

MODULAR HEAD SYSTEM

Features:

- 2 to 3 times higher machining efficiency when compared to conventional steel body. The Tuff Modular System controls the vibration, shortening machining time and increasing cost savings.
- Extensive tool management is possible from roughing to finishing with the combination of 15 different kinds of heads.
- Many different combinations possible for one holder.
- Holders can be used repeatedly by changing the head, even if head is damaged.
- Head can easily be changed while on the machine due to screw type mounting.
- **G-Body** gives the body and holder strength and improved tool life. Anti-welding effect and corrosion resistance is improved also.



MBN



MRN



SDH



MDH



MDB



MIC



MSH



MEC



MXD



MSW



MFO



MCM



MPM




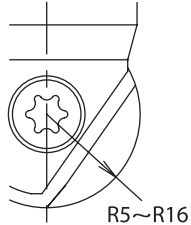




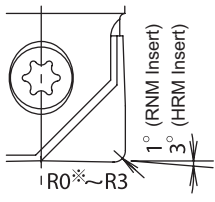





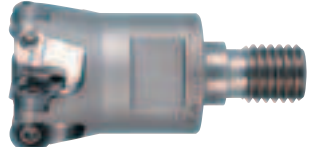
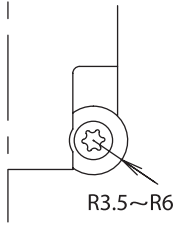





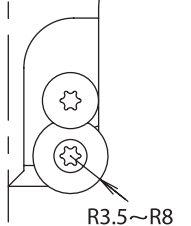





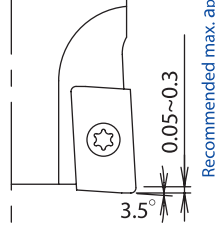






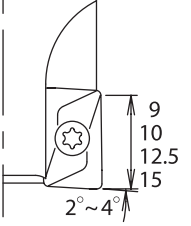



MPF




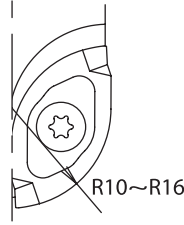




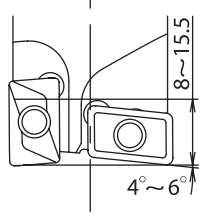







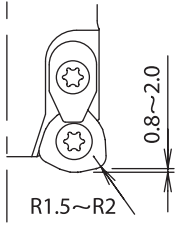





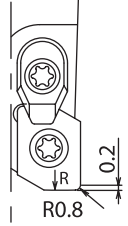


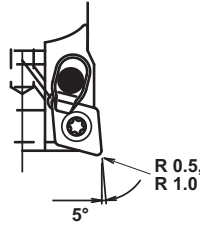






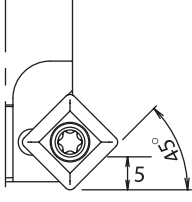



SMSA

FULL LINEUP

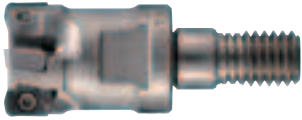
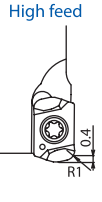
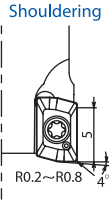







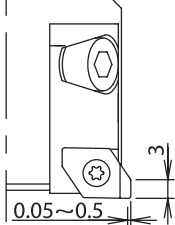


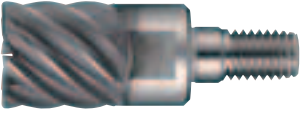
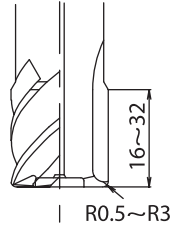






Modular Heads

Type	Tool Number	Appearance / Tool Diameter	Entering Angle Max Ap	Type of Machining
For Copy Milling	MBN MBN-H Mirror Ball Page A-143	 Ø10 - Ø32	 R5~R16	 Copy Milling  Pocket Milling  Slotting
For Shoulder Finishing & Copy Milling	MRN MRN-H Mirror Radius Page A-146	 Ø10 - Ø32	 1° (RNM Insert) 3° (HRM Insert) R0~R3 <small>※R0 shows: corner radius below 0.1mm.</small>	 Face Milling  Copy Milling  Pocket Milling  Helical Interpolation  Shoulder Milling
For Copy Milling on common & difficult to cut materials	SDH Super Diemaster Page A-149	 Ø15 - Ø42	 R3.5~R6	 Face Milling  Copy Milling  Pocket Milling  Helical Interpolation
For High Efficiency Copy Milling	MDH Diemaster Page A-151	 Ø12 - Ø40	 R3.5~R8	 Face Milling  Copy Milling  Pocket Milling  Helical Interpolation
For Side & Bottom Finishing	MDB Backdraft Page A-153	 Ø20 - Ø40	 0.05~0.3 Recommended max. ap 3.5°	 Face Milling  Copy Milling  Pocket Milling  Helical Interpolation  Plunge Milling
For Shoulder Cutting	MIC Side Chipper Page A-154	 Ø16 - Ø40	 9 10 12.5 15 2°~4°	 Face Milling  Shoulder Milling  Slotting

Modular Heads

Type	Tool Number	Appearance / Tool Diameter	Entering Angle Max Ap	Type of Machining
For Copy Roughing	MSW Swing Ball Page A-156	 Ø20 - Ø32	 R10~R16	 Copy Milling  Shoulder Milling  Slotting
For Multi-functional Cutting	MEC Super End-Chipper Page A-157	 Ø16 - Ø35	 8~15.5 4°~6°	 Shoulder Milling  Slotting  Pocket Milling  Copy Milling  Helical Interpolation  Spot Facing
For High Feed Copy Milling	MSH High Feed Diemaster Page A-159	 Ø16 - Ø40	 0.8~2.0 R1.5~R2	 Face Milling  Pocket Milling  Copy Milling  Helical Interpolation
For Bottom Super Finishing	MFO Indexable Finish-One Page A-161	 Ø17 - Ø21	 R0.8 0.2	 Face Milling
For High Efficient & Multi-functional Machining	MXD Rhombic Diemaster Page A-162	 Ø16 - Ø42	 R 0.5, R 1.0 5°	 Face Milling  Shoulder Milling  Pocket Milling  Copy Milling  Helical Interpolation
For Chamfering	MCM Chamfer Cutting Page A-163	 Ø8 - Ø32	 45° 5	 Slotting  Chamfering  Chamfering

Modular Heads

Type	Tool Number	Appearance / Tool Diameter	Entering Angle Max Ap	Type of Machining
For High Efficiency Copy Milling	MPM QM Mill Page A-165	 Ø10 - Ø32	 	     
For Side Up & Down Finishing	MPF Back & Forth Cutter Page A-171	 Ø30 - Ø40		 
Solid Carbide with Multi-cutting edge	SMSA S Head Page A-172	 Ø16 - Ø32		  
For High Productivity	MSN Carbide Shank Holder Page A-175	 Ø10 - Ø32  Ø9.8 - Ø32		
For High Productivity	MGN G-Body Steel Shank Holder Page A-177	 Ø16 - Ø32		



METRIC

Modular Head

MIRROR BALL MBN Type



Fig. 1

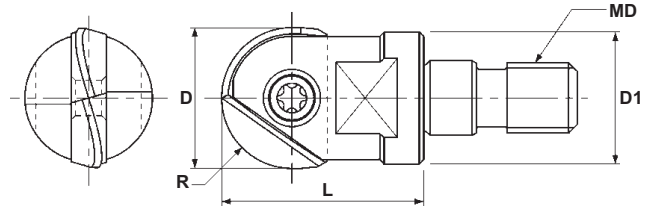
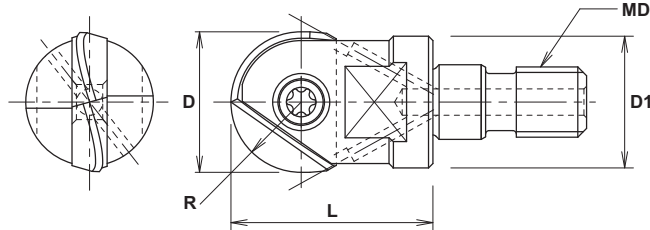


Fig. 2



Specifications

CATALOG NUMBER	STK	DIMENSIONS					FIG.	HEAD TORQUE Nm	INSERT	PARTS	
		D	R	L	D1	MD				Screw	Wrench
MBN-100-M6	•	10	5	18	9.7	M6	1	8	BNM-100	FSW-3007H	A-08
MBN-100-M6-H	•	10	5	18	9.7	M6	2				
MBN-120-M6	•	12	6	20	11.5	M6	1	8	BNM-120	FSW-3509	A-10
MBN-120-M6-H	•	12	6	20	11.5	M6	2				
MBN-160-M8	•	16	8	23	15	M8	1	16	BNM-160	FSW-4013	A-15
MBN-160-M8-H	•	16	8	23	15	M8	2				
MBN-200-M10	•	20	10	30	18.5	M10	1	16	BNM-200	FSW-5016	A-20W
MBN-200-M10-H	•	20	10	30	18.5	M10	2				
MBN-250-M12	•	25	12.5	35	24	M12	1	20	BNM-250	FSW-6020	A-30
MBN-250-M12-H	•	25	12.5	35	24	M12	2				
MBN-300-M16	•	30	15	43	29	M16	1	25	BNM-300 or BNM-320	FSW-8025	A-40
MBN-300-M16-H	•	30	15	43	29	M16	2				
MBN-320-M16	•	32	16	43	29	M16	1	25	BNM-320	FSW-8025	A-40
MBN-320-M16-H	•	32	16	43	29	M16	2				

Note: All cutters are supplied without inserts.

See Page A-14 for Speeds & Feeds

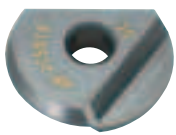


Modular Heads

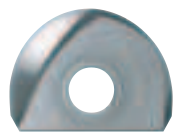
METRIC

MIRROR BALL INSERTS

Mirror Ball

For Finishing 	CATALOG NUMBER	DIMENSIONS				RECOMMENDED TORQUE		COATED				UN-COATED
		A	R	B	T	lbs./ft	Nm	JC8003	JC4015	JC5015	DIAMOND	
											JC10000	KT9
	BNM-100	10	5	8.5	2.6	.89	1.2	•	•	•	•	•
	BNM-120	12	6	10	3	1.48	2.0	•	•	•	•	•
	BNM-160	16	8	12	4	2.21	3.0	•	•	•	•	•
	BNM-200	20	10	15	5	2.95	4.0	•	•	•	•	•
	BNM-250	25	12.5	18.5	6	3.69	5.0	•	•	•	•	•
	BNM-300	30	15	22.5	7	4.43	6.0	•	•	•	•	•
	BNM-320	32	16	23.5	7	4.43	6.0	•	•	•	•	•

Mirror Ball "S"

For Finishing & Semi-finishing 	CATALOG NUMBER	DIMENSIONS				RECOMMENDED TORQUE		STOCK			
		A	R	B	T	lbs./ft	Nm	COATED		UNCOATED	
								JC8008	JC8003	FZ05	
	BNM-100-S	10	5	8.5	2.6	.89	1.2	•	•	•	
	BNM-120-S	12	6	10	3	1.48	2.0	•	•	•	
	BNM-160-S	16	8	12	4	2.21	3.0	•	•	•	
	BNM-200-S	20	10	15	5	2.95	4.0	•	•	•	
	BNM-250-S	25	12.5	18.5	6	3.69	5.0	•	•	•	
	BNM-300-S	30	15	22.5	7	4.43	6.0	•	•	•	
	BNM-320-S	32	16	23.5	7	4.43	6.0	•	•		
	BNM-100-S-R	10	5	8.5	2.6	.89	1.2	•			
	BNM-120-S-R	12	6	10	3	1.48	2.0	•			
	BNM-160-S-R	16	8	12	4	2.21	3.0	•			
	BNM-200-S-R	20	10	15	5	2.95	4.0	•			
	BNM-250-S-R	25	12.5	18.5	6	4.43	5.0	•			
	BNM-300-S-R	30	15	22.5	7	4.43	6.0	•			

Note: Use Mirror "S" insert when encountering high hard material, for chatter reduction, semi-finishing (larger d.o.c.), or coolant is being used on the application.



Modular Heads METRIC

MIRROR BALL Ultra Precision Inserts

Radius form accuracy below +/- .00008

CATALOG NUMBER	DIMENSIONS				COATED
	A	R	B	T	JC5015
BNM-100-AAA	10	5	8.5	2.6	•
BNM-120-AAA	12	6	10	3	•
BNM-160-AAA	16	8	12	4	•
BNM-200-AAA	20	10	15	5	•
BNM-250-AAA	25	12.5	18.5	6	•
BNM-300-AAA	30	15	22.5	7	•
BNM-320-AAA	32	16	23.5	7	•

Controlled Torque Wrenches

Wrenches are pre-set to protect screws and bodies against damage during both the tightening and loosening process.



Controlled Torque Wrenches (with replaceable blades)

CATALOG NUMBER	TORQUE #	SCREW TORQUE		REPLACEMENT BLADE	APPLICABLE INSERT
		lbs./ft	Nm		
TQC-08	T8	.89	1.2	B-08	BNM-100, RNM-100-R., HRM-100-R., HRM-110-R..
TQC-10	T10	1.48	2.0	B-10	BNM-120, RNM-120-R., RNM-130-R., HRM-120-R., HRM-130-R..

Insert Mounting Information

1. Make sure the insert seat on body is carefully cleaned.
2. Make sure insert itself is clean, especially the hole and face location.
3. Change insert screw when threads start to wear. (approximately every 10-15 inserts)
4. Do not over tighten screw, see table for torque specifications.

SCREW	RECOMMENDED TORQUE	
	lbs./ft	Nm
FSW-3007H	.89	1.2
FSW-3509	1.48	2.0
FSW-4013	2.21	3.0
FSW-5016	2.95	4.0
FSW-6020	3.69	5.0
FSW-8025	4.43	6.0

Modular Head Mounting Information

1. Make sure the mounting surface of the modular head and the carbide holder are clean.
2. Make sure after tightening there is no gap between the head and the carbide holder.
3. Do not over tighten head, see table for torque specification.

MODULAR HEAD THREAD SIZE	RECOMMENDED TORQUE Nm
M6	8
M8	16
M10	16
M12	20
M16	25

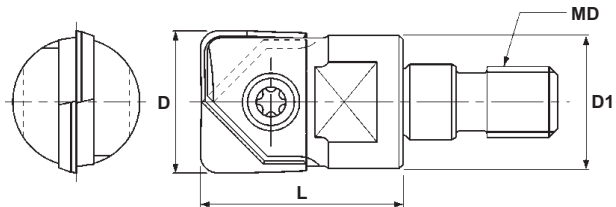
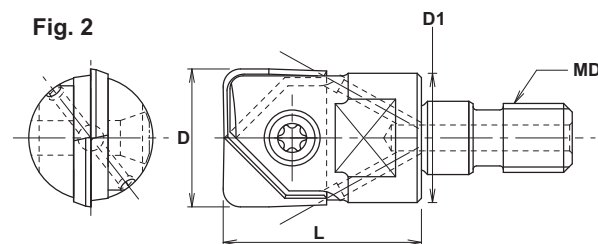
See Page A-14 for Speeds & Feeds



Modular Heads

METRIC

MIRROR RADIUS MRN Type


Fig. 1

Fig. 2


Specifications

CATALOG NUMBER	STK	DIMENSIONS				FIG.	HEAD TORQUE Nm	INSERT	PARTS	
		D	L	D1	MD				SCREW	WRENCH
MRN-100-M6	•	10	18	9.7	M6	1	8	RNM-100-.. HRM-100-.. HRM-110-..	FSW-3007H	A-08
MRN-100-M6-H	•	10	18	9.7	M6	2				
MRN-120-M6	•	12	20	11.5	M6	1	8	RNM-120-.. RNM-130-.. HRM-120-.. HRM-130-..	FSW-3509	A-10
MRN-120-M6-H	•	12	20	11.5	M6	2				
MRN-160-M8	•	16	23	15	M8	1	16	RNM-160-.. RNM-170-.. HRM-160-.. HRM-170-..	FSW-4013	A-15
MRN-160-M8-H	•	16	23	15	M8	2				
MRN-200-M10	•	20	30	19	M10	1	16	RNM-200-.. RNM-210-.. HRM-200-.. HRM-220-..	FSW-5016	A-20W
MRN-200-M10-H	•	20	30	19	M10	2				
MRN-250-M12	•	25	35	24	M12	1	20	RNM-250-.. RNM-260-..	FSW-6020	A-30
MRN-250-M12-H	•	25	35	24	M12	2				
MRN-300-M16	•	30	43	29	M16	1	25	RNM-300-.. RNM-320-..	FSW-8025	A-40
MRN-300-M16-H	•	30	43	29	M16	2				
MRN-320-M16	•	32	43	30	M16	1	25	RNM-320-..	FSW-8025	A-40
MRN-320-M16-H	•	32	43	30	M16	2				

Note: All cutters are supplied without inserts.

