HAM PRECISION

Precision Solid Carbide
High Performance Drills

High Performance Drills for Highest Production Demands

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Explanation of Pictograms

Number of Flutes

2 Flutes

Cutting Length

3 x Diameter

5 x Diameter

7 x Diameter

8 x Diameter

12 x Diameter

15 x Diameter

20 x Diameter

25 x Diameter

30 x Diameter

40 x Diameter

Shank

Cylindrical Shank acc. DIN

Clamping Fixture Weldon

Clamping Fixture Whistle Notch

Cylindrical Shank

Shank HA with IC

Shank HB with IC

Shank HE with IC

Shrink Fit

Helix Angle

30° Right Hand Helix

15° Right Hand Helix

0° Helix

Point Angle

Application

Web Thining


Coolant

Mist Coolant External

Flood Coolant

No Coolant

High Performance Cutting

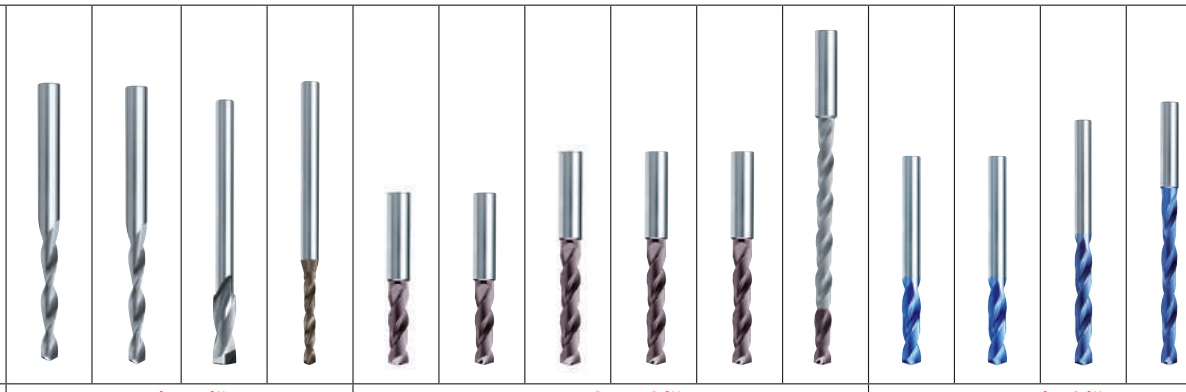
Hybrid Suface Finishing

Coatings

TiAlN Based Coating, 1.5 um thickness, Blue/ Black Color

TiAlN Based Coating, 4 um thickness, Blue/ Black Color

TiAlN Based Coating, 4 um thickness, Blue-Color



Drill Description	Twist Drill				HAM Superdrill						HAM Nirodrill			
DIN	338	338	HAM	HAM	6537 K	6537 K	6537	6537	HAM	HAM	HAM	HAM	6537	HAM
Drill Length			—	—	3 x D	3 x D	5 x D	5 x D	8 x D	12 x D	3 x D	3 x D	5 x D	8 x D
Part Number	30-1120	30-1121	30-1160	30-1301	30-1621	30-1741	30-1701	30-1781	30-1821	30-1861	30-1891	30-1881	30-1901	30-1941
HAM Type	310	310	313	—	280	285	283	286	292	293	—	—	270	271
Page Number	8	8	10	11	14	16	18	20	22	24	28	30	32	34
Material	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide
Flutes	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Coating	TA	TA	—	TA	TA-C	TA-C	TA-C	TA-C	TA-C	TA-C	TA-CN	TA-CN	TA-CN	TA-CN
Ø in mm	1.0 - 16.0	1.0 - 16.0	0.5 - 3.0	0.1 - 3.0	2.8 - 20.0	3.0 - 22.0	3.0 - 16.0	3.0 - 20.0	3.0 - 20.0	3.0 - 12.0	2.8 - 16.0	2.8 - 16.0	3.0 - 16.0	3.0 - 16.0
Ø in inch	.04 - .63	.04 - .63	.02 - .12	.004 - .12	.11 - .79	.11 - .87	.11 - .63	.11 - .79	.11 - .79	.11 - .47	.11 - .63	.11 - .63	.11 - .63	.11 - .63
Internal Coolant	No	No	No	No	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Direction of Cut	Right	Right	Right	Right	Right	Right	Right	Right	Right	Right	Right	Right	Right	Right
Flute Style	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral
Point Angle	120° Form A	120° Form A	130° Form A	140° Form C	140° Werk	140° Werk	140° Werk	140° Werk	140° Werk	140° Werk	140° Werk	140° Werk	140° Werk	140° Werk
Material Group														
Aluminum	○	○	●		○	○	○	○	○	○	●	●	●	●
Aluminum > 9% Si	○	○	●		○	○	○	○	○	○	○	○	○	○
Steel < 23 HRC	○	●	○	●	●	●	●	●	●	●				
Steel < 38 HRC	○	●	○	●	●	●	●	●	●	●				
Steel < 48 HRC	○	○		●	●	●	●	●	●	●				
Steel < 55 HRC				○	●	●	●	●	●	●				
Steel < 60 HRC														
Steel < 66 HRC														
SST < 23 HRC	○	○	○	○	○	○	○	○	○	○	●	●	●	●
SST > 23 HRC	○	○	○	○	○	○	○	○	○	○	●	●	●	●
SST > 40 HRC	○	○	○	○	○	○	○	○	○	○	●	●	●	●
Cast Iron	○	●	○	●	●	●	●	●	●	●	○	○	○	○
Nodular, Ductile Iron	○	●		○	●	●	●	●	●	●				
Iconel Super Alloys					○	○	○	○	○	○	○	○	○	○
Titanium			○	●	○	○	○	○	○	○	●	●	●	●
Copper, Non-Ferrous	●	○	●								●	●	●	●
Graphite, Composites			○								○	○	○	○

● very suitable ○ limited suitable

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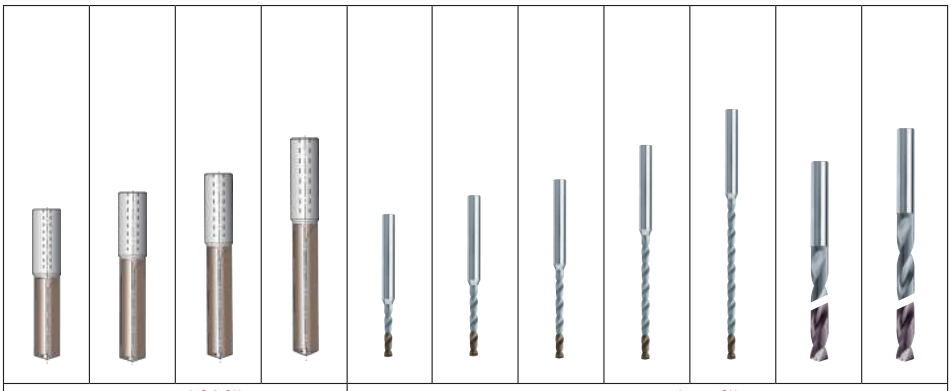
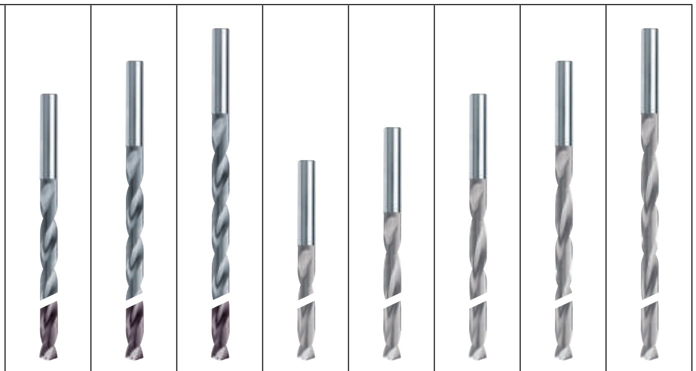


HAM Multidrill				HAM Deep Hole Drills						
HAM	HAM	HAM	HAM	HAM	HAM	HAM	HAM	HAM	HAM	HAM
3 x D	5 x D	7 x D	12 x D	5 x D	8 x D	12 x D	15 x D	20 x D	15 x D	20 x D
30-1961	30-2001	30-2041	30-2081	30-2181	30-2221	30-2261	30-2301	30-2341	30-2381	30-2421
297	298	299	294	—	—	—	—	—	—	—
38	39	40	41	44	45	46	47	48	50	52
Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide
2	2	2	2	2	2	2	2	2	2	2
TA	TA	TA	TA	TA	TA	TA	TA	TA-C	TA-C	TA-C
4.0 - 20.0	6.8 - 20.0	4.0 - 20.0	4.0 - 16.0	1.0 - 3.0	1.0 - 3.0	1.0 - 3.0	1.0 - 3.0	1.0 - 3.0	3.0 - 14.0	3.0 - 14.0
.16 - .79	.27 - .79	.16 - .79	.16 - .63	.04 - .12	.04 - .12	.04 - .12	.04 - .12	.04 - .12	.12 - .55	.12 - .55
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Right	Right	Right	Right	Right	Right	Right	Right	Right	Right	Right
Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral
140°	140°	140°	140°	135°	135°	135°	135°	135°	137°	137°
Werk	Werk	Werk	Werk	Werk	Werk	Werk	Werk	Werk	Werk	Werk
●	●	●	●							
●	●	●	●							
				●	●	●	●	●	●	●
				●	●	●	●	●	●	●
				○	○	○	○	○	○	○
				●	●	●	●	●	●	●
				○	○	○	○	○	○	○
				○	○	○	○	○	○	○
●	●	●	●	●	●	●	●	●	●	●
○	○	○	○	●	●	●	●	●	●	●
				○	○	○	○	○	○	○
				○	○	○	○	○	○	○
●	●	●	●							

● very suitable ○ limited suitable



Drill Description	HAM Deep Hole Drills							
DIN	HAM	HAM	HAM	HAM	HAM	HAM	HAM	HAM
Drill Length	25 x D	30 x D	40 x D	15 x D	20 x D	25 x D	30 x D	40 x D
Part Number	30-2461	30-2501	30-2541	30-2580	30-2620	30-2660	30-2700	30-2740
HAM Type	—	—	—	—	—	—	—	—
Page Number	54	56	58	60	62	64	66	68
Material	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide
Flutes	2	2	2	2	2	2	2	2
Coating	TA-C	TA-C	TA-C	—	—	—	—	—
Ø in mm	3.0 - 12.0	3.0 - 12.0	3.0 - 9.2	2.0 - 14.0	2.0 - 14.0	2.0 - 13.5	2.0 - 12.0	2.0 - 8.8
Ø in inch	.12 - .47	.12 - .47	.12 - .36	.08 - .55	.08 - .55	.08 - .53	.08 - .47	.08 - .35
Internal Coolant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Direction of Cut	Right	Right	Right	Right	Right	Right	Right	Right
Flute Style	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral	Spiral
Point Angle	137° Werk	137° Werk	137° Werk	137° Werk	137° Werk	137° Werk	137° Werk	137° Werk
Material Group								
Aluminum				●	●	●	●	●
Aluminum > 9% Si				●	●	●	●	●
Steel < 23 HRC	●	●	●					
Steel < 38 HRC	●	●	●					
Steel < 48 HRC	○	○	○					
Steel < 55 HRC								
Steel < 60 HRC								
Steel < 66 HRC								
SST < 23 HRC	●	●	●					
SST > 23 HRC	○	○	○					
SST > 40 HRC	○	○	○					
Cast Iron	●	●	●					
Nodular, Ductile Iron	●	●	●					
Iconel Super Alloys	○	○	○					
Titanium	○	○	○					
Copper, Non-Ferrous				●	●	●	●	●
Graphite, Composites								
UNI								

● very suitable ○ limited suitable

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Spiral Drills

HAM 30 - 1120/1121 Solid Carbide Spiral Drill Jobbers Drill

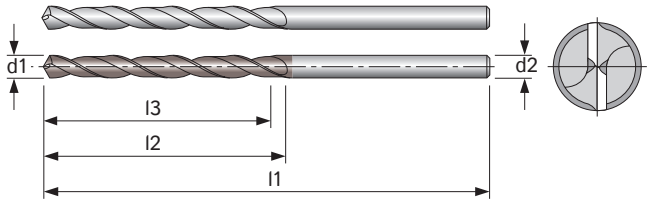
Z 2 | 30° Right | DIN 338

Typ N | 120° | HA

TA

Engineering data

- 4-facet ground
- web thinning DIN 1412 form A
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1120	○	○	○	○	○				○	○	○	○			●		○	●	○	○
30-1121	○	○	●	●	○				○	○	●	●			○		○	●	○	○

● very suitable ○ suitable

30-1120 30-1121 Ø d1 (h7) mm	Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
1.00		0.0394	0.41	0.47	1.34	10.50	12.00	34.00	1.00
1.10		0.0433	0.49	0.55	1.42	12.50	14.00	36.00	1.10
1.20		0.0472	0.55	0.63	1.50	14.00	16.00	38.00	1.20
1.30		0.0512	0.55	0.63	1.50	14.00	16.00	38.00	1.30
1.40		0.0551	0.63	0.71	1.57	16.00	18.00	40.00	1.40
1.50		0.0591	0.63	0.71	1.57	16.00	18.00	40.00	1.50
1.60		0.0630	0.69	0.79	1.69	17.50	20.00	43.00	1.60
1.70		0.0669	0.69	0.79	1.69	17.50	20.00	43.00	1.70
1.80		0.0709	0.77	0.87	1.81	19.50	22.00	46.00	1.80
1.90		0.0748	0.77	0.87	1.81	19.50	22.00	46.00	1.90
1.98	5/64	0.0781	0.83	0.94	1.93	21.00	24.00	49.00	1.98
2.00		0.0787	0.83	0.94	1.93	21.00	24.00	49.00	2.00
2.08		0.0820	0.83	0.94	1.93	21.00	24.00	49.00	2.08
2.10		0.0827	0.83	0.94	1.93	21.00	24.00	49.00	2.10
2.20		0.0866	0.94	1.06	2.09	24.00	27.00	53.00	2.20
2.25		0.0885	0.94	1.06	2.09	24.00	27.00	53.00	2.25
2.30		0.0906	0.94	1.06	2.09	24.00	27.00	53.00	2.30
2.35		0.0925	0.94	1.06	2.09	24.00	27.00	53.00	2.35
2.40		0.0945	1.02	1.18	2.24	26.00	30.00	57.00	2.40
2.50		0.0984	1.02	1.18	2.24	26.00	30.00	57.00	2.50
2.60		0.1024	1.02	1.18	2.24	26.00	30.00	57.00	2.60
2.70		0.1063	1.14	1.30	2.40	29.00	33.00	61.00	2.70
2.78	7/64	0.1095	1.14	1.30	2.40	29.00	33.00	61.00	2.78
2.80		0.1102	1.14	1.30	2.40	29.00	33.00	61.00	2.80
2.90		0.1142	1.14	1.30	2.40	29.00	33.00	61.00	2.90
3.00		0.1181	1.14	1.30	2.40	29.00	33.00	61.00	3.00
3.10		0.1220	1.26	1.42	2.56	32.00	36.00	65.00	3.10
3.17	1/8	0.1250	1.26	1.42	2.56	32.00	36.00	65.00	3.17
3.20		0.1260	1.26	1.42	2.56	32.00	36.00	65.00	3.20
3.25		0.1279	1.26	1.42	2.56	32.00	36.00	65.00	3.25
3.30		0.1299	1.26	1.42	2.56	32.00	36.00	65.00	3.30
3.40		0.1339	1.34	1.54	2.76	34.00	39.00	70.00	3.40
3.50		0.1378	1.34	1.54	2.76	34.00	39.00	70.00	3.50
3.57	9/64	0.1406	1.34	1.54	2.76	34.00	39.00	70.00	3.57
3.60		0.1417	1.34	1.54	2.76	34.00	39.00	70.00	3.60
3.70		0.1457	1.34	1.54	2.76	34.00	39.00	70.00	3.70
3.75		0.1476	1.34	1.54	2.76	34.00	39.00	70.00	3.75
3.80		0.1496	1.46	1.69	2.95	37.00	43.00	75.00	3.80
3.90		0.1535	1.46	1.69	2.95	37.00	43.00	75.00	3.90
3.97	5/32	0.1562	1.46	1.69	2.95	37.00	43.00	75.00	3.97

30-1120 30-1121 Ø d1 (h7) mm	Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
4.00		0.1575	1.46	1.69	2.95	37.00	43.00	75.00	4.00
4.03	#21	0.1590	1.46	1.69	2.95	37.00	43.00	75.00	4.03
4.10		0.1614	1.46	1.69	2.95	37.00	43.00	75.00	4.10
4.20		0.1654	1.46	1.69	2.95	37.00	43.00	75.00	4.20
4.25		0.1673	1.46	1.69	2.95	37.00	43.00	75.00	4.25
4.30	11/64	0.1693	1.61	1.85	3.15	41.00	47.00	80.00	4.30
4.37		0.1718	1.61	1.85	3.15	41.00	47.00	80.00	4.37
4.40		0.1732	1.61	1.85	3.15	41.00	47.00	80.00	4.40
4.50		0.1772	1.61	1.85	3.15	41.00	47.00	80.00	4.50
4.60		0.1811	1.61	1.85	3.15	41.00	47.00	80.00	4.60
4.70	3/16	0.1850	1.61	1.85	3.15	41.00	47.00	80.00	4.70
4.76		0.1875	1.77	2.05	3.39	45.00	52.00	86.00	4.76
4.80		0.1890	1.77	2.05	3.39	45.00	52.00	86.00	4.80
4.90		0.1929	1.77	2.05	3.39	45.00	52.00	86.00	4.90
5.00		0.1969	1.77	2.05	3.39	45.00	52.00	86.00	5.00
5.10	13/64	0.2008	1.77	2.05	3.39	45.00	52.00	86.00	5.10
5.16		0.2031	1.77	2.05	3.39	45.00	52.00	86.00	5.16
5.20		0.2047	1.77	2.05	3.39	45.00	52.00	86.00	5.20
5.30		0.2087	1.77	2.05	3.39	45.00	52.00	86.00	5.30
5.40		0.2126	1.93	2.24	3.66	49.00	57.00	93.00	5.40
5.50	7/32	0.2165	1.93	2.24	3.66	49.00	57.00	93.00	5.50
5.55		0.2187	1.93	2.24	3.66	49.00	57.00	93.00	5.55
5.60		0.2205	1.93	2.24	3.66	49.00	57.00	93.00	5.60
5.70		0.2244	1.93	2.24	3.66	49.00	57.00	93.00	5.70
5.80		0.2283	1.93	2.24	3.66	49.00	57.00	93.00	5.80
5.90	15/64	0.2323	1.93	2.24	3.66	49.00	57.00	93.00	5.90
5.95		0.2343	1.93	2.24	3.66	49.00	57.00	93.00	5.95
6.00		0.2362	1.93	2.24	3.66	49.00	57.00	93.00	6.00
6.10		0.2402	2.17	2.48	3.98	55.00	63.00	101.00	6.10
6.20		0.2441	2.17	2.48	3.98	55.00	63.00	101.00	6.20
6.30	1/4	0.2480	2.17	2.48	3.98	55.00	63.00	101.00	6.30
6.35		0.2500	2.17	2.48	3.98	55.00	63.00	101.00	6.35
6.40		0.2520	2.17	2.48	3.98	55.00	63.00	101.00	6.40
6.50	F	0.2559	2.17	2.48	3.98	55.00	63.00	101.00	6.50
6.53		0.2570	2.17	2.48	3.98	55.00	63.00	101.00	6.53
6.60		0.2598	2.17	2.48	3.98	55.00	63.00	101.00	6.60
6.70	17/64	0.2638	2.17	2.48	3.98	55.00	63.00	101.00	6.70
6.75		0.2656	2.36	2.72	4.29	60.00	69.00	109.00	6.75
6.80		0.2677	2.36	2.72	4.29	60.00	69.00	109.00	6.80
6.90		0.2717	2.36	2.72	4.29	60.00	69.00	109.00	6.90

For cutting data, see page 72.

Ordering example: 30-1120-0470

30-1120 30-1121 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
7.00		0.2756	2.36	2.72	4.29	60.00	69.00	109.00	7.00
7.10		0.2795	2.36	2.72	4.29	60.00	69.00	109.00	7.10
7.14	9/32	0.2812	2.36	2.72	4.29	60.00	69.00	109.00	7.14
7.20		0.2835	2.36	2.72	4.29	60.00	69.00	109.00	7.20
7.30		0.2874	2.36	2.72	4.29	60.00	69.00	109.00	7.30
7.40		0.2913	2.36	2.72	4.29	60.00	69.00	109.00	7.40
7.50		0.2953	2.36	2.72	4.29	60.00	69.00	109.00	7.50
7.54	19/64	0.2968	2.52	2.95	4.61	64.00	75.00	117.00	7.54
7.60		0.2992	2.52	2.95	4.61	64.00	75.00	117.00	7.60
7.70		0.3031	2.52	2.95	4.61	64.00	75.00	117.00	7.70
7.80		0.3071	2.52	2.95	4.61	64.00	75.00	117.00	7.80
7.90		0.3110	2.52	2.95	4.61	64.00	75.00	117.00	7.90
7.94	5/16	0.3125	2.52	2.95	4.61	64.00	75.00	117.00	7.94
8.00		0.3150	2.52	2.95	4.61	64.00	75.00	117.00	8.00
8.10		0.3189	2.52	2.95	4.61	64.00	75.00	117.00	8.10
8.20		0.3228	2.52	2.95	4.61	64.00	75.00	117.00	8.20
8.30		0.3268	2.52	2.95	4.61	64.00	75.00	117.00	8.30
8.33	21/64	0.3281	2.52	2.95	4.61	64.00	75.00	117.00	8.33
8.40		0.3307	2.52	2.95	4.61	64.00	75.00	117.00	8.40
8.50		0.3346	2.52	2.95	4.61	64.00	75.00	117.00	8.50
8.60		0.3386	2.72	3.19	4.92	69.00	81.00	125.00	8.60
8.70		0.3425	2.72	3.19	4.92	69.00	81.00	125.00	8.70
8.73	11/32	0.3437	2.72	3.19	4.92	69.00	81.00	125.00	8.73
8.80		0.3465	2.72	3.19	4.92	69.00	81.00	125.00	8.80
8.85	S	0.3484	2.72	3.19	4.92	69.00	81.00	125.00	8.85
8.90		0.3504	2.72	3.19	4.92	69.00	81.00	125.00	8.90
9.00		0.3543	2.72	3.19	4.92	69.00	81.00	125.00	9.00
9.13	23/64	0.3593	2.72	3.19	4.92	69.00	81.00	125.00	9.13

For cutting data, see page 72.

30-1120 30-1120 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.50		0.3740	2.72	3.19	4.92	69.00	81.00	125.00	9.50
9.52	3/8	0.3750	2.72	3.19	4.92	69.00	81.00	125.00	9.52
9.60		0.3779	2.72	3.19	4.92	69.00	81.00	125.00	9.60
9.92	25/64	0.3906	2.72	3.19	4.92	69.00	81.00	125.00	9.92
10.00		0.3937	2.91	3.43	5.24	74.00	87.00	133.00	10.00
10.32	13/32	0.4062	2.91	3.43	5.24	74.00	87.00	133.00	10.32
10.50		0.4134	2.91	3.43	5.24	74.00	87.00	133.00	10.50
10.72	27/64	0.4219	2.91	3.43	5.24	74.00	87.00	133.00	10.72
11.00		0.4331	3.15	3.70	5.59	80.00	94.00	142.00	11.00
11.11	7/16	0.4375	3.15	3.70	5.59	80.00	94.00	142.00	11.11
11.50		0.4528	3.15	3.70	5.59	80.00	94.00	142.00	11.50
11.51	29/64	0.4531	3.15	3.70	5.59	80.00	94.00	142.00	11.51
11.84		0.0466	3.15	3.70	5.59	80.00	94.00	142.00	11.84
11.91	15/32	0.4687	3.15	3.70	5.59	80.00	94.00	142.00	11.91
12.00		0.4724	3.35	3.98	5.94	85.00	101.00	151.00	12.00
12.30	33/64	0.4844	3.35	3.98	5.94	85.00	101.00	151.00	12.30
12.50		0.4920	3.35	3.98	5.94	85.00	101.00	151.00	12.50
12.70	1/2	0.5000	3.35	3.98	5.94	85.00	101.00	151.00	12.70
13.00		0.5118	3.35	3.98	5.94	85.00	101.00	151.00	13.00
13.09	33/64	0.5156	3.35	3.98	5.94	85.00	101.00	151.00	13.09
13.50		0.5314	3.35	3.98	5.94	85.00	101.00	151.00	13.50
13.65		0.5374	3.35	3.98	5.94	85.00	101.00	151.00	13.65
13.86	35/64	0.5460	3.35	3.98	5.94	85.00	101.00	151.00	13.86
14.00		0.5512	3.58	4.25	6.30	91.00	108.00	160.00	14.00
14.29	9/16	0.5625	3.58	4.25	6.30	91.00	108.00	160.00	14.29
14.68	37/64	0.5781	3.58	4.25	6.30	91.00	108.00	160.00	14.68
15.88	5/8	0.6250	3.58	4.25	6.30	91.00	108.00	160.00	15.88
16.00		0.6299	3.94	3.94	4.72	100.00	108.00	160.00	16.00

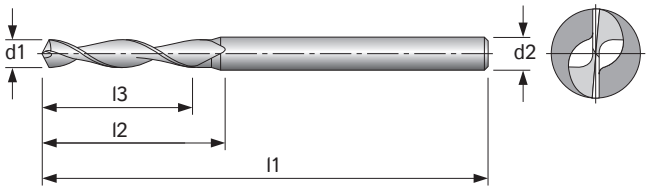
Ordering example: 30-1120-0470

HAM 30 - 1160/1161 Solid Carbide Spiral Drill

Z 2 | 30° Right | 130° | SHRINK FIT | HA

Engineering data

- 4-facet ground
- web thinning DIN 1412 form A
- AMS geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1160	●	●	○	○					○	○	○			○	●	○	○	●	○	○
30-1161	●	●	○	○					○	○	○			○	●	○	○	●	○	○

● very suitable ○ suitable

30-1160 30-1161 Ø d1 (h7) mm	30-1160 30-1161 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
0.50		0.0196	0.20	0.24	1.50	5.00	6.00	38.00	3
0.55		0.0216	0.20	0.24	1.50	5.00	6.00	38.00	3
0.60		0.0236	0.20	0.24	1.50	5.00	6.00	38.00	3
0.65		0.0256	0.24	0.28	1.50	6.00	7.00	38.00	3
0.70		0.0276	0.24	0.28	1.50	6.00	7.00	38.00	3
0.75		0.0295	0.31	0.39	1.50	8.00	10.00	38.00	3
0.80		0.0315	0.31	0.39	1.50	8.00	10.00	38.00	3
0.85		0.0335	0.31	0.39	1.50	8.00	10.00	38.00	3
0.90		0.0354	0.39	0.47	1.50	10.00	12.00	38.00	3
0.95		0.0374	0.39	0.47	1.50	10.00	12.00	38.00	3
1.00		0.0394	0.39	0.47	1.50	10.00	12.00	38.00	3
1.05		0.0413	0.39	0.47	1.50	10.00	12.00	38.00	3
1.10		0.0433	0.39	0.47	1.50	10.00	12.00	38.00	3
1.15		0.0453	0.39	0.47	1.50	10.00	12.00	38.00	3
1.20		0.0472	0.47	0.59	1.50	12.00	15.00	38.00	3
1.25		0.0492	0.47	0.59	1.50	12.00	15.00	38.00	3
1.30		0.0512	0.47	0.59	1.50	12.00	15.00	38.00	3
1.40		0.0551	0.47	0.59	1.50	12.00	15.00	38.00	3
1.45		0.0571	0.47	0.59	1.50	12.00	15.00	38.00	3
1.50		0.0591	0.47	0.59	1.50	12.00	15.00	38.00	3

30-1160 30-1161 Ø d1 (h7) mm	30-1160 30-1161 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
1.60		0.0630	0.47	0.59	1.50	12.00	15.00	38.00	3
1.65		0.0650	0.47	0.59	1.50	12.00	15.00	38.00	3
1.70		0.0669	0.47	0.59	1.50	12.00	15.00	38.00	3
1.80		0.0709	0.47	0.59	1.50	12.00	15.00	38.00	3
1.85		0.0728	0.47	0.59	1.50	12.00	15.00	38.00	3
1.90		0.0748	0.47	0.59	1.50	12.00	15.00	38.00	3
1.98	5/64	0.0781	0.47	0.59	1.50	12.00	15.00	38.00	3
2.00		0.0787	0.55	0.65	1.50	14.00	16.50	38.00	3
2.05		0.0807	0.55	0.65	1.50	14.00	16.50	38.00	3
2.10		0.0827	0.55	0.65	1.50	14.00	16.50	38.00	3
2.20		0.0866	0.55	0.65	1.50	14.00	16.50	38.00	3
2.30		0.0906	0.55	0.65	1.50	14.00	16.50	38.00	3
2.40		0.0945	0.55	0.65	1.50	14.00	16.50	38.00	3
2.50		0.0984	0.55	0.65	1.50	14.00	16.50	38.00	3
2.60		0.1024	0.55	0.65	1.50	14.00	16.50	38.00	3
2.70		0.1063	0.55	0.65	1.50	14.00	16.50	38.00	3
2.80		0.1102	0.55	0.65	1.50	14.00	16.50	38.00	3
2.90		0.1142	0.55	0.65	1.50	14.00	16.50	38.00	3
3.00		0.1181	0.55	0.65	1.50	14.00	16.50	38.00	3

For cutting data, see page 74.

Ordering example: 30-1160-0150

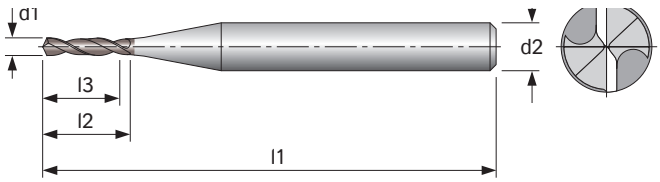
HAM 30 - 1301

Solid Carbide Spiral Drill

Z 2 | 30° Right | 140° | SHRINK FIT | HPC | TA | HA

Engineering data

- 4-facet ground
- Ø 0.1 mm - 0.15 mm no web thinning
- Ø 0.2 mm - 0.45 mm web thinning DIN 1412 form A
- from Ø 0.5 mm web thinning DIN 1412 form C
- web thickness reinforced
- shank reinforced
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1301			●	●	●	○			●	○	●	○		●			●	●		

● very suitable ○ suitable

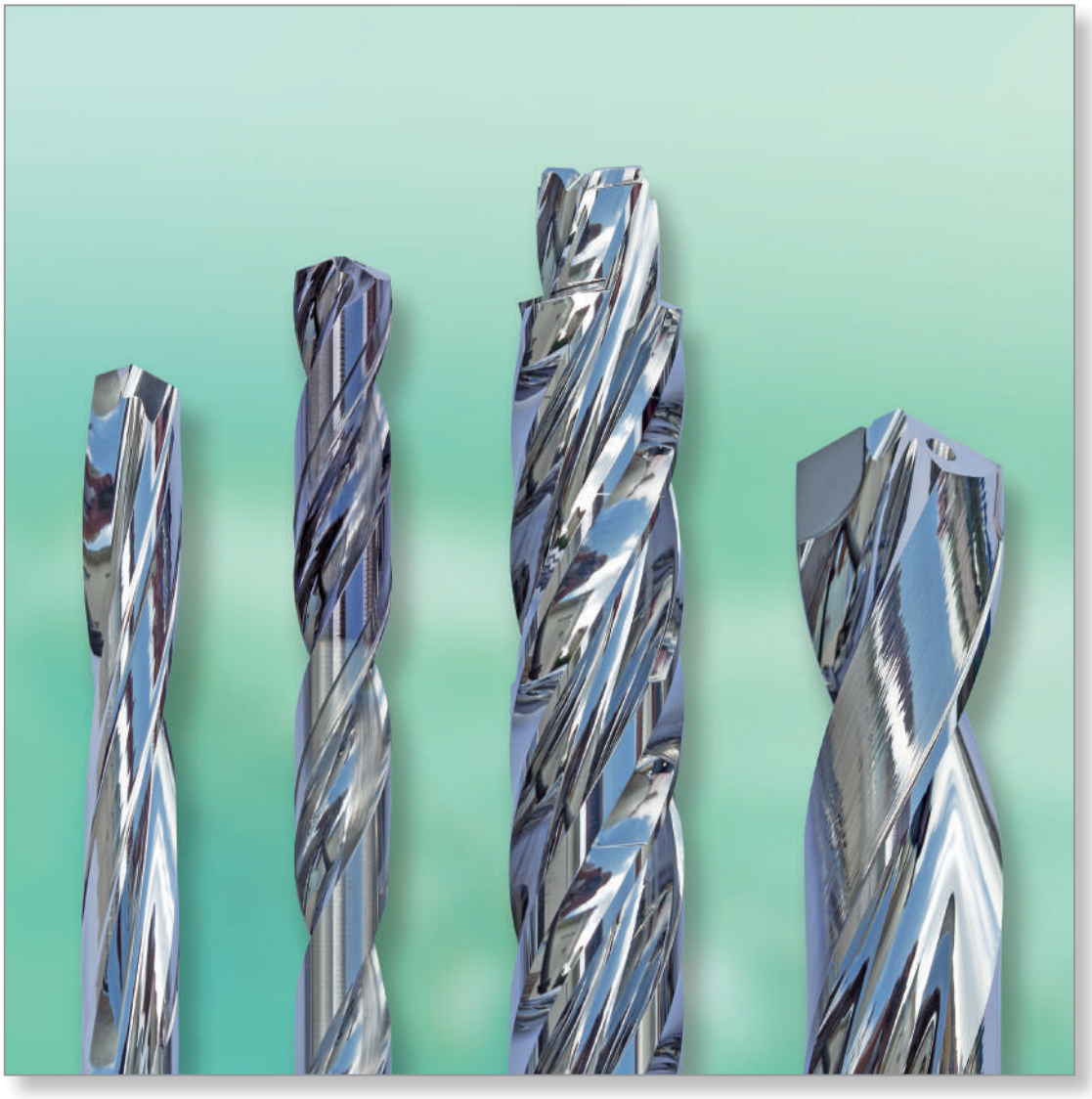
30-1301 Ø d1 (m7) mm	30-1301 Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
0.10		0.0039	0.02	0.06	1.50	0.50	1.50	38.00	3
0.15		0.0059	0.03	0.07	1.50	0.75	1.80	38.00	3
0.20		0.0079	0.04	0.09	1.50	1.00	2.40	38.00	3
0.25		0.0098	0.05	0.11	1.50	1.25	2.70	38.00	3
0.30		0.0118	0.06	0.12	1.50	1.50	3.00	38.00	3
0.35		0.0138	0.07	0.13	1.50	1.75	3.30	38.00	3
0.40		0.0157	0.08	0.14	1.50	2.00	3.60	38.00	3
0.45		0.0177	0.09	0.15	1.50	2.25	3.80	38.00	3
0.50		0.0196	0.10	0.16	1.50	2.50	4.00	38.00	3
0.55		0.0216	0.11	0.18	1.50	2.75	4.60	38.00	3
0.60		0.0236	0.12	0.19	1.50	3.00	4.80	38.00	3
0.65		0.0256	0.13	0.20	1.50	3.25	5.00	38.00	3
0.70		0.0276	0.14	0.24	1.50	3.50	6.00	38.00	3
0.75		0.0295	0.15	0.24	1.50	3.75	6.20	38.00	3
0.80		0.0315	0.16	0.25	1.50	4.00	6.40	38.00	3
0.85		0.0335	0.17	0.26	1.50	4.25	6.70	38.00	3
0.90		0.0354	0.18	0.28	1.50	4.50	7.00	38.00	3
0.95		0.0374	0.19	0.29	1.50	4.75	7.25	38.00	3
1.00		0.0394	0.20	0.30	1.50	5.00	7.50	38.00	3
1.05		0.0413	0.21	0.31	1.50	5.25	7.75	38.00	3
1.10		0.0433	0.22	0.31	1.50	5.50	8.00	38.00	3
1.15		0.0453	0.23	0.32	1.50	5.75	8.25	38.00	3
1.20		0.0472	0.24	0.33	1.50	6.00	8.50	38.00	3
1.25		0.0492	0.25	0.34	1.50	6.25	8.75	38.00	3
1.30		0.0512	0.26	0.35	1.50	6.50	9.00	38.00	3
1.35		0.0531	0.27	0.37	1.50	6.75	9.50	38.00	3
1.40		0.0551	0.28	0.39	1.50	7.00	10.00	38.00	3
1.45		0.0571	0.29	0.41	1.50	7.25	10.50	38.00	3
1.50		0.0591	0.30	0.43	1.50	7.50	11.00	38.00	3
1.55		0.0610	0.31	0.44	1.50	7.75	11.25	38.00	3
1.60		0.0630	0.31	0.45	1.50	8.00	11.50	38.00	3

30-1301 Ø d1 (m7) mm	30-1301 Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
1.65		0.0650	0.32	0.46	1.50	8.25	11.75	38.00	3
1.70		0.0669	0.33	0.47	1.50	8.50	12.00	38.00	3
1.75		0.0689	0.34	0.48	1.50	8.75	12.25	38.00	3
1.80		0.0709	0.35	0.49	1.50	9.00	12.50	38.00	3
1.85		0.0728	0.36	0.50	1.50	9.25	12.75	38.00	3
1.90		0.0748	0.37	0.51	1.50	9.50	13.00	38.00	3
1.95		0.0768	0.38	0.53	1.50	9.75	13.50	38.00	3
1.98	5/64	0.0781	0.38	0.54	1.50	9.75	13,75	38.00	3
2.00		0.0787	0.39	0.55	1.81	10.00	14.00	46.00	4
2.05		0.0807	0.40	0.57	1.81	10.25	14.50	46.00	4
2.10		0.0827	0.41	0.59	1.81	10.50	15.00	46.00	4
2.15		0.0846	0.42	0.61	1.81	10.75	15.50	46.00	4
2.20		0.0866	0.43	0.63	1.81	11.00	16.00	46.00	4
2.25		0.0886	0.44	0.65	1.81	11.25	16.50	46.00	4
2.30		0.0906	0.45	0.67	1.81	11.50	17.00	46.00	4
2.35		0.0925	0.46	0.69	1.81	11.75	17.50	46.00	4
2.38		0.0937	0.47	0.70	1.81	11.87	17.75	46.00	4
2.40		0.0945	0.47	0.71	1.81	12.00	18.00	46.00	4
2.45		0.0965	0.48	0.73	1.81	12.25	18.50	46.00	4
2.50		0.0984	0.49	0.75	1.81	12.50	19.00	46.00	4
2.55		0.1004	0.50	0.77	1.97	12.75	19.50	50.00	4
2.60		0.1024	0.51	0.79	1.97	13.00	20.00	50.00	4
2.65		0.1043	0.52	0.81	1.97	13.25	20.50	50.00	4
2.70		0.1063	0.53	0.83	1.97	13.50	21.00	50.00	4
2.75		0.1083	0.54	0.85	1.97	13.75	21.50	50.00	4
2.78	7/64	0.1094	0.55	0.86	1.97	13.88	21.75	50.00	4
2.80		0.1102	0.55	0.87	1.97	14.00	22.00	50.00	4
2.85		0.1122	0.56	0.89	1.97	14.25	22.50	50.00	4
2.90		0.1142	0.57	0.91	1.97	14.50	23.00	50.00	4
2.95		0.1161	0.58	0.93	1.97	14.75	23.50	50.00	4
3.00		0.1181	0.59	0.94	1.97	15.00	24.00	50.00	4

For cutting data, see page 75.

Order example: 30-1301-0160

Special Polishing Process



Special-polishing process HSF TECHNOLOGY®
(Hyper Super Finishing)

HAM is offering a new polishing process for tools with hyper smooth surfaces using the HSF TECHNOLOGY®.

Advantages:

- Optimal chip removal
- Reduction of built-up edges
- Defined cutting edge rounding
- Homogeneous and reproducible surfaces can be reached
- Higher cutting speeds and feed rates are possible
- Reduced cutting forces
- Less heat generation on the tool and workpiece

HAM Superdrill – spiral fluted drills especially for the machining of steel.

HAM 30-1621 Superdrill

280 Series

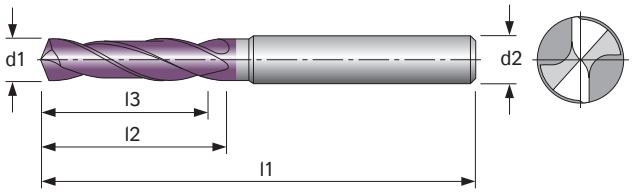
Solid Carbide Twist Drill

3 X D

Z 2 | 30° Right | DIN 6537K | 3 x D | 140° | SHRINK FIT | HSF | HPC | TA-C | DIN 6535 HA | DIN 6535 HB | DIN 6535 HE

Engineering Data

- special point ground
- special chip flute geometry
- web thickness reinforced
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1621	○	○	●	●	●	●			○	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-1621 Ø d1 (m7) mm	Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.80		0.1102	0.55	0.79	2.44	14.00	20.00	62.00	4
2.90		0.1141	0.55	0.79	2.44	14.00	20.00	62.00	4
3.00		0.1181	0.55	0.79	2.44	14.00	20.00	62.00	6
3.10		0.1220	0.55	0.79	2.44	14.00	20.00	62.00	6
3.17	1/8	0.1250	0.55	0.79	2.44	14.00	20.00	62.00	6
3.20		0.1260	0.55	0.79	2.44	14.00	20.00	62.00	6
3.30		0.1299	0.55	0.79	2.44	14.00	20.00	62.00	6
3.40		0.1339	0.55	0.79	2.44	14.00	20.00	62.00	6
3.50		0.1378	0.55	0.79	2.44	14.00	20.00	62.00	6
3.57	9/64	0.1406	0.55	0.79	2.44	14.00	20.00	62.00	6
3.60		0.1417	0.55	0.79	2.44	14.00	20.00	62.00	6
3.70		0.1457	0.55	0.79	2.44	14.00	20.00	62.00	6
3.75		0.1476	0.67	0.94	2.60	17.00	24.00	66.00	6
3.80		0.1496	0.67	0.94	2.60	17.00	24.00	66.00	6
3.90		0.1535	0.67	0.94	2.60	17.00	24.00	66.00	6
3.97	5/32	0.1562	0.67	0.94	2.60	17.00	24.00	66.00	6
4.00		0.1575	0.67	0.94	2.60	17.00	24.00	66.00	6
4.10		0.1614	0.67	0.94	2.60	17.00	24.00	66.00	6
4.20		0.1654	0.67	0.94	2.60	17.00	24.00	66.00	6
4.30		0.1693	0.67	0.94	2.60	17.00	24.00	66.00	6
4.37	11/64	0.1718	0.67	0.94	2.60	17.00	24.00	66.00	6
4.40		0.1732	0.67	0.94	2.60	17.00	24.00	66.00	6
4.50		0.1772	0.67	0.94	2.60	17.00	24.00	66.00	6
4.60		0.1811	0.67	0.94	2.60	17.00	24.00	66.00	6
4.65		0.1830	0.67	0.94	2.60	17.00	24.00	66.00	6
4.70		0.1850	0.67	0.94	2.60	17.00	24.00	66.00	6
4.76	3/16	0.1875	0.79	1.10	2.60	20.00	28.00	66.00	6
4.80		0.1890	0.79	1.10	2.60	20.00	28.00	66.00	6
4.90		0.1929	0.79	1.10	2.60	20.00	28.00	66.00	6
5.00		0.1969	0.79	1.10	2.60	20.00	28.00	66.00	6
5.10		0.2008	0.79	1.10	2.60	20.00	28.00	66.00	6
5.16	13/64	0.2031	0.79	1.10	2.60	20.00	28.00	66.00	6
5.20		0.2047	0.79	1.10	2.60	20.00	28.00	66.00	6
5.30		0.2087	0.79	1.10	2.60	20.00	28.00	66.00	6
5.40		0.2126	0.79	1.10	2.60	20.00	28.00	66.00	6
5.50		0.2165	0.79	1.10	2.60	20.00	28.00	66.00	6
5.55	7/32	0.2187	0.79	1.10	2.60	20.00	28.00	66.00	6
5.60		0.2205	0.79	1.10	2.60	20.00	28.00	66.00	6
5.70		0.2244	0.79	1.10	2.60	20.00	28.00	66.00	6
5.80		0.2283	0.79	1.10	2.60	20.00	28.00	66.00	6

30-1621 Ø d1 (m7) mm	Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
5.90		0.2323	0.79	1.10	2.60	20.00	28.00	66.00	6
5.95	15/64	0.2343	0.79	1.10	2.60	20.00	28.00	66.00	6
6.00		0.2362	0.79	1.10	2.60	20.00	28.00	66.00	6
6.10		0.2402	0.94	1.34	3.11	24.00	34.00	79.00	8
6.20		0.2441	0.94	1.34	3.11	24.00	34.00	79.00	8
6.30		0.2480	0.94	1.34	3.11	24.00	34.00	79.00	8
6.35	1/4	0.2500	0.94	1.34	3.11	24.00	34.00	79.00	8
6.40		0.2520	0.94	1.34	3.11	24.00	34.00	79.00	8
6.50		0.2559	0.94	1.34	3.11	24.00	34.00	79.00	8
6.53	F	0.2570	0.94	1.34	3.11	24.00	34.00	79.00	8
6.60		0.2598	0.94	1.34	3.11	24.00	34.00	79.00	8
6.70		0.2638	0.94	1.34	3.11	24.00	34.00	79.00	8
6.75	17/64	0.2656	0.94	1.34	3.11	24.00	34.00	79.00	8
6.80		0.2677	0.94	1.34	3.11	24.00	34.00	79.00	8
6.90		0.2717	0.94	1.34	3.11	24.00	34.00	79.00	8
7.00		0.2756	0.94	1.34	3.11	24.00	34.00	79.00	8
7.10		0.2795	1.14	1.61	3.11	29.00	41.00	79.00	8
7.14	9/32	0.2812	1.14	1.61	3.11	29.00	41.00	79.00	8
7.20		0.2835	1.14	1.61	3.11	29.00	41.00	79.00	8
7.30		0.2874	1.14	1.61	3.11	29.00	41.00	79.00	8
7.40		0.2913	1.14	1.61	3.11	29.00	41.00	79.00	8
7.50		0.2953	1.14	1.61	3.11	29.00	41.00	79.00	8
7.54	19/64	0.2968	1.14	1.61	3.11	29.00	41.00	79.00	8
7.60		0.2992	1.14	1.61	3.11	29.00	41.00	79.00	8
7.70		0.3031	1.14	1.61	3.11	29.00	41.00	79.00	8
7.80		0.3071	1.14	1.61	3.11	29.00	41.00	79.00	8
7.90		0.3110	1.14	1.61	3.11	29.00	41.00	79.00	8
7.94	5/16	0.3125	1.14	1.61	3.11	29.00	41.00	79.00	8
8.00		0.3150	1.14	1.61	3.11	29.00	41.00	79.00	8
8.10		0.3189	1.38	1.85	3.50	35.00	47.00	89.00	10
8.20		0.3228	1.38	1.85	3.50	35.00	47.00	89.00	10
8.30		0.3268	1.38	1.85	3.50	35.00	47.00	89.00	10
8.33	19/64	0.3281	1.38	1.85	3.50	35.00	47.00	89.00	10
8.40		0.3307	1.38	1.85	3.50	35.00	47.00	89.00	10
8.50		0.3346	1.38	1.85	3.50	35.00	47.00	89.00	10
8.60		0.3386	1.38	1.85	3.50	35.00	47.00	89.00	10
8.70		0.3425	1.38	1.85	3.50	35.00	47.00	89.00	10
8.73	11/32	0.3437	1.38	1.85	3.50	35.00	47.00	89.00	10
8.80		0.3465	1.38	1.85	3.50	35.00	47.00	89.00	10
8.85	S	0.3480	1.38	1.85	3.50	35.00	47.00	89.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 76.

Order example:
HA-Shank 30-1621-0750
HB-Shank 30-1621-0750-HB
HE-Shank 30-1621-0750-HE

30-1621 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
8.90		0.3504	1.38	1.85	3.50	35.00	47.00	89.00	10
9.00		0.3543	1.38	1.85	3.50	35.00	47.00	89.00	10
9.10		0.3583	1.38	1.85	3.50	35.00	47.00	89.00	10
9.13	23/64	0.3593	1.38	1.85	3.50	35.00	47.00	89.00	10
9.20		0.3622	1.38	1.85	3.50	35.00	47.00	89.00	10
9.30		0.3661	1.38	1.85	3.50	35.00	47.00	89.00	10
9.35	U	0.3681	1.38	1.85	3.50	35.00	47.00	89.00	10
9.40		0.3701	1.38	1.85	3.50	35.00	47.00	89.00	10
9.50		0.3740	1.38	1.85	3.50	35.00	47.00	89.00	10
9.52	3/8	0.3750	1.38	1.85	3.50	35.00	47.00	89.00	10
9.60		0.3780	1.38	1.85	3.50	35.00	47.00	89.00	10
9.70		0.3819	1.38	1.85	3.50	35.00	47.00	89.00	10
9.80		0.3858	1.38	1.85	3.50	35.00	47.00	89.00	10
9.90		0.3898	1.38	1.85	3.50	35.00	47.00	89.00	10
9.92	25/64	0.3906	1.38	1.85	3.50	35.00	47.00	89.00	10
10.00		0.3937	1.38	1.85	3.50	35.00	47.00	89.00	10
10.00		0.3976	1.57	2.17	4.02	40.00	55.00	102.00	12
10.20		0.4016	1.57	2.17	4.02	40.00	55.00	102.00	12
10.30		0.4055	1.57	2.17	4.02	40.00	55.00	102.00	12
10.32	13/32	0.4062	1.57	2.17	4.02	40.00	55.00	102.00	12
10.40		0.4094	1.57	2.17	4.02	40.00	55.00	102.00	12
10.50		0.4134	1.57	2.17	4.02	40.00	55.00	102.00	12
10.60		0.4173	1.57	2.17	4.02	40.00	55.00	102.00	12
10.70		0.4213	1.57	2.17	4.02	40.00	55.00	102.00	12
10.72	27/64	0.4219	1.57	2.17	4.02	40.00	55.00	102.00	12
10.80		0.4252	1.57	2.17	4.02	40.00	55.00	102.00	12
10.90		0.4291	1.57	2.17	4.02	40.00	55.00	102.00	12
11.00		0.4331	1.57	2.17	4.02	40.00	55.00	102.00	12
11.10		0.4370	1.57	2.17	4.02	40.00	55.00	102.00	12
11.11	7/16	0.4375	1.57	2.17	4.02	40.00	55.00	102.00	12
11.20		0.4409	1.57	2.17	4.02	40.00	55.00	102.00	12
11.30		0.4449	1.57	2.17	4.02	40.00	55.00	102.00	12
11.40		0.4488	1.57	2.17	4.02	40.00	55.00	102.00	12
11.50		0.4528	1.57	2.17	4.02	40.00	55.00	102.00	12
11.51	29/64	0.4531	1.57	2.17	4.02	40.00	55.00	102.00	12
11.60		0.4567	1.57	2.17	4.02	40.00	55.00	102.00	12
11.70		0.4606	1.57	2.17	4.02	40.00	55.00	102.00	12
11.80		0.4646	1.57	2.17	4.02	40.00	55.00	102.00	12
11.84		0.4660	1.57	2.17	4.02	40.00	55.00	102.00	12
11.90		0.4685	1.57	2.17	4.02	40.00	55.00	102.00	12
11.91	15/32	0.4687	1.57	2.17	4.02	40.00	55.00	102.00	12
12.00		0.4724	1.57	2.17	4.02	40.00	55.00	102.00	12
12.10		0.4764	1.69	2.36	4.21	43.00	60.00	107.00	14
12.20		0.4803	1.69	2.36	4.21	43.00	60.00	107.00	14
12.30	31/64	0.4843	1.69	2.36	4.21	43.00	60.00	107.00	14
12.40		0.4882	1.69	2.36	4.21	43.00	60.00	107.00	14
12.50		0.4921	1.69	2.36	4.21	43.00	60.00	107.00	14
12.60		0.4961	1.69	2.36	4.21	43.00	60.00	107.00	14
12.70	1/2	0.5000	1.69	2.36	4.21	43.00	60.00	107.00	14
12.80		0.5039	1.69	2.36	4.21	43.00	60.00	107.00	14
12.90		0.5079	1.69	2.36	4.21	43.00	60.00	107.00	14
13.00		0.5118	1.69	2.36	4.21	43.00	60.00	107.00	14

30-1621 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
13.10	33/64	0.5156	1.69	2.36	4.21	43.00	60.00	107.00	14
13.20		0.5197	1.69	2.36	4.21	43.00	60.00	107.00	14
13.30		0.5236	1.69	2.36	4.21	43.00	60.00	107.00	14
13.40		0.5276	1.69	2.36	4.21	43.00	60.00	107.00	14
13.49	17/32	0.5312	1.69	2.36	4.21	43.00	60.00	107.00	14
13.50		0.5315	1.69	2.36	4.21	43.00	60.00	107.00	14
13.60		0.5354	1.69	2.36	4.21	43.00	60.00	107.00	14
13.65		0.5374	1.69	2.36	4.21	43.00	60.00	107.00	14
13.70		0.5394	1.69	2.36	4.21	43.00	60.00	107.00	14
13.80		0.5433	1.69	2.36	4.21	43.00	60.00	107.00	14
13.89	35/64	0.5468	1.69	2.36	4.21	43.00	60.00	107.00	14
13.90		0.5472	1.69	2.36	4.21	43.00	60.00	107.00	14
14.00		0.5512	1.69	2.36	4.21	43.00	60.00	107.00	14
14.10		0.5551	1.77	2.56	4.53	45.00	65.00	115.00	16
14.20		0.5591	1.77	2.56	4.53	45.00	65.00	115.00	16
14.29	19/16	0.5625	1.77	2.56	4.53	45.00	65.00	115.00	16
14.30		0.5630	1.77	2.56	4.53	45.00	65.00	115.00	16
14.40		0.5669	1.77	2.56	4.53	45.00	65.00	115.00	16
14.50		0.5709	1.77	2.56	4.53	45.00	65.00	115.00	16
14.60		0.5748	1.77	2.56	4.53	45.00	65.00	115.00	16
14.68	35/64	0.5781	1.77	2.56	4.53	45.00	65.00	115.00	16
14.70		0.5787	1.77	2.56	4.53	45.00	65.00	115.00	16
14.80		0.5827	1.77	2.56	4.53	45.00	65.00	115.00	16
14.90		0.5866	1.77	2.56	4.53	45.00	65.00	115.00	16
15.00		0.5906	1.77	2.56	4.53	45.00	65.00	115.00	16
15.08	19/32	0.5937	1.77	2.56	4.53	45.00	65.00	115.00	16
15.10		0.5945	1.77	2.56	4.53	45.00	65.00	115.00	16
15.20		0.5984	1.77	2.56	4.53	45.00	65.00	115.00	16
15.30		0.6024	1.77	2.56	4.53	45.00	65.00	115.00	16
15.40		0.6063	1.77	2.56	4.53	45.00	65.00	115.00	16
15.48	39/64	0.6093	1.77	2.56	4.53	45.00	65.00	115.00	16
15.50		0.6102	1.77	2.56	4.53	45.00	65.00	115.00	16
15.60		0.6142	1.77	2.56	4.53	45.00	65.00	115.00	16
15.70		0.6181	1.77	2.56	4.53	45.00	65.00	115.00	16
15.80		0.6220	1.77	2.56	4.53	45.00	65.00	115.00	16
15.88	5/8	0.6250	1.77	2.56	4.53	45.00	65.00	115.00	16
15.90		0.6260	1.77	2.56	4.53	45.00	65.00	115.00	16
16.00		0.6299	1.77	2.56	4.53	45.00	65.00	115.00	16
16.27	41/64	0.6406	2.01	2.87	4.84	51.00	73.00	123.00	18
16.50		0.6496	2.01	2.87	4.84	51.00	73.00	123.00	18
16.67	21/32	0.6562	2.01	2.87	4.84	51.00	73.00	123.00	18
17.00		0.6693	2.01	2.87	4.84	51.00	73.00	123.00	18
17.46	11/16	0.6875	2.01	2.87	4.84	51.00	73.00	123.00	18
17.50		0.6890	2.01	2.87	4.84	51.00	73.00	123.00	18
18.00		0.7087	2.01	2.87	4.84	51.00	73.00	123.00	18
18.26	23/32	0.7187	2.17	3.11	5.16	55.00	79.00	131.00	20
18.50		0.7283	2.17	3.11	5.16	55.00	79.00	131.00	20
19.00		0.7480	2.17	3.11	5.16	55.00	79.00	131.00	20
19.05	3/4	0.7500	2.17	3.11	5.16	55.00	79.00	131.00	20
19.45	49/64	0.7656	2.17	3.11	5.16	55.00	79.00	131.00	20
19.50		0.7677	2.17	3.11	5.16	55.00	79.00	131.00	20
20.00		0.7874	2.17	3.11	5.16	55.00	79.00	131.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 76.

