

RT 100 T - High penetration rate drilling

- 3 to 5 times the penetration rate of gun drills or cobalt deep hole drills
- Eliminates peck cycles
- Reduces cycle times and increases production



Maximized coolant duct profile for effective cooling and lubrication combined with optimized flute geometry for optimal chip evacuation.

Optimized flute geometry

These spiral-flute deep hole carbide drills possess an advanced flute geometry designed for optimal chip evacuation from deep holes in a wide range of materials.

Maximized coolant duct profile

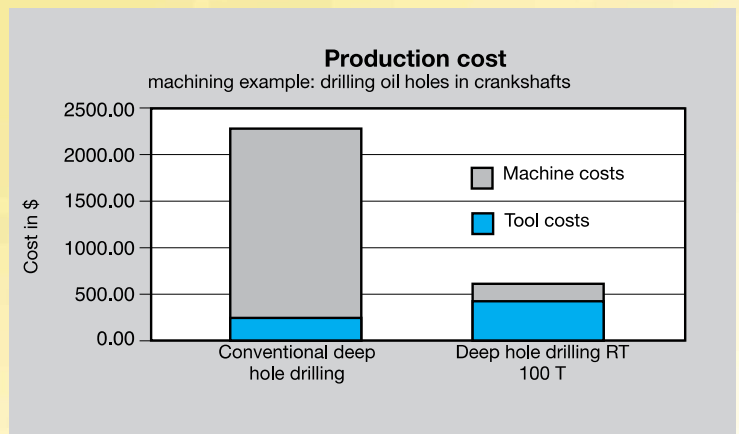
To provide the cutting edge with an optimum coolant supply, the tools possess a maximized coolant duct profile. It ensures an efficient coolant supply to the cutting edge as well as excellent chip evacuation.

Problem-free chips

The design features of this drill – with the appropriate cutting parameters – result in chips that are evacuated problem-free even from deep holes. Chip packing and a subsequent binding of the tool is effectively prevented.



Short, problem-free chips preventing chip congestion and binding of the tool.



Ultimate cost-efficiency:

Applied on machining centers, where the drilling operation is a time-relevant criterion, RT 100 T can display its superiority. Its high feed rates lead to a shorter production time, its long tool life reduces the number of tool changes.



Tool material

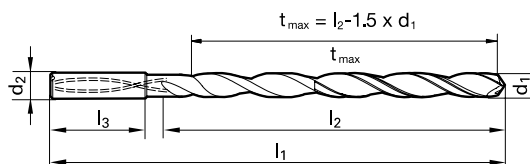
Solid Carbide

Surface



P	Steel	•	double margin • web thinning $\geq \varnothing 3.000$ • relieved cone • main cutting edge form concave • optimized flute design • maximum diameter of coolant ducts • observe coolant pressure
M	Stainless steel	•	
K	Cast iron	•	structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm ² • stainless steels • cast materials
N	Aluminum	○	
S	Titanium alloys	○	
H	Hardened steel	○	

•=Optimal
○=Limited



See page 456 for technical operation info
Speeds and feeds information on pg. 589

