

Carbide Boring Tool

WHNSB-TH/WNSB-TH

Carbide Non Step Borer series



Mitsubishi Hitachi Tool Engineering, Ltd.

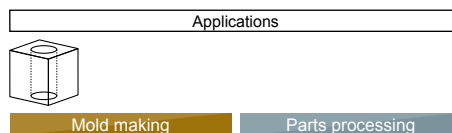
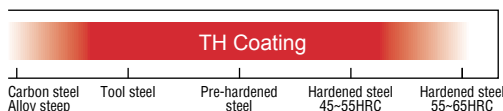
New Product News | No.1005E-5 | 2017-10

Completely non-step to ultra-deep (L/D=30) holes!! NSB specially shaped grooves enable quick chip discharge!

Features of WHNSB-TH and WNSB-TH

- 01** Oxidation and abrasion resistant TH coating.
- 02** NSB specially shaped grooves enable non-step smooth boring.
- 03** High-accuracy cutting edge.
- 04** High accuracy shank capable of shrink fitting.
- 05** High-efficiency boring even for environment friendly MQL machining.

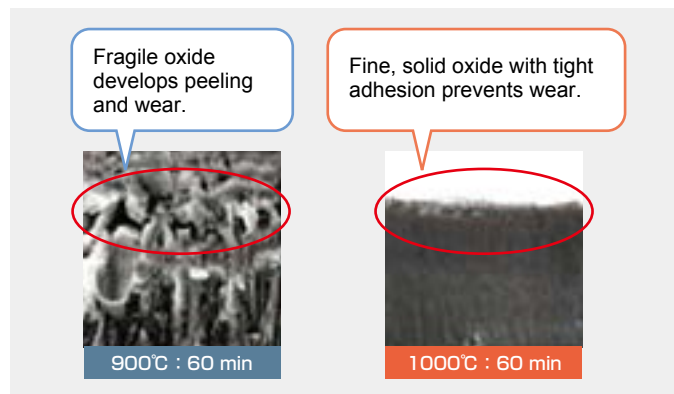
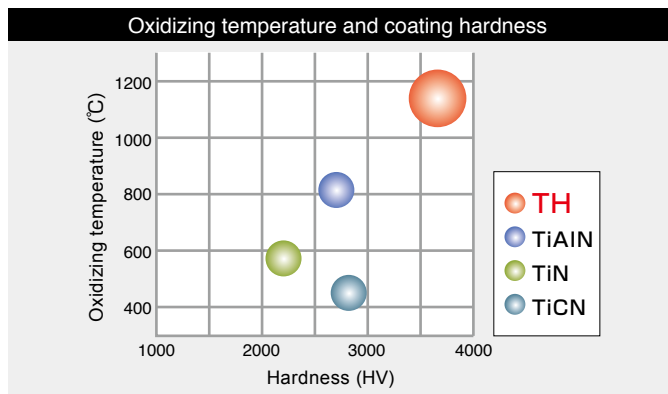
Expanded Stocks
& Items!!
Total
1118
items



03~30WHNSB-TH φ2~φ13 [896 Items]
02·04WNSB-TH φ1~φ13 [222 Items]

Features 01 TH coating improves stability during high-temperature boring.

- Oxidation-resistant TH coating enables high-efficiency boring that causes high temperature.



Features 02 Specially shaped grooves removal chips effectively

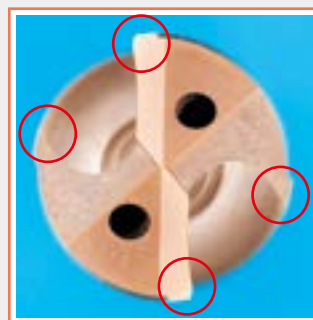
- Torque change on the main spindle
- Tool : 20WHNSB0600-TH
 - Cutting conditions : $v_c=100\text{m/min}$ $f=0.15\text{mm/rev}$ $H=120\text{mm}$
 - Work material : S50C
 - Water-soluble coolant : internal oil supply

Carbide Non Step Borer



NSB specially formed groove removal chips effectively.

Features 03 Double margins enable firm guide.



Four guides with double margins

Double margins enable stable boring even in the last stage of boring a through hole.

Stock item index

※1 : Without oil hole

Tool Dia. (mm)	Shank Dia. (mm)	03WHNSB	05WHNSB	08WHNSB	10WHNSB	15WHNSB	20WHNSB	25WHNSB	30WHNSB	02WNSB	04WNSB
		3Dc	5Dc	8Dc	10Dc	15Dc	20Dc	25Dc	30Dc	2Dc※1	4Dc※1
1.0	3.0										●
1.1	3.0										●
1.2	3.0										●
1.3	3.0										●
1.4	3.0										●
1.5	3.0										●
1.6	3.0										●
1.7	3.0										●
1.8	3.0										●
1.9	3.0										●
2.0	3.0	●	●	●	●	●	●	☆	●		●
2.03	3.0	●	●	●	●	●	●	☆	●		●
2.1	3.0	●	●	●	●	●	●	☆	●		●
2.13	3.0	●	●	●	●	●	●	☆	●		●
2.2	3.0	●	●	●	●	●	●	☆	●		●
2.23	3.0	●	●	●	●	●	●	☆	●		●
2.3	3.0	●	●	●	●	●	●	☆	●		●
2.33	3.0	●	●	●	●	●	●	☆	●		●
2.4	3.0	●	●	●	●	●	●	☆	●		●
2.43	3.0	●	●	●	●	●	●	☆	●		●
2.5	3.0	●	●	●	●	●	●	☆	●		●
2.53	3.0	●	●	●	●	●	●	☆	●		●
2.6	3.0	●	●	●	●	●	●	☆	●		●
2.63	3.0	●	●	●	●	●	●	☆	●		●
2.7	3.0	●	●	●	●	●	●	☆	●		●
2.73	3.0	●	●	●	●	●	●	☆	●		●
2.8	3.0	●	●	●	●	●	●	☆	●		●
2.83	3.0	●	●	●	●	●	●	☆	●		●
2.9	3.0	●	●	●	●	●	●	☆	●		●
2.93	3.0	●	●	●	●	●	●	☆	●		●
3.0	3.0	●	●	●	●	●	●	☆	●	□	●
3.05	4.0	●	●	●	●	●	●	☆	●	□	●
3.1	4.0	●	●	●	●	●	●	☆	●	□	●
3.2	4.0	●	●	●	●	●	●	☆	●	□	●
3.3	4.0	●	●	●	●	●	●	☆	●	□	●
3.4	4.0	●	●	●	●	●	●	☆	●	□	●
3.5	4.0	●	●	●	●	●	●	☆	●	□	●
3.6	4.0	●	●	●	●	●	●	☆	●	□	●
3.7	4.0	●	●	●	●	●	●	☆	●	□	●
3.8	4.0	●	●	●	●	●	●	☆	●	□	●
3.9	4.0	●	●	●	●	●	●	☆	●	□	●
4.0	4.0	●	●	●	●	●	●	☆	●	□	●
4.05	5.0	●	●	●	●	●	●	☆	●	□	●
4.1	5.0	●	●	●	●	●	●	☆	●	□	●
4.2	5.0	●	●	●	●	●	●	☆	●	□	●
4.3	5.0	●	●	●	●	●	●	☆	●	□	●
4.4	5.0	●	●	●	●	●	●	☆	●	□	●
4.5	5.0	●	●	●	●	●	●	☆	●	□	●
4.6	5.0	●	●	●	●	●	●	☆	●	□	●
4.7	5.0	●	●	●	●	●	●	☆	●	□	●
4.8	5.0	●	●	●	●	●	●	☆	●	□	●
4.9	5.0	●	●	●	●	●	●	☆	●	□	●
5.0	5.0	●	●	●	●	●	●	☆	●	●	●
5.05	6.0	●	●	●	●	●	●	☆	●	●	●
5.1	6.0	●	●	●	●	●	●	☆	●	●	●
5.2	6.0	●	●	●	●	●	●	☆	●	●	●
5.3	6.0	●	●	●	●	●	●	☆	●	□	●
5.4	6.0	●	●	●	●	●	●	☆	●	●	●
5.5	6.0	●	●	●	●	●	●	☆	●	●	●
5.55	6.0	●	●	●	●	●	●	☆	●	●	●
5.6	6.0	●	●	●	●	●	●	☆	●	□	●
5.7	6.0	●	●	●	●	●	●	☆	●	□	●
5.8	6.0	●	●	●	●	●	●	☆	●	●	●
5.9	6.0	●	●	●	●	●	●	☆	●	□	●
6.0	6.0	●	●	●	●	●	●	☆	●	●	●
6.05	7.0	●	●	●	●	●	●	☆	●	□	●
6.1	7.0	●	●	●	●	●	●	☆	●	□	●
6.2	7.0	●	●	●	●	●	●	☆	●	●	●
6.3	7.0	●	●	●	●	●	●	☆	●	□	●
6.4	7.0	●	●	●	●	●	●	☆	●	□	●

Tool Dia. (mm)	Shank Dia. (mm)	03WHNSB	05WHNSB	08WHNSB	10WHNSB	15WHNSB	20WHNSB	25WHNSB	30WHNSB	02WNSB	04WNSB
		3Dc	5Dc	8Dc	10Dc	15Dc	20Dc	25Dc	30Dc	2Dc※1	4Dc※1
6.5	7.0	●	●	●	●	●	●	☆	●	●	●
6.55	7.0	●	●	●	●	●	●	☆	●	□	●
6.6	7.0	●	●	●	●	●	●	☆	●	□	●
6.7	7.0	●	●	●	●	●	●	☆	●	□	●
6.8	7.0	●	●	●	●	●	●	☆	●	●	●
6.9	7.0	●	●	●	●	●	●	☆	●	●	●
7	7.0	●	●	●	●	●	●	☆	●	●	●
7.05	8.0	●	●	●	●	●	●	☆	●	□	●
7.1	8.0	●	●	●	●	●	●	☆	●	□	●
7.2	8.0	●	●	●	●	●	●	☆	●	□	●
7.3	8.0	●	●	●	●	●	●	☆	●	□	●
7.4	8.0	●	●	●	●	●	●	☆	●	□	●
7.5	8.0	●	●	●	●	●	●	☆	●	●	●
7.6	8.0	●	●	●	●	●	●	☆	●	□	●
7.7	8.0	●	●	●	●	●	●	☆	●	□	●
7.8	8.0	●	●	●	●	●	●	☆	●	●	●
7.9	8.0	●	●	●	●	●	●	☆	●	●	●
8	8.0	●	●	●	●	●	●	☆	●	●	●
8.05	9.0	●	●	□	□	□	□	□	□	□	●
8.1	9.0	●	●	□	□	□	□	□	□	□	●
8.2	9.0	●	●	□	□	□	□	□	□	□	●
8.3	9.0	●	●	□→②	□→②	□→②	□→②	☆	□→②	□	●
8.4	9.0	●	●	□→②	□→②	□→②	□→②	☆	□→②	●	●
8.5	9.0	●	●	□	□	●	●	☆	□→②	●	●
8.6	9.0	●	●	□	□	□	□	□	□	●	●
8.7	9.0	●	●	□	□	□	□	□	□	□	●
8.8	9.0	●	●	□→②	□→②	□→②	□→②	☆	□→②	●	●
8.9	9.0	●	●	□→②	□→②	□→②	□→②	☆	□→②	□	●
9	9.0	●	●	●	●	●	●	☆	□→②	●	●
9.1	10.0	□	□	□	□	□	□	□	□	□	●
9.2	10.0	□	□	□	□	□	□	□	□	□	●
9.3	10.0	□→②	□→②	□→②	□→②	□→②	□→②	☆	★	□	●
9.4	10.0	□→②	□→②	□→②	□→②	□→②	□→②	☆	★	●	●
9.5	10.0	●	●	●	□→②	□→②	□→②	☆	★	●	●
9.6	10.0	□	□	□	□	□	□	□	□	□	●
9.7	10.0	□	□	□	□	□	□	□	□	□	●
9.8	10.0	●	●	□→②	□→②	□→②	□→②	☆	★	●	●
9.9	10.0	□→②	□→②	□→②	□→②	□→②	□→②	☆	★	□	●
10	10.0	●	●	●	□→②	●	□→②	☆	★	●	●
10.1	11.0	□	□	□	□	□	□	□	□	□	●
10.2	11.0	●	●	●	□	□	□	□	□	□	●
10.3	11.0	●	●	●	□→②	□→②	□→②	☆	★	●	●
10.4	11.0	□→②	□→②	□→②	□→②	□→②	□→②	☆	★	□	●
10.5	11.0	●	●	●	□→②	□→②	□→②	☆	★	●	●
10.6	11.0	□	□	□	□	□	□	□	□	□	●
10.7	11.0	□	□	□	□	□	□	□	□	□	●
10.8	11.0	●	●	●	□→②	□→②	□→②	☆	★	●	●
10.9	11.0	□→②	□→②	□→②	□→②	□→②	□→②	☆	★	□	●
11	11.0	●	●	●	□→②	□→②	□→②	☆	★	●	●
11.1	12.0	□	□	□	□	□	□	□	□	□	●
11.2	12.0	□	□	□	□	□	□	□	□	□	●
11.3	12.0	□→②	□→②	□→②	□→②	□→②	□→②	☆	★	□	●
11.4	12.0	□→②	□→②	□→②	□→②	□→②	□→②	☆	★	●	●
11.5	12.0	●	●	●	□→②	□→②	□→②	☆	★	●	●
11.6	12.0	□	□	●	□	□	□	□	□	□	●
11.7	12.0	□	□	□	□	□	□	□	□	□	●
11.8	12.0	●	●	□→②	□→②	□→②	□→②	☆	★	●	●
11.9	12.0	□→②	□→②	□→②	□→②	□→②	□→②	☆	★	□	●
12	12.0	●	●	●	□→②	□→②	□→②	☆	★	●	●
12.1	13.0	□	□	□	□	□	□	□	□	□	●
12.2	13.0	□	□	□	□	□	□	□	□	□	●
12.3	13.0	□	□	□	□	□	□	□	□	□	●
12.4	13.0	□	□	□	□	□	□	□	□	□	●
12.5	13.0	●	●	●	□→②	□→②	★	☆	●	●	●
12.6	13.0	□	□	□	□	□	□	□	□	□	●
12.7	13.0	□	□	□	□	□	□	□	□	□	●
12.8	13.0	□	□	□	□	□	□	□	□	□	●
12.9	13.0	□	□	□	□	□	□	□	□	□	●
13	13.0	●	●	●	□→②	□→②	★	☆	●	●	●

★ : Stocked Items of New Products since Nov. 2017. ● : Stocked Items. □→② : Stocked items since Feb.2018.

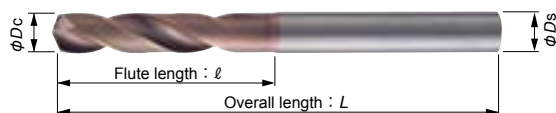
☆ : Introduction planned Jun. 2018. □ : Stocked by specified distributor. Contact with our sales department.

□ : Stocked by specified distributor. Introduction planned Jun. 2018.

