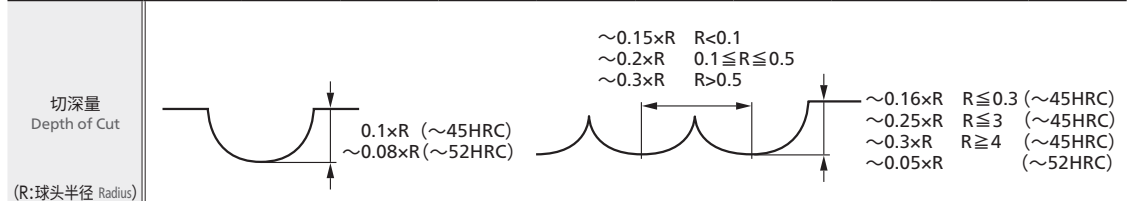


## 切削参数参考表

Recommended Milling Conditions

| 加工材料<br>Work Material | 碳素钢<br>Carbon Steels<br>S50C |              | 合金钢·调质钢<br>Alloy Steels<br>Prehardened Steels<br>SCM·SKD·SUS·HPM·NAK |              | 高硬度钢<br>Hardened Steels<br>SKD61<br>(~52HRC) |              | 铝合金<br>Aluminium Alloy |              | 铜合金<br>Copper         |              |
|-----------------------|------------------------------|--------------|--|--------------|--|--------------|------------------------|--------------|-----------------------|--------------|
| 切削速度<br>Cutting Speed | 150m/min                     |              | 120~150m/min   |              | 80~100m/min                                  |              | 150m/min~              |              | 100~150m/min          |              |
| (R)球头半径<br>Radius     | 主轴转速<br>Spindle Speed        | 进给速度<br>Feed | 主轴转速<br>Spindle Speed  | 进给速度<br>Feed | 主轴转速<br>Spindle Speed                        | 进给速度<br>Feed | 主轴转速<br>Spindle Speed  | 进给速度<br>Feed | 主轴转速<br>Spindle Speed | 进给速度<br>Feed |
|                       | min <sup>-1</sup>            | mm/min       | min <sup>-1</sup>  | mm/min       | min <sup>-1</sup>                            | mm/min       | min <sup>-1</sup>      | mm/min       | min <sup>-1</sup>     | mm/min       |
| 0.05                  | 50,000                       | 200          | 50,000   | 150          | 50,000                                       | 100          | 50,000                 | 250          | 50,000                | 250          |
| 0.1                   | 50,000                       | 400          | 50,000   | 340          | 50,000                                       | 200          | 50,000                 | 500          | 50,000                | 500          |
| 0.2                   | 50,000                       | 630          | 50,000   | 600          | 50,000                                       | 630          | 50,000                 | 600          | 50,000                | 600          |
| 0.3                   | 50,000                       | 930          | 50,000   | 940          | 48,000                                       | 900          | 50,000                 | 750          | 50,000                | 750          |
| 0.4                   | 50,000                       | 1,200        | 48,000   | 1,200        | 36,000                                       | 900          | 50,000                 | 1,000        | 50,000                | 1,000        |
| 0.5                   | 48,000                       | 1,430        | 38,000   | 1,200        | 29,000                                       | 900          | 50,000                 | 1,250        | 48,000                | 1,000        |
| 0.6                   | 40,000                       | 1,430        | 32,000   | 1,200        | 24,000                                       | 810          | 50,000                 | 1,480        | 40,000                | 1,080        |
| 0.8                   | 30,000                       | 1,270        | 24,000   | 1,000        | 18,000                                       | 670          | 50,000                 | 1,900        | 30,000                | 1,160        |
| 1                     | 24,000                       | 1,160        | 19,000   | 800          | 14,300                                       | 600          | 48,000                 | 2,400        | 24,000                | 1,200        |
| 1.5                   | 16,000                       | 930          | 13,000   | 600          | 9,600  | 460          | 32,000                 | 2,400        | 16,000                | 1,200        |
| 2                     | 12,000                       | 930          | 10,000   | 570          | 7,200  | 450          | 24,000                 | 2,400        | 12,000                | 1,200        |
| 2.5                   | 9,600                        | 930          | 8,000  | 560          | 5,700  | 450          | 19,000                 | 2,400        | 9,600                 | 1,200        |
| 3                     | 8,000                        | 930          | 6,400  | 540          | 4,800  | 450          | 16,000                 | 2,400        | 8,000                 | 1,200        |
| 4                     | 6,000                        | 900          | 4,800  | 540          | 3,600  | 450          | 12,000                 | 2,400        | 6,000                 | 1,200        |
| 5                     | 4,800                        | 900          | 3,800  | 540          | 2,900  | 450          | 9,600                  | 2,300        | 4,800                 | 1,150        |
| 6                     | 4,000                        | 900          | 3,200  | 540          | 2,400  | 450          | 8,000                  | 2,100        | 4,000                 | 1,050        |
| 7                     | 3,400                        | 900          | 2,750  | 540          | 2,050  | 450          | 6,800                  | 2,000        | 3,400                 | 1,000        |
| 8                     | 3,000                        | 900          | 2,400  | 540          | 1,800  | 450          | 6,000                  | 2,000        | 3,000                 | 1,000        |
| 9                     | 2,650                        | 900          | 2,100  | 520          | 1,600  | 450          | 5,300                  | 2,000        | 2,650                 | 1,000        |
| 10                    | 2,400                        | 900          | 1,900  | 520          | 1,450  | 450          | 4,800                  | 2,000        | 2,400                 | 1,000        |



