DRILLING

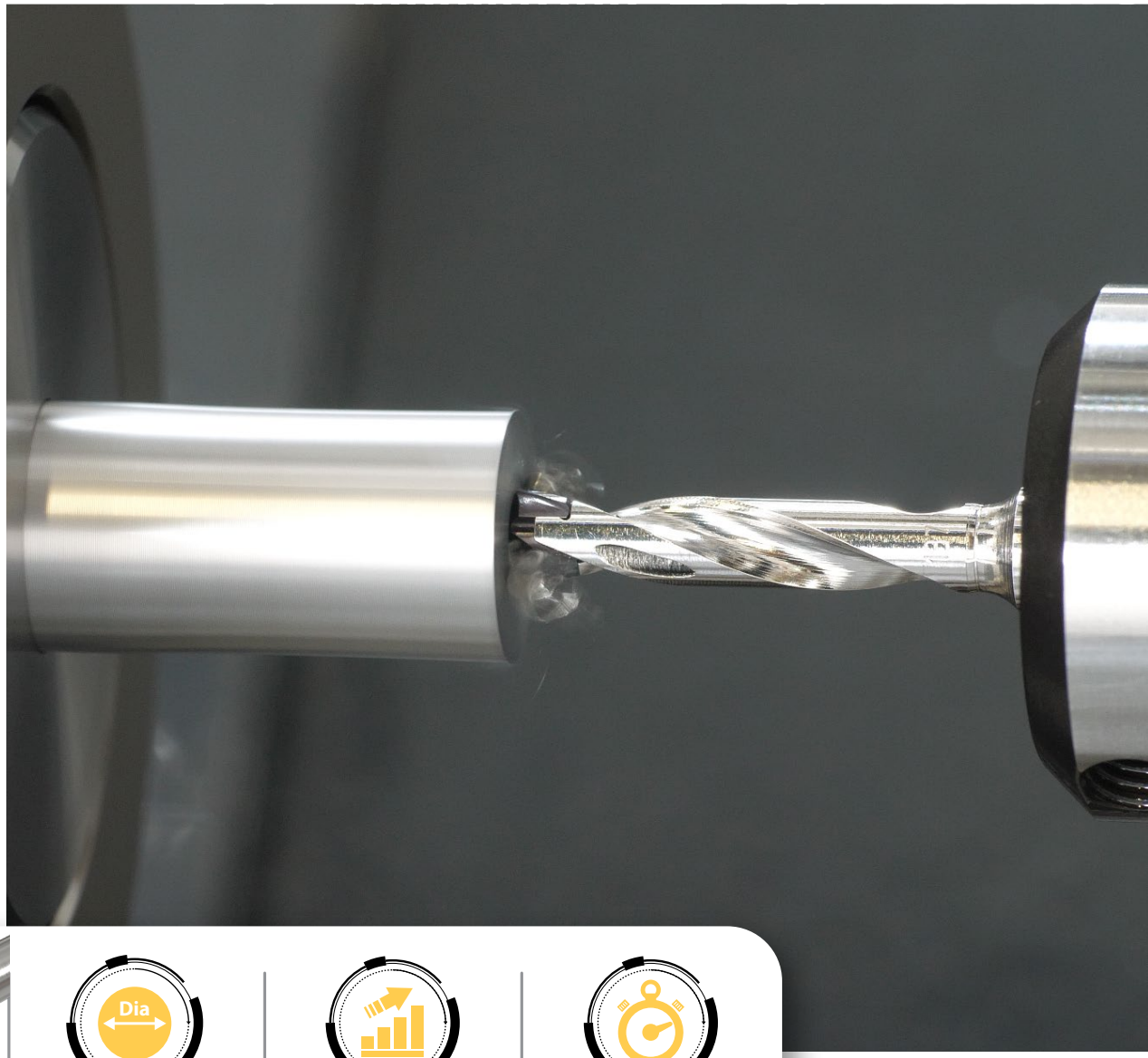
40-2024

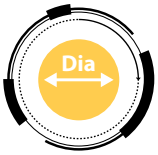
JULY 2024

METRIC/IMPERIAL

# NPA

New Product Announcement






Small Diameter

High Productivity

No Setup Time

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ISCAR

PICCOSUMOCHAM

# New DCN Drilling Tools with a PICCO Connection

NPA New Product Announcement

# PICCOSUMOCHAM

Small Diameter


High Productivity


No Setup Time

## Highlights

### New SUMOCHAM Tools With a PICCO Clamping Connector

In response to the ongoing evolution of the miniature market and the growing demand for improved performance, ISCAR is introducing the SUMOCHAM drill line with the PICCO connection.

