

DORMER



AHB Tooling & Machinery, Inc.
Complete Metalworking Solutions
Roseville Saginaw & Jackson, MI

ISO Certified
(800) 991-4225
www.ahbinc.com
customerservice@ahbinc.com

MPX
R459

Solid Carbide
8xD

DORMER PRAMET

Features & Benefits

Range

Our High Performance Solid Carbide MP-X Drill family of 3xD & 5xD (solid and coolant through) drilling depths has now been expanded to provide 8xD (coolant through) drilling depths . . . Metric sizes from Ø3mm - Ø16mm and Fractional sizes from Ø1/8" to Ø5/8" are available.

Material

Micrograin carbide for an excellent combination of hardness and toughness, resulting in high wear resistance and longer tool life.

Surface treatment

Multi-layer Titanium Aluminum Nitride (TiAlN-Top) coating provides:

- Improved stability to the cutting edges
- Outstanding wear protection
- High hardness / toughness properties and oxidation stability
- Exceptional chip evacuation capabilities on all recommended materials. Tool life and productivity are significantly increased.

Edge Preparation

A constant edge preparation protects the cutting edges and prevents premature chipping and flaking
This important feature must be replicated after the re-grinding process.

CTW™ Flute Geometry

Dormer's CTW™ (Continuously Thinned Web) flute geometry optimizes flute volume and breaks the chips into small, manageable pieces to ensure efficient chip evacuation in deep hole applications, reducing machine downtime. CTW™ ensures consistent forces throughout the drilling cycle.

Point Geometry

The combination of the split four facet point and the CTW flute provides an excellent geometry with precise centering and low thrust forces

Internal coolant

Internal coolant holes ensure that coolant is delivered directly to the tip of the drill, cooling the cutting area and efficiently evacuating the chips from the hole. This allows for high feeds and speeds, resulting in high productivity and lower cost per hole. 280 PSI minimum recommended.

Shank

Metric common shanks manufactured to DIN 6535HA specifications

Hole Depth

The extra length enables drilling depths of up to 8 x D to be achieved without the need for pecking throughout the full diameter range.

For further technical support and advice on deep hole drilling applications, please contact your Dormer Pramet sales representative or our customer service department.

Customer Benefits

- Deep drilling in "one hit" to 8 x diameter - no pecking required - reduction in machining time.
- Fast and efficient chip evacuation leading to high productivity and reduced cost per hole.
- High quality finish, good hole tolerance.
- Consistent forces.
- Improved tool life leading to a reduction in machine downtime.
- Exceptional levels of performance in steel, stainless steel, cast iron, copper, aluminum and other materials.
- Internal coolant reduces the heat generated when using high speeds and feeds allowing a trouble-free machining operation and excellent chip management.

Test Results

R459, 8xD Drill

Customer – Large manufacturer of precision machined components. Goal is to increase productivity.

Application: Drilling 8xD (R459)

Machine: Vertical machining Center

Material: AMG 1.5, SAE 4340

Drill Diameter: 0.1969" (5mm)

Drilling Depth: 1.575" (40mm)

Hole Type: Through Holes

Cutting Conditions: RPM (n) = 5092, SFM (vc) = 263, Feed (Vf) = 18 IPM, Feed (fn) = 0.0035" IPR

Result:

Various testing at 10 minute intervals achieved good results. After 30 minutes in cut, test results of the R459 (8xD) was still very consistent. At 342 holes, hole quality/finish was very good with very little noise produced. Tool wear was minimal which indicated that testing beyond current results is achievable. With the CTW flute geometry the chips collected were broken nicely, allowing them to be evacuated efficiently. Competitor testing only achieved depths of 4-7xD. Surface finish and chip control was poor. Visible tool wear and increased noise at deeper depths prohibited drilling beyond 7xD.

