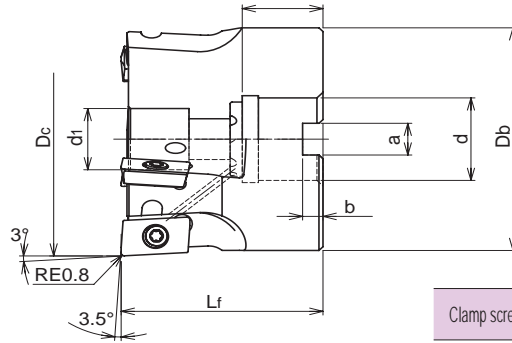


BackDraft

DBD/MDBTYPE

■ FACEMILL type

Through Coolant Hole



Clamp screw	Recommended Torque(N·m)
DSW-4075H	3.6

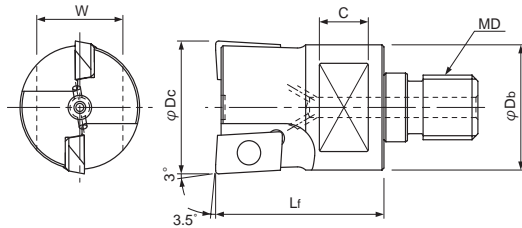
Cat. No.	Stock	No. of inserts	Dimensions(mm)							Parts		Weight (kg)	Inserts	
			φD_c	Lf	φD_b	φd	φd_1	a	b	ℓ	Clamp screw			Wrench
DBD-4050R-22	<input type="checkbox"/>	4	50	50	47	22	16.5	10.4	6.3	20	DSW-4085	A-15	0.45	DBD170408...
DBD-5063R-22	<input type="checkbox"/>	5	63		60								27	
DBD-5063R-27	<input type="checkbox"/>				76	0.76								
DBD-6080R-27	<input type="checkbox"/>	6	80		1.41									

Note) All cutters are supplied without inserts or wrenches.

Recommended cutting conditions → page 4-6

■ Modular head type

Through Coolant Hole



Cat. No.	Stock	No. of inserts	Dimensions(mm)						Parts		Inserts
			φD_c	Lf	φD_b	MD	C	W	Clamp screw	Wrench	
MDB-1020-M10	<input type="checkbox"/>	1	20	35	19	M10	8	14	DSW-4075H	A-15	DBD170408...
MDB-2025-M12	<input type="checkbox"/>	2	25		23	M12	10	17			
MDB-2026-M12	<input type="checkbox"/>		26	24	M12						
MDB-2032-M16	<input type="checkbox"/>	3	32	30	M16	12	22				
MDB-2033-M16	<input type="checkbox"/>		33	31	M16						
MDB-3040-M16	<input type="checkbox"/>	3	40	32	M16						

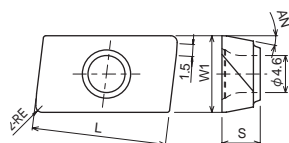
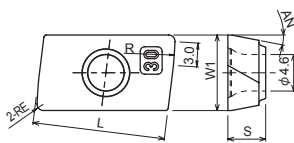
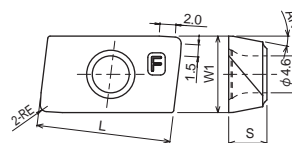
Note) All cutters are supplied without inserts or wrenches.

Recommended cutting conditions → page 7-9

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DBD/MDBTYPE

for bottom face finishing

DBD1704 * *
(JC8015)3mm wiper designed for
bottom face finishingDBD170408-30
(DH103)for both
side and bottomDBD170408-F
(DH103, CX75)

■ INSERTS

Cat. No.	PVD coated		Cermet	Dimensions (mm)				
	DH103	JC8015	CX75	RE	L	W1	S	AN
DBD170404		●		0.8	16.669	9.525	4.762	11°
DBD170408		●						
DBD170408-30	□							
DBD170408-F	●		□					

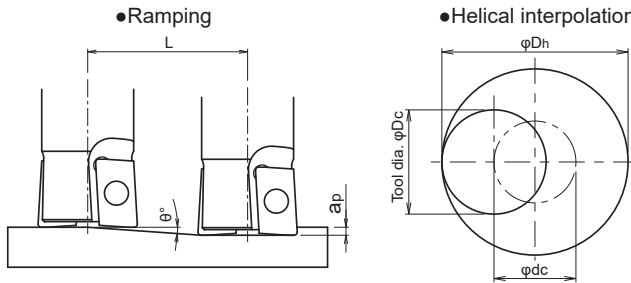
Note) 1. 10 inserts in one case.

