GUHRING

RT 100 T AL *deep hole drill for* ***ALUMINUM***

GUHRING – YOUR WORLDWIDE PARTNER

GUHRING'S DEEP HOLE AL SOLUTION

The RT 100 T AL solid carbide deep hole twist drill was designed specifically for machining aluminum alloys.

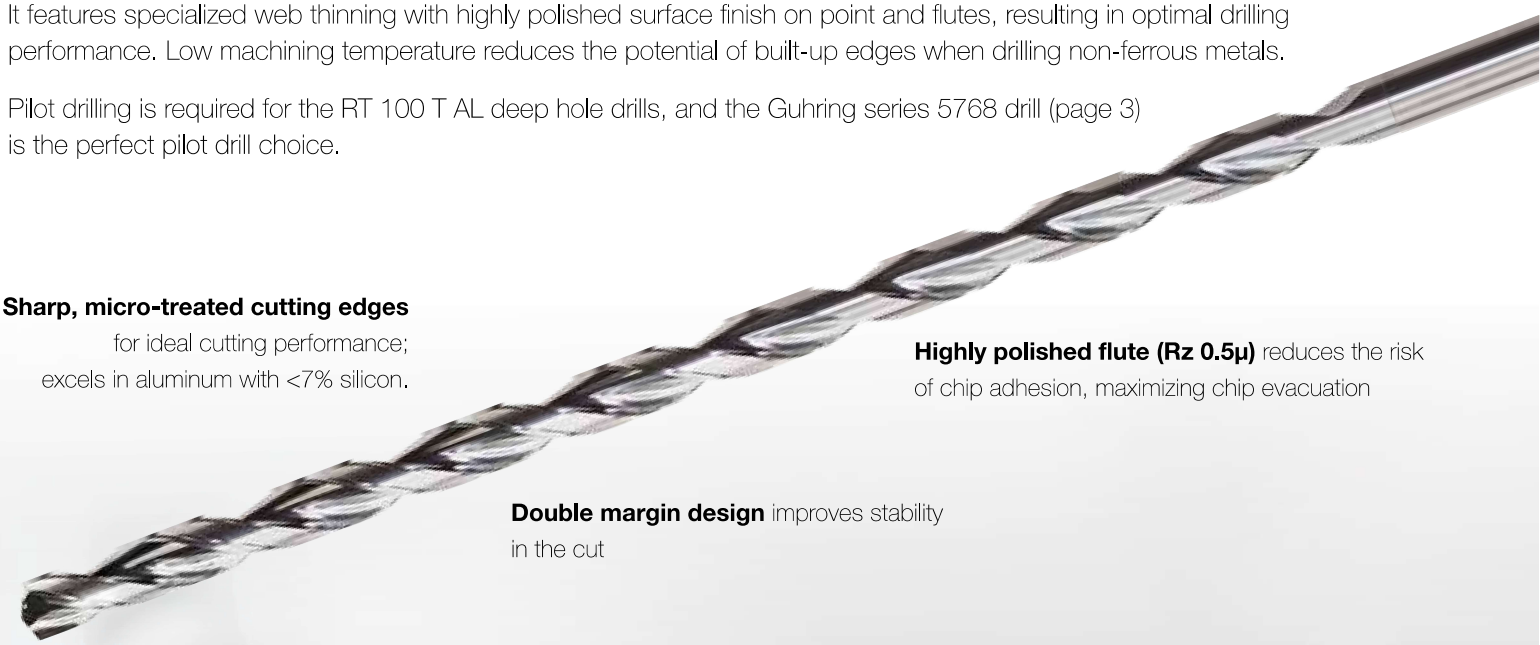
It features specialized web thinning with highly polished surface finish on point and flutes, resulting in optimal drilling performance. Low machining temperature reduces the potential of built-up edges when drilling non-ferrous metals.

Pilot drilling is required for the RT 100 T AL deep hole drills, and the Guhring series 5768 drill (page 3) is the perfect pilot drill choice.

Sharp, micro-treated cutting edges for ideal cutting performance; excels in aluminum with <7% silicon.