R459

- MP-X Drill Oil Feed 8XD
- Broca - MP-X - Refrigeración interna 8XD
- Foret MP-X - à trous d'huile 8XD

MP-X



- 1.1 1.2 1.3 1.4 1.5 1.6 2.1 2.2 3.1 3.2 3.3 3.4 7.2 7.3 7.4
- 2.3 6.1 6.2 6.3 6.4 7.1

Size Range 3mm - 16mm

d ₁ Øm, Inch	d ₁ Øm, mm	d ₁ decimal Inch	l ₂ mm	l ₁ mm	l ₃ mm	d ₂ Øh ₆ mm	EDP#	E-code
	3.00	0.1181	37	79	36	6	46718973	R4593.0
	3.10	0.1220	37	79	36	6	46718974	R4593.1
1/8	3.17	0.1250	37	79	36	6	46718975	R4591/8
	3.20	0.1260	37	79	36	6	46718976	R4593.2
	3.30	0.1299	37	79	36	6	46718977	R4593.3
	3.40	0.1339	37	79	36	6	46718978	R4593.4
	3.50	0.1378	37	79	36	6	46718979	R4593.5
9/64	3.57	0.1406	37	79	36	6	46718990	R4599/64
	3.60	0.1417	37	79	36	6	46718991	R4593.6
	3.70	0.1457	37	79	36	6	46718992	R4593.7
	3.80	0.1496	48	90	36	6	46718993	R4593.8
	3.90	0.1535	48	90	36	6	46718994	R4593.9
5/32	3.97	0.1563	48	90	36	6	46718995	R4595/32
	4.00	0.1575	48	90	36	6	46718996	R4594.0
	4.10	0.1614	48	90	36	6	46718997	R4594.1
	4.20	0.1654	48	90	36	6	46718998	R4594.2
	4.30	0.1693	48	90	36	6	46718999	R4594.3
11/64	4.37	0.1719	48	90	36	6	46719000	R45911/64
	4.40	0.1732	48	90	36	6	46719001	R4594.4
	4.50	0.1772	48	90	36	6	46719002	R4594.5
	4.60	0.1811	48	90	36	6	46719003	R4594.6
	4.70	0.1850	62	104	36	6	46719004	R4594.7
3/16	4.76	0.1875	62	104	36	6	46719005	R4593/16
	4.80	0.1890	62	104	36	6	46719006	R4594.8
	4.90	0.1929	62	104	36	6	46719007	R4594.9
	5.00	0.1969	62	104	36	6	46719008	R4595.0
	5.10	0.2008	62	104	36	6	46719009	R4595.1
13/64	5.16	0.2031	62	104	36	6	46719010	R45913/64
	5.20	0.2047	62	104	36	6	46719011	R4595.2
	5.30	0.2087	62	104	36	6	46719012	R4595.3
	5.40	0.2126	62	104	36	6	46719013	R4595.4
	5.50	0.2165	62	104	36	6	46719014	R4595.5
7/32	5.56	0.2188	62	104	36	6	46719015	R4597/32
	5.60	0.2205	62	104	36	6	46719016	R4595.6

