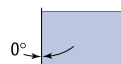


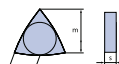
W N M G



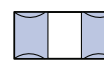
Shape
80° Diamond



Clearance Angle
0° No rake



Tolerance
l ± 0.05 m ± 0.08
s ± 0.13



Insert Type
Pin / Top clamp
Double sided

| Insert designation | Grade | l | s | r | Catalog Nr. | Page |
|----------------------|-------|---|------|-----|-------------|------|
| WNMG 060404 NN LT 10 | | 6 | 4,76 | 0,4 | T0000133 | 94 |
| WNMG 060408 NN LT 10 | | 6 | 4,76 | 0,8 | T0000137 | 95 |
| WNMG 080404 NN LT 10 | | 8 | 4,76 | 0,4 | T0000584 | 96 |
| WNMG 080408 NN LT 10 | | 8 | 4,76 | 0,8 | T0000075 | 97 |
| WNMG 080408 NR LT 10 | | 8 | 4,76 | 0,8 | T0001437 | 98 |
| WNMG 080408 NP LT 10 | | 8 | 4,76 | 0,8 | T0001967 | 99 |
| WNMG 080408 WM LT 10 | | 8 | 4,76 | 0,8 | T0000076 | 100 |
| WNMG 080412 NN LT 10 | | 8 | 4,76 | 1,2 | T0000077 | 101 |

| | Application Guide | Super Finishing | Finishing | Semi Finishing | Roughing | Interrupted Cut |
|----------------|-------------------|-----------------|-----------|----------------|----------|-----------------|
| WNMG 060404 NN | █ | █ | █ | █ | █ | █ |
| WNMG 060408 NN | █ | █ | █ | █ | █ | █ |
| WNMG 080404 NN | █ | █ | █ | █ | █ | █ |
| WNMG 080408 NN | █ | █ | █ | █ | █ | █ |
| WNMG 080408 NR | █ | █ | █ | █ | █ | █ |
| WNMG 080408 NP | █ | █ | █ | █ | █ | █ |
| WNMG 080408 WM | █ | █ | █ | █ | █ | █ |
| WNMG 080412 NN | █ | █ | █ | █ | █ | █ |

WNMG

| 1 Not Recommended | 2 Acceptable | 3 Recommended | 4 Excellent |
|-----------------------------------|-------------------------------------|---------------------------------|-------------|
| <p>Stainless Steel Vc</p> | <p>Productivity</p> | <p>STABLE MACHINE FOR WIPER</p> | |
| NN All Purpose Chipbreaker | WM Wiper Medium chip breaker | | |

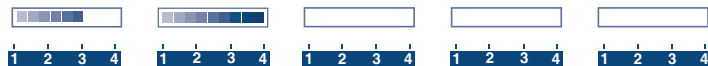
80° Trigon shape inserts, with 6 cutting edges. Suitable for all-purpose Turning, Facing and Boring operations.