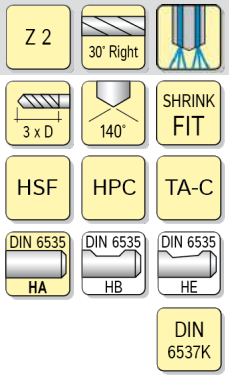
Order example: **HA-Shank 30-1621-0750**
HB-Shank 30-1621-0750-HB
HE-Shank 30-1621-0750-HE

HAM 30-1741 Superdrill

Solid Carbide Twist Drill

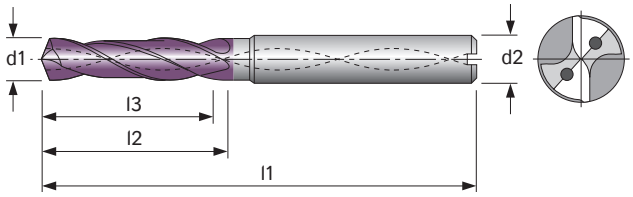
3 X D

285 Series



Engineering Data

- special point ground
- special chip flute geometry
- web thickness reinforced
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1741	○	○	●	●	●	●			○	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-1741 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
2.80		0.1102	0.55	0.79	2.44	14.00	20.00	62.00	4
2.90		0.1141	0.55	0.79	2.44	14.00	20.00	62.00	4
3.00		0.1181	0.55	0.79	2.44	14.00	20.00	62.00	6
3.10		0.1220	0.55	0.79	2.44	14.00	20.00	62.00	6
3.17	1/8	0.1250	0.55	0.79	2.44	14.00	20.00	62.00	6
3.20		0.1260	0.55	0.79	2.44	14.00	20.00	62.00	6
3.30		0.1299	0.55	0.79	2.44	14.00	20.00	62.00	6
3.40		0.1339	0.55	0.79	2.44	14.00	20.00	62.00	6
3.50		0.1378	0.55	0.79	2.44	14.00	20.00	62.00	6
3.57	9/64	0.1406	0.55	0.79	2.44	14.00	20.00	62.00	6
3.60		0.1417	0.55	0.79	2.44	14.00	20.00	62.00	6
3.70		0.1457	0.55	0.79	2.44	14.00	20.00	62.00	6
3.75		0.1476	0.67	0.94	2.60	17.00	24.00	66.00	6
3.80		0.1496	0.67	0.94	2.60	17.00	24.00	66.00	6
3.90		0.1535	0.67	0.94	2.60	17.00	24.00	66.00	6
3.97	5/32	0.1562	0.67	0.94	2.60	17.00	24.00	66.00	6
4.00		0.1575	0.67	0.94	2.60	17.00	24.00	66.00	6
4.10		0.1614	0.67	0.94	2.60	17.00	24.00	66.00	6
4.20		0.1654	0.67	0.94	2.60	17.00	24.00	66.00	6
4.30		0.1693	0.67	0.94	2.60	17.00	24.00	66.00	6
4.37	11/64	0.1718	0.67	0.94	2.60	17.00	24.00	66.00	6
4.40		0.1732	0.67	0.94	2.60	17.00	24.00	66.00	6
4.50		0.1772	0.67	0.94	2.60	17.00	24.00	66.00	6
4.60		0.1811	0.67	0.94	2.60	17.00	24.00	66.00	6
4.65		0.1830	0.67	0.94	2.60	17.00	24.00	66.00	6
4.70		0.1850	0.67	0.94	2.60	17.00	24.00	66.00	6
4.76	3/16	0.1875	0.79	0.94	2.60	20.00	24.00	66.00	6
4.80		0.1890	0.79	1.10	2.60	20.00	28.00	66.00	6
4.90		0.1929	0.79	1.10	2.60	20.00	28.00	66.00	6
5.00		0.1969	0.79	1.10	2.60	20.00	28.00	66.00	6
5.10		0.2008	0.79	1.10	2.60	20.00	28.00	66.00	6
5.16	13/64	0.2031	0.79	1.10	2.60	20.00	28.00	66.00	6
5.20		0.2047	0.79	1.10	2.60	20.00	28.00	66.00	6
5.30		0.2087	0.79	1.10	2.60	20.00	28.00	66.00	6
5.40		0.2126	0.79	1.10	2.60	20.00	28.00	66.00	6
5.50		0.2165	0.79	1.10	2.60	20.00	28.00	66.00	6
5.55	7/32	0.2187	0.79	1.10	2.60	20.00	28.00	66.00	6
5.60		0.2205	0.79	1.10	2.60	20.00	28.00	66.00	6
5.70		0.2244	0.79	1.10	2.60	20.00	28.00	66.00	6
5.80		0.2283	0.79	1.10	2.60	20.00	28.00	66.00	6

30-1741 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
5.90		0.2323	0.79	1.10	2.60	20.00	28.00	66.00	6
5.95	15/64	0.2343	0.79	1.10	2.60	20.00	28.00	66.00	6
6.00		0.2362	0.79	1.10	2.60	20.00	28.00	66.00	6
6.10		0.2402	0.94	1.34	3.11	24.00	34.00	79.00	8
6.20		0.2441	0.94	1.34	3.11	24.00	34.00	79.00	8
6.30		0.2480	0.94	1.34	3.11	24.00	34.00	79.00	8
6.35	1/4	0.2500	0.94	1.34	3.11	24.00	34.00	79.00	8
6.40		0.2520	0.94	1.34	3.11	24.00	34.00	79.00	8
6.50		0.2559	0.94	1.34	3.11	24.00	34.00	79.00	8
6.53	F	0.2570	0.94	1.34	3.11	24.00	34.00	79.00	8
6.60		0.2598	0.94	1.34	3.11	24.00	34.00	79.00	8
6.70		0.2638	0.94	1.34	3.11	24.00	34.00	79.00	8
6.75	17/64	0.2656	0.94	1.34	3.11	24.00	34.00	79.00	8
6.80		0.2677	0.94	1.34	3.11	24.00	34.00	79.00	8
6.90		0.2717	0.94	1.34	3.11	24.00	34.00	79.00	8
7.00		0.2756	0.94	1.34	3.11	24.00	34.00	79.00	8
7.10		0.2795	1.14	1.61	3.11	29.00	41.00	79.00	8
7.14	9/32	0.2812	1.14	1.61	3.11	29.00	41.00	79.00	8
7.20		0.2835	1.14	1.61	3.11	29.00	41.00	79.00	8
7.30		0.2874	1.14	1.61	3.11	29.00	41.00	79.00	8
7.40		0.2913	1.14	1.61	3.11	29.00	41.00	79.00	8
7.50		0.2953	1.14	1.61	3.11	29.00	41.00	79.00	8
7.54	19/64	0.2968	1.14	1.61	3.11	29.00	41.00	79.00	8
7.60		0.2992	1.14	1.61	3.11	29.00	41.00	79.00	8
7.70		0.3031	1.14	1.61	3.11	29.00	41.00	79.00	8
7.80		0.3071	1.14	1.61	3.11	29.00	41.00	79.00	8
7.90		0.3110	1.14	1.61	3.11	29.00	41.00	79.00	8
7.94	5/16	0.3125	1.14	1.61	3.11	29.00	41.00	79.00	8
8.00		0.3150	1.14	1.61	3.11	29.00	41.00	79.00	8
8.10		0.3189	1.38	1.85	3.50	35.00	47.00	89.00	10
8.20		0.3228	1.38	1.85	3.50	35.00	47.00	89.00	10
8.30		0.3268	1.38	1.85	3.50	35.00	47.00	89.00	10
8.33	21/64	0.3281	1.38	1.85	3.50	35.00	47.00	89.00	10
8.40		0.3307	1.38	1.85	3.50	35.00	47.00	89.00	10
8.50		0.3346	1.38	1.85	3.50	35.00	47.00	89.00	10
8.60		0.3386	1.38	1.85	3.50	35.00	47.00	89.00	10
8.70		0.3425	1.38	1.85	3.50	35.00	47.00	89.00	10
8.73	11/32	0.3437	1.38	1.85	3.50	35.00	47.00	89.00	10
8.80		0.3465	1.38	1.85	3.50	35.00	47.00	89.00	10
8.85	S	0.3480	1.38	1.85	3.50	35.00	47.00	89.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 77.

Order example: HA-Shank 30-1741-0750
HB-Shank 30-1741-0750-HB
HE-Shank 30-1741-0750-HE

30-1741 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
8.90		0.3504	1.38	1.85	3.50	35.00	47.00	89.00	10
9.00		0.3543	1.38	1.85	3.50	35.00	47.00	89.00	10
9.10		0.3583	1.38	1.85	3.50	35.00	47.00	89.00	10
9.13	23/64	0.3593	1.38	1.85	3.50	35.00	47.00	89.00	10
9.20		0.3622	1.38	1.85	3.50	35.00	47.00	89.00	10
9.30		0.3661	1.38	1.85	3.50	35.00	47.00	89.00	10
9.35	U	0.3681	1.38	1.85	3.50	35.00	47.00	89.00	10
9.40		0.3701	1.38	1.85	3.50	35.00	47.00	89.00	10
9.50		0.3740	1.38	1.85	3.50	35.00	47.00	89.00	10
9.52	3/8	0.3750	1.38	1.85	3.50	35.00	47.00	89.00	10
9.60		0.3780	1.38	1.85	3.50	35.00	47.00	89.00	10
9.70		0.3819	1.38	1.85	3.50	35.00	47.00	89.00	10
9.80		0.3858	1.38	1.85	3.50	35.00	47.00	89.00	10
9.90		0.3898	1.38	1.85	3.50	35.00	47.00	89.00	10
9.92	25/64	0.3906	1.38	1.85	3.50	35.00	47.00	89.00	10
10.00		0.3937	1.38	1.85	3.50	35.00	47.00	89.00	10
10.10		0.3976	1.57	2.17	4.02	40.00	55.00	102.00	12
10.20		0.4016	1.57	2.17	4.02	40.00	55.00	102.00	12
10.30		0.4055	1.57	2.17	4.02	40.00	55.00	102.00	12
10.32	13/32	0.4062	1.57	2.17	4.02	40.00	55.00	102.00	12
10.40		0.4094	1.57	2.17	4.02	40.00	55.00	102.00	12
10.50		0.4134	1.57	2.17	4.02	40.00	55.00	102.00	12
10.60		0.4173	1.57	2.17	4.02	40.00	55.00	102.00	12
10.70		0.4213	1.57	2.17	4.02	40.00	55.00	102.00	12
10.72	27/64	0.4219	1.57	2.17	4.02	40.00	55.00	102.00	12
10.80		0.4252	1.57	2.17	4.02	40.00	55.00	102.00	12
10.90		0.4291	1.57	2.17	4.02	40.00	55.00	102.00	12
11.00		0.4331	1.57	2.17	4.02	40.00	55.00	102.00	12
11.10		0.4370	1.57	2.17	4.02	40.00	55.00	102.00	12
11.11	7/16	0.4375	1.57	2.17	4.02	40.00	55.00	102.00	12
11.20		0.4409	1.57	2.17	4.02	40.00	55.00	102.00	12
11.30		0.4449	1.57	2.17	4.02	40.00	55.00	102.00	12
11.40		0.4488	1.57	2.17	4.02	40.00	55.00	102.00	12
11.50		0.4528	1.57	2.17	4.02	40.00	55.00	102.00	12
11.51	29/64	0.4531	1.57	2.17	4.02	40.00	55.00	102.00	12
11.60		0.4567	1.57	2.17	4.02	40.00	55.00	102.00	12
11.70		0.4606	1.57	2.17	4.02	40.00	55.00	102.00	12
11.80		0.4646	1.57	2.17	4.02	40.00	55.00	102.00	12
11.84		0.4660	1.57	2.17	4.02	40.00	55.00	102.00	12
11.90		0.4685	1.57	2.17	4.02	40.00	55.00	102.00	12
11.91	15/32	0.4687	1.57	2.17	4.02	40.00	55.00	102.00	12
12.00		0.4724	1.57	2.17	4.02	40.00	55.00	102.00	12
12.10		0.4764	1.69	2.36	4.21	43.00	60.00	107.00	14
12.20		0.4803	1.69	2.36	4.21	43.00	60.00	107.00	14
12.30	31/64	0.4843	1.69	2.36	4.21	43.00	60.00	107.00	14
12.40		0.4882	1.69	2.36	4.21	43.00	60.00	107.00	14
12.50		0.4921	1.69	2.36	4.21	43.00	60.00	107.00	14
12.60		0.4961	1.69	2.36	4.21	43.00	60.00	107.00	14
12.70	1/2	0.5000	1.69	2.36	4.21	43.00	60.00	107.00	14
12.80		0.5039	1.69	2.36	4.21	43.00	60.00	107.00	14
12.90		0.5079	1.69	2.36	4.21	43.00	60.00	107.00	14
13.00		0.5118	1.69	2.36	4.21	43.00	60.00	107.00	14

30-1741 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
13.10	33/64	0.5156	1.69	2.36	4.21	43.00	60.00	107.00	14
13.20		0.5197	1.69	2.36	4.21	43.00	60.00	107.00	14
13.30		0.5236	1.69	2.36	4.21	43.00	60.00	107.00	14
13.40		0.5276	1.69	2.36	4.21	43.00	60.00	107.00	14
13.49	17/32	0.5312	1.69	2.36	4.21	43.00	60.00	107.00	14
13.50		0.5315	1.69	2.36	4.21	43.00	60.00	107.00	14
13.60		0.5354	1.69	2.36	4.21	43.00	60.00	107.00	14
13.65		0.5374	1.69	2.36	4.21	43.00	60.00	107.00	14
13.70		0.5394	1.69	2.36	4.21	43.00	60.00	107.00	14
13.80		0.5433	1.69	2.36	4.21	43.00	60.00	107.00	14
13.89	35/64	0.5468	1.69	2.36	4.21	43.00	60.00	107.00	14
13.90		0.5472	1.69	2.36	4.21	43.00	60.00	107.00	14
14.00		0.5512	1.69	2.36	4.21	43.00	60.00	107.00	14
14.10		0.5551	1.77	2.56	4.53	45.00	65.00	115.00	16
14.20		0.5591	1.77	2.56	4.53	45.00	65.00	115.00	16
14.29	9/16	0.5625	1.77	2.56	4.53	45.00	65.00	115.00	16
14.30		0.5630	1.77	2.56	4.53	45.00	65.00	115.00	16
14.40		0.5669	1.77	2.56	4.53	45.00	65.00	115.00	16
14.50		0.5709	1.77	2.56	4.53	45.00	65.00	115.00	16
14.60		0.5748	1.77	2.56	4.53	45.00	65.00	115.00	16
14.68	37/64	0.5781	1.77	2.56	4.53	45.00	65.00	115.00	16
14.70		0.5787	1.77	2.56	4.53	45.00	65.00	115.00	16
14.80		0.5827	1.77	2.56	4.53	45.00	65.00	115.00	16
14.90		0.5866	1.77	2.56	4.53	45.00	65.00	115.00	16
15.00		0.5906	1.77	2.56	4.53	45.00	65.00	115.00	16
15.08	19/32	0.5937	1.77	2.56	4.53	45.00	65.00	115.00	16
15.10		0.5945	1.77	2.56	4.53	45.00	65.00	115.00	16
15.20		0.5984	1.77	2.56	4.53	45.00	65.00	115.00	16
15.30		0.6024	1.77	2.56	4.53	45.00	65.00	115.00	16
15.40		0.6063	1.77	2.56	4.53	45.00	65.00	115.00	16
15.48	39/64	0.6093	1.77	2.56	4.53	45.00	65.00	115.00	16
15.50		0.6102	1.77	2.56	4.53	45.00	65.00	115.00	16
15.60		0.6142	1.77	2.56	4.53	45.00	65.00	115.00	16
15.70		0.6181	1.77	2.56	4.53	45.00	65.00	115.00	16
15.80		0.6220	1.77	2.56	4.53	45.00	65.00	115.00	16
15.88	5/8	0.6250	1.77	2.56	4.53	45.00	65.00	115.00	16
15.90		0.6260	1.77	2.56	4.53	45.00	65.00	115.00	16
16.00		0.6299	1.77	2.56	4.53	45.00	65.00	115.00	16
16.27	41/64	0.6406	2.01	2.87	4.84	51.00	73.00	123.00	18
16.50		0.6496	2.01	2.87	4.84	51.00	73.00	123.00	18
16.67	21/32	0.6562	2.01	2.87	4.84	51.00	73.00	123.00	18
17.00		0.6693	2.01	2.87	4.84	51.00	73.00	123.00	18
17.46	11/16	0.6875	2.01	2.87	4.84	51.00	73.00	123.00	18
17.50		0.6890	2.01	2.87	4.84	51.00	73.00	123.00	18
18.00		0.7087	2.01	2.87	4.84	51.00	73.00	123.00	18
18.26	23/32	0.7187	2.17	3.11	5.16	55.00	79.00	131.00	20
18.50		0.7283	2.17	3.11	5.16	55.00	79.00	131.00	20
19.00		0.7480	2.17	3.11	5.16	55.00	79.00	131.00	20
19.05	3/4	0.7500	2.17	3.11	5.16	55.00	79.00	131.00	20
19.45	49/64	0.7656	2.17	3.11	5.16	55.00	79.00	131.00	20
19.50		0.7677	2.17	3.11	5.16	55.00	79.00	131.00	20
20.00		0.7874	2.17	3.11	5.16	55.00	79.00	131.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 77.

Order example: **HA-Shank 30-1741-1020**
HB-Shank 30-1741-1020-HB
HE-Shank 30-1741-1020-HE

HAM 30-1701 Superdrill

283 Series

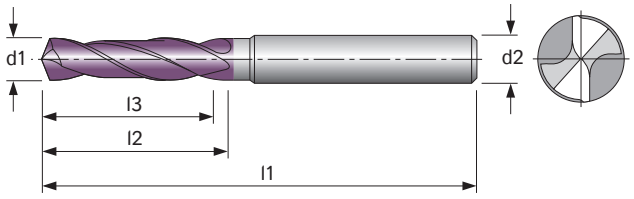
Solid Carbide Twist Drill

5 X D

Z 2 | 30° Right | DIN 6537 | 5 x D | 140° | SHRINK FIT | HSF | HPC | TA-C | DIN 6535 HA | DIN 6535 HB | DIN 6535 HE

Engineering Data

- special point ground
- special chip flute geometry
- web thickness reinforced
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1701	○	○	●	●	●	●			○	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-1701 Ø d1 (m7) mm	Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.80		0.1102	0.91	1.10	2.60	23.00	28.00	66.00	4
2.90		0.1141	0.91	1.10	2.60	23.00	28.00	66.00	4
3.00		0.1181	0.91	1.10	2.60	23.00	28.00	66.00	6
3.10		0.1220	0.91	1.10	2.60	23.00	28.00	66.00	6
3.17	1/8	0.1250	0.91	1.10	2.60	23.00	28.00	66.00	6
3.20		0.1260	0.91	1.10	2.60	23.00	28.00	66.00	6
3.30		0.1299	0.91	1.10	2.60	23.00	28.00	66.00	6
3.40		0.1339	0.91	1.10	2.60	23.00	28.00	66.00	6
3.50		0.1378	0.91	1.10	2.60	23.00	28.00	66.00	6
3.57	9/64	0.1406	0.91	1.10	2.60	23.00	28.00	66.00	6
3.60		0.1417	0.91	1.10	2.60	23.00	28.00	66.00	6
3.70		0.1457	0.91	1.10	2.60	23.00	28.00	66.00	6
3.75		0.1476	1.14	1.42	2.91	29.00	36.00	74.00	6
3.80		0.1496	1.14	1.42	2.91	29.00	36.00	74.00	6
3.90		0.1535	1.14	1.42	2.91	29.00	36.00	74.00	6
3.97	5/32	0.1562	1.14	1.42	2.91	29.00	36.00	74.00	6
4.00		0.1575	1.14	1.42	2.91	29.00	36.00	74.00	6
4.10		0.1614	1.14	1.42	2.91	29.00	36.00	74.00	6
4.20		0.1654	1.14	1.42	2.91	29.00	36.00	74.00	6
4.30		0.1693	1.14	1.42	2.91	29.00	36.00	74.00	6
4.37	11/64	0.1718	1.14	1.42	2.91	29.00	36.00	74.00	6
4.40		0.1732	1.14	1.42	2.91	29.00	36.00	74.00	6
4.50		0.1772	1.14	1.42	2.91	29.00	36.00	74.00	6
4.60		0.1811	1.14	1.42	2.91	29.00	36.00	74.00	6
4.65		0.1830	1.14	1.42	2.91	29.00	36.00	74.00	6
4.70		0.1850	1.14	1.42	2.91	29.00	36.00	74.00	6
4.76	3/16	0.1875	1.38	1.73	3.23	35.00	44.00	82.00	6
4.80		0.1890	1.38	1.73	3.23	35.00	44.00	82.00	6
4.90		0.1929	1.38	1.73	3.23	35.00	44.00	82.00	6
5.00		0.1969	1.38	1.73	3.23	35.00	44.00	82.00	6
5.10		0.2008	1.38	1.73	3.23	35.00	44.00	82.00	6
5.16	13/64	0.2031	1.38	1.73	3.23	35.00	44.00	82.00	6
5.20		0.2047	1.38	1.73	3.23	35.00	44.00	82.00	6
5.30		0.2087	1.38	1.73	3.23	35.00	44.00	82.00	6
5.40		0.2126	1.38	1.73	3.23	35.00	44.00	82.00	6
5.50		0.2165	1.38	1.73	3.23	35.00	44.00	82.00	6
5.55	7/32	0.2187	1.38	1.73	3.23	35.00	44.00	82.00	6
5.60		0.2205	1.38	1.73	3.23	35.00	44.00	82.00	6
5.70		0.2244	1.38	1.73	3.23	35.00	44.00	82.00	6
5.80		0.2283	1.38	1.73	3.23	35.00	44.00	82.00	6

30-1701 Ø d1 (m7) mm	Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
5.90		0.2323	1.38	1.73	3.23	35.00	44.00	82.00	6
5.95	15/64	0.2343	1.38	1.73	3.23	35.00	44.00	82.00	6
6.00		0.2362	1.38	1.73	3.23	35.00	44.00	82.00	6
6.10		0.2402	1.69	2.09	3.58	43.00	53.00	91.00	8
6.20		0.2441	1.69	2.09	3.58	43.00	53.00	91.00	8
6.30		0.2480	1.69	2.09	3.58	43.00	53.00	91.00	8
6.35	1/4	0.2500	1.69	2.09	3.58	43.00	53.00	91.00	8
6.40		0.2520	1.69	2.09	3.58	43.00	53.00	91.00	8
6.50		0.2559	1.69	2.09	3.58	43.00	53.00	91.00	8
6.53	F	0.2570	1.69	2.09	3.58	43.00	53.00	91.00	8
6.60		0.2598	1.69	2.09	3.58	43.00	53.00	91.00	8
6.70		0.2638	1.69	2.09	3.58	43.00	53.00	91.00	8
6.75	17/64	0.2656	1.69	2.09	3.58	43.00	53.00	91.00	8
6.80		0.2677	1.69	2.09	3.58	43.00	53.00	91.00	8
6.90		0.2717	1.69	2.09	3.58	43.00	53.00	91.00	8
7.00		0.2756	1.69	2.09	3.58	43.00	53.00	91.00	8
7.10		0.2795	1.69	2.09	3.58	43.00	53.00	91.00	8
7.14	9/32	0.2812	1.69	2.09	3.58	43.00	53.00	91.00	8
7.20		0.2835	1.69	2.09	3.58	43.00	53.00	91.00	8
7.30		0.2874	1.69	2.09	3.58	43.00	53.00	91.00	8
7.40		0.2913	1.69	2.09	3.58	43.00	53.00	91.00	8
7.50		0.2953	1.69	2.09	3.58	43.00	53.00	91.00	8
7.54	19/64	0.2968	1.69	2.09	3.58	43.00	53.00	91.00	8
7.60		0.2992	1.69	2.09	3.58	43.00	53.00	91.00	8
7.70		0.3031	1.69	2.09	3.58	43.00	53.00	91.00	8
7.80		0.3071	1.69	2.09	3.58	43.00	53.00	91.00	8
7.90		0.3110	1.69	2.09	3.58	43.00	53.00	91.00	8
7.94	5/16	0.3125	1.69	2.09	3.58	43.00	53.00	91.00	8
8.00		0.3150	1.69	2.09	3.58	43.00	53.00	91.00	8
8.10		0.3189	1.93	2.40	4.06	49.00	61.00	103.00	10
8.20		0.3228	1.93	2.40	4.06	49.00	61.00	103.00	10
8.30		0.3268	1.93	2.40	4.06	49.00	61.00	103.00	10
8.33	21/64	0.3281	1.93	2.40	4.06	49.00	61.00	103.00	10
8.40		0.3307	1.93	2.40	4.06	49.00	61.00	103.00	10
8.50		0.3346	1.93	2.40	4.06	49.00	61.00	103.00	10
8.60		0.3386	1.93	2.40	4.06	49.00	61.00	103.00	10
8.70		0.3425	1.93	2.40	4.06	49.00	61.00	103.00	10
8.73	11/32	0.3437	1.93	2.40	4.06	49.00	61.00	103.00	10
8.80		0.3465	1.93	2.40	4.06	49.00	61.00	103.00	10
8.85	S	0.3480	1.93	2.40	4.06	49.00	61.00	103.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 76.

Order example: HA-Shank 30-1701-0800
HB-Shank 30-1701-0800-HB
HE-Shank 30-1701-0800-HE

30-1701 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
8.90		0.3504	1.93	2.40	4.06	49.00	61.00	103.00	10
9.00		0.3543	1.93	2.40	4.06	49.00	61.00	103.00	10
9.10		0.3583	1.93	2.40	4.06	49.00	61.00	103.00	10
9.13	23/64	0.3593	1.93	2.40	4.06	49.00	61.00	103.00	10
9.20		0.3622	1.93	2.40	4.06	49.00	61.00	103.00	10
9.30		0.3661	1.93	2.40	4.06	49.00	61.00	103.00	10
9.35	U	0.3681	1.93	2.40	4.06	49.00	61.00	103.00	10
9.40		0.3701	1.93	2.40	4.06	49.00	61.00	103.00	10
9.50		0.3740	1.93	2.40	4.06	49.00	61.00	103.00	10
9.52	3/8	0.3750	1.93	2.40	4.06	49.00	61.00	103.00	10
9.60		0.3780	1.93	2.40	4.06	49.00	61.00	103.00	10
9.70		0.3819	1.93	2.40	4.06	49.00	61.00	103.00	10
9.80		0.3858	1.93	2.40	4.06	49.00	61.00	103.00	10
9.90		0.3898	1.93	2.40	4.06	49.00	61.00	103.00	10
9.92	25/64	0.3906	1.93	2.40	4.06	49.00	61.00	103.00	10
10.00		0.3937	1.93	2.40	4.06	49.00	61.00	103.00	10
10.10		0.3976	2.20	2.80	4.65	56.00	71.00	118.00	12
10.20		0.4016	2.20	2.80	4.65	56.00	71.00	118.00	12
10.30		0.4055	2.20	2.80	4.65	56.00	71.00	118.00	12
10.32	13/32	0.4062	2.20	2.80	4.65	56.00	71.00	118.00	12
10.40		0.4094	2.20	2.80	4.65	56.00	71.00	118.00	12
10.50		0.4134	2.20	2.80	4.65	56.00	71.00	118.00	12
10.60		0.4173	2.20	2.80	4.65	56.00	71.00	118.00	12
10.70		0.4213	2.20	2.80	4.65	56.00	71.00	118.00	12
10.72	27/64	0.4219	2.20	2.80	4.65	56.00	71.00	118.00	12
10.80		0.4252	2.20	2.80	4.65	56.00	71.00	118.00	12
10.90		0.4291	2.20	2.80	4.65	56.00	71.00	118.00	12
11.00		0.4331	2.20	2.80	4.65	56.00	71.00	118.00	12
11.10		0.4370	2.20	2.80	4.65	56.00	71.00	118.00	12
11.11	7/16	0.4375	2.20	2.80	4.65	56.00	71.00	118.00	12
11.20		0.4409	2.20	2.80	4.65	56.00	71.00	118.00	12
11.30		0.4449	2.20	2.80	4.65	56.00	71.00	118.00	12
11.40		0.4488	2.20	2.80	4.65	56.00	71.00	118.00	12
11.50		0.4528	2.20	2.80	4.65	56.00	71.00	118.00	12
11.51	29/64	0.4531	2.20	2.80	4.65	56.00	71.00	118.00	12
11.60		0.4567	2.20	2.80	4.65	56.00	71.00	118.00	12
11.70		0.4606	2.20	2.80	4.65	56.00	71.00	118.00	12
11.80		0.4646	2.20	2.80	4.65	56.00	71.00	118.00	12
11.84		0.4660	2.20	2.80	4.65	56.00	71.00	118.00	12
11.90		0.4685	2.20	2.80	4.65	56.00	71.00	118.00	12
11.91	15/32	0.4687	2.20	2.80	4.65	56.00	71.00	118.00	12
12.00		0.4724	2.20	2.80	4.65	56.00	71.00	118.00	12
12.10		0.4764	2.36	3.03	4.88	60.00	77.00	124.00	14
12.20		0.4803	2.36	3.03	4.88	60.00	77.00	124.00	14
12.30	31/64	0.4843	2.36	3.03	4.88	60.00	77.00	124.00	14
12.40		0.4882	2.36	3.03	4.88	60.00	77.00	124.00	14
12.50		0.4921	2.36	3.03	4.88	60.00	77.00	124.00	14
12.60		0.4961	2.36	3.03	4.88	60.00	77.00	124.00	14
12.70	1/2	0.5000	2.36	3.03	4.88	60.00	77.00	124.00	14
12.80		0.5039	2.36	3.03	4.88	60.00	77.00	124.00	14
12.90		0.5079	2.36	3.03	4.88	60.00	77.00	124.00	14
13.00		0.5118	2.36	3.03	4.88	60.00	77.00	124.00	14

30-1701 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
13.10	33/64	0.5156	2.36	3.03	4.88	60.00	77.00	124.00	14
13.20		0.5197	2.36	3.03	4.88	60.00	77.00	124.00	14
13.30		0.5236	2.36	3.03	4.88	60.00	77.00	124.00	14
13.40		0.5276	2.36	3.03	4.88	60.00	77.00	124.00	14
13.49	17/32	0.5312	2.36	3.03	4.88	60.00	77.00	124.00	14
13.50		0.5315	2.36	3.03	4.88	60.00	77.00	124.00	14
13.60		0.5354	2.36	3.03	4.88	60.00	77.00	124.00	14
13.65		0.5374	2.36	3.03	4.88	60.00	77.00	124.00	14
13.70		0.5394	2.36	3.03	4.88	60.00	77.00	124.00	14
13.80		0.5433	2.36	3.03	4.88	60.00	77.00	124.00	14
13.89	35/64	0.5468	2.36	3.03	4.88	60.00	77.00	124.00	14
13.90		0.5472	2.36	3.03	4.88	60.00	77.00	124.00	14
14.00		0.5512	2.36	3.03	4.88	60.00	77.00	124.00	14
14.10		0.5551	2.48	3.27	5.24	63.00	83.00	133.00	16
14.20		0.5591	2.48	3.27	5.24	63.00	83.00	133.00	16
14.29	9/16	0.5625	2.48	3.27	5.24	63.00	83.00	133.00	16
14.30		0.5630	2.48	3.27	5.24	63.00	83.00	133.00	16
14.40		0.5669	2.48	3.27	5.24	63.00	83.00	133.00	16
14.50		0.5709	2.48	3.27	5.24	63.00	83.00	133.00	16
14.60		0.5748	2.48	3.27	5.24	63.00	83.00	133.00	16
14.68	37/64	0.5781	2.48	3.27	5.24	63.00	83.00	133.00	16
14.70		0.5787	2.48	3.27	5.24	63.00	83.00	133.00	16
14.80		0.5827	2.48	3.27	5.24	63.00	83.00	133.00	16
14.90		0.5866	2.48	3.27	5.24	63.00	83.00	133.00	16
15.00		0.5906	2.48	3.27	5.24	63.00	83.00	133.00	16
15.08	19/32	0.5937	2.48	3.27	5.24	63.00	83.00	133.00	16
15.10		0.5945	2.48	3.27	5.24	63.00	83.00	133.00	16
15.20		0.5984	2.48	3.27	5.24	63.00	83.00	133.00	16
15.30		0.6024	2.48	3.27	5.24	63.00	83.00	133.00	16
15.40		0.6063	2.48	3.27	5.24	63.00	83.00	133.00	16
15.48	39/64	0.6093	2.48	3.27	5.24	63.00	83.00	133.00	16
15.50		0.6102	2.48	3.27	5.24	63.00	83.00	133.00	16
15.60		0.6142	2.48	3.27	5.24	63.00	83.00	133.00	16
15.70		0.6181	2.48	3.27	5.24	63.00	83.00	133.00	16
15.80		0.6220	2.48	3.27	5.24	63.00	83.00	133.00	16
15.88	5/8	0.6250	2.48	3.27	5.24	63.00	83.00	133.00	16
15.90		0.6260	2.48	3.27	5.24	63.00	83.00	133.00	16
16.00		0.6299	2.48	3.27	5.24	63.00	83.00	133.00	16
16.27	41/64	0.6406	2.80	3.66	5.63	71.00	93.00	143.00	18
16.50		0.6496	2.80	3.66	5.63	71.00	93.00	143.00	18
16.67	21/32	0.6562	2.80	3.66	5.63	71.00	93.00	143.00	18
17.00		0.6693	2.80	3.66	5.63	71.00	93.00	143.00	18
17.46	11/16	0.6875	2.80	3.66	5.63	71.00	93.00	143.00	18
17.50		0.6890	2.80	3.66	5.63	71.00	93.00	143.00	18
18.00		0.7087	2.80	3.66	5.63	71.00	93.00	143.00	18
18.26	23/32	0.7187	3.03	3.98	6.02	77.00	101.00	153.00	20
18.50		0.7283	3.03	3.98	6.02	77.00	101.00	153.00	20
19.00		0.7480	3.03	3.98	6.02	77.00	101.00	153.00	20
19.05	3/4	0.7500	3.03	3.98	6.02	77.00	101.00	153.00	20
19.45	49/64	0.7656	3.03	3.98	6.02	77.00	101.00	153.00	20
19.50		0.7677	3.03	3.98	6.02	77.00	101.00	153.00	20
20.00		0.7874	3.03	3.98	6.02	77.00	101.00	153.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 76.

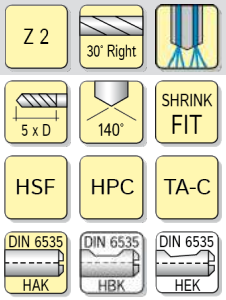
Order example: **HA-Shank 30-1701-1020**
HB-Shank 30-1701-1020-HB
HE-Shank 30-1701-1020-HE

HAM 30-1781 Superdrill

Solid Carbide Twist Drill

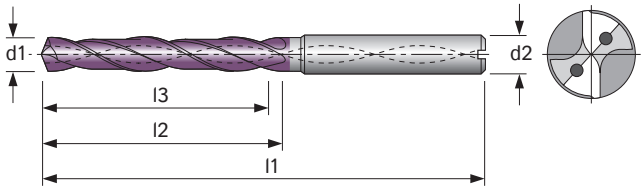
5 X D

286 Series



Engineering Data

- special point ground
- special chip flute geometry
- web thickness reinforced
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1781	○	○	●	●	●	●			○	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-1781 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
2.80		0.1102	0.91	1.10	2.60	23.00	28.00	66.00	4
2.90		0.1141	0.91	1.10	2.60	23.00	28.00	66.00	4
3.00		0.1181	0.91	1.10	2.60	23.00	28.00	66.00	6
3.10		0.1220	0.91	1.10	2.60	23.00	28.00	66.00	6
3.17	1/8	0.1250	0.91	1.10	2.60	23.00	28.00	66.00	6
3.20		0.1260	0.91	1.10	2.60	23.00	28.00	66.00	6
3.30		0.1299	0.91	1.10	2.60	23.00	28.00	66.00	6
3.40		0.1339	0.91	1.10	2.60	23.00	28.00	66.00	6
3.50		0.1378	0.91	1.10	2.60	23.00	28.00	66.00	6
3.57	9/64	0.1406	0.91	1.10	2.60	23.00	28.00	66.00	6
3.60		0.1417	0.91	1.10	2.60	23.00	28.00	66.00	6
3.70		0.1457	0.91	1.10	2.60	23.00	28.00	66.00	6
3.75		0.1476	1.14	1.42	2.91	29.00	36.00	74.00	6
3.80		0.1496	1.14	1.42	2.91	29.00	36.00	74.00	6
3.90		0.1535	1.14	1.42	2.91	29.00	36.00	74.00	6
3.97	5/32	0.1562	1.14	1.42	2.91	29.00	36.00	74.00	6
4.00		0.1575	1.14	1.42	2.91	29.00	36.00	74.00	6
4.10		0.1614	1.14	1.42	2.91	29.00	36.00	74.00	6
4.20		0.1654	1.14	1.42	2.91	29.00	36.00	74.00	6
4.30		0.1693	1.14	1.42	2.91	29.00	36.00	74.00	6
4.37	11/64	0.1718	1.14	1.42	2.91	29.00	36.00	74.00	6
4.40		0.1732	1.14	1.42	2.91	29.00	36.00	74.00	6
4.50		0.1772	1.14	1.42	2.91	29.00	36.00	74.00	6
4.60		0.1811	1.14	1.42	2.91	29.00	36.00	74.00	6
4.65		0.1830	1.14	1.42	2.91	29.00	36.00	74.00	6
4.70		0.1850	1.14	1.42	2.91	29.00	36.00	74.00	6
4.76	3/16	0.1875	1.38	1.73	3.23	35.00	44.00	82.00	6
4.80		0.1890	1.38	1.73	3.23	35.00	44.00	82.00	6
4.90		0.1929	1.38	1.73	3.23	35.00	44.00	82.00	6
5.00		0.1969	1.38	1.73	3.23	35.00	44.00	82.00	6
5.10		0.2008	1.38	1.73	3.23	35.00	44.00	82.00	6
5.16	13/64	0.2031	1.38	1.73	3.23	35.00	44.00	82.00	6
5.20		0.2047	1.38	1.73	3.23	35.00	44.00	82.00	6
5.30		0.2087	1.38	1.73	3.23	35.00	44.00	82.00	6
5.40		0.2126	1.38	1.73	3.23	35.00	44.00	82.00	6
5.50		0.2165	1.38	1.73	3.23	35.00	44.00	82.00	6
5.55	7/32	0.2187	1.38	1.73	3.23	35.00	44.00	82.00	6
5.60		0.2205	1.38	1.73	3.23	35.00	44.00	82.00	6
5.70		0.2244	1.38	1.73	3.23	35.00	44.00	82.00	6
5.80		0.2283	1.38	1.73	3.23	35.00	44.00	82.00	6

30-1781 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
5.90		0.2323	1.38	1.73	3.23	35.00	44.00	82.00	6
5.95	15/64	0.2343	1.38	1.73	3.23	35.00	44.00	82.00	6
6.00		0.2362	1.38	1.73	3.23	35.00	44.00	82.00	6
6.10		0.2402	1.69	2.09	3.58	43.00	53.00	91.00	8
6.20		0.2441	1.69	2.09	3.58	43.00	53.00	91.00	8
6.30		0.2480	1.69	2.09	3.58	43.00	53.00	91.00	8
6.35	1/4	0.2500	1.69	2.09	3.58	43.00	53.00	91.00	8
6.40		0.2520	1.69	2.09	3.58	43.00	53.00	91.00	8
6.50		0.2559	1.69	2.09	3.58	43.00	53.00	91.00	8
6.53	F	0.2570	1.69	2.09	3.58	43.00	53.00	91.00	8
6.60		0.2598	1.69	2.09	3.58	43.00	53.00	91.00	8
6.70		0.2638	1.69	2.09	3.58	43.00	53.00	91.00	8
6.75	17/64	0.2656	1.69	2.09	3.58	43.00	53.00	91.00	8
6.80		0.2677	1.69	2.09	3.58	43.00	53.00	91.00	8
6.90		0.2717	1.69	2.09	3.58	43.00	53.00	91.00	8
7.00		0.2756	1.69	2.09	3.58	43.00	53.00	91.00	8
7.10		0.2795	1.69	2.09	3.58	43.00	53.00	91.00	8
7.14	9/32	0.2812	1.69	2.09	3.58	43.00	53.00	91.00	8
7.20		0.2835	1.69	2.09	3.58	43.00	53.00	91.00	8
7.30		0.2874	1.69	2.09	3.58	43.00	53.00	91.00	8
7.40		0.2913	1.69	2.09	3.58	43.00	53.00	91.00	8
7.50		0.2953	1.69	2.09	3.58	43.00	53.00	91.00	8
7.54	19/64	0.2968	1.69	2.09	3.58	43.00	53.00	91.00	8
7.60		0.2992	1.69	2.09	3.58	43.00	53.00	91.00	8
7.70		0.3031	1.69	2.09	3.58	43.00	53.00	91.00	8
7.80		0.3071	1.69	2.09	3.58	43.00	53.00	91.00	8
7.90		0.3110	1.69	2.09	3.58	43.00	53.00	91.00	8
7.94	5/16	0.3125	1.69	2.09	3.58	43.00	53.00	91.00	8
8.00		0.3150	1.69	2.09	3.58	43.00	53.00	91.00	8
8.10		0.3189	1.93	2.40	4.06	49.00	61.00	103.00	10
8.20		0.3228	1.93	2.40	4.06	49.00	61.00	103.00	10
8.30		0.3268	1.93	2.40	4.06	49.00	61.00	103.00	10
8.33	21/64	0.3281	1.93	2.40	4.06	49.00	61.00	103.00	10
8.40		0.3307	1.93	2.40	4.06	49.00	61.00	103.00	10
8.50		0.3346	1.93	2.40	4.06	49.00	61.00	103.00	10
8.60		0.3386	1.93	2.40	4.06	49.00	61.00	103.00	10
8.70		0.3425	1.93	2.40	4.06	49.00	61.00	103.00	10
8.73	11/32	0.3437	1.93	2.40	4.06	49.00	61.00	103.00	10
8.80		0.3465	1.93	2.40	4.06	49.00	61.00	103.00	10
8.85	S	0.3480	1.93	2.40	4.06	49.00	61.00	103.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 77.

Order example: **HA-Shank 30-1781-0800**
HB-Shank 30-1781-0800-HB
HE-Shank 30-1781-0800-HE

30-1781 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
8.90		0.3504	1.93	2.40	4.06	49.00	61.00	103.00	10
9.00		0.3543	1.93	2.40	4.06	49.00	61.00	103.00	10
9.10		0.3583	1.93	2.40	4.06	49.00	61.00	103.00	10
9.13	23/64	0.3593	1.93	2.40	4.06	49.00	61.00	103.00	10
9.20		0.3622	1.93	2.40	4.06	49.00	61.00	103.00	10
9.30		0.3661	1.93	2.40	4.06	49.00	61.00	103.00	10
9.35	U	0.3681	1.93	2.40	4.06	49.00	61.00	103.00	10
9.40		0.3701	1.93	2.40	4.06	49.00	61.00	103.00	10
9.50		0.3740	1.93	2.40	4.06	49.00	61.00	103.00	10
9.52	3/8	0.3750	1.93	2.40	4.06	49.00	61.00	103.00	10
9.60		0.3780	1.93	2.40	4.06	49.00	61.00	103.00	10
9.70		0.3819	1.93	2.40	4.06	49.00	61.00	103.00	10
9.80		0.3858	1.93	2.40	4.06	49.00	61.00	103.00	10
9.90		0.3898	1.93	2.40	4.06	49.00	61.00	103.00	10
9.92	25/64	0.3906	1.93	2.40	4.06	49.00	61.00	103.00	10
10.00		0.3937	1.93	2.40	4.06	49.00	61.00	103.00	10
10.10		0.3976	2.20	2.80	4.65	56.00	71.00	118.00	12
10.20		0.4016	2.20	2.80	4.65	56.00	71.00	118.00	12
10.30		0.4055	2.20	2.80	4.65	56.00	71.00	118.00	12
10.32	13/32	0.4062	2.20	2.80	4.65	56.00	71.00	118.00	12
10.40		0.4094	2.20	2.80	4.65	56.00	71.00	118.00	12
10.50		0.4134	2.20	2.80	4.65	56.00	71.00	118.00	12
10.60		0.4173	2.20	2.80	4.65	56.00	71.00	118.00	12
10.70		0.4213	2.20	2.80	4.65	56.00	71.00	118.00	12
10.72	27/64	0.4219	2.20	2.80	4.65	56.00	71.00	118.00	12
10.80		0.4252	2.20	2.80	4.65	56.00	71.00	118.00	12
10.90		0.4291	2.20	2.80	4.65	56.00	71.00	118.00	12
11.00		0.4331	2.20	2.80	4.65	56.00	71.00	118.00	12
11.10		0.4370	2.20	2.80	4.65	56.00	71.00	118.00	12
11.11	7/16	0.4375	2.20	2.80	4.65	56.00	71.00	118.00	12
11.20		0.4409	2.20	2.80	4.65	56.00	71.00	118.00	12
11.30		0.4449	2.20	2.80	4.65	56.00	71.00	118.00	12
11.40		0.4488	2.20	2.80	4.65	56.00	71.00	118.00	12
11.50		0.4528	2.20	2.80	4.65	56.00	71.00	118.00	12
11.51	29/64	0.4531	2.20	2.80	4.65	56.00	71.00	118.00	12
11.60		0.4567	2.20	2.80	4.65	56.00	71.00	118.00	12
11.70		0.4606	2.20	2.80	4.65	56.00	71.00	118.00	12
11.80		0.4646	2.20	2.80	4.65	56.00	71.00	118.00	12
11.84		0.4660	2.20	2.80	4.65	56.00	71.00	118.00	12
11.90		0.4685	2.20	2.80	4.65	56.00	71.00	118.00	12
11.91	15/32	0.4687	2.20	2.80	4.65	56.00	71.00	118.00	12
12.00		0.4724	2.20	2.80	4.65	56.00	71.00	118.00	12
12.10		0.4764	2.36	3.03	4.88	60.00	77.00	124.00	14
12.20		0.4803	2.36	3.03	4.88	60.00	77.00	124.00	14
12.30	31/64	0.4843	2.36	3.03	4.88	60.00	77.00	124.00	14
12.40		0.4882	2.36	3.03	4.88	60.00	77.00	124.00	14
12.50		0.4921	2.36	3.03	4.88	60.00	77.00	124.00	14
12.60		0.4961	2.36	3.03	4.88	60.00	77.00	124.00	14
12.70	1/2	0.5000	2.36	3.03	4.88	60.00	77.00	124.00	14
12.80		0.5039	2.36	3.03	4.88	60.00	77.00	124.00	14
12.90		0.5079	2.36	3.03	4.88	60.00	77.00	124.00	14
13.00		0.5118	2.36	3.03	4.88	60.00	77.00	124.00	14

30-1781 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
13.10	33/64	0.5156	2.36	3.03	4.88	60.00	77.00	124.00	14
13.20		0.5197	2.36	3.03	4.88	60.00	77.00	124.00	14
13.30		0.5236	2.36	3.03	4.88	60.00	77.00	124.00	14
13.40		0.5276	2.36	3.03	4.88	60.00	77.00	124.00	14
13.49	17/32	0.5312	2.36	3.03	4.88	60.00	77.00	124.00	14
13.50		0.5315	2.36	3.03	4.88	60.00	77.00	124.00	14
13.60		0.5354	2.36	3.03	4.88	60.00	77.00	124.00	14
13.65		0.5374	2.36	3.03	4.88	60.00	77.00	124.00	14
13.70		0.5394	2.36	3.03	4.88	60.00	77.00	124.00	14
13.80		0.5433	2.36	3.03	4.88	60.00	77.00	124.00	14
13.89	35/64	0.5468	2.36	3.03	4.88	60.00	77.00	124.00	14
13.90		0.5472	2.36	3.03	4.88	60.00	77.00	124.00	14
14.00		0.5512	2.36	3.03	4.88	60.00	77.00	124.00	14
14.10		0.5551	2.48	3.27	5.24	63.00	83.00	133.00	16
14.20		0.5591	2.48	3.27	5.24	63.00	83.00	133.00	16
14.29	9/16	0.5625	2.48	3.27	5.24	63.00	83.00	133.00	16
14.30		0.5630	2.48	3.27	5.24	63.00	83.00	133.00	16
14.40		0.5669	2.48	3.27	5.24	63.00	83.00	133.00	16
14.50		0.5709	2.48	3.27	5.24	63.00	83.00	133.00	16
14.60		0.5748	2.48	3.27	5.24	63.00	83.00	133.00	16
14.68	37/64	0.5781	2.48	3.27	5.24	63.00	83.00	133.00	16
14.70		0.5787	2.48	3.27	5.24	63.00	83.00	133.00	16
14.80		0.5827	2.48	3.27	5.24	63.00	83.00	133.00	16
14.90		0.5866	2.48	3.27	5.24	63.00	83.00	133.00	16
15.00		0.5906	2.48	3.27	5.24	63.00	83.00	133.00	16
15.08	19/32	0.5937	2.48	3.27	5.24	63.00	83.00	133.00	16
15.10		0.5945	2.48	3.27	5.24	63.00	83.00	133.00	16
15.20		0.5984	2.48	3.27	5.24	63.00	83.00	133.00	16
15.30		0.6024	2.48	3.27	5.24	63.00	83.00	133.00	16
15.40		0.6063	2.48	3.27	5.24	63.00	83.00	133.00	16
15.48	39/64	0.6093	2.48	3.27	5.24	63.00	83.00	133.00	16
15.50		0.6102	2.48	3.27	5.24	63.00	83.00	133.00	16
15.60		0.6142	2.48	3.27	5.24	63.00	83.00	133.00	16
15.70		0.6181	2.48	3.27	5.24	63.00	83.00	133.00	16
15.80		0.6220	2.48	3.27	5.24	63.00	83.00	133.00	16
15.88	5/8	0.6250	2.48	3.27	5.24	63.00	83.00	133.00	16
15.90		0.6260	2.48	3.27	5.24	63.00	83.00	133.00	16
16.00		0.6299	2.48	3.27	5.24	63.00	83.00	133.00	16
16.27	41/64	0.6406	2.80	3.66	5.63	71.00	93.00	143.00	18
16.50		0.6496	2.80	3.66	5.63	71.00	93.00	143.00	18
16.67	21/32	0.6562	2.80	3.66	5.63	71.00	93.00	143.00	18
17.00		0.6693	2.80	3.66	5.63	71.00	93.00	143.00	18
17.46	11/16	0.6875	2.80	3.66	5.63	71.00	93.00	143.00	18
17.50		0.6890	2.80	3.66	5.63	71.00	93.00	143.00	18
18.00		0.7087	2.80	3.66	5.63	71.00	93.00	143.00	18
18.26	23/32	0.7187	3.03	3.98	6.02	77.00	101.00	153.00	20
18.50		0.7283	3.03	3.98	6.02	77.00	101.00	153.00	20
19.00		0.7480	3.03	3.98	6.02	77.00	101.00	153.00	20
19.05	3/4	0.7500	3.03	3.98	6.02	77.00	101.00	153.00	20
19.45	49/64	0.7656	3.03	3.98	6.02	77.00	101.00	153.00	20
19.50		0.7677	3.03	3.98	6.02	77.00	101.00	153.00	20
20.00		0.7874	3.03	3.98	6.02	77.00	101.00	153.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 77.

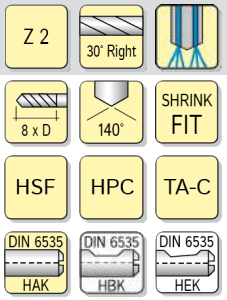
Order example: **HA-Shank 30-1781-1020**
HB-Shank 30-1781-1020-HB
HE-Shank 30-1781-1020-HE

HAM 30-1821 Superdrill

Solid Carbide Twist Drill

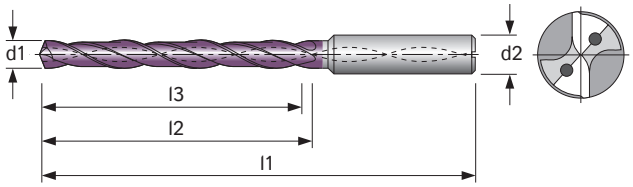
8 X D

292 Series



Engineering Data

- special point ground
- special chip flute geometry
- web thickness reinforced
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1821	○	○	●	●	●	●			○	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-1821 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
2.80		0.1102	1.14	1.34	2.83	29.00	34.00	72.00	4
2.90		0.1141	1.14	1.34	2.83	29.00	34.00	72.00	4
3.00		0.1181	1.14	1.34	2.83	29.00	34.00	72.00	6
3.10		0.1220	1.14	1.34	2.83	29.00	34.00	72.00	6
3.17	1/8	0.1250	1.14	1.34	2.83	29.00	34.00	72.00	6
3.20		0.1260	1.14	1.34	2.83	29.00	34.00	72.00	6
3.30		0.1299	1.14	1.34	2.83	29.00	34.00	72.00	6
3.40		0.1339	1.14	1.34	2.83	29.00	34.00	72.00	6
3.50		0.1378	1.14	1.34	2.83	29.00	34.00	72.00	6
3.57	9/64	0.1406	1.14	1.34	2.83	29.00	34.00	72.00	6
3.60		0.1417	1.14	1.34	2.83	29.00	34.00	72.00	6
3.70		0.1457	1.14	1.34	2.83	29.00	34.00	72.00	6
3.75		0.1476	1.42	1.69	3.19	36.00	43.00	81.00	6
3.80		0.1496	1.42	1.69	3.19	36.00	43.00	81.00	6
3.90		0.1535	1.42	1.69	3.19	36.00	43.00	81.00	6
3.97	5/32	0.1562	1.42	1.69	3.19	36.00	43.00	81.00	6
4.00		0.1575	1.42	1.69	3.19	36.00	43.00	81.00	6
4.10		0.1614	1.42	1.69	3.19	36.00	43.00	81.00	6
4.20		0.1654	1.42	1.69	3.19	36.00	43.00	81.00	6
4.30		0.1693	1.42	1.69	3.19	36.00	43.00	81.00	6
4.37	11/64	0.1718	1.42	1.69	3.19	36.00	43.00	81.00	6
4.40		0.1732	1.42	1.69	3.19	36.00	43.00	81.00	6
4.50		0.1772	1.42	1.69	3.19	36.00	43.00	81.00	6
4.60		0.1811	1.42	1.69	3.19	36.00	43.00	81.00	6
4.65		0.1830	1.42	1.69	3.19	36.00	43.00	81.00	6
4.70		0.1850	1.42	1.69	3.19	36.00	43.00	81.00	6
4.76	3/16	0.1875	1.89	2.24	3.74	48.00	57.00	95.00	6
4.80		0.1890	1.89	2.24	3.74	48.00	57.00	95.00	6
4.90		0.1929	1.89	2.24	3.74	48.00	57.00	95.00	6
5.00		0.1969	1.89	2.24	3.74	48.00	57.00	95.00	6
5.10		0.2008	1.89	2.24	3.74	48.00	57.00	95.00	6
5.16	13/64	0.2031	1.89	2.24	3.74	48.00	57.00	95.00	6
5.20		0.2047	1.89	2.24	3.74	48.00	57.00	95.00	6
5.30		0.2087	1.89	2.24	3.74	48.00	57.00	95.00	6
5.40		0.2126	1.89	2.24	3.74	48.00	57.00	95.00	6
5.50		0.2165	1.89	2.24	3.74	48.00	57.00	95.00	6
5.55	7/32	0.2187	1.89	2.24	3.74	48.00	57.00	95.00	6
5.60		0.2205	1.89	2.24	3.74	48.00	57.00	95.00	6
5.70		0.2244	1.89	2.24	3.74	48.00	57.00	95.00	6
5.80		0.2283	1.89	2.24	3.74	48.00	57.00	95.00	6

30-1821 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
5.90		0.2323	1.89	2.24	3.74	48.00	57.00	95.00	6
5.95	15/64	0.2343	1.89	2.24	3.74	48.00	57.00	95.00	6
6.00		0.2362	1.89	2.24	3.74	48.00	57.00	95.00	6
6.10		0.2402	2.52	2.99	4.49	64.00	76.00	114.00	8
6.20		0.2441	2.52	2.99	4.49	64.00	76.00	114.00	8
6.30		0.2480	2.52	2.99	4.49	64.00	76.00	114.00	8
6.35	1/4	0.2500	2.52	2.99	4.49	64.00	76.00	114.00	8
6.40		0.2520	2.52	2.99	4.49	64.00	76.00	114.00	8
6.50		0.2559	2.52	2.99	4.49	64.00	76.00	114.00	8
6.53	F	0.2570	2.52	2.99	4.49	64.00	76.00	114.00	8
6.60		0.2598	2.52	2.99	4.49	64.00	76.00	114.00	8
6.70		0.2638	2.52	2.99	4.49	64.00	76.00	114.00	8
6.75	17/64	0.2656	2.52	2.99	4.49	64.00	76.00	114.00	8
6.80		0.2677	2.52	2.99	4.49	64.00	76.00	114.00	8
6.90		0.2717	2.52	2.99	4.49	64.00	76.00	114.00	8
7.00		0.2756	2.52	2.99	4.49	64.00	76.00	114.00	8
7.10		0.2795	2.52	2.99	4.49	64.00	76.00	114.00	8
7.14	9/32	0.2812	2.52	2.99	4.49	64.00	76.00	114.00	8
7.20		0.2835	2.52	2.99	4.49	64.00	76.00	114.00	8
7.30		0.2874	2.52	2.99	4.49	64.00	76.00	114.00	8
7.40		0.2913	2.52	2.99	4.49	64.00	76.00	114.00	8
7.50		0.2953	2.52	2.99	4.49	64.00	76.00	114.00	8
7.54	19/64	0.2968	2.52	2.99	4.49	64.00	76.00	114.00	8
7.60		0.2992	2.52	2.99	4.49	64.00	76.00	114.00	8
7.70		0.3031	2.52	2.99	4.49	64.00	76.00	114.00	8
7.80		0.3071	2.52	2.99	4.49	64.00	76.00	114.00	8
7.90		0.3110	2.52	2.99	4.49	64.00	76.00	114.00	8
7.94	5/16	0.3125	2.52	2.99	4.49	64.00	76.00	114.00	8
8.00		0.3150	2.52	2.99	4.49	64.00	76.00	114.00	8
8.10		0.3189	3.15	3.74	5.59	80.00	95.00	142.00	10
8.20		0.3228	3.15	3.74	5.59	80.00	95.00	142.00	10
8.30		0.3268	3.15	3.74	5.59	80.00	95.00	142.00	10
8.33	21/64	0.3281	3.15	3.74	5.59	80.00	95.00	142.00	10
8.40		0.3307	3.15	3.74	5.59	80.00	95.00	142.00	10
8.50		0.3346	3.15	3.74	5.59	80.00	95.00	142.00	10
8.60		0.3386	3.15	3.74	5.59	80.00	95.00	142.00	10
8.70		0.3425	3.15	3.74	5.59	80.00	95.00	142.00	10
8.73	11/32	0.3437	3.15	3.74	5.59	80.00	95.00	142.00	10
8.80		0.3465	3.15	3.74	5.59	80.00	95.00	142.00	10
8.85	S	0.3480	3.15	3.74	5.59	80.00	95.00	142.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 77.

