



Diemaster

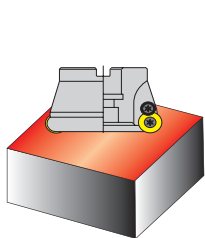
High Productivity Radius Tools

Predominantly for slot milling, ramp milling, pocket and copy milling.

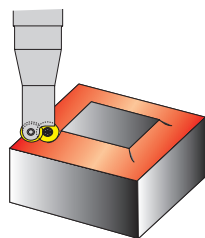
DIJET's Diemaster is designed to offer high productivity and security in die making, aerospace and automobile industries. Diemaster can be utilized on conventional, NC, CNC, and copy milling machines. These products are recommended for both shallow and deep forms.



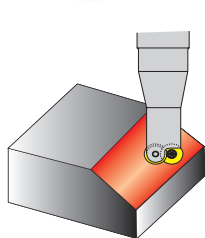
Versatility of Diemaster



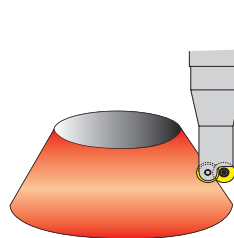
Facemilling



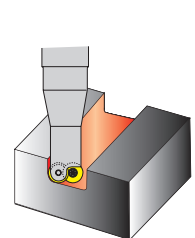
Peripheral milling



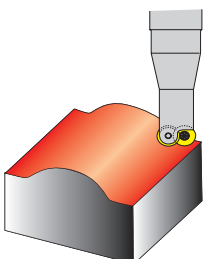
Ramp milling



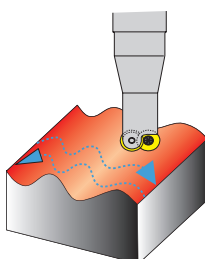
Contour milling



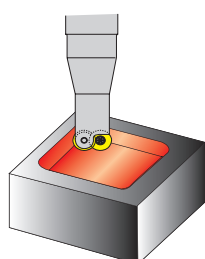
Slot milling



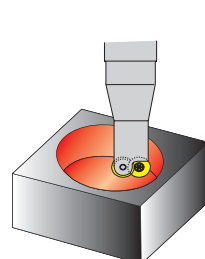
Profile milling



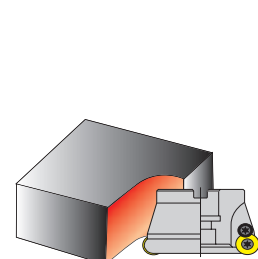
Copy milling



Pocket milling



Helical interpolation



Plunge milling



Diemaster

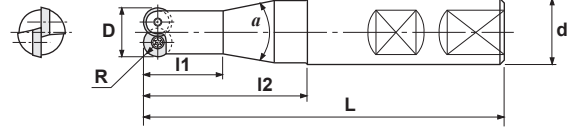
METRIC

END MILL DDM Type



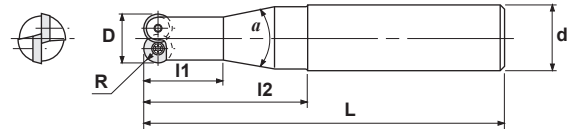
Weldon Shank

Fig. 1



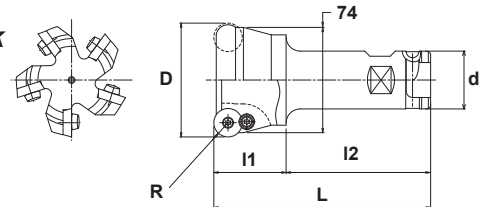
Straight Shank

Fig. 2



Small Shank

Fig. 3



Specifications

CATALOG NUMBER	STK	DIMENSIONS								INSERT	Q	PARTS		
		D	R	L	I1	I2	a	d	FIG.			Screw	Wrench	Other
DDM-2120-40-W16	•	12	3.5	88	20	40	23°	16	1	RDHX0701MO*	2	CSW-2542	A-07	-
DDM-2120-60-W16	•	12	3.5	108	20	60	9°	16	1					
DDM-2120-80-W20	•	12	3.5	130	20	80	10°	20	1					
DDM-2150-80-S20	■	15	3.5	130	20	80	7°10'	20	2	RDHX0702MO*	2	CSW-2547	A-07	-
DDM-2160-40-W16	•	16	3.5	88	20	40	-	16	1	RDHX0702MO*	2	CSW-2547	A-07	-
DDM-2160-60-W16	•	16	3.5	108	20	60	2°41'	16	1					
DDM-2160-80-W20	•	16	3.5	130	20	80	6°03'	20	1					
DDM-2160-100-W20	•	16	3.5	150	20	100	4°22'	20	1					
DDM-2200-40-W20	•	20	5	90	23	40	-	20	1	RDHX1003MO*	2	CSW-3570	A-15	-
DDM-2200-60-W20	•	20	5	110	23	60	3°10'	20	1					
DDM-2200-80-W25	•	20	5	136	23	80	8°	25	1					
DDM-2200-100-W25	•	20	5	156	23	100	5°30'	25	1					
DDM-2200-120-W25	•	20	5	176	23	120	4°20'	25	1	RDHX12T3MO*	2	CSW-3595	A-15	CB3540
DDM-2250-70-W25	•	25	6	126	23	70	3°40'	25	1					
DDM-2250-80-W25	•	25	6	136	23	80	2°55'	25	1					
DDM-2250-124-W25	•	25	6	180	-	124	-	25	1	RDHX12T3MO*	2	CSW-3595	A-15	CB3540
DDM-2320-80-W32	•	32	6	140	30	80	3°	32	1					
DDM-2320-140-W32	•	32	6	200	-	140	-	32	1					
DDM-5080-50-S200		80	10	152	51	101.6	-	50.8	3	RDHX2006MO*	2	CSW-4510	A-20	CW-11

Note: All cutters are supplied without inserts.


METRIC
Diemaster
FACE MILL
DDM Type


Entering Angle	A.R. : 0°
	★ A.R. : 8°
	R.R. : 0°
Max. D.O.C.	12mm insert: 4mm
	16mm insert: 5mm

Fig. 1

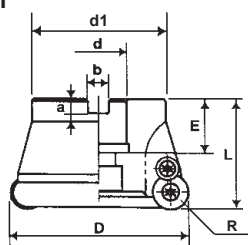
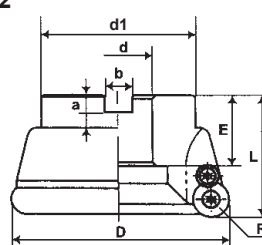


Fig. 2


Specifications

CATALOG NUMBER	STK	DIMENSIONS									INSERT	Q	PARTS		
		D	R	L	d	d1	a	b	E	FIG.			Screw	Wrench	Other
DDM-3040-16R-12	•	40	6	45	16	35	5.6	8.4	18	1	RDHX12T3MO* RDMX12T3MOT	3	CSW-3595	A-15T	CB3540
DDM-5050-12	■	50	6	45	22	45	6.3	10.4	20	2	RDHX12T3MO* RDMX12T3MOT	5	CSW-3595	A-15T	CB3540
DDM-4050-16	■	50	8	45	22	45	6.3	10.4	20	2	RDHX1604MO* RDMX1604MOT RDMT1604MOT	4	CSW-4510	A-20	CW-11
DDM-5052-22R-12	•	52	6	50	22	45	6.3	10.4	20	2	RDHX12T3MO* RDMX12T3MOT	5	CSW-3595	A-15T	CB3540
DDM-5052-22R-12-AR8★	■	52	6	50	22	45	6.3	10.4	20	2	RDHX12T3MO* RDMX12T3MOT	5	CSW-3595	A-15T	CB3540
DDM-4052-22R-16	•	52	8	45	22	50	6.3	10.4	20	2	RDHX1604MO* RDMX1604MOT RDMT1604MOT	4	CSW-4510	A-20	CW-11
DDM-3063-27R-12	•	63	6	50	27	50	7	12.4	22	2	RD(M)HX12T3MO*	3	CSW-3595	A-15T	CB3540
DDM-6063-27R-12	•	63	6	50	27	50	7	12.4	20	2	RD(M)HX12T3MO*	6	CSW-3595	A-15T	CB3540
DDM-5063-16	■	63	8	45	22	50	6.3	10.4	20	2	RD(M)HX1604MO*	5	CSW-4510	A-20	CW-11
DDM-5063-27R-16	•	63	8	50	27	50	7	12.4	20	2	RD(M)HX1604MO*	5	CSW-4510	A-20	CW-11



Diemaster

METRIC

FACE MILL DDM Type



Entering Angle	A.R. : 0°
	★★ A.R. : 6°
	R.R. : 0°
Max. D.O.C.	12mm insert: 4mm
	16mm insert: 5mm

Fig. 1

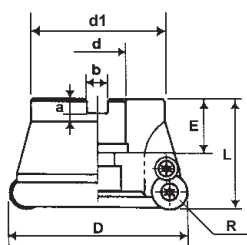
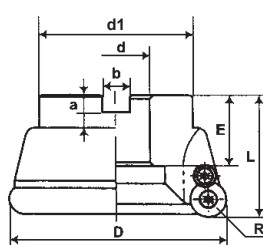


Fig. 2



Specifications

CATALOG NUMBER	STK	DIMENSIONS									INSERT	Q	PARTS		
		D	R	L	d	d1	a	b	E	FIG.			Screw	Wrench	Other
DDM-6066-27R-12	•	66	6	50	27	50	7	12.4	22	2	RD(M)HX12T3MO*	6	CSW-3595	A-15T	CB3540
DDM-5066-27R-16	•	66	8	50	27	50	7	12.4	22	2	RD(M)HX1604MO*	5	CSW-4510	A-20	CW-11
DDM-4080-27R-12	•	80	6	55	27	60	7	12.4	22	3	RD(M)HX12T3MO*	4	CSW-3595	A-15T	CB3540
DDM-7080-27R-12	•	80	6	55	27	60	7	12.4	22	3	RD(M)HX12T3MO*	7	CSW-3595	A-15T	CB3540
DDM-6080-27R-16	•	80	8	55	27	60	7	12.4	22	3	RD(M)HX1604MO*	6	CSW-4510	A-20	CW-11
DDM-5080AR6-20★★		80	10	50.8	25.4	63.5	8	12.7	19	2	RDHX2006MO*	5	CSW-4510	A-20	CW-11
DDM-7100-32R-16	•	100	8	55	32	70	8	14.4	32	3	RD(M)HX1604MO*	7	CSW-4510	A-20	CW-11
DDM-6100-20		100	10	55	31.75	70	8	12.7	32	3	RDHX2006MO*	6	CSW-4510	A-20	CW-11
DDM-8125-40R-16	•	125	8	55	40	85	9	16.4	32	3	RD(M)HX1604MO*	8	CSW-4510	A-20	CW-11
DDM-9160-40R-16	•	160	8	55	40	120	9	16.4	32	3	RD(M)HX1604MO*	9	CSW-4510	A-20	CW-11
DDM-8160-20		160	10	55	50.8	120	11	19	37	3	RDHX2006MO*	8	CSW-4510	A-20	CW-11

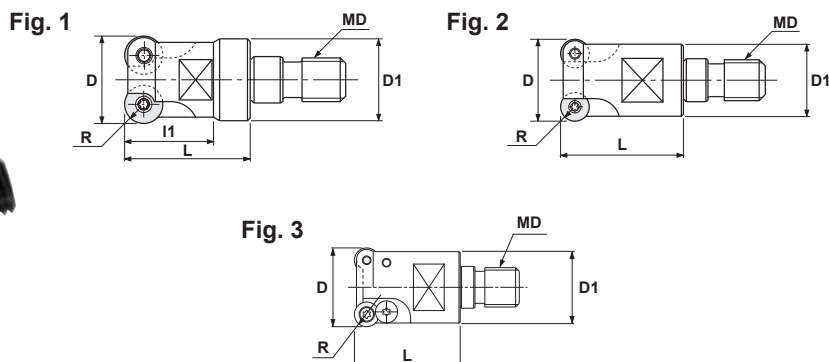
Note: All cutters are supplied without inserts.



