



MASTER CATALOG **2018**

VOLUME TWO | **ROTATING TOOLS**



HOLEMAKING | TAPPING | SOLID END MILLING | INDEXABLE MILLING

➤ YPC Beyond™ Solid Carbide Drills with Through Coolant for Iron



Primary Application

The B25_YPC series solid carbide drills are specifically engineered to deliver best-in-class hole quality and longest tool life in cast iron, ductile iron, CGI, and ADI. Operate these drills with standard through coolant or MQL.

The B25_YPC Beyond solid carbide drill combines unique Kennametal technologies, such as the Y-TECH™ flute spacing, the HP-point geometry, the KCK10™ Beyond grade, and the latest, proprietary post-coat treatment technology into one tool.

Features and Benefits

Y-TECH Technology with Uneven Flute-to-Flute Angle

- Unbalanced forces by design avoid chipping on margin lands.

Three-Margin Lands

- Reduce pendulum motion by directing forces towards third margin for superior hole accuracy (cylindricity, constant diameter, hole straightness).

New HP Drill-Point Design

- Low thrust prevents workpiece flexing.
- Excellent centering capabilities.
- Highest possible feed rates.

Corner Chamfer

- Avoids breakout when drilling through holes in gray iron.
- Significantly increases tool life at elevated speeds and feeds.

KCK10 Beyond Grade

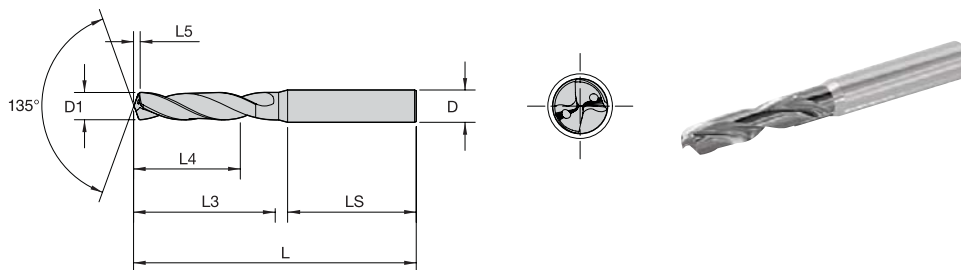
- The grade contains multiple layers of PVD coating offering outstanding wear resistance for the drilling of cast irons.
- The highly polished surface ensures superior chip evacuation even when low-pressure coolant or MQL is applied.

Y-TECH[™] technology for superior hole quality.

Customization

- Intermediate diameters available as semi-standards.
- Length variations and step drills available as engineered solutions.
- Using Kennametal slim line hydraulic chucks together with standard B25_YPC is recommended if workpiece contours need to be bypassed.





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



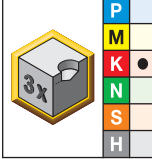
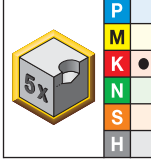
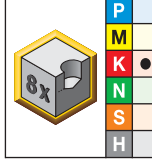
■ B254/B255/B256_YPC • ~3 x D/~5 x D/~8 x D