The new design boasts a rigid and durable body with internal coolant channels, ensuring exceptional clamping repeatability of 0.005mm (.0002”). The machine operator will appreciate the convenience of fast and effortless head replacements.

Moreover, the new SUMOCHAM - PICCO drill is compatible with a wide range of SUMOCHAM drilling heads suitable for various applications and materials, including ICP, ICK, ICM, ICN, FCP, ICG, HCP, QCP, and more.


Click for Short Video



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Small Diameter

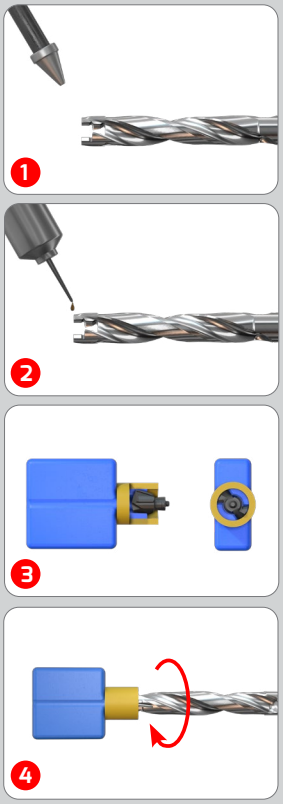
High Productivity

No Setup Time

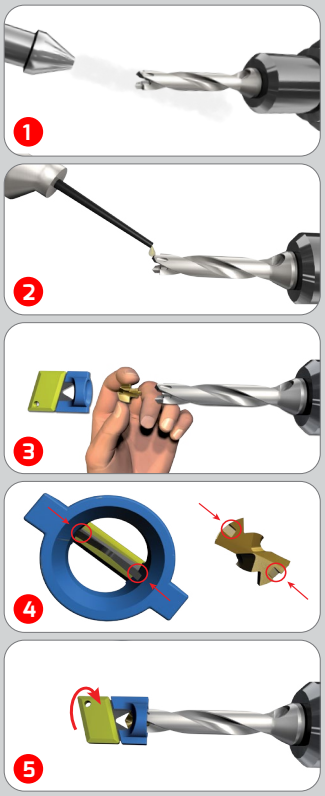
NPA New Product Announcement

# PICCOSUMOCHAM

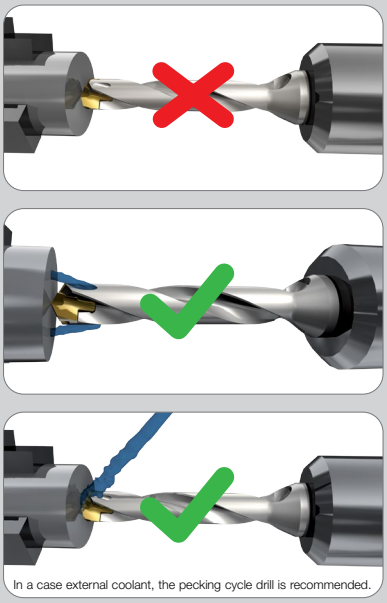
## Drilling Head 4-5.99mm (.157-.232") Mounting Procedure

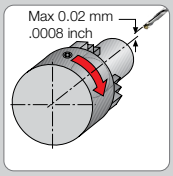



## Drilling Head 6-10.4mm (.236"-.429") Mounting Procedure




## Coolant Recommendations





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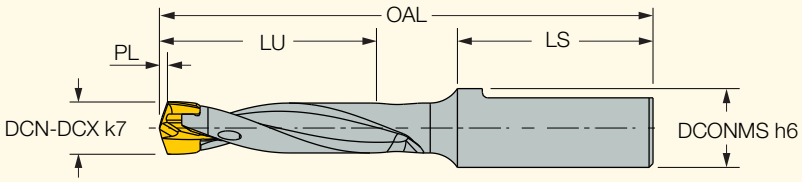
NPA New Product Announcement

