

## STANDARD CUTTING CONDITIONS

### SNMU / SNGU / ONMU / ONGU

| ISO                                  | Workpiece materials   | Hardness                    | Priority              | Grades       | Chip-breaker | Cutting speed Vc (m/min) | Feed per tooth fz (mm/t) |            |
|--------------------------------------|---|-----------------------------|-----------------------|--------------|--------------|--------------------------|--------------------------|------------|
| P                                    | Low carbon steel (C15, etc.)  | 200 - 300HB                 | First choice          | AH3135       | MJ           | 100 - 250                | 0.1 - 0.5                |            |
|                                      |   |                             | For wear resistance   | T3225        | MJ           | 200 - 350                | 0.1 - 0.4                |            |
|                                      | High carbon and alloy steel (S55C / C55, SCM440 / 42CrMo4, etc.)      | 150 - 300HB                 | First choice          | AH3135       | MJ           | 100 - 250                | 0.1 - 0.4                |            |
|                                      |   |                             | For wear resistance   | T3225        | MJ           | 180 - 300                | 0.1 - 0.4                |            |
| Prehardened steel (NAK80, PX5, etc.) | 30 - 40HRC  | First choice                | AH3135                | MJ           | 100 - 200    | 0.1 - 0.4                |                          |            |
|                                      |   | For wear resistance         | T3225                 | MJ           | 150 - 250    | 0.1 - 0.4                |                          |            |
| M                                    | Stainless steel (SUS304 / X5CrNi18-9, SUS316 / X5CrNiMo17-12-3, etc.) | - 200HB                     | First choice          | AH3135       | MJ           | 100 - 200                | 0.1 - 0.35               |            |
|                                      |   |                             | For wear resistance   | T3225        | MJ           | 100 - 250                | 0.1 - 0.3                |            |
|                                      | Stainless cast steel (SCH20XNb / 1.4849, etc.)                        | -                           | First choice          | T3225        | MH           | 60 - 120                 | 0.1 - 0.3                |            |
|                                      |   |                             | For low cutting force | AH3135       | MJ           | 60 - 120                 | 0.1 - 0.3                |            |
| K                                    | Gray cast iron (FC250 / 250, etc.)                                    | 150 - 250 HB                | First choice          | T1215        | MJ           | 100 - 300                | 0.1 - 0.4                |            |
|                                      |   |                             |                       | AH120        | MJ           | 100 - 250                | 0.1 - 0.5                |            |
|                                      | Ductile cast iron (FCD400 / 400-15, FCD600 / 600-3, etc.)             | 150 - 250 HB                | First choice          | T1215        | MJ           | 100 - 300                | 0.1 - 0.4                |            |
|                                      |   |                             |                       | AH120        | MJ           | 80 - 200                 | 0.1 - 0.5                |            |
| S                                    | Titanium alloys (Ti-6Al-4V, etc.)                                     | - 40HRC                     | First choice          | AH3135       | MJ           | 30 - 60                  | 0.1 - 0.3                |            |
|                                      | Heat-resistant alloys (Inconel718, etc.)                              | - 40HRC                     | First choice          | AH120        | MJ           | 10 - 40                  | 0.05 - 0.15              |            |
| H                                    | Hardened steel  | (SKD61 / X40CrMoV5-1, etc.) | 40 - 50 HRC           | First choice | AH3135       | MJ                       | 80 - 130                 | 0.1 - 0.2  |
|                                      |   | (SKD11 / X153CrMoV12, etc.) | 50 - 60 HRC           | First choice | AH120        | MJ                       | 50 - 70                  | 0.03 - 0.1 |

### RNMU / RNGU

| ISO                                 | Workpiece materials   | Hardness                    | Priority                | Grades       | Chip-breaker | Cutting speed Vc (m/min) | Feed per tooth fz (mm/t) |  |
|-------------------------------------|---|-----------------------------|-------------------------|--------------|--------------|--------------------------|--------------------------|--|
| P                                   | Low carbon steel (C15 etc.)   | 200 - 300 HB                | First choice            | AH3135       | MJ           | 100 - 250                |                          |  |
|                                     |   |                             | For wear resistance     | T3225        | MJ           | 200 - 350                |                          |  |
|                                     | High carbon and alloy steel (S55C / C55, SCM440 / 42CrMo4, etc.)      | 150 - 300 HB                | First choice            | AH3135       | MJ           | 100 - 250                |                          | ※ap=6mm: 0.1 - 0.3   |
|                                     |   |                             | For wear resistance     | T3225        | MJ           | 180 - 300                |                          | ※ap=2mm: 0.4 - 0.8<br>※ap=1mm: 0.8 - 1.5                       |
| Prehardened steel (NAK80, PX5 etc.) | 30 - 40 HRC   | First choice                | AH3135                  | MJ           | 100 - 200    |                          |                          |  |
|                                     |   | For wear resistance         | T3225                   | MJ           | 150 - 250    |                          |                          |  |
| M                                   | Stainless steel (SUS304 / X5CrNi18-9, SUS316 / X5CrNiMo17-12-3, etc.) | - 200 HB                    | First choice            | AH3135       | MJ           |                          | 100 - 200                | ※ap = 6 mm : 0.1 - 0.25  |
|                                     |   |                             | For wear resistance     | T3225        | MJ           |                          | 100 - 250                | ※ap = 2 mm : 0.3 - 0.7<br>※ap = 1 mm : 0.6 - 1.3               |
|                                     | Stainless cast steel (SCH20XNb / 1.4849, etc.)                        | -                           | First choice            | T3225        | MJ           | 60 - 120                 | ※ap = 2mm: 0.2 - 0.4     |  |
|                                     |   |                             | For fracture resistance | AH3135       | MJ           | 60 - 120                 | ※ap = 1mm: 0.3 - 0.8     |  |
| K                                   | Gray cast iron (FC250 / 250, etc.)                                    | 150 - 250 HB                | First choice            | AH120        | MJ           | 100 - 300                |                          |  |
|                                     |   |                             |                         | T1215        | MJ           | 100 - 250                |                          |  |
|                                     | Ductile cast iron (FCD400 / 400-15, FCD600 / 600-3, etc.)             | 150 - 250 HB                | First choice            | AH120        | MJ           | 100 - 300                |                          | ※ap=6mm: 0.1 - 0.3<br>※ap=2mm: 0.4 - 0.8<br>※ap=1mm: 0.8 - 1.5 |
|                                     |   |                             |                         | T1215        | MJ           | 80 - 200                 |                          |  |
| S                                   | Titanium alloys (Ti-6Al-4V, etc.)                                     | - 40 HRC                    | First choice            | AH3135       | MJ           | 30 - 60                  | ap=1mm: 0.15 - 0.8       |  |
|                                     | Heat-resistant alloys (Inconel718, etc.)                              | - 40 HRC                    | First choice            | AH120        | MJ           | 10 - 40                  | ap=1mm: 0.05 - 0.3       |  |
| H                                   | Hardened steel  | (SKD61 / X40CrMoV5-1, etc.) | 40 - 50 HRC             | First choice | AH3135       | MJ                       | 80 - 130                 | ap=1mm: 0.1 - 0.25   |
|                                     |   | (SKD11 / X153CrMoV12, etc.) | 50 - 60 HRC             | First choice | AH120        | MJ                       | 50 - 70                  | ap=0.5mm: 0.03-0.1   |

※When using T3225 or T1215, decrease the feed per tooth (fz) to 80% of the abovementioned value.