



MASTER CATALOG **2018**

VOLUME TWO | **ROTATING TOOLS**



HOLEMAKING | TAPPING | SOLID END MILLING | INDEXABLE MILLING

➤ TX Drills with Through Coolant for Close Tolerance Holes

Primary Application

B411 solid carbide drills have an X-shaped, free-cutting 130° point design and are designed for gray cast iron, nodular iron, and non-ferrous and aluminum alloy materials. Best suited for high-quality, close tolerance holes that require a very good surface finish.

Features and Benefits

Two Cutting Edges with Straight Flutes

- Precise shape of the hole even if used as platform for complex step drills.
- Can run into cored holes.

X-Shaped Drill Point

- Excellent centering capabilities.

Four-Margin Land Design

- Second set of cutting margin lands improves the surface quality.
- Achieve tight diameter tolerances.
- Can run through cross holes and exit on inclined surfaces.

Wear-Resistant Carbide KF1 Grade

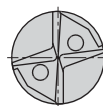
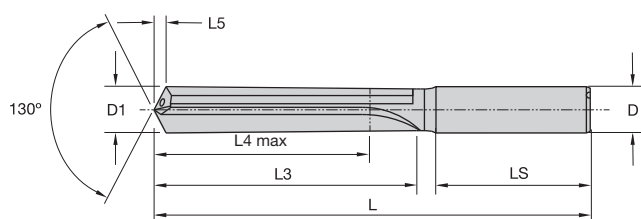
- Long tool life in abrasive materials, such as cast iron and aluminum die cast alloys.
- The uncoated grade KF1 helps to prevent built-up edge in drilling aluminum.

Best suited for high-quality, close tolerance holes that require a very good surface finish.

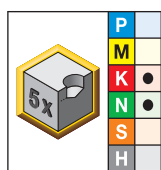


Customization

- Intermediate diameters available as semi-standards.
- Length variations and step drills available as engineered solutions.
- Coated grades available for other material applications, such as cast iron.



■ B411 • ~5 x D



- first choice

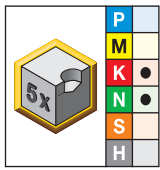
- alternate choice

	D1 diameter										
KF1	mm	in	fraction	wire size	L	L3	L4 max	L5	LS	D	
B411A03200	3,200	.1260	—	—	66	28	23	0,7	36	6	
B411A03300	3,300	.1299	—	—	66	28	23	0,8	36	6	
B411A03800	3,800	.1496	—	—	74	36	29	0,9	36	6	
B411A04000	4,000	.1575	—	—	74	36	29	0,9	36	6	
B411A04200	4,200	.1654	—	—	74	36	29	1,0	36	6	
B411A04500	4,500	.1772	—	—	74	36	29	1,0	36	6	
B411A04600	4,600	.1811	—	—	74	36	29	1,1	36	6	
B411A04650	4,650	.1831	—	—	74	36	29	1,1	36	6	
B411A04800	4,800	.1890	—	12	82	44	35	1,1	36	6	
B411A04900	4,900	.1929	—	—	82	44	35	1,1	36	6	
B411A05000	5,000	.1969	—	—	82	44	35	1,2	36	6	
B411A05100	5,100	.2008	—	—	82	44	35	1,2	36	6	
B411A05200	5,200	.2047	—	—	82	44	35	1,2	36	6	
B411A05500	5,500	.2165	—	—	82	44	35	1,3	36	6	
B411A05550	5,550	.2185	—	—	82	44	35	1,3	36	6	
B411A05600	5,600	.2205	—	—	82	44	35	1,2	36	6	
B411A05800	5,800	.2283	—	—	82	44	35	1,4	36	6	
B411A06000	6,000	.2362	—	—	82	44	35	1,4	36	6	
B411A06100	6,100	.2402	—	—	91	53	43	1,3	36	8	
B411A06300	6,300	.2480	—	—	91	53	43	1,5	36	8	
B411A06400	6,400	.2520	—	—	91	53	43	1,5	36	8	
B411A06500	6,500	.2559	—	—	91	53	43	1,5	36	8	
B411A06600	6,600	.2598	—	—	91	53	43	1,5	36	8	
B411A06800	6,800	.2677	—	—	91	53	43	1,6	36	8	
B411A07000	7,000	.2756	—	—	91	53	43	1,6	36	8	
B411A07400	7,400	.2913	—	—	91	53	43	1,7	36	8	
B411A07500	7,500	.2953	—	—	91	53	43	1,7	36	8	
B411A07700 *	7,700	.3031	—	—	91	53	43	1,7	36	8	
B411A07800	7,800	.3071	—	—	91	53	43	1,8	36	8	
B411A08000	8,000	.3150	—	—	91	53	43	1,9	36	8	
B411A08400	8,400	.3307	—	—	103	61	49	2,0	40	10	
B411A08500	8,500	.3346	—	—	103	61	49	2,0	40	10	

(continued)

(B411 • ~5 x D — continued)