# PICCOSUMOCHAM

## DCN-PICCO

Drill Body with Exchangeable Heads, Internal Coolant Holes and PICCO Connection, Drilling Depth 3xD

https://www.iscar.com/eCatalog/Family.aspx?fnum=5254&mapp=DR&GFSTYP=M&srch=1




**M E T R I C**

| Designation | DCN(2) | DCX(3) | DCONMS | LU | PL | LS | OAL | SSC(4) | MIID(5) | |
|---|---|---|---|---|---|---|---|---|---|---|
| DCN 040-012-06-3D-PICCO (1) | 4.00 | 4.40 | 6.00 | 12.62 | 0.620 | 14.9 | 37.60 | 4.0 | ICP 040 | |
| DCN 045-014-06-3D-PICCO (1) | 4.50 | 4.90 | 6.00 | 14.66 | 0.660 | 14.9 | 39.55 | 4.5 | ICP 045 | |
| DCN 050-015-06-3D-PICCO (1) | 5.00 | 5.40 | 6.00 | 15.73 | 0.730 | 14.9 | 41.20 | 5.0 | ICP 050 | |
| DCN 055-017-06-3D-PICCO (1) | 5.50 | 5.90 | 6.00 | 17.81 | 0.810 | 14.9 | 42.85 | 5.5 | ICP 055 | |
| DCN 060-018-06-3D-PICCO | 6.00 | 6.40 | 6.00 | 18.96 | 0.960 | 14.9 | 44.50 | 6.0 | ICP 060 | K DCN 6-9.99-Y |
| DCN 065-020-06-3D-PICCO | 6.50 | 6.90 | 6.00 | 21.18 | 1.180 | 17.1 | 46.30 | 6.5 | ICP 065 | K DCN 6-9.99-Y |
| DCN 070-021-08-3D-PICCO | 7.00 | 7.40 | 8.00 | 22.01 | 1.010 | 20.0 | 55.60 | 7.0 | ICP 070 | K DCN 6-9.99 |
| DCN 075-023-08-3D-PICCO | 7.50 | 7.90 | 8.00 | 24.10 | 1.100 | 20.0 | 57.10 | 7.0 | ICP 075 | K DCN 6-9.99 |
| DCN 080-024-08-3D-PICCO | 8.00 | 8.40 | 8.00 | 25.20 | 1.200 | 20.0 | 59.40 | 8.0 | ICP 080 | K DCN 6-9.99 |
| DCN 085-026-08-3D-PICCO | 8.50 | 8.90 | 8.00 | 26.35 | 1.350 | 20.0 | 60.90 | 8.0 | ICP 085 | K DCN 6-9.99 |
| DCN 090-027-08-3D-PICCO | 9.00 | 9.40 | 8.00 | 28.35 | 1.350 | 20.0 | 63.30 | 9.0 | ICP 090 | K DCN 6-9.99 |
| DCN 095-029-08-3D-PICCO | 9.50 | 9.90 | 8.00 | 30.44 | 1.440 | 20.0 | 64.30 | 9.0 | ICP 095 | K DCN 6-9.99 |
| DCN 100-030-08-3D-PICCO | 10.00 | 10.40 | 8.00 | 31.50 | 1.500 | 20.0 | 66.20 | 10.0 | ICP 100 | K DCN 10-13.99 |
| DCN 105-032-08-3D-PICCO | 10.50 | 10.90 | 8.00 | 33.00 | 1.590 | 20.0 | 67.69 | 10.5 | ICP 105 | K DCN 10-13.99 |

- Do not mount smaller drilling heads other than the specified range of the drill body.