Highly polished flute (Rz 0.5µ) reduces the risk of chip adhesion, maximizing chip evacuation

Double margin design improves stability in the cut



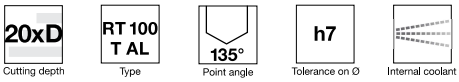
ADVANTAGES:

- **Reduction of machining time**
- **Ideal chip control and evacuation**
- **Optimum drilling results with excellent hole quality**
- **Ultimate performance when machining non-ferrous metals**

Available from stock in 15xD, 20xD and 25xD lengths, diameters from 3 to 14mm

Customized solutions available on request.

RT 100 T AL - Deep hole drill for aluminum



NEW

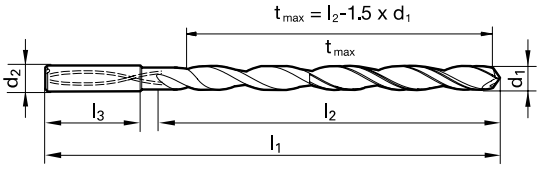
Tool material	Solid carbide
Coating	Uncoated
Shank form	HA

Material		Suitability
P	Steel	
M	Stainless steel	
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	
H	Hardened steel	

●=Optimal ○=Limited

facet point grind • main cutting edge form concave • optimized flute design • maximum diameter of coolant ducts • observe coolant pressure • for piloting we recommend RT 100 Al, Series 5768

aluminum and Al-alloys



										Series	6516
d1	d1	d1	d1	d2	l1	l2	t_{max}	l3	Code	EDP No.	
inch	fract. in	wire/ltr	mm	mm	mm	mm	mm	mm	no.		
0.1181			3.00	6.00	110.00	70.00	65.50	36.00	3.000	9065160030000	
0.1220			3.10	6.00	123.00	83.00	78.35	36.00	3.100	9065160031000	
0.1248	1/8		3.17	6.00	123.00	83.00	78.25	36.00	3.170	9065160031700	
0.1260			3.20	6.00	123.00	83.00	78.20	36.00	3.200	9065160032000	
0.1280			3.25	6.00	123.00	83.00	78.13	36.00	3.250	9065160032500	
0.1299			3.30	6.00	123.00	83.00	78.05	36.00	3.300	9065160033000	
0.1339			3.40	6.00	123.00	83.00	77.90	36.00	3.400	9065160034000	
0.1378			3.50	6.00	136.00	96.00	90.75	36.00	3.500	9065160035000	
0.1406	9/64		3.57	6.00	136.00	96.00	90.65	36.00	3.570	9065160035700	
0.1417			3.60	6.00	136.00	96.00	90.60	36.00	3.600	9065160036000	
0.1457			3.70	6.00	136.00	96.00	90.45	36.00	3.700	9065160037000	
0.1496			3.80	6.00	136.00	96.00	90.30	36.00	3.800	9065160038000	
0.1535			3.90	6.00	136.00	96.00	90.15	36.00	3.900	9065160039000	
0.1563	5/32		3.97	6.00	136.00	96.00	90.05	36.00	3.970	9065160039700	
0.1575			4.00	6.00	136.00	96.00	90.00	36.00	4.000	9065160040000	
0.1614			4.10	6.00	158.00	118.00	111.85	36.00	4.100	9065160041000	
0.1654			4.20	6.00	158.00	118.00	111.70	36.00	4.200	9065160042000	
0.1693			4.30	6.00	158.00	118.00	111.55	36.00	4.300	9065160043000	
0.1720	11/64		4.37	6.00	158.00	118.00	111.45	36.00	4.370	9065160043700	
0.1732			4.40	6.00	158.00	118.00	111.40	36.00	4.400	9065160044000	
0.1772			4.50	6.00	158.00	118.00	111.25	36.00	4.500	9065160045000	
0.1811			4.60	6.00	158.00	118.00	111.10	36.00	4.600	9065160046000	
0.1831			4.65	6.00	158.00	118.00	111.03	36.00	4.650	9065160046500	
0.1850		#13	4.70	6.00	158.00	118.00	110.95	36.00	4.700	9065160047000	
0.1874	3/16		4.76	6.00	158.00	118.00	110.86	36.00	4.760	9065160047600	
0.1890		#12	4.80	6.00	158.00	118.00	110.80	36.00	4.800	9065160048000	
0.1929			4.90	6.00	158.00	118.00	110.65	36.00	4.900	9065160049000	
0.1969			5.00	6.00	158.00	118.00	110.50	36.00	5.000	9065160050000	
0.2008			5.10	6.00	180.00	140.00	132.35	36.00	5.100	9065160051000	
0.2031	13/64		5.16	6.00	180.00	140.00	132.26	36.00	5.160	9065160051600	
0.2047			5.20	6.00	180.00	140.00	132.20	36.00	5.200	9065160052000	
0.2087			5.30	6.00	180.00	140.00	132.05	36.00	5.300	9065160053000	
0.2126			5.40	6.00	180.00	140.00	131.90	36.00	5.400	9065160054000	
0.2165			5.50	6.00	180.00	140.00	131.75	36.00	5.500	9065160055000	
0.2185			5.55	6.00	180.00	140.00	131.68	36.00	5.550	9065160055500	
0.2189	7/32		5.56	6.00	180.00	140.00	131.66	36.00	5.560	9065160055600	

