Ratio drills with coolant ducts

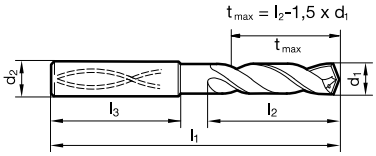
Article no. **6064**

cutting data see page 60

P	M	K	N	S	H
			●		

NEW · VHM · RT 100 AL · 12xD · WN · 135° · h7 · HA

Web thinning ≥ Ø 3.000 • relieved cone • main cutting edge is slightly concave • optimised cutting edge geometry • sharp cutting characteristics • polished functional surfaces for the prevention of built-up edges



Article no. **6064**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
3.000		6.0	95.0	55.0	36.0	6064 3.000
3.100		6.0	95.0	55.0	36.0	6064 3.100
3.170	1/8	6.0	95.0	55.0	36.0	6064 3.170
3.200		6.0	95.0	55.0	36.0	6064 3.200
3.250		6.0	95.0	55.0	36.0	6064 3.250
3.300		6.0	95.0	55.0	36.0	6064 3.300
3.400		6.0	95.0	55.0	36.0	6064 3.400
3.500		6.0	102.0	62.0	36.0	6064 3.500
3.570	9/64	6.0	102.0	62.0	36.0	6064 3.570
3.600		6.0	102.0	62.0	36.0	6064 3.600
3.700		6.0	102.0	62.0	36.0	6064 3.700
3.800		6.0	102.0	62.0	36.0	6064 3.800
3.900		6.0	102.0	62.0	36.0	6064 3.900
3.970	5/32	6.0	102.0	62.0	36.0	6064 3.970
4.000		6.0	102.0	62.0	36.0	6064 4.000
4.100		6.0	109.0	69.0	36.0	6064 4.100
4.200		6.0	109.0	69.0	36.0	6064 4.200
4.300		6.0	109.0	69.0	36.0	6064 4.300
4.370	11/64	6.0	109.0	69.0	36.0	6064 4.370
4.400		6.0	109.0	69.0	36.0	6064 4.400
4.500		6.0	116.0	76.0	36.0	6064 4.500
4.600		6.0	116.0	76.0	36.0	6064 4.600
4.650		6.0	116.0	76.0	36.0	6064 4.650
4.700		6.0	116.0	76.0	36.0	6064 4.700
4.760	3/16	6.0	116.0	76.0	36.0	6064 4.760
4.800		6.0	116.0	76.0	36.0	6064 4.800
4.900		6.0	116.0	76.0	36.0	6064 4.900
5.000		6.0	116.0	76.0	36.0	6064 5.000
5.100		6.0	123.0	83.0	36.0	6064 5.100
5.160	13/64	6.0	123.0	83.0	36.0	6064 5.160
5.200		6.0	123.0	83.0	36.0	6064 5.200
5.300		6.0	123.0	83.0	36.0	6064 5.300
5.400		6.0	123.0	83.0	36.0	6064 5.400
5.500		6.0	130.0	90.0	36.0	6064 5.500
5.550		6.0	130.0	90.0	36.0	6064 5.550
5.560	7/32	6.0	130.0	90.0	36.0	6064 5.560
5.600		6.0	130.0	90.0	36.0	6064 5.600
5.700		6.0	130.0	90.0	36.0	6064 5.700
5.800		6.0	130.0	90.0	36.0	6064 5.800
5.900		6.0	130.0	90.0	36.0	6064 5.900
5.950	15/64	6.0	130.0	90.0	36.0	6064 5.950
6.000		6.0	130.0	90.0	36.0	6064 6.000
6.100		8.0	158.0	118.0	36.0	6064 6.100
6.200		8.0	158.0	118.0	36.0	6064 6.200
6.300		8.0	158.0	118.0	36.0	6064 6.300
6.350	1/4	8.0	158.0	118.0	36.0	6064 6.350
6.400		8.0	158.0	118.0	36.0	6064 6.400
6.500		8.0	158.0	118.0	36.0	6064 6.500
6.600		8.0	158.0	118.0	36.0	6064 6.600
6.700		8.0	158.0	118.0	36.0	6064 6.700
6.750	17/64	8.0	158.0	118.0	36.0	6064 6.750
6.800		8.0	158.0	118.0	36.0	6064 6.800
6.900		8.0	158.0	118.0	36.0	6064 6.900
7.000		8.0	158.0	118.0	36.0	6064 7.000
7.100		8.0	158.0	118.0	36.0	6064 7.100
7.140	9/32	8.0	158.0	118.0	36.0	6064 7.140
7.200		8.0	158.0	118.0	36.0	6064 7.200
7.300		8.0	158.0	118.0	36.0	6064 7.300
7.400		8.0	158.0	118.0	36.0	6064 7.400
7.500		8.0	158.0	118.0	36.0	6064 7.500
7.540	19/64	8.0	158.0	118.0	36.0	6064 7.540
7.600		8.0	158.0	118.0	36.0	6064 7.600
7.700		8.0	158.0	118.0	36.0	6064 7.700
7.800		8.0	158.0	118.0	36.0	6064 7.800
7.900		8.0	158.0	118.0	36.0	6064 7.900
7.940	5/16	8.0	158.0	118.0	36.0	6064 7.940

