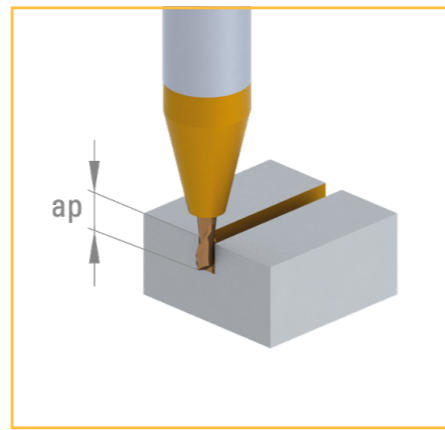


$$n \text{ [tr/min]} = \frac{Vc \text{ [m/min]} \times 1000}{\pi \times D_1 \text{ [mm]}}$$

$$Vf \text{ [mm/min]} = n \text{ [tr/min]} \times fz \text{ [mm]} \times Z$$

| Materiale da lavorare | | Ø 0.30 - 0.80 | | Ø 0.80 - 1.60 | | Ø 1.60 - 5.00 | |
|-----------------------|---|---------------|------------|---------------|------------|---------------|------------|
| | | MD nudo | C-TOP | MD nudo | C-TOP | MD nudo | C-TOP |
| | | Vc [m/min] | Vc [m/min] | Vc [m/min] | Vc [m/min] | Vc [m/min] | Vc [m/min] |
| P | Acciaio non legato / leggermente legato < 600 N/mm ² | | 35 - 120 | | 110 - 200 | | 200 - 260 |
| P | Acciaio non legato / leggermente legato 600 – 1500 N/mm ² | | 25 - 100 | | 80 - 170 | | 160 - 200 |
| P | Acciaio al piombo | | 40 - 130 | | 120 - 200 | | 220 - 280 |
| P | Acciaio fortemente legato 700 – 1500 N/mm ² | | 20 - 80 | | 70 - 120 | | 100 - 190 |
| M | Acciai inossidabili 400 – 700 N/mm ² | | 30 - 85 | | 85 - 190 | | 190 - 260 |
| M | Acciaio inox DUPLEX, acciaio inox austenitico senza Ni > 800 N/mm ² | | 25 - 65 | | 65 - 145 | | 155 - 220 |
| K | Ghisa grigia / Ghisa perlitica sferoidale < 250 HB | 35 - 45 | 35 - 95 | 55 - 135 | 120 - 200 | 80 - 165 | 150 - 200 |
| K | Ghisa / Ghisa perlitica sferoidale > 250 HB | 30 - 40 | 35 - 80 | 50 - 110 | 90 - 150 | 70 - 140 | 130 - 180 |
| K | Ghisa ferritica sferoidale / Ghisa malleabile | 25 - 35 | 35 - 75 | 45 - 100 | 85 - 125 | 65 - 120 | 110 - 180 |
| S | Leghe speciali / Acciaio inox refrattario Inconel Nimonin Hastelloy | | 20 - 35 | | 60 - 100 | | 90 - 130 |
| S | Titanio e le relative leghe | 20 - 40 | 35 - 45 | 40 - 90 | 80 - 150 | 60 - 130 | 120 - 170 |
| N | Rame e relative leghe / facile da lavorare (ottone – bronzo) | 40 - 60 | 45 - 120 | 60 - 110 | 120 - 200 | 90 - 165 | 150 - 260 |
| N | Rame e relative leghe / difficile da lavorare / Bronzo con alluminio (Ampco) (CuAlFe) | 30 - 50 | 45 - 90 | 45 - 105 | 90 - 180 | 70 - 160 | 130 - 240 |
| N | Oro, argento | 35 - 55 | 45 - 90 | 60 - 105 | 90 - 180 | 85 - 180 | 130 - 240 |