Solid Carbide Drills



- first choice
- alternate choice

KF1	D1 diameter				L	L3	L4 max	L5	LS	D
	mm	in	fraction	wire size						
B411A08700	8,700	.3425	—	—	103	61	49	1,9	40	10
B411A08800	8,800	.3465	—	—	103	61	49	1,9	40	10
B411A09000	9,000	.3543	—	—	103	61	49	2,1	40	10
B411A09300	9,300	.3661	—	—	103	61	49	2,2	40	10
B411A09500	9,500	.3740	—	—	103	61	49	2,2	40	10
B411A09800	9,800	.3858	—	—	103	61	49	2,3	40	10
B411A10000	10,000	.3937	—	—	103	61	49	2,3	40	10
B411A10200	10,200	.4016	—	—	118	71	56	2,4	45	12
B411A10500	10,500	.4134	—	—	118	71	56	2,4	45	12
B411A11000	11,000	.4331	—	—	118	71	56	2,6	45	12
B411A11200	11,200	.4409	—	—	118	71	56	2,6	45	12
B411A11500	11,500	.4528	—	—	118	71	56	2,7	45	12
B411A11800	11,800	.4646	—	—	118	71	56	2,8	45	12
B411A12000	12,000	.4724	—	—	118	71	56	2,8	45	12
B411A12500	12,500	.4921	—	—	124	77	60	2,9	45	14
B411A13000	13,000	.5118	—	—	124	77	60	3,0	45	14
B411A13500	13,500	.5315	—	—	124	77	60	3,1	45	14
B411A13800	13,800	.5433	—	—	124	77	60	3,2	45	14
B411A14000	14,000	.5512	—	—	124	77	60	3,3	45	14
B411A14500	14,500	.5709	—	—	133	83	63	3,4	48	16
B411A15000	15,000	.5906	—	—	133	83	63	3,5	48	16
B411A15500	15,500	.6102	—	—	133	83	63	3,6	48	16
B411A16000	16,000	.6299	—	—	133	83	63	3,7	48	16
B411A16500	16,500	.6496	—	—	143	93	71	3,8	48	18
B411A17000	17,000	.6693	—	—	143	93	71	4,0	48	18
B411A17500	17,500	.6890	—	—	143	93	71	4,1	48	18
B411A18000	18,000	.7087	—	—	143	93	71	4,2	48	18
B411A19000	19,000	.7480	—	—	153	101	77	4,4	50	20
B411A19500	19,500	.7677	—	—	153	101	77	4,5	50	20
B411A20000	20,000	.7874	—	—	153	101	77	4,7	50	20
B411A21000	21,000	.8268	—	—	167	114	85	4,9	50	20
B411A22000	22,000	.8661	—	—	167	114	85	5,1	50	20
B411A23000	23,000	.9055	—	—	184	126	98	5,4	56	25
B411A24000	24,000	.9449	—	—	184	126	98	5,6	56	25
B411A25000	25,000	.9843	—	—	184	126	98	5,8	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 k6	D tolerance h6
>3–6	0,001/0,009	0,000/-0,008
>6–10	0,001/0,010	0,000/-0,009
>10–18	0,001/0,012	0,000/-0,011
>18–25,4	0,002/0,015	0,000/-0,013

Tolerance • Inch		
nominal size range	D1 tolerance k6	D tolerance h6
>.1181–.2362	.0000/.0004	.0000/-0.0003
>.2362–.3937	.0000/.0004	.0000/-0.0004
>.3937–.7087	.0000/.0005	.0000/-0.0004
>.7087–1.0000	.0000/.0006	.0000/-0.0005

■ TX Drills • B411 Series • Grade KF1 • Through Coolant • Drill Diameters 3–25mm (.1181–.9843")

														
		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	25,4
K	1	115	120	140	mm/r	0,11–0,20	0,12–0,24	0,15–0,28	0,18–0,33	0,20–0,38	0,23–0,44	0,30–0,53	0,34–0,65	0,40–0,76
N	1	100	250	450	mm/r	0,12–0,25	0,13–0,29	0,16–0,35	0,20–0,42	0,26–0,50	0,32–0,57	0,36–0,69	0,42–0,82	0,59–0,96
	2	200	250	300	mm/r	0,13–0,21	0,14–0,26	0,16–0,32	0,20–0,37	0,27–0,44	0,32–0,52	0,38–0,64	0,44–0,78	0,60–0,96
	3	100	150	300	mm/r	0,11–0,18	0,12–0,20	0,15–0,24	0,18–0,30	0,20–0,38	0,23–0,44	0,30–0,53	0,34–0,65	0,40–0,76
	4	100	170	250	mm/r	0,10–0,16	0,12–0,20	0,14–0,26	0,16–0,28	0,18–0,32	0,20–0,36	0,22–0,40	0,24–0,44	0,28–0,50
		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	1/1 1.000
K	1	380	390	460	IPR	.004–.008	.005–.009	.006–.011	.007–.013	.008–.015	.009–.017	.012–.021	.013–.026	.016–.030
N	1	330	820	1480	IPR	.005–.010	.005–.011	.006–.014	.008–.017	.010–.020	.013–.022	.014–.027	.017–.032	.023–.038
	2	660	820	980	IPR	.005–.008	.006–.010	.006–.013	.008–.015	.011–.017	.013–.021	.015–.025	.017–.031	.024–.038
	3	330	490	980	IPR	.004–.007	.005–.008	.006–.009	.007–.012	.008–.015	.009–.017	.012–.021	.013–.026	.016–.030
	4	330	560	820	IPR	.004–.006	.005–.008	.006–.010	.006–.011	.007–.013	.008–.014	.009–.016	.009–.017	.011–.020

TX Drill Applications

The excellent stability of the TX drill enables it to be used for drilling through inclined planes, intersecting holes, and cored holes:

