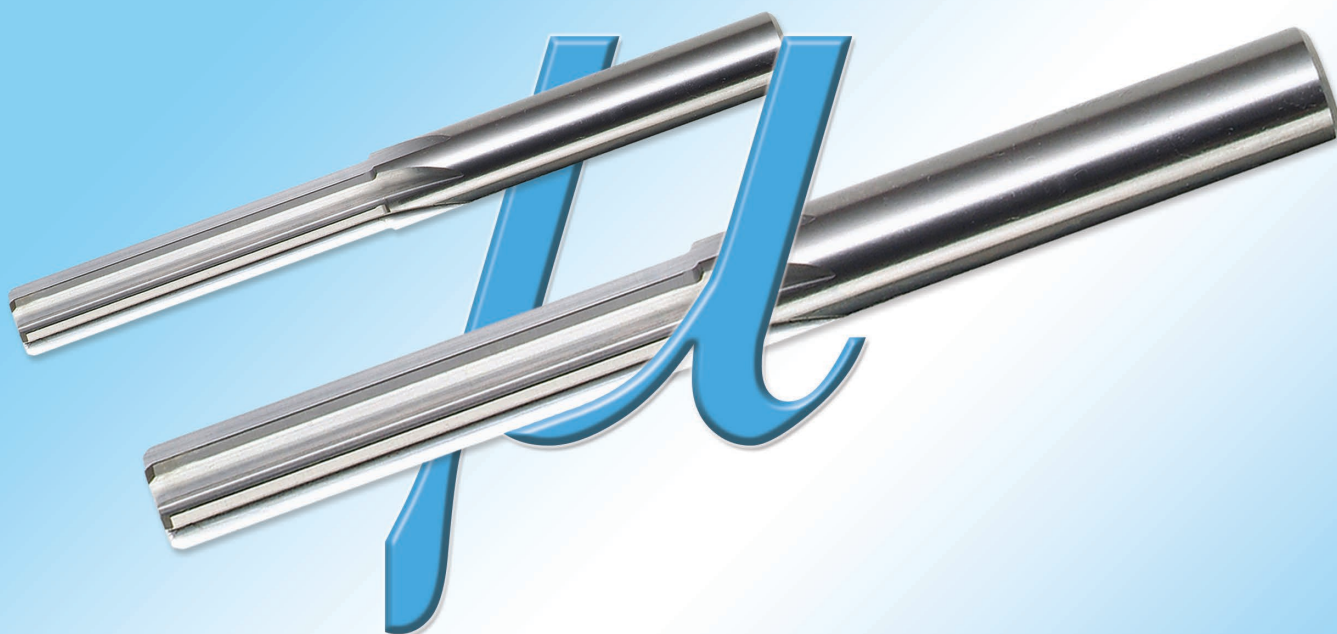


超硬ミクロンリーマ

Solid Carbide Micron Reamer

CSR-MC



超精密加工に対応した高精度リーマ

Reamer with high accuracy for ultra precision machining

| 公差 | D | d |
|-------------|----------------|----|
| (Tolerance) | +0.001 未満 0 | h6 |

