PRODUCT NEWS

No. 322

DIJET®

Back Draft

NEW PRODUCT

DBD / MDB

- Face Mill Type: ø50 ~ ø80 4 Items
- End Mill Type: ø40 2 Items
- Modular Heads Type: ø 25 ~ ø40 5 Items

BACK DRAFT

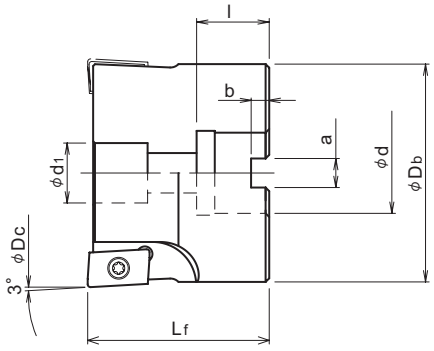
For high speed and efficient finishing on reference surface of bottom face of die shoe and upper holder.

- Possible milling of pocket, ramping, helical interpolation and plunging.
- Available for insert grade in VALUE coating, Cermet and CBN.

DIJET INDUSTRIAL CO., LTD.

Line up

Facemill type



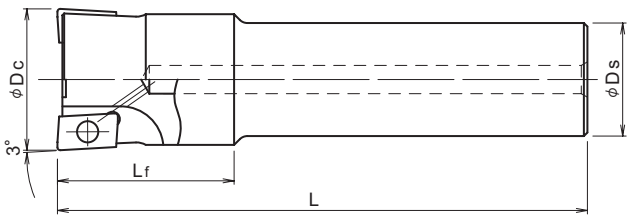
※ ø 80mm dia. is for coolant through the tool.

Cat. No.	Stock	No. of inserts	Dimensions (mm)								Weight (kg)	Applicable Inserts	Parts	
			φDc	Lf	φDb	φd	φd1	a	b	l			Clamp screw	Wrench
DBD-4050R-22	●	4	50	50	47	22	16.5	10.4	6.3	20	0.45	DBD170408	DSW-4085	A-15T
DBD-5063R-22	●	5	63	50	60	22	16.5	10.4	6.3	20	0.81			
DBD-5063R-27	●	5	63	50	60	27	20	12.4	7	22	0.76			
DBD-6080R-27	●	6	80	50	76	27	20	12.4	7	22	1.41			

● : Standard stock items
Note) 1.All cutters are supplied without inserts. 2 Please see page 5 for cutting conditions.

End Mill type

Through coolant hole

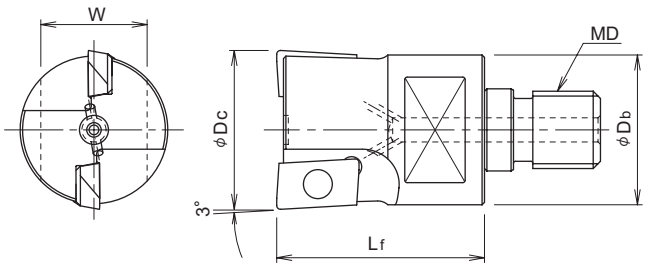


Cat. No.	Stock	No. of inserts	Dimensions (mm)				Weight (kg)	Applicable Inserts	Parts	
			φDc	Lf	L	φDs			Clamp screw	Wrench
DBD-3040-50-S32	●	3	40	50	150	32	0.91	DBD170408	DSW-4085	A-15T
DBD-3040-50L-S32	●	3	40	50	250	32	1.50			

● Standard stock items
Note) 1.All cutters are supplied without inserts. 2 Please see page 5 for cutting conditions.

Modular head MDB type

Through coolant hole

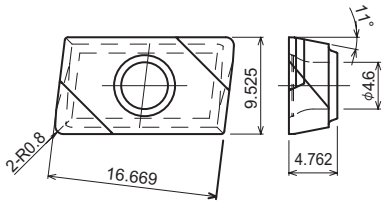


Cat. No.	Stock	No. of inserts	Dimensions (mm)					Applicable Inserts	Parts	
			φDc	Lf	φDb	MD	W		Clamp screw	Wrench
MDB-2025-M12	●	2	25	35	23	M12	17	DBD170408	DSW-4075	A-15
MDB-2026-M12	●	2	26	35	24	M12	17			
MDB-2032-M16	●	2	32	43	30	M16	22			
MDB-2033-M16	●	2	33	43	31	M16	22		DSW-4085	
MDB-3040-M16	●	3	40	43	32	M16	22			

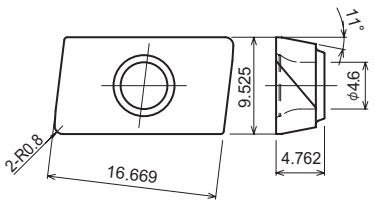
● Standard stock items
Note) 1. All cutters are supplied without inserts. 2. Please see page 3 for applicable arbor and recommended tightening torque. 3.Please see page 6-7 for cutting conditions.