METRIC

Diemaster

MODULAR HEADS
MDH Type



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	RDHX1604MO*	2	CSW-4510	A-20	-
MDH-4400-M16	•	40	6	42	29	M16	3	25	RDHX12TMO*	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	RDHX0702MOT	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	-

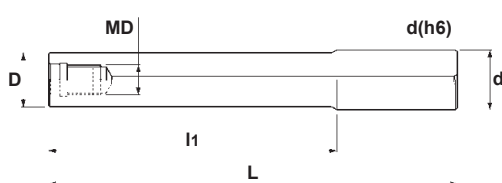
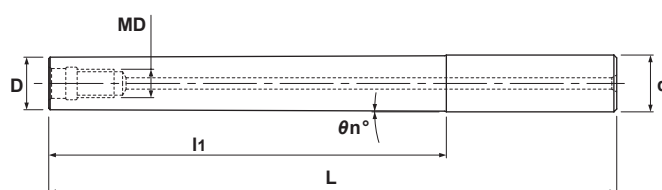
Note: All cutters are supplied without inserts.

Diemaster

METRIC

MODULAR HEAD HOLDER

(carbide with coolant hole)
MSN Type

Fig. 1

Fig. 2


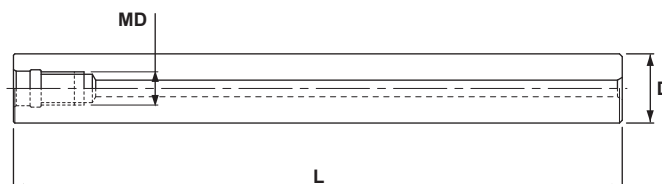
Specifications

CATALOG NUMBER	STK	DIMENSIONS						FIG.	APPLICABLE HOLDERS
		D	l1	L	d	θn°	MD		
MSN-M8-20-S16C	•	15.5	20	75	16	-	M8	1	MDH-2120-M8, MDH-2160-M8 MDH-3160-M8, MDH-4160-M8
MSN-M8-40-S16C	•	15.5	40	95	16	-	M8	1	
MSN-M8-80-S16C	•	15.5	80	135	16	-	M8	1	
MSN-M8-120-S16C	•	15.5	120	175	16	-	M8	1	
MSN-M10-20-S20C	•	19.5	20	80	20	-	M10	1	MDH-2200-M10, MDH-4200-M10 MDH-5200-M10
MSN-M10-40-S20C	•	19.5	40	100	20	-	M10	1	
MSN-M10-40T-S20C	•	19.5	40	100	20	0°29'	M10	2	
MSN-M10-70-S20C	•	19.5	70	130	20	-	M10	1	
MSN-M10-90-S20C	•	19.5	90	150	20	-	M10	1	
MSN-M10-90T-S20C	•	19.5	90	150	20	0°17'	M10	2	
MSN-M10-140-S20C	•	19.5	140	200	20	-	M10	1	
MSN-M10-140T-S20C	•	19.5	140	200	20	0°12'	M10	2	
MSN-M12-25-S25C	•	24	25	90	25	-	M12	1	MDH-2250-M12, MDH-5250-M12
MSN-M12-55-S25C	•	24	55	120	25	-	M12	1	
MSN-M12-105-S25C	•	24	105	170	25	-	M12	1	
MSN-M12-155-S25C	•	24	155	220	25	-	M12	1	
MSN-M16-25-S32C	•	29	25	90	32	-	M16	1	MDH-3320-R10-M16 MDH-2320-R16-M16 MDH-4400-M16 MDH-6350-M16
MSN-M16-55-S32C	•	29	55	120	32	-	M16	1	
MSN-M16-105-S32C	•	29	105	170	32	-	M16	1	
MSN-M16-155-S32C	•	29	155	220	32	-	M16	1	
MSN-M16-195-S32C	•	29	195	260	32	-	M16	1	
MSN-M16-225-S32C	•	29	225	290	32	-	M16	1	
MSN-M16-245-S32C	•	29	245	310	32	-	M16	1	
MSN-M16-295-S32C	■	29	295	360	32	-	M16	1	

Note: See pages A-175 thru A-177 for weight and coolant hole size.


METRIC
Diemaster
MODULAR HEAD HOLDER

(carbide with coolant hole)

MSN Type - Straight

Specifications

CATALOG NUMBER	STK	DIMENSIONS			APPLICABLE HOLDERS
		D	L	MD	
MSN-M8-97S-S15C	•	15	97	M8	MDH-2120-M8, MDH-2160-M8, MDH-3160-M8, MDH-4160-M8
MSN-M8-147S-S15C	•	15	147	M8	
MSN-M8-107S-S16C	•	16	107	M8	
MSN-M8-157S-S16C	•	16	157	M8	
MSN-M10-130S-S18C	•	18	130	M10	MDH-2200-M10, MDH-4200-M10, MDH-5200-M10
MSN-M10-190S-S18C	•	18	190	M10	
MSN-M10-130S-S20C	•	20	130	M10	
MSN-M10-190S-S20C	•	20	190	M10	
MSN-M10-250S-S20C	•	20	250	M10	
MSN-M12-185S-S23C	•	23	185	M12	MDH-2250-M12, MDH-5250-M12
MSN-M12-265S-S23C	•	23	265	M12	
MSN-M12-145S-S25C	•	25	145	M12	
MSN-M12-215S-S25C	•	25	215	M12	
MSN-M12-285S-S25C	•	25	285	M12	
MSN-M16-160S-S28C	•	28	160	M16	MDH-3320-R10-M16, MDH-2320-R16-M16, MDH-4400-M16, MDH-6350-M16
MSN-M16-230S-S28C	•	28	230	M16	
MSN-M16-310S-S28C	•	28	310	M16	
MSN-M16-157S-S32C	•	32	157	M16	
MSN-M16-217S-S32C	•	32	217	M16	
MSN-M16-287S-S32C	•	32	287	M16	
MSN-M16-357S-S32C	•	32	357	M16	

Note: See pages A-175 thru A-177 for weight and coolant hole size.

NOTES ON MOUNTING HEADS:

Clean the contact surface of head and carbide holder. After tightening, confirm that there is no gap between head and holder.

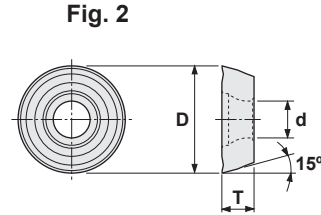
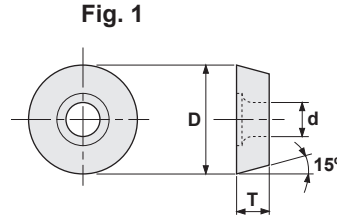
See Page A-177 for steel holder



Diemaster

METRIC

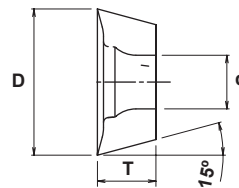
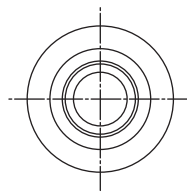
INSERTS



Specifications

CATALOG NUMBER	IC TOLERANCE	DIMENSIONS			FIG.	COATED GRADES				UNCOATED GRADES	
		D	T	d		JC8003	JC8015	JC5030	JC5040	CX90	KT9
RDHX0501MOT	H	5	1.5	2.0	1	•	•				
RDHX0701MOT	H	7	1.99	2.8	1	•	•	•	•	•	
RDHX0702MOT	H	7	2.38	2.8	1	•	•	•	•	•	
RDHX1003MOT	H	10	3.18	3.9	1	•	•	•	•	•	
RDHX12T3MOF	H	12	3.97	3.9	1						•
RDHX12T3MOT	H	12	3.97	3.9	1	•	•	•	•	•	
RDMX12T3MOT	M	12	3.97	3.9	1			•	•		
RDHX1604MOT	H	16	4.76	5.0	1	•	•	•	•	•	
RDMX1604MOT	M	16	4.76	5.0	1		•	•	•		
RDMT1604MOT	M	16	4.76	5.5	2				•		
RDHX2006MOT	H	20	6.0	6.0	1			•			

INSERTS FOR ALUMINUM



Specifications

CATALOG NUMBER	IC TOLERANCE	DIMENSIONS			COATED GRADES				UNCOATED GRADES	
		D	T	d	JC8003	JC8015	JC5030	JC5040	CX90	KT9
RDHT0501MOF	H	5	1.5	2						•
RDHT0701MOF	H	7	1.99	2.8						•
RDHT0702MOF	H	7	2.38	2.8						•
RDHT1003MOF	H	10	3.18	3.9						•
RDHT12T3MOF	H	12	3.97	3.9						•
RDHT1604MOF	H	16	4.76	5						•


METRIC
Diemaster

CUTTING DATA

Recommended Cutting Data for End Mills & Modular Heads

Work Materials	Insert Grade	Tool Diameter													
		Ø12		Ø15		Ø16		Ø20		Ø25		Ø32		Ø40	
		Max. Ap= 0.5mm		Max. Ap= 0.75mm		Max. Ap= 1.0mm		Max. Ap= 2.0mm		Max. Ap= 2.5mm		Max. Ap= 3.0mm		Max. Ap= 3.5mm	
		N (min ⁻¹)	Vf (mm/min)	N (min ⁻¹)	Vf (mm/min)	N (min ⁻¹)	Vf (mm/min)	N (min ⁻¹)	Vf (mm/min)	N (min ⁻¹)	Vf (mm/min)	N (min ⁻¹)	Vf (mm/min)	N (min ⁻¹)	Vf (mm/min)
Low Carbon Steel (125-180HB)	JC5030 JC5040	8,500	4,400	5,200	2,700	5,200	2,700	4,000	2,800	3,100	2,100	2,450	1,700	2,000	1,400
Carbon Steel (170-220HB)	JC5030 JC5040	7,500	4,000	4,500	2,300	4,500	2,300	3,500	2,400	2,700	1,900	2,200	1,550	1,750	1,200
Alloy Steel (200-260HB)	JC8015	5,200	2,700	3,200	1,800	3,200	1,800	2,500	1,700	2,200	1,400	1,700	1,100	1,400	900
Tool & Die Steel (280-370HB)	JC5040 JC5030	4,500	2,300	2,700	1,400	2,700	1,400	2,200	1,500	1,900	1,200	1,500	1,000	1,200	800
Stainless Steel (150-270HB)	JC8015	6,300	3,300	3,600	1,900	3,600	1,900	2,800	1,800	2,200	1,400	1,700	1,100	1,350	900
Gray Cast Iron (200-250HB)	JC8015	6,500	3,900	3,850	2,700	3,850	2,700	3,000	2,500	2,400	2,000	1,900	1,500	1,500	1,200
Nodular Cast Iron (180-250HB)	JC8015	5,100	3,000	3,000	2,500	3,600	2,500	2,400	2,000	1,900	1,600	1,500	1,250	1,200	1,000

H.S.C. Data Recommendations

Work Materials	Hardness	Insert Grade	Cutting Speed Vc (m/min)	Feed Per Tooth fz (mm/tooth)	Depth of Cut Ap (mm)
Gray Cast Iron (GG25, GG30)	160-260HB	JC8003 JC8015	400 - 500	0.2 - 0.3	0.1 - 0.3
Nodular Cast Iron (GGG60, GGG70)	170-300HB	JC8003 JC8015	300 - 400	0.2 - 0.3	0.1 - 0.3
Carbon Steel (C50, C55)	180-280HB	JC8003	300 - 400	0.2 - 0.3	0.1 - 0.3
Low Alloy Steel (1.7225)	180-280HB	JC8003	250 - 350	0.2 - 0.3	0.1 - 0.3
Mold Steel (1.2311, P20)	280-400HB	JC8003	250 - 350	0.2 - 0.3	0.1 - 0.3
Tool & Die Steel (1.2344, 1.2379)	180-255HB	JC8003	250 - 350	0.2 - 0.3	0.1 - 0.3
Hardened Die Steel (1.2344, 1.2379)	40-55HRc	JC8003	200 - 300	0.1 - 0.25	0.1 - 0.2
Hardened Die Steel (1.2344, 1.2379)	55HRc -	JC8003	150 - 250	0.1 - 0.2	0.1 - 0.2
Stainless Steel (1.4301, 1.4401)	150-250HB	JC8003 JC8015	200 - 300	0.15 - 0.3	0.1 - 0.3



Diemaster

METRIC

FACE MILL - Cutting Data

Recommended Cutting Data

1. For 40mm Tool Diameter Series (3 teeth)

Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	3 - 3.5	40	1,900	2,000	12T3	3	12
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	3 - 3.5	40	1,750	1,850	12T3	3	12
High Alloy Steel	200-260	X20Cr13, 1.4923	3 - 3.5	40	1,600	1,700	12T3	3	12
Tool & Die Steel	280-370	1.2379, 1.2311	3 - 3.5	40	1,450	1,300	12T3	3	10
Stainless Steel	150-270	1.4404, 316, 321	3 - 3.5	40	1,550	1,400	12T3	3	11
Gray Cast Iron	200-250	GG25, GRADE220	3 - 3.5	40	1,700	1,550	12T3	3	5
S.G. Iron	180-250	GGG60, SNG600/3	3 - 3.5	40	1,600	1,450	12T3	3	5