2. In case of using "DBD170408-30" insert, effective diameter becomes $D_c - 3.1$ mm.3. In case of using "DBD170408-F" insert, outside diameter becomes 0.24mm smaller than D_c .

BackDraft

DBD/MDB_{TYPE}

■ Instructions for profile milling



- Calculation of tool pass dia.

$$\varphi_{dc} = \varphi_{Dh} - \varphi_{Dc}$$

Tool pass dia. Bore dia. Tool dia.

- Depth of cut per one circle should not exceed max. depth of cut a_p .
- Down cutting is recommended & tool pass rotation should be counterclockwise

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

Cat. No.	Tool dia. (mm)	Effective cutting dia. (mm)	Max. depth of cut a_p (mm)	Ramping		Helical Interpolation		Max. drilling depth Z (mm)
				Max. ramping angle θ°	Total cutting length L (mm) at max a_p	Min. bore dia. Dh min. (mm)	Max. bore dia. Dh max. (mm)	
MDB-1020	20	18	0.4	2°	11.5	25	37	0.3
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	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	114	157	0.3

■ RECOMMENDED CUTTING CONDITIONS

for bottom face finishing

● DBD type

Work Materials	Insert Grades	Tool dia.(mm)											
		50				63				80			
		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)
Carbon steel S50C, S55C ≤250HB	JC8015 CX75 (DH103)	100	0.3	1,520	1,520	100	0.3	1,220	1,520	100	0.3	960	1,200
		150	0.3	1,520	1,520	150	0.3	1,220	1,520	150	0.3	960	1,200
		200	0.2	1,220	1,220	200	0.2	980	1,220	200	0.2	770	960
Mold steel HPM7, PX5, NAK80, P20 30-43HRC	JC8015 DH103 (≥40HRC) (CX75)	100	0.3	1,080	1,080	100	0.3	860	1,070	100	0.3	680	850
		150	0.3	1,080	1,080	150	0.3	860	1,070	150	0.3	680	850
		200	0.2	870	870	200	0.2	690	860	200	0.2	540	680
Die steel (SKD61, SKD11) ≤255HB	JC8015 DH103 (CX75)	100	0.3	1,080	1,080	100	0.3	860	1,070	100	0.3	680	850
		150	0.3	1,080	1,080	150	0.3	860	1,070	150	0.3	680	850
		200	0.2	870	870	200	0.2	690	860	200	0.2	540	680
Stainless steel (SUS304) ≤250HB	JC8015 DH103	100	0.3	1,080	1,080	100	0.3	860	1,070	100	0.3	680	850
		150	0.3	1,080	1,080	150	0.3	860	1,070	150	0.3	680	850
		200	0.2	870	870	200	0.2	690	860	200	0.2	540	680
Gray & Nodular Cast iron (FC, FCD) ≤300HB	JC8015 DH103	100	0.3	1,150	1,150	100	0.3	910	1,140	100	0.3	720	900
		150	0.3	1,150	1,150	150	0.3	910	1,140	150	0.3	720	900
		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

■ NOTE

- 1) The figure to be adjusted according to the machine rigidity or work rigidity.
- 2) In case of chatter occurring, recommend to reduce depth of cut a_p or Feed speed.
- 3) If machine does not have enough power, recommend to reduce depth of cut a_p or Spindle speed and Feed speed.
- 4) Use air blow.

