

PRODUCT NEWS

No. 321



High efficient machining tools Super Diemaster

HDM/SDH



- Face mill type: $\phi 50 \sim \phi 66 \dots 12$ items
- Face mill fine pitch type: $\phi 50 \sim \phi 80 \dots 14$ items
- Heads type: $\phi 20 \sim \phi 40 \dots 10$ items
- Heads fine pitch type: $\phi 20 \sim \phi 42 \dots 12$ items

NEW PRODUCT "G-Body"

Facemill type



G-Body

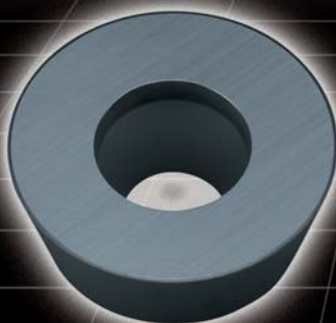


SDH Heads type

G-Body

TOUGH & SHARP

Insert



RDMW-MOT type

For Steel

Chamfer Honing



RDGT-MOT type

For Stainless Steel & Steel

Chamfer Honing



RDGT-MOE type

For Titanium & Inconel

R Honing



DIJET INDUSTRIAL CO., LTD.

Feature of product

High efficient machining tool with edge sharp

Increased the insert strength

Maximum 68% stronger than conventional Diemaster insert. In addition to conventional insert grades, adopted new tough grade "JC8050" against chipping for unfavorable conditions.

Double clamp system

Adopted double clamp system for deep cut applications.

Adopted positive axial rake

- R3.5 & R5 inserts → A.R.; +6°
- R6 & R8 inserts → A.R.; +8°

⇒ Reduced cutting forces 21% than conventional Diemaster.

Variation

Many kinds of modular heads are available with combination of carbide shank.



G-Body

Adopted GN surface-hardening treatment on thermal resistant high strength steel gives high hardness over 65HRC and secure insert pocket and holder against thermal deformation, improved body durability and tool life by 30% or more. Make it difficult to be damaged even under severe cutting conditions. Also rust-proof and anti-welding effect is much improved.

Insert strength comparison

	R3.5	R5	R6	R8
Diemaster	2.38	3.18	3.97	4.762
NEW Super Diemaster	2.7	4.1	4.8	6

**Increase
68%
Strenght**

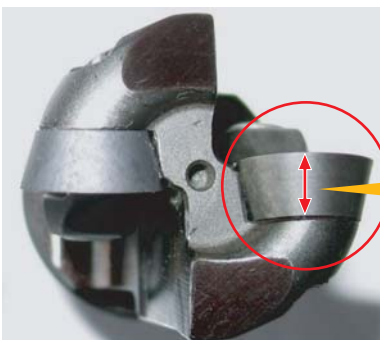
ness and strength



All tool has coolant holes from each pockets

● Insert Comparison

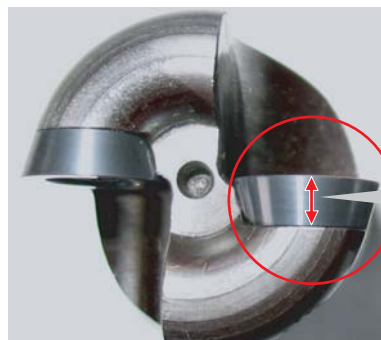
Super Diemaster



Insert thickness : 4.1

SDH-2250-R10-M12
RDMW1004MOT

Diemaster



Insert thickness : 3.18

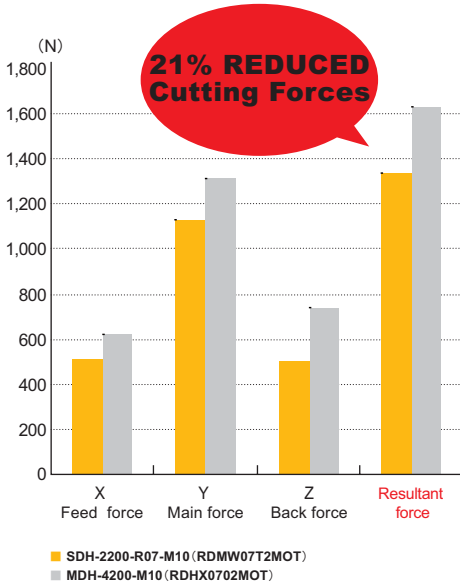
MDH-2250-M12
RDHX1003MOT

Cutting performance

● Cutting force comparison

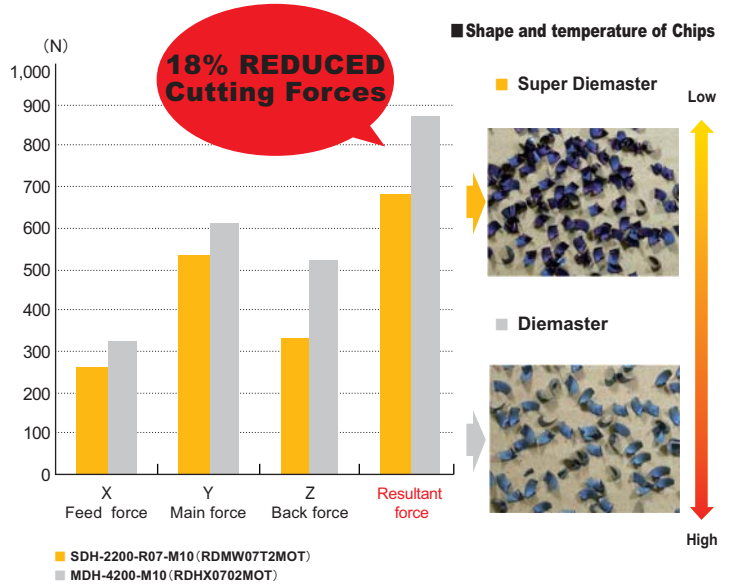
① General machining for hardened die steel

Tool dia.:20mm dia., Mat'l:1.2344 45HRC
 $V_c=91\text{m/min}$, $f_z=0.2\text{mm/t}$ $a_p=0.7\text{mm}$,
 $a_e=10\text{mm}$ by down cut



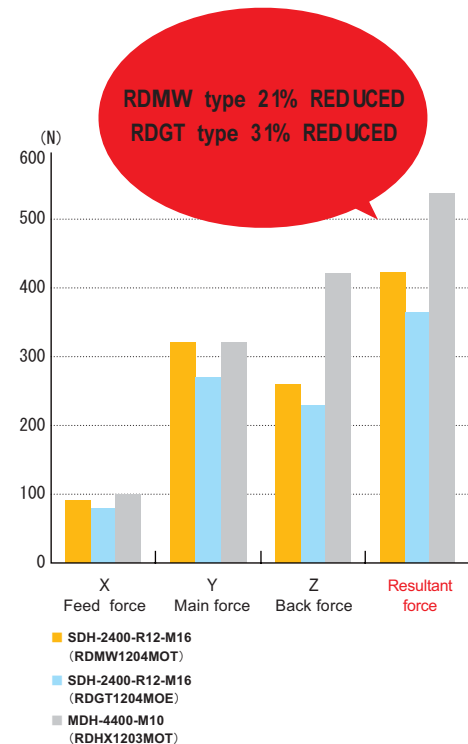
② General machining for die steel

Tool dia.:20mm dia., Mat'l:1.2379 HS30
 $V_c=179\text{m/min}$, $f_z=0.34\text{mm/t}$ $a_p=1.2\text{mm}$,
 $a_e=10\text{mm}$ by down cut



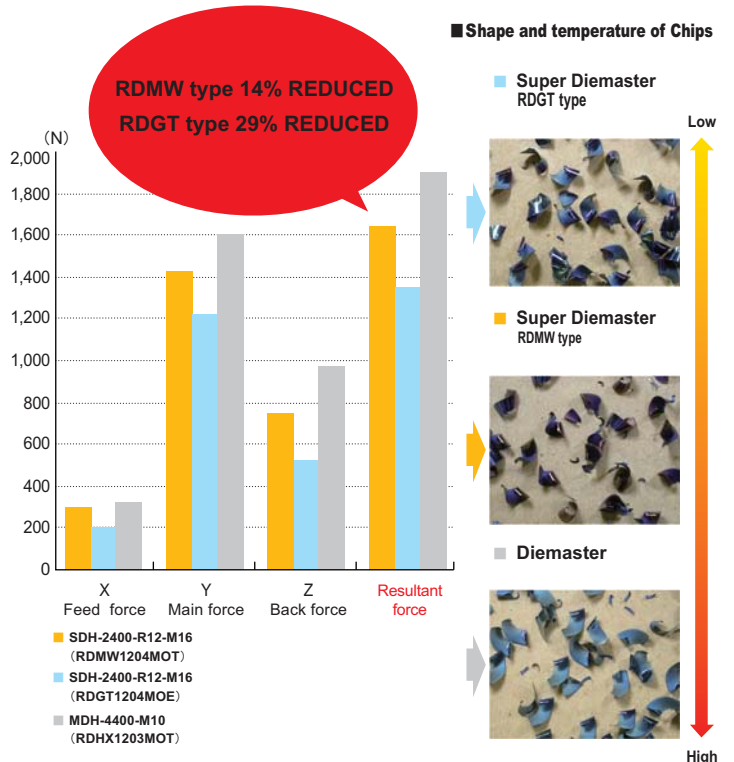
③ High feed machining for hardened die steel

Tool dia.:40mm dia., Mat'l:1.2344 45HRC
 $V_c=201\text{m/min}$, $f_z=0.4\text{mm/t}$ $a_p=0.2\text{mm}$,
 $a_e=16\text{mm}$ by down cut



④ General machining for die steel

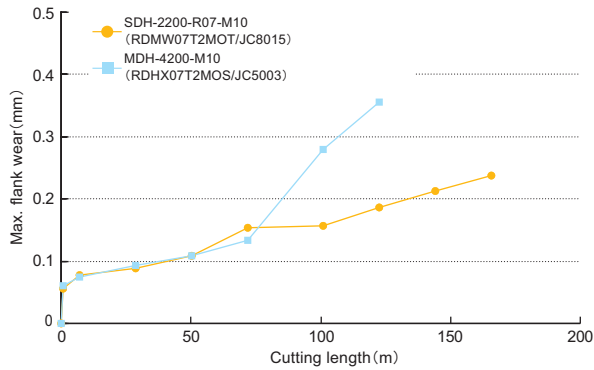
Tool dia.:40mm dia., Mat'l:1.2379 HS30
 $V_c=200\text{m/min}$, $f_z=0.31\text{mm/t}$ $a_p=1.5\text{mm}$,
 $a_e=16\text{mm}$ by down cut