2. For 52mm Tool Diameter Series (5 teeth)

Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	3 - 4	52	1,400	2,100	12T3	5	16
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	3 - 4	52	1,250	1,875	12T3	5	16
High Alloy Steel	200-260	X20Cr13, 1.4923	3 - 4	52	900	1,350	12T3	5	13
Tool & Die Steel	280-370	1.2379, 1.2311	3 - 4	52	750	1,125	12T3	5	12
Stainless Steel	150-270	1.4404, 316, 321	3 - 4	52	1,050	1,575	12T3	5	17
Gray Cast Iron	200-250	GG25, GRADE220	3 - 4	52	1,080	2,160	12T3	5	9
S.G. Iron	180-250	GGG60, SNG600/3	3 - 4	52	900	1,800	12T3	5	8

3. For 52mm Tool Diameter Series (4 teeth)

Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	3 - 4	52	1,400	1,680	1604	4	13
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	3 - 4	52	1,250	1,500	1604	4	13
High Alloy Steel	200-260	X20Cr13, 1.4923	3 - 4	52	900	1,080	1604	4	10
Tool & Die Steel	280-370	1.2379, 1.2311	3 - 4	52	750	900	1604	4	9.5
Stainless Steel	150-270	1.4404, 316, 321	3 - 4	52	1,050	1,260	1604	4	13
Gray Cast Iron	200-250	GG25, GRADE220	3 - 4	52	1,080	1,728	1604	4	7
S.G. Iron	180-250	GGG60, SNG600/3	3 - 4	52	900	1,440	1604	4	6.5

4. For 63-66mm Tool Diameter Series (6 teeth)

Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	3 - 4	63 - 66	1,090	1,960	12T3	6	19
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	3 - 4	63 - 66	950	1,700	12T3	6	19
High Alloy Steel	200-260	X20Cr13, 1.4923	3 - 4	63 - 66	670	1,200	12T3	6	14
Tool & Die Steel	280-370	1.2379, 1.2311	3 - 4	63 - 66	580	1,050	12T3	6	14
Stainless Steel	150-270	1.4404, 316, 321	3 - 4	63 - 66	820	1,450	12T3	6	19
Gray Cast Iron	200-250	GG25, GRADE220	3 - 4	63 - 66	850	2,040	12T3	6	10.5
S.G. Iron	180-250	GGG60, SNG600/3	3 - 4	63 - 66	700	1,700	12T3	6	9.5

5. For 63-66mm Tool Diameter Series (5 teeth)

Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	4 - 5	63 - 66	1,090	1,600	1604	5	19
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	4 - 5	63 - 66	950	1,400	1604	5	19
High Alloy Steel	200-260	X20Cr13, 1.4923	4 - 5	63 - 66	670	1,000	1604	5	15
Tool & Die Steel	280-370	1.2379, 1.2311	4 - 5	63 - 66	580	870	1604	5	14
Stainless Steel	150-270	1.4404, 316, 321	4 - 5	63 - 66	820	1,200	1604	5	20
Gray Cast Iron	200-250	GG25, GRADE220	4 - 5	63 - 66	850	1,250	1604	5	8
S.G. Iron	180-250	GGG60, SNG600/3	4 - 5	63 - 66	700	1,070	1604	5	7.5



METRIC

Diemaster

FACE MILL - Cutting Data

Recommended Cutting Data

6. For 80mm Tool Diameter Series (7 teeth)

Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	3 - 4	80	900	1,800	12T3	7	22
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	3 - 4	80	750	1,500	12T3	7	21
High Alloy Steel	200-260	X20Cr13, 1.4923	3 - 4	80	500	1,050	12T3	7	16
Tool & Die Steel	280-370	1.2379, 1.2311	3 - 4	80	450	950	12T3	7	16
Stainless Steel	150-270	1.4404, 316, 321	3 - 4	80	650	1,350	12T3	7	23
Gray Cast Iron	200-250	GG25, GRADE220	3 - 4	80	700	1,950	12T3	7	13
S.G. Iron	180-250	GGG60, SNG600/3	3 - 4	80	600	1,660	12T3	7	12

7. For 80mm Tool Diameter Series (6 teeth)

Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	4 - 5	80	900	1,620	1604	6	25
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	4 - 5	80	750	1,350	1604	6	23
High Alloy Steel	200-260	X20Cr13, 1.4923	4 - 5	80	500	900	1604	6	17
Tool & Die Steel	280-370	1.2379, 1.2311	4 - 5	80	450	810	1604	6	17
Stainless Steel	150-270	1.4404, 316, 321	4 - 5	80	650	1,170	1604	6	25
Gray Cast Iron	200-250	GG25, GRADE220	4 - 5	80	700	1,680	1604	6	14
S.G. Iron	180-250	GGG60, SNG600/3	4 - 5	80	600	1,440	1604	6	13

8. For 100mm Tool Diameter Series (7 teeth)

Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	4 - 5	100	720	1,960	1604	7	38
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	4 - 5	100	610	1,700	1604	7	37
High Alloy Steel	200-260	X20Cr13, 1.4923	4 - 5	100	400	1,200	1604	7	29
Tool & Die Steel	280-370	1.2379, 1.2311	4 - 5	100	350	1,050	1604	7	28
Stainless Steel	150-270	1.4404, 316, 321	4 - 5	100	520	1,450	1604	7	38
Gray Cast Iron	200-250	GG25, GRADE220	4 - 5	100	560	2,040	1604	7	21
S.G. Iron	180-250	GGG60, SNG600/3	4 - 5	100	460	1,700	1604	7	19

9. For 125mm Tool Diameter Series (8 teeth)

Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	4 - 5	125	570	1,350	1604	8	32
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	4 - 5	125	500	1,200	1604	8	33
High Alloy Steel	200-260	X20Cr13, 1.4923	4 - 5	125	350	840	1604	8	25
Tool & Die Steel	280-370	1.2379, 1.2311	4 - 5	125	300	700	1604	8	23
Stainless Steel	150-270	1.4404, 316, 321	4 - 5	125	400	900	1604	8	30
Gray Cast Iron	200-250	GG25, GRADE220	4 - 5	125	450	1,400	1604	8	18
S.G. Iron	180-250	GGG60, SNG600/3	4 - 5	125	370	1,150	1604	8	16

10. For 160mm Tool Diameter Series (9 teeth)

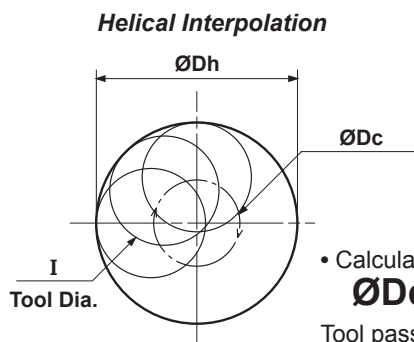
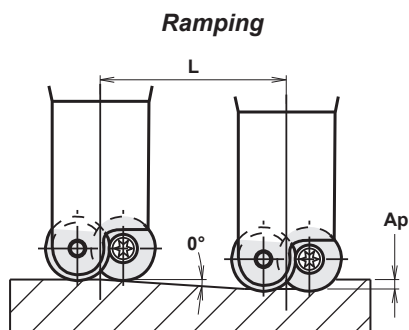
Work Materials	Hardness (HB)	Typical Groups	Ap (mm)	Ae (mm)	N (min ⁻¹)	Vf (mm/min)	Insert	Z	Power (kw)
Low Carbon Steel	125-180	C15, ST137, 1.0401	4 - 5	160	450	1,600	1604	9	49
Low Alloy Steel	170-220	CK45, 1.1231, 16MnCr5	4 - 5	160	400	1,400	1604	9	49
High Alloy Steel	200-260	X20Cr13, 1.4923	4 - 5	160	280	1,000	1604	9	38
Tool & Die Steel	280-370	1.2379, 1.2311	4 - 5	160	200	870	1604	9	37
Stainless Steel	150-270	1.4404, 316, 321	4 - 5	160	320	1,200	1604	9	51
Gray Cast Iron	200-250	GG25, GRADE220	4 - 5	160	360	1,250	1604	9	20
S.G. Iron	180-250	GGG60, SNG600/3	4 - 5	160	300	1,130	1604	9	20



Diemaster

METRIC

HELICAL INTERPOLATION CUTTING DATA



• Calculation of tool pass dia.

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

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

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

TOOL DIAMETER I	INSERT DIA.	EFFECTIVE CUTTING DIA.	RAMPING		HELICAL INTERPOLATION		MAXIMUM DEPTH OF CUT: A_p
			MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX A_p : L	MIN. BORE DIAMETER: $D_h \text{ min}$	TOOL PASS DIAMETER: D_c	
12	7	5	2°30'	11.40	16	4	.5
15	7	8	3°30'	16.35	22	7	1
20	10	10	5°30'	20.70	29	9	2
50	12	38	5°	51.40	77	27	4.5
50	16	34	7°	52.90	69	19	6.5
63	12	51	4°	64.30	103	40	4.5
63	16	47	5°36'	66.20	95	32	6.5
80	12	68	3°	85.80	137	57	4.5
80	16	64	4°30'	82.50	129	49	6.5
100	16	84	3°24'	100.90	169	69	6
125	16	109	2°30'	137.40	219	90	6
160	16	144	1°30'	171.80	289	130	6



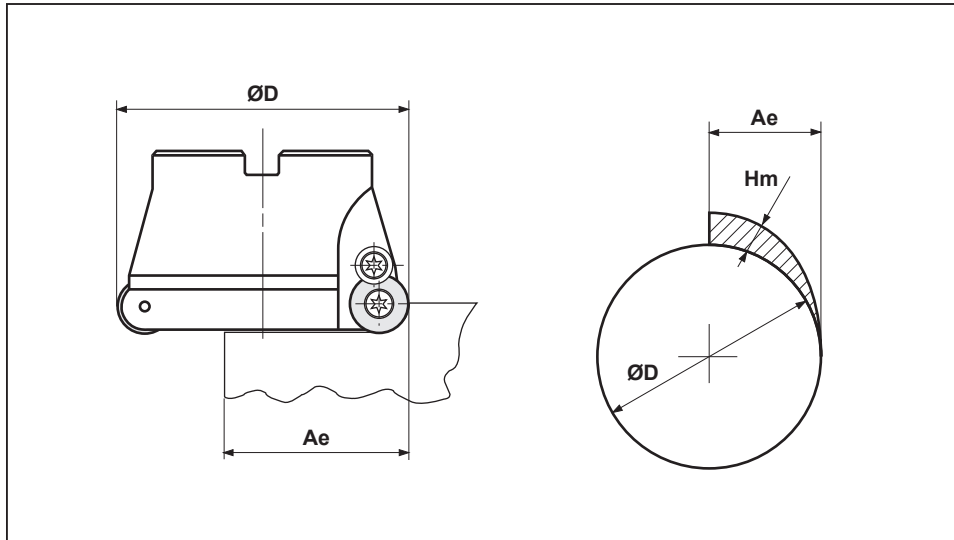
METRIC

Diemaster

CUTTING CONDITION ADJUSTMENTS

1. Shoulder cutting adjustments.

When shoulder cutting where “Ae” is below half the tool diameter, increase feed rate to keep chip thickness “Hm” consistent.



Apply corrected feed rate below to standard cutting condition table.

Ae / D %	100%	50%	25%	15%	10%	5%	2%
Additional Feed Rate	1X	1.5X	2X	2.5X	3X	4.5X	7X

2. Longer tool adjustments.

TOOL DIAMETER D (mm)	OVERHUNG LENGTH L (mm)	SPINDLE SPEED (%)		FEED SPEED (%)		L / D
		STEEL	CAST IRON	STEEL	CAST IRON	
12	40	100	100	100	100	3.3
	60	75	80	75	100	5.0
	80	60	70	65	75	6.6
15	40	100	100	100	100	2.6
	60	100	100	100	100	4.0
	80	70	75	80	90	5.3
	100	65	70	75	80	6.6
	120	60	60	60	65	8.0
20	40	100	100	100	100	2.0
	60	100	100	100	100	3.0
	80	100	100	100	100	4.0
	100	75	85	90	75	5.0
	120	70	80	75	75	6.0



Copy Milling



Pocket Milling



Face Milling



Helical Interpolation



Plunge Milling

BackDraft

High Productivity Radius Endmill

Predominantly for cavity milling and profile milling.

