	6.25	.625		2		
GMXS-3075-1.5-S075NP	•	.750	.677	1.50	3.50	.750		3		
GMXS-3075-2.0-S075NP	•	.750	.677	2.00	5.00	.750		3		
GMXS-3075-3.0-S075NP	•	.750	.677	3.00	6.25	.750		3		
GMXS-3100-1.8-S100NP	•	1.00	.866	1.80	4.00	1.00		3		
GMXS-3100-2.0-S100NP	•	1.00	.866	2.00	7.00	1.00		3		
GMXS-3100-3.0-S100NP	•	1.00	.866	3.00	8.00	1.00		3		
GMXS-4100-1.8-S100NP	•	1.00	.866	1.80	4.00	1.00		4		
GMXS-4100-2.0-S100NP	•	1.00	.866	2.00	7.00	1.00		4		
GMXS-4100-3.0-S100NP	•	1.00	.866	3.00	8.00	1.00		4		
GMXS-5125-3.0-S125NP	•	1.25	1.14	3.00	5.50	1.25		5		
GMXS-5125-4.75-S125NP	•	1.25	1.14	4.75	8.00	1.25		5		

Note: All cutters are supplied without inserts, wrenches or moly.

GMX Style



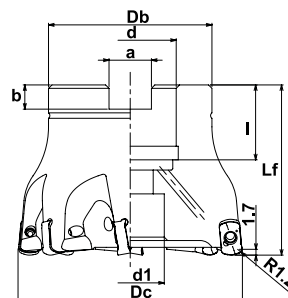
Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS				INSERT	Q	PARTS	
		Dc	I2	L	d			Screw	Wrench
GMX-2016-30-S16	•	16	30	100	16	ENMU100412ZER-** ENMU100312ZER-HL ENMQ100312ZER	2	TSW-2567H	T-08
GMX-2016-50-S16	•	16	50	150	16		2		
GMX-3020-50-S20	•	20	50	130	20		3		
GMX-3020-80-S20	•	20	80	160	20		3		
GMX-4025-60-S25	•	25	60	140	25		4		
GMX-4025-100-S25	•	25	100	180	25		4		
GMX-5032-70-S32	•	32	70	150	32		5		
GMX-5032-120-S32	•	32	120	200	32		5		

Note: All cutters are supplied without inserts, wrenches or moly.


INCH
METRIC
QM Max GII

Face Mill GMX Style



Specifications

	CATALOG NUMBER	STK	DIMENSIONS								INSERT	Q	PARTS	
			Dc	Lf	Db	d	d1	a	b	l			Screw	Wrench
INCH	GMX-7200R-075	•	2.00	2.00	1.77	.750	.630	.319	.197	.750	ENMU100412ZER-** ENMU100312ZER-HL ENMQ100312ZER	7	TSW-2567H	T-08
METRIC G-Body	GMX-7050R	•	50	50	40	22.225	17	8.4	5	20	ENMU100412ZER-** ENMU100312ZER-HL ENMQ100312ZER	7	TSW-2567H	T-08
	GMX-7050R-22	•	50	50	40	22	17	10.4	6.3	20		7		
	GMX-7052R-22	◦	52	50	40	22	17	10.4	6.3	20		7		
	GMX-7063R	•	63	50	48	22.225	17	8.4	5	20		7		
	GMX-7063R-22	•	63	50	48	22	17	10.4	6.3	20		7		
	GMX-7066R-27	◦	66	50	48	27	20	12.4	7	22		7		

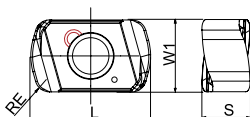
◦ - longer delivery may apply.

Note: All cutters are supplied without inserts, wrenches or moly.

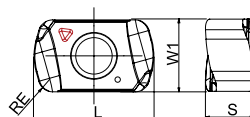
INSERTS

ENMU10 type

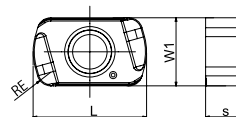
ENMU100412ZER-PH



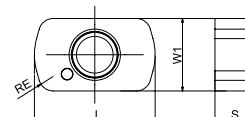
ENMU100412ZER-SL



ENMU100312ZER-HL



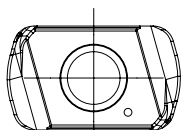
ENMQ100312ZER



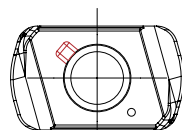
Specifications

CATALOG NUMBER	TOLERANCE	DIMENSIONS				PVD COATED							
		L	W1	S	re	DH102	JC7518	JC7550	JC7560	JC8050	JC8118	DS118	DS150
ENMU100412ZER-PH	M	10	6	4	1.2				•	•	•		
ENMU100412ZER-SL	M	10	6	4	1.2		•	•				•	•
ENMU100312ZER-HL	M	10	6	3.2	1.2	•							
ENMQ100312ZER	M	10	6	3.2	1.2	•							

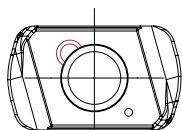
ENMU100412ZER-PH



JC8118

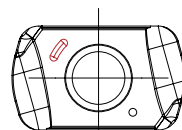


JC8050

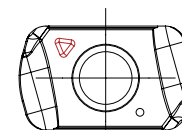


JC7560

ENMU100412ZER-SL



JC7518/DS 1118



JC7550/DS150



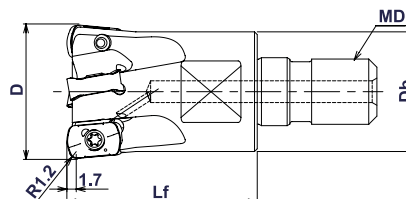
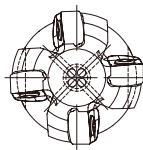
QM Max GII

INCH

METRIC

MODULAR HEAD

MXG Type - coolant thru



G-Body

Specifications

CATALOG NUMBER		STK	DIMENSIONS				Q	Head Torque		INSERT	PARTS	
			D	Lf	Db	MD		lbs/ft	Nm		Screw	Wrench
INCH	MXG-2062-M8	•	.625	.905	.551	M8	2	11.8	16	ENMU100412ZER-** ENMU100312ZER-HL ENMQ100312ZER	TSW-2567H	T-08
	MXG-3075-M10	•	.750	1.18	.708	M10	3	11.8	16			
	MXG-3100-M12	•	1.00	1.38	.866	M12	3	14.7	20			
	MXG-4100-M12	•	1.00	1.38	.866	M12	4	14.7	20			
	MXG-5125-M16	•	1.25	1.69	1.14	M16	5	18.4	25			
	MXG-6150-M16	•	1.50	1.69	1.14	M16	6	18.4	25			
METRIC	MXG-2016-M8	•	16	23	14	M8	2	11.8	16			
	MXG-2017-M8	•	17	23	14	M8	2	11.8	16			
	MXG-3020-M10	•	20	30	18	M10	3	11.8	16			
	MXG-3021-M10	•	21	30	18	M10	3	11.8	16			
	MXG-3022-M10	•	22	30	18	M10	3	11.8	16			
	MXG-3025-M12	•	25	35	22	M12	3	14.7	20			
	MXG-4025-M12	•	25	35	22	M12	4	14.7	20			
	MXG-4026-M12	•	26	35	22.5	M12	4	14.7	20			
	MXG-4028-M12	•	28	35	23.6	M12	4	14.7	20			
	MXG-5030-M16	•	30	43	27	M16	5	18.4	25			
	MXG-5032-M16	•	32	43	29	M16	5	18.4	25			
	MXG-5035-M16	•	35	43	29	M16	5	18.4	25			
	MXG-6040-M16	•	40	43	32	M16	6	18.4	25			
	MXG-6042-M16	◦	42	43	32	M16	6	18.4	25			

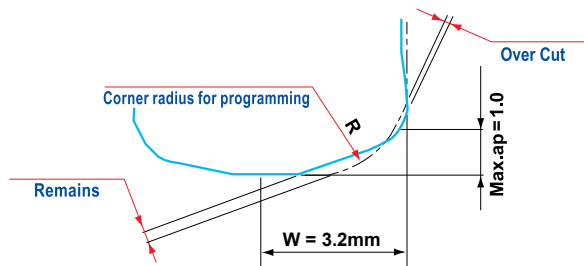
◦ - longer delivery may apply.

See page A-69 for Modular Head Shanks.

Note: All cutters are supplied without inserts, wrenches or moly.


INCH
METRIC
QM Max GII

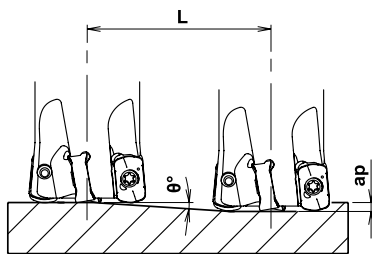
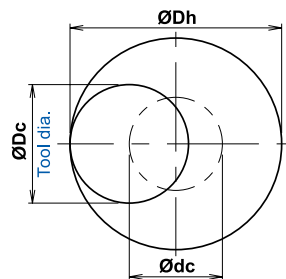
Definition of corner shape for programming



CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R1.0	0	0.52
R1.5 (Standard)	0	0.38
R2.0	0.08	0.24

(mm)

Recommended Data for Profile Milling

Ramping

Helical Interpolation


- Calculation of tool pass dia.

$$\text{Tool pass dia.} = \text{Bore dia.} - \text{Tool Dia.}$$

- Down cutting is recommended, tool pass rotation should be counterclockwise.
- Depth of cut per one circuit should not exceed max. depth of cut Ap.
- In case of ramping and helical interpolation, apply 70% or less feed (F) from standard cutting condition table.

TOOL DIAMETER Dc		EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION	
				MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX AP: L	MIN. BORE DIAMETER: Dh min	MAX. BORE DIAMETER: Dh max
INCH	.625	.392	.027	1°36'	.960	.860	1.17
	.750	.510	.039	1°30'	1.49	1.11	1.42
	1.00	.760	.039	1°12'	1.86	1.61	1.92
	1.25	1.01	.039	0°54'	2.48	2.11	2.42
	1.50	1.26	.039	0°30'	4.46	2.61	2.92
	2.00	1.75	.039	0°18'	7.44	3.61	3.92
METRIC	16	10.1	0.7	1°36'	25.1	22	30
	17	11.1	0.7	1°36'	25.1	24	32
	20	13.9	1	1°30'	38.2	30	38
	21	14.9	1	1°30'	38.2	32	40
	22	15.9	1	1°30'	38.2	34	42
	25	18.9	1	1°12'	47.7	40	48
	26	19.9	1	1°12'	47.7	42	50
	28	21.9	1	1°06'	52.1	46	54
	30	23.9	1	0°54'	63.6	50	58
	32	25.9	1	0°54'	63.6	54	62
	35	28.8	1	0°42'	81.8	60	68
	40	33.8	1	0°30'	114.5	70	78
	42	35.8	1	0°30'	114.5	74	82
	50	43.8	1	0°24'	143.2	90	98
	52	45.8	1	0°24'	143.2	94	102
	63	56.8	1	0°18'	190.9	116	124
	66	59.8	1	0°18'	190.9	122	130



Recommended Cutting Data for QM Max GII

Material	INSERT	Grade	SFM	IPT	DOC	WOC
Gray Cast Iron	-PH	JC8118 JC8050	700	.025" - .040"	.030" - .040"	70%
Nodular Cast Iron	-PH	JC8118 JC8050	650	.025" - .040"	.030" - .040"	70%
Carbon Steel	-PH	JC8050 JC7560	600	.025" - .040"	.030" - .040"	70%
Low Alloy Steel	-PH	JC8050 JC7560	550	.025" - .040"	.030" - .040"	70%
Mold Steel	-PH	JC8118 JC8050	500	.020" - .035"	.020" - .040"	60%
Tool & Die Steel (40-50 HRC)	-PH -HL	JC8118 DH102	400	.020" - .030"	.015" - .025"	60%
Hardened Die Steel (50-60 HRC)	-ENMQ -HL	DH102	250	.010" - .015"	.005" - .010"	40%
Stainless Steel	-SL	JC7550 JC7518	300	.015" - .030"	.015" - .030"	60%
Titanium	-SL	DS150 DS118	200	.010" - .025"	.012" - .020"	60%
Inconel	-SL	DS118 DS150	100	.005" - .015"	.010" - .015"	60%

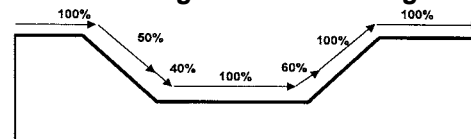
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern



SKG SERIES

High Feed SKG



- 4 insert sizes: -09, -10, -14, & -20.
- 4 corner positive insert with low cutting forces.
- High metal removal rate.
- Long reach applications.
- Good on high temp alloys & stainless steel.
- G-body is a GN surface-hardening treatment on thermal resistant high strength steel giving a hardness over 65 HRC and secures insert pocket and holder against thermal deformation improving body durability.



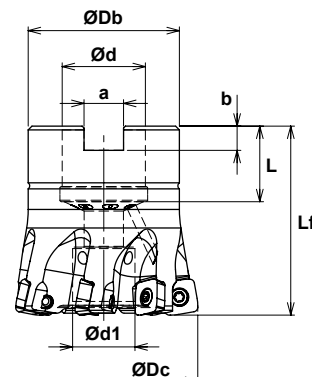
SKG-09 High Feed

INCH

METRIC

Face Mills & Modular Heads

For heat resistant alloys, titanium alloy & hardened stainless steel.
SKG-09 & MSG-09 Style

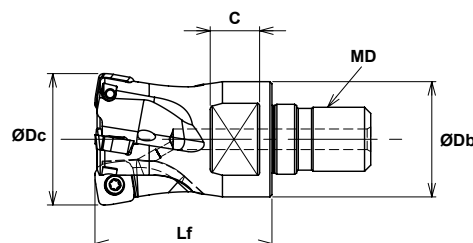
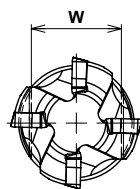
G-Body


Face Mill Specifications

CATALOG NUMBER		STK	DIMENSIONS								INSERT	Q	PARTS	
			ØDc	Lf	ØDb	Ød	Ød1	a	b	L			Screw	Wrench
INCH	SKG-7200R-09-075	•	2.00	2.00	1.77	.750	.590	.319	.197	.750	SDEW090312ZER SDET090312ZDER-SM	7	DSW-307H	T-10
	SKG-8250R-09-075	•	2.50	2.00	1.89	.750	.669	.319	.197	.750		8		
	SKG-9300R-09-100	•	3.00	2.00	2.21	1.00	.787	.374	.236	.945		9		
	SKG-9300R-09-125	•	3.00	2.00	2.68	1.25	1.02	.500	.315	.945		9		
METRIC	SKG-5040R-09-16	◦	40	40	37	16	13.5	8.4	5.6	18		5		
	SKG-7050R-09-22	•	50	50	40	22	16.5	10.4	6.3	20		7		
	SKG-7052R-09-22	◦	52	50	40	22	16.5	10.4	6.3	20		7		
	SKG-8063R-09-22	•	63	50	48	22	17	10.4	6.3	20		8		
	SKG-8066R-09-27*	◦	66	50	50	27	20	12.4	7	22		8		
	SKG-9080R-09-27*	•	80	50	60	27	20	12.4	7	22		9		

*Arbor bolt, M12x1.75x30, included
◦ delivery may be longer

Note: All cutters are supplied without inserts, wrenches or moly.

G-Body


Modular Head Specifications

CATALOG NUMBER		STK	DIMENSIONS						INSERT	Q	PARTS	
			ØDc	Lf	ØDb	MD	C	W			Screw	Wrench
INCH	MSG-3100-09-M12	•	1.00	1.38	.905	M12	11	19	SDEW090312ZER SDET090312ZDER-SM	3	DSW-307H	T-10
	MSG-4125-09-M16	•	1.25	1.69	1.10	M16	12	22		4		
	MSG-5150-09-M16	•	1.50	1.69	1.26	M16	12	22		5		
METRIC	MSG-2020-09-M10	•	20	30	19	M10	9	14		2	DSW-306H	
	MSG-2022-09-M10	•	22	30	19	M10	9	14		2	DSW-307H	
	MSG-3025-09-M12	•	25	35	23	M12	11	19		3		
	MSG-4028-09-M12	•	28	35	23.6	M12	11	19		4		
	MSG-4032-09-M16	•	32	43	28	M16	12	22		4		
	MSG-5035-09-M16	•	35	43	29	M16	12	22		5		
	MSG-5040-09-M16	•	40	43	32	M16	14	26		5		
	MSG-5042-09-M16	◦	42	43	32	M16	14	26		5		

◦ - longer delivery may apply.

Note: All cutters are supplied without inserts, wrenches or moly.

See page A-69 for Modular Head Shanks.


INCH
METRIC

SKG-09 High Feed

End Mills & Inserts

For heat resistant alloys, titanium alloy & hardened stainless steel.

SKGS-09 Style



Fig. 1

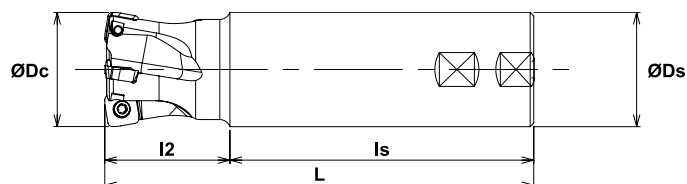
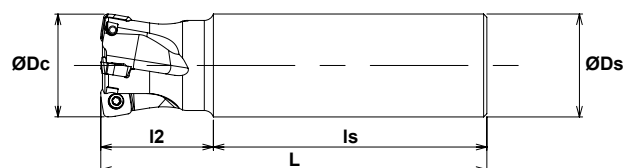


Fig. 2



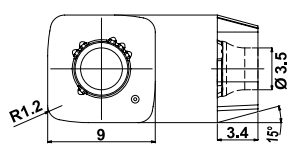
End Mill Specifications

	CATALOG NUMBER	STK	DIMENSIONS					FIG.	INSERT	Q	PARTS	
			ØDc	L2	Ls	L	ØDs				Screw	Wrench
INCH	SKGS-3100-1.8-09-S100NP	•	1.00	1.80	2.20	4.00	1.00	1	SDEW090312ZER SDET090312ZDER-SM	3	DSW-307H	T-10
	SKGS-3100-2.0-09-S100NP	•	1.00	2.00	5.00	7.00	1.00	1		3		
	SKGS-3100-3.0-09-S100NP	•	1.00	3.00	5.00	8.00	1.00	1		3		
	SKGS-4125-1.8-09-S125NP	•	1.25	1.80	2.20	4.00	1.25	1		4		
	SKGS-4125-2.0-09-S125NP	•	1.25	2.00	5.00	7.00	1.25	1		4		
	SKGS-4125-3.0-09-S125NP	•	1.25	3.00	5.00	8.00	1.25	1		4		
	SKGS-5150-3.0-09-S125NP	•	1.50	3.00	4.00	7.00	1.25	1		5		
	SKGS-5150-4.75-09-S125NP	•	1.50	4.75	3.25	8.00	1.25	1		5		
METRIC	SKG-3025-60-09-S25	•	25	60	80	140	25	2	SDEW090312ZER SDET090312ZDER-SM	3	DSW-307H	T-10
	SKG-3025-100-09-S25	•	25	100	80	180	25	2		3		
	SKG-4032-70-09-S32	•	32	70	80	150	32	2		4		
	SKG-4032-120-09-S32	•	32	120	80	200	32	2		4		
	SKG-5035-70-09-S32	•	35	70	80	150	32	2		5		
	SKG-5035-120-09-S32	•	35	120	80	200	32	2		5		
	SKG-5040-45-09-S32	•	40	45	105	150	32	2		5		
	SKG-5040-45E-09-S32	•	40	45	175	220	32	2		5		

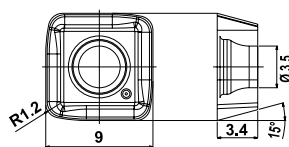
Note: All cutters are supplied without inserts, wrenches or moly.