Diameter (d1)			d2	l1	t _{max}	l2	EDP #
inch	wire/ltr	mm	mm	mm	mm	mm	
0.1181		3.000	6.00	110.00	65.50	70.00	9065110030000
0.1220		3.100	6.00	123.00	78.35	83.00	9065110031000
0.1248	1/8	3.170	6.00	123.00	78.25	83.00	9065110031700
0.1260		3.200	6.00	123.00	78.20	83.00	9065110032000
0.1299		3.300	6.00	123.00	78.05	83.00	9065110033000
0.1378		3.500	6.00	136.00	90.75	96.00	9065110035000
0.1406	9/64 #28	3.570	6.00	136.00	90.65	96.00	9065110035700
0.1457		3.700	6.00	136.00	90.45	96.00	9065110037000
0.1496		3.800	6.00	136.00	90.30	96.00	9065110038000
0.1563	5/32	3.970	6.00	136.00	90.05	96.00	9065110039700
0.1575		4.000	6.00	136.00	90.00	96.00	9065110040000
0.1614		4.100	6.00	158.00	111.70	118.00	9065110041000
0.1654		4.200	6.00	158.00	111.70	118.00	9065110042000
0.1693		4.300	6.00	158.00	111.55	118.00	9065110043000
0.1720	11/64	4.370	6.00	158.00	111.45	118.00	9065110043700
0.1772		4.500	6.00	158.00	111.25	118.00	9065110045000
0.1811		4.600	6.00	158.00	111.10	118.00	9065110046000
0.1874	3/16	4.760	6.00	158.00	110.86	118.00	9065110047600
0.1890	#12	4.800	6.00	158.00	110.80	118.00	9065110048000
0.1969		5.000	6.00	158.00	110.50	118.00	9065110050000
0.2008		5.100	6.00	180.00	132.35	140.00	9065110051000
0.2031	13/64	5.160	6.00	180.00	132.26	140.00	9065110051600
0.2130	#3	5.410	6.00	180.00	131.89	140.00	9065110054100
0.2165		5.500	6.00	180.00	131.75	140.00	9065110055000
0.2189	7/32	5.560	6.00	180.00	131.66	140.00	9065110055600
0.2283		5.800	6.00	180.00	131.30	140.00	9065110058000
0.2343	15/64	5.950	6.00	180.00	131.08	140.00	9065110059500
0.2362		6.000	6.00	180.00	131.00	140.00	9065110060000
0.2500	1/4 E	6.350	8.00	202.00	152.48	162.00	9065110063500
0.2559		6.500	8.00	202.00	152.25	162.00	9065110065000
0.2657	17/64 H	6.750	8.00	202.00	151.88	162.00	9065110067500
0.2677		6.800	8.00	202.00	151.80	162.00	9065110068000
0.2756		7.000	8.00	202.00	151.50	162.00	9065110070000
0.2811	9/32 K	7.140	8.00	223.00	172.29	183.00	9065110071400
0.2953		7.500	8.00	223.00	171.75	183.00	9065110075000

Diameter (d1)			d2	l1	t _{max}	l2	EDP #
