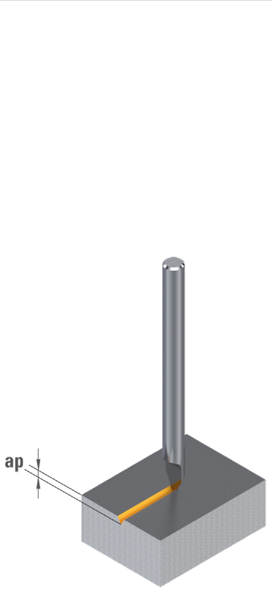
$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

ENGRAVING

		VDI 3323		CARBIDE Vc [m/min]	DINAC Vc[m/min]	DLC Vc [m/min	ap (mm)	ap (mm)	Feed rate Vf [mm/min] Ø D_1 0.05 - 0.10	Ø D_1 0.15 - 0.50
				D_1 Ø0.05-0.10	D_1 Ø0.15-0.50					
P	Unalloyed steel, leaded steel	1 - 5		**20** - 35'000	**20** - 35'000		0.05 - 0.30	0.10 - 0.42	50 - 250	80 - 350
P	Low alloyed steel < 800 N/mm²	6 - 9			**20** - 35'000		0.05 - 0.25	0.10 - 0.34	50 - 200	60 - 275
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13			**20** - 35'000		0.05 - 0.20	0.10 - 0.26	50 - 150	50 - 200
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2			**20** - 35'000		0.05 - 0.20	0.10 - 0.34	50 - 200	60 - 275
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4			**20** - 35'000		0.05 - 0.25	0.10 - 0.30	50 - 200	50 - 250
K	Grey cast iron < 250 HB	15 - 16		**20** - 35'000	**20** - 35'000		0.05 - 0.45	0.10 - 0.45	50 - 400	110 - 450
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20		**20** - 35'000	**20** - 35'000		0.05 - 0.40	0.10 - 0.45	50 - 300	90 - 450
N	Wrought aluminium alloy < 12% Si	21 - 22		**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.60	0.10 - 0.45	50 - 400	110 - 450
N	Cast aluminium alloy >12% Si	23 - 25		**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.45	0.10 - 0.50	50 - 300	90 - 450
N	Copper alloy good machinability with Pb	26		**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.45	0.10 - 0.45	50 - 500	150 - 450
N	Copper alloy with difficult machinability	27 - 28		**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.40	0.10 - 0.45	50 - 400	110 - 450
N	Plastic, wood	29 - 30		**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.45	0.10 - 0.45	50 - 400	110 - 450
N	Gold, silver	-		**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.40	0.10 - 0.45	50 - 300	90 - 450
S	Refractory alloy, Fe, Ni, Co base	31- 35			**15** - 25'000			0.04 - 0.10		20 - 100
S	Titanium, titanium alloy	36 - 37		**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.35	0.10 - 0.45	50 - 300	80 - 375
H	Hardened steel >45 HRC, hard cast iron	38 - 41			**20** - 35'000			0.02 - 0.06		10 - 50