Order example: **HA-Shank 30-1821-0300**
HB-Shank 30-1821-0300-HB
HE-Shank 30-1821-0300-HE

30-1821 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
8.90		0.3504	3.15	3.74	5.59	80.00	95.00	142.00	10
9.00		0.3543	3.15	3.74	5.59	80.00	95.00	142.00	10
9.10		0.3583	3.15	3.74	5.59	80.00	95.00	142.00	10
9.13	23/64	0.3593	3.15	3.74	5.59	80.00	95.00	142.00	10
9.20		0.3622	3.15	3.74	5.59	80.00	95.00	142.00	10
9.30		0.3661	3.15	3.74	5.59	80.00	95.00	142.00	10
9.35	U	0.3681	3.15	3.74	5.59	80.00	95.00	142.00	10
9.40		0.3701	3.15	3.74	5.59	80.00	95.00	142.00	10
9.50		0.3740	3.15	3.74	5.59	80.00	95.00	142.00	10
9.52	3/8	0.3750	3.15	3.74	5.59	80.00	95.00	142.00	10
9.60		0.3780	3.15	3.74	5.59	80.00	95.00	142.00	10
9.70		0.3819	3.15	3.74	5.59	80.00	95.00	142.00	10
9.80		0.3858	3.15	3.74	5.59	80.00	95.00	142.00	10
9.90		0.3898	3.15	3.74	5.59	80.00	95.00	142.00	10
9.92	25/64	0.3906	3.15	3.74	5.59	80.00	95.00	142.00	10
10.00		0.3937	3.15	3.74	5.59	80.00	95.00	142.00	10
10.10		0.3976	3.78	4.49	6.38	96.00	114.00	162.00	12
10.20		0.4016	3.78	4.49	6.38	96.00	114.00	162.00	12
10.30		0.4055	3.78	4.49	6.38	96.00	114.00	162.00	12
10.32	13/32	0.4062	3.78	4.49	6.38	96.00	114.00	162.00	12
10.40		0.4094	3.78	4.49	6.38	96.00	114.00	162.00	12
10.50		0.4134	3.78	4.49	6.38	96.00	114.00	162.00	12
10.60		0.4173	3.78	4.49	6.38	96.00	114.00	162.00	12
10.70		0.4213	3.78	4.49	6.38	96.00	114.00	162.00	12
10.72	27/64	0.4219	3.78	4.49	6.38	96.00	114.00	162.00	12
10.80		0.4252	3.78	4.49	6.38	96.00	114.00	162.00	12
10.90		0.4291	3.78	4.49	6.38	96.00	114.00	162.00	12
11.00		0.4331	3.78	4.49	6.38	96.00	114.00	162.00	12
11.10		0.4370	3.78	4.49	6.38	96.00	114.00	162.00	12
11.11	7/16	0.4375	3.78	4.49	6.38	96.00	114.00	162.00	12
11.20		0.4409	3.78	4.49	6.38	96.00	114.00	162.00	12
11.30		0.4449	3.78	4.49	6.38	96.00	114.00	162.00	12
11.40		0.4488	3.78	4.49	6.38	96.00	114.00	162.00	12
11.50		0.4528	3.78	4.49	6.38	96.00	114.00	162.00	12
11.51	29/64	0.4531	3.78	4.49	6.38	96.00	114.00	162.00	12
11.60		0.4567	3.78	4.49	6.38	96.00	114.00	162.00	12
11.70		0.4606	3.78	4.49	6.38	96.00	114.00	162.00	12
11.80		0.4646	3.78	4.49	6.38	96.00	114.00	162.00	12
11.84		0.4660	3.78	4.49	6.38	96.00	114.00	162.00	12
11.90		0.4685	3.78	4.49	6.38	96.00	114.00	162.00	12
11.91	15/32	0.4687	3.78	4.49	6.38	96.00	114.00	162.00	12
12.00		0.4724	3.78	4.49	6.38	96.00	114.00	162.00	12
12.10		0.4764	4.41	5.16	7.01	112.00	131.00	178.00	14
12.20		0.4803	4.41	5.16	7.01	112.00	131.00	178.00	14
12.30	31/64	0.4843	4.41	5.16	7.01	112.00	131.00	178.00	14
12.40		0.4882	4.41	5.16	7.01	112.00	131.00	178.00	14
12.50		0.4921	4.41	5.16	7.01	112.00	131.00	178.00	14
12.60		0.4961	4.41	5.16	7.01	112.00	131.00	178.00	14
12.70	1/2	0.5000	4.41	5.16	7.01	112.00	131.00	178.00	14
12.80		0.5039	4.41	5.16	7.01	112.00	131.00	178.00	14
12.90		0.5079	4.41	5.16	7.01	112.00	131.00	178.00	14
13.00		0.5118	4.41	5.16	7.01	112.00	131.00	178.00	14

30-1821 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
13.10	33/64	0.5156	4.41	5.16	7.01	112.00	131.00	178.00	14
13.20		0.5197	4.41	5.16	7.01	112.00	131.00	178.00	14
13.30		0.5236	4.41	5.16	7.01	112.00	131.00	178.00	14
13.40		0.5276	4.41	5.16	7.01	112.00	131.00	178.00	14
13.49	17/32	0.5312	4.41	5.16	7.01	112.00	131.00	178.00	14
13.50		0.5315	4.41	5.16	7.01	112.00	131.00	178.00	14
13.60		0.5354	4.41	5.16	7.01	112.00	131.00	178.00	14
13.65		0.5374	4.41	5.16	7.01	112.00	131.00	178.00	14
13.70		0.5394	4.41	5.16	7.01	112.00	131.00	178.00	14
13.80		0.5433	4.41	5.16	7.01	112.00	131.00	178.00	14
13.89	35/64	0.5468	4.41	5.16	7.01	112.00	131.00	178.00	14
13.90		0.5472	4.41	5.16	7.01	112.00	131.00	178.00	14
14.00		0.5512	4.41	5.16	7.01	112.00	131.00	178.00	14
14.10		0.5551	5.04	5.98	7.99	128.00	152.00	203.00	16
14.20		0.5591	5.04	5.98	7.99	128.00	152.00	203.00	16
14.29	9/16	0.5625	5.04	5.98	7.99	128.00	152.00	203.00	16
14.30		0.5630	5.04	5.98	7.99	128.00	152.00	203.00	16
14.40		0.5669	5.04	5.98	7.99	128.00	152.00	203.00	16
14.50		0.5709	5.04	5.98	7.99	128.00	152.00	203.00	16
14.60		0.5748	5.04	5.98	7.99	128.00	152.00	203.00	16
14.68	37/64	0.5781	5.04	5.98	7.99	128.00	152.00	203.00	16
14.70		0.5787	5.04	5.98	7.99	128.00	152.00	203.00	16
14.80		0.5827	5.04	5.98	7.99	128.00	152.00	203.00	16
14.90		0.5866	5.04	5.98	7.99	128.00	152.00	203.00	16
15.00		0.5906	5.04	5.98	7.99	128.00	152.00	203.00	16
15.08	19/32	0.5937	5.04	5.98	7.99	128.00	152.00	203.00	16
15.10		0.5945	5.04	5.98	7.99	128.00	152.00	203.00	16
15.20		0.5984	5.04	5.98	7.99	128.00	152.00	203.00	16
15.30		0.6024	5.04	5.98	7.99	128.00	152.00	203.00	16
15.40		0.6063	5.04	5.98	7.99	128.00	152.00	203.00	16
15.48	39/64	0.6093	5.04	5.98	7.99	128.00	152.00	203.00	16
15.50		0.6102	5.04	5.98	7.99	128.00	152.00	203.00	16
15.60		0.6142	5.04	5.98	7.99	128.00	152.00	203.00	16
15.70		0.6181	5.04	5.98	7.99	128.00	152.00	203.00	16
15.80		0.6220	5.04	5.98	7.99	128.00	152.00	203.00	16
15.88	5/8	0.6250	5.04	5.98	7.99	128.00	152.00	203.00	16
15.90		0.6260	5.04	5.98	7.99	128.00	152.00	203.00	16
16.00		0.6299	5.04	5.98	7.99	128.00	152.00	203.00	16
16.27	41/64	0.6406	5.67	6.73	8.74	144.00	171.00	222.00	18
16.50		0.6496	5.67	6.73	8.74	144.00	171.00	222.00	18
16.67	21/32	0.6562	5.67	6.73	8.74	144.00	171.00	222.00	18
17.00		0.6693	5.67	6.73	8.74	144.00	171.00	222.00	18
17.46	11/16	0.6875	5.67	6.73	8.74	144.00	171.00	222.00	18
17.50		0.6890	5.67	6.73	8.74	144.00	171.00	222.00	18
18.00		0.7087	5.67	6.73	8.74	144.00	171.00	222.00	18
18.26	23/32	0.7187	6.30	7.48	9.57	160.00	190.00	243.00	20
18.50		0.7283	6.30	7.48	9.57	160.00	190.00	243.00	20
19.00		0.7480	6.30	7.48	9.57	160.00	190.00	243.00	20
19.05	3/4	0.7500	6.30	7.48	9.57	160.00	190.00	243.00	20
19.45	49/64	0.7656	6.30	7.48	9.57	160.00	190.00	243.00	20
19.50		0.7677	6.30	7.48	9.57	160.00	190.00	243.00	20
20.00		0.7874	6.30	7.48	9.57	160.00	190.00	243.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 77.

Order example: **HA-Shank 30-1821-1020**
HB-Shank 30-1821-1020-HB
HE-Shank 30-1821-1020-HE

HAM 30-1861 Superdrill

293 Series

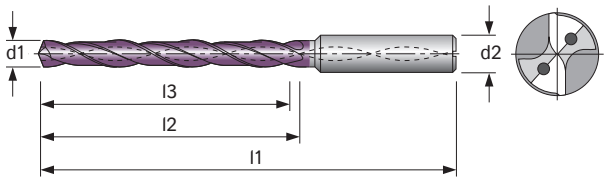
Solid Carbide Twist Drill

12 X D

Z 2 | 30° Right | 12 x D | 140° | SHRINK FIT | HSF | HPC | TA-C | DIN 6535 HAK | DIN 6535 HBK | DIN 6535 HEK

Engineering Data

- 4 guide chamfer
- special point ground
- special chip flute geometry
- web thickness reinforced
- 30° RH helix
- tip-coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1861	○	○	●	●	●	●			○	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-1861 Ø d1 (m7) mm	Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.80		0.1102	1.89	2.13	3.62	48.00	54.00	92.00	4
2.90		0.1141	1.89	2.13	3.62	48.00	54.00	92.00	4
3.00		0.1181	1.89	2.13	3.62	48.00	54.00	92.00	6
3.10		0.1220	1.89	2.13	3.62	48.00	54.00	92.00	6
3.17	1/8	0.1250	1.89	2.13	3.62	48.00	54.00	92.00	6
3.20		0.1260	1.89	2.13	3.62	48.00	54.00	92.00	6
3.30		0.1299	1.89	2.13	3.62	48.00	54.00	92.00	6
3.40		0.1339	1.89	2.13	3.62	48.00	54.00	92.00	6
3.50		0.1378	1.89	2.13	3.62	48.00	54.00	92.00	6
3.57	9/64	0.1406	1.89	2.13	3.62	48.00	54.00	92.00	6
3.60		0.1417	1.89	2.13	3.62	48.00	54.00	92.00	6
3.70		0.1457	1.89	2.13	3.62	48.00	54.00	92.00	6
3.80		0.1496	2.28	2.52	4.02	58.00	64.00	102.00	6
3.90		0.1535	2.28	2.52	4.02	58.00	64.00	102.00	6
3.97	5/32	0.1562	2.28	2.52	4.02	58.00	64.00	102.00	6
4.00		0.1575	2.28	2.52	4.02	58.00	64.00	102.00	6
4.10		0.1614	2.28	2.52	4.02	58.00	64.00	102.00	6
4.20		0.1654	2.28	2.52	4.02	58.00	64.00	102.00	6
4.30		0.1693	2.28	2.52	4.02	58.00	64.00	102.00	6
4.37	11/64	0.1718	2.28	2.52	4.02	58.00	64.00	102.00	6
4.40		0.1732	2.28	2.52	4.02	58.00	64.00	102.00	6
4.50		0.1772	2.28	2.52	4.02	58.00	64.00	102.00	6
4.60		0.1811	2.28	2.52	4.02	58.00	64.00	102.00	6
4.70		0.1850	2.28	2.52	4.02	58.00	64.00	102.00	6
4.76	3/16	0.1875	2.76	3.07	4.57	70.00	78.00	116.00	6
4.80		0.1890	2.76	3.07	4.57	70.00	78.00	116.00	6
4.90		0.1929	2.76	3.07	4.57	70.00	78.00	116.00	6
5.00		0.1969	2.76	3.07	4.57	70.00	78.00	116.00	6
5.10		0.2008	2.76	3.07	4.57	70.00	78.00	116.00	6
5.16	13/64	0.2031	2.76	3.07	4.57	70.00	78.00	116.00	6
5.20		0.2047	2.76	3.07	4.57	70.00	78.00	116.00	6
5.30		0.2087	2.76	3.07	4.57	70.00	78.00	116.00	6
5.40		0.2126	2.76	3.07	4.57	70.00	78.00	116.00	6
5.50		0.2165	2.76	3.07	4.57	70.00	78.00	116.00	6
5.55	7/32	0.2187	2.76	3.07	4.57	70.00	78.00	116.00	6
5.60		0.2205	2.76	3.07	4.57	70.00	78.00	116.00	6
5.70		0.2244	2.76	3.07	4.57	70.00	78.00	116.00	6
5.80		0.2283	2.76	3.07	4.57	70.00	78.00	116.00	6
5.90		0.2323	2.76	3.07	4.57	70.00	78.00	116.00	6
5.95	15/64	0.2343	2.76	3.07	4.57	70.00	78.00	116.00	6

30-1861 Ø d1 (m7) mm	Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
6.00		0.2362	2.76	3.07	4.57	70.00	78.00	116.00	6
6.10		0.2402	3.70	4.25	5.75	94.00	108.00	146.00	8
6.20		0.2441	3.70	4.25	5.75	94.00	108.00	146.00	8
6.30		0.2480	3.70	4.25	5.75	94.00	108.00	146.00	8
6.35	1/4	0.2500	3.70	4.25	5.75	94.00	108.00	146.00	8
6.40		0.2520	3.70	4.25	5.75	94.00	108.00	146.00	8
6.50		0.2559	3.70	4.25	5.75	94.00	108.00	146.00	8
6.60		0.2598	3.70	4.25	5.75	94.00	108.00	146.00	8
6.70		0.2638	3.70	4.25	5.75	94.00	108.00	146.00	8
6.75	17/64	0.2656	3.70	4.25	5.75	94.00	108.00	146.00	8
6.80		0.2677	3.70	4.25	5.75	94.00	108.00	146.00	8
6.90		0.2717	3.70	4.25	5.75	94.00	108.00	146.00	8
7.00		0.2756	3.70	4.25	5.75	94.00	108.00	146.00	8
7.10		0.2795	3.70	4.25	5.75	94.00	108.00	146.00	8
7.14	9/32	0.2812	3.70	4.25	5.75	94.00	108.00	146.00	8
7.20		0.2835	3.70	4.25	5.75	94.00	108.00	146.00	8
7.30		0.2874	3.70	4.25	5.75	94.00	108.00	146.00	8
7.40		0.2913	3.70	4.25	5.75	94.00	108.00	146.00	8
7.50		0.2953	3.70	4.25	5.75	94.00	108.00	146.00	8
7.54	19/64	0.2968	3.70	4.25	5.75	94.00	108.00	146.00	8
7.60		0.2992	3.70	4.25	5.75	94.00	108.00	146.00	8
7.70		0.3031	3.70	4.25	5.75	94.00	108.00	146.00	8
7.80		0.3071	3.70	4.25	5.75	94.00	108.00	146.00	8
7.90		0.3110	3.70	4.25	5.75	94.00	108.00	146.00	8
7.94	5/16	0.3125	3.70	4.25	5.75	94.00	108.00	146.00	8
8.00		0.3150	3.70	4.25	5.75	94.00	108.00	146.00	8
8.10		0.3189	4.33	4.72	6.38	110.00	120.00	162.00	10
8.20		0.3228	4.33	4.72	6.38	110.00	120.00	162.00	10
8.30		0.3268	4.33	4.72	6.38	110.00	120.00	162.00	10
8.33	21/64	0.3281	4.33	4.72	6.38	110.00	120.00	162.00	10
8.40		0.3307	4.33	4.72	6.38	110.00	120.00	162.00	10
8.50		0.3346	4.33	4.72	6.38	110.00	120.00	162.00	10
8.60		0.3386	4.33	4.72	6.38	110.00	120.00	162.00	10
8.70		0.3425	4.33	4.72	6.38	110.00	120.00	162.00	10
8.73	11/32	0.3437	4.33	4.72	6.38	110.00	120.00	162.00	10
8.80		0.3465	4.33	4.72	6.38	110.00	120.00	162.00	10
8.90		0.3504	4.33	4.72	6.38	110.00	120.00	162.00	10
9.00		0.3543	4.33	4.72	6.38	110.00	120.00	162.00	10
9.10		0.3583	4.33	4.72	6.38	110.00	120.00	162.00	10
9.13	23/64	0.3593	4.33	4.72	6.38	110.00	120.00	162.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 78.

Order example: HA-Shank 30-1861-0300
HB-Shank 30-1861-0300-HB
HE-Shank 30-1861-0300-HE

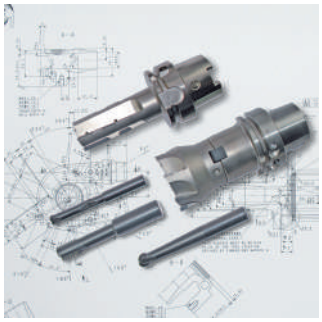
30-1861 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.20		0.3622	4.33	4.72	6.38	110.00	120.00	162.00	10
9.30		0.3661	4.33	4.72	6.38	110.00	120.00	162.00	10
9.40		0.3701	4.33	4.72	6.38	110.00	120.00	162.00	10
9.50		0.3740	4.33	4.72	6.38	110.00	120.00	162.00	10
9.52	3/8	0.3750	4.33	4.72	6.38	110.00	120.00	162.00	10
9.60		0.3780	4.33	4.72	6.38	110.00	120.00	162.00	10
9.70		0.3819	4.33	4.72	6.38	110.00	120.00	162.00	10
9.80		0.3858	4.33	4.72	6.38	110.00	120.00	162.00	10
9.90		0.3898	4.33	4.72	6.38	110.00	120.00	162.00	10
9.92	25/64	0.3906	4.33	4.72	6.38	110.00	120.00	162.00	10
10.00		0.3937	4.33	4.72	6.38	110.00	120.00	162.00	10
10.10		0.3976	5.59	6.14	8.03	142.00	156.00	204.00	12
10.20		0.4016	5.59	6.14	8.03	142.00	156.00	204.00	12
10.30		0.4055	5.59	6.14	8.03	142.00	156.00	204.00	12
10.32	13/32	0.4062	5.59	6.14	8.03	142.00	156.00	204.00	12
10.40		0.4094	5.59	6.14	8.03	142.00	156.00	204.00	12
10.50		0.4134	5.59	6.14	8.03	142.00	156.00	204.00	12
10.60		0.4173	5.59	6.14	8.03	142.00	156.00	204.00	12
10.70		0.4213	5.59	6.14	8.03	142.00	156.00	204.00	12
10.72	27/64	0.4219	5.59	6.14	8.03	142.00	156.00	204.00	12
10.80		0.4252	5.59	6.14	8.03	142.00	156.00	204.00	12
10.90		0.4291	5.59	6.14	8.03	142.00	156.00	204.00	12
11.00		0.4331	5.59	6.14	8.03	142.00	156.00	204.00	12
11.10		0.4370	5.59	6.14	8.03	142.00	156.00	204.00	12
11.11	7/16	0.4375	5.59	6.14	8.03	142.00	156.00	204.00	12
11.20		0.4409	5.59	6.14	8.03	142.00	156.00	204.00	12
11.30		0.4449	5.59	6.14	8.03	142.00	156.00	204.00	12
11.40		0.4488	5.59	6.14	8.03	142.00	156.00	204.00	12
11.50		0.4528	5.59	6.14	8.03	142.00	156.00	204.00	12
11.51	29/64	0.4531	5.59	6.14	8.03	142.00	156.00	204.00	12
11.60		0.4567	5.59	6.14	8.03	142.00	156.00	204.00	12
11.70		0.4606	5.59	6.14	8.03	142.00	156.00	204.00	12
11.80		0.4646	5.59	6.14	8.03	142.00	156.00	204.00	12
11.90		0.4685	5.59	6.14	8.03	142.00	156.00	204.00	12
11.91	15/32	0.4687	5.59	6.14	8.03	142.00	156.00	204.00	12
12.00		0.4724	5.59	6.14	8.03	142.00	156.00	204.00	12
12.10		0.4764	6.38	7.17	9.06	162.00	182.00	230.00	14
12.20		0.4803	6.38	7.17	9.06	162.00	182.00	230.00	14
12.30	31/64	0.4843	6.38	7.17	9.06	162.00	182.00	230.00	14
12.40		0.4882	6.38	7.17	9.06	162.00	182.00	230.00	14
12.50		0.4921	6.38	7.17	9.06	162.00	182.00	230.00	14
12.60		0.4961	6.38	7.17	9.06	162.00	182.00	230.00	14
12.70	1/2	0.5000	6.38	7.17	9.06	162.00	182.00	230.00	14
12.80		0.5039	6.38	7.17	9.06	162.00	182.00	230.00	14
12.90		0.5079	6.38	7.17	9.06	162.00	182.00	230.00	14
13.00		0.5118	6.38	7.17	9.06	162.00	182.00	230.00	14
13.10	33/64	0.5156	6.38	7.17	9.06	162.00	182.00	230.00	14
13.20		0.5197	6.38	7.17	9.06	162.00	182.00	230.00	14
13.30		0.5236	6.38	7.17	9.06	162.00	182.00	230.00	14

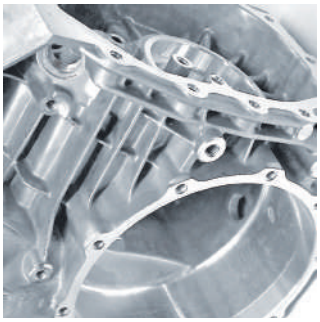
30-1861 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
13.40		0.5276	6.38	7.17	9.06	162.00	182.00	230.00	14
13.49	17/32	0.5312	6.38	7.17	9.06	162.00	182.00	230.00	14
13.50		0.5315	6.38	7.17	9.06	162.00	182.00	230.00	14
13.60		0.5354	6.38	7.17	9.06	162.00	182.00	230.00	14
13.70		0.5394	6.38	7.17	9.06	162.00	182.00	230.00	14
13.80		0.5433	6.38	7.17	9.06	162.00	182.00	230.00	14
13.89	35/64	0.5468	6.38	7.17	9.06	162.00	182.00	230.00	14
13.90		0.5472	6.38	7.17	9.06	162.00	182.00	230.00	14
14.00		0.5512	6.38	7.17	9.06	162.00	182.00	230.00	14
14.10		0.5551	7.40	8.19	10.24	188.00	208.00	260.00	16
14.20		0.5591	7.40	8.19	10.24	188.00	208.00	260.00	16
14.29	9/16	0.5625	7.40	8.19	10.24	188.00	208.00	260.00	16
14.30		0.5630	7.40	8.19	10.24	188.00	208.00	260.00	16
14.40		0.5669	7.40	8.19	10.24	188.00	208.00	260.00	16
14.50		0.5709	7.40	8.19	10.24	188.00	208.00	260.00	16
14.60		0.5748	7.40	8.19	10.24	188.00	208.00	260.00	16
14.68	37/64	0.5781	7.40	8.19	10.24	188.00	208.00	260.00	16
14.70		0.5787	7.40	8.19	10.24	188.00	208.00	260.00	16
14.80		0.5827	7.40	8.19	10.24	188.00	208.00	260.00	16
14.90		0.5866	7.40	8.19	10.24	188.00	208.00	260.00	16
15.00		0.5906	7.40	8.19	10.24	188.00	208.00	260.00	16
15.08	19/32	0.5937	7.40	8.19	10.24	188.00	208.00	260.00	16
15.10		0.5945	7.40	8.19	10.24	188.00	208.00	260.00	16
15.20		0.5984	7.40	8.19	10.24	188.00	208.00	260.00	16
15.30		0.6024	7.40	8.19	10.24	188.00	208.00	260.00	16
15.40		0.6063	7.40	8.19	10.24	188.00	208.00	260.00	16
15.48	39/64	0.6093	7.40	8.19	10.24	188.00	208.00	260.00	16
15.50		0.6102	7.40	8.19	10.24	188.00	208.00	260.00	16
15.60		0.6142	7.40	8.19	10.24	188.00	208.00	260.00	16
15.70		0.6181	7.40	8.19	10.24	188.00	208.00	260.00	16
15.80		0.6220	7.40	8.19	10.24	188.00	208.00	260.00	16
15.88	5/8	0.6250	7.40	8.19	10.24	188.00	208.00	260.00	16
15.90		0.6260	7.40	8.19	10.24	188.00	208.00	260.00	16
16.00		0.6299	7.40	8.19	10.24	188.00	208.00	260.00	16
16.27	41/64	0.6406	8.35	9.21	11.22	212.00	234.00	285.00	18
16.50		0.6496	8.35	9.21	11.22	212.00	234.00	285.00	18
16.67	21/32	0.6562	8.35	9.21	11.22	212.00	234.00	285.00	18
17.00		0.6693	8.35	9.21	11.22	212.00	234.00	285.00	18
17.46	11/16	0.6875	8.35	9.21	11.22	212.00	234.00	285.00	18
17.50		0.6890	8.35	9.21	11.22	212.00	234.00	285.00	18
18.00		0.7087	8.35	9.21	11.22	212.00	234.00	285.00	18
18.26	23/32	0.7187	9.17	10.12	12.20	233.00	257.00	310.00	20
18.50		0.7283	9.17	10.12	12.20	233.00	257.00	310.00	20
19.00		0.7480	9.17	10.12	12.20	233.00	257.00	310.00	20
19.05	3/4	0.7500	9.17	10.12	12.20	233.00	257.00	310.00	20
19.45	49/64	0.7656	9.17	10.12	12.20	233.00	257.00	310.00	20
19.50		0.7677	9.17	10.12	12.20	233.00	257.00	310.00	20
20.00		0.7874	9.17	10.12	12.20	233.00	257.00	310.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 78.

Order example: **HA-Shank 30-1861-1020**
HB-Shank 30-1861-1020-HB
HE-Shank 30-1861-1020-HE

PCD Tools





You benefit from our long-standing know-how in the development and manufacturing of customer-specific PCD Tools. Furthermore, we offer you a comprehensive re-sharpening service and the maintenance of PCD tools

Advantages:

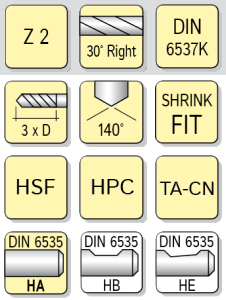
- *High cutting speeds*
- *High tool life*
- *High surface quality*

HAM Nirodrill – particulary suitable for machining of stainless steel materials.

HAM 30-1891 Nirodrill

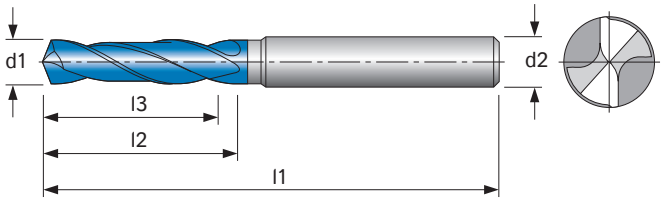
Solid Carbide Twist Drill

3 X D



Engineering Data

- special chip flute geometry
- special point ground for machining of stainless steel
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Stain ST > 40 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1891	●	●							●	●	●	○		○	●	●	○	●	●		

● very suitable ○ suitable

30-1891 Ø d1 (m7) mm	Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.00		0.0787	0.39	0.55	1.81	10.00	14.00	46.00	4
2.20		0.0866	0.39	0.55	1.81	10.00	14.00	46.00	4
2.30		0.0906	0.39	0.55	1.81	10.00	14.00	46.00	4
2.38	3/32	0.0937	0.39	0.55	1.81	10.00	14.00	46.00	4
2.40		0.0945	0.39	0.55	1.81	10.00	14.00	46.00	4
2.50		0.0984	0.39	0.55	1.81	10.00	14.00	46.00	4
2.55		0.1004	0.55	0.79	1.97	14.00	20.00	50.00	4
2.70		0.1063	0.55	0.79	1.97	14.00	20.00	50.00	4
2.78	7/64	0.1094	0.55	0.79	2.44	14.00	20.00	62.00	6
2.80		0.1102	0.55	0.79	2.44	14.00	20.00	62.00	6
2.90		0.1141	0.55	0.79	2.44	14.00	20.00	62.00	6
3.00		0.1181	0.55	0.79	2.44	14.00	20.00	62.00	6
3.10		0.1220	0.55	0.79	2.44	14.00	20.00	62.00	6
3.17	1/8	0.1250	0.55	0.79	2.44	14.00	20.00	62.00	6
3.20		0.1260	0.55	0.79	2.44	14.00	20.00	62.00	6
3.25		0.1280	0.55	0.79	2.44	14.00	20.00	62.00	6
3.30		0.1299	0.55	0.79	2.44	14.00	20.00	62.00	6
3.40		0.1339	0.55	0.79	2.44	14.00	20.00	62.00	6
3.50		0.1378	0.55	0.79	2.44	14.00	20.00	62.00	6
3.57	9/64	0.1406	0.55	0.79	2.44	14.00	20.00	62.00	6
3.60		0.1417	0.55	0.79	2.44	14.00	20.00	62.00	6
3.65		0.1437	0.55	0.79	2.44	14.00	20.00	62.00	6
3.70		0.1457	0.55	0.79	2.44	14.00	20.00	62.00	6
3.80		0.1496	0.67	0.94	2.60	17.00	24.00	66.00	6
3.90		0.1535	0.67	0.94	2.60	17.00	24.00	66.00	6
3.97	5/32	0.1562	0.67	0.94	2.60	17.00	24.00	66.00	6
4.00		0.1575	0.67	0.94	2.60	17.00	24.00	66.00	6
4.10		0.1614	0.67	0.94	2.60	17.00	24.00	66.00	6
4.20		0.1654	0.67	0.94	2.60	17.00	24.00	66.00	6
4.30		0.1693	0.67	0.94	2.60	17.00	24.00	66.00	6
4.37	11/64	0.1718	0.67	0.94	2.60	17.00	24.00	66.00	6
4.40		0.1732	0.67	0.94	2.60	17.00	24.00	66.00	6
4.50		0.1772	0.67	0.94	2.60	17.00	24.00	66.00	6
4.57		0.1799	0.67	0.94	2.60	17.00	24.00	66.00	6
4.60		0.1811	0.67	0.94	2.60	17.00	24.00	66.00	6
4.65		0.1831	0.67	0.94	2.60	17.00	24.00	66.00	6
4.70		0.1850	0.67	0.94	2.60	17.00	24.00	66.00	6
4.76	3/16	0.1875	0.79	1.10	2.60	20.00	28.00	66.00	6
4.80		0.1890	0.79	1.10	2.60	20.00	28.00	66.00	6
4.90		0.1929	0.79	1.10	2.60	20.00	28.00	66.00	6

30-1891 Ø d1 (m7) mm	Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
5.00		0.1969	0.79	1.10	2.60	20.00	28.00	66.00	6
5.10		0.2008	0.79	1.10	2.60	20.00	28.00	66.00	6
5.16	13/64	0.2031	0.79	1.10	2.60	20.00	28.00	66.00	6
5.20		0.2047	0.79	1.10	2.60	20.00	28.00	66.00	6
5.30		0.2087	0.79	1.10	2.60	20.00	28.00	66.00	6
5.40		0.2126	0.79	1.10	2.60	20.00	28.00	66.00	6
5.50		0.2165	0.79	1.10	2.60	20.00	28.00	66.00	6
5.55	7/32	0.2187	0.79	1.10	2.60	20.00	28.00	66.00	6
5.60		0.2205	0.79	1.10	2.60	20.00	28.00	66.00	6
5.70		0.2244	0.79	1.10	2.60	20.00	28.00	66.00	6
5.80		0.2283	0.79	1.10	2.60	20.00	28.00	66.00	6
5.90		0.2323	0.79	1.10	2.60	20.00	28.00	66.00	6
5.95	15/64	0.2343	0.79	1.10	2.60	20.00	28.00	66.00	6
6.00		0.2362	0.79	1.10	2.60	20.00	28.00	66.00	6
6.10		0.2402	0.94	1.34	3.11	24.00	34.00	79.00	8
6.20		0.2441	0.94	1.34	3.11	24.00	34.00	79.00	8
6.30		0.2480	0.94	1.34	3.11	24.00	34.00	79.00	8
6.35	1/4	0.2500	0.94	1.34	3.11	24.00	34.00	79.00	8
6.40		0.2520	0.94	1.34	3.11	24.00	34.00	79.00	8
6.50		0.2559	0.94	1.34	3.11	24.00	34.00	79.00	8
6.60		0.2598	0.94	1.34	3.11	24.00	34.00	79.00	8
6.70		0.2638	0.94	1.34	3.11	24.00	34.00	79.00	8
6.75	17/64	0.2656	0.94	1.34	3.11	24.00	34.00	79.00	8
6.80		0.2677	0.94	1.34	3.11	24.00	34.00	79.00	8
6.90		0.2717	0.94	1.34	3.11	24.00	34.00	79.00	8
7.00		0.2756	0.94	1.34	3.11	24.00	34.00	79.00	8
7.10		0.2795	1.14	1.61	3.11	29.00	41.00	79.00	8
7.14	9/32	0.2812	1.14	1.61	3.11	29.00	41.00	79.00	8
7.20		0.2835	1.14	1.61	3.11	29.00	41.00	79.00	8
7.30		0.2874	1.14	1.61	3.11	29.00	41.00	79.00	8
7.40		0.2913	1.14	1.61	3.11	29.00	41.00	79.00	8
7.50		0.2953	1.14	1.61	3.11	29.00	41.00	79.00	8
7.54	19/64	0.2968	1.14	1.61	3.11	29.00	41.00	79.00	8
7.60		0.2992	1.14	1.61	3.11	29.00	41.00	79.00	8
7.70		0.3031	1.14	1.61	3.11	29.00	41.00	79.00	8
7.80		0.3071	1.14	1.61	3.11	29.00	41.00	79.00	8
7.90		0.3110	1.14	1.61	3.11	29.00	41.00	79.00	8
7.94	5/16	0.3125	1.14	1.61	3.11	29.00	41.00	79.00	8
8.00		0.3150	1.14	1.61	3.11	29.00	41.00	79.00	8
8.10		0.3189	1.38	1.85	3.50	35.00	47.00	89.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 79.

Order example: HA-Shank 30-1891-0800
HB-Shank 30-1891-0800-HB
HE-Shank 30-1891-0800-HE

30-1891 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
8.20		0.3228	1.38	1.85	3.50	35.00	47.00	89.00	10
8.30		0.3268	1.38	1.85	3.50	35.00	47.00	89.00	10
8.33	21/64	0.3281	1.38	1.85	3.50	35.00	47.00	89.00	10
8.40		0.3307	1.38	1.85	3.50	35.00	47.00	89.00	10
8.50		0.3346	1.38	1.85	3.50	35.00	47.00	89.00	10
8.60		0.3386	1.38	1.85	3.50	35.00	47.00	89.00	10
8.70		0.3425	1.38	1.85	3.50	35.00	47.00	89.00	10
8.73	11/32	0.3437	1.38	1.85	3.50	35.00	47.00	89.00	10
8.80		0.3465	1.38	1.85	3.50	35.00	47.00	89.00	10
8.90		0.3504	1.38	1.85	3.50	35.00	47.00	89.00	10
9.00		0.3543	1.38	1.85	3.50	35.00	47.00	89.00	10
9.10		0.3583	1.38	1.85	3.50	35.00	47.00	89.00	10
9.13	23/64	0.3593	1.38	1.85	3.50	35.00	47.00	89.00	10
9.20		0.3622	1.38	1.85	3.50	35.00	47.00	89.00	10
9.30		0.3661	1.38	1.85	3.50	35.00	47.00	89.00	10
9.40		0.3701	1.38	1.85	3.50	35.00	47.00	89.00	10
9.50		0.3740	1.38	1.85	3.50	35.00	47.00	89.00	10
9.52	3/8	0.3750	1.38	1.85	3.50	35.00	47.00	89.00	10
9.55		0.3760	1.38	1.85	3.50	35.00	47.00	89.00	10
9.60		0.3780	1.38	1.85	3.50	35.00	47.00	89.00	10
9.70		0.3819	1.38	1.85	3.50	35.00	47.00	89.00	10
9.80		0.3858	1.38	1.85	3.50	35.00	47.00	89.00	10
9.90		0.3898	1.38	1.85	3.50	35.00	47.00	89.00	10
9.92	25/64	0.3906	1.38	1.85	3.50	35.00	47.00	89.00	10
10.00		0.3937	1.38	1.85	3.50	35.00	47.00	89.00	10
10.10		0.3976	1.57	2.17	4.02	40.00	55.00	102.00	12
10.20		0.4016	1.57	2.17	4.02	40.00	55.00	102.00	12
10.30		0.4055	1.57	2.17	4.02	40.00	55.00	102.00	12
10.32	13/32	0.4062	1.57	2.17	4.02	40.00	55.00	102.00	12
10.40		0.4094	1.57	2.17	4.02	40.00	55.00	102.00	12
10.50		0.4134	1.57	2.17	4.02	40.00	55.00	102.00	12
10.60		0.4173	1.57	2.17	4.02	40.00	55.00	102.00	12
10.70		0.4213	1.57	2.17	4.02	40.00	55.00	102.00	12
10.72	27/64	0.4219	1.57	2.17	4.02	40.00	55.00	102.00	12
10.80		0.4252	1.57	2.17	4.02	40.00	55.00	102.00	12
10.90		0.4291	1.57	2.17	4.02	40.00	55.00	102.00	12
11.00		0.4331	1.57	2.17	4.02	40.00	55.00	102.00	12
11.10		0.4370	1.57	2.17	4.02	40.00	55.00	102.00	12
11.11	7/16	0.4375	1.57	2.17	4.02	40.00	55.00	102.00	12
11.20		0.4409	1.57	2.17	4.02	40.00	55.00	102.00	12
11.30		0.4449	1.57	2.17	4.02	40.00	55.00	102.00	12
11.40		0.4488	1.57	2.17	4.02	40.00	55.00	102.00	12
11.50		0.4528	1.57	2.17	4.02	40.00	55.00	102.00	12
11.51	29/64	0.4531	1.57	2.17	4.02	40.00	55.00	102.00	12
11.60		0.4567	1.57	2.17	4.02	40.00	55.00	102.00	12
11.70		0.4606	1.57	2.17	4.02	40.00	55.00	102.00	12
11.80		0.4646	1.57	2.17	4.02	40.00	55.00	102.00	12
11.90		0.4685	1.57	2.17	4.02	40.00	55.00	102.00	12
11.91	15/32	0.4687	1.57	2.17	4.02	40.00	55.00	102.00	12
12.00		0.4724	1.57	2.17	4.02	40.00	55.00	102.00	12
12.10		0.4764	1.69	2.36	4.21	43.00	60.00	107.00	14
12.20		0.4803	1.69	2.36	4.21	43.00	60.00	107.00	14
12.25		0.4823	1.69	2.36	4.21	43.00	60.00	107.00	14
12.30	31/64	0.4843	1.69	2.36	4.21	43.00	60.00	107.00	14
12.40		0.4882	1.69	2.36	4.21	43.00	60.00	107.00	14
12.50		0.4921	1.69	2.36	4.21	43.00	60.00	107.00	14
12.60		0.4961	1.69	2.36	4.21	43.00	60.00	107.00	14

30-1891 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
12.70	1/2	0.5000	1.69	2.36	4.21	43.00	60.00	107.00	14
12.75		0.5020	1.69	2.36	4.21	43.00	60.00	107.00	14
12.80		0.5039	1.69	2.36	4.21	43.00	60.00	107.00	14
12.90		0.5079	1.69	2.36	4.21	43.00	60.00	107.00	14
13.00		0.5118	1.69	2.36	4.21	43.00	60.00	107.00	14
13.10	33/64	0.5156	1.69	2.36	4.21	43.00	60.00	107.00	14
13.20		0.5197	1.69	2.36	4.21	43.00	60.00	107.00	14
13.30		0.5236	1.69	2.36	4.21	43.00	60.00	107.00	14
13.40		0.5276	1.69	2.36	4.21	43.00	60.00	107.00	14
13.49	17/32	0.5312	1.69	2.36	4.21	43.00	60.00	107.00	14
13.50		0.5315	1.69	2.36	4.21	43.00	60.00	107.00	14
13.60		0.5354	1.69	2.36	4.21	43.00	60.00	107.00	14
13.70		0.5394	1.69	2.36	4.21	43.00	60.00	107.00	14
13.80		0.5433	1.69	2.36	4.21	43.00	60.00	107.00	14
13.89	35/64	0.5468	1.69	2.36	4.21	43.00	60.00	107.00	14
13.90		0.5472	1.69	2.36	4.21	43.00	60.00	107.00	14
14.00		0.5512	1.69	2.36	4.21	43.00	60.00	107.00	14
14.10		0.5551	1.77	2.56	4.53	45.00	65.00	115.00	16
14.20		0.5591	1.77	2.56	4.53	45.00	65.00	115.00	16
14.25		0.5610	1.77	2.56	4.53	45.00	65.00	115.00	16
14.29	9/16	0.5625	1.77	2.56	4.53	45.00	65.00	115.00	16
14.30		0.5630	1.77	2.56	4.53	45.00	65.00	115.00	16
14.40		0.5669	1.77	2.56	4.53	45.00	65.00	115.00	16
14.50		0.5709	1.77	2.56	4.53	45.00	65.00	115.00	16
14.60		0.5748	1.77	2.56	4.53	45.00	65.00	115.00	16
14.68	37/64	0.5781	1.77	2.56	4.53	45.00	65.00	115.00	16
14.70		0.5787	1.77	2.56	4.53	45.00	65.00	115.00	16
14.80		0.5827	1.77	2.56	4.53	45.00	65.00	115.00	16
14.90		0.5866	1.77	2.56	4.53	45.00	65.00	115.00	16
15.00		0.5906	1.77	2.56	4.53	45.00	65.00	115.00	16
15.08	19/32	0.5937	1.77	2.56	4.53	45.00	65.00	115.00	16
15.10		0.5945	1.77	2.56	4.53	45.00	65.00	115.00	16
15.20		0.5984	1.77	2.56	4.53	45.00	65.00	115.00	16
15.30		0.6024	1.77	2.56	4.53	45.00	65.00	115.00	16
15.40		0.6063	1.77	2.56	4.53	45.00	65.00	115.00	16
15.48	39/64	0.6093	1.77	2.56	4.53	45.00	65.00	115.00	16
15.50		0.6102	1.77	2.56	4.53	45.00	65.00	115.00	16
15.60		0.6142	1.77	2.56	4.53	45.00	65.00	115.00	16
15.70		0.6181	1.77	2.56	4.53	45.00	65.00	115.00	16
15.80		0.6220	1.77	2.56	4.53	45.00	65.00	115.00	16
15.88	5/8	0.6250	1.77	2.56	4.53	45.00	65.00	115.00	16
15.90		0.6260	1.77	2.56	4.53	45.00	65.00	115.00	16
16.00		0.6299	1.77	2.56	4.53	45.00	65.00	115.00	16
16.27	41/64	0.6406	2.01	2.87	4.84	51.00	73.00	123.00	18
16.50		0.6496	2.01	2.87	4.84	51.00	73.00	123.00	18
16.67	21/32	0.6562	2.01	2.87	4.84	51.00	73.00	123.00	18
17.00		0.6693	2.01	2.87	4.84	51.00	73.00	123.00	18
17.46	11/16	0.6875	2.01	2.87	4.84	51.00	73.00	123.00	18
17.50		0.6890	2.01	2.87	4.84	51.00	73.00	123.00	18
18.00		0.7087	2.01	2.87	4.84	51.00	73.00	123.00	18
18.26	23/32	0.7187	2.17	3.11	5.16	55.00	79.00	131.00	20
18.50		0.7283	2.17	3.11	5.16	55.00	79.00	131.00	20
19.00		0.7480	2.17	3.11	5.16	55.00	79.00	131.00	20
19.05	3/4	0.7500	2.17	3.11	5.16	55.00	79.00	131.00	20
19.45	49/64	0.7656	2.17	3.11	5.16	55.00	79.00	131.00	20
19.50		0.7677	2.17	3.11	5.16	55.00	79.00	131.00	20
20.00		0.7874	2.17	3.11	5.16	55.00	79.00	131.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 79.

Order example: **HA-Shank 30-1891-0800**
HB-Shank 30-1891-0800-HB
HE-Shank 30-1891-0800-HE

HAM 30-1881 Nirodrill

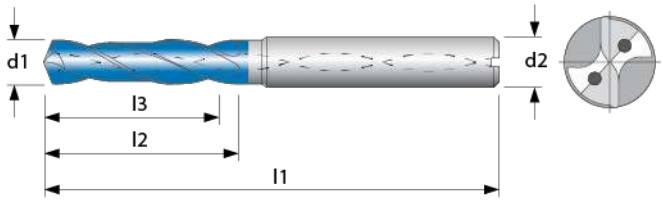
Solid Carbide Spiral Drill

3 X D

Z 2 | 30° Right | 3 x D | 140° | SHRINK FIT | HSF | HPC | TA-CN | DIN 6535 HAK | DIN 6535 HBK | DIN 6535 HEK | DIN 6537K

Engineering Data

- special chip flute geometry
- special point ground for machining of stainless steel
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Stain ST > 40 Rockwe	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1881	●	●							●	●	●	○		○	●	●	○	●	●		

● very suitable ○ suitable

30-1881 Ø d1 (m7) mm	30-1881 Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.80		0.1102	0.55	0.79	2.44	14.00	20.00	62.00	4
2.90		0.1141	0.55	0.79	2.44	14.00	20.00	62.00	4
3.00		0.1181	0.55	0.79	2.44	14.00	20.00	62.00	6
3.10		0.1220	0.55	0.79	2.44	14.00	20.00	62.00	6
3.17	1/8	0.1250	0.55	0.79	2.44	14.00	20.00	62.00	6
3.20		0.1260	0.55	0.79	2.44	14.00	20.00	62.00	6
3.30		0.1299	0.55	0.79	2.44	14.00	20.00	62.00	6
3.40		0.1339	0.55	0.79	2.44	14.00	20.00	62.00	6
3.50		0.1378	0.55	0.79	2.44	14.00	20.00	62.00	6
3.57	9/64	0.1406	0.55	0.79	2.44	14.00	20.00	62.00	6
3.60		0.1417	0.55	0.79	2.44	14.00	20.00	62.00	6
3.70		0.1457	0.55	0.79	2.44	14.00	20.00	62.00	6
3.75		0.1476	0.67	0.94	2.60	17.00	24.00	66.00	6
3.80		0.1496	0.67	0.94	2.60	17.00	24.00	66.00	6
3.90		0.1535	0.67	0.94	2.60	17.00	24.00	66.00	6
3.97	5/32	0.1562	0.67	0.94	2.60	17.00	24.00	66.00	6
4.00		0.1575	0.67	0.94	2.60	17.00	24.00	66.00	6
4.10		0.1614	0.67	0.94	2.60	17.00	24.00	66.00	6
4.20		0.1654	0.67	0.94	2.60	17.00	24.00	66.00	6
4.30		0.1693	0.67	0.94	2.60	17.00	24.00	66.00	6
4.37	11/64	0.1718	0.67	0.94	2.60	17.00	24.00	66.00	6
4.40		0.1732	0.67	0.94	2.60	17.00	24.00	66.00	6
4.50		0.1772	0.67	0.94	2.60	17.00	24.00	66.00	6
4.60		0.1811	0.67	0.94	2.60	17.00	24.00	66.00	6
4.65		0.1830	0.67	0.94	2.60	17.00	24.00	66.00	6
4.70		0.1850	0.67	0.94	2.60	17.00	24.00	66.00	6
4.76	3/16	0.1875	0.79	1.10	2.60	20.00	28.00	66.00	6
4.80		0.1890	0.79	1.10	2.60	20.00	28.00	66.00	6
4.90		0.1929	0.79	1.10	2.60	20.00	28.00	66.00	6
5.00		0.1969	0.79	1.10	2.60	20.00	28.00	66.00	6
5.10		0.2008	0.79	1.10	2.60	20.00	28.00	66.00	6
5.16	13/64	0.2031	0.79	1.10	2.60	20.00	28.00	66.00	6
5.20		0.2047	0.79	1.10	2.60	20.00	28.00	66.00	6
5.30		0.2087	0.79	1.10	2.60	20.00	28.00	66.00	6
5.40		0.2126	0.79	1.10	2.60	20.00	28.00	66.00	6
5.50		0.2165	0.79	1.10	2.60	20.00	28.00	66.00	6
5.55	7/32	0.2187	0.79	1.10	2.60	20.00	28.00	66.00	6
5.60		0.2205	0.79	1.10	2.60	20.00	28.00	66.00	6
5.70		0.2244	0.79	1.10	2.60	20.00	28.00	66.00	6
5.80		0.2283	0.79	1.10	2.60	20.00	28.00	66.00	6

30-1881 Ø d1 (m7) mm	30-1881 Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
5.90		0.2323	0.79	1.10	2.60	20.00	28.00	66.00	6
5.95	15/64	0.2343	0.79	1.10	2.60	20.00	28.00	66.00	6
6.00		0.2362	0.79	1.10	2.60	20.00	28.00	66.00	6
6.10		0.2402	0.94	1.34	3.11	24.00	34.00	79.00	8
6.20		0.2441	0.94	1.34	3.11	24.00	34.00	79.00	8
6.30		0.2480	0.94	1.34	3.11	24.00	34.00	79.00	8
6.35	1/4	0.2500	0.94	1.34	3.11	24.00	34.00	79.00	8
6.40		0.2520	0.94	1.34	3.11	24.00	34.00	79.00	8
6.50		0.2559	0.94	1.34	3.11	24.00	34.00	79.00	8
6.53	F	0.2570	0.94	1.34	3.11	24.00	34.00	79.00	8
6.60		0.2598	0.94	1.34	3.11	24.00	34.00	79.00	8
6.70		0.2638	0.94	1.34	3.11	24.00	34.00	79.00	8
6.75	17/64	0.2657	0.94	1.34	3.11	24.00	34.00	79.00	8
6.80		0.2677	0.94	1.34	3.11	24.00	34.00	79.00	8
6.90		0.2717	0.94	1.34	3.11	24.00	34.00	79.00	8
7.00		0.2756	0.94	1.34	3.11	24.00	34.00	79.00	8
7.10		0.2795	1.14	1.61	3.11	29.00	41.00	79.00	8
7.14	9/32	0.2812	1.14	1.61	3.11	29.00	41.00	79.00	8
7.20		0.2835	1.14	1.61	3.11	29.00	41.00	79.00	8
7.30		0.2874	1.14	1.61	3.11	29.00	41.00	79.00	8
7.40		0.2913	1.14	1.61	3.11	29.00	41.00	79.00	8
7.50		0.2953	1.14	1.61	3.11	29.00	41.00	79.00	8
7.54	19/64	0.2968	1.14	1.61	3.11	29.00	41.00	79.00	8
7.60		0.2992	1.14	1.61	3.11	29.00	41.00	79.00	8
7.70		0.3031	1.14	1.61	3.11	29.00	41.00	79.00	8
7.80		0.3071	1.14	1.61	3.11	29.00	41.00	79.00	8
7.90		0.3110	1.14	1.61	3.11	29.00	41.00	79.00	8
7.94	5/16	0.3125	1.14	1.61	3.11	29.00	41.00	79.00	8
8.00		0.3150	1.14	1.61	3.11	29.00	41.00	79.00	8
8.10		0.3189	1.38	1.85	3.50	35.00	47.00	89.00	10
8.20		0.3228	1.38	1.85	3.50	35.00	47.00	89.00	10
8.30		0.3268	1.38	1.85	3.50	35.00	47.00	89.00	10
8.33	21/64	0.3280	1.38	1.85	3.50	35.00	47.00	89.00	10
8.40		0.3307	1.38	1.85	3.50	35.00	47.00	89.00	10
8.50		0.3346	1.38	1.85	3.50	35.00	47.00	89.00	10
8.60		0.3386	1.38	1.85	3.50	35.00	47.00	89.00	10
8.70		0.3425	1.38	1.85	3.50	35.00	47.00	89.00	10
8.73	11/32	0.3437	1.38	1.85	3.50	35.00	47.00	89.00	10
8.80		0.3465	1.38	1.85	3.50	35.00	47.00	89.00	10
8.85	S	0.3480	1.38	1.85	3.50	35.00	47.00	89.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 80.

Order example: HA-Shank 30-1881-0750
HB-Shank 30-1881-0750-HB
HE-Shank 30-1881-0750-HE

30-1881 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
8.90		0.3504	1.38	1.85	3.50	35.00	47.00	89.00	10
9.00		0.3543	1.38	1.85	3.50	35.00	47.00	89.00	10
9.10		0.3583	1.38	1.85	3.50	35.00	47.00	89.00	10
9.13	23/64	0.3593	1.38	1.85	3.50	35.00	47.00	89.00	10
9.20		0.3622	1.38	1.85	3.50	35.00	47.00	89.00	10
9.30		0.3661	1.38	1.85	3.50	35.00	47.00	89.00	10
9.35	U	0.3681	1.38	1.85	3.50	35.00	47.00	89.00	10
9.40		0.3701	1.38	1.85	3.50	35.00	47.00	89.00	10
9.50		0.3740	1.38	1.85	3.50	35.00	47.00	89.00	10
9.52	3/8	0.3750	1.38	1.85	3.50	35.00	47.00	89.00	10
9.60		0.3780	1.38	1.85	3.50	35.00	47.00	89.00	10
9.70		0.3819	1.38	1.85	3.50	35.00	47.00	89.00	10
9.80		0.3858	1.38	1.85	3.50	35.00	47.00	89.00	10
9.90		0.3898	1.38	1.85	3.50	35.00	47.00	89.00	10
9.92	25/64	0.3906	1.38	1.85	3.50	35.00	47.00	89.00	10
10.00		0.3937	1.38	1.85	3.50	35.00	47.00	89.00	10
10.10		0.3976	1.57	2.17	4.02	40.00	55.00	102.00	12
10.20		0.4016	1.57	2.17	4.02	40.00	55.00	102.00	12
10.30		0.4055	1.57	2.17	4.02	40.00	55.00	102.00	12
10.32	13/32	0.4062	1.57	2.17	4.02	40.00	55.00	102.00	12
10.40		0.4094	1.57	2.17	4.02	40.00	55.00	102.00	12
10.50		0.4134	1.57	2.17	4.02	40.00	55.00	102.00	12
10.60		0.4173	1.57	2.17	4.02	40.00	55.00	102.00	12
10.70		0.4213	1.57	2.17	4.02	40.00	55.00	102.00	12
10.72	27/64	0.4220	1.57	2.17	4.02	40.00	55.00	102.00	12
10.80		0.4252	1.57	2.17	4.02	40.00	55.00	102.00	12
10.90		0.4291	1.57	2.17	4.02	40.00	55.00	102.00	12
11.00		0.4331	1.57	2.17	4.02	40.00	55.00	102.00	12
11.10		0.4370	1.57	2.17	4.02	40.00	55.00	102.00	12
11.11	7/16	0.4375	1.57	2.17	4.02	40.00	55.00	102.00	12
11.20		0.4409	1.57	2.17	4.02	40.00	55.00	102.00	12
11.30		0.4449	1.57	2.17	4.02	40.00	55.00	102.00	12
11.40		0.4488	1.57	2.17	4.02	40.00	55.00	102.00	12
11.50		0.4528	1.57	2.17	4.02	40.00	55.00	102.00	12
11.51	29/64	0.4531	1.57	2.17	4.02	40.00	55.00	102.00	12
11.60		0.4567	1.57	2.17	4.02	40.00	55.00	102.00	12
11.70		0.4606	1.57	2.17	4.02	40.00	55.00	102.00	12
11.80		0.4646	1.57	2.17	4.02	40.00	55.00	102.00	12
11.84		0.4660	1.57	2.17	4.02	40.00	55.00	102.00	12
11.90		0.4685	1.57	2.17	4.02	40.00	55.00	102.00	12
11.91	15/32	0.4687	1.57	2.17	4.02	40.00	55.00	102.00	12
12.00		0.4724	1.57	2.17	4.02	40.00	55.00	102.00	12
12.10		0.4764	1.57	2.17	4.02	40.00	55.00	102.00	14
12.20		0.4803	1.57	2.17	4.02	40.00	55.00	102.00	14
12.30	31/64	0.4843	1.57	2.17	4.02	40.00	55.00	102.00	14
12.40		0.4882	1.57	2.17	4.02	40.00	55.00	102.00	14
12.50		0.4921	1.57	2.17	4.02	40.00	55.00	102.00	14
12.60		0.4961	1.57	2.17	4.02	40.00	55.00	102.00	14
12.70	1/2	0.5000	1.57	2.17	4.02	40.00	55.00	102.00	14
12.80		0.5039	1.57	2.17	4.02	40.00	55.00	102.00	14
12.90		0.5079	1.57	2.17	4.02	40.00	55.00	102.00	14
13.00		0.5118	1.57	2.17	4.02	40.00	55.00	102.00	14

30-1881 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
13.10	33/64	0.5156	1.57	2.17	4.02	40.00	55.00	102.00	14
13.20		0.5197	1.57	2.17	4.02	40.00	55.00	102.00	14
13.30		0.5236	1.57	2.17	4.02	40.00	55.00	102.00	14
13.40		0.5276	1.57	2.17	4.02	40.00	55.00	102.00	14
13.49	17/32	0.5312	1.57	2.17	4.02	40.00	55.00	102.00	14
13.50		0.5315	1.57	2.17	4.02	40.00	55.00	102.00	14
13.60		0.5354	1.57	2.17	4.02	40.00	55.00	102.00	14
13.65		0.5374	1.57	2.17	4.02	40.00	55.00	102.00	14
13.70		0.5394	1.57	2.17	4.02	40.00	55.00	102.00	14
13.80		0.5433	1.69	2.36	4.21	43.00	60.00	107.00	14
13.89	35/64	0.5468	1.77	2.56	4.53	45.00	65.00	115.00	14
13.90		0.5472	1.77	2.56	4.53	45.00	65.00	115.00	14
14.00		0.5512	1.77	2.56	4.53	45.00	65.00	115.00	14
14.10		0.5551	1.77	2.56	4.53	45.00	65.00	115.00	16
14.20		0.5591	1.77	2.56	4.53	45.00	65.00	115.00	16
14.29	9/16	0.5625	1.77	2.56	4.53	45.00	65.00	115.00	16
14.30		0.5630	1.77	2.56	4.53	45.00	65.00	115.00	16
14.40		0.5669	1.77	2.56	4.53	45.00	65.00	115.00	16
14.50		0.5709	1.77	2.56	4.53	45.00	65.00	115.00	16
14.60		0.5748	1.77	2.56	4.53	45.00	65.00	115.00	16
14.68	37/64	0.5781	1.77	2.56	4.53	45.00	65.00	115.00	16
14.70		0.5787	1.77	2.56	4.53	45.00	65.00	115.00	16
14.80		0.5827	1.77	2.56	4.53	45.00	65.00	115.00	16
14.90		0.5866	1.77	2.56	4.53	45.00	65.00	115.00	16
15.00		0.5906	1.77	2.56	4.53	45.00	65.00	115.00	16
15.08	19/32	0.5937	1.77	2.56	4.53	45.00	65.00	115.00	16
15.10		0.5945	1.77	2.56	4.53	45.00	65.00	115.00	16
15.20		0.5984	1.77	2.56	4.53	45.00	65.00	115.00	16
15.30		0.6024	1.77	2.56	4.53	45.00	65.00	115.00	16
15.40		0.6063	1.77	2.56	4.53	45.00	65.00	115.00	16
15.48	39/64	0.6093	1.77	2.56	4.53	45.00	65.00	115.00	16
15.50		0.6102	1.77	2.56	4.53	45.00	65.00	115.00	16
15.60		0.6142	2.01	2.87	4.84	51.00	73.00	123.00	16
15.70		0.6181	2.01	2.87	4.84	51.00	73.00	123.00	16
15.80		0.6220	2.01	2.87	4.84	51.00	73.00	123.00	16
15.88	5/8	0.6250	2.01	2.87	4.84	51.00	73.00	123.00	16
15.90		0.6260	2.01	2.87	4.84	51.00	73.00	123.00	16
16.00		0.6299	2.01	2.87	4.84	51.00	73.00	123.00	16
16.27	41/64	0.6406	2.17	3.11	5.16	55.00	79.00	131.00	18
16.50		0.6496	2.17	3.11	5.16	55.00	79.00	131.00	18
16.67	21/32	0.6562	2.17	3.11	5.16	55.00	79.00	131.00	18
17.00		0.6693	2.17	3.11	5.16	55.00	79.00	131.00	18
17.46	11/16	0.6875	2.17	3.11	5.16	55.00	79.00	131.00	18
17.50		0.6890	2.17	4.13	6.50	75.00	105.00	165.00	18
18.00		0.7087	2.17	2.87	4.84	51.00	73.00	123.00	18
18.26	23/32	0.7187	2.17	3.11	5.16	55.00	79.00	131.00	20
18.50		0.7283	2.17	3.11	5.16	55.00	79.00	131.00	20
19.00		0.7480	2.17	3.11	5.16	55.00	79.00	131.00	20
19.05	3/4	0.7500	2.17	3.11	5.16	55.00	79.00	131.00	20
19.45	49/64	0.7656	2.17	3.11	5.16	55.00	79.00	131.00	20
19.50		0.7677	2.17	3.11	5.16	55.00	79.00	131.00	20
20.00		0.7874	2.17	3.11	5.16	55.00	79.00	131.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 80.

