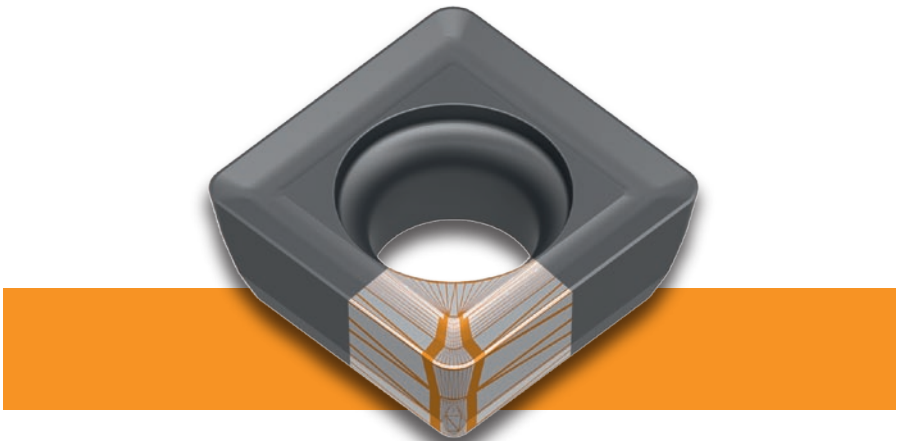


DRILLING

LT 30





S

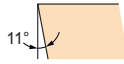
P

M

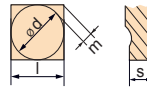
G



Shape

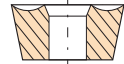


Clearance Angle



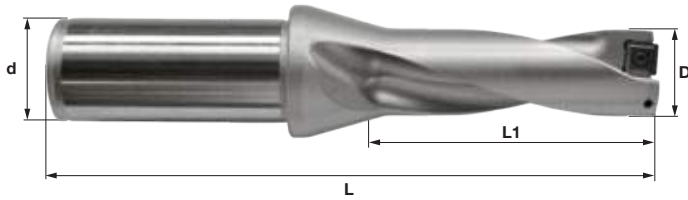
Tolerance

$d \pm 0.05$
 $m \pm 0.08$
 $s \pm 0.13$



**Fixing,
Chipbreaker**

| LT 30 | | Multi-Mat™ General Usage – Standard | | | | |
|----------------------|-------|-------------------------------------|------|-----------|-------------|--|
| Insert Designation | l | s | r | Direction | Catalog Nr. | |
| SPMG 050204 NN LT 30 | 5.0 | 2.38 | 0.40 | Neutral | M3003882 | |
| SPMG 060204 NN LT 30 | 6.0 | 2.38 | 0.40 | Neutral | M3002913 | |
| SPMG 07T308 NN LT 30 | 7.94 | 3.97 | 0.80 | Neutral | M3002914 | |
| SPMG 090408 NN LT 30 | 9.80 | 4.30 | 0.80 | Neutral | M3002915 | |
| SPMG 110408 NN LT 30 | 11.50 | 4.80 | 0.80 | Neutral | M3003883 | |



| Insert SPMG 050204 ** | | | 2xD | | | 3xD | | |
|------------------------|------|----|-----|----|------------|-----|----|------------|
| Drill Body Designation | D | d | L | L1 | Catalog Nr | L | L1 | Catalog Nr |
| LT DR125 S05-_D | 12.5 | 20 | 94 | 26 | M2003704 | 107 | 39 | M2003718 |
| LT DR130 S05-_D | 13.0 | 20 | 94 | 26 | M2003705 | 107 | 39 | M2003719 |
| LT DR135 S05-_D | 13.5 | 20 | 96 | 28 | M2003706 | 110 | 42 | M2003720 |
| LT DR140 S05-_D | 14.0 | 20 | 96 | 28 | M2003707 | 110 | 42 | M2003721 |
| LT DR145 S05-_D | 14.5 | 20 | 99 | 30 | M2003708 | 114 | 45 | M2003722 |
| LT DR150 S05-_D | 15.0 | 20 | 99 | 30 | M2003709 | 114 | 45 | M2003723 |

Screw: M2003820

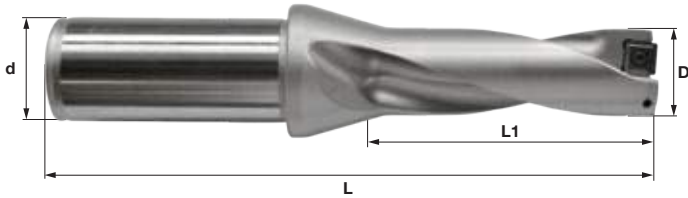
| Insert SPMG 060204 | | | 2xD | | | 3xD | | |
|------------------------|------|----|-----|----|------------|-----|----|------------|
| Drill Body Designation | D | d | L | L1 | Catalog Nr | L | L1 | Catalog Nr |
| LT DR160 S06-_D | 16.0 | 25 | 108 | 32 | M2003247 | 124 | 48 | M2003266 |
| LT DR170 S06-_D | 17.0 | 25 | 110 | 34 | M2003248 | 127 | 51 | M2003267 |
| LT DR175 S06-_D | 17.5 | 25 | 113 | 36 | M2003695 | 131 | 54 | M2003700 |
| LT DR180 S06-_D | 18.0 | 25 | 113 | 36 | M2003249 | 131 | 54 | M2003268 |
| LT DR185 S06-_D | 18.5 | 25 | 115 | 38 | M2003696 | 134 | 57 | M2003701 |
| LT DR190 S06-_D | 19.0 | 25 | 115 | 38 | M2003250 | 134 | 57 | M2003269 |
| LT DR200 S06-_D | 20.0 | 25 | 119 | 40 | M2003251 | 139 | 60 | M2003270 |
| LT DR210 S06-_D | 21.0 | 25 | 121 | 42 | M2003252 | 142 | 63 | M2003271 |

Screw: M2003823

| Insert SPMG 07T308 | | | 2xD | | | 3xD | | |
|------------------------|------|----|-----|----|------------|-----|----|------------|
| Drill Body Designation | D | d | L | L1 | Catalog Nr | L | L1 | Catalog Nr |
| LT DR220 S07-_D | 22.0 | 25 | 123 | 44 | M2003253 | 145 | 66 | M2003272 |
| LT DR230 S07-_D | 23.0 | 32 | 131 | 46 | M2003255 | 154 | 69 | M2003273 |
| LT DR240 S07-_D | 24.0 | 32 | 134 | 48 | M2003256 | 158 | 72 | M2003274 |
| LT DR250 S07-_D | 25.0 | 32 | 137 | 50 | M2003257 | 162 | 75 | M2003275 |
| LT DR260 S07-_D | 26.0 | 32 | 139 | 52 | M2003258 | 165 | 78 | M2003276 |
| LT DR265 S07-_D | 26.5 | 32 | 141 | 54 | M2003698 | 168 | 81 | M2003702 |
| LT DR270 S07-_D | 27.0 | 32 | 141 | 54 | M2003259 | 168 | 81 | M2003277 |