			D1 diameter						
short • KCK10	long • KCK10	extra long • KCK10	mm	in	fraction	wire size	L5	LS	D
B254A03000YPC	B255A03000YPC	B256A03000YPC	3,000	.1181	—	—	0,9	36	6
B254A03048YPC *	B255A03048YPC	—	3,048	.1200	—	31	0,9	36	6
—	B255A03175YPC *	B256A03175YPC	3,175	.1250	1/8	—	0,9	36	6
B254A03200YPC	B255A03200YPC	—	3,200	.1260	—	—	0,9	36	6
—	B255A03250YPC	—	3,250	.1280	—	—	0,9	36	6
—	—	B256A03264YPC	3,264	.1285	—	30	0,9	36	6
B254A03300YPC *	B255A03300YPC	—	3,300	.1299	—	—	0,9	36	6
—	B255A03400YPC *	—	3,400	.1339	—	—	1,0	36	6
B254A03454YPC *	—	—	3,454	.1360	—	29	1,0	36	6
B254A03500YPC	B255A03500YPC *	B256A03500YPC	3,500	.1378	—	—	1,0	36	6
B254A03600YPC *	B255A03600YPC *	—	3,600	.1417	—	—	1,0	36	6
—	B255A03700YPC	B256A03700YPC *	3,700	.1457	—	—	1,0	36	6
—	B255A03797YPC	—	3,797	.1495	—	25	1,1	36	6
B254A03800YPC *	B255A03800YPC	B256A03800YPC *	3,800	.1496	—	—	1,1	36	6
B254A03861YPC *	B255A03861YPC *	—	3,861	.1520	—	24	1,1	36	6
—	B255A03970YPC *	—	3,970	.1563	5/32	—	1,1	36	6
B254A04000YPC	B255A04000YPC	B256A04000YPC	4,000	.1575	—	—	1,1	36	6
B254A04039YPC	B255A04039YPC	—	4,039	.1590	—	21	1,1	36	6
B254A04100YPC	B255A04100YPC	B256A04100YPC	4,100	.1614	—	—	1,1	36	6
B254A04200YPC	B255A04200YPC	B256A04200YPC	4,200	.1654	—	—	1,2	36	6
—	B255A04217YPC	—	4,217	.1660	—	19	1,2	36	6
—	B255A04300YPC	B256A04300YPC *	4,300	.1693	—	—	1,2	36	6
—	B255A04366YPC *	B256A04366YPC *	4,366	.1719	11/64	—	1,2	36	6
B254A04500YPC	B255A04500YPC	B256A04500YPC	4,500	.1772	—	—	1,2	36	6
B254A04572YPC	B255A04572YPC	—	4,572	.1800	—	15	1,3	36	6
—	B255A04600YPC *	—	4,600	.1811	—	—	1,3	36	6
—	—	B256A04623YPC	4,623	.1820	—	14	1,3	36	6
—	B255A04700YPC *	B256A04700YPC	4,700	.1850	—	13	1,3	36	6
B254A04763YPC *	—	—	4,763	.1875	3/16	—	1,3	36	6
B254A04800YPC	B255A04800YPC	B256A04800YPC	4,800	.1890	—	12	1,3	36	6
—	—	B256A04852YPC *	4,852	.1910	—	11	1,3	36	6
—	B255A04900YPC *	—	4,900	.1929	—	—	1,3	36	6

● first choice
○ alternate choice

(continued)

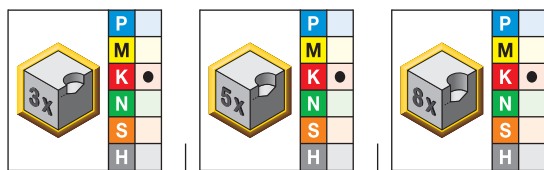
(B254/B255/B256_YPC • ~3 x D/~5 x D/~8 x D — continued)

