Recommended Machining Conditions for SCD-SXC Solid Carbide Drills

				erial up No.	sile ength nm²]	dness	Cutting	Cutting Diameter				
							Speed	Feed (mm/rev)				
ISO	Materia	I	Condition	Mat Gro	Ten: Stre	Har HB	(m/min)	3.0-5.0	5.1-8.0	8.1-10.0	10.1-16	16.1-20
Ρ	non-alloy steel and cast steel, free cutting steel	<0.25% C	annealed	1	420	125	70-90					
		≥0.25% C	annealed	2	650	190						
		<0.55% C	quenched and tempered	3	850	250						
		≥0.55% C	annealed	4	750	220						
			quenched and tempered	5	1000	300						
	low alloy and cast steel (less than 5% of alloying elements)		annealed	6	600	200	- 75-85	0.1-0.18	0.14-0.24	0.16-0.26	0.18-0.3	0.2-0.35
				7	930	275						
			quenched and tempered	8	1000	300						
				9	1200	350						
	high alloyed steel, cast steel and tool steel		annealed	10	680	200						
			quenched and tempered	11	1100	325						
	stainless steel and cast steel		ferritic/martensitic	12	680	200	60-70		0 1-0 18	0 12-0 2	0 1/1-0 22	0 16-0 24
		0001 01001	martensitic	13	820	240	00-10	0.00/0.14	0.1 0.10	0.12-0.2	0.14 0.22	0.10 0.24
Μ	stainless steel and	cast steel	austenitic, duplex	14	600	180	55-65	0.06-0.14	0.08-0.16	0.1-0.18	0.12-0.2	0.14-0.24
K	gray cast iron (GG)		ferritic / pearlitic	15		180	80-100	0.14-0.24	0.16-0.26	0.18-0.0.3	0.2-0.35	0.25-0.45
			pearlitic / martensitic	16		260						
	nodular cast iron (GGG)		ferritic	17		160						
			pearlitic	18		250						
	malleable cast iron		ferritic	19		130						
			pearlitic	20		230						
S	high temperature alloys	Fe based	annealed	31		200	35-45	0.06-0.12	0.08-0.16	0.1-0.18	0.12-0.2	0.12-0.22
			hardened	32		280						
		Ni or Co based	annealed	33		250	30-40	0.06-0.12	0.08-0.16	0.1-0.18	0.12-0.2	0.12-0.22
			hardened	34		350						
			cast	35		320						
	titanium alloys		pure	36	RM 400	190	35-45	0.06-0.12	0.08-0.16	0.1-0.18	0.12-0.2	0.12-0.22
			alpha+beta alloys, hardened	37	RM 1050	310						

TIPS & TRICKS for DEEP HOLE DRILLING

Using a G73 peck cycle helps Chip evacuation in deep hole drilling & materials which have a poor chip formation.

16xD - 50xD must utilize a Pilot hole drill.

40xD - 50xD can utilize a 20xD intermediary drill if deemed necessary.

TIR & tool alignment with material are the most important factors in deep hole Drilling.

Use high pressure coolant when deep hole drilling.

Slow the feedrate to 50% when breaking through the material.

In through holes, the tool exit should not exceed 2-3 mm.

Recommended Drilling Procedure for Deep Hole Drilling

- 1 Drill a pilot hole 1-2xD deep with a short drill. The pilot drill should be 0.03-0.05 mm larger than the long drill and its point angle should also be larger (over 135°).
- 2 Enter the pre-hole using low feed and rotate at low speed (50-100 RPM).
- 3 Activate the coolant system and increase rotation speed to the recommended cutting parameter, maintain for 2-3 seconds, then continue at recommended drilling feed. **No pecking is required.**
- 4 After having reached the required depth, reduce speed to 50-100 RPM before retracting from the hole.

