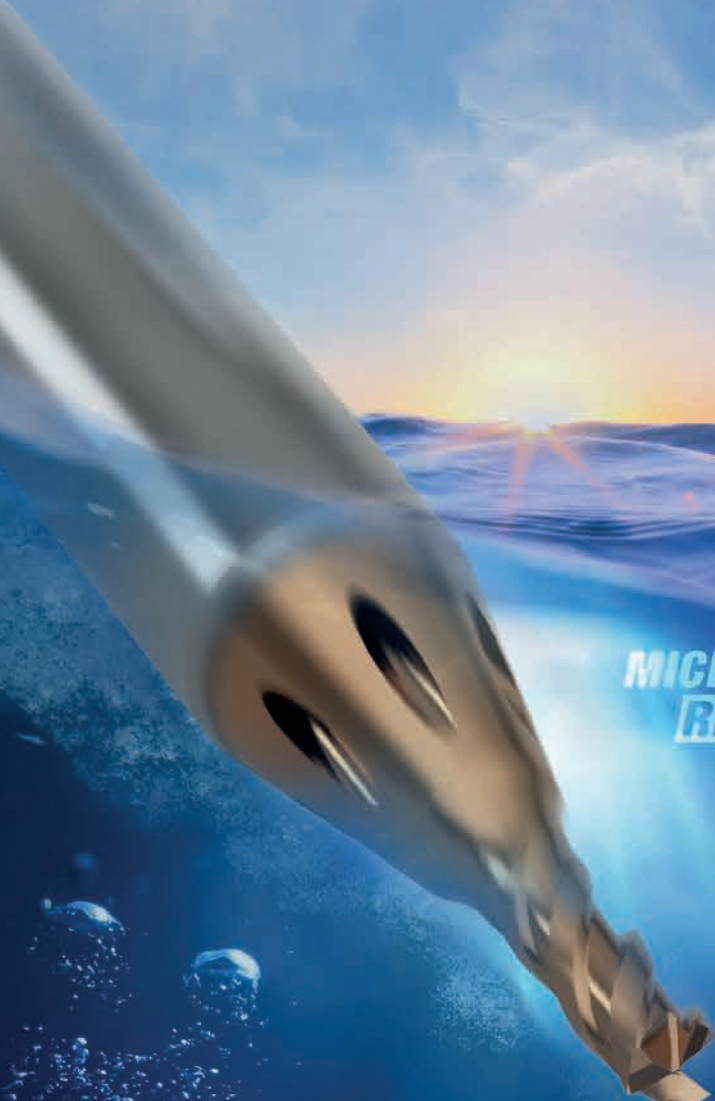


GÜHRING



MICRO
RF 100 **d**iver

「MICRO
EVO2020
LUTION」

60° plunging and top-performance milling.

THE SMALLEST DIVER IN THE WORLD.

MICRO **d**iver RF100



SYMMETRICAL DRILLING FACE
optimised for drilling and ramping
operations excellent cutting edge stability



innovative flute form
very high tool stability
low-vibration cutting

new transition geometry
improves overall stability

GühroJet coolant ducts
guided cooling & lubrication
directly in the cutting area
effective chip removal

THE HIPIMS COATING DUROX®
achieves a very high surface quality
for an optimal chip removal
as well as perfect protection against wear
and oxidation in dry and wet machining.

DIMENSIONS
Ø 0.790 – 3.175

LENGTHS
2.5xD and 5xD

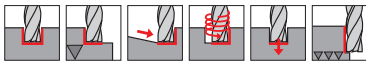
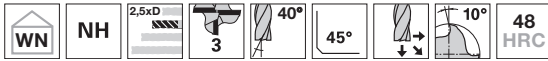
new ultra fine carbide
optimum balance between
hardness and toughness
for micromachining applications

**MICRO
EVO2020
LUTION**

Plunging and milling with only one tool.
Universal, in every application, in every material.
Extreme cutting values and very high cutting depths,
which were previously not possible for micro-precision tools.



Ratio end mills RF 100 Microdiver



P • **GÜHRING NAVIGATOR**

- M** •
- K** •
- N** •
- S** •
- H** ○

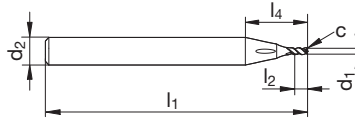
- for extreme cutting values and cutting performance
- with internal cooling: GühroJet peripheral cooling with 6 or 4 exits
- centre cutting
- with special drill face

