

# 超硬OHミニステップボーラー

MINIATURE DRILL WHMB

超硬OHミニステップボーラーは、  
小径深穴を高能率、高精度に加工できます。

MINIATURE DRILL WHMB drills small-diameter holes with  
high efficiency and high accuracy.

## WHMB-THの特長

Features of WHMB-TH

### 01 小径ドリル専用の新刃形形状

高精度刃形形状により高精度穴加工

New flute shape form specifically for small-diameter drills  
High-accuracy flute shape form enables high-accuracy drilling.

### 02 大きなオイルホール

大出量クーラントを実現

Large oil hole  
Achieves high coolant output.

### 03 進化したダブルマージン形状

ガイド性を向上し穴精度向上

Advanced double-margin shape  
Improves guide characteristics to improve hole accuracy.

### 04 新コーティング技術 (THコーティング)

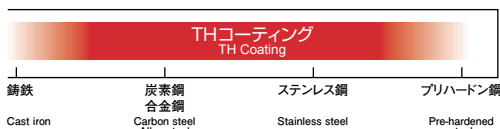
小径工具用の高硬度被膜を  
新技術を用いて成膜

Uses New coating technology.  
High-hardness coating for small-diameter tools  
is formed using new technology.

0.01mmとび寸法  
165アイテム追加

**全312**  
**アイテム**

Add 165 items with 0.01mm increments  
Total 312 items



加工用途  
Applications



金型製作  
Mold making

部品加工  
Parts processing

WHMB-TH

φ1.0~φ2.03 L/D=3~30  
[312 アイテム Items]

特長  
Features

01

## 小径ドリル専用の新刃形形状

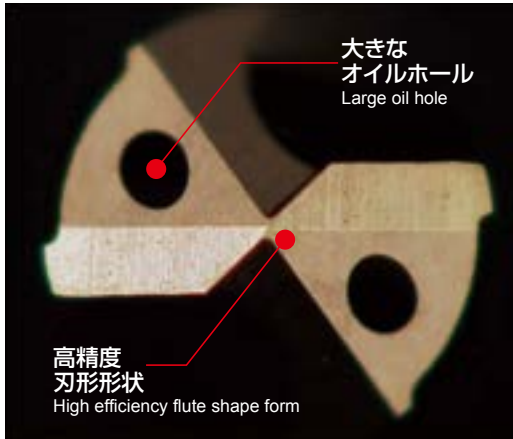
New flute shape form specifically for small-diameter drills

特長  
Features

02

## 大きなオイルホール

Large oil hole



### ●新刃形形状（高精度刃形形状）

食いつき性を向上させたことで、工具のふらつきを抑制

### ●大きなオイルホール

大出量のクーラント排出により、切りくず詰まりを抑制

- **New flute shape form** (High-accuracy flute shape form)  
Suppresses tool wandering by improving biting characteristics.

- **Large oil hole**

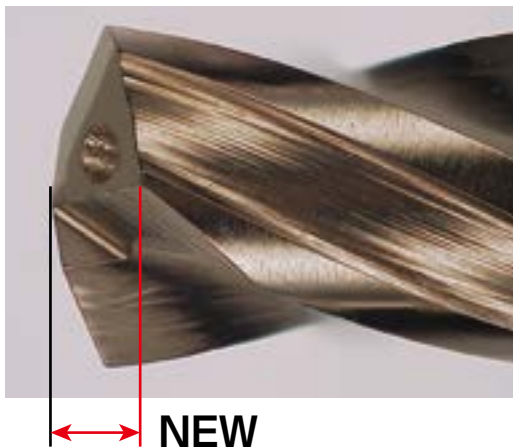
Suppresses chip clogging through high-output coolant discharge.

特長  
Features

03

## 進化したダブルマージン形状

Advanced double-margin shape



ダブルマージンの位置を刃先側にする事で、ガイド性を向上

Double margin position is put on flute tip side to improve guide characteristics.

WHMB-TH

高精度刃形形状+大きなオイルホール+進化したダブルマージン形状  
High-accuracy flute shape form + Large oil hole + Advanced double-margin form



従来品

Conventional



穴のうねりの比較 Comparison of hole waviness

特長  
Features

04

## 高温でも安定性に優れるTHコーティングを採用

TH Coating improves stability during high-temperature drilling.

- ナノ結晶材料からなる新組成系皮膜の採用により、従来にない耐熱温度と高硬度化を実現したナノコンポジットコーティング材料です。
- 軟鋼から焼入れ鋼まで様々な被削材において、高速切削・高能率穴加工に抜群の性能です。

- The new Nano-composite coating material offers extraordinary heat resistance and hardness due to its new composite layer consisting of Nano-crystal material.
- This coating shows extraordinary performance in high speed cutting and high efficient drilling of various work materials from mild steels to hardened steels.

WHNSB-TH

WNSB-TH

WHMB-TH

NSBH-ATH

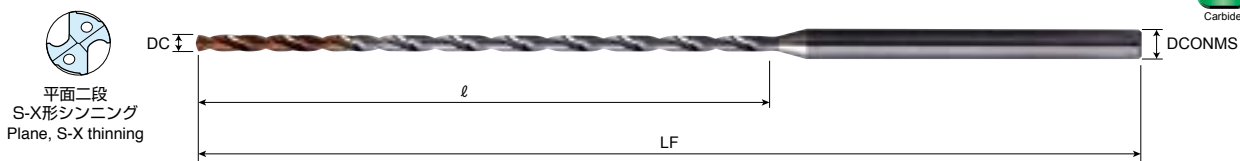
FWHNSB-TH

EMSB

EMSBH-ATH

# 超硬OHミニステップボーラー

MINIATURE DRILL WHMB



## WHMB-TH オイルホールあり

With oil hole



| 商品コード<br>Item code | 在庫<br>Stock | 寸法 Size (mm)       |                       |                         |                        | 希望小売<br>価格(円)<br>Suggested<br>retail<br>price(¥) |
|--------------------|-------------|--------------------|-----------------------|-------------------------|------------------------|--|
|                    |             | 直径<br>Tool<br>dia. | 溝長<br>Flute<br>length | 全長<br>Overall<br>length | シャンク径<br>Shank<br>dia. |  |
|                    |             | DC                 | ℓ                     | LF                      | DCONMS                 |  |
| 03WHMB0100-TH      | ●           | 6                  | 55                    | 3                       | 11,570                 |  |
| 05WHMB0100-TH      | ●           | 10                 | 55                    | 3                       | 15,710                 |  |
| 10WHMB0100-TH      | ●           | 15                 | 55                    | 3                       | 20,200                 |  |
| 15WHMB0100-TH      | ●           | 20                 | 60                    | 3                       | 23,570                 |  |
| 20WHMB0100-TH      | ●           | 24                 | 65                    | 3                       | 27,160                 |  |
| 25WHMB0100-TH      | ●           | 28                 | 65                    | 3                       | 29,860                 |  |
| 30WHMB0100-TH      | ●           | 33                 | 70                    | 3                       | 32,540                 |  |
| 03WHMB0101-TH      | □           | 6                  | 55                    | 3                       | —                      |  |
| 05WHMB0101-TH      | □           | 10                 | 55                    | 3                       | —                      |  |
| 10WHMB0101-TH      | □           | 16                 | 55                    | 3                       | —                      |  |
| 20WHMB0101-TH      | □           | 25                 | 65                    | 3                       | —                      |  |
| 30WHMB0101-TH      | □           | 35                 | 75                    | 3                       | —                      |  |
| 03WHMB0102-TH      | □           | 6                  | 55                    | 3                       | —                      |  |
| 05WHMB0102-TH      | □           | 10                 | 55                    | 3                       | —                      |  |
| 10WHMB0102-TH      | □           | 16                 | 55                    | 3                       | —                      |  |
| 20WHMB0102-TH      | □           | 25                 | 65                    | 3                       | —                      |  |
| 30WHMB0102-TH      | □           | 35                 | 75                    | 3                       | —                      |  |
| 03WHMB0103-TH      | □           | 6                  | 55                    | 3                       | —                      |  |
| 05WHMB0103-TH      | □           | 10                 | 55                    | 3                       | —                      |  |
| 10WHMB0103-TH      | □           | 16                 | 55                    | 3                       | —                      |  |
| 20WHMB0103-TH      | □           | 25                 | 65                    | 3                       | —                      |  |
| 30WHMB0103-TH      | □           | 35                 | 75                    | 3                       | —                      |  |
| 03WHMB0105-TH      | ●           | 6                  | 55                    | 3                       | 11,570                 |  |
| 05WHMB0105-TH      | ●           | 10                 | 55                    | 3                       | 15,710                 |  |
| 10WHMB0105-TH      | ●           | 16                 | 55                    | 3                       | 20,200                 |  |
| 15WHMB0105-TH      | ●           | 20                 | 60                    | 3                       | 23,570                 |  |
| 20WHMB0105-TH      | ●           | 25                 | 65                    | 3                       | 27,160                 |  |
| 25WHMB0105-TH      | ●           | 30                 | 70                    | 3                       | 29,860                 |  |
| 30WHMB0105-TH      | ●           | 35                 | 75                    | 3                       | 32,540                 |  |
| 03WHMB0110-TH      | ●           | 6                  | 55                    | 3                       | 11,570                 |  |
| 05WHMB0110-TH      | ●           | 11                 | 55                    | 3                       | 15,710                 |  |
| 10WHMB0110-TH      | ●           | 17                 | 55                    | 3                       | 20,200                 |  |
| 15WHMB0110-TH      | ●           | 22                 | 60                    | 3                       | 23,570                 |  |
| 20WHMB0110-TH      | ●           | 26                 | 65                    | 3                       | 27,160                 |  |
| 25WHMB0110-TH      | ●           | 32                 | 70                    | 3                       | 29,860                 |  |
| 30WHMB0110-TH      | ●           | 37                 | 75                    | 3                       | 32,540                 |  |
| 03WHMB0111-TH      | □           | 6                  | 55                    | 3                       | —                      |  |
| 05WHMB0111-TH      | □           | 11                 | 55                    | 3                       | —                      |  |
| 10WHMB0111-TH      | □           | 18                 | 60                    | 3                       | —                      |  |
| 20WHMB0111-TH      | □           | 28                 | 70                    | 3                       | —                      |  |
| 30WHMB0111-TH      | □           | 38                 | 75                    | 3                       | —                      |  |