DIJET's BackDraft end mills are primarily used for profile and contour milling but can be used on other general machining applications. These end mills come in various sizes in taper reach, straight reach, and also EC styles are available.





BackDraft

METRIC

END MILL & FACE MILL STYLE DBD type



Entering Angle : -3°	A.R. : +5°
	R.R. : -3°
Max. D.O.C.	0.3

Fig. 1

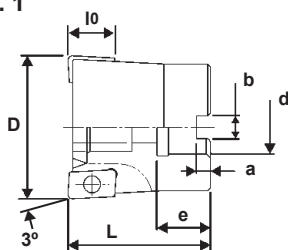


Fig. 2 (with coolant)

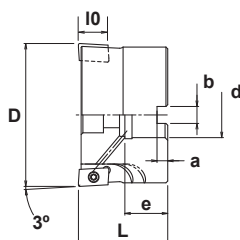
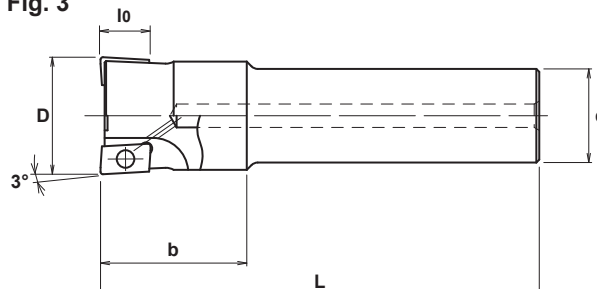


Fig. 3

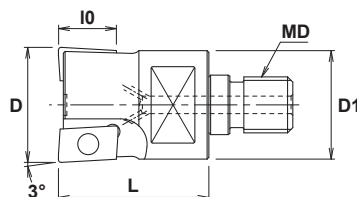


Specifications

CATALOG NUMBER	STK	DIMENSIONS							FIG.	INSERT	Q	PARTS	
		D	L	I0	d	a / I1	b	e				Screw	Wrench
DBD-4050R	■	50	50	16	22.225	5	8.4	20	1	DBD-170408	4	DSW-4085	A-15T
DBD-4050R-22	•	50	50	16	22	6.3	10.4	20	1	DBD-170408	4		
DBD-5063R	■	63	50	16	22.225	5	8.4	20	1	DBD-170408	5		
DBD-5063R-22	•	63	50	16	22	6.3	10.4	20	1	DBD-170408	5		
DBD-5063R-27	•	63	50	16	27	7	12.4	22	1	DBD-170408	5		
DBD-6080R	■	80	63	16	31.75	8	12.7	32	2	DBD-170408	6		
DBD-6080R-25.4	■	80	50	16	25.4	6	9.5	24	2	DBD-170408	6		
DBD-6080R-27	•	80	50	16	27	7	12.4	22	2	DBD-170408	6		
DBD-3040-50-S32	•	40	150	16	32	-	50	-	3	DBD-170408	3		
DBD-3040-50L-S32	•	40	250	16	32	-	50	-	3	DBD-170408	3		

Note: All cutters are supplied without inserts.

MODULAR HEADS 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	DBD-170408	1	DSW-4075	A-15
MDB-2025-M12	•	25	35	16	23	M12	20	DBD-170408	2		
MDB-2026-M12	•	26	35	16	24	M12	20	DBD-170408	2		
MDB-2032-M16	•	32	43	16	30	M16	25	DBD-170408	2	DSW-4085	
MDB-2033-M16	•	33	43	16	31	M16	25	DBD-170408	2		
MDB-3040-M16	•	40	43	16	32	M16	25	DBD-170408	3		

Note: All cutters are supplied without inserts.



METRIC

BackDraft

INSERTS



Fig. 1

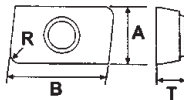


Fig. 2

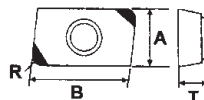
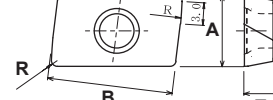


Fig. 3



Specifications

CATALOG NUMBER	DIMENSIONS				FIG.	STOCK				
						CBN		COATED		CERMET
	A	B	T	R		JBN330	JC8015	JC8003	CX75	CX90
DBD-170408	9.525	16.669	4.762	0.8	1		•			•
DBD-170408	9.525	16.669	4.762	0.8	2	•				
DBD-170408-30	9.525	16.669	4.762	0.8	3			•	■	

MODULAR HEAD HOLDER

(carbide with coolant hole)

MSN Type



Fig.1

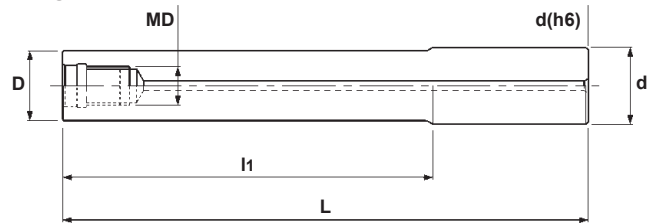
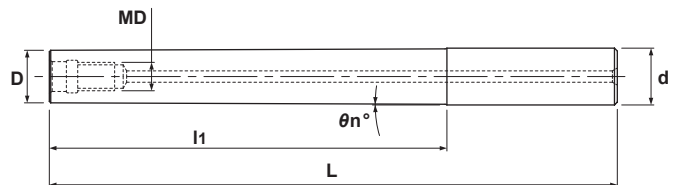


Fig. 2



Specifications

CATALOG NUMBER	STK	DIMENSIONS						FIG.	APPLICABLE HOLDERS
		D	l1	L	d	θn°	MD		
MSN-M10-20-S20C	•	19.5	20	80	20	-	M10	1	MDB-1020-M10
MSN-M10-40-S20C	•	19.5	40	100	20	-	M10	1	
MSN-M10-40T-S20C	•	19.5	40	100	20	0°29'	M10	2	
MSN-M10-70-S20C	•	19.5	70	130	20	-	M10	1	
MSN-M10-90-S20C	•	19.5	90	150	20	-	M10	1	
MSN-M10-90T-S20C	•	19.5	90	150	20	0°17'	M10	2	
MSN-M10-140-S20C	•	19.5	140	200	20	-	M10	1	
MSN-M10-140T-S20C	•	19.5	140	200	20	0°12'	M10	2	
MSN-M12-25-S25C	•	24	25	90	25	-	M12	1	MDB-2025-M12, MDB-2026-M12
MSN-M12-55-S25C	•	24	55	120	25	-	M12	1	
MSN-M12-105-S25C	•	24	105	170	25	-	M12	1	
MSN-M12-155-S25C	•	24	155	220	25	-	M12	1	

Note: See pages A-175 thru A-177 for weights and coolant hole sizes.

NOTES ON MOUNTING HEADS:

Clean the contact surface of head and carbide holder. After tightening, confirm that there is no gap between head and holder.



BackDraft

METRIC

MODULAR HEAD HOLDER

(carbide with coolant hole)

MSN Type


Fig. 1

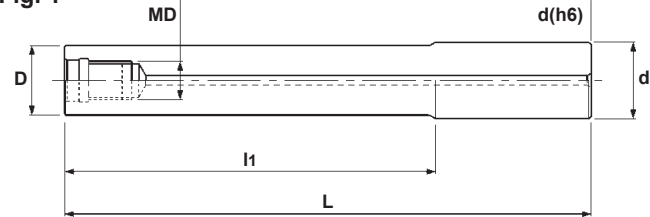
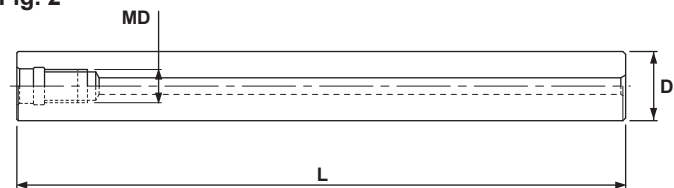


Fig. 2



Specifications

CATALOG NUMBER	STK	DIMENSIONS					FIG.	APPLICABLE HOLDERS
		D	L1	L	d	MD		
MSN-M16-25-S32C	•	29	25	90	32	M16	1	MDB-2032-M16, MDB-2033-M16, MDB-3040-M16
MSN-M16-55-S32C	•	29	55	120	32	M16		
MSN-M16-105-S32C	•	29	105	170	32	M16		
MSN-M16-155-S32C	•	29	155	220	32	M16		
MSN-M16-195-S32C	•	29	195	260	32	M16		
MSN-M16-225-S32C	•	29	225	290	32	M16		
MSN-M16-245-S32C	•	29	245	310	32	M16		
MSN-M16-295-S32C	■	29	295	360	32	M16		

Specifications - Straight

CATALOG NUMBER	STK	DIMENSIONS			FIG.	APPLICABLE HOLDERS
		D	L	MD		
MSN-M10-130S-S18C	•	18	130	M10	2	MDB-1020-M10
MSN-M10-190S-S18C	•	18	190	M10		
MSN-M10-130S-S20C	•	20	130	M10		
MSN-M10-190S-S20C	•	20	190	M10		
MSNM-10-250S-S20C	•	20	250	M10		
MSN-M12-185S-S23C	•	23	185	M12	2	MDB-2025-M12, MDB-2026-M12
MSN-M12-265S-S23C	•	23	265	M12		
MSN-M12-145S-S25C	•	25	145	M12		
MSN-M12-215S-S25C	•	25	215	M12		
MSN-M12-285S-S25C	•	25	285	M12	2	MDB-2032-M16, MDB-2033-M16, MDB-3040-M16
MSN-M16-160S-S28C	•	28	160	M16		
MSN-M16-230S-S28C	•	28	230	M16		
MSN-M16-310S-S28C	•	28	310	M16		
MSN-M16-157S-S32C	•	32	157	M16		
MSN-M16-217S-S32C	•	32	217	M16		
MSN-M16-287S-S32C	•	32	287	M16		
MSN-M16-357S-S32C	•	32	357	M16		



METRIC

BackDraft

Recommended Cutting Data for Carbide

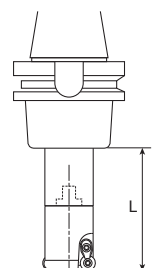
Work Materials	Insert Grade Standard	Insert Grade Better Surface Finish	Tool Diameter															
			40mm (3N)				50mm (4N)				63mm (5N)				80mm (6N)			
			L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)
Carbon Steel (C50, C55) Below 250HB	CX90 (JC8015)	CX75 (JC8003)	60	0.3	1,890	1,410	100	0.3	1,520	1,520	100	0.3	1,220	1,520	100	0.3	960	1,200
			100	0.3	1,890	1,410	150	0.3	1,520	1,520	150	0.3	1,220	1,520	150	0.3	960	1,200
			150	0.2	1,510	1,130	200	0.2	1,220	1,220	200	0.2	980	1,220	200	0.2	770	960
Mold Steel (1.2311, P20) 30-43HRC	JC8015 (above 40HRC) (CX90)	JC8003 (above 40HRC) (CX75)	60	0.3	1,350	1,000	100	0.3	1,080	1,080	100	0.3	860	1,070	100	0.3	680	850
			100	0.3	1,350	1,000	150	0.3	1,080	1,080	150	0.3	860	1,070	150	0.3	680	850
			150	0.2	1,080	800	200	0.2	870	870	200	0.2	690	860	200	0.2	540	680
Die Steel (1.2344, 1.2379) Below 255HB	JC8015 (CX90)	JC8003 (CX75)	60	0.3	1,350	1,000	100	0.3	1,080	1,080	100	0.3	860	1,070	100	0.3	680	850
			100	0.3	1,350	1,000	150	0.3	1,080	1,080	150	0.3	860	1,070	150	0.3	680	850
			150	0.2	1,080	800	200	0.2	870	870	200	0.2	690	860	200	0.2	540	680
Stainless Steel (SUS304) Below 250HB	JC8015 (CX90)	JC8003 (CX75)	60	0.3	1,350	1,000	100	0.3	1,080	1,080	100	0.3	860	1,070	100	0.3	680	850
			100	0.3	1,350	1,000	150	0.3	1,080	1,080	150	0.3	860	1,070	150	0.3	680	850
			150	0.2	1,080	800	200	0.2	870	870	200	0.2	690	860	200	0.2	540	680
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC8015	JC8003	60	0.3	1,430	1,000	100	0.3	1,150	1,150	100	0.3	910	1,140	100	0.3	720	900
			100	0.3	1,430	1,000	150	0.3	1,150	1,150	150	0.3	910	1,140	150	0.3	720	900
			150	0.2	1,140	800	200	0.2	920	920	200	0.2	730	910	200	0.2	580	730