Screw: M2003824

** 4D for SPMG 050204 and 110408 also available on request



| Insert SPMG 090408 | | | 2xD | | | 3xD | | |
|------------------------|------|----|-----|----|------------|-----|----|------------|
| Drill Body Designation | D | d | L | L1 | Catalog Nr | L | L1 | Catalog Nr |
| LT DR280 S09-_D | 28.0 | 32 | 144 | 56 | M2003260 | 172 | 84 | M2003278 |
| LT DR290 S09-_D | 29.0 | 32 | 146 | 58 | M2003261 | 175 | 87 | M2003280 |
| LT DR295 S09-_D | 29.5 | 32 | 151 | 60 | M2003699 | 181 | 90 | M2003703 |
| LT DR300 S09-_D | 30.0 | 32 | 151 | 60 | M2003262 | 181 | 90 | M2003281 |
| LT DR310 S09-_D | 31.0 | 32 | 154 | 62 | M2003263 | 185 | 93 | M2003282 |
| LT DR320 S09-_D | 32.0 | 32 | 156 | 64 | M2003264 | 188 | 96 | M2003283 |
| LT DR330 S09-_D | 33.0 | 32 | 159 | 66 | M2003265 | 192 | 99 | M2003284 |

Screw: M2003821

| Insert SPMG 110408 ** | | | 2xD* | | | 3xD | | |
|------------------------|------|----|------|----|------------|-----|-----|------------|
| Drill Body Designation | D | d | L | L1 | Catalog Nr | L | L1 | Catalog Nr |
| LT DR340 S11-_D | 34.0 | 40 | 171 | 68 | M2003710 | 205 | 102 | M2003724 |
| LT DR350 S11-_D | 35.0 | 40 | 174 | 70 | M2003711 | 209 | 105 | M2003725 |
| LT DR360 S11-_D | 36.0 | 40 | 177 | 72 | M2003712 | 213 | 108 | M2003726 |
| LT DR370 S11-_D | 37.0 | 40 | 180 | 74 | M2003713 | 217 | 111 | M2003727 |
| LT DR380 S11-_D | 38.0 | 40 | 183 | 76 | M2003714 | 221 | 114 | M2003728 |
| LT DR390 S11-_D | 39.0 | 40 | 185 | 78 | M2003715 | 224 | 117 | M2003729 |
| LT DR400 S11-_D | 40.0 | 40 | 188 | 80 | M2003716 | 228 | 120 | M2003730 |
| LT DR410 S11-_D | 41.0 | 40 | 191 | 82 | M2003717 | 232 | 123 | M2003731 |

Screw: M2003822

* Available on request

** 4D for SPMG 050204 and 110408 also available on request

SPMG 050204 NN – LT 30

| Material Group | Gr. N° | VDI Group | Material Exemples | Hardness | Feed [mm/rev] | | V _c [m/min] | | Suggested Starting Parameters | |
|-------------------|---------------|-------------------------------|---|----------|---------------|------|------------------------|-------------|-------------------------------|----------------|
| | | | | | min | max | min | max | Feed | V _c |
| Steel | 1 | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.04 | 0.09 | 180 | 270 | 0.07 | 225 |
| | | 2 | | 190 HB | 0.04 | 0.09 | 180 | 230 | 0.07 | 205 |
| | | 3 | | 250 HB | 0.04 | 0.09 | 180 | 200 | 0.07 | 190 |
| | 2 | 6 | 42CrMo4, S150, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.04 | 0.09 | 120 | 230 | 0.07 | 175 |
| | | 4,6 | | 230 HB | 0.04 | 0.09 | 120 | 190 | 0.05 | 155 |
| | | 5,7 | | 280 HB | 0.04 | 0.09 | 100 | 170 | 0.04 | 135 |
| | | 8 | | 350 HB | 0.04 | 0.09 | 100 | 150 | 0.04 | 125 |
| | 3 | 10 | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 220 HB | 0.05 | 0.09 | 70 | 170 | 0.07 | 120 |
| | | 10 | | 280 HB | 0.05 | 0.09 | 70 | 150 | 0.07 | 110 |
| | | 11 | | 320 HB | 0.05 | 0.08 | 60 | 130 | 0.07 | 95 |
| | | 11 | | 350 HB | 0.05 | 0.08 | 60 | 100 | 0.07 | 80 |
| Stainless Steel | 4 | 304, 316, X5CrNi18-9 | 180 HB | 0.04 | 0.09 | 170 | 230 | 0.06 | 200 | |
| | | | 240 HB | 0.05 | 0.09 | 120 | 210 | 0.07 | 165 | |
| | 5 | X2CrNiN23-4, S31500 | 290 HB | 0.05 | 0.08 | 70 | 120 | 0.07 | 95 | |
| | | | 310 HB | 0.05 | 0.08 | 70 | 120 | 0.07 | 95 | |
| | 6 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.05 | 0.08 | 100 | 150 | 0.07 | 125 | |
| | | | 42 HRc | 0.04 | 0.07 | 60 | 100 | 0.05 | 80 | |
| Cast Iron | 7 | GG20, GG40, EN-GJL-250, No30B | 150 HB | 0.07 | 0.09 | 150 | 230 | 0.08 | 190 | |
| | | | 200 HB | 0.07 | 0.09 | 150 | 210 | 0.08 | 180 | |
| | | | 250 HB | 0.07 | 0.09 | 150 | 170 | 0.08 | 160 | |
| | 8 | GGG40, GGG70, 50005 | 150 HB | 0.07 | 0.09 | 120 | 200 | 0.08 | 160 | |
| 200 HB | | | 0.07 | 0.09 | 120 | 170 | 0.08 | 145 | | |
| 250 HB | | | 0.07 | 0.09 | 120 | 150 | 0.08 | 135 | | |
| High Temp. Alloys | 9 | 31,32 | Incoloy 800 | 240 HB | 0.04 | 0.07 | 25 | 35 | 0.05 | 30 |
| | | 33 | Inconel 700 | 250 HB | 0.04 | 0.07 | 25 | 35 | 0.05 | 30 |
| | | 34 | Stellite 21 | 350 HB | 0.04 | 0.07 | 23 | 35 | 0.07 | 29 |
| | 10 | 36 | TiAl6V4 | - | 0.04 | 0.07 | 35 | 60 | 0.05 | 48 |
| | | 37 | T40 | - | 0.04 | 0.07 | 28 | 40 | 0.05 | 34 |
| | Hardened Mat. | 11 | X100CrMo13, 440C, G-X260NiCr42 | 45 HRc | 0.04 | 0.07 | 50 | 90 | 0.05 | 70 |
| 50 HRc | | | | 0.04 | 0.07 | 40 | 70 | 0.05 | 55 | |
| 55 HRc | | | | 0.04 | 0.07 | 30 | 60 | 0.05 | 45 | |
| 40 | | | Ni-Hard 2 | 400 HB | 0.04 | 0.07 | 40 | 60 | 0.05 | 50 |
| 41 | | G-X300CrMo15 | 55 HRc | 0.04 | 0.07 | 30 | 50 | 0.05 | 40 | |
| MF | 12 | 25 | AlSi12 | 130 HB | 0.04 | 0.09 | 200 | 400 | 0.07 | 300 |