Line Up



Plane,
S-X thinning



03WHNSB-TH

With oil hole

L/D=3

h8	φ2~φ3	: 0~0.014
	φ3.05~φ6	: 0~0.018
	φ6.05~φ10	: 0~0.022
	φ10.1~φ13	: 0~0.027



0~0.01

(mm)

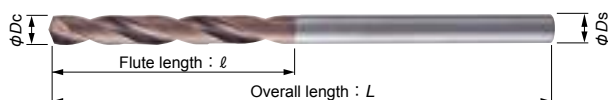
Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length ℓ	Overall length L	Shank dia. Ds
03WHNSB0200-TH	●	2.0	16	69	3.0
03WHNSB0203-TH	●	2.03	16	69	3.0
03WHNSB0210-TH	●	2.1	17	69	3.0
03WHNSB0213-TH	●	2.13	17	69	3.0
03WHNSB0220-TH	●	2.2	17	69	3.0
03WHNSB0223-TH	●	2.23	17	69	3.0
03WHNSB0230-TH	●	2.3	19	69	3.0
03WHNSB0233-TH	●	2.33	19	69	3.0
03WHNSB0240-TH	●	2.4	19	69	3.0
03WHNSB0243-TH	●	2.43	19	69	3.0
03WHNSB0250-TH	●	2.5	19	69	3.0
03WHNSB0253-TH	●	2.53	19	69	3.0
03WHNSB0260-TH	●	2.6	19	69	3.0
03WHNSB0263-TH	●	2.63	19	69	3.0
03WHNSB0270-TH	●	2.7	19	69	3.0
03WHNSB0273-TH	●	2.73	19	69	3.0
03WHNSB0280-TH	●	2.8	19	69	3.0
03WHNSB0283-TH	●	2.83	19	69	3.0
03WHNSB0290-TH	●	2.9	19	69	3.0
03WHNSB0293-TH	●	2.93	19	69	3.0
03WHNSB0300-TH	●	3.0	19	69	3.0
03WHNSB0305-TH	●	3.05	23	73	4.0
03WHNSB0310-TH	●	3.1	23	73	4.0
03WHNSB0320-TH	●	3.2	23	73	4.0
03WHNSB0330-TH	●	3.3	23	73	4.0
03WHNSB0340-TH	●	3.4	23	73	4.0
03WHNSB0350-TH	●	3.5	23	73	4.0
03WHNSB0360-TH	●	3.6	23	73	4.0
03WHNSB0370-TH	●	3.7	23	73	4.0
03WHNSB0380-TH	●	3.8	23	73	4.0
03WHNSB0390-TH	●	3.9	23	73	4.0
03WHNSB0400-TH	●	4.0	23	73	4.0
03WHNSB0405-TH	●	4.05	29	82	5.0
03WHNSB0410-TH	●	4.1	29	82	5.0
03WHNSB0420-TH	●	4.2	29	82	5.0
03WHNSB0430-TH	●	4.3	29	82	5.0
03WHNSB0440-TH	●	4.4	29	82	5.0
03WHNSB0450-TH	●	4.5	29	82	5.0
03WHNSB0460-TH	●	4.6	29	82	5.0
03WHNSB0470-TH	●	4.7	29	82	5.0
03WHNSB0480-TH	●	4.8	29	82	5.0
03WHNSB0490-TH	●	4.9	29	82	5.0
03WHNSB0500-TH	●	5.0	29	82	5.0
03WHNSB0505-TH	●	5.05	29	82	6.0
03WHNSB0510-TH	●	5.1	29	82	6.0
03WHNSB0520-TH	●	5.2	29	82	6.0
03WHNSB0530-TH	●	5.3	29	82	6.0
03WHNSB0540-TH	●	5.4	29	82	6.0
03WHNSB0550-TH	●	5.5	29	82	6.0
03WHNSB0555-TH	●	5.55	29	82	6.0
03WHNSB0560-TH	●	5.6	29	82	6.0
03WHNSB0570-TH	●	5.7	29	82	6.0
03WHNSB0580-TH	●	5.8	29	82	6.0
03WHNSB0590-TH	●	5.9	29	82	6.0
03WHNSB0600-TH	●	6.0	29	82	6.0
03WHNSB0605-TH	●	6.05	34	89	7.0
03WHNSB0610-TH	●	6.1	34	89	7.0
03WHNSB0620-TH	●	6.2	34	89	7.0
03WHNSB0630-TH	●	6.3	34	89	7.0
03WHNSB0640-TH	●	6.4	34	89	7.0
03WHNSB0650-TH	●	6.5	34	89	7.0
03WHNSB0655-TH	●	6.55	34	89	7.0
03WHNSB0660-TH	●	6.6	34	89	7.0
03WHNSB0670-TH	●	6.7	34	89	7.0
03WHNSB0680-TH	●	6.8	34	89	7.0

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length ℓ	Overall length L	Shank dia. Ds
03WHNSB0690-TH	●	6.9	34	89	7.0
03WHNSB0700-TH	●	7.0	34	89	7.0
03WHNSB0705-TH	●	7.05	39	95	8.0
03WHNSB0710-TH	●	7.1	39	95	8.0
03WHNSB0720-TH	●	7.2	39	95	8.0
03WHNSB0730-TH	●	7.3	39	95	8.0
03WHNSB0740-TH	●	7.4	39	95	8.0
03WHNSB0750-TH	●	7.5	39	95	8.0
03WHNSB0760-TH	●	7.6	39	95	8.0
03WHNSB0770-TH	●	7.7	39	95	8.0
03WHNSB0780-TH	●	7.8	39	95	8.0
03WHNSB0790-TH	●	7.9	39	95	8.0
03WHNSB0800-TH	●	8.0	39	95	8.0
03WHNSB0805-TH	●	8.05	44	101	9.0
03WHNSB0810-TH	●	8.1	44	101	9.0
03WHNSB0820-TH	●	8.2	44	101	9.0
03WHNSB0830-TH	●	8.3	44	101	9.0
03WHNSB0840-TH	●	8.4	44	101	9.0
03WHNSB0850-TH	●	8.5	44	101	9.0
03WHNSB0860-TH	●	8.6	44	101	9.0
03WHNSB0870-TH	●	8.7	44	101	9.0
03WHNSB0880-TH	●	8.8	44	101	9.0
03WHNSB0890-TH	●	8.9	44	101	9.0
03WHNSB0900-TH	●	9.0	44	101	9.0
03WHNSB0910-TH	□	9.1	49	107	10.0
03WHNSB0920-TH	□	9.2	49	107	10.0
03WHNSB0930-TH	□→②	9.3	49	107	10.0
03WHNSB0940-TH	□→②	9.4	49	107	10.0
03WHNSB0950-TH	●	9.5	49	107	10.0
03WHNSB0960-TH	□	9.6	49	107	10.0
03WHNSB0970-TH	□	9.7	49	107	10.0
03WHNSB0980-TH	●	9.8	49	107	10.0
03WHNSB0990-TH	□→②	9.9	49	107	10.0
03WHNSB1000-TH	●	10.0	49	107	10.0
03WHNSB1010-TH	□	10.1	54	117	11.0
03WHNSB1020-TH	●	10.2	54	117	11.0
03WHNSB1030-TH	●	10.3	54	117	11.0
03WHNSB1040-TH	□→②	10.4	54	117	11.0
03WHNSB1050-TH	●	10.5	54	117	11.0
03WHNSB1060-TH	□	10.6	54	117	11.0
03WHNSB1070-TH	□	10.7	54	117	11.0
03WHNSB1080-TH	●	10.8	54	117	11.0
03WHNSB1090-TH	□→②	10.9	54	117	11.0
03WHNSB1100-TH	●	11.0	54	117	11.0
03WHNSB1110-TH	□	11.1	59	123	12.0
03WHNSB1120-TH	□	11.2	59	123	12.0
03WHNSB1130-TH	□→②	11.3	59	123	12.0
03WHNSB1140-TH	□→②	11.4	59	123	12.0
03WHNSB1150-TH	●	11.5	59	123	12.0
03WHNSB1160-TH	□	11.6	59	123	12.0
03WHNSB1170-TH	□	11.7	59	123	12.0
03WHNSB1180-TH	●	11.8	59	123	12.0
03WHNSB1190-TH	□→②	11.9	59	123	12.0
03WHNSB1200-TH	●	12.0	59	123	12.0
03WHNSB1210-TH	□	12.1	64	129	13.0
03WHNSB1220-TH	□	12.2	64	129	13.0
03WHNSB1230-TH	□	12.3	64	129	13.0
03WHNSB1240-TH	□	12.4	64	129	13.0
03WHNSB1250-TH	●	12.5	64	129	13.0
03WHNSB1260-TH	□	12.6	64	129	13.0
03WHNSB1270-TH	□	12.7	64	129	13.0
03WHNSB1280-TH	□	12.8	64	129	13.0
03WHNSB1290-TH	□	12.9	64	129	13.0
03WHNSB1300-TH	●	13.0	64	129	13.0

● : Stocked Items. □→② : Stocked items since Feb.2018. □ : Stocked by specified distributor. Contact with our sales department.



Plane,
S-X thinning



05WHNSB-TH

With oil hole

L/D=5



φ2~φ3	0~-0.014
φ3.1~φ6	0~-0.018
φ6.1~φ10	0~-0.022
φ10.1~φ13	0~-0.027



0~-0.01

(mm)

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length l	Overall length L	Shank dia. Ds
05WHNSB0200-TH	●	2.0	20	66	3.0
05WHNSB0210-TH	●	2.1	24	74	3.0
05WHNSB0220-TH	●	2.2	24	74	3.0
05WHNSB0230-TH	●	2.3	24	74	3.0
05WHNSB0240-TH	●	2.4	24	74	3.0
05WHNSB0250-TH	●	2.5	24	74	3.0
05WHNSB0260-TH	●	2.6	29	79	3.0
05WHNSB0270-TH	●	2.7	29	79	3.0
05WHNSB0280-TH	●	2.8	29	79	3.0
05WHNSB0290-TH	●	2.9	29	79	3.0
05WHNSB0300-TH	●	3.0	29	79	3.0
05WHNSB0310-TH	●	3.1	37	87	4.0
05WHNSB0320-TH	●	3.2	37	87	4.0
05WHNSB0330-TH	●	3.3	37	87	4.0
05WHNSB0340-TH	●	3.4	37	87	4.0
05WHNSB0350-TH	●	3.5	37	87	4.0
05WHNSB0360-TH	●	3.6	37	87	4.0
05WHNSB0370-TH	●	3.7	37	87	4.0
05WHNSB0380-TH	●	3.8	37	87	4.0
05WHNSB0390-TH	●	3.9	37	87	4.0
05WHNSB0400-TH	●	4.0	37	87	4.0
05WHNSB0410-TH	●	4.1	47	100	5.0
05WHNSB0420-TH	●	4.2	47	100	5.0
05WHNSB0430-TH	●	4.3	47	100	5.0
05WHNSB0440-TH	●	4.4	47	100	5.0
05WHNSB0450-TH	●	4.5	47	100	5.0
05WHNSB0460-TH	●	4.6	47	100	5.0
05WHNSB0470-TH	●	4.7	47	100	5.0
05WHNSB0480-TH	●	4.8	47	100	5.0
05WHNSB0490-TH	●	4.9	47	100	5.0
05WHNSB0500-TH	●	5.0	47	100	5.0
05WHNSB0510-TH	●	5.1	47	100	6.0
05WHNSB0520-TH	●	5.2	47	100	6.0
05WHNSB0530-TH	●	5.3	47	100	6.0
05WHNSB0540-TH	●	5.4	47	100	6.0
05WHNSB0550-TH	●	5.5	47	100	6.0
05WHNSB0560-TH	●	5.6	47	100	6.0
05WHNSB0570-TH	●	5.7	47	100	6.0
05WHNSB0580-TH	●	5.8	47	100	6.0
05WHNSB0590-TH	●	5.9	47	100	6.0
05WHNSB0600-TH	●	6.0	47	100	6.0
05WHNSB0610-TH	●	6.1	55	110	7.0
05WHNSB0620-TH	●	6.2	55	110	7.0
05WHNSB0630-TH	●	6.3	55	110	7.0
05WHNSB0640-TH	●	6.4	55	110	7.0
05WHNSB0650-TH	●	6.5	55	110	7.0
05WHNSB0660-TH	●	6.6	55	110	7.0
05WHNSB0670-TH	●	6.7	55	110	7.0
05WHNSB0680-TH	●	6.8	55	110	7.0
05WHNSB0690-TH	●	6.9	55	110	7.0
05WHNSB0700-TH	●	7.0	55	110	7.0
05WHNSB0710-TH	●	7.1	63	119	8.0
05WHNSB0720-TH	●	7.2	63	119	8.0
05WHNSB0730-TH	●	7.3	63	119	8.0
05WHNSB0740-TH	●	7.4	63	119	8.0
05WHNSB0750-TH	●	7.5	63	119	8.0
05WHNSB0760-TH	●	7.6	63	119	8.0
05WHNSB0770-TH	●	7.7	63	119	8.0
05WHNSB0780-TH	●	7.8	63	119	8.0
05WHNSB0790-TH	●	7.9	63	119	8.0
05WHNSB0800-TH	●	8.0	63	119	8.0
05WHNSB0810-TH	●	8.1	71	128	9.0
05WHNSB0820-TH	●	8.2	71	128	9.0
05WHNSB0830-TH	●	8.3	71	128	9.0
05WHNSB0840-TH	●	8.4	71	128	9.0

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length l	Overall length L	Shank dia. Ds
05WHNSB0850-TH	●	8.5	71	128	9.0
05WHNSB0860-TH	●	8.6	71	128	9.0
05WHNSB0870-TH	●	8.7	71	128	9.0
05WHNSB0880-TH	●	8.8	71	128	9.0
05WHNSB0890-TH	●	8.9	71	128	9.0
05WHNSB0900-TH	●	9.0	71	128	9.0
05WHNSB0910-TH	□	9.1	79	137	10.0
05WHNSB0920-TH	□	9.2	79	137	10.0
05WHNSB0930-TH	□→②	9.3	79	137	10.0
05WHNSB0940-TH	□→②	9.4	79	137	10.0
05WHNSB0950-TH	●	9.5	79	137	10.0
05WHNSB0960-TH	□	9.6	79	137	10.0
05WHNSB0970-TH	□	9.7	79	137	10.0
05WHNSB0980-TH	●	9.8	79	137	10.0
05WHNSB0990-TH	□→②	9.9	79	137	10.0
05WHNSB1000-TH	●	10.0	79	137	10.0
05WHNSB1010-TH	□	10.1	87	150	11.0
05WHNSB1020-TH	●	10.2	87	150	11.0
05WHNSB1030-TH	●	10.3	87	150	11.0
05WHNSB1040-TH	□→②	10.4	87	150	11.0
05WHNSB1050-TH	●	10.5	87	150	11.0
05WHNSB1060-TH	□	10.6	87	150	11.0
05WHNSB1070-TH	□	10.7	87	150	11.0
05WHNSB1080-TH	●	10.8	87	150	11.0
05WHNSB1090-TH	□→②	10.9	87	150	11.0
05WHNSB1100-TH	●	11.0	87	150	11.0
05WHNSB1110-TH	□	11.1	93	156	12.0
05WHNSB1120-TH	□	11.2	93	156	12.0
05WHNSB1130-TH	□→②	11.3	93	156	12.0
05WHNSB1140-TH	□→②	11.4	93	156	12.0
05WHNSB1150-TH	●	11.5	93	156	12.0
05WHNSB1160-TH	□	11.6	93	156	12.0
05WHNSB1170-TH	□	11.7	93	156	12.0
05WHNSB1180-TH	●	11.8	93	156	12.0
05WHNSB1190-TH	□→②	11.9	93	156	12.0
05WHNSB1200-TH	●	12.0	93	156	12.0
05WHNSB1210-TH	□	12.1	104	169	13.0
05WHNSB1220-TH	□	12.2	104	169	13.0
05WHNSB1230-TH	□	12.3	104	169	13.0
05WHNSB1240-TH	□	12.4	104	169	13.0
05WHNSB1250-TH	●	12.5	104	169	13.0
05WHNSB1260-TH	□	12.6	104	169	13.0
05WHNSB1270-TH	□	12.7	104	169	13.0
05WHNSB1280-TH	□	12.8	104	169	13.0
05WHNSB1290-TH	□	12.9	104	169	13.0
05WHNSB1300-TH	●	13.0	104	169	13.0

● : Stocked Items.