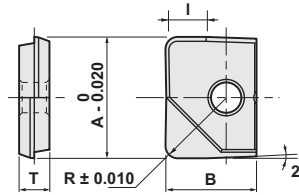
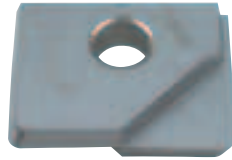
See Pages A-27 and A-30 for Speeds & Feeds



METRIC

Modular Heads

MIRROR RADIUS INSERTS



Specifications

CATALOG NUMBER	DIMENSIONS					RECOMMENDED TORQUE		STOCK					
								COATED				DIAMOND COATED	UNCOATED
	A	R	B	I	T	lbs./ft	Nm	JC8003	JC5003	JC5015	JC8015	JC10000	KT9
RNM-100-R0	10	>0.1	8.5	3.3	2.6	.89	1.2				•		
RNM-100-R03	10	0.3	8.5	3.3	2.6	.89	1.2	•			•		•
RNM-100-R05	10	0.5	8.5	3.3	2.6	.89	1.2	•	○		•	•	•
RNM-100-R10	10	1.0	8.5	3.3	2.6	.89	1.2	•			•	•	•
RNM-100-R15	10	1.5	8.5	3.3	2.6	.89	1.2	⊙	○		•		•
RNM-100-R20	10	2.0	8.5	3.3	2.6	.89	1.2	•			•		•
RNM-120-R0	12	>0.1	10	4	3	1.48	2.0				•		
RNM-120-R03	12	0.3	10	4	3	1.48	2.0	•			•		•
RNM-120-R05	12	0.5	10	4	3	1.48	2.0	•			•	•	•
RNM-120-R10	12	1.0	10	4	3	1.48	2.0	•			•	•	•
RNM-120-R15	12	1.5	10	4	3	1.48	2.0	•	○	○	•		•
RNM-120-R20	12	2.0	10	4	3	1.48	2.0	•			•		•
RNM-130-R03	13	0.3	10	4	3	1.48	2.0				•		
RNM-130-R05	13	0.5	10	4	3	1.48	2.0				•		
RNM-130-R10	13	1.0	10	4	3	1.48	2.0				•		
RNM-130-R20	13	2.0	10	4	3	1.48	2.0				•		
RNM-160-R0	16	>0.1	12	5.3	4	2.21	3.0				•		
RNM-160-R03	16	0.3	12	5.3	4	2.21	3.0	•			•		•
RNM-160-R05	16	0.5	12	5.3	4	2.21	3.0	•			•		•
RNM-160-R10	16	1.0	12	5.3	4	2.21	3.0	•			•		•
RNM-160-R15	16	1.5	12	5.3	4	2.21	3.0	•	○		•		•
RNM-160-R20	16	2.0	12	5.3	4	2.21	3.0	•			•		•
RNM-170-R03	17	0.3	12	5.3	4	2.21	3.0				•		
RNM-170-R05	17	0.5	12	5.3	4	2.21	3.0				•		
RNM-170-R10	17	1.0	12	5.3	4	2.21	3.0				•		
RNM-170-R20	17	2.0	12	5.3	4	2.21	3.0				•		
RNM-200-R0	20	>0.1	15	6.7	5	2.95	4.0				•		
RNM-200-R03	20	0.3	15	6.7	5	2.95	4.0	•			•		•
RNM-200-R05	20	0.5	15	6.7	5	2.95	4.0	•			•		•
RNM-200-R10	20	1.0	15	6.7	5	2.95	4.0	•			•		•
RNM-200-R15	20	1.5	15	6.7	5	2.95	4.0	•	○		•		•
RNM-200-R20	20	2.0	15	6.7	5	2.95	4.0	•			•		•
RNM-200-R30	20	3.0	15	6.7	5	2.95	4.0				•		
RNM-210-R03	21	0.3	15	6.7	5	2.95	4.0				○	•	
RNM-210-R05	21	0.5	15	6.7	5	2.95	4.0				○	•	
RNM-210-R10	21	1.0	15	6.7	5	2.95	4.0				○	•	
RNM-210-R20	21	2.0	15	6.7	5	2.95	4.0				○	•	
RNM-250-R0	25	>0.1	18.5	8.3	6	3.69	5.0				•		
RNM-250-R03	25	0.3	18.5	8.3	6	3.69	5.0	•	○	○			
RNM-250-R05	25	0.5	18.5	8.3	6	3.69	5.0	•	○	○	•		
RNM-250-R10	25	1.0	18.5	8.3	6	3.69	5.0	•	○	○	•		
RNM-250-R15	25	1.5	18.5	8.3	6	3.69	5.0	•	○	○	•		
RNM-250-R20	25	2.0	18.5	8.3	6	3.69	5.0	•	○	○	•		
RNM-250-R30	25	3.0	18.5	8.3	6	3.69	5.0				○	•	

See Pages A-27 and A-30 for Speeds & Feeds

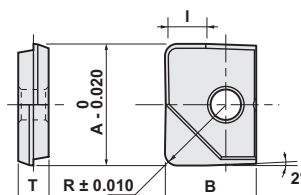
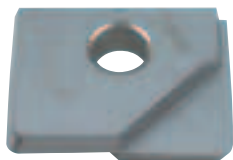
⊙ Soon to be stocked ○ Soon to be deleted



Modular Heads

METRIC

MIRROR RADIUS INSERTS

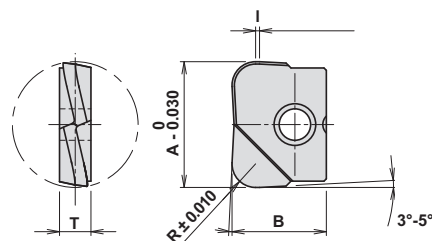
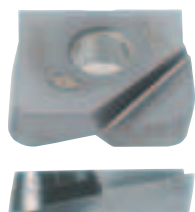


Specifications

CATALOG NUMBER	DIMENSIONS					RECOMMENDED TORQUE		STOCK COATED			
	A	R	B	I	T	lbs./ft	Nm	JC8003	JC5003	JC5015	JC8015
RNM-260-R03	26	0.3	18.5	8.3	6	3.69	5.0			○	•
RNM-260-R05	26	0.5	18.5	8.3	6	3.69	5.0			○	•
RNM-260-R10	26	1.0	18.5	8.3	6	3.69	5.0			○	•
RNM-260-R20	26	2.0	18.5	8.3	6	3.69	5.0			○	•
RNM-300-R03	30	0.3	22.5	10	7	4.43	6.0	•	○	○	•
RNM-300-R05	30	0.5	22.5	10	7	4.43	6.0	⊙	○	○	•
RNM-300-R10	30	1.0	22.5	10	7	4.43	6.0	•	○	○	•
RNM-300-R15	30	1.5	22.5	10	7	4.43	6.0	⊙	○	○	•
RNM-300-R20	30	2.0	22.5	10	7	4.43	6.0	•	○	○	•
RNM-300-R30	30	3.0	22.5	10	7	4.43	6.0			○	•
RNM-320-R03	32	0.3	23.5	10.7	7	4.43	6.0	•	○	○	•
RNM-320-R05	32	0.5	23.5	10.7	7	4.43	6.0	•	○	○	•
RNM-320-R10	32	1.0	23.5	10.7	7	4.43	6.0	•	○	○	•
RNM-320-R15	32	1.5	23.5	10.7	7	4.43	6.0	⊙	○	○	•
RNM-320-R20	32	2.0	23.5	10.7	7	4.43	6.0	•	○	○	•
RNM-320-R30	32	3.0	23.5	10.7	7	4.43	6.0			○	•

⊙ Soon to be stocked ○ Soon to be deleted

High Feed Mirror Radius Insert



Specifications

CATALOG NUMBER	DIMENSIONS					RECOMMENDED TORQUE		STOCK COATED		
	A	R	B	I	T	lbs./ft	Nm	JC5003	JC5015	JC8015
HRM-100-R05	10	0.5	8.5	0.3/0.5	2.6	.89	1.2			•
HRM-100-R10	10	1.0	8.5	0.3/0.5	2.6	.89	1.2			•
HRM-100-R20	10	2.0	8.5	0.3/0.5	2.6	.89	1.2			•
HRM-110-R20	11	2.0	8.5	0.3/0.5	2.6	.89	1.2			•
HRM-120-R05	12	0.5	10	0.3/0.5	3	1.48	2.0			•
HRM-120-R10	12	1.0	10	0.3/0.5	3	1.48	2.0			•
HRM-120-R20	12	2.0	10	0.3/0.5	3	1.48	2.0			•
HRM-130-R20	13	2.0	10	0.3/0.5	3	1.48	2.0			•
HRM-160-R10	16	1.0	12	0.3/0.5	4	2.21	3.0			•
HRM-160-R20	16	2.0	12	0.3/0.5	4	2.21	3.0			•
HRM-160-R30	16	3.0	12	0.3/0.5	4	2.21	3.0			•
HRM-170-R30	17	3.0	12	0.3/0.5	4	2.21	3.0			•
HRM-200-R10	20	1.0	15	0.3/0.5	5	2.95	4.0			•
HRM-200-R20	20	2.0	15	0.3/0.5	5	2.95	4.0			•
HRM-200-R30	20	3.0	15	0.3/0.5	5	2.95	4.0			•
HRM-220-R30	22	3.0	15	0.3/0.5	5	2.95	4.0			•

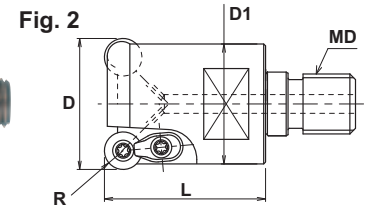
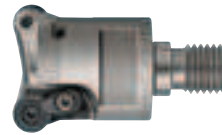
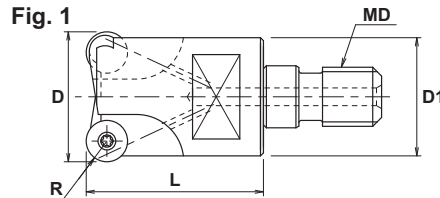
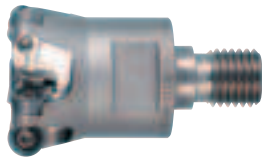
See Pages A-27 and A-30 for Speeds & Feeds



METRIC

Modular Heads

SUPER DIEMASTER SDH Type



Specifications - Standard

CATALOG NUMBER	STK	DIMENSIONS					FIG.	HEAD TORQUE Nm	INSERT	Q	PARTS		
		D	R	L	D1	MD					SCREW	WRENCH	OTHER
SDH-2150-R07-M8	•	15	3.5	23	13.8	M8	1	16	RD**07T2MO*	2	TSW-2556H	A-08SD	-
SDH-2160-R07-M8	•	16	3.5	23	15	M8	1	16	RD**07T2MO*	2	TSW-2556H	A-08SD	-
SDH-2200-R07-M10	•	20	3.5	30	18	M10	1	16	RD**07T2MO*	2	TSW-2556H	A-08SD	-
SDH-2220-R07-M10	•	22	3.5	30	20	M10	1	16	RD**07T2MO*	2	TSW-2556H	A-08SD	-
SDH-2250-R10-M12	•	25	5	35	23	M10	2	20	RD**1004MO*	2	CSW-408H	A-15	DCM-18
SDH-2280-R10-M12	•	28	5	35	25	M12	2	20	RD**1004MO*	2	CSW-408H	A-15	DCM-18
SDH-2300-R10-M16	•	30	5	43	28	M16	2	25	RD**1004MO*	2	CSW-408H	A-15	DCM-18
SDH-2320-R12-M16	•	32	6	43	28	M16	2	25	RD**1204MO*	2	DSW-410H	A-15	DCM-18
SDH-3320-R10-M16	•	32	5	43	28	M16	2	25	RD**1004MO*	3	CSW-408H	A-15	DCM-18
SDH-2350-R12-M16	•	35	6	43	32	M16	2	25	RD**1204MO*	2	DSW-410H	A-15	DCM-18
SDH-3350-R10-M16	•	35	5	43	32	M16	2	25	RD**1004MO*	3	CSW-408H	A-15	DCM-18
SDH-2400-R12-M16	•	40	6	43	32	M16	2	25	RD**1204MO*	2	DSW-410H	A-15	DCM-18

Note: All cutters are supplied without inserts.

Specifications - Fine Pitch

CATALOG NUMBER	STK	DIMENSIONS					FIG.	HEAD TORQUE Nm	INSERT	Q	PARTS	
		D	R	L	D1	MD					SCREW	WRENCH
SDH-3200-R07-M10	•	20	3.5	30	18	M10	1	16	RD**07T2MO*	3	TSW-2556H	A-08SD
SDH-3220-R07-M10	•	22	3.5	30	20	M10	1	16	RD**07T2MO*	3	TSW-2556H	A-08SD
SDH-3250-R07-M12	•	25	3.5	35	23	M12	1	20	RD**07T2MO*	3	TSW-2556H	A-15
SDH-3250-R10-M12	•	25	5	35	23	M12	1	20	RD**1004MO*	3	CSW-408H	A-15
SDH-3280-R10-M12	•	28	5	35	25	M12	1	20	RD**1004MO*	3	CSW-408H	A-15
SDH-3300-R10-M16	•	30	5	43	28	M16	1	25	RD**1004MO*	3	CSW-408H	A-15
SDH-4300-R10-M16	•	30	5	43	28	M16	1	25	RD**1004MO*	4	CSW-408H	A-15
SDH-4320-R10-M16	•	32	5	43	28	M16	1	25	RD**1004MO*	4	CSW-408H	A-15
SDH-3350-R12-M16	•	35	6	43	32	M16	1	25	RD**1204MO*	3	DSW-410H	A-15
SDH-4350-R10-M16	•	35	5	43	32	M16	1	25	RD**1004MO*	4	CSW-408H	A-15
SDH-4400-R12-M16	•	40	6	43	32	M16	1	25	RD**1204MO*	4	DSW-410H	A-15
SDH-5420-R10-M16	•	42	5	43	32	M16	1	25	RD**1004MO*	5	CSW-408H	A-15

Note: All cutters are supplied without inserts.