Tool life comparison

① High feed machining for hardened die steel

Tool dia: 20mm, Mat'l: 1.2344, 43HRC, Overhung length: 70mm $V_c=250\text{m/min}$, $f_z=0.2\text{mm/t}$, $a_p=0.2\text{mm}$, $a_e=10\text{mm}$
(Air blow by down cutting) MSN-M10-40-S20C + each cutter

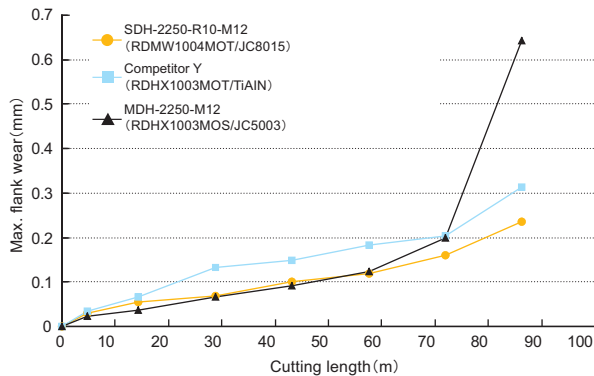


■ Damaged condition of inserts

	After 72m	After 122.4m	After 165.6m
RDMW07T2MOT (JC8015) VB MAX flank wear (mm)	0.154		0.237
RDHX07T2MOS (JC5003) VB MAX flank wear (mm)	0.134	0.356	

② High feed machining for hardened die steel

Tool dia: 25mm, Mat'l: 1.2379, 43HRC, Overhung length: 70mm $V_c=250\text{m/min}$, $f_z=0.3\text{mm/t}$, $a_p=0.2\text{mm}$, $a_e=15.5\text{mm}$
(Air blow by down cutting) MSN-M12-55-S25C+each cutter

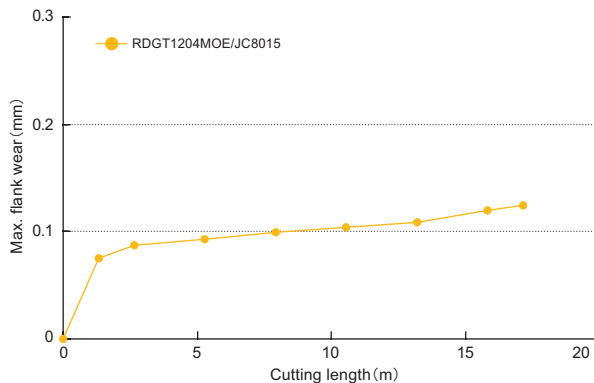


■ Damaged condition of inserts

	After 72m	After 86.2m
RDMW1004MOT (JC8015) VB MAX flank wear (mm)	0.159	0.235
Competitor Y RDHX1003MOT (TIAIN) VB MAX flank wear (mm)	0.203	0.313
RDHX1003MOS (JC5003) VB MAX flank wear (mm)	0.199	0.643

③ Ti-alloy age hardened

Tool dia: 32mm, Mat'l: Ti6Al4V, 42HRC, Overhung length: 118mm $V_c=60\text{m/min}$, $f_z=0.3\text{mm/t}$, $a_p=0.5\text{mm}$, $a_e=12\text{mm}$
(Wet cutting by down cutting) MSN-M16-157S-S32C + SDH-2320-R12-M16



■ Damaged condition of inserts

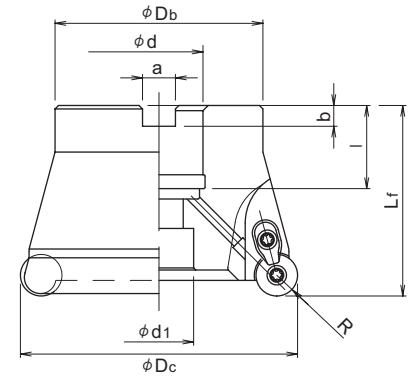
	After 1.32m	After 10.56m	After 17.16m
RDGT1204MOE (JC8015) VB MAX flank wear (mm)	0.075	0.104	0.124

Line up

● Facemill type (standard type)

- Through coolant hole
- Double clamp

G-Body



Type	Cat. No.	Stock	No. of inserts	Dimensions (mm)									Inserts	Parts		
				ϕD_c	R	L_f	ϕD_b	ϕd	ϕd_1	a	b	l		Clamp screw	Clamp set	Wrench
Inch Bore	HDM-3050-12R	●	3	50	6	50	47	22.225	16.5	8.4	5	20	RD**1204M0*	DSW-4085	DCM-18	A-15T
	HDM-3050-16R	●	3	50	8	55	47	22.225	16.5	8.4	5	20	RD**1606M0*	DSW-4512H	DCM-17	A-20
	HDM-4063-12R	●	4	63	6	50	60	22.225	16.5	8.4	5	20	RD**1204M0*	DSW-4085	DCM-18	A-15T
	HDM-4063-16R	●	4	63	8	50	60	22.225	16.5	8.4	5	20	RD**1606M0*	DSW-4512H	DCM-17	A-20
	HDM-4080-12R-25.4	●	4	80	6	55	60	25.4	20	9.5	6	24	RD**1204M0*	DSW-4085	DCM-18	A-15T
	HDM-4080-12R	●	4	80	6	70	74	31.75	26	12.7	8	32	RD**1204M0*	DSW-4085	DCM-18	A-15T
	HDM-4080-16R-25.4	●	4	80	8	55	60	25.4	20	9.5	6	24	RD**1606M0*	DSW-4512H	DCM-17	A-20
	HDM-4080-16R	●	4	80	8	70	76	31.75	26	12.7	8	32	RD**1606M0*	DSW-4512H	DCM-17	A-20
Metric Bore	HDM-3050-12R-22	●	3	50	6	50	47	22	16.5	10.4	6.3	20	RD**1204M0*	DSW-4085	DCM-18	A-15T
	HDM-3050-16R-22	●	3	50	8	55	47	22	16.5	10.4	6.3	20	RD**1606M0*	DSW-4512H	DCM-17	A-20
	HDM-4063-12R-22	●	4	63	6	50	60	22	16.5	10.4	6.3	20	RD**1204M0*	DSW-4085	DCM-18	A-15T
	HDM-4063-16R-22	●	4	63	8	50	60	22	16.5	10.4	6.3	20	RD**1606M0*	DSW-4512H	DCM-17	A-20

● Standard stock items

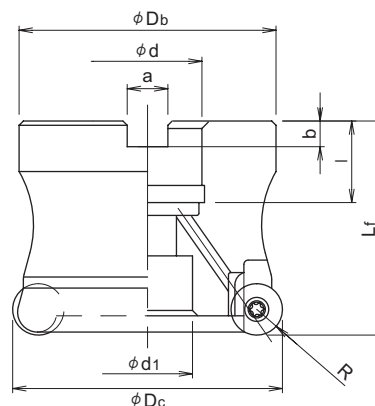
Note) 1.All cutters are supplied without inserts.

2 Please see page 13-14 for cutting conditions.

● Facemill type (fine pitch)

- Through coolant hole

G-Body



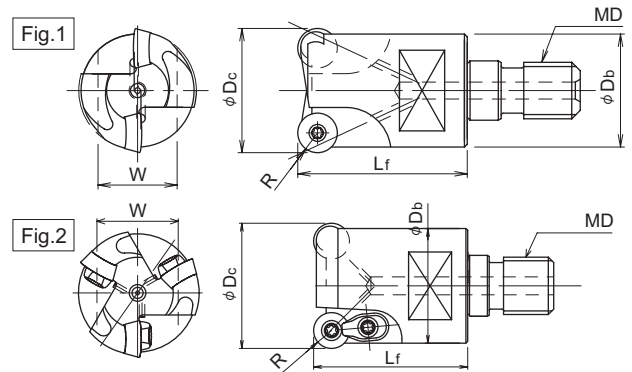
Type	Cat. No.	Stock	No. of inserts	Dimensions (mm)									Inserts	Parts	
				φDc	R	Lf	φDb	φd	φd1	a	b	l		Clamp screw	Wrench
Inch Bore	HDM-4050-16R	◎	4	50	8	55	47	22.225	16.5	8.4	5	20	RD**1606M0*	DSW-4512H	A-20
	HDM-5050-12R	●	5	50	6	50	47	22.225	16.5	8.4	5	20	RD**1204M0*	DSW-4085	A-15T
	HDM-5063-16R	◎	5	63	8	50	60	22.225	16.5	8.4	5	20	RD**1606M0*	DSW-4512H	A-20
	HDM-6063-12R	●	6	63	6	50	60	22.225	16.5	8.4	5	20	RD**1204M0*	DSW-4085	A-15T
Metric Bore	HDM-4050-16R-22	●	4	50	8	55	47	22	16.5	10.4	6.3	20	RD**1606M0*	DSW-4512H	A-20
	HDM-5050-12R-22	●	5	50	6	50	47	22	16.5	10.4	6.3	20	RD**1204M0*	DSW-4085	A-15T
	HDM-4052-16R-22	●	4	52	8	55	47	22	16.5	10.4	6.3	20	RD**1606M0*	DSW-4512H	A-20
	HDM-5052-12R-22	●	5	52	6	50	47	22	16.5	10.4	6.3	20	RD**1204M0*	DSW-4085	A-15T
	HDM-5063-16R-27	●	5	63	8	50	60	27	20	12.4	7	22	RD**1606M0*	DSW-4512H	A-20
	HDM-6063-12R-27	●	6	63	6	50	60	27	20	12.4	7	22	RD**1204M0*	DSW-4085	A-15T
	HDM-5066-16R-27	●	5	66	8	50	60	27	20	12.4	7	22	RD**1606M0*	DSW-4512H	A-20
	HDM-6066-12R-27	●	6	66	6	50	60	27	20	12.4	7	22	RD**1204M0*	DSW-4085	A-15T
	HDM-6080-16R-27	◎	6	80	8	55	76	27	20	12.4	7	22	RD**1606M0*	DSW-4512H	A-20
	HDM-7080-12R-27	◎	7	80	6	55	76	27	20	12.4	7	22	RD**1204M0*	DSW-4085	A-15T

● Standard stock items; ◎ Soon to be stocked
 Note) 1. All cutters are supplied without inserts.
 2 Please see page 13-14 for cutting conditions.

