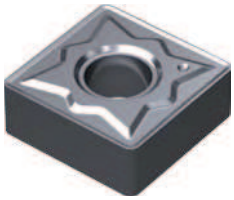
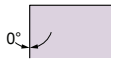
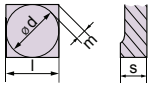


# S N M G

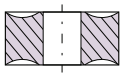

**Shape**




**Clearance Angle**




**Tolerance**
d ± 0.08
m ± 0.13
s ± 0.13



**Fixing**
**Chip breaker**

| Insert Designation | Grade | l | s | r | Catalog Nr. |
|---|---|---|---|---|---|
| **SNMG 120408 NN** | **LT 1000** | 12 | 4.76 | 0.8 | T0001921 |
| **SNMG 120408 NX*** | **LT 1000** | 12 | 4.76 | 0.8 | T0003011 |
| **SNMG 120412 NN** | **LT 1000** | 12 | 4.76 | 1.2 | T0001922 |

**NN** All purpose Chipbreaker

*Available from Q2-2013

Square inserts with strong cutting edge. Suitable for Roughing operations.

## Application Guide

| | Finishing | Medium | Roughing / Interrupted cut |
|---|---|---|---|
| **SNMG 120408 NN** | 😐 | 🙂 | 🙂 |
| **SNMG 120408 NX** | 🙂 | 🙂 | 😐 |
| **SNMG 120412 NN** | ☹ | 😐 | 🙂 |

