

# DRILLS

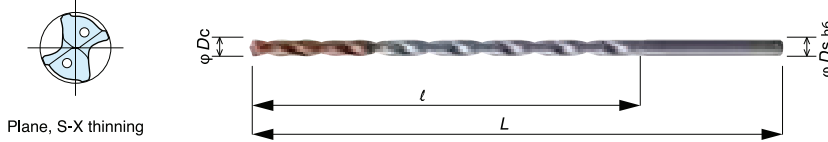
ดอกสว่าน

Straight Shank

ดอกสว่านแกนตรง



## ดอกสว่านคาร์ไบด์ Non Step มีรูน้ำมัน Carbide Oil Hole Non Step Borer 20D 20WHNSB...-TH



Refer to this page



Ds=3 : 0 ~ -0.006  
3 < Ds ≤ 6 : 0 ~ -0.008  
6 < Ds ≤ 10 : 0 ~ -0.009  
10 < Ds : 0 ~ -0.011

(mm)

Order Code	Stock	Size (mm)			
		Dc Drill Dia.	ℓ Flute Length	L Overall Length	Ds Shank Dia.
20WHNSB0200-TH	●	2.0	50	93	3.0
20WHNSB0210-TH	●	2.1	55	98	3.0
20WHNSB0220-TH	●	2.2	55	98	3.0
20WHNSB0230-TH	●	2.3	62	105	3.0
20WHNSB0240-TH	●	2.4	62	105	3.0
20WHNSB0250-TH	●	2.5	62	105	3.0
20WHNSB0260-TH	●	2.6	67	110	3.0
20WHNSB0270-TH	●	2.7	67	110	3.0
20WHNSB0280-TH	●	2.8	69	115	3.0
20WHNSB0290-TH	●	2.9	69	115	3.0
20WHNSB0300-TH	●	3.0	69	117	3.0
20WHNSB0310-TH	●	3.1	81	129	4.0
20WHNSB0320-TH	●	3.2	81	129	4.0
20WHNSB0330-TH	●	3.3	81	129	4.0
20WHNSB0340-TH	●	3.4	81	129	4.0
20WHNSB0350-TH	●	3.5	81	129	4.0
20WHNSB0360-TH	●	3.6	92	141	4.0
20WHNSB0370-TH	●	3.7	92	141	4.0
20WHNSB0380-TH	●	3.8	92	141	4.0
20WHNSB0390-TH	●	3.9	92	141	4.0
20WHNSB0400-TH	●	4.0	92	141	4.0
20WHNSB0410-TH	●	4.1	104	155	5.0
20WHNSB0420-TH	●	4.2	104	155	5.0
20WHNSB0430-TH	●	4.3	104	155	5.0
20WHNSB0440-TH	●	4.4	104	155	5.0
20WHNSB0450-TH	●	4.5	104	155	5.0
20WHNSB0460-TH	●	4.6	116	167	5.0
20WHNSB0470-TH	●	4.7	116	167	5.0
20WHNSB0480-TH	●	4.8	116	167	5.0
20WHNSB0490-TH	●	4.9	116	167	5.0
20WHNSB0500-TH	●	5.0	116	167	5.0
20WHNSB0510-TH	●	5.1	127	178	6.0
20WHNSB0520-TH	●	5.2	127	178	6.0
20WHNSB0530-TH	●	5.3	127	178	6.0
20WHNSB0540-TH	●	5.4	127	178	6.0
20WHNSB0550-TH	●	5.5	127	178	6.0
20WHNSB0560-TH	●	5.6	139	190	6.0
20WHNSB0570-TH	●	5.7	139	190	6.0
20WHNSB0580-TH	●	5.8	139	190	6.0
20WHNSB0590-TH	●	5.9	139	190	6.0
20WHNSB0600-TH	●	6.0	139	190	6.0
20WHNSB0610-TH	●	6.1	150	203	7.0
20WHNSB0620-TH	●	6.2	150	203	7.0
20WHNSB0630-TH	●	6.3	150	203	7.0
20WHNSB0640-TH	●	6.4	150	203	7.0
20WHNSB0650-TH	●	6.5	150	203	7.0
20WHNSB0660-TH	●	6.6	162	215	7.0

Order Code	Stock	Size (mm)			
		Dc Drill Dia.	ℓ Flute Length	L Overall Length	Ds Shank Dia.
20WHNSB0670-TH	●	6.7	162	215	7.0
20WHNSB0680-TH	●	6.8	162	215	7.0
20WHNSB0690-TH	●	6.9	162	215	7.0
20WHNSB0700-TH	●	7.0	162	215	7.0
20WHNSB0710-TH	●	7.1	173	228	8.0
20WHNSB0720-TH	●	7.2	173	228	8.0
20WHNSB0730-TH	●	7.3	173	228	8.0
20WHNSB0740-TH	●	7.4	173	228	8.0
20WHNSB0750-TH	●	7.5	173	228	8.0
20WHNSB0760-TH	●	7.6	185	240	8.0
20WHNSB0770-TH	●	7.7	185	240	8.0
20WHNSB0780-TH	●	7.8	185	240	8.0
20WHNSB0790-TH	●	7.9	185	240	8.0
20WHNSB0800-TH	●	8.0	185	240	8.0
20WHNSB0810-TH	□	8.1	196	251	9.0
20WHNSB0820-TH	□	8.2	196	251	9.0
20WHNSB0830-TH	□	8.3	196	251	9.0
20WHNSB0840-TH	□	8.4	196	251	9.0
20WHNSB0850-TH	●	8.5	196	251	9.0
20WHNSB0860-TH	□	8.6	208	263	9.0
20WHNSB0870-TH	□	8.7	208	263	9.0
20WHNSB0880-TH	□	8.8	208	263	9.0
20WHNSB0890-TH	□	8.9	208	263	9.0
20WHNSB0900-TH	●	9.0	208	263	9.0
20WHNSB0910-TH	□	9.1	219	274	10.0
20WHNSB0920-TH	□	9.2	219	274	10.0
20WHNSB0930-TH	□	9.3	219	274	10.0
20WHNSB0940-TH	□	9.4	219	274	10.0
20WHNSB0950-TH	□	9.5	219	274	10.0
20WHNSB0960-TH	□	9.6	231	286	10.0
20WHNSB0970-TH	□	9.7	231	286	10.0
20WHNSB0980-TH	□	9.8	231	286	10.0
20WHNSB0990-TH	□	9.9	231	286	10.0
20WHNSB1000-TH	□	10.0	231	286	10.0
20WHNSB1010-TH	□	10.1	243	298	11.0
20WHNSB1020-TH	□	10.2	243	298	11.0
20WHNSB1030-TH	□	10.3	243	298	11.0
20WHNSB1040-TH	□	10.4	243	298	11.0
20WHNSB1050-TH	□	10.5	243	298	11.0
20WHNSB1060-TH	□	10.6	254	315	11.0
20WHNSB1070-TH	□	10.7	254	315	11.0
20WHNSB1080-TH	□	10.8	254	315	11.0
20WHNSB1090-TH	□	10.9	254	315	11.0
20WHNSB1100-TH	□	11.0	254	315	11.0
20WHNSB1110-TH	□	11.1	266	327	12.0
20WHNSB1120-TH	□	11.2	266	327	12.0
20WHNSB1130-TH	□	11.3	266	327	12.0

Order Code	Stock	Size (mm)			
		Dc Drill Dia.	ℓ Flute Length	L Overall Length	Ds Shank Dia.
20WHNSB1140-TH	□	11.4	266	327	12.0
20WHNSB1150-TH	□	11.5	266	327	12.0
20WHNSB1160-TH	□	11.6	277	338	12.0
20WHNSB1170-TH	□	11.7	277	338	12.0
20WHNSB1180-TH	□	11.8	277	338	12.0
20WHNSB1190-TH	□	11.9	277	338	12.0
20WHNSB1200-TH	□	12.0	277	338	12.0

● : Stocked Items. □ : Stocked by specified distributor. Contact with our sales department.