SPMG 060204 NN – LT 30

| Material Group | Gr. N° | VDI Group | Material Examples | Hardness | Feed [mm/rev] | | V _c [m/min] | | Suggested Starting Parameters | | |
|-------------------|------------------------|---------------------|---|-------------------------------|---------------|-------------|------------------------|-------------|-------------------------------|----------------|-------------|
| | | | | | min | max | min | max | Feed | V _c | |
| Steel | Non Alloyed | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.04 | 0.09 | 180 | 270 | 0.07 | 225 | |
| | | | | 190 HB | 0.04 | 0.09 | 180 | 230 | 0.07 | 205 | |
| | | | | 250 HB | 0.04 | 0.09 | 180 | 200 | 0.07 | 190 | |
| | Low Alloyed | 2 | 42CrMo4, St50, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.04 | 0.09 | 120 | 230 | 0.07 | 175 | |
| | | | | 230 HB | 0.04 | 0.09 | 120 | 190 | 0.07 | 155 | |
| | | | | 280 HB | 0.04 | 0.09 | 100 | 170 | 0.06 | 135 | |
| | | | | 350 HB | 0.04 | 0.09 | 100 | 150 | 0.06 | 125 | |
| | | | | 220 HB | 0.05 | 0.09 | 70 | 170 | 0.07 | 120 | |
| | High Alloyed | 3 | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 280 HB | 0.05 | 0.09 | 70 | 150 | 0.07 | 110 | |
| | | | | 320 HB | 0.05 | 0.08 | 60 | 130 | 0.07 | 95 | |
| | | | | 350 HB | 0.05 | 0.08 | 60 | 100 | 0.07 | 80 | |
| 180 HB | | | | 0.04 | 0.09 | 170 | 230 | 0.06 | 200 | | |
| Stainless Steel | Austenitic | 4 | 304, 316, X5CrNi18-9 | 240 HB | 0.05 | 0.09 | 120 | 210 | 0.07 | 165 | |
| | | | | 290 HB | 0.05 | 0.08 | 70 | 120 | 0.07 | 95 | |
| | Duplex | 5 | X2CrNiN23-4, S31500 | 310 HB | 0.05 | 0.08 | 70 | 120 | 0.07 | 95 | |
| | | | | 200 HB | 0.05 | 0.08 | 100 | 150 | 0.07 | 125 | |
| | Ferritic & Martensitic | 6 | 410, X6Cr17, 17-4 PH, 430 | 42 HRc | 0.04 | 0.07 | 60 | 100 | 0.05 | 80 | |
| | | | | 150 HB | 0.07 | 0.10 | 150 | 230 | 0.09 | 190 | |
| | Cast Iron | Grey | 7 | GG20, GG40, EN-GJL-250, Ne30B | 200 HB | 0.07 | 0.10 | 150 | 210 | 0.09 | 180 |
| | | | | | 250 HB | 0.07 | 0.10 | 150 | 170 | 0.09 | 160 |
| | | | | | 150 HB | 0.07 | 0.10 | 120 | 200 | 0.09 | 160 |
| | | Malleable & Nodular | 8 | GGG40, GGG70, 50005 | 200 HB | 0.07 | 0.10 | 120 | 170 | 0.09 | 145 |
| 250 HB | | | | | 0.07 | 0.10 | 120 | 150 | 0.09 | 135 | |
| 31,32 | | | | | Incoloy 800 | 240 HB | 0.04 | 0.07 | 25 | 35 | 0.05 |
| High Temp. Alloys | Fe, Ni & Co Based | 9 | Inconel 700 | 250 HB | 0.04 | 0.07 | 25 | 35 | 0.05 | 30 | |
| | | | Stellite 21 | 350 HB | 0.04 | 0.07 | 23 | 35 | 0.05 | 29 | |
| | | | TiAl6V4 | - | 0.04 | 0.07 | 35 | 60 | 0.05 | 45 | |
| | Ti Based | 10 | T40 | - | 0.04 | 0.07 | 28 | 40 | 0.05 | 34 | |
| | | | Hardened Mat. | 11 | Steel | X100CrMo13, | 45 HRc | 0.04 | 0.07 | 50 | 90 |
| 440C, | 50 HRc | 0.04 | | | | 0.07 | 40 | 70 | 0.05 | 55 | |
| G-X260NiCr42 | 55 HRc | 0.04 | | | | 0.07 | 30 | 60 | 0.05 | 45 | |
| Chilled Cast Iron | 40 | Ni-Hard 2 | | | 400 HB | 0.04 | 0.07 | 40 | 60 | 0.05 | 50 |
| White Cast Iron | 41 | G-X300CrMo15 | | | 55 HRc | 0.04 | 0.07 | 30 | 50 | 0.05 | 40 |
| Al (>8%Si) | 12 | 25 | AlSi12 | 130 HB | 0.04 | 0.09 | 200 | 400 | 0.07 | 300 | |