Tool material **Solid carbide**

Surface **X**

Type **NH**

Shank form **cyl.**



Article no. **6808**

| d1 h8 | d2 h5 | l1 | l2 | l4 | c | Z | Code no. |
|-------|-------|-------|------|------|----------|---|----------|
| mm | mm | mm | mm | mm | mm x 45° | | |
| 0.790 | 4.00 | 38.10 | 1.97 | 9.5 | 0.016 | 3 | 0.790 |
| 0.800 | 4.00 | 38.00 | 2.00 | 9.5 | 0.016 | 3 | 0.800 |
| 1.000 | 4.00 | 38.00 | 2.50 | 9.3 | 0.020 | 3 | 1.000 |
| 1.190 | 4.00 | 38.10 | 2.97 | 9.4 | 0.024 | 3 | 1.190 |
| 1.200 | 4.00 | 38.00 | 3.00 | 9.4 | 0.024 | 3 | 1.200 |
| 1.500 | 4.00 | 45.00 | 3.75 | 9.7 | 0.030 | 3 | 1.500 |
| 1.590 | 4.00 | 44.45 | 3.97 | 9.9 | 0.032 | 3 | 1.590 |
| 1.800 | 4.00 | 45.00 | 4.50 | 10.2 | 0.036 | 3 | 1.800 |
| 1.980 | 6.00 | 50.80 | 4.95 | 14.7 | 0.040 | 3 | 1.980 |
| 2.000 | 6.00 | 50.00 | 5.00 | 14.6 | 0.040 | 3 | 2.000 |
| 2.200 | 6.00 | 50.00 | 5.50 | 14.9 | 0.044 | 3 | 2.200 |
| 2.380 | 6.00 | 50.80 | 5.95 | 15.2 | 0.048 | 3 | 2.380 |
| 2.500 | 6.00 | 50.00 | 6.25 | 15.3 | 0.050 | 3 | 2.500 |
| 2.780 | 6.00 | 50.80 | 6.95 | 15.8 | 0.056 | 3 | 2.780 |
| 2.800 | 6.00 | 50.00 | 7.00 | 15.9 | 0.056 | 3 | 2.800 |
| 3.000 | 6.00 | 50.00 | 7.50 | 16.2 | 0.060 | 3 | 3.000 |
| 3.175 | 6.00 | 50.80 | 7.93 | 17.0 | 0.064 | 3 | 3.175 |



FINISHING

Art. no. 6808

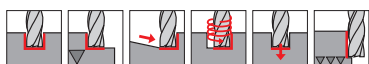
| Material/ISO material | a_e max | a_p max | v_c | f_z/\emptyset | | | v_c | f_z/\emptyset | | v_c | f_z/\emptyset | | | v_c | f_z/\emptyset | |
|--|--------------|--------------|-------|-----------------|--------|--------|-------|-----------------|--------|-------|-----------------|--------|--------|-------|-----------------|--------|
| | | | | 0.8 | 1.0 | 1.2 | | 1.5 | 1.8 | | 2.0 | 2.2 | 2.5 | | 2.8 | 3.0 |
| Unalloyed steel | 0.03xD | 2.00xD | 180 | 0.0086 | 0.0108 | 0.0130 | 216 | 0.0162 | 0.0194 | 234 | 0.0216 | 0.0238 | 0.0270 | 252 | 0.0302 | 0.0324 |
| P Low-alloyed steel | 0.03xD | 2.00xD | 180 | 0.0077 | 0.0096 | 0.0115 | 216 | 0.0144 | 0.0173 | 234 | 0.0192 | 0.0211 | 0.0240 | 252 | 0.0269 | 0.0288 |
| High-alloyed steel and tool steel | 0.03xD | 2.00xD | 180 | 0.0058 | 0.0072 | 0.0086 | 216 | 0.0108 | 0.0130 | 234 | 0.0144 | 0.0158 | 0.0180 | 252 | 0.0202 | 0.0216 |
| Stainless steel, ferritic, martensitic | 0.03xD | 2.00xD | 180 | 0.0077 | 0.0096 | 0.0115 | 216 | 0.0144 | 0.0173 | 234 | 0.0192 | 0.0211 | 0.0240 | 252 | 0.0269 | 0.0288 |
| M Stainless steel, austenitic | 0.03xD | 2.00xD | 155 | 0.0067 | 0.0084 | 0.0101 | 186 | 0.0126 | 0.0151 | 202 | 0.0168 | 0.0185 | 0.0210 | 217 | 0.0235 | 0.0252 |
| Duplex steel, high strength stainless steels | 0.03xD | 2.00xD | 115 | 0.0059 | 0.0073 | 0.0088 | 138 | 0.0110 | 0.0132 | 150 | 0.0147 | 0.0162 | 0.0184 | 161 | 0.0206 | 0.0220 |
| Grey cast iron | 0.03xD | 2.00xD | 155 | 0.0067 | 0.0084 | 0.0101 | 186 | 0.0126 | 0.0151 | 202 | 0.0168 | 0.0185 | 0.0210 | 217 | 0.0235 | 0.0252 |
| K Cast iron with spheroidal graphite iron | | | | | | | | | | | | | | | | |
| Malleable cast iron | 0.03xD | 2.00xD | 130 | 0.0060 | 0.0075 | 0.0090 | 156 | 0.0112 | 0.0134 | 169 | 0.0149 | 0.0164 | 0.0187 | 182 | 0.0209 | 0.0224 |
| GJV & ADI | | | | | | | | | | | | | | | | |
| Aluminium-wrought alloys | 0.03xD | 2.00xD | 220 | 0.0115 | 0.0144 | 0.0173 | 264 | 0.0216 | 0.0259 | 286 | 0.0288 | 0.0317 | 0.0360 | 308 | 0.0403 | 0.0432 |
| N Aluminium-cast alloys | | | | | | | | | | | | | | | | |
| Copper and copper alloys | 0.03xD | 2.00xD | 160 | 0.0106 | 0.0133 | 0.0159 | 192 | 0.0199 | 0.0239 | 208 | 0.0265 | 0.0292 | 0.0331 | 224 | 0.0371 | 0.0398 |
| Heat-resistant alloys, Fe-based | 0.03xD | 2.00xD | 130 | 0.0043 | 0.0054 | 0.0065 | 156 | 0.0081 | 0.0097 | 169 | 0.0108 | 0.0119 | 0.0135 | 182 | 0.0151 | 0.0162 |
| S Heat-resistant alloys, Ni-based, CO-based | 0.03xD | 2.00xD | 75 | 0.0035 | 0.0044 | 0.0053 | 90 | 0.0066 | 0.0079 | 98 | 0.0088 | 0.0096 | 0.0110 | 105 | 0.0123 | 0.0132 |
| Titanium alloys & pure titanium | 0.03xD | 2.00xD | 120 | 0.0072 | 0.0090 | 0.0108 | 144 | 0.0135 | 0.0162 | 156 | 0.0180 | 0.0198 | 0.0225 | 168 | 0.0252 | 0.0270 |
| H Hardened steel, hardened and tempered, < 55 HRC | 0.02xD | 2.00xD | 45 | 0.0038 | 0.0048 | 0.0058 | 54 | 0.0072 | 0.0086 | 59 | 0.0096 | 0.0106 | 0.0120 | 63 | 0.0134 | 0.0144 |