d₁ Øm₇ Inch	d₁ Øm₇ mm	d₁ decimal Inch	l₂ mm	l₁ mm	l₃ mm	d₂ Øh₆ mm	EDP#	E-code
	5.70	0.2244	62	104	36	6	46719017	R4595.7
	5.80	0.2283	62	104	36	6	46719018	R4595.8
	5.90	0.2323	62	104	36	6	46719019	R4595.9
15/64	5.95	0.2344	62	104	36	6	46719020	R45915/64
	6.00	0.2362	62	104	36	6	46719021	R4596.0
	6.10	0.2402	84	126	36	8	46719022	R4596.1
	6.20	0.2441	84	126	36	8	46719023	R4596.2
	6.30	0.2480	84	126	36	8	46719024	R4596.3
1/4	6.35	0.2500	84	126	36	8	46719025	R4591/4
	6.40	0.2520	84	126	36	8	46719026	R4596.4
	6.50	0.2559	84	126	36	8	46719027	R4596.5
	6.60	0.2598	84	126	36	8	46719028	R4596.6
	6.70	0.2638	84	126	36	8	46719029	R4596.7
17/64	6.75	0.2656	84	126	36	8	46719030	R45917/64
	6.80	0.2677	84	126	36	8	46719031	R4596.8
	6.90	0.2717	84	126	36	8	46719032	R4596.9
	7.00	0.2756	84	126	36	8	46719033	R4597.0
	7.10	0.2795	84	126	36	8	46719034	R4597.1
9/32	7.14	0.2812	84	126	36	8	46719035	R4599/32
	7.20	0.2835	84	126	36	8	46719036	R4597.2
	7.30	0.2874	84	126	36	8	46719037	R4597.3
	7.40	0.2913	84	126	36	8	46719038	R4597.4
	7.50	0.2953	84	126	36	8	46719039	R4597.5
19/64	7.54	0.2969	84	126	36	8	46719040	R45919/64
	7.60	0.2992	84	126	36	8	46719041	R4597.6
	7.70	0.3031	84	126	36	8	46719042	R4597.7
	7.80	0.3071	84	126	36	8	46719043	R4597.8
	7.90	0.3110	84	126	36	8	46719044	R4597.9
5/16	7.94	0.3125	84	126	36	8	46719045	R4595/16
	8.00	0.3150	84	126	36	8	46719046	R4598.0
	8.10	0.3189	106	152	40	10	46719047	R4598.1
	8.20	0.3228	106	152	40	10	46719048	R4598.2
	8.30	0.3268	106	152	40	10	46719049	R4598.3
21/64	8.33	0.3281	106	152	40	10	46719050	R45921/64
	8.40	0.3307	106	152	40	10	46719051	R4598.4
	8.50	0.3346	106	152	40	10	46719052	R4598.5
	8.60	0.3386	106	152	40	10	46719053	R4598.6
	8.70	0.3425	106	152	40	10	46719054	R4598.7
11/32	8.73	0.3437	106	152	40	10	46719055	R45911/32
	8.80	0.3465	106	152	40	10	46719056	R4598.8
	8.90	0.3504	106	152	40	10	46719057	R4598.9
	9.00	0.3543	106	152	40	10	46719058	R4599.0
	9.10	0.3583	106	152	40	10	46719059	R4599.1
23/64	9.13	0.3594	106	152	40	10	46719060	R45923/64
	9.20	0.3622	106	152	40	10	46719061	R4599.2
	9.30	0.3661	106	152	40	10	46719062	R4599.3
	9.40	0.3701	106	152	40	10	46719063	R4599.4
	9.50	0.3740	106	152	40	10	46719064	R4599.5
3/8	9.53	0.3750	106	152	40	10	46719065	R4593/8
	9.60	0.3780	106	152	40	10	46719066	R4599.6
	9.70	0.3819	106	152	40	10	46719067	R4599.7
	9.80	0.3858	106	152	40	10	46719068	R4599.8
	9.90	0.3898	106	152	40	10	46719069	R4599.9
25/64	9.92	0.3906	106	152	40	10	46719070	R45925/64
	10.00	0.3937	106	152	40	10	46719071	R45910.0
	10.20	0.4016	128	180	45	12	46719072	R45910.2
	10.30	0.4055	128	180	45	12	46719073	R45910.3
13/32	10.32	0.4063	128	180	45	12	46719074	R45913/32
	10.40	0.4094	128	180	45	12	46719075	R45910.4
	10.50	0.4134	128	180	45	12	46719076	R45910.5
27/64	10.72	0.4219	128	180	45	12	46719077	R45927/64
	10.80	0.4252	128	180	45	12	46719078	R45910.8
	11.00	0.4331	128	180	45	12	46719079	R45911.0
7/16	11.11	0.4375	128	180	45	12	46719080	R4597/16
	11.20	0.4409	128	180	45	12	46719081	R45911.2
	11.30	0.4449	128	180	45	12	46719082	R45911.3
	11.50	0.4528	128	180	45	12	46719083	R45911.5
29/64	11.51	0.4531	128	180	45	12	46719084	R45929/64