								Series		6516
d1	d1	d1	d1	d2	l1	l2	t_{max}	l3	Code	EDP No.
inch	fract. in	wire/ltr	mm	mm	mm	mm	mm	mm	no.	
0.2205			5.60	6.00	180.00	140.00	131.60	36.00	5.600	**9065160056000**
0.2244			5.70	6.00	180.00	140.00	131.45	36.00	5.700	**9065160057000**
0.2283			5.80	6.00	180.00	140.00	131.30	36.00	5.800	**9065160058000**
0.2323			5.90	6.00	180.00	140.00	131.15	36.00	5.900	**9065160059000**
0.2343	15/64		5.95	6.00	180.00	140.00	131.08	36.00	5.950	**9065160059500**
0.2362			6.00	6.00	180.00	140.00	131.00	36.00	6.000	**9065160060000**
0.2402			6.10	8.00	202.00	162.00	152.85	36.00	6.100	**9065160061000**
0.2441			6.20	8.00	202.00	162.00	152.70	36.00	6.200	**9065160062000**
0.2480			6.30	8.00	202.00	162.00	152.55	36.00	6.300	**9065160063000**
0.2500	1/4	E	6.35	8.00	202.00	162.00	152.48	36.00	6.350	**9065160063500**
0.2520			6.40	8.00	202.00	162.00	152.40	36.00	6.400	**9065160064000**
0.2559			6.50	8.00	202.00	162.00	152.25	36.00	6.500	**9065160065000**
0.2598			6.60	8.00	202.00	162.00	152.10	36.00	6.600	**9065160066000**
0.2638			6.70	8.00	202.00	162.00	151.95	36.00	6.700	**9065160067000**
0.2657	17/64		6.75	8.00	202.00	162.00	151.88	36.00	6.750	**9065160067500**
0.2677			6.80	8.00	202.00	162.00	151.80	36.00	6.800	**9065160068000**
0.2717			6.90	8.00	202.00	162.00	151.65	36.00	6.900	**9065160069000**
0.2756			7.00	8.00	202.00	162.00	151.50	36.00	7.000	**9065160070000**
0.2795			7.10	8.00	223.00	183.00	172.35	36.00	7.100	**9065160071000**
0.2811	9/32		7.14	8.00	223.00	183.00	172.29	36.00	7.140	**9065160071400**
0.2835			7.20	8.00	223.00	183.00	172.20	36.00	7.200	**9065160072000**
0.2874			7.30	8.00	223.00	183.00	172.05	36.00	7.300	**9065160073000**
0.2913			7.40	8.00	223.00	183.00	171.90	36.00	7.400	**9065160074000**
0.2953			7.50	8.00	223.00	183.00	171.75	36.00	7.500	**9065160075000**
0.2969	19/64		7.54	8.00	223.00	183.00	171.69	36.00	7.540	**9065160075400**
0.2992			7.60	8.00	223.00	183.00	171.60	36.00	7.600	**9065160076000**
0.3031			7.70	8.00	223.00	183.00	171.45	36.00	7.700	**9065160077000**
0.3071			7.80	8.00	223.00	183.00	171.30	36.00	7.800	**9065160078000**
0.3110			7.90	8.00	223.00	183.00	171.15	36.00	7.900	**9065160079000**