DRILLING

Art. no. 6808

| Material/ISO material | a_p max | v_c | f_z/\emptyset | | | v_c | f_z/\emptyset | | v_c | f_z/\emptyset | | | v_c | f_z/\emptyset | |
|--|--------------|-------|-----------------|--------|--------|-------|-----------------|--------|-------|-----------------|--------|--------|-------|-----------------|--------|
| | | | 0.8 | 1.0 | 1.2 | | 1.5 | 1.8 | | 2.0 | 2.2 | 2.5 | | 2.8 | 3.0 |
| Unalloyed steel | 1.00xD | 100 | 0.0014 | 0.0018 | 0.0022 | 120 | 0.0027 | 0.0032 | 130 | 0.0036 | 0.0040 | 0.0045 | 140 | 0.0050 | 0.0054 |
| P Low-alloyed steel | 1.00xD | 100 | 0.0013 | 0.0016 | 0.0019 | 120 | 0.0024 | 0.0029 | 130 | 0.0032 | 0.0035 | 0.0040 | 140 | 0.0045 | 0.0048 |
| High-alloyed steel and tool steel | 0.50xD | 90 | 0.0010 | 0.0012 | 0.0014 | 108 | 0.0018 | 0.0022 | 117 | 0.0024 | 0.0026 | 0.0030 | 126 | 0.0034 | 0.0036 |
| Stainless steel, ferritic, martensitic | 0.75xD | 90 | 0.0012 | 0.0015 | 0.0018 | 108 | 0.0023 | 0.0027 | 117 | 0.0030 | 0.0033 | 0.0038 | 126 | 0.0042 | 0.0045 |
| M Stainless steel, austenitic | 0.50xD | 85 | 0.0011 | 0.0014 | 0.0017 | 102 | 0.0021 | 0.0025 | 111 | 0.0028 | 0.0031 | 0.0035 | 119 | 0.0039 | 0.0042 |
| Duplex steel, high strength stainless steels | 0.25xD | 65 | 0.0010 | 0.0012 | 0.0014 | 78 | 0.0018 | 0.0022 | 85 | 0.0024 | 0.0026 | 0.0030 | 91 | 0.0034 | 0.0036 |
| Grey cast iron | 1.00xD | 90 | 0.0011 | 0.0014 | 0.0017 | 108 | 0.0021 | 0.0025 | 117 | 0.0028 | 0.0031 | 0.0035 | 126 | 0.0039 | 0.0042 |
| K Cast iron with spheroidal graphite iron | | | | | | | | | | | | | | | |
| Malleable cast iron | 1.00xD | 75 | 0.0010 | 0.0012 | 0.0014 | 90 | 0.0018 | 0.0022 | 98 | 0.0024 | 0.0026 | 0.0030 | 105 | 0.0034 | 0.0036 |
| GJV & ADI | | | | | | | | | | | | | | | |
| Aluminium-wrought alloys | 0.50xD | 125 | 0.0019 | 0.0024 | 0.0029 | 150 | 0.0036 | 0.0043 | 163 | 0.0048 | 0.0053 | 0.0060 | 175 | 0.0067 | 0.0072 |
| N Aluminium-cast alloys | | | | | | | | | | | | | | | |
| Copper and copper alloys | 0.50xD | 90 | 0.0018 | 0.0022 | 0.0026 | 108 | 0.0033 | 0.0040 | 117 | 0.0044 | 0.0048 | 0.0055 | 126 | 0.0062 | 0.0066 |
| Heat-resistant alloys, Fe-based | 0.25xD | 75 | 0.0007 | 0.0009 | 0.0011 | 90 | 0.0014 | 0.0016 | 98 | 0.0018 | 0.0020 | 0.0023 | 105 | 0.0025 | 0.0027 |
| S Heat-resistant alloys, Ni-based, CO-based | 0.25xD | 45 | 0.0006 | 0.0008 | 0.0009 | 54 | 0.0011 | 0.0014 | 59 | 0.0015 | 0.0017 | 0.0019 | 63 | 0.0021 | 0.0023 |
| Titanium alloys & pure titanium | 0.25xD | 70 | 0.0012 | 0.0015 | 0.0018 | 84 | 0.0023 | 0.0027 | 91 | 0.0030 | 0.0033 | 0.0038 | 98 | 0.0042 | 0.0045 |