(1) The SK DCN key is supplied with the insert
(2) Cutting diameter minimum
(3) Cutting diameter maximum
(4) Seat size code
(5) Master insert identification

# NPA New Product Announcement

## PICCOSUMOCHAM

### Cutting Conditions for DCN-PICCO Tools (metric)

| ISO | Material | | Condition | Tensile Strength [N/mm²] | Hardness, HB | Group | Diameter Range, mm / Cutting Speed, Vc [m/min] | D=4-4.9 | D=5-5.9 | D=6-7.9 | D=8-9.9 | D=10-10.99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Cutting Feed, f [mm/rev] | | | | |
| P | non-alloy steel and cast steel, free cutting steel | < 0.25 %C | annealed | 420 | 125 | 1 | 70-90-110 | 0.04<br>0.055<br>0.065 | 0.07<br>0.09<br>0.11 | 0.09<br>0.11<br>0.13 | 0.12<br>0.17<br>0.22 | 0.15<br>0.21<br>0.28 |
| | | ≥ 0.25 %C | annealed | 650 | 190 | 2 | 70-100-120 | | | | | |
| | | < 0.55 %C | quenched and tempered | 850 | 250 | 3 | 70-90-110 | | | | | |
| | | ≥ 0.55 %C | annealed | 750 | 220 | 4 | 60-80-100 | | | | | |
| | | | quenched and tempered | 1000 | 300 | 5 | 50-70-90 | | | | | |
| | low alloy and cast steel | less than 5% of alloying elements | annealed | 600 | 200 | 6 | 70-90-110 | 0.04<br>0.055<br>0.065 | 0.08<br>0.10<br>0.12 | 0.09<br>0.12<br>0.14 | 0.12<br>0.18<br>0.24 | 0.14<br>0.21<br>0.28 |
| | | | quenched and tempered | 930 | 275 | 7 | 60-80-100 | | | | | |
| | | | | 1000 | 300 | 8 | 50-70-90 | | | | | |
| | | | | 1200 | 350 | 9 | 40-55-70 | | | | | |
| | high alloyed steel, cast steel and tool steel | | annealed | 680 | 200 | 10 | 45-65-85 | 0.05<br>0.06<br>0.07 | 0.07<br>0.08<br>0.09 | 0.09<br>0.10<br>0.11 | 0.11<br>0.14<br>0.16 | 0.12<br>0.16<br>0.20 |
| | | | quenched and tempered | 1100 | 325 | 11 | 40-60-80 | | | | | |
| | stainless steel and cast steel | | ferritic/ martensitic | 680 | 200 | 12 | 40-55-70 | 0.04<br>0.05<br>0.06 | 0.05<br>0.06<br>0.07 | 0.07<br>0.08<br>0.09 | 0.09<br>0.11<br>0.13 | 0.11<br>0.14<br>0.16 |
| | | | martensitic | 820 | 240 | 13 | | | | | | |
| M | stainless steel and cast steel | | Austenitic, duplex | 600 | 180 | 14 | 40-50-60 | 0.04<br>0.05<br>0.06 | 0.05<br>0.06<br>0.07 | 0.07<br>0.08<br>0.09 | 0.09<br>0.11<br>0.13 | 0.11<br>0.13<br>0.15 |
| K | nodular cast iron (GGG) | | ferritic/pearlitic | | 180 | 15 | 80-120-140 | 0.04<br>0.06<br>0.08 | 0.10<br>0.13<br>0.15 | 0.12<br>0.15<br>0.18 | 0.15<br>0.22<br>0.30 | 0.20<br>0.27<br>0.35 |
| | | | pearlitic/ martensitic | | 260 | 16 | 70-100-120 | | | | | |
| | cast iron nodular GGG | | ferritic | | 160 | 17 | 80-125-150 | | | | | |
| | | | perlitic | | 250 | 18 | 80-100-120 | | | | | |
| | malleable cast iron | | ferritic | | 130 | 19 | 80-120-140 | | | | | |
| | | | perlitic | | 230 | 20 | 80-100-120 | | | | | |
| N | aluminum-wrought alloys | | not hardenable | | 60 | 21 | 90-150-180 | 0.05<br>0.12<br>0.20 | 0.10<br>0.17<br>0.25 | 0.15<br>0.22<br>0.30 | 0.20<br>0.27<br>0.35 | 0.25<br>0.32<br>0.40 |
| | | | hardenable | | 100 | 22 | | | | | | |
| | aluminum-cast alloys | ≤ 12% Si | not hardenable | | 75 | 23 | | | | | | |
| | | | hardenable | | 90 | 24 | | | | | | |
| | | > 12% Si | high temperature | | 130 | 25 | 80-100-140 | | | | | |
| | copper alloys | > 1% Pb | free cutting | | 110 | 26 | 90-150-180 | | | | | |
| | | | brass | | 100 | 27 | | | | | | |
| | | | electrolytic copper | | | 28 | | | | | | |
| S | high temperature alloys | Fe based | annealed | | 200 | 31 | 30-45-55 | 0.03<br>0.04<br>0.05 | 0.04<br>0.05<br>0.06 | 0.05<br>0.06<br>0.07 | 0.06<br>0.08<br>0.11 | 0.08<br>0.10<br>0.13 |
| | | | hardened | | 280 | 32 | 20-30-45 | | | | | |
| | | Ni or Co based | annealed | | 250 | 33 | | | | | | |
| | | | hardened | | 350 | 34 | | | | | | |
| | | | cast | | 320 | 35 | | | | | | |
| | titanium alloys | | pure | 400 | | 36 | 20-35-45 | 0.03<br>0.04<br>0.05 | 0.04<br>0.05<br>0.06 | 0.05<br>0.06<br>0.07 | 0.06<br>0.08<br>0.11 | 0.08<br>0.10<br>0.13 |
| | | | alpha+beta alloys hardened | 1050 | | 37 | | | | | | |
| H | hardened steel | | hardened 55 HRc | | | 38 | 20-30-40 | - | - | 0.05<br>0.06<br>0.07 | 0.06<br>0.09<br>0.12 | 0.08<br>0.11<br>0.15 |
| | | | hardened 60 HRc | | | 39 | | | | | | |

