

31100



HA

HB

HE

3xD

VHM

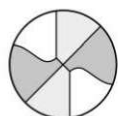


Manufacturer standard

Solid Carbide High-Performance Drill 3xD w/o Internal Coolant



$$t_{max} = l_2 - 1.5 \times d_1$$



d1
m7

- High performance drill for the universal application
- Ultra-micro grain solid carbide with state-of-the-art TiAlN coating
- Excellent self-centering and high drilling performance
- Straight main cutting edges and the reinforced geometry provide an optimum chip breaking and the highest level of process reliability

d ₁ mm	d ₂ mm	l ₂ mm	l ₃ mm	l ₁ mm	HA Part No.	HB Part No.	HE Part No.	Feed mm/rev
1.00	4	7	28	45	31100010HA	—	—	0.05 – 0.09
1.10	4	7	28	45	31100011HA	—	—	0.05 – 0.09
1.20	4	7	28	45	31100012HA	—	—	0.05 – 0.09
1.30	4	7	28	45	31100013HA	—	—	0.05 – 0.09
1.40	4	7	28	45	31100014HA	—	—	0.05 – 0.09
1.50	4	14	28	55	31100015HA	—	—	0.05 – 0.09
1.60	4	14	28	55	31100016HA	—	—	0.05 – 0.09
1.70	4	14	28	55	31100017HA	—	—	0.05 – 0.09
1.80	4	14	28	55	31100018HA	—	—	0.05 – 0.09
1.85	4	14	28	55	311000185HA	—	—	0.05 – 0.09
1.90	4	14	28	55	31100019HA	—	—	0.05 – 0.09
2.00	4	20	28	55	31100020HA	—	—	0.05 – 0.09
2.10	4	20	28	55	31100021HA	—	—	0.05 – 0.09
2.15	4	20	28	55	311000215HA	—	—	0.05 – 0.09
2.20	4	20	28	55	31100022HA	—	—	0.05 – 0.09
2.30	4	20	28	55	31100023HA	—	—	0.05 – 0.09
2.40	4	20	28	55	31100024HA	—	—	0.05 – 0.09
2.50	4	20	28	55	31100025HA	—	—	0.05 – 0.09
2.60	4	20	28	55	31100026HA	—	—	0.05 – 0.09
2.65	4	20	28	55	311000265HA	—	—	0.05 – 0.09
2.70	4	20	28	55	31100027HA	—	—	0.05 – 0.09
2.80	4	20	28	55	31100028HA	—	—	0.05 – 0.09
2.85	4	20	28	55	311000285HA	—	—	0.05 – 0.09
2.90	4	20	28	55	31100029HA	—	—	0.05 – 0.09
3.00	6	20	36	62	31100030HA	31100030HB	31100030HE	0.06 – 0.14
3.10	6	20	36	62	31100031HA	31100031HB	31100031HE	0.06 – 0.14
3.20	6	20	36	62	31100032HA	31100032HB	31100032HE	0.06 – 0.14
3.25	6	20	36	62	311000325HA	311000325HB	311000325HE	0.06 – 0.14
3.30	6	20	36	62	31100033HA	31100033HB	31100033HE	0.06 – 0.14
3.40	6	20	36	62	31100034HA	31100034HB	31100034HE	0.06 – 0.14
3.50	6	20	36	62	31100035HA	31100035HB	31100035HE	0.06 – 0.14
3.60	6	20	36	62	31100036HA	31100036HB	31100036HE	0.06 – 0.14
3.70	6	20	36	62	31100037HA	31100037HB	31100037HE	0.06 – 0.14
3.80	6	24	36	66	31100038HA	31100038HB	31100038HE	0.06 – 0.14
3.90	6	24	36	66	31100039HA	31100039HB	31100039HE	0.06 – 0.14
4.00	6	24	36	66	31100040HA	31100040HB	31100040HE	0.08 – 0.16