Article no. **6064**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
8.000		8.0	158.0	118.0	36.0	6064 8.000
8.100		10.0	190.0	146.0	40.0	6064 8.100
8.200		10.0	190.0	146.0	40.0	6064 8.200
8.300		10.0	190.0	146.0	40.0	6064 8.300
8.330	21/64	10.0	190.0	146.0	40.0	6064 8.330
8.400		10.0	190.0	146.0	40.0	6064 8.400
8.500		10.0	190.0	146.0	40.0	6064 8.500
8.600		10.0	190.0	146.0	40.0	6064 8.600
8.700		10.0	190.0	146.0	40.0	6064 8.700
8.730	11/32	10.0	190.0	146.0	40.0	6064 8.730
8.800		10.0	190.0	146.0	40.0	6064 8.800
8.900		10.0	190.0	146.0	40.0	6064 8.900
9.000		10.0	190.0	146.0	40.0	6064 9.000
9.100		10.0	190.0	146.0	40.0	6064 9.100
9.130	23/64	10.0	190.0	146.0	40.0	6064 9.130
9.200		10.0	190.0	146.0	40.0	6064 9.200
9.250		10.0	190.0	146.0	40.0	6064 9.250
9.300		10.0	190.0	146.0	40.0	6064 9.300
9.340		10.0	190.0	146.0	40.0	6064 9.340
9.400		10.0	190.0	146.0	40.0	6064 9.400
9.500		10.0	190.0	146.0	40.0	6064 9.500
9.520	3/8	10.0	190.0	146.0	40.0	6064 9.520
9.600		10.0	190.0	146.0	40.0	6064 9.600
9.700		10.0	190.0	146.0	40.0	6064 9.700
9.800		10.0	190.0	146.0	40.0	6064 9.800
9.900		10.0	190.0	146.0	40.0	6064 9.900
9.920	25/64	10.0	190.0	146.0	40.0	6064 9.920
10.000		10.0	190.0	146.0	40.0	6064 10.000
10.100		12.0	223.0	174.0	45.0	6064 10.100
10.200		12.0	223.0	174.0	45.0	6064 10.200
10.300		12.0	223.0	174.0	45.0	6064 10.300
10.320	13/32	12.0	223.0	174.0	45.0	6064 10.320
10.400		12.0	223.0	174.0	45.0	6064 10.400
10.500		12.0	223.0	174.0	45.0	6064 10.500
10.600		12.0	223.0	174.0	45.0	6064 10.600
10.700		12.0	223.0	174.0	45.0	6064 10.700
10.800		12.0	223.0	174.0	45.0	6064 10.800
10.900		12.0	223.0	174.0	45.0	6064 10.900
11.000		12.0	223.0	174.0	45.0	6064 11.000
11.100		12.0	223.0	174.0	45.0	6064 11.100
11.110	7/16	12.0	223.0	174.0	45.0	6064 11.110
11.200		12.0	223.0	174.0	45.0	6064 11.200
11.300		12.0	223.0	174.0	45.0	6064 11.300
11.400		12.0	223.0	174.0	45.0	6064 11.400
11.500		12.0	223.0	174.0	45.0	6064 11.500
11.600		12.0	223.0	174.0	45.0	6064 11.600
11.700		12.0	223.0	174.0	45.0	6064 11.700
11.800		12.0	223.0	174.0	45.0	6064 11.800
11.900		12.0	223.0	174.0	45.0	6064 11.900
11.910	15/32	12.0	223.0	174.0	45.0	6064 11.910
12.000		12.0	223.0	174.0	45.0	6064 12.000
12.100		14.0	251.0	202.0	45.0	6064 12.100
12.200		14.0	251.0	202.0	45.0	6064 12.200
12.500		14.0	251.0	202.0	45.0	6064 12.500
12.600		14.0	251.0	202.0	45.0	6064 12.600
12.700	1/2	14.0	251.0	202.0	45.0	6064 12.700
12.800		14.0	251.0	202.0	45.0	6064 12.800
12.900		14.0	251.0	202.0	45.0	6064 12.900
13.000		14.0	251.0	202.0	45.0	6064 13.000
13.100	33/64	14.0	251.0	202.0	45.0	6064 13.100
13.300		14.0	251.0	202.0	45.0	6064 13.300
13.400		14.0	251.0	202.0	45.0	6064 13.400
13.500		14.0	251.0	202.0	45.0	6064 13.500
13.700		14.0	251.0	202.0	45.0	6064 13.700
13.800		14.0	251.0	202.0	45.0	6064 13.800
14.000		14.0	251.0	202.0	45.0	6064 14.000