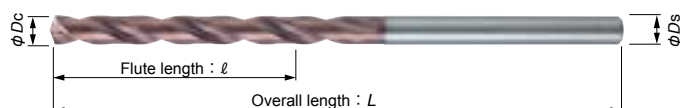
□→② : Stocked items since Feb.2018.

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

Line Up



Plane,
S-X thinning



08WHNSB-TH

With oil hole

L/D=8

h8	φ2~φ3	0~0.014
	φ3~φ6	0~0.018
	φ6~φ10	0~0.022
	φ10~φ13	0~0.027



0~0.01

(mm)

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length ℓ	Overall length L	Shank dia. Ds
08WHNSB0200-TH	●	2.0	25	75	3.0
08WHNSB0210-TH	●	2.1	25	75	3.0
08WHNSB0220-TH	●	2.2	25	75	3.0
08WHNSB0230-TH	●	2.3	28	75	3.0
08WHNSB0240-TH	●	2.4	28	75	3.0
08WHNSB0250-TH	●	2.5	28	75	3.0
08WHNSB0260-TH	●	2.6	33	80	3.0
08WHNSB0270-TH	●	2.7	33	80	3.0
08WHNSB0280-TH	●	2.8	35	83	3.0
08WHNSB0290-TH	●	2.9	35	83	3.0
08WHNSB0300-TH	●	3.0	35	83	3.0
08WHNSB0310-TH	●	3.1	42	94	4.0
08WHNSB0320-TH	●	3.2	42	94	4.0
08WHNSB0330-TH	●	3.3	42	94	4.0
08WHNSB0340-TH	●	3.4	42	94	4.0
08WHNSB0350-TH	●	3.5	42	94	4.0
08WHNSB0360-TH	●	3.6	46	94	4.0
08WHNSB0370-TH	●	3.7	46	94	4.0
08WHNSB0380-TH	●	3.8	46	94	4.0
08WHNSB0390-TH	●	3.9	46	94	4.0
08WHNSB0400-TH	●	4.0	46	94	4.0
08WHNSB0410-TH	●	4.1	55	110	5.0
08WHNSB0420-TH	●	4.2	55	110	5.0
08WHNSB0430-TH	●	4.3	55	110	5.0
08WHNSB0440-TH	●	4.4	55	110	5.0
08WHNSB0450-TH	●	4.5	55	110	5.0
08WHNSB0460-TH	●	4.6	59	110	5.0
08WHNSB0470-TH	●	4.7	59	110	5.0
08WHNSB0480-TH	●	4.8	59	110	5.0
08WHNSB0490-TH	●	4.9	59	110	5.0
08WHNSB0500-TH	●	5.0	59	110	5.0
08WHNSB0510-TH	●	5.1	62	118	6.0
08WHNSB0520-TH	●	5.2	62	118	6.0
08WHNSB0530-TH	●	5.3	62	118	6.0
08WHNSB0540-TH	●	5.4	62	118	6.0
08WHNSB0550-TH	●	5.5	62	118	6.0
08WHNSB0560-TH	●	5.6	67	118	6.0
08WHNSB0570-TH	●	5.7	67	118	6.0
08WHNSB0580-TH	●	5.8	67	118	6.0
08WHNSB0590-TH	●	5.9	67	118	6.0
08WHNSB0600-TH	●	6.0	67	118	6.0
08WHNSB0610-TH	●	6.1	73	132	7.0
08WHNSB0620-TH	●	6.2	73	132	7.0
08WHNSB0630-TH	●	6.3	73	132	7.0
08WHNSB0640-TH	●	6.4	73	132	7.0
08WHNSB0650-TH	●	6.5	73	132	7.0
08WHNSB0660-TH	●	6.6	77	132	7.0
08WHNSB0670-TH	●	6.7	77	132	7.0
08WHNSB0680-TH	●	6.8	77	132	7.0
08WHNSB0690-TH	●	6.9	77	132	7.0
08WHNSB0700-TH	●	7.0	77	132	7.0
08WHNSB0710-TH	●	7.1	84	144	8.0
08WHNSB0720-TH	●	7.2	84	144	8.0
08WHNSB0730-TH	●	7.3	84	144	8.0
08WHNSB0740-TH	●	7.4	84	144	8.0
08WHNSB0750-TH	●	7.5	84	144	8.0
08WHNSB0760-TH	●	7.6	88	144	8.0
08WHNSB0770-TH	●	7.7	88	144	8.0
08WHNSB0780-TH	●	7.8	88	144	8.0
08WHNSB0790-TH	●	7.9	88	144	8.0
08WHNSB0800-TH	●	8.0	88	144	8.0
08WHNSB0810-TH	□	8.1	94	156	9.0
08WHNSB0820-TH	□	8.2	94	156	9.0
08WHNSB0830-TH	□→②	8.3	94	156	9.0
08WHNSB0840-TH	□→②	8.4	94	156	9.0

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length ℓ	Overall length L	Shank dia. Ds
08WHNSB0850-TH	●	8.5	94	156	9.0
08WHNSB0860-TH	□	8.6	99	156	9.0
08WHNSB0870-TH	□	8.7	99	156	9.0
08WHNSB0880-TH	□→②	8.8	99	156	9.0
08WHNSB0890-TH	□→②	8.9	99	156	9.0
08WHNSB0900-TH	●	9.0	99	156	9.0
08WHNSB0910-TH	□	9.1	105	168	10.0
08WHNSB0920-TH	□	9.2	105	168	10.0
08WHNSB0930-TH	□→②	9.3	105	168	10.0
08WHNSB0940-TH	□→②	9.4	105	168	10.0
08WHNSB0950-TH	●	9.5	105	168	10.0
08WHNSB0960-TH	□	9.6	110	168	10.0
08WHNSB0970-TH	□	9.7	110	168	10.0
08WHNSB0980-TH	●	9.8	110	168	10.0
08WHNSB0990-TH	□→②	9.9	110	168	10.0
08WHNSB1000-TH	●	10.0	110	168	10.0
08WHNSB1010-TH	□	10.1	116	184	11.0
08WHNSB1020-TH	●	10.2	116	184	11.0
08WHNSB1030-TH	●	10.3	116	184	11.0
08WHNSB1040-TH	□→②	10.4	116	184	11.0
08WHNSB1050-TH	●	10.5	116	184	11.0
08WHNSB1060-TH	□	10.6	121	184	11.0
08WHNSB1070-TH	●	10.7	121	184	11.0
08WHNSB1080-TH	●	10.8	121	184	11.0
08WHNSB1090-TH	□→②	10.9	121	184	11.0
08WHNSB1100-TH	●	11.0	121	184	11.0
08WHNSB1110-TH	□	11.1	127	195	12.0
08WHNSB1120-TH	□	11.2	127	195	12.0
08WHNSB1130-TH	□→②	11.3	127	195	12.0
08WHNSB1140-TH	□→②	11.4	127	195	12.0
08WHNSB1150-TH	●	11.5	127	195	12.0
08WHNSB1160-TH	●	11.6	132	195	12.0
08WHNSB1170-TH	□	11.7	132	195	12.0
08WHNSB1180-TH	□→②	11.8	132	195	12.0
08WHNSB1190-TH	□→②	11.9	132	195	12.0
08WHNSB1200-TH	●	12.0	132	195	12.0
08WHNSB1210-TH	□	12.1	138	208	13.0
08WHNSB1220-TH	□	12.2	138	208	13.0
08WHNSB1230-TH	□	12.3	138	208	13.0
08WHNSB1240-TH	□	12.4	138	208	13.0
08WHNSB1250-TH	●	12.5	138	208	13.0
08WHNSB1260-TH	□	12.6	143	208	13.0
08WHNSB1270-TH	□	12.7	143	208	13.0
08WHNSB1280-TH	□	12.8	143	208	13.0
08WHNSB1290-TH	□	12.9	143	208	13.0
08WHNSB1300-TH	●	13.0	143	208	13.0

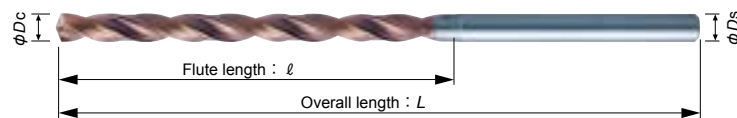
● : Stocked Items.

□→② : Stocked items since Feb.2018.

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



※1 : Completely coated



10WHNSB-TH

With oil hole

L/D=10



Refer to under table



$D_s = 1$	0 ~ 0.006
$3 < D_s \leq 10$	0 ~ 0.008
$6 < D_s \leq 10$	0 ~ 0.009
$10 < D_s$	0 ~ 0.011

(mm)

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length ℓ	Overall length L	Shank dia. Ds
※1 10WHNSB0200-TH	●	2.0	30	80	3.0
※1 10WHNSB0210-TH	●	2.1	30	80	3.0
※1 10WHNSB0220-TH	●	2.2	30	80	3.0
※1 10WHNSB0230-TH	●	2.3	33	80	3.0
※1 10WHNSB0240-TH	●	2.4	33	80	3.0
※1 10WHNSB0250-TH	●	2.5	33	80	3.0
※1 10WHNSB0260-TH	●	2.6	35	85	3.0
※1 10WHNSB0270-TH	●	2.7	35	85	3.0
※1 10WHNSB0280-TH	●	2.8	39	85	3.0
※1 10WHNSB0290-TH	●	2.9	39	87	3.0
※1 10WHNSB0300-TH	●	3.0	39	87	3.0
※1 10WHNSB0310-TH	●	3.1	46	94	4.0
※1 10WHNSB0320-TH	●	3.2	46	94	4.0
※1 10WHNSB0330-TH	●	3.3	46	94	4.0
※1 10WHNSB0340-TH	●	3.4	46	94	4.0
※1 10WHNSB0350-TH	●	3.5	46	94	4.0
※1 10WHNSB0360-TH	●	3.6	52	101	4.0
※1 10WHNSB0370-TH	●	3.7	52	101	4.0
※1 10WHNSB0380-TH	●	3.8	52	101	4.0
※1 10WHNSB0390-TH	●	3.9	52	101	4.0
※1 10WHNSB0400-TH	●	4.0	52	101	4.0
※1 10WHNSB0410-TH	●	4.1	59	110	5.0
※1 10WHNSB0420-TH	●	4.2	59	110	5.0
※1 10WHNSB0430-TH	●	4.3	59	110	5.0
※1 10WHNSB0440-TH	●	4.4	59	110	5.0
※1 10WHNSB0450-TH	●	4.5	59	110	5.0
※1 10WHNSB0460-TH	●	4.6	66	117	5.0
※1 10WHNSB0470-TH	●	4.7	66	117	5.0
※1 10WHNSB0480-TH	●	4.8	66	117	5.0
※1 10WHNSB0490-TH	●	4.9	66	117	5.0
※1 10WHNSB0500-TH	●	5.0	66	117	5.0
※1 10WHNSB0510-TH	●	5.1	72	123	6.0
※1 10WHNSB0520-TH	●	5.2	72	123	6.0
※1 10WHNSB0530-TH	●	5.3	72	123	6.0
※1 10WHNSB0540-TH	●	5.4	72	123	6.0
※1 10WHNSB0550-TH	●	5.5	72	123	6.0
※1 10WHNSB0560-TH	●	5.6	79	130	6.0
※1 10WHNSB0570-TH	●	5.7	79	130	6.0
※1 10WHNSB0580-TH	●	5.8	79	130	6.0
※1 10WHNSB0590-TH	●	5.9	79	130	6.0
※1 10WHNSB0600-TH	●	6.0	79	130	6.0
※1 10WHNSB0610-TH	●	6.1	85	138	7.0
※1 10WHNSB0620-TH	●	6.2	85	138	7.0
※1 10WHNSB0630-TH	●	6.3	85	138	7.0
※1 10WHNSB0640-TH	●	6.4	85	138	7.0
※1 10WHNSB0650-TH	●	6.5	85	138	7.0
※1 10WHNSB0660-TH	●	6.6	92	145	7.0
※1 10WHNSB0670-TH	●	6.7	92	145	7.0
※1 10WHNSB0680-TH	●	6.8	92	145	7.0
※1 10WHNSB0690-TH	●	6.9	92	145	7.0
※1 10WHNSB0700-TH	●	7.0	92	145	7.0
※1 10WHNSB0710-TH	●	7.1	98	153	8.0
※1 10WHNSB0720-TH	●	7.2	98	153	8.0
※1 10WHNSB0730-TH	●	7.3	98	153	8.0
※1 10WHNSB0740-TH	●	7.4	98	153	8.0
※1 10WHNSB0750-TH	●	7.5	98	153	8.0
※1 10WHNSB0760-TH	●	7.6	105	160	8.0
※1 10WHNSB0770-TH	●	7.7	105	160	8.0
※1 10WHNSB0780-TH	●	7.8	105	160	8.0
※1 10WHNSB0790-TH	●	7.9	105	160	8.0
※1 10WHNSB0800-TH	●	8.0	105	160	8.0
※1 10WHNSB0810-TH	□	8.1	111	166	9.0
※1 10WHNSB0820-TH	□	8.2	111	166	9.0
※1 10WHNSB0830-TH	□→②	8.3	111	166	9.0
※1 10WHNSB0840-TH	□→②	8.4	111	166	9.0