🙂 = Good
😐 = Acceptable
☹ = Not recommended

**Finishing:**
d.o.c. = 0.30 - 1.50 mm
fn = 0.08 - 0.20 mm/rev

**Medium:**
d.o.c. = 0.70 - 4.50 mm
fn = 0.15 - 0.45 mm/rev

**Roughing**
d.o.c. = 3.00 - 7.00 mm
fn = 0.35 - 0.70 mm/rev

↑F ⇒ ↑Productivity

Feed x d.o.c. = Amax

↑$V_c$ ⇒ ↑Productivity

Machine Recommendations Guide. Details on page 10

# SNMG 120408 NN/NX LT 10 & LT 1000

| Material | Group | Gr. N° | VDI Group | Material Examples* | Hardness | D.O.C. [mm] min | D.O.C. [mm] max | Feed [mm/rev] min | Feed [mm/rev] max | Amax [mm²] | $V_c$ [m/min] min | $V_c$ [m/min] max | Optimal cutting conditions D.O.C. | Optimal cutting conditions Feed | Optimal cutting conditions $V_c$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Steel | Non-alloyed | 1 | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.5 | 5.0 | 0.30 | 0.70 | 2.54 | 180 | 330 | 3.0 | 0.50 | 240 |
| | | | 2 | | 190 HB | | 5.0 | | 0.70 | 2.54 | | 280 | | | 220 |
| | | | 3 | | 250 HB | | 5.0 | | 0.63 | 2.12 | | 250 | | | 200 |
| | Low alloyed | 2 | 6 | 42CrMo4, St50, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.5 | 5.0 | 0.30 | 0.63 | 1.69 | 120 | 280 | 3.0 | 0.45 | 200 |
| | | | 4,6 | | 230 HB | | 4.0 | 0.30 | 0.63 | 1.69 | | 250 | | 0.45 | 180 |
| | | | 5,7 | | 280 HB | | 4.0 | 0.25 | 0.56 | 1.69 | | 210 | | 0.43 | 150 |
| | | | 8 | | 350 HB | | 3.5 | 0.25 | 0.56 | 1.41 | | 180 | | 0.43 | 130 |
| | High alloyed | 3 | 10 | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 220 HB | 0.5 | 4.0 | 0.25 | 0.56 | 1.69 | 70 | 190 | 2.5 | 0.43 | 140 |
| | | | 10 | | 280 HB | | 4.0 | | 0.56 | 1.69 | | 150 | | 0.43 | 120 |
| | | | 11 | | 320 HB | | 3.0 | | 0.49 | 1.13 | | 130 | | 0.40 | 100 |
| | | | 11 | | 350 HB | | 3.0 | | 0.49 | 1.13 | | 110 | | 0.40 | 90 |
| Stainless Steel | Austenitic | 4 | 14 | 304, 316, X5CrNi18-9 | 180 HB | 0.5 | 5.0 | 0.28 | 0.56 | 1.69 | 170 | 270 | 3.0 | 0.50 | 190 |
| | | | 14 | | 240 HB | | 5.0 | | 0.56 | 1.41 | 160 | 220 | | 0.45 | 170 |
| | Duplex | 5 | 14 | X2CrNiN23-4, S31500 | 290 HB | 0.5 | 4.0 | 0.25 | 0.49 | 1.13 | 80 | 150 | 2.5 | 0.40 | 100 |
| | | | 14 | | 310 HB | | 4.0 | | 0.49 | | 70 | 140 | | | 90 |
| | Ferritic & Martensitic | 6 | 12 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.5 | 5.0 | 0.31 | 0.56 | 1.41 | 170 | 250 | 3.0 | 0.45 | 190 |
| | | | 13 | | 42 HRc | | 4.0 | | 0.56 | | 120 | 190 | 2.5 | | 130 |
| Cast Iron | Grey | 7 | 15 | GG20, GG40, EN-GJL-250, No30B | 150 HB | 0.5 | 5.0 | 0.21 | 0.84 | 2.82 | 170 | 250 | 3.0 | 0.50 | 200 |
| | | | 15 | | 200 HB | | 5.0 | | 0.84 | 2.54 | 160 | 230 | | | 180 |
| | | | 16 | | 250 HB | | 5.0 | | 0.77 | 2.54 | 150 | 210 | | | 160 |
| | Malleable & Nodular | 8 | 17,19 | GGG40, GGG70, 50005 | 150 HB | 0.5 | 5.0 | 0.21 | 0.70 | 2.12 | 120 | 250 | 3.0 | 0.43 | 180 |
| | | | 17,19 | | 200 HB | | 5.0 | | 0.70 | 1.83 | | 230 | | | 160 |
| | | | 18,20 | | 250 HB | | 5.0 | | 0.70 | 1.69 | | 190 | | | 140 |
| High Temp.Alloys | Fe, Ni & Co based | 9 | 31,32 | Incoloy 800 | 240 HB | 0.5 | 3.0 | 0.28 | 0.49 | 0.99 | 25 | 45 | 2.0 | 0.40 | 32 |
| | | | 33 | Inconel 700 | 250 HB | | 3.0 | | 0.49 | | 25 | 45 | | | 30 |
| | | | 34 | Stellite 21 | 350 HB | | 3.0 | | 0.49 | | 23 | 40 | | | 28 |
| | Ti based | 10 | 36 | TiAl6V4 | - | 0.5 | 4.0 | 0.28 | 0.56 | 1.13 | 45 | 65 | 2.0 | 0.47 | 55 |
| | | | 37 | T40 | - | | 3.0 | | 0.49 | 0.99 | 35 | 55 | | 0.43 | 45 |
| Hardened Mat. | Steel | 11 | 38 | X100CrMo13, 440C, G-X260NiCr42 | 45 HRc | 0.5 | 2.5 | 0.16 | 0.42 | 0.85 | 50 | 100 | 2.0 | 0.36 | 80 |
| | | | 38 | | 50 HRc | | 2.0 | | 0.35 | 0.56 | 40 | 90 | 1.5 | 0.28 | 70 |
| | | | 38 | | 55 HRc | | 1.5 | | 0.28 | 0.42 | 40 | 80 | 1.0 | 0.26 | 60 |
| | Chilled Cast Iron | | 40 | Ni-Hard 2 | 400 HB | 0.5 | 2.0 | 0.16 | 0.35 | 0.56 | 40 | 60 | 1.5 | 0.26 | 50 |
| | White Cast Iron | | 41 | G-X300CrMo15 | 55 HRc | 0.5 | 1.5 | 0.16 | 0.28 | 0.42 | 30 | 50 | 1.0 | 0.21 | 40 |
| NF | Al (>8%Si) | 12 | 25 | AlSi12 | 130 HB | 0.5 | 6.0 | 0.28 | 0.80 | 2.50 | 200 | 400 | 3.0 | 0.57 | 280 |

Values for lead angle (Kr)=45°; For lead angle (Kr)=75°, please limit feed to 75% of the recommended