SPMG 07T308 NN – LT 30

| Material Group | Gr. N° | VDI Group | Material Exemples | Hardness | Feed [mm/rev] | | V _c [m/min] | | Suggested Starting Parameters | | |
|---------------------|--------------------------------------|-----------|---------------------------|---|---------------|--------|------------------------|------|-------------------------------|----------------|-------------|
| | | | | | min | max | min | max | Feed | V _c | |
| Steel | Non Alloyed | 1 | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.05 | 0.10 | 180 | 270 | 0.08 | 225 |
| | | | 2 | | 190 HB | 0.05 | 0.10 | 180 | 230 | 0.08 | 205 |
| | | | 3 | | 250 HB | 0.05 | 0.10 | 180 | 200 | 0.08 | 190 |
| | Low Alloyed | 2 | 6 | 42CrMo4, St50, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.05 | 0.10 | 120 | 230 | 0.08 | 175 |
| | | | 4,6 | | 230 HB | 0.05 | 0.10 | 120 | 190 | 0.08 | 155 |
| | | | 5,7 | | 280 HB | 0.05 | 0.10 | 100 | 170 | 0.07 | 135 |
| | | | 8 | | 350 HB | 0.05 | 0.10 | 100 | 150 | 0.07 | 125 |
| | High Alloyed | 3 | 10 | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 220 HB | 0.07 | 0.10 | 70 | 170 | 0.09 | 120 |
| | | | 10 | | 280 HB | 0.07 | 0.10 | 70 | 150 | 0.09 | 110 |
| | | | 11 | | 320 HB | 0.07 | 0.09 | 60 | 130 | 0.08 | 95 |
| | | | 11 | | 350 HB | 0.07 | 0.09 | 60 | 100 | 0.08 | 80 |
| Stainless Steel | Austenitic | 4 | 304, 316, X5CrNi18-9 | 180 HB | 0.05 | 0.10 | 170 | 230 | 0.07 | 200 | |
| | | | | 14 | 240 HB | 0.07 | 0.10 | 120 | 210 | 0.08 | 165 |
| | Duplex | 5 | X2CrNiN23-4, S31500 | 290 HB | 0.07 | 0.09 | 70 | 120 | 0.08 | 95 | |
| | | | | 14 | 310 HB | 0.07 | 0.09 | 70 | 120 | 0.08 | 95 |
| | Ferritic & Martensitic | 6 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.07 | 0.09 | 100 | 150 | 0.08 | 125 | |
| | | | | 13 | 42 HRc | 0.05 | 0.08 | 60 | 100 | 0.07 | 80 |
| | Cast Iron | Grey | 7 | GG20, GG40, EN-GJL-250, No30B | 150 HB | 0.10 | 0.11 | 150 | 230 | 0.11 | 190 |
| 15 | | | | | 200 HB | 0.10 | 0.11 | 150 | 210 | 0.11 | 180 |
| 16 | | | | | 250 HB | 0.10 | 0.11 | 150 | 170 | 0.11 | 160 |
| Malleable & Nodular | | 8 | GGG40, GGG70, 50005 | 150 HB | 0.10 | 0.11 | 120 | 200 | 0.11 | 160 | |
| | | | | 17,19 | 200 HB | 0.10 | 0.11 | 120 | 170 | 0.11 | 145 |
| | | | | 18,20 | 250 HB | 0.10 | 0.11 | 120 | 150 | 0.11 | 135 |
| High Temp. Alloys | Fe, Ni & Co Based | 9 | 31,32 | Incoloy 800 | 240 HB | 0.05 | 0.08 | 25 | 35 | 0.07 | 30 |
| | | | 33 | Inconel 700 | 250 HB | 0.05 | 0.08 | 25 | 35 | 0.07 | 30 |
| | | | 34 | Stellite 21 | 350 HB | 0.05 | 0.08 | 23 | 35 | 0.07 | 29 |
| | Ti Based | 10 | 36 | TiAl6V4 | - | 0.05 | 0.08 | 35 | 60 | 0.07 | 45 |
| | | | 37 | T40 | - | 0.05 | 0.08 | 28 | 40 | 0.07 | 34 |
| | | | 38 | X100CrMo13, 440C, G-X260NiCr42 | 45 HRc | 0.05 | 0.08 | 50 | 90 | 0.07 | 70 |
| Hardened Mat. | Steel | 11 | G-X260NiCr42 | 50 HRc | 0.05 | 0.08 | 40 | 70 | 0.07 | 55 | |
| | | | | 38 | 55 HRc | 0.05 | 0.08 | 30 | 60 | 0.07 | 45 |
| | Chilled Cast Iron White Cast Iron | 40 | Ni-Hard 2 | 400 HB | 0.05 | 0.08 | 40 | 60 | 0.07 | 50 | |
| | | | | 41 | G-X300CrMo15 | 55 HRc | 0.05 | 0.08 | 30 | 50 | 0.07 |
| NI Al (>8%Si) | 12 | 25 | AlSi12 | 130 HB | 0.05 | 0.10 | 200 | 400 | 0.08 | 300 | |

SPMG 090408 NN – LT 30

| Material Group | Gr. N° | VDI Group | Material Examples | Hardness | Feed [mm/rev] | | V _c [m/min] | | Suggested Starting Parameters | | | |
|---------------------|--------------------------------------|-----------|-------------------|---|-------------------------------|--------|------------------------|------|-------------------------------|----------------|-------------|------------|
| | | | | | min | max | min | max | Feed | V _c | | |
| Steel | Non Alloyed | 1 | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.06 | 0.11 | 180 | 270 | 0.09 | 225 | |
| | | | 2 | | 190 HB | 0.06 | 0.11 | 180 | 230 | 0.09 | 205 | |
| | | | 3 | | 250 HB | 0.06 | 0.11 | 180 | 200 | 0.09 | 190 | |
| | Low Alloyed | 2 | 6 | 42CrMo4, S150, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.06 | 0.11 | 120 | 230 | 0.09 | 175 | |
| | | | 4,6 | | 230 HB | 0.06 | 0.11 | 120 | 190 | 0.09 | 155 | |
| | | | 5,7 | | 280 HB | 0.06 | 0.11 | 100 | 170 | 0.08 | 135 | |
| | | | 8 | | 350 HB | 0.06 | 0.11 | 100 | 150 | 0.08 | 125 | |
| | High Alloyed | 3 | 10 | X40CrMoV5, H13, M42, D3, S6-5-2, 12N119 | 220 HB | 0.09 | 0.11 | 70 | 170 | 0.10 | 120 | |
| | | | 10 | | 280 HB | 0.09 | 0.11 | 70 | 150 | 0.10 | 110 | |
| | | | 11 | | 320 HB | 0.09 | 0.10 | 60 | 130 | 0.09 | 95 | |
| | | | 11 | | 350 HB | 0.09 | 0.10 | 60 | 100 | 0.09 | 80 | |
| Stainless Steel | Austenitic | 4 | 14 | 304, 316, X5CrNi18-9 | 180 HB | 0.06 | 0.11 | 170 | 230 | 0.08 | 200 | |
| | | | 14 | 240 HB | 0.09 | 0.11 | 120 | 210 | 0.10 | 165 | | |
| | Duplex | 5 | 14 | X2CrNiN23-4, S31500 | 290 HB | 0.09 | 0.10 | 70 | 120 | 0.09 | 95 | |
| | | | 14 | 310 HB | 0.09 | 0.10 | 70 | 120 | 0.09 | 95 | | |
| | Ferritic & Martensitic | 6 | 12 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.09 | 0.10 | 100 | 150 | 0.09 | 125 | |
| | | | 13 | 42 HRc | 0.06 | 0.09 | 60 | 100 | 0.08 | 80 | | |
| | Cast Iron | Grey | 7 | 15 | GG20, GG40, EN-GJL-250, Ne30B | 150 HB | 0.10 | 0.12 | 150 | 230 | 0.11 | 190 |
| | | | | 15 | | 200 HB | 0.10 | 0.12 | 150 | 210 | 0.11 | 180 |
| 16 | | | | 250 HB | | 0.10 | 0.12 | 150 | 170 | 0.11 | 160 | |
| Malleable & Nodular | | 8 | 17,19 | GGG40, GGG70, 50005 | 150 HB | 0.10 | 0.12 | 120 | 200 | 0.11 | 160 | |
| | | | 17,19 | | 200 HB | 0.10 | 0.12 | 120 | 170 | 0.11 | 145 | |
| | | | 18,20 | | 250 HB | 0.10 | 0.12 | 120 | 150 | 0.11 | 135 | |
| High Temp. Alloys | Fe, Ni & Co Based | 9 | 31,32 | Incoloy 800 | 240 HB | 0.06 | 0.09 | 25 | 35 | 0.08 | 30 | |
| | | | 33 | Inconel 700 | 250 HB | 0.06 | 0.09 | 25 | 35 | 0.08 | 30 | |
| | | | 34 | Stellite 21 | 350 HB | 0.06 | 0.09 | 23 | 35 | 0.08 | 29 | |
| | Ti Based | 10 | 36 | TiAl6V4 | - | 0.06 | 0.09 | 35 | 60 | 0.08 | 45 | |
| | | | 37 | T40 | - | 0.06 | 0.09 | 28 | 40 | 0.08 | 34 | |
| | | | | | | | | | | | | |
| Hardened Mat. | Steel | 11 | 38 | X100CrMo13, 440C, G-X260NiCr42 | 45 HRc | 0.06 | 0.09 | 50 | 90 | 0.08 | 70 | |
| | | | 38 | | 50 HRc | 0.06 | 0.09 | 40 | 70 | 0.08 | 55 | |
| | | | 38 | | 55 HRc | 0.06 | 0.09 | 30 | 60 | 0.08 | 45 | |
| | | | 40 | | Ni-Hard 2 | 400 HB | 0.06 | 0.09 | 40 | 60 | 0.08 | 50 |
| | Chilled Cast Iron White Cast Iron | | 41 | G-X300CrMo15 | 55 HRc | 0.06 | 0.09 | 30 | 50 | 0.08 | 40 | |
| NF Al (>8%Si) | | 12 | 25 | AlSi12 | 130 HB | 0.06 | 0.11 | 200 | 400 | 0.09 | 300 | |