切削条件参考表 Cutting Condition Table

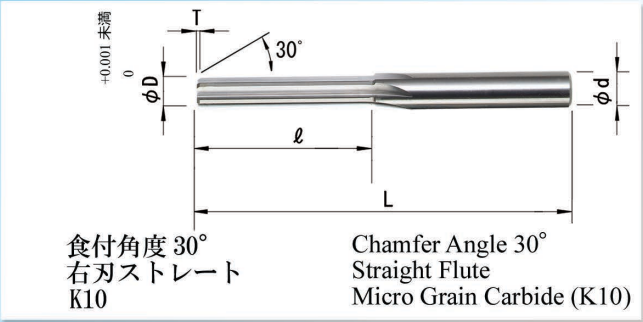
| 直径 Dia. | 非鉄金属 Al, Cu | | | 炭素鋼 FC, FCD, S50C | | | 合金鋼 SCM, SKD, SUS304 | | | 調質鋼 HPM, NAK | | | リーマ取代 (mm/直径) Removal amount (mm/Dia) |
|------------|------------------------------------|----------------------|--|------------------------------------|----------------------|--|------------------------------------|----------------------|--|-----------------------------------|----------------------|--|--|
| | 切削速度 Cutting speed 16~30m/mm | | | 切削速度 Cutting speed 11~15m/mm | | | 切削速度 Cutting speed 10~14m/mm | | | 切削速度 Cutting speed 7~10m/mm | | | |
| | 回転数 spindle speed rpm | 送り feed mm/min | | 回転数 spindle speed rpm | 送り feed mm/min | | 回転数 spindle speed rpm | 送り feed mm/min | | 回転数 spindle speed rpm | 送り feed mm/min | | |
| 0.5 | 10.191 ~ 19.108 | 31 ~ 95 | | 7.006 ~ 9.554 | 21 ~ 48 | | 6.369 ~ 8.917 | 19 ~ 45 | | 4.459 ~ 6.369 | 13 ~ 32 | | 0.05 |
| 1 | 5.093 ~ 9.549 | 39 ~ 122 | | 3.501 ~ 4.775 | 27 ~ 61 | | 3.183 ~ 4.456 | 24 ~ 57 | | 2.228 ~ 3.183 | 17 ~ 41 | | 0.06 |
| 1.5 | 3.395 ~ 6.366 | 68 ~ 254 | | 2.334 ~ 3.183 | 47 ~ 127 | | 2.122 ~ 2.971 | 42 ~ 119 | | 1.485 ~ 2.122 | 30 ~ 85 | | 0.08 |
| 2 | 2.546 ~ 4.775 | 110 ~ 345 | | 1.751 ~ 2.387 | 76 ~ 172 | | 1.592 ~ 2.228 | 69 ~ 161 | | 1.114 ~ 1.592 | 48 ~ 115 | | 0.08 |
| 3 | 1.698 ~ 3.183 | 125 ~ 390 | | 1.167 ~ 1.592 | 86 ~ 195 | | 1.061 ~ 1.485 | 78 ~ 182 | | 0.743 ~ 1.061 | 55 ~ 130 | | 0.1 |
| 4 | 1.273 ~ 2.387 | 99 ~ 308 | | 0.875 ~ 1.194 | 68 ~ 154 | | 0.796 ~ 1.114 | 62 ~ 144 | | 0.557 ~ 0.796 | 43 ~ 103 | | 0.1 |
| 5 | 1.019 ~ 1.910 | 83 ~ 260 | | 0.700 ~ 0.955 | 57 ~ 130 | | 0.637 ~ 0.891 | 52 ~ 121 | | 0.446 ~ 0.637 | 36 ~ 87 | | 0.1 |
| 6 | 0.849 ~ 1.592 | 73 ~ 227 | | 0.584 ~ 0.796 | 50 ~ 114 | | 0.531 ~ 0.743 | 45 ~ 106 | | 0.371 ~ 0.531 | 32 ~ 76 | | 0.1 |
| 7 | 0.728 ~ 1.364 | 65 ~ 204 | | 0.500 ~ 0.682 | 45 ~ 102 | | 0.455 ~ 0.637 | 41 ~ 95 | | 0.318 ~ 0.455 | 29 ~ 68 | | 0.1 |
| 8 | 0.637 ~ 1.194 | 60 ~ 187 | | 0.438 ~ 0.597 | 41 ~ 93 | | 0.398 ~ 0.557 | 37 ~ 87 | | 0.279 ~ 0.398 | 26 ~ 62 | | 0.1 |
| 9 | 0.566 ~ 1.061 | 55 ~ 173 | | 0.389 ~ 0.531 | 38 ~ 87 | | 0.354 ~ 0.495 | 35 ~ 81 | | 0.248 ~ 0.354 | 24 ~ 58 | | 0.15 |
| 10 | 0.509 ~ 0.955 | 52 ~ 162 | | 0.350 ~ 0.477 | 36 ~ 81 | | 0.318 ~ 0.446 | 32 ~ 76 | | 0.223 ~ 0.318 | 23 ~ 54 | | 0.15 |
| 11 | 0.463 ~ 0.868 | 51 ~ 156 | | 0.318 ~ 0.434 | 35 ~ 78 | | 0.289 ~ 0.405 | 32 ~ 73 | | 0.203 ~ 0.289 | 22 ~ 52 | | 0.15 |
| 12 | 0.424 ~ 0.796 | 47 ~ 146 | | 0.292 ~ 0.398 | 32 ~ 73 | | 0.265 ~ 0.371 | 29 ~ 68 | | 0.186 ~ 0.265 | 20 ~ 49 | | 0.15 |