0.3126	5/16		7.94	8.00	223.00	183.00	171.09	36.00	7.940	**9065160079400**
0.3150			8.00	8.00	223.00	183.00	171.00	36.00	8.000	**9065160080000**
0.3189			8.10	10.00	249.00	205.00	192.85	40.00	8.100	**9065160081000**
0.3228			8.20	10.00	249.00	205.00	192.70	40.00	8.200	**9065160082000**
0.3268			8.30	10.00	249.00	205.00	192.55	40.00	8.300	**9065160083000**
0.3280	21/64		8.33	10.00	249.00	205.00	192.51	40.00	8.330	**9065160083300**
0.3307			8.40	10.00	249.00	205.00	192.40	40.00	8.400	**9065160084000**
0.3346			8.50	10.00	249.00	205.00	192.25	40.00	8.500	**9065160085000**
0.3386			8.60	10.00	249.00	205.00	192.10	40.00	8.600	**9065160086000**
0.3425			8.70	10.00	249.00	205.00	191.95	40.00	8.700	**9065160087000**
0.3437	11/32		8.73	10.00	249.00	205.00	191.91	40.00	8.730	**9065160087300**
0.3465			8.80	10.00	249.00	205.00	191.80	40.00	8.800	**9065160088000**
0.3504			8.90	10.00	249.00	205.00	191.65	40.00	8.900	**9065160089000**
0.3543			9.00	10.00	249.00	205.00	191.50	40.00	9.000	**9065160090000**
0.3583			9.10	10.00	271.00	227.00	213.35	40.00	9.100	**9065160091000**
0.3594	23/64		9.13	10.00	271.00	227.00	213.31	40.00	9.130	**9065160091300**
0.3622			9.20	10.00	271.00	227.00	213.20	40.00	9.200	**9065160092000**
0.3642			9.25	10.00	271.00	227.00	213.13	40.00	9.250	**9065160092500**
0.3661			9.30	10.00	271.00	227.00	213.05	40.00	9.300	**9065160093000**
0.3677			9.34	10.00	271.00	227.00	212.99	40.00	9.340	**9065160093400**
0.3701			9.40	10.00	271.00	227.00	212.90	40.00	9.400	**9065160094000**
0.3740			9.50	10.00	271.00	227.00	212.75	40.00	9.500	**9065160095000**
0.3748	3/8		9.52	10.00	271.00	227.00	212.72	40.00	9.520	**9065160095200**
0.3780			9.60	10.00	271.00	227.00	212.60	40.00	9.600	**9065160096000**
0.3819			9.70	10.00	271.00	227.00	212.45	40.00	9.700	**9065160097000**
0.3858			9.80	10.00	271.00	227.00	212.30	40.00	9.800	**9065160098000**
0.3898			9.90	10.00	271.00	227.00	212.15	40.00	9.900	**9065160099000**
0.3906	25/64		9.92	10.00	271.00	227.00	212.12	40.00	9.920	**9065160099200**
0.3937			10.00	10.00	271.00	227.00	212.00	40.00	10.000	**9065160100000**
0.3976			10.10	12.00	302.00	253.00	237.85	45.00	10.100	**9065160101000**