d ₁ Øm ₇ Inch	d ₁ Øm ₇ mm	d ₁ decimal Inch	l ₂ mm	l ₁ mm	l ₃ mm	d ₂ Øh ₆ mm	EDP#	E-code
	11.80	0.4646	128	180	45	12	46719085	R45911.8
15/32	11.91	0.4688	128	180	45	12	46719086	R45915/32
	12.00	0.4724	128	180	45	12	46719087	R45912.0
	12.20	0.4803	151	202	48	14	46719088	R45912.2
31/64	12.30	0.4844	151	202	48	14	46719089	R45931/64
	12.50	0.4921	151	202	48	14	46719090	R45912.5
1/2	12.70	0.5000	151	202	48	14	46719091	R4591/2
	12.80	0.5039	151	202	48	14	46719092	R45912.8
	13.00	0.5118	151	202	48	14	46719093	R45913.0
33/64	13.10	0.5156	151	202	48	14	46719094	R45933/64
17/32	13.49	0.5312	151	202	48	14	46719095	R45917/32
	13.50	0.5315	151	202	48	14	46719096	R45913.5
35/64	13.89	0.5469	151	202	48	14	46719097	R45935/64
	14.00	0.5512	151	202	48	14	46719098	R45914.0
	14.25	0.5610	172	227	48	16	46719099	R45914.25
9/16	14.29	0.5625	172	227	48	16	46719100	R4599/16
	14.50	0.5709	172	227	48	16	46719101	R45914.5
37/64	14.68	0.5781	172	227	48	16	46719102	R45937/64
	15.00	0.5906	172	227	48	16	46719103	R45915.0
19/32	15.08	0.5937	172	227	48	16	46719104	R45919/32
	15.10	0.5945	172	227	48	16	46719105	R45915.1
39/64	15.48	0.6094	172	227	48	16	46719106	R45939/64
	15.50	0.6102	172	227	48	16	46719107	R45915.5
5/8	15.88	0.6250	172	227	48	16	46719108	R4595/8
	16.00	0.6299	172	227	48	16	46719109	R45916.0

Icon Key



How To Use The AMG Chart on the Back of the Brochure:

- Determine your Workpiece Material.
- Select Material from the AMG Chart on back page.
- Use the icons to find product features.
- Find the Surface Feet per minute (SFM) on back page and Alpha Code from chart (below)

Example: 394W

394 = SFM, W = Alpha code to find your feed rate

To calculate the cutting feed rate, please refer to the chart below

Fn	Ø										
	3mm/ 1/8"	4mm/ 5/32"	5mm/ 3/16"	6mm/ 1/4"	8mm/ 5/16"	10mm/ 3/8"	12mm/ 1/2"	15mm/ 9/16"	16mm/ 5/8"	20mm/ 3/4"	
T	0.0016	0.0020	0.0024	0.0028	0.0035	0.0043	0.0051	0.0063	0.0067	0.0075	
U	0.0028	0.0031	0.0035	0.0042	0.0055	0.0067	0.0079	0.0088	0.0091	0.0094	
V	0.0039	0.0045	0.0051	0.0060	0.0079	0.0098	0.0110	0.0122	0.0126	0.0134	
W	0.0051	0.0059	0.0067	0.0079	0.0102	0.0130	0.0150	0.0165	0.0169	0.0177	

Application Material Groups (AMG)