Ratio end mills RF 100 Microdiver



P • **GÜHRING NAVIGATOR**

| | |
|----------|---|
| P | • |
| M | • |
| K | • |
| N | • |
| S | • |
| H | ○ |

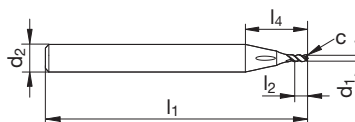
- for extreme cutting values and cutting performance
- with internal cooling: GühroJet peripheral cooling with 6 or 4 exits
- centre cutting
- with special drill face

Tool material **Solid carbide**

Surface **X**

Type **NH**

Shank form **cyl.**



Article no. **6809**

| d1 h8 | d2 h5 | l1 | l2 | l4 | c | Z |
|-------|-------|-------|-------|------|----------|---|
| mm | mm | mm | mm | mm | mm x 45° | |
| 1.000 | 4.00 | 45.00 | 5.00 | 11.8 | 0.020 | 3 |
| 1.190 | 4.00 | 50.80 | 5.95 | 12.4 | 0.024 | 3 |
| 1.500 | 4.00 | 50.00 | 7.50 | 13.5 | 0.030 | 3 |
| 1.590 | 4.00 | 50.80 | 7.95 | 13.9 | 0.032 | 3 |
| 1.980 | 6.00 | 57.15 | 9.90 | 19.6 | 0.040 | 3 |
| 2.000 | 6.00 | 57.00 | 10.00 | 19.6 | 0.040 | 3 |
| 2.380 | 6.00 | 57.15 | 11.90 | 21.1 | 0.048 | 3 |
| 2.500 | 6.00 | 57.00 | 12.50 | 21.5 | 0.050 | 3 |
| 2.780 | 6.00 | 57.15 | 13.90 | 22.8 | 0.056 | 3 |
| 3.000 | 6.00 | 57.00 | 15.00 | 23.7 | 0.060 | 3 |
| 3.175 | 6.00 | 57.15 | 15.87 | 25.0 | 0.064 | 3 |

| Code no. |
|----------|
| 1.000 |
| 1.190 |
| 1.500 |
| 1.590 |
| 1.980 |
| 2.000 |
| 2.380 |
| 2.500 |
| 2.780 |
| 3.000 |
| 3.175 |