Inserts

■DBD170408（JBN330）



■DBD170408（JC8015,CX90）



Cat. No.	PVD coated	CBN insert	Cermet
	JC8015	JBN330	CX90
DBD170408	●	●	●

● Standard stock items

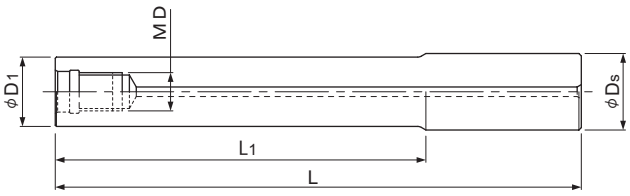
MSN Carbide shank holder (Through coolant hole)

頑固一徹

- For high productivity
- Through coolant hole

JCTMA 2007-033
ECO PRODUCT

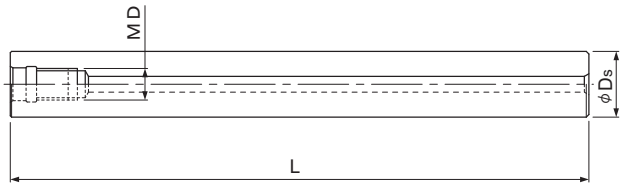
■ End mill shank type



Cat. No.	Stock	Dimensions (mm)				
		φDs	L1	L	φD1	MD
MSN-M12- 25 -S25C	●		25	90		
MSN-M12- 55 -S25C	●		55	120		
MSN-M12-105-S25C	●	25	105	170	24	M12
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
MSN-M16-155-S32C	●		155	220		
MSN-M16-195-S32C	●		195	260		

● Standard stock items

■ Straight arbor type



Cat. No.	Stock	Dimensions (mm)		
		φDs	L	MD
MSN-M12-185S-S23C	●	23	185	M12
MSN-M12-265S-S23C	●		265	
MSN-M12-145S-S25C	●		145	
MSN-M12-215S-S25C	●	25	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	●		157	
MSN-M16-217S-S32C	●	32	217	M16
MSN-M16-287S-S32C	●		287	
MSN-M16-357S-S32C	●		357	

● Standard stock items

Recommended tightening torque for modular head

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

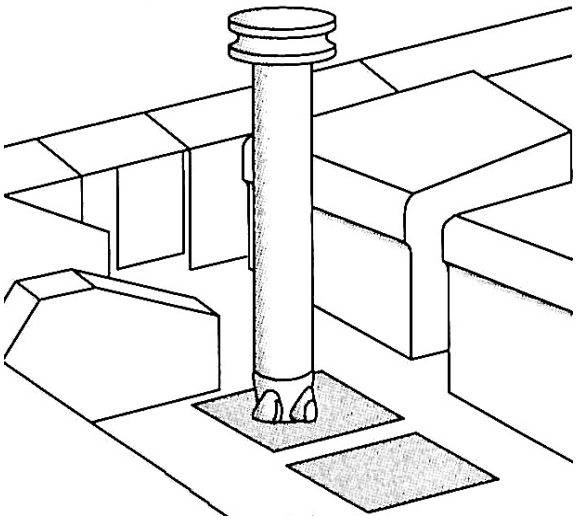
★Attention to mounting head:

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

Cutting data

Cutting data 1

■ Overhung length:330mm



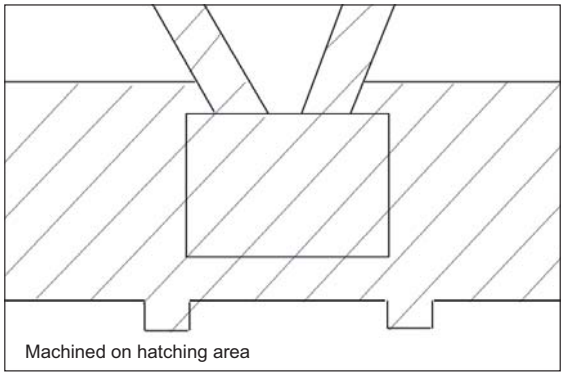
Work	Part name	Stamping die
	Material	FC250 Cast iron
	Hardness	～260HB
Tool	Tool No.	DBD-4050R
	Insert No.	DBD170408（JC8015）
Cutting conditions	Cutting speed Vc（n）	157m/min（1,000min^{-1}）
	Feed speed Vf（f）	1,320mm/min（1.32mm/rev）
	ap	0.1mm
	ae	40mm
	Coolant	Dry
	Machine	Vertical MC

Result

Improved feed speed by 2 times compared with competitor's cutter.