INSERTS

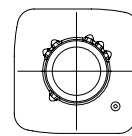
SDEW



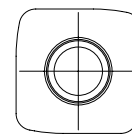
SDET



GRADE MARKINGS



JC7550 / DS150
DS250



JC7518 / DS118
DS217

CATALOG NUMBER	TOLERANCE	PVD COATED					
		JC7550	JC7518	DS150	DS118	DS250	DS217
SDEW090312ZER	E	•	•	•	•	•	•
SDET090312ZDER-SM		•	•	•	•	•	•

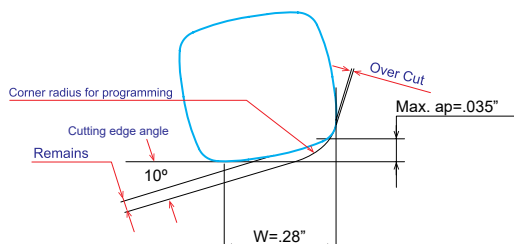


SKG-09 High Feed

INCH

METRIC

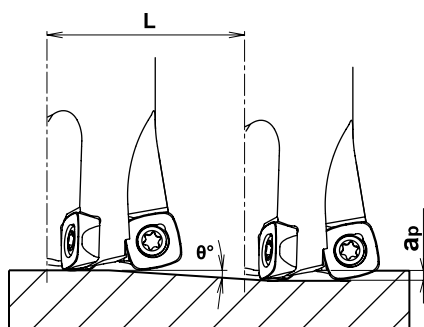
Definition of corner shape for programming



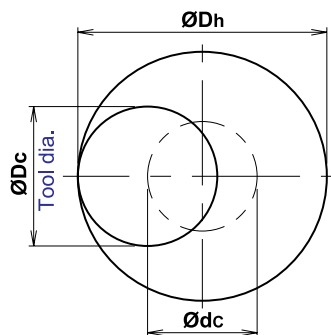
CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
.059"	0	.032"
.078" (Standard)	0	.029"
.098"	0.003	.026"

Recommended Data for Profile Milling

Ramping



Helical Interpolation



- Calculation of tool pass dia.

$$\text{Tool pass dia.} = \text{Bore dia.} - \text{Tool Dia.}$$

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

- Depth of cut per one circuit should not exceed max. depth of cut Ap.
- In case of ramping and helical interpolation, apply 70% or less feed (F) from standard cutting condition table.

TOOL DIAMETER Dc		EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION	
				MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX AP: L	MIN. BORE DIAMETER: Dh min	MAX. BORE DIAMETER: Dh max
INCH	1.00	.437	.035	1°	2.030	1.476	1.921
	1.25	.685	.035	1°	2.030	1.974	2.421
	1.50	.933	.035	1°	2.030	2.472	2.921
	2.00	1.433	.035	1°	2.030	3.472	3.921
	2.50	1.937	.035	0.75°	2.707	4.475	4.921
	3.00	2.437	.035	0.75°	3.691	5.476	5.921
METRIC	20	5.6	0.9	1°	51.6	27	38
	22	7.7	0.9	1°	51.6	31	42
	25	10.7	0.9	1°	51.6	37	48
	28	13.7	0.9	1°	51.6	43	54
	32	17.6	0.9	1°	51.6	51	62
	35	20.6	0.9	1°	51.6	57	68
	40	25.7	0.9	1°	51.6	67	78
	42	27.7	0.9	1°	51.6	71	82
	50	35.6	0.9	1°	51.6	87	98
	52	37.6	0.9	1°	51.6	91	102
	63	48.7	0.9	0.75°	68.8	113	124
	66	51.7	0.9	0.75°	68.8	119	130
	80	65.7	0.9	0.5°	103.1	147	158



SKG-09 High Feed

Recommended Cutting Data for SKG-09

Material	Insert	Grade	SFM	IPT	DOC	WOC
Cast Iron	SDEW090312ZER (SDET090312ZDER-SM)	JC7518 (JC7550)	700	.040" - .050"	.025" - .035"	DC-.57" x 90%
Carbon Steel	SDEW090312ZER (SDET090312ZDER-SM)	JC7550 (JC7518)	600	.030" - .050"	.025" - .035"	DC-.57" x 90%
Low Alloy Steel	SDEW090312ZER (SDET090312ZDER-SM)	JC7550 (JC7518)	550	.030" - .050"	.025" - .035"	DC-.57" x 90%
Mold Steel	SDEW090312ZER (SDET090312ZDER-SM)	JC7550 (JC7518)	500	.020" - .040"	.025" - .035"	DC-.57" x 90%
Tool & Die Steel	SDEW090312ZER (SDET090312ZDER-SM)	JC7518 (JC7550)	400	.010" - .020"	.020" - .030"	DC-.57" x 90%
Stainless (Austenitic)	SDET090312ZDER-SM (SDEW090312ZER)	DS250 (DS217)	500	.035" - .045"	.020" - .030"	DC-.57" x 90%
Stainless (Martensitic)	SDET090312ZDER-SM (SDEW090312ZER)	DS250 (DS217)	600	.035" - .045"	.020" - .030"	DC-.57" x 90%
Stainless (Super Duplex)	SDEW090312ZER (SDET090312ZDER-SM)	DS217 (DS250)	300	.015" - .020"	.020" - .030"	DC-.57" x 60%
Titanium	SDEW090312ZER (SDET090312ZDER-SM)	DS118 (DS150)	200	.025" - .030"	.020" - .030"	DC-.57" x 60%
Inconel	SDEW090312ZER (SDET090312ZDER-SM)	DS118 (DS150)	100	.025" - .030"	.015" - .025"	DC-.57" x 60%

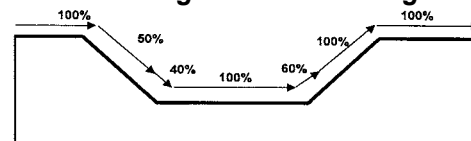
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
3. If machine does not have enough power, reduce DOC or spindle speed & feed.
4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern

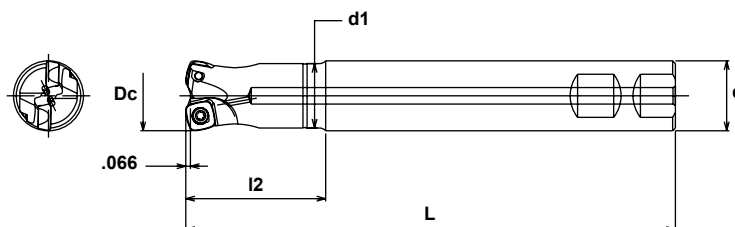


SKG-10 High Feed

INCH

METRIC

End Mill SKGS Style

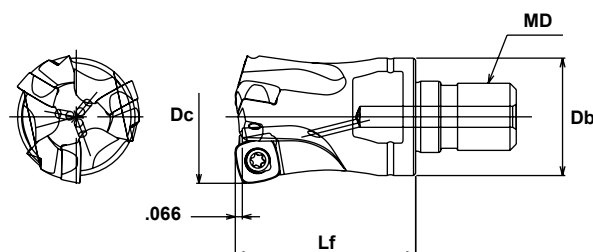


Specifications

CATALOG NUMBER	STK	DIMENSIONS					INSERT	Q	PARTS	
		Dc	d1	I2	L	d			Screw	Wrench
SKGS-2100-1.8-10-S100NP	•	1.00	.921	1.80	4.00	1.00	SPNW100415ZTR SPET100415ZPER-SM SPMT100415ZP*R-**	2	TSW-3509H	T-15
SKGS-2100-2.0-10-S100NP	•	1.00	.921	2.00	7.00	1.00		2		
SKGS-2100-3.0-10-S100NP	•	1.00	.921	3.00	8.00	1.00		2		
SKGS-3125-1.8-10-S125NP	•	1.25	1.14	1.80	4.00	1.25		3		
SKGS-3125-2.0-10-S125NP	•	1.25	1.14	2.00	7.00	1.25		3		
SKGS-3125-3.0-10-S125NP	•	1.25	1.14	3.00	8.00	1.25		3		
SKGS-3150-3.0-10-S125NP	•	1.50	1.25	3.00	5.50	1.25		3		
SKGS-3150-4.75-10-S125NP	•	1.50	1.25	4.75	8.00	1.25		3		

Note: All cutters are supplied without inserts, wrenches or moly.

MODULAR HEAD MSG type - coolant thru

G-Body


Specifications

	CATALOG NUMBER	STK	DIMENSIONS				Q	Head Torque		INSERT	PARTS	
			Dc	Lf	Db	MD		lbs/ft	Nm		Screw	Wrench
INCH	MSG-2100-10-M12	•	1.00	1.38	.905	M12	2	14.7	20	SPNW100415ZTR SPET100415ZPER-SM SPMT100415ZP*R-**	TSW-3509H	T-15
	MSG-3125-10-M16	•	1.25	1.69	1.10	M16	3	18.4	25			
	MSG-3150-10-M16	•	1.50	1.69	1.25	M16	3	18.4	25			
METRIC	MSG-2025-10-M12	•	25	35	23	M12	2	14.7	20			
	MSG-3032-10-M16	•	32	43	28	M16	3	18.4	25			
	MSG-3035-10-M16	•	35	43	30	M16	3	18.4	25			
	MSG-4040-10-M16	•	40	43	32	M16	4	18.4	25			
	MSG-4042-10-M16	◦	42	43	32	M16	4	18.4	25			

◦ - longer delivery may apply.

See page A-69 for Modular Head Shanks.

Note: All cutters are supplied without inserts, wrenches or moly.



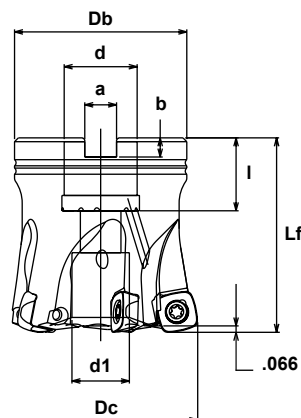
INCH

METRIC

SKG-10 High Feed

Face Mill
SKG-10 Type

G-Body



Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS								INSERT	Q	PARTS	
		Dc	Lf	Db	d	d1	a	b	l			Screw	Wrench
SKG-5200R-075-10	•	2.00	2.00	1.77	.750	.590	.319	.197	.750	SPNW100415ZTR SPET100415ZPER-SM SPMT100415ZP*R-**	5	TSW-3509H	A-15T
SKG-6250R-075-10	•	2.50	2.00	1.89	.750	.669	.319	.197	.750		6		
SKG-7300R-100-10	•	3.00	2.00	2.21	1.00	.787	.374	.236	.866		7		
SKG-7300R-125-10	•	3.00	2.00	2.67	1.25	1.02	.500	.315	.866		7		

Note: All cutters are supplied without inserts, wrenches or moly.

Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS								INSERT	Q	PARTS	
		Dc	Lf	Db	d	d1	a	b	l			Screw	Wrench
SKG-4050R-10	•	50	50	40	22.225	14	8.4	5	20	SPNW100415ZTR SPET100415ZPER-SM SPMT100415ZP*R-**	4	TSW-3509H	A-15T
SKG-4050R-10-22	•	50	50	40	22	14	10.4	6.3	20		4		
SKG-5050R-10	•	50	50	40	22.225	14	8.4	5	20		5		
SKG-5050R-10-22	•	50	50	40	22	14	10.4	6.3	20		5		
SKG-5052-10-22	◦	52	50	42	22	16.6	10.4	6.3	20		5		
SKG-5063R-10	•	63	50	48	22.225	17	8.4	5	20		5		
SKG-5063R-10-22	•	63	50	48	22	17	10.4	6.3	20		5		
SKG-5063R-10-27	•	63	50	48	27	20	12.4	7	20		5		
SKG-6063R-10	•	63	50	48	22.225	17	8.4	5	20		6		
SKG-6063R-10-22	•	63	50	48	22	17	10.4	6.3	20		6		
SKG-6063R-10-27	•	63	50	48	27	20	12.4	7	22		6		
SKG-6066R-10-27	◦	66	50	50	27	20	12.4	7	22		6		
SKG-6080R-10	•	80	70	65	31.75	26	12.7	8	32		6		
SKG-6080R-10-27	•	80	50	70	27	20	12.4	7	22		6		

◦ - longer delivery may apply.

Note: All cutters are supplied without inserts, wrenches or moly.



SKG-10 High Feed

METRIC

Insert SKG-10 type



Fig. 1
SPNW100415ZTR

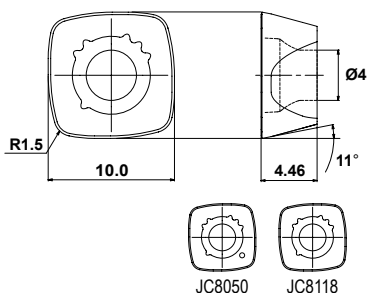


Fig. 2
SPET100415ZPER-SM

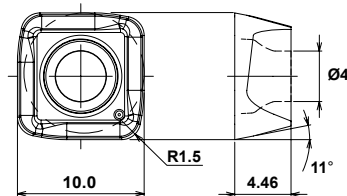


Fig. 3
SPMT100415ZPER-SM

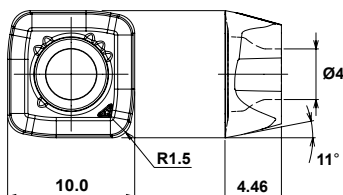
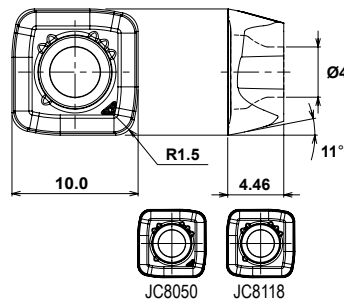


Fig. 4
SPMT100415ZPTR-PM



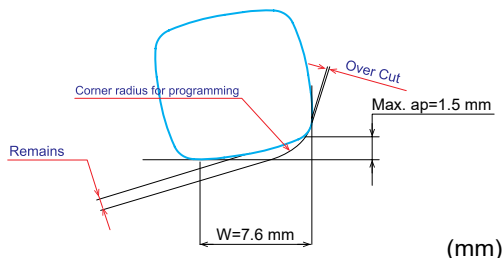
CATALOG NUMBER	TOLERANCE	PVD COATED				FIG.
		JC7550	JC8050	JC8118	DS150	
SPNW100415ZTR	N		•	•		1
SPET100415ZPER-SM	E	•			•	2
SPMT100415ZPER-SM	M	•			•	3
SPMT100415ZPTR-PM	M		•	•		4


INCH
METRIC

SKG-10 High Feed

Definition of corner shape for programming

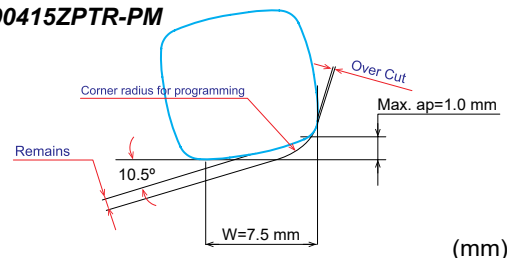
SPNW100415ZTR



CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R2.5	0	0.99
R3.0 (Standard)	0	0.84
R3.5	0.09	0.71
R4.0	0.23	0.59

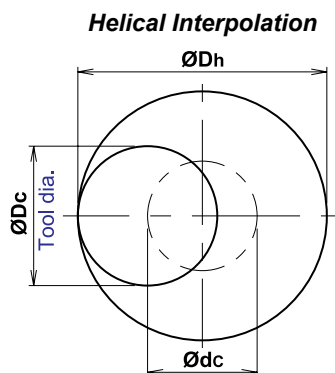
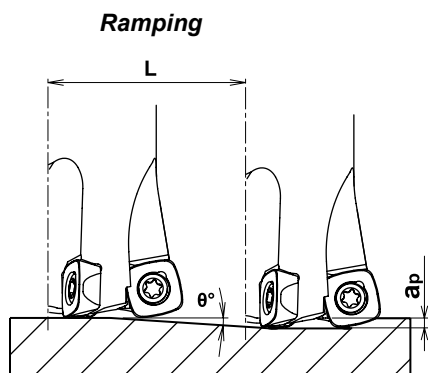
SPE(M)T100415ZPER-SM

SPMT100415ZPTR-PM



CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R2.5 (Standard)	0	0.77
R3.0	0.09	0.68
R3.5	0.25	0.60
R4.0	0.43	0.52

Recommended Data for Profile Milling



• Calculation of tool pass dia.

$$\text{Tool pass dia.} = \text{Bore dia.} - \text{Tool Dia.}$$

- Down cutting is recommended, tool pass rotation should be counterclockwise.
- Depth of cut per one circuit should not exceed max. depth of cut Ap.
- In case of ramping and helical interpolation, apply 70% or less feed (F) from standard cutting condition table.