OPEN SLOTS AND HELIX

Art. no. 6809

| Material/ISO material | a _e max | a _p max | v _c | f _z /Ø | | v _c | f _z /Ø 1.5 | v _c | f _z /Ø | | v _c | f _z /Ø | |
|--|--|-----------------------|----------------|-------------------|--------|----------------|--------------------------|----------------|-------------------|--------|----------------|-------------------|--------|
| | | | | 1.0 | 1.2 | | | | 2.0 | 2.5 | | 2.8 | 3.0 |
| Unalloyed steel | 1.00xD | 0.50xD | 112 | 0.0081 | 0.0097 | 134 | 0.0122 | 146 | 0.0162 | 0.0203 | 157 | 0.0227 | 0.0243 |
| P Low-alloyed steel | 1.00xD | 0.50xD | 112 | 0.0072 | 0.0086 | 134 | 0.0108 | 146 | 0.0144 | 0.0180 | 157 | 0.0202 | 0.0216 |
| | High-alloyed steel and tool steel | | 112 | 0.0054 | 0.0065 | 134 | 0.0081 | 146 | 0.0108 | 0.0135 | 157 | 0.0151 | 0.0162 |
| M Stainless steel, ferritic, martensitic | 1.00xD | 0.25xD | 112 | 0.0072 | 0.0086 | 134 | 0.0108 | 146 | 0.0144 | 0.0180 | 157 | 0.0202 | 0.0216 |
| | Stainless steel, austenitic | | 96 | 0.0063 | 0.0076 | 115 | 0.0095 | 125 | 0.0126 | 0.0158 | 134 | 0.0176 | 0.0189 |
| | Duplex steel, high strength stainless steels | | 71 | 0.0055 | 0.0066 | 85 | 0.0083 | 92 | 0.0110 | 0.0138 | 99 | 0.0154 | 0.0165 |
| K Grey cast iron | 1.00xD | 0.50xD | 96 | 0.0063 | 0.0076 | 115 | 0.0095 | 125 | 0.0126 | 0.0158 | 134 | 0.0176 | 0.0189 |
| | Cast iron with spheroidal graphite iron | | 80 | 0.0056 | 0.0067 | 96 | 0.0084 | 104 | 0.0112 | 0.0140 | 112 | 0.0157 | 0.0168 |
| | Malleable cast iron GJV & ADI | | | | | | | | | | | | |
| N Aluminium-wrought alloys | 1.00xD | 0.50xD | 136 | 0.0108 | 0.0130 | 163 | 0.0162 | 177 | 0.0216 | 0.0270 | 190 | 0.0302 | 0.0324 |
| | Aluminium-cast alloys | | 100 | 0.0099 | 0.0119 | 120 | 0.0149 | 130 | 0.0199 | 0.0249 | 140 | 0.0278 | 0.0298 |
| | Copper and copper alloys | | | | | | | | | | | | |
| S Heat-resistant alloys, Fe-based | 1.00xD | 0.25xD | 80 | 0.0041 | 0.0049 | 96 | 0.0061 | 104 | 0.0081 | 0.0101 | 112 | 0.0113 | 0.0122 |
| | Heat-resistant alloys, Ni-based, CO-based | | 46 | 0.0033 | 0.0039 | 55 | 0.0049 | 60 | 0.0066 | 0.0082 | 64 | 0.0092 | 0.0099 |
| | Titanium alloys & pure titanium | | 72 | 0.0068 | 0.0081 | 86 | 0.0101 | 94 | 0.0135 | 0.0169 | 101 | 0.0189 | 0.0203 |
| H Hardened steel, hardened and tempered, < 55 HRC | 1.00xD | 0.10xD | 26 | 0.0036 | 0.0043 | 31 | 0.0054 | 34 | 0.0072 | 0.0090 | 36 | 0.0101 | 0.0108 |