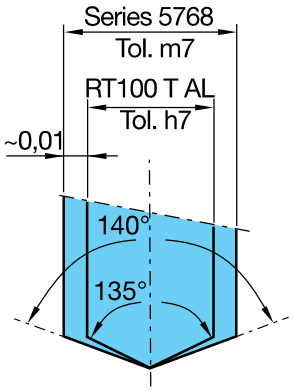
							Series			6516
d1	d1	d1	d1	d2	l1	l2	t_{max}	l3	Code	EDP No.
inch	fract. in	wire/ltr	mm	mm	mm	mm	mm	mm	no.	
0.4016			10.20	12.00	302.00	253.00	237.70	45.00	10.200	**9065160102000**
0.4055			10.30	12.00	302.00	253.00	237.55	45.00	10.300	**9065160103000**
0.4063	13/32		10.32	12.00	302.00	253.00	237.52	45.00	10.320	**9065160103200**
0.4094			10.40	12.00	302.00	253.00	237.40	45.00	10.400	**9065160104000**
0.4134			10.50	12.00	302.00	253.00	237.25	45.00	10.500	**9065160105000**
0.4173			10.60	12.00	302.00	253.00	237.10	45.00	10.600	**9065160106000**
0.4213			10.70	12.00	302.00	253.00	236.95	45.00	10.700	**9065160107000**
0.4252			10.80	12.00	302.00	253.00	236.80	45.00	10.800	**9065160108000**
0.4291			10.90	12.00	302.00	253.00	236.65	45.00	10.900	**9065160109000**
0.4331			11.00	12.00	302.00	253.00	236.50	45.00	11.000	**9065160110000**
0.4370			11.10	12.00	323.00	274.00	257.35	45.00	11.100	**9065160111000**
0.4374	7/16		11.11	12.00	323.00	274.00	257.34	45.00	11.110	**9065160111100**
0.4409			11.20	12.00	323.00	274.00	257.20	45.00	11.200	**9065160112000**
0.4449			11.30	12.00	323.00	274.00	257.05	45.00	11.300	**9065160113000**
0.4488			11.40	12.00	323.00	274.00	256.90	45.00	11.400	**9065160114000**
0.4528			11.50	12.00	323.00	274.00	256.75	45.00	11.500	**9065160115000**
0.4567			11.60	12.00	323.00	274.00	256.60	45.00	11.600	**9065160116000**
0.4606			11.70	12.00	323.00	274.00	256.45	45.00	11.700	**9065160117000**
0.4646			11.80	12.00	323.00	274.00	256.30	45.00	11.800	**9065160118000**
0.4685			11.90	12.00	323.00	274.00	256.15	45.00	11.900	**9065160119000**
0.4689	15/32		11.91	12.00	323.00	274.00	256.14	45.00	11.910	**9065160119100**
0.4724			12.00	12.00	323.00	274.00	256.00	45.00	12.000	**9065160120000**
0.4764			12.10	14.00	367.00	318.00	299.85	45.00	12.100	**9065160121000**
0.4803			12.20	14.00	367.00	318.00	299.70	45.00	12.200	**9065160122000**
0.4921			12.50	14.00	367.00	318.00	299.25	45.00	12.500	**9065160125000**
0.4961			12.60	14.00	367.00	318.00	299.10	45.00	12.600	**9065160126000**
0.5000	1/2		12.70	14.00	367.00	318.00	298.95	45.00	12.700	**9065160127000**
0.5039			12.80	14.00	367.00	318.00	298.80	45.00	12.800	**9065160128000**
0.5079			12.90	14.00	367.00	318.00	298.65	45.00	12.900	**9065160129000**
0.5118			13.00	14.00	367.00	318.00	298.50	45.00	13.000	**9065160130000**
0.5157	33/64		13.10	14.00	367.00	318.00	298.35	45.00	13.100	**9065160131000**
0.5236			13.30	14.00	367.00	318.00	298.05	45.00	13.300	**9065160133000**
0.5276			13.40	14.00	367.00	318.00	297.90	45.00	13.400	**9065160134000**
0.5315			13.50	14.00	367.00	318.00	297.75	45.00	13.500	**9065160135000**
0.5394			13.70	14.00	367.00	318.00	297.45	45.00	13.700	**9065160137000**
0.5433			13.80	14.00	367.00	318.00	297.30	45.00	13.800	**9065160138000**
0.5512			14.00	14.00	367.00	318.00	297.00	45.00	14.000	**9065160140000**

