



MASTER CATALOG **2018**

VOLUME TWO | **ROTATING TOOLS**



HOLEMAKING | TAPPING | SOLID END MILLING | INDEXABLE MILLING

➤ HPS Beyond™ Drills for Aluminum Machining with MQL



Primary Application

B284/B285_HPS series solid carbide drills offer the highest metal removal rates and longest tool life in aluminum and other non-ferrous materials when MQL is applied. These drills can also be used with standard through coolant.

By combining the HP-Point geometry and the new KN15™ Beyond grade with the new Kennametal polishing technology and unique flute design into one tool, the B28_HPS is the ultimate production tool for aluminum workpiece applications — even when compared to PCD solutions. This drill family is a differentiated high-end and high-performance alternative to commoditized conventional carbide or PCD straight-fluted drills.

Features and Benefits

HPS Drill-Point Design

- Sharp cutting edge enables higher tool life in aluminum and other non-ferrous materials.
- Low cutting forces and less built-up edge.
- HP-point enables high feed rates by progressive rake angle and excellent centering capabilities.

Enlarged Flute Design

- Enables fast chip evacuation and high metal removal rates.

KN15 Beyond Grade

- The highly polished surface ensures superior chip evacuation, even when MQL coolant is applied.
- Specified, uncoated 9% Co fine-grain carbide.

“D” Shank Optimized for MQL Applications

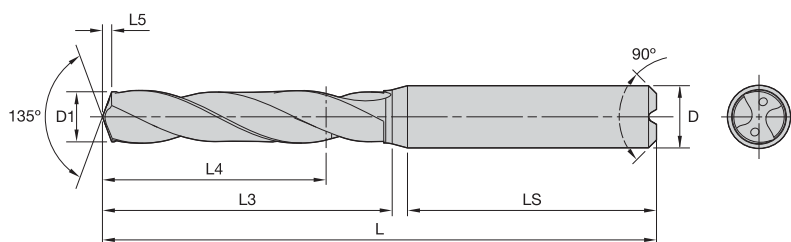
- Enlarged chamfer on back end according to DIN 69090-3 (round cylindrical for MQL) to ensure optimum coolant flow without leakage.

Much more cost-effective compared to PCD-tipped drills.



Customization

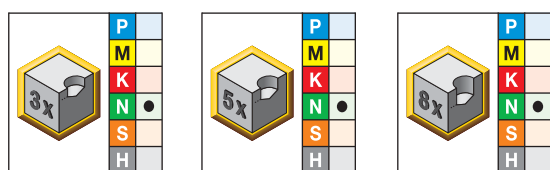
- Intermediate diameters available as semi-standards.
- Length variations and step drills available as custom solutions.
- Using Kennametal MQL chucks together with standard B28_HPS is recommended.
- Optional coatings available for applications in aluminum with Si>9%, based on TiB₂ and DLC.



For information on L, L3, and L4 max, see the Solid Carbide Drills foldout table.



■ B284/B285/B286_HPS • ~3 x D/~5 x D/~8 x D



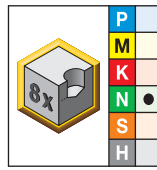
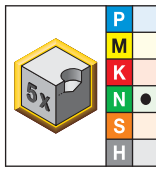
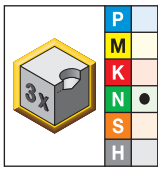
- first choice
- alternate choice