Recommended cutting data
As a starting value, the middle of the recommended machining range should be used.
Then, according to the wear results, conditions can be changed to optimize performance.
The data refers to IC908 grade

- When using external coolant supply only, pecking cycle is recommended.
- When using external coolant supply only, reduce cutting speed by 25%
- Use internal coolant supply when machining austenitic stainless steel

**Machining Stainless Steel is not recommended with QCP & HCP geometry**
For technical information regarding QCP/HCP see More Info.

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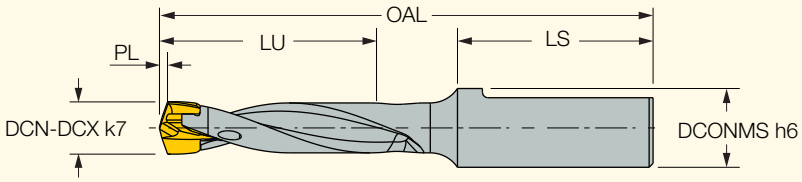
# NPA New Product Announcement

## PICCOSUMOCHAM

### DCN-PICCO

Drill Body with Exchangeable Heads, Internal Coolant Holes and PICCO Connection, Drilling Depth 3xD

https://www.iscar.com/eCatalog/Family.aspx?fnum=5254&mapp=DR&GFSTYP=I&srch=1




| INCH | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Designation | DCN[2] | DCX[3] | DCONMS | LU | PL | LS | OAL | SSC[4] | MIID[5] | |
| DCN0157-047-0236-3D-PICCO [1] | .157 | .173 | .236 | .4969 | .02440 | .587 | 1.480 | 4.0 | ICP 040 | |
| DCN0177-055-0236-3D-PICCO [1] | .177 | .193 | .236 | .5772 | .02598 | .587 | 1.557 | 4.5 | ICP 045 | |
| DCN0197-059-0236-3D-PICCO [1] | .197 | .213 | .236 | .6193 | .02874 | .587 | 1.622 | 5.0 | ICP 050 | |
| DCN0216-067-0236-3D-PICCO [1] | .217 | .232 | .236 | .7012 | .03188 | .587 | 1.687 | 5.5 | ICP 055 | |
| DCN0236-071-0236-3D-PICCO | .236 | .252 | .236 | .7464 | .03779 | .587 | 1.752 | 6.0 | ICP 060 | K DCN 6-9.99-Y |
| DCN0256-079-0236-3D-PICCO | .256 | .272 | .236 | .8338 | .04645 | .673 | 1.823 | 6.5 | ICP 065 | K DCN 6-9.99-Y |
| DCN0275-082-0315-3D-PICCO | .276 | .291 | .315 | .8665 | .03976 | .787 | 2.189 | 7.0 | ICP 070 | K DCN 6-9.99 |
| DCN0295-089-0315-3D-PICCO | .295 | .311 | .315 | .9488 | .04330 | .787 | 2.248 | 7.0 | ICP 075 | K DCN 6-9.99 |
| DCN0315-094-0315-3D-PICCO | .315 | .331 | .315 | .9921 | .04724 | .787 | 2.339 | 8.0 | ICP 080 | K DCN 6-9.99 |
| DCN0335-102-0315-3D-PICCO | .335 | .350 | .315 | 1.0374 | .05314 | .787 | 2.398 | 8.0 | ICP 085 | K DCN 6-9.99 |
| DCN0354-106-0315-3D-PICCO | .354 | .370 | .315 | 1.1161 | .05314 | .787 | 2.492 | 9.0 | ICP 090 | K DCN 6-9.99 |
| DCN0374-112-0315-3D-PICCO | .374 | .390 | .315 | 1.1984 | .05669 | .787 | 2.531 | 9.0 | ICP 095 | K DCN 6-9.99 |
| DCN0394-118-0315-3D-PICCO | .394 | .409 | .315 | 1.2402 | .05905 | .787 | 2.606 | 10.0 | ICP 100 | K DCN 10-13.99 |
| DCN0413-124-0315-3D-PICCO | .413 | .429 | .315 | 1.2992 | .06260 | .787 | 2.665 | 10.5 | ICP 105 | K DCN 10-13.99 |

- Do not mount smaller drilling heads other than the specified range of the drill body

[1] The SK DCN key is supplied with the insert
[2] Cutting diameter minimum
[3] Cutting diameter maximum
[4] Seat size code
[5] Master insert identification