	TOOL DIAMETER Dc	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION	
				MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX AP: L	MIN. BORE DIAMETER: Dh min	MAX. BORE DIAMETER: Dh max
INCH	1.00	.402	.059	1°	3.38	1.45	1.92
	1.25	.650	.059	1°	3.38	1.95	2.42
	1.50	.902	.059	1°	3.38	2.40	2.92
	2.00	1.402	.059	1°	3.38	3.45	3.92
	2.50	1.902	.059	0°45'	4.51	4.45	4.92
	3.00	2.402	.059	0°30'	6.77	5.45	5.92
METRIC	25	9.8	1.5	1°	85.9	36	48
	32	16.8	1.5	1°	85.9	50	62
	35	19.8	1.5	1°	85.9	56	70
	40	24.8	1.5	1°	85.9	66	78
	42	26.8	1.5	1°	85.9	70	82
	50	34.8	1.5	1°	85.9	86	98
	52	36.8	1.5	1°	85.9	90	102
	63	47.8	1.5	0°45'	114.6	112	124
	66	50.8	1.5	0°45'	114.6	118	130
	80	64.8	1.5	0°30'	171.9	146	158



SKG-10 High Feed

Recommended Cutting Data for SKG-10

Material	Insert	Grade	SFM	LOW HORSEPOWER		HIGH HORSEPOWER		WOC
				IPT	DOC	IPT	DOC	
Gray Cast Iron	SPNW SPMT-PM	JC8118 JC8050	700	.030" - .050"	.020" - .040"	.050" - .070"	.040" - .060"	70%
Nodular Cast Iron	SPNW SPMT-PM	JC8118 JC8050	650	.025" - .040"	.020" - .040"	.040" - .060"	.040" - .060"	70%
Carbon Steel	SPNW SPMT-PM	JC8050 JC8118	600	.025" - .040"	.020" - .040"	.045" - .065"	.040" - .060"	70%
Low Alloy Steel	SPNW SPMT-PM	JC8050 JC8118	550	.025" - .040"	.020" - .040"	.040" - .060"	.040" - .060"	70%
Mold Steel	SPNW SPMT-PM	JC8118 JC8050	500	.015" - .025"	.015" - .035"	.040" - .060"	.040" - .060"	60%
Tool & Die Steel (40-50 HRC)	SPNW	JC8118	400	.010" - .020"	.010" - .020"	.015" - .025"	.020" - .035"	60%
Hardened Die Steel (50-60 HRC)	SPNW	JC8118	250	.005" - .010"	.005" - .010"	.005" - .015"	.005" - .010"	40%
Stainless Steel	SPMT-SM SPET-SM	JC7550	300	.010" - .020"	.015" - .025"	.015" - .030"	.025" - .040"	60%
Titanium	SPMT-SM SPET-SM	DS150 JC7550	200	.010" - .020"	.010" - .025"	.015" - .025"	.025" - .040"	60%
Inconel	SPMT-SM SPET-SM	DS150 JC7550	100	.005" - .015"	.010" - .025"	.015" - .025"	.025" - .040"	60%

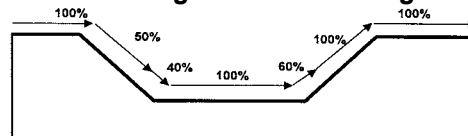
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern



INCH

METRIC

SKG-14 High Feed

Face Mill
SKG-14 Type

G-Body

Fig. 1 coolant thru

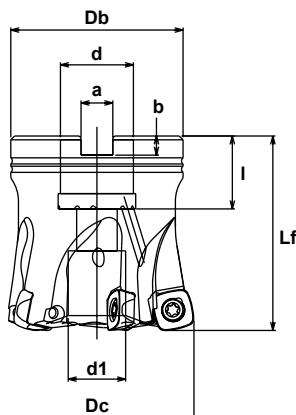
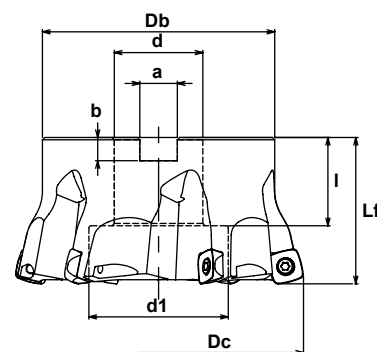


Fig. 2 without coolant thru



Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS								FIG.	INSERT	Q	PARTS	
		Dc	Lf	Db	d	d1	a	b	l				Screw	Wrench
SKG-4200R-075-14	•	2.00	2.00	1.77	.750	.630	.319	.197	.750	1	SPNW140515ZTR SPMT140520ZP*R-**	4	CSW-513H	A-20
SKG-5250R-100-14	•	2.50	2.00	1.90	1.00	.787	.374	.236	.945	1		5		
SKG-5300R-125-14	•	3.00	2.50	2.68	1.25	1.02	.500	.315	.866	1		5		
SKG-6300R-100-14	•	3.00	2.00	2.21	1.00	.787	.374	.236	.945	1		6		
SKG-6300R-125-14	•	3.00	2.50	2.68	1.25	1.02	.500	.315	.866	1		6		
SKG-6400R-150-14	•	4.00	2.50	3.00	1.50	1.26	.626	.393	1.02	1		6		
SKG-7400R-150-14	•	4.00	2.50	3.00	1.50	1.26	.626	.393	1.02	1		7		
SKG-7600R-150-14	•	6.00	2.50	3.93	1.50	1.26	.626	.393	1.02	1		7		

Note: All cutters are supplied without inserts, wrenches or moly.

Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS								FIG.	INSERT	Q	PARTS	
		Dc	Lf	Db	d	d1	a	b	l				Screw	Wrench
SKG-4050R-14	•	50	50	40	22.225	14	8.4	5	19	1	SPNW140515ZTR SPMT140520ZP*R-**	4	CSW-513H	A-20
SKG-4050R-14-22	•	50	50	40	22	14	10.4	6.3	19.05	1		4		
SKG-4052R-14-22	◦	52	50	42	22	17	10.4	6.3	19.05	1		4		
SKG-4063R-14	•	63	50	48	22.225	17	8.4	5	20	1		4		
SKG-4063R-14-22	•	63	50	48	22	17	10.4	6.3	20	1		4		
SKG-4063R-14-27	•	63	50	48	27	20	12.4	7	22	1		4		
SKG-5066R-14-27	◦	66	50	50	27	20	12.4	7	22	1		5		
SKG-5080R-14	•	80	70	65	31.75	26	12.7	8	32	1		5		
SKG-5080R-14-27	•	80	50	60	27	37	12.4	7	22	1		5		
SKG-6100R-14	•	100	70	70	31.75	26	12.7	8	32	1		6		
SKG-6100R-14-32	•	100	63	70	32	45	14.4	8	25	1		6		
SKG-6125R-14	•	125	63	100	38.1	60	15.9	10	38	2		6		
SKG-7160R-14	•	160	63	100	50.8	85	19	11	38	2		7		

◦ - longer delivery may apply.

Note: All cutters are supplied without inserts, wrenches or moly.



SKG-14 High Feed

METRIC

Insert
SKG-14 type

Fig. 1 SPNW140515ZTR

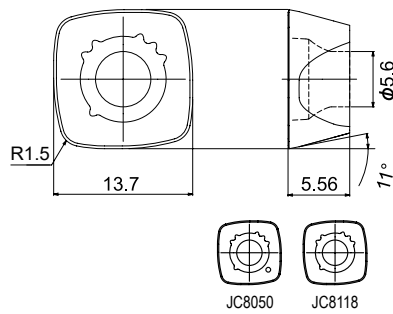


Fig. 2 SPMT140520ZPER-SM

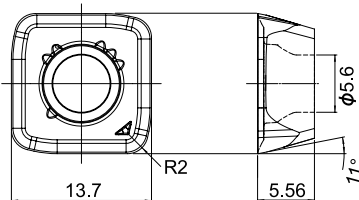
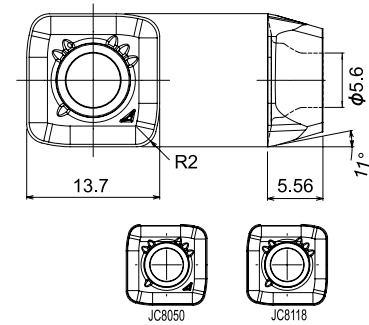


Fig. 3 SPMT140520ZPTR-PM



CATALOG NUMBER	TOLERANCE	PVD COATED				FIG.
		DS150	JC7550	JC8050	JC8118	
SPNW140515ZTR	N			•	•	1
SPMT140520ZPER-SM	M	•	•			2
SPMT140520ZPTR-PM	M			•	•	3



INCH

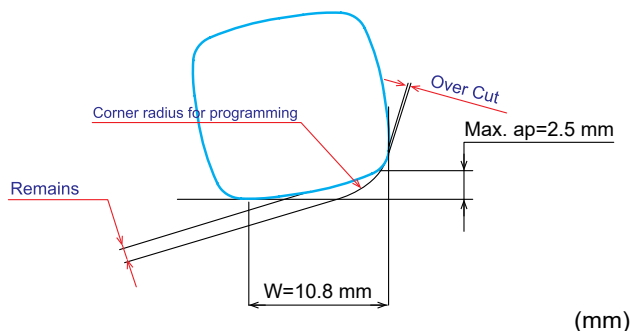
METRIC

SKG-14 High Feed

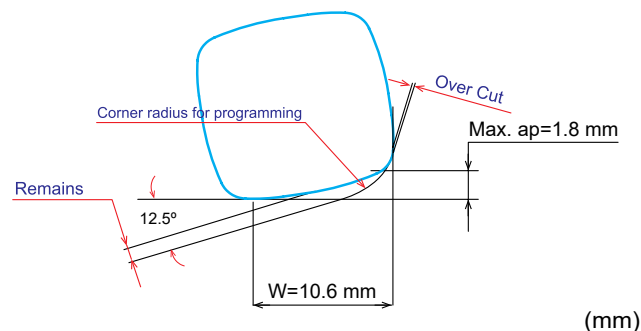
Definition of corner shape for programming

SPNW140515ZTR

SPMT140520ZP*R**

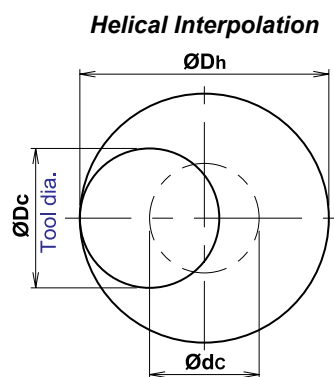
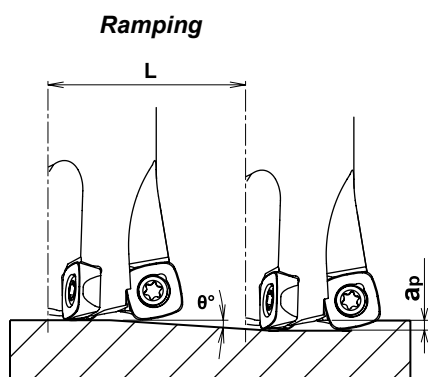


CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R3.5	0	1.60
R4.0 (Standard)	0	1.46
R4.5	0.06	1.32
R5.0	0.17	1.19



CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R3.5 (Standard)	0	1.35
R4.0	0.02	1.25
R4.5	0.14	1.12
R5.0	0.29	1.05

Recommended Data for Profile Milling



• Calculation of tool pass dia.

$$\text{Tool pass dia.} = \text{Bore dia.} - \text{Tool Dia.}$$

• Calculation of tool pass dia.

- Down cutting is recommended, tool pass rotation should be counterclockwise.
- Depth of cut per one circuit should not exceed max. depth of cut Ap.
- In case of ramping and helical interpolation, apply 70% or less feed (F) from standard cutting condition table.

	TOOL DIAMETER Dc	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION	
				MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX AP: L	MIN. BORE DIAMETER: Dh min	MAX. BORE DIAMETER: Dh max
INCH	2.00	1.15	.098	1°	5.64	3.21	3.92
	2.50	1.65	.098	0°45'	7.51	4.21	4.92
	3.00	2.15	.098	0°30'	11.28	5.21	5.92
	4.00	3.15	.098	0°20'	16.93	7.21	7.96
	6.00	5.15	.098	0°15'	22.56	11.21	11.92
METRIC	50	28.4	2.5	1°	143.2	80	98
	52	30.4	2.5	1°	143.2	84	102
	63	41.4	2.5	0°45'	191	106	124
	66	44.4	2.5	0°45'	191	112	130
	80	58.4	2.5	0°30'	286.5	140	158
	100	78.4	2.5	0°20'	430	180	198
	125	123.4	2.5	0°20'	430	230	248
	160	138.4	2.5	0°15'	573	300	318



SKG-14 High Feed

Recommended Cutting Data for SKG-14

Material	Insert	Grade	SFM	LOW HORSEPOWER		HIGH HORSEPOWER		WOC
				IPT	DOC	IPT	DOC	
Gray Cast Iron	SPNW SPMT-PM	JC8118 JC8050	700	.030" - .050"	.020" - .040"	.060" - .080"	.060" - .080"	70%
Nodular Cast Iron	SPNW SPMT-PM	JC8118 JC8050	650	.025" - .040"	.020" - .040"	.050" - .070"	.060" - .080"	70%
Carbon Steel	SPNW SPMT-PM	JC8050 JC8118	600	.025" - .045"	.020" - .040"	.055" - .075"	.060" - .080"	70%
Low Alloy Steel	SPNW SPMT-PM	JC8050 JC8118	550	.025" - .040"	.020" - .040"	.050" - .070"	.060" - .080"	70%
Mold Steel	SPNW SPMT-PM	JC8118 JC8050	500	.015" - .025"	.015" - .035"	.050" - .070"	.060" - .080"	60%
Tool & Die Steel (40-50 HRC)	SPNW	JC8118	400	.010" - .020"	.010" - .020"	.020" - .040"	.040" - .060"	60%
Hardened Die Steel (50-60 HRC)	SPNW	JC8118	250	.005" - .010"	.005" - .010"	.005" - .015"	.010" - .015"	40%
Stainless Steel	SPMT-SM	JC7550	300	.010" - .020"	.015" - .025"	.020" - .040"	.025" - .060"	60%
Titanium	SPMT-SM	DS150 JC7550	200	.010" - .020"	.010" - .025"	.015" - .025"	.020" - .040"	60%
Inconel	SPMT-SM	DS150 JC7550	100	.005" - .015"	.010" - .025"	.015" - .025"	.020" - .040"	60%

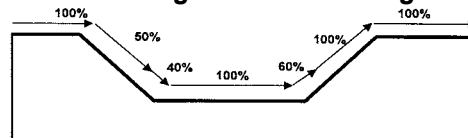
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



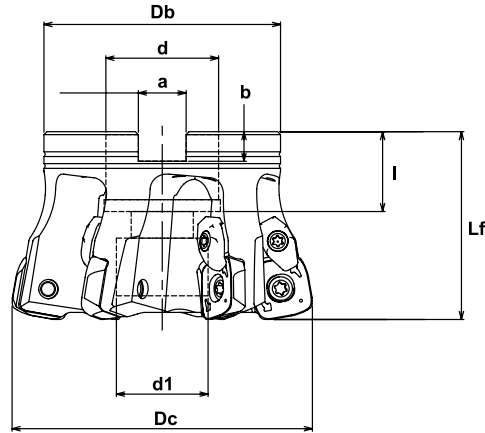
NOTE: Feed should be reduced when cutting the above pattern


INCH

SKG-20 High Feed

Face Mill
SKG-20 Type

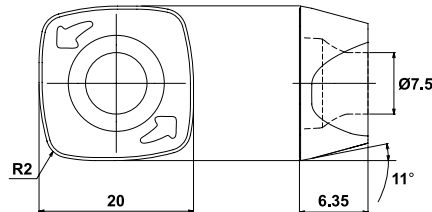
G-Body



CATALOG NUMBER	STK	DIMENSIONS								INSERT	Q	PARTS	
		D	Lf	Db	d	d1	a	b	l			Insert Screw/ Wrench	Clamp/ Wrench
SKG-5300-100R-20LG	•	3.00	2.25	2.20	1.00	.787	.375	.236	.945	SPEW200620ZTR JC7560 or JC8118	5	BSW-614H T-25	DCM-17 A-20
SKG-5400-150R-20	•	4.00	2.50	3.15	1.50	1.22	.626	.393	1.06		5	BSW-616H T-25	-
SKG-6400-150R-20LG	•	4.00	2.50	3.15	1.50	1.22	.626	.393	1.06		6	BSW-616H T-25	DCM-17 A-20
SKG-7500R-150-20LG	•	5.00	2.50	3.35	1.50	2.36	.626	.393	1.42		7	BSW-616H T-25	DCM-17 A-20

Note: All cutters are supplied without inserts, wrenches or moly.

Insert
SKG-20 type



CATALOG NUMBER	TOLERANCE	PVD COATED	
		JC7560	JC8118
SPEW200620ZTR	E	•	•



SKG-20 High Feed

Recommended Cutting Data for SKG-20

Material	Grade	SFM	IPT	DOC	WOC
Gray Cast Iron	JC8118 JC7560	700	.080" - .100"	.080" - .100"	70%
Nodular Cast Iron	JC8118 JC7560	650	.070" - .090"	.080" - .100"	70%
Carbon Steel	JC7560 JC8118	600	.080" - .100"	.080" - .100"	70%
Low Alloy Steel	JC7560 JC8118	550	.070" - .090"	.080" - .100"	70%
Mold Steel	JC8118 JC7560	500	.070" - .090"	.060" - .100"	60%
Tool & Die Steel (40-50 HRC)	JC8118	400	.040" - .060"	.060" - .080"	60%

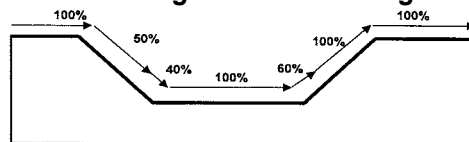
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern

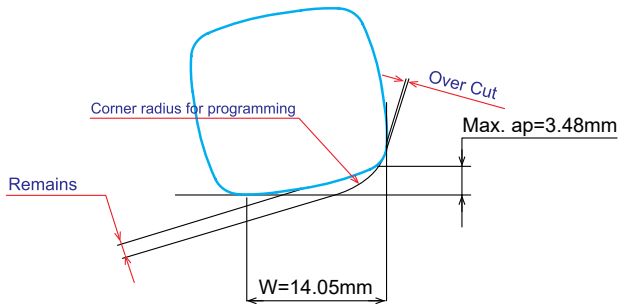


NOTE: Feed should be reduced when cutting the above pattern


INCH

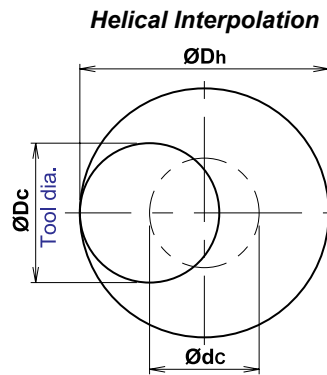
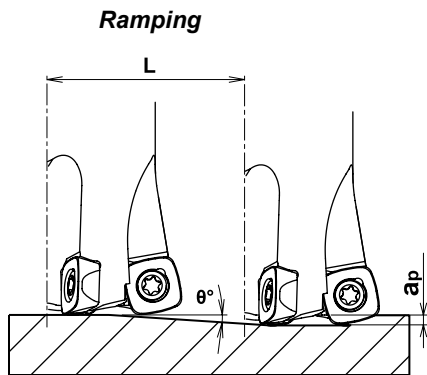
SKG-20 High Feed

Definition of corner shape for programming



(mm)		
CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
R5	0	1.89
R5.5 (Standard)	0	1.75
R6	.048	1.60

Recommended Data for Profile Milling



- Calculation of tool pass dia.

$$\text{Tool pass dia.} = \text{Bore dia.} - \text{Tool Dia.}$$

Tool pass dia. Bore dia. Tool Dia.

- Down cutting is recommended, tool pass rotation should be counterclockwise.
- Depth of cut per one circuit should not exceed max. depth of cut Ap.
- In case of ramping and helical interpolation, apply 70% or less feed (F) from standard cutting condition table.

TOOL DIAMETER Dc		EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION	
				MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX AP: L	MIN. BORE DIAMETER: Dh min	MAX. BORE DIAMETER: Dh max
INCH	3.00	1.88	.137	1°20'	5.93	5.45	5.92
	4.00	2.88	.137	1°	7.89	7.49	7.96
	5.00	3.88	.137	0°40'	11.7	9.49	9.96

[illegible]



SKS Extreme Series



- 6 corner double sided insert.
- Three insert sizes: -05, -07, & -09.
- Excellent ramping and helical interpolation.
- Stable high feed machining possible with long reach over L/D=6.
- G-body is a GN surface-hardening treatment on thermal resistant high strength steel giving a hardness over 65 HRC and secures insert pocket and holder against thermal deformation improving body durability.



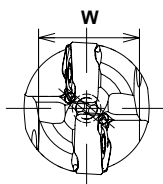
EXSKS-05 KATANA



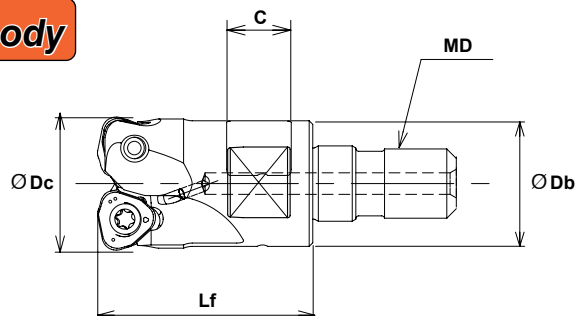
INCH

METRIC

MEX-05 Style



G-Body



Modular Head Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS						HEAD TORQUE LBS/FT	INSERT	Q	PARTS	
		ØDc	Lf	ØDb	MD	C	W				Screw	Wrench
MEX-2075-05-M10	•	.750	1.18	.708	M10	.354	.551	11.8	WNMU050320ZER-**	2	TSW-307H	T-10
MEX-2100-05-M12	•	1.00	1.38	.906	M12	.433	.748	14.7		2		
MEX-3100-05-M12	•	1.00	1.38	.906	M12	.433	.748	14.7		3		
MEX-4125-05-M16	•	1.25	1.69	1.14	M16	.472	.866	18.4		4		
MEX-5150-05-M16	•	1.50	1.69	1.26	M16	.551	1.02	18.4		5		

See page A-69 for Modular Head Shanks.