SPMG 110408 NN – LT 30

| Material Group | Gr. N° | VDI Group | Material Examples | Hardness | Feed [mm/rev] | | V _c [m/min] | | Suggested Starting Parameters | |
|---------------------|------------------------|---------------------|---|----------|---------------|----------------------|------------------------|-------------|-------------------------------|----------------|
| | | | | | min | max | min | max | Feed | V _c |
| Steel | Non Alloyed | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.08 | 0.14 | 180 | 270 | 0.11 | 225 |
| | | | | 190 HB | 0.08 | 0.14 | 180 | 230 | 0.11 | 205 |
| | | | | 250 HB | 0.08 | 0.14 | 180 | 200 | 0.11 | 190 |
| | Low Alloyed | 2 | 42CrMo4, S150, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.07 | 0.14 | 120 | 230 | 0.11 | 175 |
| | | | | 230 HB | 0.07 | 0.14 | 120 | 190 | 0.07 | 155 |
| | | | | 280 HB | 0.07 | 0.14 | 100 | 170 | 0.07 | 135 |
| | | | | 350 HB | 0.07 | 0.12 | 100 | 150 | 0.07 | 125 |
| | High Alloyed | 3 | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 220 HB | 0.07 | 0.12 | 70 | 170 | 0.10 | 120 |
| | | | | 280 HB | 0.07 | 0.12 | 70 | 150 | 0.10 | 110 |
| | | | | 320 HB | 0.07 | 0.11 | 60 | 130 | 0.09 | 95 |
| | | | | 350 HB | 0.07 | 0.10 | 60 | 100 | 0.08 | 80 |
| Stainless Steel | Austenitic | 4 | 304, 316, X5CrNi18-9 | 180 HB | 0.06 | 0.11 | 170 | 230 | 0.08 | 200 |
| | | | | 240 HB | 0.09 | 0.11 | 120 | 210 | 0.10 | 165 |
| | Duplex | 5 | X2CrNiN23-4, S31500 | 290 HB | 0.06 | 0.10 | 70 | 120 | 0.08 | 95 |
| | | | | 310 HB | 0.06 | 0.09 | 70 | 120 | 0.08 | 95 |
| | Ferritic & Martensitic | 6 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.09 | 0.10 | 100 | 150 | 0.09 | 125 |
| | | | | 42 HRc | 0.06 | 0.09 | 60 | 100 | 0.08 | 80 |
| Cast Iron | Grey | 7 | GG20, GG40, EN-GJL-250, No30B | 150 HB | 0.10 | 0.15 | 150 | 230 | 0.13 | 190 |
| | | | | 200 HB | 0.10 | 0.15 | 150 | 210 | 0.13 | 180 |
| | | | | 250 HB | 0.10 | 0.15 | 150 | 170 | 0.13 | 160 |
| Malleable & Nodular | 8 | GGG40, GGG70, 50005 | 150 HB | 0.10 | 0.15 | 120 | 200 | 0.13 | 160 | |
| | | | 200 HB | 0.10 | 0.14 | 120 | 170 | 0.12 | 145 | |
| | | | 250 HB | 0.10 | 0.14 | 120 | 150 | 0.12 | 135 | |
| High Temp. Alloys | Fe, Ni & Co Based | 9 | 31,32 Incoloy 800 | 240 HB | 0.06 | 0.10 | 25 | 35 | 0.08 | 30 |
| | | | 33 Inconel 700 | 250 HB | 0.06 | 0.10 | 25 | 35 | 0.08 | 30 |
| | | | 34 Stellite 21 | 350 HB | 0.06 | 0.10 | 23 | 35 | 0.10 | 29 |
| | Ti Based | 10 | 36 TiAl6V4 | - | 0.06 | 0.09 | 35 | 60 | 0.08 | 48 |
| | | | 37 T40 | - | 0.06 | 0.09 | 28 | 40 | 0.08 | 34 |
| | | | Hardened Mat. | 11 | Steel | 38 X100CrMo13, 440C, | 45 HRc | 0.06 | 0.09 | 50 |
| G-X260NiCr42 | 50 HRc | 0.06 | | | | 0.09 | 40 | 70 | 0.08 | 55 |
| 38 | 55 HRc | 0.06 | | | | 0.09 | 30 | 60 | 0.08 | 45 |
| Chilled Cast Iron | 40 Ni-Hard 2 | 400 HB | | | 0.06 | 0.09 | 40 | 60 | 0.08 | 50 |
| White Cast Iron | 41 G-X300CrMo15 | 55 HRc | 0.06 | 0.09 | 30 | 50 | 0.08 | 40 | | |
| Al (>8%Si) | 12 | 25 | AlSi12 | 130 HB | 0.06 | 0.11 | 200 | 400 | 0.09 | 300 |



W

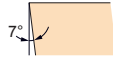
C

M

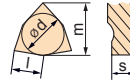
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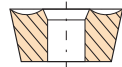
Shape