Recommended Cutting Data for CBN

Work Materials	Insert Grade	Tool Diameter															
		40mm (3N)				50mm (4N)				63mm (5N)				80mm (6N)			
		L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)
Die Steel (SKD61, SDK11) 40-50HRC	JBN330	60	0.1	1,350	500	100	0.1	1,080	520	100	0.1	860	510	100	0.1	680	490
		100	0.1	1,350	500	150	0.1	1,080	520	150	0.1	860	510	150	0.1	680	490
		150	0.1	1,080	400	200	0.1	870	420	200	0.1	690	410	200	0.1	540	390
Mold Steel (1.2311, P20) 30-43HRC	JBN330	60	0.1	3,980	1,430	100	0.1	3,180	1,530	100	0.1	2,520	1,510	100	0.1	1,990	1,430
		100	0.1	3,980	1,430	150	0.1	3,180	1,530	150	0.1	2,520	1,510	150	0.1	1,990	1,430
		150	0.1	3,180	1,140	200	0.1	2,540	1,230	200	0.1	2,020	1,200	200	0.1	1,590	1,140
Die Steel (1.2344, 1.2379) Below 255HB	JBN330	60	0.1	3,980	1,430	100	0.1	3,180	1,530	100	0.1	2,520	1,510	100	0.1	1,990	1,430
		100	0.1	3,980	1,430	150	0.1	3,180	1,530	150	0.1	2,520	1,510	150	0.1	1,990	1,430
		150	0.1	3,180	1,140	200	0.1	2,540	1,230	200	0.1	2,020	1,200	200	0.1	1,590	1,140
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JBN330	60	0.2	7,950	2,850	100	0.2	6,360	3,050	100	0.2	5,050	3,030	100	0.2	3,980	2,860
		100	0.2	7,950	2,850	150	0.2	6,360	3,050	150	0.2	5,050	3,030	150	0.2	3,980	2,860
		150	0.2	6,360	2,280	200	0.2	5,090	2,440	200	0.2	4,040	2,420	200	0.2	3,180	2,290

L=Overhung length, Ap=Depth of Cut, N=Spindle speed, Vf=Feed speed

- NOTE:
- Speeds and Feeds should be adjusted according to the machine and work rigidity.
 - If chattering occurs, reduce the Ap or N by 30% and keep the feed per tooth the same.
 - If machine does not have enough power, reduce the depth of cut Ap or Spindle speed and Feed speed.
 - Use air thru.





BackDraft

METRIC

CUTTING DATA

Table 1. Recommended Cutting Data for Carbide with MDB and MSN

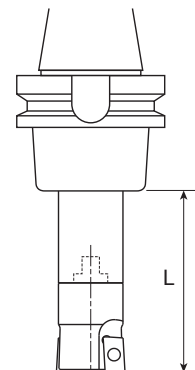
Work Materials	Insert Grade Standard	Insert Grade Better Surface Finish	Tool Diameter															
			20				25 / 26				32 / 33				40			
			No. of teeth: 1				No. of teeth: 2				No. of teeth: 2				No. of teeth: 3			
			L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)
Carbon Steel (C50, C55) Below 250HB	CX90 (JC8015)	CX75 (JC8003)	70	0.3	3,700	940	70	0.3	3,030	1,510	70	0.3	2,360	1,180	90	0.3	1,890	1,410
			120	0.3	3,780	940	120	0.3	3,030	1,510	120	0.3	2,360	1,180	140	0.3	1,890	1,410
			160	0.2	3,020	750	160	0.2	2,420	1,200	190	0.2	1,890	940	210	0.2	1,510	1,130
Mold Steel (1.2311, P20) 30-43HRC	JC8015 (above 40HRC) (CX90)	JC8003 (above 40HRC) (CX75)	70	0.3	2,700	670	70	0.3	2,160	1,080	70	0.3	1,690	840	90	0.3	1,350	1,000
			120	0.3	2,700	670	120	0.3	2,160	1,080	120	0.3	1,690	840	140	0.3	1,350	1,000
			160	0.2	2,160	540	160	0.2	1,730	860	190	0.2	1,350	670	210	0.2	1,080	800
Die Steel (1.2344, 1.2379) Below 255HB	JC8015 (CX90)	JC8003 (CX75)	70	0.3	2,700	670	70	0.3	2,160	1,080	70	0.3	1,690	840	90	0.3	1,350	1,000
			120	0.3	2,700	670	120	0.3	2,160	1,080	120	0.3	1,690	840	140	0.3	1,350	1,000
			160	0.2	2,160	540	160	0.2	1,730	860	190	0.2	1,350	670	210	0.2	1,080	800
Stainless Steel (SUS304) Below 250HB	JC8015 (CX90)	JC8003 (CX75)	70	0.3	2,700	670	70	0.3	2,160	1,080	70	0.3	1,690	840	90	0.3	1,350	1,000
			120	0.3	2,700	670	120	0.3	2,160	1,080	120	0.3	1,690	840	140	0.3	1,350	1,000
			160	0.2	2,160	540	160	0.2	1,730	860	190	0.2	1,350	670	210	0.2	1,080	800
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC8015	JC8003	70	1.0	2,860	710	70	1.0	2,290	1,140	70	1.0	1,790	890	90	1.0	1,430	1,070
			120	0.8	2,860	710	120	0.8	2,290	1,140	120	0.8	1,790	890	140	0.8	1,430	1,070
			160	0.8	2,280	570	160	0.8	1,830	910	190	0.8	1,430	710	210	0.8	1,140	860

Table 2. Recommended H.S.C. Cutting Data for Carbide with MDB and MSN

Work Materials	Insert Grade Standard	Insert Grade Better Surface Finish	Tool Diameter															
			20				25 / 26				32 / 33				40			
			No. of teeth: 1				No. of teeth: 2				No. of teeth: 2				No. of teeth: 3			
			L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)
Carbon Steel (C50, C55) Below 250HB	CX90 (JC8015)	CX75 (JC8003)	70	0.2	4,770	1,190	70	0.2	3,820	1,910	70	0.2	2,980	1,490	90	0.2	2,390	1,790
			120	0.2	4,770	1,190	120	0.2	3,820	1,910	120	0.2	2,980	1,490	140	0.2	2,390	1,790
			160	0.1	3,810	950	160	0.1	3,060	1,530	190	0.1	2,390	1,190	210	0.1	1,910	1,430
Mold Steel (1.2311, P20) 30-43HRC	JC8015 (above 40HRC) (CX90)	JC8003 (above 40HRC) (CX75)	70	0.2	3,980	990	70	0.2	3,180	1,590	70	0.2	2,490	1,250	90	0.2	1,990	1,490
			120	0.2	3,980	990	120	0.2	3,180	1,590	120	0.2	2,490	1,250	140	0.2	1,990	1,490
			160	0.1	3,180	790	160	0.1	2,550	1,280	190	0.1	1,990	1,000	210	0.1	1,590	1,190
Die Steel (1.2344, 1.2379) Below 255HB	JC8015 (CX90)	JC8003 (CX75)	70	0.2	3,980	990	70	0.2	3,180	1,590	70	0.2	2,490	1,250	90	0.2	1,990	1,490
			120	0.2	3,980	990	120	0.2	3,180	1,590	120	0.2	2,490	1,250	140	0.2	1,990	1,490
			160	0.1	3,180	790	160	0.1	2,550	1,280	190	0.1	1,990	1,000	210	0.1	1,590	1,190
Stainless Steel (SUS304) Below 250HB	JC8015 (CX90)	JC8003 (CX75)	70	0.2	3,980	990	70	0.2	3,180	1,590	70	0.2	2,490	1,250	90	0.2	1,990	1,490
			120	0.2	3,980	990	120	0.2	3,180	1,590	120	0.2	2,490	1,250	140	0.2	1,990	1,490
			160	0.1	3,180	790	160	0.1	2,550	1,280	190	0.1	1,990	1,000	210	0.1	1,590	1,190
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC8015	JC8003	70	0.2	4,450	1,100	70	0.2	3,560	1,780	70	0.2	2,790	1,100	90	0.2	2,230	1,670
			120	0.2	4,450	1,100	120	0.2	3,560	1,780	120	0.2	2,790	1,100	140	0.2	2,230	1,670
			160	0.2	3,560	890	160	0.2	2,850	1,430	190	0.2	2,230	880	210	0.2	1,780	1,340

L=Overhung length, Ap=Depth of Cut, N=Spindle speed, Vf=Feed speed

- NOTE:**
1. Speeds and Feeds should be adjusted according to the machine and work rigidity.
 2. If chattering occurs, reduce the Ap or N by 30% and keep the feed per tooth the same.
 3. If machine does not have enough power, reduce the depth of cut Ap or Spindle speed and Feed speed.
 4. Use air thru.





METRIC

BackDraft

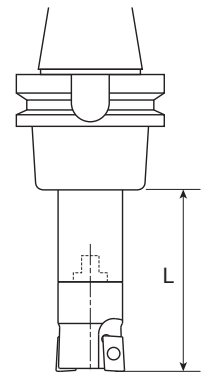
CUTTING DATA

Table 3. Recommended Cutting Data for CBN with MDB and MSN

Work Materials	Insert Grade	Tool Diameter															
		20				25 / 26				32 / 33				40			
		No. of teeth: 1				No. of teeth: 2				No. of teeth: 2				No. of teeth: 3			
		L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	Vf (mm/min)
Hardened Steel (1.2344, 1.2379) 40-50HRC	JBN330	70	0.1	2,700	320	70	0.1	2,160	520	70	0.1	1,690	410	90	0.1	1,350	500
		120	0.1	2,700	320	120	0.1	2,160	520	120	0.1	1,690	410	140	0.1	1,350	500
		160	0.1	2,160	260	160	0.1	1,730	410	190	0.1	1,350	330	210	0.1	1,080	400
Mold Steel (1.2311, P20) 30-43HRC	JBN330	70	0.1	8,000	960	70	0.1	6,370	1,530	70	0.1	4,970	1,200	90	0.1	3,980	960
		120	0.1	8,000	960	120	0.1	6,370	1,530	120	0.1	4,970	1,200	140	0.1	3,980	960
		160	0.1	6,400	760	160	0.1	5,100	1,230	190	0.1	3,980	960	210	0.1	3,180	770
Die Steel (1.2344, 1.2379) Below 255HB	JBN330	70	0.1	8,000	960	70	0.1	6,370	1,530	70	0.1	4,970	1,200	90	0.1	3,980	960
		120	0.1	8,000	960	120	0.1	6,370	1,530	120	0.1	4,970	1,200	140	0.1	3,980	960
		160	0.1	6,400	760	160	0.1	5,100	1,230	190	0.1	3,980	960	210	0.1	3,180	770
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JBN330	70	0.2	15,000	1,800	70	0.2	12,000	2,880	70	0.2	9,900	2,370	90	0.2	7,950	2,850
		120	0.2	15,000	1,800	120	0.2	12,000	2,880	120	0.2	9,900	2,370	140	0.2	7,950	2,850
		160	0.2	12,000	1,440	160	0.2	9,600	2,300	190	0.2	7,920	1,900	210	0.2	6,360	2,280

L=Overhung length, Ap=Depth of Cut, N=Spindle speed, Vf=Feed speed

- NOTE:**
1. Speeds and Feeds should be adjusted according to the machine and work rigidity.
 2. If chattering occurs, reduce the Ap or N by 30% and keep the feed per tooth the same.
 3. If machine does not have enough power, reduce the depth of cut Ap or Spindle speed and Feed speed.
 4. Use air thru.