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

Modular Head Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS						HEAD TORQUE Nm	INSERT	Q	PARTS	
		ØDc	Lf	ØDb	MD	C	W				Screw	Wrench
MEX-2020-05-M10	•	20	30	18	M10	9	14	16	WNMU050320ZER-**	2	TSW-307H	T-10
MEX-2021-05-M10	•	21	30	18	M10	9	14	16		2		
MEX-2025-05-M12	•	25	35	23	M12	11	19	20		2		
MEX-3025-05-M12	•	25	35	23	M12	11	19	20		3		
MEX-3026-05-M12	•	26	35	23	M12	11	19	20		3		
MEX-3028-05-M12	•	28	35	23	M12	11	19	20		3		
MEX-4030-05-M16	•	30	43	27	M16	12	22	25		4		
MEX-3032-05-M16	•	32	43	29	M16	12	22	25		3		
MEX-4032-05-M16	•	32	43	29	M16	12	22	25		4		
MEX-4033-05-M16	•	33	43	29	M16	12	22	25		4		
MEX-4035-05-M16	•	35	43	29	M16	12	22	25		4		
MEX-5040-05-M16	•	40	43	32	M16	14	26	25		5		

See page A-69 for Modular Head Shanks.

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



INCH

METRIC



EXSKS-05 KATANA

End Mill

EXS-05 Type



Fig. 1

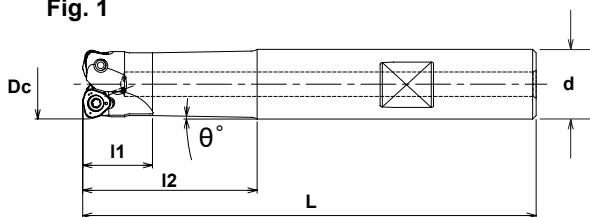


Fig. 2

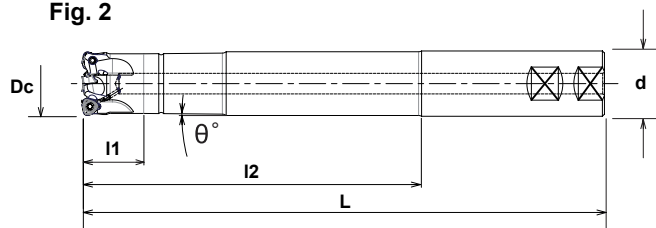
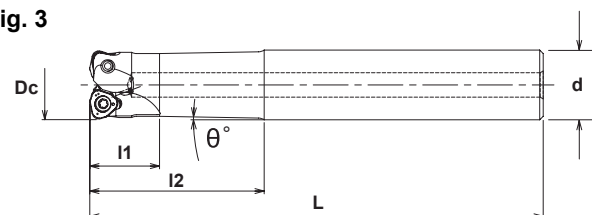


Fig. 3



CATALOG NUMBER		STK	DIMENSIONS						FIG.	INSERT	Q	PARTS	
			Dc	L	I1	I2	d	θ°				Screw	Wrench
INCH	EXS-2075-1.5-05-S075LG	•	.750	3.50	.787	1.50	.750	1.75	1	WNMU050320ZER-**	2	TSW-307H	T-10
	EXS-2075-2.0-05-S075LG	•	.750	5.00	.787	2.00	.750	1	1		2		
	EXS-2075-4.0-05-S075LG	•	.750	7.00	.787	4.00	.750	0.5	1		2		
	EXS-2075-6.0-05-S075LG	•	.750	9.00	.787	6.00	.750	0.25	2		2		
	EXS-3100-1.8-05-S100LG	•	1.00	4.00	.988	1.80	1.00	3	1		3		
	EXS-3100-2.5-05-S100LG	•	1.00	6.00	.984	2.50	1.00	1	1		3		
	EXS-3100-4.5-05-S100LG	•	1.00	8.00	1.18	4.50	1.00	0.5	1		3		
	EXS-2100-6.5-05-S100LG	•	1.00	10.00	1.18	6.50	1.00	0.25	2		2		
	EXS-4125-1.8-05-S125LG	•	1.25	4.00	1.18	1.80	1.25	4.5	1		4		
	EXS-4125-2.5-05-S125LG	•	1.25	6.00	1.18	2.50	1.25	1	1		4		
	EXS-4125-4.5-05-S125LG	•	1.25	8.00	1.18	4.50	1.25	0.5	1		4		
	EXS-4125-6.5-05-S125LG	•	1.25	10.00	1.18	6.50	1.25	0.5	2		4		
	EXS-5150-1.8-05-S125LG	•	1.50	4.00	-	1.80	1.25	-	1		5		
	EXS-5150-2.0-05-S125LG	•	1.50	7.00	-	2.00	1.25	-	1		5		
	EXS-5150-3.0-05-S125LG	•	1.50	8.00	-	3.00	1.25	-	1		5		
METRIC	EXSKS-2020-05-50-S20	•	20	130	20	50	20	1	3	WNMU050320ZER-**	2	TSW-307H	T-10
	EXSKS-2020-05-80-S20	•	20	160	20	80	20	0.5	3		2		
	EXSKS-2021-05-50-S20	•	21	130	20	50	20	1	3		2		
	EXSKS-2021-05-80-S20	•	21	160	20	80	20	0.5	3		2		
	EXSKS-3025-05-60-S25	•	25	140	25	60	25	1	3		3		
	EXSKS-3025-05-100-S25	•	25	180	25	100	25	0.5	3		3		
	EXSKS-3026-05-60-S25	•	26	140	25	60	25	1	3		3		
	EXSKS-3026-05-100-S25	•	26	180	25	100	25	0.5	3		3		
	EXSKS-4032-05-70-S32	•	32	150	32	70	32	1.5	3		4		
	EXSKS-4032-05-120-S32	•	32	200	32	120	32	0.5	3		4		
	EXSKS-4033-05-70-S32	•	33	150	30	70	32	-	3		4		
	EXSKS-4033-05-120-S32	•	33	200	30	120	32	-	3		4		

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



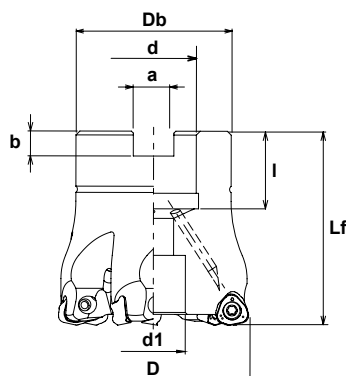
EXSKS-05 KATANA



INCH

METRIC

Face Mill EXSKS-05 Type



G-Body

Specifications - Metric

CATALOG NUMBER		STK	DIMENSIONS								INSERT	Q	PARTS
			D	Lf	Db	d	d1	a	b	l			
INCH	EXSKS-5150R-05-050	•	1.50	1.57	1.38	.500	.433	.260	.157	.650	WNMU050320ZER-**	5	TSW-307H T-10
	EXSKS-5150R-05-075	•	1.50	1.57	1.38	.750	.610	.319	.197	.750		5	
	EXSKS-5200R-05-075	•	2.00	2.00	1.77	.750	.590	.319	.197	.750		5	
	EXSKS-7200R-05-075	•	2.00	2.00	1.77	.750	.590	.319	.197	.750		7	
METRIC	EXSKS-5040R-05-16	•	40	45	35	16	13.5	8.4	5.8	19		5	
	EXSKS-7050R-05-22	•	50	50	40	22	16.5	10.4	6.3	20		7	
	EXSKS-7052R-05-22	⊙	52	50	40	22	16.5	10.4	6.3	20		7	
	EXSKS-8063R-05-22	•	63	50	48	22	17	10.4	6.3	20		8	

⊙ - delivery may be longer

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

Insert WNMU-05 Type

Fig. 1

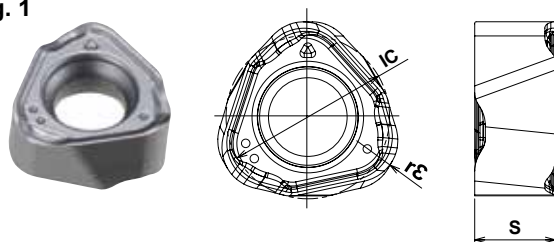
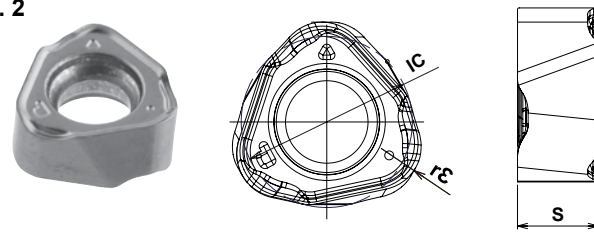
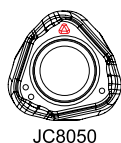


Fig. 2

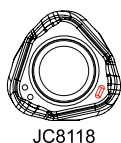


CATALOG NUMBER	TOLERANCE	DIMENSIONS (mm)			FIG.	PVD COATED	
		IC	S	rE		JC8118	JC8050
WNMU050320ZER-PM	M	7.7	3.9	2	1	•	•
WNMU050320ZER-PL	M	7.7	3.9	2	2	•	•

● Grade Markings



JC8050



JC8118



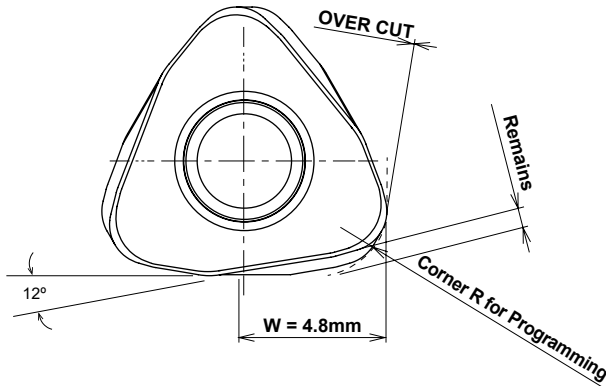
INCH

METRIC



EXSKS-05 KATANA

Definition of corner shape for programming

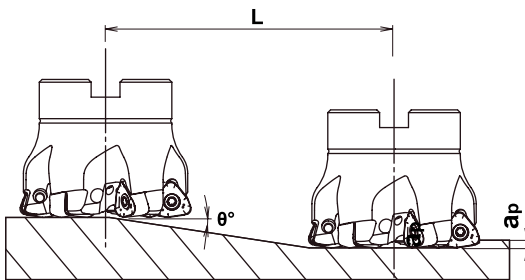


Corner Radius for Programming	Over Cut	Remains
R2.0	0	0.59
R2.5 (Standard)	0	0.5
R3.0	0.13	0.41

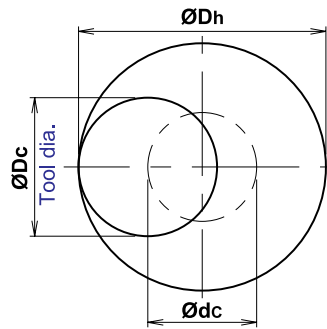
(mm)

Recommended Data for Profile Milling

Ramping



Helical Interpolation



- Calculation of tool pass dia.

$$\text{Ødc} = \text{ØDh} - \text{ØDc}$$

Tool pass dia. Bore dia. Tool Dia.

- Depth of cut per one circuit should not exceed max. depth of cut AP
- Down cutting is recommended so tool pass rotation should be counterclockwise.

- In case of ramping and helical interpolation, apply 70% or less feed speed from standard cutting condition table.
- In case of drilling apply 50% or less Z axis feed speed from standard cutting condition table.
- Long consecutive chips may come out in case of drilling, confirm safe operating conditions.

	TOOL DIAMETER Dc	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION		MAX. DRILLING DEPTH
				Max Ramp Angle	Total Cutting Length at Max. AP: L	Min Bore Diameter: Dh min	Max Bore Diameter: Dh max	
INCH	.750"	.37"	.059"	3°	1.13"	1.02"	1.34"	.016"
	1.00"	.61"	.059"	1.8°	1.88"	1.54"	1.81"	.016"
	1.25"	.86"	.059"	1.2°	2.82"	2.01"	2.32"	.016"
	1.50"	1.11"	.059"	0.9°	3.76"	2.52"	2.83"	.016"
	2.00"	1.61"	.059"	0.6°	5.63"	3.52"	3.84"	.016"
METRIC	20	10	1.5	2.8°	31	28	36	0.4
	21	11	1.5	2.6°	34	30	38	0.4
	25	15	1.5	1.8°	48	38	46	0.4
	26	16	1.5	1.7°	51	40	48	0.4
	28	18	1.5	1.5°	58	44	52	0.4
	30	20	1.5	1.3°	67	48	56	0.4
	32	22	1.5	1.2°	72	52	60	0.4
	33	23	1.5	1.1°	79	54	62	0.4
	35	25	1.5	1°	86	58	66	0.4
	40	30	1.5	0.8°	108	68	76	0.4
	50	40	1.5	0.6°	144	88	96	0.4
	52	42	1.5	0.6°	144	92	100	0.4
	63	53	1.5	0.5°	172	114	122	0.4



EXSKS-05 KATANA



Recommended Cutting Data for EXSKS-05

Material	Grade	SFM	IPT	DOC	WOC
Gray Cast Iron	JC8118	600	.055"	.025"-.045"	70%
Nodular Cast Iron	JC8118	550	.045"	.025"-.045"	70%
Carbon Steel	JC8050	500	.040"	.020"-.040"	70%
Low Alloy Steel	JC8050	450	.040"	.020"-.040"	70%
Mold Steel	JC8118	500	.040"	.020"-.035"	60%
Tool & Die Steel (40-50 HRC)	JC8118	300	.030"	.020"-.025"	60%
Stainless (Austenitic)	JC8050	300	.040"	.020"-.025"	40%-60%
Stainless (Martensitic)	JC8118	400	.040"	.020"-.035"	40%-60%
Titanium	JC8050	200	.025"	.020"-.025"	40%~60%
Inconel	JC8118	100	.025"	.020"-.025"	40%~60%

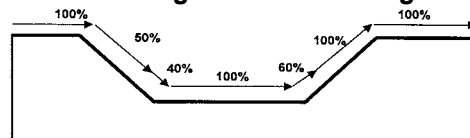
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern

WNMU050320ZER-PM

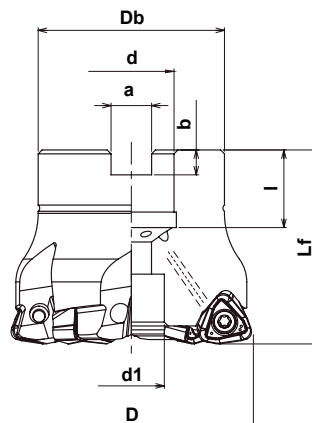
- For general applications
- Grade: JC8118 / JC8050



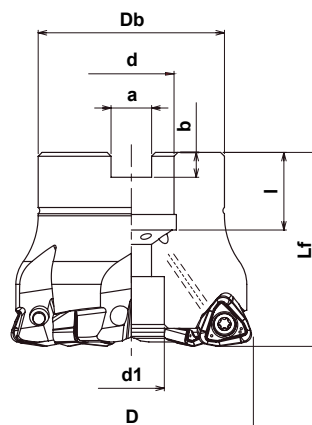
WNMU050320ZER-PL

- Low cutting force
- Sharp cutting edge
- Grade: JC8118 / JC8050



**INCH****METRIC****EXSKS-07 Series****Face Mill**
EXSKS-07 Type**G-Body****Specifications - Inch**

CATALOG NUMBER	STK	DIMENSIONS								INSERT	Q	PARTS	
		D	Lf	Db	d	d1	a	b	l			Screw	Wrench
EXSKS-4200R-07-075	•	2.00	2.00	1.77	.750	.590	.319	.197	.750	WNMU070620ZER-**	4	TSW-410H	A-15T
EXSKS-5200R-07-075	•	2.00	2.00	1.77	.750	.590	.319	.197	.750		5		
EXSKS-6250R-07-100	•	2.50	2.00	1.89	1.00	.787	.374	.236	.945		6		
EXSKS-7300R-07-100	•	3.00	2.00	2.85	1.00	.787	.374	.236	.945		7		
EXSKS-7300R-07-125	•	3.00	2.50	2.85	1.25	1.024	.500	.315	1.26		7		
EXSKS-7400R-07-150	•	4.00	2.25	3.78	1.50	1.189	.636	.394	1.00		7		

Note: All cutters are supplied without insert, wrench or moly.**G-Body****Specifications - Metric**

CATALOG NUMBER	STK	DIMENSIONS								INSERT	Q	PARTS	
		D	Lf	Db	d	d1	a	b	l			Screw	Wrench
EXSKS-5050R-07-22	•	50	50	40	22	16.5	10.4	6.3	20	WNMU070620ZER-**	5	TSW-410H	A-15T
EXSKS-5052R-07-22	◦	52	50	40	22	16.5	10.4	6.3	20		5		
EXSKS-6063R-07	•	63	50	48	22.225	17	10.4	5	20		6		
EXSKS-6063R-07-22	•	63	50	48	22	17	10.4	6.3	20		6		
EXSKS-7080R-07	•	80	70	65	31.75	26	12.7	8	32		7		
EXSKS-7080R-07-27	•	80	55	65	27	20	12.4	7	22		7		
EXSKS-8100R-07-32	•	100	50	85	32	26	14.4	8	25		8		

◦ - longer delivery may apply.

Note: All cutters are supplied without insert, wrench or moly.