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length ℓ	Overall length L	Shank dia. Ds
※1 10WHNSB0850-TH	●	8.5	111	166	9.0
10WHNSB0860-TH	□	8.6	118	173	9.0
10WHNSB0870-TH	□	8.7	118	173	9.0
10WHNSB0880-TH	□→②	8.8	118	173	9.0
10WHNSB0890-TH	□→②	8.9	118	173	9.0
10WHNSB0900-TH	●	9.0	118	173	9.0
10WHNSB0910-TH	□	9.1	124	179	10.0
10WHNSB0920-TH	□	9.2	124	179	10.0
10WHNSB0930-TH	□→②	9.3	124	179	10.0
10WHNSB0940-TH	□→②	9.4	124	179	10.0
10WHNSB0950-TH	□→②	9.5	124	179	10.0
10WHNSB0960-TH	□	9.6	131	186	10.0
10WHNSB0970-TH	□	9.7	131	186	10.0
10WHNSB0980-TH	□→②	9.8	131	186	10.0
10WHNSB0990-TH	□→②	9.9	131	186	10.0
10WHNSB1000-TH	□→②	10.0	131	186	10.0
10WHNSB1010-TH	□	10.1	138	193	11.0
10WHNSB1020-TH	□	10.2	138	193	11.0
10WHNSB1030-TH	□→②	10.3	138	193	11.0
10WHNSB1040-TH	□→②	10.4	138	193	11.0
10WHNSB1050-TH	□→②	10.5	138	193	11.0
10WHNSB1060-TH	□	10.6	144	205	11.0
10WHNSB1070-TH	□	10.7	144	205	11.0
10WHNSB1080-TH	□→②	10.8	144	205	11.0
10WHNSB1090-TH	□→②	10.9	144	205	11.0
10WHNSB1100-TH	□→②	11.0	144	205	11.0
10WHNSB1110-TH	□	11.1	151	212	12.0
10WHNSB1120-TH	□	11.2	151	212	12.0
10WHNSB1130-TH	□→②	11.3	151	212	12.0
10WHNSB1140-TH	□→②	11.4	151	212	12.0
10WHNSB1150-TH	□→②	11.5	151	212	12.0
10WHNSB1160-TH	□	11.6	157	218	12.0
10WHNSB1170-TH	□	11.7	157	218	12.0
10WHNSB1180-TH	□→②	11.8	157	218	12.0
10WHNSB1190-TH	□→②	11.9	157	218	12.0
10WHNSB1200-TH	□→②	12.0	157	218	12.0
10WHNSB1210-TH	□	12.1	164	225	13.0
10WHNSB1220-TH	□	12.2	164	225	13.0
10WHNSB1230-TH	□	12.3	164	225	13.0
10WHNSB1240-TH	□	12.4	164	225	13.0
10WHNSB1250-TH	□→②	12.5	164	225	13.0
10WHNSB1260-TH	□	12.6	170	236	13.0
10WHNSB1270-TH	□	12.7	170	236	13.0
10WHNSB1280-TH	□	12.8	170	236	13.0
10WHNSB1290-TH	□	12.9	170	236	13.0
10WHNSB1300-TH	□→②	13.0	170	236	13.0

10WHNSB 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, 9.0, 10.0, 11.0, 12.0, and 13.0. For other items, the diameter tolerance will be as in the table below.

10WHNSB			
	3.0 < φDc < 6.0	6.0 < φDc < 10.0	10.0 < φDc ≤ 13.0
Max	-0.020	-0.024	-0.030
Min	-0.036	-0.045	-0.053

● : Stocked Items.

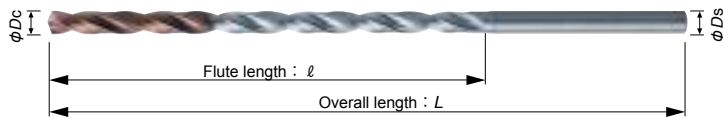
□→② : Stocked items since Feb.2018.

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

Line Up



Plane,
S-X thinning



15WHNSB-TH

With oil hole

L/D=15



Refer to
under table



$D_s = 3$	0 ~ 0.006
$3 < D_s \leq 6$	0 ~ 0.008
$6 < D_s \leq 10$	0 ~ 0.009
$10 < D_s$	0 ~ 0.011

(mm)

Item Code	Stock	Size (mm)			
		Tool dia. D_c	Flute length ℓ	Overall length L	Shank dia. D_s
15WHNSB0200-TH	●	2.0	40	83	3.0
15WHNSB0210-TH	●	2.1	44	87	3.0
15WHNSB0220-TH	●	2.2	44	87	3.0
15WHNSB0230-TH	●	2.3	50	93	3.0
15WHNSB0240-TH	●	2.4	50	93	3.0
15WHNSB0250-TH	●	2.5	50	93	3.0
15WHNSB0260-TH	●	2.6	54	102	3.0
15WHNSB0270-TH	●	2.7	54	102	3.0
15WHNSB0280-TH	●	2.8	54	102	3.0
15WHNSB0290-TH	●	2.9	54	102	3.0
15WHNSB0300-TH	●	3.0	54	102	3.0
15WHNSB0310-TH	●	3.1	63	111	4.0
15WHNSB0320-TH	●	3.2	63	111	4.0
15WHNSB0330-TH	●	3.3	63	111	4.0
15WHNSB0340-TH	●	3.4	63	111	4.0
15WHNSB0350-TH	●	3.5	63	111	4.0
15WHNSB0360-TH	●	3.6	72	121	4.0
15WHNSB0370-TH	●	3.7	72	121	4.0
15WHNSB0380-TH	●	3.8	72	121	4.0
15WHNSB0390-TH	●	3.9	72	121	4.0
15WHNSB0400-TH	●	4.0	72	121	4.0
15WHNSB0410-TH	●	4.1	81	132	5.0
15WHNSB0420-TH	●	4.2	81	132	5.0
15WHNSB0430-TH	●	4.3	81	132	5.0
15WHNSB0440-TH	●	4.4	81	132	5.0
15WHNSB0450-TH	●	4.5	81	132	5.0
15WHNSB0460-TH	●	4.6	91	142	5.0
15WHNSB0470-TH	●	4.7	91	142	5.0
15WHNSB0480-TH	●	4.8	91	142	5.0
15WHNSB0490-TH	●	4.9	91	142	5.0
15WHNSB0500-TH	●	5.0	91	142	5.0
15WHNSB0510-TH	●	5.1	100	151	6.0
15WHNSB0520-TH	●	5.2	100	151	6.0
15WHNSB0530-TH	●	5.3	100	151	6.0
15WHNSB0540-TH	●	5.4	100	151	6.0
15WHNSB0550-TH	●	5.5	100	151	6.0
15WHNSB0560-TH	●	5.6	109	160	6.0
15WHNSB0570-TH	●	5.7	109	160	6.0
15WHNSB0580-TH	●	5.8	109	160	6.0
15WHNSB0590-TH	●	5.9	109	160	6.0
15WHNSB0600-TH	●	6.0	109	160	6.0
15WHNSB0610-TH	●	6.1	118	171	7.0
15WHNSB0620-TH	●	6.2	118	171	7.0
15WHNSB0630-TH	●	6.3	118	171	7.0
15WHNSB0640-TH	●	6.4	118	171	7.0
15WHNSB0650-TH	●	6.5	118	171	7.0
15WHNSB0660-TH	●	6.6	127	180	7.0
15WHNSB0670-TH	●	6.7	127	180	7.0
15WHNSB0680-TH	●	6.8	127	180	7.0
15WHNSB0690-TH	●	6.9	127	180	7.0
15WHNSB0700-TH	●	7.0	127	180	7.0
15WHNSB0710-TH	●	7.1	136	191	8.0
15WHNSB0720-TH	●	7.2	136	191	8.0
15WHNSB0730-TH	●	7.3	136	191	8.0
15WHNSB0740-TH	●	7.4	136	191	8.0
15WHNSB0750-TH	●	7.5	136	191	8.0
15WHNSB0760-TH	●	7.6	145	200	8.0
15WHNSB0770-TH	●	7.7	145	200	8.0
15WHNSB0780-TH	●	7.8	145	200	8.0
15WHNSB0790-TH	●	7.9	145	200	8.0
15WHNSB0800-TH	●	8.0	145	200	8.0
15WHNSB0810-TH	□	8.1	154	209	9.0
15WHNSB0820-TH	□	8.2	154	209	9.0
15WHNSB0830-TH	□→②	8.3	154	209	9.0

Item Code	Stock	Size (mm)			
		Tool dia. D_c	Flute length ℓ	Overall length L	Shank dia. D_s
15WHNSB0840-TH	□→②	8.4	154	209	9.0
15WHNSB0850-TH	●	8.5	154	209	9.0
15WHNSB0860-TH	□	8.6	163	218	9.0
15WHNSB0870-TH	□	8.7	163	218	9.0
15WHNSB0880-TH	□→②	8.8	163	218	9.0
15WHNSB0890-TH	□→②	8.9	163	218	9.0
15WHNSB0900-TH	●	9.0	163	218	9.0
15WHNSB0910-TH	□	9.1	172	227	10.0
15WHNSB0920-TH	□	9.2	172	227	10.0
15WHNSB0930-TH	□→②	9.3	172	227	10.0
15WHNSB0940-TH	□→②	9.4	172	227	10.0
15WHNSB0950-TH	□→②	9.5	172	227	10.0
15WHNSB0960-TH	□	9.6	181	236	10.0
15WHNSB0970-TH	□	9.7	181	236	10.0
15WHNSB0980-TH	□→②	9.8	181	236	10.0
15WHNSB0990-TH	□→②	9.9	181	236	10.0
15WHNSB1000-TH	●	10.0	181	236	10.0
15WHNSB1010-TH	□	10.1	190	245	11.0
15WHNSB1020-TH	□	10.2	190	245	11.0
15WHNSB1030-TH	□→②	10.3	190	245	11.0
15WHNSB1040-TH	□→②	10.4	190	245	11.0
15WHNSB1050-TH	□→②	10.5	190	245	11.0
15WHNSB1060-TH	□	10.6	199	260	11.0
15WHNSB1070-TH	□	10.7	199	260	11.0
15WHNSB1080-TH	□→②	10.8	199	260	11.0
15WHNSB1090-TH	□→②	10.9	199	260	11.0
15WHNSB1100-TH	□→②	11.0	199	260	11.0
15WHNSB1110-TH	□	11.1	208	269	12.0
15WHNSB1120-TH	□	11.2	208	269	12.0
15WHNSB1130-TH	□→②	11.3	208	269	12.0
15WHNSB1140-TH	□→②	11.4	208	269	12.0
15WHNSB1150-TH	□→②	11.5	208	269	12.0
15WHNSB1160-TH	□	11.6	217	278	12.0
15WHNSB1170-TH	□	11.7	217	278	12.0
15WHNSB1180-TH	□→②	11.8	217	278	12.0
15WHNSB1190-TH	□→②	11.9	217	278	12.0
15WHNSB1200-TH	□→②	12.0	217	278	12.0
15WHNSB1210-TH	□	12.1	226	287	13.0
15WHNSB1220-TH	□	12.2	226	287	13.0
15WHNSB1230-TH	□	12.3	226	287	13.0
15WHNSB1240-TH	□	12.4	226	287	13.0
15WHNSB1250-TH	□→②	12.5	226	287	13.0
15WHNSB1260-TH	□	12.6	235	301	13.0
15WHNSB1270-TH	□	12.7	235	301	13.0
15WHNSB1280-TH	□	12.8	235	301	13.0
15WHNSB1290-TH	□	12.9	235	301	13.0
15WHNSB1300-TH	□→②	13.0	235	301	13.0

15WHNSB 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, 9.0, 10.0, 11.0, 12.0 and 13.0. For other items, the diameter tolerance will be as in the table below.

15WHNSB			
	$3.0 < \phi D_c < 6.0$	$6.0 < \phi D_c < 10.0$	$10.0 < \phi D_c \leq 13.0$
Max	-0.020	-0.024	-0.030
Min	-0.036	-0.045	-0.053

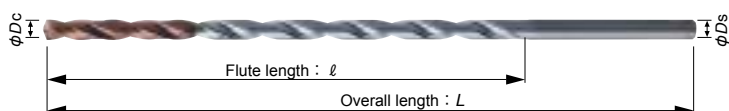
● : Stocked items.

□→② : Stocked items since Feb.2018.

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



Plane,
S-X thinning



Sizes are added.

20WHNSB-TH

With oil hole

L/D=20



Refer to
under table



$3 < D_s \leq 6.0$	0 ~ -0.006
$6 < D_s \leq 10.0$	0 ~ -0.008
$10 < D_s \leq 13.0$	0 ~ -0.009
$13.0 < D_s \leq 16.0$	0 ~ -0.011

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length l	Overall length L	Shank dia. Ds
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
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	□→②	8.3	196	251	9.0

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length l	Overall length L	Shank dia. Ds
20WHNSB0840-TH	□→②	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	□→②	8.8	208	263	9.0
20WHNSB0890-TH	□→②	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	□→②	9.3	219	274	10.0
20WHNSB0940-TH	□→②	9.4	219	274	10.0
20WHNSB0950-TH	□→②	9.5	219	274	10.0
20WHNSB0960-TH	□	9.6	231	286	10.0
20WHNSB0970-TH	□	9.7	231	286	10.0
20WHNSB0980-TH	□→②	9.8	231	286	10.0
20WHNSB0990-TH	□→②	9.9	231	286	10.0
20WHNSB1000-TH	□→②	10.0	231	286	10.0
20WHNSB1010-TH	□	10.1	243	298	11.0
20WHNSB1020-TH	□	10.2	243	298	11.0
20WHNSB1030-TH	□→②	10.3	243	298	11.0
20WHNSB1040-TH	□→②	10.4	243	298	11.0
20WHNSB1050-TH	□→②	10.5	243	298	11.0
20WHNSB1060-TH	□	10.6	254	315	11.0
20WHNSB1070-TH	□	10.7	254	315	11.0
20WHNSB1080-TH	□→②	10.8	254	315	11.0
20WHNSB1090-TH	□→②	10.9	254	315	11.0
20WHNSB1100-TH	□→②	11.0	254	315	11.0
20WHNSB1110-TH	□	11.1	266	327	12.0
20WHNSB1120-TH	□	11.2	266	327	12.0
20WHNSB1130-TH	□→②	11.3	266	327	12.0
20WHNSB1140-TH	□→②	11.4	266	327	12.0
20WHNSB1150-TH	□→②	11.5	266	327	12.0
20WHNSB1160-TH	□	11.6	277	338	12.0
20WHNSB1170-TH	□	11.7	277	338	12.0
20WHNSB1180-TH	□→②	11.8	277	338	12.0
20WHNSB1190-TH	□→②	11.9	277	338	12.0
20WHNSB1200-TH	□→②	12.0	277	338	12.0
NEW 20WHNSB1210-TH	□	12.1	289	350	13.0
NEW 20WHNSB1220-TH	□	12.2	289	350	13.0
NEW 20WHNSB1230-TH	□	12.3	289	350	13.0
NEW 20WHNSB1240-TH	□	12.4	289	350	13.0
NEW 20WHNSB1250-TH	★	12.5	289	350	13.0
NEW 20WHNSB1260-TH	□	12.6	300	366	13.0
NEW 20WHNSB1270-TH	□	12.7	300	366	13.0
NEW 20WHNSB1280-TH	□	12.8	300	366	13.0
NEW 20WHNSB1290-TH	□	12.9	300	366	13.0
NEW 20WHNSB1300-TH	★	13.0	300	366	13.0

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, 9.0, 10.0, 11.0, 12.0 and 13.0. For other items, the diameter tolerance will be as in the table below.

20WHNSB			
	$3.0 < \phi D_c < 6.0$	$6.0 < \phi D_c < 10.0$	$10.0 < \phi D_c \leq 13.0$
Max	-0.020	-0.024	-0.030
Min	-0.036	-0.045	-0.053

★ : Stocked Items of New Products since Nov. 2017. ● : Stocked Items.