| Ø 0.30 - 0.50 | | Ø 0.50 - 0.80 | | Ø 0.80 - 1.60 | | Ø 1.60 - 3.00 | | Ø 3.00 - 5.00 | |
|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|
| fz | ae ap | fz | ae ap | fz | ae ap | fz | ae ap | fz | ae ap |
| 0.005 - 0.007 | < 0.20 x Ø < 1.00 x Ø | 0.007 - 0.013 | < 0.25 x Ø < 1.00 x Ø | 0.013 - 0.029 | < 0.30 x Ø < 1.00 x Ø | 0.029 - 0.040 | < 0.35 x Ø < 1.00 x Ø | 0.040 - 0.058 | < 0.35 x Ø < 1.00 x Ø |
| 0.004 - 0.006 | < 0.20 x Ø < 1.00 x Ø | 0.006 - 0.011 | < 0.30 x Ø < 1.00 x Ø | 0.011 - 0.024 | < 0.30 x Ø < 1.00 x Ø | 0.024 - 0.038 | < 0.35 x Ø < 1.00 x Ø | 0.038 - 0.054 | < 0.35 x Ø < 1.00 x Ø |
| 0.006 - 0.008 | < 0.20 x Ø < 1.00 x Ø | 0.008 - 0.014 | < 0.25 x Ø < 1.00 x Ø | 0.014 - 0.030 | < 0.30 x Ø < 1.00 x Ø | 0.030 - 0.042 | < 0.35 x Ø < 1.00 x Ø | 0.042 - 0.060 | < 0.35 x Ø < 1.00 x Ø |
| 0.004 - 0.006 | < 0.15 x Ø < 1.00 x Ø | 0.006 - 0.011 | < 0.20 x Ø < 1.00 x Ø | 0.011 - 0.024 | < 0.30 x Ø < 1.00 x Ø | 0.024 - 0.038 | < 0.30 x Ø < 1.00 x Ø | 0.038 - 0.054 | < 0.30 x Ø < 1.00 x Ø |
| 0.006 - 0.008 | < 0.15 x Ø < 1.00 x Ø | 0.008 - 0.014 | < 0.25 x Ø < 1.00 x Ø | 0.014 - 0.030 | < 0.30 x Ø < 1.00 x Ø | 0.030 - 0.042 | < 0.30 x Ø < 1.00 x Ø | 0.042 - 0.060 | < 0.30 x Ø < 1.00 x Ø |
| 0.003 - 0.005 | < 0.10 x Ø < 1.00 x Ø | 0.005 - 0.009 | < 0.25 x Ø < 1.00 x Ø | 0.009 - 0.025 | < 0.30 x Ø < 1.00 x Ø | 0.025 - 0.036 | < 0.30 x Ø < 1.00 x Ø | 0.036 - 0.048 | < 0.30 x Ø < 1.00 x Ø |
| 0.006 - 0.008 | < 0.20 x Ø < 1.00 x Ø | 0.008 - 0.014 | < 0.30 x Ø < 1.00 x Ø | 0.014 - 0.030 | < 0.30 x Ø < 1.00 x Ø | 0.030 - 0.042 | < 0.35 x Ø < 1.00 x Ø | 0.042 - 0.060 | < 0.35 x Ø < 1.00 x Ø |
| 0.004 - 0.006 | < 0.20 x Ø < 1.00 x Ø | 0.006 - 0.011 | < 0.25 x Ø < 1.00 x Ø | 0.011 - 0.024 | < 0.30 x Ø < 1.00 x Ø | 0.024 - 0.046 | < 0.35 x Ø < 1.00 x Ø | 0.046 - 0.060 | < 0.35 x Ø < 1.00 x Ø |
| 0.004 - 0.006 | < 0.10 x Ø < 1.00 x Ø | 0.006 - 0.011 | < 0.25 x Ø < 1.00 x Ø | 0.011 - 0.024 | < 0.30 x Ø < 1.00 x Ø | 0.024 - 0.046 | < 0.35 x Ø < 1.00 x Ø | 0.046 - 0.060 | < 0.35 x Ø < 1.00 x Ø |
| 0.002 - 0.004 | < 0.10 x Ø < 1.00 x Ø | 0.004 - 0.008 | < 0.15 x Ø < 1.00 x Ø | 0.008 - 0.011 | < 0.20 x Ø < 1.00 x Ø | 0.011 - 0.021 | < 0.25 x Ø < 1.00 x Ø | 0.021 - 0.035 | < 0.25 x Ø < 1.00 x Ø |
| 0.004 - 0.006 | < 0.20 x Ø < 1.00 x Ø | 0.006 - 0.013 | < 0.20 x Ø < 1.00 x Ø | 0.013 - 0.020 | < 0.25 x Ø < 1.00 x Ø | 0.020 - 0.032 | < 0.30 x Ø < 1.00 x Ø | 0.032 - 0.042 | < 0.30 x Ø < 1.00 x Ø |
| 0.008 - 0.010 | < 0.20 x Ø < 1.00 x Ø | 0.010 - 0.017 | < 0.30 x Ø < 1.00 x Ø | 0.017 - 0.034 | < 0.30 x Ø < 1.00 x Ø | 0.034 - 0.052 | < 0.35 x Ø < 1.00 x Ø | 0.052 - 0.066 | < 0.40 x Ø < 1.00 x Ø |
| 0.005 - 0.007 | < 0.25 x Ø < 1.00 x Ø | 0.007 - 0.013 | < 0.35 x Ø < 1.00 x Ø | 0.013 - 0.029 | < 0.35 x Ø < 1.00 x Ø | 0.029 - 0.048 | < 0.40 x Ø < 1.00 x Ø | 0.048 - 0.062 | < 0.40 x Ø < 1.00 x Ø |
| 0.005 - 0.007 | < 0.25 x Ø < 1.00 x Ø | 0.007 - 0.013 | < 0.35 x Ø < 1.00 x Ø | 0.013 - 0.029 | < 0.35 x Ø < 1.00 x Ø | 0.029 - 0.048 | < 0.40 x Ø < 1.00 x Ø | 0.048 - 0.062 | < 0.40 x Ø < 1.00 x Ø |



