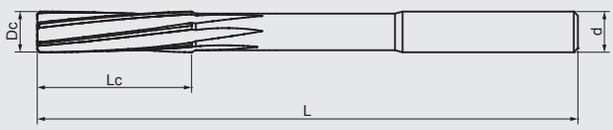
# R301 超微粒鎢鋼機械鉸刀

## Machine Reamers

Designed with left helix and right cutting flutes.
Downward chip evacuation.
Tolerance: Dc
+0.004/+0.008: 0.5~3.0
+0.005/+0.010: 3.0~6.0
+0.006/+0.012: 6.0~10
+0.008/+0.015: 10~18
+0.009/+0.017: 18~30

左螺旋右刀刃設計。
排屑方向往下。




**VHM Carbide** | **HM Carbide Tipped** | **Uncoated Bright** | 7° | Z | **Steel** Cast Iron AL, Copper

Application for reaming different steels below 48HRC, cast iron...and etc.

適用切削於48HRC以下各種鋼材及鑄鐵…等材料鉸孔應用。

**P** **H** **K**

VHM

**P** **H** **K**

HM

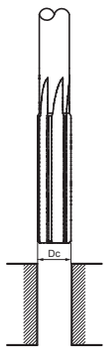
## Standard Length

| Dc H7 | Lc mm | L mm | d mm | Z teeth | R301 Bright | R301 Bright | |
|---|---|---|---|---|---|---|---|
| 1 | 6 | 34 | 1 | 4 | ● | | |
| 1.5 | 8 | 40 | 1.5 | 4 | ● | | |
| 2 | 11 | 49 | 2 | 4 | ● | | |
| 2.5 | 14 | 57 | 2.5 | 4 | ● | | |
| 3 | 15 | 61 | 3 | 4 | ● | | |
| 3.5 | 18 | 70 | 3.5 | 4 | ● | | |
| 4 | 19 | 75 | 4 | 4 | ● | | |
| 4.5 | 21 | 80 | 4.5 | 4 | ● | | |
| 5 | 23 | 86 | 5 | 6 | ● | | |
| 5.5 | 26 | 93 | 5.5 | 6 | ● | | |
| 6 | 26 | 93 | 6 | 6 | ● | | |
| 6.5 | 28 | 101 | 6.5 | 6 | ● | | |
| 7 | 31 | 109 | 7 | 6 | ● | | |
| 7.5 | 31 | 109 | 7.5 | 6 | ● | | |
| 8 | 33 | 117 | 8 | 6 | ● | | |
| 8.5 | 33 | 117 | 8.5 | 6 | ● | | |
| 9 | 36 | 125 | 9 | 6 | ● | | |
| 9.5 | 36 | 125 | 9.5 | 6 | ● | | |
| 10 | 38 | 133 | 10(※10) | 6 | ● | ● | |
| 10.5 | 38 | 133 | 10(※10.5) | 6 | ● | ● | |
| 11 | 41 | 142 | 10(※11) | 6 | ● | ● | |
| 11.5 | 41 | 142 | 10(※11.5) | 6 | ● | ● | |
| 12 | 44 | 151 | 10(※12) | 6 | ● | ● | |
| 12.5 | 44 | 151 | 10 | 6 | | ● | |
| 13 | 44 | 151 | 10 | 6 | | ● | |
| 13.5 | 47 | 160 | 12.5 | 6 | | ● | |
| 14 | 47 | 160 | 12.5 | 6 | | ● | |
| 14.5 | 50 | 162 | 12.5 | 6 | | ● | |
| 15 | 50 | 162 | 12.5 | 6 | | ● | |
| 15.5 | 52 | 170 | 12.5 | 6 | | ● | |
| 16 | 52 | 170 | 12.5 | 6 | | ● | |
| 17 | 54 | 175 | 14 | 6 | | ● | |
| 18 | 56 | 182 | 14 | 6 | | ● | |
| 19 | 58 | 189 | 16 | 6 | | ● | |
| 20 | 60 | 195 | 16 | 6 | | ● | |

Please refer to page 317 for parameters.

# 切削條件

## Cutting Conditions

| | | R300 | | R301 | | R302 | | R303 | |
|---|---|---|---|---|---|---|---|---|---|
| R300<br>R301<br>R302<br>R303 | |  | |  | |  | |  | |
| | | cutting speed Vc (m/min) | feed per tooth fz(mm) | cutting speed Vc (m/min) | feed per tooth fz(mm) | cutting speed Vc (m/min) | feed per tooth fz(mm) | cutting speed Vc (m/min) | feed per tooth fz(mm) |
| P | Carbon Steel Materials | | | | | | | | |
| | GR1 Carbon Steel | 15 | 0.008xDc | 15 | 0.008xDc | 15 | 0.008xDc | 15 | 0.007xDc |
| | GR2 <24HRC Low-alloyed Steel | 15 | 0.008xDc | 15 | 0.008xDc | 15 | 0.008xDc | 15 | 0.007xDc |
| | GR3 <30HRC Hi-alloyed Steel | 12 | 0.006xDc | 12 | 0.006xDc | 12 | 0.006xDc | 12 | 0.006xDc |
| H | Hardened Steel Materials | | | | | | | | |
| | GR4 30~38HRC Hardened Steel | 8 | 0.005xDc | 8 | 0.005xDc | 8 | 0.005xDc | 8 | 0.005xDc |
| | GR5 38~48HRC Hardened Steel | 5 | 0.003xDc | 5 | 0.003xDc | 5 | 0.003xDc | 5 | 0.003xDc |
| M | Stainless Steel Materials | | | | | | | | |
| | GR8-1 Ferritic、Martensitic | 12 | 0.006xDc | 12 | 0.006xDc | 12 | 0.006xDc | 12 | 0.006xDc |
| | GR8-2 Austenitic | 12 | 0.006xDc | 12 | 0.006xDc | 12 | 0.006xDc | 12 | 0.006xDc |
| | GR8-3 Austenitic-ferritic | 12 | 0.006xDc | 12 | 0.006xDc | 12 | 0.006xDc | 12 | 0.006xDc |
| | GR8-4 Austenitic-ferritic Heat-resistant | 8 | 0.004xDc | 8 | 0.004xDc | 8 | 0.004xDc | 8 | 0.004xDc |
| K | Cast Lron Materials | | | | | | | | |
| | GR9-1 Grey cast iron | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc |
| | GR9-2 Nodular cast iron | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc |
| N | Aluminium Steel Materials | | | | | | | | |
| | GR10-1 Wrought Aluminium alloys | 20 | 0.006xDc | 20 | 0.006xDc | 20 | 0.006xDc | 20 | 0.006xDc |
| | GR10-2 Aluminium cast alloys <10% | 20 | 0.006xDc | 20 | 0.006xDc | 20 | 0.006xDc | 20 | 0.006xDc |
| | GR10-3 Aluminium cast alloys >10% | 20 | 0.006xDc | 20 | 0.006xDc | 20 | 0.006xDc | 20 | 0.006xDc |
| | Copper Steel Materials | | | | | | | | |
| | GR11-1 Pure Copper | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc |
| | GR11-2 Brass | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc |
| | GR11-2 Bronze | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc | 15 | 0.006xDc |

All cutting data serve for orientation only and should be adapted individually to the technical conditions on location
1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。