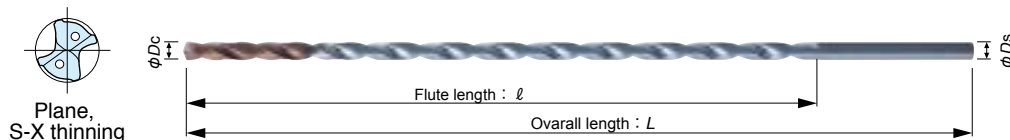
□→② : Stocked items since Feb.2018.

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

Line Up, Re-grinding



Items are added



25WHNSB-TH

With oil hole

L/D=25



Refer to under table



$D_s = 3$: 0 ~ 0.006
 $3 < D_s \leq 6$: 0 ~ 0.008
 $6 < D_s \leq 10$: 0 ~ 0.009
 $10 < D_s$: 0 ~ 0.011 (mm)

Item Code	Stock	Size (mm)			
		Tool dia. D_c	Flute length l	Overall length L	Shank dia. D_s
NEW 25WHNSB0200-TH	☆	2.0	57	100	3.0
NEW 25WHNSB0210-TH	☆	2.1	62	105	3.0
NEW 25WHNSB0220-TH	☆	2.2	62	105	3.0
NEW 25WHNSB0230-TH	☆	2.3	71	114	3.0
NEW 25WHNSB0240-TH	☆	2.4	71	114	3.0
NEW 25WHNSB0250-TH	☆	2.5	71	114	3.0
NEW 25WHNSB0260-TH	☆	2.6	76	119	3.0
NEW 25WHNSB0270-TH	☆	2.7	76	119	3.0
NEW 25WHNSB0280-TH	☆	2.8	84	132	3.0
NEW 25WHNSB0290-TH	☆	2.9	84	132	3.0
NEW 25WHNSB0300-TH	☆	3.0	84	132	3.0
NEW 25WHNSB0310-TH	☆	3.1	90	138	4.0
NEW 25WHNSB0320-TH	☆	3.2	90	138	4.0
NEW 25WHNSB0330-TH	☆	3.3	98	146	4.0
NEW 25WHNSB0340-TH	☆	3.4	98	146	4.0
NEW 25WHNSB0350-TH	☆	3.5	98	146	4.0
NEW 25WHNSB0360-TH	☆	3.6	113	162	4.0
NEW 25WHNSB0370-TH	☆	3.7	113	162	4.0
NEW 25WHNSB0380-TH	☆	3.8	113	162	4.0
NEW 25WHNSB0390-TH	☆	3.9	113	162	4.0
NEW 25WHNSB0400-TH	☆	4.0	113	162	4.0
NEW 25WHNSB0410-TH	☆	4.1	127	178	5.0
NEW 25WHNSB0420-TH	☆	4.2	127	178	5.0
NEW 25WHNSB0430-TH	☆	4.3	127	178	5.0
NEW 25WHNSB0440-TH	☆	4.4	127	178	5.0
NEW 25WHNSB0450-TH	☆	4.5	127	178	5.0
NEW 25WHNSB0460-TH	☆	4.6	141	192	5.0
NEW 25WHNSB0470-TH	☆	4.7	141	192	5.0
NEW 25WHNSB0480-TH	☆	4.8	141	192	5.0
NEW 25WHNSB0490-TH	☆	4.9	141	192	5.0
NEW 25WHNSB0500-TH	☆	5.0	141	192	5.0
NEW 25WHNSB0510-TH	☆	5.1	155	206	6.0
NEW 25WHNSB0520-TH	☆	5.2	155	206	6.0
NEW 25WHNSB0530-TH	☆	5.3	155	206	6.0
NEW 25WHNSB0540-TH	☆	5.4	155	206	6.0
NEW 25WHNSB0550-TH	☆	5.5	155	206	6.0
NEW 25WHNSB0560-TH	☆	5.6	169	220	6.0
NEW 25WHNSB0570-TH	☆	5.7	169	220	6.0
NEW 25WHNSB0580-TH	☆	5.8	169	220	6.0
NEW 25WHNSB0590-TH	☆	5.9	169	220	6.0
NEW 25WHNSB0600-TH	☆	6.0	169	220	6.0
NEW 25WHNSB0610-TH	☆	6.1	183	236	7.0
NEW 25WHNSB0620-TH	☆	6.2	183	236	7.0
NEW 25WHNSB0630-TH	☆	6.3	183	236	7.0
NEW 25WHNSB0640-TH	☆	6.4	183	236	7.0
NEW 25WHNSB0650-TH	☆	6.5	183	236	7.0
NEW 25WHNSB0660-TH	☆	6.6	197	250	7.0
NEW 25WHNSB0670-TH	☆	6.7	197	250	7.0
NEW 25WHNSB0680-TH	☆	6.8	197	250	7.0
NEW 25WHNSB0690-TH	☆	6.9	197	250	7.0
NEW 25WHNSB0700-TH	☆	7.0	197	250	7.0
NEW 25WHNSB0710-TH	☆	7.1	211	266	8.0
NEW 25WHNSB0720-TH	☆	7.2	211	266	8.0
NEW 25WHNSB0730-TH	☆	7.3	211	266	8.0
NEW 25WHNSB0740-TH	☆	7.4	211	266	8.0
NEW 25WHNSB0750-TH	☆	7.5	211	266	8.0
NEW 25WHNSB0760-TH	☆	7.6	225	280	8.0
NEW 25WHNSB0770-TH	☆	7.7	225	280	8.0
NEW 25WHNSB0780-TH	☆	7.8	225	280	8.0
NEW 25WHNSB0790-TH	☆	7.9	225	280	8.0
NEW 25WHNSB0800-TH	☆	8.0	225	280	8.0
NEW 25WHNSB0810-TH	☆	8.1	239	294	9.0
NEW 25WHNSB0820-TH	☆	8.2	239	294	9.0
NEW 25WHNSB0830-TH	☆	8.3	239	294	9.0

Item Code	Stock	Size (mm)			
		Tool dia. D_c	Flute length l	Overall length L	Shank dia. D_s
NEW 25WHNSB0840-TH	☆	8.4	239	294	9.0
NEW 25WHNSB0850-TH	☆	8.5	239	294	9.0
NEW 25WHNSB0860-TH	☆	8.6	254	309	9.0
NEW 25WHNSB0870-TH	☆	8.7	254	309	9.0
NEW 25WHNSB0880-TH	☆	8.8	254	309	9.0
NEW 25WHNSB0890-TH	☆	8.9	254	309	9.0
NEW 25WHNSB0900-TH	☆	9.0	254	309	9.0
NEW 25WHNSB0910-TH	☆	9.1	268	323	10.0
NEW 25WHNSB0920-TH	☆	9.2	268	323	10.0
NEW 25WHNSB0930-TH	☆	9.3	268	323	10.0
NEW 25WHNSB0940-TH	☆	9.4	268	323	10.0
NEW 25WHNSB0950-TH	☆	9.5	268	323	10.0
NEW 25WHNSB0960-TH	☆	9.6	282	337	10.0
NEW 25WHNSB0970-TH	☆	9.7	282	337	10.0
NEW 25WHNSB0980-TH	☆	9.8	282	337	10.0
NEW 25WHNSB0990-TH	☆	9.9	282	337	10.0
NEW 25WHNSB1000-TH	☆	10.0	282	337	10.0
NEW 25WHNSB1010-TH	☆	10.1	297	358	11.0
NEW 25WHNSB1020-TH	☆	10.2	297	358	11.0
NEW 25WHNSB1030-TH	☆	10.3	297	358	11.0
NEW 25WHNSB1040-TH	☆	10.4	297	358	11.0
NEW 25WHNSB1050-TH	☆	10.5	297	358	11.0
NEW 25WHNSB1060-TH	☆	10.6	310	371	11.0
NEW 25WHNSB1070-TH	☆	10.7	310	371	11.0
NEW 25WHNSB1080-TH	☆	10.8	310	371	11.0
NEW 25WHNSB1090-TH	☆	10.9	310	371	11.0
NEW 25WHNSB1100-TH	☆	11.0	310	371	11.0
NEW 25WHNSB1110-TH	☆	11.1	324	385	12.0
NEW 25WHNSB1120-TH	☆	11.2	324	385	12.0
NEW 25WHNSB1130-TH	☆	11.3	324	385	12.0
NEW 25WHNSB1140-TH	☆	11.4	324	385	12.0
NEW 25WHNSB1150-TH	☆	11.5	324	385	12.0
NEW 25WHNSB1160-TH	☆	11.6	338	399	12.0
NEW 25WHNSB1170-TH	☆	11.7	338	399	12.0
NEW 25WHNSB1180-TH	☆	11.8	338	399	12.0
NEW 25WHNSB1190-TH	☆	11.9	338	399	12.0
NEW 25WHNSB1200-TH	☆	12.0	338	399	12.0
NEW 25WHNSB1210-TH	☆	12.1	353	414	13.0
NEW 25WHNSB1220-TH	☆	12.2	353	414	13.0
NEW 25WHNSB1230-TH	☆	12.3	353	414	13.0
NEW 25WHNSB1240-TH	☆	12.4	353	414	13.0
NEW 25WHNSB1250-TH	☆	12.5	353	414	13.0
NEW 25WHNSB1260-TH	☆	12.6	367	433	13.0
NEW 25WHNSB1270-TH	☆	12.7	367	433	13.0
NEW 25WHNSB1280-TH	☆	12.8	367	433	13.0
NEW 25WHNSB1290-TH	☆	12.9	367	433	13.0
NEW 25WHNSB1300-TH	☆	13.0	367	433	13.0

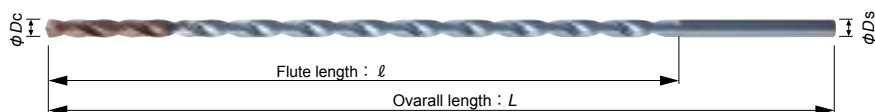
25WHNSB Table of Tolerance on tool dia.

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, 9.0, 10.0, 11.0, 12.0, and 13.0 For other items, the diameter tolerance will be as in the table below.

25WHNSB			
	3.0 < ϕD_c < 6.0	6.0 < ϕD_c < 10.0	10.0 < ϕD_c ≤ 13.0
Max	-0.020	-0.024	-0.030
Min	-0.036	-0.045	-0.053

☆ : Introduction planned Jun. 2018.

☆ : Stocked by specified distributor. Introduction planned Jun. 2018.



Sizes are added

30WHNSB-TH

With oil hole

L/D=30



Refer to under table



$D_s=3$: 0~0.006
 $3<D_s\leq 6$: 0~0.008
 $6<D_s$: 0~0.009 (mm)

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length l	Overall length L	Shank dia. Ds
30WHNSB0200-TH	●	2.0	70	113	3.0
30WHNSB0210-TH	●	2.1	77	120	3.0
30WHNSB0220-TH	●	2.2	77	120	3.0
30WHNSB0230-TH	●	2.3	87	130	3.0
30WHNSB0240-TH	●	2.4	87	130	3.0
30WHNSB0250-TH	●	2.5	87	130	3.0
30WHNSB0260-TH	●	2.6	94	137	3.0
30WHNSB0270-TH	●	2.7	94	137	3.0
30WHNSB0280-TH	●	2.8	99	144	3.0
30WHNSB0290-TH	●	2.9	99	144	3.0
30WHNSB0300-TH	●	3.0	99	147	3.0
30WHNSB0310-TH	●	3.1	116	164	4.0
30WHNSB0320-TH	●	3.2	116	164	4.0
30WHNSB0330-TH	●	3.3	116	164	4.0
30WHNSB0340-TH	●	3.4	116	164	4.0
30WHNSB0350-TH	●	3.5	116	164	4.0
30WHNSB0360-TH	●	3.6	132	181	4.0
30WHNSB0370-TH	●	3.7	132	181	4.0
30WHNSB0380-TH	●	3.8	132	181	4.0
30WHNSB0390-TH	●	3.9	132	181	4.0
30WHNSB0400-TH	●	4.0	132	181	4.0
30WHNSB0410-TH	●	4.1	149	200	5.0
30WHNSB0420-TH	●	4.2	149	200	5.0
30WHNSB0430-TH	●	4.3	149	200	5.0
30WHNSB0440-TH	●	4.4	149	200	5.0
30WHNSB0450-TH	●	4.5	149	200	5.0
30WHNSB0460-TH	●	4.6	166	217	5.0
30WHNSB0470-TH	●	4.7	166	217	5.0
30WHNSB0480-TH	●	4.8	166	217	5.0
30WHNSB0490-TH	●	4.9	166	217	5.0
30WHNSB0500-TH	●	5.0	166	217	5.0
30WHNSB0510-TH	●	5.1	182	233	6.0
30WHNSB0520-TH	●	5.2	182	233	6.0
30WHNSB0530-TH	●	5.3	182	233	6.0
30WHNSB0540-TH	●	5.4	182	233	6.0
30WHNSB0550-TH	●	5.5	182	233	6.0
30WHNSB0560-TH	●	5.6	199	250	6.0
30WHNSB0570-TH	●	5.7	199	250	6.0
30WHNSB0580-TH	●	5.8	199	250	6.0
30WHNSB0590-TH	●	5.9	199	250	6.0
30WHNSB0600-TH	●	6.0	199	250	6.0
30WHNSB0610-TH	●	6.1	215	268	7.0
30WHNSB0620-TH	●	6.2	215	268	7.0
30WHNSB0630-TH	●	6.3	215	268	7.0
30WHNSB0640-TH	●	6.4	215	268	7.0
30WHNSB0650-TH	●	6.5	215	268	7.0
30WHNSB0660-TH	●	6.6	232	285	7.0
30WHNSB0670-TH	●	6.7	232	285	7.0
30WHNSB0680-TH	●	6.8	232	285	7.0
30WHNSB0690-TH	●	6.9	232	285	7.0
30WHNSB0700-TH	●	7.0	232	285	7.0
30WHNSB0710-TH	●	7.1	248	303	8.0
30WHNSB0720-TH	●	7.2	248	303	8.0
30WHNSB0730-TH	●	7.3	248	303	8.0
30WHNSB0740-TH	●	7.4	248	303	8.0
30WHNSB0750-TH	●	7.5	248	303	8.0
30WHNSB0760-TH	●	7.6	265	320	8.0
30WHNSB0770-TH	●	7.7	265	320	8.0
30WHNSB0780-TH	●	7.8	265	320	8.0
30WHNSB0790-TH	●	7.9	265	320	8.0