SDH heads type (standard type)

● Through coolant hole

G-Body



Cat. No.	Stock	No. of inserts	Dimensions (mm)						Inserts	Parts			Fig.
			phi Dc	R	Lf	phi Db	MD	W		Clamp screw	Clamp set	Wrench	
SDH-2200-R07-M10※1	●	2	20	3.5	30	18	M10	14	RD**07T2M0*	TSW-2556H	—	A-08SD	1
SDH-2220-R07-M10※3	●	2	22	3.5	30	20	M10	14	RD**07T2M0*	TSW-2556H	—	A-08SD	1
SDH-2250-R10-M12	●	2	25	5	35	23	M12	17	RD**1004M0*	CSW-408H	DCM-18	A-15	2
SDH-2280-R10-M12	●	2	28	5	35	25	M12	17	RD**1004M0*	CSW-408H	DCM-18	A-15	2
SDH-2300-R10-M16	●	2	30	5	43	28	M16	22	RD**1004M0*	CSW-408H	DCM-18	A-15	2
SDH-2320-R12-M16	●	2	32	6	43	28	M16	22	RD**1204M0*	DSW-4085	DCM-18	A-15	2
SDH-3320-R10-M16	●	3	32	5	43	28	M16	22	RD**1004M0*	CSW-408H	DCM-18	A-15	2
SDH-2350-R12-M16	●	2	35	6	43	32	M16	22	RD**1204M0*	DSW-4085	DCM-18	A-15	2
SDH-3350-R10-M16	●	3	35	5	43	32	M16	22	RD**1004M0*	CSW-408H	DCM-18	A-15	2
SDH-2400-R12-M16	●	2	40	6	43	32	M16	26	RD**1204M0*	DSW-4085	DCM-18	A-15	2

● Standard stock items

Note) 1. All cutters are supplied without inserts.

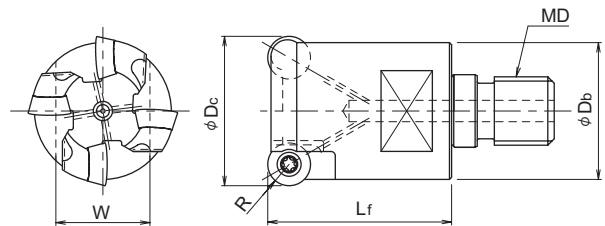
2. Please see page 17-19 for cutting conditions.

3. In case of machining perpendicular wall, shank clearance of combination ※1 is small, so we recommend to use ※3 heads.

SDH heads type (fine pitch type)

● Through coolant hole

G-Body



Cat. No.	Stock	No. of inserts	Dimensions (mm)						Inserts	Parts	
			phi Dc	R	Lf	phi Db	MD	W		Clamp screw	Wrench
SDH-3200-R07-M10※1	●	3	20	3.5	30	18	M10	14	RD**07T2M0*	TSW-2556H	A-08SD
SDH-3220-R07-M10※3	●	3	22	3.5	30	20	M10	14	RD**07T2M0*	TSW-2556H	A-08SD
SDH-3250-R07-M12	●	3	25	3.5	35	23	M12	17	RD**07T2M0*	TSW-2556H	A-08SD
SDH-3250-R10-M12	●	3	25	5	35	23	M12	17	RD**1004M0*	CSW-408H	A-15
SDH-3280-R10-M12	●	3	28	5	35	25	M12	17	RD**1004M0*	CSW-408H	A-15
SDH-3300-R10-M16	●	3	30	5	43	28	M16	22	RD**1004M0*	CSW-408H	A-15
SDH-4300-R10-M16	●	4	30	5	43	28	M16	22	RD**1004M0*	CSW-408H	A-15
SDH-4320-R10-M16	●	4	32	5	43	28	M16	22	RD**1004M0*	CSW-408H	A-15
SDH-3350-R12-M16	●	3	35	6	43	32	M16	22	RD**1204M0*	DSW-4085	A-15
SDH-4350-R10-M16	●	4	35	5	43	32	M16	22	RD**1004M0*	CSW-408H	A-15
SDH-4400-R12-M16	●	4	40	6	43	32	M16	26	RD**1204M0*	DSW-4085	A-15
SDH-5420-R10-M16	●	5	42	5	43	32	M16	26	RD**1004M0*	CSW-408H	A-15

● Standard stock items

Note) 1. All cutters are supplied without inserts.

2. Please see page 17-19 for cutting conditions.

3. In case of machining perpendicular wall, shank clearance of combination ※1 is small, so we recommend to use ※3 heads.

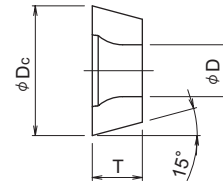
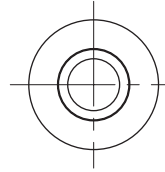
Inserts without chipbreaker

■ RDMW-MOT

Without chip breaker

For Steel

Chamfer Honing



Cat. No.	Coated			Dimensions (mm)		
	JC8003	JC8015	JC5040	ϕD_c	T	ϕD
RDMW07T2MOT	●	●	●	7	2.7	2.8
RDMW1004MOT	●	●	●	10	4.1	4.4
RDMW1204MOT	●	●	●	12	4.8	4.4
RDMW1606MOT	●	●	●	16	6	5

● Standard stock items

Inserts with chipbreaker

■ RDGT-MOT

With chip breaker

Chamfer Honing

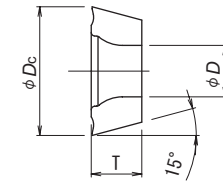
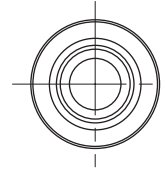
For Stainless Steel & Steel

■ RDGT-MOE

With chip breaker

R Honing

For Titanium & Inconel



Cat. No.	Coated		Dimensions (mm)		
	JC8015	JC8050	ϕD_c	T	ϕD
RDGT07T2MOE	●	●	7	2.7	2.8
RDGT1004MOE	●	●	10	4.1	4.4
RDGT1004MOT	●	●			
RDGT1204MOE	●	●	12	4.8	4.4
RDGT1204MOT	●	●			
RDGT1606MOE	●	●	16	6	5
RDGT1606MOT	●	●			

● Standard stock items

Recommended tightening torque for modular head

Thread	Tightening Torque	Wrench size
M10	46 N·m	14, 15
M12	80 N·m	17
M16	90 N·m	22, 26

★ 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.

MSN Carbide shank holder (Through coolant hole)

頑固一徹

- For high productivity
- Through coolant hole



■ End mill shank type



Fig.1

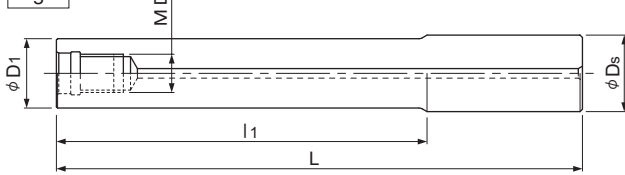
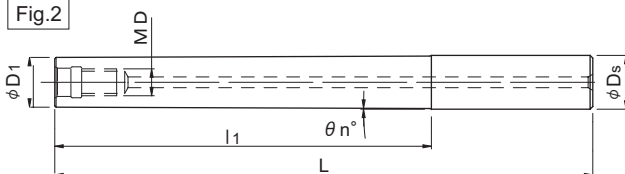
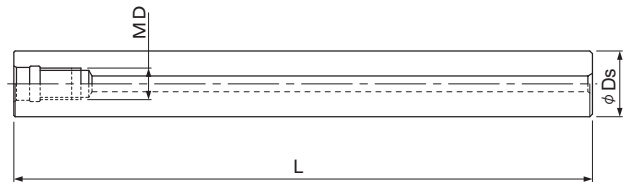


Fig.2



■ Straight arbor type



● Body

Cat. No.	Stock	Dimensions (mm)						Fig.
		φDs	l ₁	L	φD ₁	MD	θ n°	
MSN-M10-20-S20C※2	●		20	80				1
MSN-M10-40-S20C※2	●		40	100				1
NEW MSN-M10-40T-S20C	●		40	100			0°43'	2
MSN-M10-90-S20C※2	●	20	90	150	18.5	M10	—	1
NEW MSN-M10-90T-S20C	●		90	150			0°19'	2
MSN-M10-140-S20C※2	●		140	200			—	1
NEW MSN-M10-140T-S20C	●		140	200			0°12'	2
MSN-M12-25-S25C	●		25	90				
MSN-M12-55-S25C	●	25	55	120	24	M12	—	1
MSN-M12-105-S25C	●		105	170				
MSN-M12-155-S25C	●		155	220				
MSN-M16-25-S32C	●		25	90				
MSN-M16-55-S32C	●		55	120				
MSN-M16-105-S32C	●	32	105	170	29	M16	—	1
MSN-M16-155-S32C	●		155	220				
MSN-M16-195-S32C	●		195	260				

● : Standard stock items

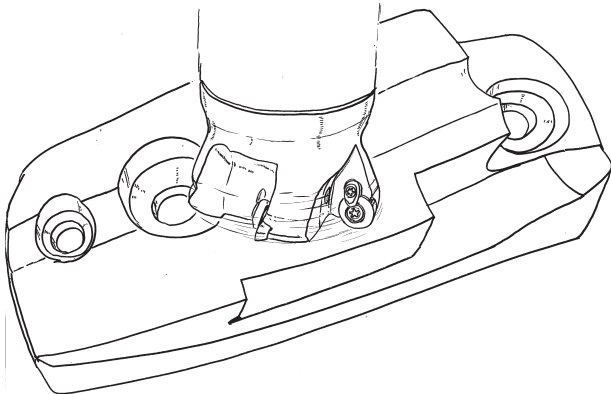
Note) In case of machining perpendicular wall, shank clearance of combination ※1 (page7) and ※2 is small, so we recommend to use ※3 (page7) heads.