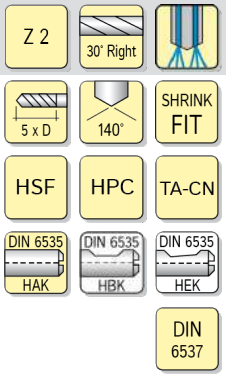
Order example: **HA-Shank 30-1881-0750**
HB-Shank 30-1881-0750-HB
HE-Shank 30-1881-0750-HE

HAM 30-1901 Nirodrill

Solid Carbide Twist Drill

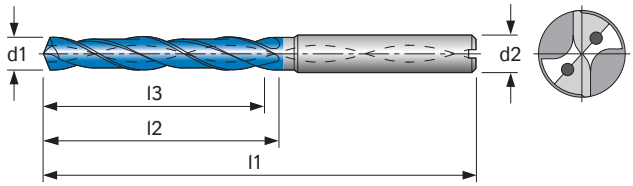
5 X D

270 Series



Engineering Data

- special chip flute geometry
- special point ground for machining of stainless steel
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1901	●	○							●	●	○		○	●	●	○	●	●		

● very suitable ○ suitable

30-1901 Ø d1 (m7) mm	30-1901 Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.00		0.0787	0.39	0.55	2.17	10.00	14.00	55.00	4
2.20		0.0866	0.43	0.56	2.17	11.00	14.30	55.00	4
2.30		0.0906	0.45	0.59	2.17	11.50	15.00	55.00	4
2.38	3/32	0.0937	0.46	0.61	2.17	11.80	15.50	55.00	4
2.40		0.0945	0.47	0.61	2.17	12.00	15.60	55.00	4
2.50		0.0984	0.49	0.64	2.17	12.50	16.30	55.00	4
2.55		0.1004	0.50	0.65	2.17	12.80	16.60	55.00	4
2.70		0.1063	0.53	0.69	2.17	13.50	17.60	55.00	4
2.78	7/64	0.1094	0.55	0.71	2.17	13.90	18.00	55.00	4
2.80		0.1102	0.55	0.72	2.17	14.00	18.20	55.00	4
2.90		0.1141	0.91	1.10	2.60	23.00	28.00	66.00	4
3.00		0.1181	0.91	1.10	2.60	23.00	28.00	66.00	6
3.10		0.1220	0.91	1.10	2.60	23.00	28.00	66.00	6
3.17	1/8	0.1250	0.91	1.10	2.60	23.00	28.00	66.00	6
3.20		0.1260	0.91	1.10	2.60	23.00	28.00	66.00	6
3.30		0.1299	0.91	1.10	2.60	23.00	28.00	66.00	6
3.40		0.1339	0.91	1.10	2.60	23.00	28.00	66.00	6
3.50		0.1378	0.91	1.10	2.60	23.00	28.00	66.00	6
3.57	9/64	0.1406	0.91	1.10	2.60	23.00	28.00	66.00	6
3.60		0.1718	0.91	1.10	2.60	23.00	28.00	66.00	6
3.70		0.1457	0.91	1.10	2.60	23.00	28.00	66.00	6
3.75		0.1476	1.14	1.42	2.91	29.00	36.00	74.00	6
3.80		0.1496	1.14	1.42	2.91	29.00	36.00	74.00	6
3.90		0.1535	1.14	1.42	2.91	29.00	36.00	74.00	6
3.97	5/32	0.1562	1.14	1.42	2.91	29.00	36.00	74.00	6
4.00		0.1575	1.14	1.42	2.91	29.00	36.00	74.00	6
4.10		0.1614	1.14	1.42	2.91	29.00	36.00	74.00	6
4.20		0.1654	1.14	1.42	2.91	29.00	36.00	74.00	6
4.30		0.1693	1.14	1.42	2.91	29.00	36.00	74.00	6
4.37	11/64	0.1718	1.14	1.42	2.91	29.00	36.00	74.00	6
4.40		0.1732	1.14	1.42	2.91	29.00	36.00	74.00	6
4.50		0.1772	1.14	1.42	2.91	29.00	36.00	74.00	6
4.60		0.1811	1.14	1.42	2.91	29.00	36.00	74.00	6
4.65		0.1830	1.14	1.42	2.91	29.00	36.00	74.00	6
4.70		0.1850	1.14	1.42	2.91	29.00	36.00	74.00	6
4.76	3/16	0.1875	1.38	1.73	3.23	35.00	44.00	82.00	6
4.80		0.1890	1.38	1.73	3.23	35.00	44.00	82.00	6
4.90		0.1929	1.38	1.73	3.23	35.00	44.00	82.00	6
5.00		0.1969	1.38	1.73	3.23	35.00	44.00	82.00	6
5.10		0.2008	1.38	1.73	3.23	35.00	44.00	82.00	6

30-1901 Ø d1 (m7) mm	30-1901 Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
5.16	13/64	0.2031	1.38	1.73	3.23	35.00	44.00	82.00	6
5.20		0.2047	1.38	1.73	3.23	35.00	44.00	82.00	6
5.30		0.2087	1.38	1.73	3.23	35.00	44.00	82.00	6
5.40		0.2126	1.38	1.73	3.23	35.00	44.00	82.00	6
5.50		0.2165	1.38	1.73	3.23	35.00	44.00	82.00	6
5.55	7/32	0.2187	1.38	1.73	3.23	35.00	44.00	82.00	6
5.60		0.2205	1.38	1.73	3.23	35.00	44.00	82.00	6
5.70		0.2244	1.38	1.73	3.23	35.00	44.00	82.00	6
5.80		0.2283	1.38	1.73	3.23	35.00	44.00	82.00	6
5.90		0.2323	1.38	1.73	3.23	35.00	44.00	82.00	6
5.95	15/64	0.2343	1.38	1.73	3.23	35.00	44.00	82.00	6
6.00		0.2362	1.38	1.73	3.23	35.00	44.00	82.00	6
6.10		0.2402	1.69	2.09	3.58	43.00	53.00	91.00	8
6.20		0.2441	1.69	2.09	3.58	43.00	53.00	91.00	8
6.30		0.2480	1.69	2.09	3.58	43.00	53.00	91.00	8
6.35	1/4	0.2500	1.69	2.09	3.58	43.00	53.00	91.00	8
6.40		0.2520	1.69	2.09	3.58	43.00	53.00	91.00	8
6.50		0.2559	1.69	2.09	3.58	43.00	53.00	91.00	8
6.53	F	0.2570	1.69	2.09	3.58	43.00	53.00	91.00	8
6.60		0.2598	1.69	2.09	3.58	43.00	53.00	91.00	8
6.70		0.2638	1.69	2.09	3.58	43.00	53.00	91.00	8
6.75	17/64	0.2656	1.69	2.09	3.58	43.00	53.00	91.00	8
6.80		0.2677	1.69	2.09	3.58	43.00	53.00	91.00	8
6.90		0.2717	1.69	2.09	3.58	43.00	53.00	91.00	8
7.00		0.2756	1.69	2.09	3.58	43.00	53.00	91.00	8
7.10		0.2795	1.69	2.09	3.58	43.00	53.00	91.00	8
7.14	9/32	0.2812	1.69	2.09	3.58	43.00	53.00	91.00	8
7.20		0.2835	1.69	2.09	3.58	43.00	53.00	91.00	8
7.30		0.2874	1.69	2.09	3.58	43.00	53.00	91.00	8
7.40		0.2913	1.69	2.09	3.58	43.00	53.00	91.00	8
7.50		0.2953	1.69	2.09	3.58	43.00	53.00	91.00	8
7.54	19/64	0.2968	1.69	2.09	3.58	43.00	53.00	91.00	8
7.60		0.2992	1.69	2.09	3.58	43.00	53.00	91.00	8
7.70		0.3031	1.69	2.09	3.58	43.00	53.00	91.00	8
7.80		0.3071	1.69	2.09	3.58	43.00	53.00	91.00	8
7.90		0.3110	1.69	2.09	3.58	43.00	53.00	91.00	8
7.94	5/16	0.3125	1.69	2.09	3.58	43.00	53.00	91.00	8
8.00		0.3150	1.69	2.09	3.58	43.00	53.00	91.00	8
8.10		0.3189	1.93	2.40	4.06	49.00	61.00	103.00	10
8.20		0.3228	1.93	2.40	4.06	49.00	61.00	103.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 80.

Order example: HA-Shank 30-1901-0790
HB-Shank 30-1901-0790-HB
HE-Shank 30-1901-0790-HE

30-1901 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
8.30		0.3268	1.93	2.40	4.06	49.00	61.00	103.00	10
8.33	21/64	0.3281	1.93	2.40	4.06	49.00	61.00	103.00	10
8.40		0.3307	1.93	2.40	4.06	49.00	61.00	103.00	10
8.50		0.3346	1.93	2.40	4.06	49.00	61.00	103.00	10
8.60		0.3386	1.93	2.40	4.06	49.00	61.00	103.00	10
8.70		0.3425	1.93	2.40	4.06	49.00	61.00	103.00	10
8.73	11/32	0.3437	1.93	2.40	4.06	49.00	61.00	103.00	10
8.80		0.3465	1.93	2.40	4.06	49.00	61.00	103.00	10
8.85	S	0.3480	1.93	2.40	4.06	49.00	61.00	103.00	10
8.90		0.3504	1.93	2.40	4.06	49.00	61.00	103.00	10
9.00		0.3543	1.93	2.40	4.06	49.00	61.00	103.00	10
9.10		0.3583	1.93	2.40	4.06	49.00	61.00	103.00	10
9.13	23/64	0.3593	1.93	2.40	4.06	49.00	61.00	103.00	10
9.20		0.3622	1.93	2.40	4.06	49.00	61.00	103.00	10
9.30		0.3661	1.93	2.40	4.06	49.00	61.00	103.00	10
9.35	U	0.3681	1.93	2.40	4.06	49.00	61.00	103.00	10
9.40		0.3701	1.93	2.40	4.06	49.00	61.00	103.00	10
9.50		0.3740	1.93	2.40	4.06	49.00	61.00	103.00	10
9.52	3/8	0.3750	1.93	2.40	4.06	49.00	61.00	103.00	10
9.60		0.3780	1.93	2.40	4.06	49.00	61.00	103.00	10
9.70		0.3819	1.93	2.40	4.06	49.00	61.00	103.00	10
9.80		0.3858	1.93	2.40	4.06	49.00	61.00	103.00	10
9.90		0.3898	1.93	2.40	4.06	49.00	61.00	103.00	10
9.92	25/64	0.3906	1.93	2.40	4.06	49.00	61.00	103.00	10
10.00		0.3937	1.93	2.40	4.06	49.00	61.00	103.00	10
10.10		0.3976	2.20	2.80	4.65	56.00	71.00	118.00	12
10.20		0.4016	2.20	2.80	4.65	56.00	71.00	118.00	12
10.30		0.4055	2.20	2.80	4.65	56.00	71.00	118.00	12
10.32	13/32	0.4062	2.20	2.80	4.65	56.00	71.00	118.00	12
10.40		0.4094	2.20	2.80	4.65	56.00	71.00	118.00	12
10.50		0.4134	2.20	2.80	4.65	56.00	71.00	118.00	12
10.60		0.4173	2.20	2.80	4.65	56.00	71.00	118.00	12
10.70		0.4213	2.20	2.80	4.65	56.00	71.00	118.00	12
10.72	27/64	0.4219	2.20	2.80	4.65	56.00	71.00	118.00	12
10.80		0.4252	2.20	2.80	4.65	56.00	71.00	118.00	12
10.90		0.4291	2.20	2.80	4.65	56.00	71.00	118.00	12
11.00		0.4331	2.20	2.80	4.65	56.00	71.00	118.00	12
11.10		0.4370	2.20	2.80	4.65	56.00	71.00	118.00	12
11.11	7/16	0.4375	2.20	2.80	4.65	56.00	71.00	118.00	12
11.20		0.4409	2.20	2.80	4.65	56.00	71.00	118.00	12
11.30		0.4449	2.20	2.80	4.65	56.00	71.00	118.00	12
11.40		0.4488	2.20	2.80	4.65	56.00	71.00	118.00	12
11.50		0.4528	2.20	2.80	4.65	56.00	71.00	118.00	12
11.51	29/64	0.4531	2.20	2.80	4.65	56.00	71.00	118.00	12
11.60		0.4567	2.20	2.80	4.65	56.00	71.00	118.00	12
11.70		0.4606	2.20	2.80	4.65	56.00	71.00	118.00	12
11.80		0.4646	2.20	2.80	4.65	56.00	71.00	118.00	12
11.84		0.4660	2.20	2.80	4.65	56.00	71.00	118.00	12
11.90		0.4685	2.20	2.80	4.65	56.00	71.00	118.00	12
11.91	15/32	0.4687	2.20	2.80	4.65	56.00	71.00	118.00	12
12.00		0.4724	2.20	2.80	4.65	56.00	71.00	118.00	12
12.10		0.4764	2.36	3.03	4.88	60.00	77.00	124.00	14
12.20		0.4803	2.36	3.03	4.88	60.00	77.00	124.00	14
12.30	31/64	0.4843	2.36	3.03	4.88	60.00	77.00	124.00	14
12.40		0.4882	2.36	3.03	4.88	60.00	77.00	124.00	14
12.50		0.4921	2.36	3.03	4.88	60.00	77.00	124.00	14
12.60		0.4961	2.36	3.03	4.88	60.00	77.00	124.00	14

30-1901 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
12.70	1/2	0.5000	2.36	3.03	4.88	60.00	77.00	124.00	14
12.80		0.5039	2.36	3.03	4.88	60.00	77.00	124.00	14
12.90		0.5079	2.36	3.03	4.88	60.00	77.00	124.00	14
13.00		0.5118	2.36	3.03	4.88	60.00	77.00	124.00	14
13.10	33/64	0.5156	2.36	3.03	4.88	60.00	77.00	124.00	14
13.20		0.5197	2.36	3.03	4.88	60.00	77.00	124.00	14
13.30		0.5236	2.36	3.03	4.88	60.00	77.00	124.00	14
13.40		0.5276	2.36	3.03	4.88	60.00	77.00	124.00	14
13.49	17/32	0.5312	2.36	3.03	4.88	60.00	77.00	124.00	14
13.50		0.5315	2.36	3.03	4.88	60.00	77.00	124.00	14
13.60		0.5354	2.36	3.03	4.88	60.00	77.00	124.00	14
13.65		0.5374	2.36	3.03	4.88	60.00	77.00	124.00	14
13.70		0.5394	2.36	3.03	4.88	60.00	77.00	124.00	14
13.80		0.5433	2.36	3.03	4.88	60.00	77.00	124.00	14
13.89	35/64	0.5468	2.36	3.03	4.88	60.00	77.00	124.00	14
13.90		0.5472	2.36	3.03	4.88	60.00	77.00	124.00	14
14.00		0.5512	2.36	3.03	4.88	60.00	77.00	124.00	14
14.10		0.5551	2.48	3.27	5.24	63.00	83.00	133.00	16
14.20		0.5591	2.48	3.27	5.24	63.00	83.00	133.00	16
14.29	9/16	0.5625	2.48	3.27	5.24	63.00	83.00	133.00	16
14.30		0.5630	2.48	3.27	5.24	63.00	83.00	133.00	16
14.40		0.5669	2.48	3.27	5.24	63.00	83.00	133.00	16
14.50		0.5709	2.48	3.27	5.24	63.00	83.00	133.00	16
14.60		0.5748	2.48	3.27	5.24	63.00	83.00	133.00	16
14.68	37/64	0.5781	2.48	3.27	5.24	63.00	83.00	133.00	16
14.70		0.5787	2.48	3.27	5.24	63.00	83.00	133.00	16
14.80		0.5827	2.48	3.27	5.24	63.00	83.00	133.00	16
14.90		0.5866	2.48	3.27	5.24	63.00	83.00	133.00	16
15.00		0.5906	2.48	3.27	5.24	63.00	83.00	133.00	16
15.08	19/32	0.5937	2.48	3.27	5.24	63.00	83.00	133.00	16
15.10		0.5945	2.48	3.27	5.24	63.00	83.00	133.00	16
15.20		0.5984	2.48	3.27	5.24	63.00	83.00	133.00	16
15.30		0.6024	2.48	3.27	5.24	63.00	83.00	133.00	16
15.40		0.6063	2.48	3.27	5.24	63.00	83.00	133.00	16
15.48	39/64	0.6093	2.48	3.27	5.24	63.00	83.00	133.00	16
15.50		0.6102	2.48	3.27	5.24	63.00	83.00	133.00	16
15.60		0.6142	2.48	3.27	5.24	63.00	83.00	133.00	16
15.70		0.6181	2.48	3.27	5.24	63.00	83.00	133.00	16
15.80		0.6220	2.48	3.27	5.24	63.00	83.00	133.00	16
15.88	5/8	0.6250	2.48	3.27	5.24	63.00	83.00	133.00	16
15.90		0.6260	2.48	3.27	5.24	63.00	83.00	133.00	16
16.00		0.6299	2.48	3.27	5.24	63.00	83.00	133.00	16
16.27	41/64	0.6406	2.80	3.66	5.63	71.00	93.00	143.00	18
16.50		0.6496	2.80	3.66	5.63	71.00	93.00	143.00	18
16.67	21/32	0.6562	2.80	3.66	5.63	71.00	93.00	143.00	18
17.00		0.6693	2.80	3.66	5.63	71.00	93.00	143.00	18
17.46	11/16	0.6875	2.80	3.66	5.63	71.00	93.00	143.00	18
17.50		0.6890	2.80	3.66	5.63	71.00	93.00	143.00	18
18.00		0.7087	2.80	3.66	5.63	71.00	93.00	143.00	18
18.26	23/32	0.7187	3.03	3.98	6.02	77.00	101.00	153.00	20
18.50		0.7283	3.03	3.98	6.02	77.00	101.00	153.00	20
19.00		0.7480	3.03	3.98	6.02	77.00	101.00	153.00	20
19.05	3/4	0.7500	3.03	3.98	6.02	77.00	101.00	153.00	20
19.45	49/64	0.7656	3.03	3.98	6.02	77.00	101.00	153.00	20
19.50		0.7677	3.03	3.98	6.02	77.00	101.00	153.00	20
20.00		0.7874	3.03	3.98	6.02	77.00	101.00	153.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 80.

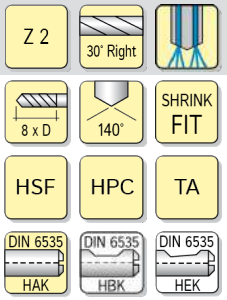
Order example: **HA-Shank 30-1901-0790**
HB-Shank 30-1901-0790-HB
HE-Shank 30-1901-0790-HE

HAM 30-1941 Nirodrill

271 Series

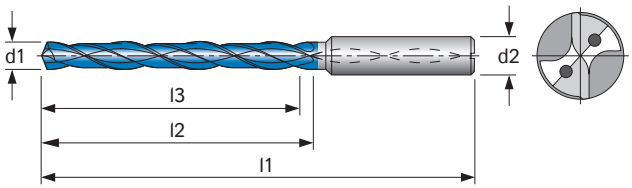
Solid Carbide Twist Drill

8 X D



Engineering Data

- special chip flute geometry
- special point ground for machining of stainless steel
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1941	●	○							●	●	○		○	●	●	○	●	●		

● very suitable ○ suitable

30-1941 Ø d1 (m7) mm	30-1941 Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.00		0.0787	0.39	0.55	2.17	10.00	14.00	55.00	4
2.20		0.0866	0.43	0.56	2.17	11.00	14.30	55.00	4
2.30		0.0906	0.45	0.59	2.17	11.50	15.00	55.00	4
2.38	3/32	0.0937	0.46	0.61	2.17	11.80	15.50	55.00	4
2.40		0.0945	0.47	0.61	2.17	12.00	15.60	55.00	4
2.50		0.0984	0.49	0.64	2.17	12.50	16.30	55.00	4
2.55		0.1004	0.50	0.65	2.17	12.80	16.60	55.00	4
2.70		0.1063	0.53	0.69	2.17	13.50	17.60	55.00	4
2.78	7/64	0.1094	0.55	0.71	2.17	13.90	18.00	55.00	4
2.80		0.1102	0.55	0.72	2.17	14.00	18.20	55.00	4
2.90		0.1141	0.57	0.74	2.17	14.50	18.90	55.00	4
3.00		0.1181	1.14	1.34	2.83	29.00	34.00	72.00	6
3.10		0.1220	1.14	1.34	2.83	29.00	34.00	72.00	6
3.17	1/8	0.1250	1.14	1.34	2.83	29.00	34.00	72.00	6
3.20		0.1260	1.14	1.34	2.83	29.00	34.00	72.00	6
3.30		0.1299	1.14	1.34	2.83	29.00	34.00	72.00	6
3.40		0.1339	1.14	1.34	2.83	29.00	34.00	72.00	6
3.50		0.1378	1.14	1.34	2.83	29.00	34.00	72.00	6
3.57	9/64	0.1406	1.14	1.34	2.83	29.00	34.00	72.00	6
3.60		0.1417	1.14	1.34	2.83	29.00	34.00	72.00	6
3.70		0.1457	1.14	1.34	2.83	29.00	34.00	72.00	6
3.75		0.1476	1.42	1.69	3.19	36.00	43.00	81.00	6
3.80		0.1496	1.42	1.69	3.19	36.00	43.00	81.00	6
3.90		0.1535	1.42	1.69	3.19	36.00	43.00	81.00	6
3.97	5/32	0.1562	1.42	1.69	3.19	36.00	43.00	81.00	6
4.00		0.1575	1.42	1.69	3.19	36.00	43.00	81.00	6
4.10		0.1614	1.42	1.69	3.19	36.00	43.00	81.00	6
4.20		0.1654	1.42	1.69	3.19	36.00	43.00	81.00	6
4.30		0.1693	1.42	1.69	3.19	36.00	43.00	81.00	6
4.37	11/64	0.1718	1.42	1.69	3.19	36.00	43.00	81.00	6
4.40		0.1732	1.42	1.69	3.19	36.00	43.00	81.00	6
4.50		0.1772	1.42	1.69	3.19	36.00	43.00	81.00	6
4.60		0.1811	1.42	1.69	3.19	36.00	43.00	81.00	6
4.65		0.1830	1.42	1.69	3.19	36.00	43.00	81.00	6
4.70		0.1850	1.42	1.69	3.19	36.00	43.00	81.00	6
4.76	3/16	0.1875	1.89	2.24	3.74	48.00	57.00	95.00	6
4.80		0.1890	1.89	2.24	3.74	48.00	57.00	95.00	6
4.90		0.1929	1.89	2.24	3.74	48.00	57.00	95.00	6
5.00		0.1969	1.89	2.24	3.74	48.00	57.00	95.00	6
5.10		0.2008	1.89	2.24	3.74	48.00	57.00	95.00	6

30-1941 Ø d1 (m7) mm	30-1941 Ø d1 (m7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
5.16	13/64	0.2031	1.89	2.24	3.74	48.00	57.00	95.00	6
5.20		0.2047	1.89	2.24	3.74	48.00	57.00	95.00	6
5.30		0.2087	1.89	2.24	3.74	48.00	57.00	95.00	6
5.40		0.2126	1.89	2.24	3.74	48.00	57.00	95.00	6
5.50		0.2165	1.89	2.24	3.74	48.00	57.00	95.00	6
5.55	7/32	0.2187	1.89	2.24	3.74	48.00	57.00	95.00	6
5.60		0.2205	1.89	2.24	3.74	48.00	57.00	95.00	6
5.70		0.2244	1.89	2.24	3.74	48.00	57.00	95.00	6
5.80		0.2283	1.89	2.24	3.74	48.00	57.00	95.00	6
5.90		0.2323	1.89	2.24	3.74	48.00	57.00	95.00	6
5.95	15/64	0.2343	1.89	2.24	3.74	48.00	57.00	95.00	6
6.00		0.2362	1.89	2.24	3.74	48.00	57.00	95.00	6
6.10		0.2402	2.52	2.99	4.49	64.00	76.00	114.00	8
6.20		0.2441	2.52	2.99	4.49	64.00	76.00	114.00	8
6.30		0.2480	2.52	2.99	4.49	64.00	76.00	114.00	8
6.35	1/4	0.2500	2.52	2.99	4.49	64.00	76.00	114.00	8
6.40		0.2520	2.52	2.99	4.49	64.00	76.00	114.00	8
6.50		0.2559	2.52	2.99	4.49	64.00	76.00	114.00	8
6.53	F	0.2570	2.52	2.99	4.49	64.00	76.00	114.00	8
6.60		0.2598	2.52	2.99	4.49	64.00	76.00	114.00	8
6.70		0.2638	2.52	2.99	4.49	64.00	76.00	114.00	8
6.75	17/64	0.2656	2.52	2.99	4.49	64.00	76.00	114.00	8
6.80		0.2677	2.52	2.99	4.49	64.00	76.00	114.00	8
6.90		0.2717	2.52	2.99	4.49	64.00	76.00	114.00	8
7.00		0.2756	2.52	2.99	4.49	64.00	76.00	114.00	8
7.10		0.2795	2.52	2.99	4.49	64.00	76.00	114.00	8
7.14	9/32	0.2812	2.52	2.99	4.49	64.00	76.00	114.00	8
7.20		0.2835	2.52	2.99	4.49	64.00	76.00	114.00	8
7.30		0.2874	2.52	2.99	4.49	64.00	76.00	114.00	8
7.40		0.2913	2.52	2.99	4.49	64.00	76.00	114.00	8
7.50		0.2953	2.52	2.99	4.49	64.00	76.00	114.00	8
7.54	19/64	0.2968	2.52	2.99	4.49	64.00	76.00	114.00	8
7.60		0.2992	2.52	2.99	4.49	64.00	76.00	114.00	8
7.70		0.3031	2.52	2.99	4.49	64.00	76.00	114.00	8
7.80		0.3071	2.52	2.99	4.49	64.00	76.00	114.00	8
7.90		0.3110	2.52	2.99	4.49	64.00	76.00	114.00	8
7.94	5/16	0.3125	2.52	2.99	4.49	64.00	76.00	114.00	8
8.00		0.3150	2.52	2.99	4.49	64.00	76.00	114.00	8
8.10		0.3189	3.15	3.74	5.59	80.00	95.00	142.00	10
8.20		0.3228	3.15	3.74	5.59	80.00	95.00	142.00	10

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 80.

Order example: HA-Shank 30-1941-0770
HB-Shank 30-1941-0770-HB
HE-Shank 30-1941-0770-HE

30-1941 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
8.30		0.3268	3.15	3.74	5.59	80.00	95.00	142.00	10
8.33	21/64	0.3281	3.15	3.74	5.59	80.00	95.00	142.00	10
8.40		0.3307	3.15	3.74	5.59	80.00	95.00	142.00	10
8.50		0.3346	3.15	3.74	5.59	80.00	95.00	142.00	10
8.60		0.3386	3.15	3.74	5.59	80.00	95.00	142.00	10
8.70		0.3425	3.15	3.74	5.59	80.00	95.00	142.00	10
8.73	11/32	0.3437	3.15	3.74	5.59	80.00	95.00	142.00	10
8.80		0.3465	3.15	3.74	5.59	80.00	95.00	142.00	10
8.85	S	0.3480	3.15	3.74	5.59	80.00	95.00	142.00	10
8.90		0.3504	3.15	3.74	5.59	80.00	95.00	142.00	10
9.00		0.3543	3.15	3.74	5.59	80.00	95.00	142.00	10
9.10		0.3583	3.15	3.74	5.59	80.00	95.00	142.00	10
9.13	23/64	0.3593	3.15	3.74	5.59	80.00	95.00	142.00	10
9.20		0.3622	3.15	3.74	5.59	80.00	95.00	142.00	10
9.30		0.3661	3.15	3.74	5.59	80.00	95.00	142.00	10
9.35	U	0.3681	3.15	3.74	5.59	80.00	95.00	142.00	10
9.40		0.3701	3.15	3.74	5.59	80.00	95.00	142.00	10
9.50		0.3740	3.15	3.74	5.59	80.00	95.00	142.00	10
9.52	3/8	0.3750	3.15	3.74	5.59	80.00	95.00	142.00	10
9.60		0.3780	3.15	3.74	5.59	80.00	95.00	142.00	10
9.70		0.3819	3.15	3.74	5.59	80.00	95.00	142.00	10
9.80		0.3858	3.15	3.74	5.59	80.00	95.00	142.00	10
9.90		0.3898	3.15	3.74	5.59	80.00	95.00	142.00	10
9.92	25/64	0.3906	3.15	3.74	5.59	80.00	95.00	142.00	10
10.00		0.3937	3.15	3.74	5.59	80.00	95.00	142.00	10
10.10		0.3976	3.78	4.49	6.38	96.00	114.00	162.00	12
10.20		0.4016	3.78	4.49	6.38	96.00	114.00	162.00	12
10.30		0.4055	3.78	4.49	6.38	96.00	114.00	162.00	12
10.32	13/32	0.4062	3.78	4.49	6.38	96.00	114.00	162.00	12
10.40		0.4094	3.78	4.49	6.38	96.00	114.00	162.00	12
10.50		0.4134	3.78	4.49	6.38	96.00	114.00	162.00	12
10.60		0.4173	3.78	4.49	6.38	96.00	114.00	162.00	12
10.70		0.4213	3.78	4.49	6.38	96.00	114.00	162.00	12
10.72	27/64	0.4219	3.78	4.49	6.38	96.00	114.00	162.00	12
10.80		0.4252	3.78	4.49	6.38	96.00	114.00	162.00	12
10.90		0.4291	3.78	4.49	6.38	96.00	114.00	162.00	12
11.00		0.4331	3.78	4.49	6.38	96.00	114.00	162.00	12
11.10		0.4370	3.78	4.49	6.38	96.00	114.00	162.00	12
11.11	7/16	0.4375	3.78	4.49	6.38	96.00	114.00	162.00	12
11.20		0.4409	3.78	4.49	6.38	96.00	114.00	162.00	12
11.30		0.4449	3.78	4.49	6.38	96.00	114.00	162.00	12
11.40		0.4488	3.78	4.49	6.38	96.00	114.00	162.00	12
11.50		0.4528	3.78	4.49	6.38	96.00	114.00	162.00	12
11.51	29/64	0.4531	3.78	4.49	6.38	96.00	114.00	162.00	12
11.60		0.4567	3.78	4.49	6.38	96.00	114.00	162.00	12
11.70		0.4606	3.78	4.49	6.38	96.00	114.00	162.00	12
11.80		0.4646	3.78	4.49	6.38	96.00	114.00	162.00	12
11.84		0.4660	3.78	4.49	6.38	96.00	114.00	162.00	12
11.90		0.4685	3.78	4.49	6.38	96.00	114.00	162.00	12
11.91	15/32	0.4687	3.78	4.49	6.38	96.00	114.00	162.00	12
12.00		0.4724	3.78	4.49	6.38	96.00	114.00	162.00	12
12.10		0.4764	4.41	5.16	7.01	112.00	131.00	178.00	14
12.20		0.4803	4.41	5.16	7.01	112.00	131.00	178.00	14
12.30	31/64	0.4843	4.41	5.16	7.01	112.00	131.00	178.00	14
12.40		0.4882	4.41	5.16	7.01	112.00	131.00	178.00	14
12.50		0.4921	4.41	5.16	7.01	112.00	131.00	178.00	14
12.60		0.4961	4.41	5.16	7.01	112.00	131.00	178.00	14

30-1941 Ø d1 (m7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
12.70	1/2	0.5000	4.41	5.16	7.01	112.00	131.00	178.00	14
12.80		0.5039	4.41	5.16	7.01	112.00	131.00	178.00	14
12.90		0.5079	4.41	5.16	7.01	112.00	131.00	178.00	14
13.00		0.5118	4.41	5.16	7.01	112.00	131.00	178.00	14
13.10	35/64	0.5156	4.41	5.16	7.01	112.00	131.00	178.00	14
13.20		0.5197	4.41	5.16	7.01	112.00	131.00	178.00	14
13.30		0.5236	4.41	5.16	7.01	112.00	131.00	178.00	14
13.40		0.5276	4.41	5.16	7.01	112.00	131.00	178.00	14
13.49	17/32	0.5312	4.41	5.16	7.01	112.00	131.00	178.00	14
13.50		0.5315	4.41	5.16	7.01	112.00	131.00	178.00	14
13.60		0.5354	4.41	5.16	7.01	112.00	131.00	178.00	14
13.65		0.5374	4.41	5.16	7.01	112.00	131.00	178.00	14
13.70		0.5394	4.41	5.16	7.01	112.00	131.00	178.00	14
13.80		0.5433	4.41	5.16	7.01	112.00	131.00	178.00	14
13.89	35/64	0.5468	4.41	5.16	7.01	112.00	131.00	178.00	14
13.90		0.5472	4.41	5.16	7.01	112.00	131.00	178.00	14
14.00		0.5512	4.41	5.16	7.01	112.00	131.00	178.00	14
14.10		0.5551	5.04	5.98	7.99	128.00	152.00	203.00	16
14.20		0.5591	5.04	5.98	7.99	128.00	152.00	203.00	16
14.29	9/16	0.5625	5.04	5.98	7.99	128.00	152.00	203.00	16
14.30		0.5630	5.04	5.98	7.99	128.00	152.00	203.00	16
14.40		0.5669	5.04	5.98	7.99	128.00	152.00	203.00	16
14.50		0.5709	5.04	5.98	7.99	128.00	152.00	203.00	16
14.60		0.5748	5.04	5.98	7.99	128.00	152.00	203.00	16
14.68	37/64	0.5781	5.04	5.98	7.99	128.00	152.00	203.00	16
14.70		0.5787	5.04	5.98	7.99	128.00	152.00	203.00	16
14.80		0.5827	5.04	5.98	7.99	128.00	152.00	203.00	16
14.90		0.5866	5.04	5.98	7.99	128.00	152.00	203.00	16
15.00		0.5906	5.04	5.98	7.99	128.00	152.00	203.00	16
15.08	19/32	0.5937	5.04	5.98	7.99	128.00	152.00	203.00	16
15.10		0.5945	5.04	5.98	7.99	128.00	152.00	203.00	16
15.20		0.5984	5.04	5.98	7.99	128.00	152.00	203.00	16
15.30		0.6024	5.04	5.98	7.99	128.00	152.00	203.00	16
15.40		0.6063	5.04	5.98	7.99	128.00	152.00	203.00	16
15.48	39/64	0.6093	5.04	5.98	7.99	128.00	152.00	203.00	16
15.50		0.6102	5.04	5.98	7.99	128.00	152.00	203.00	16
15.60		0.6142	5.04	5.98	7.99	128.00	152.00	203.00	16
15.70		0.6181	5.04	5.98	7.99	128.00	152.00	203.00	16
15.80		0.6220	5.04	5.98	7.99	128.00	152.00	203.00	16
15.88	5/8	0.6250	5.04	5.98	7.99	128.00	152.00	203.00	16
15.90		0.6260	5.04	5.98	7.99	128.00	152.00	203.00	16
16.00		0.6299	5.04	5.98	7.99	128.00	152.00	203.00	16
16.27	41/64	0.6406	5.67	6.73	8.74	144.00	171.00	222.00	18
16.50		0.6496	5.67	6.73	8.74	144.00	171.00	222.00	18
16.67	21/32	0.6562	5.67	6.73	8.74	144.00	171.00	222.00	18
17.00		0.6693	5.67	6.73	8.74	144.00	171.00	222.00	18
17.46	11/16	0.6875	5.67	6.73	8.74	144.00	171.00	222.00	18
17.50		0.6890	5.67	6.73	8.74	144.00	171.00	222.00	18
18.00		0.7087	5.67	6.73	8.74	144.00	171.00	222.00	18
18.26	17/32	0.7187	6.30	7.48	9.57	160.00	190.00	243.00	20
18.50		0.7283	6.30	7.48	9.57	160.00	190.00	243.00	20
19.00		0.7480	6.30	7.48	9.57	160.00	190.00	243.00	20
19.05	3/4	0.7500	6.30	7.48	9.57	160.00	190.00	243.00	20
19.45	49/64	0.7656	6.30	7.48	9.57	160.00	190.00	243.00	20
19.50		0.7677	6.30	7.48	9.57	160.00	190.00	243.00	20
20.00		0.7874	6.30	7.48	9.57	160.00	190.00	243.00	20

On request shank form DIN 6535HB or HE available without extra charge.
For cutting data, see page 80.

Order example: **HA-Shank 30-1941-0770**
HB-Shank 30-1941-0770-HB
HE-Shank 30-1941-0770-HE

HAM Milling tools according to drawings made from solid carbide, cermet, diamond an d CBN

HAM Reaming-and-fine-boring-tools made from solid carbide, cermet, diamond and CBN.

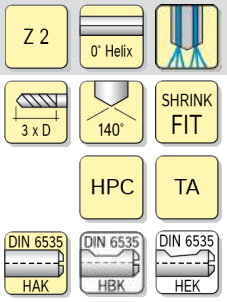
HAM Multidrills – particulary suitable for machining of aluminum.

HAM 30-1960/1961 Multidrill

Solid Carbide Drill

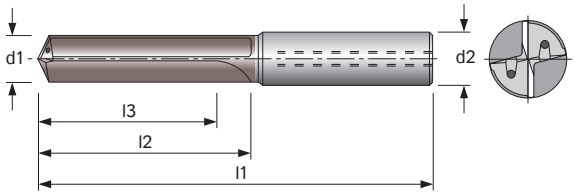
3 X D

297 Series



Engineering Data

- 4-facet ground
- straight fluted for machining of short chipping materials
- 30-1960 Uncoated
- 30-1961 Coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1960	●	●									●	○			●		●	●		
30-1961	●	●									●	○			●		●	●		

● very suitable ○ suitable

30-1960 30-1961 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
4.00		0.1575	0.67	0.94	2.60	17.00	24.00	66.00	6
4.20		0.1654	0.67	0.94	2.60	17.00	24.00	66.00	6
4.76		0.1875	0.79	1.10	2.60	20.00	28.00	66.00	6
5.00		0.1969	0.79	1.10	2.60	20.00	28.00	66.00	6
5.50		0.2165	0.79	1.10	2.60	20.00	28.00	66.00	6
6.00		0.2362	0.79	1.10	2.60	20.00	28.00	66.00	6
6.35	1/4	0.2500	0.79	1.10	3.11	20.00	28.00	79.00	8
6.50		0.2559	0.94	1.34	3.11	24.00	34.00	79.00	8
6.80		0.2677	0.94	1.34	3.11	24.00	34.00	79.00	8
7.00		0.2756	0.94	1.34	3.11	24.00	34.00	79.00	8
7.50		0.2953	1.14	1.61	3.11	29.00	41.00	79.00	8
7.94	5/16	0.3125	1.14	1.61	3.11	29.00	41.00	79.00	8
8.00		0.3150	1.14	1.61	3.11	29.00	41.00	79.00	8
8.50		0.3346	1.38	1.85	3.50	35.00	47.00	89.00	10
9.00		0.3543	1.38	1.85	3.50	35.00	47.00	89.00	10
9.52	3/8	0.3750	1.38	1.85	3.50	35.00	47.00	89.00	10
10.00		0.3937	1.38	1.85	3.50	35.00	47.00	89.00	10
10.20		0.4016	1.57	2.17	4.02	40.00	55.00	102.00	12
10.50		0.4134	1.57	2.17	4.02	40.00	55.00	102.00	12

30-1960 30-1961 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
10.80		0.4252	1.57	2.17	4.02	40.00	55.00	102.00	12
11.00		0.4331	1.57	2.17	4.02	40.00	55.00	102.00	12
11.11	7/16	0.4375	1.57	2.17	4.02	40.00	55.00	102.00	12
11.50		0.4528	1.57	2.17	4.02	40.00	55.00	102.00	12
12.00		0.4724	1.57	2.17	4.02	40.00	55.00	102.00	12
12.50		0.4921	1.69	2.36	4.21	43.00	60.00	107.00	14
12.70	1/2	0.5000	1.69	2.36	4.21	43.00	60.00	107.00	14
13.00		0.5118	1.69	2.36	4.21	43.00	60.00	107.00	14
13.50	17/32	0.5315	1.69	2.36	4.21	43.00	60.00	107.00	14
14.00		0.5512	1.69	2.36	4.21	43.00	60.00	107.00	14
14.29	9/16	0.5625	1.77	2.56	4.53	45.00	65.00	115.00	16
14.50		0.5709	1.77	2.56	4.53	45.00	65.00	115.00	16
15.00		0.5906	1.77	2.56	4.53	45.00	65.00	115.00	16
15.88	5/8	0.6250	1.77	2.56	4.53	45.00	65.00	115.00	16
16.00		0.6299	1.77	2.56	4.53	45.00	65.00	115.00	16
17.00		0.6693	2.01	2.87	4.84	51.00	73.00	123.00	18
18.00		0.7087	2.01	2.87	4.84	51.00	73.00	123.00	18
19.05	3/4	0.7500	2.17	3.11	5.16	55.00	79.00	131.00	20
20.00		0.7874	2.17	3.11	5.16	55.00	79.00	131.00	20

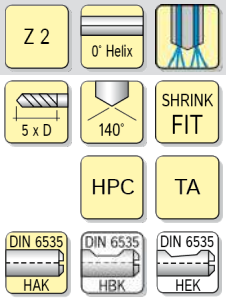
Multidrills are also available with ZRN for Aluminum upon request.
For cutting data, see page 85.

Order example: 30-1961-1020

HAM 30-2000/2001 Multidrill

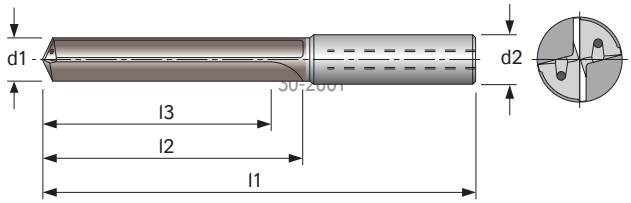
298 Series

Solid Carbide Drill **5 X D**



Engineering Data

- 4-facet ground
- straight fluted for machining of short chipping materials
- 30-2000 Uncoated
- 30-2001 Coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2000	●	●									●	○			●		●	●		
30-2001	●	●									●	○			●		●	●		

● very suitable ○ suitable

30-2000 30-2001 Ø d1 (h7) mm	30-2000 30-2001 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
4.00		0.1575	1.14	1.42	2.91	29.00	36.00	74.00	6
4.20		0.1654	1.14	1.42	2.91	29.00	36.00	74.00	6
4.76	3/16	0.1875	1.38	1.73	3.23	35.00	44.00	82.00	6
5.00		0.1969	1.38	1.73	3.23	35.00	44.00	82.00	6
5.50		0.2165	1.38	1.73	3.23	35.00	44.00	82.00	6
6.00		0.2362	1.38	1.73	3.23	35.00	44.00	82.00	6
6.35	1/4	0.2500	1.69	2.09	3.58	43.00	53.00	91.00	8
6.50		0.2559	1.69	2.09	3.58	43.00	53.00	91.00	8
6.80		0.2677	1.69	2.09	3.58	43.00	53.00	91.00	8
7.00		0.2756	1.69	2.09	3.58	43.00	53.00	91.00	8
7.50		0.2953	1.69	2.09	3.58	43.00	53.00	91.00	8
7.94	5/16	0.3125	1.69	2.09	3.58	43.00	53.00	91.00	8
8.00		0.3150	1.69	2.09	3.58	43.00	53.00	91.00	8
8.50		0.3346	1.93	2.40	4.06	49.00	61.00	103.00	10
9.00		0.3543	1.93	2.40	4.06	49.00	61.00	103.00	10
9.52	3/8	0.3750	1.93	2.40	4.06	49.00	61.00	103.00	10
10.00		0.3937	1.93	2.40	4.06	49.00	61.00	103.00	10
10.20		0.4016	2.20	2.80	4.65	56.00	71.00	118.00	12
10.50		0.4134	2.20	2.80	4.65	56.00	71.00	118.00	12

30-2000 30-2001 Ø d1 (h7) mm	30-2000 30-2001 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
10.80		0.4252	2.20	2.80	4.65	56.00	71.00	118.00	12
11.00		0.4331	2.20	2.80	4.65	56.00	71.00	118.00	12
11.11	7/16	0.4375	2.20	2.80	4.65	56.00	71.00	118.00	12
11.50		0.4528	2.20	2.80	4.65	56.00	71.00	118.00	12
12.00		0.4724	2.20	2.80	4.65	56.00	71.00	118.00	12
12.50		0.4921	2.36	3.03	4.88	60.00	77.00	124.00	14
12.70	1/2	0.5000	2.36	3.03	4.88	60.00	77.00	124.00	14
13.00		0.5118	2.36	3.03	4.88	60.00	77.00	124.00	14
13.50	17/32	0.5315	2.36	3.03	4.88	60.00	77.00	124.00	14
14.00		0.5512	2.36	3.03	4.88	60.00	77.00	124.00	14
14.29	9/16	0.5625	2.48	3.27	5.24	63.00	83.00	133.00	16
14.50		0.5709	2.48	3.27	5.24	63.00	83.00	133.00	16
15.00		0.5906	2.48	3.27	5.24	63.00	83.00	133.00	16
15.88	5/8	0.6250	2.48	3.27	5.24	63.00	83.00	133.00	16
16.00		0.6299	2.48	3.27	5.24	63.00	83.00	133.00	16
17.00		0.6693	2.80	3.66	5.63	71.00	93.00	143.00	18
18.00		0.7087	2.80	3.66	5.63	71.00	93.00	143.00	18
19.05	3/4	0.7500	3.03	3.98	6.02	77.00	101.00	153.00	20
20.00		0.7874	3.03	3.98	6.02	77.00	101.00	153.00	20

Multidrills are also available with ZRN for Aluminum upon request.
For cutting data, see page 86.

Order example: 30-2001-1020

HAM 30-2040/2041 Multidrill

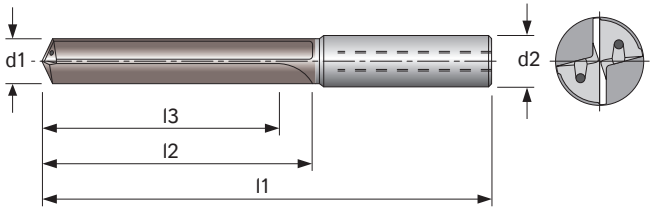
299 Series

Solid Carbide Drill **7 X D**

Z 2 | 0° Helix | 7 x D | 140° | SHRINK FIT | HPC | TA | DIN 6535 HAK | DIN 6535 HBK | DIN 6535 HEK

Engineering Data

- 4-facet ground
- straight fluted for machining of short chipping materials
- 30-2040 Uncoated
- 30-2041 Coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2040	●	●									●	○			●		●	●		
30-2041	●	●									●	○			●		●	●		

● very suitable ○ suitable

30-2040 30-2041 Ø d1 (h7) mm	30-2040 30-2041 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
4.00		0.1575	1.10	1.46	3.07	28.00	37.00	78.00	6
4.20		0.1654	1.10	1.46	3.07	28.00	37.00	78.00	6
4.76	3/16	0.1875	1.38	1.93	3.46	35.00	49.00	88.00	6
5.00		0.1969	1.38	1.93	3.46	35.00	49.00	88.00	6
5.50		0.2165	1.38	1.93	3.46	35.00	49.00	88.00	6
6.00		0.2362	1.38	1.93	3.46	35.00	49.00	88.00	6
6.35	1/4	0.2500	1.89	2.60	4.09	48.00	66.00	104.00	8
6.50		0.2559	1.89	2.60	4.09	48.00	66.00	104.00	8
6.80		0.2677	1.89	2.60	4.09	48.00	66.00	104.00	8
7.00		0.2756	1.89	2.60	4.09	48.00	66.00	104.00	8
7.50		0.2953	1.89	2.60	4.09	48.00	66.00	104.00	8
7.94	5/16	0.3125	1.89	2.60	4.09	48.00	66.00	104.00	8
8.00		0.3150	1.89	2.60	4.09	48.00	66.00	104.00	8
8.50		0.3346	2.76	3.86	5.51	70.00	98.00	140.00	10
9.00		0.3543	2.76	3.86	5.51	70.00	98.00	140.00	10
9.52	3/8	0.3750	2.76	3.86	5.51	70.00	98.00	140.00	10
10.00		0.3937	2.76	3.86	5.51	70.00	98.00	140.00	10
10.20		0.4016	2.91	3.86	5.71	74.00	98.00	145.00	12
10.50		0.4134	2.91	3.86	5.71	74.00	98.00	145.00	12

30-2040 30-2041 Ø d1 (h7) mm	30-2040 30-2041 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
10.80		0.4252	2.91	3.86	5.71	74.00	98.00	145.00	12
11.00		0.4331	2.91	3.86	5.71	74.00	98.00	145.00	12
11.11	7/16	0.4375	2.91	3.86	5.71	74.00	98.00	145.00	12
11.50		0.4528	2.91	3.86	5.71	74.00	98.00	145.00	12
12.00		0.4724	3.31	3.86	5.71	84.00	98.00	145.00	12
12.50		0.4921	3.86	4.49	6.34	98.00	114.00	161.00	14
12.70	1/2	0.5000	3.86	4.49	6.34	98.00	114.00	161.00	14
13.00		0.5118	3.86	4.49	6.34	98.00	114.00	161.00	14
13.50	17/32	0.5315	3.86	4.49	6.34	98.00	114.00	161.00	14
14.00		0.5512	3.86	4.49	6.34	98.00	114.00	161.00	14
14.29	9/16	0.5625	4.41	5.16	7.13	112.00	131.00	181.00	16
14.50		0.5709	4.41	5.16	7.13	112.00	131.00	181.00	16
15.00		0.5906	4.41	5.16	7.13	112.00	131.00	181.00	16
15.88	5/8	0.6250	4.41	5.16	7.13	112.00	131.00	181.00	16
16.00		0.6299	4.41	5.16	7.13	112.00	131.00	181.00	16
17.00		0.6693	4.96	5.79	7.76	126.00	147.00	197.00	18
18.00		0.7087	4.96	5.79	7.76	126.00	147.00	197.00	18
19.05	3/4	0.7500	5.51	6.46	8.50	140.00	164.00	216.00	20
20.00		0.7874	5.51	6.46	8.50	140.00	164.00	216.00	20

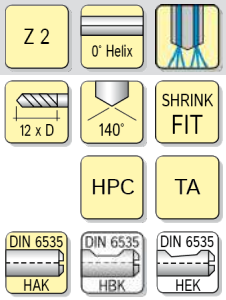
Multidrills are also available with ZRN for Aluminum upon request.
For cutting data, see page 87.

Order example: 30-2041-1020

HAM 30-2080/2081 Multidrill

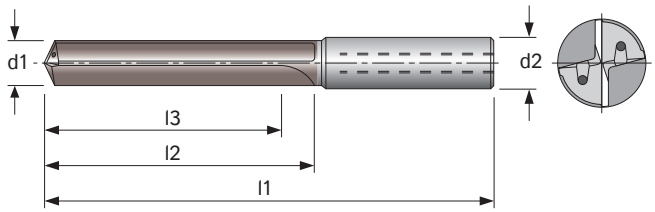
294 Series

Solid Carbide Drill **12 X D**



Engineering Data

- 4-facet ground
- straight fluted for machining of short chipping materials
- 30-2080 Uncoated
- 30-2081 Coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2080	●	●									●	○			●		●	●		
30-2081	●	●									●	○			●		●	●		

● very suitable ○ suitable

30-2080 30-2081 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
4.00		0.1575	2.28	3.03	4.76	58.00	77.00	121.00	6
4.20		0.1654	2.28	3.03	4.76	58.00	77.00	121.00	6
4.76	3/16	0.1875	2.76	3.23	4.76	70.00	82.00	121.00	6
5.00		0.1969	2.76	3.23	4.76	70.00	82.00	121.00	6
5.50		0.2165	2.76	3.23	4.76	70.00	82.00	121.00	6
6.00		0.2362	2.76	3.23	4.76	70.00	82.00	121.00	6
6.35	1/4	0.2500	3.70	4.17	5.75	94.00	106.00	146.00	8
6.50		0.2559	3.70	4.17	5.75	94.00	106.00	146.00	8
6.80		0.2677	3.70	4.17	5.75	94.00	106.00	146.00	8
7.00		0.2756	3.70	4.17	5.75	94.00	106.00	146.00	8
7.50		0.2953	3.70	4.17	5.75	94.00	106.00	146.00	8
7.94	5/16	0.3125	3.70	4.17	5.75	94.00	106.00	146.00	8
8.00		0.3150	3.70	4.17	5.75	94.00	106.00	146.00	8
8.50		0.3346	4.33	5.12	6.89	110.00	130.00	175.00	10
9.00		0.3543	4.33	5.12	6.89	110.00	130.00	175.00	10
9.52	3/8	0.3750	4.33	5.12	6.89	110.00	130.00	175.00	10
10.00		0.3937	4.33	5.12	6.89	110.00	130.00	175.00	10

30-2080 30-2081 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
10.20		0.4016	5.59	6.26	8.23	142.00	159.00	209.00	12
10.50		0.4134	5.59	6.26	8.23	142.00	159.00	209.00	12
10.80		0.4252	5.59	6.26	8.23	142.00	159.00	209.00	12
11.00		0.4331	5.59	6.26	8.23	142.00	159.00	209.00	12
11.11	7/16	0.4375	5.59	6.26	8.23	142.00	159.00	209.00	12
11.50		0.4528	5.59	6.26	8.23	142.00	159.00	209.00	12
12.00		0.4724	5.59	6.26	8.23	142.00	159.00	209.00	12
12.50		0.4921	6.54	7.20	9.17	166.00	183.00	233.00	14
12.70	1/2	0.5000	6.54	7.20	9.17	166.00	183.00	233.00	14
13.00		0.5118	6.54	7.20	9.17	166.00	183.00	233.00	14
13.50	17/32	0.5315	6.54	7.20	9.17	166.00	183.00	233.00	14
14.00		0.5512	6.54	7.20	9.17	166.00	183.00	233.00	14
14.29	9/16	0.5625	7.56	8.15	10.24	192.00	207.00	260.00	16
14.50		0.5709	7.56	8.15	10.24	192.00	207.00	260.00	16
15.00		0.5906	7.56	8.15	10.24	192.00	207.00	260.00	16
15.88	5/8	0.6250	7.56	8.15	10.24	192.00	207.00	260.00	16
16.00		0.6299	7.56	8.15	10.24	192.00	207.00	260.00	16

Multidrills are also available with ZRN for Aluminum upon request.
For cutting data, see page 88.