See Pages A-50 thru A-54 for Speeds & Feeds



Modular Heads

METRIC

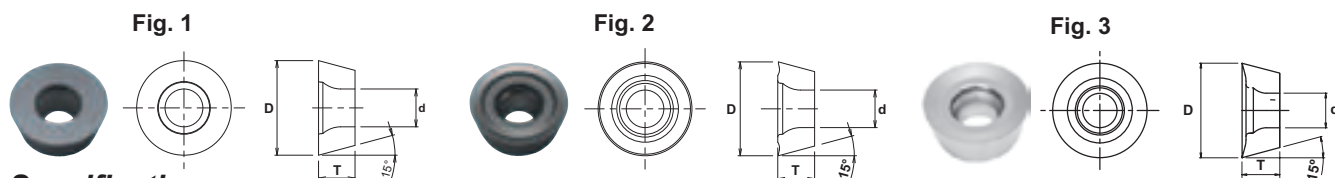
Insert Style and Grade Recommendations

Materials	Cast Iron Cast Steel	Carbon Steel Alloy Steel			Mold Steel		High Hardened Steel	Titanium Alloy Inconel		Stainless Steel		Aluminum
		JC8015 JC5118	JC5040	JC5118	JC8050	JC8015 JC5118		JC8050	JC8003 (above 50HRC) JC8015 JC5118	JC8015 JC5118	JC8050	
RDMW07T2MOT	⊙	⊙			⊙		⊙	○		○		
RD*T07T2MOE	★		★	●	○	●		⊙	●	⊙	●	
RDGT07T2MOF-AL												⊙
RDMW1004MOT	⊙	⊙			⊙		⊙	○		○		
RD*T1004MOT	★		★		○					⊙		
RD*T1004MOE				●		●		⊙	●		●	
RDGT1004MOF-AL												⊙
RDMW1204MOT	⊙	⊙			⊙		⊙	○		○		
RD*T1204MOT	★		★		○					⊙		
RD*T1204MOE				●		●		⊙	●		●	
RDGT1204MOF-AL												⊙
RDMW1606MOT	⊙	⊙			⊙		⊙	○		○		
RD*T1606MOT	★		★		○					⊙		
RD*T1606MOE				●		●		⊙	●		●	
RDGT1606MOF-AL												⊙

RDMW - without chip breaker
RDGT - with chip breaker

CUTTING CONDITION: ⊙ - Good ● - Unfavorable
○ - Moderate ★ - Light cutting

INSERTS



Specifications

CATALOG NUMBER	IC TOLERANCE	DIMENSIONS			FIG.	COATED GRADES					UNCOATED	
		D	T	d		JC8003	JC8015	JC5040	JC8050	JC5118		FZ05
RDMW07T2MOT	M	7	2.7	2.8	1	●	●	●				
RDMW1004MOT	M	10	4.1	4.4	1	●	●	●				
RDMW1204MOT	M	12	4.8	4.4	1	●	●	●				
RDMW1606MOT	M	16	6	5	1	●	●	●				
RDGT07T2MOE	G	7	2.7	2.8	2		●		●			
RDGT1004MOE	G	10	4.1	4.4	2		●		●			
RDGT1004MOT	G	10	4.1	4.4	2		●		●			
RDGT1204MOE	G	12	4.8	4.4	2		●		●			
RDGT1204MOT	G	12	4.8	4.4	2		●		●			
RDGT1606MOE	G	16	6	5	2		●		●			
RDGT1606MOT	G	16	6	5	2		●		●			
RDMT07T2MOE	M	7	2.7	2.8	2		●		●	●		
RDMT1004MOE	M	10	4.1	4.4	2		●		●	●		
RDMT1004MOT	M	10	4.1	4.4	2		●		●	●		
RDMT1204MOE	M	12	4.8	4.4	2		●		●	●		
RDMT1204MOT	M	12	4.8	4.4	2		●		●	●		
RDMT1606MOE	M	16	6	5	2		●		●	●		
RDMT1606MOT	M	16	6	5	2		●		●	●		
RDGT07T2MOF-AL	G	7	2.7	2.8	3							●
RDGT1004MOF-AL	G	10	4.1	4.4	3							●
RDGT1204MOF-AL	G	12	4.8	4.4	3							●
RDGT1606MOF-AL	G	16	6	5	3							●

See Pages A-50 thru A-54 for Speeds & Feeds



METRIC

Modular Heads

DIEMASTER MDH Type

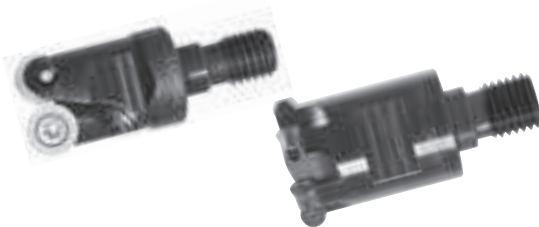


Fig. 1

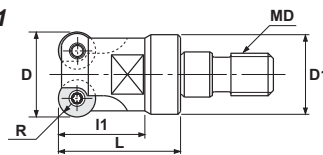


Fig. 2

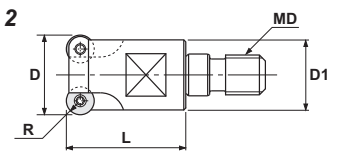
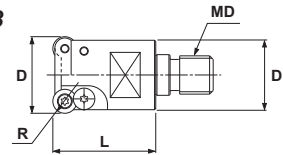


Fig. 3



Specifications

CATALOG NUMBER	STK	DIMENSIONS					FIG.	HEAD TORQUE Nm	INSERT	Q	PARTS		
		D	R	L	D1	MD					Screw	Wrench	Other
MDH-2120-M8	•	12	3.5	23	15	M8	1	16	RDHX0701MO*	2	CSW-2542	A-07	-
MDH-2160-M8	•	16	3.6	23	15	M8	1	16	RDHX0702MO*	2	CSW-2547	A-07	-
MDH-2200-M10	•	20	5	30	19	M10	1	16	RDHX1003MO*	2	CSW-3570	A-15	-
MDH-2250-M12	•	25	5	35	21	M12	2	20	RDHX1003MO*	2	CSW-3570	A-15	-
MDH-3320-R10-M16	•	32	5	43	29	M16	3	25	RDHX1003MO*	3	CSW-3575	A-15	CB3540
MDH-2320-R16-M16	•	32	8	43	29	M16	2	25	RD*X1604MO*	2	CSW-4510	A-20SD	-
MDH-4400-M16	•	40	6	42	29	M16	3	25	RD*X12T3MO*	4	CSW-3595	A-15	CB3540

Note: All cutters are supplied without inserts.

Modular Heads for High Speed Cutting

Specifications

CATALOG NUMBER	STK	DIMENSIONS					FIG.	HEAD TORQUE Nm	INSERT	Q	PARTS		
		D	R	L	D1	MD					Screw	Wrench	Other
MDH-3160-M8	•	16	3.5	23	15	M8	1	16	RDHX0701MOT	3	CSW-2542	A-07	-
MDH-4160-M8	•	16	2.5	23	13.7	M8	2	16	RDHX0501MOT	4	CSW-1838	A-06	-
MDH-4200-M10	•	20	3.5	30	17.6	M10	2	16	RDHX0701MOT	4	CSW-2547	A-07	-
MDH-5200-M10	•	20	2.5	30	17.8	M10	2	16	RDHX0501MOT	5	CSW-1838	A-06	-
MDH-5250-M12	•	25	3.5	35	20.8	M12	2	20	RDHX0702MOT	5	CSW-2547	A-07	-
MDH-6350-M16	•	35	3.5	43	29	M16	2	25	RDHX0702MOT	6	CSW-2547	A-07	-

Note: All cutters are supplied without inserts.

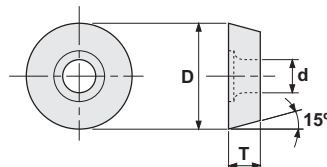
See Page A-65 for Speeds & Feeds



Modular Heads

METRIC

DIEMASTER INSERTS



Specifications

CATALOG NUMBER	IC TOLERANCE	DIMENSIONS			COATED GRADES				UNCOATED GRADES	
		D	T	d	JC8003	JC8015	JC5030	JC5040	CX90	KT9
RDHX0501MOT	H	5	1.5	2.0	•	•				
RDHX0701MOT	H	7	1.99	2.8	•	•	•	•	•	
RDHX0702MOT	H	7	2.38	2.8	•	•	•	•	•	
RDHX1003MOT	H	10	3.18	3.9	•	•	•	•	•	
RDHX12T3MOF	H	12	3.97	3.9						•
RDHX12T3MOT	H	12	3.97	3.9	•	•	•	•	•	
RDMX12T3MOT	M	12	3.97	3.9			•	•		
RDHX1604MOT	H	16	4.76	5.0	•	•	•	•	•	
RDMX1604MOT	M	16	4.76	5.0		•	•	•		

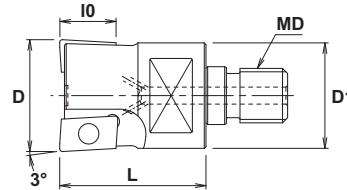
**I also deleted the
FIG. column.**



METRIC

Modular Heads

BACKDRAFT MDB Type



Specifications

CATALOG NUMBER	STK	DIMENSIONS					HEAD TORQUE Nm	INSERT	Q	PARTS	
		D	L	I0	D1	MD				Screw	Wrench
MDB-1020-M10	■	20	35	16	19	M10	16	DBD170408 DBD170408-30	1	DSW-4075	A-15
MDB-2025-M12	•	25	35	16	23	M12	20		2		
MDB-2026-M12	•	26	35	16	24	M12	20		2		
MDB-2032-M16	•	32	43	16	30	M16	25		2	DSW-4085	
MDB-2033-M16	•	33	43	16	31	M16	25		2		
MDB-3040-M16	•	40	43	16	32	M16	25		3		

Note: All cutters are supplied without inserts.

INSERTS



Fig. 1

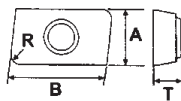


Fig. 2

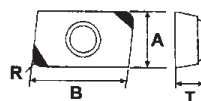
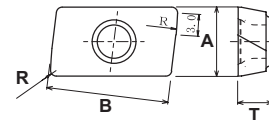


Fig. 3 (For better surface roughness)



Specifications

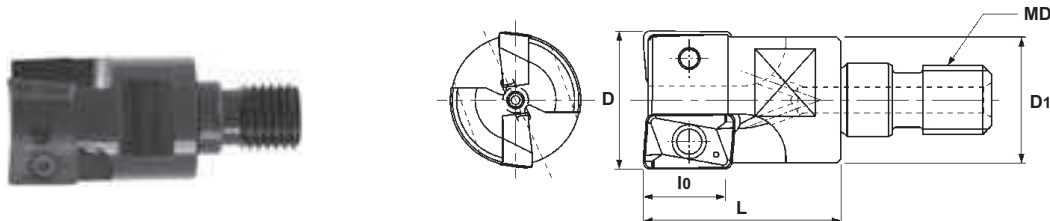
CATALOG NUMBER	DIMENSIONS				FIG.	STOCK				
	A	B	T	R		CBN	COATED		CERMET	
						JBN330	JC8015	JC8003	CX75	CX90
DBD170408	9.525	16.669	4.762	0.8	1		•			•
DBD170408	9.525	16.669	4.762	0.8	2	•				
DBD170408-30	9.525	16.669	4.762	0.8	3			•	■	

See Pages A-76 and A-77 for Speeds & Feeds

Modular Heads

METRIC

SIDE CHIPPER MIC type



Specifications

CATALOG NUMBER	STK	DIMENSIONS					HEAD TORQUE Nm	INSERT	Q	PARTS	
		D	L	lo	D1	MD				Screw	Wrench
MIC-2016-M8	•	16	23	9	14.6	M8	16	ZCMT1003..R	2	ESW-206	A-08SD
MIC-2018-M8	•	18	23	9	15.5	M8	16	ZCMT1003..R	2	ESW-206	A-08SD
MIC-2020-M10	•	20	30	9	18.4	M10	16	ZCMT1003..R	2	ESW-206	A-08SD
MIC-3020-M10	•	20	30	9	18.4	M10	16	ZCMT1003..R	3	ESW-206	A-08SD
MIC-2022-M10	•	22	30	12.5	19.5	M10	16	ZPMT13T3..R	2	DSW-307	A-10
MIC-3022-M10	•	22	30	9	19.5	M10	16	ZCMT1003..R	3	ESW-206	A-08SD
MIC-2025-M12	•	25	35	15	23	M12	20	ZPMT1604..R	2	TSW-408	A-15
MIC-3025-M12	•	25	35	12.5	23	M12	20	ZPMT13T3..R	3	DSW-307	A-10
MIC-2027-M12	•	27	35	15	24	M12	20	ZPMT1604..R	2	TSW-408	A-15
MIC-3027-M12	•	27	35	12.5	24	M12	20	ZPMT13T3..R	3	DSW-307	A-10
MIC-3030-M16	•	30	43	15	28.2	M16	25	ZPMT1604..R	3	TSW-408	A-15
MIC-2032-M16	•	32	43	15	29	M16	25	ZPMT1604..R	2	TSW-408	A-15
MIC-3032-M16	•	32	43	15	29	M16	25	ZPMT1604..R	3	TSW-408	A-15
MIC-2035-M16	•	35	43	15	29	M16	25	ZPMT1604..R	2	TSW-408	A-15
MIC-4040-M16	•	40	43	15	29	M16	25	ZPMT1604..R	4	TSW-408	A-15
MIC-5040-M16	•	40	43	12.5	29	M16	25	ZPMT13T3..R	5	DSW-307	A-10

Note: All cutters are supplied without inserts.


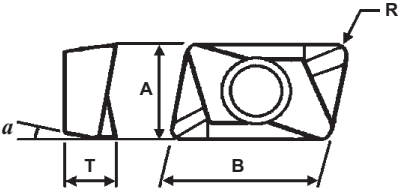


METRIC

Modular Heads


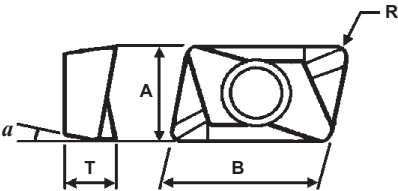
**SIDE CHIPPER
INSERTS**

Inserts

 	CATALOG NUMBER	DIMENSIONS					STOCK	
		A	B	T	R	α	COATED	
							JC5015	JC5040
ZCMT100304R	6.35	10.4	3.4	0.4	7°	•	•	
ZCMT100308R	6.35	10.4	3.4	0.8	7°	•	•	
ZPMT13T308R	7.938	13.3	3.97	0.8	11°	•	•	
ZPMT13T316R	7.938	13.3	3.97	1.6	11°	•	•	
ZPMT13T320R	7.938	13.3	3.97	2.0	11°	•	•	
ZPMT160404R	9.525	16	4.76	0.4	11°	•	•	
ZPMT160408R	9.525	16	4.76	0.8	11°	•	•	
ZPMT160416R	9.525	16	4.76	1.6	11°	•	•	
ZPMT160420R	9.525	16	4.76	2.0	11°	•	•	
**ZPMT160430R	9.525	16	4.76	3.0	11°	•	•	
**ZPMT160432R	9.525	16	4.76	3.2	11°	•	•	

** Note: Body must be modified to 1.5 radius or 1.2 chamfer at corner to use these inserts.

Polished Inserts For Aluminum

 	CATALOG NUMBER	DIMENSIONS					STOCK
		A	B	T	R	α	UNCOATED
							FZ15
ZCMT100308RP	6.35	10.4	3.4	0.8	7°	•	
ZPMT13T308RP	7.938	13.3	3.97	0.8	11°	•	
ZPMT13T316RP	7.938	13.3	3.97	1.6	11°	•	
ZPMT13T320RP	7.938	13.3	3.97	2.0	11°	•	
ZPMT160408RP	9.525	16	4.76	0.8	11°	•	
ZPMT160416RP	9.525	16	4.76	1.6	11°	•	
ZPMT160420RP	9.525	16	4.76	2.0	11°	•	
**ZPMT160430RP	9.525	16	4.76	3.0	11°	•	
**ZPMT160432RP	9.525	16	4.76	3.2	11°	•	