Cat. No.	Stock	Dimensions (mm)		
		φDs	L	MD
MSN-M10-130S-S18C	●	18	130	M10
MSN-M10-190S-S18C	●		190	
MSN-M10-130S-S20C	●	20	130	
MSN-M10-190S-S20C	●		190	M10
MSN-M10-250S-S20C	●		250	
MSN-M12-185S-S23C	●	23	185	M12
MSN-M12-265S-S23C	●		265	
MSN-M12-145S-S25C	●	25	145	
MSN-M12-215S-S25C	●		215	M12
MSN-M12-285S-S25C	●		285	
MSN-M16-160S-S28C	●		160	
MSN-M16-230S-S28C	●	28	230	M16
MSN-M16-310S-S28C	●		310	
MSN-M16-157S-S32C	●	32	157	
MSN-M16-217S-S32C	●		217	M16
MSN-M16-287S-S32C	●		287	
MSN-M16-357S-S32C	●		357	

● : Standard stock items

Cutting data

① Carbon Steel Forgings for General Use

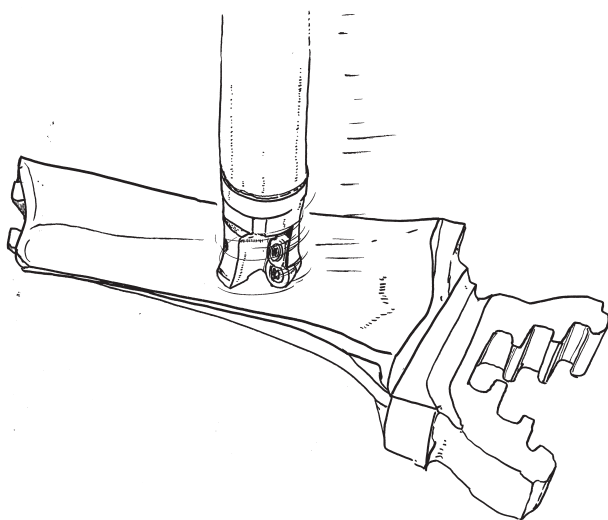


Work	Part name	Parts	
	Material	S F 700	
	Hardness	290~325HB	
Tool	Tool No.	HDM-3050-16R	
	Insert No.	RDMW1606MOT (JC8015)	
Cutting conditions	Cutting speed	n	800 (min ⁻¹)
		Vc	200 (m/min)
	Feed speed	Vf	200 (mm/min)
		f	0.25 (mm/rev)
	ap		0.2 (mm)
	ae		20-30 (mm)
	Coolant		OIL
	Machine		Vertical MC

Result

Because of chipping by interrupted cutting, competitor could cut 4 pcs only, but SUPER DIEMASTER could cut 30 pcs. And, shortened the machining time by 25%.

② Semi-finishing for stainless steel



Work	Part name	Turbine Blades	
	Material	Stainless steel (SUS420)	
	Hardness	280HB	
Tool	Tool No.	SDH-2200-R07-M10	
	Insert No.	RDMW07T2MOT (JC8015)	
Cutting conditions	Cutting speed	n	3,200 (min ⁻¹)
		Vc	200 (m/min)
	Feed speed	Vf	1,920 (mm/min)
		f	0.3 (mm/rev)
	ap		0.3 (mm)
	ae		0.5 (mm)
	Coolant		WET
	Machine		Vertical MC

Result

Semi-finishing. After cutting 100 works, insert showed less wear and lower cutting noise than competitor.

③ Cutting for welding part



Conventional tool
Insert thickness
4.76 mm.

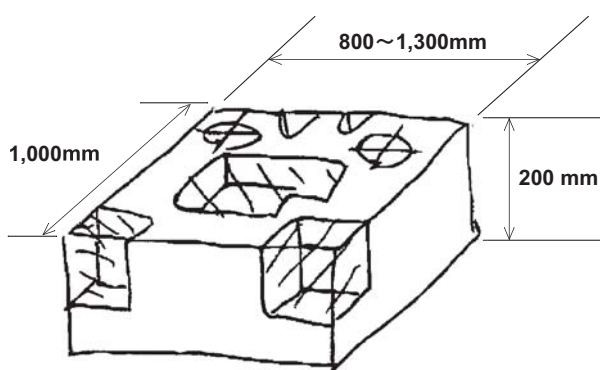
Super Diemaster
Insert thickness
6.0 mm.

Work	Part name	Cam	
	Material	SKD11 + Welding	
	Hardness	62HRC	
Tool	Tool No.	HDM-3050-16R	
	Insert No.	RDMW1606MOT(JC8015)	
Cutting conditions	Cutting speed	n	1,000 (min ⁻¹)
		Vc	157 (m/min)
	Feed speed	Vf	500 (mm/min)
		f	0.5 (mm/rev)
	ap		1 (mm)
	ae		27 (mm)
	Coolant		Dry
	Machine		Vertical MC 22KW

Result

DDM inserts were broken on machining welding part, but HDM could cut without chatter and breakage problem due to increased insert strength. Also improved tool life from 20 min. to 30 min. 1.5 times better.

④ Cutting for die casting mold



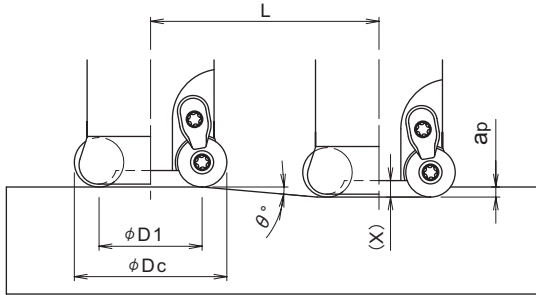
Work	Part name	Die casting mold	
	Material	SKT4	
	Hardness	36-42HRC	
Tool	Tool No.	HDM-4080-12R	
	Insert No.	RDMW1204MOT(JC8015)	
Cutting conditions	Cutting speed	n	450 (min ⁻¹)
		Vc	115 (m/min)
	Feed speed	Vf	1,400 (mm/min)
		f	3 (mm/rev)
	ap		1.5~2.0 (mm)
	ae		50 (mm)
	Coolant		Dry
	Machine		Vertical MC

Result

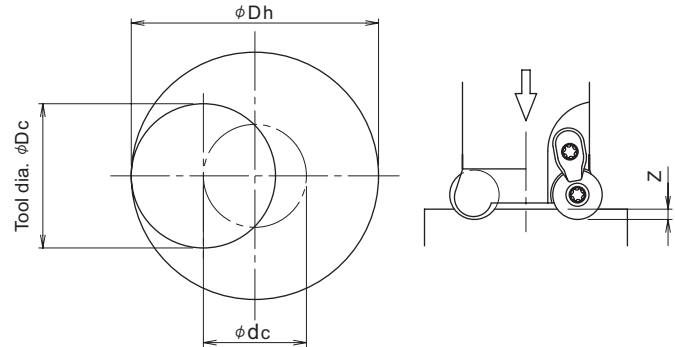
HDM reduced machining time 20% and improved tool life 1.3 times compared with competitors. Vf was increased from 1,100 mm/min to 1,400 mm/min.

Attention for profile milling

Ramping



Helical interpolation



● Calculation of tool pass dia.

$$\phi dc = \phi Dh - \phi Dc$$

Tool pass dia. Bore dia. Tool dia.

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

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

● Do not continue ramping after drilling.

- 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.

Tool dia.	Insert dia.	$\phi D1$ Eff. Cutting dia. (mm)	ϕDh min Min. bore dia. (mm)	ϕDh max Max. bore dia. (mm)	Max. ramping angle θ°	a_p Max. depth of cut (mm)	$(a_p)/L(\text{mm})$ Total cutting length at Max. a_p	Z Max. drilling depth (mm)	X Depth of holder face (mm)
20	7 (R3.5)	13	30	38	5° 30'	3.5	36.3	1.5	2.5
22	7 (R3.5)	15	34	42	4° 35'	3.5	43.6	1.5	2.5
25	7 (R3.5)	18	40	48	3° 40'	3.5	54.6	1.5	2.5
25	10 (R5)	15	34	48	10° 45'	5.0	26.3	2.5	3.5
28	10 (R5)	18	40	54	8° 20'	5.0	34.1	2.5	3.5
30	10 (R5)	20	44	58	7° 15'	5.0	39.3	2.5	3.5
32	10 (R5)	22	48	62	6° 25'	5.0	44.4	2.5	3.5
32	12 (R6)	20	44	62	7° 35'	6.0	45.1	2.5	3.5
35	10 (R5)	25	54	68	5° 30'	5.0	51.9	2.5	3.5
35	12 (R6)	23	50	68	6° 15'	6.0	54.7	2.5	3.5
40	12 (R6)	28	60	78	4° 55'	6.0	69.7	2.5	3.5
42	10 (R5)	32	68	82	4° 05'	5.0	70.0	2.5	3.5
50	12 (R6)	38	80	98	5° 15'	6.0	65.2	3.5	4.5
50	16 (R8)	34	75	98	7° 25'	8.0	61.4	4.0	5.0
52	12 (R6)	40	84	102	4° 55'	6.0	69.7	3.5	4.5
52	16 (R8)	36	79	102	6° 55'	8.0	65.9	4.0	5.0
63	12 (R6)	51	106	124	3° 45'	6.0	91.5	3.5	4.5
63	16 (R8)	47	101	124	5° 00'	8.0	91.4	4.0	5.0
66	12 (R6)	54	112	130	3° 30'	6.0	98.1	3.5	4.5
66	16 (R8)	50	107	130	4° 40'	8.0	98.0	4.0	5.0
80	12 (R6)	68	140	158	2° 45'	6.0	124.9	3.5	4.5
80	16 (R8)	64	135	158	3° 30'	8.0	130.7	4.0	5.0

Recommended cutting conditions

● Facemill type (standard type)