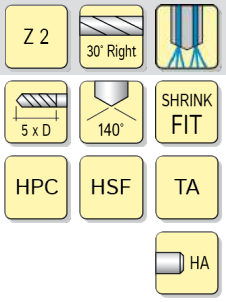
Order example: 30-2080-1020

Recommendation for Using the Deep Hole Drills 12 to 40 x Diameter

- Drilling a pilot hole with **HAM** Superdrill or **HAM** Multidrill for aluminum (tolerance m7) 1 to 1.5 x D
- Run with the deep hole drill into the pilot hole with low speed and feed rates
- Start cooling
- Increase speed and feed rate
- Machine the deep hole in one step
- Lift the drill, reduce speed and feed, stop cooling and extend the drill

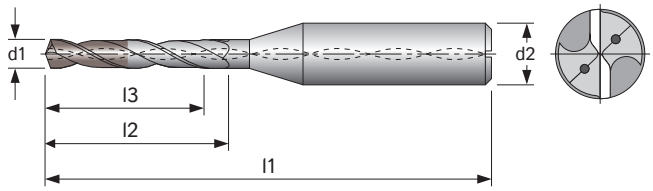
HAM Deep Hole Drills – particulary suitable for universal workpiece materials.

HAM 30-2181 — Solid Carbide Deep Hole Drill — 5 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2181			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-2181 Ø d1 (h7) mm	30-2181 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
0.80		0.0315	0.16	0.22	1.97	4.00	5.50	50.00	3
0.85		0.0335	0.17	0.23	1.97	4.25	5.80	50.00	3
0.90		0.0354	0.18	0.24	1.97	4.50	6.00	50.00	3
0.95		0.0374	0.19	0.24	1.97	4.75	6.20	50.00	3
1.00		0.0394	0.20	0.26	1.97	5.00	6.50	50.00	3
1.05		0.0413	0.21	0.27	1.97	5.30	6.80	50.00	3
1.10		0.0433	0.22	0.28	1.97	5.50	7.20	50.00	3
1.15		0.0453	0.23	0.30	1.97	5.80	7.50	50.00	3
1.20		0.0472	0.24	0.31	1.97	6.00	7.80	50.00	3
1.25		0.0492	0.25	0.32	1.97	6.30	8.10	50.00	3
1.30		0.0512	0.26	0.33	1.97	6.50	8.50	50.00	3
1.35		0.0531	0.27	0.35	1.97	6.80	8.80	50.00	3
1.40		0.0551	0.28	0.36	1.97	7.00	9.10	50.00	3
1.45		0.0571	0.29	0.37	1.97	7.30	9.40	50.00	3
1.50		0.0591	0.30	0.39	1.97	7.50	9.80	50.00	3
1.55		0.0610	0.31	0.40	1.97	7.80	10.10	50.00	3
1.60	1/16	0.0630	0.31	0.41	2.17	8.00	10.40	55.00	3
1.65		0.0650	0.33	0.42	2.17	8.30	10.70	55.00	3
1.70		0.0669	0.33	0.44	2.17	8.50	11.10	55.00	3
1.75		0.0689	0.35	0.45	2.17	8.80	11.40	55.00	3
1.80		0.0709	0.35	0.46	2.17	9.00	11.70	55.00	3
1.85		0.0728	0.37	0.47	2.17	9.30	12.00	55.00	3
1.90		0.0748	0.37	0.49	2.17	9.50	12.40	55.00	3
1.95		0.0768	0.39	0.50	2.17	9.80	12.70	55.00	3

30-2181 Ø d1 (h7) mm	30-2181 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.00		0.0787	0.39	0.51	2.17	10.00	13.00	55.00	3
2.05		0.0807	0.41	0.52	2.17	10.30	13.30	55.00	3
2.10		0.0827	0.41	0.54	2.17	10.50	13.70	55.00	3
2.15		0.0846	0.43	0.55	2.17	10.80	14.00	55.00	3
2.20		0.0866	0.43	0.56	2.17	11.00	14.30	55.00	3
2.25		0.0886	0.44	0.57	2.17	11.30	14.60	55.00	3
2.30		0.0906	0.45	0.59	2.17	11.50	15.00	55.00	3
2.35		0.0925	0.46	0.60	2.17	11.80	15.30	55.00	3
2.38	3/32	0.0937	0.47	0.61	2.17	11.90	15.50	55.00	3
2.40		0.0945	0.47	0.61	2.17	12.00	15.60	55.00	3
2.45		0.0965	0.48	0.63	2.17	12.30	15.90	55.00	3
2.50		0.0984	0.49	0.64	2.17	12.50	16.30	55.00	3
2.55		0.1004	0.50	0.65	2.17	12.80	16.60	55.00	3
2.60		0.1024	0.51	0.67	2.17	13.00	16.90	55.00	3
2.65		0.1043	0.52	0.68	2.17	13.30	17.20	55.00	3
2.70		0.1063	0.53	0.69	2.17	13.50	17.60	55.00	3
2.75		0.1083	0.54	0.70	2.17	13.80	17.90	55.00	3
2.78	7/64	0.1094	0.55	0.71	2.17	13.90	18.10	55.00	3
2.80		0.1102	0.55	0.72	2.17	14.00	18.20	55.00	3
2.85		0.1122	0.56	0.73	2.17	14.30	18.50	55.00	3
2.90		0.1142	0.57	0.74	2.17	14.50	18.90	55.00	3
2.95		0.1161	0.58	0.76	2.17	14.80	19.20	55.00	3
3.00		0.1181	0.59	0.77	2.17	15.00	19.50	55.00	3

HAM 30-1301 Recommended as pilot hole drill when using deep hole drill, see page 11.
For cutting data, see page 81.

Order example: 30-2181-0200

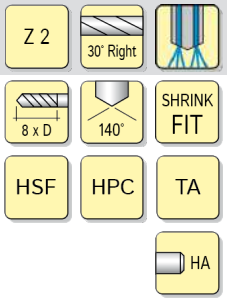
Liquid Boost

From nominal diameter 0.8 mm to 1.45 mm

Advantages:

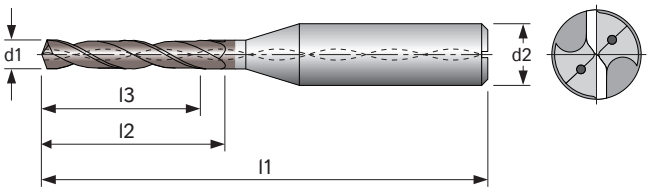
– with the same pressure up to three times higher flow rate
– higher tool life
– more efficient chip removal

HAM 30-2221 — Solid Carbide Deep Hole Drill — 8 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2221			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-2221 Ø d1 (h7) mm	30-2221 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
0.80		0.0315	0.25	0.31	1.97	6.40	8.00	50.00	3
0.85		0.0335	0.27	0.33	1.97	6.80	8.50	50.00	3
0.90		0.0354	0.28	0.35	1.97	7.20	9.00	50.00	3
0.95		0.0374	0.30	0.37	1.97	7.60	9.50	50.00	3
1.00		0.0394	0.31	0.37	1.97	8.00	9.50	50.00	3
1.05		0.0413	0.33	0.39	1.97	8.40	10.00	50.00	3
1.10		0.0433	0.35	0.41	1.97	8.80	10.50	50.00	3
1.15		0.0453	0.36	0.43	1.97	9.20	10.90	50.00	3
1.20		0.0472	0.38	0.45	1.97	9.60	11.40	50.00	3
1.25		0.0492	0.39	0.47	1.97	10.00	11.90	50.00	3
1.30		0.0512	0.41	0.49	1.97	10.40	12.40	50.00	3
1.35		0.0531	0.43	0.50	1.97	10.80	12.80	50.00	3
1.40		0.0551	0.44	0.52	1.97	11.20	13.30	50.00	3
1.45		0.0571	0.46	0.54	1.97	11.60	13.80	50.00	3
1.50		0.0591	0.47	0.56	1.97	12.00	14.30	50.00	3
1.55		0.0610	0.49	0.58	1.97	12.40	14.70	50.00	3
1.60	1/16	0.0630	0.50	0.60	1.97	12.80	15.20	50.00	3
1.65		0.0650	0.52	0.62	2.36	13.20	15.70	60.00	3
1.70		0.0669	0.54	0.64	2.36	13.60	16.20	60.00	3
1.75		0.0689	0.55	0.65	2.36	14.00	16.60	60.00	3
1.80		0.0709	0.57	0.67	2.36	14.40	17.10	60.00	3
1.85		0.0728	0.58	0.69	2.36	14.80	17.60	60.00	3
1.90		0.0748	0.60	0.71	2.36	15.20	18.10	60.00	3
1.95		0.0768	0.61	0.73	2.36	15.60	18.50	60.00	3

30-2221 Ø d1 (h7) mm	30-2221 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.00		0.0787	0.63	0.75	2.36	16.00	19.00	60.00	3
2.05		0.0807	0.65	0.77	2.36	16.40	19.50	60.00	3
2.10		0.0827	0.66	0.79	2.36	16.80	20.00	60.00	3
2.15		0.0846	0.68	0.80	2.36	17.20	20.40	60.00	3
2.20		0.0866	0.69	0.82	2.36	17.60	20.90	60.00	3
2.25		0.0886	0.71	0.84	2.36	18.00	21.40	60.00	3
2.30		0.0906	0.72	0.86	2.36	18.40	21.90	60.00	3
2.35		0.0925	0.74	0.88	2.36	18.80	22.30	60.00	3
2.38	3/32	0.0937	0.75	0.89	2.36	19.00	22.60	60.00	3
2.40		0.0945	0.76	0.90	2.36	19.20	22.80	60.00	3
2.45		0.0965	0.77	0.92	2.36	19.60	23.30	60.00	3
2.50		0.0984	0.79	0.94	2.36	20.00	23.80	60.00	3
2.55		0.1004	0.80	0.95	2.36	20.40	24.20	60.00	3
2.60		0.1024	0.82	0.97	2.36	20.80	24.70	60.00	3
2.65		0.1043	0.83	0.99	2.36	21.20	25.20	60.00	3
2.70		0.1063	0.85	1.01	2.36	21.60	25.70	60.00	3
2.75		0.1083	0.87	1.03	2.36	22.00	26.10	60.00	3
2.78	7/64	0.1094	0.87	1.04	2.36	22.20	26.30	60.00	3
2.80		0.1102	0.88	1.05	2.36	22.40	26.60	60.00	3
2.85		0.1122	0.90	1.07	2.36	22.80	27.10	60.00	3
2.90		0.1142	0.91	1.09	2.36	23.20	27.60	60.00	3
2.95		0.1161	0.93	1.10	2.36	23.60	28.00	60.00	3
3.00		0.1181	0.94	1.12	2.36	24.00	28.50	60.00	3

HAM 30-1301 Recommended as pilot hole drill when using deep hole drill, see page 11.
For cutting data, see page 81.

Order example: 30-2221-0200

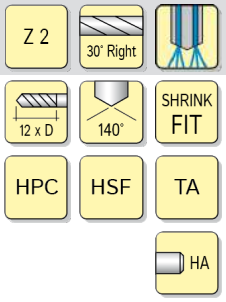
Liquid Boost

From nominal diameter 0.8 mm to 1.45 mm

Advantages:

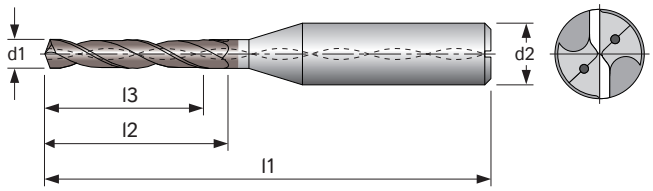
– with the same pressure up to three times higher flow rate
– higher tool life
– more efficient chip removal

HAM 30-2261 — Solid Carbide Deep Hole Drill — 12 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2261			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-2261 Ø d1 (h7) mm	30-2261 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
0.80		0.0315	0.38	0.44	2.17	9.60	11.20	55.00	3
0.85		0.0335	0.40	0.47	2.17	10.20	11.90	55.00	3
0.90		0.0354	0.43	0.50	2.17	10.80	12.60	55.00	3
0.95		0.0374	0.45	0.52	2.17	11.40	13.30	55.00	3
1.00		0.0394	0.47	0.53	2.17	12.00	13.50	55.00	3
1.05		0.0413	0.50	0.56	2.17	12.60	14.20	55.00	3
1.10		0.0433	0.52	0.59	2.17	13.20	14.90	55.00	3
1.15		0.0453	0.54	0.61	2.17	13.80	15.50	55.00	3
1.20		0.0472	0.57	0.64	2.17	14.40	16.20	55.00	3
1.25		0.0492	0.59	0.67	2.17	15.00	16.90	55.00	3
1.30		0.0512	0.61	0.69	2.17	15.60	17.60	55.00	3
1.35		0.0531	0.64	0.72	2.17	16.20	18.20	55.00	3
1.40		0.0551	0.66	0.74	2.17	16.80	18.90	55.00	3
1.45		0.0571	0.69	0.77	2.17	17.40	19.60	55.00	3
1.50		0.0591	0.71	0.80	2.17	18.00	20.30	55.00	3
1.55		0.0610	0.73	0.82	2.17	18.60	20.90	55.00	3
1.60	1/16	0.0630	0.76	0.85	2.56	19.20	21.60	65.00	3
1.65		0.0650	0.78	0.88	2.56	19.80	22.30	65.00	3
1.70		0.0669	0.80	0.91	2.56	20.40	23.00	65.00	3
1.75		0.0689	0.83	0.93	2.56	21.00	23.60	65.00	3
1.80		0.0709	0.85	0.96	2.56	21.60	24.30	65.00	3
1.85		0.0728	0.87	0.98	2.56	22.20	25.00	65.00	3
1.90		0.0748	0.90	1.01	2.56	22.80	25.70	65.00	3
1.95		0.0768	0.92	1.04	2.56	23.40	26.30	65.00	3

30-2261 Ø d1 (h7) mm	30-2261 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.00		0.0787	0.94	1.06	2.56	24.00	27.00	65.00	3
2.05		0.0807	0.97	1.09	2.56	24.60	27.70	65.00	3
2.10		0.0827	0.99	1.12	2.56	25.20	28.40	65.00	3
2.15		0.0846	1.02	1.14	2.56	25.80	29.00	65.00	3
2.20		0.0866	1.04	1.17	2.56	26.40	29.70	65.00	3
2.25		0.0886	1.06	1.20	2.56	27.00	30.40	65.00	3
2.30		0.0906	1.09	1.22	2.56	27.60	31.10	65.00	3
2.35		0.0925	1.11	1.25	2.95	28.20	31.70	75.00	3
2.38	3/32	0.0937	1.13	1.27	2.95	28.60	32.20	75.00	3
2.40		0.0945	1.13	1.28	2.95	28.80	32.40	75.00	3
2.45		0.0965	1.16	1.30	2.95	29.40	33.10	75.00	3
2.50		0.0984	1.18	1.33	2.95	30.00	33.80	75.00	3
2.55		0.1004	1.20	1.35	2.95	30.60	34.40	75.00	3
2.60		0.1024	1.23	1.38	2.95	31.20	35.10	75.00	3
2.65		0.1043	1.25	1.41	2.95	31.80	35.80	75.00	3
2.70		0.1063	1.28	1.44	2.95	32.40	36.50	75.00	3
2.75		0.1083	1.30	1.46	2.95	33.00	37.10	75.00	3
2.78	7/64	0.1094	1.31	1.48	2.95	33.40	37.60	75.00	3
2.80		0.1102	1.32	1.49	2.95	33.60	37.80	75.00	3
2.85		0.1122	1.35	1.52	2.95	34.20	38.50	75.00	3
2.90		0.1142	1.37	1.54	2.95	34.80	39.20	75.00	3
2.95		0.1161	1.39	1.57	2.95	35.40	39.80	75.00	3
3.00		0.1181	1.42	1.59	2.95	36.00	40.50	75.00	3

HAM 30-1301 Recommended as pilot hole drill when using deep hole drill, see page 11.
For cutting data, see page 81.

Order example: 30-2261-0200

Liquid Boost

From nominal diameter 0.8 mm to 1.45 mm

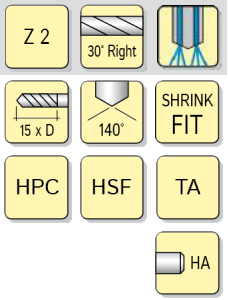
Advantages:

– with the same pressure up to three times higher flow rate
– higher tool life
– more efficient chip removal

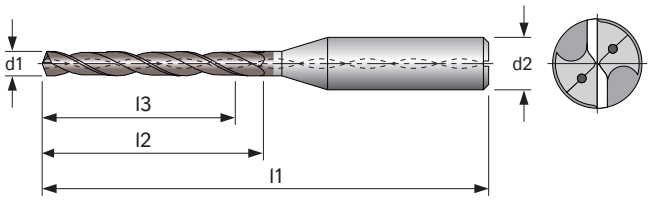
HAM 30-2301

Solid Carbide Deep Hole Drill

15 X D



Engineering Data
- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2301			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-2301 Ø d1 (h7) mm	30-2301 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
0.80		0.0315	0.47	0.54	2.36	12.00	13.60	60.00	3
0.85		0.0335	0.50	0.57	2.36	12.75	14.45	60.00	3
0.90		0.0354	0.53	0.60	2.36	13.50	15.30	60.00	3
0.95		0.0374	0.56	0.64	2.36	14.25	16.15	60.00	3
1.00		0.0394	0.59	0.65	2.36	15.00	16.50	60.00	3
1.05		0.0413	0.62	0.68	2.36	15.80	17.30	60.00	3
1.10		0.0433	0.65	0.72	2.36	16.50	18.20	60.00	3
1.15		0.0453	0.68	0.75	2.36	17.30	19.00	60.00	3
1.20		0.0472	0.71	0.78	2.36	18.00	19.80	60.00	3
1.25		0.0492	0.74	0.81	2.36	18.80	20.60	60.00	3
1.30		0.0512	0.77	0.85	2.36	19.50	21.50	60.00	3
1.35		0.0531	0.80	0.88	2.36	20.30	22.30	60.00	3
1.40		0.0551	0.83	0.91	2.36	21.00	23.10	60.00	3
1.45		0.0571	0.86	0.94	2.36	21.80	23.90	60.00	3
1.50		0.0591	0.89	0.98	2.36	22.50	24.80	60.00	3
1.55		0.0610	0.92	1.01	2.36	23.30	25.60	60.00	3
1.60	1/16	0.0630	0.94	1.04	2.56	24.00	26.40	65.00	3
1.65		0.0650	0.98	1.07	2.56	24.80	27.20	65.00	3
1.70		0.0669	1.00	1.11	2.56	25.50	28.10	65.00	3
1.75		0.0689	1.04	1.14	2.56	26.30	28.90	65.00	3
1.80		0.0709	1.06	1.17	2.56	27.00	29.70	65.00	3
1.85		0.0728	1.09	1.20	2.95	27.80	30.50	75.00	3
1.90		0.0748	1.12	1.24	2.95	28.50	31.40	75.00	3
1.95		0.0768	1.15	1.27	2.95	29.30	32.20	75.00	3

30-2301 Ø d1 (h7) mm	30-2301 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.00		0.0787	1.18	1.30	2.95	30.00	33.00	75.00	3
2.05		0.0807	1.21	1.33	2.95	30.80	33.80	75.00	3
2.10		0.0827	1.24	1.37	2.95	31.50	34.70	75.00	3
2.15		0.0846	1.27	1.40	2.95	32.30	35.50	75.00	3
2.20		0.0866	1.30	1.43	2.95	33.00	36.30	75.00	3
2.25		0.0886	1.33	1.46	2.95	33.80	37.10	75.00	3
2.30		0.0906	1.36	1.50	3.23	34.50	38.00	82.00	3
2.35		0.0925	1.39	1.53	3.23	35.30	38.80	82.00	3
2.38	3/32	0.0937	1.41	1.55	3.23	35.70	39.30	82.00	3
2.40		0.0945	1.42	1.56	3.23	36.00	39.60	82.00	3
2.45		0.0965	1.45	1.59	3.23	36.80	40.40	82.00	3
2.50		0.0984	1.48	1.63	3.23	37.50	41.30	82.00	3
2.55		0.1004	1.51	1.66	3.23	38.30	42.10	82.00	3
2.60		0.1024	1.54	1.69	3.23	39.00	42.90	82.00	3
2.65		0.1043	1.57	1.72	3.23	39.80	43.70	82.00	3
2.70		0.1063	1.59	1.76	3.23	40.50	44.60	82.00	3
2.75		0.1083	1.63	1.79	3.23	41.30	45.40	82.00	3
2.78	7/64	0.1094	1.64	1.81	3.23	41.70	45.90	82.00	3
2.80		0.1102	1.65	1.82	3.23	42.00	46.20	82.00	3
2.85		0.1122	1.69	1.85	3.23	42.80	47.00	82.00	3
2.90		0.1142	1.71	1.89	3.23	43.50	47.90	82.00	3
2.95		0.1161	1.74	1.92	3.23	44.30	48.70	82.00	3
3.00		0.1181	1.77	1.95	3.23	45.00	49.50	82.00	3

HAM 30-1301 Recommended as pilot hole drill when using deep hole drill, see page 11.
For cutting data, see page 82.

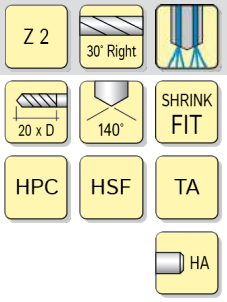
Order example: 30-2301-0200

Liquid Boost

From nominal diameter 0.8 mm to 1.45 mm

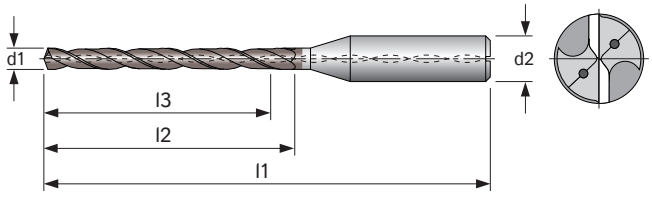
Advantages:
– with the same pressure up to three times higher flow rate
– higher tool life
– more efficient chip removal

HAM 30-2341 — Solid Carbide Deep Hole Drill — 20 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2341			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-2341 Ø d1 (h7) mm	30-2341 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
0.80		0.0315	0.63	0.69	2.56	16.00	17.60	65.00	3
0.85		0.0335	0.67	0.74	2.56	17.00	18.70	65.00	3
0.90		0.0354	0.71	0.78	2.56	18.00	19.80	65.00	3
0.95		0.0374	0.75	0.82	2.56	19.00	20.90	65.00	3
1.00		0.0394	0.79	0.85	2.56	20.00	21.50	65.00	3
1.05		0.0413	0.83	0.89	2.56	21.00	22.60	65.00	3
1.10		0.0433	0.87	0.93	2.56	22.00	23.70	65.00	3
1.15		0.0453	0.91	0.97	2.56	23.00	24.70	65.00	3
1.20		0.0472	0.94	1.02	2.56	24.00	25.80	65.00	3
1.25		0.0492	0.98	1.06	2.56	25.00	26.90	65.00	3
1.30		0.0512	1.02	1.10	2.56	26.00	28.00	65.00	3
1.35		0.0531	1.06	1.14	2.56	27.00	29.00	65.00	3
1.40		0.0551	1.10	1.19	2.56	28.00	30.10	65.00	3
1.45		0.0571	1.14	1.23	2.95	29.00	31.20	75.00	3
1.50		0.0591	1.18	1.27	2.95	30.00	32.30	75.00	3
1.55		0.0610	1.22	1.31	2.95	31.00	33.30	75.00	3
1.60	1/16	0.0630	1.26	1.35	2.95	32.00	34.40	75.00	3
1.65		0.0650	1.30	1.40	2.95	33.00	35.50	75.00	3
1.70		0.0669	1.34	1.44	2.95	34.00	36.60	75.00	3
1.75		0.0689	1.38	1.48	2.95	35.00	37.60	75.00	3
1.80		0.0709	1.42	1.52	2.95	36.00	38.70	75.00	3
1.85		0.0728	1.46	1.57	2.95	37.00	39.80	75.00	3
1.90		0.0748	1.50	1.61	2.95	38.00	40.90	75.00	3
1.95		0.0768	1.54	1.65	2.95	39.00	41.90	75.00	3

30-2341 Ø d1 (h7) mm	30-2341 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
2.00		0.0787	1.57	1.69	3.23	40.00	43.00	82.00	3
2.05		0.0807	1.61	1.74	3.23	41.00	44.10	82.00	3
2.10		0.0827	1.65	1.78	3.23	42.00	45.20	82.00	3
2.15		0.0846	1.69	1.82	3.23	43.00	46.20	82.00	3
2.20		0.0866	1.73	1.86	3.23	44.00	47.30	82.00	3
2.25		0.0886	1.77	1.91	3.23	45.00	48.40	82.00	3
2.30		0.0906	1.81	1.95	3.94	46.00	49.50	100.00	3
2.35		0.0925	1.85	1.99	3.94	47.00	50.50	100.00	3
2.38	3/32	0.0937	1.87	2.02	3.94	47.60	51.20	100.00	3
2.40		0.0945	1.89	2.03	3.94	48.00	51.60	100.00	3
2.45		0.0965	1.93	2.07	3.94	49.00	52.70	100.00	3
2.50		0.0984	1.97	2.12	3.94	50.00	53.80	100.00	3
2.55		0.1004	2.01	2.16	3.94	51.00	54.80	100.00	3
2.60		0.1024	2.05	2.20	3.94	52.00	55.90	100.00	3
2.65		0.1043	2.09	2.24	3.94	53.00	57.00	100.00	3
2.70		0.1063	2.13	2.29	3.94	54.00	58.10	100.00	3
2.75		0.1083	2.17	2.33	3.94	55.00	59.10	100.00	3
2.78	7/64	0.1094	2.19	2.35	3.94	55.60	59.80	100.00	3
2.80		0.1102	2.20	2.37	3.94	56.00	60.20	100.00	3
2.85		0.1122	2.24	2.41	3.94	57.00	61.30	100.00	3
2.90		0.1142	2.28	2.46	3.94	58.00	62.40	100.00	3
2.95		0.1161	2.32	2.50	3.94	59.00	63.40	100.00	3
3.00		0.1181	2.36	2.54	3.94	60.00	64.50	100.00	3

HAM 30-1301 Recommended as pilot hole drill when using deep hole drill, see page 11.
For cutting data, see page 82.

Order example: 30-2341-0200

Liquid Boost

From nominal diameter 0.8 mm to 1.45 mm

Advantages:

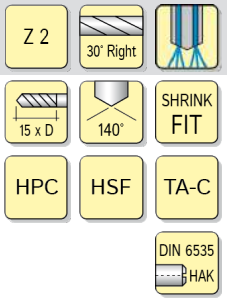
– with the same pressure up to three times higher flow rate
– higher tool life
– more efficient chip removal

HAM – Your competent partner in the precision tool technology

HAM 30-2381

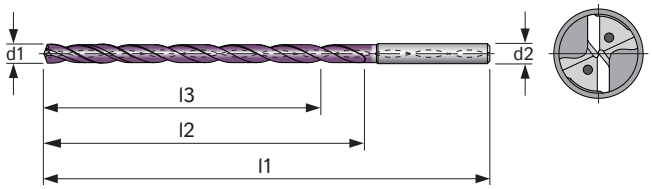
Solid Carbide Deep Hole Drill

15 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2381			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-2381 Ø d1 (h7) mm	30-2381 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	1.77	2.01	3.74	45.0	51.0	95.00	6
3.10		0.1220	1.83	2.07	3.74	46.5	52.7	95.00	6
3.17	1/8	0.1248	1.87	2.12	3.74	47.6	53.9	95.00	6
3.20		0.1260	1.89	2.14	3.94	48.0	54.4	100.00	6
3.30		0.1299	1.95	2.21	3.94	49.5	56.1	100.00	6
3.40		0.1339	2.01	2.28	3.94	51.0	57.8	100.00	6
3.50		0.1378	2.07	2.34	4.33	52.5	59.5	110.00	6
3.57	9/64	0.1406	2.11	2.39	4.33	53.6	60.7	110.00	6
3.60		0.1417	2.13	2.41	4.33	54.0	61.2	110.00	6
3.70		0.1457	2.19	2.48	4.33	55.50	62.9	110.00	6
3.80		0.1496	2.24	2.54	4.33	57.0	64.6	110.00	6
3.90		0.1535	2.30	2.61	4.33	58.5	66.3	110.00	6
3.97	5/32	0.1563	2.34	2.66	4.33	59.6	67.5	110.00	6
4.00		0.1575	2.36	2.68	4.33	60.0	68.0	110.00	6
4.10		0.1614	2.42	2.74	4.53	61.5	69.7	115.00	6
4.20		0.1654	2.48	2.81	4.72	63.0	71.4	120.00	6
4.30		0.1693	2.54	2.88	4.72	64.5	73.1	120.00	6
4.37	11/64	0.1720	2.58	2.92	4.72	65.6	74.3	120.00	6
4.40		0.1732	2.60	2.94	4.72	66.0	74.8	120.00	6
4.50		0.1772	2.66	3.01	4.72	67.5	76.5	120.00	6
4.60		0.1811	2.72	3.08	4.72	69.0	78.2	120.00	6
4.70		0.1850	2.78	3.15	4.92	70.5	79.9	125.00	6
4.76	3/16	0.1874	2.81	3.19	4.92	71.4	80.9	125.00	6
4.80		0.1890	2.83	3.21	4.92	72.0	81.6	125.00	6
4.90		0.1929	2.89	3.28	4.92	73.5	83.3	125.00	6
5.00		0.1969	2.95	3.35	4.92	75.0	85.0	125.00	6
5.10		0.2008	3.01	3.41	5.12	76.5	86.7	130.00	6
5.16	13/64	0.2031	3.05	3.45	5.12	77.4	87.7	130.00	6
5.20		0.2047	3.07	3.48	5.12	78.0	88.4	130.00	6
5.30		0.2087	3.13	3.55	5.31	79.5	90.1	135.00	6
5.40		0.2126	3.19	3.61	5.31	81.0	91.8	135.00	6
5.50		0.2165	3.25	3.68	5.31	82.5	93.5	135.00	6
5.55	19/87	0.2185	3.28	3.72	5.51	83.3	94.4	140.00	6
5.60		0.2205	3.31	3.75	5.51	84.0	95.2	140.00	6
5.70		0.2244	3.37	3.81	5.51	85.5	96.9	140.00	6
5.80		0.2283	3.43	3.88	5.51	87.0	98.6	140.00	6
5.90		0.2323	3.48	3.95	5.51	88.5	100.3	140.00	6
5.95	15/64	0.2343	3.51	3.98	5.51	89.3	101.2	140.00	6
6.00		0.2362	3.54	4.02	5.51	90.0	102.0	140.00	6
6.10		0.2402	3.60	4.08	5.71	91.5	103.7	145.00	8

30-2381 Ø d1 (h7) mm	30-2381 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
6.20		0.2441	3.66	4.15	5.91	93.0	105.4	150.00	8
6.30		0.2480	3.72	4.22	5.91	94.5	107.1	150.00	8
6.35	1/4	0.2500	3.75	4.25	5.91	95.3	108.0	150.00	8
6.40		0.2520	3.78	4.28	5.91	96.0	108.8	150.00	8
6.50		0.2559	3.84	4.35	5.91	97.5	110.5	150.00	8
6.60		0.2598	3.90	4.42	6.10	99.0	112.2	155.00	8
6.70		0.2638	3.96	4.48	6.10	100.5	113.9	155.00	8
6.75	17/64	0.2656	3.99	4.52	6.30	101.3	114.8	160.00	8
6.80		0.2677	4.02	4.55	6.30	102.0	115.6	160.00	8
6.90		0.2717	4.07	4.62	6.30	103.5	117.3	160.00	8
7.00		0.2756	4.13	4.69	6.30	105.0	119.0	160.00	8
7.10		0.2795	4.19	4.75	6.50	106.5	120.7	165.00	8
7.14	9/32	0.2811	4.22	4.78	6.50	107.1	121.4	165.00	8
7.20		0.2835	4.25	4.82	6.50	108.0	122.4	165.00	8
7.30		0.2874	4.31	4.89	6.50	109.5	124.1	165.00	8
7.40		0.2913	4.37	4.95	6.50	111.0	125.8	165.00	8
7.50		0.2953	4.43	5.02	6.50	112.5	127.5	165.00	8
7.54	19/64	0.2969	4.45	5.05	6.69	113.1	128.2	170.00	8
7.60		0.2992	4.49	5.09	6.69	114.0	129.2	170.00	8
7.70		0.3031	4.55	5.15	6.69	115.5	130.9	170.00	8
7.80		0.3071	4.61	5.22	6.69	117.0	132.6	170.00	8
7.90		0.3110	4.67	5.29	6.89	118.5	134.3	175.00	8
7.94	5/16	0.3126	4.69	5.31	6.89	119.1	135.0	175.00	8
8.00		0.3150	4.72	5.35	6.89	120.0	136.0	175.00	8
8.10		0.3189	4.78	5.42	7.28	121.5	137.7	185.00	10
8.20		0.3228	4.84	5.49	7.28	123.0	139.4	185.00	10
8.30		0.3268	4.90	5.56	7.48	124.5	141.1	190.00	10
8.33	21/64	0.3281	4.92	5.58	7.48	125.0	141.6	190.00	10
8.40		0.3307	4.96	5.62	7.48	126.0	142.8	190.00	10
8.50		0.3346	5.02	5.69	7.48	127.5	144.5	190.00	10
8.60		0.3386	5.08	5.76	7.68	129.0	146.2	195.00	10
8.70		0.3425	5.14	5.82	7.68	130.5	147.9	195.00	10
8.73	11/32	0.3437	5.16	5.84	7.68	131.0	148.4	195.00	10
8.80		0.3465	5.20	5.89	7.87	132.0	149.6	200.00	10
8.90		0.3504	5.26	5.96	7.87	133.5	151.3	200.00	10
9.00		0.3543	5.31	6.02	7.87	135.0	153.0	200.00	10
9.10		0.3583	5.37	6.09	7.87	136.5	154.7	200.00	10
9.13	23/64	0.3594	5.39	6.11	8.07	137.0	155.2	205.00	10
9.20		0.3622	5.43	6.16	8.07	138.0	156.4	205.00	10
9.30		0.3661	5.49	6.22	8.07	139.5	158.1	205.00	10

HAM 30-1621 Recommended as pilot hole drill when using deep hole drill, see page 14.
For cutting data, see page 83.

Order example: 30-2381-0700

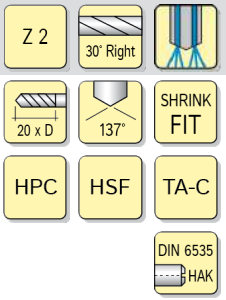
30-2381 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.40		0.3701	5.55	6.29	8.07	141.0	159.8	205.00	10
9.50		0.3740	5.61	6.36	8.27	142.5	161.5	210.00	10
9.53	3/8	0.3752	5.63	6.38	8.27	143.0	162.0	210.00	10
9.60		0.3780	5.67	6.43	8.27	144.0	163.2	210.00	10
9.70		0.3819	5.73	6.49	8.27	145.5	164.9	210.00	10
9.80		0.3858	5.79	6.56	8.46	147.0	166.6	215.00	10
9.90		0.3898	5.85	6.63	8.46	148.5	168.3	215.00	10
9.92	25/64	0.3906	5.86	6.64	8.46	148.8	168.6	215.00	10
10.00		0.3937	5.91	6.69	8.46	150.0	170.0	215.00	10
10.10		0.3976	5.96	6.76	8.86	151.5	171.7	225.00	12
10.20		0.4016	6.02	6.83	9.06	153.0	173.4	230.00	12
10.30		0.4055	6.08	6.89	9.06	154.5	175.1	230.00	12
10.32	13/32	0.4063	6.09	6.91	9.06	154.8	175.4	230.00	12
10.40		0.4094	6.14	6.96	9.06	156.0	176.8	230.00	12
10.50		0.4134	6.20	7.03	9.06	157.5	178.5	230.00	12
10.60		0.4173	6.26	7.09	9.25	159.0	180.2	235.00	12
10.70		0.4213	6.32	7.16	9.25	160.5	181.9	235.00	12
10.72	27/64	0.4219	6.33	7.17	9.25	160.8	182.2	235.00	12
10.80		0.4252	6.38	7.23	9.25	162.0	183.6	235.00	12
10.90		0.4291	6.44	7.30	9.45	163.5	185.3	240.00	12
11.00		0.4331	6.50	7.36	9.45	165.0	187.0	240.00	12
11.10		0.4370	6.56	7.43	9.45	166.5	188.7	240.00	12
11.11	7/16	0.4374	6.56	7.44	9.45	166.7	188.9	240.00	12
11.20		0.4409	6.61	7.50	9.65	168.0	190.4	245.00	12
11.30		0.4449	6.67	7.56	9.65	169.5	192.1	245.00	12
11.40		0.4488	6.73	7.63	9.65	171.0	193.8	245.00	12
11.50		0.4528	6.79	7.70	9.84	172.5	195.5	250.00	12
11.51	29/64	0.4531	6.80	7.70	9.84	172.70	195.7	250.00	12

30-2381 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
11.60		0.4567	6.85	7.76	9.84	174.0	197.2	250.00	12
11.70		0.4606	6.91	7.83	9.84	175.5	198.9	250.00	12
11.80		0.4646	6.97	7.90	10.04	177.0	200.6	255.00	12
11.90		0.4685	7.03	7.96	10.04	178.5	202.3	255.00	12
11.91	15/32	0.4689	7.03	7.97	10.04	178.7	202.5	255.00	12
12.00		0.4724	7.09	8.03	10.04	180.0	204.0	255.00	12
12.10		0.4764	7.15	8.10	10.24	181.5	205.7	260.00	14
12.20		0.4803	7.20	8.17	10.24	183.0	207.4	260.00	14
12.30	31/64	0.4844	7.26	8.23	10.24	184.50	209.1	260.00	14
12.40		0.4882	7.32	8.30	10.43	186.0	210.8	265.00	14
12.50		0.4921	7.38	8.37	10.43	187.5	212.5	265.00	14
12.60		0.4961	7.44	8.43	10.43	189.0	214.2	265.00	14
12.70	1/2	0.5000	7.50	8.50	10.63	190.5	215.9	270.00	14
12.80		0.5039	7.56	8.57	10.63	192.0	217.6	270.00	14
12.90		0.5079	7.62	8.63	10.63	193.5	219.3	270.00	14
13.00		0.5118	7.68	8.70	10.83	195.0	221.0	275.00	14
13.10	33/64	0.5156	7.74	8.77	10.83	196.5	222.7	275.00	14
13.20		0.5197	7.80	8.83	10.83	198.0	224.4	275.00	14
13.30		0.5236	7.85	8.90	11.02	199.5	226.1	280.00	14
13.40		0.5276	7.91	8.97	11.02	201.0	227.8	280.00	14
13.49	17/32	0.5311	7.97	9.03	11.02	202.4	229.3	280.00	14
13.50		0.5315	7.97	9.04	11.02	202.5	229.5	280.00	14
13.60		0.5354	8.03	9.10	11.22	204.0	231.2	285.00	14
13.70		0.5394	8.09	9.17	11.22	205.5	232.9	285.00	14
13.80		0.5433	8.15	9.24	11.22	207.0	234.6	285.00	14
13.89	35/64	0.5469	8.20	9.30	11.22	208.4	236.1	285.00	14
13.90		0.5472	8.21	9.30	11.22	208.5	236.3	285.00	14
14.00		0.5512	8.27	9.37	11.22	210.0	238.0	285.00	14

HAM 30-1621 Recommended as pilot hole drill when using deep hole drill, see page 14.
For cutting data, see page 83.

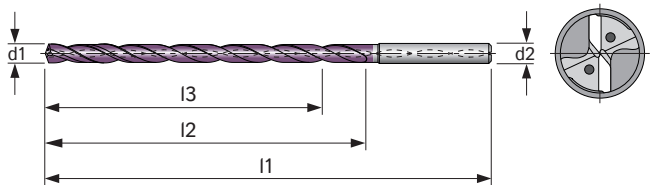
Order example: 30-2381-0700

HAM 30-2421 — Solid Carbide Deep Hole Drill — 20 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2421			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-2421 Ø d1 (h7) mm	30-2421 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	2.36	2.60	4.33	60.00	66.0	110.00	6
3.10		0.1220	2.44	2.69	4.33	62.00	68.2	110.00	6
3.17	1/8	0.1248	2.50	2.75	4.53	63.40	69.7	115.00	6
3.20		0.1260	2.52	2.77	4.53	64.00	70.4	115.00	6
3.30		0.1299	2.60	2.86	4.53	66.00	72.6	115.00	6
3.40		0.1339	2.68	2.94	4.72	68.00	74.8	120.00	6
3.50		0.1378	2.76	3.03	4.72	70.00	77.0	120.00	6
3.57	9/64	0.1406	2.81	3.09	4.72	71.40	78.5	120.00	6
3.60		0.1417	2.83	3.12	4.92	72.00	79.2	125.00	6
3.70		0.1457	2.91	3.20	4.92	74.00	81.4	125.00	6
3.80		0.1496	2.99	3.29	5.12	76.00	83.6	130.00	6
3.90		0.1535	3.07	3.38	5.12	78.00	85.8	130.00	6
3.97	5/32	0.1563	3.13	3.44	5.12	79.40	87.3	130.00	6
4.00		0.1575	3.15	3.46	5.12	80.00	88.0	130.00	6
4.10		0.1614	3.23	3.55	5.31	82.00	90.2	135.00	6
4.20		0.1654	3.31	3.64	5.51	84.00	92.4	140.00	6
4.30		0.1693	3.39	3.72	5.51	86.00	94.6	140.00	6
4.37	11/64	0.1720	3.44	3.79	5.51	87.40	96.1	140.00	6
4.40		0.1732	3.46	3.81	5.51	88.00	96.8	140.00	6
4.50		0.1772	3.54	3.90	5.51	90.00	99.0	140.00	6
4.60		0.1811	3.62	3.98	5.71	92.00	101.2	145.00	6
4.70		0.1850	3.70	4.07	5.71	94.00	103.4	145.00	6
4.76	3/16	0.1874	3.75	4.12	5.71	95.20	104.7	145.00	6
4.80		0.1890	3.78	4.16	5.91	96.00	105.6	150.00	6
4.90		0.1929	3.86	4.24	5.91	98.00	107.8	150.00	6
5.00		0.1969	3.94	4.33	5.91	100.00	110.0	150.00	6
5.10		0.2008	4.02	4.42	6.10	102.00	112.2	155.00	6
5.16	13/64	0.2031	4.06	4.47	6.10	103.20	113.5	155.00	6
5.20		0.2047	4.09	4.50	6.30	104.00	114.4	160.00	6
5.30		0.2087	4.17	4.59	6.30	106.00	116.6	160.00	6
5.40		0.2126	4.25	4.68	6.30	108.00	118.8	160.00	6
5.50		0.2165	4.33	4.76	6.30	110.00	121.0	160.00	6
5.55	19/87	0.2185	4.37	4.81	6.30	111.00	122.1	160.00	6
5.60		0.2205	4.41	4.85	6.50	112.00	123.2	165.00	6
5.70		0.2244	4.49	4.94	6.69	114.00	125.4	170.00	6
5.80		0.2283	4.57	5.02	6.69	116.00	127.6	170.00	6
5.90		0.2323	4.65	5.11	6.69	118.00	129.8	170.00	6
5.95	15/64	0.2343	4.69	5.15	6.69	119.00	130.9	170.00	6
6.00		0.2362	4.72	5.20	6.69	120.00	132.0	170.00	6
6.10		0.2402	4.80	5.28	6.89	122.00	134.2	175.00	8

30-2421 Ø d1 (h7) mm	30-2421 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
6.20		0.2441	4.88	5.37	7.09	124.00	136.4	180.00	8
6.30		0.2480	4.96	5.46	7.09	126.00	138.6	180.00	8
6.35	1/4	0.2500	5.00	5.50	7.09	127.00	139.7	180.00	8
6.40		0.2520	5.04	5.54	7.28	128.00	140.8	185.00	8
6.50		0.2559	5.12	5.63	7.28	130.00	143.0	185.00	8
6.60		0.2598	5.20	5.72	7.48	132.00	145.2	190.00	8
6.70		0.2638	5.28	5.80	7.48	134.00	147.4	190.00	8
6.75	17/64	0.2656	5.31	5.85	7.48	135.00	148.5	190.00	8
6.80		0.2677	5.35	5.89	7.68	136.00	149.6	195.00	8
6.90		0.2717	5.43	5.98	7.68	138.00	151.8	195.00	8
7.00		0.2756	5.51	6.06	7.68	140.00	154.0	195.00	8
7.10		0.2795	5.59	6.15	7.68	142.00	156.2	195.00	8
7.14	9/32	0.2811	5.62	6.18	7.68	142.80	157.1	195.00	8
7.20		0.2835	5.67	6.24	7.87	144.00	158.4	200.00	8
7.30		0.2874	5.75	6.32	8.07	146.00	160.6	205.00	8
7.40		0.2913	5.83	6.41	8.07	148.00	162.8	205.00	8
7.50		0.2953	5.91	6.50	8.27	150.00	165.0	210.00	8
7.54	19/64	0.2969	5.94	6.53	8.27	150.80	165.9	210.00	8
7.60		0.2992	5.98	6.58	8.27	152.00	167.2	210.00	8
7.70		0.3031	6.06	6.67	8.46	154.00	169.4	215.00	8
7.80		0.3071	6.14	6.76	8.46	156.00	171.6	215.00	8
7.90		0.3110	6.22	6.84	8.46	158.00	173.8	215.00	8
7.94	5/16	0.3126	6.25	6.88	8.46	158.80	174.7	215.00	8
8.00		0.3150	6.30	6.93	8.46	160.00	176.0	215.00	8
8.10		0.3189	6.38	7.02	8.86	162.00	178.2	225.00	10
8.20		0.3228	6.46	7.10	8.86	164.00	180.4	225.00	10
8.30		0.3268	6.54	7.19	8.86	166.00	182.6	225.00	10
8.33	21/64	0.3281	6.56	7.21	9.06	166.60	183.3	230.00	10
8.40		0.3307	6.61	7.28	9.06	168.00	184.8	230.00	10
8.50		0.3346	6.69	7.36	9.06	170.00	187.0	230.00	10
8.60		0.3386	6.77	7.45	9.25	172.00	189.2	235.00	10
8.70		0.3425	6.85	7.54	9.25	174.00	191.4	235.00	10
8.73	11/32	0.3437	6.87	7.56	9.25	174.60	192.1	235.00	10
8.80		0.3465	6.93	7.62	9.45	176.00	193.6	240.00	10
8.90		0.3504	7.01	7.71	9.65	178.00	195.8	245.00	10
9.00		0.3543	7.09	7.80	9.84	180.00	198.0	250.00	10
9.10		0.3583	7.17	7.88	9.84	182.00	200.2	250.00	10
9.13	23/64	0.3594	7.19	7.91	9.84	182.60	200.9	250.00	10
9.20		0.3622	7.24	7.97	9.84	184.00	202.4	250.00	10
9.30		0.3661	7.32	8.06	9.84	186.00	204.6	250.00	10

HAM 30-1621 Recommended as pilot hole drill when using deep hole drill, see page 14.
For cutting data, see page 83.

Order example: 30-2421-0700

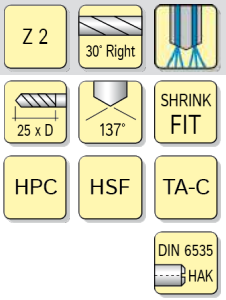
30-2421 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.40		0.3701	7.40	8.14	10.04	188.00	206.8	255.00	10
9.50		0.3740	7.48	8.23	10.04	190.00	209.0	255.00	10
9.53	3/8	0.3752	7.50	8.25	10.04	190.60	209.7	255.00	10
9.60		0.3780	7.56	8.31	10.24	192.00	211.2	260.00	10
9.70		0.3819	7.64	8.40	10.24	194.00	213.4	260.00	10
9.80		0.3858	7.72	8.49	10.43	196.00	215.6	265.00	10
9.90		0.3898	7.80	8.57	10.43	198.00	217.8	265.00	10
9.92	25/64	0.3906	7.81	8.59	10.43	198.40	218.2	265.00	10
10.00		0.3937	7.87	8.66	10.43	200.00	220.0	265.00	10
10.10		0.3976	7.95	8.75	10.83	202.00	222.2	275.00	12
10.20		0.4016	8.03	8.83	10.83	204.00	224.4	275.00	12
10.30		0.4055	8.11	8.92	11.02	206.00	226.6	280.00	12
10.32	13/32	0.4063	8.13	8.94	11.02	206.40	227.0	280.00	12
10.40		0.4094	8.19	9.01	11.02	208.00	228.8	280.00	12
10.50		0.4134	8.27	9.09	11.22	210.00	231.0	285.00	12
10.60		0.4173	8.35	9.18	11.22	212.00	233.2	285.00	12
10.70		0.4213	8.43	9.27	11.42	214.00	235.4	290.00	12
10.72	27/64	0.4219	8.44	9.29	11.42	214.40	235.8	290.00	12
10.80		0.4252	8.50	9.35	11.61	216.00	237.6	295.00	12
10.90		0.4291	8.58	9.44	11.61	218.00	239.8	295.00	12
11.00		0.4331	8.66	9.53	11.61	220.00	242.0	295.00	12
11.10		0.4370	8.74	9.61	11.61	222.00	244.2	295.00	12
11.11	7/16	0.4374	8.75	9.62	11.61	222.20	244.4	295.00	12
11.20		0.4409	8.82	9.70	11.81	224.00	246.4	300.00	12
11.30		0.4449	8.90	9.79	11.81	226.00	248.6	300.00	12
11.40		0.4488	8.98	9.87	12.01	228.00	250.8	305.00	12
11.50		0.4528	9.06	9.96	12.01	230.00	253.0	305.00	12
11.51	29/64	0.4531	9.06	9.97	12.01	230.20	253.2	305.00	12

30-2421 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
11.60		0.4567	9.13	10.05	12.20	232.00	255.2	310.00	12
11.70		0.4606	9.21	10.13	12.20	234.00	257.4	310.00	12
11.80		0.4646	9.29	10.22	12.40	236.00	259.6	315.00	12
11.90		0.4685	9.37	10.31	12.40	238.00	261.8	315.00	12
11.91	15/32	0.4689	9.38	10.32	12.40	238.20	262.0	315.00	12
12.00		0.4724	9.45	10.39	12.40	240.00	264.0	315.00	12
12.10		0.4764	9.53	10.48	12.60	242.00	266.2	320.00	14
12.20		0.4803	9.61	10.57	12.60	244.00	268.4	320.00	14
12.30	31/64	0.4844	9.69	10.65	12.80	246.00	270.6	325.00	14
12.40		0.4882	9.76	10.74	12.80	248.00	272.8	325.00	14
12.50		0.4921	9.84	10.83	12.80	250.00	275.0	325.00	14
12.60		0.4961	9.92	10.91	12.99	252.00	277.2	330.00	14
12.70	1/2	0.5000	10.00	11.00	12.99	254.00	279.4	330.00	14
12.80		0.5039	10.08	11.09	13.19	256.00	281.6	335.00	14
12.90		0.5079	10.16	11.17	13.19	258.00	283.8	335.00	14
13.00		0.5118	10.24	11.26	13.39	260.00	286.0	340.00	14
13.10	33/64	0.5156	10.31	11.35	13.39	262.00	288.2	340.00	14
13.20		0.5197	10.39	11.43	13.58	264.00	290.4	345.00	14
13.30		0.5236	10.47	11.52	13.58	266.00	292.6	345.00	14
13.40		0.5276	10.55	11.61	13.58	268.00	294.8	345.00	14
13.49	17/32	0.5311	10.62	11.68	13.78	269.80	296.8	350.00	14
13.50		0.5315	10.63	11.69	13.78	270.00	297.0	350.00	14
13.60		0.5354	10.71	11.78	13.78	272.00	299.2	350.00	14
13.70		0.5394	10.79	11.87	13.98	274.00	301.4	355.00	14
13.80		0.5433	10.87	11.95	13.98	276.00	303.6	355.00	14
13.89	35/64	0.5469	10.94	12.03	14.17	277.80	305.6	360.00	14
13.90		0.5472	10.94	12.04	14.17	278.00	305.8	360.00	14
14.00		0.5512	11.02	12.13	14.17	280.00	308.0	360.00	14

HAM 30-1621 Recommended as pilot hole drill when using deep hole drill, see page 14.
For cutting data, see page 83.

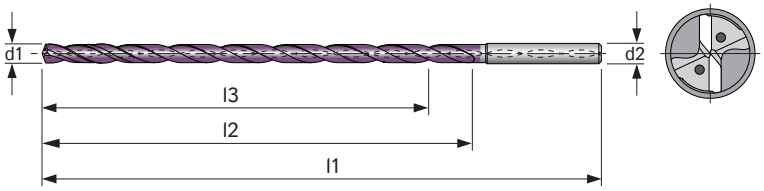
Order example: 30-2421-0700

HAM 30-2461 — Solid Carbide Deep Hole Drill — 25 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2461			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-2461 Ø d1 (h7) mm	30-2461 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	2.95	3.19	4.92	75.00	81.0	125.00	6
3.10		0.1220	3.05	3.30	4.92	77.50	83.7	125.00	6
3.17	1/8	0.1248	3.12	3.37	5.12	79.25	85.6	130.00	6
3.20		0.1260	3.15	3.40	5.12	80.00	86.4	130.00	6
3.30		0.1299	3.25	3.51	5.51	82.50	89.1	140.00	6
3.40		0.1339	3.35	3.61	5.51	85.00	91.8	140.00	6
3.50		0.1378	3.44	3.72	5.51	87.50	94.5	140.00	6
3.57	9/64	0.1406	3.51	3.79	5.51	89.25	96.4	140.00	6
3.60		0.1417	3.54	3.83	5.51	90.00	97.2	140.00	6
3.70		0.1457	3.64	3.93	5.71	92.50	99.9	145.00	6
3.80		0.1496	3.74	4.04	5.91	95.00	102.6	150.00	6
3.90		0.1535	3.84	4.15	5.91	97.50	105.3	150.00	6
3.97	5/32	0.1563	3.91	4.22	5.91	99.25	107.2	150.00	6
4.00		0.1575	3.94	4.25	5.91	100.00	108.0	150.00	6
4.10		0.1614	4.04	4.36	6.10	102.50	110.7	155.00	6
4.20		0.1654	4.13	4.46	6.30	105.00	113.4	160.00	6
4.30		0.1693	4.23	4.57	6.30	107.50	116.1	160.00	6
4.37	11/64	0.1720	4.30	4.65	6.30	109.25	118.0	160.00	6
4.40		0.1732	4.33	4.68	6.30	110.00	118.8	160.00	6
4.50		0.1772	4.43	4.78	6.50	112.50	121.5	165.00	6
4.60		0.1811	4.53	4.89	6.69	115.00	124.2	170.00	6
4.70		0.1850	4.63	5.00	6.69	117.50	126.9	170.00	6
4.76	3/16	0.1874	4.69	5.06	6.69	119.00	128.5	170.00	6
4.80		0.1890	4.72	5.10	6.89	120.00	129.6	175.00	6
4.90		0.1929	4.82	5.21	6.89	122.50	132.3	175.00	6
5.00		0.1969	4.92	5.31	6.89	125.00	135.0	175.00	6
5.10		0.2008	5.02	5.42	7.09	127.50	137.7	180.00	6
5.16	13/64	0.2031	5.08	5.49	7.28	129.00	139.3	185.00	6
5.20		0.2047	5.12	5.53	7.28	130.00	140.4	185.00	6
5.30		0.2087	5.22	5.63	7.28	132.50	143.1	185.00	6
5.40		0.2126	5.31	5.74	7.48	135.00	145.8	190.00	6
5.50		0.2165	5.41	5.85	7.48	137.50	148.5	190.00	6
5.55	19/87	0.2185	5.46	5.90	7.68	138.75	149.9	195.00	6
5.60		0.2205	5.51	5.95	7.68	140.00	151.2	195.00	6
5.70		0.2244	5.61	6.06	7.68	142.50	153.9	195.00	6
5.80		0.2283	5.71	6.17	7.87	145.00	156.6	200.00	6
5.90		0.2323	5.81	6.27	7.87	147.50	159.3	200.00	6
5.95	15/64	0.2343	5.86	6.32	7.87	148.75	160.7	200.00	6
6.00		0.2362	5.91	6.38	7.87	150.00	162.0	200.00	6
6.10		0.2402	6.00	6.48	8.27	152.50	164.7	210.00	8

30-2461 Ø d1 (h7) mm	30-2461 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
6.20		0.2441	6.10	6.59	8.27	155.00	167.4	210.00	8
6.30		0.2480	6.20	6.70	8.46	157.50	170.1	215.00	8
6.35	1/4	0.2500	6.25	6.75	8.46	158.75	171.5	215.00	8
6.40		0.2520	6.30	6.80	8.46	160.00	172.8	215.00	8
6.50		0.2559	6.40	6.91	8.46	162.50	175.5	215.00	8
6.60		0.2598	6.50	7.02	8.66	165.00	178.2	220.00	8
6.70		0.2638	6.59	7.12	8.86	167.50	180.9	225.00	8
6.75	17/64	0.2656	6.64	7.18	8.86	168.75	182.3	225.00	8
6.80		0.2677	6.69	7.23	9.06	170.00	183.6	230.00	8
6.90		0.2717	6.79	7.33	9.06	172.50	186.3	230.00	8
7.00		0.2756	6.89	7.44	9.06	175.00	189.0	230.00	8
7.10		0.2795	6.99	7.55	9.25	177.50	191.7	235.00	8
7.14	9/32	0.2811	7.03	7.59	9.25	178.50	192.8	235.00	8
7.20		0.2835	7.09	7.65	9.25	180.00	194.4	235.00	8
7.30		0.2874	7.19	7.76	9.25	182.50	197.1	235.00	8
7.40		0.2913	7.28	7.87	9.65	185.00	199.8	245.00	8
7.50		0.2953	7.38	7.97	10.04	187.50	202.5	255.00	8
7.54	19/64	0.2969	7.42	8.01	10.04	188.50	203.6	255.00	8
7.60		0.2992	7.48	8.08	10.04	190.00	205.2	255.00	8
7.70		0.3031	7.58	8.19	10.04	192.50	207.9	255.00	8
7.80		0.3071	7.68	8.29	10.04	195.00	210.6	255.00	8
7.90		0.3110	7.78	8.40	10.04	197.50	213.3	255.00	8
7.94	5/16	0.3126	7.81	8.44	10.04	198.50	214.4	255.00	8
8.00		0.3150	7.87	8.50	10.04	200.00	216.0	255.00	8
8.10		0.3189	7.97	8.61	10.43	202.50	218.7	265.00	10
8.20		0.3228	8.07	8.72	10.63	205.00	221.4	270.00	10
8.30		0.3268	8.17	8.82	10.63	207.50	224.1	270.00	10
8.33	21/64	0.3281	8.20	8.85	10.63	208.25	224.9	270.00	10
8.40		0.3307	8.27	8.93	10.83	210.00	226.8	275.00	10
8.50		0.3346	8.37	9.04	11.22	212.50	229.5	285.00	10
8.60		0.3386	8.46	9.14	11.22	215.00	232.2	285.00	10
8.70		0.3425	8.56	9.25	11.22	217.50	234.9	285.00	10
8.73	11/32	0.3437	8.59	9.28	11.22	218.25	235.7	285.00	10
8.80		0.3465	8.66	9.35	12.20	220.00	237.6	310.00	10
8.90		0.3504	8.76	9.46	12.20	222.50	240.3	310.00	10
9.00		0.3543	8.86	9.57	12.20	225.00	243.0	310.00	10
9.10		0.3583	8.96	9.67	12.20	227.50	245.7	310.00	10
9.13	23/64	0.3594	8.99	9.71	12.20	228.25	246.5	310.00	10
9.20		0.3622	9.06	9.78	12.20	230.00	248.4	310.00	10
9.30		0.3661	9.15	9.89	12.20	232.50	251.1	310.00	10

HAM 30-1621 Recommended as pilot hole drill when using deep hole drill, see page 14.
For cutting data, see page 83.