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

$$Vf \text{ [mm/min]} = n \text{ [tr/min]} \times fz \text{ [mm]} \times Z$$

| Materiale da lavorare | | Ø 0.30 - 0.80 | | Ø 0.80 - 1.60 | | Ø 1.60 - 5.00 | | |
|-----------------------|--|---------------------------------|------------|---------------|------------|---------------|------------|-----------|
| | | MD nudo | C-TOP | MD nudo | C-TOP | MD nudo | C-TOP | |
| | | Vc [m/min] | Vc [m/min] | Vc [m/min] | Vc [m/min] | Vc [m/min] | Vc [m/min] | |
| P | Acciaio non legato / leggermente legato | < 600 N/mm ² | 25 - 45 | 40 - 130 | 120 - 280 | | | |
| P | Acciaio non legato / leggermente legato | 600 – 1500 N/mm ² | 25 - 45 | 40 - 120 | 90 - 230 | | | |
| P | Acciaio al piombo | | 30 - 50 | 45 - 130 | 110 - 280 | | | |
| P | Acciaio fortemente legato | 700 – 1500 N/mm ² | 20 - 45 | 40 - 110 | 90 - 190 | | | |
| M | Acciai inossidabili | 400 – 700 N/mm ² | 25 - 50 | 45 - 120 | 100 - 230 | | | |
| M | Acciaio inox DUPLEX, acciaio inox austenitico senza Ni | > 800 N/mm ² | 15 - 35 | 30 - 90 | 75 - 180 | | | |
| K | Ghisa grigia / Ghisa perlitica sferoidale | < 250 HB | 25 - 45 | 30 - 90 | 45 - 125 | 80 - 180 | 70 - 165 | 150 - 280 |
| K | Ghisa / Ghisa perlitica sferoidale | > 250 HB | 20 - 40 | 30 - 80 | 40 - 100 | 70 - 150 | 60 - 140 | 130 - 250 |
| K | Ghisa ferritica sferoidale / Ghisa malleabile | | 20 - 35 | 30 - 70 | 35 - 90 | 60 - 125 | 55 - 120 | 110 - 220 |
| S | Leghe speciali / Acciaio inox refrattario | Inconel Nimonic Hastelloy | 20 - 30 | 30 - 80 | 60 - 140 | | | |
| S | Titanio e le relative leghe | | 20 - 40 | 30 - 45 | 30 - 80 | 40 - 130 | 50 - 130 | 120 - 170 |
| N | Rame e relative leghe / facile da lavorare (ottone – bronzo) | | 40 - 50 | 45 - 120 | 50 - 100 | 120 - 200 | 80 - 165 | 150 - 300 |
| N | Rame e relative leghe / difficile da lavorare / Bronzo con alluminio (Ampco) | (CuAlFe) | 30 - 40 | 45 - 90 | 40 - 95 | 90 - 180 | 60 - 140 | 130 - 280 |
| N | Oro, argento | | 35 - 45 | 45 - 120 | 50 - 100 | 120 - 200 | 75 - 170 | 160 - 320 |