** Note: Body must be modified to 1.5 radius or 1.2 chamfer at corner to use these inserts.

See Pages A-89 thru A-91 for Speeds & Feeds

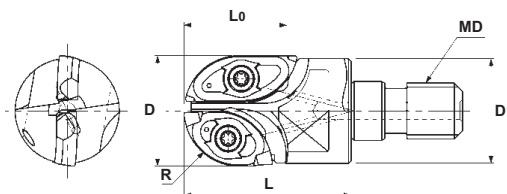


Modular Heads

METRIC

SWING BALL

MSW Type



Specifications

CATALOG NUMBER	STK	DIMENSIONS						HEAD TORQUE Nm	INSERT	PARTS	
		D	R	L	Lo	D1	MD			Screw	Wrench
MSW-2018-M10	•	20	10	30	18.5	18.7	M10	16	SWB220HM (1) SWB220HS (1)	DSW-307H	A-10
MSW-2522-M12	•	25	12.5	35	21.9	23.5	M12	20	SWB225HM (1) SWB225HS (1)	DSW-4085	A-15
MSW-3025-M16	•	30	15	43	25.9	28.2	M16	25	SWB230HM (1) SWB230HS (1)	DSW-509	A-20
MSW-3225-M16	•	32	16	43	29.5	29.9	M16	25	SWB232HM-G (1) SWB232HS-G (1)	TSW-511	A-20

Note: All cutters are supplied without inserts.
May also use inserts for welds or hardened material (Figs. 3 & 4)

INSERTS

Fig. 1

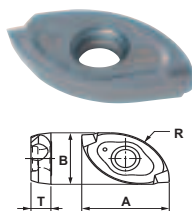


Fig. 2

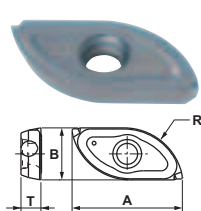


Fig. 3

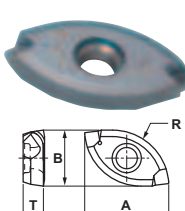
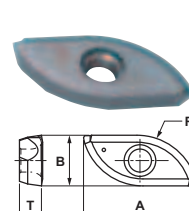
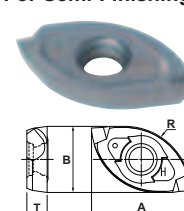


Fig. 4

Fig. 5
For Semi-Finishing

Specifications

CATALOG NUMBER	DIMENSIONS				FIG.	COATED		
	R	A	B	T		JC5015	JC5040	JC8015
SWB220HM	10	15.8	9.9	3.65	1		•	•
SWB220-HM-H	10	16	9.9	3.65	5	○		•
SWB220HS	10	20	8.2	3.65	2		•	•
SWB220MMW	10	15.8	9.9	3.65	3			•
SWB220MSW	10	20	8.2	3.65	4			•
SWB225HM	12.5	18.5	12.4	3.8	1		•	•
SWB225HM-H	12.5	18.9	12.4	3.8	5	○		•
SWB225HS	12.5	23.8	10.5	3.8	2		•	•
SWB225MMW	12.5	18.5	12.4	3.8	3			•
SWB225MSW	12.5	23.8	10.5	3.8	4			•
SWB230HM	15	22.2	14.8	5.35	1		•	•
SWB230HM-H	15	22.4	14.8	5.35	5			•
SWB230HS	15	27.5	12.3	5.35	2		•	•
SWB230MMW	15	22.2	14.8	5.35	3			•
SWB230MSW	15	27.5	12.3	5.35	4			•
SWB232HM-G	16	26	16	5.35	1		•	•
SWB232HS-G	16	31.7	13.9	5.35	2		•	•
SWB232MMW-G	16	26	16	5.35	3			•
SWB232MSW-G	16	31.7	13.9	5.35	4			•

○ Soon to be stocked
○ Soon to be deleted

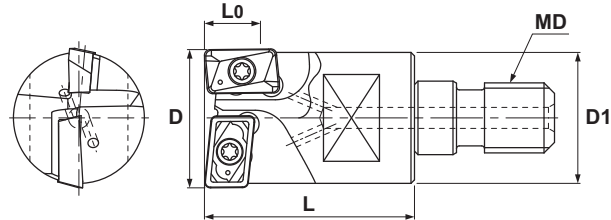
See Page A-104 for Speeds & Feeds



METRIC

Modular Heads

SUPER END-CHIPPER MEC Type



Specifications

CATALOG NUMBER	STK	DIMENSIONS					HEAD TORQUE Nm	INSERT	PARTS	
		D	L	L0	D1	MD			Screw	Wrench
MEC-2016-M8	•	16	23	8	14.8	M8	16	ZDMT08T208L (1) ZPMT09T208R (1)	TSW-2250	A-07SD
MEC-2020-M10	•	20	30	9	18.7	M10	16	ZDMT100308L (1) ZCMT100308R (1)	ESW-206	A-08SD
MEC-2021-M10	•	21	30	9	19.6	M10	16	ZDMT100308L (1) ZCMT100308R (1)	ESW-206	A-08SD
MEC-2024-M12	■	24	35	12.5	22.2	M12	20	ZDMT13T3..L (1) ZPMT13T3..R (1)	DSW-307	A-10
MEC-2025-M12	•	25	35	12.5	23.2	M12	20	ZDMT13T3..L (1) ZPMT13T3..R (1)	DSW-307	A-10
MEC-2026-M12	•	26	35	12.5	24.1	M12	20	ZDMT13T3..L (1) ZPMT13T3..R (1)	DSW-307	A-10
MEC-2030-M16	•	30	43	15	28.2	M16	25	ZPMT150408L(1) ZPMT160408R (1)	TSW-408	A-15
MEC-2032-M16	•	32	43	15	30.2	M16	25	ZPMT1604..L (1) ZPMT1604..R (1)	TSW-408	A-15
MEC-2033-M16	•	33	43	15	31	M16	25	ZPMT1604..L (1) ZPMT1604..R (1)	TSW-408	A-15
MEC-2035-M16	•	35	43	16	32	M16	25	ZPMT1805..L (1) ZPMT1705..R (1)	DSW-4510H	A-20SD

Note: All cutters are supplied without inserts.

See Page A-115 for Speeds & Feeds



Modular Heads

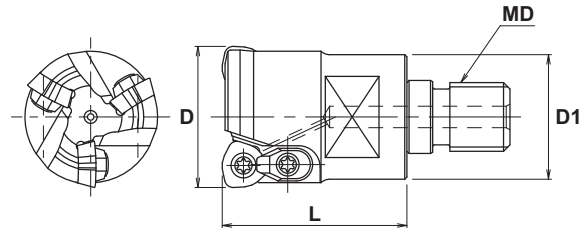
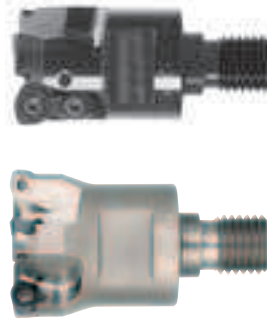
METRIC

SUPER END-CHIPPER INSERTS

Specifications

FIG. 1	CATALOG NUMBER	DIMENSIONS					FIG.	STOCK			
		A	B	T	R	α		COATED		UNCOATED	
								JC5015	JC5040	FZ15	
	ZDMT08T208L	6	7.9	2.78	0.8	15°	1	•	•		
	ZPMT09T208R	5.4	9	2.78	0.8	11°	2	•	•		
	ZDMT100308L	6.35	10.4	3.4	0.8	15°	1	•	•		
	ZCMT100308R	6.35	10.4	3.4	0.8	7°	2	•	•		
	ZDMT13T308L	7.938	12.9	3.97	0.8	15°	1	•	•		
	ZDMT13T320L	7.938	12.9	3.97	2.0	15°	1	•	•		
	ZPMT13T308R	7.938	13.3	3.97	0.8	11°	2	•	•		
	ZPMT13T320R	7.938	13.3	3.97	2.0	11°	2	•	•		
	ZPMT150408L	9.525	15.45	4.76	0.8	11°	1	•	•		
	ZPMT160408L	9.525	16.45	4.76	0.8	11°	1	•	•		
	ZPMT160416L	9.525	16.45	4.76	1.6	11°	1	•	•		
	ZPMT160420L	9.525	16.45	4.76	2.0	11°	1	•	•		
	*ZPMT160430L	9.525	16.45	4.76	3.0	11°	1	•	•		
	*ZPMT160432L	9.525	16.45	4.76	3.2	11°	1	•	•		
		ZPMT160408R	9.525	16	4.76	0.8	11°	2	•	•	
		ZPMT160416R	9.525	16	4.76	1.6	11°	2	•	•	
ZPMT160420R		9.525	16	4.76	2.0	11°	2	•	•		
*ZPMT160430R		9.525	16	4.76	3.0	11°	2	•	•		
*ZPMT160432R		9.525	16	4.76	3.2	11°	2	•	•		
ZPMT170508R		11	17	5.56	0.8	11°	2	•	•		
ZPMT170516R		11	17	5.56	1.6	11°	2	•	•		
ZPMT170520R		11	17	5.56	2.0	11°	2	•	•		
*ZPMT170530R		11	17	5.56	3.0	11°	2	•	•		
ZPMT180508L		11	18	5.56	0.8	11°	1	•	•		
ZPMT180516L		11	18	5.56	1.6	11°	1	•	•		
ZPMT180520L		11	18	5.56	2.0	11°	1	•	•		
*ZPMT180530L		11	18	5.56	3.0	11°	1	•	•		
POLISHED FOR ALUMINUM		ZDMT08T208LP	6	7.9	2.78	0.8	15°	1		•	
	ZPMT09T208RP	5.4	9	2.78	0.8	11°	2			•	
	ZDMT100308LP	6.35	10.4	3.4	0.8	15°	1			•	
	ZCMT100308RP	6.35	10.4	3.4	0.8	7°	2			•	
	ZDMT13T308LP	7.938	12.9	3.97	0.8	15°	1			•	
	ZDMT13T320LP	7.938	12.9	3.97	2.0	15°	1			•	
	ZPMT13T308RP	7.938	13.3	3.97	0.8	11°	2			•	
	ZPMT13T320RP	7.938	13.3	3.97	2.0	11°	2			•	
	ZPMT150408LP	9.525	15.45	4.76	0.8	11°	1			•	
	ZPMT160408LP	9.525	16.45	4.76	0.8	11°	1			•	
	ZPMT160416LP	9.525	16.45	4.76	1.6	11°	1			•	
	ZPMT160420LP	9.525	16.45	4.76	2.0	11°	1			•	
	*ZPMT160430LP	9.525	16.45	4.76	3.0	11°	1			•	
	*ZPMT160432LP	9.525	16.45	4.76	3.2	11°	1			•	
		ZPMT160408RP	9.525	16	4.76	0.8	11°	2			•
		ZPMT160416RP	9.525	16	4.76	1.6	11°	2			•
		ZPMT160420RP	9.525	16	4.76	2.0	11°	2			•
*ZPMT160430RP		9.525	16	4.76	3.0	11°	2			•	
		*ZPMT160432RP	9.525	16	4.76	3.2	11°	2			•

** Note: Body must be modified to 1.5 radius or 1.2 chamfer at corner to use these inserts.

**METRIC****Modular Heads****HIGH FEED DIEMASTER
MSH Type****G-Body****Specifications**

CATALOG NUMBER	STK	DIMENSIONS				HEAD TORQUE Nm	INSERT	Q	PARTS		
		D	L	D1	MD				Screw	Wrench	Clamp
MSH-2016-M8	•	16	23	15	M8	16	WO**04T215Z*R	2	TSW-2556H	A-08SD	-
MSH-2017-M8	•	17	23	15	M8	16	WO**04T215Z*R	2	TSW-2556H	A-08SD	-
MSH-2020-M10	•	20	30	19	M10	16	WD**050316Z*R	2	DSW-306H	A-10	-
MSH-2021-M10	•	21	30	19	M10	16	WD**050316Z*R	2	DSW-306H	A-10	-
MSH-2022-M10	•	22	30	19	M10	16	WD**050316Z*R	2	DSW-306H	A-10	-
MSH-2025-M12	•	25	35	23.6	M12	20	WD**06T320Z*R	2	CSW-408H	A-15	DCM-18
MSH-2026-M12	•	26	35	23.6	M12	20	WD**06T320Z*R	2	CSW-408H	A-15	DCM-18
MSH-2028-M12*	•	28	35	23.6	M12	20	WD**06T320Z*R	2	CSW-408H	A-15	DCM-18
MSH-2030-M16*	•	30	43	29	M16	25	WD**06T320Z*R	2	CSW-408H	A-15	DCM-18
MSH-2032-M16	•	32	43	29	M16	25	WD**080520Z*R	2	DSW-4510H	A-20SD	DCM-17
MSH-3032-M16	•	32	43	29	M16	25	WD**06T320Z*R	3	CSW-408H	A-15	DCM-18
MSH-2033-M16*	•	33	43	29	M16	25	WD**080520Z*R	2	DSW-4510H	A-20SD	DCM-17
MSH-3033-M16	•	33	43	29	M16	25	WD**06T320Z*R	3	CSW-408H	A-15	DCM-18
MSH-2035-M16	•	35	43	29	M16	25	WD**080520Z*R	2	DSW-4510H	A-20SD	DCM-17
MSH-3035-M16	•	35	43	29	M16	25	WD**06T320Z*R	3	CSW-408H	A-15	DCM-18

* Not G-Body

Note: All cutters are supplied without inserts.

Specifications - Fine Pitch

CATALOG NUMBER	STK	DIMENSIONS				HEAD TORQUE Nm	INSERT	Q	PARTS		
		D	L	D1	MD				Screw	Wrench	Clamp
MSH-3020-M10	•	20	30	19	M10	16	WO**04T215Z*R	3	TSW-2556H	A-08SD	-
MSH-3021-M10	•	21	30	19	M10	16	WO**04T215Z*R	3	TSW-2556H	A-08SD	-
MSH-3022-M10	•	22	30	20	M10	16	WO**04T215Z*R	3	TSW-2556H	A-08SD	-
MSH-3025-M12	•	25	35	23.6	M12	20	WD**050316Z*R	3	DSW-306H	A-10	-
MSH-3026-M12	•	26	35	23.6	M12	20	WD**050316Z*R	3	DSW-306H	A-10	-
MSH-3028-M12	•	28	35	23.6	M12	20	WD**050316Z*R	3	DSW-306H	A-10	-
MSH-3030-M16	•	30	43	29	M16	25	WD**050316Z*R	3	DSW-306H	A-10	-
MSH-4032-M16	•	32	43	29	M16	25	WD**050316Z*R	4	DSW-306H	A-10	-
MSH-5040-M16	•	40	43	32	M16	25	WD**050316Z*R	5	DSW-306H	A-10	-

Note: All cutters are supplied without inserts.

