

Cutting data recommendations for drill reamer

Feed and cutting speed

Tritan-Drill-Reamer | SCD641

MMG*	Workpiece material	Strength/hardness [N/mm ²] [HRC]	Cutting speed v _c [m/min]				Feed f [mm] for drill diameter									
			Internal cooling	External cooling	MQL	Air	4.00	5.50	7.50	10.50	14.50	20.00				
P	P1	P1.1	Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700		70	65	65		0.17	0.22	0.27	0.34	0.41	0.47	
		P1.2	Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1,200		65	55	55		0.22	0.27	0.34	0.42	0.51	0.59	
	P2	P2.1	Nitrided, case hardened and heat-treated steels, alloy	< 900		70	60	60		0.20	0.26	0.32	0.40	0.48	0.56	
		P2.2	Nitrided, case hardened and heat-treated steels, alloy	< 1,400		50	40	40		0.17	0.21	0.26	0.32	0.38	0.44	
	P3	P3.1	Tool, bearing, spring and high-speed steels**	< 800		55	45	45		0.18	0.23	0.29	0.36	0.43	0.50	
		P3.2	Tool, bearing, spring and high-speed steels**	< 1,000		40	40	40		0.15	0.19	0.24	0.30	0.36	0.41	
		P3.3	Tool, bearing, spring and high-speed steels**	< 1,500		40	30	35		0.13	0.16	0.19	0.23	0.28	0.32	
	P5	P5.1	Cast steel			70	60	60		0.20	0.26	0.32	0.40	0.48	0.56	
	K	K1	K1.1	Cast iron with lamellar graphite (grey cast iron), GJL		< 300	100	70	70	70	0.25	0.33	0.42	0.55	0.67	0.79
			K2.1	Cast iron with spheroidal graphite, GJS		< 500	135	85	100	100	0.24	0.32	0.40	0.51	0.62	0.72
K2		K2.2	Cast iron with spheroidal graphite, GJS	≤ 800	85	65	65		0.22	0.28	0.35	0.44	0.54	0.62		
		K2.3	Cast iron with spheroidal graphite, GJS	> 800	50	35	45		0.11	0.13	0.16	0.20	0.24	0.28		
K3		K3.1	Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500	75	70	70		0.23	0.30	0.38	0.47	0.58	0.67		
		K3.2	Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500	70	60	60		0.20	0.25	0.31	0.38	0.46	0.53		

EXAMPLE CALCULATION

Please note that the result may be influenced by additional parameters such as the machine tool or tool clamping.

Formula for calculating the optimum nominal tool diameter:

$$(G_{oB} + G_{uB}) / 2$$

Example:

- Fitting bore: \varnothing 10 F7
- Maximum bore dimension G_{oB}: 10.028 mm
- Minimum bore dimension G_{uB}: 10.013 mm

→ $(10.028 \text{ mm} + 10.013 \text{ mm}) / 2 = 10.021 \text{ mm} = \text{selection of tool nominal diameter } 10.021 \text{ mm}$

* MAPAL machining groups

** If the alloy parts Cr, Mo, Ni, V, W in total > 8% then select the next highest MAPAL machining group.

The specified cutting values are guide values.

The optimum data for the respective machining task should be determined during the test or machining.