| 商品コード<br>Item code | 在庫<br>Stock | 寸法 Size (mm)       |                       |                         |                        | 希望小売<br>価格(円)<br>Suggested<br>retail<br>price(¥) |
|--------------------|-------------|--------------------|-----------------------|-------------------------|------------------------|--|
|                    |             | 直径<br>Tool<br>dia. | 溝長<br>Flute<br>length | 全長<br>Overall<br>length | シャンク径<br>Shank<br>dia. |  |
|                    |             | DC                 | ℓ                     | LF                      | DCONMS                 |  |
| 03WHMB0112-TH      | □           | 6                  | 55                    | 3                       | —                      |  |
| 05WHMB0112-TH      | □           | 11                 | 55                    | 3                       | —                      |  |
| 10WHMB0112-TH      | □           | 18                 | 60                    | 3                       | —                      |  |
| 20WHMB0112-TH      | □           | 28                 | 70                    | 3                       | —                      |  |
| 30WHMB0112-TH      | □           | 38                 | 75                    | 3                       | —                      |  |
| 03WHMB0113-TH      | □           | 6                  | 55                    | 3                       | —                      |  |
| 05WHMB0113-TH      | □           | 11                 | 55                    | 3                       | —                      |  |
| 10WHMB0113-TH      | □           | 18                 | 60                    | 3                       | —                      |  |
| 20WHMB0113-TH      | □           | 28                 | 70                    | 3                       | —                      |  |
| 30WHMB0113-TH      | □           | 38                 | 75                    | 3                       | —                      |  |
| 03WHMB0115-TH      | ●           | 6                  | 55                    | 3                       | 11,570                 |  |
| 05WHMB0115-TH      | ●           | 11                 | 55                    | 3                       | 15,710                 |  |
| 10WHMB0115-TH      | ●           | 18                 | 60                    | 3                       | 20,200                 |  |
| 15WHMB0115-TH      | ●           | 23                 | 60                    | 3                       | 23,570                 |  |
| 20WHMB0115-TH      | ●           | 28                 | 70                    | 3                       | 27,160                 |  |
| 25WHMB0115-TH      | ●           | 33                 | 70                    | 3                       | 29,860                 |  |
| 30WHMB0115-TH      | ●           | 38                 | 75                    | 3                       | 32,540                 |  |
| 03WHMB0120-TH      | ●           | 6                  | 55                    | 3                       | 11,570                 |  |
| 05WHMB0120-TH      | ●           | 12                 | 55                    | 3                       | 15,710                 |  |
| 10WHMB0120-TH      | ●           | 18                 | 60                    | 3                       | 20,200                 |  |
| 15WHMB0120-TH      | ●           | 23                 | 60                    | 3                       | 23,570                 |  |
| 20WHMB0120-TH      | ●           | 29                 | 70                    | 3                       | 27,160                 |  |
| 25WHMB0120-TH      | ●           | 35                 | 75                    | 3                       | 29,860                 |  |
| 30WHMB0120-TH      | ●           | 40                 | 80                    | 3                       | 32,540                 |  |
| 03WHMB0121-TH      | □           | 7                  | 55                    | 3                       | —                      |  |
| 05WHMB0121-TH      | □           | 13                 | 55                    | 3                       | —                      |  |
| 10WHMB0121-TH      | □           | 20                 | 60                    | 3                       | —                      |  |
| 20WHMB0121-TH      | □           | 31                 | 70                    | 3                       | —                      |  |
| 30WHMB0121-TH      | □           | 42                 | 80                    | 3                       | —                      |  |
| 03WHMB0122-TH      | □           | 7                  | 55                    | 3                       | —                      |  |
| 05WHMB0122-TH      | □           | 13                 | 55                    | 3                       | —                      |  |
| 10WHMB0122-TH      | □           | 20                 | 60                    | 3                       | —                      |  |
| 20WHMB0122-TH      | □           | 31                 | 70                    | 3                       | —                      |  |
| 30WHMB0122-TH      | □           | 42                 | 80                    | 3                       | —                      |  |
| 03WHMB0123-TH      | □           | 7                  | 55                    | 3                       | —                      |  |
| 05WHMB0123-TH      | □           | 13                 | 55                    | 3                       | —                      |  |
| 10WHMB0123-TH      | □           | 20                 | 60                    | 3                       | —                      |  |
| 20WHMB0123-TH      | □           | 31                 | 70                    | 3                       | —                      |  |
| 30WHMB0123-TH      | □           | 42                 | 80                    | 3                       | —                      |  |

メーカー再研磨、再コーティングは行っておりません。●印：標準在庫品です。  
Manufacturer regrinding/recoating is not possible. ● : Stocked Items.

□印：特定代理店在庫です。弊社営業へお問合せください。  
□ : Stocked by specified distributor. Contact with our sales department.