RAMMING AND CLOSED SLOTS

Art. no. 6809

| Material/ISO material | a _e max | a _p max | v _c | f _z /Ø | | v _c | f _z /Ø 1.5 | v _c | f _z /Ø | | v _c | f _z /Ø | |
|--|--|-----------------------|----------------|-------------------|--------|----------------|--------------------------|----------------|-------------------|--------|----------------|-------------------|--------|
| | | | | 1.0 | 1.2 | | | | 2.0 | 2.5 | | 2.8 | 3.0 |
| Unalloyed steel | 1.00xD | 0.50xD | 78 | 0.0049 | 0.0058 | 94 | 0.0073 | 102 | 0.0097 | 0.0122 | 110 | 0.0136 | 0.0146 |
| P Low-alloyed steel | 1.00xD | 0.50xD | 78 | 0.0043 | 0.0052 | 94 | 0.0065 | 102 | 0.0086 | 0.0108 | 110 | 0.0121 | 0.0130 |
| | High-alloyed steel and tool steel | | 78 | 0.0032 | 0.0039 | 94 | 0.0049 | 102 | 0.0065 | 0.0081 | 110 | 0.0091 | 0.0097 |
| M Stainless steel, ferritic, martensitic | 1.00xD | 0.25xD | 78 | 0.0043 | 0.0052 | 94 | 0.0065 | 102 | 0.0086 | 0.0108 | 110 | 0.0121 | 0.0130 |
| | Stainless steel, austenitic | | 67 | 0.0038 | 0.0045 | 81 | 0.0057 | 87 | 0.0076 | 0.0095 | 94 | 0.0106 | 0.0113 |
| | Duplex steel, high strength stainless steels | | 50 | 0.0033 | 0.0040 | 60 | 0.0050 | 65 | 0.0066 | 0.0083 | 70 | 0.0093 | 0.0099 |
| K Grey cast iron | 1.00xD | 0.50xD | 67 | 0.0038 | 0.0045 | 81 | 0.0057 | 87 | 0.0076 | 0.0095 | 94 | 0.0106 | 0.0113 |
| | Cast iron with spheroidal graphite iron | | 56 | 0.0034 | 0.0040 | 67 | 0.0050 | 73 | 0.0067 | 0.0084 | 78 | 0.0094 | 0.0101 |
| | Malleable cast iron GJV & ADI | | | | | | | | | | | | |
| N Aluminium-wrought alloys | 1.00xD | 0.50xD | 95 | 0.0065 | 0.0078 | 114 | 0.0097 | 124 | 0.0130 | 0.0162 | 133 | 0.0181 | 0.0194 |
| | Aluminium-cast alloys | | 70 | 0.0060 | 0.0072 | 84 | 0.0089 | 91 | 0.0119 | 0.0149 | 98 | 0.0167 | 0.0179 |
| | Copper and copper alloys | | | | | | | | | | | | |
| S Heat-resistant alloys, Fe-based | 1.00xD | 0.25xD | 56 | 0.0024 | 0.0029 | 67 | 0.0036 | 73 | 0.0049 | 0.0061 | 78 | 0.0068 | 0.0073 |
| | Heat-resistant alloys, Ni-based, CO-based | | 32 | 0.0020 | 0.0024 | 39 | 0.0030 | 42 | 0.0039 | 0.0049 | 45 | 0.0055 | 0.0059 |
| | Titanium alloys & pure titanium | | 50 | 0.0041 | 0.0049 | 60 | 0.0061 | 66 | 0.0081 | 0.0101 | 71 | 0.0113 | 0.0122 |
| H Hardened steel, hardened and tempered, < 55 HRC | 1.00xD | 0.10xD | 18 | 0.0022 | 0.0026 | 22 | 0.0032 | 24 | 0.0043 | 0.0054 | 25 | 0.0060 | 0.0065 |

ROUGHING

Art. no. 6809

| Material/ISO material | a _e max | a _p max | v _c | f _z /Ø | | v _c | f _z /Ø 1.5 | v _c | f _z /Ø | | v _c | f _z /Ø | |
|--|--|-----------------------|----------------|-------------------|--------|----------------|--------------------------|----------------|-------------------|--------|----------------|-------------------|--------|
| | | | | 1.0 | 1.2 | | | | 2.0 | 2.5 | | 2.8 | 3.0 |
| Unalloyed steel | 0.10xD | 5.00xD | 134 | 0.0128 | 0.0153 | 161 | 0.0191 | 174 | 0.0255 | 0.0319 | 188 | 0.0357 | 0.0383 |
| P Low-alloyed steel | 0.10xD | 5.00xD | 134 | 0.0113 | 0.0136 | 161 | 0.0170 | 174 | 0.0227 | 0.0284 | 188 | 0.0318 | 0.0340 |
| | High-alloyed steel and tool steel | | 134 | 0.0085 | 0.0102 | 161 | 0.0128 | 174 | 0.0170 | 0.0213 | 188 | 0.0238 | 0.0255 |
| M Stainless steel, ferritic, martensitic | 0.10xD | 5.00xD | 134 | 0.0113 | 0.0136 | 161 | 0.0170 | 174 | 0.0227 | 0.0284 | 188 | 0.0318 | 0.0340 |
| | Stainless steel, austenitic | | 115 | 0.0099 | 0.0119 | 138 | 0.0149 | 150 | 0.0198 | 0.0248 | 161 | 0.0278 | 0.0298 |
| | Duplex steel, high strength stainless steels | | 86 | 0.0087 | 0.0104 | 103 | 0.0130 | 112 | 0.0174 | 0.0217 | 120 | 0.0243 | 0.0260 |
| K Grey cast iron | 0.10xD | 5.00xD | 115 | 0.0099 | 0.0119 | 138 | 0.0149 | 150 | 0.0198 | 0.0248 | 161 | 0.0278 | 0.0298 |
| | Cast iron with spheroidal graphite iron | | 96 | 0.0088 | 0.0106 | 115 | 0.0132 | 125 | 0.0176 | 0.0220 | 134 | 0.0247 | 0.0265 |
| | Malleable cast iron GJV & ADI | | | | | | | | | | | | |
| N Aluminium-wrought alloys | 0.15xD | 5.00xD | 163 | 0.0170 | 0.0204 | 196 | 0.0255 | 212 | 0.0340 | 0.0425 | 228 | 0.0476 | 0.0510 |
| | Aluminium-cast alloys | | 120 | 0.0157 | 0.0188 | 144 | 0.0235 | 156 | 0.0313 | 0.0392 | 168 | 0.0438 | 0.0470 |
| | Copper and copper alloys | | | | | | | | | | | | |
| S Heat-resistant alloys, Fe-based | 0.08xD | 5.00xD | 96 | 0.0064 | 0.0077 | 115 | 0.0096 | 125 | 0.0128 | 0.0159 | 134 | 0.0179 | 0.0191 |
| | Heat-resistant alloys, Ni-based, CO-based | | 55 | 0.0052 | 0.0062 | 66 | 0.0078 | 72 | 0.0104 | 0.0130 | 77 | 0.0145 | 0.0155 |
| | Titanium alloys & Reintitan | | 86 | 0.0106 | 0.0128 | 103 | 0.0159 | 112 | 0.0213 | 0.0266 | 120 | 0.0298 | 0.0319 |
| H Hardened steel, hardened and tempered, < 55 HRC | 0.03xD | 5.00xD | 31 | 0.0057 | 0.0068 | 37 | 0.0085 | 40 | 0.0113 | 0.0142 | 43 | 0.0159 | 0.0170 |