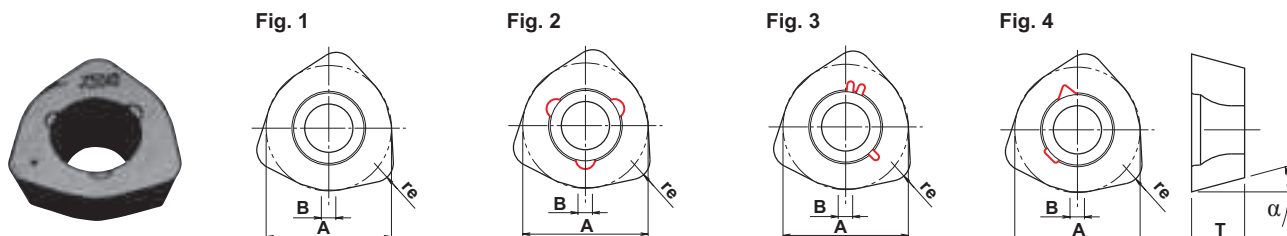
See Pages A-130 and A-131 for Speeds & Feeds



Modular Heads

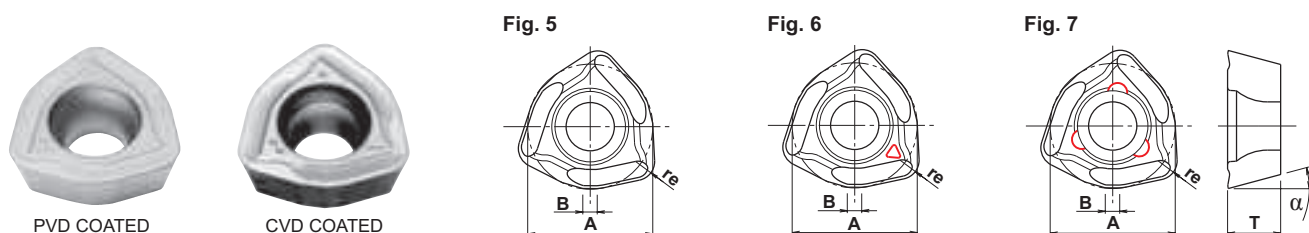
METRIC

HIGH FEED DIEMASTER SKS INSERTS without chipbreaker



CATALOG NUMBER	TOLERANCE	DIMENSIONS					PVD COATED				
		A	B	T	re	α	JC8015	JC8050	JC5015	JC5040	JC5118
WOMW04T215ZER	M	6.5	0.8	2.8	1.5	13°	• (Fig. 1)	• (Fig. 1)		• (Fig. 2)	• (Fig. 1)
WDMW050316ZTR	M	8	1.0	3.2	1.6	15°	• (Fig. 1)	• (Fig. 1)		• (Fig. 2)	• (Fig. 1)
WDMW06T320ZTR	M	10	1.2	3.97	2.0	15°	• (Fig. 1)	• (Fig. 1)		• (Fig. 2)	• (Fig. 3)
WDMW080520ZTR	M	13	1.5	5.5	2.0	15°	• (Fig. 3)	• (Fig. 3)		• (Fig. 4)	• (Fig. 1)
WDHW050316ZTR	H	8	1.0	3.2	1.6	15°			• (Fig. 1)	• (Fig. 2)	
WDHW06T320ZTR	H	10	1.2	3.97	2.0	15°			• (Fig. 1)	• (Fig. 2)	
WDHW080520ZTR	H	13	1.5	5.5	2.0	15°			• (Fig. 1)	• (Fig. 2)	

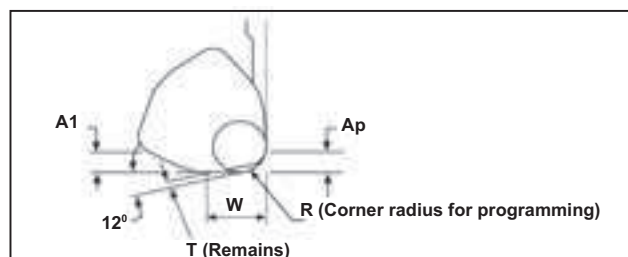
HIGH FEED DIEMASTER SKS INSERTS with chipbreaker



CATALOG NUMBER	TOLERANCE	DIMENSIONS					PVD COATED			CVD COATED	
		A	B	T	re	α	JC8015	JC8050	JC5118	JC600	JC730U
WOMT04T215ZER	M	6.5	0.8	2.8	1.5	13°	• (Fig. 5)	• (Fig. 7)	• (Fig. 5)		
WDMT050316ZER	M	8	1.0	3.2	1.6	15°	• (Fig. 5)	• (Fig. 6)	• (Fig. 5)		
WDMT06T320ZER	M	10	1.2	3.97	2.0	15°	• (Fig. 5)	• (Fig. 6)	• (Fig. 5)		
WDMT080520ZER	M	13	1.5	5.5	2.0	15°	• (Fig. 5)	• (Fig. 6)	• (Fig. 5)	• (Fig. 5)	• (Fig. 6)

Definition of Corner Shape for Programming

INSERT SIZE	W	Ap	T	A1	R
04	2.7	0.8	0.29	0.8	1.5
05	3.6	1.25	0.35	1.2	2.0
06	4.5	1.5	0.44	1.5	3.0
08	6	2.0	0.63	2.0	3.0



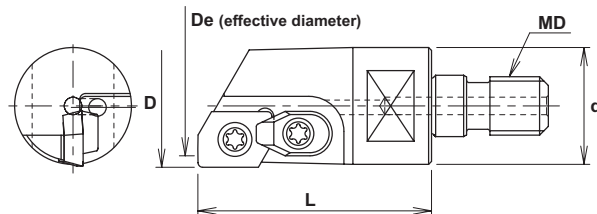
See Pages A-130 and A-131 for Speeds & Feeds



METRIC

Modular Heads

FINISH-ONE
MFO Type

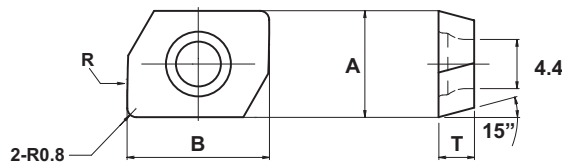


Specifications

CATALOG NUMBER	STK	DIMENSIONS				HEAD TORQUE Nm	INSERT	Q	PARTS		
		D	L	De	MD				Screw	Wrench	Clamp
MFO-170-M8	•	17	40	13.5	M8	16	LDGW120308	1	CSW-406H	A-15	DCM-18
MFO-210-M10	•	21	40	17.5	M10	16	LDGW120308	1	CSW-408H	A-15	DCM-18

Note: All cutters are supplied without inserts.

INSERTS



Specifications

CATALOG NUMBER	DIMENSIONS			TOLERANCE	COATED	CERMET
	A	B	T		JC8003	CX75
LDGW120308	9.525	12.7	3.18	G	•	■

See Page A-35 for Speeds & Feeds



Modular Head

METRIC

RHOMBIC DIEMASTER MXD Type



Fig. 1

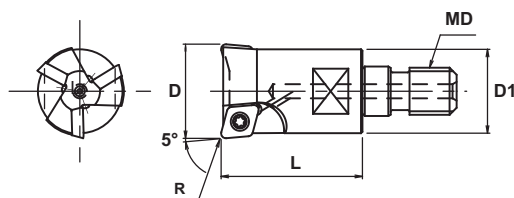
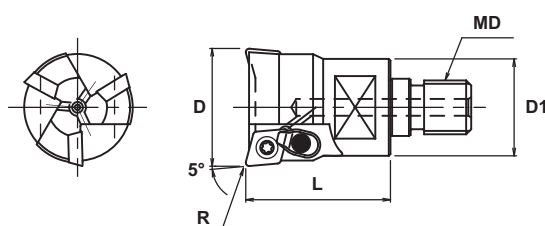


Fig. 2

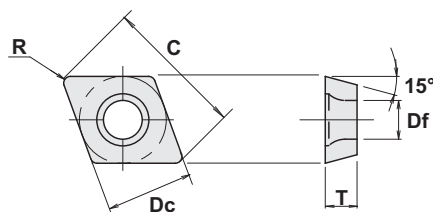


Specifications

CATALOG NUMBER	STK	DIMENSIONS					FIG.	HEAD TORQUE Nm	INSERT	Q	PARTS		
		D	R	D1	L	MD					Screw	Wrench	Clamp
MXD-2016-M8	•	16	0.5, 1.0	15.4	23	M8	1	16	XDHW0206-05 XDHW0206-10	2	CSW-2547	A-07	-
MXD-3020-M10	•	20	0.5, 1.0	17.8	30	M10	1	16	XDHW0206-05 XDHW0206-10	3	CSW-2547	A-07	-
MXD-3025-M12	•	25	0.5, 1.0	20.8	35	M12	1	20	XDHW0206-05 XDHW0206-10	3	CSW-2547	A-07	-
MXD-3035-M16	•	35	1.0	28.8	43	M16	2	25	XDHW0310-10	3	CSW-3575	A-15	DCM-18
MXD-4042-M16	•	42	1.0	28.8	43	M16	2	25	XDHW0310-10	4	CSW-3575	A-15	DCM-18

Note: All cutters are supplied without inserts.

INSERTS



Specifications

CATALOG NUMBER	DIMENSIONS					COATED		
	Dc	T	C	R	Df	JC8003	JC8015	JC5040
XDHW0206-05	6.5	2.38	10.589	0.5	2.8	•	•	
XDHW0206-10	6.5	2.38	9.846	1.0	2.9	•	•	•
XDHW0310-10	10	3.97	15.948	1.0	4	•	•	•

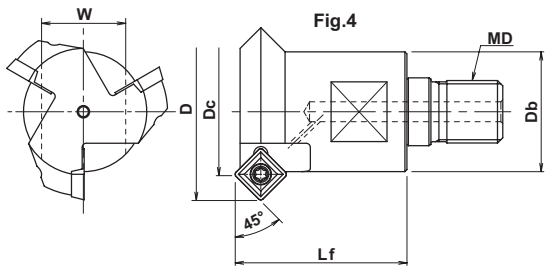
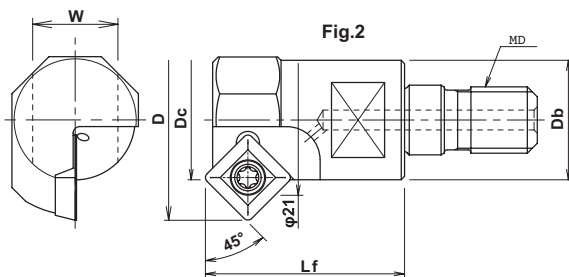
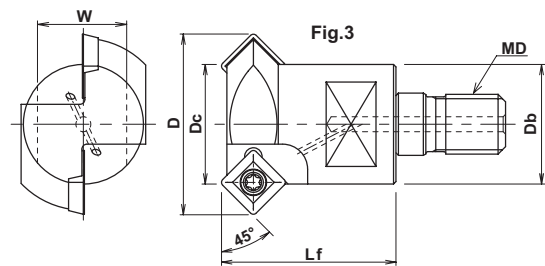
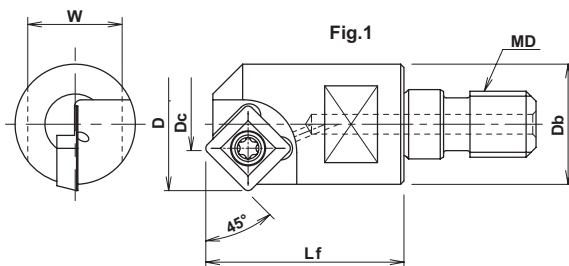
See Page B-30 for Speeds & Feeds



METRIC

Modular Head

CHAMFER CUTTERS MCM Type

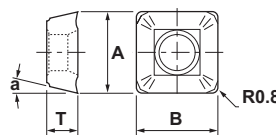
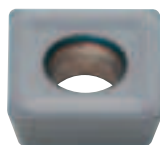


Specifications

CATALOG NUMBER	STK	APPLICABLE CHAMFERING DIAMETER		DIMENSIONS					FIG.	HEAD TORQUE Nm	INSERT	Q	PARTS	
		TOP FACE	REVERSE FACE	D	Dc	Lf	Db	MD					Screw	Wrench
MCM-0919-M10	•	8.5~19.6	-	20.2	8	30	18.2	M10	1	16	IM-SP32GS	1	CSW-407	A-15
MCM-1929-M10	•	18.5~29.6	21~29.6	30.2	18	30	18	M10	2	16		1		
MCM-2535-M12	•	24.5~35.6	26~35.6	36.2	24	35	24	M12	3	20		2		
MCM-3343-M16	•	32.5~43	33~43	44.2	32	43	30	M16	4	25		3		

Note: All cutters are supplied without inserts.

INSERTS



Specifications

CATALOG NUMBER	DIMENSIONS					PVD COATED		
	A	B	T	R	a	JC5015	JC5030	JC5040
IM-SP32GS	9.52	9.52	3.18	0.8	14°	•	•	•

See Page A-164 for Speeds & Feeds



Modular Heads

METRIC

MCM Type

Recommended Cutting Data for MCM and MSN

Work Materials	Insert Grade	Type of Machining	CATALOG NUMBER							
			MCM-0919-M10				MCM-1929-M10			
			No. of Teeth: 1				No. of Teeth: 1			
			Vc (m/min)	n (min ⁻¹)	fz (mm/t)	Vf (mm/min)	Vc (m/min)	n (min ⁻¹)	fz (mm/t)	Vf (mm/min)
Carbon & Alloy Steel (S-C, SCM) Below 250HB	JC5030	Chamfering	100	1,680	0.3	500	100	1,100	0.3	330
	JC5040	C'sink	100	1,680	0.3	500	100	1,100	0.3	330
		Slotting	-	-	-	-	-	-	-	-
Die Steel (SKD) Below 255HB	JC5030	Chamfering	80	1,340	0.3	400	80	880	0.3	270
	JC5040	C'sink	80	1,340	0.3	400	80	880	0.3	270
		Slotting	-	-	-	-	-	-	-	-
Cast Iron (GG) 150HB	JC5015	Chamfering	90	1,510	0.3	460	90	990	0.3	300
	JC5030	C'sink	90	1,510	0.3	460	90	990	0.3	300
		Slotting	-	-	-	-	-	-	-	-
Nodular Cast Iron (GGG) Below 220HB	JC5015	Chamfering	75	1,260	0.3	380	75	820	0.3	250
	JC5030	C'sink	75	1,260	0.3	380	75	820	0.3	250
		Slotting	-	-	-	-	-	-	-	-

Work Materials	Insert Grade	Type of Machining	CATALOG NUMBER							
			MCM-2535-M12				MCM-3343-M13			
			No. of Teeth: 2				No. of Teeth: 3			
			Vc (m/min)	n (min ⁻¹)	fz (mm/t)	Vf (mm/min)	Vc (m/min)	n (min ⁻¹)	fz (mm/t)	Vf (mm/min)
Carbon & Alloy Steel (S-C, SCM) Below 250HB	JC5030	Chamfering	100	910	0.3	550	100	760	0.3	680
	JC5040	C'sink	125	1,130	0.3	680	125	950	0.3	850
		Slotting	100	910	0.1	180	100	760	0.1	230
Die Steel (SKD) Below 255HB	JC5030	Chamfering	80	730	0.3	440	80	610	0.3	550
	JC5040	C'sink	100	910	0.3	550	100	760	0.3	680
		Slotting	80	730	0.1	150	80	610	0.1	180
Cast Iron (GG) 150HB	JC5015	Chamfering	90	820	0.3	500	90	680	0.3	610
	JC5030	C'sink	100	1,000	0.3	600	100	760	0.3	680
		Slotting	90	820	0.1	170	90	680	0.1	200
Nodular Cast Iron (GGG) Below 220HB	JC5015	Chamfering	75	680	0.3	410	75	570	0.3	510
	JC5030	C'sink	90	820	0.3	490	90	680	0.3	610
		Slotting	75	680	0.1	140	75	570	0.1	170

Vc = Cutting speed, n = Spindle speed, fz = Feed, Vf = Feed speed

Notes:

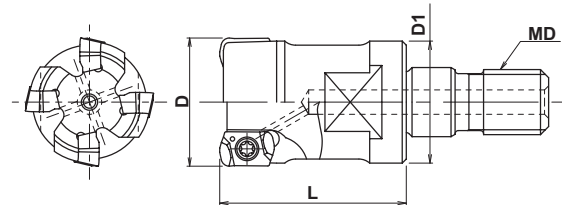
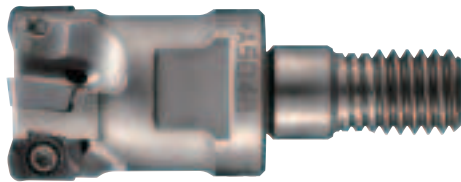
1. Cutting speed is relevant to maximum chamfering diameter.
2. In case of 3mm or more chamfering, reduce feed rate.