4.10	6	24	36	66	31100041HA	31100041HB	31100041HE	0.08 – 0.16
4.20	6	24	36	66	31100042HA	31100042HB	31100042HE	0.08 – 0.16
4.30	6	24	36	66	31100043HA	31100043HB	31100043HE	0.08 – 0.16
4.40	6	24	36	66	31100044HA	31100044HB	31100044HE	0.08 – 0.16
4.50	6	24	36	66	31100045HA	31100045HB	31100045HE	0.08 – 0.16
4.60	6	24	36	66	31100046HA	31100046HB	31100046HE	0.08 – 0.16
4.65	6	24	36	66	311000465HA	311000465HB	311000465HE	0.08 – 0.16
4.70	6	24	36	66	31100047HA	31100047HB	31100047HE	0.08 – 0.16
4.80	6	28	36	66	31100048HA	31100048HB	31100048HE	0.08 – 0.16
4.90	6	28	36	66	31100049HA	31100049HB	31100049HE	0.08 – 0.16
5.00	6	28	36	66	31100050HA	31100050HB	31100050HE	0.09 – 0.20
5.10	6	28	36	66	31100051HA	31100051HB	31100051HE	0.09 – 0.20
5.20	6	28	36	66	31100052HA	31100052HB	31100052HE	0.09 – 0.20
5.30	6	28	36	66	31100053HA	31100053HB	31100053HE	0.09 – 0.20
5.40	6	28	36	66	31100054HA	31100054HB	31100054HE	0.09 – 0.20
5.50	6	28	36	66	31100055HA	31100055HB	31100055HE	0.09 – 0.20
5.55	6	28	36	66	311000555HA	311000555HB	311000555HE	0.09 – 0.20
5.60	6	28	36	66	31100056HA	31100056HB	31100056HE	0.09 – 0.20
5.70	6	28	36	66	31100057HA	31100057HB	31100057HE	0.09 – 0.20
5.80	6	28	36	66	31100058HA	31100058HB	31100058HE	0.09 – 0.20
5.90	6	28	36	66	31100059HA	31100059HB	31100059HE	0.09 – 0.20
6.00	6	28	36	66	31100060HA	31100060HB	31100060HE	0.10 – 0.23
6.10	8	34	36	79	31100061HA	31100061HB	31100061HE	0.10 – 0.23
6.20	8	34	36	79	31100062HA	31100062HB	31100062HE	0.10 – 0.23
6.30	8	34	36	79	31100063HA	31100063HB	31100063HE	0.10 – 0.23
6.40	8	34	36	79	31100064HA	31100064HB	31100064HE	0.10 – 0.23
6.50	8	34	36	79	31100065HA	31100065HB	31100065HE	0.10 – 0.23
6.60	8	34	36	79	31100066HA	31100066HB	31100066HE	0.10 – 0.23
6.70	8	34	36	79	31100067HA	31100067HB	31100067HE	0.10 – 0.23
6.80	8	34	36	79	31100068HA	31100068HB	31100068HE	0.10 – 0.23
6.90	8	34	36	79	31100069HA	31100069HB	31100069HE	0.10 – 0.23
7.00	8	34	36	79	31100070HA	31100070HB	31100070HE	0.11 – 0.25
7.10	8	41	36	79	31100071HA	31100071HB	31100071HE	0.11 – 0.25
7.20	8	41	36	79	31100072HA	31100072HB	31100072HE	0.11 – 0.25
7.30	8	41	36	79	31100073HA	31100073HB	31100073HE	0.11 – 0.25
7.40	8	41	36	79	31100074HA	31100074HB	31100074HE	0.11 – 0.25
7.45	8	41	36	79	311000745HA	311000745HB	311000745HE	0.11 – 0.25
7.50	8	41	36	79	31100075HA	31100075HB	31100075HE	0.11 – 0.25
7.55	8	41	36	79	311000755HA	311000755HB	311000755HE	0.11 – 0.25