超硬ミクロンリーマ (CSR-MC)
Solid Carbide Micron Reamer

| 公差 (Tolerance) | D | d |
|-------------------|----------------|----|
| | +0.001 未満 0 | h6 |

0.001トピ 標準在庫

| 直径 (φD) Dia. | 食付長 (T) Chamfer Length | 刃長 (ℓ) Length of Flutes | 全長 (L) Overall Length | シャンク径 (φd) Shank Dia. | 刃数 (N) Number of Flutes | センチ Center |
|--------------------|---------------------------------|----------------------------------|--------------------------------|--------------------------------|----------------------------------|---------------|
| 0.5 ~ 0.509 | 0.1 | 5 | 50 | 1 | 4 | 60° 凸 |
| 0.51 ~ 0.599 | 0.1 | 6 | 50 | 1 | 4 | 60° 凸 |
| 0.6 ~ 0.609 | 0.1 | 6 | 50 | 1 | 4 | 60° 凸 |
| 0.61 ~ 0.699 | 0.1 | 10 | 50 | 1 | 4 | 60° 凸 |
| 0.7 ~ 0.709 | 0.1 | 10 | 50 | 1 | 4 | 60° 凸 |
| 0.71 ~ 0.799 | 0.2 | 12 | 50 | 1 | 4 | 60° 凸 |
| 0.8 ~ 0.899 | 0.2 | 12 | 50 | 1 | 4 | 60° 凸 |
| 0.9 ~ 0.999 | 0.2 | 12 | 50 | 1 | 4 | 60° 凸 |
| 1 ~ 1.009 | 0.2 | 12 | 50 | 1 | 4 | 60° 凸 |
| 1.01 ~ 1.099 | 0.2 | 15 | 50 | 1.5 | 4 | 60° 凸 |
| 1.1 ~ 1.199 | 0.2 | 15 | 50 | 1.5 | 4 | 60° 凸 |
| 1.2 ~ 1.299 | 0.2 | 15 | 50 | 1.5 | 4 | 60° 凸 |
| 1.3 ~ 1.309 | 0.2 | 15 | 50 | 1.5 | 4 | 60° 凸 |
| 1.31 ~ 1.399 | 0.3 | 16 | 50 | 1.5 | 4 | 60° 凸 |
| 1.4 ~ 1.499 | 0.3 | 16 | 50 | 1.5 | 4 | 60° 凸 |
| 1.5 ~ 1.509 | 0.3 | 16 | 50 | 1.5 | 4 | 60° 凸 |
| 1.51 ~ 1.599 | 0.4 | 18 | 50 | 2 | 4 | 60° 凸 |
| 1.6 ~ 1.699 | 0.4 | 18 | 50 | 2 | 4 | 60° 凸 |
| 1.7 ~ 1.799 | 0.4 | 18 | 50 | 2 | 4 | 60° 凸 |
| 1.8 ~ 1.899 | 0.4 | 18 | 50 | 2 | 4 | 60° 凸 |
| 1.9 ~ 1.999 | 0.4 | 18 | 50 | 2 | 4 | 60° 凸 |
| 2 ~ 2.009 | 0.4 | 18 | 50 | 2 | 4 | 60° 凸 |
| 2.01 ~ 2.099 | 0.5 | 20 | 50 | 2.5 | 4 | 60° 凸 |
| 2.1 ~ 2.199 | 0.5 | 20 | 50 | 2.5 | 4 | 60° 凸 |
| 2.2 ~ 2.299 | 0.5 | 20 | 50 | 2.5 | 4 | 60° 凸 |
| 2.3 ~ 2.399 | 0.5 | 20 | 50 | 2.5 | 4 | 60° 凸 |
| 2.4 ~ 2.499 | 0.5 | 20 | 50 | 2.5 | 4 | 60° 凸 |
| 2.5 ~ 2.509 | 0.5 | 20 | 50 | 2.5 | 4 | 60° 凸 |
| 2.51 ~ 2.599 | 0.5 | 20 | 50 | 3 | 4 | 60° 凸 |
| 2.6 ~ 2.699 | 0.5 | 20 | 50 | 3 | 4 | 60° 凸 |
| 2.7 ~ 2.799 | 0.5 | 20 | 50 | 3 | 4 | 60° 凸 |