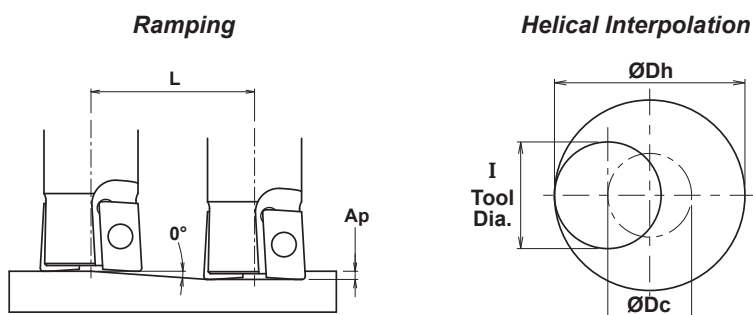
Notes



BackDraft

METRIC

HELICAL INTERPOLATION CUTTING DATA



- Calculation of tool pass dia.

$$\text{ØDc} = \text{ØDh} - I$$

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 I	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION		MAXIMUM DRILLING DEPTH: Z
			MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX AP: L	MIN. BORE DIAMETER: Dh min	MAX. BORE DIAMETER: Dh min	
20	18	0.4	2°	11.5	25	37	0.3
25	23	0.4	1°30'	15.3	34	47	0.3
26	24	0.4	1°30'	15.3	36	49	0.3
32	30	0.4	1°	22.9	48	61	0.3
33	31	0.4	1°	22.9	50	63	0.3
40	38	0.4	0°45'	30.5	64	77	0.3
50	48	0.4	0°30'	45.8	82	97	0.3
63	61	0.4	0°25'	55.1	110	123	0.3
80	78	0.4	0°20'	68.8	114	157	0.3



Face Milling



Shoulder Milling



Slotting

Side-Chipper

Corner Cutting Indexable Endmill

Features

Super-End Chipper inserts can be used with Side-Chipper bodies. 3D insert geometry gives low cutting forces and excellent chip ejection for high productivity.





Side Chipper

METRIC

END MILL STYLE
SIC type



Fig. 1

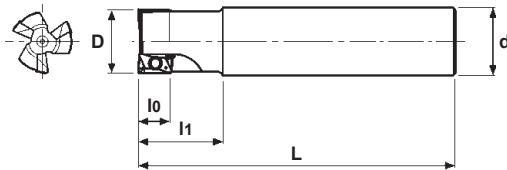
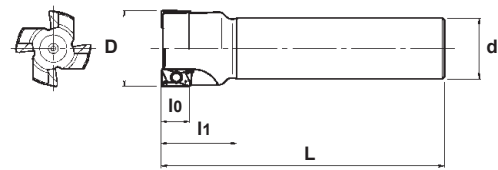


Fig. 2



Specifications

CATALOG NUMBER	STK	DIMENSIONS					FIG.	INSERT	Q	PARTS	
		D	L	lo	l1	d				Screw	Wrench
SICM1610S16-2N	•	16	100	10	25	16	1	ZCMT1003..R	2	ESW-206	A-08SD
SICL1610S16-2N	•	16	150	10	25	16	1		2		
SICM2010S20-3N	•	20	110	10	25	20	1	ZCMT1003..R	3	ESW-206	A-08SD
SICL2010S20-2N	•	20	180	10	40	20	1		2		
SICL2010S20-3N	•	20	180	10	40	20	1		3		
SICM2510S25-4N	•	25	120	10	32	25	1	ZCMT1003..R	4	ESW-206	A-08SD
SICM2513S25-3N	•	25	120	13	32	25	1	ZPMT13T3..R	3	DSW-307	A-10
SICL2513S25-2N	•	25	210	13	35	25	1		2		
SICL2513S25-3N	•	25	210	13	35	25	1		3		
SICM3016S32-3N	•	30	150	15	40	32	1	ZPMT1604..R	3	TSW-408	A-15
SICL3016S25-3N	•	30	250	15	65	25	2		3		
SICM3210S32-5N	•	32	150	10	40	32	1	ZCMT1003..R	5	ESW-206	A-08SD
SICM3216S32-3N	•	32	150	15	40	32	1	ZPMT1604..R	3	TSW-408	A-15
SICL3216S32-2N	•	32	250	15	65	32	1		2		
SICL3216S32-3N	•	32	250	15	65	32	1		3		
SICM4010S32-6N	•	40	150	10	40	32	2	ZCMT1003..R	6	ESW-206	A-08SD
SICM4016S32-4N	•	40	150	15	40	32	2	ZPMT1604..R	4	TSW-408	A-15
SICL4016S32-4N	•	40	250	15	65	32	2		4		
SICM5010S32-7N	•	50	150	10	40	32	2	ZCMT1003..R	7	ESW-206	A-08SD
SICM5016S32-5N	•	50	150	15	40	32	2	ZPMT1604..R	5	TSW-408	A-15
SICL5015S42-5N	•	50	250	15	65	42	2		5		

Note: All cutters are supplied without inserts.



METRIC

Side Chipper

FACE MILLS
SIC type



Entering Angle : 90°	A.R. : +4°
	R.R. : -1° - 4°
Max. D.O.C.	15

Fig. 1

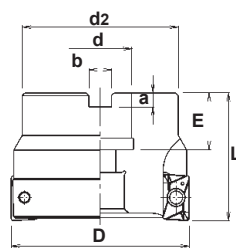
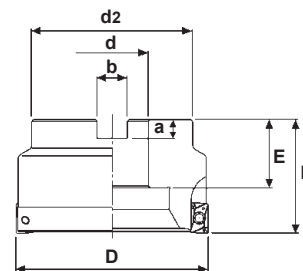


Fig. 2



Specifications

CATALOG NUMBER	STK	DIMENSIONS							FIG.	INSERT	Q	PARTS	
		D	L	d	d2	a	b	E				Screw	Wrench
SIC-4050R	■	50	45	22.225	45	5	8	20	1	ZPMT1604..R	4	TSW-408	A-15T
SIC-4050R-22	•	50	45	22	45	6.3	10.4	20	1		4		
SIC-5063R	■	63	45	22.225	45	5	8	20	1		5		
SIC-5063R-22	•	63	45	22	55	3.3	10.4	20	1		5		
SIC-6080R	■	80	44	25.4	60	6	9.5	24	1		6		
SIC-6080R-27	•	80	50	27	60	7	12.4	22	2		6		
SIC-8100R	■	100	50	31.75	70	8	12.7	32	2		8		
SIC-8100R-32	•	100	50	32	70	8	14.4	32	2		8		
SIC-8125R	■	125	63	38.1	85	10	15.9	36	2		8		
SIC-8125R-40	•	125	63	40	85	9	16.4	35	2		8		

Note: All cutters are supplied without inserts.

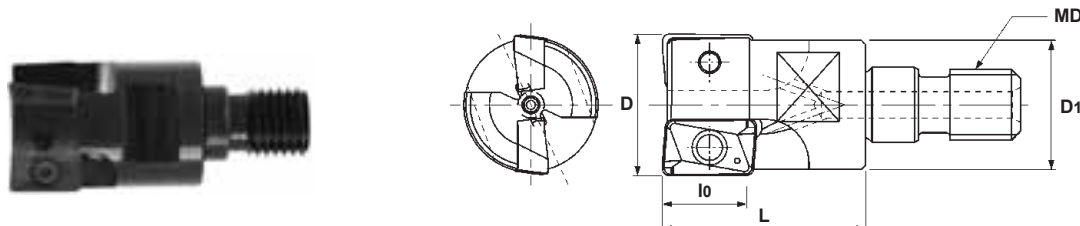


Side Chipper

METRIC

MODULAR HEADS

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-307H	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-307H	A-10SD
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-307H	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-307H	A-10

Note: All cutters are supplied without inserts.



METRIC

Side Chipper

MODULAR HEAD HOLDER

(carbide with coolant hole)

MSN Type



Fig. 1

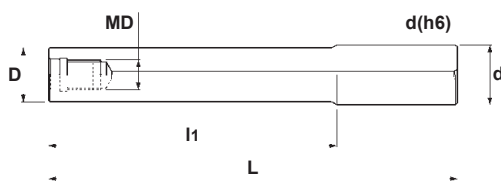
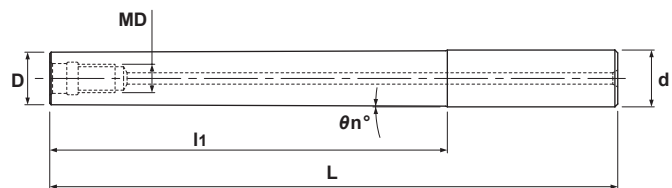


Fig. 2



Specifications

CATALOG NUMBER	STK	DIMENSIONS						FIG.	APPLICABLE HOLDERS
		D	l1	L	d	θ_n°	MD		
MSN-M8-20-S16C	•	15.5	20	75	16	-	M8	1	MIC-2016-M8, MIC-2018-M8
MSN-M8-40-S16C	•	15.5	40	95	16	-	M8	1	
MSN-M8-80-S16C	•	15.5	80	135	16	-	M8	1	
MSN-M8-120-S16C	•	15.5	120	175	16	-	M8	1	
MSN-M10-20-S20C	•	19.5	20	80	20	-	M10	1	MIC-2020-M10, MIC-3020-M10, MIC-2022-M10, MIC-3022-M10
MSN-M10-40-S20C	•	19.5	40	100	20	-	M10	1	
MSN-M10-40T-S20C	•	19.5	40	100	20	0°29'	M10	2	
MSN-M10-70-S20C	•	19.5	70	130	20	-	M10	1	
MSN-M10-90-S20C	•	19.5	90	150	20	-	M10	1	
MSN-M10-90T-S20C	•	19.5	90	150	20	0°17'	M10	2	
MSN-M10-140-S20C	•	19.5	140	200	20	-	M10	1	MIC-2025-M12, MIC-3025-M12, MIC-2027-M12, MIC-3027-M12
MSN-M10-140T-S20C	•	19.5	140	200	20	0°12'	M10	2	
MSN-M12-25-S25C	•	24	25	90	25	-	M12	1	MIC-3030-M16, MIC-2032-M16, MIC-3032-M16, MIC-2035-M16, MIC-4040-M16, MIC-5040-M16
MSN-M12-55-S25C	•	24	55	120	25	-	M12	1	
MSN-M12-105-S25C	•	24	105	170	25	-	M12	1	
MSN-M12-155-S25C	•	24	155	220	25	-	M12	1	
MSN-M16-25-S32C	•	29	25	90	32	-	M16	1	MIC-3030-M16, MIC-2032-M16, MIC-3032-M16, MIC-2035-M16, MIC-4040-M16, MIC-5040-M16
MSN-M16-55-S32C	•	29	55	120	32	-	M16	1	
MSN-M16-105-S32C	•	29	105	170	32	-	M16	1	
MSN-M16-155-S32C	•	29	155	220	32	-	M16	1	
MSN-M16-195-S32C	•	29	195	260	32	-	M16	1	
MSN-M16-225-S32C	•	29	225	290	32	-	M16	1	
MSN-M16-245-S32C	•	29	245	310	32	-	M16	1	
MSN-M16-295-S32C	■	29	295	360	32	-	M16	1	

Note: See pages A-175 thru A-177 for weights and coolant hole sizes.

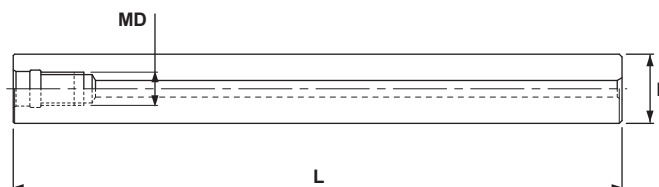


Side Chipper

METRIC


MODULAR HEAD HOLDER

(carbide with coolant hole)

MSN Type - Straight


Specifications

CATALOG NUMBER	STK	DIMENSIONS			APPLICABLE HOLDERS
		D	L	MD	
MSN-M8-97S-S15C	•	15	97	M8	MIC-2016-M8
MSN-M8-147S-S15C	•	15	147	M8	
MSN-M8-107S-S16C	•	16	107	M8	
MSN-M8-157S-S16C	•	16	157	M8	
MSN-M10-130S-S18C	•	18	130	M10	MIC-2020-M10, MIC-3020-M10, MIC-2022-M10, MIC-3022-M10
MSN-M10-190S-S18C	•	18	190	M10	
MSN-M10-130S-S20C	•	20	130	M10	
MSN-M10-190S-S20C	•	20	190	M10	
MSN-M10-250S-S20C	•	20	250	M10	
MSN-M12-185S-S23C	•	23	185	M12	MIC-2025-M12, MIC-3025-M12, MIC-2027-M12, MIC-3027-M12
MSN-M12-265S-S23C	•	23	265	M12	
MSN-M12-145S-S25C	•	25	145	M12	
MSN-M12-215S-S25C	•	25	215	M12	
MSN-M12-285S-S25C	•	25	285	M12	
MSN-M16-160S-S28C	•	28	160	M16	MIC-3030-M16, MIC-2032-M16, MIC-3032-M16, MIC-2035-M16, MIC-4040-M16, MIC-5040-M16
MSN-M16-230S-S28C	•	28	230	M16	
MSN-M16-310S-S28C	•	28	310	M16	
MSN-M16-157S-S32C	•	32	157	M16	
MSN-M16-217S-S32C	•	32	217	M16	
MSN-M16-287S-S32C	•	32	287	M16	
MSN-M16-357S-S32C	•	32	357	M16	

Note: See pages A-175 thru A-177 for weights and coolant hole sizes. See Page A-177 for  steel holder

NOTES ON MOUNTING HEADS:

Clean the contact surface of head and carbide holder. After tightening, confirm that there is no gap between head and holder.