Economy Drilling Line – Solid Carbide Spiral Drills



d ₁	d ₂	l ₂	l ₃	l ₁	HA	HB	HE	Feed
mm	mm	mm	mm	mm	Part No.	Part No.	Part No.	mm/rev
7.60	8	41	36	79	31100076HA	31100076HB	31100076HE	0.11 – 0.25
7.70	8	41	36	79	31100077HA	31100077HB	31100077HE	0.11 – 0.25
7.80	8	41	36	79	31100078HA	31100078HB	31100078HE	0.11 – 0.25
7.90	8	41	36	79	31100079HA	31100079HB	31100079HE	0.11 – 0.25
8.00	8	41	36	79	31100080HA	31100080HB	31100080HE	0.11 – 0.27
8.10	10	47	40	89	31100081HA	31100081HB	31100081HE	0.11 – 0.27
8.20	10	47	40	89	31100082HA	31100082HB	31100082HE	0.11 – 0.27
8.30	10	47	40	89	31100083HA	31100083HB	31100083HE	0.11 – 0.27
8.40	10	47	40	89	31100084HA	31100084HB	31100084HE	0.11 – 0.27
8.50	10	47	40	89	31100085HA	31100085HB	31100085HE	0.11 – 0.27
8.60	10	47	40	89	31100086HA	31100086HB	31100086HE	0.11 – 0.27
8.70	10	47	40	89	31100087HA	31100087HB	31100087HE	0.11 – 0.27
8.80	10	47	40	89	31100088HA	31100088HB	31100088HE	0.11 – 0.27
8.90	10	47	40	89	31100089HA	31100089HB	31100089HE	0.11 – 0.27
9.00	10	47	40	89	31100090HA	31100090HB	31100090HE	0.12 – 0.28
9.10	10	47	40	89	31100091HA	31100091HB	31100091HE	0.12 – 0.28
9.20	10	47	40	89	31100092HA	31100092HB	31100092HE	0.12 – 0.28
9.25	10	47	40	89	311000925HA	311000925HB	311000925HE	0.12 – 0.28
9.30	10	47	40	89	31100093HA	31100093HB	31100093HE	0.12 – 0.28
9.35	10	47	40	89	311000935HA	311000935HB	311000935HE	0.12 – 0.28
9.40	10	47	40	89	31100094HA	31100094HB	31100094HE	0.12 – 0.28
9.50	10	47	40	89	31100095HA	31100095HB	31100095HE	0.12 – 0.28
9.55	10	47	40	89	311000955HA	311000955HB	311000955HE	0.12 – 0.28
9.60	10	47	40	89	31100096HA	31100096HB	31100096HE	0.12 – 0.28
9.70	10	47	40	89	31100097HA	31100097HB	31100097HE	0.12 – 0.28
9.80	10	47	40	89	31100098HA	31100098HB	31100098HE	0.12 – 0.28
9.90	10	47	40	89	31100099HA	31100099HB	31100099HE	0.12 – 0.28
10.00	10	47	40	89	31100100HA	31100100HB	31100100HE	0.13 – 0.30
10.10	12	55	45	102	31100101HA	31100101HB	31100101HE	0.13 – 0.30
10.20	12	55	45	102	31100102HA	31100102HB	31100102HE	0.13 – 0.30
10.30	12	55	45	102	31100103HA	31100103HB	31100103HE	0.13 – 0.30
10.40	12	55	45	102	31100104HA	31100104HB	31100104HE	0.13 – 0.30
10.50	12	55	45	102	31100105HA	31100105HB	31100105HE	0.13 – 0.30
10.60	12	55	45	102	31100106HA	31100106HB	31100106HE	0.13 – 0.30
10.70	12	55	45	102	31100107HA	31100107HB	31100107HE	0.13 – 0.30
10.80	12	55	45	102	31100108HA	31100108HB	31100108HE	0.13 – 0.30
10.90	12	55	45	102	31100109HA	31100109HB	31100109HE	0.13 – 0.30
11.00	12	55	45	102	31100110HA	31100110HB	31100110HE	0.14 – 0.32
11.10	12	55	45	102	31100111HA	31100111HB	31100111HE	0.14 – 0.32
11.20	12	55	45	102	31100112HA	31100112HB	31100112HE	0.14 – 0.32
11.30	12	55	45	102	31100113HA	31100113HB	31100113HE	0.14 – 0.32
11.40	12	55	45	102	31100114HA	31100114HB	31100114HE	0.14 – 0.32
11.50	12	55	45	102	31100115HA	31100115HB	31100115HE	0.14 – 0.32
11.60	12	55	45	102	31100116HA	31100116HB	31100116HE	0.14 – 0.32
11.70	12	55	45	102	31100117HA	31100117HB	31100117HE	0.14 – 0.32
