

# CVD DIAMOND COATED DRILLS

CARBIDE

## DCBSS

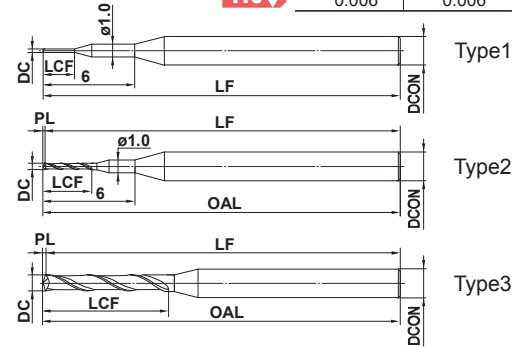
Drill for hard brittle materials



Non-ferrous Metal



	0.05 ≤ DC < 0.2	0.2 ≤ DC ≤ 3
+	0	0
-	-0.009	-0.014
h6	0	0
s	-0.006	-0.006



● For machining materials such as sintered ceramics and quartz glass that cannot be machined with conventional drills.

Unit : mm

Order Number	DC	LCF	OAL	LF	PL	DCON	Stock	Type	Short Delivery
DCBSSD0005	0.05	(0.5)	—	38	—	3	□	1	◎
DCBSSD0006	0.06	(0.6)	—	38	—	3	□	1	
DCBSSD0007	0.07	0.704	38.004	38	0.004	3	□	2	◎
DCBSSD0008	0.08	0.805	38.005	38	0.005	3	□	2	◎
DCBSSD0009	0.09	0.906	38.006	38	0.006	3	□	2	◎
DCBSSD0010	0.10	1.01	38.01	38	0.01	3	●	2	
DCBSSD0011	0.11	1.21	38.01	38	0.01	3	●	2	
DCBSSD0012	0.12	1.41	38.01	38	0.01	3	●	2	
DCBSSD0013	0.13	1.51	38.01	38	0.01	3	●	2	
DCBSSD0014	0.14	1.51	38.01	38	0.01	3	●	2	
DCBSSD0015	0.15	1.51	38.01	38	0.01	3	●	2	
DCBSSD0016	0.16	1.51	38.01	38	0.01	3	●	2	
DCBSSD0017	0.17	1.51	38.01	38	0.01	3	●	2	
DCBSSD0018	0.18	1.51	38.01	38	0.01	3	●	2	
DCBSSD0019	0.19	1.51	38.01	38	0.01	3	●	2	
DCBSSD0020	0.20	2.01	38.01	38	0.01	3	●	3	
DCBSSD0021	0.21	2.01	38.01	38	0.01	3	□	3	◎
DCBSSD0022	0.22	2.01	38.01	38	0.01	3	□	3	◎
DCBSSD0023	0.23	2.01	38.01	38	0.01	3	□	3	◎
DCBSSD0024	0.24	2.01	38.01	38	0.01	3	□	3	◎
DCBSSD0025	0.25	2.52	38.02	38	0.02	3	●	3	
DCBSSD0026	0.26	2.52	38.02	38	0.02	3	□	3	◎
DCBSSD0027	0.27	2.52	38.02	38	0.02	3	□	3	◎
DCBSSD0028	0.28	2.52	38.02	38	0.02	3	□	3	◎
DCBSSD0029	0.29	2.52	38.02	38	0.02	3	□	3	◎
DCBSSD0030	0.30	3.02	38.02	38	0.02	3	●	3	
DCBSSD0031	0.31	3.02	38.02	38	0.02	3	□	3	◎
DCBSSD0032	0.32	3.02	38.02	38	0.02	3	□	3	◎
DCBSSD0033	0.33	3.02	38.02	38	0.02	3	□	3	◎
DCBSSD0034	0.34	3.52	38.02	38	0.02	3	□	3	◎
DCBSSD0035	0.35	3.52	38.02	38	0.02	3	●	3	
DCBSSD0036	0.36	3.52	38.02	38	0.02	3	□	3	◎