BackDraft

DBD/MDB_{TYPE}

■ RECOMMENDED CUTTING CONDITIONS

for side finishing

● DBD type(inserts ; DBD170408-F)

Work Materials	Insert Grades	Tool dia.(mm)									
		50					63				
		No. of teeth 4N					No. of teeth 5N				
l (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)	l (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)		
Carbon steel S50C, S55C ≤250HB	CX75 (DH103)	100	1.5	≤0.2	2,550	2,550	100	1.5	≤0.2	2,020	2,520
		150	1.5	≤0.2	2,550	2,550	150	1.5	≤0.2	2,020	2,520
		200	1.5	≤0.2	2,550	2,040	200	1.5	≤0.2	2,020	2,020
Mold steel HPM7, PX5, NAK80, P20 30-43HRC	DH103 (≥40HRC) (CX75)	100	1.5	≤0.2	2,230	2,230	100	1.5	≤0.2	1,770	2,210
		150	1.5	≤0.2	2,230	2,230	150	1.5	≤0.2	1,770	2,210
		200	1.5	≤0.2	2,230	1,780	200	1.5	≤0.2	1,770	1,770
Die steel (SKD61, SKD11) ≤255HB	DH103 (CX75)	100	1.5	≤0.2	2,550	2,550	100	1.5	≤0.2	2,020	2,520
		150	1.5	≤0.2	2,550	2,559	150	1.5	≤0.2	2,020	2,520
		200	1.5	≤0.2	2,550	2,040	200	1.5	≤0.2	2,020	2,020
Stainless steel (SUS304) ≤250HB	DH103	100	1.5	≤0.2	1,590	1,590	100	1.5	≤0.2	1,260	1,580
		150	1.5	≤0.2	1,590	1,590	150	1.5	≤0.2	1,260	1,580
		200	1.5	≤0.2	1,590	1,270	200	1.5	≤0.2	1,260	1,260
Gray&Nodular Cast iron (FC, FCD) ≤300HB	DH103	100	1.5	≤0.2	2,550	2,550	100	1.5	≤0.2	2,020	2,520
		150	1.5	≤0.2	2,550	2,550	150	1.5	≤0.2	2,020	2,520
		200	1.5	≤0.2	2,550	2,040	200	1.5	≤0.2	2,020	2,020

l : Overhung length, a_p : Axial Depth of cut, a_e : Radial 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 depth of cut a_p or Feed speed.
- 3) If machine does not have enough power, recommend to reduce depth of cut a_p or Spindle speed and Feed speed.
- 4) Use air blow.

■ RECOMMENDED CUTTING CONDITIONS

for side finishing

● DBD type(inserts ; DBD170408-F)

Work Materials	Insert Grades	Tool dia.(mm)				
		80				
		No. of teeth 6N				
		ℓ (mm)	a _p (mm)	a _e (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel S50C, S55C ≤250HB	CX75 (DH103)	100	1.5	≤0.2	1,590	2,380
		150	1.5	≤0.2	1,590	2,380
		200	1.5	≤0.2	1,590	1,910
Mold steel HPM7, PX5, NAK80, P20 30-43HRC	DH103 (≥40HRC) (CX75)	100	1.5	≤0.2	1,390	2,080
		150	1.5	≤0.2	1,390	2,080
		200	1.5	≤0.2	1,390	1,670
Die steel (SKD61, SKD11) ≤255HB	DH103 (CX75)	100	1.5	≤0.2	1,590	2,380
		150	1.5	≤0.2	1,590	2,380
		200	1.5	≤0.2	1,590	1,910
Stainless steel (SUS304) ≤250HB	DH103	100	1.5	≤0.2	990	1,480
		150	1.5	≤0.2	990	1,480
		200	1.5	≤0.2	990	1,180
Gray&Nodular Cast iron (FC, FCD) ≤300HB	DH103	100	1.5	≤0.2	1,590	2,380
		150	1.5	≤0.2	1,590	2,380
		200	1.5	≤0.2	1,590	1,910

ℓ: Overhung length, a_p: Axial Depth of cut,, a_e: Radial 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 depth of cut a_p or Feed speed.
- 3) If machine does not have enough power, recommend to reduce depth of cut a_p or Spindle speed and Feed speed.
- 4) Use air blow.