D1 diameter

short • KN15	long • KN15	extra long • KN15	mm	in	fraction	wire size	L5	LS	D
B284D03000HPS	B285D03000HPS	B286D03000HPS	3,000	.1181	—	—	0,6	36	6
B284D03100HPS	B285D03100HPS	B286D03100HPS	3,100	.1220	—	—	0,6	36	6
B284D03175HPS	B285D03175HPS	B286D03175HPS	3,175	.1250	1/8	—	0,6	36	6
B284D03200HPS	B285D03200HPS	B286D03200HPS	3,200	.1260	—	—	0,6	36	6
B284D03264HPS	B285D03264HPS	B286D03264HPS	3,264	.1285	—	30	0,6	36	6
B284D03300HPS	B285D03300HPS	B286D03300HPS	3,300	.1299	—	—	0,6	36	6
B284D03455HPS	B285D03455HPS	B286D03455HPS	3,455	.1360	—	29	0,6	36	6
B284D03500HPS	B285D03500HPS	B286D03500HPS	3,500	.1378	—	—	0,6	36	6
B284D03571HPS	B285D03571HPS	B286D03571HPS	3,571	.1406	9/64	—	0,7	36	6
B284D03700HPS	B285D03700HPS	B286D03700HPS	3,700	.1457	—	—	0,7	36	6
B284D03734HPS	B285D03734HPS	B286D03734HPS	3,734	.1470	—	26	0,7	36	6
B284D03900HPS	B285D03900HPS	B286D03900HPS	3,900	.1535	—	—	0,7	36	6
B284D03970HPS	B285D03970HPS	B286D03970HPS	3,970	.1563	5/32	—	0,7	36	6
B284D04000HPS	B285D04000HPS	B286D04000HPS	4,000	.1575	—	—	0,7	36	6
B284D04039HPS	B285D04039HPS	B286D04039HPS	4,039	.1590	—	21	0,7	36	6
B284D04100HPS	B285D04100HPS	B286D04100HPS	4,100	.1614	—	—	0,8	36	6
B284D04200HPS	B285D04200HPS	B286D04200HPS	4,200	.1654	—	—	0,8	36	6
B284D04305HPS	B285D04305HPS	B286D04305HPS	4,305	.1695	—	18	0,8	36	6
B284D04366HPS	—	—	4,366	.1719	11/64	—	0,8	36	6
B284D04400HPS	B285D04400HPS	B286D04400HPS	4,400	.1732	—	—	0,8	36	6
B284D04500HPS	B285D04500HPS	B286D04500HPS	4,500	.1772	—	—	0,8	36	6
B284D04600HPS	B285D04600HPS	B286D04600HPS	4,600	.1811	—	—	0,8	36	6
B284D04700HPS	B285D04700HPS	B286D04700HPS	4,700	.1850	—	13	0,9	36	6
B284D04763HPS	B285D04763HPS	B286D04763HPS	4,763	.1875	3/16	—	0,9	36	6
B284D04800HPS	B285D04800HPS	B286D04800HPS	4,800	.1890	—	12	0,9	36	6
B284D04900HPS	B285D04900HPS	B286D04900HPS	4,900	.1929	—	—	0,9	36	6
B284D05000HPS	B285D05000HPS	B286D05000HPS	5,000	.1969	—	—	0,9	36	6
B284D05100HPS	B285D05100HPS	B286D05100HPS	5,100	.2008	—	—	0,9	36	6
B284D05106HPS	B285D05106HPS	B286D05106HPS	5,106	.2010	—	7	0,9	36	6
B284D05159HPS	B285D05159HPS	B286D05159HPS	5,159	.2031	13/64	—	1,0	36	6
B284D05200HPS	B285D05200HPS	B286D05200HPS	5,200	.2047	—	—	1,0	36	6
B284D05300HPS	B285D05300HPS	B286D05300HPS	5,300	.2087	—	—	1,0	36	6
B284D05400HPS	B285D05400HPS	B286D05400HPS	5,400	.2126	—	—	1,0	36	6
B284D05410HPS	B285D05410HPS	B286D05410HPS	5,410	.2130	—	3	1,0	36	6
B284D05500HPS	B285D05500HPS	B286D05500HPS	5,500	.2165	—	—	1,0	36	6
B284D05558HPS	B285D05558HPS	B286D05558HPS	5,558	.2188	7/32	—	1,0	36	6

(continued)

(B284/B285/B286_HPS • ~3 x D/~5 x D/~8 x D — continued)

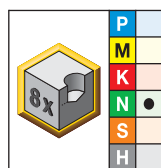
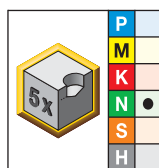
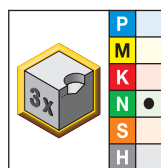