inch	wire/ltr	mm	mm	mm	mm	mm	
0.2969	19/64	7.540	8.00	223.00	171.69	183.00	9065110075400
0.3071		7.800	8.00	223.00	171.30	183.00	9065110078000
0.3126	5/16	7.940	8.00	223.00	171.09	183.00	9065110079400
0.3150		8.000	8.00	223.00	171.00	183.00	9065110080000
0.3280	21/64	8.330	10.00	249.00	192.51	205.00	9065110083300
0.3346		8.500	10.00	249.00	192.25	205.00	9065110085000
0.3437	11/32	8.730	10.00	249.00	191.91	205.00	9065110087300
0.3465		8.800	10.00	249.00	191.80	205.00	9065110088000
0.3543		9.000	10.00	249.00	191.50	205.00	9065110090000
0.3594	23/64	9.130	10.00	271.00	213.31	227.00	9065110091300
0.3748	3/8	9.520	10.00	271.00	212.72	227.00	9065110095200
0.3906	25/64	9.920	10.00	271.00	212.12	227.00	9065110099200
0.3937		10.000	10.00	271.00	212.00	227.00	9065110100000
0.4016		10.200	12.00	302.00	237.70	253.00	9065110102000
0.4063	13/32	10.320	12.00	302.00	237.52	253.00	9065110103200
0.4134		10.500	12.00	302.00	237.25	253.00	9065110105000
0.4220	27/64	10.720	12.00	302.00	236.92	253.00	9065110107200
0.4330		11.000	12.00	302.00	236.50	253.00	9065110110000
0.4374	7/16	11.110	12.00	323.00	257.34	274.00	9065110111100
0.4531	29/64	11.510	12.00	323.00	256.74	274.00	9065110115100
0.4646		11.800	12.00	323.00	256.30	274.00	9065110118000
0.4689	15/32	11.910	12.00	323.00	256.14	274.00	9065110119100
0.4724		12.000	12.00	323.00	256.00	274.00	9065110120000
0.4843	31/64	12.300	14.00	367.00	299.55	318.00	9065110123000
0.4921		12.500	14.00	367.00	299.25	318.00	9065110125000
0.5000	1/2	12.700	14.00	367.00	298.95	318.00	9065110127000
0.5118		13.000	14.00	367.00	298.50	318.00	9065110130000
0.5157	33/64	13.100	14.00	367.00	298.35	318.00	9065110131000
0.5311	17/32	13.490	14.00	367.00	297.77	318.00	9065110134900
0.5469	35/64	13.890	14.00	367.00	297.17	318.00	9065110138900
0.5512		14.000	14.00	367.00	297.00	318.00	9065110140000
0.5626	0.5625	14.290	16.00	413.00	339.57	361.00	9065110142900
0.5906		15.000	16.00	413.00	338.50	361.00	9065110150000
0.6248	0.625	15.870	16.00	413.00	337.20	361.00	9065110158700
0.6299		16.000	16.00	413.00	337.00	361.00	9065110160000

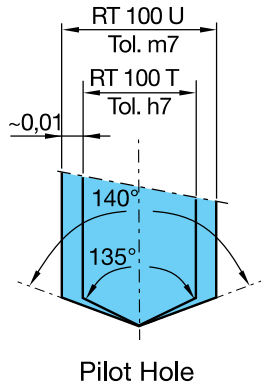
Material group	Hardness		SFM	Feed Rate - IPR									
	HRC	BHN		1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700 mm	5/8 in. 15.870 mm	3/4 in. 19.050 mm	1 in. 25.400 mm	1 1/4 in. 31.750 mm	1 1/2 in. 38.100 mm
Common structural steels	- ≤ 32	≤ 150 ≤ 301	360 360	0.0040 0.0040	0.0060 0.0060	0.0100 0.0100	0.0140 0.0140	0.0160 0.0160	0.0200 0.0200				
Free-cutting steels	≤ 25 ≤ 32	≤ 255 ≤ 301	395 395	0.0040 0.0040	0.0060 0.0060	0.0100 0.0100	0.0140 0.0140	0.0160 0.0160	0.0200 0.0200				
Unalloyed heat-treatable steels	≤ 20 ≤ 25 ≤ 32	≤ 220 ≤ 255 ≤ 301	360 360 330	0.0030 0.0040 0.0030	0.0040 0.0060 0.0050	0.0060 0.0100 0.0080	0.0090 0.0140 0.0110	0.0100 0.0160 0.0120	0.0120 0.0200 0.0160				
Alloyed heat-treatable steels	≤ 32 ≤ 43	≤ 301 ≤ 402	360 360	0.0030 0.0030	0.0050 0.0040	0.0080 0.0060	0.0110 0.0090	0.0120 0.0100	0.0160 0.0120				
Unalloyed case hardened steels	≤ 25	≤ 255	360	0.0040	0.0060	0.0100	0.0140	0.0160	0.0200				
Alloyed case hardened steels	≤ 32 ≤ 43	≤ 301 ≤ 402	360 360	0.0030 0.0030	0.0050 0.0040	0.0080 0.0060	0.0110 0.0090	0.0120 0.0100	0.0160 0.0120				
Nitriding steels	≤ 32 ≤ 43	≤ 301 ≤ 402	330 260	0.0020 0.0020	0.0030 0.0030	0.0050 0.0050	0.0070 0.0070	0.0080 0.0080	0.0100 0.0100				
Tool steels	≤ 25 ≤ 43	≤ 255 ≤ 402	330 260	0.0030 0.0020	0.0040 0.0030	0.0060 0.0050	0.0090 0.0070	0.0100 0.0080	0.0120 0.0100				
High speed steels	≤ 43	≤ 402	165	0.0020	0.0030	0.0050	0.0070	0.0080	0.0100				
Spring steels	≤ 38	≤ 354	165	0.0020	0.0030	0.0050	0.0070	0.0080	0.0100				
Hardened steels	≤ 48 ≤ 66	≤ 460 -	165 165	0.0020 0.0010	0.0020 0.0020	0.0040 0.0040	0.0060 0.0060	0.0060 0.0060	0.0080 0.0080				
Stainless steels, sulphured austenitic martensitic	≤ 28 ≤ 36 ≤ 46	≤ 273 ≤ 337 ≤ 435	330 230 330	0.0020 0.0010 0.0020	0.0030 0.0020 0.0030	0.0050 0.0020 0.0050	0.0070 0.0040 0.0070	0.0080 0.0040 0.0080	0.0100 0.0050 0.0100				
Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	460 330	0.0040 0.0040	0.0060 0.0060	0.0100 0.0100	0.0140 0.0140	0.0160 0.0160	0.0200 0.0200				
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	460 330	0.0040 0.0040	0.0060 0.0060	0.0100 0.0100	0.0140 0.0140	0.0160 0.0160	0.0200 0.0200				
Chilled cast iron	≤ 38	≤ 354											
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301	330 330	0.0005 0.0005	0.0040 0.0040	0.0065 0.0065	0.0100 0.0100	0.0100 0.0100	0.0125 0.0125				
New cast materials ADI	≤ 32 ≤ 43	≤ 301 ≤ 402	295 295	0.0010 0.0010	0.0065 0.0065	0.0100 0.0100	0.0155 0.0155	0.0155 0.0155	0.0195 0.0195				
Special alloys	≤ 54	≤ 549	100	0.00040	0.0020	0.0025	0.0035	0.0040	0.0050				
Ti and Ti-alloys	≤ 25 ≤ 43	≤ 255 ≤ 402											
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si ≤ 24 % Si	- -	≤ 180 ≤ 180											
Magnesium alloys	-	≤ 120											
Copper, low-alloyed	-	≤ 150	395		0.0010	0.0020	0.0030	0.0030	0.0040				
Brass, short-chipping long-chipping	- -	≤ 180 ≤ 180	395	0.0040	0.0060	0.0100	0.0140	0.0160	0.0200				
Bronze, short-chipping	-	≤ 180											
Bronze, long-chipping	≤ 25 ≤ 32	≤ 255 ≤ 301											
Duroplastics Thermoplastics Reinforced plastics - Kevlar Reinforced plastics - GFK / CFK													

Material group	Hardness		SFM	Feed Rate - IPR									
	HRC	BHN		1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700 mm	5/8 in. 15.870 mm	3/4 in. 19.050 mm	1 in. 25.400 mm	1 1/4 in. 31.750 mm	1 1/2 in. 38.100 mm
Common structural steels	- ≤ 32	≤ 150 ≤ 301	330 330	0.0040 0.0040	0.0060 0.0060	0.0100 0.0100	0.0140 0.0140	0.0160 0.0160	0.0200 0.0200				
Free-cutting steels	≤ 25 ≤ 32	≤ 255 ≤ 301	395 330	0.0040 0.0040	0.0060 0.0060	0.0100 0.0100	0.0140 0.0140	0.0160 0.0160	0.0200 0.0200				
Unalloyed heat-treatable steels	≤ 20 ≤ 25 ≤ 32	≤ 220 ≤ 255 ≤ 301	360 330 330	0.0030 0.0040 0.0030	0.0040 0.0060 0.0050	0.0060 0.0100 0.0080	0.0090 0.0140 0.0110	0.0100 0.0160 0.0120	0.0120 0.0200 0.0160				
Alloyed heat-treatable steels	≤ 32 ≤ 43	≤ 301 ≤ 402	330 330	0.0030 0.0030	0.0050 0.0040	0.0080 0.0060	0.0110 0.0090	0.0120 0.0100	0.0160 0.0120				
Unalloyed case hardened steels	≤ 25	≤ 255	330	0.0040	0.0060	0.0100	0.0140	0.0160	0.0200				
Alloyed case hardened steels	≤ 32 ≤ 43	≤ 301 ≤ 402	330 330	0.0030 0.0030	0.0050 0.0040	0.0080 0.0060	0.0110 0.0090	0.0120 0.0100	0.0160 0.0120				
Nitriding steels	≤ 32 ≤ 43	≤ 301 ≤ 402	260 195	0.0020 0.0020	0.0030 0.0030	0.0050 0.0050	0.0070 0.0070	0.0080 0.0080	0.0100 0.0100				
Tool steels	≤ 25 ≤ 43	≤ 255 ≤ 402	295 230	0.0030 0.0020	0.0040 0.0020	0.0060 0.0040	0.0090 0.0060	0.0100 0.0060	0.0120 0.0080				
High speed steels	≤ 43	≤ 402	165	0.0020	0.0020	0.0040	0.0060	0.0060	0.0080				
Spring steels	≤ 38	≤ 354	165	0.0020	0.0020	0.0040	0.0060	0.0060	0.0080				
Hardened steels	≤ 48 ≤ 66	≤ 460 -	165 165	0.0020 0.0010	0.0020 0.0020	0.0040 0.0040	0.0060 0.0060	0.0060 0.0060	0.0080 0.0080				
Stainless steels, sulphured austenitic martensitic	≤ 28 ≤ 36 ≤ 46	≤ 273 ≤ 337 ≤ 435	330 230 330	0.0020 0.0010 0.0020	0.0030 0.0020 0.0030	0.0050 0.0020 0.0050	0.0070 0.0040 0.0070	0.0080 0.0040 0.0080	0.0100 0.0050 0.0100				
Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	425 295	0.0040 0.0040	0.0060 0.0060	0.0100 0.0100	0.0140 0.0140	0.0160 0.0160	0.0200 0.0200				
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354	425 295	0.0040 0.0040	0.0060 0.0060	0.0100 0.0100	0.0140 0.0140	0.0160 0.0160	0.0200 0.0200				
Chilled cast iron	≤ 38	≤ 354											
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301	295 295	0.0005 0.0005	0.0040 0.0040	0.0065 0.0065	0.0100 0.0100	0.0100 0.0100	0.0125 0.0125				
New cast materials ADI	≤ 32 ≤ 43	≤ 301 ≤ 402	260 260	0.0010 0.0010	0.0065 0.0065	0.0100 0.0100	0.0155 0.0155	0.0155 0.0155	0.0195 0.0195				
Special alloys	≤ 54	≤ 549	100	0.00040	0.0020	0.0025	0.0035	0.0040	0.0050				
Ti and Ti-alloys	≤ 25 ≤ 43	≤ 255 ≤ 402											
Aluminium and Al-alloys	-	≤ 120											
Al wrought alloys	-	≤ 200											
Al cast alloys ≤ 10 % Si ≤ 24 % Si	- -	≤ 180 ≤ 180											
Magnesium alloys	-	≤ 120											
Copper, low-alloyed	-	≤ 150	395		0.0010	0.0020	0.0030	0.0030	0.0040				
Brass, short-chipping long-chipping	- -	≤ 180 ≤ 180	360	0.0040	0.0060	0.0100	0.0140	0.0160	0.0200				
Bronze, short-chipping	-	≤ 180											
Bronze, long-chipping	≤ 25 ≤ 32	≤ 255 ≤ 301											
Duroplastics Thermoplastics Reinforced plastics - Kevlar Reinforced plastics - GFK / CFK													