# WHMB-TH オイルホールあり

With oil hole

| 商品コード<br>Item code | 在庫<br>Stock | 寸法 Size (mm)       |                       |                         |                        | 希望小売<br>価格(円)<br>Suggested<br>retail<br>price(¥) |
|--------------------|-------------|--------------------|-----------------------|-------------------------|------------------------|--|
|                    |             | 直径<br>Tool<br>dia. | 溝長<br>Flute<br>length | 全長<br>Overall<br>length | シャンク径<br>Shank<br>dia. |  |
|                    |             | DC                 | ℓ                     | LF                      | DCONMS                 |  |
| 03WHMB0125-TH      | ●           | 1.25               | 7                     | 55                      | 3                      | 11,570   |
| 05WHMB0125-TH      | ●           |                    | 13                    | 55                      | 3                      | 15,710   |
| 10WHMB0125-TH      | ●           |                    | 20                    | 60                      | 3                      | 20,200   |
| 15WHMB0125-TH      | ●           |                    | 24                    | 60                      | 3                      | 23,570   |
| 20WHMB0125-TH      | ●           |                    | 31                    | 70                      | 3                      | 27,160   |
| 25WHMB0125-TH      | ●           |                    | 36                    | 75                      | 3                      | 29,860   |
| 30WHMB0125-TH      | ●           |                    | 42                    | 80                      | 3                      | 32,540   |
| 03WHMB0130-TH      | ●           | 1.3                | 7                     | 55                      | 3                      | 11,570   |
| 05WHMB0130-TH      | ●           |                    | 14                    | 55                      | 3                      | 15,710   |
| 10WHMB0130-TH      | ●           |                    | 21                    | 60                      | 3                      | 20,200   |
| 15WHMB0130-TH      | ●           |                    | 25                    | 70                      | 3                      | 23,570   |
| 20WHMB0130-TH      | ●           |                    | 32                    | 70                      | 3                      | 27,160   |
| 25WHMB0130-TH      | ●           |                    | 37                    | 75                      | 3                      | 29,860   |
| 30WHMB0130-TH      | ●           |                    | 43                    | 80                      | 3                      | 32,540   |
| 03WHMB0131-TH      | □           | 1.31               | 7                     | 55                      | 3                      | —  |
| 05WHMB0131-TH      | □           |                    | 14                    | 55                      | 3                      | —  |
| 10WHMB0131-TH      | □           |                    | 21                    | 60                      | 3                      | —  |
| 20WHMB0131-TH      | □           |                    | 33                    | 70                      | 3                      | —  |
| 30WHMB0131-TH      | □           |                    | 45                    | 85                      | 3                      | —  |
| 03WHMB0132-TH      | □           | 1.32               | 7                     | 55                      | 3                      | —  |
| 05WHMB0132-TH      | □           |                    | 14                    | 55                      | 3                      | —  |
| 10WHMB0132-TH      | □           |                    | 21                    | 60                      | 3                      | —  |
| 20WHMB0132-TH      | □           |                    | 33                    | 70                      | 3                      | —  |
| 30WHMB0132-TH      | □           |                    | 45                    | 85                      | 3                      | —  |
| 03WHMB0133-TH      | □           | 1.33               | 7                     | 55                      | 3                      | —  |
| 05WHMB0133-TH      | □           |                    | 14                    | 55                      | 3                      | —  |
| 10WHMB0133-TH      | □           |                    | 21                    | 60                      | 3                      | —  |
| 20WHMB0133-TH      | □           |                    | 33                    | 70                      | 3                      | —  |
| 30WHMB0133-TH      | □           |                    | 45                    | 85                      | 3                      | —  |
| 03WHMB0135-TH      | ●           | 1.35               | 7                     | 55                      | 3                      | 11,570   |
| 05WHMB0135-TH      | ●           |                    | 14                    | 55                      | 3                      | 15,710   |
| 10WHMB0135-TH      | ●           |                    | 21                    | 60                      | 3                      | 20,200   |
| 15WHMB0135-TH      | ●           |                    | 26                    | 70                      | 3                      | 23,570   |
| 20WHMB0135-TH      | ●           |                    | 33                    | 70                      | 3                      | 27,160   |
| 25WHMB0135-TH      | ●           |                    | 37                    | 75                      | 3                      | 29,860   |
| 30WHMB0135-TH      | ●           |                    | 45                    | 85                      | 3                      | 32,540   |

| 商品コード<br>Item code | 在庫<br>Stock | 寸法 Size (mm)       |                       |                         |                        | 希望小売<br>価格(円)<br>Suggested<br>retail<br>price(¥) |
|--------------------|-------------|--------------------|-----------------------|-------------------------|------------------------|--|
|                    |             | 直径<br>Tool<br>dia. | 溝長<br>Flute<br>length | 全長<br>Overall<br>length | シャンク径<br>Shank<br>dia. |  |
|                    |             | DC                 | ℓ                     | LF                      | DCONMS                 |  |
| 03WHMB0140-TH      | ●           | 1.4                | 7                     | 55                      | 3                      | 11,570   |
| 05WHMB0140-TH      | ●           |                    | 15                    | 55                      | 3                      | 15,710   |
| 10WHMB0140-TH      | ●           |                    | 22                    | 60                      | 3                      | 20,200   |
| 15WHMB0140-TH      | ●           |                    | 27                    | 70                      | 3                      | 23,570   |
| 20WHMB0140-TH      | ●           |                    | 33                    | 70                      | 3                      | 27,160   |
| 25WHMB0140-TH      | ●           |                    | 38                    | 75                      | 3                      | 29,860   |
| 30WHMB0140-TH      | ●           |                    | 47                    | 85                      | 3                      | 32,540   |
| 03WHMB0141-TH      | □           | 1.41               | 7                     | 55                      | 3                      | —  |
| 05WHMB0141-TH      | □           |                    | 15                    | 55                      | 3                      | —  |
| 10WHMB0141-TH      | □           |                    | 23                    | 60                      | 3                      | —  |
| 20WHMB0141-TH      | □           |                    | 35                    | 75                      | 3                      | —  |
| 30WHMB0141-TH      | □           |                    | 49                    | 85                      | 3                      | —  |
| 03WHMB0142-TH      | □           | 1.42               | 7                     | 55                      | 3                      | —  |
| 05WHMB0142-TH      | □           |                    | 15                    | 55                      | 3                      | —  |
| 10WHMB0142-TH      | □           |                    | 23                    | 60                      | 3                      | —  |
| 20WHMB0142-TH      | □           |                    | 35                    | 75                      | 3                      | —  |
| 03WHMB0143-TH      | □           | 1.43               | 7                     | 55                      | 3                      | —  |
| 05WHMB0143-TH      | □           |                    | 15                    | 55                      | 3                      | —  |
| 10WHMB0143-TH      | □           |                    | 23                    | 60                      | 3                      | —  |
| 20WHMB0143-TH      | □           |                    | 35                    | 75                      | 3                      | —  |
| 03WHMB0145-TH      | ●           | 1.45               | 7                     | 55                      | 3                      | 11,570   |
| 05WHMB0145-TH      | ●           |                    | 15                    | 55                      | 3                      | 15,710   |
| 10WHMB0145-TH      | ●           |                    | 23                    | 60                      | 3                      | 20,200   |
| 15WHMB0145-TH      | ●           |                    | 30                    | 70                      | 3                      | 23,570   |
| 20WHMB0145-TH      | ●           |                    | 35                    | 75                      | 3                      | 27,160   |
| 25WHMB0145-TH      | ●           |                    | 42                    | 80                      | 3                      | 29,860   |
| 30WHMB0145-TH      | ●           |                    | 49                    | 85                      | 3                      | 32,540   |
| 03WHMB0150-TH      | ●           | 1.5                | 8                     | 55                      | 3                      | 11,570   |
| 05WHMB0150-TH      | ●           |                    | 16                    | 55                      | 3                      | 15,710   |
| 10WHMB0150-TH      | ●           |                    | 24                    | 60                      | 3                      | 20,200   |
| 15WHMB0150-TH      | ●           |                    | 30                    | 70                      | 3                      | 23,570   |
| 20WHMB0150-TH      | ●           |                    | 37                    | 75                      | 3                      | 27,160   |
| 25WHMB0150-TH      | ●           |                    | 42                    | 80                      | 3                      | 29,860   |
| 30WHMB0150-TH      | ●           |                    | 50                    | 90                      | 3                      | 32,540   |
| 03WHMB0151-TH      | □           | 1.51               | 8                     | 55                      | 3                      | —  |
| 05WHMB0151-TH      | □           |                    | 16                    | 55                      | 3                      | —  |
| 10WHMB0151-TH      | □           |                    | 22                    | 60                      | 3                      | —  |
| 20WHMB0151-TH      | □           |                    | 37                    | 75                      | 3                      | —  |
| 30WHMB0151-TH      | □           |                    | 52                    | 90                      | 3                      | —  |