11.80	12	55	45	102	31100118HA	31100118HB	31100118HE	0.14 – 0.32
11.90	12	55	45	102	31100119HA	31100119HB	31100119HE	0.14 – 0.32
12.00	12	55	45	102	31100120HA	31100120HB	31100120HE	0.15 – 0.32
12.20	14	60	45	107	31100122HA	31100122HB	31100122HE	0.15 – 0.32
12.50	14	60	45	107	31100125HA	31100125HB	31100125HE	0.15 – 0.32
12.70	14	60	45	107	31100127HA	31100127HB	31100127HE	0.15 – 0.32
12.80	14	60	45	107	31100128HA	31100128HB	31100128HE	0.15 – 0.32
13.00	14	60	45	107	31100130HA	31100130HB	31100130HE	0.15 – 0.32
13.30	14	60	45	107	31100133HA	31100133HB	31100133HE	0.15 – 0.32
13.50	14	60	45	107	31100135HA	31100135HB	31100135HE	0.15 – 0.32
13.70	14	60	45	107	31100137HA	31100137HB	31100137HE	0.15 – 0.32
13.80	14	60	45	107	31100138HA	31100138HB	31100138HE	0.15 – 0.32
14.00	14	60	45	107	31100140HA	31100140HB	31100140HE	0.16 – 0.35
14.20	16	65	48	115	31100142HA	31100142HB	31100142HE	0.16 – 0.35
14.50	16	65	48	115	31100145HA	31100145HB	31100145HE	0.16 – 0.35
14.70	16	65	48	115	31100147HA	31100147HB	31100147HE	0.16 – 0.35
14.80	16	65	48	115	31100148HA	31100148HB	31100148HE	0.16 – 0.35
15.00	16	65	48	115	31100150HA	31100150HB	31100150HE	0.16 – 0.35
15.20	16	65	48	115	31100152HA	31100152HB	31100152HE	0.16 – 0.35
15.30	16	65	48	115	31100153HA	31100153HB	31100153HE	0.16 – 0.35
15.50	16	65	48	115	31100155HA	31100155HB	31100155HE	0.16 – 0.35
15.70	16	65	48	115	31100157HA	31100157HB	31100157HE	0.16 – 0.35
15.80	16	65	48	115	31100158HA	31100158HB	31100158HE	0.16 – 0.35
16.00	16	65	48	115	31100160HA	31100160HB	31100160HE	0.17 – 0.37
16.50	18	73	48	123	31100165HA	31100165HB	31100165HE	0.17 – 0.37
16.80	18	73	48	123	31100168HA	31100168HB	31100168HE	0.17 – 0.37
17.00	18	73	48	123	31100170HA	31100170HB	31100170HE	0.17 – 0.37
17.50	18	73	48	123	31100175HA	31100175HB	31100175HE	0.17 – 0.37
17.70	18	73	48	123	31100177HA	31100177HB	31100177HE	0.17 – 0.37
17.80	18	73	48	123	31100178HA	31100178HB	31100178HE	0.17 – 0.37
18.00	18	73	48	123	31100180HA	31100180HB	31100180HE	0.18 – 0.40
18.50	20	79	50	131	31100185HA	31100185HB	31100185HE	0.18 – 0.40
18.80	20	79	50	131	31100188HA	31100188HB	31100188HE	0.18 – 0.40
19.00	20	79	50	131	31100190HA	31100190HB	31100190HE	0.18 – 0.40
19.50	20	79	50	131	31100195HA	31100195HB	31100195HE	0.18 – 0.40
19.80	20	79	50	131	31100198HA	31100198HB	31100198HE	0.18 – 0.40
20.00	20	79	50	131	31100200HA	31100200HB	31100200HE	0.20 – 0.45

Material	Alu & Al Alloys	Alu & Al alloys <10% Si
Tensile strength/ Hardness	< 450 N/mm ²	< 600 N/mm ²
V _c (m/min)	105	270

Material	Alu & Al alloys >10% Si
Tensile strength/ Hardness	> 600 N/mm ²
V _c (m/min)	180

Material	General structural steels	Free machining steels	Non-alloy Q & T steels	Steel	Tool steels	Alloy case-hardened steels	Stainless steels	Cast iron	Cast iron (gray, ductile, malleable)
Tensile strength/ Hardness	< 850 N/mm ²	< 1000 N/mm ²	< 1000 N/mm ²	< 1200 N/mm ²	< 1400 N/mm ²	< 1200 N/mm ²	< 750 N/mm ²	< 650 N/mm ²	> 260 HB
V _c (m/min)	120	110	105	105	45	85	45	120	60