Cutting data 2

■ Finishing
Overhung length:160mm



(Competitor A : Vf= 125 mm/min Vc = 300 m/min)

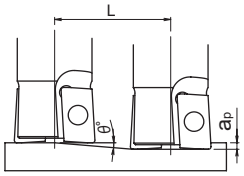
Work	Part name	Plastic mold
	Material	S55C
	Hardness	Low material
Tool	Tool No.	DBD-3040-50L-S32
	Insert No.	DBD170408（CX90）
Cutting conditions	Cutting speed Vc（n）	163m/min（1,300min^{-1}）
	Feed speed Vf（f）	600mm/min（0.46mm/rev）
	ap	0.05～0.1mm
	ae	30mm
	Coolant	Dry(Air blow)
	Machine	Horizontal MC

Result

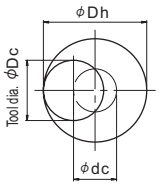
DBD improved machining efficiency 2 times with less chatter compared with compatitor A and better surface finish. Also improved tool life 1.5 times.

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 ap.

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

Cat. No.	Tool dia. (mm)	Eff. Cutting dia.(mm)	Max. depth of cut (mm)	Ramping		Helical interpolation		Max. drilling depth (mm)
				Max. ramping angle θ	Total cutting length at Max.ap	Min. bore dia. Dh min (mm)	Max. bore dia. Dh max (mm)	
MDB-2025	25	23	0.4	1° 30'	15.3	34	47	0.3
MDB-2026	26	24	0.4	1° 30'	15.3	36	49	0.3
MDB-2032	32	30	0.4	1°	22.9	48	61	0.3
MDB-2033	33	31	0.4	1°	22.9	50	63	0.3
MDB-3040、DBD-3040	40	38	0.4	0° 45'	30.5	64	77	0.3
DBD-4050	50	48	0.4	0° 30'	45.8	82	97	0.3
DBD-5063	63	61	0.4	0° 25'	55.1	110	123	0.3
DBD-6080	80	78	0.4	0° 20'	68.8	144	157	0.3

・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, con-firm the safe condition sufficiently.

Recommended cutting conditions

Facemill and End Mill type

■ For coated or cermet insert

Work materials	Grades	Tool dia. (mm)															
		40				50				63				80			
		No. of teeth 3N				No. of teeth 4N				No. of teeth 5N				No. of teeth 6N			
		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	JC8015 CX90	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	CX90 JC8015 JC8015 above 40HRC	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	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 Below 250HB	JC8015 CX90	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
Grey & Nodular cast iron (GG, GGG) Below 300HB	JC8015	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

L:Overhung length a_p:Depth of cut n:Spindle speed V_f:Feed speed

■ For CBN insert

Work materials	Grades	Tool dia. (mm)															
		40				50				63				80			
		No. of teeth 3N				No. of teeth 4N				No. of teeth 5N				No. of teeth 6N			
		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)
Hardened die steel (1.2344,1.2379) 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
Grey & 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 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 Feed speed.
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.