WHMSB-TH

WNSB-TH

WHMB-TH

NSBH-ATH

FWHNSB-TH

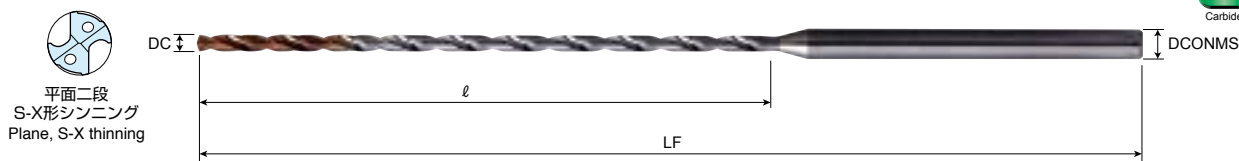
EMSBS

EMSBI-ATH



# 超硬OHミニステップボーラー

MINIATURE DRILL WHMB



## WHMB-TH オイルホールあり

With oil hole



| 商品コード<br>Item code | 在庫<br>Stock                         | 寸法 Size (mm)       |                       |                         |                        | 希望小売<br>価格(円)<br>Suggested<br>retail<br>price(¥) |
|--------------------|-------------------------------------|--------------------|-----------------------|-------------------------|------------------------|--|
|                    |                                     | 直径<br>Tool<br>dia. | 溝長<br>Flute<br>length | 全長<br>Overall<br>length | シャンク径<br>Shank<br>dia. |  |
|                    |                                     | DC                 | ℓ                     | LF                      | DCONMS                 |  |
| 03WHMB0152-TH      | <input type="checkbox"/>            | 1.52               | 8                     | 55                      | 3                      | —  |
| 05WHMB0152-TH      | <input type="checkbox"/>            |                    | 16                    | 55                      | 3                      | —  |
| 10WHMB0152-TH      | <input type="checkbox"/>            |                    | 22                    | 60                      | 3                      | —  |
| 20WHMB0152-TH      | <input type="checkbox"/>            |                    | 37                    | 75                      | 3                      | —  |
| 30WHMB0152-TH      | <input type="checkbox"/>            |                    | 52                    | 90                      | 3                      | —  |
| 03WHMB0153-TH      | <input type="checkbox"/>            | 1.53               | 8                     | 55                      | 3                      | —  |
| 05WHMB0153-TH      | <input type="checkbox"/>            |                    | 16                    | 55                      | 3                      | —  |
| 10WHMB0153-TH      | <input type="checkbox"/>            |                    | 22                    | 60                      | 3                      | —  |
| 20WHMB0153-TH      | <input type="checkbox"/>            |                    | 37                    | 75                      | 3                      | —  |
| 03WHMB0155-TH      | <input checked="" type="checkbox"/> | 1.55               | 8                     | 55                      | 3                      | 11,570   |
| 05WHMB0155-TH      | <input checked="" type="checkbox"/> |                    | 16                    | 55                      | 3                      | 15,710   |
| 10WHMB0155-TH      | <input checked="" type="checkbox"/> |                    | 22                    | 60                      | 3                      | 20,200   |
| 15WHMB0155-TH      | <input checked="" type="checkbox"/> |                    | 32                    | 70                      | 3                      | 23,570   |
| 20WHMB0155-TH      | <input checked="" type="checkbox"/> |                    | 37                    | 75                      | 3                      | 27,160   |
| 25WHMB0155-TH      | <input checked="" type="checkbox"/> |                    | 44                    | 85                      | 3                      | 29,860   |
| 30WHMB0155-TH      | <input checked="" type="checkbox"/> |                    | 52                    | 90                      | 3                      | 32,540   |
| 03WHMB0160-TH      | <input checked="" type="checkbox"/> | 1.6                | 8                     | 55                      | 3                      | 11,570   |
| 05WHMB0160-TH      | <input checked="" type="checkbox"/> |                    | 17                    | 55                      | 3                      | 15,710   |
| 10WHMB0160-TH      | <input checked="" type="checkbox"/> |                    | 26                    | 65                      | 3                      | 20,200   |
| 15WHMB0160-TH      | <input checked="" type="checkbox"/> |                    | 33                    | 70                      | 3                      | 23,570   |
| 20WHMB0160-TH      | <input checked="" type="checkbox"/> |                    | 37                    | 75                      | 3                      | 27,160   |
| 25WHMB0160-TH      | <input checked="" type="checkbox"/> |                    | 45                    | 85                      | 3                      | 29,860   |
| 30WHMB0160-TH      | <input checked="" type="checkbox"/> |                    | 53                    | 90                      | 3                      | 32,540   |
| 03WHMB0161-TH      | <input type="checkbox"/>            | 1.61               | 8                     | 55                      | 3                      | —  |
| 05WHMB0161-TH      | <input type="checkbox"/>            |                    | 17                    | 55                      | 3                      | —  |
| 10WHMB0161-TH      | <input type="checkbox"/>            |                    | 26                    | 65                      | 3                      | —  |
| 20WHMB0161-TH      | <input type="checkbox"/>            |                    | 38                    | 75                      | 3                      | —  |
| 30WHMB0161-TH      | <input type="checkbox"/>            |                    | 55                    | 95                      | 3                      | —  |
| 03WHMB0162-TH      | <input type="checkbox"/>            | 1.62               | 8                     | 55                      | 3                      | —  |
| 05WHMB0162-TH      | <input type="checkbox"/>            |                    | 17                    | 55                      | 3                      | —  |
| 10WHMB0162-TH      | <input type="checkbox"/>            |                    | 26                    | 65                      | 3                      | —  |
| 20WHMB0162-TH      | <input type="checkbox"/>            |                    | 38                    | 75                      | 3                      | —  |
| 30WHMB0162-TH      | <input type="checkbox"/>            |                    | 55                    | 95                      | 3                      | —  |
| 03WHMB0163-TH      | <input type="checkbox"/>            | 1.63               | 8                     | 55                      | 3                      | —  |
| 05WHMB0163-TH      | <input type="checkbox"/>            |                    | 17                    | 55                      | 3                      | —  |
| 10WHMB0163-TH      | <input type="checkbox"/>            |                    | 26                    | 65                      | 3                      | —  |
| 20WHMB0163-TH      | <input type="checkbox"/>            |                    | 38                    | 75                      | 3                      | —  |
| 30WHMB0163-TH      | <input type="checkbox"/>            |                    | 55                    | 95                      | 3                      | —  |

