

CoroDrill® Delta-C for drill diameters 0.30-2.99 mm

ISO	CMC No.	Material	Hardness Brinell HB	Grade	Cutting speed (v_c), m/min	Drill diameter, mm				
						0.30-1.40 Feed f_n mm/r	Grade	Cutting speed (v_c), m/min	1.50-2.90 Feed f_n mm/r	
P	01.0	Unalloyed steel C = 0.05-0.10%	125	H10F	15-50	0.005-0.022	1020	80-100	0.04-0.08	
	01.1	C = 0.10-0.25%	125	H10F	15-50	0.005-0.022	1020	80-100	0.04-0.08	
	01.2	C = 0.25-0.55%	150	H10F	15-50	0.005-0.022	1020	70-85	0.03-0.07	
	01.3	C = 0.55-0.80%	170	H10F	15-50	0.005-0.022	1020	70-85	0.03-0.07	
	01.4	High carbon steel Carbon tool steel	210	H10F	10-42	0.004-0.020	1020	65-80	0.03-0.07	
	02.1	Low alloy steel Non-hardened	180	H10F	15-50	0.005-0.022	1020	60-75	0.03-0.06	
	02.2	Hardened and tempered	275	H10F	10-42	0.004-0.018	1020	45-60	0.03-0.06	
	02.2	Hardened and tempered	350	H10F	7-27	0.003-0.014	1020	35-50	0.015-0.030	
	03.11	High alloy steel Annealed	200	H10F	6-24	0.004-0.0175	1020	45-60	0.03-0.07	
	03.21	Hardened tool steel	325	H10F	5-20	0.004-0.0175	1020	40-50	0.03-0.06	
	06.1	Steel castings Unalloyed	180	H10F	15-50	0.005-0.022	1020	60-75	0.03-0.06	
	06.2	Low-alloy (alloying elements $\leq 5\%$)	200	H10F	15-50	0.005-0.022	1020	50-65	0.03-0.06	
	S	23.21	Titanium alloys α , near α and $\alpha + \beta$ alloys, annealed	Rm = 850	H10F	4-17	0.0023-0.01	1020	30-40	0.02-0.04
		23.22	$\alpha + \beta$ alloys in aged condition, β alloys, annealed or aged	Rm = 1050	H10F	3-13	0.0015-0.007	1020	30-40	0.02-0.04
N	30.11	Aluminium alloys Wrought or wrought and coldworked, non-aging	60	H10F	35-135	0.0072-0.0315	1020	200-250	0.06-0.10	
	30.21	Cast, non-aging	75	H10F	24-95	0.0072-0.0315	1020	150-200	0.06-0.10	
	33.1	Copper and copper alloys Free cutting alloys, $\geq 1\%$ Pb	110	H10F	17-68	0.0064-0.028	1020	140-170	0.06-0.10	
	33.2	Brass, leaded bronzes, $\leq 1\%$ Pb	90	H10F	10-40	0.0064-0.028	1020	160-190	0.06-0.10	

Higher feed recommendations should be used in stable and good machining conditions,
Use lower/higher feed recommendations at smaller/larger diameters within the range:

Example: $f_n = 0.10-0.14-0.25$

Example: $D_c = 3.0-5.0-6.0$

CoroDrill® Delta-C for drill diameters 3-12 mm

ISO	CMC No.	Material	Hardness Brinell HB	Grades	Cutting speed	Drill diameter, mm		
						3.00-6.00	6.01-10.00	10.01-12.00
						Feed f_n mm/r ³⁾		
P		Unalloyed steel						
	01.0	C = 0.05-0.10%	125	1220	80-140	0.10-0.25	0.15-0.34	0.20-0.40
	01.1	C = 0.10-0.25%	125	1220	80-140	0.10-0.25	0.15-0.34	0.20-0.40
	01.2	C = 0.25-0.55%	150	1220	80-140	0.10-0.25	0.15-0.34	0.20-0.40
	01.3	C = 0.55-0.80%	170	1220	70-130	0.10-0.25	0.15-0.34	0.20-0.40
		High carbon steel						
	01.4	Carbon tool steel	210	1220	70-120	0.10-0.25	0.15-0.34	0.20-0.40
		Low alloy steel						
	02.1	Non-hardened	180	1220	70-120	0.10-0.20	0.14-0.30	0.18-0.35
	02.2	Hardened and tempered	275	1220	70-100	0.10-0.20	0.14-0.30	0.18-0.35
	02.2	Hardened and tempered	350	1220	50-80	0.10-0.20	0.14-0.25	0.18-0.35
		High alloy steel						
	03.11	Annealed	200	1220	40-80	0.08-0.14	0.10-0.22	0.14-0.25
03.21	Hardened tool steel	325	1220	40-70	0.08-0.14	0.10-0.22	0.12-0.25	
	Steel castings							
06.1	Unalloyed	180	1220	70-130	0.10-0.25	0.15-0.34	0.20-0.40	
06.2	Low-alloy (alloying elements ≤5%)	200	1220	70-120	0.10-0.25	0.15-0.34	0.20-0.40	
M		Stainless steel						
	05.11	Non-hardened / Ferritic/Martensitic	200	1220	40-80 ¹⁾	0.08-0.14	0.08-0.20	0.12-0.22
	05.21	Austenitic	180	1030	40-80 ¹⁾	0.08-0.20	0.10-0.25	0.15-0.30
	05.21	Austenitic	180	1220	40-80 ¹⁾	0.08-0.14	0.08-0.20	0.12-0.22
	Stainless steel							
15.21	Austenitic castings	200	1220	40-80 ¹⁾	0.08-0.14	0.08-0.20	0.12-0.22	
S		Heat resistant super alloys – Nickel base						
	20.21	Annealed or solution treated	250	1220	10-25	0.06-0.12	0.08-0.15	0.08-0.15
	20.22	Aged or solution treated and aged	350	1220	10-25	0.06-0.12	0.08-0.15	0.08-0.15
	20.24	Cast or cast and aged	320	1220	10-25	0.06-0.12	0.08-0.15	0.08-0.15
		Titanium alloys						
	23.21	α , near α and $\alpha + \beta$ alloys, annealed	Rm ²⁾ = 850	1220	20-60	0.06-0.12	0.08-0.20	0.14-0.28
23.22	$\alpha + \beta$ alloys in aged condition, β alloys, annealed or aged	Rm ²⁾ = 1050	1220	20-60	0.06-0.12	0.08-0.20	0.14-0.28	
N		Aluminium alloys						
	30.11	Wrought or wrought and coldworked, non-aging	60	1220	120-230	0.15-0.25	0.20-0.40	0.30-0.50
	30.21	Cast, non-aging	75	1220	120-230	0.15-0.25	0.20-0.40	0.30-0.50
		Copper and copper alloys						
	33.1	Free cutting alloys, ≥1% Pb	110	1220	90-150	0.15-0.25	0.20-0.40	0.30-0.50
33.2	Brass, leaded bronzes, ≤1% Pb	90	1220	90-150	0.15-0.25	0.20-0.40	0.30-0.50	

1) Internal cutting fluid supply is recommended when drilling stainless steel as a good supply of coolant at the cutting edges is essential for chip evacuation and tool life.

2) Rm = ultimate tensile strength measured in MPa.

3) Higher feeds should be used in stable and favourable machining conditions.