# SNMG 120412 NN LT 10 & LT 1000

| Material Group | | Gr. N° | VDI Group | Material Examples* | Hardness | D.O.C. [mm] | | Feed [mm/rev] | | Amax [mm²] | $V_c$ [m/min] | | Optimal cutting conditions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | min | max | min | max | | min | max | D.O.C. | Feed | $V_c$ |
| Steel | Non-alloyed | 1 | 1 | C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.7 | 6.0 | 0.37 | 0.95 | 3.96 | 180 | 330 | 4.0 | 0.65 | 240 |
| | | | 2 | | 190 HB | | 6.0 | | 0.95 | 3.96 | | 280 | | | 220 |
| | | | 3 | | 250 HB | | 6.0 | | 0.86 | 3.30 | | 250 | | | 200 |
| | Low alloyed | 2 | 6 | 42CrMo4, St50, Ck60, 4140, 4340, 100Cr6 | 180 HB | 0.7 | 6.0 | 0.37 | 0.86 | 2.64 | 120 | 280 | 4.0 | 0.60 | 200 |
| | | | 4,6 | | 230 HB | | 4.8 | 0.37 | 0.86 | 2.64 | | 250 | | 0.60 | 180 |
| | | | 5,7 | | 280 HB | | 4.8 | 0.32 | 0.76 | 2.64 | | 210 | | 0.56 | 150 |
| | | | 8 | | 350 HB | | 4.2 | 0.32 | 0.76 | 2.40 | | 180 | | 0.56 | 130 |
| | High alloyed | 3 | 10 | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 220 HB | 0.7 | 4.8 | 0.32 | 0.76 | 2.64 | 70 | 190 | 3.4 | 0.56 | 140 |
| | | | 10 | | 280 HB | | 4.8 | | 0.76 | 2.64 | | 150 | | 0.56 | 120 |
| | | | 11 | | 320 HB | | 3.6 | | 0.67 | 1.76 | | 130 | | 0.52 | 100 |
| | | | 11 | | 350 HB | | 3.6 | | 0.67 | 1.76 | | 110 | | 0.52 | 90 |
| Stainless Steel | Austenitic | 4 | 14 | 304, 316, X5CrNi18-9 | 180 HB | 0.7 | 6.0 | 0.35 | 0.76 | 2.64 | 170 | 270 | 4.0 | 0.58 | 190 |
| | | | 14 | | 240 HB | | 6.0 | | 0.76 | 2.20 | 160 | 220 | | 0.52 | 170 |
| | Duplex | 5 | 14 | X2CrNiN23-4, S31500 | 290 HB | 0.7 | 4.8 | 0.32 | 0.67 | 1.76 | 80 | 150 | 3.4 | 0.46 | 100 |
| | | | 14 | | 310 HB | | 4.8 | | 0.67 | | 70 | 140 | | | 90 |
| | Ferritic & Martensitic | 6 | 12 | 410, X6Cr17, 17-4 PH, 430 | 200 HB | 0.7 | 6.0 | 0.39 | 0.76 | 2.20 | 170 | 250 | 4.0 | 0.55 | 190 |
| | | | 13 | | 42 HRc | | 4.8 | | 0.76 | | 120 | 190 | 3.0 | 0.50 | 130 |
| Cast Iron | Grey | 7 | 15 | GG20, GG40, EN-GJL-250, No30B | 150 HB | 0.7 | 6.0 | 0.30 | 1.14 | 4.40 | 170 | 250 | 4.0 | 0.65 | 200 |
| | | | 15 | | 200 HB | | 6.0 | | 1.14 | 3.96 | 160 | 230 | | | 180 |
| | | | 16 | | 250 HB | | 6.0 | | 1.05 | 3.96 | 150 | 210 | | | 160 |
| | Malleable & Nodular | 8 | 17,19 | GGG40, GGG70, 50005 | 150 HB | 0.7 | 6.0 | 0.30 | 0.95 | 3.30 | 120 | 250 | 4.0 | 0.56 | 180 |
| | | | 17,19 | | 200 HB | | 6.0 | | 0.95 | 2.86 | | 230 | | | 160 |
| | | | 18,20 | | 250 HB | | 6.0 | | 0.95 | 2.64 | | 190 | | | 140 |
| High Temp.Alloys | Fe, Ni & Co based | 9 | 31,32 | Incoloy 800 | 240 HB | 0.7 | 3.6 | 0.35 | 0.67 | 1.54 | 25 | 45 | 2.7 | 0.52 | 32 |
| | | | 33 | Inconel 700 | 250 HB | | 3.6 | | 0.67 | | 25 | 45 | | | 30 |
| | | | 34 | Stellite 21 | 350 HB | | 3.6 | | 0.67 | | 23 | 40 | | | 28 |
| | Ti based | 10 | 36 | TiAl6V4 | - | 0.7 | 4.8 | 0.35 | 0.76 | 1.76 | 45 | 65 | 2.7 | 0.58 | 55 |
| | | | 37 | T40 | - | | 3.6 | | 0.67 | 1.54 | 35 | 55 | | 0.52 | 45 |
| Hardened Mat. | Steel | 11 | 38 | X100CrMo13, 440C, G-X260NiCr42 | 45 HRc | 0.7 | 3.0 | 0.19 | 0.57 | 1.32 | 50 | 100 | 2.7 | 0.47 | 80 |
| | | | 38 | | 50 HRc | | 2.4 | | 0.48 | 0.88 | 40 | 90 | 2.0 | 0.37 | 70 |
| | | | 38 | | 55 HRc | | 1.8 | | 0.38 | 0.66 | 40 | 80 | 1.3 | 0.33 | 60 |
| | Chilled Cast Iron | | 40 | Ni-Hard 2 | 400 HB | 0.7 | 2.4 | 0.19 | 0.48 | 0.88 | 40 | 60 | 2.0 | 0.33 | 50 |
| | White Cast Iron | | 41 | G-X300CrMo15 | 55 HRc | 0.7 | 1.8 | 0.19 | 0.38 | 0.66 | 30 | 50 | 1.3 | 0.28 | 40 |
| NF | Al (>8%Si) | 12 | 25 | AlSi12 | 130 HB | 0.7 | 7.0 | 0.35 | 1.14 | 4.30 | 200 | 400 | 4.0 | 0.80 | 280 |

Values for lead angle (Kr)=45°; For lead angle (Kr)=75°, please limit feed to 75% of the recommended