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length l	Overall length L	Shank dia. Ds
30WHNSB0800-TH	●	8.0	265	320	8.0
30WHNSB0810-TH	□	8.1	281	336	9.0
30WHNSB0820-TH	□	8.2	281	336	9.0
30WHNSB0830-TH	□→②	8.3	281	336	9.0
30WHNSB0840-TH	□→②	8.4	281	336	9.0
30WHNSB0850-TH	□→②	8.5	281	336	9.0
30WHNSB0860-TH	□	8.6	298	353	9.0
30WHNSB0870-TH	□	8.7	298	353	9.0
30WHNSB0880-TH	□→②	8.8	298	353	9.0
30WHNSB0890-TH	□→②	8.9	298	353	9.0
30WHNSB0900-TH	□→②	9.0	298	353	9.0
NEW 30WHNSB0910-TH	□	9.1	314	369	10.0
NEW 30WHNSB0920-TH	□	9.2	314	369	10.0
NEW 30WHNSB0930-TH	★	9.3	314	369	10.0
NEW 30WHNSB0940-TH	★	9.4	314	369	10.0
NEW 30WHNSB0950-TH	★	9.5	314	369	10.0
NEW 30WHNSB0960-TH	□	9.6	331	386	10.0
NEW 30WHNSB0970-TH	□	9.7	331	386	10.0
NEW 30WHNSB0980-TH	★	9.8	331	386	10.0
NEW 30WHNSB0990-TH	★	9.9	331	386	10.0
NEW 30WHNSB1000-TH	★	10.0	331	386	10.0
NEW 30WHNSB1010-TH	□	10.1	348	403	11.0
NEW 30WHNSB1020-TH	□	10.2	348	403	11.0
NEW 30WHNSB1030-TH	★	10.3	348	403	11.0
NEW 30WHNSB1040-TH	★	10.4	348	403	11.0
NEW 30WHNSB1050-TH	★	10.5	348	403	11.0
NEW 30WHNSB1060-TH	□	10.6	364	425	11.0
NEW 30WHNSB1070-TH	□	10.7	364	425	11.0
NEW 30WHNSB1080-TH	★	10.8	364	425	11.0
NEW 30WHNSB1090-TH	★	10.9	364	425	11.0
NEW 30WHNSB1100-TH	★	11.0	364	425	11.0
NEW 30WHNSB1110-TH	□	11.1	381	442	12.0
NEW 30WHNSB1120-TH	□	11.2	381	442	12.0
NEW 30WHNSB1130-TH	★	11.3	381	442	12.0
NEW 30WHNSB1140-TH	★	11.4	381	442	12.0
NEW 30WHNSB1150-TH	★	11.5	381	442	12.0
NEW 30WHNSB1160-TH	□	11.6	397	458	12.0
NEW 30WHNSB1170-TH	□	11.7	397	458	12.0
NEW 30WHNSB1180-TH	★	11.8	397	458	12.0
NEW 30WHNSB1190-TH	★	11.9	397	458	12.0
NEW 30WHNSB1200-TH	★	12.0	397	458	12.0

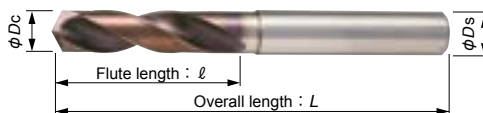
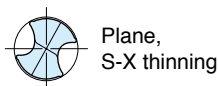
30WHNSB Table of Tolerance on tool dia.

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, 9.0, 10.0, 11.0, and 12.0. For other items, the diameter tolerance will be as in the table below.

30WHNSB (mm)			
	3.0 < ϕD_c < 6.0	6.0 < ϕD_c < 10.0	10.0 < ϕD_c ≤ 12.0
Max	-0.020	-0.024	-0.030
Min	-0.036	-0.045	-0.053

★ : Stocked Items of New Products since Nov. 2017. ● : Stocked Items. □→② : Stocked items since Feb.2018.
 □ : Stocked by specified distributor. Contact with our sales department.

Line Up, Re-grinding



02WNSB0000-TH

Without oil hole

L/D=2

h8
 $\phi 3.0 \sim \phi 6$: 0~0.014
 $\phi 6.1 \sim \phi 10$: 0~0.018
 $\phi 10.1 \sim \phi 13$: 0~0.022
 $\phi 13.1 \sim \phi 16$: 0~0.027

Shank tolerance
 $0 \sim -0.01$ (mm)

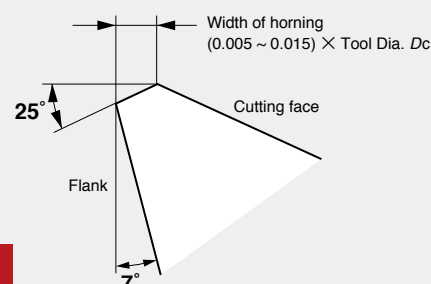
Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length l	Overall length L	Shank dia. Ds
02WNSB0300-TH	□	3.0	15	47	3.0
02WNSB0310-TH	□	3.1	18	52	4.0
02WNSB0320-TH	□	3.2	18	52	4.0
02WNSB0330-TH	□	3.3	18	52	4.0
02WNSB0340-TH	□	3.4	18	52	4.0
02WNSB0350-TH	□	3.5	18	52	4.0
02WNSB0360-TH	□	3.6	20	52	4.0
02WNSB0370-TH	□	3.7	20	52	4.0
02WNSB0380-TH	□	3.8	20	52	4.0
02WNSB0390-TH	□	3.9	20	52	4.0
02WNSB0400-TH	□	4.0	20	52	4.0
02WNSB0410-TH	□	4.1	23	59	5.0
02WNSB0420-TH	□	4.2	23	59	5.0
02WNSB0430-TH	□	4.3	23	59	5.0
02WNSB0440-TH	□	4.4	23	59	5.0
02WNSB0450-TH	□	4.5	23	59	5.0
02WNSB0460-TH	□	4.6	25	59	5.0
02WNSB0470-TH	□	4.7	25	59	5.0
02WNSB0480-TH	□	4.8	25	59	5.0
02WNSB0490-TH	□	4.9	25	59	5.0
02WNSB0500-TH	●	5.0	25	59	5.0
02WNSB0510-TH	●	5.1	25	64	6.0
02WNSB0520-TH	●	5.2	25	64	6.0
02WNSB0530-TH	□	5.3	25	64	6.0
02WNSB0540-TH	●	5.4	25	64	6.0
02WNSB0550-TH	●	5.5	25	64	6.0
02WNSB0560-TH	□	5.6	25	64	6.0
02WNSB0570-TH	□	5.7	25	64	6.0
02WNSB0580-TH	●	5.8	25	64	6.0
02WNSB0590-TH	□	5.9	25	64	6.0
02WNSB0600-TH	●	6.0	25	64	6.0
02WNSB0610-TH	□	6.1	29	71	7.0
02WNSB0620-TH	●	6.2	29	71	7.0
02WNSB0630-TH	□	6.3	29	71	7.0
02WNSB0640-TH	□	6.4	29	71	7.0
02WNSB0650-TH	●	6.5	29	71	7.0
02WNSB0660-TH	□	6.6	31	71	7.0
02WNSB0670-TH	□	6.7	31	71	7.0
02WNSB0680-TH	●	6.8	31	71	7.0
02WNSB0690-TH	●	6.9	31	71	7.0
02WNSB0700-TH	●	7.0	31	71	7.0
02WNSB0710-TH	□	7.1	32	76	8.0
02WNSB0720-TH	□	7.2	32	76	8.0
02WNSB0730-TH	●	7.3	32	76	8.0
02WNSB0740-TH	□	7.4	32	76	8.0
02WNSB0750-TH	●	7.5	32	76	8.0
02WNSB0760-TH	□	7.6	34	76	8.0
02WNSB0770-TH	□	7.7	34	76	8.0
02WNSB0780-TH	●	7.8	34	76	8.0
02WNSB0790-TH	●	7.9	34	76	8.0
02WNSB0800-TH	●	8.0	34	76	8.0

Item Code	Stock	Size (mm)			
		Tool dia. Dc	Flute length l	Overall length L	Shank dia. Ds
02WNSB0810-TH	□	8.1	36	80	9.0
02WNSB0820-TH	□	8.2	36	80	9.0
02WNSB0830-TH	□	8.3	36	80	9.0
02WNSB0840-TH	●	8.4	36	80	9.0
02WNSB0850-TH	●	8.5	36	80	9.0
02WNSB0860-TH	●	8.6	38	80	9.0
02WNSB0870-TH	□	8.7	38	80	9.0
02WNSB0880-TH	●	8.8	38	80	9.0
02WNSB0890-TH	□	8.9	38	80	9.0
02WNSB0900-TH	●	9.0	38	80	9.0
02WNSB0910-TH	□	9.1	40	85	10.0
02WNSB0920-TH	□	9.2	40	85	10.0
02WNSB0930-TH	□	9.3	40	85	10.0
02WNSB0940-TH	●	9.4	40	85	10.0
02WNSB0950-TH	●	9.5	40	85	10.0
02WNSB0960-TH	□	9.6	41	85	10.0
02WNSB0970-TH	□	9.7	41	85	10.0
02WNSB0980-TH	●	9.8	41	85	10.0
02WNSB0990-TH	□	9.9	41	85	10.0
02WNSB1000-TH	●	10.0	41	85	10.0
02WNSB1010-TH	□	10.1	42	90	11.0
02WNSB1020-TH	●	10.2	42	90	11.0
02WNSB1030-TH	●	10.3	42	90	11.0
02WNSB1040-TH	□	10.4	42	90	11.0
02WNSB1050-TH	●	10.5	42	90	11.0
02WNSB1060-TH	●	10.6	44	90	11.0
02WNSB1070-TH	□	10.7	44	90	11.0
02WNSB1080-TH	●	10.8	44	90	11.0
02WNSB1090-TH	□	10.9	44	90	11.0
02WNSB1100-TH	●	11.0	44	90	11.0
02WNSB1110-TH	□	11.1	46	94	12.0
02WNSB1120-TH	□	11.2	46	94	12.0
02WNSB1130-TH	□	11.3	46	94	12.0
02WNSB1140-TH	●	11.4	46	94	12.0
02WNSB1150-TH	●	11.5	46	94	12.0
02WNSB1160-TH	●	11.6	46	94	12.0
02WNSB1170-TH	□	11.7	46	94	12.0
02WNSB1180-TH	●	11.8	46	94	12.0
02WNSB1190-TH	□	11.9	46	94	12.0
02WNSB1200-TH	●	12.0	46	94	12.0
02WNSB1210-TH	□	12.1	49	100	13.0
02WNSB1220-TH	●	12.2	49	100	13.0
02WNSB1230-TH	□	12.3	49	100	13.0
02WNSB1240-TH	□	12.4	49	100	13.0
02WNSB1250-TH	●	12.5	49	100	13.0
02WNSB1260-TH	●	12.6	49	100	13.0
02WNSB1270-TH	□	12.7	49	100	13.0
02WNSB1280-TH	□	12.8	49	100	13.0
02WNSB1290-TH	□	12.9	49	100	13.0
02WNSB1300-TH	●	13.0	49	100	13.0

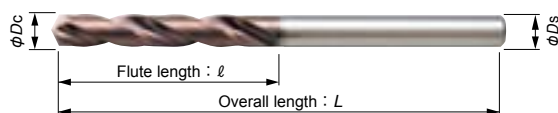
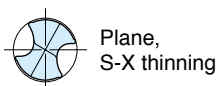
● : Stocked Items. □ : Stocked by specified distributor. Contact with our sales department.

Re-grinding

- Performance may deteriorate to 20%~40% of the initial performance due to the method of regrinding and re-coating. Without coating after regrinding, performance may be further reduced and cause chipping or breakage of the drill. It is recommended that you ask us to regrind and recoat your drill to maintain its performance.
- When regrinding yourself, finish the cutting edge surface so that its roughness is 1.6S or less and the lip height difference is 0.02mm or less.



Drill regrinding/recoating orders accepted. Please contact our sales department.



04WNSB-TH

Without oil hole

L/D=4

h8	$\phi 1 \sim \phi 3$	0 ~ 0.014
	$\phi 3.1 \sim \phi 6$	0 ~ 0.018
	$\phi 6.1 \sim \phi 10$	0 ~ 0.022
	$\phi 10.1 \sim \phi 13$	0 ~ 0.027

Shank tolerance	0 ~ 0.01	(mm)
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Item Code	Stock	Size (mm)			
		Tool dia. D_c	Flute length ℓ	Overall length L	Shank dia. D_s
04WNSB0100-TH	●	1.0	8	50	3.0
04WNSB0110-TH	●	1.1	9	50	3.0
04WNSB0120-TH	●	1.2	9	50	3.0
04WNSB0130-TH	●	1.3	10	50	3.0
04WNSB0140-TH	●	1.4	10	50	3.0
04WNSB0150-TH	●	1.5	12	50	3.0
04WNSB0160-TH	●	1.6	12	50	3.0
04WNSB0170-TH	●	1.7	14	50	3.0
04WNSB0180-TH	●	1.8	14	50	3.0
04WNSB0190-TH	●	1.9	16	50	3.0
04WNSB0200-TH	●	2.0	16	50	3.0
04WNSB0210-TH	●	2.1	17	50	3.0
04WNSB0220-TH	●	2.2	17	50	3.0
04WNSB0230-TH	●	2.3	17	50	3.0
04WNSB0240-TH	●	2.4	17	50	3.0
04WNSB0250-TH	●	2.5	17	50	3.0
04WNSB0260-TH	●	2.6	19	50	3.0
04WNSB0270-TH	●	2.7	19	50	3.0
04WNSB0280-TH	●	2.8	19	50	3.0
04WNSB0290-TH	●	2.9	19	50	3.0
04WNSB0300-TH	●	3.0	19	50	3.0
04WNSB0310-TH	●	3.1	23	58	4.0
04WNSB0320-TH	●	3.2	23	58	4.0
04WNSB0330-TH	●	3.3	23	58	4.0
04WNSB0340-TH	●	3.4	23	58	4.0
04WNSB0350-TH	●	3.5	23	58	4.0
04WNSB0360-TH	●	3.6	26	58	4.0
04WNSB0370-TH	●	3.7	26	58	4.0
04WNSB0380-TH	●	3.8	26	58	4.0
04WNSB0390-TH	●	3.9	26	58	4.0
04WNSB0400-TH	●	4.0	26	58	4.0
04WNSB0410-TH	●	4.1	29	64	5.0
04WNSB0420-TH	●	4.2	29	64	5.0
04WNSB0430-TH	●	4.3	29	64	5.0
04WNSB0440-TH	●	4.4	29	64	5.0
04WNSB0450-TH	●	4.5	29	64	5.0
04WNSB0460-TH	●	4.6	32	64	5.0
04WNSB0470-TH	●	4.7	32	64	5.0
04WNSB0480-TH	●	4.8	32	64	5.0
04WNSB0490-TH	●	4.9	32	64	5.0
04WNSB0500-TH	●	5.0	32	64	5.0
04WNSB0510-TH	●	5.1	36	78	6.0
04WNSB0520-TH	●	5.2	36	78	6.0
04WNSB0530-TH	●	5.3	36	78	6.0
04WNSB0540-TH	●	5.4	36	78	6.0
04WNSB0550-TH	●	5.5	36	78	6.0
04WNSB0560-TH	●	5.6	39	78	6.0
04WNSB0570-TH	●	5.7	39	78	6.0
04WNSB0580-TH	●	5.8	39	78	6.0
04WNSB0590-TH	●	5.9	39	78	6.0
04WNSB0600-TH	●	6.0	39	78	6.0
04WNSB0610-TH	●	6.1	41	83	7.0
04WNSB0620-TH	●	6.2	41	83	7.0
04WNSB0630-TH	●	6.3	41	83	7.0
04WNSB0640-TH	●	6.4	41	83	7.0
04WNSB0650-TH	●	6.5	41	83	7.0
04WNSB0660-TH	●	6.6	43	83	7.0
04WNSB0670-TH	●	6.7	43	83	7.0
04WNSB0680-TH	●	6.8	43	83	7.0
04WNSB0690-TH	●	6.9	43	83	7.0
04WNSB0700-TH	●	7.0	43	83	7.0
04WNSB0710-TH	●	7.1	45	90	8.0
04WNSB0720-TH	●	7.2	45	90	8.0
04WNSB0730-TH	●	7.3	45	90	8.0