FINISHING

Art. no. 6809

| Material/ISO material | $a_{e \max}$ | $a_{p \max}$ | v_c | f_z/\varnothing | | v_c | f_z/\varnothing | v_c | f_z/\varnothing | | v_c | f_z/\varnothing | |
|--|--------------|--------------|-------|-------------------|--------|-------|-------------------|-------|-------------------|--------|-------|-------------------|--------|
| | | | | 1.0 | 1.2 | | | | 1.5 | 2.0 | | 2.5 | 2.8 |
| Unalloyed steel | 0.02xD | 5.00xD | 146 | 0.0097 | 0.0117 | 175 | 0.0146 | 190 | 0.0194 | 0.0243 | 204 | 0.0272 | 0.0292 |
| P Low-alloyed steel | 0.02xD | 5.00xD | 146 | 0.0086 | 0.0104 | 175 | 0.0130 | 190 | 0.0173 | 0.0216 | 204 | 0.0242 | 0.0259 |
| High-alloyed steel and tool steel | 0.02xD | 5.00xD | 146 | 0.0065 | 0.0078 | 175 | 0.0097 | 190 | 0.0130 | 0.0162 | 204 | 0.0181 | 0.0194 |
| Stainless steel, ferritic, martensitic | 0.02xD | 5.00xD | 146 | 0.0086 | 0.0104 | 175 | 0.0130 | 190 | 0.0173 | 0.0216 | 204 | 0.0242 | 0.0259 |
| M Stainless steel, austenitic | 0.02xD | 5.00xD | 125 | 0.0076 | 0.0091 | 150 | 0.0113 | 163 | 0.0151 | 0.0189 | 175 | 0.0212 | 0.0227 |
| Duplex steel, high strength stainless steels | 0.02xD | 5.00xD | 93 | 0.0066 | 0.0079 | 112 | 0.0099 | 121 | 0.0132 | 0.0165 | 130 | 0.0185 | 0.0198 |
| Grey cast iron | 0.02xD | 5.00xD | 125 | 0.0076 | 0.0091 | 150 | 0.0113 | 163 | 0.0151 | 0.0189 | 175 | 0.0212 | 0.0227 |
| K Cast iron with spheroidal graphite iron | | | | | | | | | | | | | |
| Malleable cast iron | 0.02xD | 5.00xD | 104 | 0.0067 | 0.0081 | 125 | 0.0101 | 135 | 0.0134 | 0.0168 | 146 | 0.0188 | 0.0202 |
| GJV & ADI | | | | | | | | | | | | | |
| Aluminium-wrought alloys | 0.02xD | 5.00xD | 177 | 0.0130 | 0.0156 | 212 | 0.0194 | 230 | 0.0259 | 0.0324 | 248 | 0.0363 | 0.0389 |
| N Aluminium-cast alloys | | | | | | | | | | | | | |
| Copper and copper alloys | 0.02xD | 5.00xD | 130 | 0.0119 | 0.0143 | 156 | 0.0179 | 169 | 0.0239 | 0.0298 | 182 | 0.0334 | 0.0358 |
| Heat-resistant alloys, Fe-based | 0.02xD | 5.00xD | 104 | 0.0049 | 0.0058 | 125 | 0.0073 | 135 | 0.0097 | 0.0122 | 146 | 0.0136 | 0.0146 |
| S Heat-resistant alloys, Ni-based, CO-based | 0.02xD | 5.00xD | 60 | 0.0039 | 0.0047 | 72 | 0.0059 | 78 | 0.0079 | 0.0099 | 84 | 0.0111 | 0.0118 |
| Titanium alloys & pure titanium | 0.02xD | 5.00xD | 94 | 0.0081 | 0.0097 | 113 | 0.0122 | 122 | 0.0162 | 0.0203 | 132 | 0.0227 | 0.0243 |
| H Hardened steel, hardened and tempered, < 55 HRC | 0.01xD | 5.00xD | 34 | 0.0043 | 0.0052 | 41 | 0.0065 | 44 | 0.0086 | 0.0108 | 48 | 0.0121 | 0.0130 |