- first choice
- alternate choice

			D1 diameter						
short • KN15	long • KN15	extra long • KN15	mm	in	fraction	wire size	L5	LS	D
B284D05600HPS	B285D05600HPS	B286D05600HPS	5,600	.2205	—	—	1,0	36	6
B284D05791HPS	B285D05791HPS	B286D05791HPS	5,791	.2280	—	1	1,1	36	6
B284D05800HPS	—	—	5,800	.2283	—	—	1,1	36	6
B284D05954HPS	—	—	5,954	.2344	15/64	—	1,1	36	6
B284D06000HPS	B285D06000HPS	B286D06000HPS	6,000	.2362	—	—	1,1	36	6
B284D06200HPS	B285D06200HPS	B286D06200HPS	6,200	.2441	—	—	1,1	36	8
B284D06300HPS	B285D06300HPS	B286D06300HPS	6,300	.2480	—	—	1,2	36	8
B284D06350HPS	B285D06350HPS	B286D06350HPS	6,350	.2500	1/4	—	1,2	36	8
B284D06400HPS	B285D06400HPS	B286D06400HPS	6,400	.2520	—	—	1,2	36	8
B284D06500HPS	B285D06500HPS	B286D06500HPS	6,500	.2559	—	—	1,2	36	8
B284D06528HPS	B285D06528HPS	B286D06528HPS	6,528	.2570	—	—	1,2	36	8
B284D06600HPS	B285D06600HPS	B286D06600HPS	6,600	.2598	—	—	1,2	36	8
B284D06630HPS	B285D06630HPS	B286D06630HPS	6,630	.2610	—	—	1,2	36	8
B284D06700HPS	B285D06700HPS	B286D06700HPS	6,700	.2638	—	—	1,2	36	8
B284D06746HPS	B285D06746HPS	B286D06746HPS	6,746	.2656	17/64	—	1,2	36	8
B284D06800HPS	B285D06800HPS	B286D06800HPS	6,800	.2677	—	—	1,3	36	8
B284D06900HPS	B285D06900HPS	B286D06900HPS	6,900	.2717	—	—	1,3	36	8
B284D07000HPS	B285D07000HPS	B286D07000HPS	7,000	.2756	—	—	1,3	36	8
B284D07145HPS	B285D07145HPS	B286D07145HPS	7,145	.2813	9/32	—	1,3	36	8
B284D07300HPS	B285D07300HPS	B286D07300HPS	7,300	.2874	—	—	1,3	36	8
B284D07400HPS	B285D07400HPS	B286D07400HPS	7,400	.2913	—	—	1,4	36	8
B284D07500HPS	—	—	7,500	.2953	—	—	1,4	36	8
B284D07541HPS	B285D07541HPS	B286D07541HPS	7,541	.2969	19/64	—	1,4	36	8
B284D07600HPS	B285D07600HPS	B286D07600HPS	7,600	.2992	—	—	1,4	36	8
B284D07700HPS	B285D07700HPS	B286D07700HPS	7,700	.3031	—	—	1,4	36	8
—	B285D07800HPS	—	7,800	.3071	—	—	1,4	36	8
B284D07938HPS	B285D07938HPS	B286D07938HPS	7,938	.3125	5/16	—	1,5	36	8
B284D08000HPS	B285D08000HPS	B286D08000HPS	8,000	.3150	—	—	1,5	36	8
B284D08334HPS	B285D08334HPS	B286D08334HPS	8,334	.3281	21/64	—	1,5	40	10
B284D08400HPS	B285D08400HPS	B286D08400HPS	8,400	.3307	—	—	1,6	40	10
B284D08433HPS	B285D08433HPS	B286D08433HPS	8,433	.3320	—	—	1,6	40	10
B284D08500HPS	B285D08500HPS	B286D08500HPS	8,500	.3346	—	—	1,6	40	10
B284D08700HPS	B285D08700HPS	B286D08700HPS	8,700	.3425	—	—	1,6	40	10
B284D08733HPS	B285D08733HPS	B286D08733HPS	8,733	.3438	11/32	—	1,6	40	10
B284D08800HPS	B285D08800HPS	B286D08800HPS	8,800	.3465	—	—	1,6	40	10
B284D08900HPS	B285D08900HPS	B286D08900HPS	8,900	.3504	—	—	1,6	40	10
B284D09000HPS	B285D09000HPS	B286D09000HPS	9,000	.3543	—	—	1,7	40	10
B284D09100HPS	B285D09100HPS	B286D09100HPS	9,100	.3583	—	—	1,7	40	10
B284D09129HPS	B285D09129HPS	B286D09129HPS	9,129	.3594	23/64	—	1,7	40	10
B284D09300HPS	B285D09300HPS	B286D09300HPS	9,300	.3661	—	—	1,7	40	10
B284D09400HPS	B285D09400HPS	B286D09400HPS	9,400	.3701	—	—	1,7	40	10
B284D09500HPS	B285D09500HPS	B286D09500HPS	9,500	.3740	—	—	1,8	40	10
B284D09525HPS	B285D09525HPS	B286D09525HPS	9,525	.3750	3/8	—	1,8	40	10
B284D09900HPS	B285D09900HPS	B286D09900HPS	9,900	.3898	—	—	1,8	40	10
B284D09921HPS	B285D09921HPS	B286D09921HPS	9,921	.3906	25/64	—	1,8	40	10
B284D10000HPS	B285D10000HPS	B286D10000HPS	10,000	.3937	—	—	1,8	40	10
B284D10100HPS	B285D10100HPS	B286D10100HPS	10,100	.3976	—	—	1,9	45	12
B284D10200HPS	B285D10200HPS	B286D10200HPS	10,200	.4016	—	—	1,9	45	12
B284D10300HPS	B285D10300HPS	B286D10300HPS	10,300	.4055	—	—	1,9	45	12
B284D10320HPS	B285D10320HPS	B286D10320HPS	10,320	.4063	13/32	—	1,9	45	12
B284D10500HPS	B285D10500HPS	B286D10500HPS	10,500	.4134	—	—	1,9	45	12
B284D10600HPS	B285D10600HPS	B286D10600HPS	10,600	.4173	—	—	2,0	45	12