20WHNSB  
Table of Tolerance on tool dia.

h8 for diameters of 2.0 to 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5 and 9.0.

For other items, the diameter tolerance will be as in the table below.

(mm)

20WHNSB			
	3.0 < ØDc < 6.0	6.0 < ØDc ≤ 10.0	10.0 < ØDc ≤ 13.0
Max	-0.020	-0.024	-0.030
Min	-0.036	-0.045	-0.053

# DRILLS

ดอกสว่าน



## Recommended cutting conditions

**10WHNSB-TH**

**15WHNSB-TH**

**20WHNSB-TH**

**30WHNSB-TH**

Work material (hardness)	Cutting speed (Vc) m/min	Cutting conditions	Tool Dia. (mm)					
			Ø2.0	Ø4.0	Ø6.0	Ø8.0	Ø10.0	Ø12.0
Structural steel (~180HB) SS	Internal Coolant 40~120	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	7000	4800	3600	2900	2400
	MQL (mist) 40~110	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	5500	4300	3200	2600	2200
Carbon steel (~200HB) S00C	Internal Coolant 40~120	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	7000	4800	3600	2900	2400
	MQL (mist) 40~110	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	5500	4700	3600	2900	2400
Alloy steel (~30HRC) SCM, SKD	Internal Coolant 40~100	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	6300	4500	3400	2700	2400
	MQL (mist) 40~90	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	5000	3700	2900	2400	2100
Stainless steel SUS300, SUS400	Internal Coolant 30~100	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	6000	4800	3700	2700	2200	1800
	Prehardened steel	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	4500	2400	1600	1200	950	800
Ductile iron FCD500	Internal Coolant 40~120	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	7000	4800	3600	2900	2400
	MQL (mist) 40~100	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	6300	4500	3400	2700	2400
Casting FC250	Internal Coolant 40~150	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	8000	5300	4000	3200	2650
	MQL (mist) 40~120	(n)min <sup>-1</sup> Revolution speed (n) (f)mm/rev Feed per Rev	8000	7000	4800	3600	2900	2400

**[Setting of Cutting Conditions]**

- ※ Use the appropriate coolant for the work material and machining shape.
- ※ These Recommended Cutting Conditions indicate only the rule of a thumb for the cutting conditions. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
- ※ The above cutting conditions are based on the use of a water-soluble coolant diluted to a maximum of 20 times. When coolant dilution exceeds 20 times, decrease the cutting speed to the lowest in the specified range. When the tool diameter is Ø5.0 or less, the coolant pressure should be 2.0 MPa or higher, and when the diameter is over Ø5.0, the pressure should be 1.5 MPa or higher.
- ※ When performing MQL (mist) machining, depending on the amount or status of spray from the tool, it may be necessary to reduce the cutting speed in order to perform machining.
- ※ When changing the tool, use collet free from flaws and stains and attach the tool firmly so that its runout is 0.02mm or less.
- ※ The above conditions apply to a hole-depth of 5 times the diameter or less.
- ※ When cutting fluid is used, reduce the cutting speed to a speed lower than the lowest speed in the specified range. Take the greatest care to avoid heating of chips and the tool. smoke or ignition due to
- ※ Works should be gripped firmly to prevent deformation, deflection and vibration.
- ※ You can use borers at a revolution speed lower than the above values.

Straight Shank  
ดอกสว่านแกนตรง

Carbide Drills

ดอกสว่านคาร์ไบด์

HSS Drills

ดอกสว่านไฮสปีด

Stub / Standard

ตัวสั้น / มาตรฐาน

Long

ตัวยาว

Micro Drill

ดอกสว่านไมโคร

Z Plunging

Step Borer