1/2

Work materials	Grades	Tool dia. (mm) [insert type]											
		50 (R6)				50 (R8)				63 (R6)			
		No. of teeth 3N (Double clamp)				No. of teeth 3N (Double clamp)				No. of teeth 4N (Double clamp)			
		L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (C50, C55) Below 250HB	JC5040	150	3	1,250	1,090	150	4	1,260	1,100	150	3	980	1,140
		200	2.5	1,250	1,160	200	3	1,260	1,210	200	2.7	980	1,300
	JC8015	250	2	880	870	250	2	880	980	250	2.2	690	910
		300	1.2	880	1,130	300	1.5	880	1,160	300	1.6	690	1,100
		350	0.7	750	950	350	1	760	1,000	350	1	590	1,010
		400	—	—	—	400	—	—	—	400	0.5	540	1,190
Mold steel (1.2311, P20) 30-43HRC	JC5040	150	2.5	1,200	1,190	150	3.5	1,210	1,010	150	2.5	940	1,160
		200	2	1,200	1,220	200	3	1,210	1,100	200	2.2	940	1,240
	JC8015 (above 40HRC)	250	1.1	840	1,130	250	2.5	850	940	250	1.6	660	970
		300	0.9	840	1,260	300	2	850	970	300	1.1	660	1,180
		350	0.5	720	1,180	350	1	730	1,110	350	0.7	560	1,120
		400	—	—	—	400	—	—	—	400	0.5	520	1,140
Die steel (1.2344, 1.2379) Below 255HB	JC5040	150	3	1,180	1,030	150	4	1,200	1,040	150	3	930	1,080
		200	2.5	1,180	1,130	200	3	1,200	1,180	200	2.7	930	1,120
	JC8015	250	2	830	840	250	2	840	960	250	2.2	650	850
		300	1.2	830	1,000	300	1.5	840	1,100	300	1.6	650	1,040
		350	0.7	700	950	350	1	720	950	350	1	560	870
		400	—	—	—	400	—	—	—	400	0.5	510	1,100
Stainless steel Below 250HB	JC8015	150	3	990	860	150	4	1,000	870	150	3	780	900
		200	2.5	990	890	200	3	1,000	990	200	2.7	780	930
	JC8050	250	2	690	700	250	2	700	780	250	2.2	550	730
		300	1.2	690	860	300	1.5	700	920	300	1.6	550	830
		350	0.7	590	820	350	1	600	790	350	1	470	690
		400	—	—	—	400	—	—	—	400	0.5	430	940
Hardened die steel (1.2344, 1.2379) 40-50HRC	JC8015 without chipbreaker	100	1.5	810	560	100	2	860	590	100	1.5	650	580
		150	1.2	810	610	150	1.8	860	620	150	1.2	650	650
	JC8003 (above 50HRC)	200	1	570	410	200	1.6	600	470	200	1	450	490
		250	0.8	570	510	250	1.2	600	520	250	0.8	450	520
		300	0.4	490	440	300	0.8	520	465	300	0.6	390	590
		350	—	—	—	350	—	—	—	350	0.3	360	620
Grey & Nodular cast iron (GG, GGG) Below 300HB	JC8015	150	3	1,120	1,170	150	4	1,130	1,190	150	3	880	1,370
		200	2.5	1,120	1,110	200	3	1,130	1,290	200	2.7	880	1,440
	JC8015	250	2	780	960	250	2	790	1,060	250	2.2	620	1,120
		300	1.2	780	1,170	300	1.5	790	1,300	300	1.6	620	1,240
		350	0.7	670	920	350	1	680	900	350	1	530	1,160
		400	—	—	—	400	—	—	—	400	0.5	480	1,220
Titanium alloy 35-43HRC	JC8015	150	1	420	270	150	1.5	440	330	150	1	330	260
		200	0.8	420	315	200	1.2	440	265	200	0.9	330	290
	JC8050	250	0.6	290	260	250	1	310	205	250	0.7	230	240
		300	0.4	290	305	300	0.8	310	230	300	0.5	230	295
		350	0.2	250	375	350	0.4	260	255	350	0.3	200	340
		400	—	—	—	400	—	—	—	400	0.2	180	360
Inconel 35-43HRC	JC8015	150	1	210	135	150	1.5	220	145	150	1	165	130
		200	0.8	210	155	200	1.2	220	165	200	0.9	165	160
	JC8050	250	0.6	150	135	250	1	150	115	250	0.7	120	130
		300	0.4	150	160	300	0.8	150	130	300	0.5	120	150
		350	0.2	130	195	350	0.4	130	155	350	0.3	100	165
		400	—	—	—	400	—	—	—	400	0.2	90	180

L: Overhang length a_p: Depth of cut n: Spindle speed V_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 a_p or Spindle speed and keep feed per tooth.
3. If machine does not have enough power, recommend to reduce the depth of cut a_p or Spindle speed and Feed speed.
4. Use air blow.
5. In case of 50-55HRC, recommend to reduce 30% above a_p, n, V_f. (In the case of hardened die steel)
6. In case of titanium alloy or inconel, recommended wet cutting.

Facemill type (standard type)

2/2

Work materials	Grades	Tool dia. (mm) [insert type]											
		63 (R8)				80 (R6)				80 (R8)			
		No. of teeth 4N (Double clamp)				No. of teeth 4N (Double clamp)				No. of teeth 4N (Double clamp)			
		L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (C50,C55) Below 250HB	JC5040	150	4	990	1,110	150	3	770	890	150	4	780	870
		200	3	990	1,290	200	2.7	770	980	200	3	780	990
	JC8015	250	2	690	1,200	250	2.2	540	710	250	2	550	830
		300	1.5	690	1,210	300	1.6	540	820	300	1.5	550	960
		350	1	590	1,040	350	1	460	700	350	1	470	810
		400	0.5	540	1,360	400	0.5	420	920	400	0.5	430	1,080
Mold steel (1.2311,P20) 30-43HRC	JC5040	150	3.5	950	1,140	150	2.5	740	780	150	3.5	740	890
		200	3	950	1,250	200	2.2	740	970	200	3	740	970
	JC8015 (JC8015 above 40HRC)	250	2.5	670	980	250	1.6	520	680	250	2.5	520	730
		300	2	670	1,020	300	1.1	520	930	300	2	520	770
		350	1	570	1,000	350	0.7	440	880	350	1	440	960
		400	0.5	520	1,330	400	0.5	410	900	400	0.5	410	1,050
Die steel (1.2344,1.2379) Below 255HB	JC5040	150	4	940	1,090	150	3	730	820	150	4	740	830
		200	3	940	1,240	200	2.7	730	900	200	3	740	970
	JC8015	250	2	660	970	250	2.2	510	670	250	2	520	770
		300	1.5	660	1,160	300	1.6	510	750	300	1.5	520	910
		350	1	560	980	350	1	440	670	350	1	440	770
		400	0.5	520	1,330	400	0.5	400	900	400	0.5	410	1,050
Stainless steel Below 250HB	JC8015	150	4	790	920	150	3	610	710	150	4	610	710
		200	3	790	1,040	200	2.7	610	750	200	3	610	800
	JC8050	250	2	550	850	250	2.2	430	560	250	2	430	630
		300	1.5	550	960	300	1.6	430	650	300	1.5	430	750
		350	1	470	800	350	1	370	540	350	1	370	630
		400	0.5	430	1,100	400	0.5	340	740	400	0.5	340	870
Hardened die steel (1.2344,1.2379) 40-50HRC	JC8015 without chipbreaker	100	2	660	600	100	1.5	500	480	100	2	510	470
		150	1.8	660	610	150	1.2	500	500	150	1.8	510	490
	JC8003 (JC8003 above 50HRC)	200	1.6	460	460	200	1	350	380	200	1.6	360	380
		250	1.2	460	500	250	0.8	350	420	250	1.2	360	390
		300	0.8	400	530	300	0.6	300	460	300	0.8	310	400
		350	0.4	370	470	350	0.3	280	390	350	0.4	280	380
Grey & Nodular cast iron (GG, GGG) Below 300HB	JC8015	150	4	890	1,240	150	3	690	970	150	4	700	980
		200	3	890	1,350	200	2.7	690	1,020	200	3	700	1,060
	JC8015	250	2	620	1,140	250	2.2	480	730	250	2	490	900
		300	1.5	620	1,310	300	1.6	480	820	300	1.5	490	1,010
		350	1	530	1,180	350	1	410	780	350	1	420	920
		400	0.5	490	1,250	400	0.5	380	830	400	0.5	390	1,000
Titanium alloy 35-43HRC	JC8015	150	1.5	340	300	150	1	250	200	150	1.5	260	260
		200	1.3	340	325	200	0.9	250	240	200	1.3	260	200
	JC8050	250	1.1	240	240	250	0.7	180	190	250	1.1	180	170
		300	0.9	240	250	300	0.5	180	230	300	0.9	180	190
		350	0.6	200	290	350	0.3	150	250	350	0.6	160	215
		400	0.3	190	300	400	0.2	140	280	400	0.3	140	250
Inconel 35-43HRC	JC8015	150	1.5	170	170	150	1	125	100	150	1.5	130	130
		200	1.3	170	155	200	0.9	125	115	200	1.3	130	120
	JC8050	250	1.1	120	120	250	0.7	90	100	250	1.1	90	90
		300	0.9	120	130	300	0.5	90	115	300	0.9	90	85
		350	0.6	100	140	350	0.3	75	130	350	0.6	80	105
		400	0.3	95	180	400	0.2	70	140	400	0.3	70	125

 L: Overhung length a_p: Depth of cut n: Spindle speed V_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 a_p or Spindle speed and keep feed per tooth.
3. If machine does not have enough power, recommend to reduce the depth of cut a_p or Spindle speed and Feed speed.
4. Use air blow.
5. In case of 50-55HRC, recommend to reduce 30% above a_p, n, V_f. (In the case of hardened die steel)
6. In case of titanium alloy or inconel, recommended wet cutting.

Recommended cutting conditions

● Facemill type (fine pitch)

