Recommended cutting values for solid carbide drills

Feed and cutting speed

MICRO-Deep-Drill | SCD171

MZG*			Material	Strength/Hardness [N/mm²] [HRC]		Cutting speed v_c [m/min]				Feed f [mm] at drill diameter					
						Internal coolant	External coolant	MMS	air	1,00	2,00	4,00	6,00	9,00	16,00
P	P1	P1.1	Structural, free-cutting, case hardened and heat-treated	< 700		**90**	**80**	**80**		0,04	0,06	0,09	0,13	0,19	0,27
		P1.2	Structural, free-cutting, case hardened and heat-treated	< 1,200		**80**	**70**	**70**		0,06	0,08	0,11	0,16	0,24	0,34
	P2	P2.1	Nitrated, case hardened and heat-treated steel, alloyed	< 900		**90**	**75**	**75**		0,05	0,07	0,10	0,16	0,23	0,32
		P2.2	Nitrated, case hardened and heat-treated steel, alloyed	< 1,400		**65**	**55**	**55**		0,05	0,07	0,09	0,13	0,18	0,25
	P3	P3.1	Tool, roller bearing, spring and high speed steel**	< 800		**70**	**60**	**60**		0,05	0,06	0,09	0,14	0,21	0,29
		P3.2	Tool, roller bearing, spring and high speed steel**	< 1,000		**55**	**50**	**50**		0,04	0,06	0,08	0,12	0,17	0,23
		P3.3	Tool, roller bearing, spring and high speed steel**	< 1,500		**55**	**40**	**45**		0,04	0,05	0,07	0,09	0,13	0,18
	P5	P5.1	Cast steel			**90**	**75**	**75**		0,05	0,07	0,10	0,16	0,23	0,32
K	K1	K1.1	Cast iron with lamellar graphite (grey cast iron), EN-GJL	< 300		**110**	**75**	**75**	**75**	0,14	0,18	0,25	0,32	0,41	0,53
	K2	K2.1	Cast iron with spheroidal graphite, EN-GJS	< 500		**145**	**90**	**110**	**110**	0,14	0,18	0,24	0,30	0,38	0,49
		K2.2	Cast iron with spheroidal graphite, EN-GJS	≤ 800		**90**	**70**	**70**		0,13	0,16	0,21	0,26	0,33	0,42
		K2.3	Cast iron with spheroidal graphite, EN-GJS	> 800		**55**	**35**	**45**		0,10	0,12	0,14	0,18	0,22	0,28
	K3	K3.1	Cast iron with vermicular graphite, EN-GJV; Malleable cast	< 500		**80**	**70**	**70**		0,14	0,18	0,22	0,28	0,36	0,46
		K3.2	Cast iron with vermicular graphite, EN-GJV; Malleable cast	> 500		**70**	**65**	**65**		0,12	0,15	0,18	0,23	0,29	0,36

** MAPAL machining groups
** If the alloy components Cr, Mo, Ni, V, W in total > 8 % then select the next higher MAPAL machining group.
The cutting values given are guide values.
The optimum data for the respective machining case should be determined in trials or during machining.