| Material Group | Group No | Material Examples* | Brinell hardness | d.o.c [mm] | | feed [mm/rev] | | A max [mm ²] | V _c [m/min] | | Optimal cutting conditions | | |
|-----------------------------|----------|---|---------------------|------------|-----|---------------|------|--------------------------|------------------------|------------|----------------------------|------|------|
| | | | | min | max | min | max | | min | max | d.o.c | feed | |
| Low Carbon Steel | 1 | Ck15, Ck45 1020, 1045 | 150 | 0.20 | 3.0 | 0.11 | 0.23 | 0.60 | 180 | 350 | 2.0 | 0.18 | |
| | | | 180 | | 2.5 | | 0.20 | | | 0.48 | | | 280 |
| | | | 210 | | 2.5 | | 0.18 | | | 0.48 | | | 250 |
| Alloy Steel | 2 | 42 CrMo 4 St 50-2 Ck60 1060 4140 | 180 | 0.20 | 2.5 | 0.11 | 0.20 | 0.48 | 120 | 280 | 2.0 | 0.15 | |
| | | | 230 | | 2.5 | | 0.20 | | | 0.40 | | | 250 |
| | | | 280 | | 2.0 | 0.09 | 0.18 | 0.40 | | 210 | | | |
| | | | 320 | | 2.0 | | 0.16 | 0.32 | | 180 | | | |
| High Alloy Steel | 3 | X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42 | 220 | 0.20 | 2.5 | 0.09 | 0.18 | 0.40 | 70 | 190 | 2.0 | 0.12 | |
| | | | 280 | | 2.5 | | 0.16 | | | 0.40 | | | 150 |
| | | | 320 | | 2.0 | | 0.14 | | | 0.28 | | | 130 |
| | | | 350 | | 2.0 | | 0.14 | | | 0.24 | | | 100 |
| | | | 400 | 0.20 | 1.8 | 0.05 | 0.12 | 0.20 | | 50 | 90 | 1.7 | 0.11 |
| | | | 480 | | 1.5 | | 0.10 | 0.17 | | 40 | 80 | 1.4 | 0.09 |
| 550 | 1.4 | 0.08 | 0.13 | 30 | 70 | 1.2 | 0.07 | | | | | | |
| Austenitic Stainless Steel | 4 | X5 CrNi 18 9 304 | 210 to 250 | 0.20 | 2.5 | 0.10 | 0.18 | 0.32 | 170 | 270 | 2.0 | 0.15 | |
| | 5 | X2 CrNiMo 17 2 2 316 | 230 to 270 | | 2.0 | 0.09 | 0.16 | 0.24 | 160 | 210 | 2.0 | 0.12 | |
| | 6 | X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic | ----- | | 2.0 | 0.09 | 0.14 | 0.20 | 70 | 150 | 2.0 | 0.12 | |
| Ferritic Stainless Steel | 7 | X8 Cr 7 430 | Annealed | 0.20 | 2.0 | 0.11 | 0.18 | 0.28 | 170 | 250 | 2.0 | 0.15 | |
| Martensitic Stainless Steel | 8 | X15 Cr 13 410 | Annealed Treated | 0.20 | 2.0 | 0.11 | 0.18 | 0.28 | 170 120 | 250 190 | 2.0 | 0.12 | |
| Grey Cast Iron | 9 | GG 20 | 140 to 230 | 0.20 | 3.0 | 0.08 | 0.20 | 0.64 | 170 | 250 | 2.0 | 0.18 | |
| | | GG 25 | | | | | | 0.60 | | 230 | | | |
| | | GG 30 | | | | | | 0.60 | | 210 | | | |
| Nodular Cast Iron | 10 | GGG 40 | 210 | 0.20 | 2.5 | 0.08 | 0.18 | 0.48 | 120 | 230 | 2.0 | 0.15 | |
| | | GGG 50 | 260 | | | | | 0.40 | | 190 | | | |
| | | GGG 70 | 310 | | | | | 0.40 | | 150 | | | |
| | | G-X260NiCr42 | 450 | | | | | 0.05 | | 0.10 | | | 0.17 |
| Nickel Based Alloys | 11 | Inconel 625 | ----- | 0.20 | 2.0 | 0.10 | 0.16 | 0.24 | 25 | 35 | 2.0 | 0.12 | |
| | | Inconel 718 | ----- | | | | | 0.24 | 28 | 40 | | | |
| | | Hastelloy C | ----- | | | | | 0.28 | 40 | 65 | | | |
| Titanium Based Alloys | 12 | TiAl 6 V4 | ----- | 0.20 | 2.0 | 0.09 | 0.16 | 0.28 | 35 | 60 | 2.0 | 0.14 | |
| | | T40 | ----- | | | | 0.14 | 0.24 | 28 | 40 | 2.0 | 0.12 | |

Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

WNMG 060404 NN

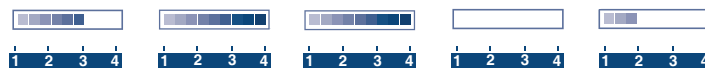


| Material Group | Group No | Material Examples* | Brinell hardness | d.o.c [mm] | | feed [mm/rev] | | A max [mm ²] | V _c [m/min] | | Optimal cutting conditions | |
|-----------------------------|----------|---|------------------|------------|------|---------------|------|--------------------------|------------------------|------------|----------------------------|------|
| | | | | min | max | min | max | | min | max | d.o.c | feed |
| Low Carbon Steel | 1 | Ck15, Ck45 1020, 1045 | 150 | 0.50 | 3.5 | 0.21 | 0.45 | 1.2 | 180 | 350 | 3.0 | 0.35 |
| | | | 180 | | 3.5 | | 0.45 | 1.2 | | 300 | | |
| | | | 210 | | 3.5 | | 0.40 | 1.0 | | 250 | | |
| Alloy Steel | 2 | 42 CrMo 4 St 50-2 Ck60 1060 4140 | 180 | 0.50 | 3.5 | 0.21 | 0.40 | 1.0 | 120 | 280 | 3.0 | 0.30 |
| | | | 230 | | 3.0 | | 0.40 | 1.0 | | 250 | | |
| | | | 280 | | 3.0 | 0.18 | 0.35 | 0.9 | | 210 | | |
| | | | 320 | | | 0.35 | 0.8 | 180 | | | | |
| High Alloy Steel | 3 | X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42 | 220 | 0.50 | 3.0 | 0.18 | 0.40 | 1.0 | 70 | 190 | 2.5 | 0.28 |
| | | | 280 | | | | 0.40 | 1.0 | | 150 | | |
| | | | 320 | | | | 0.35 | 0.7 | | 130 | | |
| | | | 350 | | | | 0.35 | 0.7 | | 100 | | |
| | | | 400 | 2.0 | 0.11 | 0.30 | 0.5 | 50 | 90 | 1.5 | 0.25 | |
| | | | 480 | | | 0.25 | 0.3 | 40 | 80 | 1.0 | 0.20 | |
| 550 | 1.0 | 0.20 | 0.2 | 30 | 70 | 0.5 | 0.18 | | | | | |
| Austenitic Stainless Steel | 4 | X5 CrNi 18 9 304 | 210 to 250 | 0.50 | 5.0 | 0.20 | 0.40 | 1.0 | 170 | 270 | 3.0 | 0.35 |
| | 5 | X2 CrNiMo 17 2 2 316 | 230 to 270 | | 4.0 | 0.18 | 0.35 | 0.8 | 160 | 210 | 3.0 | 0.32 |
| | 6 | X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic | ----- | | 4.0 | 0.18 | 0.35 | 0.6 | 70 | 150 | 2.5 | 0.28 |
| Ferritic Stainless Steel | 7 | X8 Cr 7 430 | Annealed | 0.50 | 4.0 | 0.22 | 0.35 | 0.9 | 170 | 250 | 3.0 | 0.32 |
| Martensitic Stainless Steel | 8 | X15 Cr 13 410 | Annealed Treated | 0.50 | 4.0 | 0.22 | 0.35 | 0.9 | 170 120 | 250 190 | 3.0 | 0.32 |
| Grey Cast Iron | 9 | GG 20 | 140 to 230 | 0.50 | 5.0 | 0.15 | 0.60 | 2.0 | 170 | 250 | 3.0 | 0.35 |
| | | GG 25 | | | | | | 1.8 | | 230 | | |
| | | GG 30 | | | | | | 1.8 | | 210 | | |
| Nodular Cast Iron | 10 | GGG 40 | 210 | 0.50 | 5.0 | 0.15 | 0.50 | 1.5 | 120 | 230 | 3.0 | 0.30 |
| | | GGG 50 | 260 | | | | | 1.3 | | 190 | | |
| | | GGG 70 | 310 | | | | | 1.2 | | 150 | | |
| | | G-X260NiCr42 | 450 | | | | | 0.50 | | 1.7 | | |
| Nickel Based Alloys | 11 | Inconel 625 | ----- | 0.50 | 3.0 | 0.20 | 0.35 | 0.7 | 25 | 35 | 2.0 | 0.28 |
| | | Inconel 718 | ----- | | | | | 0.7 | 28 | 40 | | |
| | | Hastelloy C | ----- | | | | | 0.8 | 40 | 65 | | |
| Titanium Based Alloys | 12 | TiAl 6 V4 | ----- | 0.50 | 3.0 | 0.18 | 0.35 | 35 | 60 | 2.0 | 0.30 | |
| | | T40 | ----- | | | | 0.30 | 0.6 | 28 | 40 | 2.0 | 0.28 |