6515, 6516, 6517 (RT 100 T AL) Operating Parameters

Material group	Hardness		SFM	Feed Rate - IPR					
	HRc	Bhn		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
Aluminium and Al-alloys	-	≤ 120	395	0.0050	0.0080	0.0125	0.0125	0.0155	0.0195
Al wrought alloys	-	≤ 200	395	0.0050	0.0080	0.0125	0.0125	0.0155	0.0195
Al cast alloys ≤ 10 % Si	-	≤ 180	460	0.0065	0.0125	0.0155	0.0195	0.0250	0.0250
> 10 % Si	-	≤ 180	395	0.0065	0.0125	0.0155	0.0195	0.0250	0.0250
Magnesium alloys	-	≤ 120	510	0.0065	0.0100	0.0155	0.0155	0.0195	0.0250
Copper, low-alloyed	-	≤ 150	395	0.0025	0.0040	0.0065	0.0065	0.0080	0.0100
Brass, short-chipping	-	≤ 180	460	0.0050	0.0080	0.0125	0.0125	0.0155	0.0195
long-chipping	-	≤ 180	460	0.0050	0.0080	0.0125	0.0125	0.0155	0.0195
Bronze, short-chipping	-	≤ 180	395	0.0050	0.0080	0.0125	0.0125	0.0155	0.0195
	≤ 25	≤ 255	395	0.0040	0.0065	0.0100	0.0100	0.0125	0.0155
Bronze, long-chipping	≤ 25	≤ 255							
	≤ 32	≤ 301							
Duroplastics			330	0.0020	0.0030	0.0050	0.0050	0.0065	0.0080
Thermoplastics			330	0.0020	0.0030	0.0050	0.0050	0.0065	0.0080
Reinforced plastics - Kevlar									
Reinforced plastics - GFK / CFK									

5768 (Recommended pilot drill) Operating Parameters

Material group	Hardness		SFM	Feed Rate - IPR					
	HRc	Bhn		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
Aluminium and Al-alloys	-	≤ 120	1150	0.0065	0.0125	0.0155	0.0195	0.0250	0.0250
Al wrought alloys	-	≤ 200	1150	0.0065	0.0125	0.0155	0.0195	0.0250	0.0250
Al cast alloys ≤ 10 % Si	-	≤ 180	1050	0.0065	0.0100	0.0155	0.0155	0.0195	0.0250
> 10 % Si	-	≤ 180	920	0.0050	0.0080	0.0125	0.0125	0.0155	0.0195
Magnesium alloys	-	≤ 120	1050	0.0050	0.0080	0.0125	0.0125	0.0155	0.0195
Copper, low-alloyed	-	≤ 150	625	0.0050	0.0080	0.0125	0.0125	0.0155	0.0195
Brass, short-chipping	-	≤ 180	525	0.0040	0.0065	0.0100	0.0100	0.0125	0.0155
long-chipping	-	≤ 180	525	0.0040	0.0065	0.0100	0.0100	0.0125	0.0155
Bronze, short-chipping	-	≤ 180	525	0.0040	0.0065	0.0100	0.0100	0.0125	0.0155
	≤ 25	≤ 255	525	0.0040	0.0065	0.0100	0.0100	0.0125	0.0155
Bronze, long-chipping	≤ 25	≤ 255	490	0.0040	0.0065	0.0100	0.0100	0.0125	0.0155
	≤ 32	≤ 301	490	0.0040	0.0065	0.0100	0.0100	0.0125	0.0155
Duroplastics			330	0.0020	0.0030	0.0050	0.0050	0.0065	0.0080
Thermoplastics			330	0.0020	0.0030	0.0050	0.0050	0.0065	0.0080
Reinforced plastics - Kevlar									
Reinforced plastics - GFK / CFK			330	0.0015	0.0025	0.0040	0.0040	0.0050	0.0065



Pilot Hole

Recommended drilling procedure for RT100 T AL drills:

- Machine a pilot hole with an m7 toleranced Guhring series 5768 drill to a pilot depth of 2xD 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.