  			D1 diameter						
short • KCK10	long • KCK10	extra long • KCK10	mm	in	fraction	wire size	L5	LS	D
B254A05000YPC	B255A05000YPC	B256A05000YPC	5,000	.1969	—	—	1,4	36	6
B254A05055YPC	B255A05055YPC	—	5,055	.1990	—	8	1,4	36	6
B254A05100YPC	B255A05100YPC	B256A05100YPC	5,100	.2008	—	—	1,4	36	6
B254A05106YPC *	—	—	5,106	.2010	—	7	1,4	36	6
—	B255A05159YPC *	—	5,159	.2031	13/64	—	1,4	36	6
—	B255A05200YPC	B256A05200YPC *	5,200	.2047	—	—	1,4	36	6
—	B255A05250YPC	—	5,250	.2067	—	—	1,4	36	6
B254A05300YPC *	B255A05300YPC *	—	5,300	.2087	—	—	1,4	36	6
—	B255A05400YPC *	—	5,400	.2126	—	—	1,5	36	6
—	B255A05410YPC *	—	5,410	.2130	—	3	1,5	36	6
B254A05500YPC *	B255A05500YPC	B256A05500YPC	5,500	.2165	—	—	1,5	36	6
B254A05558YPC *	B255A05558YPC *	—	5,558	.2188	7/32	—	1,5	36	6
—	B255A05600YPC	B256A05600YPC	5,600	.2205	—	—	1,5	36	6
—	B255A05700YPC *	—	5,700	.2244	—	—	1,5	36	6
B254A05791YPC	B255A05791YPC *	—	5,791	.2280	—	1	1,6	36	6
B254A05800YPC	B255A05800YPC	B256A05800YPC	5,800	.2283	—	—	1,6	36	6
—	—	B256A05900YPC	5,900	.2323	—	—	1,6	36	6
B254A06000YPC	B255A06000YPC	B256A06000YPC	6,000	.2362	—	—	1,6	36	6
B254A06100YPC *	B255A06100YPC *	—	6,100	.2402	—	—	1,6	36	8
B254A06200YPC *	B255A06200YPC	B256A06200YPC	6,200	.2441	—	—	1,7	36	8
—	B255A06300YPC	—	6,300	.2480	—	—	1,7	36	8
—	B255A06350YPC *	B256A06350YPC	6,350	.2500	1/4	—	1,7	36	8
—	B255A06400YPC	B256A06400YPC	6,400	.2520	—	—	1,7	36	8
B254A06500YPC *	B255A06500YPC	B256A06500YPC	6,500	.2559	—	—	1,7	36	8
B254A06528YPC	—	—	6,528	.2570	—	—	1,7	36	8
B254A06600YPC *	B255A06600YPC	B256A06600YPC *	6,600	.2598	—	—	1,8	36	8
—	B255A06630YPC	—	6,630	.2610	—	—	1,8	36	8
B254A06700YPC *	B255A06700YPC *	B256A06700YPC *	6,700	.2638	—	—	1,8	36	8
B254A06746YPC *	B255A06746YPC	—	6,746	.2656	17/64	—	1,8	36	8
B254A06800YPC	B255A06800YPC	B256A06800YPC	6,800	.2677	—	—	1,8	36	8
B254A06900YPC *	B255A06900YPC	—	6,900	.2717	—	—	1,8	36	8
—	B255A06909YPC *	—	6,909	.2720	—	—	1,8	36	8
B254A07000YPC	B255A07000YPC	B256A07000YPC	7,000	.2756	—	—	1,9	36	8
B254A07100YPC *	—	—	7,100	.2795	—	—	1,9	36	8
—	B255A07145YPC *	—	7,145	.2813	9/32	—	1,9	36	8
—	B255A07200YPC	—	7,200	.2835	—	—	1,9	36	8
—	—	B256A07300YPC *	7,300	.2874	—	—	1,9	36	8
B254A07366YPC *	—	—	7,366	.2900	—	—	1,9	36	8
—	B255A07400YPC	—	7,400	.2913	—	—	2,0	36	8
B254A07493YPC *	B255A07493YPC *	—	7,493	.2950	—	—	2,0	36	8
B254A07500YPC	B255A07500YPC *	B256A07500YPC	7,500	.2953	—	—	2,0	36	8
—	B255A07541YPC	—	7,541	.2969	19/64	—	2,0	36	8
B254A07600YPC *	B255A07600YPC *	B256A07600YPC	7,600	.2992	—	—	2,0	36	8
—	B255A07700YPC	—	7,700	.3031	—	—	2,0	36	8
B254A07800YPC	B255A07800YPC	B256A07800YPC	7,800	.3071	—	—	2,1	36	8
—	B255A07900YPC	—	7,900	.3110	—	—	2,1	36	8
B254A07938YPC	B255A07938YPC	—	7,938	.3125	5/16	—	2,1	36	8
B254A08000YPC	B255A08000YPC	B256A08000YPC	8,000	.3150	—	—	2,1	36	8
B254A08100YPC	B255A08100YPC *	—	8,100	.3189	—	—	2,1	40	10
B254A08200YPC	B255A08200YPC	B256A08200YPC	8,200	.3228	—	—	2,1	40	10
—	B255A08300YPC	B256A08300YPC	8,300	.3268	—	—	2,2	40	10
B254A08334YPC *	—	—	8,334	.3281	21/64	—	2,2	40	10

