

Preview Edition: **Beyond™ B284 HPS Drills**
INNOVATIONS **CATALOGUE**
2015

www.kennametal.com



HPS Beyond™ Drills for Aluminium Machining with MQL

Primary Application

B284/B285_HPS Series Solid Carbide Drills offer the highest metal removal rates and longest tool life in aluminium 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 aluminium workpiece applications – even when compared to PCD solutions. This drill family is a differentiated high-end and high-performance alternative to commoditised conventional carbide or PCD straight-fluted drills.

Features and Benefits

HPS Drill-Point Design

- Sharp cutting edge enables high tool life in aluminium 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 centring capabilities.

Enlarged Flute Design

- Enables fast chip evacuation and high metal removal rates.

NEW KN15™ Beyond™ Grade

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

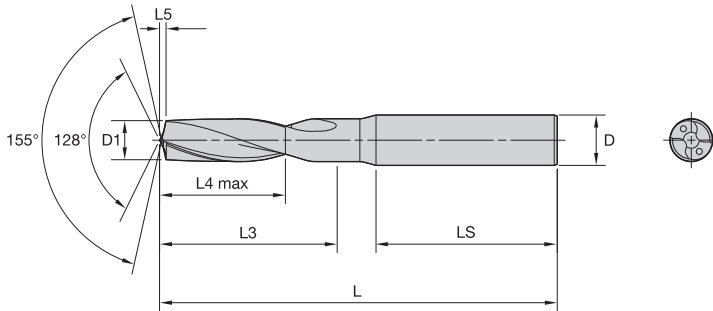
“D” Shank Optimised for MQL Applications

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

Customisation

- 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 aluminium with Si > 9%, based on TiB₂ and DLC.



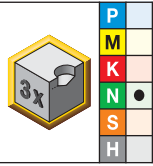
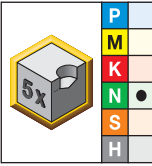


For information on L, L3, and L4 max, see the Solid Carbide Drill foldout dimension table between pages G4 and G5 in the Kennametal Innovations Master Catalogue Cutting Tools 2013.



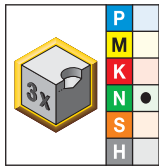
■ B284/B285_HPS • ~3 x D/~5 x D

- first choice
- alternate choice

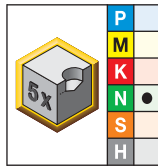
 short • KN15	 long • KN15	D1 diameter		L5	LS	D
		mm	wire size			
B284D03000HPS	B285D03000HPS	3,000	—	0,6	36	6
B284D03175HPS	B285D03175HPS	3,175	—	0,6	36	6
B284D03200HPS	B285D03200HPS	3,200	—	0,6	36	6
B284D03300HPS	B285D03300HPS	3,300	—	0,6	36	6
B284D03500HPS	—	3,500	—	0,6	36	6
B284D03571HPS	—	3,571	—	0,7	36	6
B284D03970HPS	B285D03970HPS	3,970	—	0,7	36	6
B284D04000HPS	B285D04000HPS	4,000	—	0,7	36	6
B284D04200HPS	B285D04200HPS	4,200	—	0,8	36	6
B284D04366HPS	—	4,366	—	0,8	36	6
B284D04500HPS	B285D04500HPS	4,500	—	0,8	36	6
B284D04763HPS	B285D04763HPS	4,763	—	0,9	36	6
B284D04800HPS	B285D04800HPS	4,800	12	0,9	36	6
—	B285D04900HPS	4,900	—	0,9	36	6
B284D05000HPS	B285D05000HPS	5,000	—	0,9	36	6
B284D05100HPS	B285D05100HPS	5,100	—	0,9	36	6
B284D05159HPS	—	5,159	—	1,0	36	6
—	B285D05200HPS	5,200	—	1,0	36	6
—	B285D05500HPS	5,500	—	1,0	36	6
B284D05558HPS	B285D05558HPS	5,558	—	1,0	36	6
B284D05600HPS	B285D05600HPS	5,600	—	1,0	36	6
B284D05800HPS	—	5,800	—	1,1	36	6
B284D05954HPS	—	5,954	—	1,1	36	6
B284D06000HPS	B285D06000HPS	6,000	—	1,1	36	6
—	B285D06300HPS	6,300	—	1,2	36	8
B284D06400HPS	B285D06400HPS	6,400	—	1,2	36	8
B284D06500HPS	B285D06500HPS	6,500	—	1,2	36	8
—	B285D06600HPS	6,600	—	1,2	36	8
—	B285D06700HPS	6,700	—	1,2	36	8
B284D06746HPS	—	6,746	—	1,2	36	8
B284D06800HPS	—	6,800	—	1,3	36	8
B284D07000HPS	B285D07000HPS	7,000	—	1,3	36	8