| 2.8 ~ 2.899 | 0.5 | 20 | 50 | 3 | 4 | 60° 凸 |
| 2.9 ~ 2.909 | 0.5 | 20 | 50 | 3 | 4 | 60° 凸 |
| 2.91 ~ 2.999 | 0.5 | 27 | 60 | 3 | 4 | 60° 凸 |
| 3 ~ 3.009 | 0.5 | 27 | 60 | 3 | 4 | 60° 凸 |
| 3.01 ~ 3.099 | 0.5 | 27 | 60 | 3.5 | 4 | 60° 凸 |
| 3.1 ~ 3.199 | 0.5 | 27 | 60 | 3.5 | 4 | 60° 凸 |
| 3.2 ~ 3.299 | 0.5 | 27 | 60 | 3.5 | 4 | 60° 凸 |
| 3.3 ~ 3.399 | 0.5 | 27 | 60 | 3.5 | 4 | 60° 凸 |
| 3.4 ~ 3.499 | 0.5 | 27 | 60 | 3.5 | 4 | 60° 凸 |
| 3.5 ~ 3.509 | 0.5 | 27 | 60 | 3.5 | 4 | 60° 凸 |
| 3.51 ~ 3.599 | 0.5 | 27 | 60 | 4 | 4 | 60° 凸 |
| 3.6 ~ 3.699 | 0.5 | 27 | 60 | 4 | 4 | 60° 凸 |
| 3.7 ~ 3.799 | 0.5 | 27 | 60 | 4 | 4 | 60° 凸 |
| 3.8 ~ 3.899 | 0.5 | 27 | 60 | 4 | 4 | 60° 凸 |
| 3.9 ~ 3.999 | 0.5 | 27 | 60 | 4 | 4 | 60° 凸 |
| 4 ~ 4.009 | 0.5 | 27 | 60 | 4 | 4 | 60° 凸 |
| 4.01 ~ 4.099 | 0.5 | 30 | 70 | 4.5 | 6 | 60° 凸 |
| 4.1 ~ 4.199 | 0.5 | 30 | 70 | 4.5 | 6 | 60° 凸 |
| 4.2 ~ 4.299 | 0.5 | 30 | 70 | 4.5 | 6 | 60° 凸 |
| 4.3 ~ 4.399 | 0.5 | 30 | 70 | 4.5 | 6 | 60° 凸 |
| 4.4 ~ 4.499 | 0.5 | 30 | 70 | 4.5 | 6 | 60° 凸 |
| 4.5 ~ 4.509 | 0.5 | 30 | 70 | 4.5 | 6 | 60° 凸 |
| 4.51 ~ 4.599 | 0.5 | 30 | 70 | 5 | 6 | 60° 凸 |
| 4.6 ~ 4.699 | 0.5 | 30 | 70 | 5 | 6 | 60° 凸 |
| 4.7 ~ 4.799 | 0.5 | 30 | 70 | 5 | 6 | 60° 凸 |
| 4.8 ~ 4.899 | 0.5 | 30 | 70 | 5 | 6 | 60° 凸 |
| 4.9 ~ 4.999 | 0.5 | 30 | 70 | 5 | 6 | 60° 凸 |
| 5 ~ 5.009 | 0.5 | 30 | 70 | 5 | 6 | 60° 凸 |
| 5.01 ~ 5.099 | 0.8 | 30 | 80 | 5.5 | 6 | 60° 凸 |
| 5.1 ~ 5.199 | 0.8 | 30 | 80 | 5.5 | 6 | 60° 凸 |
| 5.2 ~ 5.299 | 0.8 | 30 | 80 | 5.5 | 6 | 60° 凸 |
| 5.3 ~ 5.399 | 0.8 | 30 | 80 | 5.5 | 6 | 60° 凸 |
| 5.4 ~ 5.499 | 0.8 | 30 | 80 | 5.5 | 6 | 60° 凸 |
| 5.5 ~ 5.509 | 0.8 | 30 | 80 | 5.5 | 6 | 60° 凸 |
| 5.51 ~ 5.599 | 0.8 | 30 | 80 | 6 | 6 | 60° 凸 |
| 5.6 ~ 5.699 | 0.8 | 30 | 80 | 6 | 6 | 60° 凸 |
| 5.7 ~ 5.799 | 0.8 | 30 | 80 | 6 | 6 | 60° 凸 |
| 5.8 ~ 5.899 | 0.8 | 30 | 80 | 6 | 6 | 60° 凸 |
| 5.9 ~ 5.999 | 0.8 | 30 | 80 | 6 | 6 | 60° 凸 |
| 6 ~ 6.009 | 0.8 | 30 | 80 | 6 | 6 | 60° 凸 |
| 6.01 ~ 6.05 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 |



