# Speeds and Feeds

Carbide Grade C2 for [M] Stainless steel, [K] Cast Iron, [N] Non Ferrous and [S] High Temp Alloys

| ISO | VDI 3323 | Material Dscription | Composition/Structure/Heat Treatment | | HB | HRc | | Speed(SFM) | Feed (IPR) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | AlCrN | 3/8 ~ 1/2 | 33/64 ~ 11/16 | 45/64 ~ 15/16 | 31/32 ~ 1-3/8 | 1-13/32 ~ 1-7/8 |
| M | 12 | Stainless Steel | Ferritic/Martensitic | Annealed | 200 | 15 | ◎ | 154 | 0.004 | 0.007 | 0.008 | 0.009 | 0.012 |
| | 13 | | Martensitic | Quenched&tempered | 240 | 23 | ◎ | 154 | 0.004 | 0.007 | 0.008 | 0.009 | 0.012 |
| | 14 | | | Austenitic | 180 | 10 | ◎ | 180 | 0.005 | 0.008 | 0.009 | 0.011 | 0.014 |
| K | 15 | Grey cast iron | Pearlitic/Ferritic | | 180 | 10 | ○ | 449 | 0.007 | 0.010 | 0.013 | 0.017 | 0.021 |
| | 16 | | Pearlitic(Martensitic) | | 260 | 26 | ○ | 305 | 0.005 | 0.007 | 0.009 | 0.011 | 0.013 |
| | 17 | Nodular cast iron | Ferritic | | 160 | 3 | ○ | 410 | 0.007 | 0.010 | 0.013 | 0.017 | 0.021 |
| | 18 | | Pearlitic | | 250 | 25 | ○ | 259 | 0.005 | 0.006 | 0.011 | 0.013 | 0.015 |
| | 19 | Malleable cast iron | Ferritic | | 130 | | ○ | 449 | 0.007 | 0.012 | 0.015 | 0.018 | 0.022 |
| | 20 | | Pearlitic | | 230 | 21 | ○ | 259 | 0.005 | 0.006 | 0.011 | 0.013 | 0.015 |
| N | 21 | Aluminum-wrought alloy | Not Curable | | 60 | | ○ | 1401 | 0.009 | 0.015 | 0.018 | 0.020 | 0.021 |
| | 22 | | Curable | Hardened | 100 | | ○ | 954 | 0.009 | 0.013 | 0.016 | 0.018 | 0.019 |
| | 23 | Aluminum-cast, alloyed | ≤12% Si, Not Curable | | 75 | | | | | | | | |
| | 24 | | ≤12% Si, Curable | Hardened | 90 | | | | | | | | |
| | 25 | | >12% Si, Not Curable | | 130 | | | | | | | | |
| | 26 | Copper and copper alloys(Bronze/Brass) | Cutting Alloys, PB>1% | | 110 | | | | | | | | |
| | 27 | | CuZn,CuSnZn(Brass) | | 90 | | ○ | 633 | 0.006 | 0.009 | 0.011 | 0.015 | 0.019 |
| | 28 | | CuSn, lead-free copper and electrolytic copper | | 100 | | | | | | | | |
| | 29 | Non-metallic materials | Duroplastic, Fiber Reinforced Plastic | | | | | | | | | | |
| | 30 | | Rubber, Wood, etc. | | | | | | | | | | |
| S | 31 | Heat resistant super alloys | Fe Based | Annealed | 200 | 15 | ○ | 203 | 0.007 | 0.007 | 0.008 | 0.009 | 0.012 |
| | 32 | | | Aged | 280 | 30 | ○ | 151 | 0.006 | 0.007 | 0.008 | 0.008 | 0.010 |
| | 33 | | Ni or Co Based | Annealed | 250 | 25 | ○ | 151 | 0.006 | 0.007 | 0.008 | 0.008 | 0.010 |
| | 34 | | | Aged | 350 | 38 | ○ | 151 | 0.006 | 0.007 | 0.008 | 0.008 | 0.010 |
| | 35 | | | Cast | 320 | 34 | ○ | 151 | 0.006 | 0.007 | 0.008 | 0.008 | 0.010 |
| | 36 | Titanium alloys | Pure Titanium | | 400 Rm | | | | | | | | |
| | 37 | | Alpha + Beta Alloys | Hardened | 1050 Rm | | | | | | | | |

◎ Primary Material ○ Secondary Material