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DBD/MDB_{TYPE}

■ RECOMMENDED CUTTING CONDITIONS

for bottom face finishing

● MDB type + MSN Carbide Shank Holder

Work Materials	Insert Grades	Tool dia.(mm)							
		20				25/26			
		No. of teeth 1N				No. of teeth 2N			
		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 S50C, S55C ≤250HB	JC8015 CX75 (DH103)	70	0.3	3,780	940	70	0.3	3,030	1,510
		120	0.3	3,780	940	120	0.3	3,030	1,510
		160	0.2	3,020	750	160	0.2	2,420	1,200
Mold steel HPM7, PX5, NAK80, P20 30-43HRC	JC8015 DH103 (≥40HRC) (CX75)	70	0.3	2,700	670	70	0.3	2,160	1,080
		120	0.3	2,700	670	120	0.3	2,160	1,080
		160	0.2	2,160	540	160	0.2	1,730	860
Die steel (SKD61, SKD11) ≤255HB	JC8015 DH103 (CX75)	70	0.3	2,700	670	70	0.3	2,160	1,080
		120	0.3	2,700	670	120	0.3	2,160	1,080
		160	0.2	2,160	540	160	0.2	1,730	860
Stainless steel (SUS304) ≤250HB	JC8015 DH103	70	0.3	2,700	670	70	0.3	2,160	1,080
		120	0.3	2,700	670	120	0.3	2,160	1,080
		160	0.2	2,160	540	160	0.2	1,730	860
Gray & Nodular Cast iron (FC, FCD) ≤300HB	JC8015 DH103	70	0.3	2,860	710	70	0.3	2,290	1,140
		120	0.3	2,860	710	120	0.3	2,290	1,140
		160	0.2	2,280	570	160	0.2	1,830	910

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 depth of cut a_p or Feed speed.
- 3) If machine does not have enough power, recommend to reduce depth of cut a_p or Spindle speed and Feed speed.
- 4) Use air blow.

■ RECOMMENDED CUTTING CONDITIONS

for bottom face finishing

● MDB type + MSN Carbide Shank Holder

Work Materials	Insert Grades	Tool dia.(mm)							
		32/33				40			
		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)
Carbon steel S50C, S55C ≤250HB	JC8015 CX75 (DH103)	70	0.3	2,360	1,180	90	0.3	1,890	1,410
		120	0.3	2,360	1,180	140	0.3	1,890	1,410
		190	0.2	1,890	940	210	0.2	1,510	1,130
Mold steel HPM7, PX5, NAK80, P20 30-43HRC	JC8015 DH103 (≥40HRC) (CX75)	70	0.3	1,690	840	90	0.3	1,350	1,000
		120	0.3	1,690	840	140	0.3	1,350	1,000
		190	0.2	1,350	670	210	0.2	1,080	800
Die steel (SKD61, SKD11) ≤255HB	JC8015 DH103 (CX75)	70	0.3	1,690	840	90	0.3	1,350	1,000
		120	0.3	1,690	840	140	0.3	1,350	1,000
		190	0.2	1,350	670	210	0.2	1,080	800
Stainless steel (SUS304) ≤250HB	JC8015 DH103	70	0.3	1,690	840	90	0.3	1,350	1,000
		120	0.3	1,690	840	140	0.3	1,350	1,000
		190	0.2	1,350	670	210	0.2	1,080	800
Gray & Nodular Cast iron (FC, FCD) ≤300HB	JC8015 DH103	70	0.3	1,790	890	90	0.3	1,430	1,070
		120	0.3	1,790	890	140	0.3	1,430	1,070
		190	0.2	1,430	710	210	0.2	1,140	860

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 depth of cut a_p or Feed speed.
- 3) If machine does not have enough power, recommend to reduce depth of cut a_p or Spindle speed and Feed speed.
- 4) Use air blow.