Item Code	Stock	Size (mm)			
		Tool dia. D_c	Flute length ℓ	Overall length L	Shank dia. D_s
04WNSB0740-TH	●	7.4	45	90	8.0
04WNSB0750-TH	●	7.5	45	90	8.0
04WNSB0760-TH	●	7.6	48	90	8.0
04WNSB0770-TH	●	7.7	48	90	8.0
04WNSB0780-TH	●	7.8	48	90	8.0
04WNSB0790-TH	●	7.9	48	90	8.0
04WNSB0800-TH	●	8.0	48	90	8.0
04WNSB0810-TH	●	8.1	52	96	9.0
04WNSB0820-TH	●	8.2	52	96	9.0
04WNSB0830-TH	●	8.3	52	96	9.0
04WNSB0840-TH	●	8.4	52	96	9.0
04WNSB0850-TH	●	8.5	52	96	9.0
04WNSB0860-TH	●	8.6	54	96	9.0
04WNSB0870-TH	●	8.7	54	96	9.0
04WNSB0880-TH	●	8.8	54	96	9.0
04WNSB0890-TH	●	8.9	54	96	9.0
04WNSB0900-TH	●	9.0	54	96	9.0
04WNSB0910-TH	●	9.1	57	104	10.0
04WNSB0920-TH	●	9.2	57	104	10.0
04WNSB0930-TH	●	9.3	57	104	10.0
04WNSB0940-TH	●	9.4	57	104	10.0
04WNSB0950-TH	●	9.5	57	104	10.0
04WNSB0960-TH	●	9.6	60	104	10.0
04WNSB0970-TH	●	9.7	60	104	10.0
04WNSB0980-TH	●	9.8	60	104	10.0
04WNSB0990-TH	●	9.9	60	104	10.0
04WNSB1000-TH	●	10.0	60	104	10.0
04WNSB1010-TH	●	10.1	63	112	11.0
04WNSB1020-TH	●	10.2	63	112	11.0
04WNSB1030-TH	●	10.3	63	112	11.0
04WNSB1040-TH	●	10.4	63	112	11.0
04WNSB1050-TH	●	10.5	63	112	11.0
04WNSB1060-TH	●	10.6	66	112	11.0
04WNSB1070-TH	●	10.7	66	112	11.0
04WNSB1080-TH	●	10.8	66	112	11.0
04WNSB1090-TH	●	10.9	66	112	11.0
04WNSB1100-TH	●	11.0	66	112	11.0
04WNSB1110-TH	●	11.1	71	121	12.0
04WNSB1120-TH	●	11.2	71	121	12.0
04WNSB1130-TH	●	11.3	71	121	12.0
04WNSB1140-TH	●	11.4	71	121	12.0
04WNSB1150-TH	●	11.5	71	121	12.0
04WNSB1160-TH	●	11.6	73	121	12.0
04WNSB1170-TH	●	11.7	73	121	12.0
04WNSB1180-TH	●	11.8	73	121	12.0
04WNSB1190-TH	●	11.9	73	121	12.0
04WNSB1200-TH	●	12.0	73	121	12.0
04WNSB1210-TH	●	12.1	76	128	13.0
04WNSB1220-TH	●	12.2	76	128	13.0
04WNSB1230-TH	●	12.3	76	128	13.0
04WNSB1240-TH	●	12.4	76	128	13.0
04WNSB1250-TH	●	12.5	76	128	13.0
04WNSB1260-TH	●	12.6	76	128	13.0
04WNSB1270-TH	●	12.7	76	128	13.0
04WNSB1280-TH	●	12.8	76	128	13.0
04WNSB1290-TH	●	12.9	76	128	13.0
04WNSB1300-TH	●	13.0	76	128	13.0

● : Stocked Items.

Recommended Cutting Conditions

03WHNSB-TH
05WHNSB-TH

Work material (Hardness)	Cutting speed(v_c) m/min	Cutting conditions	Tool dia. (mm)					
			Φ2.0	Φ4.0	Φ6.0	Φ8.0	Φ10.0	Φ12.0
Structural steel (~180HB) SS	Internal coolant 50~120~180	Revolution speed (n) min ⁻¹	16000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~120~180	Revolution speed (n) min ⁻¹	13000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Carbon steel (~200HB) S〇〇C	Internal coolant 50~120~180	Revolution speed (n) min ⁻¹	16000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~120~180	Revolution speed (n) min ⁻¹	13000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Alloy steel (~30HRC) SCM	Internal coolant 50~120~180	Revolution speed (n) min ⁻¹	16000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~120~180	Revolution speed (n) min ⁻¹	13000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Stainless steel SUS300・SUS400	Internal coolant 50~100~150	Revolution speed (n) min ⁻¹	11000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.03~0.06	0.06~0.1	0.12~0.19	0.14~0.24	0.16~0.28	0.17~0.31
Titanium alloy Ti-6Al-4V	Internal coolant 50~80~100	Revolution speed (n) min ⁻¹	9500	6400	4200	3200	2550	2100
		Feed per Rev (f) mm/rev	0.02~0.04	0.06~0.08	0.09~0.12	0.12~0.16	0.13~0.2	0.14~0.24
Pre-hardened steel (~40HRC)	Internal coolant 40~60~100	Revolution speed (n) min ⁻¹	9500	4800	3200	2400	1900	1600
		Feed per Rev (f) mm/rev	0.04~0.06	0.08~0.13	0.12~0.19	0.14~0.24	0.16~0.28	0.18~0.32
	MQL (mist) 40~60~100	Revolution speed (n) min ⁻¹	8000	4800	3200	2400	1900	1600
		Feed per Rev (f) mm/rev	0.04~0.06	0.08~0.13	0.12~0.19	0.14~0.24	0.16~0.28	0.18~0.32
Pre-hardened steel (~50HRC) SKD	Internal coolant 30~40~50	Revolution speed (n) min ⁻¹	6500	3200	2100	1600	1300	1050
		Feed per Rev (f) mm/rev	0.03~0.05	0.05~0.1	0.08~0.14	0.12~0.18	0.15~0.2	0.17~0.24
	MQL (mist) 20~30~40	Revolution speed (n) min ⁻¹	4500	2400	1600	1200	1000	800
		Feed per Rev (f) mm/rev	0.03~0.05	0.05~0.1	0.08~0.14	0.12~0.18	0.05~0.2	0.17~0.24
Ductile iron FCD500	Internal coolant 50~120~150	Revolution speed (n) min ⁻¹	16000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~120~150	Revolution speed (n) min ⁻¹	13000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Casting FC250	Internal coolant 50~120~180	Revolution speed (n) min ⁻¹	16000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~120~180	Revolution speed (n) min ⁻¹	13000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
INCONEL718 Heatproof steel	Internal coolant 20~30~40	Revolution speed (n) min ⁻¹	4000	2400	1600	1200	950	800
		Feed per Rev (f) mm/rev	0.02~0.03	0.06~0.08	0.09~0.12	0.12~0.16	0.13~0.2	0.14~0.24

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 $\phi 5.0$ or less, the coolant pressure should be 2.0 MPa or higher, and when the diameter is over $\phi 5.0$, 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 smoke or ignition due to heating of chips and the tool.
- ※ Works should be gripped firmly to prevent deformation, deflection and vibration.
- ※ You can use borers at a revolution speed lower than the above values.

Work material (Hardness)	Cutting speed (v_c) m/min	Cutting conditions	Tool dia. (mm)					
			Φ2.0	Φ4.0	Φ6.0	Φ8.0	Φ10.0	Φ12.0
Structural steel (~180HB) SS	Internal coolant 70~120~150	Revolution speed (n) min ⁻¹	16000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~90~120	Revolution speed (n) min ⁻¹	13000	7200	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Carbon steel (~200HB) S〇〇C	Internal coolant 70~120~150	Revolution speed (n) min ⁻¹	16000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~90~120	Revolution speed (n) min ⁻¹	13000	7200	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Alloy steel (~30HRC) SCM	Internal coolant 70~120~150	Revolution speed (n) min ⁻¹	16000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~90~120	Revolution speed (n) min ⁻¹	13000	7200	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Stainless steel SUS300 SUS400	Internal coolant 50~90~120	Revolution speed (n) min ⁻¹	11000	7200	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.03~0.06	0.08~0.13	0.12~0.19	0.14~0.24	0.16~0.28	0.17~0.31
Titanium alloy Ti-6Al-4V	Internal coolant 40~60~80	Revolution speed (n) min ⁻¹	9500	4800	3200	2400	1900	1600
		Feed per Rev (f) mm/rev	0.02~0.04	0.06~0.08	0.09~0.12	0.12~0.16	0.13~0.2	0.14~0.24
Pre-hardened steel (~40HRC)	Internal coolant 40~60~80	Revolution speed (n) min ⁻¹	9500	4800	3200	2400	1900	1600
		Feed per Rev (f) mm/rev	0.04~0.06	0.08~0.13	0.12~0.19	0.14~0.24	0.16~0.28	0.18~0.32
	MQL (mist) 30~50~70	Revolution speed (n) min ⁻¹	8000	4000	2650	2000	1600	1350
		Feed per Rev (f) mm/rev	0.04~0.06	0.08~0.13	0.12~0.19	0.14~0.24	0.16~0.28	0.18~0.32
Pre-hardened steel (~50HRC) SKD	Internal coolant 30~40~50	Revolution speed (n) min ⁻¹	6500	3200	2100	1600	1300	1050
		Feed per Rev (f) mm/rev	0.03~0.05	0.05~0.1	0.08~0.14	0.12~0.18	0.15~0.2	0.17~0.22
	MQL (mist) 10~20~30	Revolution speed (n) min ⁻¹	4500	1600	1050	800	650	550
		Feed per Rev (f) mm/rev	0.03~0.05	0.05~0.1	0.08~0.14	0.12~0.18	0.15~0.2	0.17~0.22
Ductile iron FCD500	Internal coolant 70~100~120	Revolution speed (n) min ⁻¹	16000	8000	5300	4000	3200	2600
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~90~120	Revolution speed (n) min ⁻¹	13000	7200	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Casting FC250	Internal coolant 70~120~150	Revolution speed (n) min ⁻¹	16000	9500	6300	4800	3800	3200
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~90~120	Revolution speed (n) min ⁻¹	13000	7200	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
INCONEL718 Heatproof steel	Internal coolant 20~30~40	Revolution speed (n) min ⁻¹	4000	2400	1600	1200	950	800
		Feed per Rev (f) mm/rev	0.02~0.03	0.04~0.08	0.06~0.12	0.08~0.16	0.1~0.2	0.12~0.2

Setting of Cutting Conditions

※Be sure to refer to the boring procedure (next page) when selecting a tool.

※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 ϕ 5.0 or less, the coolant pressure should be 2.0 MPa or higher, and when the diameter is over ϕ 5.0, 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 8 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 smoke or ignition due to heating of chips and the tool.

※Works should be gripped firmly to prevent deformation, deflection and vibration.

※You can use borers at a revolution speed lower than the above values.

Recommended Cutting Conditions

10WHNSB-TH
15WHNSB-TH
20WHNSB-TH
30WHNSB-TH

Work material (Hardness)	Cutting speed (v_c) m/min	Cutting conditions	Tool dia. (mm)					
			Φ2.0	Φ4.0	Φ6.0	Φ8.0	Φ10.0	Φ12.0
Structural steel (~180HB) SS	Internal coolant 40~120	Revolution speed (n) min ⁻¹	8000	7000	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.08	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.3	0.22~0.35
	MQL (mist) 40~110	Revolution speed (n) min ⁻¹	8000	5500	4300	3200	2600	2200
		Feed per Rev (f) mm/rev	0.05~0.08	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.30	0.22~0.35
Carbon steel (~200HB) S〇〇C	Internal coolant 40~120	Revolution speed (n) min ⁻¹	8000	7000	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.3	0.22~0.35
	MQL (mist) 40~110	Revolution speed (n) min ⁻¹	8000	5500	4700	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.30	0.22~0.35
Alloy steel (~30HRC) SCM, SKD	Internal coolant 40~100	Revolution speed (n) min ⁻¹	8000	6300	4500	3400	2700	2400
		Feed per Rev (f) mm/rev	0.05~0.08	0.08~0.12	0.12~0.20	0.16~0.24	0.20~0.30	0.22~0.32
	MQL (mist) 40~90	Revolution speed (n) min ⁻¹	8000	5000	3700	2900	2400	2100
		Feed per Rev (f) mm/rev	0.05~0.08	0.08~0.12	0.12~0.20	0.16~0.24	0.20~0.30	0.22~0.32
Stainless steel SUS300,SUS400	Internal coolant 30~100	Revolution speed (n) min ⁻¹	6000	4800	3700	2700	2200	1800
		Feed per Rev (f) mm/rev	0.03~0.05	0.08~0.12	0.12~0.20	0.16~0.24	0.20~0.30	0.22~0.32
Pre-hardened steel	Internal coolant 20~50	Revolution speed (n) min ⁻¹	4500	2400	1600	1200	950	800
		Feed per Rev (f) mm/rev	0.03~0.04	0.06~0.08	0.09~0.12	0.08~0.16	0.1~0.15	0.1~0.15
Ductile iron FCD500	Internal coolant 40~120	Revolution speed (n) min ⁻¹	8000	7000	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.08	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.35
	MQL (mist) 40~100	Revolution speed (n) min ⁻¹	8000	6300	4500	3400	2700	2400
		Feed per Rev (f) mm/rev	0.05~0.08	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.35
Casting FC250	Internal coolant 40~150	Revolution speed (n) min ⁻¹	8000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.35
	MQL (mist) 40~120	Revolution speed (n) min ⁻¹	8000	7000	4800	3600	2900	2400
		Feed per Rev (f) mm/rev	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.35

Setting of Cutting Conditions

※Be sure to refer to the boring procedure (under) when selecting a tool.

※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 $\phi 5.0$ or less, the coolant pressure should be 2.0 MPa or higher, and when the diameter is over $\phi 5.0$, 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.

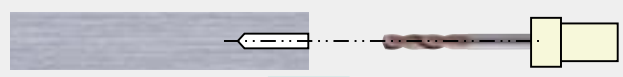
※When cutting fluid is used, reduce the cutting speed to a speed lower than the lowest speed in the specified range. Take the greatest care to avoid smoke or ignition due to heating of chips and the tool.

※Works should be gripped firmly to prevent deformation, deflection and vibration.

