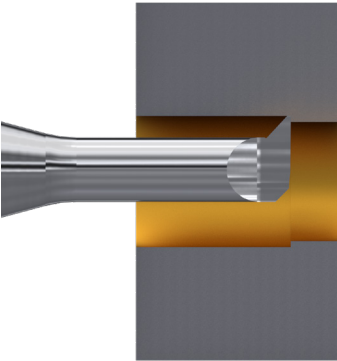




|   |                                                                           | VDI 3323  |                                                                                     | feste Werkzeuge<br>Vc[m/min] | angetriebene<br>Werkzeuge<br>Vc[m/min] |
|---|---------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| P | Unlegierter Stahl, Automaten Stahl                                        | 1 - 5     |  | 100 - 150                    | 70 - 110                               |
|   | Niedrig legierter Stahl < 800 N/ mm²                                      | 6 - 9     |                                                                                     | 70 - 120                     | 50 - 80                                |
|   | Hochlegierter Stahl > 800 N/mm², ferritischer / martensitischer Edelstahl | 10 - 13   |                                                                                     | 30 - 70                      | 20 - 50                                |
| M | Austenitischer rostfreier Stahl < 700 N/mm²                               | 14.1-14.2 |                                                                                     | 50 - 80                      | 40 - 60                                |
|   | Nickelfreier rostfreier Stahl / DUPLEX > 700 N/mm²                        | 14.3-14.4 |                                                                                     | 30 - 70                      | 20 - 50                                |
| K | Grauguss < 250 HB                                                         | 15 - 16   |                                                                                     | 60 - 150                     | 40 - 110                               |
|   | Duktiles Gusseisen, Temperguss > 250 HB                                   | 17 - 20   |                                                                                     | 30 - 90                      | 20 - 60                                |
| N | Alu-Knetlegierung < 12% Si                                                | 21 - 22   |                                                                                     | 200 - 400                    | 140 - 280                              |
|   | Alu-Gusslegierung >12% Si                                                 | 23 - 25   |                                                                                     | 180 - 350                    | 130 - 250                              |
|   | Kupferlegierung gute Zerspanbarkeit mit Pb                                | 26        |                                                                                     | 150 - 250                    | 110 - 180                              |
|   | Kupferlegierung schwere Zerspanbarkeit                                    | 27 - 28   |                                                                                     | 120 - 160                    | 80 - 110                               |
|   | Kunststoff, Holz                                                          | 29 - 30   |                                                                                     | 200 - 300                    | 140 - 210                              |
|   | Gold, Silber                                                              | -         |                                                                                     | 150 - 250                    | 110 - 180                              |
| S | Spezielle Nickel-Kobalt-Legierung                                         | 31 - 35   |                                                                                     | 10 - 20                      | 10 - 10                                |
|   | Titan, Titanlegierung                                                     | 36 - 37   |                                                                                     | 15 - 40                      | 10 - 30                                |

$$n \text{ [U/min]} = \frac{Vc \text{ [m/min]} \times 1000}{\pi \times D_1 \text{ [mm]}}$$

$$Vf \text{ [mm/min]} = n \text{ [U/min]} \times f \text{ [mm]}$$

| Vorschub pro Zahn fz [mm]       |                                 |                                  |                                 |                                 |                                  |                                   |  |
|---------------------------------|---------------------------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|-----------------------------------|--|
| Ø D <sub>1</sub><br>0.20 - 0.50 | Ø D <sub>1</sub><br>0.50 - 0.80 | Ø D <sub>1</sub><br>08.00 - 1.00 | Ø D <sub>1</sub><br>1.00 - 3.00 | Ø D <sub>1</sub><br>3.00 - 6.00 | Ø D <sub>1</sub><br>6.00 - 10.00 | Ø D <sub>1</sub><br>10.00 - 20.00 |  |
| 0.002 - 0.005                   | 0.005 - 0.008                   | 0.008 - 0.010                    | 0.010 - 0.030                   | 0.024 - 0.049                   | 0.036 - 0.060                    | 0.040 - 0.080                     |  |
| 0.002 - 0.005                   | 0.004 - 0.007                   | 0.007 - 0.009                    | 0.009 - 0.027                   | 0.027 - 0.053                   | 0.054 - 0.060                    | 0.030 - 0.070                     |  |
| 0.002 - 0.004                   | 0.004 - 0.006                   | 0.006 - 0.008                    | 0.008 - 0.024                   | 0.024 - 0.047                   | 0.048 - 0.050                    | 0.030 - 0.070                     |  |
| 0.001 - 0.004                   | 0.004 - 0.006                   | 0.006 - 0.007                    | 0.007 - 0.022                   | 0.022 - 0.044                   | 0.044 - 0.050                    | 0.030 - 0.060                     |  |
| 0.001 - 0.003                   | 0.003 - 0.005                   | 0.005 - 0.006                    | 0.006 - 0.018                   | 0.018 - 0.035                   | 0.036 - 0.040                    | 0.020 - 0.050                     |  |
| 0.003 - 0.008                   | 0.007 - 0.012                   | 0.012 - 0.015                    | 0.015 - 0.044                   | 0.044 - 0.089                   | 0.088 - 0.090                    | 0.060 - 0.120                     |  |
| 0.002 - 0.006                   | 0.006 - 0.009                   | 0.009 - 0.012                    | 0.012 - 0.035                   | 0.035 - 0.071                   | 0.070 - 0.070                    | 0.050 - 0.100                     |  |
| 0.004 - 0.011                   | 0.011 - 0.017                   | 0.017 - 0.022                    | 0.022 - 0.065                   | 0.065 - 0.130                   | 0.130 - 0.140                    | 0.080 - 0.180                     |  |
| 0.004 - 0.010                   | 0.010 - 0.016                   | 0.016 - 0.020                    | 0.020 - 0.059                   | 0.059 - 0.118                   | 0.118 - 0.120                    | 0.080 - 0.170                     |  |
| 0.004 - 0.010                   | 0.010 - 0.016                   | 0.016 - 0.020                    | 0.020 - 0.059                   | 0.059 - 0.118                   | 0.118 - 0.120                    | 0.080 - 0.170                     |  |
| 0.002 - 0.006                   | 0.006 - 0.010                   | 0.010 - 0.012                    | 0.012 - 0.037                   | 0.037 - 0.074                   | 0.074 - 0.080                    | 0.050 - 0.100                     |  |
| 0.004 - 0.011                   | 0.011 - 0.017                   | 0.017 - 0.022                    | 0.022 - 0.065                   | 0.065 - 0.130                   | 0.130 - 0,140                    | 0.080 - 0.180                     |  |
| 0.004 - 0.010                   | 0.010 - 0.016                   | 0.016 - 0.020                    | 0.020 - 0.059                   | 0.059 - 0.118                   | 0.118 - 0.120                    | 0.080 - 0.170                     |  |
| 0.001 - 0.003                   | 0.002 - 0.004                   | 0.004 - 0.005                    | 0.005 - 0.015                   | 0.015 - 0.030                   | 0.030 - 0.030                    | 0.020 - 0.040                     |  |
| 0.002 - 0.006                   | 0.006 - 0.009                   | 0.009 - 0.012                    | 0.012 - 0.035                   | 0.035 - 0.071                   | 0.070 - 0.070                    | 0.050 - 0.100                     |  |