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DBD/MDB_{TYPE}

RECOMMENDED CUTTING CONDITIONS

for side finishing

MDB type(inserts ; DBD170408-F) + MSN Carbide Shank Holder

Work Materials	Insert Grades	Tool dia.(mm)									
		20					25/26				
		No. of teeth 1N					No. of teeth 2N				
		ℓ (mm)	a _p (mm)	a _e (mm)	n (min ⁻¹)	V _f (mm/min)	ℓ (mm)	a _p (mm)	a _e (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel S50C, S55C ≤250HB	CX75 (DH103)	70	0.5	≤0.2	6,370	1,600	70	0.8	≤0.2	5,100	2,550
		120	0.5	≤0.2	6,370	1,410	120	0.8	≤0.2	5,100	2,250
		160	0.5	≤0.2	6,370	1,280	160	0.8	≤0.2	5,100	2,040
Mold steel HPM7, PX5, NAK80, P20 30-43HRC	DH103 (≥40HRC) (CX75)	70	0.5	≤0.2	5,580	1,400	70	0.8	≤0.2	4,460	2,230
		120	0.5	≤0.2	5,580	1,230	120	0.8	≤0.2	4,460	1,970
		160	0.5	≤0.2	5,580	1,120	160	0.8	≤0.2	4,460	1,790
Die steel (SKD61, SKD11) ≤255HB	DH103 (CX75)	70	0.5	≤0.2	6,370	1,600	70	0.8	≤0.2	5,100	2,550
		120	0.5	≤0.2	6,370	1,410	120	0.8	≤0.2	5,100	2,250
		160	0.5	≤0.2	6,370	1,280	160	0.8	≤0.2	5,100	2,040
Stainless steel (SUS304) ≤250HB	DH103	70	0.5	≤0.2	3,980	1,000	70	0.8	≤0.2	3,180	1,590
		120	0.5	≤0.2	3,980	880	120	0.8	≤0.2	3,180	1,400
		160	0.5	≤0.2	3,980	800	160	0.8	≤0.2	3,180	1,280
Gray & Nodular Cast iron (FC, FCD) ≤300HB	DH103	70	0.5	≤0.2	6,370	1,600	70	0.8	≤0.2	5,100	2,550
		120	0.5	≤0.2	6,370	1,410	120	0.8	≤0.2	5,100	2,250
		160	0.5	≤0.2	6,370	1,280	160	0.8	≤0.2	5,100	2,040

Work Materials	Insert Grades	Tool dia.(mm)									
		32/33					40				
		No. of teeth 2N					No. of teeth 3N				
		ℓ (mm)	a _p (mm)	a _e (mm)	n (min ⁻¹)	V _f (mm/min)	ℓ (mm)	a _p (mm)	a _e (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel S50C, S55C ≤250HB	CX75 (DH103)	70	1.0	≤0.2	3,990	2,000	90	1.5	≤0.2	3,190	2,400
		120	1.0	≤0.2	3,990	1,760	140	1.5	≤0.2	3,190	2,110
		190	1.0	≤0.2	3,990	1,600	210	1.5	≤0.2	3,190	1,920
Mold steel HPM7, PX5, NAK80, P20 30-43HRC	DH103 (≥40HRC) (CX75)	70	1.0	≤0.2	3,490	1,750	90	1.5	≤0.2	2,790	2,100
		120	1.0	≤0.2	3,490	1,540	140	1.5	≤0.2	2,790	1,850
		190	1.0	≤0.2	3,490	1,400	210	1.5	≤0.2	2,790	1,680
Die steel (SKD61, SKD11) ≤255HB	DH103 (CX75)	70	1.0	≤0.2	3,990	2,000	90	1.5	≤0.2	3,190	2,400
		120	1.0	≤0.2	3,990	1,760	140	1.5	≤0.2	3,190	2,110
		190	1.0	≤0.2	3,990	1,600	210	1.5	≤0.2	3,190	1,920
Stainless steel (SUS304) ≤250HB	DH103	70	1.0	≤0.2	2,490	1,250	90	1.5	≤0.2	2,000	1,500
		120	1.0	≤0.2	2,490	1,100	140	1.5	≤0.2	2,000	1,320
		190	1.0	≤0.2	2,490	1,000	210	1.5	≤0.2	2,000	1,200
Gray & Nodular Cast iron (FC, FCD) ≤300HB	DH103	70	1.0	≤0.2	3,990	2,000	90	1.5	≤0.2	3,190	2,400
		120	1.0	≤0.2	3,990	1,760	140	1.5	≤0.2	3,190	2,110
		190	1.0	≤0.2	3,990	1,600	210	1.5	≤0.2	3,190	1,920

ℓ: Overhung length, a_p: Axial Depth of cut, a_e: Radial 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 depth of cut a_p or Feed speed.
- 3) If machine does not have enough power, recommend to reduce depth of cut a_p or Spindle speed and Feed speed.
- 4) Use air blow.