MDB head type and MSN type carbide shank holder

■For coated or cermet insert

Work materials	Grades	Tool dia. (mm)											
		25 / 26				32 / 33				40			
		No. of teeth 2N				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)
Carbon steel (C50,C55) Below 250HB	JC8015 CX90	70	0.3	3,030	1,510	70	0.3	2,360	1,180	90	0.3	1,890	1,410
		120	0.3	3,030	1,510	120	0.3	2,360	1,180	140	0.3	1,890	1,410
		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	CX90 JC8015 JC8015 above 40HRC	70	0.3	2,160	1,080	70	0.3	1,690	840	90	0.3	1,350	1,000
		120	0.3	2,160	1,080	120	0.3	1,690	840	140	0.3	1,350	1,000
		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	70	0.3	2,160	1,080	70	0.3	1,690	840	90	0.3	1,350	1,000
		120	0.3	2,160	1,080	120	0.3	1,690	840	140	0.3	1,350	1,000
		160	0.2	1,730	860	190	0.2	1,350	670	210	0.2	1,080	800
Stainless steel Below 250HB	JC8015 CX90	70	0.3	2,160	1,080	70	0.3	1,690	840	90	0.3	1,350	1,000
		120	0.3	2,160	1,080	120	0.3	1,690	840	140	0.3	1,350	1,000
		160	0.2	1,730	860	190	0.2	1,350	670	210	0.2	1,080	800
Grey & Nodular cast iron (GG, GGG) Below 300HB	JC8015	70	1.0	2,290	1,140	70	1.0	1,790	890	90	1.0	1,430	1,070
		120	0.8	2,290	1,140	120	0.8	1,790	890	140	0.8	1,430	1,070
		160	0.6	1,830	910	190	0.6	1,430	710	210	0.6	1,140	860

L:Overhung length a_p:Depth of cut n:Spindle speed V_f: Feed speed

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

■ For coated or cermet insert

Work materials	Grades	Tool dia. (mm)											
		25 / 26				32 / 33				40			
		No. of teeth 2N				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)
Carbon steel (C50,C55) Below 250HB	JC8015 CX90	70	0.2	3,820	1,910	70	0.2	2,980	1,490	90	0.2	2,390	1,790
		120	0.2	3,820	1,910	120	0.2	2,980	1,490	140	0.2	2,390	1,790
		160	0.1	3,060	1,530	190	0.1	2,380	1,190	210	0.1	1,910	1,430
Mold steel (1.2311,P20) 30-43HRC	CX90 JC8015 JC8015 above 40HRC	70	0.2	3,180	1,590	70	0.2	2,490	1,250	90	0.2	1,990	1,490
		120	0.2	3,180	1,590	120	0.2	2,490	1,250	140	0.2	1,990	1,490
		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	70	0.2	3,180	1,590	70	0.2	2,490	1,250	90	0.2	1,990	1,490
		120	0.2	3,180	1,590	120	0.2	2,490	1,250	140	0.2	1,990	1,490
		160	0.1	2,550	1,280	190	0.1	1,990	1,000	210	0.1	1,590	1,190
Stainless steel Below 250HB	JC8015 CX90	70	0.2	3,180	1,590	70	0.2	2,490	1,250	90	0.2	1,990	1,490
		120	0.2	3,180	1,590	120	0.2	2,490	1,250	140	0.2	1,990	1,490
		160	0.1	2,550	1,280	190	0.1	1,990	1,000	210	0.1	1,590	1,190
Grey & Nodular cast iron (GG, GGG) Below 300HB	JC8015	70	0.2	3,560	1,780	70	0.2	2,790	1,100	90	0.2	2,230	1,670
		120	0.2	3,560	1,780	120	0.2	2,790	1,100	140	0.2	2,230	1,670
		160	0.2	2,850	1,430	190	0.2	2,230	880	210	0.2	1,780	1,340

L:Overhung length a_p:Depth of cut n:Spindle speed V_f: Feed speed

Recommended cutting conditions

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

■ For CBN insert

Work materials	Grades	Tool dia. (mm)											
		25 / 26				32 / 33				40			
		No. of teeth 2N				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)
Hardened die steel (1.2344,1.2379) 40-50HRC	JBN330	70	0.1	2,160	520	70	0.1	1,690	410	90	0.1	1,350	500
		120	0.1	2,160	520	120	0.1	1,690	410	140	0.1	1,350	500
		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	6,370	1,530	70	0.1	4,970	1,200	90	0.1	3,980	960
		120	0.1	6,370	1,530	120	0.1	4,970	1,200	140	0.1	3,980	960
		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	6,370	1,530	70	0.1	4,970	1,200	90	0.1	3,980	960
		120	0.1	6,370	1,530	120	0.1	4,970	1,200	140	0.1	3,980	960
		160	0.1	5,100	1,230	190	0.1	3,980	960	210	0.1	3,180	770
Grey & Nodular cast iron (GG, GGG) Below 300HB	JBN330	70	0.2	12,000	2,880	70	0.2	9,900	2,370	90	0.2	7,950	2,850
		120	0.2	12,000	2,880	120	0.2	9,900	2,370	140	0.2	7,950	2,850
		160	0.2	9,600	2,300	190	0.2	7,920	1,900	210	0.2	6,360	2,280

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 Feed speed.
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.

Note:

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

Your local stockist is:

● Specification may be changed without notice

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