METRIC

Modular Heads

QM MILL MPM Type



Specifications

CATALOG NUMBER	STK	DIMENSIONS				HEAD TORQUE Nm	INSERT	Q	PARTS	
		D	D1	L	MD				Screw	Wrench
MPM-2010-M6	•	10	9.5	18	M6	8	EOMT060210ZER EOMW060210ZER ZOMT06020*ZER	2	DSW-1838H	A-06
MPM-2011-M6	•	11	9.7	18	M6	8		2		
MPM-3012-M6	•	12	11.2	20	M6	8		3		
MPM-3013-M6	•	13	11.5	20	M6	8		3		
MPM-4016-M8	•	16	15	23	M8	16		4		
MPM-4017-M8	•	17	15	23	M8	16		4		
MPM-5020-M10	•	20	19	30	M10	16		5		
MPM-5021-M10	•	21	19	30	M10	16		5		
MPM-6025-M12	•	25	23.6	35	M12	20		6		
MPM-7030-M16	•	30	29	43	M16	25		7		
MPM-8032-M16	•	32	29	43	M16	25	8			

Note: All cutters are supplied without inserts.

INSERTS



Fig. 1

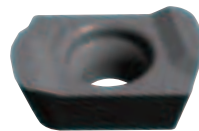
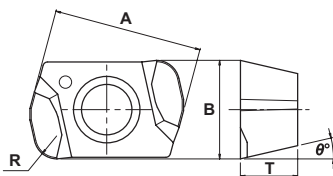


Fig. 2

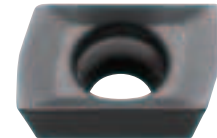
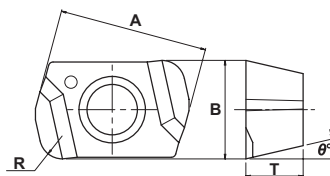
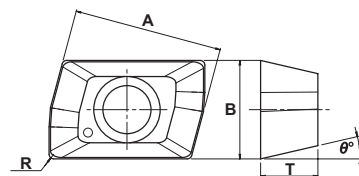


Fig. 3



Specifications

TYPE	CATALOG NUMBER	DIMENSIONS					FIG.	PVD COATED	
		A	B	T	R	θ°		JC5118	JC8050
Highfeed	EOMT060210ZER	6.5	4.3	2.5	1.0	13°	1	•	•
Highfeed In Unfavorable Condition	EOMW060210ZER	6.5	4.3	2.5	1.0	13°	2	•	•
Shoulder Insert	ZOMT060202ZER	6.5	4.3	2.5	0.2	13°	3	•	•
	ZOMT060204ZER	6.5	4.3	2.5	0.4	13°	3	•	•
	ZOMT060208ZER	6.5	4.3	2.5	0.8	13°	3	•	•

See Pages A-166 thru A-169 for Speeds & Feeds



Modular Heads

METRIC

Recommended Cutting Data for MPM and MSN with EOMT/EOMW type inserts

Work Materials	Insert Grade	Tool Diameter														
		10 / 11					12 / 13					16 / 17				
		No. of Teeth 2					No. of Teeth 3					No. of Teeth 4				
		L (mm)	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)
Carbon Steel (C50, C55) Below 250HB	JC5118 (JC8050)	50	0.30	~6	3,820	5,340	60	0.30	~8	3,180	6,680	80	0.40	~12	2,390	8,600
		75	0.25	~6	3,400	4,080	80	0.25	~8	2,860	5,150	120	0.30	~12	2,150	6,880
		100	0.20	~5	3,180	3,180	110	0.20	~7	2,540	3,810	160	0.25	~12	1,910	5,350
Die Steel (1.2344, 1.2379) Below 255HB	JC5118 (JC8050)	50	0.30	~6	3,500	4,900	60	0.30	~8	2,920	6,130	80	0.40	~12	2,190	7,880
		75	0.20	~6	3,120	3,740	80	0.20	~8	2,630	4,730	120	0.30	~12	1,970	6,300
		100	0.15	~5	2,920	2,920	110	0.15	~7	2,340	3,510	160	0.25	~12	1,750	4,900
Mold Steel (1.2311, P20) 30-43 HRC	JC8050 (JC5118)	50	0.30	~6	3,500	4,900	60	0.30	~8	2,920	6,130	80	0.40	~12	2,190	7,880
		75	0.25	~6	3,120	3,740	80	0.25	~8	2,630	4,730	120	0.30	~12	1,970	6,300
		100	0.20	~5	2,920	2,920	110	0.20	~7	2,340	3,510	160	0.25	~12	1,750	4,900
Hardened Die Steel (1.2344, 1.2379) 40-50HRC	JC5118	50	0.20	~6	2,870	3,440	60	0.30	~8	2,390	4,300	80	0.30	~12	1,790	5,010
		75	0.15	~6	2,560	2,560	80	0.15	~8	2,150	3,220	120	0.20	~12	1,610	3,860
		100	-	-	-	-	110	-	-	-	-	160	-	-	-	-
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC5118	50	0.30	~6	4,780	6,690	60	0.30	~8	3,980	8,360	80	0.40	~12	2,980	10,730
		75	0.25	~6	4,300	5,160	80	0.25	~8	3,580	6,440	120	0.35	~12	2,680	8,580
		100	0.20	~6	3,980	3,980	110	0.20	~8	3,180	4,770	160	0.30	~12	2,380	6,660
Stainless Steel (SUS304) Below 255HB	JC8050	50	0.30	~6	3,820	5,340	60	0.30	~8	3,180	6,680	80	0.40	~12	2,390	8,600
		75	0.20	~6	3,400	4,080	80	0.20	~8	2,860	5,150	120	0.30	~12	2,150	6,880
		100	0.15	~5	3,180	3,180	110	0.15	~7	2,540	3,810	160	0.25	~12	1,910	5,350
Titanium Alloy (Ti-6Al-4V)	JC8050	50	0.30	~6	1,910	1,910	60	0.30	~8	1,590	2,380	80	0.30	~12	1,190	2,380
		75	0.20	~6	1,720	1,380	80	0.20	~8	1,430	1,720	120	0.25	~12	1,070	1,720
		100	0.15	~5	1,590	950	110	0.15	~7	1,270	1,140	160	0.20	~12	950	1,140
Inconel (INCO718)	JC5118 (JC8050)	50	0.30	~6	950	760	60	0.30	~8	800	960	80	0.30	~12	600	960
		75	0.20	~6	850	510	80	0.20	~8	720	650	120	0.25	~12	540	650
		100	0.15	~5	750	380	110	0.15	~7	640	480	160	0.20	~12	480	480

L: Overhung length, AP: Depth of cut, N: Spindle speed, F: Feed speed

NOTE: 1. Figures shown to be adjusted according to machine rigidity or work rigidity.

2. If chattering occurs, reduce the depth of cut Ap or Spindle speed and keep the feed per tooth.

3. If machine does not have enough power, reduce the depth of cut Ap or Spindle speed and Feed speed.

4. Use air.

5. If material is 50-55HRC, reduce 30% above Ap, N and Vf.

**METRIC****Modular Heads****Recommended Cutting Data for MPM and MSN with EOMT/EOMW type inserts**

Work Materials	Insert Grade	Tool Diameter									
		20 / 21					25				
		No. of Teeth 5					No. of Teeth 6				
		L (mm)	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)
Carbon Steel (C50, C55) Below 250HB	JC5118 (JC8050)	70	0.40	~14	1,910	8,600	90	0.40	~18	1,530	8,260
		120	0.30	~14	1,720	6,880	140	0.30	~18	1,380	6,620
		190	0.25	~14	1,530	5,350	210	0.25	~18	1,220	5,120
Die Steel (1.2344, 1.2379) Below 255HB	JC5118 (JC8050)	70	0.40	~14	1,750	7,880	90	0.40	~18	1,400	7,560
		120	0.30	~14	1,580	6,300	140	0.30	~18	1,260	6,050
		190	0.25	~14	1,400	4,900	210	0.25	~18	1,120	4,700
Mold Steel (1.2311, P20) 30-43 HRC	JC8050 (JC5118)	70	0.40	~14	1,750	7,880	90	0.40	~18	1,400	7,560
		120	0.30	~14	1,580	6,300	140	0.30	~18	1,260	6,050
		190	0.25	~14	1,400	4,900	210	0.25	~18	1,120	4,700
Hardened Die Steel (1.2344, 1.2379) 40-50HRC	JC5118	70	0.30	~14	1,430	5,010	90	0.30	~18	1,140	4,790
		120	0.20	~14	1,290	3,860	140	0.20	~18	1,030	3,710
		190	-	-	-	-	210	-	~18	-	-
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC5118	70	0.40	~14	2,390	10,730	90	0.40	~18	1,910	10,310
		120	0.35	~14	2,150	8,580	140	0.35	~18	1,720	8,260
		190	0.30	~14	1,910	6,660	210	0.30	~18	1,530	6,430
Stainless Steel (SUS304) Below 255HB	JC8050	70	0.40	~14	1,910	8,600	90	0.40	~18	1,530	8,260
		120	0.30	~14	1,720	6,880	140	0.30	~18	1,380	6,620
		190	0.25	~14	1,530	5,350	210	0.25	~18	1,220	5,120
Titanium Alloy (Ti-6Al-4V)	JC8050	70	0.40	~14	950	2,380	90	0.30	~18	760	2,280
		120	0.30	~14	860	1,720	140	0.25	~18	680	1,630
		190	0.25	~14	760	1,140	210	0.20	~18	610	1,100
Inconel (INCO718)	JC5118 (JC8050)	70	0.40	~14	480	960	90	0.30	~18	380	910
		120	0.30	~14	430	650	140	0.25	~18	340	610
		190	0.25	~14	380	480	210	0.20	~18	300	450

Work Materials	Insert Grade	Tool Diameter									
		30					32				
		No. of Teeth 7					No. of Teeth 8				
		L (mm)	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)
Carbon Steel (C50, C55) Below 250HB	JC5118 (JC8050)	100	0.40	~22	1,270	8,000	100	0.40	~24	1,190	8,600
		150	0.30	~22	1,140	6,380	150	0.30	~24	1,070	6,880
		210	0.25	~22	1,020	5,000	210	0.25	~24	950	5,350
Die Steel (1.2344, 1.2379) Below 255HB	JC5118 (JC8050)	100	0.40	~22	1,170	7,370	100	0.40	~24	1,090	7,880
		150	0.30	~22	1,050	5,880	150	0.30	~24	980	6,300
		210	0.25	~22	940	4,610	210	0.25	~24	870	4,900
Mold Steel (1.2311, P20) 30-43 HRC	JC8050 (JC5118)	100	0.40	~22	1,170	7,370	100	0.40	~24	1,090	7,880
		150	0.30	~22	1,050	5,880	150	0.30	~24	980	6,300
		210	0.25	~22	940	4,610	210	0.25	~24	870	4,900
Hardened Die Steel (1.2344, 1.2379) 40-50HRC	JC5118	100	0.30	~22	950	4,660	100	0.30	~24	900	5,010
		150	0.20	~22	850	3,570	150	0.20	~24	810	3,860
		210	0.15	~22	760	2,660	210	0.15	~24	720	2,880
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC5118	100	0.40	~22	1,590	10,020	100	0.40	~24	1,490	10,730
		150	0.35	~22	1,430	8,010	150	0.35	~24	1,340	8,580
		210	0.30	~22	1,270	6,220	210	0.30	~24	1,190	6,660
Stainless Steel (SUS304) Below 255HB	JC8050	100	0.40	~22	1,270	8,000	100	0.40	~24	1,190	8,600
		150	0.30	~22	1,140	6,380	150	0.30	~24	1,070	6,880
		210	0.25	~22	1,020	5,000	210	0.25	~24	950	5,350
Titanium Alloy (Ti-6Al-4V)	JC8050	100	0.30	~22	640	2,240	100	0.30	~24	600	2,380
		150	0.25	~22	580	1,620	150	0.25	~24	540	1,720
		210	0.20	~22	510	1,070	210	0.20	~24	480	1,140
Inconel (INCO718)	JC5118 (JC8050)	100	0.30	~22	320	900	100	0.30	~24	300	960
		150	0.25	~22	290	610	150	0.25	~24	270	650
		210	0.20	~22	260	460	210	0.20	~24	240	480

L: Overhung length, AP: Depth of cut, N: Spindle speed, F: Feed speed

** See notes on Page A-166



Modular Heads

METRIC

Recommended Cutting Data for MPM and MSN with ZOMT type inserts

Work Materials	Insert Grade	Tool Diameter														
		10 / 11					12 / 13					16 / 17				
		No. of Teeth 2					No. of Teeth 3					No. of Teeth 4				
		L (mm)	Ap (mm)	ApxAe (mm ²)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	ApxAe (mm ²)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	ApxAe (mm ²)	N (min ⁻¹)	Vf (mm/min)
Carbon Steel (C50, C55) Below 250HB	JC5118 (JC8050)	50	~4.0	~6.0	5,090	810	60	~4.0	~8.0	4,240	1,020	80	~5.0	~10.0	3,180	1,020
		75	~1.2	~1.8	4,580	640	80	~1.7	~2.6	3,820	800	120	~2.0	~3.0	2,860	800
		100	~0.5	~0.8	4,070	490	110	~0.6	~1.2	3,390	610	160	~0.7	~1.3	2,540	610
Die Steel (1.2379) Below 255HB	JC5118 (JC8050)	50	~4.0	~6.0	4,780	570	60	~4.0	~8.0	3,980	720	80	~5.0	~10.0	2,990	720
		75	~1.2	~1.8	4,300	430	80	~1.7	~2.6	3,580	540	120	~2.0	~3.0	2,690	540
		100	~0.5	~0.8	3,820	310	110	~0.6	~1.2	3,180	380	160	~0.7	~1.3	2,390	380
Mold Steel (1.2311, P20) 30-43 HRC	JC8050 (JC5118)	50	~3.0	~4.0	3,820	460	60	~3.0	~4.5	3,180	570	80	~4.0	~6.0	2,390	570
		75	~1.2	~1.6	3,440	340	80	~1.3	~1.8	2,860	430	120	~1.7	~2.2	2,150	430
		100	~0.5	~0.8	3,060	240	110	~0.6	~1.0	2,540	300	160	~0.6	~1.1	1,910	300
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC5118	50	~4.0	~6.0	4,780	760	60	~4.0	~8.0	3,980	960	80	~5.0	~10.0	2,990	960
		75	~1.2	~1.8	4,300	600	80	~1.7	~2.6	3,580	750	120	~2.0	~3.0	2,690	750
		100	~0.5	~0.8	3,980	480	110	~0.6	~1.2	3,180	570	160	~0.7	~1.3	2,390	570
Stainless Steel (SUS304) Below 255HB	JC8050	50	~4.0	~6.0	4,780	570	60	~4.0	~8.0	3,980	720	80	~5.0	~10.0	2,990	720
		75	~1.2	~1.8	4,300	430	80	~1.7	~2.6	3,580	540	120	~2.0	~3.0	2,690	540
		100	~0.5	~0.8	3,820	310	110	~0.6	~1.2	3,180	380	160	~0.7	~1.3	2,390	380

L: Overhung length, AP: Depth of cut, N: Spindle speed, F: Feed speed

NOTE: 1. Figures shown to be adjusted according to machine rigidity or work rigidity.