# NPA New Product Announcement

## PICCOSUMOCHAM

### Cutting Conditions for DCN-PICCO Tools (inch)

| ISO | Material | | Condition | Tensile Strength [ksi] | Hardness, HB | Group | Diameter Range, inch / Cutting Speed, Vc SFM | D=.157-.193 | D=.197-.232 | D=.236-.311 | D=.315-.390 | D=.394-.432 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Cutting Feed, f [IPR] | | | | |
| P | non-alloy steel and cast steel, free cutting steel | < 0.25 %C | annealed | 61 | 125 | 1 | 230-300-360 | .0016<br>.0022<br>.0026 | .0028<br>.0035<br>.0043 | .0035<br>.0043<br>.0051 | .0047<br>.0067<br>.0087 | .0059<br>.0083<br>.0110 |
| | | ≥ 0.25 %C | annealed | 94 | 190 | 2 | 230-330-400 | | | | | |
| | | < 0.55 %C | quenched and tempered | 123 | 250 | 3 | 230-300-360 | | | | | |
| | | ≥ 0.55 %C | annealed | 109 | 220 | 4 | 200-260-330 | | | | | |
| | | | quenched and tempered | 145 | 300 | 5 | 165-230-300 | | | | | |
| | low alloy and cast steel | less than 5% of alloying elements | annealed | 87 | 200 | 6 | 230-300-360 | .0016<br>.0022<br>.0026 | .0031<br>.0040<br>.0047 | .0035<br>.0047<br>.0055 | .0047<br>.0071<br>.0094 | .0055<br>.0083<br>.0110 |
| | | | quenched and tempered | 135 | 275 | 7 | 200-260-330 | | | | | |
| | | | | 145 | 300 | 8 | 165-230-300 | | | | | |
| | | | | 174 | 350 | 9 | 130-180-230 | | | | | |
| | high alloyed steel, cast steel and tool steel | | annealed | 99 | 200 | 10 | 150-215-280 | .0020<br>.0024<br>.0028 | .0028<br>.0031<br>.0035 | .0035<br>.0040<br>.0043 | .0043<br>.0055<br>.0063 | .0047<br>.0063<br>.0079 |
| | | | quenched and tempered | 160 | 325 | 11 | 130-200-260 | | | | | |
| | stainless steel and cast steel | | ferritic/ martensitic | 99 | 200 | 12 | 130-180-230 | .0016<br>.0020<br>.0024 | .0020<br>.0024<br>.0028 | .0028<br>.0031<br>.0035 | .0035<br>.0043<br>.0051 | .0043<br>.0055<br>.0063 |
| | | | martensitic | 119 | 240 | 13 | | | | | | |
| M | stainless steel and cast steel | | Austenitic, duplex | 87 | 180 | 14 | 130-165-200 | .0016<br>.0020<br>.0024 | .0020<br>.0024<br>.0028 | .0028<br>.0031<br>.0035 | .0035<br>.0043<br>.0051 | .0043<br>.0051<br>.0059 |
| K | nodular cast iron (GGG) | | ferritic/pearlitic | | 180 | 15 | 260-400-460 | .0016<br>.0024<br>.0031 | .0040<br>.0051<br>.0059 | .0047<br>.0059<br>.0071 | .0059<br>.0087<br>.0118 | .0079<br>.0106<br>.0137 |
| | | | pearlitic/ martensitic | | 260 | 16 | 230-330-400 | | | | | |