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(B254/B255/B256_YPC • ~3 x D/~5 x D/~8 x D — continued)

Solid Carbide Drills

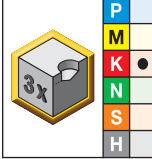
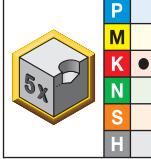
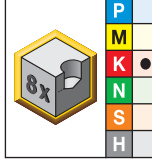


● first choice
○ alternate choice

			D1 diameter						
short • KCK10	long • KCK10	extra long • KCK10	mm	in	fraction	wire size	L5	LS	D
B254A08400YPC	—	—	8,400	.3307	—	—	2,2	40	10
B254A08433YPC *	B255A08433YPC	—	8,433	.3320	—	—	2,2	40	10
B254A08500YPC	B255A08500YPC	B256A08500YPC	8,500	.3346	—	—	2,2	40	10
B254A08600YPC	B255A08600YPC	B256A08600YPC	8,600	.3386	—	—	2,2	40	10
B254A08700YPC	B255A08700YPC	B256A08700YPC *	8,700	.3425	—	—	2,3	40	10
B254A08800YPC	B255A08800YPC	B256A08800YPC	8,800	.3465	—	—	2,3	40	10
B254A08839YPC *	B255A08839YPC *	—	8,839	.3480	—	—	2,3	40	10
—	B255A08900YPC *	—	8,900	.3504	—	—	2,3	40	10
B254A09000YPC	B255A09000YPC	B256A09000YPC	9,000	.3543	—	—	2,3	40	10
—	B255A09093YPC *	—	9,093	.3580	—	—	2,4	40	10
B254A09100YPC *	B255A09100YPC	B256A09100YPC	9,100	.3583	—	—	2,4	40	10
—	B255A09129YPC *	—	9,129	.3594	23/64	—	2,4	40	10
B254A09200YPC	B255A09200YPC *	—	9,200	.3622	—	—	2,4	40	10
—	B255A09300YPC	B256A09300YPC	9,300	.3661	—	—	2,4	40	10
—	—	B256A09347YPC	9,347	.3680	—	—	2,4	40	10
B254A09400YPC *	B255A09400YPC	—	9,400	.3701	—	—	2,4	40	10
B254A09500YPC	B255A09500YPC	B256A09500YPC	9,500	.3740	—	—	2,5	40	10
B254A09525YPC *	B255A09525YPC *	—	9,525	.3750	3/8	—	2,5	40	10
—	B255A09600YPC	B256A09600YPC	9,600	.3780	—	—	2,5	40	10
—	B255A09700YPC	B256A09700YPC *	9,700	.3819	—	—	2,5	40	10
B254A09800YPC	B255A09800YPC *	B256A09800YPC	9,800	.3858	—	—	2,5	40	10
B254A09921YPC *	B255A09921YPC	—	9,921	.3906	25/64	—	2,6	40	10
B254A10000YPC	B255A10000YPC	B256A10000YPC	10,000	.3937	—	—	2,6	40	10
B254A10200YPC	B255A10200YPC	B256A10200YPC	10,200	.4016	—	—	2,6	45	12