Application Material Groups (AMG) with Examples						Hardness HB	Tensile Strength N/mm ²	AMG	ISO	R459 SFM / IPR
1. Steel	1.1 Magnetic soft steel	12L14, 12L15	<120	<400	1.1	P	■ 443V			
	1.2 Structural Steel/ case carburising steel	1005-1025, 1214, 1215, A36	<200	<700	1.2	P	■ 394V			
	1.3 Plain Carbon steel	1030-1060, 1050-1060, 1144-1146	<250	<850	1.3	P	■ 361U			
	1.4 Alloy steel	4140, 4340, 52100, 8620, H11-H41, A2, D2, 01, P20, 420	<250	<850	1.4	P	■ 328U			
	1.5 Alloy steel/ Hardened and tempered steel	4140, 4340, 52100, 8620, H11-H41, A2, D2, 01, P20, 420	>250 <350	>850 <1200	1.5	P	■ 262U			
	1.6 Alloy steel/ Hardened and tempered steel	4140, 4340, 52100, 8620, H11-H41, A2, D2, 01, P20, 420	>350	>1200 <1620	1.6	P	■ 180T			
	1.7 Alloy steel Hardened	A2-D2, H10-H41, L1-L6, M1-M42, T1	49-55HRC	>1620	1.7	H				
	1.8 Alloy steel Hardened	A2-D2, H10-H41, L1-L6, M1-M42, T1	55-63HRC	<1960	1.8	H				
2. Stainless Steel	2.1 Free machining Stainless Steel	200, 303, 416, 420F, 430F, 440	<250	<850	2.1	M	■ 246V			
	2.2 Austenitic	301, 302, 304, 316, 321, 330, CUSTOM 455, AM-350	<320	<1100	2.2	M	■ 115V			
	2.3 Ferritic + Austenitic, Martensitic	318-329, 400-446, 15-4PH, 17-4PH, DUPLEX	<300	<1000	2.3	M	● 98U			
	2.4 Precipitation Hardened	15-5PH, Custom 450 17-4PH	>320 <410	>1100 <1400	2.4	M				
3. Cast Iron	3.1 Lamellar graphite	Grey, G10, Gg40, J431C, A48 CLASS 20	<150	<500	3.1	K	■ 394W			
	3.2 Lamellar graphite	Grey, GG25-Gg40, J158, A48 CLASS 40-60	>150 <300	>500 <1000	3.2	K	■ 394W			
	3.3 Nodular graphite / Malleable Cast Iron	A220, A436, A439, A602, Black, GGG40-GGG70	<200	<700	3.3	K	■ 262V			
	3.4 Nodular graphite / Malleable Cast Iron	Black Gts/Gtw, J434C	>200 <300	>700 <1000	3.4	K	■ 262V			
4. Titanium	4.1 Titanium, unalloyed	Commercially Pure	<200	<700	4.1	S				
	4.2 Titanium, alloyed	6A14V, 6A14V-2Sn, Monel, Monel K	<270	<900	4.2	S				
	4.3 Titanium, alloyed	6A14V-4Mo, 7A14V-4Mo, 4911-4967	>270 <350	>900 <1250	4.3	S				
5. Nickel	5.1 Nickel, unalloyed	Commercially Pure, 17644, 200, 5553	<150	<500	5.1	S				
	5.2 Nickel, alloyed	Monel 400, Hastelloy C, Inconel 625, Waspaloy	<270	<900	5.2	S				
	5.3 Nickel, alloyed	Inconel 718, Nimonic 75-95, Rene 41, Inconel 825, A286	>270 <350	<900 <1200	5.3	S				
6. Copper	6.1 Copper	Commercially Pure	<100	<350	6.1	N	● 410V			
	6.2 β-Brass, Bronze	314-340, 350-370	<200	<700	6.2	N	● 722V			
	6.3 α-Brass	Alloyed Cu + Al +Fe, Long Chipping	<200	<700	6.3	N	● 722V			
	6.4 High Strength Bronze	Ampco® 18-25	<470	<1500	6.4	N	● 328U			
7. Aluminum Magnesium	7.1 Al, Mg, unalloyed	Commercially Pure	<100	<350	7.1	N	● 935W			
	7.2 Al alloyed, Si<0.5%	6061 T6, 7075, 314-340	<150	<500	7.2	N	■ 935W			
	7.3 Al alloyed, Si>0.5%<10%	6061 T6, 380-390	<120	<400	7.3	N	■ 623V			
	7.4 Al alloyed, Si>10% Mg alloys	Magnesium Whisker Reinforced	<120	<400	7.4	N	■ 312V			
8. Synthetic Materials	8.1 Thermoplastics	Ultramid, polystrol	---	---	8.1	O				
	8.2 Thermosetting plastics	Bakelit, Pertinax	---	---	8.2	O				
	8.3 Reinforced plastic materials	CFK, GFKAFK	---	---	8.3	O				
9. Hard Materials	9.1 Cermets (Metal-ceramics)	Ferrotic	<550	<1700	9.1	H				
10. Graphite	10.1 Standard graphite		---	<100	10.1	O				

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EDP# 46826446



7 320760 689363

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