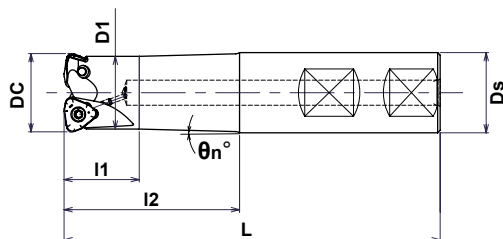
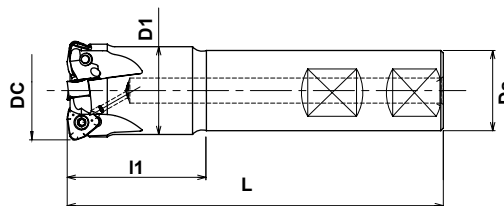


EXSKS-07 Series

INCH

METRIC

End Mill EXS-07 Type

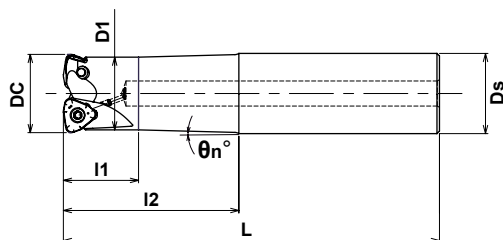
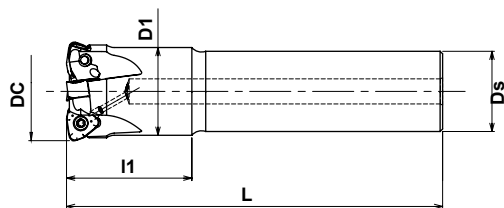
● In case $\phi D_c = \phi 1.25"$ ● In case $\phi D_c = \phi 1.50"$ 
G-Body

Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS							INSERT	Q	PARTS	
		Dc	I1	I2	L	D1	Ds	θ_n°			Screw	Wrench
EXS-2125-07-1.8-S125LG	•	1.25	1.18	1.80	4.00	1.14	1.25	4.5°	WNUMU070620ZER-**	2	TSW-410H	A-15T
EXS-2125-07-2.0-S125LG	•	1.25	1.18	2.00	7.00	1.14	1.25	1.5°		2		
EXS-2125-07-3.0-S125LG	•	1.25	1.18	3.00	8.00	1.14	1.25	1°		2		
EXS-3150-07-1.8-S125LG	•	1.50	1.80	-	4.00	1.30	1.25	-		3		
EXS-3150-07-3.0-S125LG	•	1.50	3.00	-	7.00	1.30	1.25	-		3		
EXS-3150-07-4.75-S125LG	•	1.50	4.75	-	8.00	1.30	1.25	-		3		

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

End Mill EXSKS-07 Type

● In case $\phi D_c = \phi 32$ ● In case $\phi D_c = \phi 35$ or 40 

Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS							INSERT	Q	PARTS	
		Dc	I1	I2	L	D1	Ds	θ_n°			Screw	Wrench
EXSKS-2032-07-70-S32	•	32	30	70	150	29	32	1.5°	WNUMU070620ZER-**	2	TSW-410H	A-15T
EXSKS-2032-07-120-S32	•	32	30	120	200	29	32	0.6°		2		
EXSKS-3035-07-40-S32	•	35	40	-	150	31	32	-		3		
EXSKS-3035-07-40L-S32	•	35	40	-	200	31	32	-		3		
EXSKS-4040-07-50-S32	•	40	50	-	150	35	32	-		4		
EXSKS-4040-07-50L-S32	•	40	50	-	200	35	32	-		4		

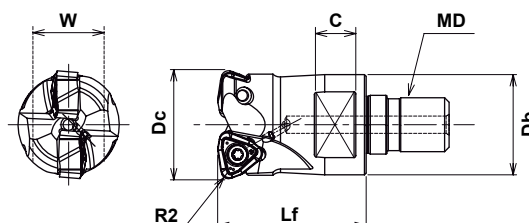
Note: All cutters are supplied without inserts, wrench or moly.

INCH

METRIC

EXSKS-07 Series

Modular Head MEX-07 Type



G-Body

Specifications

	CATALOG NUMBER	STK	DIMENSIONS						HEAD TORQUE		INSERT	Q	PARTS	
			Dc	Lf	Db	MD	C	W	LBS/FT	Nm			Screw	Wrench
INCH	MEX-2125-07-M16	•	1.25	1.69	1.14	M16	12	22	18.4	25	WNMU070620ZER-**	2	TSW-410H	T-15
	MEX-3150-07-M16	•	1.50	1.69	1.14	M16	12	22	18.4	25		3		
METRIC	MEX-2032-07-M16	•	32	43	29	M16	12	22	18.4	25		2		
	MEX-3035-07-M16	•	35	43	29	M16	12	22	18.4	25		3		
	MEX-4040-07-M16	•	40	43	32	M16	14	26	18.4	25		4		
	MEX-4042-07-M16	◦	42	43	32	M16	14	26	18.4	25		4		

◦ - longer delivery may apply.

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

See page A-69 for Modular Head Shanks.

Insert WNMU-07 Type

Fig. 1

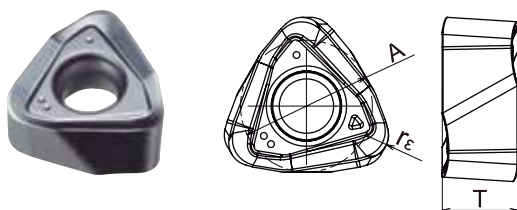
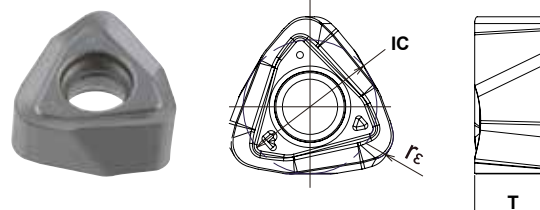
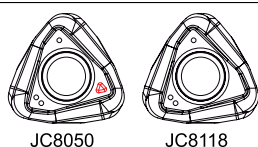


Fig. 2



CATALOG NUMBER	TOLERANCE	DIMENSIONS (mm)			FIG.	PVD COATED	
		A	T	rε		JC8050	JC8118
WNMU070620ZER-PM	M	11.2	6.4	2	1	•	•
WNMU070620ZER-PL	M	11.2	6.4	2	2	•	•

● Grade Markings



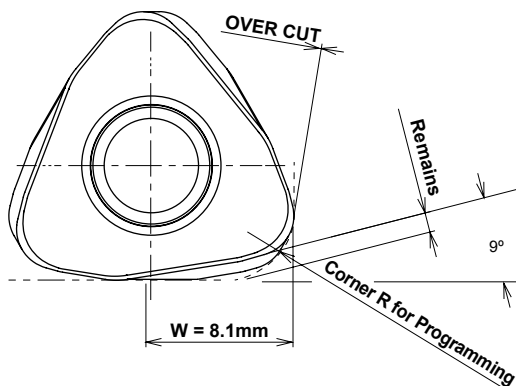


EXSKS-07 Series

INCH

METRIC

Definition of corner shape for programming



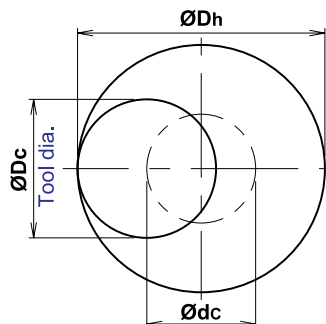
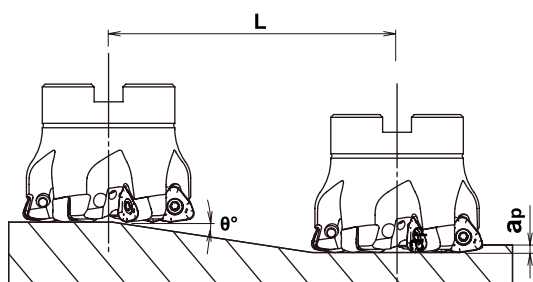
Corner Radius for Programming	Over Cut	Remains
R3.0 (Standard)	0	0.8
R3.5	0.06	0.73
R4.0	0.21	0.66

(mm)

Recommended Data for Profile Milling

Ramping

Helical Interpolation



- Calculation of tool pass dia.

$$\text{Ødc} = \text{ØDh} - \text{ØDc}$$

Tool pass dia. Bore dia. Tool Dia.

- Depth of cut per one circuit should not exceed max. depth of cut AP
- Down cutting is recommended so tool pass rotation should be counterclockwise.

- In case of ramping and helical interpolation, apply 70% or less feed speed from standard cutting condition table.
- In case of drilling apply 50% or less Z axis feed speed from standard cutting condition table.
- Long consecutive chips may come out in case of drilling, confirm safe operating conditions.

	TOOL DIAMETER Dc	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION		MAX. DRILLING DEPTH
				Max Ramp Angle	Total Cutting Length at Max. AP: L	Min Bore Diameter: Dh min	Max Bore Diameter: Dh max	
INCH	1.25"	.581"	.079"	2.2°	2.06"	1.59"	2.34"	.024"
	1.50"	.831"	.079"	2.0°	2.27"	2.09"	2.84"	.024"
	2.00"	1.33"	.079"	1.3°	3.49"	3.09"	3.84"	.024"
	2.50"	1.83"	.079"	0.9°	5.03"	4.09"	4.84"	.024"
	3.00"	2.33"	.079"	0.6°	7.55"	5.09"	5.84"	.024"
	4.00"	3.33"	.079"	0.5°	9.06"	7.09"	7.84"	.024"
METRIC	32	15	2	2.2°	53	41	60	0.6
	35	18	2	2.1°	55	47	66	0.6
	40	23	2	2.0°	58	57	76	0.6
	42	25	2	1.8°	64	61	80	0.6
	50	33	2	1.5°	77	77	96	0.6
	52	35	2	1.2°	96	81	100	0.6
	63	46	2	1.0°	115	103	122	0.6
	80	63	2	0.8°	144	137	156	0.6



EXSKS-07 Series

Recommended Cutting Data for EXSKS-07

Material	Grade	SFM	IPT	DOC	WOC
Gray Cast Iron	JC8118	600	.060"	.060" - .080"	70%
Nodular Cast Iron	JC8118	550	.060"	.040" - .060"	70%
Carbon Steel	JC8050	500	.060"	.040" - .060"	70%
Low Alloy Steel	JC8050	450	.060"	.040" - .060"	70%
Mold Steel	JC8118	500	.060"	.040" - .060"	60%
Tool & Die Steel (40-50 HRC)	JC8118	300	.040"	.020" - .040"	60%
Stainless (Austenitic) (300 Series)	JC8050	300	.050"	.030" - .050"	40-60%
Stainless (Martensitic) (400 Series)	JC8118	400	.050"	.020" - .040"	40-60%

Recommended Cutting Data for 3" Diameter & Under for EXSKS-07

Material	Grade	SFM	IPT	DOC	WOC
Titanium	JC8050	200	.030"	.020"-.030"	40%~60%
Inconel	JC8118	100	.030"	.020"-.030"	40%~60%

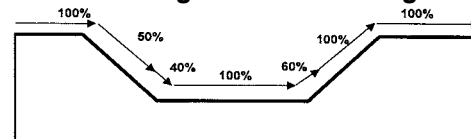
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. Use air only.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern

WNMU070620ZER-PM

- For general applications
- Grade: JC8118 / JC8050



WNMU070620ZER-PL

- Low cutting force
- Sharp cutting edge
- Grade: JC8118 / JC8050





EXSKS-09 Series

INCH

Face Mill EXSKS-09 Type

G-Body



Fig. 1
Coolant thru

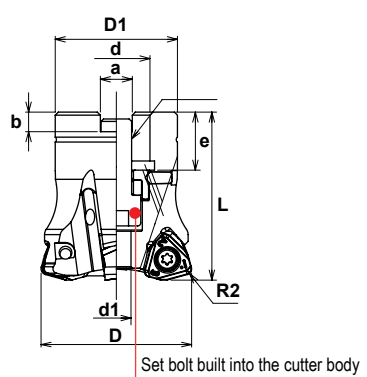


Fig. 2
Coolant thru

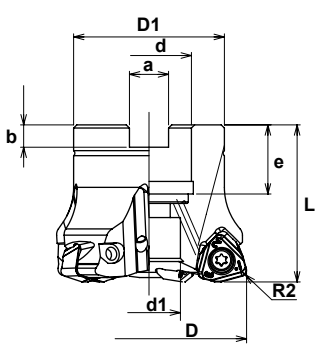
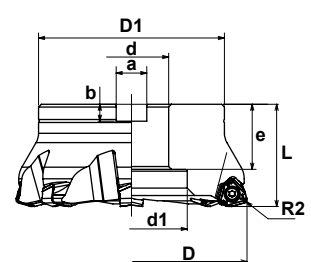


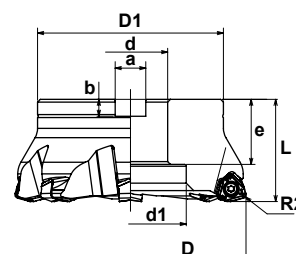
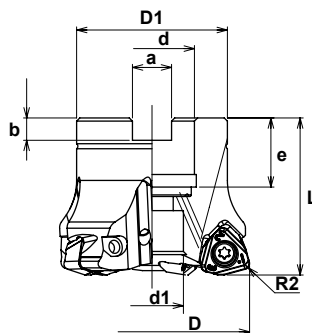
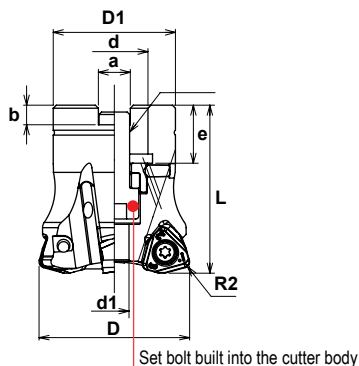
Fig. 3
Not Coolant thru



Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS								FIG.	INSERT	Q	PARTS	
		D	L	d	D1	a	b	e	d1				Screw	Wrench
EXSKS-4200-75R	•	2.00	2.25	.750	1.77	.319	.196	.750	.378	1	WNMU090720ZER-PM WNMU090828ZER-PL	4	CSW-513H	A-20
EXSKS-5250-75R	•	2.50	2.00	.750	2.36	.319	.196	.750	.630	2		5		
EXSKS-6300-100R	•	3.00	2.00	1.00	2.85	.374	.236	.750	.827	2		6		
EXSKS-6300-125R	•	3.00	2.50	1.25	2.85	.500	.315	1.25	1.02	2		6		
EXSKS-7400-150R	•	4.00	2.25	1.50	3.78	.626	.393	1.50	1.19	2		7		
EXSKS-8500-150R	•	5.00	2.25	1.50	3.34	.626	.393	1.50	2.36	3		8		
EXSKS-9600-150R	•	6.00	2.25	1.50	3.93	.626	.393	1.50	2.36	3		9		

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

**METRIC****EXSKS-09 Series****Face Mill
EXSKS-09 Type****G-Body****Fig. 1**
Coolant thru**Fig. 2**
Coolant thru**Fig. 3**
Not Coolant thru**Specifications - Metric**

CATALOG NUMBER	STK	DIMENSIONS								FIG.	ARBOR BOLT	Q	INSERT & PARTS
		D	L	d	D1	a	b	e	d1				
EXSKS-3050R	•	50	55	22.225	40	8.4	5	19	9.6	1	M10X1.5X25*	3	WNMU090720ZER-PM WNMU090828ZER-PL CSW-513H A-20
EXSKS-3050R-22	•	50	55	22	40	10.4	6.3	19	9.6	1	M10X1.5X25*	3	
EXSKS-4050R	•	50	55	22.225	40	8.4	5	19	9.6	1	M10X1.5X25*	4	
EXSKS-4050R-22	•	50	55	22	40	10.4	6.3	19	9.6	1	M10X1.5X25*	4	
EXSKS-4052R-22	◦	52	50	22	40	10.4	6.3	20	17	2	M10	4	
EXSKS-4063R	•	63	50	22.225	48	8.4	5	20	17	2	M10	4	
EXSKS-4063R-22	•	63	50	22	48	10.4	6.3	20	17	2	M10	4	
EXSKS-5063R	•	63	50	22.225	48	8.4	5	20	17	2	M10	5	
EXSKS-5063R-22	•	63	50	22	48	10.4	6.3	20	17	2	M10	5	
EXSKS-5063R-27	•	63	50	27	48	12.4	7	22	20	2	M12X1.75X30*	5	
EXSKS-5066R-27	◦	66	50	27	48	12.4	7	22	20	2	M12X1.75X30*	5	
EXSKS-6080R	•	80	70	31.75	65	12.7	8	32	26	2	M16	6	
EXSKS-6080R-27	•	80	55	27	65	12.4	7	22	37	3	M12X1.75X40*	6	
EXSKS-7100R	•	100	70	31.75	70	12.7	8	32	26	3	M16	7	
EXSKS-7100R-32	•	100	70	32	85	14.4	8	32	45	3	M16X2X45*	7	
EXSKS-8125R	•	125	70	38.1	100	15.9	10	35	60	3	M20X2.5X45*	8	
EXSKS-8125R-40	•	125	70	40	100	16.4	9	35	60	3	M20X2.5X45*	8	
EXSKS-9160R	•	160	63	50.8	100	19	11	43	75	3	M24	9	
EXSKS-9160R-40	•	160	55	40	100	16.4	9	35	85	3	M20	9	

◦ - longer delivery may apply.

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

* Arbor bolt included on cutters marked with * under arbor bolt. All other cutters use bolt supplied with arbor.

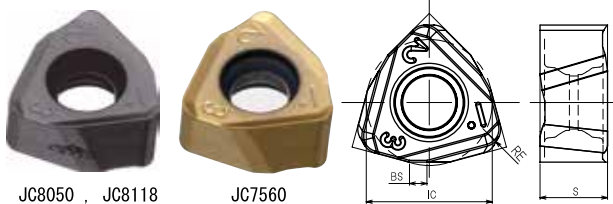


EXSKS-09 Series

METRIC

Insert WNMU-09 Type

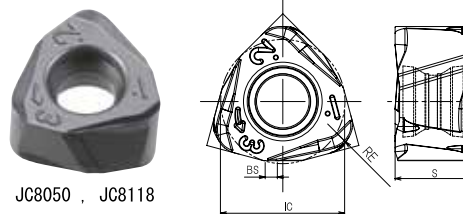
WNMU090720ZER-PM



JC8050 , JC8118

JC7560

WNMU090828ZER-PL



JC8050 , JC8118

CATALOG NUMBER	TOLERANCE	DIMENSIONS (mm)				PVD COATED		
		IC	S	BS	RE	JC8050	JC8118	JC7560
WNMU090720ZER-PM	M	14	7.66	1.94	2	•	•	•
WNMU090828ZER-PL	M	13.91	8.66	1.37	2.8	•	•	

- Each grade shows different mark around the hole for identification.

WNMU090720ZER-PM

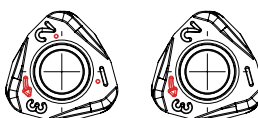


JC8050

JC8118

JC7560

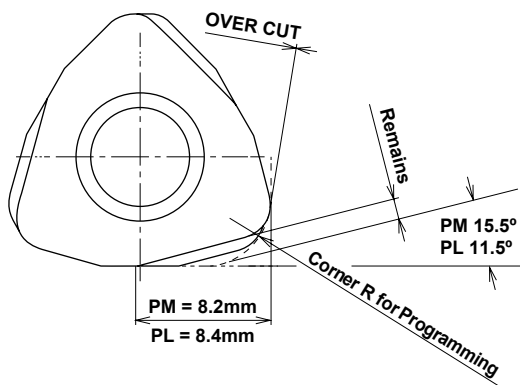
WNMU090828ZER-PL



JC8050

JC8118

Definition of corner shape for programming



Insert: WNMU090720ZER-PM

Corner Radius for Programming	Over Cut	Remains
R3.0	0	1.41
R3.5	0	1.30
R4.0	0.025	1.19

(mm)

Insert: WNMU090828ZER-PL

Corner Radius for Programming	Over Cut	Remains
R3.0	0	1.18
R3.5	0	1.06
R4.0	0.010	0.95

(mm)

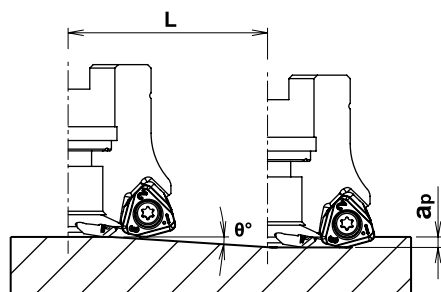
INCH

METRIC

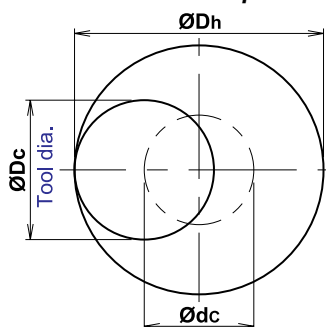
EXSKS-09 Series

Recommended Data for Profile Milling for EXSKS-09

Ramping



Helical Interpolation



- Calculation of tool pass dia.

$$\text{Tool pass dia.} = \text{Bore dia.} - \text{Tool Dia.}$$

- Depth of cut per one circuit should not exceed max. depth of cut AP
- Down cutting is recommended so tool pass rotation should be counterclockwise.