| 商品コード<br>Item code | 在庫<br>Stock                         | 寸法 Size (mm)       |                       |                         |                        | 希望小売<br>価格(円)<br>Suggested<br>retail<br>price(¥) |
|--------------------|-------------------------------------|--------------------|-----------------------|-------------------------|------------------------|--|
|                    |                                     | 直径<br>Tool<br>dia. | 溝長<br>Flute<br>length | 全長<br>Overall<br>length | シャンク径<br>Shank<br>dia. |  |
|                    |                                     | DC                 | ℓ                     | LF                      | DCONMS                 |  |
| 03WHMB0165-TH      | <input checked="" type="checkbox"/> | 1.65               | 8                     | 55                      | 3                      | 11,570   |
| 05WHMB0165-TH      | <input checked="" type="checkbox"/> |                    | 17                    | 55                      | 3                      | 15,710   |
| 10WHMB0165-TH      | <input checked="" type="checkbox"/> |                    | 26                    | 65                      | 3                      | 20,200   |
| 15WHMB0165-TH      | <input checked="" type="checkbox"/> |                    | 33                    | 70                      | 3                      | 23,570   |
| 20WHMB0165-TH      | <input checked="" type="checkbox"/> |                    | 38                    | 75                      | 3                      | 27,160   |
| 25WHMB0165-TH      | <input checked="" type="checkbox"/> |                    | 46                    | 90                      | 3                      | 29,860   |
| 30WHMB0165-TH      | <input checked="" type="checkbox"/> |                    | 55                    | 95                      | 3                      | 32,540   |
| 03WHMB0170-TH      | <input checked="" type="checkbox"/> | 1.7                | 8                     | 55                      | 3                      | 11,570   |
| 05WHMB0170-TH      | <input checked="" type="checkbox"/> |                    | 18                    | 55                      | 3                      | 15,710   |
| 10WHMB0170-TH      | <input checked="" type="checkbox"/> |                    | 27                    | 65                      | 3                      | 20,200   |
| 15WHMB0170-TH      | <input checked="" type="checkbox"/> |                    | 34                    | 70                      | 3                      | 23,570   |
| 20WHMB0170-TH      | <input checked="" type="checkbox"/> |                    | 40                    | 80                      | 3                      | 27,160   |
| 25WHMB0170-TH      | <input checked="" type="checkbox"/> |                    | 48                    | 85                      | 3                      | 29,860   |
| 03WHMB0171-TH      | <input type="checkbox"/>            | 1.71               | 8                     | 55                      | 3                      | —  |
| 05WHMB0171-TH      | <input type="checkbox"/>            |                    | 19                    | 60                      | 3                      | —  |
| 10WHMB0171-TH      | <input type="checkbox"/>            |                    | 27                    | 65                      | 3                      | —  |
| 20WHMB0171-TH      | <input type="checkbox"/>            |                    | 41                    | 80                      | 3                      | —  |
| 03WHMB0172-TH      | <input type="checkbox"/>            | 1.72               | 8                     | 55                      | 3                      | —  |
| 05WHMB0172-TH      | <input type="checkbox"/>            |                    | 19                    | 60                      | 3                      | —  |
| 10WHMB0172-TH      | <input type="checkbox"/>            |                    | 27                    | 65                      | 3                      | —  |
| 20WHMB0172-TH      | <input type="checkbox"/>            |                    | 41                    | 80                      | 3                      | —  |
| 30WHMB0172-TH      | <input type="checkbox"/>            |                    | 58                    | 95                      | 3                      | —  |
| 03WHMB0173-TH      | <input type="checkbox"/>            | 1.73               | 8                     | 55                      | 3                      | —  |
| 05WHMB0173-TH      | <input type="checkbox"/>            |                    | 19                    | 60                      | 3                      | —  |
| 10WHMB0173-TH      | <input type="checkbox"/>            |                    | 27                    | 65                      | 3                      | —  |
| 20WHMB0173-TH      | <input type="checkbox"/>            |                    | 41                    | 80                      | 3                      | —  |
| 30WHMB0173-TH      | <input type="checkbox"/>            |                    | 58                    | 95                      | 3                      | —  |
| 03WHMB0175-TH      | <input checked="" type="checkbox"/> | 1.75               | 8                     | 55                      | 3                      | 11,570   |
| 05WHMB0175-TH      | <input checked="" type="checkbox"/> |                    | 19                    | 60                      | 3                      | 15,710   |
| 10WHMB0175-TH      | <input checked="" type="checkbox"/> |                    | 27                    | 65                      | 3                      | 20,200   |
| 15WHMB0175-TH      | <input checked="" type="checkbox"/> |                    | 34                    | 75                      | 3                      | 23,570   |
| 20WHMB0175-TH      | <input checked="" type="checkbox"/> |                    | 41                    | 80                      | 3                      | 27,160   |
| 25WHMB0175-TH      | <input checked="" type="checkbox"/> |                    | 50                    | 90                      | 3                      | 29,860   |
| 30WHMB0175-TH      | <input checked="" type="checkbox"/> |                    | 58                    | 95                      | 3                      | 32,540   |

メーカー再研磨、再コーティングは行っておりません。 ●印：標準在庫品です。 □印：特定代理店在庫です。弊社営業へお問合せください。  
Manufacturer regrinding/recoating is not possible. ● : Stocked Items. □ : Stocked by specified distributor. Contact with our sales department.

メーカー再研磨、再コーティングは行っておりません。 ●印：標準在庫品です。 □印：特定代理店在庫です。弊社営業へお問合せください。  
Manufacturer regrinding/recoating is not possible. ● : Stocked Items. □ : Stocked by specified distributor. Contact with our sales department.

# WHMB-TH オイルホールあり

With oil hole

| 商品コード<br>Item code | 在庫<br>Stock | 寸法 Size (mm)       |                       |                         |                        | 希望小売<br>価格(円)<br>Suggested<br>retail<br>price(¥) |
|--------------------|-------------|--------------------|-----------------------|-------------------------|------------------------|--|
|                    |             | 直径<br>Tool<br>dia. | 溝長<br>Flute<br>length | 全長<br>Overall<br>length | シャンク径<br>Shank<br>dia. |  |
|                    |             | DC                 | ℓ                     | LF                      | DCONMS                 |  |
| 03WHMB0180-TH      | ●           | 1.8                | 10                    | 55                      | 3                      | 11,570   |
| 05WHMB0180-TH      | ●           |                    | 19                    | 60                      | 3                      | 15,710   |
| 10WHMB0180-TH      | ●           |                    | 28                    | 65                      | 3                      | 20,200   |
| 15WHMB0180-TH      | ●           |                    | 36                    | 75                      | 3                      | 23,570   |
| 20WHMB0180-TH      | ●           |                    | 43                    | 80                      | 3                      | 27,160   |
| 25WHMB0180-TH      | ●           |                    | 51                    | 90                      | 3                      | 29,860   |
| 30WHMB0180-TH      | ●           |                    | 60                    | 100                     | 3                      | 32,540   |
| 03WHMB0181-TH      | □           | 1.81               | 10                    | 55                      | 3                      | —  |
| 05WHMB0181-TH      | □           |                    | 20                    | 60                      | 3                      | —  |
| 10WHMB0181-TH      | □           |                    | 29                    | 70                      | 3                      | —  |
| 20WHMB0181-TH      | □           |                    | 45                    | 85                      | 3                      | —  |
| 30WHMB0181-TH      | □           |                    | 61                    | 100                     | 3                      | —  |
| 03WHMB0182-TH      | □           | 1.82               | 10                    | 55                      | 3                      | —  |
| 05WHMB0182-TH      | □           |                    | 20                    | 60                      | 3                      | —  |
| 10WHMB0182-TH      | □           |                    | 29                    | 70                      | 3                      | —  |
| 20WHMB0182-TH      | □           |                    | 45                    | 85                      | 3                      | —  |
| 30WHMB0182-TH      | □           |                    | 61                    | 100                     | 3                      | —  |
| 03WHMB0183-TH      | □           | 1.83               | 10                    | 55                      | 3                      | —  |
| 05WHMB0183-TH      | □           |                    | 20                    | 60                      | 3                      | —  |
| 10WHMB0183-TH      | □           |                    | 29                    | 70                      | 3                      | —  |
| 20WHMB0183-TH      | □           |                    | 45                    | 85                      | 3                      | —  |
| 30WHMB0183-TH      | □           |                    | 61                    | 100                     | 3                      | —  |
| 03WHMB0185-TH      | ●           | 1.85               | 10                    | 55                      | 3                      | 11,570   |
| 05WHMB0185-TH      | ●           |                    | 20                    | 60                      | 3                      | 15,710   |
| 10WHMB0185-TH      | ●           |                    | 29                    | 70                      | 3                      | 20,200   |
| 15WHMB0185-TH      | ●           |                    | 38                    | 75                      | 3                      | 23,570   |
| 20WHMB0185-TH      | ●           |                    | 45                    | 85                      | 3                      | 27,160   |
| 25WHMB0185-TH      | ●           |                    | 53                    | 90                      | 3                      | 29,860   |
| 30WHMB0185-TH      | ●           |                    | 61                    | 100                     | 3                      | 32,540   |
| 03WHMB0190-TH      | ●           | 1.9                | 10                    | 55                      | 3                      | 11,570   |
| 05WHMB0190-TH      | ●           |                    | 20                    | 60                      | 3                      | 15,710   |
| 10WHMB0190-TH      | ●           |                    | 29                    | 70                      | 3                      | 20,200   |
| 15WHMB0190-TH      | ●           |                    | 39                    | 75                      | 3                      | 23,570   |
| 20WHMB0190-TH      | ●           |                    | 45                    | 85                      | 3                      | 27,160   |
| 25WHMB0190-TH      | ●           |                    | 55                    | 95                      | 3                      | 29,860   |
| 30WHMB0190-TH      | ●           |                    | 63                    | 100                     | 3                      | 32,540   |
| 03WHMB0191-TH      | □           | 1.91               | 10                    | 55                      | 3                      | —  |
| 05WHMB0191-TH      | □           |                    | 20                    | 60                      | 3                      | —  |
| 10WHMB0191-TH      | □           |                    | 30                    | 70                      | 3                      | —  |
| 20WHMB0191-TH      | □           |                    | 47                    | 85                      | 3                      | —  |
| 30WHMB0191-TH      | □           |                    | 65                    | 105                     | 3                      | —  |