Order Number	DC	LCF	OAL	LF	PL	DCON	Stock	Type	Short Delivery
DCBSSD0040	0.40	4.02	38.02	38	0.02	3	●	3	
DCBSSD0045	0.45	4.03	38.03	38	0.03	3	□	3	◎
DCBSSD0050	0.50	4.03	38.03	38	0.03	3	●	3	
DCBSSD0055	0.55	4.53	38.03	38	0.03	3	□	3	◎
DCBSSD0060	0.60	5.04	38.04	38	0.04	3	●	3	
DCBSSD0070	0.70	5.04	38.04	38	0.04	3	●	3	
DCBSSD0080	0.80	6.05	38.05	38	0.05	3	●	3	
DCBSSD0085	0.85	6.05	38.05	38	0.05	3	□	3	◎
DCBSSD0090	0.90	6.06	38.06	38	0.06	3	●	3	
DCBSSD0100	1.00	8.1	38.1	38	0.1	3	●	3	
DCBSSD0110	1.10	8.1	38.1	38	0.1	3	●	3	
DCBSSD0120	1.20	8.1	38.1	38	0.1	3	●	3	
DCBSSD0130	1.30	8.1	38.1	38	0.1	3	●	3	
DCBSSD0140	1.40	8.1	38.1	38	0.1	3	●	3	
DCBSSD0150	1.50	10.1	38.1	38	0.1	3	●	3	
DCBSSD0160	1.60	10.1	38.1	38	0.1	3	●	3	
DCBSSD0170	1.70	10.1	38.1	38	0.1	3	●	3	
DCBSSD0180	1.80	10.1	38.1	38	0.1	3	●	3	
DCBSSD0190	1.90	10.1	38.1	38	0.1	3	●	3	
DCBSSD0200	2.00	12.1	38.1	38	0.1	3	●	3	
DCBSSD0210	2.10	12.1	38.1	38	0.1	3	□	3	◎
DCBSSD0220	2.20	12.1	38.1	38	0.1	3	□	3	◎
DCBSSD0230	2.30	12.1	38.1	38	0.1	3	□	3	
DCBSSD0240	2.40	12.2	38.2	38	0.2	3	□	3	◎
DCBSSD0250	2.50	12.2	38.2	38	0.2	3	●	3	
DCBSSD0260	2.60	12.2	38.2	38	0.2	3	□	3	
DCBSSD0270	2.70	12.2	38.2	38	0.2	3	□	3	
DCBSSD0280	2.80	12.2	38.2	38	0.2	3	□	3	
DCBSSD0290	2.90	12.2	38.2	38	0.2	3	□	3	
DCBSSD0300	3.00	12.2	38.2	38	0.2	3	□	3	◎

(Note 1) Stock mark □ (produced on order products) shows the basic sizes. Consult us, if different diameters and flute lengths.

(Note 2) Drills with ◎ mark can be delivered within 1-2 weeks. For the delivery of other drills, contact Mitsubishi Materials.

(Note 3) DC=0.05, 0.06 are special shape specifications without groove. LCF is the neck lengths instead of the flute lengths.

● : Inventory maintained in Japan. □ : Non stock, produced to order only.