B254A10262YPC	B255A10262YPC *	—	10,262	.4040	—	—	2,6	45	12
B254A10300YPC	B255A10300YPC	B256A10300YPC	10,300	.4055	—	—	2,6	45	12
B254A10320YPC	B255A10320YPC *	—	10,320	.4063	13/32	—	2,7	45	12
—	B255A10400YPC *	B256A10400YPC	10,400	.4094	—	—	2,7	45	12
B254A10490YPC *	—	—	10,490	.4130	—	—	2,7	45	12
B254A10500YPC	B255A10500YPC	B256A10500YPC	10,500	.4134	—	—	2,7	45	12
—	B255A10600YPC	—	10,600	.4173	—	—	2,7	45	12
B254A10700YPC	—	B256A10700YPC	10,700	.4213	—	—	2,7	45	12
—	B255A10716YPC	—	10,716	.4219	27/64	—	2,7	45	12
B254A10800YPC	B255A10800YPC	B256A10800YPC	10,800	.4252	—	—	2,8	45	12
—	B255A10900YPC *	—	10,900	.4291	—	—	2,8	45	12
B254A11000YPC	B255A11000YPC	B256A11000YPC	11,000	.4331	—	—	2,8	45	12
B254A11100YPC *	B255A11100YPC	—	11,100	.4370	—	—	2,8	45	12
B254A11113YPC *	B255A11113YPC	—	11,113	.4375	7/16	—	2,8	45	12
B254A11200YPC	B255A11200YPC	B256A11200YPC	11,200	.4409	—	—	2,9	45	12
—	—	B256A11300YPC *	11,300	.4449	—	—	2,9	45	12
B254A11500YPC	B255A11500YPC	B256A11500YPC	11,500	.4528	—	—	2,9	45	12
—	—	B256A11600YPC	11,600	.4567	—	—	3,0	45	12
—	B255A11700YPC	—	11,700	.4606	—	—	3,0	45	12
B254A11800YPC	B255A11800YPC	B256A11800YPC	11,800	.4646	—	—	3,0	45	12
—	B255A11900YPC	B256A11900YPC	11,900	.4685	—	—	3,0	45	12
B254A11908YPC *	B255A11908YPC *	—	11,908	.4688	15/32	—	3,0	45	12
B254A12000YPC	B255A12000YPC	B256A12000YPC	12,000	.4724	—	—	3,1	45	12
—	B255A12100YPC	—	12,100	.4764	—	—	3,1	45	14
B254A12200YPC	B255A12200YPC	B256A12200YPC	12,200	.4803	—	—	3,1	45	14
—	B255A12251YPC	—	12,251	.4823	—	—	3,1	45	14
—	B255A12300YPC *	B256A12300YPC	12,300	.4843	—	—	3,1	45	14
B254A12304YPC *	B255A12304YPC *	—	12,304	.4844	31/64	—	3,1	45	14

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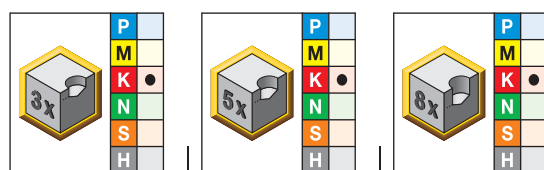
(B254/B255/B256_YPC • ~3 x D/~5 x D/~8 x D — continued)