| Ø 0.30 - 0.50 | | Ø 0.50 - 0.80 | | Ø 0.80 - 1.60 | | Ø 1.60 - 3.00 | | Ø 3.00 - 5.00 | |
|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|
| fz | ap | fz | ap | fz | ap | fz | ap | fz | ap |
| 0.004 - 0.006 | < 0.50 x Ø | 0.006 - 0.011 | < 0.80 x Ø | 0.011 - 0.022 | < 1.00 x Ø | 0.022 - 0.043 | < 1.00 x Ø | 0.043 - 0.050 | < 1.00 x Ø |
| 0.003 - 0.005 | < 0.50 x Ø | 0.005 - 0.009 | < 0.80 x Ø | 0.009 - 0.020 | < 1.00 x Ø | 0.020 - 0.041 | < 1.00 x Ø | 0.041 - 0.048 | < 1.00 x Ø |
| 0.005 - 0.007 | < 0.50 x Ø | 0.007 - 0.010 | < 0.80 x Ø | 0.010 - 0.028 | < 1.00 x Ø | 0.028 - 0.044 | < 1.00 x Ø | 0.044 - 0.049 | < 1.00 x Ø |
| 0.003 - 0.005 | < 0.50 x Ø | 0.005 - 0.009 | < 0.80 x Ø | 0.009 - 0.020 | < 1.00 x Ø | 0.020 - 0.040 | < 1.00 x Ø | 0.040 - 0.048 | < 1.00 x Ø |
| 0.003 - 0.005 | < 0.50 x Ø | 0.005 - 0.009 | < 0.80 x Ø | 0.009 - 0.020 | < 1.00 x Ø | 0.020 - 0.043 | < 1.00 x Ø | 0.043 - 0.048 | < 1.00 x Ø |
| 0.002 - 0.003 | < 0.50 x Ø | 0.003 - 0.007 | < 0.80 x Ø | 0.007 - 0.015 | < 1.00 x Ø | 0.015 - 0.032 | < 1.00 x Ø | 0.032 - 0.045 | < 1.00 x Ø |
| 0.004 - 0.006 | < 0.50 x Ø | 0.006 - 0.011 | < 0.80 x Ø | 0.011 - 0.025 | < 1.00 x Ø | 0.025 - 0.043 | < 1.00 x Ø | 0.043 - 0.050 | < 1.00 x Ø |
| 0.003 - 0.006 | < 0.50 x Ø | 0.005 - 0.010 | < 0.80 x Ø | 0.010 - 0.020 | < 1.00 x Ø | 0.020 - 0.040 | < 1.00 x Ø | 0.040 - 0.047 | < 1.00 x Ø |
| 0.003 - 0.006 | < 0.50 x Ø | 0.006 - 0.011 | < 0.80 x Ø | 0.010 - 0.019 | < 1.00 x Ø | 0.019 - 0.038 | < 1.00 x Ø | 0.038 - 0.042 | < 1.00 x Ø |
| 0.001 - 0.003 | < 0.50 x Ø | 0.003 - 0.007 | < 0.80 x Ø | 0.007 - 0.010 | < 1.00 x Ø | 0.010 - 0.018 | < 1.00 x Ø | 0.018 - 0.025 | < 1.00 x Ø |
| 0.003 - 0.004 | < 0.50 x Ø | 0.004 - 0.008 | < 0.80 x Ø | 0.008 - 0.015 | < 1.00 x Ø | 0.015 - 0.032 | < 1.00 x Ø | 0.032 - 0.040 | < 1.00 x Ø |
| 0.005 - 0.009 | < 0.50 x Ø | 0.009 - 0.015 | < 0.80 x Ø | 0.015 - 0.028 | < 1.00 x Ø | 0.028 - 0.048 | < 1.00 x Ø | 0.048 - 0.060 | < 1.00 x Ø |
| 0.005 - 0.007 | < 0.50 x Ø | 0.007 - 0.010 | < 0.80 x Ø | 0.010 - 0.025 | < 1.00 x Ø | 0.025 - 0.043 | < 1.00 x Ø | 0.043 - 0.052 | < 1.00 x Ø |
| 0.005 - 0.008 | < 0.50 x Ø | 0.008 - 0.012 | < 0.80 x Ø | 0.012 - 0.027 | < 1.00 x Ø | 0.027 - 0.046 | < 1.00 x Ø | 0.046 - 0.050 | < 1.00 x Ø |