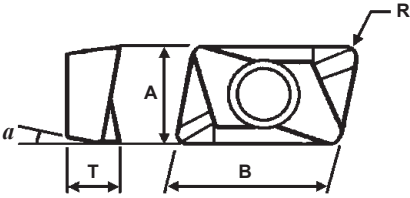


METRIC

Side Chipper


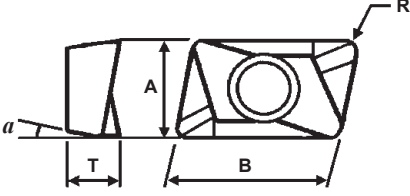
INSERTS

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.



Side Chipper

METRIC

Recommended Cutting Data for Shoulder Milling with SICM and 10 insert

Work Materials	Insert Grade	Parameter	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50
Carbon Steel (C50, C55) 150-280HB	JC5040	N (min ⁻¹)	2,990	2,390	1,910	1,500	1,200	960
		Vf (mm/min)	720	860	920	900	870	810
		Ap (mm) / Ae (mm)	3 / 5	3 / 6	3 / 8	3 / 10	3 / 12	3 / 15
Alloy Steel (1.7225) 150-280HB	JC5040	N (min ⁻¹)	2,990	2,390	1,910	1,500	1,200	960
		Vf (mm/min)	600	720	770	750	720	680
		Ap (mm) / Ae (mm)	3 / 5	3 / 6	3 / 8	3 / 10	3 / 12	3 / 15
Mold Steel (1.2311, P20) 280-400HB	JC5040	N (min ⁻¹)	2,390	1,910	1,530	1,200	960	770
	JC5015	Vf (mm/min)	480	580	620	600	580	540
	JC5015	Ap (mm) / Ae (mm)	2 / 5	2 / 6	2 / 8	2 / 10	2 / 12	2 / 15
Tool & Die Steel (1.2344, 1.2379) 150-255HB	JC5040	N (min ⁻¹)	2,390	1,910	1,530	1,200	960	770
		Vf (mm/min)	480	580	620	600	580	540
		Ap (mm) / Ae (mm)	2 / 5	2 / 6	2 / 8	2 / 10	2 / 12	2 / 15
Stainless Steel (1.4301, 1.4401) 150-250HB	JC5015	N (min ⁻¹)	2,190	1,750	1,400	1,100	880	700
	(JC5040)	Vf (mm/min)	440	530	560	550	530	490
	(JC5040)	Ap (mm) / Ae (mm)	2 / 5	2 / 6	2 / 8	2 / 10	2 / 12	2 / 15
Cast Iron (GG25, GG30) 160-260HB	JC5015	N (min ⁻¹)	3,190	2,250	2,040	1,600	1,280	1,020
	(JC5040)	Vf (mm/min)	900	1,070	1,140	1,120	1,080	1,000
	(JC5040)	Ap (mm) / Ae (mm)	3 / 5	3 / 6	3 / 8	3 / 10	3 / 12	3 / 15
Nodular Cast Iron (GGG60, GGG70) 170-300HB	JC5015 (JC5040)	N (min ⁻¹)	2,990	2,390	1,910	1,500	1,200	960
		Vf (mm/min)	720	860	920	900	870	810
		Ap (mm) / Ae (mm)	3 / 5	3 / 6	3 / 8	3 / 10	3 / 12	3 / 15
Aluminum Alloy 50-110HB	FZ15	N (min ⁻¹)	6,000	4,780	3,820	3,000	2,400	1,900
		Vf (mm/min)	1,800	2,150	2,300	2,250	2,000	1,900
		Ap (mm) / Ae (mm)	3 / 5	3 / 6	3 / 8	3 / 10	3 / 12	3 / 15

Recommended Cutting Data for Slotting with SICM and 10 insert

Work Materials	Insert Grade	Parameter	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50
Carbon Steel (C50, C55) 150-280HB	JC5040	N (min ⁻¹)	2,790	2,230	1,790	1,400	1,120	900
		Vf (mm/min)	560	670	720	700	680	630
		Ap (mm) / Ae (mm)	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3
Alloy Steel (1.7225) 150-280HB	JC5040	N (min ⁻¹)	2,790	2,230	1,790	1,400	1,120	900
		Vf (mm/min)	450	540	580	560	540	510
		Ap (mm) / Ae (mm)	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3
Mold Steel (1.2311, P20) 280-400HB	JC5040	N (min ⁻¹)	2,190	1,750	1,400	1,100	880	700
	JC5015	Vf (mm/min)	350	420	450	440	430	400
	JC5015	Ap (mm) / Ae (mm)	Up to 2	Up to 2	Up to 2	Up to 2	Up to 2	Up to 2
Tool & Die Steel (1.2344, 1.2379) 150-255HB	JC5040	N (min ⁻¹)	2,190	1,750	1,400	1,100	880	700
		Vf (mm/min)	350	420	450	440	430	400
		Ap (mm) / Ae (mm)	Up to 2	Up to 2	Up to 2	Up to 2	Up to 2	Up to 2
Stainless Steel (1.4301, 1.4401) 150-250HB	JC5015	N (min ⁻¹)	1,990	1,600	1,280	1,000	800	640
	(JC5040)	Vf (mm/min)	320	390	410	400	390	360
	(JC5040)	Ap (mm) / Ae (mm)	Up to 2	Up to 2	Up to 2	Up to 2	Up to 2	Up to 2
Cast Iron (GG25, GG30) 160-260HB	JC5015	N (min ⁻¹)	2,990	2,390	1,910	1,500	1,200	960
	(JC5040)	Vf (mm/min)	720	860	920	900	860	810
	(JC5040)	Ap (mm) / Ae (mm)	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3
Nodular Cast Iron (GGG60, GGG70) 170-300HB	JC5015 (JC5040)	N (min ⁻¹)	2,790	2,230	1,790	1,400	1,120	900
		Vf (mm/min)	560	670	720	700	680	630
		Ap (mm) / Ae (mm)	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3
Aluminum Alloy 50-110HB	FZ15	N (min ⁻¹)	6,000	4,780	3,820	3,000	2,400	1,900
		Vf (mm/min)	1,200	1,430	1,530	1,500	1,440	1,330
		Ap (mm) / Ae (mm)	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3

See notes on Page A-88

**METRIC****Side Chipper****Recommended Cutting Data for Shoulder Milling with SICM and 16 insert**

Work Materials	Insert Grade	Parameter	Ø30	Ø32	Ø40	Ø50
Carbon Steel (C50, C55) 150-280HB	JC5040	N (min ⁻¹)	1,600	1,500	1,200	960
		Vf (mm/min)	870	810	870	870
		Ap (mm) / Ae (mm)	5 / 9	5 / 10	5 / 12	5 / 15
Alloy Steel (1.7225) 150-280HB	JC5040	N (min ⁻¹)	1,600	1,500	1,200	960
		Vf (mm/min)	720	680	720	720
		Ap (mm) / Ae (mm)	5 / 9	5 / 10	5 / 12	5 / 15
Mold Steel (1.2311, P20) 280-400HB	JC5040	N (min ⁻¹)	1,280	1,200	960	770
	JC5015	Vf (mm/min)	580	540	580	580
		Ap (mm) / Ae (mm)	3 / 9	3 / 10	3 / 12	3 / 15
Tool & Die Steel (1.2344, 1.2379) 150-255HB	JC5040	N (min ⁻¹)	1,280	1,200	960	770
		Vf (mm/min)	580	540	580	580
		Ap (mm) / Ae (mm)	3 / 9	3 / 10	3 / 12	3 / 15
Stainless Steel (1.4301, 1.4401) 150-250HB	JC5015	N (min ⁻¹)	1,170	1,100	800	700
	(JC5040)	Vf (mm/min)	530	500	480	530
		Ap (mm) / Ae (mm)	3 / 9	3 / 10	3 / 12	3 / 15
Cast Iron (GG25, GG30) 160-260HB	JC5015	N (min ⁻¹)	1,700	1,600	1,280	1,020
	(JC5040)	Vf (mm/min)	1,020	960	1,020	1,020
		Ap (mm) / Ae (mm)	5 / 9	5 / 10	5 / 12	5 / 15
Nodular Cast Iron (GGG60, GGG70) 170-300HB	JC5015 (JC5040)	N (min ⁻¹)	1,600	1,500	1,200	960
		Vf (mm/min)	870	810	870	870
		Ap (mm) / Ae (mm)	5 / 9	5 / 10	5 / 12	5 / 15
Aluminum Alloy 50-110HB	FZ15	N (min ⁻¹)	3,200	3,000	2,400	1,900
		Vf (mm/min)	1,920	1,820	1,920	1,900
		Ap (mm) / Ae (mm)	5 / 9	5 / 10	5 / 12	5 / 15

Recommended Cutting Data for Slotting with SICM and 16 insert

Work Materials	Insert Grade	Parameter	Ø30	Ø32	Ø40	Ø50
Carbon Steel (C50, C55) 150-280HB	JC5040	N (min ⁻¹)	1,490	1,400	1,120	900
		Vf (mm/min)	670	630	680	680
		Ap (mm)	Up to 5	Up to 5	Up to 3	Up to 5
Alloy Steel (1.7225) 150-280HB	JC5040	N (min ⁻¹)	1,490	1,400	1,120	900
		Vf (mm/min)	540	510	540	540
		Ap (mm)	Up to 5	Up to 5	Up to 3	Up to 3
Mold Steel (1.2311, P20) 280-400HB	JC5040	N (min ⁻¹)	1,170	1,100	880	700
	JC5015	Vf (mm/min)	430	400	430	420
		Ap (mm)	Up to 3	Up to 3	Up to 2	Up to 3
Tool & Die Steel (1.2344, 1.2379) 150-255HB	JC5040	N (min ⁻¹)	1,170	1,100	880	700
		Vf (mm/min)	430	400	430	420
		Ap (mm)	Up to 3	Up to 3	Up to 2	Up to 3
Stainless Steel (1.4301, 1.4401) 150-250HB	JC5015	N (min ⁻¹)	1,070	1,000	800	640
	(JC5040)	Vf (mm/min)	390	360	390	390
		Ap (mm)	Up to 3	Up to 3	Up to 2	Up to 3
Cast Iron (GG25, GG30) 160-260HB	JC5015	N (min ⁻¹)	1,600	1,500	1,200	960
	(JC5040)	Vf (mm/min)	820	770	820	820
		Ap (mm)	Up to 5	Up to 5	Up to 3	Up to 5
Nodular Cast Iron (GGG60, GGG70) 170-300HB	JC5015 (JC5040)	N (min ⁻¹)	1,490	1,400	1,120	900
		Vf (mm/min)	670	630	680	680
		Ap (mm)	Up to 5	Up to 5	Up to 3	Up to 5
Aluminum Alloy 50-110HB	FZ15	N (min ⁻¹)	3,200	3,000	2,400	1,900
		Vf (mm/min)	1,440	1,350	1,440	1,430
		Ap (mm)	Up to 5	Up to 5	Up to 5	Up to 5

See notes on page A-88



Side Chipper

METRIC

Recommended Cutting Data for SICM2513 End Mill

Work Materials	Insert Grade	Parameter	Shoulder Cutting	Slotting
Carbon Steel (C50, C55) 150-280HB	JC5040	N (min ⁻¹)	1,910	1,790
		Vf (mm/min)	860	650
		Ap (mm) / Ae (mm)	4 / 8	Up to 4
Alloy Steel (1.7225) 150-280HB	JC5040	N (min ⁻¹)	1,910	1,790
		Vf (mm/min)	690	540
		Ap (mm) / Ae (mm)	4 / 8	Up to 4
Mold Steel (1.2311, P20) 280-400HB	JC5040	N (min ⁻¹)	1,530	1,400
	JC5015	Vf (mm/min)	560	420
	JC5015	Ap (mm) / Ae (mm)	2.5 / 8	Up to 2.5
Tool & Die Steel (1.2344, 1.2379) 150-255HB	JC5040	N (min ⁻¹)	1,530	1,400
		Vf (mm/min)	560	420
		Ap (mm) / Ae (mm)	2.5 / 8	Up to 2.5
Stainless Steel (1.4301, 1.4401) 150-250HB	JC5015	N (min ⁻¹)	1,400	1,280
	(JC5040)	Vf (mm/min)	510	390
	(JC5040)	Ap (mm) / Ae (mm)	2.5 / 8	Up to 2.5
Cast Iron (GG25, GG30) 160-260HB	JC5015	N (min ⁻¹)	2,070	1,910
	(JC5040)	Vf (mm/min)	1,400	580
	(JC5040)	Ap (mm) / Ae (mm)	4 / 8	Up to 4
Nodular Cast Iron (GGG60, GGG70) 170-300HB	JC5015	N (min ⁻¹)	1,910	1,790
	(JC5040)	Vf (mm/min)	860	650
	(JC5040)	Ap (mm) / Ae (mm)	4 / 8	Up to 4
Aluminum Alloy 50-110HB	FZ15	N (min ⁻¹)	2,800	3,820
		Vf (mm/min)	2,000	1,380
		Ap (mm) / Ae (mm)	4 / 8	Up to 4

NOTE: 1. N: Spindle speed (min-1), Vf: Feed speed (mm/min).