2. If chattering occurs, reduce the depth of cut Ap or Spindle speed and keep the feed per tooth.

3. If machine does not have enough power, reduce the depth of cut Ap or Spindle speed and Feed speed.

4. Use air.

**METRIC**

Modular Heads

Recommended Cutting Data for MPM and MSN with ZOMT type inserts

Work Materials	Insert Grade	Tool Diameter									
		20 / 21					25				
		No. of Teeth 5					No. of Teeth 6				
		L (mm)	Ap (mm)	ApxAe (mm ²)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	ApxAe (mm ²)	N (min ⁻¹)	Vf (mm/min)
Carbon Steel (C50, C55) Below 250HB	JC5118 (JC8050)	70	~5.0	~30.0	2,550	1,020	90	~5.0	~40.0	2,040	980
		120	~4.0	~20.0	2,300	800	140	~4.0	~28.0	1,840	770
		190	~3.0	~12.0	2,040	610	210	~3.0	~18.0	1,630	590
Die Steel (1.2344, 1.2379) Below 255HB	JC5118 (JC8050)	70	~5.0	~30.0	2,390	720	90	~5.0	~40.0	1,910	690
		120	~4.0	~20.0	2,150	540	140	~4.0	~28.0	1,720	520
		190	~3.0	~12.0	1,910	380	210	~3.0	~18.0	1,530	370
Mold Steel (1.2311, P20) 30-43 HRC	JC8050 (JC5118)	70	~4.0	~24.0	1,910	570	90	~4.0	~32.0	1,530	550
		120	~3.0	~15.0	1,720	430	140	~3.0	~21.0	1,380	410
		190	~2.0	~8.0	1,530	300	210	~2.0	~12.0	1,220	290
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC5118	70	~5.0	~30.0	2,390	960	90	~5.0	~40.0	1,910	920
		120	~4.0	~20.0	2,150	750	140	~4.0	~28.0	1,720	720
		190	~3.0	~12.0	1,910	570	210	~3.0	~18.0	1,530	550
Stainless Steel (SUS304) Below 255HB	JC8050	70	~5.0	~30.0	2,390	720	90	~5.0	~40.0	1,910	690
		120	~4.0	~20.0	2,150	540	140	~4.0	~28.0	1,720	520
		190	~3.0	~12.0	1,910	380	210	~3.0	~18.0	1,530	370

Work Materials	Insert Grade	Tool Diameter									
		30					32				
		No. of Teeth 7 Ae<10.0 (mm)					No. of Teeth 8 Ae<10.0 (mm)				
		L (mm)	Ap (mm)	ApxAe (mm ²)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	ApxAe (mm ²)	N (min ⁻¹)	Vf (mm/min)
Carbon Steel (C50, C55) Below 250HB	JC5118 (JC8050)	100	~5.0	~50.0	1,700	950	100	~5.0	~50.0	1,590	1,020
		150	~4.0	~36.0	1,530	750	150	~4.0	~38.0	1,430	800
		210	~3.0	~24.0	1,360	570	210	~3.0	~26.0	1,270	610
Die Steel (1.2344, 1.2379) Below 255HB	JC5118 (JC8050)	100	~5.0	~50.0	1,590	670	100	~5.0	~50.0	1,490	720
		150	~4.0	~36.0	1,430	500	150	~4.0	~38.0	1,340	540
		210	~3.0	~24.0	1,270	360	210	~3.0	~26.0	1,190	380
Mold Steel (1.2311, P20) 30-43 HRC	JC8050 (JC5118)	100	~5.0	~45.0	1,270	530	100	~5.0	~47.0	1,190	570
		150	~4.0	~32.0	1,140	400	150	~4.0	~34.0	1,070	430
		210	~3.0	~21.0	940	260	210	~3.0	~23.0	950	300
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC5118	100	~5.0	~50.0	1,590	890	100	~5.0	~50.0	1,490	960
		150	~4.0	~36.0	1,430	700	150	~4.0	~38.0	1,340	750
		210	~3.0	~24.0	1,270	530	210	~3.0	~26.0	1,190	570
Stainless Steel (SUS304) Below 255HB	JC8050	100	~5.0	~50.0	1,590	670	100	~5.0	~50.0	1,490	720
		150	~4.0	~36.0	1,430	500	150	~4.0	~38.0	1,340	540
		210	~3.0	~24.0	1,270	360	210	~3.0	~26.0	1,190	380

L: Overhung length, AP: Depth of cut, N: Spindle speed, F: Feed speed

- NOTE:** 1. Figures shown to be adjusted according to machine rigidity or work rigidity.
 2. If chattering occurs, reduce the depth of cut Ap or Spindle speed and keep the feed per tooth.
 3. If machine does not have enough power, reduce the depth of cut Ap or Spindle speed and Feed speed.
 4. Use air.

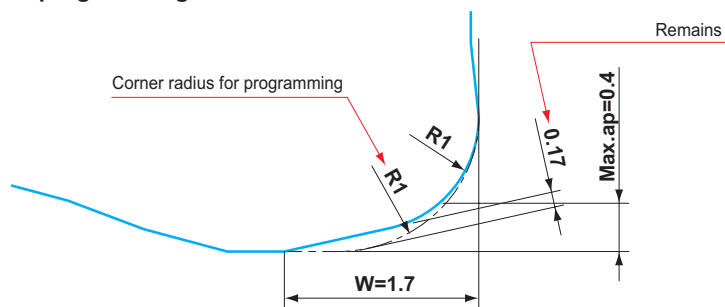


Modular Head

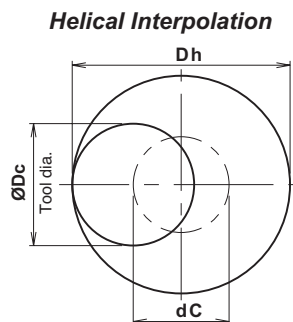
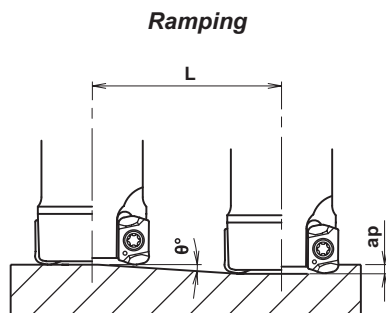
METRIC

QM Mill MPM Type

Definition of corner shape for programming for EOMT/EOMW insert



Recommended data for profile milling with EOMT/EOMW insert



- 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 the safe condition sufficiently.

CATALOG NUMBER	TOOL DIAMETER	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
MPM-2010-M6	10	6.6	0.3	2°18'	7.5	15	18
MPM-2011-M6	11	7.6	0.3	1°54'	9	17	20
MPM-3012-M6	12	8.5	0.3	1°36'	10.7	19	22
MPM-3013-M6	13	9.5	0.3	1°24'	12.3	21	24
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-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

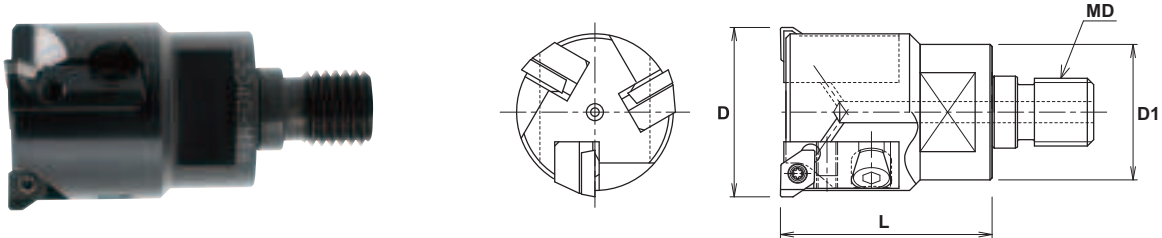
NOTE: The ramping angle 0.5° or less is recommended (please refer to the above table).



METRIC

Modular Heads

BACK & FORTH CUTTER MPF Type



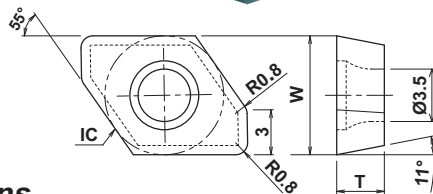
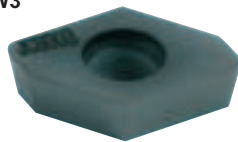
Specifications

CATALOG NUMBER	STK	DIMENSIONS				HEAD TORQUE Nm	INSERT	Q	PARTS		
		D	L	D1	MD				Insert Screw	Insert Wrench	Cartridge Radial Adj. Screw Cartridge Bolt Cartridge Wrench
MPF-2030-M16	•	30	50	28	M16	25	DPGT0903-W3	2	DSW-307H	A-10SD	SDGPR09CA-PFC RSW-05008 HCS5-10 LW-040
MPF-2033-M16	•	33	50	32	M16	25		2			
MPF-3040-M16	•	40	50	32	M16	25		3			

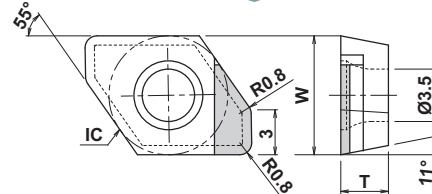
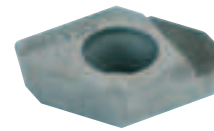
Note: All cutters are supplied without inserts.

INSERT

DPGT0903-W3
JC8003



DPGT0903-W3
JBN330



Specifications

CATALOG NUMBER	DIMENSIONS			TOLERANCE	COATED	CBN
	IC	T	W		JC8003 (Semi-finishing to finishing)	JBN330 (Super finishing)
DPGT0903-W3	7.94	3.18	7.94	G	•	•

Cartridge & Cartridge Parts

CARTRIDGE	RADIAL ADJUSTABLE SCREW	CARTRIDGE SET BOLT	CARTRIDGE WRENCH
SDGPR09CA-PFC	RSW-05008	HCS5-10	LW-040

See Pages B-35 for Speeds & Feeds

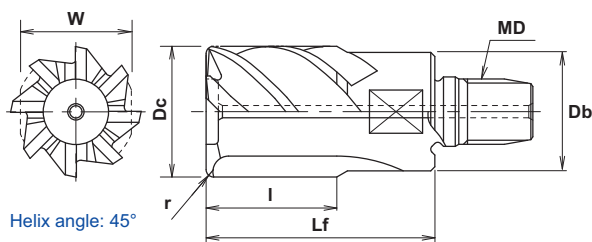


Modular Heads

METRIC

S-HEAD SMSA Type

- Solid carbide modular head with multi-edges.
- For general steel and difficult to cut materials such as heat resistant alloys and titanium alloys.
- Possible to finish by heel cutting on turbine blades and die & molds.



Specifications

CATALOG NUMBER	STK	CARBIDE GRADE	DIMENSIONS								
			Dc	r	l	Lf	Db	MD	HEAD TORQUE Nm	W	No. of Flutes
SMSA-8160R05-M8	•	JC8015	16	0.5	16	30	15	M8	16	14	8
SMSA-8160R10-M8	•		16	1	16	30	15	M8	16	14	8
SMSA-6160R20-M8	•		16	2	16	30	15	M8	16	14	6
SMSA-6160R30-M8	•		16	3	16	30	15	M8	16	14	6
SMSA-8200R05-M10	•	JC8015	20	0.5	20	35	19	M10	16	17	8
SMSA-8200R10-M10	•		20	1	20	35	19	M10	16	17	8
SMSA-8200R20-M10	•		20	2	20	35	19	M10	16	17	8
SMSA-6200R30-M10	•		20	3	20	35	19	M10	16	17	6
SMSA-8250R10-M12	•	JC8015	25	1	25	43	24	M12	20	22	8
SMSA-8250R20-M12	•		25	2	25	43	24	M12	20	22	8
SMSA-6250R30-M12	•		25	3	25	43	24	M12	20	22	6
SMSA-8300R10-M16	•	JC8015	30	1	30	56	29	M16	25	27	8
SMSA-8300R20-M16	•		30	2	30	56	29	M16	25	27	8
SMSA-6300R30-M16	•		30	3	30	56	29	M16	25	27	6
SMSA-8320R10-M16	•	JC8015	32	1	32	56	30	M16	25	27	8
SMSA-8320R20-M16	•		32	2	32	56	30	M16	25	27	8
SMSA-6320R30-M16	•		32	3	32	56	30	M16	25	27	6

Excellent Cutting by positive geometry

Adopted helical lead gash from R1 or more.
Radius form accuracy: Below 0.01mm

Adopted high thermal resistance DV Coating

Excellent thermal & wear resistance against heat resistance alloys and Ti alloys.

Ground high rigid screw (Patent Pending)

High repeatability on mounting

O.D. Run out: Below 0.015mm
Repeatability: Below 0.010mm

High efficiency machining by multi cutting edge

High accuracy and efficiency finishing can process in bottom and side cutting.

Long tool life by internal coolant supply

Long tool life achieved by coolant through the center in case of using end cutting edges.

Excellent chip evacuation by wider end gash pocket

Chips can be smoothly evacuated from end cutting edges, and it is possible to work with simultaneous multi axis, such as ramping.

Reduced cutting heat generation, achieved H.S.C. and long tool life on difficult to cut materials such as heat resistant alloys and Ti alloys.



METRIC

Modular Heads

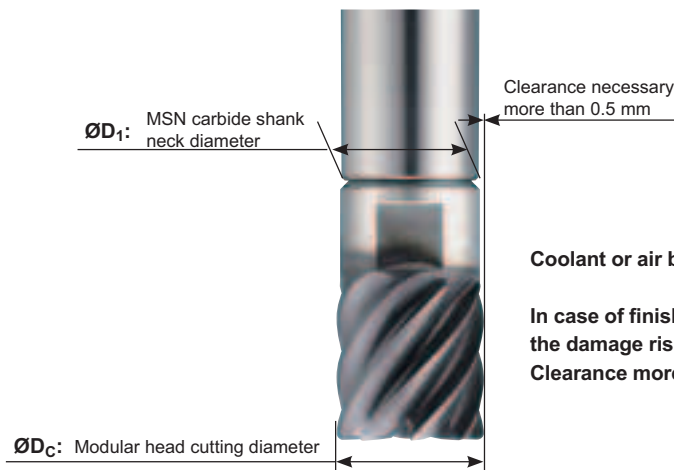
Recommended Cutting Data for SMSA heads

Shoulder Cutting

Work Materials	Tool Diameter											
	16			20			25			30 / 32		
	$a_e \leq D_c$ $a_p \leq 0.03D_c$			$a_e \leq D_c$ $a_p \leq 0.03D_c$			$a_e \leq D_c$ $a_p \leq 0.03D_c$			$a_e \leq D_c$ $a_p \leq 0.03D_c$		
L (mm)	n (mm ⁻¹)	Vf (mm/min)	L (mm)	n (mm ⁻¹)	Vf (mm/min)	L (mm)	n (mm ⁻¹)	Vf (mm/min)	L (mm)	n (mm ⁻¹)	Vf (mm/min)	
Carbon Steel, Alloy Steel (C50, 1.7223) Below 250HB	70	3,800	900	75	3,200	800	100	2,500	600	110	2,100	500
	110	3,400	700	125	2,700	550	150	2,300	500	160	1,900	420
	150	3,200	600	175	2,500	500	200	2,000	400	210	1,800	370
Stainless Steel (SUS304) Below 250HB	70	3,800	900	75	3,200	800	100	2,500	600	110	2,100	500
	110	3,400	700	125	2,700	550	150	2,300	500	160	1,900	420
	150	3,200	600	175	2,500	500	200	2,000	400	210	1,800	370
Mold Steel (1.2311, P20) 30-43HRC	70	2,800	600	75	2,400	600	100	1,900	500	110	1,600	400
	110	2,500	500	125	2,000	400	150	1,700	400	160	1,500	320
	150	2,400	450	175	1,900	350	200	1,500	300	210	1,400	280
Heat-Resistance Alloy (Inco718) 35-43HRC	70	800	200	75	600	150	100	500	120	110	400	100
	110	700	150	125	550	120	150	450	100	160	380	90
	150	600	120	175	500	100	200	400	80	210	350	80
Titanium Alloy (Ti-6AL-4V) 35-43HRC	70	1,900	450	75	1,600	400	100	1,300	300	110	1,100	260
	110	1,700	350	125	1,400	300	150	1,100	250	160	1,000	220
	150	1,600	300	175	1,300	250	200	1,000	200	210	900	180
Aluminum Alloy (A5052, A7075) 50-110HB	70	6,000	1,300	75	5,000	1,200	100	4,000	1,000	110	3,200	800
	110	5,000	1,100	125	4,000	900	150	3,500	800	160	2,900	650
	150	4,500	1,000	175	3,500	700	200	3,000	600	210	2,700	550

- NOTE:**
1. In case of side face finishing, improve the productivity by increasing A_p and reducing A_e which will reduce heat generated.
 2. In case of bottom surface finishing, improve the efficiency by cutting radius edge at shallow A_p to increase feed speed.
 3. Recommend to use internal coolant supply to reduce cutting heat and build up edge problem.