DRILLING

Art. no. 6809

| Material/ISO material | $a_{p \max}$ | v_c | f_z/\varnothing | | v_c | f_z/\varnothing | v_c | f_z/\varnothing | | v_c | f_z/\varnothing | |
|--|--------------|-------|-------------------|--------|-------|-------------------|-------|-------------------|--------|-------|-------------------|--------|
| | | | 1.0 | 1.2 | | | | 1.5 | 2.0 | | 2.5 | 2.8 |
| Unalloyed steel | 0.50xD | 84 | 0.0014 | 0.0017 | 101 | 0.0022 | 109 | 0.0029 | 0.0036 | 118 | 0.0040 | 0.0043 |
| P Low-alloyed steel | 0.50xD | 84 | 0.0013 | 0.0015 | 101 | 0.0019 | 109 | 0.0026 | 0.0032 | 118 | 0.0036 | 0.0038 |
| High-alloyed steel and tool steel | 0.25xD | 84 | 0.0010 | 0.0012 | 101 | 0.0014 | 109 | 0.0019 | 0.0024 | 118 | 0.0027 | 0.0029 |
| Stainless steel, ferritic, martensitic | 0.25xD | 84 | 0.0013 | 0.0015 | 101 | 0.0019 | 109 | 0.0026 | 0.0032 | 118 | 0.0036 | 0.0038 |
| M Stainless steel, austenitic | 0.25xD | 72 | 0.0011 | 0.0013 | 86 | 0.0017 | 94 | 0.0022 | 0.0028 | 101 | 0.0031 | 0.0034 |
| Duplex steel, high strength stainless steels | 0.25xD | 54 | 0.0010 | 0.0012 | 65 | 0.0015 | 70 | 0.0020 | 0.0024 | 76 | 0.0027 | 0.0029 |
| Grey cast iron | 0.50xD | 72 | 0.0011 | 0.0013 | 86 | 0.0017 | 94 | 0.0022 | 0.0028 | 101 | 0.0031 | 0.0034 |
| K Cast iron with spheroidal graphite iron | | | | | | | | | | | | |
| Malleable cast iron | 0.50xD | 60 | 0.0010 | 0.0012 | 72 | 0.0015 | 78 | 0.0020 | 0.0025 | 84 | 0.0028 | 0.0030 |
| GJV & ADI | | | | | | | | | | | | |
| Aluminium-wrought alloys | 0.50xD | 102 | 0.0019 | 0.0023 | 122 | 0.0029 | 133 | 0.0038 | 0.0048 | 143 | 0.0054 | 0.0058 |
| N Aluminium-cast alloys | | | | | | | | | | | | |
| Copper and copper alloys | 0.50xD | 75 | 0.0018 | 0.0021 | 90 | 0.0027 | 97.5 | 0.0035 | 0.0044 | 105 | 0.0049 | 0.0053 |
| Heat-resistant alloys, Fe-based | 0.25xD | 60 | 0.0007 | 0.0009 | 72 | 0.0011 | 78 | 0.0014 | 0.0018 | 84 | 0.0020 | 0.0022 |
| S Heat-resistant alloys, Ni-based, CO-based | 0.25xD | 34 | 0.0006 | 0.0007 | 41 | 0.0009 | 44 | 0.0012 | 0.0015 | 48 | 0.0016 | 0.0018 |
| Titanium alloys & pure titanium | 0.25xD | 54 | 0.0012 | 0.0014 | 65 | 0.0018 | 70 | 0.0024 | 0.0030 | 76 | 0.0034 | 0.0036 |

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