2. The figures should be adjusted according to the machine rigidity or work rigidity.

3. Apply 40-60% of the numbers above for long tools.

Recommended Cutting Data for SIC Face Mill type

Work Materials	Insert Grade	Cutting Speed Vc (m/min)	Feed f (mm/tooth)	Depth Ap (mm)	Step Ae (mm)
Carbon Steel (C50, C55)	JC5040	150 (80-200)	0.20 (0.1 - 0.25)	5	0.6D
Tool & Die Steel (1.2344, 1.2379)	JC5040	120 (80-200)	0.15 (0.1 - 0.20)	3	0.6D
Cast Iron (GG, GGG)	JC5015 JC5040	110 (80-200)	0.10 (0.05 - 0.15)	3	0.6D
Stainless Steel (ANSI 304 & 316)	JC5040 JC5015	150 (80-200)	0.20 (0.1 - 0.25)	5	0.6D
Aluminum Alloy 50-110HB	FZ15	300 (200-500)	0.20 (0.1 - 0.25)	5	0.6D

**METRIC**

Side Chipper

Recommended Cutting Data for MIC with MSN and 10 insert

Work Materials	Insert Grade	Tool Diameter (mm)											
		16 / 18				20				20 / 22			
		No. of Teeth 2N				No. of Teeth 2N				No. of Teeth 3N			
		L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)
Carbon Steel (C50, C55) Below 250HB	JC5040	70	0.6	3,580	2,150	70	0.7	2,860	1,300	70	0.7	2,860	1,860
		120	0.5	3,180	1,590	120	0.5	2,550	1,300	120	0.5	2,550	1,660
		160	0.3	2,980	1,490	190	0.2	2,390	1,100	190	0.2	2,390	1,550
Mold Steel (1.2311, P20) 30-43HRC	JC5040	70	0.6	3,180	1,600	70	0.7	2,550	1,050	70	0.7	2,550	1,530
	JC5015 (above 40HRC)	120	0.5	3,180	1,600	120	0.5	2,550	1,050	120	0.5	2,550	1,530
	160	0.3	2,980	1,490	190	0.2	2,390	990	190	0.2	2,390	1,530	
Die Steel (1.2344, 1.2379) Below 255HB	JC5040	70	0.6	3,180	1,600	70	0.7	2,550	1,050	70	0.7	2,550	1,530
		120	0.5	3,180	1,600	120	0.5	2,550	1,050	120	0.5	2,550	1,530
		160	0.3	2,980	1,490	190	0.2	2,390	990	190	0.2	2,390	1,530
Stainless Steel Below 250HB	JC5015	70	0.6	3,180	1,600	70	0.7	2,550	1,050	70	0.7	2,550	1,530
		120	0.5	2,980	1,490	120	0.5	2,390	990	120	0.5	2,390	1,400
		160	0.3	2,980	1,490	190	0.2	2,390	990	190	0.2	2,390	1,400
Hardened Die Steel (1.2344, 1.2379) 40-50HRC	JC5015	70	0.4	1,400	350	70	0.5	1,100	255	70	0.5	1,110	420
		120	0.3	1,200	300	120	0.3	950	220	120	0.3	950	330
		160	-	-	-	190	-	-	-	190	-	-	-
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC5015	70	0.6	2,980	1,800	70	0.7	2,400	1,320	70	0.7	2,400	1,680
		120	0.5	2,980	1,650	120	0.5	2,400	1,320	120	0.5	2,400	1,580
		160	0.3	2,500	1,380	190	0.2	2,070	1,130	190	0.2	2,070	1,400
Aluminum Alloy 50-110HB	FZ15	70	2.0	8,000	4,000	70	2.0	6,400	3,200	70	2.0	6,400	4,480
		120	1.5	8,000	3,600	120	1.5	6,400	3,200	120	1.5	6,400	4,160
		160	1.0	6,700	3,000	190	1.0	5,600	2,520	190	1.0	5,600	3,640

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

- NOTE:** 1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. In case of chatter occurring, recommend to reduce the depth of cut AP or Spindle speed and keep feed per tooth.
 3. In case of full slotting recommend to reduce the spindle speed N and feed speed F to 70% of above figures. But do not recommend full slotting if overhung length is over 150 mm, reduce the width of cut up to 1/2D.



Side Chipper

METRIC

Recommended Cutting Data for MIC with MSN and 13 insert

Work Materials	Insert Grade	Tool Diameter (mm)											
		22				25 / 27				40			
		No. of Teeth 2N				No. of Teeth 3N				No. of Teeth 5N			
		L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)
Carbon Steel (C50, C55) Below 250HB	JC5040	70	0.7	2,600	1,300	90	1.0	2,290	1,500	100	1.5	1,430	1,070
		120	0.5	2,600	1,300	140	0.6	2,290	1,500	150	1.0	1,430	1,070
		190	0.3	2,200	1,100	210	0.3	1,900	1,230	210	0.4	1,430	860
Mold Steel (1.2311, P20) 30-43HRC	JC5040	70	0.7	2,320	1,050	90	1.0	2,040	1,230	100	1.5	1,300	975
	JC5015 (above 40HRC)	120	0.5	2,320	1,050	140	0.6	2,040	1,230	150	1.0	1,300	975
	190	0.3	2,200	990	210	0.3	1,900	1,140	210	0.4	1,300	780	
Die Steel (1.2344, 1.2379) Below 255HB	JC5040	70	0.7	2,320	1,050	90	1.0	2,040	1,230	100	1.5	1,300	975
		120	0.5	2,320	1,050	140	0.6	2,040	1,230	150	1.0	1,300	975
		190	0.3	2,200	990	210	0.3	1,900	1,140	210	0.4	1,300	780
Stainless Steel Below 250HB	JC5015	70	0.7	2,320	1,050	90	1.0	2,040	1,230	100	1.5	1,300	975
		120	0.5	2,200	990	140	0.6	1,900	1,140	150	1.0	1,200	900
		190	0.3	2,200	990	210	0.3	1,900	1,140	210	0.4	1,200	720
Hardened Die Steel (1.2344, 1.2379) 40-50HRC	JC5015	70	0.5	1,010	255	90	0.7	890	340	100	0.8	560	330
		120	0.3	870	220	140	0.4	765	265	150	0.5	480	280
		190	-	-	-	210	-	-	-	210	0.3	480	280
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC5015	70	0.7	2,200	1,320	90	1.0	1,900	1,330	100	1.5	1,200	1,050
		120	0.5	2,200	1,320	140	0.6	1,900	1,250	150	1.0	1,200	1,050
		190	0.3	1,880	1,130	210	0.3	1,600	1,040	210	0.4	1,000	900
Aluminum Alloy 50-110HB	FZ15	70	2.0	5,800	2,900	90	2.0	5,100	3,570	100	3.0	3,200	2,800
		120	1.5	5,800	2,900	140	1.5	5,100	3,320	150	2.0	3,200	2,800
		190	1.0	5,000	2,500	210	1.0	4,300	2,800	210	1.5	2,700	2,400

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

- NOTE:**
1. The figure to be adjusted according to the machine rigidity or work rigidity.
 2. In case of chatter occurring, recommend to reduce the depth of cut AP or Spindle speed and keep feed per tooth.
 3. In case of full slotting recommend to reduce the spindle speed N and feed speed F to 70% of above figures. But do not recommend full slotting if overhung length is over 180 mm, reduce the width of cut up to 1/2D.



METRIC

Side Chipper

Recommended Cutting Data for MIC with MSN and 16 insert

Work Materials	Insert Grade	Tool Diameter (mm)															
		27				32 / 35				30 / 32				40			
		No. of Teeth 2N				No. of Teeth 2N				No. of Teeth 3N				No. of Teeth 4N			
		L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)	L (mm)	Ap (mm)	N (min ⁻¹)	F (mm/min)
Carbon Steel (C50, C55) Below 250HB	JC5040	90	1.0	2,120	1,070	100	1.5	1,790	900	100	1.5	1,790	1,070	100	1.5	1,430	1,000
		140	0.6	2,120	1,070	150	1.0	1,790	900	150	1.0	1,790	1,070	150	1.0	1,430	1,000
		210	0.3	1,770	890	210	0.6	1,490	745	210	0.5	1,490	970	210	0.4	1,430	720
Mold Steel (1.2311, P20) 30-43HRC	JC5040	90	1.0	1,890	850	100	1.5	1,600	720	100	1.5	1,600	860	100	1.5	1,300	780
	JC5015 (above 40HRC)	140	0.6	1,890	850	150	1.0	1,600	720	150	1.0	1,600	860	150	1.0	1,300	780
	210	0.3	1,770	800	210	0.6	1,490	670	210	0.5	1,490	870	210	0.4	1,300	590	
Die Steel (1.2344, 1.2379) Below 255HB	JC5040	90	1.0	1,890	850	100	1.5	1,600	720	100	1.5	1,600	860	100	1.5	1,300	780
		140	0.6	1,890	850	150	1.0	1,600	720	150	1.0	1,600	860	150	1.0	1,300	780
		210	0.3	1,770	800	210	0.6	1,490	670	210	0.5	1,490	870	210	0.4	1,300	590
Stainless Steel Below 250HB	JC5015	90	1.0	1,890	850	100	1.5	1,600	720	100	1.5	1,600	860	100	1.5	1,300	780
		140	0.6	1,770	800	150	1.0	1,490	670	150	1.0	1,490	870	150	1.0	1,200	720
		210	0.3	1,770	800	210	0.6	1,490	670	210	0.5	1,490	870	210	0.4	1,200	580
Hardened Die Steel (1.2344, 1.2379) 40-50HRC	JC5015	90	0.7	825	250	100	0.8	700	210	100	0.8	700	260	100	0.8	560	270
		140	0.4	710	210	150	0.5	600	180	150	0.5	600	225	150	0.5	480	230
		210	-	-	-	210	0.3	600	180	210	0.2	600	225	210	0.3	480	230
Gray & Nodular Cast Iron (GG, GGG) Below 300HB	JC5015	90	1.0	1,770	1,060	100	1.5	1,500	900	100	1.5	1,500	1,100	100	1.5	1,200	840
		140	0.6	1,770	1,060	150	1.0	1,500	900	150	1.0	1,500	1,100	150	1.0	1,200	840
		210	0.3	1,580	950	210	0.6	1,250	750	210	0.5	1,250	940	210	0.4	1,000	720
Aluminum Alloy 50-110HB	FZ15	90	2.5	5,100	2,550	100	3.0	4,000	2,000	100	3.0	4,000	2,800	100	3.0	3,200	2,240
		140	1.5	5,100	2,550	150	2.0	4,000	2,000	150	2.0	4,000	2,800	150	2.0	3,200	2,240
		210	1.0	4,300	2,150	210	1.5	3,350	1,500	210	1.5	3,350	2,200	210	1.5	2,700	1,760

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

- NOTE:**
- The figure to be adjusted according to the machine rigidity or work rigidity.
 - In case of chatter occurring, recommend to reduce the depth of cut AP or Spindle speed and keep feed per tooth.
 - In case of full slotting recommend to reduce the spindle speed N and feed speed F to 70% of above figures. But do not recommend full slotting if overhung length is over 180 mm, reduce the width of cut up to 1/2D.