| | cast iron nodular GGG | | ferritic | | 160 | 17 | 260-410-500 | | | | | |
| | | | perlitic | | 250 | 18 | 260-330-400 | | | | | |
| | malleable cast iron | | ferritic | | 130 | 19 | 260-400-460 | | | | | |
| | | | perlitic | | 230 | 20 | 260-330-400 | | | | | |
| N | aluminum-wrought alloys | | not hardenable | | 60 | 21 | 300-500-600 | .0020<br>.0047<br>.0079 | .0040<br>.0067<br>.0098 | .0059<br>.0087<br>.0118 | .0079<br>.0106<br>.0137 | .0098<br>.0125<br>.0157 |
| | | | hardenable | | 100 | 22 | | | | | | |
| | aluminum-cast alloys | ≤ 12% Si | not hardenable | | 75 | 23 | | | | | | |
| | | | hardenable | | 90 | 24 | | | | | | |
| | | > 12% Si | high temperature | | 130 | 25 | 260-330-460 | | | | | |
| | copper alloys | > 1% Pb | free cutting | | 110 | 26 | 300-500-600 | | | | | |
| | | | brass | | 100 | 27 | | | | | | |
| | | | electrolytic copper | | | 28 | | | | | | |
| S | high temperature alloys | Fe based | annealed | | 200 | 31 | 330-500-600 | .0012<br>.0016<br>.0020 | .0016<br>.0020<br>.0024 | .0020<br>.0024<br>.0028 | .0024<br>.0031<br>.0043 | .0031<br>.0040<br>.0051 |
| | | | hardened | | 280 | 32 | 215-330-500 | | | | | |
| | | Ni or Co based | annealed | | 250 | 33 | | | | | | |
| | | | hardened | | 350 | 34 | | | | | | |
| | | | cast | | 320 | 35 | | | | | | |
| | titanium alloys | | pure | 58 | 190 | 36 | 215-375-500 | .0012<br>.0016<br>.0020 | .0016<br>.0020<br>.0024 | .0020<br>.0024<br>.0028 | .0024<br>.0031<br>.0043 | .0031<br>.0040<br>.0051 |
| | | | alpha+beta alloys hardened | 152 | 310 | 37 | | | | | | |
| H | hardened steel | | hardened 55 HRc | | 55 HRc | 38 | 215-330-425 | - | - | .0020<br>.0024<br>.0028 | .0024<br>.0035<br>.0047 | .0031<br>.0043<br>.0059 |
| | | | hardened 60 HRc | | 60 HRc | 39 | | | | | | |

Recommended cutting data
As a starting value, the middle of the recommended machining range should be used.
Then, according to the wear results, conditions can be changed to optimize performance.
The data refers to IC908 grade

- When using external coolant supply only, pecking cycle is recommended.
- When using external coolant supply only, reduce cutting speed by 25%
- Use internal coolant supply when machining austenitic stainless steel

**Machining Stainless Steel is not recommended with QCP & HCP geometry**
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Member IMC Group