Clearance Angle



Tolerance



**Fixing,
Chipbreaker**

s ± 0.13
 For l = 04/05/06, **d** ± 0.05 **m** ± 0.08
 For l = 08, **d** ± 0.08 **m** ± 0.13

| LT 30 Multi-Mat™ General Usage – Standard | | | | | | |
|---|------|------|------|-----------|-------------|--|
| Insert Designation | l | s | r | Direction | Catalog Nr. | |
| WCMX 040208 NN LT 30 | 4.00 | 2.38 | 0.80 | Neutral | M3001122 | |
| WCMX 050308 NN LT 30 | 5.00 | 3.18 | 0.80 | Neutral | M3001121 | |
| WCMX 06T308 NN LT 30 | 6.00 | 3.97 | 0.80 | Neutral | M3000953 | |
| WCMX 080412 NN LT 30 | 8.00 | 4.76 | 1.20 | Neutral | M3000954 | |

WCMX 040208 NN – LT 30

| Material Group | Gr. N° | VDI Group | Material Examples | Hardness | Feed [mm/rev] | | V _c [m/min] | | Suggested Starting Parameters | |
|-------------------|--------|-----------|---|----------|---------------|------|------------------------|-----|-------------------------------|----------------|
| | | | | | min | max | min | max | Feed | V _c |
| Steel | 1 | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.05 | 0.10 | 180 | 270 | 0.08 | 225 |
| | | 2 | | 190 HB | 0.05 | 0.10 | 180 | 230 | 0.08 | 205 |
| | | 3 | | 250 HB | 0.05 | 0.10 | 180 | 200 | 0.08 | 190 |
| | 2 | 4,6 | 42CrMo4, St50, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.05 | 0.10 | 120 | 230 | 0.08 | 175 |
| | | 6 | | 230 HB | 0.05 | 0.10 | 120 | 190 | 0.08 | 155 |
| | | 5,7 | | 280 HB | 0.05 | 0.10 | 100 | 170 | 0.07 | 135 |
| | | 8 | | 350 HB | 0.05 | 0.10 | 100 | 150 | 0.07 | 125 |
| | 3 | 10 | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 220 HB | 0.07 | 0.10 | 70 | 170 | 0.09 | 120 |
| | | 10 | | 280 HB | 0.07 | 0.10 | 70 | 150 | 0.09 | 110 |
| | | 11 | | 320 HB | 0.07 | 0.09 | 60 | 130 | 0.08 | 95 |
| | | 11 | | 350 HB | 0.07 | 0.09 | 60 | 100 | 0.08 | 80 |
| Stainless Steel | 4 | 14 | 304, 316, X5CrNi18-9 | 180 HB | 0.05 | 0.10 | 170 | 230 | 0.07 | 200 |
| | | 14 | | 240 HB | 0.07 | 0.10 | 120 | 210 | 0.08 | 165 |
| | 5 | 14 | X2CrNiN23-4, S31500 | 290 HB | 0.07 | 0.09 | 70 | 120 | 0.08 | 95 |
| | | 14 | | 310 HB | 0.07 | 0.09 | 70 | 120 | 0.08 | 95 |
| | 6 | 12 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.07 | 0.09 | 100 | 150 | 0.08 | 125 |
| | | 13 | | 42 HRc | 0.05 | 0.08 | 60 | 100 | 0.07 | 80 |
| Cast Iron | 7 | 15 | GG20, GG40, EN-GJL-250, No30B | 150 HB | 0.09 | 0.11 | 150 | 230 | 0.10 | 190 |
| | | 15 | | 200 HB | 0.09 | 0.11 | 150 | 210 | 0.10 | 180 |
| | | 16 | | 250 HB | 0.09 | 0.11 | 150 | 170 | 0.10 | 160 |
| Cast Iron | 8 | 17,19 | GGG40, GGG70, 50005 | 150 HB | 0.09 | 0.11 | 120 | 200 | 0.10 | 160 |
| | | 17,19 | | 200 HB | 0.09 | 0.11 | 120 | 170 | 0.10 | 145 |
| | | 18,20 | | 250 HB | 0.09 | 0.11 | 120 | 150 | 0.10 | 135 |
| High Temp. Alloys | 9 | 31,32 | Incoloy 800 | 240 HB | 0.05 | 0.08 | 25 | 35 | 0.07 | 30 |
| | | 33 | Inconel 700 | 250 HB | 0.05 | 0.08 | 25 | 35 | 0.07 | 30 |
| | | 34 | Stellite 21 | 350 HB | 0.05 | 0.08 | 23 | 35 | 0.07 | 29 |
| | 10 | 36 | TiAl6V4 | - | 0.05 | 0.08 | 35 | 60 | 0.07 | 45 |
| | | 37 | T40 | - | 0.05 | 0.08 | 28 | 40 | 0.07 | 34 |
| Hardened Mat. | 11 | 38 | X100CrMo13, 440C, G-X260NiCr42 | 45 HRc | 0.05 | 0.08 | 50 | 90 | 0.07 | 70 |
| | | 38 | | 50 HRc | 0.05 | 0.08 | 40 | 70 | 0.07 | 55 |
| | | 38 | | 55 HRc | 0.05 | 0.08 | 30 | 60 | 0.07 | 45 |
| | | 40 | Ni-Hard 2 | 400 HB | 0.05 | 0.08 | 40 | 60 | 0.07 | 50 |
| | | 41 | G-X300CrMo15 | 55 HRc | 0.05 | 0.08 | 30 | 50 | 0.07 | 40 |
| NI | 12 | 25 | AlSi12 | 130 HB | 0.05 | 0.10 | 200 | 400 | 0.08 | 300 |