- In case of ramping and helical interpolation, apply 70% or less feed speed from standard cutting condition table.
- In case of drilling apply 50% or less Z axis feed speed from standard cutting condition table.
- Long consecutive chips may come out in case of drilling, confirm safe operating conditions.

For WNMU090720ZER-PM insert

	CATALOG NUMBER	TOOL DIAMETER Dc	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION		MAX. DRILLING DEPTH
					Max Ramp Angle	Total Cutting Length at Max. AP: L	Min Bore Diameter: Dh min	Max Bore Diameter: Dh max	
INCH	EXSKS-*200	2.00"	1.36"	0.12"	2.4°	2.83"	2.93"	3.82"	.043"
	EXSKS-*250	2.50"	1.86"	0.12"	1.8°	3.78"	3.93"	4.84"	.047"
	EXSKS-*300	3.00"	2.36"	0.12"	1.4°	4.84"	4.93"	5.84"	.051"
	EXSKS-*400	4.00"	3.35"	0.12"	1°	6.77"	6.93"	7.84"	.051"
	EXSKS-*500	5.00"	4.35"	0.12"	0.8°	8.46"	8.93"	9.84"	.051"
	EXSKS-*600	6.00"	5.35"	0.12"	0.7°	9.69"	10.93"	11.84"	.067"
METRIC	EXSKS-*050	50	33.7	3	2.5°	69	73	96	1.1
	EXSKS-*052	52	35.7	3	2.4°	72	77	100	1.2
	EXSKS-*063	63	46.7	3	1.8°	96	99	122	1.2
	EXSKS-*066	66	49.7	3	1.7°	102	105	128	1.2
	EXSKS-*080	80	63.6	3	1.3°	133	133	156	1.3
	EXSKS-*100	100	83.6	3	1°	172	173	196	1.3
	EXSKS-*125	125	108.5	3	0.9°	191	223	246	1.3
	EXSKS-*160	160	143.5	3	0.7°	246	293	316	1.7

For WNMU090828ZER-PL insert

	CATALOG NUMBER	TOOL DIAMETER Dc	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION		MAX. DRILLING DEPTH
					Max Ramp Angle	Total Cutting Length at Max. AP: L	Min Bore Diameter: Dh min	Max Bore Diameter: Dh max	
INCH	EXSKS-*200	2.00"	1.34"	.08"	2.2°	2.09"	2.97"	3.84"	.039"
	EXSKS-*250	2.50"	1.83"	.08"	1.7°	2.68"	3.97"	4.84"	.047"
	EXSKS-*300	3.00"	2.34"	.08"	1.3°	3.50"	4.97"	5.84"	.051"
	EXSKS-*400	4.00"	3.33"	.08"	1°	4.53"	6.97"	7.84"	.051"
	EXSKS-*500	5.00"	4.33"	.08"	0.9°	5.04"	8.97"	9.84"	.055"
	EXSKS-*600	6.00"	5.33"	.08"	0.7°	6.46"	10.97"	11.84"	.063"
METRIC	EXSKS-*050	50	33.3	2	2.3°	50	74	96	1
	EXSKS-*052	52	35.3	2	2.2°	53	78	100	1
	EXSKS-*063	63	46.2	2	1.8°	64	100	122	1.2
	EXSKS-*066	66	49.2	2	1.7°	68	106	128	1.2
	EXSKS-*080	80	63.2	2	1.3°	89	134	156	1.3
	EXSKS-*100	99.94	83.1	2	1°	115	174	195	1.3
	EXSKS-*125	124.89	108	2	0.9°	128	224	245	1.4
	EXSKS-*160	159.85	142.9	2	0.7°	164	294	315	1.6



EXSKS-09 Series

Recommended Cutting Data for EXSKS-09

Material	Insert / Grade	SFM	IPT	DOC	WOC
Gray Cast Iron	JC8118	700	.070"	.080" - .100"	70%
Nodular Cast Iron	JC8118	650	.060"	.080" - .100"	70%
Carbon Steel	JC7560 (JC8050)	600	.070"	.080" - .100"	70%
Low Alloy Steel	JC7560 (JC8050)	550	.060"	.070" - .090"	70%
Mold Steel	JC7560 (JC8050)	500	.050"	.050" - .070"	60%
Tool & Die Steel (40-50 HRC)	JC8118 (JC8050)	400	.035"	.030" - .050"	60%
Stainless (Austenitic)	JC8050 (JC8118)	250	.040"	.040" - .060"	40-60%
Stainless (Martensitic)	JC8050 (JC8118)	300	.040"	.050" - .070"	40-60%

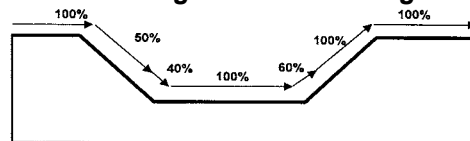
NOTE: 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. If chatter occurs, recommend reducing DOC or spindle speed & maintain IPT.
 3. If machine does not have enough power, reduce DOC or spindle speed & feed.
 4. When using -PL type inserts, depth of cut (ap) must be kept within 2mm.

Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

NOTE: The above percentages should be applied, according to tool ratio.

Reduced Cutting Data For Cutting Pattern



NOTE: Feed should be reduced when cutting the above pattern

WNMU090720ZER-PM

- Suitable for face milling and pocket machining, with $a_p=1.4\text{mm}$ or more.
- Grade: JC8118 / JC8050 / JC7560



WNMU090720ZER-PL

- Suitable for pocket machining with $a_p=0.6 - 1.2\text{mm}$.
- Optimized cutting edges reduce fluctuations during corner machining.
- Grade: JC8118 / JC8050



P10 FACE MILL

High-Performance with Double-Sided 10-Edge Insert



- The pentagon shaped double-sided insert has 10 cutting corners.
- Rigid insert clamping: 3 face constraints from body provides rigidity and stability.
- Available in coarse pitch and fine pitch.
- Inserts available for applications from cast iron to general steels to stainless steels.

P10 Cutter

INCH

Face Mill
PNS Type



G-Body

Fig. 1 $\phi D_c \leq 5.0"$
Thru Coolant Hole

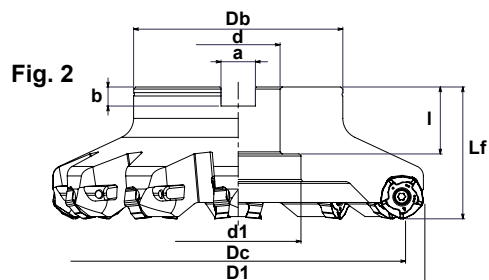
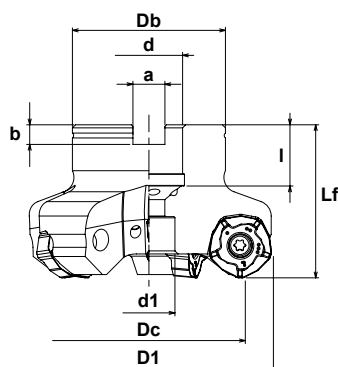
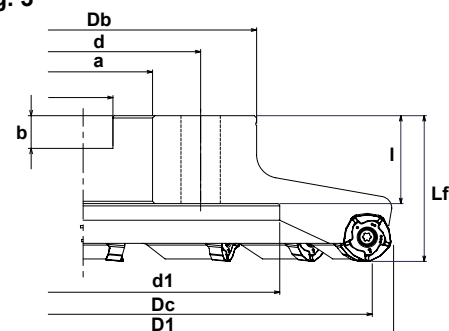


Fig. 3



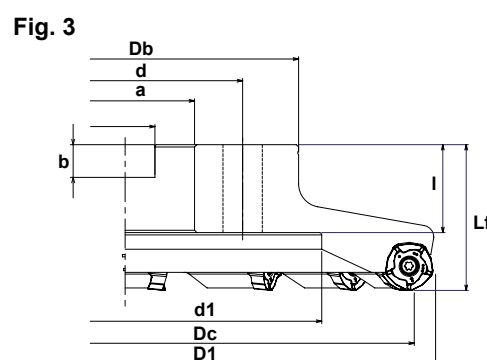
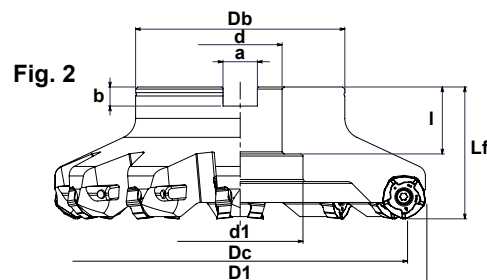
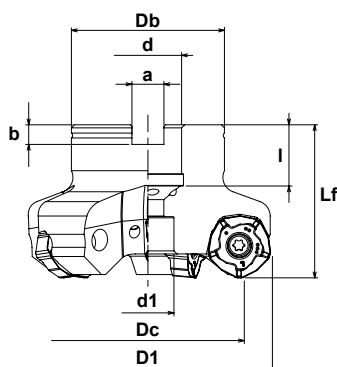
Specifications

CATALOG NUMBER		STK	DIMENSIONS								FIG.	INSERT	Q	PARTS
			Dc	D1	Lf	Db	d	d1	a	b	l			
COARSE PITCH	PNS-5300R-19-100	•	3.00	3.72	2.0	2.20	1.00	.787	.374	.236	.750	1	5	CSW-513H A-20
	PNS-5300R-19-125	•	3.00	3.72	2.0	2.56	1.25	1.02	.500	.315	.866	1	5	
	PNS-6400R-19-150	•	4.00	4.72	2.5	3.78	1.50	1.26	.626	.393	1.00	1	6	
	PNS-7500R-19-150	•	5.00	5.72	2.5	3.94	1.50	1.26	.626	.393	1.00	1	7	
	PNS-8600R-19-150*	•	6.00	6.72	2.5	3.94	1.50	2.36	.626	.393	1.38	2	8	
	PNS-8600R-19-200*	•	6.00	6.72	2.5	4.92	2.00	2.75	.748	.433	1.38	2	8	
	PNS-10800R-19-250*	•	8.00	8.72	2.5	5.91	2.50	5.51	1.00	.563	1.38	3	10	
	PNS-121000R-19-250*	•	10.00	10.72	2.5	5.91	2.50	6.69	1.00	.563	1.38	3	12	
FINE PITCH	PNS-4200R-19-075	•	2.00	2.72	2.0	1.85	.750	.610	.319	.197	.750	1	4	
	PNS-5250R-19-075	•	2.50	3.22	2.0	1.97	.750	.610	.319	.197	.750	1	5	
	PNS-5250R-19-100	•	2.50	3.22	2.0	2.20	1.00	.787	.374	.236	.750	1	5	
	PNS-7300R-19-100	•	3.00	3.72	2.0	2.20	1.00	.787	.374	.236	.750	1	7	
	PNS-7300R-19-125	•	3.00	3.72	2.0	2.56	1.25	1.02	.500	.315	.866	1	7	
	PNS-9400R-19-150	•	4.00	4.72	2.5	3.78	1.50	1.26	.626	.393	1.00	1	9	
	PNS-11500R-19-150	•	5.00	5.72	2.5	3.94	1.50	1.26	.626	.393	1.00	1	11	
	PNS-12600R-19-150*	•	6.00	6.72	2.5	3.94	1.50	2.36	.626	.393	1.38	2	12	
	PNS-12600R-19-200*	•	6.00	6.72	2.5	4.92	2.00	2.75	.748	.433	1.38	2	12	
	PNS-14800R-19-250*	•	8.00	8.72	2.5	5.91	2.50	5.51	1.00	.563	1.38	3	14	
	PNS-161000R-19-250*	•	10.00	10.72	2.5	5.91	2.50	6.69	1.00	.563	1.38	3	16	

*Not G-Body

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

METRIC
P10 Cutter
**Face Mill
PNS Type**

G-Body
Fig. 1 $\phi Dc \leq 125mm$
Thru Coolant Hole

Specifications - Metric

CATALOG NUMBER		STK	DIMENSIONS									Fig.	INSERT	Q	PARTS	ARBOR SET BOLT
			Dc	D1	Lf	Db	d	d1	a	b	l					
COARSE PITCH	PNS-3050R-19	•	50	68.4	50	47	22.225	17	8.4	5	20	1	PNMU190720ZER-**-	3	CSW-513H A-20	M10
	PNS-3050R-19-22	•	50	68.4	50	47	22	17	10.4	6.3	20	1		3		M10
	PNS-4063R-19	•	63	81.4	50	50	22.225	17	8.4	5	20	1		4		M10
	PNS-4063R-19-22	•	63	81.4	50	50	22	17	10.4	6.3	20	1		4		M10
	PNS-5080R-19	•	80	98.3	50	56	25.4	20	9.5	6	24	1		5		M12X1.75X30*
	PNS-5080R-19-27	•	80	98.3	50	56	24	20	12.4	7	22	1		5		M12X1.75X30*
	PNS-6100R-19	•	100	118.3	63	85	31.75	26	12.7	8	25	1		6		M16X2X40*
	PNS-6100R-19-32	•	100	118.3	50	85	32	26	14.4	8	25	1		6		M16X2X40*
	PNS-7125R-19	•	125	143.3	70	100	38.1	32	15.9	10	38	1		7		M20X2.5X40*
	PNS-7125R-19-40	•	125	143.3	63	100	40	32	16.4	9	32	1		7		M20X2.5X40*
	PNS-8160R-19*	•	160	178.4	63	100	50.8	85	19	11	38	2		8		M24
	PNS-8160R-19-40*	•	160	178.4	63	100	40	60	16.4	9	32	2		8		M20
	PNS-10200R-19*	•	200	218.4	63	150	47.625	140	25.4	14	38	3		10		M16
	PNS-10200R-19-60*	•	200	218.4	63	150	60	140	25.7	14	38	3		10		M16
	PNS-12250R-19*	•	250	268.4	63	150	47.625	170	25.4	14	38	3		12		M16
	PNS-12250R-19-60*	•	250	268.4	63	150	60	170	25.7	14	38	3		12		M16

*Not G-Body

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

Arbor set bolt marked with * are supplied with cutter.

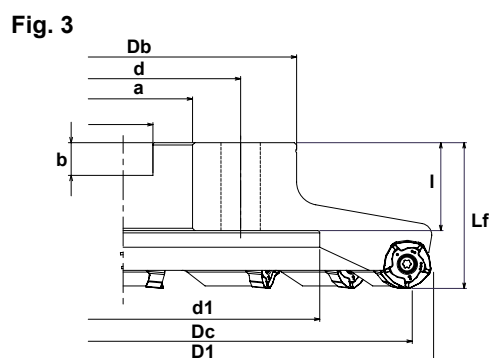
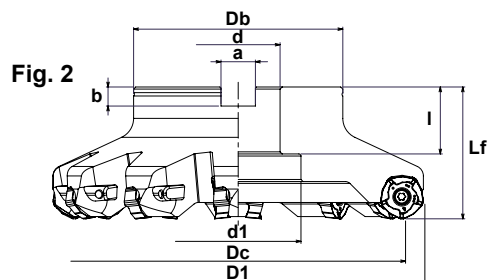
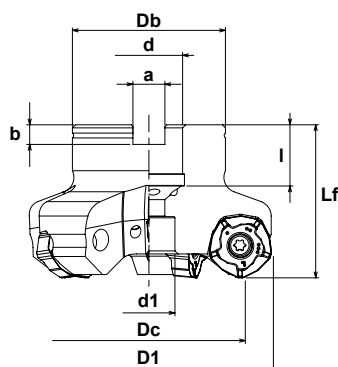
P10 Cutter

METRIC

Face Mill
PNS Type


G-Body

Fig. 1 $\phi D_c \leq 125\text{mm}$
Thru Coolant Hole



Specifications - Metric

CATALOG NUMBER		STK	DIMENSIONS									Fig.	INSERT	Q	PARTS	ARBOR SET BOLT
			Dc	D1	Lf	Db	d	d1	a	b	l					
FINE PITCH	PNS-4050R-19-22	•	50	68.4	50	47	22	17	10.4	6.3	20	1	PNMU190720AER-**-	4	CSW-513H A-20	M10
	PNS-5063R-19-22	•	63	81.4	50	50	22	17	10.4	6.3	20	1		5		M10
	PNS-7080R-19-27	•	80	98.3	50	56	27	20	12.4	7	22	1		7		M12X1.75X30*
	PNS-9100R-19-32	•	100	118.3	50	85	32	26	14.4	8	25	1		9		M16X2X30*
	PNS-11125R-19-40	•	125	143.3	63	100	40	32	16.4	9	32	1		11		M20X2.5X40*
	PNS-12160R-19-40*	•	160	178.4	63	100	40	60	16.4	9	32	2		12		M20
	PNS-14200R-19-60*	•	200	218.4	63	150	60	140	25.7	14	38	3		14		M16
	PNS-16250R-19-60*	•	250	268.4	63	150	60	170	25.7	14	38	3		16		M16

*Not G-Body

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

Arbor set bolt marked with * are supplied with cutter.

METRIC
P10 Cutter
**Insert
PNMU Type**


PNMU190720AER-MM



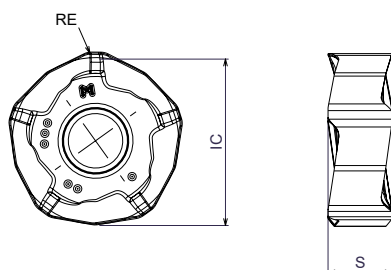
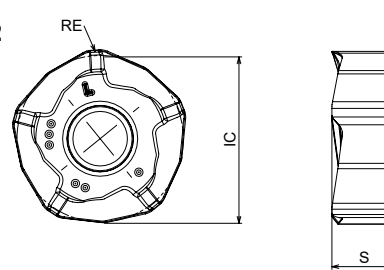
PNMU190720AER-PM



PNMU190720AER-PL



PNMU190720AER-KM

Fig. 1

Fig. 2


CATALOG NUMBER	Tolerance	DIMENSIONS (mm)			PVD COATING					Fig.
		IC	S	RE	DS250	DP117	DP150	JC8118	DH103	
PNMU190720AER-MM	M	19.5	7.5	2	•					1
PNMU190720AER-PM	M					•		•		1
PNMU190720AER-PL	M					•	•			2
PNMU190720AER-KM	M								•	1

⚠ Ensure correct insert positioning before mounting

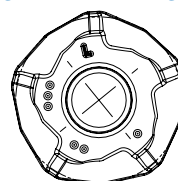


Correct – Recommended

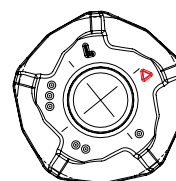


Poor contact – Not acceptable

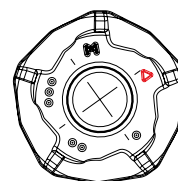
The indication mark on the cutter body and the corner of the insert must be in the same position when mounting the inserts.