Technical Information - Deep Hole Drilling



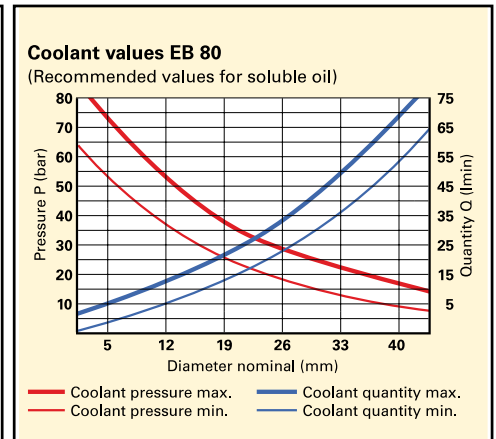
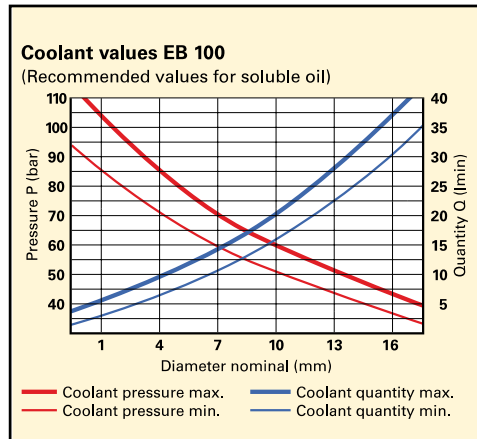
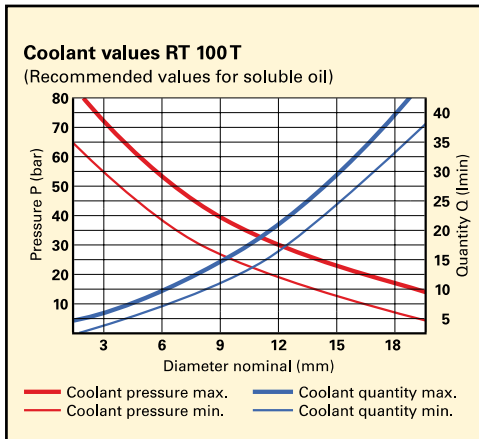
RT100T deep hole drills must utilize a pilot hole to guide the drill. Deep hole drills must never operate at full speed without support in the pilot hole.



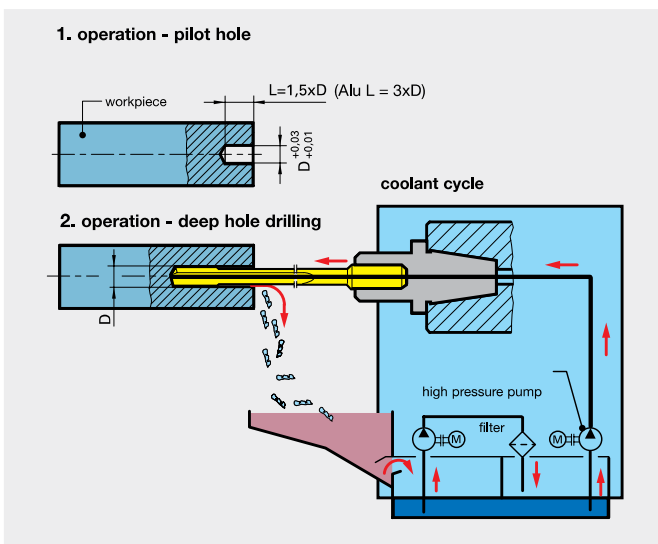
Recommended drilling procedure for RT 100 T drills:

- Machine a pilot hole with an m7 toleranced Guhring type RT 100 drill (i.e., series 5510) to a minimum pilot depth of 1.5xD to 3xD.
- Enter the pilot hole at a speed of approx. 300 RPM, and with a feed rate of approx. 20 IPM stopping just shy of the bottom of the hole.
- Start high coolant pressure and increase RPM to recommended value.
- Feed drill at recommended feed rate to final hole depth. No peck cycle required.
- For through holes with oblique exit, reduce the feed rate to 40% approx. 1 mm prior to break-through.
- After reaching hole depth, turn off coolant, reduce machine spindle speed to 300RPM and withdraw the drill at a maximum feed rate of 200IPM.

Recommended Coolant Pressure



CNC machine tools



Gun drilling machines