备注  
Notes

- ※1 沟槽加工时, 请将进给速度调为上述参数的60%。
- ※2 刀具伸出量请以4D为标准, 伸出量超出该标准时请调整切削参数。
- ※3 建议使用吹气或油雾冷却方式。
- ※4 请以相同的比率调整主轴转速和进给速度。
- ※1 When slotting, reduce the feed by 60% from the above values.
- ※2 Length of overhang is 4 times Dia. as standard. When it is longer than 4 times Dia., adjust the conditions listed above.
- ※3 Recommended oil mist or airblow.
- ※4 Adjust both spindle speed and feed at the same rate.

球头  
Ball  
全刃长  
Full Cutting Length  
涂层  
Coating

碳素钢  
Carbon Steel P

合金钢  
Alloy Steel P

调质钢  
Prehardened Steel P

高硬度钢~52  
Hardened Steel HRC H

不锈钢  
Stainless Steel M

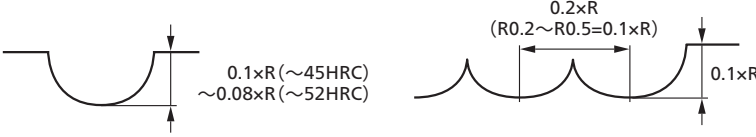
铝合金  
Aluminium Alloy N

铜合金  
Copper N

树脂  
Resin O

常规系列  
无限涂层  
全刃长造型  
Regular Line  
MUGEN COATING  
Full Cutting Length Type

| 加工材料<br>Work Material | 碳素钢<br>Carbon Steels<br>S50C |              | 合金钢<br>Alloy Steels<br>SCM · SKD · SUS |              | 调质钢<br>Prehardened Steels<br>HPM · NAK |              | 高硬度钢<br>Hardened Steels<br>SKD61<br>(~52HRC) |              |
|-----------------------|------------------------------|--------------|--|--------------|--|--------------|--|--------------|
| 切削速度<br>Cutting Speed | 250m/min                     |              | 200m/min                               |              | 180m/min                               |              | 100m/min                                     |              |
| (R)球头半径<br>Radius     | 主轴转速<br>Spindle Speed        | 进给速度<br>Feed | 主轴转速<br>Spindle Speed                  | 进给速度<br>Feed | 主轴转速<br>Spindle Speed                  | 进给速度<br>Feed | 主轴转速<br>Spindle Speed                        | 进给速度<br>Feed |
|                       | min <sup>-1</sup>            | mm/min       | min <sup>-1</sup>                      | mm/min       | min <sup>-1</sup>                      | mm/min       | min <sup>-1</sup>                            | mm/min       |
| 0.2                   | ~50,000                      | ~1,500       | ~50,000                                | ~1,200       | ~50,000                                | ~1,000       | ~50,000                                      | 600          |
| 0.3                   | ~50,000                      | ~1,500       | ~50,000                                | ~1,200       | ~50,000                                | ~1,000       | ~50,000                                      | 700          |
| 0.4                   | ~50,000                      | ~3,000       | ~50,000                                | ~2,500       | ~50,000                                | ~2,200       | 40,000                                       | 1,000        |
| 0.5                   | ~50,000                      | ~3,000       | ~50,000                                | ~2,500       | ~50,000                                | ~2,200       | 32,000                                       | 1,500        |