Drilling Method

1 Drilling of pilot hole (guide hole) (03WHNSB-TH)

- Machining depth : Tool diameter $\times 2.0 \sim 4.0$ times
- Machining diameter : 08~30WHNSB diameter + 0.03~0.10mm
- Recommended tools : 0.3WHNSB-TH, Carbide stub type, MTO by customized allowance



2 Supplying coolant during low-speed revolution (08~30WHNSB-TH)

- Leading to the guide hole at low speed ($n=0 \sim 500$ min⁻¹)
- Stop 2.0~5.0 mm before the end of the guide hole.
- ※When a long tool (200mm or longer) is used, position the tool to the guide hole at low revolution speed ($n=200$ min⁻¹ or less).



3 High-speed revolution for drilling feed (08~30WHNSB-TH)

- After confirming that the revolution speed is increasing at the specified rate, start feeding.



4 Machining completion

- Withdraw the tool at low speed. ($n=0 \sim 500$ min⁻¹)
- ※When a long tool (200mm or longer) is used, withdraw the tool at low revolution speed ($n=200$ min⁻¹ or less).



Refer P.4~P.5 about 03WHNSB-TH and 05WHNSB-TH

02WNSB-TH

04WNSB-TH

Work material (Hardness)	Cutting speed (v_c) m/min	Cutting conditions	Tool Dia. (mm)						
			Φ1.0	Φ2.0	Φ4.0	Φ6.0	Φ8.0	Φ10.0	Φ12.0
Structural steel (~180HB) SS	Coolant 70~100~150	Revolution speed (n) min^{-1}	22000	16000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.03~0.06	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 70~100~150	Revolution speed (n) min^{-1}	22000	16000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.03~0.06	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Carbon steel (~200HB) S O O C	Coolant 70~100~150	Revolution speed (n) min^{-1}	22000	16000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.03~0.06	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 70~100~150	Revolution speed (n) min^{-1}	22000	16000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.03~0.06	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Alloy steel (~30HRC) SCM	Coolant 70~100~150	Revolution speed (n) min^{-1}	22000	16000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.03~0.05	0.05~0.08	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~80~130	Revolution speed (n) min^{-1}	16000	12800	6400	4300	3200	2550	2100
		Feed per Rev (f) mm/rev	0.03~0.05	0.05~0.08	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
SKD61 Alloy steel (~30HRC) Pre-hardened steel (~40HRC)	Coolant 30~50~80	Revolution speed (n) min^{-1}	9500	8000	4000	2650	2000	1600	1300
		Feed per Rev (f) mm/rev	0.02~0.04	0.04~0.07	0.08~0.13	0.12~0.19	0.14~0.24	0.16~0.28	0.18~0.32
	MQL (mist) 20~40~60	Revolution speed (n) min^{-1}	6300	6400	3200	2100	1600	1250	1050
		Feed per Rev (f) mm/rev	0.02~0.04	0.04~0.07	0.08~0.13	0.12~0.19	0.14~0.24	0.16~0.28	0.18~0.32
Pre-hardened steel (~50HRC) SKD	Coolant 20~30~40	Revolution speed (n) min^{-1}	6300	4800	2400	1600	1200	1000	800
		Feed per Rev (f) mm/rev	0.01~0.03	0.03~0.05	0.05~0.1	0.08~0.14	0.12~0.18	0.15~0.2	0.17~0.24
Ductile iron FCD500	Coolant 50~80~130	Revolution speed (n) min^{-1}	16000	12800	6400	4300	3200	2550	2100
		Feed per Rev (f) mm/rev	0.03~0.06	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 50~80~130	Revolution speed (n) min^{-1}	16000	12000	6400	4300	3200	2550	2100
		Feed per Rev (f) mm/rev	0.03~0.06	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
Casting FC250	Coolant 70~100~150	Revolution speed (n) min^{-1}	22000	16000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.03~0.06	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4
	MQL (mist) 70~100~150	Revolution speed (n) min^{-1}	22000	16000	8000	5300	4000	3200	2650
		Feed per Rev (f) mm/rev	0.03~0.06	0.05~0.1	0.1~0.16	0.15~0.24	0.18~0.3	0.2~0.35	0.22~0.4

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.
- ※ When performing MQL (mist) machining, depending on the amount or status of spray from the tool, the piping route, etc., it may be necessary to reduce the cutting speed in order to perform machining.
- ※ When changing the tool, use a 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 4 times the diameter or less.
- ※ When cutting fluid is used, reduce the cutting speed to 70% of the lowest speed.
- ※ Adjust the cutting conditions according to work gripping conditions and rigidity of the machine.
- ※ You can use borers at a revolution speed lower than the above values.

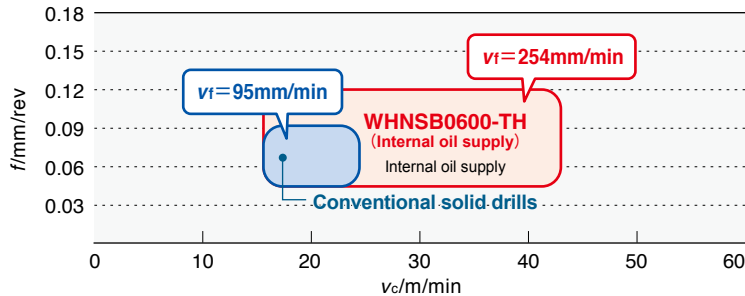


INCONEL718/ Solution treatment + Age-hardening treatment

03WHNSB-TH

Cutting conditions

- Work material : INCONEL718 (Soluble treatment + Age-hardening treatment)
- Tool : 03WHNSB0600-TH • Depth of hole : 18mm
- Coolant : Water-soluble coolant, Internal oil supply



2.7 times greater drilling efficiency



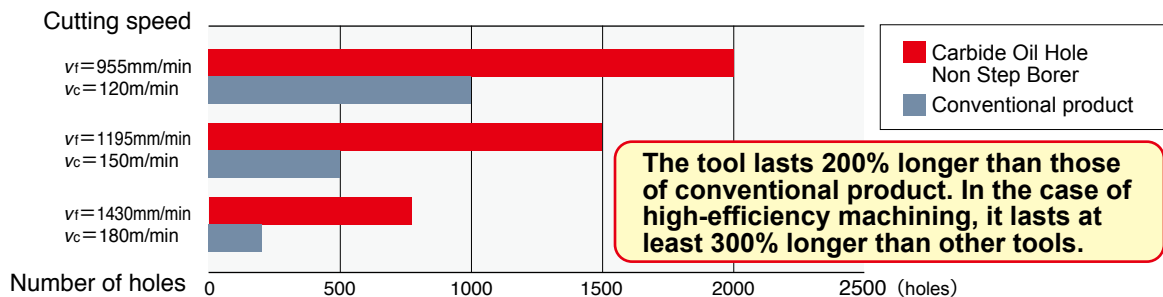
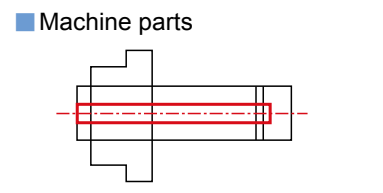
Long-life operation possible with high-efficiency machining that uses an internal oil supply

05WHNSB-TH

TH coating ensures longevity even for high-speed machining that causes high temperatures.

Cutting conditions

- Work material : SCM440 (30HRC) • Tool : 05WHNSB0600-TH
- Depth of hole : 30mm (Up-grade hole)
- Coolant : Water-soluble coolant, Internal oil supply



The tool lasts 200% longer than those of conventional product. In the case of high-efficiency machining, it lasts at least 300% longer than other tools.



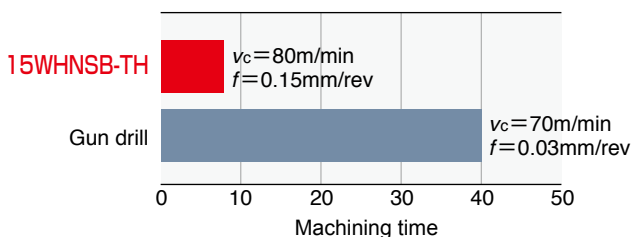
High-efficiency machining and long tool lifeby MQL.

15WHNSB-TH

Cutting conditions

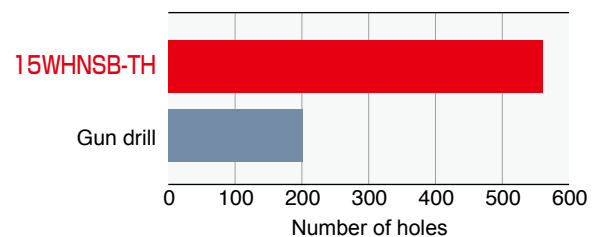
- Work material : Equivalent to S48C • Tool : 15WHNSB0550-TH • Machining depth : 80mm ($L/D_c = 15$)
- Coolant : MQL(mist), Internal oil supply • Revolution (n) : 4630min⁻¹
- Cutting speed (v_c) : 80m/min • Feed rate (v_f) : 695mm/min • Feed rate(f) : 0.15mm/rev
- Gun drill cutting conditions : • Revolution (n) : 4050min⁻¹ • Cutting speed (v_c) : 70m/min, • Feed rate (v_f) : 121mm/min • Feed rate (f) : 0.03mm/rev (Oil base coolant)

Comparison of machining time



Machines at least four times more efficiently!

Comparison of tool life



Makes tool life at least two times longer!



Drastic reduction of machining time.

20WHNSB-TH

Cutting conditions

- Work material : S50C (220HB)
- Tool : 20WHNSB0500-TH
- Depth of hole : 100mm ($L/Dc=20$)
- Coolant : Water-soluble coolant, Internal oil supply

20WHNSB-TH

$v_c=100\text{m/min}$
 $f=0.15\text{mm/rev}$

Gun drill

$v_c=70\text{m/min}$
 $f=0.03\text{mm/rev}$

High-speed steel drill

$v_c=15\text{m/min}$
 $f=0.10\text{mm/rev}$

Step feeding time

Machining time (sec)

Reduced drilling time
One sixth or less than that for a gun

Problems with gun-drill machining

- 1 High-speed feeding is not possible.
- 2 Requires high-pressure coolant.
- 3 Drilling conditions are difficult to select.
- 4 Frequent tool breakage.

WHNSB-TH solves these problems - it greatly increases machining efficiency and drastically reduces machining costs!



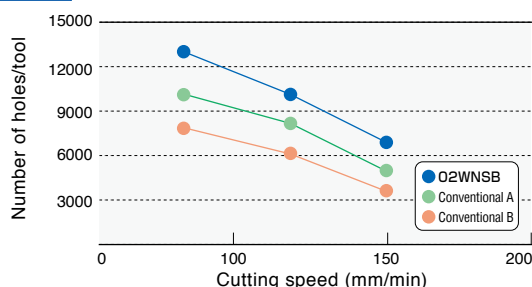
High performance for drilling short holes

02WNSB-TH

S50C

Cutting conditions

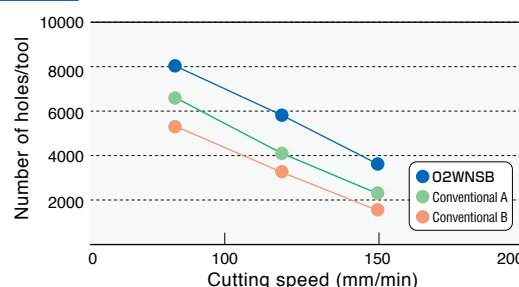
- Tool : 02WNSB0600-TH
- Work material : S50C
- Feed rate : 0.15mm/rev
- Depth of hole : 12mm



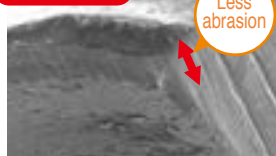
SCM440/30HRC

Cutting conditions

- Tool : 02WNSB0600-TH
- Work material : SCM440/30HRC
- Feed rate : 0.15mm/rev
- Depth of hole : 12mm

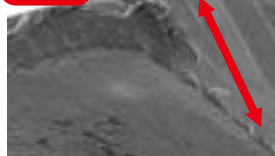


02WNSB-TH



Less abrasion

Conventional B



- Tool : 02WNSB0600-TH
- Work material : S50C $V_c=150\text{m/min}$ $f=0.3\text{mm/rev}$
 $n=7958\text{min}^{-1}$ $V_f=2387\text{mm/min}$ $H=12\text{mm}$

Drilling S50C 3500 holes
High efficiency and long life



Long-life even if coolant is supplied externally

04WNSB-TH

TH coating enables efficient machining during high-speed machining causing high temperature. It also reduces machining cost.

Cutting conditions

- Work material : SCM440 (25~30HRC)
- Tool : 04WNSB0680-TH
- Depth of hole : 22mm (Up-grade hole)
- Coolant : External supply of water-soluble coolant

$v_r=637\text{mm/min}$
 $v_c=80\text{m/min}$

$v_r=955\text{mm/min}$
 $v_c=120\text{m/min}$

$v_r=1195\text{mm/min}$
 $v_c=150\text{m/min}$

Number of holes

Machine parts



Carbide Non Step Borer
Conventional product

Lasts 160~ 300% longer than conventional product.



The diagrams and table data are examples of test results, and are not guaranteed values.

"Epoch", "*Hi-Pre*²" and "MOLDINO" are registered trademarks of Mitsubishi Hitachi Tool Engineering, Ltd. in Japan.

Attentions on Safety

1. Cautions regarding handling

- (1) When removing the tool from its case (packaging), be careful that the tool does not pop out or is dropped. Be particularly careful regarding contact with the tool flutes.
- (2) When handling tools with sharp cutting flutes, be careful not to touch the cutting flutes directly with your bare hands.

2. Cautions regarding mounting

- (1) Before use, check the outside appearance of the tool for scratches, cracks, etc. and that it is firmly mounted in the collet chuck, etc.
- (2) If abnormal chattering, etc. occurs during use, stop the machine immediately and remove the cause of the chattering.

3. Cautions during use

- (1) Before use, confirm the dimensions and direction of rotation of the tool and milling work material.
- (2) The numerical values in the standard cutting conditions table should be used as criteria when starting new work. The cutting conditions should be adjusted as appropriate when the cutting depth is large, the rigidity of the machine being used is low, or according to the conditions of the work material.
- (3) Cutting tools are made of a hard material. During use, they may break and fly off. In addition, cutting chips may also fly off. Since there is a danger of injury to workers, fire, or eye damage from such flying pieces, a safety cover should be attached when work is performed and safety equipment such as safety goggles should be worn to create a safe environment for work.
- (4) There is a risk of fire or inflammation due to sparks, heat due to breakage, and cutting chips. Do not use where there is a risk of fire or explosion. **Please caution of fire while using oil base coolant, fire prevention is necessary.**
- (5) Do not use the tool for any purpose other than that for which it is intended.

4. Cautions regarding regrinding

- (1) If regrinding is not performed at the proper time, there is a risk of the tool breaking. Replace the tool with one in good condition, or perform regrinding.
- (2) Grinding dust will be created when regrinding a tool. When regrinding, be sure to attach a safety cover over the work area and wear safety clothes such as safety goggles, etc.
- (3) This product contains the specified chemical substance cobalt and its inorganic compounds. When performing regrinding or similar processing, be sure to handle the processing in accordance with the local laws and regulations regarding prevention of hazards due to specified chemical substances.

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