WCMX 050308 NN – LT 30

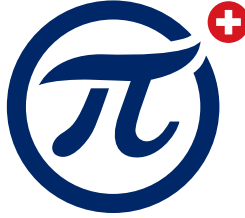
| Material Group | Gr. N° | VDI Group | Material Exemples | Hardness | Feed [mm/rev] | | V _c [m/min] | | Suggested Starting Parameters | | |
|---------------------|--------------------------------------|-----------|---------------------|---|---------------|------|------------------------|-----|-------------------------------|----------------|------------|
| | | | | | min | max | min | max | Feed | V _c | |
| Steel | Non Alloyed | 1 | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.06 | 0.11 | 180 | 270 | 0.09 | 225 |
| | | | 2 | | 190 HB | 0.06 | 0.11 | 180 | 230 | 0.09 | 205 |
| | | | 3 | | 250 HB | 0.06 | 0.11 | 180 | 200 | 0.09 | 190 |
| | Low Alloyed | 2 | 6 | 42CrMo4, S150, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.06 | 0.11 | 120 | 230 | 0.09 | 175 |
| | | | 4,6 | | 230 HB | 0.06 | 0.11 | 120 | 190 | 0.09 | 155 |
| | | | 5,7 | | 280 HB | 0.06 | 0.11 | 100 | 170 | 0.08 | 135 |
| | | | 8 | | 350 HB | 0.06 | 0.11 | 100 | 150 | 0.08 | 125 |
| | High Alloyed | 3 | 10 | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 220 HB | 0.09 | 0.11 | 70 | 170 | 0.10 | 120 |
| | | | 10 | | 280 HB | 0.09 | 0.11 | 70 | 150 | 0.10 | 110 |
| | | | 11 | | 320 HB | 0.09 | 0.10 | 60 | 130 | 0.09 | 95 |
| | | | 11 | | 350 HB | 0.09 | 0.10 | 60 | 100 | 0.09 | 80 |
| Stainless Steel | Austenitic | 4 | 14 | 304, 316, X5CrNi18-9 | 180 HB | 0.06 | 0.11 | 170 | 230 | 0.10 | 200 |
| | | | 14 | 240 HB | 0.09 | 0.11 | 120 | 210 | 0.10 | 165 | |
| | Duplex | 5 | 14 | X2CrNiN23-4, S31500 | 290 HB | 0.09 | 0.10 | 70 | 120 | 0.09 | 95 |
| | | | 14 | 310 HB | 0.09 | 0.10 | 70 | 120 | 0.09 | 95 | |
| | Ferritic & Martensitic | 6 | 12 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.09 | 0.10 | 100 | 150 | 0.09 | 125 |
| | | | 13 | 42 HRc | 0.06 | 0.09 | 60 | 100 | 0.08 | 80 | |
| Cast Iron | Grey | 7 | 15 | GG20, GG40, EN-GJL-250, No30B | 150 HB | 0.09 | 0.12 | 150 | 230 | 0.11 | 190 |
| | | | 15 | 200 HB | 0.09 | 0.12 | 150 | 210 | 0.11 | 180 | |
| | | | 16 | 250 HB | 0.09 | 0.12 | 150 | 170 | 0.11 | 160 | |
| Malleable & Nodular | 8 | 17,19 | GGG40, GGG70, 50005 | 150 HB | 0.09 | 0.12 | 120 | 200 | 0.11 | 160 | |
| | | 17,19 | | 200 HB | 0.09 | 0.12 | 120 | 170 | 0.11 | 145 | |
| | | 18,20 | | 250 HB | 0.09 | 0.12 | 120 | 150 | 0.11 | 135 | |
| High Temp. Alloys | Fe, Ni & Co Based | 9 | 31,32 | Incoloy 800 | 240 HB | 0.06 | 0.09 | 25 | 35 | 0.08 | 30 |
| | | | 33 | Inconel 700 | 250 HB | 0.06 | 0.09 | 25 | 35 | 0.08 | 30 |
| | | | 34 | Stellite 21 | 350 HB | 0.06 | 0.09 | 23 | 35 | 0.08 | 29 |
| | Ti Based | 10 | 36 | TiAl6V4 | - | 0.06 | 0.09 | 35 | 60 | 0.08 | 45 |
| | | | 37 | T40 | - | 0.06 | 0.09 | 28 | 40 | 0.08 | 34 |
| | | | | | | | | | | | |
| Hardened Mat. | Steel | 11 | 38 | X100CrMo13, 440C, G-X260NiCr42 | 45 HRc | 0.06 | 0.09 | 50 | 90 | 0.08 | 70 |
| | | | 38 | 50 HRc | 0.06 | 0.09 | 40 | 70 | 0.08 | 55 | |
| | | | 38 | 55 HRc | 0.06 | 0.09 | 30 | 60 | 0.08 | 45 | |
| | | | 40 | Ni-Hard 2 | 400 HB | 0.06 | 0.09 | 40 | 60 | 0.08 | 50 |
| | Chilled Cast Iron White Cast Iron | 41 | G-X300CrMo15 | 55 HRc | 0.06 | 0.09 | 30 | 50 | 0.08 | 40 | |
| NF Al (>8%Si) | 12 | 25 | AlSi12 | 130 HB | 0.06 | 0.11 | 200 | 400 | 0.09 | 300 | |

WCMX 06T308 NN – LT 30

| Material Group | Gr. N° | VDI Group | Material Exemples | Hardness | Feed [mm/rev] | | V _c [m/min] | | Suggested Starting Parameters | | | |
|---------------------|------------------------|-----------|---------------------|---|---------------|--------|------------------------|------|-------------------------------|----------------|-------------|-----------|
| | | | | | min | max | min | max | Feed | V _c | | |
| Steel | Non Alloyed | 1 | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.06 | 0.12 | 180 | 270 | 0.09 | 225 | |
| | | | 2 | | 190 HB | 0.06 | 0.12 | 180 | 230 | 0.09 | 205 | |
| | | | 3 | | 250 HB | 0.06 | 0.12 | 180 | 200 | 0.09 | 190 | |
| | Low Alloyed | 2 | 4,6 | 42CrMo4, S150, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.06 | 0.12 | 120 | 230 | 0.09 | 175 | |
| | | | 6 | | 230 HB | 0.06 | 0.12 | 120 | 190 | 0.09 | 155 | |
| | | | 5,7 | | 280 HB | 0.06 | 0.12 | 100 | 170 | 0.09 | 135 | |
| | | | 8 | | 350 HB | 0.06 | 0.12 | 100 | 150 | 0.09 | 125 | |
| | High Alloyed | 3 | 10 | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 220 HB | 0.08 | 0.12 | 70 | 170 | 0.10 | 120 | |
| | | | 10 | | 280 HB | 0.08 | 0.12 | 70 | 150 | 0.10 | 110 | |
| | | | 11 | | 320 HB | 0.08 | 0.11 | 60 | 130 | 0.09 | 95 | |
| | | | | | 350 HB | 0.08 | 0.11 | 60 | 100 | 0.09 | 80 | |
| Stainless Steel | Austenitic | 4 | 14 | 304, 316, X5CrNi18-9 | 180 HB | 0.06 | 0.12 | 170 | 230 | 0.09 | 200 | |
| | | | 14 | | 240 HB | 0.08 | 0.12 | 120 | 210 | 0.10 | 165 | |
| | Duplex | 5 | 14 | X2CrNiN23-4, S31500 | 290 HB | 0.08 | 0.11 | 70 | 120 | 0.09 | 95 | |
| | | | 14 | | 310 HB | 0.08 | 0.11 | 70 | 120 | 0.09 | 95 | |
| | Ferritic & Martensitic | 6 | 12 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.08 | 0.11 | 100 | 150 | 0.09 | 125 | |
| | | | 13 | | 42 HRc | 0.06 | 0.10 | 60 | 100 | 0.08 | 80 | |
| Cast Iron | Grey | 7 | 15 | GG20, GG40, EN-GJL-250, No30B | 150 HB | 0.09 | 0.13 | 150 | 230 | 0.11 | 190 | |
| | | | 15 | | 200 HB | 0.09 | 0.13 | 150 | 210 | 0.11 | 180 | |
| | | | 16 | | 250 HB | 0.09 | 0.13 | 150 | 170 | 0.11 | 160 | |
| Malleable & Nodular | 8 | 17,19 | GGG40, GGG70, 50005 | 150 HB | 0.09 | 0.13 | 120 | 200 | 0.11 | 160 | | |
| | | 17,19 | | 200 HB | 0.09 | 0.13 | 120 | 170 | 0.11 | 145 | | |
| | | 18,20 | | 250 HB | 0.09 | 0.13 | 120 | 150 | 0.11 | 135 | | |
| High Temp. Alloys | Fe, Ni & Co Based | 9 | 31,32 | Incoloy 800 | 240 HB | 0.06 | 0.10 | 25 | 35 | 0.08 | 30 | |
| | | | 33 | | Inconel 700 | 250 HB | 0.06 | 0.10 | 25 | 35 | 0.08 | 30 |
| | | | 34 | | Stellite 21 | 350 HB | 0.06 | 0.10 | 23 | 35 | 0.08 | 29 |
| | Ti Based | 10 | 36 | TiAl6V4 | - | 0.06 | 0.10 | 35 | 60 | 0.08 | 45 | |
| | | | 37 | T40 | - | 0.06 | 0.10 | 28 | 40 | 0.08 | 34 | |
| | | | | | | | | | | | | |
| Hardened Mat. | Steel | 11 | 38 | X100CrMo13, 440C, G-X260NiCr42 | 45 HRc | 0.06 | 0.10 | 50 | 90 | 0.08 | 70 | |
| | | | 38 | | 50 HRc | 0.06 | 0.10 | 40 | 70 | 0.08 | 55 | |
| | | | 38 | | 55 HRc | 0.06 | 0.10 | 30 | 60 | 0.08 | 45 | |
| | Chilled Cast Iron | 40 | Ni-Hard 2 | 400 HB | 0.06 | 0.10 | 40 | 60 | 0.08 | 50 | | |
| | | | White Cast Iron | 41 | G-X300CrMo15 | 55 HRc | 0.06 | 0.10 | 30 | 50 | 0.08 | 40 |
| Al (>8%Si) | 12 | 25 | AlSi12 | 130 HB | 0.10 | 0.12 | 200 | 400 | 0.11 | 300 | | |

