

| Material group | Hardness | | SFM | Feed Rate - IPR | | | | | | | | | |
|---|----------|-------|-----|----------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|--------------------|------------------------|------------------------|
| | HRC | BHN | | 1/16 in. 1.590 mm | 1/8 in. 3.170 mm | 1/4 in. 6.350 mm | 3/8 in. 9.520 mm | 1/2 in. 12.700 mm | 5/8 in. 15.870 mm | 3/4 in. 19.050 mm | 1 in. 25.400 mm | 1 1/4 in. 31.750 mm | 1 1/2 in. 38.100 mm |
| Common structural steels | - | ≤ 150 | 115 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | 0.0125 | | | | | |
| | ≤ 32 | ≤ 301 | 90 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | 0.0100 | | | | | |
| Free-cutting steels | ≤ 25 | ≤ 255 | 115 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | 0.0125 | | | | | |
| | ≤ 32 | ≤ 301 | 90 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | 0.0100 | | | | | |
| Unalloyed heat-treatable steels | ≤ 20 | ≤ 220 | 115 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | 0.0100 | | | | | |
| | ≤ 25 | ≤ 255 | 90 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | 0.0100 | | | | | |
| | ≤ 32 | ≤ 301 | 70 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| Alloyed heat-treatable steels | ≤ 32 | ≤ 301 | 55 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Unalloyed case hardened steels | ≤ 25 | ≤ 255 | 115 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | 0.0125 | | | | | |
| Alloyed case hardened steels | ≤ 32 | ≤ 301 | 45 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Nitriding steels | ≤ 32 | ≤ 301 | 35 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Tool steels | ≤ 25 | ≤ 255 | 55 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| | ≤ 43 | ≤ 402 | 25 | 0.0010 | 0.0025 | 0.0040 | 0.0050 | 0.0065 | | | | | |
| High speed steels | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Spring steels | ≤ 38 | ≤ 354 | | | | | | | | | | | |
| Hardened steels | ≤ 48 | ≤ 460 | | | | | | | | | | | |
| | ≤ 66 | - | | | | | | | | | | | |
| Stainless steels, sulphured austenitic | ≤ 28 | ≤ 273 | | | | | | | | | | | |
| | ≤ 36 | ≤ 337 | | | | | | | | | | | |
| | ≤ 46 | ≤ 435 | | | | | | | | | | | |
| Cast iron | ≤ 23 | ≤ 242 | 115 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | 0.0125 | | | | | |
| | ≤ 38 | ≤ 354 | 90 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | 0.0125 | | | | | |
| Spheroidal graphite iron and malleable cast iron | ≤ 23 | ≤ 242 | 90 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | 0.0125 | | | | | |
| | ≤ 38 | ≤ 354 | 70 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | 0.0125 | | | | | |
| Chilled cast iron | ≤ 38 | ≤ 354 | | | | | | | | | | | |
| New cast materials GGV | ≤ 20 | ≤ 220 | | | | | | | | | | | |
| | ≤ 32 | ≤ 301 | | | | | | | | | | | |
| New cast materials ADI | ≤ 32 | ≤ 301 | | | | | | | | | | | |
| | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Special alloys | ≤ 54 | ≤ 549 | | | | | | | | | | | |
| Ti and Ti-alloys | ≤ 25 | ≤ 255 | | | | | | | | | | | |
| | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Aluminium and Al-alloys | - | ≤ 120 | | | | | | | | | | | |
| Al wrought alloys | - | ≤ 200 | | | | | | | | | | | |
| Al cast alloys ≤ 10 % Si | - | ≤ 180 | 225 | 0.0020 | 0.0065 | 0.0100 | 0.0125 | 0.0160 | | | | | |
| ≤ 24 % Si | - | ≤ 180 | 180 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | 0.0125 | | | | | |
| Magnesium alloys | - | ≤ 120 | 310 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | 0.0125 | | | | | |
| Copper, low-alloyed | - | ≤ 150 | 115 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | 0.0100 | | | | | |
| Brass, short-chipping | - | ≤ 180 | | | | | | | | | | | |
| long-chipping | - | ≤ 180 | 145 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | 0.0100 | | | | | |
| Bronze, short-chipping | - | ≤ 180 | 115 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| | ≤ 25 | ≤ 255 | 90 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| Bronze, long-chipping | ≤ 25 | ≤ 255 | 90 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| | ≤ 32 | ≤ 301 | 70 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| Duroplastics | | | 55 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| Thermoplastics | | | 90 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | 0.0100 | | | | | |
| Reinforced plastics - Kevlar | | | | | | | | | | | | | |
| Reinforced plastics - GFK / CFK | | | | | | | | | | | | | |

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| Unalloyed heat-treatable steels | ≤ 20 | ≤ 220 | 115 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | | | | | | |
| | ≤ 25 | ≤ 255 | 90 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | | | | | | |
| | ≤ 32 | ≤ 301 | 70 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | | | | | | |
| Alloyed heat-treatable steels | ≤ 32 | ≤ 301 | 55 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | | | | | | |
| | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Unalloyed case hardened steels | ≤ 25 | ≤ 255 | 115 | 0.0017 | 0.0050 | 0.0080 | 0.0100 | | | | | | |
| Alloyed case hardened steels | ≤ 32 | ≤ 301 | 45 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | | | | | | |
| | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Nitriding steels | ≤ 32 | ≤ 301 | 35 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | | | | | | |
| | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Tool steels | ≤ 25 | ≤ 255 | 55 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | | | | | | |
| | ≤ 43 | ≤ 402 | 25 | 0.0010 | 0.0025 | 0.0040 | 0.0050 | | | | | | |
| High speed steels | ≤ 43 | ≤ 402 | | | | | | | | | | | |
| Spring steels | ≤ 38 | ≤ 354 | | | | | | | | | | | |
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| long-chipping | - | ≤ 180 | 145 | 0.0015 | 0.0040 | 0.0065 | 0.0080 | 0.0100 | | | | | |
| Bronze, short-chipping | - | ≤ 180 | 115 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| | ≤ 25 | ≤ 255 | 90 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| Bronze, long-chipping | ≤ 25 | ≤ 255 | 90 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
| | ≤ 32 | ≤ 301 | 70 | 0.0012 | 0.0030 | 0.0050 | 0.0065 | 0.0080 | | | | | |
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| Reinforced plastics - Kevlar | | | | | | | | | | | | | |
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