Order example: 30-2461-0600

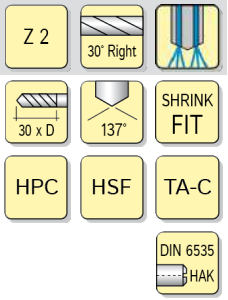
30-2461 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.40		0.3701	9.25	9.99	12.20	235.00	253.8	310.00	10
9.50		0.3740	9.35	10.10	12.20	237.50	256.5	310.00	10
9.53	3/8	0.3752	9.38	10.13	12.20	238.25	257.3	310.00	10
9.60		0.3780	9.45	10.20	12.20	240.00	259.2	310.00	10
9.70		0.3819	9.55	10.31	12.20	242.50	261.9	310.00	10
9.80		0.3858	9.65	10.42	12.20	245.00	264.6	310.00	10
9.90		0.3898	9.74	10.52	12.40	247.50	267.3	315.00	10
9.92	25/64	0.3906	9.76	10.54	12.40	248.00	267.8	315.00	10
10.00		0.3937	9.84	10.63	12.40	250.00	270.0	315.00	10
10.10		0.3976	9.94	10.74	12.80	252.50	272.7	325.00	12
10.20		0.4016	10.04	10.84	12.80	255.00	275.4	325.00	12
10.30		0.4055	10.14	10.95	12.99	257.50	278.1	330.00	12
10.32	13/32	0.4063	10.16	10.97	12.99	258.00	278.6	330.00	12
10.40		0.4094	10.24	11.06	13.19	260.00	280.8	335.00	12
10.50		0.4134	10.33	11.16	13.19	262.50	283.5	335.00	12
10.60		0.4173	10.43	11.27	13.39	265.00	286.2	340.00	12
10.70		0.4213	10.53	11.37	13.39	267.50	288.9	340.00	12
10.72	27/64	0.4219	10.55	11.40	13.39	268.00	289.4	340.00	12
10.80		0.4252	10.63	11.48	13.39	270.00	291.6	340.00	12
10.90		0.4291	10.73	11.59	13.58	272.50	294.3	345.00	12
11.00		0.4331	10.83	11.69	13.78	275.00	297.0	350.00	12
11.10		0.4370	10.93	11.80	13.78	277.50	299.7	350.00	12

30-2461 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
11.11	7/16	0.4374	10.94	11.81	13.78	277.75	300.0	350.00	12
11.20		0.4409	11.02	11.91	13.98	280.00	302.4	355.00	12
11.30		0.4449	11.12	12.01	14.17	282.50	305.1	360.00	12
11.40		0.4488	11.22	12.12	14.17	285.00	307.8	360.00	12
11.50		0.4528	11.32	12.22	14.17	287.50	310.5	360.00	12
11.51	29/64	0.4531	11.33	12.24	14.37	287.75	310.8	365.00	12
11.60		0.4567	11.42	12.33	14.37	290.00	313.2	365.00	12
11.70		0.4606	11.52	12.44	14.57	292.50	315.9	370.00	12
11.80		0.4646	11.61	12.54	14.76	295.00	318.6	375.00	12
11.90		0.4685	11.71	12.65	14.76	297.50	321.3	375.00	12
11.91	15/32	0.4689	11.72	12.66	14.76	297.75	321.6	375.00	12
12.00		0.4724	11.81	12.76	14.76	300.00	324.0	375.00	12
12.10		0.4764	11.91	12.86	14.96	302.50	326.7	380.00	14
12.20		0.4803	12.01	12.97	14.96	305.00	329.4	380.00	14
12.30	31/64	0.4844	12.11	13.07	15.16	307.50	332.1	385.00	14
12.40		0.4882	12.20	13.18	15.16	310.00	334.8	385.00	14
12.50		0.4921	12.30	13.29	15.35	312.50	337.5	390.00	14
12.60		0.4961	12.40	13.39	15.55	315.00	340.2	395.00	14
12.70	1/2	0.5000	12.50	13.50	15.55	317.50	342.9	395.00	14
12.80		0.5039	12.60	13.61	15.75	320.00	345.6	400.00	14
12.90		0.5079	12.70	13.71	15.75	322.50	348.3	400.00	14
12.90		0.5079	12.70	13.71	15.75	322.50	348.3	400.00	14

HAM 30-1621 Recommended as pilot hole drill when using deep hole drill, see page 14.
For cutting data, see page 83.

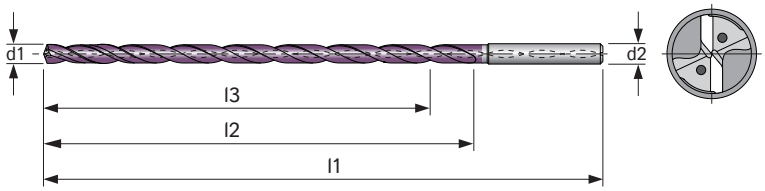
Order example: 30-2461-0600

HAM 30-2501 — Solid Carbide Deep Hole Drill — 30 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2501			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

30-2501 Ø d1 (h7) mm	30-2501 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	3.54	3.78	5.51	90.00	96.0	140.00	6
3.10		0.1220	3.66	3.91	5.71	93.00	99.2	145.00	6
3.17	1/8	0.1248	3.74	3.99	5.71	95.10	101.4	145.00	6
3.20		0.1260	3.78	4.03	5.91	96.00	102.4	150.00	6
3.30		0.1299	3.90	4.16	5.91	99.00	105.6	150.00	6
3.40		0.1339	4.02	4.28	5.91	102.00	108.8	150.00	6
3.50		0.1378	4.13	4.41	6.10	105.00	112.0	155.00	6
3.57	9/64	0.1406	4.22	4.50	6.30	107.10	114.2	160.00	6
3.60		0.1417	4.25	4.54	6.30	108.00	115.2	160.00	6
3.70		0.1457	4.37	4.66	6.30	111.00	118.4	160.00	6
3.80		0.1496	4.49	4.79	6.69	114.00	121.6	170.00	6
3.90		0.1535	4.61	4.91	6.69	117.00	124.8	170.00	6
3.97	5/32	0.1563	4.69	5.00	6.69	119.10	127.0	170.00	6
4.00		0.1575	4.72	5.04	6.69	120.00	128.0	170.00	6
4.10		0.1614	4.84	5.17	6.89	123.00	131.2	175.00	6
4.20		0.1654	4.96	5.29	7.28	126.00	134.4	185.00	6
4.30		0.1693	5.08	5.42	7.28	129.00	137.6	185.00	6
4.37	11/64	0.1720	5.16	5.51	7.28	131.10	139.8	185.00	6
4.40		0.1732	5.20	5.54	7.28	132.00	140.8	185.00	6
4.50		0.1772	5.31	5.67	7.28	135.00	144.0	185.00	6
4.60		0.1811	5.43	5.80	7.48	138.00	147.2	190.00	6
4.70		0.1850	5.55	5.92	7.68	141.00	150.4	195.00	6
4.76	3/16	0.1874	5.62	6.00	7.68	142.80	152.3	195.00	6
4.80		0.1890	5.67	6.05	7.87	144.00	153.6	200.00	6
4.90		0.1929	5.79	6.17	7.87	147.00	156.8	200.00	6
5.00		0.1969	5.91	6.30	7.87	150.00	160.0	200.00	6
5.10		0.2008	6.02	6.43	8.07	153.00	163.2	205.00	6
5.16	13/64	0.2031	6.09	6.50	8.27	154.80	165.1	210.00	6
5.20		0.2047	6.14	6.55	8.27	156.00	166.4	210.00	6
5.30		0.2087	6.26	6.68	8.46	159.00	169.6	215.00	6
5.40		0.2126	6.38	6.80	8.46	162.00	172.8	215.00	6
5.50		0.2165	6.50	6.93	8.46	165.00	176.0	215.00	6
5.55	19/87	0.2185	6.56	6.99	8.66	166.50	177.6	220.00	6
5.60		0.2205	6.61	7.06	8.86	168.00	179.2	225.00	6
5.70		0.2244	6.73	7.18	8.86	171.00	182.4	225.00	6
5.80		0.2283	6.85	7.31	9.06	174.00	185.6	230.00	6
5.90		0.2323	6.97	7.43	9.06	177.00	188.8	230.00	6
5.95	15/64	0.2343	7.03	7.50	9.06	178.50	190.4	230.00	6
6.00		0.2362	7.09	7.56	9.06	180.00	192.0	230.00	6
6.10		0.2402	7.20	7.69	9.45	183.00	195.2	240.00	8

30-2501 Ø d1 (h7) mm	30-2501 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
6.20		0.2441	7.32	7.81	9.45	186.00	198.4	240.00	8
6.30		0.2480	7.44	7.94	9.65	189.00	201.6	245.00	8
6.35	1/4	0.2500	7.50	8.00	9.65	190.50	203.2	245.00	8
6.40		0.2520	7.56	8.06	9.84	192.00	204.8	250.00	8
6.50		0.2559	7.68	8.19	9.84	195.00	208.0	250.00	8
6.60		0.2598	7.80	8.31	10.04	198.00	211.2	255.00	8
6.70		0.2638	7.91	8.44	10.24	201.00	214.4	260.00	8
6.75	17/64	0.2656	7.97	8.50	10.24	202.50	216.0	260.00	8
6.80		0.2677	8.03	8.57	10.43	204.00	217.6	265.00	8
6.90		0.2717	8.15	8.69	10.43	207.00	220.8	265.00	8
7.00		0.2756	8.27	8.82	10.43	210.00	224.0	265.00	8
7.10		0.2795	8.39	8.94	10.63	213.00	227.2	270.00	8
7.14	9/32	0.2811	8.43	9.00	10.63	214.20	228.5	270.00	8
7.20		0.2835	8.50	9.07	10.83	216.00	230.4	275.00	8
7.30		0.2874	8.62	9.20	10.83	219.00	233.6	275.00	8
7.40		0.2913	8.74	9.32	11.02	222.00	236.8	280.00	8
7.50		0.2953	8.86	9.45	11.02	225.00	240.0	280.00	8
7.54	19/64	0.2969	8.91	9.50	11.22	226.20	241.3	285.00	8
7.60		0.2992	8.98	9.57	11.22	228.00	243.2	285.00	8
7.70		0.3031	9.09	9.70	11.42	231.00	246.4	290.00	8
7.80		0.3071	9.21	9.83	11.61	234.00	249.6	295.00	8
7.90		0.3110	9.33	9.95	11.61	237.00	252.8	295.00	8
7.94	5/16	0.3126	9.38	10.00	11.61	238.20	254.1	295.00	8
8.00		0.3150	9.45	10.08	11.61	240.00	256.0	295.00	8
8.10		0.3189	9.57	10.20	12.01	243.00	259.2	305.00	10
8.20		0.3228	9.69	10.33	12.20	246.00	262.4	310.00	10
8.30		0.3268	9.80	10.46	12.40	249.00	265.6	315.00	10
8.33	21/64	0.3281	9.84	10.49	12.40	249.90	266.6	315.00	10
8.40		0.3307	9.92	10.58	12.40	252.00	268.8	315.00	10
8.50		0.3346	10.04	10.71	12.40	255.00	272.0	315.00	10
8.60		0.3386	10.16	10.83	12.80	258.00	275.2	325.00	10
8.70		0.3425	10.28	10.96	12.80	261.00	278.4	325.00	10
8.73	11/32	0.3437	10.31	11.00	12.80	261.90	279.4	325.00	10
8.80		0.3465	10.39	11.09	12.80	264.00	281.6	325.00	10
8.90		0.3504	10.51	11.21	12.99	267.00	284.8	330.00	10
9.00		0.3543	10.63	11.34	13.19	270.00	288.0	335.00	10
9.10		0.3583	10.75	11.46	13.39	273.00	291.2	340.00	10
9.13	23/64	0.3594	10.78	11.50	13.39	273.90	292.2	340.00	10
9.20		0.3622	10.87	11.59	13.39	276.00	294.4	340.00	10
9.30		0.3661	10.98	11.72	13.58	279.00	297.6	345.00	10

HAM 30-1621 Recommended as pilot hole drill when using deep hole drill, see page 14.
For cutting data, see page 83.

Order example: 30-2501-0600

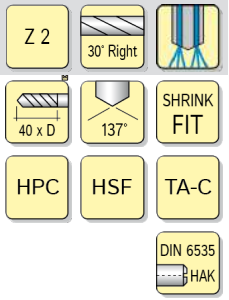
30-2501 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.40		0.3701	11.10	11.84	13.78	282.00	300.8	350.00	10
9.50		0.3740	11.22	11.97	13.78	285.00	304.0	350.00	10
9.53	3/8	0.3752	11.26	12.01	13.78	285.90	305.0	350.00	10
9.60		0.3780	11.34	12.09	13.98	288.00	307.2	355.00	10
9.70		0.3819	11.46	12.22	14.17	291.00	310.4	360.00	10
9.80		0.3858	11.57	12.35	14.17	294.00	313.6	360.00	10
9.90		0.3898	11.69	12.47	14.37	297.00	316.8	365.00	10
9.92	25/64	0.3906	11.72	12.50	14.37	297.60	317.4	365.00	10
10.00		0.3937	11.81	12.60	14.37	300.00	320.0	365.00	10
10.10		0.3976	11.93	12.72	14.76	303.00	323.2	375.00	12
10.20		0.4016	12.05	12.85	14.76	306.00	326.4	375.00	12

HAM 30-1621 Recommended as pilot hole drill when using deep hole drill, see page 14.
For cutting data, see page 83.

30-2501 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
10.30		0.4055	12.17	12.98	14.96	309.00	329.6	380.00	12
10.32	13/32	0.4063	12.19	13.00	15.16	309.60	330.2	385.00	12
10.40		0.4094	12.28	13.10	15.16	312.00	332.8	385.00	12
10.50		0.4134	12.40	13.23	15.35	315.00	336.0	390.00	12
10.60		0.4173	12.52	13.35	15.35	318.00	339.2	390.00	12
10.70		0.4213	12.64	13.48	15.55	321.00	342.4	395.00	12
10.72	27/64	0.4219	12.66	13.51	15.55	321.60	343.0	395.00	12
10.80		0.4252	12.76	13.61	15.55	324.00	345.6	395.00	12
10.90		0.4291	12.87	13.73	15.75	327.00	348.8	400.00	12
11.00		0.4331	12.99	13.86	15.75	330.00	352.0	400.00	12

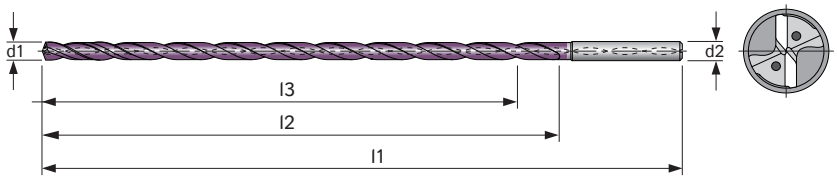
Order example: 30-2501-0600

HAM 30-2541 — Solid Carbide Deep Hole Drill — 40 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 4 guide chamfer



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2541			●	●	○				●	○	●	●	○	○			●	●		

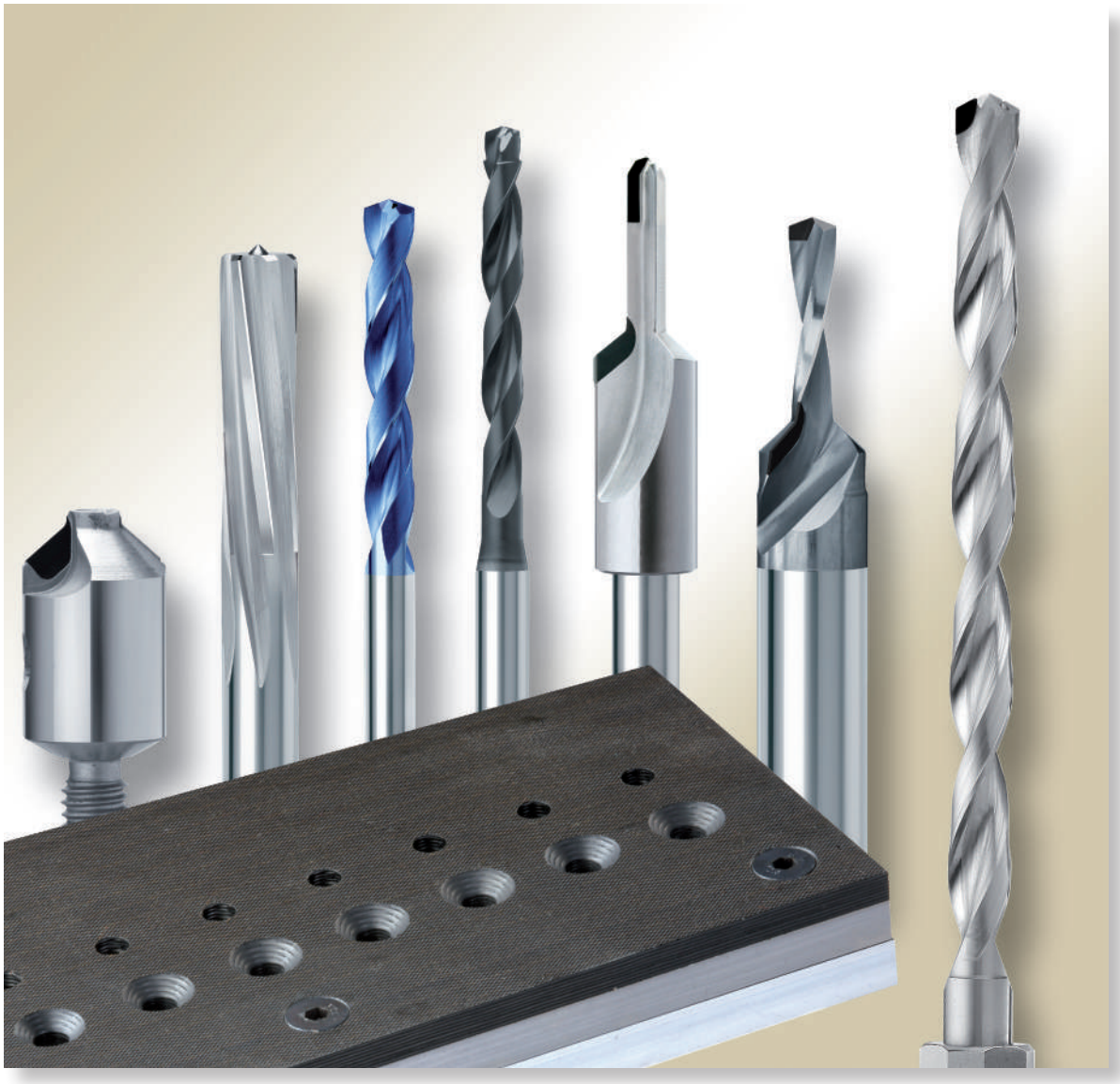
● very suitable ○ suitable

30-2541 Ø d1 (h7) mm	30-2541 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	4.72	4.96	6.69	120.00	126.0	170.00	6
3.10		0.1220	4.88	5.13	6.89	124.00	130.2	175.00	6
3.17	1/8	0.1248	4.99	5.24	6.89	126.80	133.1	175.00	6
3.20		0.1260	5.04	5.29	7.09	128.00	134.4	180.00	6
3.30		0.1299	5.20	5.46	7.09	132.00	138.6	180.00	6
3.40		0.1339	5.35	5.62	7.28	136.00	142.8	185.00	6
3.50		0.1378	5.51	5.79	7.48	140.00	147.0	190.00	6
3.57	9/64	0.1406	5.62	5.90	7.48	142.80	149.9	190.00	6
3.60		0.1417	5.67	5.95	7.68	144.00	151.2	195.00	6
3.70		0.1457	5.83	6.12	7.87	148.00	155.4	200.00	6
3.80		0.1496	5.98	6.28	8.07	152.00	159.6	205.00	6
3.90		0.1535	6.14	6.45	8.07	156.00	163.8	205.00	6
3.97	5/32	0.1563	6.25	6.56	8.27	158.80	166.7	210.00	6
4.00		0.1575	6.30	6.61	8.27	160.00	168.0	210.00	6
4.10		0.1614	6.46	6.78	8.46	164.00	172.2	215.00	6
4.20		0.1654	6.61	6.94	8.66	168.00	176.4	220.00	6
4.30		0.1693	6.77	7.11	8.86	172.00	180.6	225.00	6
4.37	11/64	0.1720	6.88	7.23	8.86	174.80	183.5	225.00	6
4.40		0.1732	6.93	7.28	9.06	176.00	184.8	230.00	6
4.50		0.1772	7.09	7.44	9.06	180.00	189.0	230.00	6
4.60		0.1811	7.24	7.61	9.25	184.00	193.2	235.00	6
4.70		0.1850	7.40	7.77	9.45	188.00	197.4	240.00	6
4.76	3/16	0.1874	7.50	7.87	9.65	190.40	199.9	245.00	6
4.80		0.1890	7.56	7.94	9.65	192.00	201.6	245.00	6
4.90		0.1929	7.72	8.10	9.84	196.00	205.8	250.00	6
5.00		0.1969	7.87	8.27	9.84	200.00	210.0	250.00	6
5.10		0.2008	8.03	8.43	10.24	204.00	214.2	260.00	6
5.16	13/64	0.2031	8.13	8.53	10.24	206.40	216.7	260.00	6
5.20		0.2047	8.19	8.60	10.24	208.00	218.4	260.00	6
5.30		0.2087	8.35	8.76	10.43	212.00	222.6	265.00	6
5.40		0.2126	8.50	8.93	10.63	216.00	226.8	270.00	6
5.50		0.2165	8.66	9.09	10.83	220.00	231.0	275.00	6
5.55	19/87	0.2185	8.74	9.18	10.83	222.00	233.1	275.00	6
5.60		0.2205	8.82	9.26	11.02	224.00	235.2	280.00	6
5.70		0.2244	8.98	9.43	11.22	228.00	239.4	285.00	6

30-2541 Ø d1 (h7) mm	30-2541 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
5.80		0.2283	9.13	9.59	11.22	232.00	243.6	285.00	6
5.90		0.2323	9.29	9.76	11.42	236.00	247.8	290.00	6
5.95	15/64	0.2343	9.37	9.84	11.61	238.00	249.9	295.00	6
6.00		0.2362	9.45	9.92	11.61	240.00	252.0	295.00	6
6.10		0.2402	9.61	10.09	11.81	244.00	256.2	300.00	8
6.20		0.2441	9.76	10.25	12.01	248.00	260.4	305.00	8
6.30		0.2480	9.92	10.42	12.20	252.00	264.6	310.00	8
6.35	1/4	0.2500	10.00	10.50	12.20	254.00	266.7	310.00	8
6.40		0.2520	10.08	10.58	12.20	256.00	268.8	310.00	8
6.50		0.2559	10.24	10.75	12.40	260.00	273.0	315.00	8
6.60		0.2598	10.39	10.91	12.60	264.00	277.2	320.00	8
6.70		0.2638	10.55	11.08	12.80	268.00	281.4	325.00	8
6.75	17/64	0.2656	10.63	11.16	12.80	270.00	283.5	325.00	8
6.80		0.2677	10.71	11.24	12.99	272.00	285.6	330.00	8
6.90		0.2717	10.87	11.41	13.19	276.00	289.8	335.00	8
7.00		0.2756	11.02	11.57	13.19	280.00	294.0	335.00	8
7.10		0.2795	11.18	11.74	13.39	284.00	298.2	340.00	8
7.14	9/32	0.2811	11.24	11.81	13.58	285.60	299.9	345.00	8
7.20		0.2835	11.34	11.91	13.58	288.00	302.4	345.00	8
7.30		0.2874	11.50	12.07	13.78	292.00	306.6	350.00	8
7.40		0.2913	11.65	12.24	13.98	296.00	310.8	355.00	8
7.50		0.2953	11.81	12.40	14.17	300.00	315.0	360.00	8
7.54	19/64	0.2969	11.87	12.47	14.17	301.60	316.7	360.00	8
7.60		0.2992	11.97	12.57	14.37	304.00	319.2	365.00	8
7.70		0.3031	12.13	12.73	14.37	308.00	323.4	365.00	8
7.80		0.3071	12.28	12.90	14.57	312.00	327.6	370.00	8
7.90		0.3110	12.44	13.06	14.76	316.00	331.8	375.00	8
7.94	5/16	0.3126	12.50	13.13	14.76	317.60	333.5	375.00	8
8.00		0.3150	12.60	13.23	14.96	320.00	336.0	380.00	8
8.10		0.3189	12.76	13.39	15.35	324.00	340.2	390.00	10
8.20		0.3228	12.91	13.56	15.35	328.00	344.4	390.00	10
8.30		0.3268	13.07	13.72	15.55	332.00	348.6	395.00	10
8.33	21/64	0.3281	13.12	13.77	15.55	333.20	349.9	395.00	10
8.40		0.3307	13.23	13.89	15.75	336.00	352.8	400.00	10
8.50		0.3346	13.39	14.06	15.75	340.00	357.0	400.00	10

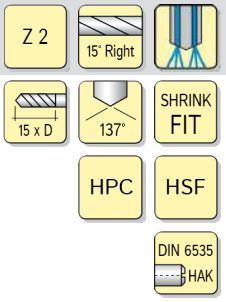
HAM 30-1621 Recommended as pilot hole drill when using deep hole drill, see page 14.
For cutting data, see page 83.

Order example: 30-2541-0500



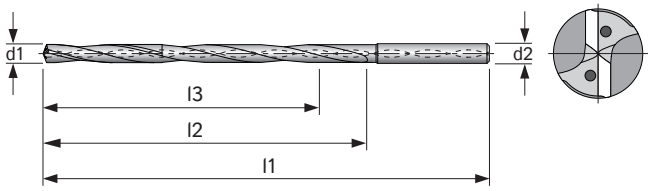
Machining of stack components

HAM 30-2580 — Solid Carbide Deep Hole Drill — 15 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 15° RH helix
- polished flute



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2580	●	●													●		●	●		

● very suitable ○ suitable

30-2580 Ø d1 (h7) mm	30-2580 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	1.77	2.01	3.74	45.00	51.0	95.00	6
3.10		0.1220	1.83	2.07	3.74	46.50	52.7	95.00	6
3.17	1/8	0.1248	1.87	2.12	3.74	47.55	53.9	95.00	6
3.20		0.1260	1.89	2.14	3.94	48.00	54.4	100.00	6
3.30		0.1299	1.95	2.21	3.94	49.50	56.1	100.00	6
3.40		0.1339	2.01	2.28	3.94	51.00	57.8	100.00	6
3.50		0.1378	2.07	2.34	4.33	52.50	59.5	110.00	6
3.57	9/64	0.1406	2.11	2.39	4.33	53.55	60.7	110.00	6
3.60		0.1417	2.13	2.41	4.33	54.00	61.2	110.00	6
3.70		0.1457	2.19	2.48	4.33	55.50	62.9	110.00	6
3.80		0.1496	2.24	2.54	4.33	57.00	64.6	110.00	6
3.90		0.1535	2.30	2.61	4.33	58.50	66.3	110.00	6
3.97	5/32	0.1563	2.34	2.66	4.33	59.55	67.5	110.00	6
4.00		0.1575	2.36	2.68	4.33	60.00	68.0	110.00	6
4.10		0.1614	2.42	2.74	4.53	61.50	69.7	115.00	6
4.20		0.1654	2.48	2.81	4.72	63.00	71.4	120.00	6
4.30		0.1693	2.54	2.88	4.72	64.50	73.1	120.00	6
4.37	11/64	0.1720	2.58	2.92	4.72	65.55	74.3	120.00	6
4.40		0.1732	2.60	2.94	4.72	66.00	74.8	120.00	6
4.50		0.1772	2.66	3.01	4.72	67.50	76.5	120.00	6
4.60		0.1811	2.72	3.08	4.72	69.00	78.2	120.00	6
4.70		0.1850	2.78	3.15	4.92	70.50	79.9	125.00	6
4.76	3/16	0.1874	2.81	3.19	4.92	71.40	80.9	125.00	6
4.80		0.1890	2.83	3.21	4.92	72.00	81.6	125.00	6
4.90		0.1929	2.89	3.28	4.92	73.50	83.3	125.00	6
5.00		0.1969	2.95	3.35	4.92	75.00	85.0	125.00	6
5.10		0.2008	3.01	3.41	5.12	76.50	86.7	130.00	6
5.16	13/64	0.2031	3.05	3.45	5.12	77.40	87.7	130.00	6
5.20		0.2047	3.07	3.48	5.12	78.00	88.4	130.00	6
5.30		0.2087	3.13	3.55	5.31	79.50	90.1	135.00	6
5.40		0.2126	3.19	3.61	5.31	81.00	91.8	135.00	6
5.50		0.2165	3.25	3.68	5.31	82.50	93.5	135.00	6
5.55	19/87	0.2185	3.28	3.71	5.51	83.25	94.4	140.00	6
5.60		0.2205	3.31	3.75	5.51	84.00	95.2	140.00	6
5.70		0.2244	3.37	3.81	5.51	85.50	96.9	140.00	6
5.80		0.2283	3.43	3.88	5.51	87.00	98.6	140.00	6
5.90		0.2323	3.48	3.95	5.51	88.50	100.3	140.00	6
5.95	15/64	0.2343	3.51	3.98	5.51	89.25	101.2	140.00	6
6.00		0.2362	3.54	4.02	5.51	90.00	102.0	140.00	6
6.10		0.2402	3.60	4.08	5.71	91.50	103.7	145.00	8

30-2580 Ø d1 (h7) mm	30-2580 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
6.20		0.2441	3.66	4.15	5.91	93.00	105.4	150.00	8
6.30		0.2480	3.72	4.22	5.91	94.50	107.1	150.00	8
6.35	1/4	0.2500	3.75	4.25	5.91	95.25	108.0	150.00	8
6.40		0.2520	3.78	4.28	5.91	96.00	108.8	150.00	8
6.50		0.2559	3.84	4.35	5.91	97.50	110.5	150.00	8
6.60		0.2598	3.90	4.42	6.10	99.00	112.2	155.00	8
6.70		0.2638	3.96	4.48	6.10	100.50	113.9	155.00	8
6.75	17/64	0.2656	3.99	4.52	6.30	101.25	114.8	160.00	8
6.80		0.2677	4.02	4.55	6.30	102.00	115.6	160.00	8
6.90		0.2717	4.07	4.62	6.30	103.50	117.3	160.00	8
7.00		0.2756	4.13	4.69	6.30	105.00	119.0	160.00	8
7.10		0.2795	4.19	4.75	6.50	106.50	120.7	165.00	8
7.14	9/32	0.2811	4.22	4.78	6.50	107.10	121.4	165.00	8
7.20		0.2835	4.25	4.82	6.50	108.00	122.4	165.00	8
7.30		0.2874	4.31	4.89	6.50	109.50	124.1	165.00	8
7.40		0.2913	4.37	4.95	6.50	111.00	125.8	165.00	8
7.50		0.2953	4.43	5.02	6.50	112.50	127.5	165.00	8
7.54	19/64	0.2969	4.45	5.05	6.69	113.10	128.2	170.00	8
7.60		0.2992	4.49	5.09	6.69	114.00	129.2	170.00	8
7.70		0.3031	4.55	5.15	6.69	115.50	130.9	170.00	8
7.80		0.3071	4.61	5.22	6.69	117.00	132.6	170.00	8
7.90		0.3110	4.67	5.29	7.09	118.50	134.3	180.00	8
7.94	5/16	0.3126	4.69	5.31	7.09	119.10	135.0	180.00	8
8.00		0.3150	4.72	5.35	7.09	120.00	136.0	180.00	8
8.10		0.3189	4.78	5.42	7.28	121.50	137.7	185.00	10
8.20		0.3228	4.84	5.49	7.28	123.00	139.4	185.00	10
8.30		0.3268	4.90	5.56	7.48	124.50	141.1	190.00	10
8.33	21/64	0.3281	4.92	5.58	7.48	124.95	141.6	190.00	10
8.40		0.3307	4.96	5.62	7.48	126.00	142.8	190.00	10
8.50		0.3346	5.02	5.69	7.48	127.50	144.5	190.00	10
8.60		0.3386	5.08	5.76	7.68	129.00	146.2	195.00	10
8.70		0.3425	5.14	5.82	7.68	130.50	147.9	195.00	10
8.73	11/32	0.3437	5.16	5.84	7.68	130.95	148.4	195.00	10
8.80		0.3465	5.20	5.89	7.87	132.00	149.6	200.00	10
8.90		0.3504	5.26	5.96	7.87	133.50	151.3	200.00	10
9.00		0.3543	5.31	6.02	7.87	135.00	153.0	200.00	10
9.10		0.3583	5.37	6.09	7.87	136.50	154.7	200.00	10
9.13	23/64	0.3594	5.39	6.11	8.07	136.95	155.2	205.00	10
9.20		0.3622	5.43	6.16	8.07	138.00	156.4	205.00	10
9.30		0.3661	5.49	6.22	8.07	139.50	158.1	205.00	10

HAM 30-1891 Recommended as pilot hole drill when using deep hole drill, see page 28.
For cutting data, see page 84.

Order example: 30-2580-0700

30-2580 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.40		0.3701	5.55	6.29	8.07	141.00	159.8	205.00	10
9.50		0.3740	5.61	6.36	8.27	142.50	161.5	210.00	10
9.53	3/8	0.3752	5.63	6.38	8.27	142.95	162.0	210.00	10
9.60		0.3780	5.67	6.43	8.27	144.00	163.2	210.00	10
9.70		0.3819	5.73	6.49	8.27	145.50	164.9	210.00	10
9.80		0.3858	5.79	6.56	8.46	147.00	166.6	215.00	10
9.90		0.3898	5.85	6.63	8.46	148.50	168.3	215.00	10
9.92	25/64	0.3906	5.86	6.64	8.46	148.80	168.6	215.00	10
10.00		0.3937	5.91	6.69	8.46	150.00	170.0	215.00	10
10.10		0.3976	5.96	6.76	8.86	151.50	171.7	225.00	12
10.20		0.4016	6.02	6.83	9.06	153.00	173.4	230.00	12
10.30		0.4055	6.08	6.89	9.06	154.50	175.1	230.00	12
10.32	13/32	0.4063	6.09	6.91	9.06	154.80	175.4	230.00	12
10.40		0.4094	6.14	6.96	9.06	156.00	176.8	230.00	12
10.50		0.4134	6.20	7.03	9.06	157.50	178.5	230.00	12
10.60		0.4173	6.26	7.09	9.25	159.00	180.2	235.00	12
10.70		0.4213	6.32	7.16	9.25	160.50	181.9	235.00	12
10.72	27/64	0.4219	6.33	7.17	9.25	160.80	182.2	235.00	12
10.80		0.4252	6.38	7.23	9.25	162.00	183.6	235.00	12
10.90		0.4291	6.44	7.30	9.45	163.50	185.3	240.00	12
11.00		0.4331	6.50	7.36	9.45	165.00	187.0	240.00	12
11.10		0.4370	6.56	7.43	9.45	166.50	188.7	240.00	12
11.11	7/16	0.4374	6.56	7.44	9.45	166.65	188.9	240.00	12
11.20		0.4409	6.61	7.50	9.65	168.00	190.4	245.00	12
11.30		0.4449	6.67	7.56	9.65	169.50	192.1	245.00	12
11.40		0.4488	6.73	7.63	9.65	171.00	193.8	245.00	12
11.50		0.4528	6.79	7.70	9.84	172.50	195.5	250.00	12
11.51	29/64	0.4531	6.80	7.70	9.84	172.65	195.7	250.00	12

30-2580 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
11.60		0.4567	6.85	7.76	9.84	174.00	197.2	250.00	12
11.70		0.4606	6.91	7.83	9.84	175.50	198.9	250.00	12
11.80		0.4646	6.97	7.90	10.04	177.00	200.6	255.00	12
11.90		0.4685	7.03	7.96	10.04	178.50	202.3	255.00	12
11.91	15/32	0.4689	7.03	7.97	10.04	178.65	202.5	255.00	12
12.00		0.4724	7.09	8.03	10.04	180.00	204.0	255.00	12
12.10		0.4764	7.15	8.10	10.24	181.50	205.7	260.00	14
12.20		0.4803	7.20	8.17	10.24	183.00	207.4	260.00	14
12.30	31/64	0.4844	7.26	8.23	10.24	184.50	209.1	260.00	14
12.40		0.4882	7.32	8.30	10.43	186.00	210.8	265.00	14
12.50		0.4921	7.38	8.37	10.43	187.50	212.5	265.00	14
12.60		0.4961	7.44	8.43	10.43	189.00	214.2	265.00	14
12.70	1/2	0.5000	7.50	8.50	10.63	190.50	215.9	270.00	14
12.80		0.5039	7.56	8.57	10.63	192.00	217.6	270.00	14
12.90		0.5079	7.62	8.63	10.63	193.50	219.3	270.00	14
13.00		0.5118	7.68	8.70	10.83	195.00	221.0	275.00	14
13.10	33/64	0.5156	7.74	8.77	10.83	196.50	222.7	275.00	14
13.20		0.5197	7.80	8.83	10.83	198.00	224.4	275.00	14
13.30		0.5236	7.85	8.90	11.02	199.50	226.1	280.00	14
13.40		0.5276	7.91	8.97	11.02	201.00	227.8	280.00	14
13.49	17/32	0.5311	7.97	9.03	11.02	202.35	229.3	280.00	14
13.50		0.5315	7.97	9.04	11.02	202.50	229.5	280.00	14
13.60		0.5354	8.03	9.10	11.22	204.00	231.2	285.00	14
13.70		0.5394	8.09	9.17	11.22	205.50	232.9	285.00	14
13.80		0.5433	8.15	9.24	11.22	207.00	234.6	285.00	14
13.89	35/64	0.5469	8.20	9.30	11.22	208.35	236.1	285.00	14
13.90		0.5472	8.21	9.30	11.22	208.50	236.3	285.00	14
14.00		0.5512	8.27	9.37	11.22	210.00	238.0	285.00	14

HAM 30-1891 Recommended as pilot hole drill when using deep hole drill, see page 28.
For cutting data, see page 84.

Order example: 30-2580-0700

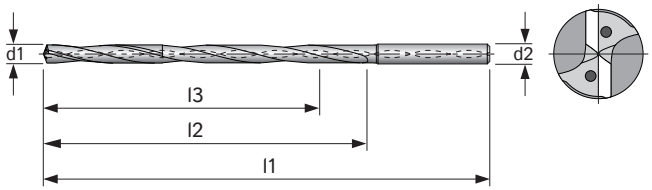
HAM 30-2620

Solid Carbide Deep Hole Drill

20 X D

Z 2 | 15° Right | SHRINK FIT | 20 x D | 137° | HPC | HSF | DIN 6535 HAK

Engineering Data
- special 4-facet ground
- special point grind
- special chip flute geometry
- 15° RH helix
- polished flute



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2620	●	●													●		●	●		

● very suitable / *sehr gut geeignet* ○ suitable / *geeignet*

30-2620 Ø d1 (h7) mm	30-2620 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	2.36	2.60	4.33	60.00	66.0	110.00	6
3.10		0.1220	2.44	2.69	4.33	62.00	68.2	110.00	6
3.17	1/8	0.1248	2.50	2.75	4.53	63.40	69.7	115.00	6
3.20		0.1260	2.52	2.77	4.53	64.00	70.4	115.00	6
3.30		0.1299	2.60	2.86	4.53	66.00	72.6	115.00	6
3.40		0.1339	2.68	2.94	4.72	68.00	74.8	120.00	6
3.50		0.1378	2.76	3.03	4.72	70.00	77.0	120.00	6
3.57	9/64	0.1406	2.81	3.09	4.72	71.40	78.5	120.00	6
3.60		0.1417	2.83	3.12	4.92	72.00	79.2	125.00	6
3.70		0.1457	2.91	3.20	4.92	74.00	81.4	125.00	6
3.80		0.1496	2.99	3.29	5.12	76.00	83.6	130.00	6
3.90		0.1535	3.07	3.38	5.12	78.00	85.8	130.00	6
3.97	5/32	0.1563	3.13	3.44	5.12	79.40	87.3	130.00	6
4.00		0.1575	3.15	3.46	5.12	80.00	88.0	130.00	6
4.10		0.1614	3.23	3.55	5.31	82.00	90.2	135.00	6
4.20		0.1654	3.31	3.64	5.51	84.00	92.4	140.00	6
4.30		0.1693	3.39	3.72	5.51	86.00	94.6	140.00	6
4.37	11/64	0.1720	3.44	3.79	5.51	87.40	96.1	140.00	6
4.40		0.1732	3.46	3.81	5.51	88.00	96.8	140.00	6
4.50		0.1772	3.54	3.90	5.51	90.00	99.0	140.00	6
4.60		0.1811	3.62	3.98	5.71	92.00	101.2	145.00	6
4.70		0.1850	3.70	4.07	5.71	94.00	103.4	145.00	6
4.76	3/16	0.1874	3.75	4.12	5.71	95.20	104.7	145.00	6
4.80		0.1890	3.78	4.16	5.91	96.00	105.6	150.00	6
4.90		0.1929	3.86	4.24	5.91	98.00	107.8	150.00	6
5.00		0.1969	3.94	4.33	5.91	100.00	110.0	150.00	6
5.10		0.2008	4.02	4.42	6.10	102.00	112.2	155.00	6
5.16	13/64	0.2031	4.06	4.47	6.10	103.20	113.5	155.00	6
5.20		0.2047	4.09	4.50	6.30	104.00	114.4	160.00	6
5.30		0.2087	4.17	4.59	6.30	106.00	116.6	160.00	6
5.40		0.2126	4.25	4.68	6.30	108.00	118.8	160.00	6
5.50		0.2165	4.33	4.76	6.30	110.00	121.0	160.00	6
5.55	19/87	0.2185	4.37	4.81	6.30	111.00	122.1	160.00	6
5.60		0.2205	4.41	4.85	6.50	112.00	123.2	165.00	6
5.70		0.2244	4.49	4.94	6.69	114.00	125.4	170.00	6
5.80		0.2283	4.57	5.02	6.69	116.00	127.6	170.00	6
5.90		0.2323	4.65	5.11	6.69	118.00	129.8	170.00	6
5.95	15/64	0.2343	4.69	5.15	6.69	119.00	130.9	170.00	6
6.00		0.2362	4.72	5.20	6.69	120.00	132.0	170.00	6
6.10		0.2402	4.80	5.28	6.89	122.00	134.2	175.00	8

30-2620 Ø d1 (h7) mm	30-2620 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
6.20		0.2441	4.88	5.37	7.09	124.00	136.4	180.00	8
6.30		0.2480	4.96	5.46	7.09	126.00	138.6	180.00	8
6.35	1/4	0.2500	5.00	5.50	7.09	127.00	139.7	180.00	8
6.40		0.2520	5.04	5.54	7.28	128.00	140.8	185.00	8
6.50		0.2559	5.12	5.63	7.28	130.00	143.0	185.00	8
6.60		0.2598	5.20	5.72	7.48	132.00	145.2	190.00	8
6.70		0.2638	5.28	5.80	7.48	134.00	147.4	190.00	8
6.75	17/64	0.2656	5.31	5.85	7.48	135.00	148.5	190.00	8
6.80		0.2677	5.35	5.89	7.68	136.00	149.6	195.00	8
6.90		0.2717	5.43	5.98	7.68	138.00	151.8	195.00	8
7.00		0.2756	5.51	6.06	7.68	140.00	154.0	195.00	8
7.10		0.2795	5.59	6.15	7.68	142.00	156.2	195.00	8
7.14	9/32	0.2811	5.62	6.18	7.68	142.80	157.1	195.00	8
7.20		0.2835	5.67	6.24	7.87	144.00	158.4	200.00	8
7.30		0.2874	5.75	6.32	8.07	146.00	160.6	205.00	8
7.40		0.2913	5.83	6.41	8.07	148.00	162.8	205.00	8
7.50		0.2953	5.91	6.50	8.27	150.00	165.0	210.00	8
7.54	19/64	0.2969	5.94	6.53	8.27	150.80	165.9	210.00	8
7.60		0.2992	5.98	6.58	8.27	152.00	167.2	210.00	8
7.70		0.3031	6.06	6.67	8.46	154.00	169.4	215.00	8
7.80		0.3071	6.14	6.76	8.46	156.00	171.6	215.00	8
7.90		0.3110	6.22	6.84	8.46	158.00	173.8	215.00	8
7.94	5/16	0.3126	6.25	6.88	8.46	158.80	174.7	215.00	8
8.00		0.3150	6.30	6.93	8.46	160.00	176.0	215.00	8
8.10		0.3189	6.38	7.02	8.86	162.00	178.2	225.00	10
8.20		0.3228	6.46	7.10	8.86	164.00	180.4	225.00	10
8.30		0.3268	6.54	7.19	8.86	166.00	182.6	225.00	10
8.33	21/64	0.3281	6.56	7.21	9.06	166.60	183.3	230.00	10
8.40		0.3307	6.61	7.28	9.06	168.00	184.8	230.00	10
8.50		0.3346	6.69	7.36	9.06	170.00	187.0	230.00	10
8.60		0.3386	6.77	7.45	9.25	172.00	189.2	235.00	10
8.70		0.3425	6.85	7.54	9.25	174.00	191.4	235.00	10
8.73	11/32	0.3437	6.87	7.56	9.25	174.60	192.1	235.00	10
8.80		0.3465	6.93	7.62	9.45	176.00	193.6	240.00	10
8.90		0.3504	7.01	7.71	9.65	178.00	195.8	245.00	10
9.00		0.3543	7.09	7.80	9.84	180.00	198.0	250.00	10
9.10		0.3583	7.17	7.88	9.84	182.00	200.2	250.00	10
9.13	23/64	0.3594	7.19	7.91	9.84	182.60	200.9	250.00	10
9.20		0.3622	7.24	7.97	9.84	184.00	202.4	250.00	10
9.30		0.3661	7.32	8.06	9.84	186.00	204.6	250.00	10

HAM 30-1891 Recommended as pilot hole drill when using deep hole drill, see page 28.
For cutting data, see page 84.

Order example: 30-2620-0650

30-2620 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.40		0.3701	7.40	8.14	10.04	188.00	206.8	255.00	10
9.50		0.3740	7.48	8.23	10.04	190.00	209.0	255.00	10
9.53	3/8	0.3752	7.50	8.25	10.04	190.60	209.7	255.00	10
9.60		0.3780	7.56	8.31	10.24	192.00	211.2	260.00	10
9.70		0.3819	7.64	8.40	10.24	194.00	213.4	260.00	10
9.80		0.3858	7.72	8.49	10.43	196.00	215.6	265.00	10
9.90		0.3898	7.80	8.57	10.43	198.00	217.8	265.00	10
9.92	25/64	0.3906	7.81	8.59	10.43	198.40	218.2	265.00	10
10.00		0.3937	7.87	8.66	10.43	200.00	220.0	265.00	10
10.10		0.3976	7.95	8.75	10.83	202.00	222.2	275.00	12
10.20		0.4016	8.03	8.83	10.83	204.00	224.4	275.00	12
10.30		0.4055	8.11	8.92	11.02	206.00	226.6	280.00	12
10.32	13/32	0.4063	8.13	8.94	11.02	206.40	227.0	280.00	12
10.40		0.4094	8.19	9.01	11.02	208.00	228.8	280.00	12
10.50		0.4134	8.27	9.09	11.22	210.00	231.0	285.00	12
10.60		0.4173	8.35	9.18	11.22	212.00	233.2	285.00	12
10.70		0.4213	8.43	9.27	11.42	214.00	235.4	290.00	12
10.72	27/64	0.4219	8.44	9.29	11.42	214.40	235.8	290.00	12
10.80		0.4252	8.50	9.35	11.61	216.00	237.6	295.00	12
10.90		0.4291	8.58	9.44	11.61	218.00	239.8	295.00	12
11.00		0.4331	8.66	9.53	11.61	220.00	242.0	295.00	12
11.10		0.4370	8.74	9.61	11.61	222.00	244.2	295.00	12
11.11	7/16	0.4374	8.75	9.62	11.61	222.20	244.4	295.00	12
11.20		0.4409	8.82	9.70	11.81	224.00	246.4	300.00	12
11.30		0.4449	8.90	9.79	11.81	226.00	248.6	300.00	12
11.40		0.4488	8.98	9.87	12.01	228.00	250.8	305.00	12
11.50		0.4528	9.06	9.96	12.01	230.00	253.0	305.00	12
11.51	29/64	0.4531	9.06	9.97	12.01	230.20	253.2	305.00	12

30-2620 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
11.60		0.4567	9.13	10.05	12.20	232.00	255.2	310.00	12
11.70		0.4606	9.21	10.13	12.20	234.00	257.4	310.00	12
11.80		0.4646	9.29	10.22	12.40	236.00	259.6	315.00	12
11.90		0.4685	9.37	10.31	12.40	238.00	261.8	315.00	12
11.91	17/32	0.4689	9.38	10.32	12.40	238.20	262.0	315.00	12
12.00		0.4724	9.45	10.39	12.40	240.00	264.0	315.00	12
12.10		0.4764	9.53	10.48	12.60	242.00	266.2	320.00	14
12.20		0.4803	9.61	10.57	12.60	244.00	268.4	320.00	14
12.30	31/64	0.4844	9.69	10.65	12.80	246.00	270.6	325.00	14
12.40		0.4882	9.76	10.74	12.80	248.00	272.8	325.00	14
12.50		0.4921	9.84	10.83	12.80	250.00	275.0	325.00	14
12.60		0.4961	9.92	10.91	12.99	252.00	277.2	330.00	14
12.70	1/2	0.5000	10.00	11.00	12.99	254.00	279.4	330.00	14
12.80		0.5039	10.08	11.09	13.19	256.00	281.6	335.00	14
12.90		0.5079	10.16	11.17	13.19	258.00	283.8	335.00	14
13.00		0.5118	10.24	11.26	13.39	260.00	286.0	340.00	14
13.10	33/64	0.5156	10.31	11.35	13.39	262.00	288.2	340.00	14
13.20		0.5197	10.39	11.43	13.58	264.00	290.4	345.00	14
13.30		0.5236	10.47	11.52	13.58	266.00	292.6	345.00	14
13.40		0.5276	10.55	11.61	13.58	268.00	294.8	345.00	14
13.49	17/32	0.5311	10.62	11.68	13.78	269.80	296.8	350.00	14
13.50		0.5315	10.63	11.69	13.78	270.00	297.0	350.00	14
13.60		0.5354	10.71	11.78	13.78	272.00	299.2	350.00	14
13.70		0.5394	10.79	11.87	13.98	274.00	301.4	355.00	14
13.80		0.5433	10.87	11.95	13.98	276.00	303.6	355.00	14
13.89	35/64	0.5469	10.94	12.03	14.17	277.80	305.6	360.00	14
13.90		0.5472	10.94	12.04	14.17	278.00	305.8	360.00	14
14.00		0.5512	11.02	12.13	14.17	280.00	308.0	360.00	14

HAM 30-1891 Recommended as pilot hole drill when using deep hole drill, see page 28.
For cutting data, see page 84.

Order example: 30-2620-0650

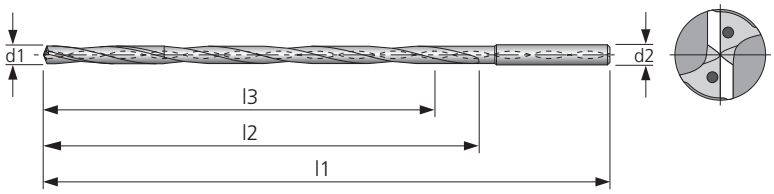
HAM 30-2660

Solid Carbide Deep Hole Drill

25 X D

Z 2 | 15° Right | 25 x D | 137° | SHRINK FIT | HPC | HSF | DIN 6535 HAK

Engineering Data
- special 4-facet ground
- special point grind
- special chip flute geometry
- 15° RH helix
- polished flute



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2660	●	●													●		●	●		

● very suitable ○ suitable

30-2660 Ø d1 (h7) mm	30-2660 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	2.95	3.19	4.92	75.00	81.0	125.00	6
3.10		0.1220	3.05	3.30	4.92	77.50	83.7	125.00	6
3.17	1/8	0.1248	3.12	3.37	5.12	79.25	85.6	130.00	6
3.20		0.1260	3.15	3.40	5.12	80.00	86.4	130.00	6
3.30		0.1299	3.25	3.51	5.51	82.50	89.1	140.00	6
3.40		0.1339	3.35	3.61	5.51	85.00	91.8	140.00	6
3.50		0.1378	3.44	3.72	5.51	87.50	94.5	140.00	6
3.57	9/64	0.1406	3.51	3.79	5.51	89.25	96.4	140.00	6
3.60		0.1417	3.54	3.83	5.51	90.00	97.2	140.00	6
3.70		0.1457	3.64	3.93	5.71	92.50	99.9	145.00	6
3.80		0.1496	3.74	4.04	5.91	95.00	102.6	150.00	6
3.90		0.1535	3.84	4.15	5.91	97.50	105.3	150.00	6
3.97	5/32	0.1563	3.91	4.22	5.91	99.25	107.2	150.00	6
4.00		0.1575	3.94	4.25	5.91	100.00	108.0	150.00	6
4.10		0.1614	4.04	4.36	6.10	102.50	110.7	155.00	6
4.20		0.1654	4.13	4.46	6.30	105.00	113.4	160.00	6
4.30		0.1693	4.23	4.57	6.30	107.50	116.1	160.00	6
4.37	11/64	0.1720	4.30	4.65	6.30	109.25	118.0	160.00	6
4.40		0.1732	4.33	4.68	6.30	110.00	118.8	160.00	6
4.50		0.1772	4.43	4.78	6.50	112.50	121.5	165.00	6
4.60		0.1811	4.53	4.89	6.69	115.00	124.2	170.00	6
4.70		0.1850	4.63	5.00	6.69	117.50	126.9	170.00	6
4.76	3/16	0.1874	4.69	5.06	6.69	119.00	128.5	170.00	6
4.80		0.1890	4.72	5.10	6.89	120.00	129.6	175.00	6
4.90		0.1929	4.82	5.21	6.89	122.50	132.3	175.00	6
5.00		0.1969	4.92	5.31	6.89	125.00	135.0	175.00	6
5.10		0.2008	5.02	5.42	7.09	127.50	137.7	180.00	6
5.16	13/64	0.2031	5.08	5.49	7.28	129.00	139.3	185.00	6
5.20		0.2047	5.12	5.53	7.28	130.00	140.4	185.00	6
5.30		0.2087	5.22	5.63	7.28	132.50	143.1	185.00	6
5.40		0.2126	5.31	5.74	7.48	135.00	145.8	190.00	6
5.50		0.2165	5.41	5.85	7.48	137.50	148.5	190.00	6
5.55	19/87	0.2185	5.46	5.90	7.68	138.75	149.9	195.00	6
5.60		0.2205	5.51	5.95	7.68	140.00	151.2	195.00	6
5.70		0.2244	5.61	6.06	7.68	142.50	153.9	195.00	6
5.80		0.2283	5.71	6.17	7.87	145.00	156.6	200.00	6
5.90		0.2323	5.81	6.27	7.87	147.50	159.3	200.00	6
5.95	15/64	0.2343	5.86	6.32	7.87	148.75	160.7	200.00	6
6.00		0.2362	5.91	6.38	7.87	150.00	162.0	200.00	6
6.10		0.2402	6.00	6.48	8.27	152.50	164.7	210.00	8

30-2660 Ø d1 (h7) mm	30-2660 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
6.20		0.2441	6.10	6.59	8.27	155.00	167.4	210.00	8
6.30		0.2480	6.20	6.70	8.46	157.50	170.1	215.00	8
6.35	1/4	0.2500	6.25	6.75	8.46	158.75	171.5	215.00	8
6.40		0.2520	6.30	6.80	8.46	160.00	172.8	215.00	8
6.50		0.2559	6.40	6.91	8.46	162.50	175.5	215.00	8
6.60		0.2598	6.50	7.02	8.66	165.00	178.2	220.00	8
6.70		0.2638	6.59	7.12	8.86	167.50	180.9	225.00	8
6.75	17/64	0.2656	6.64	7.18	8.86	168.75	182.3	225.00	8
6.80		0.2677	6.69	7.23	9.06	170.00	183.6	230.00	8
6.90		0.2717	6.79	7.33	9.06	172.50	186.3	230.00	8
7.00		0.2756	6.89	7.44	9.06	175.00	189.0	230.00	8
7.10		0.2795	6.99	7.55	9.25	177.50	191.7	235.00	8
7.14	9/32	0.2811	7.03	7.59	9.25	178.50	192.8	235.00	8
7.20		0.2835	7.09	7.65	9.25	180.00	194.4	235.00	8
7.30		0.2874	7.19	7.76	9.25	182.50	197.1	235.00	8
7.40		0.2913	7.28	7.87	9.65	185.00	199.8	245.00	8
7.50		0.2953	7.38	7.97	10.04	187.50	202.5	255.00	8
7.54	19/64	0.2969	7.42	8.01	10.04	188.50	203.6	255.00	8
7.60		0.2992	7.48	8.08	10.04	190.00	205.2	255.00	8
7.70		0.3031	7.58	8.19	10.04	192.50	207.9	255.00	8
7.80		0.3071	7.68	8.29	10.04	195.00	210.6	255.00	8
7.90		0.3110	7.78	8.40	10.04	197.50	213.3	255.00	8
7.94	5/16	0.3126	7.81	8.44	10.04	198.50	214.4	255.00	8
8.00		0.3150	7.87	8.50	10.04	200.00	216.0	255.00	10
8.10		0.3189	7.97	8.61	10.43	202.50	218.7	265.00	10
8.20		0.3228	8.07	8.72	10.63	205.00	221.4	270.00	10
8.30		0.3268	8.17	8.82	10.63	207.50	224.1	270.00	10
8.33	21/64	0.3281	8.20	8.85	10.63	208.25	224.9	270.00	10
8.40		0.3307	8.27	8.93	10.83	210.00	226.8	275.00	10
8.50		0.3346	8.37	9.04	11.22	212.50	229.5	285.00	10
8.60		0.3386	8.46	9.14	11.22	215.00	232.2	285.00	10
8.70		0.3425	8.56	9.25	11.22	217.50	234.9	285.00	10
8.73	11/32	0.3437	8.59	9.28	11.22	218.25	235.7	285.00	10
8.80		0.3465	8.66	9.35	12.20	220.00	237.6	310.00	10
8.90		0.3504	8.76	9.46	12.20	222.50	240.3	310.00	10
9.00		0.3543	8.86	9.57	12.20	225.00	243.0	310.00	10
9.10		0.3583	8.96	9.67	12.20	227.50	245.7	310.00	10
9.13	23/64	0.3594	8.99	9.71	12.20	228.25	246.5	310.00	10
9.20		0.3622	9.06	9.78	12.20	230.00	248.4	310.00	10
9.30		0.3661	9.15	9.89	12.20	232.50	251.1	310.00	10

HAM 30-1891 Recommended as pilot hole drill when using deep hole drill, see page 28.
For cutting data, see page 84.

