



MACHINING CONDITIONS

HNKX 0604-45 LT 3000

M0004364

| Material Group | SAPPHIRE TOOLS | Material Example | Hardness | D.O.C | | Feed | | Vc | | Advised D.O.C | Advised Feed | Advised Vc |
|------------------------|---|---|---------------------------|---------|---------|-----------|-----------|------------|------------|---------------|--------------|------------|
| | | | | min[mm] | max[mm] | min[mm/t] | max[mm/t] | min[m/min] | max[m/min] | [mm] | [mm/t] | [m/min] |
| Steel | Non Alloyed | 1 C35, Ck45, 1020, 1045, 1060, 28Mn6 | 125 HB | 0.5 | 3.5 | 0.16 | 0.34 | 190 | 330 | 2.5 | 0.3 | 250 |
| | | | 190 HB | 0.5 | 3.5 | 0.16 | 0.34 | 190 | 300 | 2.5 | 0.3 | 220 |
| | | | 250 HB | 0.5 | 3.5 | 0.16 | 0.34 | 190 | 250 | 2.5 | 0.3 | 200 |
| | Low Alloyed | 2 42CrMo4, St50, Ck60, 4140, 4340, 100Cr6 | 230 HB | 0.5 | 3.5 | 0.14 | 0.28 | 150 | 210 | 2.5 | 0.26 | 180 |
| | | | 280 HB | 0.5 | 3.5 | 0.14 | 0.26 | 130 | 190 | 2.5 | 0.24 | 150 |
| | | | 180 HB | 0.5 | 3.5 | 0.14 | 0.28 | 150 | 240 | 2.5 | 0.26 | 200 |
| | High Alloyed | 3 X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 350 HB | 0.5 | 3.5 | 0.14 | 0.26 | 130 | 170 | 2.5 | 0.24 | 140 |
| | | | 220 HB | 0.5 | 3.5 | 0.11 | 0.28 | 90 | 150 | 2.5 | 0.26 | 130 |
| | | | 280 HB | 0.5 | 3.5 | 0.11 | 0.28 | 90 | 130 | 2.5 | 0.26 | 120 |
| | Stainless Steel | Austenitic | 4 304, 316, X5CrNi18-9 | 320 HB | 0.5 | 3.5 | 0.11 | 0.24 | 60 | 110 | 2.5 | 0.22 |
| 180 HB | | | | 0.5 | 3.5 | 0.14 | 0.3 | 190 | 250 | 2.5 | 0.26 | 220 |
| Duplex | | 5 X2CrNiN23-4, S31500 | 240 HB | 0.5 | 3.5 | 0.11 | 0.3 | 160 | 210 | 2.5 | 0.26 | 190 |
| | | | 290 HB | 0.5 | 3 | 0.11 | 0.25 | 70 | 130 | 1.7 | 0.22 | 100 |
| Ferritic & Martensitic | 6 410, X6Cr17, 17-4 PH, 430 | 310 HB | 0.5 | 3 | 0.11 | 0.25 | 70 | 120 | 1.7 | 0.22 | 90 | |
| | | 200 HB | 0.5 | 3.5 | 0.14 | 0.3 | 150 | 210 | 2 | 0.26 | 190 | |
| Cast Iron | Grey | 7 GG20, GG40, EN-GJL-250, N030B | 42 HRc | 0.5 | 3 | 0.14 | 0.25 | 90 | 150 | 2 | 0.22 | 130 |
| | | | 150 HB | 0.5 | 3.5 | 0.17 | 0.34 | 150 | 240 | 2 | 0.3 | 200 |
| | | | 200 HB | 0.5 | 3.5 | 0.17 | 0.34 | 150 | 220 | 2 | 0.3 | 180 |
| | Malleable & Nodular | 8 GGG40, GGG70, 50005 | 250 HB | 0.5 | 3.5 | 0.17 | 0.34 | 150 | 190 | 2 | 0.3 | 160 |
| | | | 150 HB | 0.5 | 3.5 | 0.14 | 0.3 | 100 | 200 | 2 | 0.27 | 180 |
| | | | 200 HB | 0.5 | 3.5 | 0.14 | 0.3 | 100 | 180 | 2 | 0.27 | 150 |
| NTI Alloy | Fe, Ni & Co Based | 9 Incoloy 800, Inconel 700, Stellite 21 | 250 HB | 0.5 | 3.5 | 0.14 | 0.3 | 100 | 150 | 2 | 0.27 | 130 |
| | | | 240 HB | 0.5 | 3 | 0.11 | 0.2 | 30 | 50 | 1.7 | 0.18 | 32 |
| | | | 250 HB | 0.5 | 3 | 0.11 | 0.2 | 30 | 50 | 1.7 | 0.18 | 30 |
| Ti Based | 10 T40, TiAl6V4 | T40 | - | 0.5 | 3 | 0.11 | 0.23 | 30 | 60 | 1.7 | 0.2 | 40 |
| | | TiAl6V4 | - | 0.5 | 3 | 0.11 | 0.25 | 40 | 70 | 1.7 | 0.23 | 55 |
| Hardened Materials | Steel Chilled, Cast Iron, White Cast Iron | 11 G-X300CrMo15, Ni-Hard 2, X100CrMo13, 440C, G-X260NiCr42 | 55 HRc | 0.4 | 1 | 0.1 | 0.2 | 30 | 60 | 0.7 | 0.17 | 40 |
| | | | 400 HB | 0.4 | 1.5 | 0.1 | 0.22 | 40 | 80 | 1 | 0.19 | 50 |
| | | | 45 HRc | 0.4 | 1.5 | 0.1 | 0.22 | 40 | 80 | 1 | 0.18 | 60 |
| | | | 50 HRc | 0.4 | 1.5 | 0.1 | 0.2 | 40 | 70 | 1 | 0.16 | 55 |
| | | | 55 HRc | 0.4 | 1 | 0.1 | 0.18 | 40 | 60 | 0.7 | 0.15 | 50 |
| Aluminium | Al (>8%Si) | 12 AlSi12 | 130 HB | 0.5 | 3.5 | 0.17 | 0.36 | 200 | 400 | 2 | 0.3 | 280 |