1/1

Work materials	Grades	Tool dia. (mm) [insert type]															
		50 / 52 (R6)				50 / 52 (R8)				63 / 66 (R6)				63 / 66 (R8)			
		No. of teeth 5N				No. of teeth 4N				No. of teeth 6N				No. of teeth 5N			
		L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (C50, C55) Below 250HB	JC5040 JC8015	150	2	1,290	2,250	150	3	1,300	1,700	150	2	1,010	2,000	150	3	1,020	1,660
		200	1.7	1,290	1,920	200	2.5	1,300	1,820	200	1.8	1,010	1,800	200	2.7	1,020	1,530
		250	1.5	900	1,620	250	2	910	1,350	250	1.6	710	1,530	250	2.2	720	1,330
		300	1	900	2,020	300	1.2	910	1,800	300	1.2	710	1,910	300	1.6	720	1,450
		350	0.5	780	2,150	350	0.7	780	1,870	350	0.8	610	1,830	350	1	620	1,550
		400	—	—	—	400	—	—	—	400	0.4	560	1,850	400	0.5	560	1,800
Mold steel (1.2311, P20) 30-43HRC	JC5040 JC8015 (JC8015 above 40HRC)	150	1.7	1,230	2,200	150	2.5	1,250	1,750	150	1.7	960	2,060	150	2.5	970	1,690
		200	1.5	1,230	2,150	200	2	1,250	1,850	200	1.6	960	2,130	200	2.2	970	1,790
		250	1.2	860	1,720	250	1.1	880	1,760	250	1.4	670	1,610	250	1.6	680	1,460
		300	0.8	860	1,720	300	0.9	880	1,760	300	1	670	1,810	300	1.1	680	1,800
		350	0.4	730	1,800	350	0.5	750	1,800	350	0.6	570	2,200	350	0.7	580	1,590
		400	—	—	—	400	—	—	—	400	0.4	550	2,150	400	0.5	560	1,680
Die steel (1.2344, 1.2379) Below 255HB	JC5040 JC8015	150	1.7	1,230	2,200	150	2.5	1,260	1,750	150	1.7	960	2,060	150	2.5	970	1,690
		200	1.5	1,230	2,150	200	2	1,260	1,850	200	1.6	960	2,130	200	2.2	970	1,790
		250	1.2	860	1,720	250	1.1	880	1,760	250	1.4	670	1,610	250	1.6	680	1,460
		300	0.8	860	1,720	300	0.9	880	1,760	300	1	670	1,850	300	1.1	680	1,800
		350	0.4	730	1,800	350	0.5	750	1,850	350	0.6	570	2,200	350	0.7	580	1,590
		400	—	—	—	400	—	—	—	400	0.4	550	2,150	400	0.5	560	1,680
Stainless steel Below 250HB	JC8015 JC8050	150	2	1,020	1,780	150	3	1,030	1,350	150	2	800	1,670	150	3	810	1,320
		200	1.7	1,020	1,520	200	2.5	1,030	1,440	200	1.8	800	1,770	200	2.7	810	1,330
		250	1.5	710	1,240	250	2	720	1,060	250	1.6	560	1,180	250	2.2	570	1,050
		300	1	710	1,420	300	1.2	720	1,420	300	1.2	560	1,340	300	1.6	570	1,220
		350	0.5	610	1,530	350	0.7	620	1,490	350	0.8	480	1,380	350	1	490	1,230
		400	—	—	—	400	—	—	—	400	0.4	440	1,580	400	0.5	450	1,420
Hardened die steel (1.2344, 1.2379) 40-50HRC	JC8015 without chipbreaker (JC8003 above 50HRC)	100	1.2	850	1,060	100	1.5	880	880	100	1.2	650	970	100	1.5	670	840
		150	1	850	1,100	150	1.2	880	950	150	1.1	650	1,010	150	1.2	670	900
		200	0.8	560	980	200	1	620	740	200	0.9	460	970	200	1	460	760
		250	0.5	560	1,260	250	0.8	620	870	250	0.6	460	1,250	250	0.8	460	920
		300	0.3	510	1,270	300	0.4	530	850	300	0.4	390	1,170	300	0.6	400	900
		350	—	—	—	350	—	—	—	350	0.2	360	1,300	350	0.3	360	900
Grey & Nodular cast iron (GG, GGG) Below 300HB	JC8015	150	2	1,150	2,350	150	3	1,170	1,820	150	2	900	2,260	150	3	910	1,540
		200	1.7	1,150	2,580	200	2.5	1,170	2,000	200	1.8	900	2,420	200	2.7	910	1,860
		250	1.5	800	1,840	250	2	820	1,470	250	1.6	630	1,700	250	2.2	640	1,440
		300	1	800	2,300	300	1.2	820	1,800	300	1.2	630	1,920	300	1.6	640	1,700
		350	0.5	690	2,410	350	0.7	700	1,680	350	0.8	540	1,610	350	1	550	1,510
		400	—	—	—	400	—	—	—	400	0.4	500	1,730	400	0.5	510	1,630
Titanium alloy 35-43HRC	JC8015 JC8050	150	1	420	420	150	1.5	440	440	150	1	330	400	150	1.5	340	430
		200	0.8	420	630	200	1.2	440	410	200	0.9	330	460	200	1.3	340	470
		250	0.6	290	460	250	1	310	310	250	0.7	230	370	250	1.1	240	390
		300	0.4	290	580	300	0.8	310	370	300	0.5	230	460	300	0.9	240	400
		350	0.2	250	630	350	0.4	260	420	350	0.3	200	540	350	0.6	200	350
		400	—	—	—	400	—	—	—	400	0.2	180	560	400	0.3	180	490
Inconel 35-43HRC	JC8015 JC8050	150	1	210	210	150	1.5	220	220	150	1	165	200	150	1.5	170	220
		200	0.8	210	320	200	1.2	220	210	200	0.9	165	230	200	1.3	170	240
		250	0.6	150	230	250	1	150	160	250	0.7	120	190	250	1.1	120	200
		300	0.4	150	290	300	0.8	150	190	300	0.5	120	230	300	0.9	120	200
		350	0.2	130	320	350	0.4	130	210	350	0.3	100	270	350	0.6	100	180
		400	—	—	—	400	—	—	—	400	0.2	90	280	400	0.3	90	250

L: Overhang length a_p: Depth of cut n: Spindle speed V_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 a_p or Spindle speed and keep feed per tooth.
3. If machine does not have enough power, recommend to reduce the depth of cut a_p or Spindle speed and Feed speed.
4. Use air blow.
5. In case of 50-55HRC, recommend to reduce 30% above a_p, n, V_f. (In the case of hardened die steel)
6. In case of titanium alloy or inconel, recommended wet cutting.

● Facemill type (fine pitch) For H.S.C.

1/1

Work materials	Grades	Tool dia. (mm) [insert type]															
		50 / 52 (R6)				50 / 52 (R8)				63 / 66 (R6)				63 / 66 (R8)			
		No. of teeth 5N				No. of teeth 4N				No. of teeth 6N				No. of teeth 5N			
		L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (C50,C55) Below 250HB	JC8003 JC8015 without chipbreaker	150	1.4	1,590	3,180	150	1.9	1,640	2,400	150	1.4	1,240	2,980	150	1.9	1,270	2,350
		200	1.2	1,590	3,180	200	1.7	1,640	2,400	200	1.2	1,240	2,980	200	1.7	1,270	2,350
		250	1	1,110	2,220	250	1.3	1,150	1,680	250	1	870	2,090	250	1.3	890	1,650
		300	0.6	1,030	2,830	300	1	1,070	1,710	300	0.6	800	2,200	300	1	830	1,600
		350	0.3	950	2,610	350	0.4	980	2,350	350	0.3	740	2,040	350	0.4	760	2,280
		400	—	—	—	400	—	—	—	400	—	—	—	400	—	—	—
Mold steel (1.2311,P20) 30-43HRC		150	1.4	1,520	3,040	150	1.9	1,570	2,300	150	1.4	1,190	2,850	150	1.9	1,220	2,250
		200	1.2	1,520	3,040	200	1.7	1,570	2,300	200	1.2	1,190	2,850	200	1.7	1,220	2,250
		250	1	1,060	2,120	250	1.3	1,100	1,600	250	1	830	1,990	250	1.3	850	1,570
		300	0.6	990	2,720	300	1	1,020	1,630	300	0.6	770	2,220	300	1	790	1,580
		350	0.3	910	2,500	350	0.4	940	2,250	350	0.3	710	1,950	350	0.4	730	2,200
		400	—	—	—	400	—	—	—	400	—	—	—	400	—	—	—
Die steel (1.2344,1.2379) Below 255HB		150	1.4	1,520	3,040	150	1.9	1,570	2,300	150	1.4	1,190	2,850	150	1.9	1,220	2,250
		200	1.2	1,520	3,040	200	1.7	1,570	2,300	200	1.2	1,190	2,850	200	1.7	1,220	2,250
		250	1	1,060	2,120	250	1.3	1,100	1,600	250	1	830	1,990	250	1.3	850	1,570
		300	0.6	990	2,720	300	1	1,020	1,630	300	0.6	770	2,120	300	1	790	1,580
		350	0.3	910	2,500	350	0.4	940	2,250	350	0.3	710	1,950	350	0.4	730	2,200
		400	—	—	—	400	—	—	—	400	—	—	—	400	—	—	—
Stainless steel Below 250HB		150	1.4	1,320	2,640	150	1.9	1,360	2,000	150	1.4	1,030	2,470	150	1.9	1,050	1,940
		200	1.2	1,320	2,640	200	1.7	1,360	2,000	200	1.2	1,030	2,470	200	1.7	1,050	1,940
		250	1	920	1,840	250	1.3	950	1,390	250	1	720	1,730	250	1.3	730	1,440
		300	0.6	860	2,360	300	1	880	1,400	300	0.6	670	1,840	300	1	680	1,360
		350	0.3	790	2,170	350	0.4	820	1,970	350	0.3	620	1,700	350	0.4	630	1,890
		400	—	—	—	400	—	—	—	400	—	—	—	400	—	—	—
Hardened die steel (1.2344,1.2379) 40-50HRC	100	1	1,070	1,870	100	1.2	1,100	1,540	100	1	830	1,710	100	1.2	840	1,470	
	150	0.8	1,070	1,870	150	1	1,100	1,540	150	0.8	830	1,710	150	1	840	1,470	
	200	0.6	750	3,740	200	0.8	770	1,120	200	0.6	580	1,390	200	0.8	590	1,090	
	250	0.3	700	2,100	250	0.5	710	1,700	250	0.3	540	1,620	250	0.5	550	1,320	
	300	0.2	640	2,170	300	0.3	660	1,650	300	0.2	500	1,980	300	0.3	510	1,270	
	350	—	—	—	350	—	—	—	350	—	—	—	350	—	—	—	—
Grey & Nodular cast iron (GG, GGG) Below 300HB	150	1.4	1,450	3,980	150	1.9	1,600	3,000	150	1.4	1,130	3,660	150	1.9	1,160	2,900	
	200	1.2	1,450	3,980	200	1.7	1,500	3,000	200	1.2	1,130	3,660	200	1.7	1,160	2,900	
	250	1	1,010	2,020	250	1.3	1,050	1,500	250	1	790	1,900	250	1.3	810	1,930	
	300	0.6	940	3,520	300	1	970	2,700	300	0.6	730	2,400	300	1	750	2,600	
	350	0.3	870	3,260	350	0.4	900	2,880	350	0.3	680	2,150	350	0.4	700	2,800	
	400	—	—	—	400	—	—	—	400	—	—	—	400	—	—	—	—

L: Overhung length a_p: Depth of cut n: Spindle speed V_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 a_p or Spindle speed and keep feed per tooth.
3. If machine does not have enough power, recommend to reduce the depth of cut a_p or Spindle speed and Feed speed.
4. Use air blow.
5. In case of 50-55HRC, recommend to reduce 30% above a_p, n, V_f. (In the case of hardened die steel)