WNMG

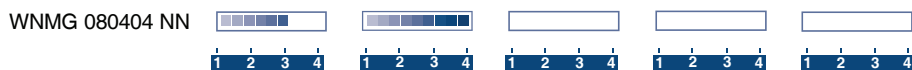
Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

WNMG 060408 NN



| Material Group | Group No | Material Examples* | Brinell hardness | d.o.c [mm] | | feed [mm/rev] | | A max [mm ²] | V _c [m/min] | | Optimal cutting conditions | | |
|-----------------------------|----------|---|---------------------|------------|-----|---------------|------|--------------------------|------------------------|------------|----------------------------|------|------|
| | | | | min | max | min | max | | min | max | d.o.c | feed | |
| Low Carbon Steel | 1 | Ck15, Ck45 1020, 1045 | 150 | 0.20 | 3.0 | 0.11 | 0.23 | 0.60 | 180 | 350 | 2.0 | 0.18 | |
| | | | 180 | | 2.5 | | 0.20 | | | 0.48 | | | 280 |
| | | | 210 | | 2.5 | | 0.18 | | | 0.48 | | | 250 |
| Alloy Steel | 2 | 42 CrMo 4 St 50-2 Ck60 1060 4140 | 180 | 0.20 | 2.5 | 0.11 | 0.20 | 0.48 | 120 | 280 | 2.0 | 0.15 | |
| | | | 230 | | 2.5 | | 0.20 | | | 0.40 | | | 250 |
| | | | 280 | | 2.0 | 0.09 | 0.18 | 0.40 | | 210 | | | |
| | | | 320 | | 2.0 | | 0.16 | 0.32 | | 180 | | | |
| High Alloy Steel | 3 | X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42 | 220 | 0.20 | 2.5 | 0.09 | 0.18 | 0.40 | 70 | 190 | 2.0 | 0.12 | |
| | | | 280 | | 2.5 | | 0.16 | | | 0.40 | | | 150 |
| | | | 320 | | 2.0 | | 0.14 | | | 0.28 | | | 130 |
| | | | 350 | | 2.0 | | 0.14 | | | 0.24 | | | 100 |
| | | | 400 | 0.20 | 1.8 | 0.05 | 0.12 | 0.20 | 50 | 90 | 1.7 | 0.11 | |
| | | | 480 | | 1.5 | | 0.10 | 0.17 | 40 | 80 | 1.4 | 0.09 | |
| | | | 550 | | 1.4 | | 0.08 | 0.13 | 30 | 70 | 1.2 | 0.07 | |
| Austenitic Stainless Steel | 4 | X5 CrNi 18 9 304 | 210 to 250 | 0.20 | 2.5 | 0.10 | 0.18 | 0.32 | 170 | 270 | 2.0 | 0.15 | |
| | 5 | X2 CrNiMo 17 2 2 316 | 230 to 270 | | 2.0 | 0.09 | 0.16 | 0.24 | 160 | 210 | 2.0 | 0.12 | |
| | 6 | X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic | ----- | | 2.0 | 0.09 | 0.14 | 0.20 | 70 | 150 | 2.0 | 0.12 | |
| Ferritic Stainless Steel | 7 | X8 Cr 7 430 | Annealed | 0.20 | 2.0 | 0.11 | 0.18 | 0.28 | 170 | 250 | 2.0 | 0.15 | |
| Martensitic Stainless Steel | 8 | X15 Cr 13 410 | Annealed Treated | 0.20 | 2.0 | 0.11 | 0.18 | 0.28 | 170 120 | 250 190 | 2.0 | 0.12 | |
| Grey Cast Iron | 9 | GG 20 | 140 to 230 | 0.20 | 3.0 | 0.08 | 0.20 | 0.64 | 170 | 250 | 2.0 | 0.18 | |
| | | GG 25 | | | | | | 0.60 | | 230 | | | |
| | | GG 30 | | | | | | 0.60 | | 210 | | | |
| Nodular Cast Iron | 10 | GGG 40 | 210 | 0.20 | 2.5 | 0.08 | 0.18 | 0.48 | 120 | 230 | 2.0 | 0.15 | |
| | | GGG 50 | 260 | | | | | 0.40 | | 190 | | | |
| | | GGG 70 | 310 | | | | | 0.40 | | 150 | | | |
| | | G-X260NiCr42 | 450 | | | | | 0.05 | | 0.10 | | | 0.17 |
| Nickel Based Alloys | 11 | Inconel 625 | ----- | 0.20 | 2.0 | 0.10 | 0.16 | 0.24 | 25 | 35 | 2.0 | 0.12 | |
| | | Inconel 718 | ----- | | | | | 0.24 | 28 | 40 | | | |
| | | Hastelloy C | ----- | | | | | 0.28 | 40 | 65 | | | |
| Titanium Based Alloys | 12 | TiAl 6 V4 | ----- | 0.20 | 2.0 | 0.09 | 0.16 | 0.28 | 35 | 60 | 2.0 | 0.14 | |
| | | T40 | ----- | | | | 0.14 | 0.24 | 28 | 40 | 2.0 | 0.12 | |

Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

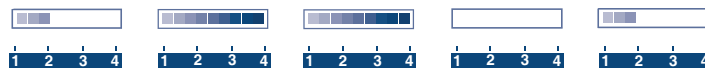


| Material Group | Group No | Material Examples* | Brinell hardness | d.o.c [mm] | | feed [mm/rev] | | A max [mm ²] | V _c [m/min] | | Optimal cutting conditions | |
|-----------------------------|----------|---|------------------|------------|------|---------------|------|--------------------------|------------------------|------------|----------------------------|------|
| | | | | min | max | min | max | | min | max | d.o.c | feed |
| Low Carbon Steel | 1 | Ck15, Ck45 1020, 1045 | 150 | 0.50 | 5.0 | 0.21 | 0.45 | 1.8 | 180 | 350 | 3.0 | 0.35 |
| | | | 180 | | 5.0 | | 0.45 | 1.8 | | 300 | | |
| | | | 210 | | 4.0 | | 0.40 | 1.5 | | 250 | | |
| Alloy Steel | 2 | 42 CrMo 4 St 50-2 Ck60 1060 4140 | 180 | 0.50 | 5.0 | 0.21 | 0.40 | 1.2 | 120 | 280 | 3.0 | 0.30 |
| | | | 230 | | 4.0 | | 0.40 | 1.2 | | 250 | | |
| | | | 280 | | 4.0 | 0.35 | 1.2 | 210 | | | | |
| | | | 320 | | 3.5 | 0.35 | 1.0 | 180 | | | | |
| High Alloy Steel | 3 | X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42 | 220 | 0.50 | 4.0 | 0.18 | 0.40 | 1.2 | 70 | 190 | 2.5 | 0.28 |
| | | | 280 | | 4.0 | | 0.40 | 1.2 | | 150 | | |
| | | | 320 | | 3.0 | | 0.35 | 0.8 | | 130 | | |
| | | | 350 | 3.0 | 0.35 | 0.8 | 100 | | | | | |
| | | | 400 | 2.5 | 0.30 | 0.6 | 50 | 90 | 2.0 | 0.25 | | |
| | | | 480 | 2.0 | 0.25 | 0.4 | 40 | 80 | 1.7 | 0.20 | | |
| 550 | 1.7 | 0.20 | 0.3 | 30 | 70 | 1.0 | 0.18 | | | | | |
| Austenitic Stainless Steel | 4 | X5 CrNi 18 9 304 | 210 to 250 | 0.50 | 5.0 | 0.20 | 0.40 | 1.0 | 170 | 270 | 3.0 | 0.35 |
| | 5 | X2 CrNiMo 17 2 2 316 | 230 to 270 | | 4.0 | 0.18 | 0.35 | 0.8 | 160 | 210 | 3.0 | 0.32 |
| | 6 | X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic | ----- | | 4.0 | 0.18 | 0.35 | 0.6 | 70 | 150 | 2.5 | 0.28 |
| Ferritic Stainless Steel | 7 | X8 Cr 7 430 | Annealed | 0.50 | 4.0 | 0.22 | 0.35 | 0.9 | 170 | 250 | 3.0 | 0.32 |
| Martensitic Stainless Steel | 8 | X15 Cr 13 410 | Annealed Treated | 0.50 | 4.0 | 0.22 | 0.35 | 0.9 | 170 120 | 250 190 | 3.0 | 0.32 |
| Grey Cast Iron | 9 | GG 20 | 140 to 230 | 0.50 | 5.0 | 0.15 | 0.60 | 2.0 | 170 | 250 | 3.0 | 0.35 |
| | | GG 25 | | | | | | 1.8 | | 230 | | |
| | | GG 30 | | | | | | 1.8 | | 210 | | |
| Nodular Cast Iron | 10 | GGG 40 | 210 | 0.50 | 5.0 | 0.15 | 0.50 | 1.5 | 120 | 230 | 3.0 | 0.30 |
| | | GGG 50 | 260 | | | | | 1.3 | | 190 | | |
| | | GGG 70 | 310 | | | | | 1.2 | | 150 | | |
| | | G-X260NiCr42 | 450 | | | | | 0.50 | | 1.7 | | |
| Nickel Based Alloys | 11 | Inconel 625 | ----- | 0.50 | 3.0 | 0.20 | 0.35 | 0.7 | 25 | 35 | 2.0 | 0.28 |
| | | Inconel 718 | ----- | | | | | 0.7 | 28 | 40 | | |
| | | Hastelloy C | ----- | | | | | 0.8 | 40 | 65 | | |
| Titanium Based Alloys | 12 | TiAl 6 V4 | ----- | 0.50 | 3.0 | 0.18 | 0.35 | 35 | 60 | 2.0 | 0.30 | |
| | | T40 | ----- | | | | 0.30 | 0.6 | 28 | 40 | 2.0 | 0.28 |