| 商品コード<br>Item code | 在庫<br>Stock | 寸法 Size (mm)       |                       |                         |                        | 希望小売<br>価格(円)<br>Suggested<br>retail<br>price(¥) |
|--------------------|-------------|--------------------|-----------------------|-------------------------|------------------------|--|
|                    |             | 直径<br>Tool<br>dia. | 溝長<br>Flute<br>length | 全長<br>Overall<br>length | シャンク径<br>Shank<br>dia. |  |
|                    |             | DC                 | ℓ                     | LF                      | DCONMS                 |  |
| 03WHMB0192-TH      | □           | 1.92               | 10                    | 55                      | 3                      | —  |
| 05WHMB0192-TH      | □           |                    | 20                    | 60                      | 3                      | —  |
| 10WHMB0192-TH      | □           |                    | 30                    | 70                      | 3                      | —  |
| 20WHMB0192-TH      | □           |                    | 47                    | 85                      | 3                      | —  |
| 30WHMB0192-TH      | □           |                    | 65                    | 105                     | 3                      | —  |
| 03WHMB0193-TH      | □           | 1.93               | 10                    | 55                      | 3                      | —  |
| 05WHMB0193-TH      | □           |                    | 20                    | 60                      | 3                      | —  |
| 10WHMB0193-TH      | □           |                    | 30                    | 70                      | 3                      | —  |
| 20WHMB0193-TH      | □           |                    | 47                    | 85                      | 3                      | —  |
| 03WHMB0195-TH      | ●           | 1.95               | 10                    | 55                      | 3                      | 11,570   |
| 05WHMB0195-TH      | ●           |                    | 20                    | 60                      | 3                      | 15,710   |
| 10WHMB0195-TH      | ●           |                    | 30                    | 70                      | 3                      | 20,200   |
| 15WHMB0195-TH      | ●           |                    | 41                    | 80                      | 3                      | 23,570   |
| 20WHMB0195-TH      | ●           |                    | 47                    | 85                      | 3                      | 27,160   |
| 25WHMB0195-TH      | ●           |                    | 56                    | 95                      | 3                      | 29,860   |
| 30WHMB0195-TH      | ●           |                    | 65                    | 105                     | 3                      | 32,540   |
| 03WHMB0200-TH      | ●           | 2                  | 10                    | 55                      | 3                      | 11,570   |
| 05WHMB0200-TH      | ●           |                    | 20                    | 60                      | 3                      | 15,710   |
| 10WHMB0200-TH      | ●           |                    | 30                    | 70                      | 3                      | 20,200   |
| 15WHMB0200-TH      | ●           |                    | 41                    | 80                      | 3                      | 23,570   |
| 20WHMB0200-TH      | ●           |                    | 47                    | 85                      | 3                      | 27,160   |
| 25WHMB0200-TH      | ●           |                    | 57                    | 95                      | 3                      | 29,860   |
| 30WHMB0200-TH      | ●           |                    | 67                    | 105                     | 3                      | 32,540   |
| 03WHMB0201-TH      | □           | 2.01               | 10                    | 55                      | 3                      | —  |
| 05WHMB0201-TH      | □           |                    | 21                    | 60                      | 3                      | —  |
| 10WHMB0201-TH      | □           |                    | 31                    | 70                      | 3                      | —  |
| 20WHMB0201-TH      | □           |                    | 49                    | 90                      | 3                      | —  |
| 30WHMB0201-TH      | □           |                    | 69                    | 110                     | 3                      | —  |
| 03WHMB0202-TH      | □           | 2.02               | 10                    | 55                      | 3                      | —  |
| 05WHMB0202-TH      | □           |                    | 21                    | 60                      | 3                      | —  |
| 10WHMB0202-TH      | □           |                    | 31                    | 70                      | 3                      | —  |
| 20WHMB0202-TH      | □           |                    | 49                    | 90                      | 3                      | —  |
| 30WHMB0202-TH      | □           |                    | 69                    | 110                     | 3                      | —  |
| 03WHMB0203-TH      | □           | 2.03               | 10                    | 55                      | 3                      | —  |
| 05WHMB0203-TH      | □           |                    | 21                    | 60                      | 3                      | —  |
| 10WHMB0203-TH      | □           |                    | 31                    | 70                      | 3                      | —  |
| 20WHMB0203-TH      | □           |                    | 49                    | 90                      | 3                      | —  |
| 30WHMB0203-TH      | □           |                    | 69                    | 110                     | 3                      | —  |

## ○ 対応被削材 Applicable work material

|                  |                        |                    |                              |                   |                        |                                  |   |                 |  |                                       |                              |
|------------------|------------------------|--------------------|------------------------------|-------------------|------------------------|----------------------------------|---|-----------------|--|---------------------------------------|------------------------------|
| 軟鋼<br>Mild steel | 炭素鋼<br>Carbon<br>steel | 合金鋼<br>Alloy steel | 調質鋼<br>Heat-treated<br>steel | 工具鋼<br>Tool steel | 焼入れ鋼<br>Hardened steel | ステン<br>レス鋼<br>Stainless<br>steel | 耐熱鋼<br>Ti合金<br>Heat-resistant<br>steel, Ti alloy<br>Inconel | 鋳鉄<br>Cast iron | ダクタイル<br>鋳鉄<br>Ductile<br>cast iron<br>FCD | アルミ<br>合金<br>Aluminium<br>alloy<br>Al | 銅合金<br>Copper<br>alloy<br>Cu |
| SS               | SOOC                   | SCM,<br>SCr        | SKD<br>SKS                   | ~40HRC            | ~45HRC 45HRC~          | SUS                              |   | FC              |  | ○                                     | ○                            |

## ○ 再研磨対応直径範囲 Re-grinding compatibility range

| 商品コード Item code | DC (mm) |
|-----------------|---------|
| WHMB-TH         | × (N/A) |

WHMSB-TH

WNSB-TH

WHMB-TH

NSBH-ATH

FWHNSB-TH

EMSBS

EMSBH-ATH

# 標準切削条件表

Recommended Cutting Conditions

5Dまで  
Up to 5D

03WHMB-TH

05WHMB-TH

| 直径<br>Tool dia.<br>(mm) | 切削条件<br>Cutting condition            | 炭素鋼<br>Carbon steels<br>SC材 | 合金鋼<br>Alloy steels<br>SCM | ステンレス鋼<br>Stainless steels<br>SUS304 | ステンレス鋼<br>Stainless steels<br>SUS630 | アルミニウム合金<br>Aluminium alloys |
|-------------------------|--------------------------------------|-----------------------------|----------------------------|--------------------------------------|--------------------------------------|------------------------------|
| 1                       | 切削速度 Cutting speed (vc) m/min        | 30~40~50                    | 30~40~50                   | 20~30~40                             | 20~30~40                             | 40~60~80                     |
|                         | 回転数 Revolution (n) min <sup>-1</sup> | 12,732                      | 12,732                     | 9,549                                | 9,549                                | 19,099                       |
|                         | 一回転送り量 Feed per rev (f) mm/rev       | 0.01~0.04                   | 0.01~0.04                  | 0.01~0.04                            | 0.01~0.03                            | 0.01~0.05                    |
| 1.5                     | 切削速度 Cutting speed (vc) m/min        | 30~40~50                    | 30~40~50                   | 20~30~40                             | 20~30~40                             | 40~60~80                     |
|                         | 回転数 Revolution (n) min <sup>-1</sup> | 8,488                       | 8,488                      | 6,366                                | 6,366                                | 12,732                       |
|                         | 一回転送り量 Feed per rev (f) mm/rev       | 0.015~0.06                  | 0.015~0.06                 | 0.015~0.06                           | 0.015~0.045                          | 0.015~0.075                  |
| 2                       | 切削速度 Cutting speed (vc) m/min        | 30~40~50                    | 30~40~50                   | 20~30~40                             | 20~30~40                             | 40~60~80                     |
|                         | 回転数 Revolution (n) min <sup>-1</sup> | 6,366                       | 6,366                      | 4,775                                | 4,775                                | 9,549                        |
|                         | 一回転送り量 Feed per rev (f) mm/rev       | 0.02~0.08                   | 0.02~0.08                  | 0.02~0.08                            | 0.02~0.06                            | 0.02~0.1                     |