Recommended cutting conditions

SDH head type and MSN type carbide shank holder

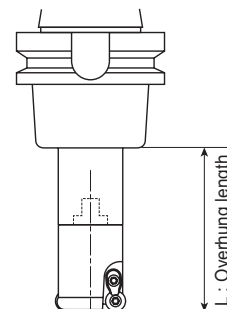
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Work materials	Grades	Tool dia. (mm) [insert type]															
		20 / 22 (R3.5)				20 / 22 (R3.5)				25 / 28 (R5)				25 (R3.5) / 25 (R5) / 28 (R5)			
		No. of teeth 2N				No. of teeth 3N				No. of teeth 2N				No. of teeth 3N			
		L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (C50, C55) Below 250HB	JC5040 JC8015	70	1.5	2,900	1,450	70	1.2	3,500	2,900	90	2	2,400	1,400	90	1.5	2,800	2,100
		120	1.2	2,900	1,450	120	0.8	3,500	2,900	140	1.5	2,400	1,400	140	1.2	2,800	2,100
		160	0.7	2,800	1,350	160	0.5	3,200	2,700	210	1	2,300	1,300	210	0.7	2,600	1,900
Mold steel (1.2311, P20) 30-43HRC	JC5040 JC8015 (above 40HRC)	70	1.5	2,800	1,400	70	1.2	3,300	2,600	90	2	2,200	1,300	90	1.5	2,600	2,000
		120	1.2	2,800	1,400	120	0.8	3,300	2,600	140	1.5	2,200	1,300	140	1.2	2,600	2,000
		160	0.7	2,700	1,350	160	0.5	3,100	2,300	210	1	2,100	1,200	210	0.7	2,400	1,800
Die steel (1.2344, 1.2379) Below 255HB	JC5040 JC8015	70	1.5	2,800	1,400	70	1.2	3,300	2,600	90	2	2,200	1,300	90	1.5	2,500	1,600
		120	1.2	2,800	1,400	120	0.8	3,300	2,600	140	1.5	2,200	1,300	140	1.2	2,500	1,600
		160	0.7	2,700	1,350	160	0.5	3,100	2,300	210	1	2,100	1,200	210	0.7	2,400	1,400
Stainless steel Below 250HB	JC8015 JC8050	70	1.5	2,300	1,200	70	1.2	2,700	2,400	90	2	1,800	1,050	90	1.5	2,100	1,400
		120	1.2	2,300	1,200	120	0.8	2,700	2,400	140	1.5	1,800	1,050	140	1.2	2,100	1,400
		160	0.7	2,200	1,100	160	0.5	2,600	2,200	210	1	1,700	1,000	210	0.7	2,000	1,000
Hardened die steel (1.2344, 1.2379) 40-50HRC	JC8015 without chipbreaker	70	0.8	2,000	1,000	70	0.7	2,500	2,000	90	1	1,600	1,000	90	0.8	1,900	1,400
		120	0.6	2,000	1,000	120	0.5	2,500	2,000	140	0.5	1,600	1,000	140	0.6	1,900	1,400
		160	0.3	1,900	950	160	0.3	2,200	1,800	210	0.3	1,500	950	210	0.4	1,800	1,000
Grey & Nodular cast iron (GG, GGG) Below 300HB	JC8015	70	1.5	2,600	1,400	70	1.2	3,050	2,600	90	2	2,100	1,300	90	1.2	2,500	2,200
		120	1.2	2,600	1,400	120	0.8	3,050	2,600	140	1.5	2,100	1,300	140	0.8	2,500	2,200
		160	0.7	2,500	1,300	160	0.5	2,900	2,400	210	1	1,200	1,200	210	0.5	2,300	1,700
Titanium alloy 35-43HRC	JC8015 JC8050	70	0.5	1,000	500	70	0.5	1,000	750	90	0.5	780	460	90	0.5	780	690
		120	0.4	1,000	500	120	0.4	1,000	750	140	0.4	780	460	140	0.4	780	690
		160	0.2	980	440	160	0.2	980	660	210	0.2	750	410	210	0.2	750	620
Inconel 35-43HRC	JC8015 JC8050	70	0.5	510	160	70	0.5	510	240	90	0.5	430	170	90	0.5	430	260
		120	0.4	470	160	120	0.4	470	240	140	0.4	390	140	140	0.4	390	210
		160	0.2	440	160	160	0.2	440	240	210	0.2	370	140	210	0.2	370	210

L: Overhung length a_p: Depth of cut n: Spindle speed V_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 a_p or Spindle speed and keep feed per tooth.
3. If machine does not have enough power, recommend to reduce the depth of cut a_p or Spindle speed and Feed speed.
4. Use air blow.
5. In case of 50-55HRC, recommend to reduce 30% above a_p, n, V_f. (In the case of hardened die steel)
6. In case of titanium alloy or inconel, recommended wet cutting.



SDH head type and MSN type carbide shank holder

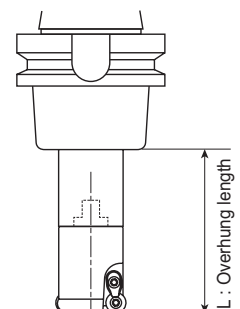
2/3

Work materials	Grades	Tool dia. (mm) [insert type]															
		30 (R5) / 32 (R6) / 35 (R5)				32 / 35 (R5)				30 (R5) / 35 (R6)				30 / 32 / 35 (R5)			
		No. of teeth 2N				No. of teeth 3N				No. of teeth 3N				No. of teeth 4N			
		L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (C50,C55) Below 250HB	JC5040 JC8015	100	2.5	2,000	1,100	100	2.5	2,000	1,600	100	2	2,100	1,900	100	2	2,100	2,500
		150	2	2,000	1,100	150	2	2,000	1,600	150	1.5	2,100	1,900	150	1.5	2,100	2,500
		210	1.2	1,900	1,000	210	1.2	1,900	1,400	210	0.8	2,000	1,600	210	0.8	2,000	2,400
Mold steel (1.2311,P20) 30-43HRC	JC5040 JC8015 (JC8015 above 40HRC)	100	2.5	1,900	1,050	100	2.5	1,900	1,550	100	2	2,000	1,800	100	2	2,000	2,400
		150	2	1,900	1,050	150	2	1,900	1,550	150	1.5	2,000	1,800	150	1.5	2,000	2,400
		210	1.2	1,800	950	210	1.2	1,800	1,400	210	0.8	1,900	1,550	210	0.8	1,900	2,100
Die steel (1.2344,1.2379) Below 255HB	JC5040 JC8015	100	2.5	1,900	1,050	100	2.5	1,900	1,550	100	2	2,000	1,800	100	2	2,000	2,400
		150	2	1,900	1,050	150	2	1,900	1,550	150	1.5	2,000	1,800	150	1.5	2,000	2,400
		210	1.2	1,800	950	210	1.2	1,800	1,400	210	0.8	1,900	1,500	210	0.8	1,900	2,100
Stainless steel Below 250HB	JC8015 JC8050	100	2.5	1,550	850	100	2.5	1,550	1,250	100	2	1,750	1,500	100	2	1,750	2,000
		150	2	1,550	850	150	2	1,550	1,250	150	1.5	1,750	1,500	150	1.5	1,750	2,000
		210	1.2	1,400	800	210	1.2	1,400	1,200	210	0.8	1,600	1,300	210	0.8	1,600	1,700
Hardened die steel (1.2344,1.2379) 40-50HRC	JC8015 without chipbreaker	100	1.5	1,300	750	100	1.5	1,300	1,100	100	1.2	1,400	1,250	100	1.2	1,400	1,850
		150	1.2	1,300	750	150	1.2	1,300	1,100	150	1	1,400	1,250	150	1	1,400	1,850
		210	0.7	1,200	700	210	0.7	1,200	950	210	0.5	1,300	1,100	210	0.5	1,300	1,700
Grey & Nodular cast iron (GG, GGG) Below 300HB	JC8015	100	2.5	1,800	1,000	100	2.5	1,800	1,500	100	2	1,900	1,700	100	2	1,900	2,250
		150	2	1,800	1,000	150	2	1,800	1,500	150	1.5	1,900	1,700	150	1.5	1,900	2,250
		210	1.2	1,700	900	210	1.2	1,700	1,350	210	0.8	1,800	1,600	210	0.8	1,800	2,100
Titanium alloy 35-43HRC	JC8015 JC8050	100	0.5	730	470	100	0.5	730	650	100	0.5	730	650	100	0.5	730	860
		150	0.4	730	330	150	0.4	730	650	150	0.4	730	650	150	0.4	730	860
		210	0.2	700	260	210	0.2	700	600	210	0.2	700	600	210	0.2	700	800
Inconel 35-43HRC	JC8015 JC8050	100	0.5	400	170	100	0.5	400	250	100	0.5	400	250	100	0.5	400	330
		150	0.4	380	150	150	0.4	380	230	150	0.4	380	230	150	0.4	380	310
		210	0.2	350	130	210	0.2	350	200	210	0.2	350	200	210	0.2	350	270

L: Overhung length a_p: Depth of cut n: Spindle speed V_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 a_p or Spindle speed and keep feed per tooth.
3. If machine does not have enough power, recommend to reduce the depth of cut a_p or Spindle speed and Feed speed.
4. Use air blow.
5. In case of 50-55HRC, recommend to reduce 30% above a_p, n, V_f. (In the case of hardened die steel)
6. In case of titanium alloy or inconel, recommended wet cutting.