WNMG

Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

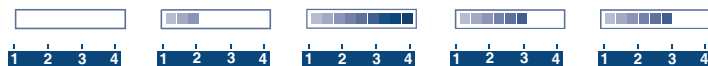
WNMG 080408 NN



| Material Group | Group No | Material Examples* | Brinell hardness | d.o.c [mm] | | feed [mm/rev] | | A max [mm ²] | V _c [m/min] | | Optimal cutting conditions | | |
|-----------------------------|----------|---|---------------------|------------|------|---------------|------|--------------------------|------------------------|------------|----------------------------|------|------|
| | | | | min | max | min | max | | min | max | d.o.c | feed | |
| Low Carbon Steel | 1 | Ck15, Ck45 1020, 1045 | 150 | 0.50 | 5.0 | 0.27 | 0.68 | 2.3 | 180 | 330 | 4.0 | 0.50 | |
| | | | 180 | | 5.0 | | 0.68 | | | 2.3 | | | 280 |
| | | | 210 | | 5.0 | | 0.60 | | | 2.0 | | | 250 |
| Alloy Steel | 2 | 42 CrMo 4 St 50-2 Ck60 1060 4140 | 180 | 0.50 | 5.0 | 0.27 | 0.60 | 2.0 | 120 | 280 | 4.0 | 0.45 | |
| | | | 230 | | 5.0 | | 0.60 | | | 1.5 | | | 250 |
| | | | 280 | | 5.0 | 0.53 | 1.5 | | | 210 | | | |
| | | | 320 | | 4.0 | 0.23 | 0.53 | | | 1.3 | | | 180 |
| High Alloy Steel | 3 | X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42 | 220 | 0.50 | 5.0 | 0.23 | 0.60 | 1.5 | 70 | 190 | 4.0 | 0.40 | |
| | | | 280 | | 5.0 | | 0.60 | | | 1.5 | | | 150 |
| | | | 320 | | 4.0 | | 0.53 | | | 1.2 | | | 130 |
| | | | 350 | | 4.0 | | 0.53 | | | 1.2 | | | 100 |
| | | | 400 | 3.5 | 0.14 | 0.45 | 0.9 | 50 | 90 | 3.4 | 0.36 | | |
| | | | 480 | 3.0 | 0.14 | 0.35 | 0.7 | 40 | 80 | 2.9 | 0.30 | | |
| 550 | 2.5 | 0.14 | 0.28 | 0.5 | 30 | 70 | 2.5 | 0.25 | | | | | |
| Austenitic Stainless Steel | 4 | X5 CrNi 18 9 304 | 210 to 250 | 0.50 | 5.0 | 0.26 | 0.52 | 1.3 | 170 | 270 | 4.0 | 0.40 | |
| | 5 | X2 CrNiMo 17 2 2 316 | 230 to 270 | | 5.0 | 0.23 | 0.46 | 1.1 | 160 | 210 | 4.0 | 0.36 | |
| | 6 | X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic | ----- | | 5.0 | 0.23 | 0.46 | 0.8 | 70 | 150 | 4.0 | 0.32 | |
| Ferritic Stainless Steel | 7 | X8 Cr 7 430 | Annealed | 0.50 | 5.0 | 0.29 | 0.46 | 1.1 | 170 | 250 | 4.0 | 0.35 | |
| Martensitic Stainless Steel | 8 | X15 Cr 13 410 | Annealed Treated | 0.50 | 5.0 | 0.29 | 0.46 | 1.1 | 170 120 | 250 190 | 4.0 | 0.35 | |
| Grey Cast Iron | 9 | GG 20 | 140 to 230 | 0.50 | 5.0 | 0.20 | 0.90 | 2.3 | 170 | 250 | 4.0 | 0.60 | |
| | | GG 25 | | | | | | 2.0 | | 230 | | | |
| | | GG 30 | | | | | | 2.0 | | 210 | | | |
| Nodular Cast Iron | 10 | GGG 40 | 210 | 0.50 | 5.0 | 0.20 | 0.70 | 1.7 | 120 | 230 | 4.0 | 0.50 | |
| | | GGG 50 | 260 | | | | | 1.5 | | 190 | | | |
| | | GGG 70 | 310 | | | | | 1.4 | | 150 | | | |
| | | G-X260NiCr42 | 450 | | | | | 0.50 | | 1.8 | | | 0.06 |
| Nickel Based Alloys | 11 | Inconel 625 | ----- | 0.50 | 5.0 | 0.26 | 0.46 | 1.1 | 25 | 35 | 3.0 | 0.38 | |
| | | Inconel 718 | ----- | | | | | 1.1 | 28 | 40 | | | |
| | | Hastelloy C | ----- | | | | | 1.2 | 40 | 65 | | | |
| Titanium Based Alloys | 12 | TiAl 6 V4 | ----- | 0.50 | 5.0 | 0.23 | 0.46 | 35 | 60 | 3.0 | 0.38 | | |
| | | T40 | ----- | | | | 0.39 | 0.9 | 28 | 40 | 3.0 | 0.32 | |

Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

WNMG 080408 NR

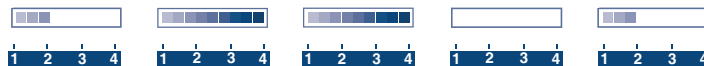


| Material Group | Group No | Material Examples* | Brinell hardness | d.o.c [mm] | | feed [mm/rev] | | A max [mm ²] | V _c [m/min] | | Optimal cutting conditions | |
|-----------------------------|----------|---|------------------|------------|------|---------------|------|--------------------------|------------------------|------------|----------------------------|------|
| | | | | min | max | min | max | | min | max | d.o.c | feed |
| Low Carbon Steel | 1 | Ck15, Ck45 1020, 1045 | 150 | 0.50 | 5.0 | 0.27 | 0.68 | 2.3 | 180 | 330 | 4.0 | 0.50 |
| | | | 180 | | 5.0 | | 0.68 | 2.3 | | 280 | | |
| | | | 210 | | 5.0 | | 0.60 | 2.0 | | 250 | | |
| Alloy Steel | 2 | 42 CrMo 4 St 50-2 Ck60 1060 4140 | 180 | 0.50 | 5.0 | 0.27 | 0.60 | 2.0 | 120 | 280 | 4.0 | 0.45 |
| | | | 230 | | 5.0 | | 0.60 | 1.5 | | 250 | | |
| | | | 280 | | 5.0 | 0.53 | 1.5 | 210 | | | | |
| | | | 320 | | 4.0 | 0.53 | 1.3 | 180 | | | | |
| High Alloy Steel | 3 | X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42 | 220 | 0.50 | 5.0 | 0.23 | 0.60 | 1.5 | 70 | 190 | 4.0 | 0.40 |
| | | | 280 | | 5.0 | | 0.60 | 1.5 | | 150 | | |
| | | | 320 | | 4.0 | | 0.53 | 1.2 | | 130 | | |
| | | | 350 | 4.0 | 0.53 | 1.2 | 100 | | | | | |
| | | | 400 | 0.50 | 3.5 | 0.14 | 0.45 | 0.9 | 50 | 90 | 3.4 | 0.36 |
| | | | 480 | | 3.0 | | 0.35 | 0.7 | 40 | 80 | 2.9 | 0.30 |
| 550 | 2.5 | 0.28 | 0.5 | 30 | 70 | 2.5 | 0.25 | | | | | |
| Austenitic Stainless Steel | 4 | X5 CrNi 18 9 304 | 210 to 250 | 0.50 | 5.0 | 0.26 | 0.52 | 1.3 | 170 | 270 | 4.0 | 0.40 |
| | 5 | X2 CrNiMo 17 2 2 316 | 230 to 270 | | 5.0 | 0.23 | 0.46 | 1.1 | 160 | 210 | 4.0 | 0.36 |
| | 6 | X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic | ----- | | 5.0 | 0.23 | 0.46 | 0.8 | 70 | 150 | 4.0 | 0.32 |
| Ferritic Stainless Steel | 7 | X8 Cr 7 430 | Annealed | 0.50 | 5.0 | 0.29 | 0.46 | 1.1 | 170 | 250 | 4.0 | 0.35 |
| Martensitic Stainless Steel | 8 | X15 Cr 13 410 | Annealed Treated | 0.50 | 5.0 | 0.29 | 0.46 | 1.1 | 170 120 | 250 190 | 4.0 | 0.35 |
| Grey Cast Iron | 9 | GG 20 | 140 to 230 | 0.50 | 5.0 | 0.20 | 0.90 | 2.3 | 170 | 250 | 4.0 | 0.60 |
| | | GG 25 | | | | | | 2.0 | | 230 | | |
| | | GG 30 | | | | | | 2.0 | | 210 | | |
| Nodular Cast Iron | 10 | GGG 40 | 210 | 0.50 | 5.0 | 0.20 | 0.70 | 1.7 | 120 | 230 | 4.0 | 0.50 |
| | | GGG 50 | 260 | | | | | 1.5 | | 190 | | |
| | | GGG 70 | 310 | | | | | 1.4 | | 150 | | |
| | | G-X260NiCr42 | 450 | | | | | 0.50 | | 1.8 | | |
| Nickel Based Alloys | 11 | Inconel 625 | ----- | 0.50 | 5.0 | 0.26 | 0.46 | 1.1 | 25 | 35 | 3.0 | 0.38 |
| | | Inconel 718 | ----- | | | | | 1.1 | 28 | 40 | | |
| | | Hastelloy C | ----- | | | | | 1.2 | 40 | 65 | | |
| Titanium Based Alloys | 12 | TiAl 6 V4 | ----- | 0.50 | 5.0 | 0.23 | 0.46 | 35 | 60 | 3.0 | 0.38 | |
| | | T40 | ----- | | | | 0.39 | 0.9 | 28 | 40 | 3.0 | 0.32 |