Order example: 30-2660-0600

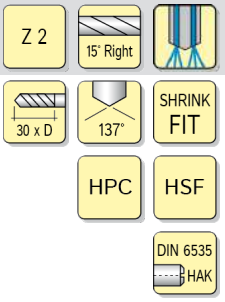
30-2660 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.40		0.3701	9.25	9.99	12.20	235.00	253.8	310.00	10
9.50		0.3740	9.35	10.10	12.20	237.50	256.5	310.00	10
9.53	3/8	0.3752	9.38	10.13	12.20	238.25	257.3	310.00	10
9.60		0.3780	9.45	10.20	12.20	240.00	259.2	310.00	10
9.70		0.3819	9.55	10.31	12.20	242.50	261.9	310.00	10
9.80		0.3858	9.65	10.42	12.20	245.00	264.6	310.00	10
9.90		0.3898	9.74	10.52	12.40	247.50	267.3	315.00	10
9.92	25/64	0.3906	9.76	10.54	12.40	248.00	267.8	315.00	10
10.00		0.3937	9.84	10.63	12.40	250.00	270.0	315.00	10
10.10		0.3976	9.94	10.74	12.80	252.50	272.7	325.00	12
10.20		0.4016	10.04	10.84	12.80	255.00	275.4	325.00	12
10.30		0.4055	10.14	10.95	12.99	257.50	278.1	330.00	12
10.32	13/32	0.4063	10.16	10.97	12.99	258.00	278.6	330.00	12
10.40		0.4094	10.24	11.06	13.19	260.00	280.8	335.00	12
10.50		0.4134	10.33	11.16	13.19	262.50	283.5	335.00	12
10.60		0.4173	10.43	11.27	13.39	265.00	286.2	340.00	12
10.70		0.4213	10.53	11.37	13.39	267.50	288.9	340.00	12
10.72	27/64	0.4219	10.55	11.40	13.39	268.00	289.4	340.00	12
10.80		0.4252	10.63	11.48	13.39	270.00	291.6	340.00	12
10.90		0.4291	10.73	11.59	13.58	272.50	294.3	345.00	12
11.00		0.4331	10.83	11.69	13.78	275.00	297.0	350.00	12
11.10		0.4370	10.93	11.80	13.78	277.50	299.7	350.00	12
11.11	7/16	0.4374	10.94	11.81	13.78	277.75	300.0	350.00	12
11.20		0.4409	11.02	11.91	13.98	280.00	302.4	355.00	12
11.30		0.4449	11.12	12.01	14.17	282.50	305.1	360.00	12
11.40		0.4488	11.22	12.12	14.17	285.00	307.8	360.00	12

30-2660 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
11.50		0.4528	11.32	12.22	14.17	287.50	310.5	360.00	12
11.51	29/64	0.4531	11.33	12.24	14.37	287.75	310.8	365.00	12
11.60		0.4567	11.42	12.33	14.37	290.00	313.2	365.00	12
11.70		0.4606	11.52	12.44	14.57	292.50	315.9	370.00	12
11.80		0.4646	11.61	12.54	14.76	295.00	318.6	375.00	12
11.90		0.4685	11.71	12.65	14.76	297.50	321.3	375.00	12
11.91	15/32	0.4689	11.72	12.66	14.76	297.75	321.6	375.00	12
12.00		0.4724	11.81	12.76	14.76	300.00	324.0	375.00	12
12.10		0.4764	11.91	12.86	14.96	302.50	326.7	380.00	14
12.20		0.4803	12.01	12.97	14.96	305.00	329.4	380.00	14
12.30	31/64	0.4844	12.11	13.07	15.16	307.50	332.1	385.00	14
12.40		0.4882	12.20	13.18	15.16	310.00	334.8	385.00	14
12.50		0.4921	12.30	13.29	15.35	312.50	337.5	390.00	14
12.60		0.4961	12.40	13.39	15.55	315.00	340.2	395.00	14
12.70	1/2	0.5000	12.50	13.50	15.55	317.50	342.9	395.00	14
12.75		0.5020	12.55	13.55	15.55	318.75	344.3	395.00	14
12.80		0.5039	12.60	13.61	15.75	320.00	345.6	400.00	14
12.90		0.5079	12.70	13.71	15.75	322.50	348.3	400.00	14
13.00		0.5118	12.80	13.82	15.94	325.00	351.0	405.00	14
13.10	33/64	0.5156	12.89	13.93	15.94	327.50	353.7	405.00	14
13.20		0.5197	12.99	14.03	16.14	330.00	356.4	410.00	14
13.30		0.5236	13.09	14.14	16.14	332.50	359.1	410.00	14
13.40		0.5276	13.19	14.24	16.34	335.00	361.8	415.00	14
13.49	17/32	0.5311	13.28	14.34	16.34	337.25	364.2	415.00	14
13.50		0.5315	13.29	14.35	16.34	337.50	364.5	415.00	14

HAM 30-1891 Recommended as pilot hole drill when using deep hole drill, see page 28.
For cutting data, see page 84.

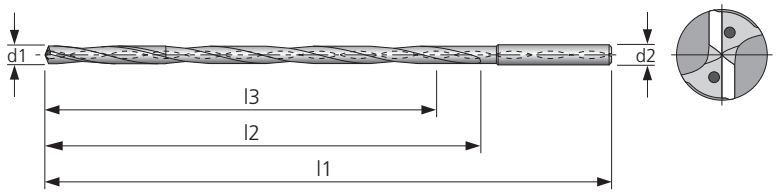
Order example: 30-2660-0600

HAM 30-2700 — Solid Carbide Deep Hole Drill — 30 X D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 15° RH helix
- polished flute



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2700	●	●													●		●	●		

● very suitable ○ suitable

30-2700 Ø d1 (h7) mm	30-2700 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	3.54	3.78	5.51	90.00	96.0	140.00	6
3.10		0.1220	3.66	3.91	5.71	93.00	99.2	145.00	6
3.17	1/8	0.1248	3.74	3.99	5.71	95.10	101.4	145.00	6
3.20		0.1260	3.78	4.03	5.91	96.00	102.4	150.00	6
3.30		0.1299	3.90	4.16	5.91	99.00	105.6	150.00	6
3.40		0.1339	4.02	4.28	5.91	102.00	108.8	150.00	6
3.50		0.1378	4.13	4.41	6.10	105.00	112.0	155.00	6
3.57	9/64	0.1406	4.22	4.50	6.30	107.10	114.2	160.00	6
3.60		0.1417	4.25	4.54	6.30	108.00	115.2	160.00	6
3.70		0.1457	4.37	4.66	6.30	111.00	118.4	160.00	6
3.80		0.1496	4.49	4.79	6.69	114.00	121.6	170.00	6
3.90		0.1535	4.61	4.91	6.69	117.00	124.8	170.00	6
3.97	5/32	0.1563	4.69	5.00	6.69	119.10	127.0	170.00	6
4.00		0.1575	4.72	5.04	6.69	120.00	128.0	170.00	6
4.10		0.1614	4.84	5.17	6.89	123.00	131.2	175.00	6
4.20		0.1654	4.96	5.29	7.28	126.00	134.4	185.00	6
4.30		0.1693	5.08	5.42	7.28	129.00	137.6	185.00	6
4.37	11/64	0.1720	5.16	5.51	7.28	131.10	139.8	185.00	6
4.40		0.1732	5.20	5.54	7.28	132.00	140.8	185.00	6
4.50		0.1772	5.31	5.67	7.28	135.00	144.0	185.00	6
4.60		0.1811	5.43	5.80	7.48	138.00	147.2	190.00	6
4.70		0.1850	5.55	5.92	7.68	141.00	150.4	195.00	6
4.76	3/16	0.1874	5.62	6.00	7.68	142.80	152.3	195.00	6
4.80		0.1890	5.67	6.05	7.87	144.00	153.6	200.00	6
4.90		0.1929	5.79	6.17	7.87	147.00	156.8	200.00	6
5.00		0.1969	5.91	6.30	7.87	150.00	160.0	200.00	6
5.10		0.2008	6.02	6.43	8.07	153.00	163.2	205.00	6
5.16	13/64	0.2031	6.09	6.50	8.27	154.80	165.1	210.00	6
5.20		0.2047	6.14	6.55	8.27	156.00	166.4	210.00	6
5.30		0.2087	6.26	6.68	8.46	159.00	169.6	215.00	6
5.40		0.2126	6.38	6.80	8.46	162.00	172.8	215.00	6
5.50		0.2165	6.50	6.93	8.46	165.00	176.0	215.00	6
5.55	19/87	0.2185	6.56	6.99	8.66	166.50	177.6	220.00	6
5.60		0.2205	6.61	7.06	8.86	168.00	179.2	225.00	6
5.70		0.2244	6.73	7.18	8.86	171.00	182.4	225.00	6
5.80		0.2283	6.85	7.31	9.06	174.00	185.6	230.00	6
5.90		0.2323	6.97	7.43	9.06	177.00	188.8	230.00	6
5.95	15/64	0.2343	7.03	7.50	9.06	178.50	190.4	230.00	6
6.00		0.2362	7.09	7.56	9.06	180.00	192.0	230.00	6
6.10		0.2402	7.20	7.69	9.45	183.00	195.2	240.00	8

30-2700 Ø d1 (h7) mm	30-2700 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
6.20		0.2441	7.32	7.81	9.45	186.00	198.4	240.00	8
6.30		0.2480	7.44	7.94	9.65	189.00	201.6	245.00	8
6.35	1/4	0.2500	7.50	8.00	9.65	190.50	203.2	245.00	8
6.40		0.2520	7.56	8.06	9.84	192.00	204.8	250.00	8
6.50		0.2559	7.68	8.19	9.84	195.00	208.0	250.00	8
6.60		0.2598	7.80	8.31	10.04	198.00	211.2	255.00	8
6.70		0.2638	7.91	8.44	10.24	201.00	214.4	260.00	8
6.75	17/64	0.2656	7.97	8.50	10.24	202.50	216.0	260.00	8
6.80		0.2677	8.03	8.57	10.43	204.00	217.6	265.00	8
6.90		0.2717	8.15	8.69	10.43	207.00	220.8	265.00	8
7.00		0.2756	8.27	8.82	10.43	210.00	224.0	265.00	8
7.10		0.2795	8.39	8.94	10.63	213.00	227.2	270.00	8
7.14	9/32	0.2811	8.43	9.00	10.63	214.20	228.5	270.00	8
7.20		0.2835	8.50	9.07	10.83	216.00	230.4	275.00	8
7.30		0.2874	8.62	9.20	10.83	219.00	233.6	275.00	8
7.40		0.2913	8.74	9.32	11.02	222.00	236.8	280.00	8
7.50		0.2953	8.86	9.45	11.02	225.00	240.0	280.00	8
7.54	19/64	0.2969	8.91	9.50	11.22	226.20	241.3	285.00	8
7.60		0.2992	8.98	9.57	11.22	228.00	243.2	285.00	8
7.70		0.3031	9.09	9.70	11.42	231.00	246.4	290.00	8
7.80		0.3071	9.21	9.83	11.61	234.00	249.6	295.00	8
7.90		0.3110	9.33	9.95	11.61	237.00	252.8	295.00	8
7.94	5/16	0.3126	9.38	10.00	11.61	238.20	254.1	295.00	8
8.00		0.3150	9.45	10.08	11.61	240.00	256.0	295.00	8
8.10		0.3189	9.57	10.20	12.01	243.00	259.2	305.00	10
8.20		0.3228	9.69	10.33	12.20	246.00	262.4	310.00	10
8.30		0.3268	9.80	10.46	12.40	249.00	265.6	315.00	10
8.33	21/64	0.3281	9.84	10.49	12.40	249.90	266.6	315.00	10
8.40		0.3307	9.92	10.58	12.40	252.00	268.8	315.00	10
8.50		0.3346	10.04	10.71	12.40	255.00	272.0	315.00	10
8.60		0.3386	10.16	10.83	12.80	258.00	275.2	325.00	10
8.70		0.3425	10.28	10.96	12.80	261.00	278.4	325.00	10
8.73	11/32	0.3437	10.31	11.00	12.80	261.90	279.4	325.00	10
8.80		0.3465	10.39	11.09	12.80	264.00	281.6	325.00	10
8.90		0.3504	10.51	11.21	12.99	267.00	284.8	330.00	10
9.00		0.3543	10.63	11.34	13.19	270.00	288.0	335.00	10
9.10		0.3583	10.75	11.46	13.39	273.00	291.2	340.00	10
9.13	23/64	0.3594	10.78	11.50	13.39	273.90	292.2	340.00	10
9.20		0.3622	10.87	11.59	13.39	276.00	294.4	340.00	10
9.30		0.3661	10.98	11.72	13.58	279.00	297.6	345.00	10

HAM 30-1891 Recommended as pilot hole drill when using deep hole drill, see page 28.
For cutting data, see page 84.

Order example: 30-2700-6

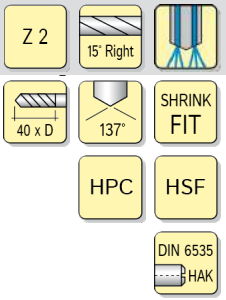
30-2700 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
9.40		0.3701	11.10	11.84	13.78	282.00	300.8	350.00	10
9.50		0.3740	11.22	11.97	13.78	285.00	304.0	350.00	10
9.53	3/8	0.3752	11.26	12.01	13.78	285.90	305.0	350.00	10
9.60		0.3780	11.34	12.09	13.98	288.00	307.2	355.00	10
9.70		0.3819	11.46	12.22	14.17	291.00	310.4	360.00	10
9.80		0.3858	11.57	12.35	14.17	294.00	313.6	360.00	10
9.90		0.3898	11.69	12.47	14.37	297.00	316.8	365.00	10
9.92	25/64	0.3906	11.72	12.50	14.37	297.60	317.4	365.00	10
10.00		0.3937	11.81	12.60	14.37	300.00	320.0	365.00	10
10.10		0.3976	11.93	12.72	14.76	303.00	323.2	375.00	12
10.20		0.4016	12.05	12.85	14.76	306.00	326.4	375.00	12
10.30		0.4055	12.17	12.98	14.96	309.00	329.6	380.00	12
10.32	13/32	0.4063	12.19	13.00	15.16	309.60	330.2	385.00	12
10.40		0.4094	12.28	13.10	15.16	312.00	332.8	385.00	12

30-2700 Ø d1 (h7)		Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
mm	Inch								
10.50		0.4134	12.40	13.23	15.35	315.00	336.0	390.00	12
10.60		0.4173	12.52	13.35	15.35	318.00	339.2	390.00	12
10.70		0.4213	12.64	13.48	15.55	321.00	342.4	395.00	12
10.72	27/64	0.4219	12.66	13.51	15.55	321.60	343.0	395.00	12
10.80		0.4252	12.76	13.61	15.55	324.00	345.6	395.00	12
10.90		0.4291	12.87	13.73	15.75	327.00	348.8	400.00	12
11.00		0.4331	12.99	13.86	15.94	330.00	352.0	405.00	12
11.10		0.4370	13.11	13.98	16.14	333.00	355.2	410.00	12
11.11	7/16	0.4374	13.12	14.00	16.14	333.30	355.5	410.00	12
11.20		0.4409	13.23	14.11	16.14	336.00	358.4	410.00	12
11.30		0.4449	13.35	14.24	16.34	339.00	361.6	415.00	12
11.40		0.4488	13.46	14.36	16.34	342.00	364.8	415.00	12
11.80		0.4646	13.94	14.87	16.73	354.00	377.6	425.00	12
12.00		0.4724	14.17	15.12	16.93	360.00	384.0	430.00	12

HAM 30-1891 Recommended as pilot hole drill when using deep hole drill, see page 28.
For cutting data, see page 84.

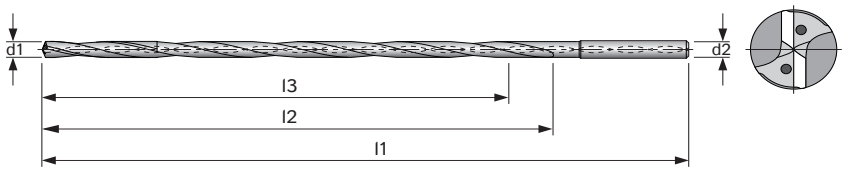
Order example: 30-2700-6

HAM 30-2740 — Solid Carbide Deep Hole Drill — 40 x D



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 15 ° RH helix
- polished flute



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2740	●	●													●		●	●		

● very suitable ○ suitable

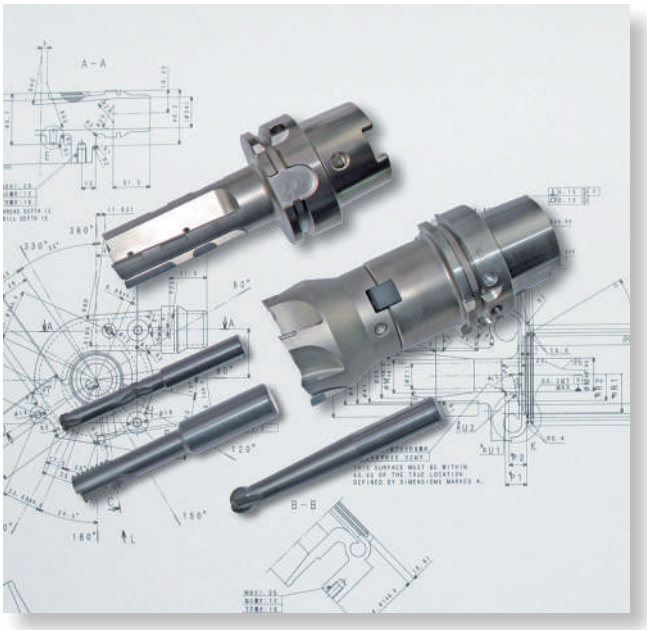
30-2740 Ø d1 (h7) mm	30-2740 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
3.00		0.1181	4.72	4.96	6.69	120.00	126.0	170.00	6
3.10		0.1220	4.88	5.13	6.89	124.00	130.2	175.00	6
3.17	1/8	0.1248	4.99	5.24	6.89	126.80	133.1	175.00	6
3.20		0.1260	5.04	5.29	7.09	128.00	134.4	180.00	6
3.30		0.1299	5.20	5.46	7.09	132.00	138.6	180.00	6
3.40		0.1339	5.35	5.62	7.28	136.00	142.8	185.00	6
3.50		0.1378	5.51	5.79	7.48	140.00	147.0	190.00	6
3.57	9/64	0.1406	5.62	5.90	7.48	142.80	149.9	190.00	6
3.60		0.1417	5.67	5.95	7.68	144.00	151.2	195.00	6
3.70		0.1457	5.83	6.12	7.87	148.00	155.4	200.00	6
3.80		0.1496	5.98	6.28	8.07	152.00	159.6	205.00	6
3.90		0.1535	6.14	6.45	8.07	156.00	163.8	205.00	6
3.97	5/32	0.1563	6.25	6.56	8.27	158.80	166.7	210.00	6
4.00		0.1575	6.30	6.61	8.27	160.00	168.0	210.00	6
4.10		0.1614	6.46	6.78	8.46	164.00	172.2	215.00	6
4.20		0.1654	6.61	6.94	8.66	168.00	176.4	220.00	6
4.30		0.1693	6.77	7.11	8.86	172.00	180.6	225.00	6
4.37	11/64	0.1720	6.88	7.23	8.86	174.80	183.5	225.00	6
4.40		0.1732	6.93	7.28	9.06	176.00	184.8	230.00	6
4.50		0.1772	7.09	7.44	9.06	180.00	189.0	230.00	6
4.60		0.1811	7.24	7.61	9.25	184.00	193.2	235.00	6
4.70		0.1850	7.40	7.77	9.45	188.00	197.4	240.00	6
4.76	3/16	0.1874	7.50	7.87	9.65	190.40	199.9	245.00	6
4.80		0.1890	7.56	7.94	9.65	192.00	201.6	245.00	6
4.90		0.1929	7.72	8.10	9.84	196.00	205.8	250.00	6
5.00		0.1969	7.87	8.27	9.84	200.00	210.0	250.00	6
5.10		0.2008	8.03	8.43	10.24	204.00	214.2	260.00	6
5.16	13/64	0.2031	8.13	8.53	10.24	206.40	216.7	260.00	6
5.20		0.2047	8.19	8.60	10.24	208.00	218.4	260.00	6
5.30		0.2087	8.35	8.76	10.43	212.00	222.6	265.00	6
5.40		0.2126	8.50	8.93	10.63	216.00	226.8	270.00	6
5.50		0.2165	8.66	9.09	10.83	220.00	231.0	275.00	6
5.55	19/87	0.2185	8.74	9.18	10.83	222.00	233.1	275.00	6
5.60		0.2205	8.82	9.26	11.02	224.00	235.2	280.00	6
5.70		0.2244	8.98	9.43	11.22	228.00	239.4	285.00	6
5.80		0.2283	9.13	9.59	11.22	232.00	243.6	285.00	6
5.90		0.2323	9.29	9.76	11.42	236.00	247.8	290.00	6

30-2740 Ø d1 (h7) mm	30-2740 Ø d1 (h7) Inch	Dec. Equiv.	l3 Cutting Length Inch	l2 Flute Length Inch	l1 OAL Inch	l3 Cutting Length mm	l2 Flute Length mm	l1 OAL mm	Ø d2 (h6) mm
5.95	15/64	0.2343	9.37	9.84	11.61	238.00	249.9	295.00	6
6.00		0.2362	9.45	9.92	11.61	240.00	252.0	295.00	6
6.10		0.2402	9.61	10.09	11.81	244.00	256.2	300.00	8
6.20		0.2441	9.76	10.25	12.01	248.00	260.4	305.00	8
6.30		0.2480	9.92	10.42	12.20	252.00	264.6	310.00	8
6.35	1/4	0.2500	10.00	10.50	12.20	254.00	266.7	310.00	8
6.40		0.2520	10.08	10.58	12.20	256.00	268.8	310.00	8
6.50		0.2559	10.24	10.75	12.40	260.00	273.0	315.00	8
6.60		0.2598	10.39	10.91	12.60	264.00	277.2	320.00	8
6.70		0.2638	10.55	11.08	12.80	268.00	281.4	325.00	8
6.75	17/64	0.2656	10.63	11.16	12.80	270.00	283.5	325.00	8
6.80		0.2677	10.71	11.24	12.99	272.00	285.6	330.00	8
6.90		0.2717	10.87	11.41	13.19	276.00	289.8	335.00	8
7.00		0.2756	11.02	11.57	13.19	280.00	294.0	335.00	8
7.10		0.2795	11.18	11.74	13.39	284.00	298.2	340.00	8
7.14	9/32	0.2811	11.24	11.81	13.58	285.60	299.9	345.00	8
7.20		0.2835	11.34	11.91	13.58	288.00	302.4	345.00	8
7.30		0.2874	11.50	12.07	13.78	292.00	306.6	350.00	8
7.40		0.2913	11.65	12.24	13.98	296.00	310.8	355.00	8
7.50		0.2953	11.81	12.40	14.17	300.00	315.0	360.00	8
7.54	19/64	0.2969	11.87	12.47	14.17	301.60	316.7	360.00	8
7.60		0.2992	11.97	12.57	14.37	304.00	319.2	365.00	8
7.70		0.3031	12.13	12.73	14.37	308.00	323.4	365.00	8
7.80		0.3071	12.28	12.90	14.57	312.00	327.6	370.00	8
7.90		0.3110	12.44	13.06	14.76	316.00	331.8	375.00	8
7.94	5/16	0.3126	12.50	13.13	14.76	317.60	333.5	375.00	8
8.00		0.3150	12.60	13.23	14.96	320.00	336.0	380.00	8
8.10		0.3189	12.76	13.39	15.35	324.00	340.2	390.00	10
8.20		0.3228	12.91	13.56	15.35	328.00	344.4	390.00	10
8.30		0.3268	13.07	13.72	15.55	332.00	348.6	395.00	10
8.33	21/64	0.3281	13.12	13.77	15.55	333.20	349.9	395.00	10
8.40		0.3307	13.23	13.89	15.75	336.00	352.8	400.00	10
8.50		0.3346	13.39	14.06	15.75	340.00	357.0	400.00	10
8.60		0.3386	13.54	14.22	16.14	344.00	361.2	410.00	10
8.70		0.3425	13.70	14.39	16.34	348.00	365.4	415.00	10
8.73	11/32	0.3437	13.75	14.44	16.34	349.20	366.7	415.00	10
8.80		0.3465	13.86	14.55	16.34	352.00	369.6	415.00	10

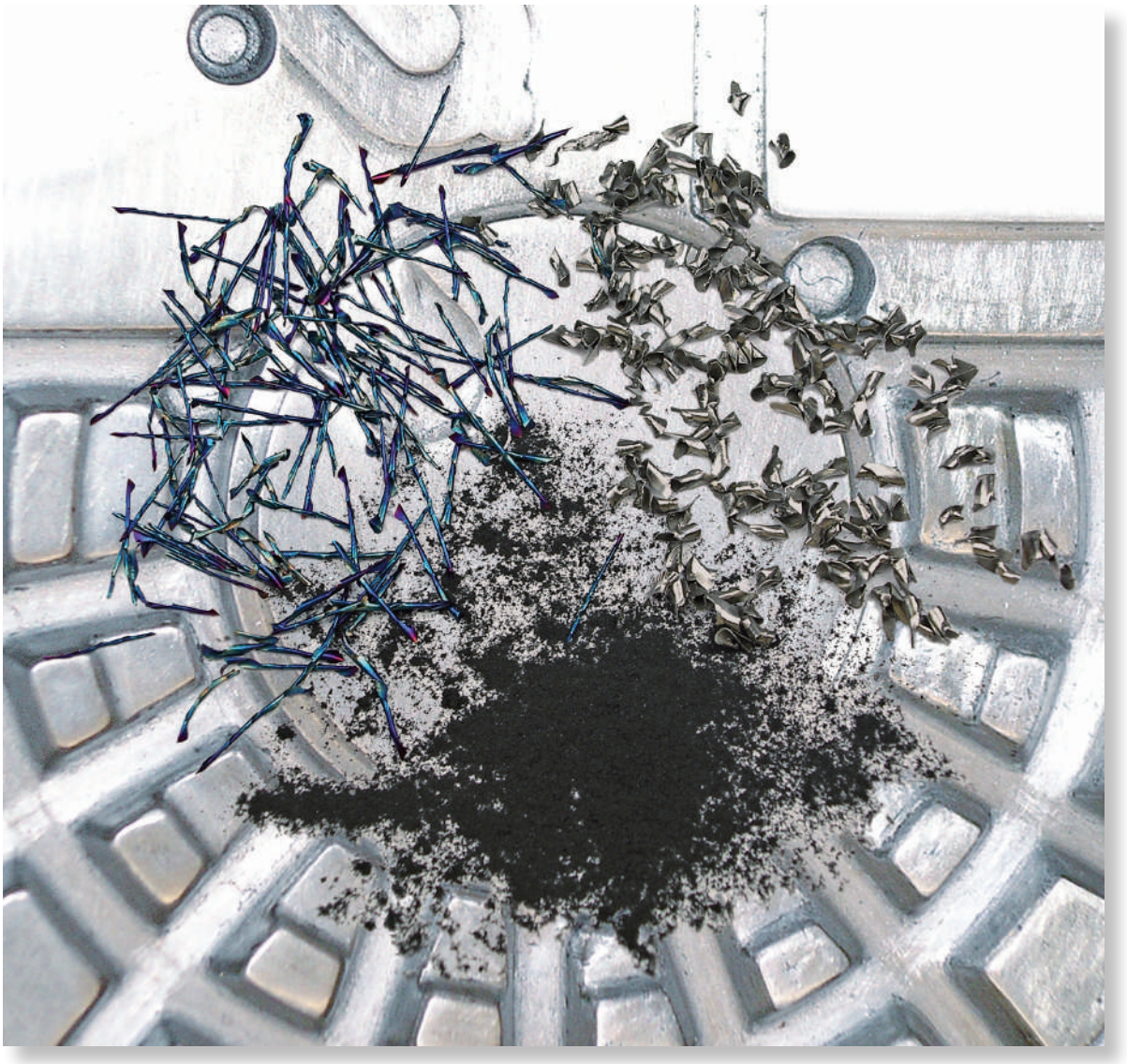
HAM 30-1891 Recommended as pilot hole drill when using deep hole drill, see page 28.
For cutting data, see page 84

Order example: 30-2740-0500

Project Engineering



HAM Partnership from Project Engineering to Tool Management



Manufacturing Tolerances

h7, h6

Diameter Range Nominal Size mm	Tolerance Range mm h7	h6
3.000 - 6.000 (0.118 - 0.236)	-0.012 (0.00047")	-0.008 (0.00031")
> 6.000 - 10.000 (0.236 - 0.393)	-0.015 (0.00059")	-0.009 (0.00035")
> 10.000 - 18.000 (0.393 - 0.709)	-0.018 (0.0007")	-0.011 (0.00043")
> 18.000 - 30.000 (0.709 - 1.181)	-0.021 (0.00083")	-0.013 (0.0005")

m7

Diameter Range Nominal Size mm	mm	inches
3.000 - 6.000 (0.118 - 0.236)	(+) 0.004 (+) 0.016	(+) 0.00015 (+) 0.00063
> 6.000 - 10.000 (0.236 - 0.393)	(+) 0.006 (+) 0.021	(+) 0.00023 (+) 0.00083
> 10.000 - 18.000 (0.393 - 0.709)	(+) 0.007 (+) 0.025	(+) 0.00027 (+) 0.00098
> 18.000 - 30.000 (0.709 - 1.181)	(+) 0.008 (+) 0.029	(+) 0.00031 (+) 0.00114

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HAM 30 - 1120/1121

Solid Carbide Spiral Drill

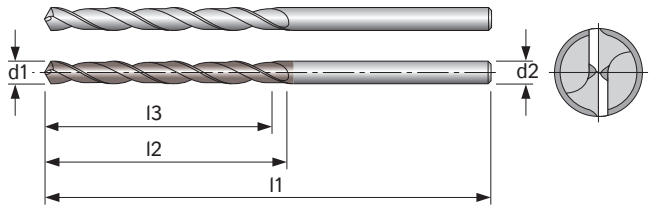
Z 2 | 30° Right | DIN 338

Typ N | 120° | HA

TA

Engineering data

- 4-facet ground
- web thinning DIN 1412 form A
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1120	○	○	○	○	○				○	○	○	○			●		○	●	○	○
30-1121	○	○	●	●	○				○	○	●	●			○		○	●	○	○

● very suitable ○ suitable

	Diameter Inch	**.039 - .059**	**.062 - .118**	**.122 - .130**	**.133 - .145**	**.149 - .165**	**.169 - .185**	**.188 - .208**	**.212 - .236**	**.240 - .263**
Material Group	**Diameter mm**	**1.0 - 1.5**	**1.6 - 3**	**3.1 - 3.3**	**3.4 - 3.7**	**3.8 - 4.2**	**4.3 - 4.7**	**4.8 - 5.3**	**5.4 - 6.0**	**6.1 - 6.7**
Steel < 23 Rockwell	SFM [surface feet/min]	754	754	754	754	754	754	754	754	754
	IPR [inches/rev]	0.0010	0.0020	0.0028	0.0330	0.0039	0.0043	0.0047	0.0053	0.0059
	Vc [m/min]	230	230	230	230	230	230	230	230	230
	f [mm/U]	0.025	0.050	0.070	0.085	0.100	0.110	0.120	0.135	0.150
Steel < 38 Rockwell	SFM [surface feet/min]	590	590	590	590	590	590	590	590	590
	IPR [inches/rev]	0.0010	0.0020	0.0028	0.0330	0.0039	0.0043	0.0047	0.0053	0.0059
	Vc [m/min]	180	180	180	180	180	180	180	180	180
	f [mm/U]	0.025	0.050	0.070	0.085	0.100	0.110	0.120	0.135	0.150
Steel < 48 Rockwell	SFM [surface feet/min]	295	295	295	295	295	295	295	295	295
	IPR [inches/rev]	0.0010	0.0020	0.0028	0.0033	0.0039	0.0043	0.0047	0.0049	0.0053
	Vc [m/min]	90	90	90	90	90	90	90	90	90
	f [mm/U]	0.025	0.050	0.070	0.085	0.100	0.110	0.120	0.125	0.135
Steel < 55 Rockwell	SFM [surface feet/min]	213	213	213	213	213	213	213	213	213
	IPR [inches/rev]	0.0010	0.0016	0.0023	0.0027	0.0029	0.0033	0.0035	0.0039	0.0043
	Vc [m/min]	65	65	65	65	65	65	65	65	65
	f [mm/U]	0.025	0.040	0.060	0.070	0.075	0.085	0.090	0.100	0.110
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	164	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0006	0.0014	0.0016	0.0020	0.0023	0.0027	0.0029	0.0033	0.0035
	Vc [m/min]	50	50	50	50	50	50	50	50	50
	f [mm/U]	0.015	0.035	0.040	0.050	0.060	0.070	0.075	0.085	0.090
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	131	131	131	131	131	131	131	131	131
	IPR [inches/rev]	0.0006	0.0008	0.0011	0.0013	0.0015	0.0015	0.0017	0.0017	0.0019
	Vc [m/min]	40	40	40	40	40	40	40	40	40
	f [mm/U]	0.015	0.020	0.030	0.035	0.040	0.040	0.045	0.045	0.050
Cast Iron	SFM [surface feet/min]	98	98	98	98	98	98	98	98	98
	IPR [inches/rev]	0.0004	0.0006	0.0010	0.0010	0.0011	0.0011	0.0013	0.0013	0.0015
	Vc [m/min]	30	30	30	30	30	30	30	30	30
	f [mm/U]	0.010	0.015	0.025	0.025	0.030	0.030	0.035	0.035	0.040
Nodular or Ductile Iron	SFM [surface feet/min]	278	278	278	278	278	278	278	278	278
	IPR [inches/rev]	0.0010	0.0020	0.0028	0.0033	0.0390	0.0430	0.0470	0.0049	0.0053
	Vc [m/min]	85	85	85	85	85	85	85	85	85
	f [mm/U]	0.025	0.050	0.070	0.085	0.100	0.110	0.120	0.125	0.135
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	230	230	230	230	230	230	230	230	230
	IPR [inches/rev]	0.0010	0.0016	0.0023	0.0027	0.0029	0.0033	0.0035	0.0039	0.0043
	Vc [m/min]	70	70	70	70	70	70	70	70	70
	f [mm/U]	0.025	0.040	0.060	0.070	0.075	0.085	0.090	0.1	0.110
Titanium	SFM [surface feet/min]	590	590	590	590	590	590	590	590	590
	IPR [inches/rev]	0.0010	0.0020	0.0027	0.0033	0.0039	0.0043	0.0047	0.0053	0.0059
	Vc [m/min]	180	180	180	180	180	180	180	180	180
	f [mm/U]	0.025	0.050	0.070	0.085	0.100	0.110	0.120	0.135	0.150

- **Note:** **Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.**

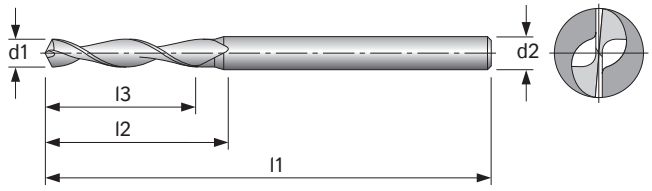
	Diameter Inch	.267 - .295	.299 - .334	.338 - .374	.377 - .413	.417 - .452	.456 - .511	.515 - .570	0.63
Material Group	**Diameter mm**	**6.8 - 7.5**	**7.6 - 8.5**	**8.6 - 9.5**	**9.6 - 10.5**	**10.6 - 11.5**	**11-6 - 13.0**	**13.1 - 14.5**	**16**
Steel < 23 Rockwell	SFM [surface feet/min]	754	754	754	754	754	754	754	754
	IPR [inches/rev]	0.0067	0.0073	0.0078	0.0086	0.0094	0.0100	0.0106	0.0118
	Vc [m/min]	230	230	230	230	230	230	230	230
	f [mm/U]	0.170	0.185	0.200	0.220	0.240	0.255	0.270	0.300
Steel < 38 Rockwell	SFM [surface feet/min]	590	590	590	590	590	590	590	590
	IPR [inches/rev]	0.0067	0.0073	0.0078	0.0086	0.0094	0.0100	0.0106	0.0118
	Vc [m/min]	180	180	180	180	180	180	180	180
	f [mm/U]	0.170	0.185	0.200	0.220	0.240	0.255	0.270	0.300
Steel < 48 Rockwell	SFM [surface feet/min]	295	295	295	295	295	295	295	295
	IPR [inches/rev]	0.0059	0.0067	0.0073	0.0078	0.0082	0.0086	0.0086	0.0098
	Vc [m/min]	90	90	90	90	90	90	90	90
	f [mm/U]	0.150	0.170	0.185	0.200	0.210	0.220	0.220	0.250
Steel < 55 Rockwell	SFM [surface feet/min]	213	213	213	213	213	213	213	213
	IPR [inches/rev]	0.0047	0.0051	0.0053	0.0059	0.0059	0.0067	0.0075	0.0082
	Vc [m/min]	65	65	65	65	65	65	65	65
	f [mm/U]	0.120	0.130	0.135	0.150	0.150	0.170	0.190	0.210
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0039	0.0047	0.0051	0.0051	0.0055	0.0055	0.0059	0.0067
	Vc [m/min]	50	50	50	50	50	50	50	50
	f [mm/U]	0.100	0.120	0.130	0.130	0.140	0.140	0.150	0.170
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	131	131	131	131	131	131	131	131
	IPR [inches/rev]	0.0021	0.0023	0.0027	0.0029	0.0033	0.0037	0.0043	0.0059
	Vc [m/min]	40	40	40	40	40	40	40	40
	f [mm/U]	0.055	0.060	0.070	0.075	0.085	0.095	0.110	0.150
Cast Iron	SFM [surface feet/min]	98	98	98	98	98	98	98	98
	IPR [inches/rev]	0.0017	0.0019	0.0021	0.0023	0.0027	0.0031	0.0035	0.0047
	Vc [m/min]	30	30	30	30	30	30	30	30
	f [mm/U]	0.045	0.050	0.055	0.060	0.070	0.080	0.090	0.120
Nodular or Ductile Iron	SFM [surface feet/min]	278	278	278	278	278	278	278	278
	IPR [inches/rev]	0.0059	0.0067	0.0073	0.0078	0.0082	0.0086	0.0086	0.0098
	Vc [m/min]	85	85	85	85	85	85	85	85
	f [mm/U]	0.150	0.170	0.185	0.200	0.210	0.220	0.220	0.250
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	230	230	230	230	230	230	230	230
	IPR [inches/rev]	0.0047	0.0051	0.0053	0.0059	0.0059	0.0067	0.0075	0.0082
	Vc [m/min]	70	70	70	70	70	70	70	70
	f [mm/U]	0.120	0.130	0.135	0.150	0.150	0.170	0.190	0.210
Titanium	SFM [surface feet/min]	590	590	590	590	590	590	590	590
	IPR [inches/rev]	0.0067	0.0073	0.0078	0.0086	0.0094	0.0100	0.0106	0.0118
	Vc [m/min]	180	180	180	180	180	180	180	180
	f [mm/U]	0.170	0.185	0.200	0.220	0.240	0.255	0.270	0.300

- **Note:** **Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.**

HAM 30 - 1160/1161 Solid Carbide Spiral Drill

Z 2 | 30° Right | 130° | SHRINK FIT | HA

Engineering data
- 4-facet ground
- web thinning DIN 1412 form A
- AMS geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1160	●	●	○	○					○	○	○			○	●	○	○	●	○	○
30-1161	●	●	○	○					○	○	○			○	●	○	○	●	○	○

● very suitable ○ suitable

	Diameter Inch	.020 - .024	.025 - .028	.029 - .033	.034 - .045	.046 - .075	.076 - .118
Material Group	Diameter mm	0.55	0.7	0.8	1.1	1.6	2.60
Aluminum	SFM [surface feet/min]	656	656	656	656	656	656
	IPR [inches/rev]	0.0008	0.0010	0.0012	0.0016	0.0024	0.0039
	Vc [m/min]	200	200	200	200	200	200
	f [mm/U]	0.020	0.025	0.030	0.040	0.060	0.100
Aluminum > 9% Si	SFM [surface feet/min]	525	525	525	525	525	525
	IPR [inches/rev]	0.0008	0.0010	0.0012	0.0016	0.0024	0.0039
	Vc [m/min]	160	160	160	160	160	160
	f [mm/U]	0.020	0.025	0.030	0.040	0.060	0.100
Steel < 23 Rockwell	SFM [surface feet/min]	197	197	197	197	197	197
	IPR [inches/rev]	0.0004	0.0006	0.0008	0.0010	0.0014	0.0020
	Vc [m/min]	60	60	60	60	60	60
	f [mm/U]	0.010	0.015	0.020	0.025	0.035	0.050
Steel < 38 Rockwell	SFM [surface feet/min]	164	164	164	164	164	164
	IPR [inches/rev]	0.0004	0.0004	0.0006	0.0008	0.0012	0.0016
	Vc [m/min]	50	50	50	50	50	50
	f [mm/U]	0.010	0.010	0.015	0.020	0.030	0.040
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	98	98	98	98	98	98
	IPR [inches/rev]	0.0002	0.0002	0.0003	0.0004	0.0006	0.0010
	Vc [m/min]	30	30	30	30	30	30
	f [mm/U]	0.005	0.006	0.008	0.01	0.015	0.025
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	82	82	82	82	82	82
	IPR [inches/rev]	0.0002	0.0002	0.0003	0.0004	0.0006	0.0010
	Vc [m/min]	25	25	25	25	25	25
	f [mm/U]	0.005	0.006	0.008	0.01	0.015	0.025
Cast Iron	SFM [surface feet/min]	213	213	213	213	213	213
	IPR [inches/rev]	0.0004	0.0006	0.0008	0.0010	0.0014	0.0020
	Vc [m/min]	65	65	65	65	65	65
	f [mm/U]	0.010	0.015	0.020	0.025	0.035	0.050
Titanium	SFM [surface feet/min]	98	98	98	98	98	98
	IPR [inches/rev]	0.0002	0.0002	0.0003	0.0004	0.0006	0.0010
	Vc [m/min]	30	30	30	30	30	30
	f [mm/U]	0.005	0.006	0.008	0.010	0.015	0.025
Copper & Non Ferrous Metals	SFM [surface feet/min]	427	427	427	427	427	427
	IPR [inches/rev]	0.0006	0.0007	0.0010	0.0012	0.0016	0.0028
	Vc [m/min]	130	130	130	130	130	130
	f [mm/U]	0.015	0.017	0.025	0.030	0.040	0.070
Graphite & Fibre Reinforced Composites	SFM [surface feet/min]	164	164	164	164	164	164
	IPR [inches/rev]	0.0004	0.0005	0.0006	0.0008	0.0012	0.0018
	Vc [m/min]	50	50	50	50	50	50
	f [mm/U]	0.010	0.012	0.016	0.020	0.030	0.045

- **Note:** Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.

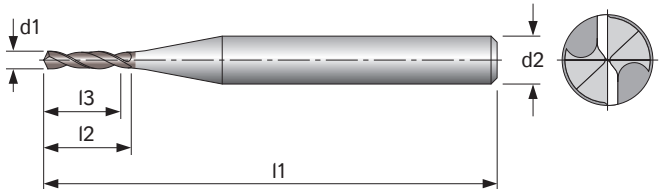
HAM 30 - 1301

Solid Carbide Spiral Drill

Z 2 | 30° Right | 140° | SHRINK FIT | HPC | TA | HA

Engineering data

- 4-facet ground
- Ø 0.1 mm - 0.15 mm no web thinning
- Ø 0.2 mm - 0.45 mm web thinning DIN 1412 form A
- from Ø 0.5 mm web thinning DIN 1412 form C
- web thickness reinforced
- shank reinforced
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
			●	●	●	○			●	○	●	○		●			●	●		

● very suitable ○ suitable

	Diameter Inch	.0039 - .0137	.0157 - .0256	.0275 - .0374	.0393 - .0452	.0472 - .0570	.0590 - .0767	.0787 - .0964	.0984 - .118
Material Group	**Diameter mm**	**0.1 - 0.35**	**0.40 - 0.65**	**0.70 - 0.95**	**1.00 - 1.15**	**1.20 - 1.45**	**1.50 -1.95**	**2.00 - 2.45**	**2.50 - 3.00**
Steel < 23 Rockwell	SFM [surface feet/min]	295	295	295	295	295	295	295	295
	IPR [inches/rev]	0.0004	0.0008	0.0016	0.0020	0.0028	0.0035	0.0047	0.0059
	Vc [m/min]	90	90	90	90	90	90	90	90
	f [mm/U]	0.010	0.020	0.040	0.050	0.070	0.090	0.120	0.150
Steel < 38 Rockwell	SFM [surface feet/min]	230	230	230	230	230	230	230	230
	IPR [inches/rev]	0.0004	0.0008	0.0016	0.0020	0.0028	0.0035	0.0047	0.0059
	Vc [m/min]	70	70	70	70	70	70	70	70
	f [mm/U]	0.010	0.020	0.040	0.050	0.070	0.090	0.120	0.150
Steel < 48 Rockwell	SFM [surface feet/min]	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0003	0.0008	0.0014	0.0016	0.0022	0.0028	0.0035	0.0043
	Vc [m/min]	50	50	50	50	50	50	50	50
	f [mm/U]	0.007	0.020	0.040	0.050	0.070	0.090	0.120	0.150
Steel < 55 Rockwell	SFM [surface feet/min]	115	115	115	115	115	115	115	115
	IPR [inches/rev]	0.0002	0.0004	0.0006	0.0008	0.0010	0.0014	0.0018	0.0022
	Vc [m/min]	35	35	35	35	35	35	35	35
	f [mm/U]	0.005	0.010	0.015	0.020	0.025	0.035	0.045	0.055
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	131	131	131	131	131	131	131	131
	IPR [inches/rev]	0.0002	0.0003	0.0005	0.0006	0.0008	0.0010	0.0014	0.0016
	Vc [m/min]	40	40	40	40	40	40	40	40
	f [mm/U]	0.004	0.008	0.012	0.015	0.020	0.025	0.035	0.040
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	98	98	98	98	98	98	98	98
	IPR [inches/rev]	0.0002	0.0003	0.0005	0.0006	0.0008	0.0010	0.0014	0.0016
	Vc [m/min]	30	30	30	30	30	30	30	30
	f [mm/U]	0.004	0.008	0.012	0.015	0.012	0.025	0.035	0.040
Cast Iron	SFM [surface feet/min]	279	279	279	279	279	279	279	279
	IPR [inches/rev]	0.0004	0.0008	0.0016	0.0020	0.0028	0.0035	0.0047	0.0059
	Vc [m/min]	85	85	85	85	85	85	85	85
	f [mm/U]	0.010	0.020	0.040	0.050	0.070	0.090	0.120	0.150
Nodular or Ductile Iron	SFM [surface feet/min]	213	213	213	213	213	213	213	213
	IPR [inches/rev]	0.0004	0.0008	0.0016	0.0020	0.0028	0.0035	0.0047	0.0059
	Vc [m/min]	65	65	65	65	65	65	65	65
	f [mm/U]	0.010	0.020	0.040	0.050	0.070	0.090	0.120	0.150
Titanium	SFM [surface feet/min]	115	115	115	115	115	115	115	115
	IPR [inches/rev]	0.0002	0.0003	0.0005	0.0006	0.0008	0.0010	0.0014	0.0016
	Vc [m/min]	35	35	35	35	35	35	35	35
	f [mm/U]	0.004	0.008	0.012	0.015	0.020	0.025	0.035	0.040

- **Note:** **Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.**

HAM 30-1621/1701 Superdrill

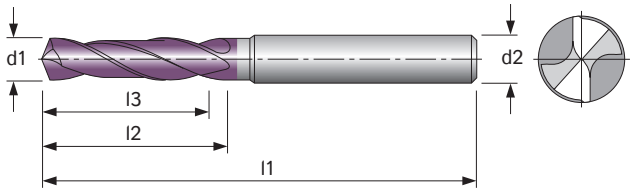
280 Series

Solid Carbide Twist Drill

Z 2 | 30° Right | DIN 6537K | 3 x D | 5 x D | 140° | SHRINK FIT | HSF | HPC | TA-C | DIN 6535 HA | DIN 6535 HB | DIN 6535 HE

Engineering Data

- special point ground
- special chip flute geometry
- web thickness reinforced
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
	○	○	●	●	●	●			○	○	●	●	○	○			●	●		

● very suitable ○ suitable

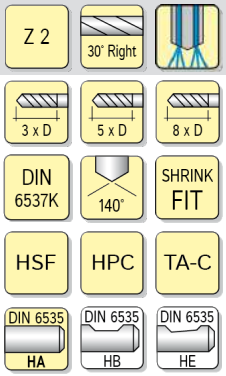
	Diameter Inch	0.118	0.157	0.196	0.236	0.315	0.394	0.472	0.551	0.63	0.708	0.787	0.866
Material Group	Diameter mm	3.00	4.00	5.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
Steel < 23 Rockwell	SFM [surface feet/min]	295	295	295	295	295	295	295	295	295	295	295	427
	IPR [inches/rev]	0.0039	0.0059	0.0071	0.0079	0.0098	0.0118	0.0138	0.0138	0.0157	0.0177	0.0197	0.0236
	Vc [m/min]	90	90	90	90	90	90	90	90	90	90	90	1140
	f [mm/U]	0.100	0.150	0.180	0.200	0.250	0.300	0.350	0.350	0.400	0.450	0.500	0.600
Steel < 38 Rockwell	SFM [surface feet/min]	213	213	213	213	213	213	213	213	213	213	213	295
	IPR [inches/rev]	0.0039	0.0059	0.0071	0.0079	0.0098	0.0118	0.0138	0.0138	0.0157	0.0177	0.0197	0.0236
	Vc [m/min]	65	65	65	65	65	65	65	65	65	65	65	780
	f [mm/U]	0.100	0.150	0.180	0.200	0.250	0.300	0.350	0.350	0.400	0.450	0.500	0.600
Steel < 48 Rockwell	SFM [surface feet/min]	164	164	164	164	164	164	164	164	164	164	164	230
	IPR [inches/rev]	0.0031	0.0047	0.0059	0.0071	0.0079	0.0098	0.0118	0.0118	0.0138	0.0157	0.0177	0.0197
	Vc [m/min]	50	50	50	50	50	50	50	50	50	50	50	500
	f [mm/U]	0.080	0.120	0.150	0.180	0.200	0.250	0.300	0.300	0.350	0.400	0.450	0.500
Steel < 55 Rockwell	SFM [surface feet/min]	39	39	39	39	39	39	39	39	39	39	39	49
	IPR [inches/rev]	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0035	0.0039	0.0047	0.0055
	Vc [m/min]	12	12	12	12	12	12	12	12	12	12	12	30
	f [mm/U]	0.010	0.020	0.030	0.040	0.050	0.060	0.070	0.080	0.090	0.100	0.120	0.140
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	115	115	115	115	115	115	115	115	115	115	115	131
	IPR [inches/rev]	0.0012	0.0016	0.0020	0.0024	0.0031	0.0039	0.0047	0.0051	0.0059	0.0071	0.0079	0.0079
	Vc [m/min]	35	35	35	35	35	35	35	35	35	35	35	40
	f [mm/U]	0.030	0.040	0.050	0.060	0.800	0.100	0.120	0.130	0.150	0.180	0.200	0.200
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	82	82	82	82	82	82	82	82	82	82	82	98
	IPR [inches/rev]	0.0012	0.0016	0.0020	0.0024	0.0031	0.0039	0.0047	0.0051	0.0059	0.0071	0.0079	0.0047
	Vc [m/min]	25	25	25	25	25	25	25	25	25	25	25	30
	f [mm/U]	0.030	0.040	0.050	0.060	0.800	0.100	0.120	0.130	0.150	0.180	0.200	0.120
Cast Iron	SFM [surface feet/min]	279	279	279	279	279	279	279	279	279	279	279	394
	IPR [inches/rev]	0.0039	0.0047	0.0059	0.0079	0.0098	0.0138	0.0177	0.0197	0.0236	0.0256	0.0276	0.0295
	Vc [m/min]	85	85	85	85	85	85	85	85	85	85	85	120
	f [mm/U]	0.100	0.120	0.150	0.200	0.250	0.350	0.450	0.500	0.600	0.650	0.700	0.750
Nodular or Ductile Iron	SFM [surface feet/min]	213	213	213	213	213	213	213	213	213	213	213	295
	IPR [inches/rev]	0.0024	0.0039	0.0047	0.0051	0.0071	0.0079	0.0098	0.0098	0.0098	0.0110	0.0118	0.0138
	Vc [m/min]	65	65	65	65	65	65	65	65	65	65	65	90
	f [mm/U]	0.060	0.100	0.120	0.130	0.180	0.200	0.250	0.250	0.250	0.280	0.300	0.300
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	131	131	131	131	131	131	131	131	131	131	131	164
	IPR [inches/rev]	0.0012	0.0016	0.0016	0.0020	0.0028	0.0039	0.0047	0.0051	0.0055	0.0059	0.0063	0.0079
	Vc [m/min]	40	40	40	40	40	40	40	40	40	40	40	50
	f [mm/U]	0.030	0.040	0.040	0.050	0.070	0.100	0.120	0.130	0.140	0.150	0.160	0.200
Titanium	SFM [surface feet/min]	82	82	82	82	82	82	82	82	82	82	82	98
	IPR [inches/rev]	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0039	0.0039	0.0043	0.0047	0.0047
	Vc [m/min]	25	25	25	25	25	25	25	25	25	25	25	30
	f [mm/U]	0.020	0.030	0.040	0.050	0.060	0.070	0.080	0.100	0.100	0.110	0.120	0.120

- **Note:** Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.