●は受注生産品

| 直径 (φD) Dia. | 食付長 (T) Chamfer Length | 刃長 (ℓ) Length of Flutes | 全長 (L) Overall Length | シャンク径 (φd) Shank Dia. | 刃数 (N) Number of Flutes | センチ Center |
|--------------------|---------------------------------|----------------------------------|--------------------------------|--------------------------------|----------------------------------|---------------|
| 6.051 ~ 6.099 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 6.1 ~ 6.199 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 6.2 ~ 6.299 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 6.3 ~ 6.399 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 6.4 ~ 6.499 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 6.5 ~ 6.599 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 6.6 ~ 6.699 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 6.7 ~ 6.799 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 6.8 ~ 6.899 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 6.9 ~ 6.999 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 7 ~ 7.009 | 0.8 | 35 | 80 | 7 | 6 | 60° 凸 ● |
| 7.01 ~ 7.099 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 7.1 ~ 7.199 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 7.2 ~ 7.299 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 7.3 ~ 7.399 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 7.4 ~ 7.499 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 7.5 ~ 7.599 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 7.6 ~ 7.699 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 7.7 ~ 7.799 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 7.8 ~ 7.899 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 7.9 ~ 7.999 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 8 ~ 8.009 | 0.8 | 35 | 80 | 8 | 6 | 60° 凸 ● |
| 8.01 ~ 8.099 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 8.1 ~ 8.199 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 8.2 ~ 8.299 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 8.3 ~ 8.399 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 8.4 ~ 8.499 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 8.5 ~ 8.599 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 8.6 ~ 8.699 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 8.7 ~ 8.799 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 8.8 ~ 8.899 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 8.9 ~ 8.999 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 9 ~ 9.009 | 1 | 40 | 90 | 9 | 6 | 60° 凸 ● |
| 9.01 ~ 9.099 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 9.1 ~ 9.199 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 9.2 ~ 9.299 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 9.3 ~ 9.399 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 9.4 ~ 9.499 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 9.5 ~ 9.599 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 9.6 ~ 9.699 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 9.7 ~ 9.799 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 9.8 ~ 9.899 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 9.9 ~ 9.999 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 10 ~ 10.009 | 1 | 40 | 90 | 10 | 6 | 60° 凸 ● |
| 10.01 ~ 10.099 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 10.1 ~ 10.199 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 10.2 ~ 10.299 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 10.3 ~ 10.399 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 10.4 ~ 10.499 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 10.5 ~ 10.599 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 10.6 ~ 10.699 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 10.7 ~ 10.799 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 10.8 ~ 10.899 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 10.9 ~ 10.999 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 11 ~ 11.009 | 1 | 40 | 90 | 11 | 6 | 60° 凸 ● |
| 11.01 ~ 11.099 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 11.1 ~ 11.199 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 11.2 ~ 11.299 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 11.3 ~ 11.399 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 11.4 ~ 11.499 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 11.5 ~ 11.599 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 11.6 ~ 11.699 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 11.7 ~ 11.799 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 11.8 ~ 11.899 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 11.9 ~ 11.999 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 12 ~ 12.009 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |
| 12.1 | 1 | 45 | 90 | 12 | 6 | 60° 凸 ● |

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ISO 9001:2015

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