									
short • KCK10	long • KCK10	extra long • KCK10	D1 diameter						
—	—	B256A12400YPC *	mm	in	fraction	wire size	L5	LS	D
B254A12500YPC	B255A12500YPC	B256A12500YPC	12,400	.4882	—	—	3,1	45	14
—	B255A12700YPC	B256A12700YPC	12,500	.4921	—	—	3,2	45	14
B254A12800YPC	—	B256A12800YPC	12,700	.5000	1/2	—	3,2	45	14
B254A13000YPC	B255A13000YPC	B256A13000YPC	12,800	.5039	—	—	3,2	45	14
—	B255A13096YPC *	B256A13096YPC	13,000	.5118	—	—	3,3	45	14
B254A13100YPC	—	—	13,096	.5156	33/64	—	3,3	45	14
B254A13200YPC	—	B256A13200YPC	13,100	.5157	—	—	3,3	45	14
—	B255A13495YPC	B256A13495YPC	13,200	.5197	—	—	3,3	45	14
B254A13500YPC	B255A13500YPC	B256A13500YPC	13,495	.5313	17/32	—	3,4	45	14
—	—	B256A13700YPC	13,500	.5315	—	—	3,4	45	14
B254A13800YPC	—	B256A13800YPC	13,700	.5394	—	—	3,5	45	14
B254A13891YPC *	—	B256A13891YPC *	13,800	.5433	—	—	3,5	45	14
B254A14000YPC	B255A14000YPC	B256A14000YPC	13,891	.5469	35/64	—	3,5	45	14
B254A14100YPC *	B255A14100YPC *	—	14,000	.5512	—	—	3,5	45	14
B254A14288YPC	B255A14288YPC	—	14,100	.5551	—	—	3,6	48	16
B254A14500YPC	B255A14500YPC	B256A14500YPC	14,288	.5625	9/16	—	3,6	48	16
—	B255A14600YPC *	—	14,500	.5709	—	—	3,6	48	16
B254A14800YPC	B255A14684YPC	B256A14684YPC *	14,600	.5748	—	—	3,7	48	16
—	—	B256A14800YPC	14,684	.5781	37/64	—	3,7	48	16
B254A15000YPC	B255A15000YPC	B256A15000YPC	14,800	.5827	—	—	3,7	48	16
—	B255A15083YPC	B256A15083YPC *	15,000	.5906	—	—	3,8	48	16
B254A15200YPC	—	B256A15200YPC	15,083	.5938	19/32	—	3,8	48	16
B254A15250YPC *	B255A15250YPC	—	15,200	.5984	—	—	3,8	48	16
—	—	B256A15300YPC	15,250	.6004	—	—	3,8	48	16
B254A15400YPC	B255A15400YPC *	—	15,300	.6024	—	—	3,8	48	16
B254A15500YPC	B255A15500YPC *	B256A15500YPC	15,400	.6063	—	—	3,9	48	16
B254A15800YPC	B255A15800YPC	B256A15800YPC *	15,500	.6102	—	—	3,9	48	16
—	B255A15875YPC *	—	15,800	.6220	—	—	4,0	48	16
B254A16000YPC	B255A16000YPC	B256A16000YPC	15,875	.6250	5/8	—	4,0	48	16
—	B255A16300YPC	B256A16300YPC	16,000	.6299	—	—	4,0	48	16
B254A16500YPC	B255A16500YPC	B256A16500YPC	16,300	.6417	—	—	4,1	48	18
B254A16670YPC *	B255A16670YPC	—	16,500	.6496	—	—	4,1	48	18
B254A16800YPC	B255A16800YPC	B256A16800YPC	16,670	.6563	21/32	—	4,2	48	18
B254A17000YPC	B255A17000YPC	B256A17000YPC	16,800	.6614	—	—	4,2	48	18
—	B255A17200YPC *	—	17,000	.6693	—	—	4,2	48	18
B254A17463YPC *	B255A17463YPC	—	17,200	.6772	—	—	4,3	48	18
B254A17500YPC	B255A17500YPC	B256A17500YPC	17,463	.6875	11/16	—	4,3	48	18
B254A17800YPC	B255A17800YPC	B256A17800YPC	17,500	.6890	—	—	4,3	48	18
B254A17859YPC *	B255A17859YPC	—	17,800	.7008	—	—	4,4	48	18
B254A18000YPC	B255A18000YPC	B256A18000YPC	17,859	.7031	45/64	—	4,4	48	18
B254A18200YPC *	—	—	18,000	.7087	—	—	4,5	48	18
B254A18258YPC *	B255A18258YPC	B256A18258YPC *	18,200	.7165	—	—	4,5	50	20
B254A18500YPC *	B255A18500YPC	B256A18500YPC	18,258	.7188	23/32	—	4,5	50	20
B254A18800YPC	B255A18800YPC	B256A18800YPC	18,500	.7283	—	—	4,6	50	20
B254A19000YPC	B255A19000YPC	B256A19000YPC	18,800	.7402	—	—	4,7	50	20
B254A19050YPC *	—	—	19,000	.7480	—	—	4,7	50	20
—	B255A19500YPC	B256A19500YPC	19,050	.7500	3/4	—	4,7	50	20
—	B255A19700YPC	—	19,500	.7677	—	—	4,8	50	20
B254A19800YPC	B255A19800YPC	B256A19800YPC	19,700	.7756	—	—	4,9	50	20
B254A20000YPC	B255A20000YPC	B256A20000YPC	19,800	.7795	—	—	4,9	50	20
—	B255A20500YPC	—	20,000	.7874	—	—	4,9	50	20
			20,500	.8071	—	—	5,1	50	20