## RECOMMENDED CUTTING CONDITIONS

Work Material	Aluminium nitride				Alumina				Zirconia			
	Dia. DC (mm)	Cutting speed (m/min)	Revolution (min <sup>-1</sup> )	Feed rate (mm/rev)	Step (mm)	Cutting speed (m/min)	Revolution (min <sup>-1</sup> )	Feed rate (mm/rev)	Step (mm)	Cutting speed (m/min)	Revolution (min <sup>-1</sup> )	Feed rate (mm/rev)
<b>0.05</b>	3	20,000	0.000015	0.001	3	20,000	0.00001	0.001	3	20,000	0.00001	0.001
<b>0.08</b>	5	20,000	0.00003	0.003	5	20,000	0.00002	0.002	5	20,000	0.00002	0.001
<b>0.1</b>	6	20,000	0.0002	0.01	6	20,000	0.0001	0.005	6	20,000	0.0001	0.003
<b>0.16</b>	9	18,000	0.0002	0.01	9	18,000	0.0001	0.005	9	18,000	0.0001	0.003
<b>0.2</b>	9	15,000	0.0002	0.01	9	15,000	0.0001	0.005	9	15,000	0.0001	0.003
<b>0.32</b>	12	12,000	0.0002	0.01	12	12,000	0.0001	0.005	12	12,000	0.0001	0.003
<b>0.4</b>	15	12,000	0.0002	0.01	15	12,000	0.0001	0.005	15	12,000	0.0001	0.003
<b>0.5</b>	19	12,000	0.0002	0.01	19	12,000	0.0001	0.005	19	12,000	0.0001	0.003
<b>0.6</b>	19	10,000	0.0002	0.01	19	10,000	0.0001	0.005	19	10,000	0.0001	0.003
<b>0.8</b>	25	10,000	0.0002	0.01	25	10,000	0.0001	0.005	25	10,000	0.0001	0.003
<b>1</b>	31	10,000	0.0002	0.01	31	10,000	0.0001	0.005	31	10,000	0.0001	0.003
<b>1.2</b>	30	8,000	0.00025	0.01	30	8,000	0.00015	0.005	30	8,000	0.00015	0.003
<b>1.6</b>	40	8,000	0.0003	0.01	40	8,000	0.0002	0.005	40	8,000	0.0002	0.003
<b>2</b>	38	6,000	0.0003	0.01	38	6,000	0.0002	0.005	38	6,000	0.0002	0.003
<b>3</b>	47	5,000	0.0003	0.01	47	5,000	0.0003	0.005	47	5,000	0.0002	0.003

Work Material	Silicon carbide Silicon nitride				Quartz glass				
	Dia. DC (mm)	Cutting speed (m/min)	Revolution (min <sup>-1</sup> )	Feed rate (mm/rev)	Step (mm)	Cutting speed (m/min)	Revolution (min <sup>-1</sup> )	Feed rate (mm/rev)	Step (mm)
<b>0.05</b>	3	20,000	0.000005	0.0005	3	20,000	0.000015	0.001	
<b>0.08</b>	5	20,000	0.00001	0.001	5	20,000	0.00003	0.005	
<b>0.1</b>	6	20,000	0.00005	0.002	6	20,000	0.0002	0.05	
<b>0.16</b>	9	18,000	0.00005	0.002	9	18,000	0.0002	0.05	
<b>0.2</b>	9	15,000	0.00005	0.002	9	15,000	0.0002	0.05	
<b>0.32</b>	12	12,000	0.00005	0.002	12	12,000	0.0002	0.05	
<b>0.4</b>	15	12,000	0.00005	0.002	15	12,000	0.0003	0.05	
<b>0.5</b>	19	12,000	0.00005	0.002	19	12,000	0.0003	0.05	
<b>0.6</b>	19	10,000	0.00005	0.002	19	10,000	0.0003	0.05	
<b>0.8</b>	25	10,000	0.00005	0.002	25	10,000	0.0003	0.05	
<b>1</b>	31	10,000	0.00005	0.002	31	10,000	0.0003	0.05	
<b>1.2</b>	30	8,000	0.00007	0.002	30	8,000	0.0004	0.05	
<b>1.6</b>	40	8,000	0.0001	0.002	40	8,000	0.0004	0.05	
<b>2</b>	38	6,000	0.0001	0.002	38	6,000	0.0004	0.05	
<b>3</b>	47	5,000	0.0001	0.002	47	5,000	0.0005	0.05	

- 1) Depending on the type of machine, it is possible to apply cutting speeds over 20000min<sup>-1</sup>.
- 2) Use water soluble coolant or grinding fluid when working.
- 3) The intermediate diameter revolution is not tabulated. It is matched to the large diameter side and closest drill diameter conditions or by calculating the cutting speed of the closest drill diameter. Set the feedrate per revolution to a suitable value with the recommended feedrate of the closest drill diameter as the standard.