GRADE MARKINGS


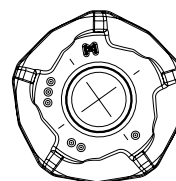
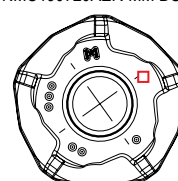
PNMU190720AER-PL DP117



PNMU190720AER-PL DP150



PNMU190720AER-MM DS250


PNMU190720AER-PM JC8118
PNMU190720AER-PM DP117


PNMU190720AER-KM DH103

P10 Cutter

Recommended Cutting Data for P10 - 27° Entry Angle (DOC ≤ .100")

Material	Insert	Grade	SFM	IPT	DOC	WOC
Gray Cast Iron (160-260HB)	PNMU190720AER-KM (PNMU190720AER-PL) (PNMU190720AER-PM)	DH103 (DP117) (JC8118)	600	.027" - .032"	.080" - .100"	70%
Nodular Cast Iron (170-300HB)	PNMU190720AER-KM (PNMU190720AER-PL) (PNMU190720AER-PM)	DH103 (DP117) (JC8118)	550	.020" - .024"	.040" - .080"	70%
Carbon Steel (below 250HB)	PNMU190720AER-PL PNMU190720AER-PM (PNMU190720AER-MM)	DP150 JC8118 (DS250)	600	.024" - .028"	.060" - .080"	70%
Low Alloy Steel (below 255HB)	PNMU190720AER-MM PNMU190720AER-PM (PNMU190720AER-PL)	DS250 JC8118 (DP150)	450	.016" - .020"	.040" - .080"	70%
Mold Steel (30-36HRC)	PNMU190720AER-PL PNMU190720AER-PM (PNMU190720AER-PM)	DP117 JC8118 (DP150)	450	.020" - .024"	.060" - .080"	60%
Mold Steel (38-43HRC)	PNMU190720AER-PL (PNMU190720AER-PM)	DP117 (JC8118)	400	.016" - .020"	.040" - .080"	60%
Tool & Die Steel (42-52HRC)	PNMU190720AER-PM (PNMU190720AER-PL)	DP117 (JC8118)	200	.006" - .008"	.020" - .032"	60%
Stainless Steel (Austenitic)	PNMU190720AER-MM (PNMU190720AER-PL)	DS250 (DP150)	500	.020" - .024"	.040" - .080"	60%
Stainless Steel (Martensitic)	PNMU190720AER-MM (PNMU190720AER-PL)	DS250 (DP150)	550	.016" - .020"	.040" - .080"	60%

Recommended Cutting Data for 3" Diameter & Under for P10 Cutter

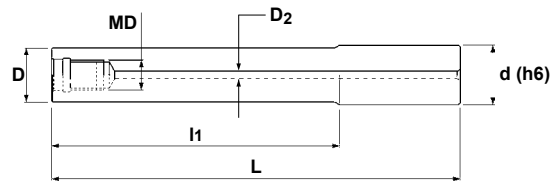
Material	Insert	Grade	SFM	IPT	DOC	WOC
Titanium	PNMU190720AER-MM (PNMU190720AER-PL)	DS250 (DP150)	200	.010" - .015"	.030"-.060"	40%~60%
Inconel	PNMU190720AER-MM (PNMU190720AER-PL)	DS250 (DP117)	100	.008" - .012"	.020"-.040"	40%~60%

NOTE: 1. Please adjust cutting conditions according to machine rigidity or work rigidity.
 2. In case of chatter occurring, recommend to reduce DOC or RPM and keep IPT.
 3. DOC should be reduced when using on low rigidity machine.
 4. Use air blow.

INCH

Modular Head Holders

Modular Head Holders
MSN Type
Solid Carbide with coolant thru



Specifications

CATALOG NUMBER	STK	DIMENSIONS					
		D	I1	L	d	MD	D2
MSN-M6-0.5-S050C	•	.452	.500	2.50	.500	M6	.118
MSN-M6-1.0-S050C	•	.452	1.00	3.15	.500	M6	.118
MSN-M6-2.0-S050C	•	.452	2.00	3.93	.500	M6	.118
MSN-M6-3.0-S050C	•	.452	3.00	5.12	.500	M6	.118
MSN-M6-4.0-S050C	•	.452	4.00	6.12	.500	M6	.118
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-M10-8.0-S075C	•	.728	8.00	10.63	.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-M12-10.0-S100C	•	.945	10.00	12.60	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
MSN-M16-10.0-S125C	•	1.14	10.00	13.00	1.25	M16	.315
MSN-M16-12.0-S125C	•	1.14	12.00	15.00	1.25	M16	.315

Modular Head Holders

METRIC

Modular Head Holders

MSN Type

Solid Carbide with coolant thru



Fig. 1

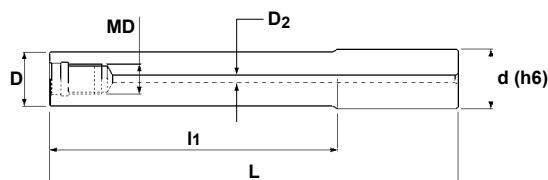
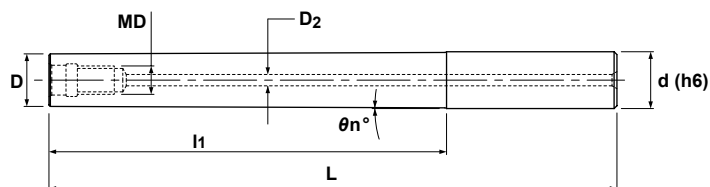


Fig. 2



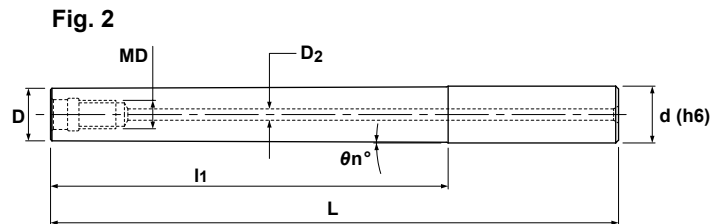
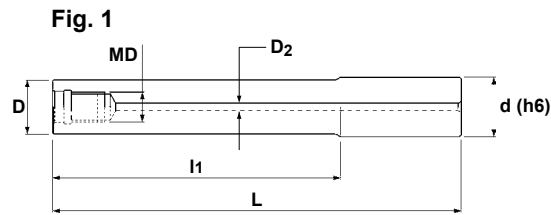
Specifications

CATALOG NUMBER	STK	DIMENSIONS							FIG.
		D	l1	L	d	θn°	MD	D2	
MSN-M6-12-S10C	•	9.7	12	60	10	-	M6	3	1
MSN-M6-30-S10C	•	9.7	30	80	10	-	M6	3	1
MSN-M6-50-S10C	•	9.7	50	100	10	-	M6	3	1
MSN-M6-80-S10C	•	9.7	80	130	10	-	M6	3	1
MSN-M6-120-S10C	•	9.7	120	170	10	-	M6	3	1
MSN-M6-35T-S12C	•	9.5	35	92	12	1°30'	M6	3	2
MSN-M6-57T-S12C	•	9.5	57	114	12	1	M6	3	2
MSN-M6-60T-S12C	•	9.5	60	200	12	0°54'	M6	3	2
MSN-M6-15-S12C	•	11.5	15	60	12	-	M6	3	1
MSN-M6-30-S12C	•	11.5	30	80	12	-	M6	3	1
MSN-M6-50-S12C	•	11.5	50	100	12	-	M6	3	1
MSN-M6-80-S12C	•	11.5	80	130	12	-	M6	3	1
MSN-M6-120-S12C	•	11.5	120	170	12	-	M6	3	1
MSN-M6-65T-S16C	•	11.2	65	125	16	1°45'	M6	3	2
MSN-M6-120T-S16C	•	11.2	120	200	16	1°	M6	3	2
MSN-M6-15-S16C	•	13.5	15	60	16	-	M6	3	1
MSN-M6-30-S16C	•	13.5	30	80	16	-	M6	3	1
MSN-M6-50-S16C	•	13.5	50	100	16	-	M6	3	1
MSN-M6-80-S16C	•	13.5	80	130	16	-	M6	3	1
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-M8-80-S16C	•	15.5	80	135	16	-	M8	4	1
MSN-M8-60-S16C	•	15.5	60	115	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-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-M8-120T-S20C	•	14.5	120	250	20	1°9'	M8	4	2
MSN-M8-90T-S25C	•	14.5	90	165	25	3°	M8	6	2
MSN-M8-80T-S25C	•	14.5	80	250	25	3°30'	M8	4	2

METRIC

Modular Head Holders

Modular Head Holders
MSN Type
Solid Carbide with coolant thru



Specifications

CATALOG NUMBER	STK	DIMENSIONS							FIG.
		D	l1	L	d	θn°	MD	D2	
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-M10-50-S20C	•	19.5	50	110	20	-	M10	4	1
MSN-M10-70-S20C	•	19.5	70	130	20	-	M10	4	1
MSN-M10-90-S20C	•	19.5	90	150	20	-	M10	4	1
MSN-M10-140-S20C	•	19.5	140	200	20	-	M10	4	1
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-M10-40T-S20C	•	18.5	40	100	20	0°43'	M10	4	2
MSN-M10-90T-S20C	•	18.5	90	150	20	0°19'	M10	4	2
MSN-M10-140T-S20C	•	18.5	140	200	20	0°12'	M10	4	2
MSN-M10-85T-S25C	•	18.5	88	161	25	2°	M10	4	2
MSN-M10-150T-S25C	•	18.5	150	300	25	1°6'	M10	4	2
MSN-M10-105T-S32C	•	18.5	105	300	32	3°30'	M10	4	2
MSN-M10-115T-S32C	•	18.5	115	195	32	3°	M10	8	2
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	•	24	70	135	25	-	M12	6	1
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
MSN-M12-255-S25C	•	24	255	320	25	-	M12	6	1
MSN-M12-100T-S32C	•	23.5	100	180	32	2°	M12	6	2
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-M16-127-S32C	•	29	127	207	32	-	M16	8	1
MSN-M16-155-S32C	•	29	155	220	32	-	M16	8	1
MSN-M16-177-S32C	•	29	177	257	32	-	M16	8	1
MSN-M16-195-S32C	•	29	195	260	32	-	M16	8	1
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
MSN-M16-315-S32C	•	29	315	380	32	-	M16	8	1
MSN-M16-117T-S32C	•	29	117	197	32	0°38'	M16	8	2
MSN-M16-127T-S32C	•	29	127	207	32	0°30'	M16	8	2
MSN-M16-177T-S32C	•	29	177	257	32	0°23'	M16	8	2
MSN-M16-197T-S32C	•	29	197	277	32	0°23'	M16	8	2

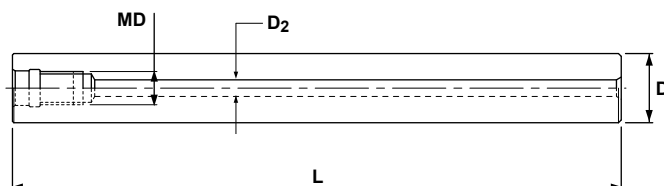
Modular Head Holders

METRIC

Modular Head Holders

MSN Type - Straight

Solid Carbide with coolant thru



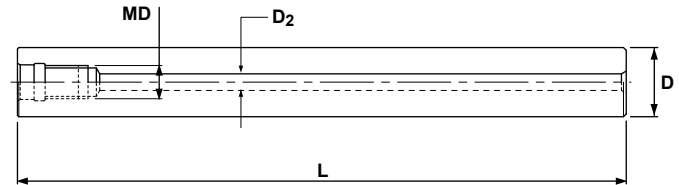
Specifications

CATALOG NUMBER	STK	DIMENSIONS			
		D	L	MD	D2
MSN-M6-67S-S9.8C	•	9.8	67	M6	3
MSN-M6-107S-S9.8C	•	9.8	107	M6	3
MSN-M6-82S-S10C	•	10	82	M6	3
MSN-M6-122S-S10C	•	10	122	M6	3
MSN-M6-167S-S10C	•	10	167	M6	3
MSN-M6-80S-S11.8C	•	11.8	80	M6	3
MSN-M6-120S-S11.8C	•	11.8	120	M6	3
MSN-M6-90S-S12C	•	12	90	M6	3
MSN-M6-130S-S12C	•	12	130	M6	3
MSN-M6-170S-S12C	•	12	170	M6	3
MSN-M8-87S-S14C	•	14	87	M8	4
MSN-M8-137S-S14C	•	14	137	M8	4
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-M8-217S-S15C	•	15	217	M8	4
MSN-M8-107S-S16C	•	16	107	M8	4
MSN-M8-157S-S16C	•	16	157	M8	4
MSN-M8-220S-S16C	•	16	220	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-M10-270S-S18C	•	18	270	M10	4
MSN-M10-130S-S20C	•	20	130	M10	4
MSN-M10-160S-S20C	•	20	160	M10	4
MSN-M10-190S-S20C	•	20	190	M10	4
MSN-M10-210S-S20C	•	20	210	M10	4
MSN-M10-250S-S20C	•	20	250	M10	4
MSN-M10-270S-S20C	•	20	270	M10	4

METRIC

Modular Head Holders

Modular Head Holders
MSN Type - Straight
Solid Carbide with coolant thru



Specifications

CATALOG NUMBER	STK	DIMENSIONS			
		D	L	MD	D2
MSN-M12-145S-S23C	•	23	145	M12	6
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-M12-320S-S24C	•	24	320	M12	6
MSN-M12-145S-S25C	•	25	145	M12	6
MSN-M12-175S-S25C	•	25	175	M12	6
MSN-M12-215S-S25C	•	25	215	M12	6
MSN-M12-245S-S25C	•	25	245	M12	6
MSN-M12-285S-S25C	•	25	285	M12	6
MSN-M12-320S-S25C	•	25	320	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-M16-380S-S28C	•	28	380	M16	8
MSN-M16-157S-S32C	•	32	157	M16	8
MSN-M16-187S-S32C	•	32	187	M16	8
MSN-M16-217S-S32C	•	32	217	M16	8
MSN-M16-247S-S32C	•	32	247	M16	8
MSN-M16-287S-S32C	•	32	287	M16	8
MSN-M16-317S-S32C	•	32	317	M16	8
MSN-M16-357S-S32C	•	32	357	M16	8
MSN-M16-380S-S32C	•	32	380	M16	8

Modular Head Holders

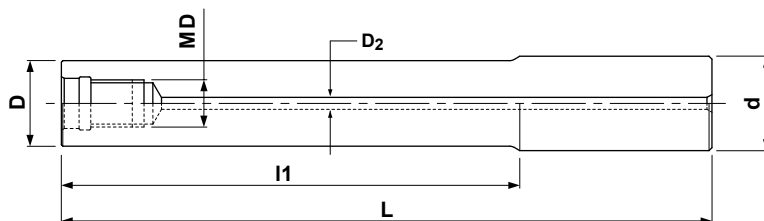
INCH

METRIC

Modular Head Holders

MGN Type

G-Body with coolant thru

Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS					
		D	l1	L	d	MD	D2
MGN-M6-0.5-S050	•	.452	.500	2.50	.500	M6	.118
MGN-M6-1.0-S050	•	.452	1.00	3.15	.500	M6	.118
MGN-M6-2.0-S050	•	.452	2.00	3.93	.500	M6	.118
MGN-M6-3.0-S050	•	.452	3.00	4.92	.500	M6	.118
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-M10-3.0-S075	•	.728	3.00	6.00	.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-M12-4.0-S100	•	.945	4.00	7.00	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
MGN-M16-4.0-S125	•	1.14	4.00	7.00	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, 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.



Steel Modular Heads

Thread	Tightening torque	Spanner size
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.

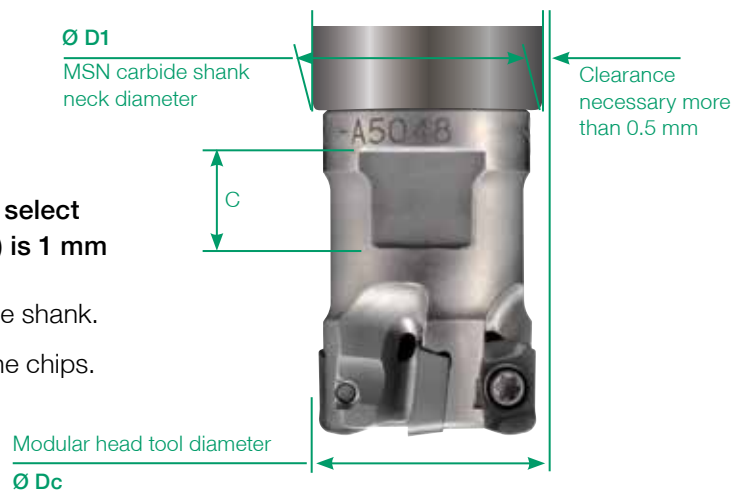
SELECTION OF MSN CARBIDE SHANK HOLDER

$$\varnothing D_c - \varnothing D_1 \geq 1\text{mm}$$

When using modular head over $\varnothing 16\text{mm}$, **please select MSN carbide shank which the diameter ($\varnothing D_1$) is 1 mm or smaller than modular head ($\varnothing D_c$).**

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.

Carbide Grades

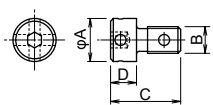
ISO Classification		P					M					K														
		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30											
PVD Coating	DH Series	DH103		DH108		DH110		DH111		DH115		DH102					DH103		DH108		DH110		DH111		DH115	
	DS Series						DS108		DS215		DS217		DS250													
	DP Series	DP117		DP150																						
	JC8000 Series	JC8011		JC8015		JC8118		JC8050		JC8015					JC8118		JC8015					JC8118				
	JC7500 Series						JC7515		JC7550		JC7560															
	JC5000 Series	JC5015		JC5118		JC5240		JC5040		JC5015					JC5118		JC5015					JC5240				
	DLC Coating																									
Diamond Coating																										
Non-Coat												KT9					FZ15									
Cermet		CX75		CX90		CX75					CX75															
Sintered Super Hardened	CBN											JBN795					JBN500		JBN245							
	Diamond																									

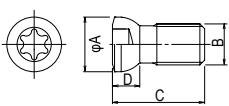
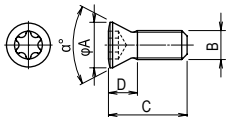
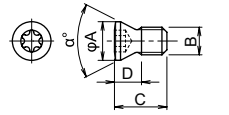
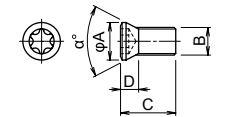
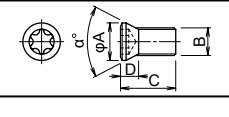
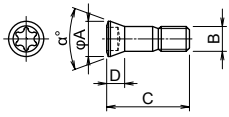
Carbide Grades

ISO Classification		N				S				H			
		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30
PVD Coating	DH Series					DH102				DH102			
						DH103				DH103			
						DH108							
						DH110				DH110			
						DH111							
						DH115							
	DS Series					DS108							
						DS118							
						DS150							
						DS215							
						DS217							
						DS250							
	DP Series												
	JC8000 Series						JC8015			JC8015			
							JC8118			JC8118			
							JC8050						
	JC7500 Series						JC7515						
							JC7518						
							JC7550						
							JC7560						
	JC5000 Series						JC5015						
							JC5118			JC5118			
Sintered Super Hardened	DLC Coating	JC20003		JC20015									
	Diamond Coating	JC10000											
	Non-Coat	FZ05								FZ05			
		KT9											
		FZ15					FZ15			FZ15			
		FC18											
	Cermet												
Sintered Super Hardened	CBN									JBN795			
	Diamond	JDA30								JBN500			
		JDA10											

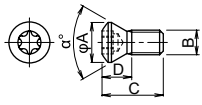
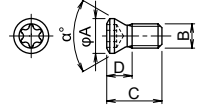
Spare Parts

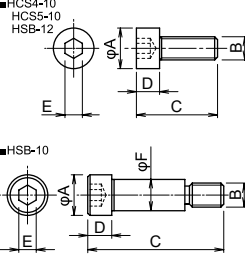
METRIC

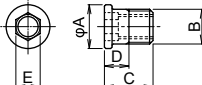
GEOMETRY	CATALOG NO.	DIMENSIONS						Wrench Size
		A	B	C	D	E	α^*	
	ADS-513	7.8	M5x0.5	13.0	5.0	-	-	AD-2080
	ADS-514	5.6	M5x0.5	14.5	6.5	-	-	AD-2080