When using head over $\varnothing 16\text{mm}$, please select MSN carbide shank that diameter ($\varnothing D_1$) is 1mm or more smaller than modular head ($\varnothing D_c$). A wrong selection causes carbide shank damage.



Coolant or air blow is recommended to remove the chips.

In case of finishing operation (using Mirror Ball, Mirror Radius etc.), the damage risk of the carbide shank is low. Clearance more than .05mm is not necessary.



Modular Heads

METRIC

Recommended Cutting Data for SMSA heads

Bottom Cutting

Work Materials	Tool Diameter											
	16			20			25			30 / 32		
	 $a_e \leq D_c$ $a_p \leq 0.03D_c$			 $a_e \leq D_c$ $a_p \leq 0.03D_c$			 $a_e \leq D_c$ $a_p \leq 0.03D_c$			 $a_e \leq D_c$ $a_p \leq 0.03D_c$		
	L (mm)	n (mm ⁻¹)	Vf (mm/min)	L (mm)	n (mm ⁻¹)	Vf (mm/min)	L (mm)	n (mm ⁻¹)	Vf (mm/min)	L (mm)	n (mm ⁻¹)	Vf (mm/min)
Carbon Steel, Alloy Steel (C50, 1.7223) Below 250HB	70	3,800	3,000	75	3,200	2,600	100	2,500	2,000	110	2,100	1,700
	110	3,400	2,700	125	2,700	2,200	150	2,300	1,800	160	1,900	1,500
	150	3,200	2,600	175	2,500	2,000	200	2,000	1,600	210	1,800	1,400
Stainless Steel (SUS304) Below 250HB	70	3,800	3,000	75	3,200	2,600	100	2,500	2,000	110	2,100	1,700
	110	3,400	2,700	125	2,700	2,200	150	2,300	1,800	160	1,900	1,500
	150	3,200	2,600	175	2,500	2,000	200	2,000	1,600	210	1,800	1,400
Mold Steel (1.2311, P20) 30-43HRC	70	2,800	2,200	75	2,400	1,900	100	1,900	1,500	110	1,600	1,300
	110	2,500	2,000	125	2,000	1,600	150	1,700	1,350	160	1,500	1,200
	150	2,400	1,900	175	1,900	1,500	200	1,500	1,200	210	1,400	1,100
Heat-Resistance Alloy (Inco718) 35-43HRC	70	800	650	75	600	500	100	500	400	110	400	320
	110	700	550	125	550	450	150	450	360	160	380	300
	150	600	500	175	500	400	200	400	320	210	360	280
Titanium Alloy (Ti-6AL-4V) 35-43HRC	70	1,900	1,500	75	1,600	1,300	100	1,300	1,000	110	1,100	900
	110	1,700	1,400	125	1,400	1,100	150	1,100	900	160	1,000	800
	150	1,600	1,300	175	1,300	1,000	200	1,000	800	210	900	700
Aluminum Alloy (A5052, A7075) 50-110HB	70	5,700	4,600	75	4,800	3,800	100	3,800	3,000	110	3,200	2,600
	110	5,100	4,100	125	4,100	3,200	150	3,400	2,700	160	2,900	2,300
	150	4,800	3,800	175	3,800	3,000	200	3,100	2,500	210	2,700	2,100

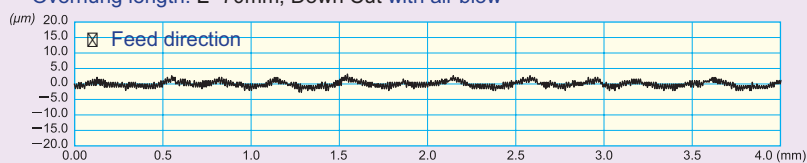
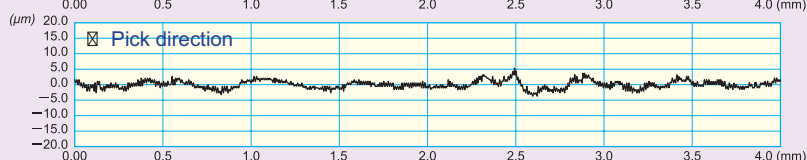
- NOTE:** 1. In case of side face finishing, improve the productivity by increasing A_p and reducing A_e which will reduce heat generated.
 2. In case of bottom surface finishing, improve the efficiency by cutting radius edge at shallow A_p to increase feed speed.
 3. Recommend to use internal coolant supply to reduce cutting heat and build up edge problem.

Cutting Performance

Surface roughness measuring result

Material: C50 (1049)

 Cutting conditions: $D_c=16\text{mm}$, $n=6000\text{m/min}^{-1}$, $V_c=300\text{m/min}$, $V_f=2000\text{m/min}$, $f_z=0.04\text{mm/t}$, $a_p=8\text{mm}$, $a_e=0.05\text{mm}$

 Overhung length: $L=70\text{mm}$, Down Cut with air blow

 Ra: $0.72\mu\text{m}$
 Rz: $4.64\mu\text{m}$

 Ra: $1.00\mu\text{m}$
 Rz: $5.97\mu\text{m}$

**METRIC****Modular Heads****MODULAR HEAD HOLDER***(carbide with coolant hole)***MSN Type**

Fig. 1

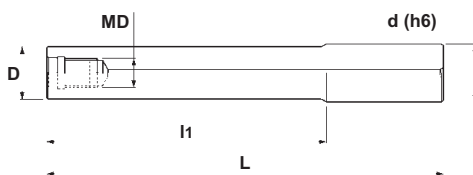
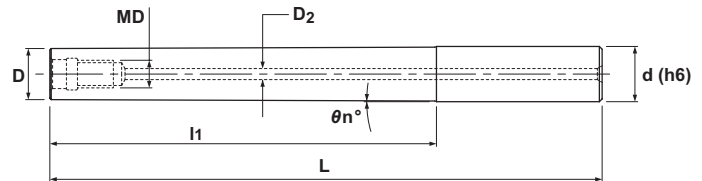


Fig. 2

**Specifications**

CATALOG NUMBER	STK	DIMENSIONS						Weight (kg)	D ₂	FIG.
		D	l ₁	L	d	θ _n °	MD			
MSN-M6-12-S10C	•	9.7	12	60	10	-	M6	0.06	3	1
MSN-M6-30-S10C	•	9.7	30	80	10	-	M6	0.07	3	1
MSN-M6-50-S10C	•	9.7	50	100	10	-	M6	0.09	3	1
MSN-M6-80-S10C	•	9.7	80	130	10	-	M6	0.12	3	1
MSN-M6-15-S12C	•	11.5	15	60	12	-	M6	0.08	3	1
MSN-M6-30-S12C	•	11.5	30	80	12	-	M6	0.11	3	1
MSN-M6-50-S12C	•	11.5	50	100	12	-	M6	0.13	3	1
MSN-M6-80-S12C	•	11.5	80	130	12	-	M6	0.18	3	1
MSN-M8-20-S16C	•	15.5	20	75	16	-	M8	0.17	4	1
MSN-M8-40-S16C	•	15.5	40	95	16	-	M8	0.22	4	1
MSN-M8-80-S16C	•	15.5	80	135	16	-	M8	0.32	4	1
MSN-M8-120-S16C	•	15.5	120	175	16	-	M8	0.42	4	1
MSN-M10-20-S20C	•	19.5	20	80	20	-	M10	0.29	6	1
MSN-M10-40-S20C	•	19.5	40	100	20	-	M10	0.39	4	1
MSN-M10-40T-S20C	•	19.5	40	100	20	0°43'	M10	0.39	4	2
MSN-M10-70-S20C	•	19.5	70	130	20	-	M10	0.50	4	1
MSN-M10-90-S20C	•	19.5	90	150	20	-	M10	0.60	4	1
MSN-M10-90T-S20C	•	19.5	90	150	20	0°19'	M10	0.58	4	2
MSN-M10-140-S20C	•	19.5	140	200	20	-	M10	0.80	4	1
MSN-M10-140T-S20C	•	19.5	140	200	20	0°12'	M10	0.77	4	2
MSN-M12-25-S25C	•	24	25	90	25	-	M12	0.53	6	1
MSN-M12-55-S25C	•	24	55	120	25	-	M12	0.72	6	1
MSN-M12-105-S25C	•	24	105	170	25	-	M12	1.03	6	1
MSN-M12-155-S25C	•	24	155	220	25	-	M12	1.34	6	1
MSN-M16-25-S32C	•	29	25	90	32	-	M16	0.85	8	1
MSN-M16-55-S32C	•	29	55	120	32	-	M16	1.13	8	1
MSN-M16-105-S32C	•	29	105	170	32	-	M16	1.59	8	1
MSN-M16-155-S32C	•	29	155	220	32	-	M16	2.04	8	1
MSN-M16-195-S32C	•	29	195	260	32	-	M16	2.40	8	1
MSN-M16-225-S32C	•	29	225	290	32	-	M16	2.57	8	1
MSN-M16-245-S32C	•	29	245	310	32	-	M16	2.74	8	1
MSN-M16-295-S32C	■	29	295	360	32	-	M16	3.17	8	1



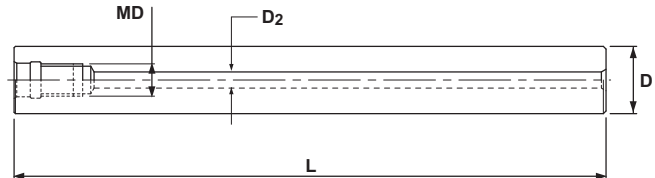
Modular Heads

METRIC

MODULAR HEAD HOLDER

(carbide with coolant hole)

MSN Type - Straight



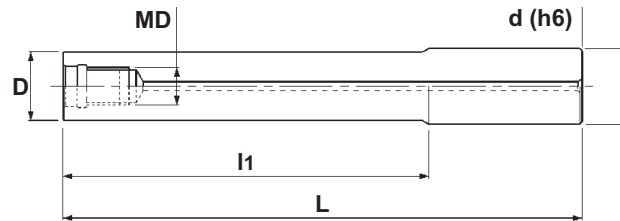
Specifications

CATALOG NUMBER	STK	DIMENSIONS			Weight (kg)	D ₂
		D	L	MD		
MSN-M6-67S-S9.8C	•	9.8	67	M6	0.06	3
MSN-M6-107S-S9.8C	•	9.8	107	M6	0.10	3
MSN-M6-82S-S10C	•	10	82	M6	0.08	3
MSN-M6-122S-S10C	•	10	122	M6	0.12	3
MSN-M6-80S-S11.8C	•	11.8	80	M6	0.11	3
MSN-M6-120S-S11.8C	•	11.8	120	M6	0.17	3
MSN-M6-90S-S12C	•	12	90	M6	0.13	3
MSN-M6-130S-S12C	•	12	130	M6	0.19	3
MSN-M8-97S-S15C	•	15	97	M8	0.21	4
MSN-M8-147S-S15C	•	15	147	M8	0.33	4
MSN-M8-107S-S16C	•	16	107	M8	0.27	4
MSN-M8-157S-S16C	•	16	157	M8	0.40	4
MSN-M10-130S-S18C	•	18	130	M10	0.42	4
MSN-M10-190S-S18C	•	18	190	M10	0.62	4
MSN-M10-130S-S20C	•	20	130	M10	0.53	4
MSN-M10-190S-S20C	•	20	190	M10	0.78	4
MSN-M10-250S-S20C	•	20	250	M10	1.02	4
MSN-M12-185S-S23C	•	23	185	M12	0.98	6
MSN-M12-265S-S23C	•	23	265	M12	1.42	6
MSN-M12-145S-S25C	•	25	145	M12	0.91	6
MSN-M12-215S-S25C	•	25	215	M12	1.36	6
MSN-M12-285S-S25C	•	25	285	M12	1.80	6
MSN-M16-160S-S28C	•	28	160	M16	1.22	8
MSN-M16-230S-S28C	•	28	230	M16	1.77	8
MSN-M16-310S-S28C	•	28	310	M16	2.41	8
MSN-M16-157S-S32C	•	32	157	M16	1.61	8
MSN-M16-217S-S32C	•	32	217	M16	2.22	8
MSN-M16-287S-S32C	•	32	287	M16	2.94	8
MSN-M16-357S-S32C	•	32	357	M16	3.66	8

METRIC

Modular Heads

G-BODY STEEL SHANK HOLDER MGN Type



Specifications

CATALOG NUMBER	STK	DIMENSIONS					Weight (kg)	D ₂
		D	l ₁	L	d	MD		
MGN-M8-17-S16	•	15.5	17	97	16	M8	0.13	4
MGN-M10-30-S20	•	19	30	100	20	M10	0.21	4
MGN-M12-35-S25	•	24	35	105	25	M12	0.36	4
MGN-M16-37-S32	•	29	37	107	32	M16	0.56	6

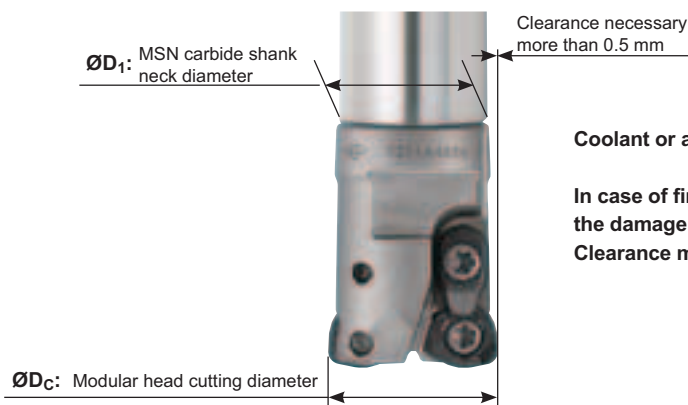
NOTE: In case of using modular head combined with MGN steel shank holder, apply same recommended cutting conditions as MSN-...

Recommended tightening torque for modular head

THREAD	TIGHTENING TORQUE	WRENCH SIZE EXCEPT FOR SMSA	WRENCH SIZE OF SMSA	Attention to mounting head Clean the contact surface of head and carbide holder, and also confirm there is no gap between head and holder after tightening.
M6	8.0N·m	8	-	
M8	16N·m	10, 12	14	
M10	16N·m	14, 15	17	
M12	20N·m	17	22	
M16	25N·m	22, 26	27	

SELECTION OF MODULAR HEAD HOLDERS

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



Coolant or air blow is recommended to remove the chips.

In case of finishing operation (using Mirror Ball, Mirror Radius etc.), the damage risk of the carbide shank is low. Clearance more than .05mm is not necessary.