10D以上  
10D or more

10WHMB-TH

15WHMB-TH

20WHMB-TH

25WHMB-TH

30WHMB-TH

| 直径<br>Tool dia.<br>(mm) | 切削条件<br>Cutting condition            | 炭素鋼<br>Carbon steels<br>SC材 | 合金鋼<br>Alloy steels<br>SCM | ステンレス鋼<br>Stainless steels<br>SUS304 | ステンレス鋼<br>Stainless steels<br>SUS630 | アルミニウム合金<br>Aluminium alloys |
|-------------------------|--------------------------------------|-----------------------------|----------------------------|--------------------------------------|--------------------------------------|------------------------------|
| 1                       | 切削速度 Cutting speed (vc) m/min        | 30~40~50                    | 30~40~50                   | 20~30~40                             | 20~30~40                             | 30~40~60                     |
|                         | 回転数 Revolution (n) min <sup>-1</sup> | 12,732                      | 12,732                     | 9,549                                | 9,549                                | 12,732                       |
|                         | 一回転送り量 Feed per rev (f) mm/rev       | 0.01~0.03                   | 0.01~0.03                  | 0.01~0.03                            | 0.01~0.015                           | 0.01~0.04                    |
| 1.5                     | 切削速度 Cutting speed (vc) m/min        | 30~40~50                    | 30~40~50                   | 20~30~40                             | 20~30~40                             | 30~40~60                     |
|                         | 回転数 Revolution (n) min <sup>-1</sup> | 8,488                       | 8,488                      | 6,366                                | 6,366                                | 8,488                        |
|                         | 一回転送り量 Feed per rev (f) mm/rev       | 0.015~0.045                 | 0.015~0.045                | 0.015~0.045                          | 0.015~0.023                          | 0.015~0.06                   |
| 2                       | 切削速度 Cutting speed (vc) m/min        | 30~40~50                    | 30~40~50                   | 20~30~40                             | 20~30~40                             | 30~40~60                     |
|                         | 回転数 Revolution (n) min <sup>-1</sup> | 6,366                       | 6,366                      | 4,775                                | 4,775                                | 6,366                        |
|                         | 一回転送り量 Feed per rev (f) mm/rev       | 0.02~0.06                   | 0.02~0.06                  | 0.02~0.06                            | 0.02~0.03                            | 0.02~0.08                    |

## 【切削条件の選定について】 Setting of Cutting Conditions

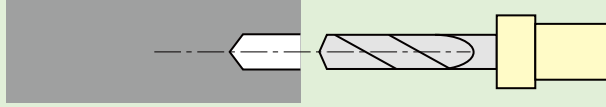
- ・この標準切削条件表は切削条件の目安を示すものです。実際の加工では加工形状、目的、使用機械などにより条件を調整してください。
- ・切削液は水溶性切削液を推奨致します。
- ・内部クーラント圧力は1.5MPa以上を推奨致します。(1.5MPa以下の場合ステップ加工を推奨)
- ・クーラントの穴詰まりを防止するために、メッシュフィルタ(3μm~5μm)をご使用ください。
- ・加工サイクルはG81を推奨致します。
- ・切りくずが排出されにくい場合は、工具径程度の長さでステップ加工ください。(G73, G83サイクル)
- ・工具装着の際は傷や汚れの無いコレットを用い、工具の振れは0.02mm以下を推奨致します。
- ・10Dタイプ以上の工具を使用する際は、下穴に3Dタイプを推奨致します。
- ・ロングドリル(10D以上)で加工する際は、vc=80m/min以下で加工ください。高速で工具を回転させると遠心力で折損する場合がございます。
- ・記載以外の被削材を加工される際はご相談ください。

- ・ This standard cutting condition table is for general guidance regarding cutting conditions. The conditions should be adjusted according to the machining shape, application, machine used, etc. for the actual machining.
- ・ For the cutting fluid, water-based cutting fluids are recommended.
- ・ Internal coolant pressure of 1.5MPa or higher is recommended. (When pressure is less than 1.5MPa, performing step machining is recommended.)
- ・ Use a mesh filter (3 μm to 5 μm) to prevent clogging of coolant hole.
- ・ G81 is recommended as the machining cycle.
- ・ When removal of chips is difficult, perform step machining of about the tool diameter. (G73, G83 cycle)
- ・ When mounting the tool, use of a collet without scratches or dirt and tool deflection of 0.02 mm or less is recommended.
- ・ When using 10D type or larger tools, it is recommended that a 3D type tool is used to create a pilot hole.
- ・ When performing machining using a long drill (10D or more), perform machining at vc=80 m/min. or less. If the tool is rotated at high speed, it may be broken by centrifugal force.
- ・ Please consult us regarding machining of materials other than those listed above.

# ○ ロングドリル(10Dタイプ以上)の加工方法 Machining method when using a long drill (10D type or longer)

## 1 03WHMB-THで、工具径の3倍の深さを加工

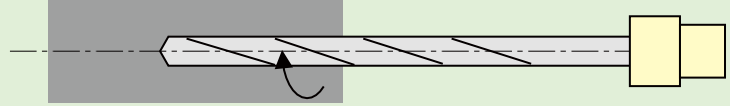
Use 03WHMB-TH to machine a hole with a depth of 3 times the tool diameter.



## 2 ロングドリルにて加工 Machine using a long drill.

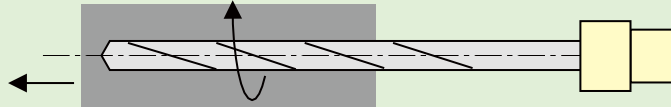
※横型のM/C使用時は、進入時は低速回転 ( $n=0\sim 500\text{min}^{-1}$ )推奨

※When using a horizontal machine, low-speed rotation ( $n=0$  to  $500\text{ min}^{-1}$ ) while advancing is recommended.



## 3 穴底で0.3秒のドゥエルを推奨

Dwelling at the bottom of the hole for 0.3 s is recommended.



WHNSB-TH

WNSB-TH

WHMB-TH

NSBH-ATH

FWHNSB-TH

EMSBS

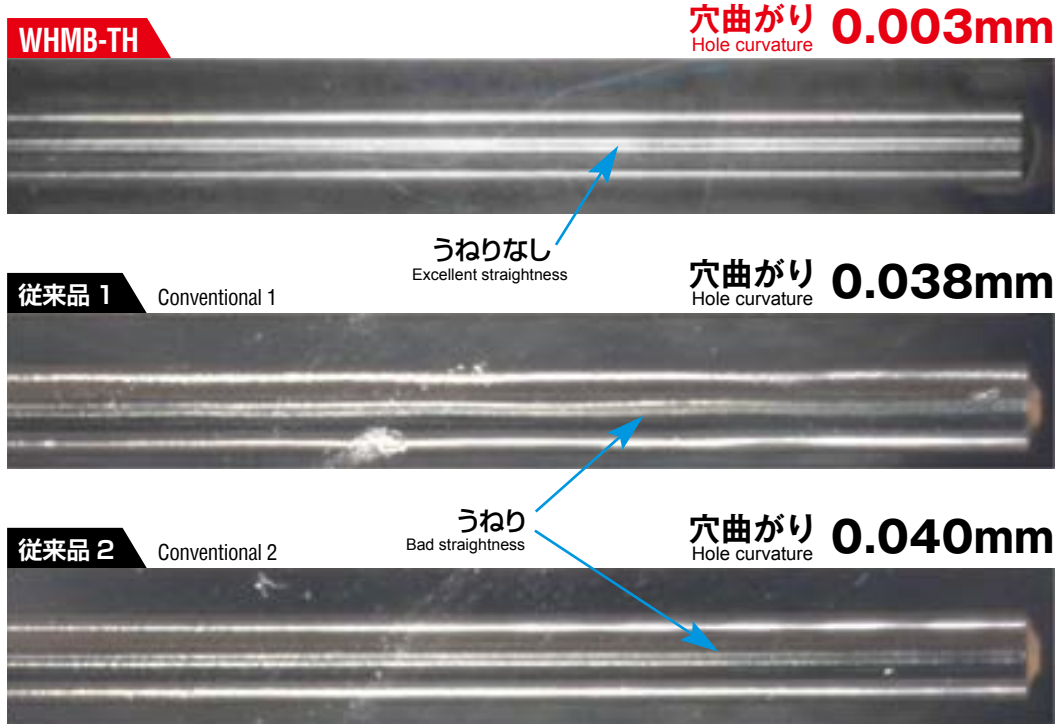
EMSBI-ATH



## ○ アクリルの加工事例（穴曲がり）【φ1.0mm 20D タイプ】

Example of hole curvature in acrylic 【φ1.0mm, 20D type】

**切削条件** Cutting condition  $v_c=30\text{m/min}$ ,  $n=9,549\text{min}^{-1}$ ,  $f=0.02\text{mm/rev}$ ,  $v_f=190\text{mm/min}$ 、穴深さ Hole depth = 18mm、下穴深さ Pilot hole depth = 1mm、  
ノンステップ加工 Non step machining、水溶性切削液 Water base coolant、内部クーラント圧 Internal coolant pressure 3MPa