(continued)

(B284/B285_HPS • ~3 x D/~5 x D continued)



short • KN15



long • KN15

		D1 diameter				
		mm	wire size	L5	LS	D
B284D07145HPS	B285D07145HPS	7,145	—	1,3	36	8
B284D07400HPS	B285D07400HPS	7,400	—	1,4	36	8
B284D07500HPS	—	7,500	—	1,4	36	8
B284D07541HPS	—	7,541	—	1,4	36	8
—	B285D07700HPS	7,700	—	1,4	36	8
—	B285D07800HPS	7,800	—	1,4	36	8
B284D07938HPS	B285D07938HPS	7,938	—	1,5	36	8
B284D08000HPS	—	8,000	—	1,5	36	8
B284D08334HPS	B285D08334HPS	8,334	—	1,5	40	10
—	B285D08400HPS	8,400	—	1,6	40	10
B284D08500HPS	B285D08500HPS	8,500	—	1,6	40	10
B284D08733HPS	B285D08733HPS	8,733	—	1,6	40	10
B284D09000HPS	B285D09000HPS	9,000	—	1,7	40	10
B284D09129HPS	—	9,129	—	1,7	40	10
—	B285D09300HPS	9,300	—	1,7	40	10
B284D09500HPS	B285D09500HPS	9,500	—	1,8	40	10
B284D09525HPS	B285D09525HPS	9,525	—	1,8	40	10
B284D09921HPS	—	9,921	—	1,8	40	10
B284D10000HPS	B285D10000HPS	10,000	—	1,8	40	10
B284D10200HPS	—	10,200	—	1,9	45	12
B284D10320HPS	—	10,320	—	1,9	45	12
B284D10500HPS	B285D10500HPS	10,500	—	1,9	45	12
B284D10716HPS	—	10,716	—	2,0	45	12
B284D11000HPS	B285D11000HPS	11,000	—	2,0	45	12
B284D11113HPS	B285D11113HPS	11,113	—	2,1	45	12
—	B285D11500HPS	11,500	—	2,1	45	12
B284D11908HPS	—	11,908	—	2,2	45	12
B284D12000HPS	B285D12000HPS	12,000	—	2,2	45	12
B284D12500HPS	—	12,500	—	2,3	45	14
B284D12700HPS	—	12,700	—	2,3	45	14
B284D14000HPS	B285D14000HPS	14,000	—	2,6	45	14
B284D14288HPS	—	14,288	—	2,6	48	16
—	B285D14500HPS	14,500	—	2,7	48	16
B284D15875HPS	—	15,875	—	2,9	48	16
—	B285D18000HPS	18,000	—	3,3	48	18
B284D19050HPS	—	19,050	—	3,5	50	20
B284D20000HPS	—	20,000	—	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

■ HP Drills • B28_HPS Series • Grade KN15™ • MQL and Through Coolant

		Cutting Speed – vc			Metric									
		Range – m/min			Recommended Feed Rate (f) by Diameter									
Material Group	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	0,13–0,18	0,14–0,19	0,16–0,25	0,20–0,30	0,28–0,37	0,33–0,42	0,38–0,56	0,44–0,68	
	4	100	130	300	mm/r	0,10–0,16	0,12–0,18	0,14–0,24	0,16–0,28	0,18–0,32	0,20–0,36	0,24–0,40	0,28–0,44	

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