Article no. **6064**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
14.500		16.0	282.0	230.0	48.0	6064 14.500
14.800		16.0	282.0	230.0	48.0	6064 14.800
15.000		16.0	282.0	230.0	48.0	6064 15.000
15.500		16.0	282.0	230.0	48.0	6064 15.500
15.800		16.0	282.0	230.0	48.0	6064 15.800
16.000		16.0	282.0	230.0	48.0	6064 16.000

Article no. **6064**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.

Ratio drills with coolant ducts RT 100 AL, 12xD

Machining group	v_c (m/min)	f (mm/rev) with nom. Ø 3	4	6	8	10	12	14	16
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm², 125 HB									
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm², 125 HB									
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm², 190 HB									
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm², 190 HB									
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm², 250 HB									
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm², 270 HB									
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm², 300 HB									
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm², 180 HB									
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm², 275 HB									
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm², 300 HB									
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm², 350 HB									
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm², 200 HB									
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm², 325 HB									
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives									
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm², 200 HB									
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm², 240 HB									
M2.1.1 Stainless steel, austenitic, quenched, 180 HB									
M2.2.1 Duplex steel, high-strength stainless steels									
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB									
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB									
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB									
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB									
K1.3.1 Malleable cast iron, ferritic, 130 HB									
K1.3.2 Malleable cast iron, pearlitic, 230 HB									
K2.1.1 Vermicular graphite cast iron (GJV)									
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)									
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	120	0.155	0.190	0.260	0.325	0.385	0.440	0.495	0.550
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	120	0.155	0.190	0.260	0.325	0.385	0.440	0.495	0.550
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	110	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	110	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	95	0.165	0.205	0.275	0.345	0.410	0.470	0.525	0.585
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	140	0.125	0.155	0.210	0.260	0.305	0.355	0.395	0.440
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	120	0.105	0.130	0.175	0.220	0.260	0.300	0.335	0.375
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	110	0.100	0.120	0.165	0.205	0.245	0.280	0.315	0.350
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	90	0.040	0.050	0.065	0.080	0.095	0.110	0.125	0.135
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.									
N4.1.3 Non-metallic materials: Graphite									
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB									
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB									
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB									
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB									
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB									
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm²									
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm²									
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC									
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC									
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC									
H2.1.1 Chilled cast iron, 400 HB									
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC									

All the values stated are guide values. You can find detailed cutting values online in our Gühring Navigator at webnavigator.guehring.de/en.

RT 100 AL

Drilling specialist for non-ferrous metals

No built-up edges and perfect chip removal

The RT 100 AL is characterised by its round, open point geometry and concave cutting edge shape.

As a result, the drill ensures optimum chip formation and safe chip removal in both wrought and cast aluminium alloys.

Furthermore, the sharp, micro-polished cutting edges ensure smooth cutting characteristics and low process temperatures. Combined with the polished flutes – which further promote chip removal – the polished surfaces in the web thinning and on the clearance faces prevent material adhesion and minimise built-up edges.

Your advantages: With the RT 100 AL, you benefit from maximum process reliability when machining non-ferrous metals, even with high cutting values.

x **Tool life** increased by 16 %

x **Machining time** reduced by 25 %

- soft cut & low process temperature even in heat-treated AlSi alloys
- fewer built-up edges & less material adhesion
- long tool life thanks to wear-resistant carbide grade
- optimum formation & removal of chips in non-ferrous metals

optimised open point geometry
for optimum chip removal

sharp, concave cutting edges
for smooth cutting characteristics & low process temperatures

polished functional surfaces
prevent material adhesion & minimise built-up edges

available in the diameter range
3xD | 5xD | 7xD, Ø 3.0 – 20.0 mm
12xD, Ø 3.0 – 16.0 mm

Application example

Component:	Moulded part in the food industry, AlMg5 (3.3555)	
Tool:	#6062, Ø 11.8 mm	
Customer target:	Process-reliable and economical machining	
Difficulty:	Reliable chip removal with high machining parameters	
Cutting data:	**Gühring** v_c 250 m/min **f** 0.35 mm/rev	**Competition** v_c 220 m/min **f** 0.30 mm/rev
Tool life:	4608 m	3974 m