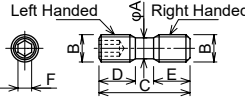
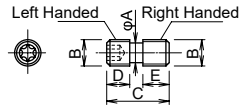
GEOMETRY	CATALOG NO.	DIMENSIONS						Wrench Size	Torque (N*m)
		A	B	C	D	E	α^*		
	BSW-614H	8.0	M6x0.75	13.5	6.5	-	-	T-25	7.5
	BSW-616H	8.0	M6x0.75	15.5	6.5	-	-	T-25	7.5
	CSW-406H	5.0	M4x0.7	6.0	3.6	-	43	T-15	3.6
	CSW-407	5.0	M4x0.7	7.0	3.6	-	43	T-15	3.6
	CSW-408H	5.0	M4x0.7	8.0	3.6	-	43	T-15	3.6
	CSW-513H	7.0	M5x0.8	13.0	4.4	-	63	T-20	5.5
	CSW-510	6.4	M5x0.8	11.0	4.5	-	43	T-20	5.5
	DSW-1840H	2.5	M1.8x0.35	4.0	2.0	-	55	T-6	0.4
	DSW-2045H	3.0	M2x0.4	4.5	2.3	-	60	T-7	0.5
	DSW-2563H	3.45	M2.5x0.45	6.3	2.6	-	55	T-8	1.1
	DSW-306H	4.3	M3x0.5	6.5	3.2	-	55	T-10	1.8
	DSW-307	4.3	M3x0.5	7.5	2.8	-	55	T-10	1.4
	DSW-307H	4.3	M3x0.5	7.6	3.2	-	55	T-10	2.1
	DSW-309H	4.3	M3x0.5	9.0	3.2	-	55	T-10	2.1
	DSW-4075H	5.2	M4x0.7	7.5	3.5	-	55	T-15	3.6
	DSW-408	6.0	M4x0.7	8.5	3.6	-	55	T-15	3.6
	DSW-4085	5.3	M4x0.7	8.5	3.5	-	55	T-15	3.6
	DSW-410H	5.3	M4x0.7	10.0	3.7	-	55	T-15	3.6
	DSW-4510H	6.8	M4.5x0.75	10.0	4.7	-	55	T-20	6.0
	DSW-4512H	6.8	M4.5x0.75	12.5	5.2	-	55	T-20	6.0
	DSW-509	7.0	M5x0.8	9.5	4.9	-	55	T-20	6.1
	DSW-511H	7.0	M5x0.8	11.5	4.9	-	55	T-20	6.1
	ESW-206	3.6	M2.5x0.45	6.0	2.0	-	60	T-8	0.9
	ESW-304	4.0	M3x0.5	4.5	2.0	-	55	T-8	1.4
	ESW-306	4.0	M3x0.5	6.0	2.0	-	55	T-8	1.4
	ESW-307	4.0	M3x0.5	7.5	2.0	-	55	T-8	1.4
	ESW-405	5.3	M4x0.7	5.9	2.7	-	55	T-15	3.1
	ESW-406	5.3	M4x0.7	6.6	2.7	-	55	T-15	3.1
	ESW-408	5.3	M4x0.7	8.0	2.7	-	55	T-15	3.1
	ESW-410	5.3	M4x0.7	10.0	2.7	-	55	T-15	3.1
	ESW-507	6.8	M5x0.8	7.5	3.4	-	55	T-25	5.5
	ESW-508	6.8	M5x0.8	8.2	3.4	-	55	T-25	5.5
	ESW-510	6.8	M5x0.8	10.0	3.4	-	55	T-25	5.5
	FSW-2005H	2.5	M2x0.25	5.0	1.3	-	40	T-6	0.5
	FSW-2506H	3.0	M2.5x0.35	6.6	1.5	-	40	T-7	0.9
	FSW-3007H	3.8	M3x0.35	8.1	2.0	-	40	T-8	1.2
	KSW-3509	4.7	M3.5x0.6	9.6	2.3	-	40	T-15	3.0
	FSW-4013H	5.8	M4x0.7	13.5	3.3	-	40	T-15	3.0
	FSW-5016H	6.8	M5x0.8	16.4	3.2	-	40	T-20	4.0
	FSW-6020	8.5	M6x1.0	20.0	4.3	-	40	T-30	6.0
	KSW-8025	11.0	M8x1.25	25.0	5.5	-	40	T-30	6.0

METRIC
Spare Parts

GEOMETRY	CATALOG NO.	DIMENSIONS						Wrench Size	Torque (N*m)
		A	B	C	D	E	α^*		
	HSW-614H	10.0	M6x1.0	15.0	7.3	-	60	T-30	7.5
	TSW-2044H	2.6	M2x0.25	4.4	1.8	-	66	T-6	0.4
	TSW-2250	3.1	M2.2x0.45	5.0	2.3	-	60	T-7	0.6
	TSW-2556H	3.6	M2.5x0.45	5.6	2.7	-	60	T-8	1.1
	TSW-2567H	3.6	M2.5x0.45	6.7	2.7	-	60	T-8	1.1
	TSW-307H	4.3	M3x0.5	7.6	3.1	-	60	T-10	2.1
	TSW-3509H	5.3	M3.5x0.6	9.0	4.5	-	60	T-15	3.0
	TSW-3510H	5.3	M3.5x0.6	10.0	4.5	-	60	T-15	3.0
	TSW-3512H	5.3	M3.5x0.6	11.5	4.5	-	60	T-15	3.0
	TSW-408	5.5	M4x0.7	8.0	3.3	-	60	T-15	3.1
	TSW-410H	5.3	M4x0.7	10.0	3.6	-	60	T-15	3.5
	TSW-511	7.0	M5x0.8	11.0	5.0	-	60	T-20	5.5
	TSW-612	8.5	M6x1.0	12.0	4.8	-	60	T-25	7.5
	TSW-614H	8.5	M6x1.0	14.0	6.2	-	60	T-25	7.5

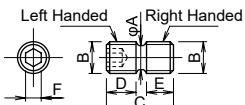
GEOMETRY	CATALOG NO.	DIMENSIONS						Wrench Size	Torque (N*m)
		A	B	C	D	E	F		
 ■ HCS4-10 ■ HCS5-10 ■ HSB-10 ■ HSB-12	HCS4-10	7.0	M4x0.7	14.0	4.0	3.0	-	-	-
	HCS5-10	8.5	M5x0.8	15.0	5.0	4.0	-	-	-
	HSB-10	17.0	M10x1.5	56.0	10.0	8.0	13	-	-
	HSB-12	18.0	M12x1.75	62.0	12.0	10.0	-	-	-

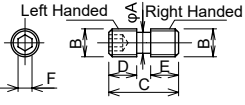
GEOMETRY	CATALOG NO.	DIMENSIONS						Wrench Size	Torque (N*m)
		A	B	C	D	E	F		
	SSW-535	6.3	M5x0.5	7.0	3.1	3.5	-	-	6.5

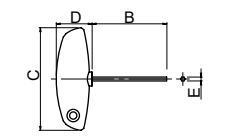
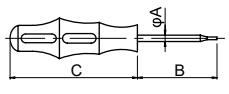
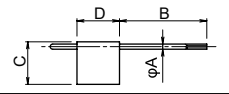
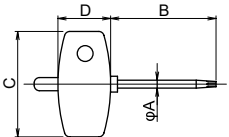
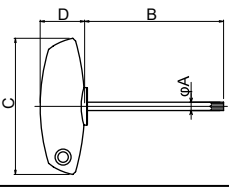
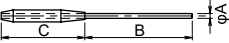
GEOMETRY	CATALOG NO.	DIMENSIONS						Wrench Size	Torque (N*m)
		A	B	C	D	E	F		
 Left Handed Right Handed	LS-101	4.6	M6x1.0	16.0	6.5	6.5	3.0	-	6.0
	LS-106	4.6	M6x1.0	14.5	6.5	5.0	3.0	-	6.0
	LS-107	4.6	M6x1.0	13.0	5.0	5.0	3.0	-	6.0
 Left Handed Right Handed	LS-109	5.5	M7x0.75	19.0	7.5	8.0	-	T-25	7.0
	LS-110	4.8	M6x0.75	22.0	8.0	8.0	-	T-15	6.0

Spare Parts

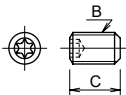
METRIC

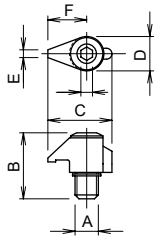
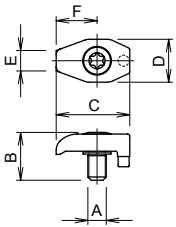
GEOMETRY	CATALOG NO.	DIMENSIONS						Wrench Size	Torque (N*m)
		A	B	C	D	E	F		
	LS-113	3.7	No. 10-32UNF	10.2	4.5	4.1	2.4	-	-

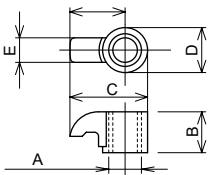
GEOMETRY	CATALOG NO.	DIMENSIONS						Wrench Size	Torque (N*m)
		A	B	C	D	E	F		
	SLS-3	6.0	M8x1.0	20.0	8.0	8.0	4.0	-	8.0

GEOMETRY	CATALOG NO.	DIMENSIONS					Wrench Size
		A	B	C	D	E	
	A-030	-	60.0	80.0	28.0	3.0	-
	T-07SD	4.0	60.0	80.0	-	-	T-7
	T-08SD	4.0	70.0	80.0	-	-	T-8
	T-10SD	4.0	70.0	95.0	-	-	T-10
	T-20	5.0	90.0	105.0	-	-	T-20
	T-25SD	5.0	100.0	105.0	-	-	T-25
	T-06	1.7	34.5	15.0	15.0	-	T-6
	T-07	2.0	34.5	15.0	15.9	-	T-7
	T-08	2.3	39.0	19.0	19.0	-	T-8
	T-10	3.0	40.0	40.0	20.0	-	T-10
	T-15	3.5	45.0	40.0	20.0	-	T-15
	A-20W	4.0	45.0	40.0	20.0	-	T-20
	A-15T	4.0	100.0	80.0	26.0	-	T-15
	A-20	4.0	100.0	100.0	32.0	-	T-20
	A-20L	5.5	200.0	100.0	32.0	-	T-20
	T-25	4.5	100.0	100.0	32.0	-	T-25
	T-27	5.5	100.0	100.0	32.0	-	T-27
	T-30	6.0	100.0	100.0	32.0	-	T-30
	AD-2080	2.0	45.0	35.0	-	-	-

METRIC
Spare Parts

GEOMETRY	CATALOG NO.	DIMENSIONS						Wrench Size	Torque (N*m)
		A	B	C	D	E	F		
	RSW-05008	-	M5x0.8	8.0	-	-	-	T-10	-

GEOMETRY	CATALOG NO.	DIMENSIONS							Wrench Size
		A	B	C	D	E	F	G	
	DCM-1	M5x0.8	13.8	13.8	6.8	2.0	8.5	2.5	-
	DCM-5	M6x1.0	17.0	16.5	8.9	2.0	10.0	3.0	-
	DCM-17	M4.5x0.75	11.7	18.0	10.5	5.0	10.0	-	T-20
	DCM-18	M3.5-0.6	10.0	13.0	7.6	3.0	7.2	-	T-15

GEOMETRY	CATALOG NO.	DIMENSIONS					
		A	B	C	D	E	F
	DCM-2	M8x1.0	10.0	19.0	11.0	6.0	13.5

SHAPE	CATALOG NO.
	MOLY

CATALOG NUMBER	DESCRIPTION	PAGE NUMBER
A		
A-15T	Wrench	A-35, A-53, A-54, A-55
A-20	Wrench	A-39, A-43, A-58, A-59, A-64, A-65, A-66
B		
BSW-614H	Screw	A-43
BSW-616H	Screw	A-43
C		
CSW-513H	Screw	A-39, A-58, A-59, A-64, A-65, A-66
D		
DCM-17	Clamp	A-43
DSW-1840H	Screw	A-2, A-3
DSW-2563H	Screw	A-8, A-9
DSW-307H	Screw	A-30, A-31
E		
ENMQ100312ZER	QM Max GII insert	A-25
ENMU07T207ZER-PM	QM Mini GII insert	A-20
ENMU100312ZER-HL	QM Max GII insert	A-25
ENMU100412ZER-PH	QM Max GII insert	A-25
ENMU100412ZER-SL	QM Max GII insert	A-25
EOHW0602..ZTR	QM Mini Insert for Hardened Steel	A-4
EOMT0602..ZER	QM Mini High Feed Insert	A-4
EPHW1003..ZTR	QM Max insert for Hardened Steel	A-11
EPMT1003..ZER	QM Max High Feed Insert	A-11
EPMW100312ZER	QM Max insert for Unfavorable	A-11
EPMW100312ZTR	QM Max insert for Unfavorable	A-11
EXS-...-05-...-S...	Inch EXSKS-05 Katana End Mill	A-49
EXS-...-07-...-S...	Inch EXSKS-07 End Mill	A-54
EXSKS-...-...R	Inch EXSKS-09 Face Mill	A-58
EXSKS-...-05-...S...	Metric EXSKS-05 End Mill	A-49
EXSKS-...-07-...S..	Metric EXSKS-07 End Mill	A-54
EXSKS-...R-..	Metric EXSKS-09 Fac Mille	A-59
EXSKS-...R-05-...	Inch EXSKS-05 Katana Face Mill	A-50
EXSKS-...R-05-...	Metric EXSKS-05 Face Mill	A-50
EXSKS-...R-07-...	Inch EXSKS-07 Face Mill	A-53
EXSKS-...R-07-...	Metric EXSKS-07 Face Mill	A-53
G		
GMX-...	Metric QM Max GII End Mill	A-24
GMX-...	Inch QM Max GII Face Mill	A-25
GMX-...	Metric QM Max GII Face Mill	A-25
GMX-...-07-...	Inch QM Mini GII End Mill	A-20
GMXS-...	Inch QM Max GII End Mill	A-24
M		
MEX-...-05-...	Inch EXSKS-05 Katana Modular Head	A-48
MEX-...-05-...	Metric EXSKS-05 Modular Head	A-48
MEX-...-07-...	Inch EXSKS-07 Modular Head	A-55
MEX-...-07-...	Metric EXSKS-07 Modular Head	A-55
MGN-...	Inch Modular Head Steel Holder	A-74
MGN-...	Metric Modular Head Steel Holder	A-74

CATALOG NUMBER	DESCRIPTION	PAGE NUMBER
M		
MPM-...	Inch QM Mini Modular Head	A-2
MPM-...	Metric QM Mini Modular Head	A-2
MQX-...	Inch QM Max Modular Head	A-8
MQX-...	Metric QM Max Modular Head	A-8
MSG-...-09-...	Inch SKG-09 Modular Head	A-30
MSG-...-09-...	Metric SKG-09 Modular Head	A-30
MSG-...-10-...	Inch SKG-10 Modular Head	A-34
MSG-...-10-...	Metric SKG-10 Modular Head	A-34
MSN-...S-...-C	Inch Modular Head Carbide Holder	A-69
MSN-...S-...-C	Metric Modular Head Carbide Holder	A-70
MSN-...S-S-...-C	Metric Modular Head Carbide Holder	A-72
MSN-...T-S...C	Metric Modular Head Carbide Holder	A-70
MXG-...	Inch QM Max GII Modular Head	A-26
MXG-...	Metric QM Max GII Modular Head	A-26
MXG-...-07-...	Inch QM Mini GII Modular Head	A-20
MXG-...-07-...	Metric QM Mini GII Modular Head	A-20
P		
PME-...	Inch QM Mini End Mill	A-3
PME-...	Metric QM Mini End Mill	A-3
PNMU190720ZER-...	P10 insert	A-67
PNS-...R-19-...	Inch P10 Face Mill	A-64
PNS-...R-19-...	Metric P10 Face Mill	A-65, A-66
Q		
QXP-...	Inch QM Max Face Mill	A-9
QXP-...	Metric QM Max Face Mill	A-9
QXP-...	Metric QM Max End Mill	A-9
QXPS-...	Inch QM Max End Mill	A-8
S		
SDET090312ZDER-SM	SKG-09 Chipbreaker insert	A-31
SDEW090312ZER	SKG-09 Flat Top insert	A-31
SKG-...-...R-20	Inch SKG-20 Face Mill	A-43
SKG-...-09-S...	Metric SKG-09 End Mill	A-31
SKG-...R-...-14	Inch SKG-14 Face Mill	A-39
SKG-...R-...-14	Metric SKG-14 Face Mill	A-39
SKG-...R-...-10	Inch SKG-10 Face Mill	A-35
SKG-...R-09-...	Inch SKG-09 Face Mill	A-30
SKG-...R-09-...	Metric SKG-09 Face Mill	A-30
SKG-...R-10..	Metric SKG-10 Face Mill	A-35
SKGS-...-09-S...	Inch SKG-09 End Mill	A-31
SKGS-...-10-S...	Inch SKG-10 End Mill	A-34
SPET100415ZPER-SM	SKG-10 Chipbreaker insert	A-36
SPEW200620ZTR	SKG-20 Flat Top insert	A-43
SPMT100415ZPER-SM	SKG-10 Chipbreaker insert	A-36
SPMT100415ZPTR-PM	SKG-10 Chipbreaker insert	A-36
SPMT140520ZPER-SM	SKG-14 Chipbreaker insert	A-40
SPMT140520ZPTR-PM	SKG-14 Chipbreaker insert	A-40
SPNW100415ZTR	SKG-10 Flat Top insert	A-36
SPNW140515ZTR	SKG-14 Flat Top insert	A-40
T		
T-06	Wrench	A-2, A-3, A-20
T-08	Wrench	A-8, A-9, A-24, A-25, A-26
T-10	Wrench	A-30, A-31, A-48, A-49, A-50

CATALOG NUMBER	DESCRIPTION	PAGE NUMBER
T		
T-25	Wrench	A-43
TSW-2044H	Screw	A-20
TSW-2556H	Screw	A-8, A-9
TSW-2567H	Screw	A-24, A-25, A-26
TSW-307H	Screw	A-48, A-49, A-50
TSW-3509H	Screw	A-35
TSW-410H	Screw	A-53, A-54, A-55
W		
WNMU050320ZER-PL	EXSKS-05 insert	A-50
WNMU050320ZER-PM	EXSKS-05 insert	A-50
WNMU070620ZER-PL	EXSKS-07 insert	A-55
WNMU070620ZER-PM	EXSKS-07 insert	A-55
WNMU090720ZER-PM	EXSKS-09 insert	A-60
WNMU090828ZER-PL	EXSKS-09 insert	A-60
Y		
YOHW0602..ZER-12	QM Mini Insert for Finishing Side & Bottom	A-4
YPHW1003..ZER-15	QM Max Insert for Finishing Side & Bottom	A-11
YPHW100308ZER-F	QM Max Insert for Finishing Side & Bottom	A-11
YPHW100308ZTR-F1	QM Max CBN Insert	A-11
YPHW100320ZER-24	QM Max Insert for Finishing Side & Bottom	A-11
Z		
ZOMT0602..ZER-PL	QM Mini Insert for Shoulder Milling	A-4
ZPMT1003..ZER-NL	QM Max insert for Shoulder Milling	A-11
ZPMT1003..ZER-PL	QM Max insert for Shoulder Milling	A-11
ZPMT1003..ZER-SL	QM Max insert for Shoulder Milling	A-11

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