HAM 30-1741/1781/1821 Superdrill

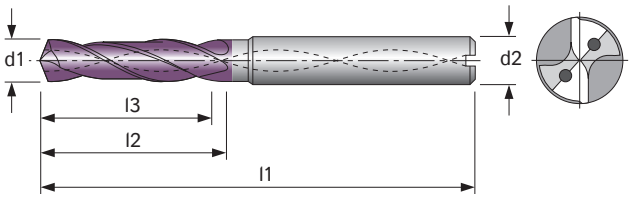
Solid Carbide Twist Drill

Series 285/286/292



Engineering Data

- special point ground
- special chip flute geometry
- web thickness reinforced
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
	○	○	●	●	●	●			○	○	●	●	○	○			●	●		

● very suitable ○ suitable

	Diameter Inch	0.118	0.157	0.196	0.236	0.315	0.394	0.472	0.551	0.63	0.708	0.787	0.866
Material Group	**Diameter mm**	**3.00**	**4.00**	**5.00**	**6.00**	**8.00**	**10.00**	**12.00**	**14.00**	**16.00**	**18.00**	**20.00**	**22.00**
Steel < 23 Rockwell	SFM [surface feet/min]	427	427	427	427	427	427	427	427	427	427	427	427
	IPR [inches/rev]	0.0047	0.0067	0.0079	0.0087	0.0106	0.0126	0.0146	0.0157	0.0177	0.0197	0.0217	0.0236
	Vc [m/min]	130	130	130	130	130	130	130	130	130	130	130	1140
	f [mm/U]	0.120	0.170	0.200	0.220	0.270	0.320	0.370	0.400	0.450	0.500	0.550	0.600
Steel < 38 Rockwell	SFM [surface feet/min]	295	295	295	295	295	295	295	295	295	295	295	295
	IPR [inches/rev]	0.0047	0.0067	0.0079	0.0087	0.0106	0.0126	0.0146	0.0157	0.0177	0.0197	0.0217	0.0236
	Vc [m/min]	90	90	90	90	90	90	90	90	90	90	90	780
	f [mm/U]	0.120	0.170	0.200	0.220	0.270	0.320	0.370	0.400	0.450	0.500	0.550	0.600
Steel < 48 Rockwell	SFM [surface feet/min]	230	230	230	230	230	230	230	230	230	230	230	230
	IPR [inches/rev]	0.0039	0.0055	0.0067	0.0079	0.0087	0.0106	0.0126	0.0138	0.0146	0.0157	0.0185	0.0197
	Vc [m/min]	70	70	70	70	70	70	70	70	70	70	70	500
	f [mm/U]	0.100	0.140	0.170	.2.	0.220	0.270	0.320	0.350	0.370	0.400	0.470	0.500
Steel < 55 Rockwell	SFM [surface feet/min]	49	49	49	49	49	49	49	49	49	49	49	49
	IPR [inches/rev]	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0035	0.0039	0.0047	0.0055
	Vc [m/min]	15	15	15	15	15	15	15	15	15	15	15	30
	f [mm/U]	0.010	0.020	0.030	0.040	0.050	0.060	0.070	0.080	0.090	0.100	0.120	0.140
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	131	131	131	131	131	131	131	131	131	131	131	131
	IPR [inches/rev]	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0039	0.0043	0.0047	0.0055	0.0063	0.0079
	Vc [m/min]	40	40	40	40	40	40	40	40	40	40	40	40
	f [mm/U]	0.030	0.040	0.050	0.060	0.070	0.080	0.100	0.110	0.120	0.140	0.160	0.200
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	98	98	98	98	98	98	98	98	98	98	98	98
	IPR [inches/rev]	0.0006	0.0008	0.0010	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0035	0.0039	0.0047
	Vc [m/min]	30	30	30	30	30	30	30	30	30	30	30	30
	f [mm/U]	0.015	0.020	0.025	0.030	0.040	0.050	0.060	0.070	0.080	0.090	0.100	0.120
Cast Iron	SFM [surface feet/min]	394	394	394	394	394	394	394	394	394	394	394	394
	IPR [inches/rev]	0.0047	0.0055	0.0067	0.0087	0.0106	0.0146	0.0177	0.0197	0.0244	0.0256	0.0283	0.0295
	Vc [m/min]	120	120	120	120	120	120	120	120	120	120	120	120
	f [mm/U]	0.120	0.140	0.170	0.220	0.270	0.370	0.450	0.500	0.620	0.650	0.720	0.750
Nodular or Ductile Iron	SFM [surface feet/min]	295	295	295	295	295	295	295	295	295	295	295	295
	IPR [inches/rev]	0.0024	0.0039	0.0047	0.0051	0.0071	0.0079	0.0098	0.0098	0.0098	0.0098	0.0118	0.0138
	Vc [m/min]	90	90	90	90	90	90	90	90	90	90	90	90
	f [mm/U]	0.060	0.100	0.120	0.130	0.180	0.200	0.250	0.250	0.250	0.250	0.350	0.300
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	164	164	164	164	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0016	0.0020	0.0024	0.0028	0.0035	0.0047	0.0055	0.0059	0.0063	0.0067	0.0071	0.0079
	Vc [m/min]	50	50	50	50	50	50	50	50	50	50	50	50
	f [mm/U]	0.040	0.050	0.060	0.070	0.090	0.120	0.140	0.150	0.160	0.170	0.180	0.200
Titanium	SFM [surface feet/min]	98	98	98	98	98	98	98	98	98	98	98	98
	IPR [inches/rev]	0.0006	0.0008	0.0010	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0035	0.0039	0.0047
	Vc [m/min]	30	30	30	30	30	30	30	30	30	30	30	30
	f [mm/U]	0.015	0.020	0.025	0.030	0.040	0.050	0.060	0.070	0.080	0.090	0.100	0.120

- **Note:** **Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.**

HAM 30-1861 Superdrill

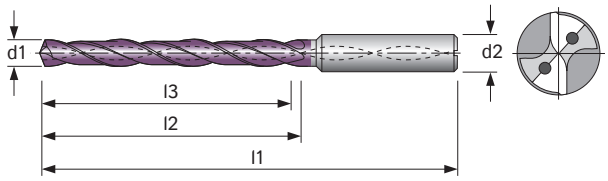
Series 293

Solid Carbide Twist Drill

Z 2 | 30° Right | 12 x D | 140° | SHRINK FIT | HSF | HPC | TA-C | DIN 6535 HAK | DIN 6535 HBK | DIN 6535 HEK

Engineering Data

- 4 guide chamfer
- special point ground
- special chip flute geometry
- web thickness reinforced
- 30° RH helix
- tip-coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
	○	○	●	●	●	●			○	○	●	●	○	○			●	●		

● very suitable ○ suitable

	Diameter Inch	0.118	0.157	0.196	0.236	0.315	0.394	0.472
Material Group	Diameter mm	3.00	4.00	5.00	6.00	8.00	10.00	12.00
Steel < 23 Rockwell	SFM [surface feet/min]	377	377	377	377	377	377	377
	IPR [inches/rev]	0.0035	0.0053	0.0063	0.0071	0.0087	0.0106	0.0118
	Vc [m/min]	115	115	115	115	115	115	115
	f [mm/U]	0.090	0.135	0.160	0.180	0.220	0.270	0.300
Steel < 38 Rockwell	SFM [surface feet/min]	262	262	262	262	262	262	262
	IPR [inches/rev]	0.0035	0.0053	0.0063	0.0071	0.0087	0.0106	0.0118
	Vc [m/min]	80	80	80	80	80	80	80
	f [mm/U]	0.090	0.135	0.160	0.180	0.220	0.270	0.300
Steel < 48 Rockwell	SFM [surface feet/min]	197	197	197	197	197	197	197
	IPR [inches/rev]	0.0028	0.0039	0.0051	0.0063	0.0071	0.0087	0.0106
	Vc [m/min]	60	60	60	60	60	60	60
	f [mm/U]	0.070	0.100	0.130	0.160	0.180	0.220	0.270
Steel < 55 Rockwell	SFM [surface feet/min]	33	33	33	33	33	33	33
	IPR [inches/rev]	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028
	Vc [m/min]	10	10	10	10	10	10	10
	f [mm/U]	0.010	0.020	0.030	0.040	0.050	0.060	0.070
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	115	115	115	115	115	115	115
	IPR [inches/rev]	0.0010	0.0014	0.0018	0.0020	0.0028	0.0035	0.0039
	Vc [m/min]	35	35	35	35	35	35	35
	f [mm/U]	0.025	0.035	0.045	0.050	0.070	0.090	0.100
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	82	82	82	82	82	82	82
	IPR [inches/rev]	0.0010	0.0014	0.0018	0.0020	0.0028	0.0035	0.0039
	Vc [m/min]	25	25	25	25	25	25	25
	f [mm/U]	0.025	0.035	0.045	0.050	0.070	0.090	0.100
Cast Iron	SFM [surface feet/min]	328	328	328	328	328	328	328
	IPR [inches/rev]	0.0035	0.0039	0.0051	0.0071	0.0087	0.0118	0.0157
	Vc [m/min]	100	100	100	100	100	100	100
	f [mm/U]	0.090	0.100	0.130	0.180	0.220	0.300	0.400
Nodular or Ductile Iron	SFM [surface feet/min]	262	262	262	262	262	262	262
	IPR [inches/rev]	0.0020	0.0035	0.0039	0.0043	0.0063	0.0071	0.0087
	Vc [m/min]	80	80	80	80	80	80	80
	f [mm/U]	0.050	0.090	0.100	0.110	0.160	0.180	0.220
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	148	148	148	148	148	148	148
	IPR [inches/rev]	0.0008	0.0012	0.0012	0.0016	0.0024	0.0035	0.0039
	Vc [m/min]	45	45	45	45	45	45	45
	f [mm/U]	0.020	0.030	0.030	0.040	0.060	0.090	0.100
Titanium	SFM [surface feet/min]	82	82	82	82	82	82	82
	IPR [inches/rev]	0.0007	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028
	Vc [m/min]	25	25	25	25	25	25	25
	f [mm/U]	0.018	0.020	0.030	0.040	0.050	0.060	0.070

- **Note:** Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.

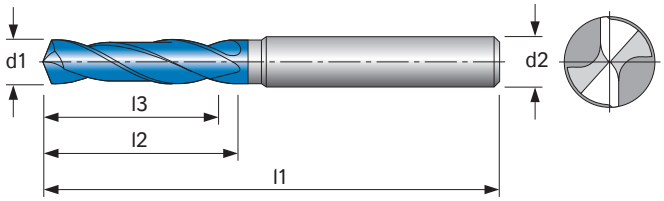
HAM 30-1891 Nirodrill

Solid Carbide Twist Drill

Z 2 | 30° Right | DIN 6537K | 3 x D | 140° | SHRINK FIT | HSF | HPC | TA-CN | DIN 6535 HA | DIN 6535 HB | DIN 6535 HE

Engineering Data

- special chip flute geometry
- special point ground for machining of stainless steel
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Stain ST >403 Rockwel	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
	●	●							●	●	●	○		○	●	●	○	●	●		

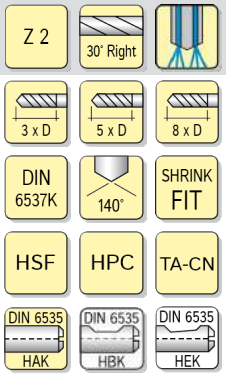
● very suitable ○ suitable

Material Group	Diameter Inch	0.078	0.118	0.157	0.196	0.236	0.315	0.394	0.472	0.551	0.63
	Diameter mm	**2.00**	**3.00**	**4.00**	**5.00**	**6.00**	**8.00**	**10.00**	**12.00**	**14.00**	**16.00**
Aluminum	SFM [surface feet/min]	787	787	787	787	787	787	787	787	787	787
	IPR [inches/rev]	0.0031	0.0035	0.0047	0.0059	0.0071	0.0094	0.0118	0.0142	0.0165	0.0189
	Vc [m/min]	240	240	240	240	240	240	240	240	240	240
	f [mm/U]	0.08	0.090	0.120	0.150	0.180	0.240	0.300	0.360	0.420	0.480
Aluminum > 9% Si	SFM [surface feet/min]	656	656	656	656	656	656	656	656	656	656
	IPR [inches/rev]	0.0028	0.0031	0.0043	0.0055	0.0067	0.0091	0.0114	0.0138	0.0161	0.0185
	Vc [m/min]	200	200	200	200	200	200	200	200	200	200
	f [mm/U]	0.070	0.080	0.110	0.140	0.170	0.230	0.290	0.350	0.410	0.470
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	164	164	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0012	0.0016	0.0020	0.0022	0.0024	0.0031	0.0039	0.0047	0.0059	0.0079
	Vc [m/min]	50	50	50	50	50	50	50	50	50	50
	f [mm/U]	0.030	0.040	0.050	0.055	0.060	0.080	0.100	0.120	0.150	0.200
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	115	115	115	115	115	115	115	115	115	115
	IPR [inches/rev]	0.0008	0.0010	0.0012	0.0014	0.0016	0.0024	0.0031	0.0039	0.0047	0.0059
	Vc [m/min]	35	35	35	35	35	35	35	35	35	35
	f [mm/U]	0.020	0.025	0.030	0.035	0.040	0.060	0.080	0.100	0.120	0.150
Stainless Steel > 40 Rockwell	SFM [surface feet/min]	105	105	105	105	105	105	105	105	105	105
	IPR [inches/rev]	0.0008	0.0010	0.0012	0.0014	0.0016	0.0024	0.0031	0.0039	0.0047	0.0059
	Vc [m/min]	32	32	32	32	32	32	32	32	32	32
	f [mm/U]	0.020	0.025	0.030	0.035	0.040	0.060	0.080	0.100	0.120	0.150
Cast Iron	SFM [surface feet/min]	262	262	262	262	262	262	262	262	262	262
	IPR [inches/rev]	0.0031	0.0035	0.0047	0.0059	0.0071	0.0094	0.0118	0.0142	0.0165	0.0185
	Vc [m/min]	80	80	80	80	80	80	80	80	80	80
	f [mm/U]	0.08	0.090	0.120	0.150	0.180	0.240	0.300	0.360	0.420	0.470
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	131	131	131	131	131	131	131	131	131	131
	IPR [inches/rev]	0.0008	0.0012	0.0018	0.0020	0.0024	0.0031	0.0035	0.0043	0.0047	0.0059
	Vc [m/min]	40	40	40	40	40	40	40	40	40	40
	f [mm/U]	0.020	0.030	0.045	0.050	0.060	0.080	0.090	0.110	0.120	0.150
Titanium	SFM [surface feet/min]	115	115	115	115	115	115	115	115	115	115
	IPR [inches/rev]	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0039	0.0047	0.0055
	Vc [m/min]	35	35	35	35	35	35	35	35	35	35
	f [mm/U]	0.020	0.030	0.040	0.050	0.060	0.070	0.080	0.100	0.120	0.140
Copper & Non Ferrous Metals	SFM [surface feet/min]	394	394	394	394	394	394	394	394	394	394
	IPR [inches/rev]	0.0028	0.0031	0.0039	0.0047	0.0059	0.0071	0.0087	0.0102	0.0118	0.0157
	Vc [m/min]	120	120	120	120	120	120	120	120	120	120
	f [mm/U]	0.070	0.080	0.100	0.120	0.150	0.180	0.220	0.260	0.300	0.400

- **Note:** Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.

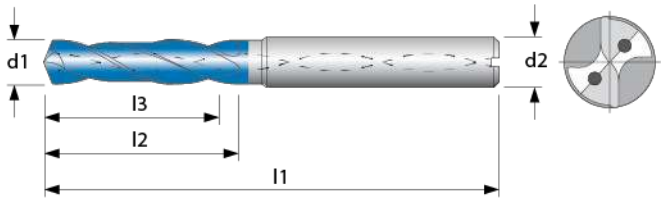
HAM 30-1881/1901/ 1941 Nirodrill

Solid Carbide Spiral Drill



Engineering Data

- special point ground for machining of stainless steel
- special chip flute geometry
- 30° RH helix



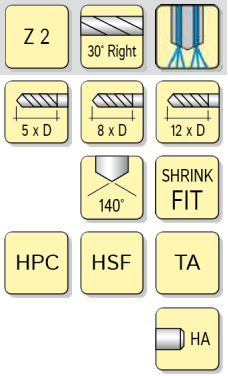
Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Stain ST > 40 Rockwel	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
	●	●							●	●	●	○		○	●	●	○	●	●		

● very suitable ○ suitable

	Diameter Inch	0.118	0.157	0.196	0.236	0.315	0.394	0.472	0.551	0.63
Material Group	Diameter mm	3.00	4.00	5.00	6.00	8.00	10.00	12.00	14.00	16.00
Aluminum	SFM [surface feet/min]	984	984	984	984	984	984	984	984	984
	IPR [inches/rev]	0.0047	0.0071	0.0079	0.0098	0.0118	0.0157	0.0197	0.0236	0.0315
	Vc [m/min]	300	300	300	300	300	300	300	300	300
	f [mm/U]	0.120	0.180	0.200	0.250	0.300	0.400	0.500	0.600	0.800
Aluminum > 9% Si	SFM [surface feet/min]	820	820	820	820	820	820	820	820	820
	IPR [inches/rev]	0.0039	0.0059	0.0071	0.0098	0.0118	0.0138	0.0157	0.0197	0.0236
	Vc [m/min]	250	250	250	250	250	250	250	250	250
	f [mm/U]	0.100	0.150	0.180	0.250	0.300	0.350	0.400	0.500	0.600
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	230	230	230	230	230	230	230	230	230
	IPR [inches/rev]	0.0016	0.0020	0.0022	0.0024	0.0031	0.0039	0.0047	0.0059	0.0079
	Vc [m/min]	70	70	70	70	70	70	70	70	70
	f [mm/U]	0.040	0.050	0.055	0.060	0.080	0.100	0.120	0.150	0.200
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	148	148	148	148	148	148	148	148	148
	IPR [inches/rev]	0.0010	0.0012	0.0014	0.0016	0.0024	0.0031	0.0039	0.0047	0.0059
	Vc [m/min]	45	45	45	45	45	45	45	45	45
	f [mm/U]	0.025	0.030	0.035	0.040	0.060	0.080	0.100	0.120	0.150
Stainless Steel > 40 Rockwell	SFM [surface feet/min]	110	110	110	110	110	110	110	110	110
	IPR [inches/rev]	0.0010	0.0012	0.0014	0.0016	0.0024	0.0031	0.0039	0.0047	0.0059
	Vc [m/min]	33	33	33	33	33	33	33	33	33
	f [mm/U]	0.025	0.030	0.035	0.040	0.060	0.080	0.100	0.120	0.150
Cast Iron	SFM [surface feet/min]	394	394	394	394	394	394	394	394	394
	IPR [inches/rev]	0.0039	0.0059	0.0071	0.0079	0.0098	0.0118	0.0138	0.0165	0.0197
	Vc [m/min]	120	120	120	120	120	120	120	120	120
	f [mm/U]	0.100	0.150	0.180	0.200	0.250	0.300	0.350	0.420	0.500
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	164	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0012	0.0018	0.0020	0.0024	0.0031	0.0035	0.0043	0.0047	0.0059
	Vc [m/min]	50	50	50	50	50	50	50	50	50
	f [mm/U]	0.030	0.045	0.500	0.060	0.080	0.090	0.110	0.120	0.150
Titanium	SFM [surface feet/min]	164	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0039	0.0047	0.0055
	Vc [m/min]	50	50	50	50	50	50	50	50	50
	f [mm/U]	0.030	0.040	0.050	0.060	0.070	0.080	0.100	0.120	0.140
Copper & Non Ferrous Metals	SFM [surface feet/min]	492	492	492	492	492	492	492	492	492
	IPR [inches/rev]	0.0031	0.0039	0.0047	0.0059	0.0071	0.0087	0.0102	0.0118	0.0157
	Vc [m/min]	150	150	150	150	150	150	150	150	150
	f [mm/U]	0.080	0.100	0.120	0.150	0.180	0.220	0.260	0.300	0.400

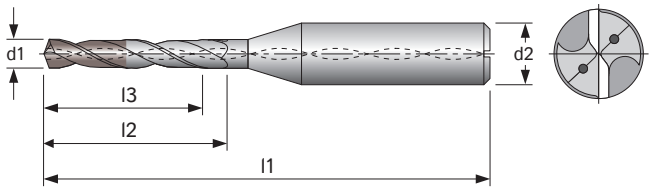
- **Note:** Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.

HAM 30-2181/2221/2261 Solid Carbide Deep Hole Drill



Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

	Diameter Inch	.0314 - .0374	.0393 - .0472	.0492 - .0570	.0590 - .0669	.0689 - .0767	.0787 - .0866	.0885 - .0964	.0984 - .1063	.1082 - .1181
Material Group	**Diameter mm**	**0.8 - 0.95**	**1.0 - 1.2**	**1.25 - 1.45**	**1.5 - 1.7**	**1.75 - 1.9.**	**2.0 - 2.2**	**2.25 - 2.45**	**2.5 - 2.7**	**2.75 - 3.0**
Steel < 23 Rockwell	SFM [surface feet/min]	328	328	328	328	328	328	328	328	328
	IPR [inches/rev]	0.0016	0.0020	0.0024	0.0031	0.0039	0.0047	0.0047	0.0055	0.0063
	Vc [m/min]	100	100	100	100	100	100	100	100	100
	f [mm/U]	0.040	0.050	0.060	0.080	0.100	0.120	0.120	0.140	0.160
Steel < 38 Rockwell	SFM [surface feet/min]	230	230	230	230	230	230	230	230	230
	IPR [inches/rev]	0.0008	0.0012	0.0016	0.0016	0.0024	0.0031	0.0039	0.0047	0.0055
	Vc [m/min]	70	70	70	70	70	70	70	70	70
	f [mm/U]	0.020	0.030	0.040	0.040	0.060	0.080	0.100	0.120	0.140
Steel <48 Rockwell	SFM [surface feet/min]	180	180	180	180	180	180	180	180	180
	IPR [inches/rev]	0.0008	0.0012	0.0024	0.0024	0.0031	0.0031	0.0039	0.0039	0.0047
	Vc [m/min]	55	55	55	55	55	55	55	55	55
	f [mm/U]	0.020	0.030	0.060	0.060	0.080	0.080	0.100	0.100	0.120
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	115	115	115	115	115	115	115	115	115
	IPR [inches/rev]	0.0008	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0039
	Vc [m/min]	35	35	35	35	35	35	35	35	35
	f [mm/U]	0.020	0.030	0.060	0.060	0.080	0.080	0.100	0.100	0.120
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	98	98	98	98	98	98	98	98	98
	IPR [inches/rev]	0.0008	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0039
	Vc [m/min]	30	30	30	30	30	30	30	30	30
	f [mm/U]	0.020	0.020	0.030	0.040	0.050	0.060	0.070	0.080	0.100
Cast Iron	SFM [surface feet/min]	328	328	328	328	328	328	328	328	328
	IPR [inches/rev]	0.0016	0.0024	0.0031	0.0039	0.0047	0.0059	0.0071	0.0079	0.0098
	Vc [m/min]	100	100	100	100	100	100	100	100	100
	f [mm/U]	0.040	0.060	0.080	0.100	0.120	0.150	0.180	0.200	0.250
Nodular or Ductile Iron	SFM [surface feet/min]	197	197	197	197	197	197	197	197	197
	IPR [inches/rev]	0.0016	0.0024	0.0031	0.0039	0.0047	0.0059	0.0071	0.0079	0.0098
	Vc [m/min]	60	60	60	60	60	60	60	60	60
	f [mm/U]	0.040	0.060	0.080	0.100	0.120	0.150	0.180	0.200	0.250
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	33	131	131	131	131	131	131	131	131
	IPR [inches/rev]	0.0008	0.0008	0.0008	0.0016	0.0020	0.0024	0.0031	0.0039	0.0047
	Vc [m/min]	10	10	10	10	10	10	10	10	10
	f [mm/U]	0.020	0.020	0.020	0.040	0.050	0.060	0.080	0.100	0.120
Titanium	SFM [surface feet/min]	98	98	98	98	98	98	98	98	98
	IPR [inches/rev]	0.0008	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028	0.0031	0.0039
	Vc [m/min]	30	30	30	30	30	30	30	30	30
	f [mm/U]	0.020	0.020	0.030	0.040	0.050	0.060	0.070	0.080	0.100

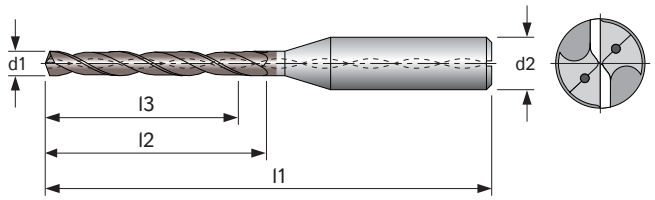
- **Note:** Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.

HAM 30-2301/2341 Solid Carbide Deep Hole Drill

Z 2 | 30° Right | 15 x D | 20 x D | 140° | SHRINK FIT | HPC | HSF | TA | HA

Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 30° RH helix



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

	Diameter Inch	.0314 - .0374	.0393 - .0472	.0492 - .0570	.0590 - .0669	.0689 - .0767	.0787 - .0866	.0885 - .0964	.0984 - .1063	.1082 - .1181
Material Group	**Diameter mm**	**0.8 - 0.95**	**1.0 - 1.2**	**1.25 - 1.45**	**1.5 - 1.7**	**1.75 - 1.95**	**2.0 - 2.2**	**2.25 - 2.45**	**2.5 - 2.7**	**2.75 - 3.0**
Steel < 23 Rockwell	SFM [surface feet/min]	312	312	312	312	312	312	312	312	312
	IPR [inches/rev]	0.0012	0.0016	0.0020	0.0028	0.0035	0.0043	0.0043	0.0051	0.0059
	Vc [m/min]	95	95	95	95	95	95	95	95	95
	f [mm/U]	0.030	0.040	0.050	0.070	0.090	0.110	0.110	0.130	0.150
Steel < 38 Rockwell	SFM [surface feet/min]	213	213	213	213	213	213	213	213	213
	IPR [inches/rev]	0.0006	0.0010	0.0014	0.0014	0.0020	0.0028	0.0035	0.0043	0.0051
	Vc [m/min]	65	65	65	65	65	65	65	65	65
	f [mm/U]	0.015	0.025	0.035	0.035	0.050	0.070	0.090	0.110	0.130
Steel <48 Rockwell	SFM [surface feet/min]	164	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0006	0.0010	0.0014	0.0014	0.0020	0.0028	0.0035	0.0039	0.0047
	Vc [m/min]	50	50	50	50	50	50	50	50	50
	f [mm/U]	0.015	0.025	0.035	0.035	0.050	0.070	0.090	0.110	0.130
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	115	115	115	115	115	115	115	115	115
	IPR [inches/rev]	0.0004	0.0006	0.0007	0.0012	0.0016	0.0020	0.0028	0.0035	0.0039
	Vc [m/min]	35	35	35	35	35	35	35	35	35
	f [mm/U]	0.010	0.015	0.018	0.030	0.040	0.050	0.070	0.090	0.100
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	98	98	98	98	98	98	98	98	98
	IPR [inches/rev]	0.0004	0.0006	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028	0.0035
	Vc [m/min]	30	30	30	30	30	30	30	30	30
	f [mm/U]	0.010	0.015	0.020	0.030	0.040	0.050	0.060	0.070	0.090
Cast Iron	SFM [surface feet/min]	312	312	312	312	312	312	312	312	312
	IPR [inches/rev]	0.0016	0.0020	0.0028	0.0039	0.0039	0.0047	0.0059	0.0071	0.0079
	Vc [m/min]	95	95	95	95	95	95	95	95	95
	f [mm/U]	0.040	0.050	0.070	0.100	0.100	0.120	0.150	0.180	0.200
Nodular or Ductile Iron	SFM [surface feet/min]	180	180	180	180	180	180	180	180	180
	IPR [inches/rev]	0.0016	0.0020	0.0028	0.0039	0.0039	0.0047	0.0059	0.0071	0.0079
	Vc [m/min]	55	55	55	55	55	55	55	55	55
	f [mm/U]	0.040	0.050	0.070	0.100	0.100	0.120	0.150	0.180	0.200
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	115	115	115	115	115	115	115	115	115
	IPR [inches/rev]	0.0004	0.0006	0.0007	0.0012	0.0016	0.0020	0.0028	0.0035	0.0039
	Vc [m/min]	35	35	35	35	35	35	35	35	35
	f [mm/U]	0.010	0.015	0.018	0.030	0.040	0.050	0.070	0.090	0.100
Titanium	SFM [surface feet/min]	82	82	82	82	82	82	82	82	82
	IPR [inches/rev]	0.0004	0.0006	0.0008	0.0012	0.0016	0.0020	0.0024	0.0028	0.0035
	Vc [m/min]	25	25	25	25	25	25	25	25	25
	f [mm/U]	0.010	0.015	0.020	0.030	0.040	0.050	0.060	0.070	0.090

- **Note:** Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.

HAM 30-2381/2421/ 2461/2501/2541

Solid Carbide Deep Hole Drill

Z 2 | 30° Right

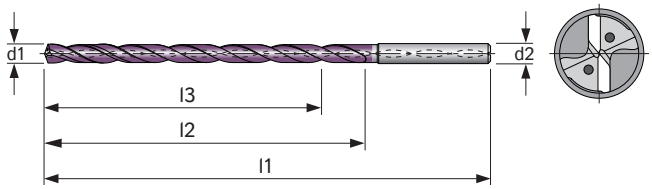
15 x D | 20 x D | 25 x D | 30 x D | 40 x D

140° | SHRINK FIT

HPC | HSF | TA-C

Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 4 guide chamfer



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
			●	●	○				●	○	●	●	○	○			●	●		

● very suitable ○ suitable

	Diameter Inch	0.118	0.157	0.196	0.236	0.315	0.394	0.472	0.551
Material Group	Diameter mm	3.00	4.00	5.00	6.00	8.00	10.00	12.00	14.00
Steel < 23 Rockwell	SFM [surface feet/min]	197	197	197	197	197	197	197	197
	IPR [inches/rev]	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118	0.0138	0.0177
	Vc [m/min]	60	60	60	60	60	60	60	60
	f [mm/U]	0.080	0.100	0.150	0.200	0.250	0.300	0.350	0.450
Steel < 38 Rockwell	SFM [surface feet/min]	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118	0.0138	0.0177
	Vc [m/min]	50	50	50	50	50	50	50	50
	f [mm/U]	0.080	0.100	0.150	0.200	0.250	0.300	0.350	0.450
Steel <48 Rockwell	SFM [surface feet/min]	131	131	131	131	131	131	131	131
	IPR [inches/rev]	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118	0.0138	0.0177
	Vc [m/min]	40	40	40	40	40	40	40	40
	f [mm/U]	0.080	0.100	0.150	0.200	0.250	0.300	0.350	0.450
Stainless Steel < 23 Rockwell	SFM [surface feet/min]	98	98	98	98	98	98	98	98
	IPR [inches/rev]	0.0016	0.0020	0.0024	0.0028	0.0031	0.0035	0.0039	0.0043
	Vc [m/min]	30	30	30	30	30	30	30	30
	f [mm/U]	0.040	0.050	0.060	0.070	0.080	0.090	0.100	0.110
Stainless Steel > 23 Rockwell	SFM [surface feet/min]	82	82	82	82	82	82	82	82
	IPR [inches/rev]	0.0016	0.0020	0.0024	0.0028	0.0031	0.0035	0.0039	0.0043
	Vc [m/min]	25	25	25	25	25	25	25	25
	f [mm/U]	0.040	0.050	0.060	0.070	0.080	0.090	0.100	0.110
Cast Iron	SFM [surface feet/min]	197	197	197	197	197	197	197	197
	IPR [inches/rev]	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118	0.0138	0.0177
	Vc [m/min]	60	60	60	60	60	60	60	60
	f [mm/U]	0.080	0.100	0.150	0.200	0.250	0.300	0.350	0.450
Nodular or Ductile Iron	SFM [surface feet/min]	164	164	164	164	164	164	164	164
	IPR [inches/rev]	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118	0.0138	0.0177
	Vc [m/min]	50	50	50	50	50	50	50	50
	f [mm/U]	0.080	0.100	0.150	0.200	0.250	0.300	0.350	0.450
Inconel, Haynes, Hastoloy & other Super Alloy Metals	SFM [surface feet/min]	131	131	131	131	131	131	131	131
	IPR [inches/rev]	0.0031	0.0039	0.0059	0.0079	0.0098	0.0118	0.0138	0.0177
	Vc [m/min]	40	40	40	40	40	40	40	40
	f [mm/U]	0.080	0.100	0.150	0.200	0.250	0.300	0.350	0.450
Titanium	SFM [surface feet/min]	66	66	66	66	66	66	66	66
	IPR [inches/rev]	0.0016	0.0020	0.0024	0.0028	0.0031	0.0035	0.0039	0.0043
	Vc [m/min]	20	20	20	20	20	20	20	20
	f [mm/U]	0.040	0.050	0.060	0.070	0.080	0.090	0.100	0.110

- **Note:** Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.

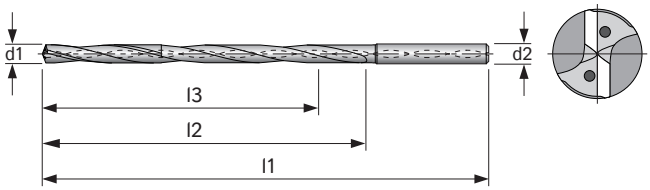
HAM 30-2580/2620/ 2660/2700/2740

Solid Carbide Deep Hole Drill

Z 2 | 15° Right | 15 x D | 20 x D | 25 x D | 30 x D | 40 x D | 137° | SHRINK FIT | HPC | HSF

Engineering Data

- special 4-facet ground
- special point grind
- special chip flute geometry
- 15° RH helix
- polished flute



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
	●	●													●		●	●		

● very suitable ○ suitable

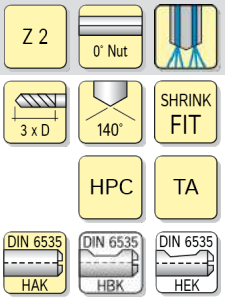
	Diameter Inch	0.078	0.118	0.157	0.177	0.197	0.216	0.236	0.256	0.275	0.315	0.335	0.393	0.472	0.551
Material Group	Diameter mm	2.00	3.00	4.00	4.50	5.00	5.50	6.00	6.50	7.00	8.00	8.50	10.00	12.00	14.00
Aluminum	SFM [surface feet/min]	443	443	443	443	443	443	443	443	443	443	443	443	443	443
	IPR [inches/rev]	0.0039	0.0047	0.0059	0.0059	0.0071	0.0071	0.0079	0.0079	0.0079	0.0118	0.0118	0.0138	0.0157	0.0197
	Vc [m/min]	135	135	135	135	135	135	135	135	135	135	135	135	135	135
	f [mm/U]	0.100	0.120	0.150	0.150	0.180	0.180	0.200	0.200	0.200	0.300	0.300	0.350	0.400	0.500
Aluminum > 9% Si	SFM [surface feet/min]	328	328	328	328	328	328	328	328	328	328	328	328	328	328
	IPR [inches/rev]	0.0031	0.0039	0.0047	0.0047	0.0079	0.0079	0.0098	0.0098	0.0098	0.0118	0.0118	0.0157	0.0157	0.0217
	Vc [m/min]	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	f [mm/U]	0.080	0.100	0.120	0.120	0.200	0.200	0.250	0.250	0.250	0.300	0.300	0.400	0.400	0.550
Copper & Non Ferrous Metals	SFM [surface feet/min]	394	394	394	394	394	394	394	394	394	394	394	394	394	394
	IPR [inches/rev]	0.0031	0.0039	0.0039	0.0039	0.0079	0.0079	0.0098	0.0098	0.0098	0.0118	0.0118	0.0157	0.0157	0.0217
	Vc [m/min]	120	120	120	120	120	120	120	120	120	120	120	120	120	120
	f [mm/U]	0.080	0.100	0.100	0.100	0.150	0.150	0.180	0.250	0.250	0.300	0.300	0.400	0.400	0.550

- **Note:** Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.

HAM 30-1960/1961 Multidrill

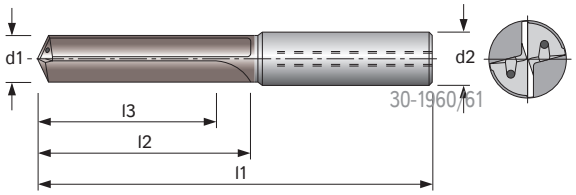
297 Series

Solid Carbide Drill



Engineering Data

- 4-facet ground
- straight fluted for machining of short chipping materials
- 30-1960 Uncoated
- 30-1961 Coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-1960	●	●									●	○			●		●	●		
30-1961	●	●									●	○			●		●	●		

● very suitable ○ suitable

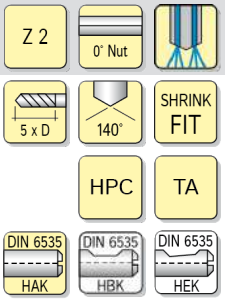
	Diameter Inch	0.157	0.197	0.236	0.315	0.393	0.472	0.551	0.63	0.708	0.787
Material Group	**Diameter mm**	**4.00**	**5.00**	**6.00**	**8.00**	**10.00**	**12.00**	**14.00**	**16.00**	**18.00**	**20.00**
Aluminum	SFM [surface feet/min]	984	984	984	984	984	984	984	984	984	984
	IPR [inches/rev]	0.0047	0.0059	0.0079	0.0098	0.0118	0.0138	0.0138	0.0177	0.0197	0.0217
	Vc [m/min]	300	300	300	300	300	300	300	300	300	300
	f [mm/U]	0.120	0.150	0.200	0.250	0.300	0.350	0.350	0.450	0.500	0.550
Aluminum > 9% Si	SFM [surface feet/min]	492	492	492	492	492	492	492	492	492	492
	IPR [inches/rev]	0.0039	0.0047	0.0059	0.0079	0.0098	0.0118	0.0138	0.0138	0.0157	0.0177
	Vc [m/min]	150	150	150	150	150	150	150	150	150	150
	f [mm/U]	0.100	0.120	0.150	0.200	0.250	0.300	0.350	0.350	0.400	0.450
Cast Iron	SFM [surface feet/min]	328	328	328	328	328	328	328	328	328	328
	IPR [inches/rev]	0.0031	0.0039	0.0047	0.0059	0.0071	0.0087	0.0091	0.0098	0.0110	0.0118
	Vc [m/min]	100	100	100	100	100	100	100	100	100	100
	f [mm/U]	0.080	0.100	0.120	0.150	0.180	0.220	0.230	0.250	0.280	0.300
Nodular or Ductile Iron	SFM [surface feet/min]	230	230	230	230	230	230	230	230	230	230
	IPR [inches/rev]	0.0024	0.0031	0.0039	0.0047	0.0059	0.0067	0.0071	0.0079	0.0087	0.0098
	Vc [m/min]	70	70	70	70	70	70	70	70	70	70
	f [mm/U]	0.060	0.080	0.100	0.120	0.150	0.170	0.180	0.200	0.220	0.250
Copper & Non Ferrous Metals	SFM [surface feet/min]	427	427	427	427	427	427	427	427	427	427
	IPR [inches/rev]	0.0039	0.0059	0.0071	0.0079	0.0087	0.0098	0.0098	0.0110	0.0110	0.0118
	Vc [m/min]	130	130	130	130	130	130	130	130	130	130
	f [mm/U]	0.100	0.150	0.180	0.200	0.220	0.250	0.250	0.280	0.280	0.300

- **Note:** **Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.**

HAM 30-2000/2001 Multidrill

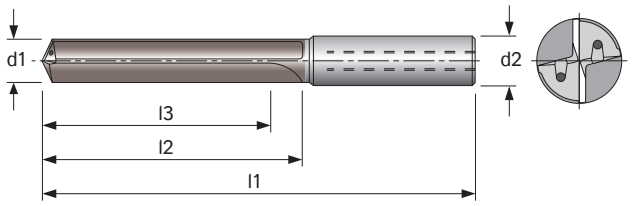
298 Series

Solid Carbide Drill



Engineering Data

- 4-facet ground
- straight fluted for machining of short chipping materials
- 30-2000 Uncoated
- 30-2001 Coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2000	●	●									●	○			●		●	●		
30-2001	●	●									●	○			●		●	●		

● very suitable ○ suitable

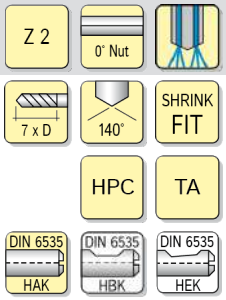
	Diameter Inch	0.276	0.315	0.393	0.472	0.551	0.63	0.708	0.787	0.708	0.787
Material Group	Diameter mm	7.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	18.00	20.00
Aluminum	SFM [surface feet/min]	984	984	984	984	984	984	984	984	984	984
	IPR [inches/rev]	0.0079	0.0098	0.0118	0.0138	0.0138	0.0177	0.0197	0.0217	0.0197	0.0217
	Vc [m/min]	300	300	300	300	300	300	300	300	300	300
	f [mm/U]	0.200	0.250	0.300	0.350	0.350	0.450	0.500	0.550	0.500	0.550
Aluminum > 9% Si	SFM [surface feet/min]	820	820	820	820	820	820	820	820	492	492
	IPR [inches/rev]	0.0059	0.0079	0.0098	0.0118	0.0138	0.0138	0.0157	0.0177	0.0157	0.0177
	Vc [m/min]	250	250	250	250	250	250	250	250	150	150
	f [mm/U]	0.150	0.200	0.250	0.300	0.350	0.350	0.400	0.450	0.400	0.450
Cast Iron	SFM [surface feet/min]	328	328	328	328	328	328	328	328	328	328
	IPR [inches/rev]	0.0047	0.0059	0.0071	0.0087	0.0091	0.0098	0.0110	0.0118	0.0110	0.0118
	Vc [m/min]	100	100	100	100	100	100	100	100	100	100
	f [mm/U]	0.120	0.150	0.180	0.220	0.230	0.250	0.280	0.300	0.280	0.300
Nodular or Ductile Iron	SFM [surface feet/min]	230	230	230	230	230	230	230	230	230	230
	IPR [inches/rev]	0.0039	0.0047	0.0059	0.0067	0.0071	0.0079	0.0087	0.0098	0.0087	0.0098
	Vc [m/min]	70	70	70	70	70	70	70	70	70	70
	f [mm/U]	0.100	0.120	0.150	0.170	0.180	0.200	0.220	0.250	0.220	0.250
Copper & Non Ferrous Metals	SFM [surface feet/min]	427	427	427	427	427	427	427	427	427	427
	IPR [inches/rev]	0.0071	0.0079	0.0087	0.0098	0.0098	0.0110	0.0110	0.0118	0.0110	0.0118
	Vc [m/min]	130	130	130	130	130	130	130	130	130	130
	f [mm/U]	0.180	0.200	0.220	0.250	0.250	0.280	0.280	0.300	0.280	0.300

- **Note:** **Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.**

HAM 30-2040/2041 Multidrill

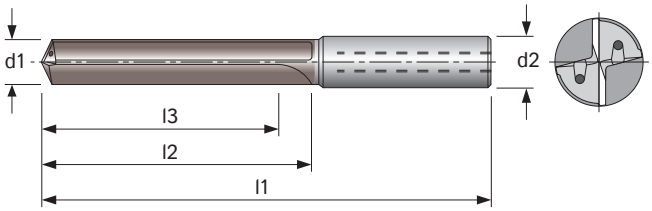
299 Series

Solid Carbide Drill



Engineering Data

- 4-facet ground
- straight fluted for machining of short chipping materials
- 30-2040 Uncoated
- 30-2041 Coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2040	●	●									●	○			●		●	●		
30-2041	●	●									●	○			●		●	●		

● very suitable ○ suitable

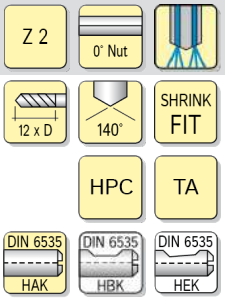
	Diameter Inch	0.156	0.197	0.236	0.315	0.393	0.472	0.551	0.63	0.708	0.787
Material Group	**Diameter mm**	**4.00**	**5.00**	**6.00**	**8.00**	**10.00**	**12.00**	**14.00**	**16.00**	**18.00**	**20.00**
Aluminum	SFM [surface feet/min]	984	984	984	984	984	984	984	984	984	984
	IPR [inches/rev]	0.0047	0.0059	0.0079	0.0098	0.0118	0.0138	0.0138	0.0177	0.0197	0.0217
	Vc [m/min]	300	300	300	300	300	300	300	300	300	2640
	f [mm/U]	0.120	0.150	0.200	0.250	0.300	0.350	0.350	0.450	0.500	0.550
Aluminum > 9% Si	SFM [surface feet/min]	820	820	820	820	820	820	820	820	820	820
	IPR [inches/rev]	0.0039	0.0047	0.0059	0.0079	0.0098	0.0118	0.0138	0.0138	0.0157	0.0177
	Vc [m/min]	250	250	250	250	250	250	250	250	250	1800
	f [mm/U]	0.100	0.120	0.150	0.200	0.250	0.300	0.350	0.350	0.400	0.450
Cast Iron	SFM [surface feet/min]	328	328	328	328	328	328	328	328	328	328
	IPR [inches/rev]	0.0031	0.0039	0.0047	0.0059	0.0071	0.0087	0.0091	0.0098	0.0110	0.0118
	Vc [m/min]	100	100	100	100	100	100	100	100	100	480
	f [mm/U]	0.080	0.100	0.120	0.150	0.180	0.220	0.230	0.250	0.280	0.300
Nodular or Ductile Iron	SFM [surface feet/min]	230	230	230	230	230	230	230	230	230	230
	IPR [inches/rev]	0.0024	0.0031	0.0039	0.0047	0.0059	0.0067	0.0071	0.0079	0.0087	0.0098
	Vc [m/min]	70	70	70	70	70	70	70	70	70	280
	f [mm/U]	0.060	0.080	0.100	0.120	0.150	0.170	0.180	0.200	0.220	0.250
Copper & Non Ferrous Metals	SFM [surface feet/min]	427	427	427	427	427	427	427	427	427	427
	IPR [inches/rev]	0.0039	0.0059	0.0071	0.0079	0.0087	0.0098	0.0098	0.0110	0.0110	0.0118
	Vc [m/min]	130	130	130	130	130	130	130	130	130	630
	f [mm/U]	0.100	0.150	0.180	0.200	0.220	0.250	0.250	0.280	0.280	0.300

- **Note:** **Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.**

HAM 30-2080/2081 Multidrill

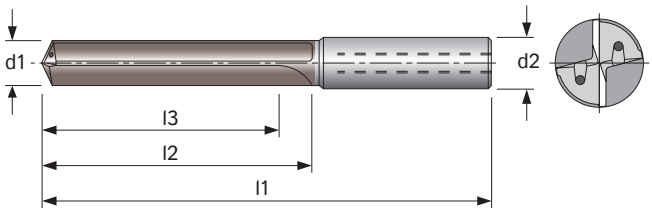
294 Series

Solid Carbide Drill



Engineering Data

- 4-facet ground
- straight fluted for machining of short chipping materials
- 30-2080 Uncoated
- 30-2081 Coated



Material	Alu	Alu > 9% Silicon	Steel < 23 Rockwell	Steel < 38 Rockwell	Steel < 48 Rockwell	Steel < 55 Rockwell	Steel < 60 Rockwell	Steel < 66 Rockwell	Stain ST < 23 Rockwell	Stain ST > 23 Rockwell	Cast Iron	Nodular Ductile Cast Iron	Super Alloy Metals	Titanium	Copper & Nonferrous Metals	Graphit & Fiber Composites	MMS	Max.	None	AIR
30-2080	●	●									●	○			●		●	●		
30-2081	●	●									●	○			●		●	●		

● very suitable ○ suitable

	Diameter Inch	0.156	0.197	0.236	0.315	0.393	0.472	0.551	0.63	0.708	0.787
Material Group	**Diameter mm**	**4.00**	**5.00**	**6.00**	**8.00**	**10.00**	**12.00**	**14.00**	**16.00**	**18.00**	**20.00**
Aluminum	SFM [surface feet/min]	935	935	935	935	935	935	935	935	984	984
	IPR [inches/rev]	0.0043	0.0055	0.0075	0.0091	0.0110	0.0130	0.0150	0.0165	0.0197	0.0217
	Vc [m/min]	285	285	285	285	285	285	285	285	300	2640
	f [mm/U]	0.110	0.140	0.190	0.230	0.280	0.330	0.380	0.420	0.500	0.550
Aluminum > 9% Si	SFM [surface feet/min]	787	787	787	787	787	787	787	787	820	820
	IPR [inches/rev]	0.0035	0.0043	0.0055	0.0075	0.0091	0.0110	0.0130	0.0130	0.0157	0.0177
	Vc [m/min]	240	240	240	240	240	240	240	240	250	1800
	f [mm/U]	0.090	0.110	0.150	0.190	0.230	0.280	0.330	0.330	0.400	0.450
Cast Iron	SFM [surface feet/min]	312	312	312	312	312	312	312	312	328	328
	IPR [inches/rev]	0.0020	0.0035	0.0043	0.0055	0.0067	0.0079	0.0083	0.0091	0.0110	0.0118
	Vc [m/min]	96	96	96	96	96	96	96	96	100	480
	f [mm/U]	0.050	0.090	0.110	0.150	0.170	0.200	0.210	0.230	0.280	0.300
Nodular or Ductile Iron	SFM [surface feet/min]	213	213	213	213	213	213	213	213	230	230
	IPR [inches/rev]	0.0020	0.0028	0.0035	0.0043	0.0055	0.0063	0.0067	0.0075	0.0087	0.0098
	Vc [m/min]	65	65	65	65	65	65	65	65	70	280
	f [mm/U]	0.050	0.070	0.090	0.110	0.150	0.160	0.170	0.190	0.220	0.250
Copper & Non Ferrous Metals	SFM [surface feet/min]	410	410	410	410	410	410	410	410	427	427
	IPR [inches/rev]	0.0035	0.0055	0.0067	0.0075	0.0079	0.0091	0.0091	0.0102	0.0110	0.0118
	Vc [m/min]	125	125	125	125	125	125	125	125	130	630
	f [mm/U]	0.090	0.140	0.170	0.190	0.200	0.230	0.230	0.260	0.280	0.300

- **Note:** **Feed rates listed are starting points. With the proper setup, machine tools and holding technique, higher feeds can be achieved with excellent results. For cutting data for drill sizes not shown in above chart, please contact us.**

ZERTIFIKAT

Hiermit wird bescheinigt, dass

Hartmetallwerkzeugfabrik Andreas Maier GmbH
Stegwiesen 2
88477 Schwendi-Hörenhausen
Deutschland

ein **Qualitätsmanagementsystem** eingeführt hat und anwendet.

Geltungsbereich:
Entwicklung, Herstellung und Vertrieb von Werkzeugsystemen, Standard- und Sonderwerkzeugen in Vollhartmetall-, Hartmetall-Composit, Cermet-, polykristallinen Diamant- und Keramikausführung für die Automobilindustrie

Durch ein Audit, dokumentiert in einem Bericht, wurde der Nachweis erbracht, dass das Managementsystem die Forderungen des folgenden Regelwerks erfüllt:

VDA 6, Teil 4
3. Auflage 2017 – Produktionsmittel –
(mit Produktentwicklung)

Zertifikat-Registrier-Nr.	002949 VDA6.4
Ausstellungsdatum	2018-07-29
Dieses Zertifikat ist gültig bis	2021-07-28
VDA QMC-Nr.	0003763

VDA QMC

DQS GmbH

Stefan Heinlein
Geschäftsführer

Zertifizierungsstelle: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main
Zugelassen beim Verband der Automobilindustrie e.V. (VDA) / Z.-Nr.: 06-QMC-6.4-006

ZERTIFIKAT

Hiermit wird bescheinigt, dass

Hartmetallwerkzeugfabrik Andreas Maier GmbH
Stegwiesen 2
88477 Schwendi-Hörenhausen
Deutschland

ein **Qualitätsmanagementsystem** eingeführt hat und anwendet.

Geltungsbereich:
Entwicklung, Herstellung und Vertrieb von Werkzeugsystemen, Standard- und Sonderwerkzeugen in Vollhartmetall-, Hartmetall-Composit, Cermet-, polykristallinen Diamant- und Keramikausführung, Werkzeuge für den medizinischen Einsatz und optischen Komponenten für Festkörperlaser

Durch ein Audit, dokumentiert in einem Bericht, wurde der Nachweis erbracht, dass das Managementsystem die Forderungen des folgenden Regelwerks erfüllt:

ISO 9001 : 2015

Zertifikat-Registrier-Nr.	002949 QM15
Gültig ab	2018-07-29
Gültig bis	2021-07-28
Zertifizierungsdatum	2018-07-29

IAF
DAkkS

DQS GmbH

Stefan Heinlein
Geschäftsführer

T-Net

Akkreditierte Stelle: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main

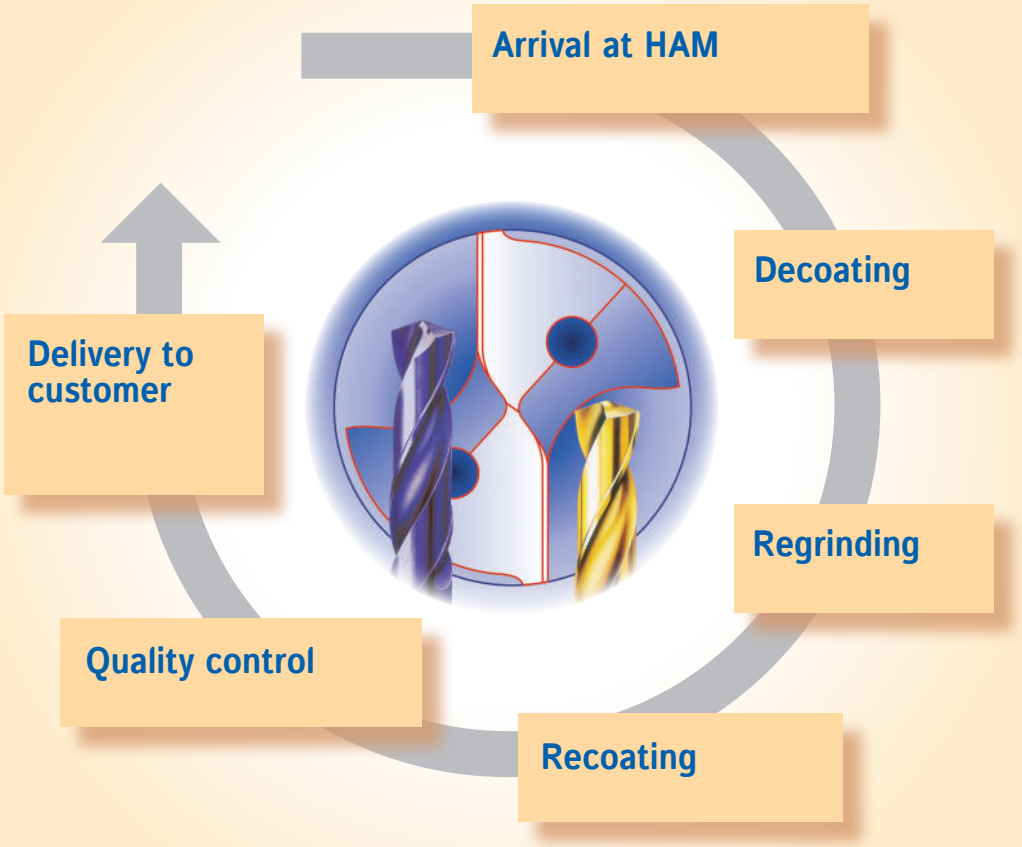
***HAM** Develops and Manufactures Tools and Tooling-Systems for the Worldwide Market.*

***HAM** – Your Competent Partner in the Precision Technology*

- *Solid Carbide, Cermets, Ceramic Tools for Drilling, Countersinking, Milling and Reaming*
- *Carbide, Diamond and CBN Tools with all modular Interfaces as Monoblock Tools, Indexable Inserts and Cartridge Tools (adjustable rough and precisely) for Drilling and Countersinking, for Milling and for Pre- and Precise Machining*
- *Project Planning and Project Engineering*
- *Worldwide TCM-partner for Tool Management Systems in Automotive and Aerospace Industry and their Suppliers*
- *Solid Carbide Drilling and Routing Tools for PCB Industry*

HAM is certified acc. to DIN EN ISO 9001, VDA 6.4. and DIN EN ISO 13485

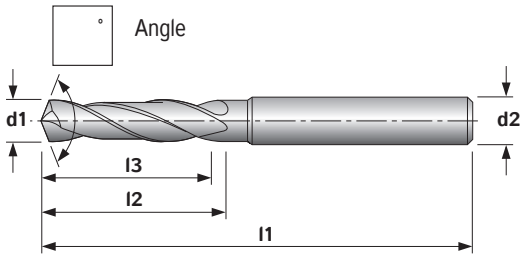
HAM Regrinding service

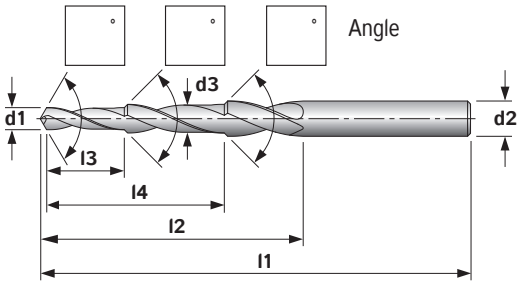


Measure machine for cutting edge adjustment.

HAM Coating machines.

Inquiry form for special tools drilling





Pieces

d1 Cutting diameter

d2 Shank diameter

d3 Step diameter

l1 Over all length

l2 Flute length

l3 Cutting length (step length 1)

l4 Step length 2

zu Workpiece material

Coatings

☐ Yes

☐ No

Delivery

☐ Drill

☐ Step drill

☐ Interior coolant

Teeth

Helix angle

☐ Right hand fluted ☐ Left hand fluted

☐ Right hand cutting ☐ Left hand cutting

☐ Shank HA

☐ Shank HB (Weldon)

☐ Shank HE (Whistle Notch)

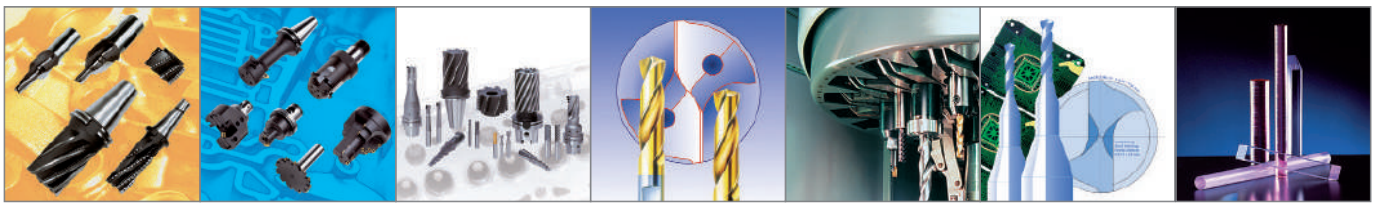
☐ Cylindrical shank

We need all information for a detailed quotation.

Distributor

HAM PRECISION

Distributor Agent Address



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CERTIFIED VDA 6.4 DIN EN ISO 9001 QUALITY SYSTEM

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