

## DRILLING (SOLID CARBIDE)

MNS

CARBIDE

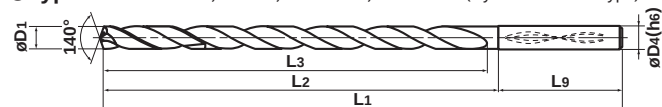
| Carbon Steel<br>Alloy Steel | Hardened<br>Steel | Stainless<br>Steel | Cast Iron | Light Alloy | Heat Resistant<br>Alloy |
|-----------------------------|-------------------|--------------------|-----------|-------------|-------------------------|
|                             |                   |                    |           | ◎           |                         |



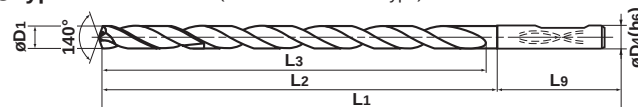
|          | D1=3             | 3<D1≤6           | 6<D1≤10          | 10<D1≤18         | 18<D1≤20         |
|----------|------------------|------------------|------------------|------------------|------------------|
| DIN type | +0.016<br>+0.004 | +0.016<br>+0.004 | +0.021<br>+0.006 | +0.025<br>+0.007 | +0.029<br>+0.008 |
| Others   | 0<br>-0.014      | 0<br>-0.018      | 0<br>-0.022      | 0<br>-0.027      | 0<br>-0.031      |
| h6       | 0<br>-0.006      | 0<br>-0.008      | 0<br>-0.009      | 0<br>-0.011      | 0<br>-0.013      |

● 4.5mm or smaller diameter drills are designed with 2 coolant holes.

● Type 1 MNS----DIN-C, MNS-C, MNS----LB, MNS----DB (Cylindrical shank type)



● Type 2 MNS----S/L-DIN (Whistle notch shank type)



(Note) MNS drills are suitable for use with shrink fit holders.

| Drill Dia.<br><br>D1<br>(mm) | Hole Depth<br>(l/d) | Stock     | Order Number | Dimensions (mm) |     |     |    |    | Type |
|------------------------------|---------------------|-----------|--------------|-----------------|-----|-----|----|----|------|
|                              |                     | TF15      |              | L1              | L2  | L3  | L9 | D4 |      |
| 3.0                          | 3                   | □         | MNS0300S-DIN | 62              | 26  | 20  | 36 | 6  | 2    |
|                              | 3                   | □         | 0300S-DIN-C  | 62              | 26  | 20  | 36 | 6  | 1    |
|                              | 5                   | □         | 0300L-DIN    | 66              | 30  | 28  | 36 | 6  | 2    |
|                              | 5                   | ●         | 0300L-DIN-C  | 66              | 30  | 28  | 36 | 6  | 1    |
|                              | 8                   | □         | 0300-L8C     | 74              | 38  | 34  | 36 | 6  | 1    |
|                              | 10                  | □         | 0300-L10C    | 80              | 44  | 40  | 36 | 6  | 1    |
|                              | 12                  | ●         | 0300-L12C    | 86              | 50  | 46  | 36 | 6  | 1    |
|                              | 15                  | □         | 0300-L15C    | 95              | 59  | 55  | 36 | 6  | 1    |
|                              | 20                  | ●         | 0300-L20C    | 110             | 74  | 70  | 36 | 6  | 1    |
|                              | 25                  | □         | 0300-L25C    | 125             | 89  | 85  | 36 | 6  | 1    |
|                              | 30                  | ●         | 0300-L30C    | 140             | 104 | 100 | 36 | 6  | 1    |
|                              | 5                   | ★         | 0300LB       | 81              | 33  | 33  | 48 | 3  | 1    |
|                              | 10                  | ★         | 0300X10DB    | 90              | 42  | 39  | 48 | 3  | 1    |
|                              | 20                  | ★         | 0300X20DB    | 120             | 72  | 69  | 48 | 3  | 1    |
| 30                           | ★                   | 0300X30DB | 150          | 102             | 99  | 48  | 3  | 1  |      |
| 3.1                          | 3                   | □         | 0310S-DIN    | 62              | 26  | 20  | 36 | 6  | 2    |
|                              | 3                   | □         | 0310S-DIN-C  | 62              | 26  | 20  | 36 | 6  | 1    |
|                              | 5                   | □         | 0310L-DIN    | 66              | 30  | 28  | 36 | 6  | 2    |
|                              | 5                   | □         | 0310L-DIN-C  | 66              | 30  | 28  | 36 | 6  | 1    |
|                              | 8                   | □         | 0310-L8C     | 80              | 44  | 40  | 36 | 6  | 1    |
|                              | 10                  | □         | 0310-L10C    | 87              | 51  | 47  | 36 | 6  | 1    |
|                              | 12                  | □         | 0310-L12C    | 94              | 58  | 54  | 36 | 6  | 1    |
|                              | 15                  | □         | 0310-L15C    | 104             | 68  | 64  | 36 | 6  | 1    |
|                              | 20                  | □         | 0310-L20C    | 122             | 86  | 82  | 36 | 6  | 1    |
|                              | 25                  | □         | 0310-L25C    | 139             | 103 | 99  | 36 | 6  | 1    |
|                              | 30                  | □         | 0310-L30C    | 157             | 121 | 117 | 36 | 6  | 1    |
|                              | 5                   | ★         | 0310LB       | 87              | 39  | 39  | 48 | 4  | 1    |
|                              | 10                  | □         | 0310X10DB    | 97              | 49  | 46  | 48 | 4  | 1    |
|                              | 20                  | □         | 0310X20DB    | 132             | 84  | 81  | 48 | 4  | 1    |
| 30                           | □                   | 0310X30DB | 167          | 119             | 116 | 48  | 4  | 1  |      |
| 3.2                          | 3                   | □         | 0320S-DIN    | 62              | 26  | 20  | 36 | 6  | 2    |
|                              | 3                   | □         | 0320S-DIN-C  | 62              | 26  | 20  | 36 | 6  | 1    |
|                              | 5                   | □         | 0320L-DIN    | 66              | 30  | 28  | 36 | 6  | 2    |
|                              | 5                   | ●         | 0320L-DIN-C  | 66              | 30  | 28  | 36 | 6  | 1    |
|                              | 8                   | □         | 0320-L8C     | 80              | 44  | 40  | 36 | 6  | 1    |
|                              | 10                  | □         | 0320-L10C    | 87              | 51  | 47  | 36 | 6  | 1    |
|                              | 12                  | ●         | 0320-L12C    | 94              | 58  | 54  | 36 | 6  | 1    |
|                              | 15                  | □         | 0320-L15C    | 104             | 68  | 64  | 36 | 6  | 1    |

(Note) Please contact us for any geometry that is not in this catalogue (e.g. different diameter and length).

● : Inventory maintained. ★ : Inventory maintained in Japan.

□ : Non stock, produced to order only.