WCMX 080412 NN – LT 30

| Material Group | Gr. N° | VDI Group | Material Exemples | Hardness | Feed [mm/rev] | | V _c [m/min] | | Suggested Starting Parameters | | |
|---------------------|------------------------|---------------------|---|----------|---------------|------|------------------------|-------------|-------------------------------|----------------|------------|
| | | | | | min | max | min | max | Feed | V _c | |
| Steel | Non Alloyed | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.06 | 0.16 | 180 | 270 | 0.11 | 225 | |
| | | | | 190 HB | 0.06 | 0.16 | 180 | 230 | 0.11 | 205 | |
| | | | | 250 HB | 0.06 | 0.16 | 180 | 200 | 0.11 | 190 | |
| | Low Alloyed | 2 | 42CrMo4, S150, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.06 | 0.16 | 120 | 230 | 0.11 | 175 | |
| | | | | 230 HB | 0.06 | 0.16 | 120 | 190 | 0.11 | 155 | |
| | | | | 280 HB | 0.06 | 0.15 | 100 | 170 | 0.11 | 135 | |
| | | | | 350 HB | 0.06 | 0.15 | 100 | 150 | 0.11 | 125 | |
| | High Alloyed | 3 | X40CrMoV5, H13, M42, D3, S6-5-2, 12N119 | 220 HB | 0.09 | 0.16 | 70 | 170 | 0.13 | 120 | |
| | | | | 280 HB | 0.09 | 0.16 | 70 | 150 | 0.13 | 110 | |
| | | | | 320 HB | 0.09 | 0.14 | 60 | 130 | 0.11 | 95 | |
| | | | | 350 HB | 0.09 | 0.14 | 60 | 100 | 0.11 | 80 | |
| Stainless Steel | Austenitic | 4 | 304, 316, X5CrNi18-9 | 180 HB | 0.06 | 0.15 | 170 | 230 | 0.11 | 200 | |
| | | | | 240 HB | 0.09 | 0.15 | 120 | 210 | 0.12 | 165 | |
| | Duplex | 5 | X2CrNiN23-4, S31500 | 290 HB | 0.09 | 0.14 | 70 | 120 | 0.11 | 95 | |
| | | | | 310 HB | 0.09 | 0.14 | 70 | 120 | 0.11 | 95 | |
| | Ferritic & Martensitic | 6 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.09 | 0.14 | 100 | 150 | 0.11 | 125 | |
| | | | | 42 HRc | 0.06 | 0.13 | 60 | 100 | 0.09 | 80 | |
| Cast Iron | Grey | 7 | GG20, GG40, EN-GJL-250, No30B | 150 HB | 0.10 | 0.18 | 150 | 230 | 0.14 | 190 | |
| | | | | 200 HB | 0.10 | 0.18 | 150 | 210 | 0.14 | 180 | |
| | | | | 250 HB | 0.10 | 0.18 | 150 | 170 | 0.14 | 160 | |
| Malleable & Nodular | 8 | GGG40, GGG70, 50005 | 150 HB | 0.10 | 0.18 | 120 | 200 | 0.14 | 160 | | |
| | | | 200 HB | 0.10 | 0.18 | 120 | 170 | 0.14 | 145 | | |
| | | | 250 HB | 0.10 | 0.18 | 120 | 150 | 0.14 | 135 | | |
| High Temp. Alloys | Fe, Ni & Co Based | 9 | 31,32 Incoloy 800 | 240 HB | 0.06 | 0.13 | 25 | 35 | 0.09 | 30 | |
| | | | 33 Inconel 700 | 250 HB | 0.06 | 0.13 | 25 | 35 | 0.09 | 30 | |
| | | | 34 Stellite 21 | 350 HB | 0.06 | 0.13 | 23 | 35 | 0.09 | 29 | |
| | Ti Based | 10 | 36 TiAl6V4 | - | 0.06 | 0.13 | 35 | 60 | 0.09 | 45 | |
| | | | 37 T40 | - | 0.06 | 0.13 | 28 | 40 | 0.09 | 34 | |
| | | | | | | | | | | | |
| Hardened Mat. | Steel | 11 | 38 X100CrMo13, 440C, G-X260NiCr42 | 45 HRc | 0.06 | 0.13 | 50 | 90 | 0.09 | 70 | |
| | | | | 50 HRc | 0.06 | 0.13 | 40 | 70 | 0.09 | 55 | |
| | | | | 55 HRc | 0.06 | 0.13 | 30 | 60 | 0.09 | 45 | |
| | | | 40 Ni-Hard 2 | 400 HB | 0.06 | 0.13 | 40 | 60 | 0.09 | 50 | |
| | | | 41 G-X300CrMo15 | 55 HRc | 0.06 | 0.13 | 30 | 50 | 0.09 | 40 | |
| NF | Al (>8%Si) | 12 | 25 | AlSi12 | 130 HB | 0.10 | 0.16 | 200 | 400 | 0.13 | 300 |



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