(continued)

(B284/B285/B286_HPS • ~3 x D/~5 x D/~8 x D — continued)



● first choice
○ alternate choice

			D1 diameter						
short • KN15	long • KN15	extra long • KN15	mm	in	fraction	wire size	L5	LS	D
B284D10716HPS	B285D10716HPS	B286D10716HPS	10,716	.4219	27/64	—	2,0	45	12
B284D10800HPS	B285D10800HPS	B286D10800HPS	10,800	.4252	—	—	2,0	45	12
B284D11000HPS	B285D11000HPS	B286D11000HPS	11,000	.4331	—	—	2,0	45	12
B284D11100HPS	B285D11100HPS	B286D11100HPS	11,100	.4370	—	—	2,0	45	12
B284D11113HPS	B285D11113HPS	B286D11113HPS	11,113	.4375	7/16	—	2,1	45	12
B284D11200HPS	B285D11200HPS	B286D11200HPS	11,200	.4409	—	—	2,1	45	12
B284D11300HPS	B285D11300HPS	B286D11300HPS	11,300	.4449	—	—	2,1	45	12
B284D11400HPS	B285D11400HPS	B286D11400HPS	11,400	.4488	—	—	2,1	45	12
B284D11500HPS	B285D11500HPS	B286D11500HPS	11,500	.4528	—	—	2,1	45	12
B284D11509HPS	B285D11509HPS	B286D11509HPS	11,509	.4531	29/64	—	2,1	45	12
B284D11800HPS	B285D11800HPS	B286D11800HPS	11,800	.4646	—	—	2,2	45	12
B284D11908HPS	B285D11908HPS	B286D11908HPS	11,908	.4688	15/32	—	2,2	45	12
B284D12000HPS	B285D12000HPS	B286D12000HPS	12,000	.4724	—	—	2,2	45	12
B284D12304HPS	B285D12304HPS	B286D12304HPS	12,304	.4844	31/64	—	2,3	45	14
B284D12500HPS	B285D12500HPS	B286D12500HPS	12,500	.4921	—	—	2,3	45	14
B284D12600HPS	B285D12600HPS	B286D12600HPS	12,600	.4961	—	—	2,3	45	14
B284D12700HPS	B285D12700HPS	B286D12700HPS	12,700	.5000	1/2	—	2,3	45	14
B284D13000HPS	B285D13000HPS	B286D13000HPS	13,000	.5118	—	—	2,4	45	14
B284D13096HPS	B285D13096HPS	B286D13096HPS	13,096	.5156	33/64	—	2,4	45	14
B284D13100HPS	B285D13100HPS	B286D13100HPS	13,100	.5157	—	—	2,4	45	14
B284D13300HPS	B285D13300HPS	B286D13300HPS	13,300	.5236	—	—	2,5	45	14
B284D13400HPS	B285D13400HPS	B286D13400HPS	13,400	.5276	—	—	2,5	45	14
B284D13500HPS	B285D13500HPS	B286D13500HPS	13,500	.5315	—	—	2,5	45	14
B284D14000HPS	B285D14000HPS	B286D14000HPS	14,000	.5512	—	—	2,6	45	14
B284D14200HPS	B285D14200HPS	B286D14200HPS	14,200	.5591	—	—	2,6	48	16
B284D14288HPS	B285D14288HPS	B286D14288HPS	14,288	.5625	9/16	—	2,6	48	16
B284D14500HPS	B285D14500HPS	B286D14500HPS	14,500	.5709	—	—	2,7	48	16
B284D14684HPS	B285D14684HPS	B286D14684HPS	14,684	.5781	37/64	—	2,7	48	16
B284D15000HPS	B285D15000HPS	B286D15000HPS	15,000	.5906	—	—	2,8	48	16
B284D15083HPS	B285D15083HPS	B286D15083HPS	15,083	.5938	19/32	—	2,8	48	16
B284D15100HPS	B285D15100HPS	B286D15100HPS	15,100	.5945	—	—	2,8	48	16
B284D15300HPS	B285D15300HPS	B286D15300HPS	15,300	.6024	—	—	2,8	48	16
B284D15400HPS	B285D15400HPS	B286D15400HPS	15,400	.6063	—	—	2,8	48	16
B284D15875HPS	B285D15875HPS	B286D15875HPS	15,875	.6250	5/8	—	2,9	48	16
B284D16000HPS	B285D16000HPS	B286D16000HPS	16,000	.6299	—	—	3,0	48	16
B284D16500HPS	B285D16500HPS	B286D16500HPS	16,500	.6496	—	—	3,0	48	18
B284D16670HPS	B285D16670HPS	B286D16670HPS	16,670	.6563	21/32	—	3,1	48	18
B284D16800HPS	B285D16800HPS	B286D16800HPS	16,800	.6614	—	—	3,1	48	18
B284D16900HPS	B285D16900HPS	B286D16900HPS	16,900	.6654	—	—	3,1	48	18
B284D17000HPS	B285D17000HPS	B286D17000HPS	17,000	.6693	—	—	3,1	48	18
B284D17300HPS	B285D17300HPS	B286D17300HPS	17,300	.6811	—	—	3,2	48	18
B284D17463HPS	B285D17463HPS	B286D17463HPS	17,463	.6875	11/16	—	3,2	48	18
B284D17500HPS	B285D17500HPS	B286D17500HPS	17,500	.6890	—	—	3,2	48	18
B284D17859HPS	B285D17859HPS	B286D17859HPS	17,859	.7031	45/64	—	3,3	48	18
B284D18000HPS	B285D18000HPS	B286D18000HPS	18,000	.7087	—	—	3,3	48	18
B284D19000HPS	B285D19000HPS	B286D19000HPS	19,000	.7480	—	—	3,5	50	20
B284D19050HPS	B285D19050HPS	B286D19050HPS	19,050	.7500	3/4	—	3,5	50	20
B284D20000HPS	B285D20000HPS	B286D20000HPS	20,000	.7874	—	—	3,7	50	20