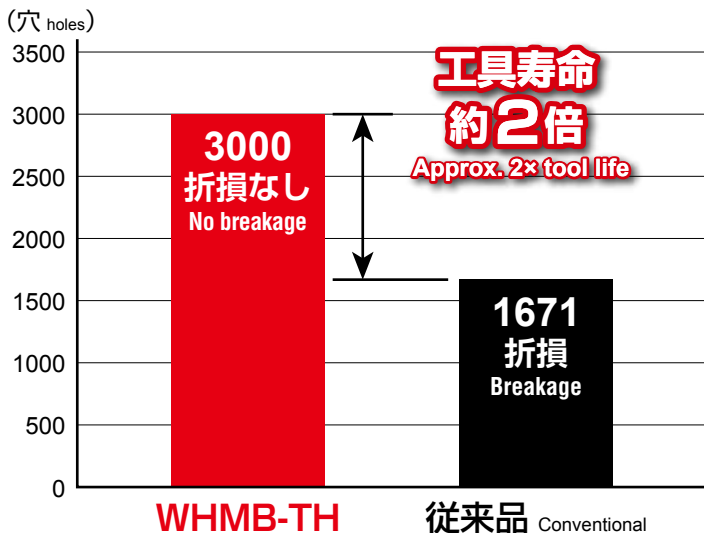
**高精度刃形形状により、従来品を上回る穴精度を実現!!**

High-accuracy flute shape form achieves higher hole accuracy than conventional products.

## ○ ステンレス鋼 (SUS304) の加工事例【φ1.0mm 20D タイプ】

Stainless steel (SUS304) machining example 【φ1.0mm, 20D type】

**切削条件** Cutting condition  $v_c=30\text{m/min}$ ,  $n=9,549\text{min}^{-1}$ ,  $f=0.02\text{mm/rev}$ ,  $v_f=190\text{mm/min}$ 、  
穴深さ Hole depth = 18mm、下穴深さ Pilot hole depth = 1mm、  
ノンステップ加工 Non step machining、水溶性切削液 Water base coolant、  
内部クーラント圧 Internal coolant pressure 3MPa



## ○ ステンレス鋼 (SUS630) の加工事例

Stainless steel (SUS630) machining example

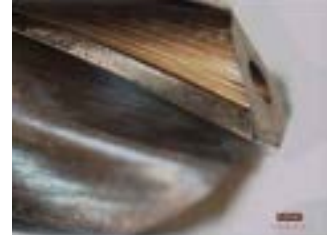
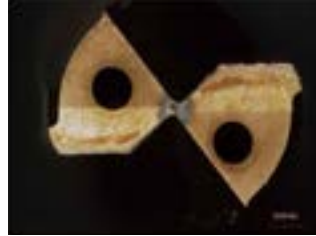
### 03WHMB0170-TH $\phi$ 1.7mm 3Dタイプ type

#### 切削条件 Cutting condition

$v_c=30\text{m/min}$ ,  $n=5,617\text{min}^{-1}$ ,  $f=0.0425\text{mm/rev}$ ,  
 $v_f=239\text{mm/min}$ , 穴深さ Hole depth =5mm,  
 ノンステップ加工 Non step machining、水溶性切削液 Water base coolant、  
 内部クーラント圧 Internal coolant pressure 3MPa

**800穴加工後 継続加工可**

After machining 800 holes, continued machining is possible



### 30WHMB0170-TH $\phi$ 1.7mm 30Dタイプ type

#### 切削条件 Cutting condition

$v_c=30\text{m/min}$ ,  $n=5,617\text{min}^{-1}$ ,  $f=0.025\text{mm/rev}$ ,  
 $v_f=143\text{mm/min}$ , 穴深さ Hole depth =48mm,  
 ノンステップ加工 Non step machining、水溶性切削液 Water base coolant、  
 内部クーラント圧 Internal coolant pressure 3MPa

**200穴加工後 継続加工可**

After machining 200 holes, continued machining is possible



## ○ クロモモリブテン鋼 (SCM420) の加工事例 【 $\phi$ 1.0mm 30Dタイプ】

Chrome molybdenum steel (SCM420) machining example 【 $\phi$ 1.0mm 30D type】

#### 切削条件(G73サイクル) Cutting condition (G73 cycle)

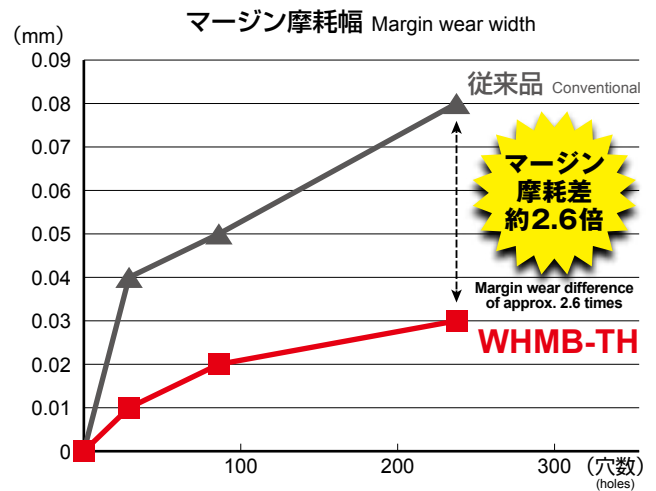
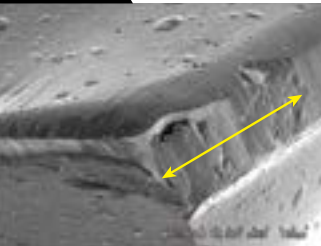
$v_c=30\text{m/min}$ ,  $n=9,549\text{min}^{-1}$ ,  $f=0.03\text{mm/rev}$ ,  $v_f=286\text{mm/min}$ ,  
 ステップ Step = 1mm, 穴深さ Hole depth =28mm,  
 下穴深さ Pilot hole depth = 1mm, 水溶性切削液 Water base coolant,  
 内部クーラント圧 Internal coolant pressure 3MPa

**240穴加工後 After machining 240 holes**

WHMB-TH



従来品 Conventional



## ○ クロム銅の加工事例 【 $\phi$ 1.0mm 30Dタイプ】

Chrome steel machining example 【 $\phi$ 1.0mm 30D type】

#### 切削条件(G73サイクル) Cutting condition (G73 cycle)

$v_c=50.2\text{m/min}$ ,  $n=16,000\text{min}^{-1}$ ,  $f=0.03\text{mm/rev}$ ,  $v_f=480\text{mm/min}$ , 穴深さ Hole depth =25mm,  
 ステップ Step = 1mm, 水溶性切削液 Water base coolant、内部クーラント圧 Internal coolant pressure 3MPa



1000穴(25m) 加工後の工具摩耗  
Tool wear after machining 1000 holes (25m)



加工ワーク  
Machined workpiece

**L/D=25の深穴加工を下穴無しで実現 加工時間…1穴6秒**

Achieves deep hole machining of L/D=25 Machining time is 6sec/hole!

WHNSB-TH

WNSB-TH

WHMB-TH

NSBH-ATH

FWHNSB-TH

EMSBS

EMSBB-ATH