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WNMG 080408 NP



| Material Group | Group No | Material Examples* | Brinell hardness | d.o.c [mm] | | feed [mm/rev] | | A max [mm ²] | V _c [m/min] | | Optimal cutting conditions | |
|-----------------------------|----------|---|---------------------|------------|------|---------------|------|--------------------------|------------------------|------------|----------------------------|------|
| | | | | min | max | min | max | | min | max | d.o.c | feed |
| Low Carbon Steel | 1 | Ck15, Ck45 1020, 1045 | 150 | 0.50 | 5.0 | 0.21 | 0.45 | 1.8 | 180 | 350 | 3.0 | 0.35 |
| | | | 180 | | 5.0 | | 0.45 | | | 300 | | |
| | | | 210 | | 4.0 | | 0.40 | | | 250 | | |
| Alloy Steel | 2 | 42 CrMo 4 St 50-2 Ck60 1060 4140 | 180 | 0.50 | 5.0 | 0.21 | 0.40 | 1.2 | 120 | 280 | 3.0 | 0.30 |
| | | | 230 | | 4.0 | | 0.40 | | | 250 | | |
| | | | 280 | | 4.0 | 0.35 | 210 | | | | | |
| | | | 320 | | 3.5 | 0.35 | 180 | | | | | |
| High Alloy Steel | 3 | X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42 | 220 | 0.50 | 4.0 | 0.18 | 0.40 | 1.2 | 70 | 190 | 2.5 | 0.28 |
| | | | 280 | | 4.0 | | 0.40 | | | 150 | | |
| | | | 320 | | 3.0 | | 0.35 | | | 130 | | |
| | | | 350 | | 3.0 | | 0.35 | | | 100 | | |
| | | | 400 | 2.5 | 0.30 | 90 | | | | | | |
| | | | 480 | 2.0 | 0.25 | 80 | | | | | | |
| 550 | 1.7 | 0.20 | 70 | | | | | | | | | |
| Austenitic Stainless Steel | 4 | X5 CrNi 18 9 304 | 210 to 250 | 0.50 | 5.0 | 0.20 | 0.40 | 1.0 | 170 | 270 | 3.0 | 0.35 |
| | 5 | X2 CrNiMo 17 2 2 316 | 230 to 270 | | 4.0 | 0.18 | 0.35 | 0.8 | 160 | 210 | 3.0 | 0.32 |
| | 6 | X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic | ----- | | 4.0 | 0.18 | 0.35 | 0.6 | 70 | 150 | 2.5 | 0.28 |
| Ferritic Stainless Steel | 7 | X8 Cr 7 430 | Annealed | 0.50 | 4.0 | 0.22 | 0.35 | 0.9 | 170 | 250 | 3.0 | 0.32 |
| Martensitic Stainless Steel | 8 | X15 Cr 13 410 | Annealed Treated | 0.50 | 4.0 | 0.22 | 0.35 | 0.9 | 170 120 | 250 190 | 3.0 | 0.32 |
| Grey Cast Iron | 9 | GG 20 | 140 to 230 | 0.50 | 5.0 | 0.15 | 0.60 | 2.0 | 170 | 250 | 3.0 | 0.35 |
| | | GG 25 | | | | | | 1.8 | | 230 | | |
| | | GG 30 | | | | | | 1.8 | | 210 | | |
| Nodular Cast Iron | 10 | GGG 40 | 210 | 0.50 | 5.0 | 0.15 | 0.50 | 1.5 | 120 | 230 | 3.0 | 0.30 |
| | | GGG 50 | 260 | | | | | 1.3 | | 190 | | |
| | | GGG 70 | 310 | | | | | 1.2 | | 150 | | |
| | | G-X260NiCr42 | 450 | | | | | 0.4 | | 30 | | |
| Nickel Based Alloys | 11 | Inconel 625 | ----- | 0.50 | 3.0 | 0.20 | 0.35 | 0.7 | 25 | 35 | 2.0 | 0.28 |
| | | Inconel 718 | ----- | | | | | 0.7 | 28 | 40 | | |
| | | Hastelloy C | ----- | | | | | 0.8 | 40 | 65 | | |
| Titanium Based Alloys | 12 | TiAl 6 V4 | ----- | 0.50 | 3.0 | 0.18 | 0.35 | 35 | 60 | 2.0 | 0.30 | |
| | | T40 | ----- | | | | 0.30 | 28 | 40 | 2.0 | 0.28 | |

Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

WNMG 080408 WM



LAMINA
TECHNOLOGIES

| Material Group | Group No | Material Examples* | Brinell hardness | d.o.c [mm] | | feed [mm/rev] | | A max [mm ²] | V _c [m/min] | | Optimal cutting conditions | |
|-----------------------------|----------|---|------------------|------------|------|---------------|------|--------------------------|------------------------|------------|----------------------------|------|
| | | | | min | max | min | max | | min | max | d.o.c | feed |
| Low Carbon Steel | 1 | Ck15, Ck45 1020, 1045 | 150 | 0.50 | 5.0 | 0.27 | 0.68 | 3.1 | 180 | 330 | 4.0 | 0.50 |
| | | | 180 | | 5.0 | | 0.68 | 3.1 | | 280 | | |
| | | | 210 | | 5.0 | | 0.60 | 2.6 | | 250 | | |
| Alloy Steel | 2 | 42 CrMo 4 St 50-2 Ck60 1060 4140 | 180 | 0.50 | 5.0 | 0.27 | 0.60 | 2.6 | 120 | 280 | 4.0 | 0.45 |
| | | | 230 | | 5.0 | | 0.60 | 2.0 | | 250 | | |
| | | | 280 | | 5.0 | 0.53 | 2.0 | 210 | | | | |
| | | | 320 | | 4.0 | 0.53 | 1.7 | 180 | | | | |
| High Alloy Steel | 3 | X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42 | 220 | 0.50 | 5.0 | 0.23 | 0.60 | 2.0 | 70 | 190 | 4.0 | 0.40 |
| | | | 280 | | 5.0 | | 0.60 | 2.0 | | 150 | | |
| | | | 320 | | 4.0 | | 0.53 | 1.6 | | 130 | | |
| | | | 350 | 4.0 | 0.53 | 1.6 | 100 | | | | | |
| | | | 400 | 3.5 | 0.45 | 1.2 | 50 | 90 | 3.4 | 0.36 | | |
| | | | 480 | 0.50 | 3.0 | 0.14 | 0.35 | 0.9 | 40 | 80 | 2.9 | 0.30 |
| 550 | 2.5 | 0.28 | 0.6 | 30 | 70 | 2.5 | 0.25 | | | | | |
| Austenitic Stainless Steel | 4 | X5 CrNi 18 9 304 | 210 to 250 | 0.50 | 5.0 | 0.26 | 0.52 | 1.7 | 170 | 270 | 4.0 | 0.40 |
| | 5 | X2 CrNiMo 17 2 2 316 | 230 to 270 | | 5.0 | 0.23 | 0.46 | 1.4 | 160 | 210 | 4.0 | 0.36 |
| | 6 | X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic | ----- | | 5.0 | 0.23 | 0.46 | 1.0 | 70 | 150 | 4.0 | 0.32 |
| Ferritic Stainless Steel | 7 | X8 Cr 7 430 | Annealed | 0.50 | 5.0 | 0.29 | 0.46 | 1.5 | 170 | 250 | 4.0 | 0.35 |
| Martensitic Stainless Steel | 8 | X15 Cr 13 410 | Annealed Treated | 0.50 | 5.0 | 0.29 | 0.46 | 1.5 | 170 120 | 250 190 | 4.0 | 0.35 |
| Grey Cast Iron | 9 | GG 20 | 140 to 230 | 0.50 | 5.0 | 0.20 | 0.90 | 3.0 | 170 | 250 | 4.0 | 0.60 |
| | | GG 25 | | | | | | 2.7 | | 230 | | |
| | | GG 30 | | | | | | 2.7 | | 210 | | |
| Nodular Cast Iron | 10 | GGG 40 | 210 | 0.50 | 5.0 | 0.20 | 0.70 | 2.3 | 120 | 230 | 4.0 | 0.50 |
| | | GGG 50 | 260 | | | | | 2.0 | | 190 | | |
| | | GGG 70 | 310 | | | | | 1.8 | | 150 | | |
| | | G-X260NiCr42 | 450 | | | | | 0.50 | | 1.8 | | |
| Nickel Based Alloys | 11 | Inconel 625 | ----- | 0.50 | 5.0 | 0.26 | 0.46 | 1.4 | 25 | 35 | 3.0 | 0.38 |
| | | Inconel 718 | ----- | | | | | 1.4 | 28 | 40 | | |
| | | Hastelloy C | ----- | | | | | 1.6 | 40 | 65 | | |
| Titanium Based Alloys | 12 | TiAl 6 V4 | ----- | 0.50 | 5.0 | 0.23 | 0.46 | 1.6 | 35 | 60 | 3.0 | 0.38 |
| | | T40 | ----- | | | | 0.39 | 1.2 | 28 | 40 | 3.0 | 0.32 |

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Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

WNMG 080412 NN