Tolerance • Metric		
nominal size range	D1 tolerance m7	D tolerance h6
>3–6	0,004/0,016	0,000/-0,008
>6–10	0,006/0,021	0,000/-0,009
>10–18	0,007/0,025	0,000/-0,011
>18–25,4	0,008/0,029	0,000/-0,013

Tolerance • Inch		
nominal size range	D1 tolerance m7	D tolerance h6
>.1181–.2362	.0002/.0006	.0000/-.0003
>.2362–.3937	.0002/.0008	.0000/-.0004
>.3937–.7087	.0003/.0010	.0000/-.0004
>.7087–1.0000	.0003/.0011	.0000/-.0005

■ HP Drills • B28_HPS Series • Grade KN15™ • MQL and Through Coolant •
 Drill Diameters 3-20mm (.1181-.7874")

Material Group													
	Cutting Speed – vc			Metric									
	Range – m/min			Recommended Feed Rate (f) by Diameter									
	min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0	
N	1	120	230	450	mm/r	0,13–0,25	0,14–0,29	0,17–0,35	0,21–0,42	0,27–0,50	0,33–0,57	0,37–0,69	0,43–0,82
	2	120	220	350	mm/r	0,14–0,23	0,15–0,28	0,17–0,34	0,22–0,39	0,29–0,46	0,34–0,54	0,39–0,67	0,45–0,80
	3	100	180	400	mm/r	0,13–0,20	0,14–0,21	0,16–0,27	0,20–0,33	0,28–0,40	0,33–0,45	0,38–0,60	0,44–0,68
	4	100	130	300	mm/r	0,10–0,18	0,12–0,20	0,14–0,26	0,16–0,30	0,18–0,34	0,20–0,38	0,24–0,42	0,28–0,46
Material Group	Cutting Speed – vc			Inch									
	Range – SFM			Recommended Feed Rate (f) by Diameter									
	min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750	
	1	390	750	1480	IPR	.005–.010	.006–.011	.007–.014	.008–.017	.011–.020	.013–.022	.015–.027	.017–.032
N	2	390	720	1150	IPR	.006–.009	.006–.011	.007–.013	.009–.015	.011–.018	.013–.021	.015–.026	.018–.032
	3	330	590	1310	IPR	.005–.008	.006–.008	.006–.011	.008–.013	.011–.016	.013–.018	.015–.024	.017–.027
	4	330	430	980	IPR	.004–.007	.005–.008	.006–.010	.006–.012	.007–.013	.008–.015	.009–.017	.011–.018