Recommended cutting conditions

SDH head type and MSN type carbide shank holder

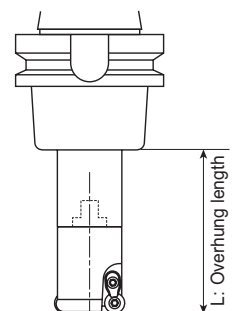
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Work materials	Grades	Tool dia. (mm) [insert type]											
		40 (R6)				40 (R6)				42 (R5)			
		No. of teeth 2N				No. of teeth 4N				No. of teeth 5N			
		L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (C50, C55) Below 250HB	JC5040 JC8015	100	2.5	1,550	890	100	2	1,900	2,300	100	1.8	1,750	2,600
		150	2	1,550	890	150	1.5	1,900	2,300	150	1.3	1,750	2,600
		210	1.2	1,450	780	210	0.8	1,800	2,200	210	0.7	1,650	2,400
Mold steel (1.2311, P20) 30-43HRC	JC5040 JC8015 (JC8015 above 40HRC)	100	2.5	1,500	840	100	2	1,800	2,100	100	1.8	1,700	2,500
		150	2	1,500	840	150	1.5	1,800	2,100	150	1.3	1,700	2,500
		210	1.2	1,450	780	210	0.8	1,700	2,000	210	0.7	1,600	2,200
Die steel (1.2344, 1.2379) Below 255HB	JC5040 JC8015	100	2.5	1,500	840	100	2	1,800	2,100	100	1.8	1,700	2,600
		150	2	1,500	840	150	1.5	1,800	2,100	150	1.3	1,700	2,600
		210	1.2	1,450	780	210	0.8	1,700	2,000	210	0.7	1,600	2,400
Stainless steel Below 250HB	JC8015 JC8050	100	2.5	1,250	700	100	2	1,550	1,600	100	1.8	1,400	2,100
		150	2	1,250	700	150	1.5	1,550	1,600	150	1.3	1,400	2,100
		210	1.2	1,200	670	210	0.8	1,500	1,400	210	0.7	1,250	1,600
Hardened die steel (1.2344, 1.2379) 40-50HRC	JC8015 without chipbreaker	100	1.5	1,050	550	100	1.2	1,350	1,350	100	1.1	1,250	1,500
		150	1.2	1,050	550	150	1	1,350	1,350	150	0.9	1,250	1,500
		210	0.7	1,000	520	210	0.5	1,300	1,100	210	0.4	1,150	1,300
Grey & Nodular cast iron (GG, GGG) Below 300HB	JC8015	100	2.5	1,400	800	100	2	1,700	2,050	100	1.8	1,650	2,400
		150	2	1,400	800	150	1.5	1,700	2,050	150	1.3	1,650	2,400
		210	1.2	1,300	750	210	0.8	1,600	1,800	210	0.7	1,550	2,200
Titanium alloy 35-43HRC	JC8015 JC8050	100	0.5	580	350	100	0.5	580	700	100	0.5	610	730
		150	0.4	580	350	150	0.4	580	700	150	0.4	610	730
		210	0.2	550	330	210	0.2	550	660	210	0.2	580	690
Inconel 35-43HRC	JC8015 JC8050	100	0.5	290	170	100	0.5	290	340	100	0.5	300	310
		150	0.4	270	160	150	0.4	270	320	150	0.4	280	290
		210	0.2	250	120	210	0.2	250	240	210	0.2	260	250

L: Overhang length a_p: Depth of cut n: Spindle speed V_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 a_p or Spindle speed and keep feed per tooth.
3. If machine does not have enough power, recommend to reduce the depth of cut a_p or Spindle speed and Feed speed.
4. Use air blow.
5. In case of 50-55HRC, recommend to reduce 30% above a_p, n, V_f. (In the case of hardened die steel)
6. In case of titanium alloy or inconel, recommended wet cutting.



SDH head type and MSN type carbide shank holder For H.S.C.

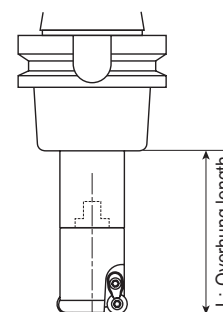
1/2

Work materials	Grades	Tool dia. (mm) [insert type]											
		20 / 22 (R3.5)				25 (R3.5) / 25 (R5) / 28 (R5)				30 (R5) / 35 (R6)			
		No. of teeth 3N				No. of teeth 3N				No. of teeth 3N			
		L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (C50, C55) Below 250HB	JC8003 JC8015 without chipbreaker	70	0.3	5,400	4,800	90	0.3	4,200	3,800	100	0.3	3,300	2,900
		120	0.2	5,100	4,300	140	0.2	4,000	3,400	150	0.2	3,100	2,800
		160	0.1	4,300	3,600	210	0.1	3,400	2,850	210	0.1	2,600	2,150
Mold steel (1.2311, P20) 30-43HRC		70	0.3	4,300	3,200	90	0.3	3,400	2,500	100	0.3	2,800	2,000
		120	0.2	4,100	2,900	140	0.2	3,200	2,250	150	0.2	2,700	1,800
		160	0.1	3,400	2,400	210	0.1	2,700	1,900	210	0.1	2,200	1,500
Die steel (1.2344, 1.2379) Below 255HB		70	0.3	4,300	3,200	90	0.3	3,400	2,500	100	0.3	2,800	2,000
		120	0.2	4,100	2,900	140	0.2	3,200	2,250	150	0.2	2,400	1,800
		160	0.1	3,400	2,400	210	0.1	2,700	1,900	210	0.1	2,200	1,500
Stainless steel Below 250HB		70	0.3	3,600	3,200	90	0.3	2,800	2,500	100	0.3	2,300	2,000
		120	0.2	3,400	2,900	140	0.2	2,700	2,250	150	0.2	2,200	1,800
		160	0.1	2,900	2,400	210	0.1	2,250	1,900	210	0.1	1,850	1,500
Hardened die steel (1.2344, 1.2379) 40-50HRC	70	0.2	4,000	3,000	90	0.2	3,100	2,300	100	0.2	2,500	1,850	
	120	0.12	3,700	2,600	140	0.12	3,000	2,100	150	0.15	2,450	1,650	
	160	0.06	3,200	2,200	210	0.06	2,500	1,700	210	0.1	2,050	1,400	
Grey & Nodular cast iron (GG, GGG) Below 300HB	70	0.3	5,700	5,100	90	0.3	4,500	4,000	100	0.3	3,600	3,200	
	120	0.2	5,100	4,600	140	0.2	4,300	3,600	150	0.2	3,400	2,900	
	160	0.1	4,550	3,800	210	0.1	3,600	3,000	210	0.1	2,900	2,400	

L: Overhung length a_p: Depth of cut n: Spindle speed V_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 a_p or Spindle speed and keep feed per tooth.
3. If machine does not have enough power, recommend to reduce the depth of cut a_p or Spindle speed and Feed speed.
4. Use air blow.
5. In case of 50-55HRC, recommend to reduce 30% above a_p, n, V_f. (In the case of hardened die steel)



Recommended cutting conditions

SDH head type and MSN type carbide shank holder For H.S.C.

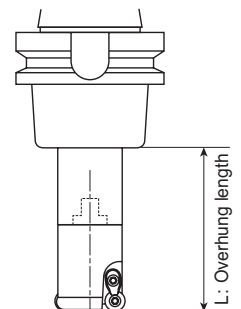
2/2

Work materials	Grades	Tool dia. (mm) [insert type]											
		30 / 32 / 35 (R5)				40 (R6)				42 (R5)			
		No. of teeth 4N				No. of teeth 4N				No. of teeth 5N			
		L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)	L (mm)	a _p (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (C50, C55) Below 250HB	JC8003 JC8015 without chipbreaker	100	0.3	3,300	4,000	100	0.3	2,900	3,400	100	0.3	2,800	4,200
		150	0.2	3,100	3,600	150	0.2	2,700	3,050	150	0.2	2,650	2,400
		210	0.1	2,600	3,000	210	0.1	2,300	2,550	210	0.1	2,250	3,150
Mold steel (1.2311, P20) 30-43HRC		100	0.3	2,800	2,800	100	0.3	2,400	2,400	100	0.3	2,300	2,800
		150	0.2	2,700	2,500	150	0.2	2,300	2,150	150	0.2	2,200	2,500
		210	0.1	2,250	2,100	210	0.1	1,900	1,800	210	0.1	1,850	2,100
Die steel (1.2344, 1.2379) Below 255HB		100	0.3	2,800	2,800	100	0.3	2,400	2,400	100	0.3	2,300	2,800
		150	0.2	2,700	2,500	150	0.2	2,300	2,150	150	0.2	2,200	2,500
		210	0.1	2,250	2,100	210	0.1	1,900	1,800	210	0.1	1,850	2,100
Stainless steel Below 250HB		100	0.3	2,300	2,700	100	0.3	2,000	2,400	100	0.3	1,900	2,800
		150	0.2	2,200	2,400	150	0.2	1,900	2,150	150	0.2	1,800	2,500
		210	0.1	2,850	2,000	210	0.1	1,600	1,800	210	0.1	1,500	2,100
Hardened die steel (1.2344, 1.2379) 40-50HRC	100	0.2	2,550	2,550	100	0.2	2,200	2,200	100	0.2	2,100	2,500	
	150	0.15	2,400	2,250	150	0.15	2,100	2,000	150	0.15	2,000	2,250	
	210	0.1	2,050	1,850	210	0.1	1,750	1,650	210	0.1	1,650	1,850	
Grey & Nodular cast iron (GG, GGG) Below 300HB	100	0.3	3,600	4,300	100	0.3	3,200	4,000	100	0.3	3,000	3,600	
	150	0.2	3,400	3,900	150	0.2	3,000	3,600	150	0.2	2,850	3,250	
	210	0.1	2,900	3,200	210	0.1	2,550	3,000	210	0.1	2,400	2,700	

L: Overhung length a_p: Depth of cut n: Spindle speed V_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 a_p or Spindle speed and keep feed per tooth.
3. If machine does not have enough power, recommend to reduce the depth of cut a_p or Spindle speed and Feed speed.
4. Use air blow.
5. In case of 50-55HRC, recommend to reduce 30% above a_p, n, V_f. (In the case of hardened die steel)



Application

ISO	P					M					K				S				H		
	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30	S01	S10	S20	S30	H01	H10	H20
Application Range	JC8015					NEW JC8050					JC8015				NEW JC8050				JC8015		
	JC5040					JC8015					JC8015				JC8015				NEW JC8003		

Application for choice of inserts

Materials Grades Cat. No.	Cast iron, Cast steel	Carbon steel, Alloy steel		High hardened steel	Titanium alloy, Inconel		Stainless steel	
	JC8015 JC8003	JC5040 JC8003	JC8015	JC8003 JC8015	JC8015	JC8050	JC8015 JC8003	JC8050
RDMW07T2MOT	⊙	⊙		⊙	○		○	
RDGT07T2MOE	☆		☆		⊙	●	⊙	●
RDMW1004MOT	⊙	⊙		⊙	○		○	
RDGT1004MOT	☆		☆				⊙	●
RDGT1004MOE					⊙	●		
RDMW1204MOT	⊙	⊙		⊙	○		○	
RDGT1204MOT	☆		☆				⊙	●
RDGT1204MOE					⊙	●		
RDMW1606MOT	⊙	⊙		⊙	○		○	
RDGT1606MOT	☆		☆				⊙	●
RDGT1606MOE					⊙	●		

•RDMW Type: without chip breaker
•RDGT Type: with chip breaker

⊙: First choice, Good condition ○: Moderate condition ●: Unfavorable condition ☆: Light cutting



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WARNING:

Grinding produces hazardous dust.
To avoid adverse health, adequate ventilation and
read Material Safety Data Sheet First.
Cutting tools may fragment in use.
Wear eye protection in the vicinity of their operation.

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