● first choice
○ alternate choice

(B254/B255/B256_YPC • ~3 x D/~5 x D/~8 x D — continued)

Solid Carbide Drills



● first choice
○ alternate choice

			D1 diameter						
short • KCK10	long • KCK10	extra long • KCK10	mm	in	fraction	wire size	L5	LS	D
B254A20638YPC *	B255A20638YPC	B256A20638YPC	20,638	.8125	13/16	—	5,1	50	20
B254A21000YPC *	B255A21000YPC *	—	21,000	.8268	—	—	5,2	50	20
B254A22000YPC	B255A22000YPC	B256A22000YPC	22,000	.8661	—	—	5,4	50	20
B254A22225YPC *	B255A22225YPC *	B256A22225YPC *	22,225	.8750	7/8	—	5,5	56	25
B254A23416YPC	B255A23416YPC *	—	23,416	.9219	59/64	—	5,7	56	25
—	B255A24000YPC *	—	24,000	.9449	—	—	5,9	56	25
B254A25000YPC *	B255A25000YPC *	—	25,000	.9843	—	—	6,1	56	25
—	—	B256A25004YPC *	25,004	.9844	63/64	—	6,1	56	25

NOTE: *Made-to-order standard item. Standard pricing, manufacturing lead time, and minimum order quantity applies.

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

Application Data

■ YPC Drills • B25_YPC • Grade KCK10™ • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

		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
K	1	130	160	210	mm/r	0,12–0,22	0,14–0,25	0,16–0,32	0,22–0,44	0,30–0,46	0,34–0,50	0,38–0,62	0,42–0,74
	2	90	130	180	mm/r	0,12–0,22	0,14–0,25	0,16–0,32	0,22–0,44	0,30–0,46	0,34–0,50	0,38–0,62	0,42–0,74
	3	70	90	130	mm/r	0,11–0,17	0,12–0,22	0,22–0,34	0,24–0,46	0,26–0,48	0,28–0,50	0,30–0,62	0,34–0,74
		Cutting Speed — vc			Inch								
		Range — SFM			Recommended Feed Rate (f) by Diameter								
Material Group		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
K	1	430	520	690	IPR	.005–.009	.006–.010	.006–.013	.009–.017	.012–.018	.013–.020	.015–.024	.017–.029
	2	300	430	590	IPR	.005–.009	.006–.010	.006–.013	.009–.017	.012–.018	.013–.020	.015–.024	.017–.029
	3	230	300	430	IPR	.004–.007	.005–.009	.009–.013	.009–.018	.010–.019	.011–.020	.012–.024	.013–.029