| 1                     | 40,000                       | 5,000        | 32,000                                 | 3,200        | 29,000                                 | 2,900        | 16,000                                       | 1,500        |
| 1.5                   | 27,000                       | 5,000        | 21,000                                 | 3,200        | 19,000                                 | 2,900        | 10,600                                       | 1,500        |
| 2                     | 20,000                       | 5,000        | 16,000                                 | 3,200        | 14,000                                 | 2,900        | 8,000  | 1,500        |
| 3                     | 13,500                       | 3,000        | 10,600                                 | 2,000        | 9,500                                  | 1,800        | 5,300  | 1,200        |
| 4                     | 10,000                       | 3,000        | 8,000                                  | 2,000        | 7,200                                  | 1,800        | 4,000  | 1,200        |
| 5                     | 8,000                        | 3,000        | 6,400                                  | 2,000        | 5,700                                  | 1,800        | 3,200  | 1,200        |
| 6                     | 6,700                        | 2,500        | 5,300                                  | 1,800        | 4,800                                  | 1,600        | 2,700  | 1,200        |
| 8                     | 5,000                        | 2,000        | 4,000                                  | 1,500        | 3,600                                  | 1,300        | 2,000  | 800          |
| 10                    | 4,000                        | 1,500        | 3,200                                  | 1,200        | 2,900                                  | 1,000        | 1,600  | 800          |

|  |   |
|--|---|
| 切深量<br>Depth of Cut<br><br>(R:球头半径 Radius) |  |
|--|---|

|             |   |
|-------------|---|
| 备注<br>Notes | <p>※1 沟槽加工时，请将进给速度调为上述参数的60%。<br/>         ※2 建议使用吹气或油雾冷却方式。<br/>         ※3 请以相同的比率调整主轴转速和进给速度。<br/>         ※4 建议使用刚性较大的铣刀刀柄和机床。<br/>         ※5 加工参数会因切深量和机床刚性的状况而有所不同。请每次调整后在使用。</p> <p>※1 When slotting, reduce the feed by 60% from the above values.<br/>         ※2 Recommended air blow or oil mist.<br/>         ※3 Adjust both spindle speed and feed at the same rate.<br/>         ※4 Use a rigid machine and chuck holder.<br/>         ※5 Adjust milling conditions according to the volume of depth of cut and rigidity of the machine.</p> |
|-------------|---|

全刃长

Full Cutting Length

球头



涂层

Coating

Ball

P 碳素钢

Carbon Steel

P 合金钢

Alloy Steel

P 调质钢

Prehardened Steel

H ~52高硬度钢

HRC Hardened Steel

M 不锈钢

Stainless Steel

N 铝合金

Aluminium Alloy

N 铜合金

Copper

O 树脂

Resin