FORCE M

HIGH PERFORMANCE CARBIDE DRILLS

HIGH VOLUME PRODUCTION DRILLS FOR STAINLESS STEEL

FORCE M carbide drills have been engineered to provide the highest performance and process reliability when drilling Stainless steels and Heat resistant super alloys. FORCE M drills are ideal for applications where it is necessary to drill a large number of holes with high and constant accuracy.

FEATURES & BENEFITS

- CTW™ - Unique Flute Construction with a continuously thinned web and rolled heel design.
- S-Shape 4-Facet Split Point with precise thin edge honing and strong outer corner design.
- Premium micrograin carbide substrate with TiAlN coating.
- 3xD and 5xD with coolant-feed.
- 8xD with coolant-feed available upon request.

COMPARED TO CONVENTIONAL DRILLS FORCE M PROVIDE:

- **Reliable performance** – with a smooth cutting action to prevent onset of work-hardening and built up edge.
- **Optimized productivity** – with excellent chip-management and a better force distribution to allow high penetration rates.
- **Exceptional tool life** – with stronger corner and cutting edges to withstand deformation wear.

RANGE DETAILS

3XD

R467
coolant-feed

- 3.00 – 16.00 mm
- 1/8 – 5/8 inch

5XD

R463
coolant-feed

- 3.00 – 16.00 mm
- 1/8 – 5/8 inch

NEW 8XD

R469
coolant-feed

Available upon request

- 3.00 – 16.00 mm
- 1/8 – 5/8 inch

FORCE M

HIGH PERFORMANCE CARBIDE DRILLS

MACHINING EXAMPLE

			Ferritic SST	Austenitic SST	High Alloy SST
Workpiece			1.4104 (AISI 430F)	1.4401 (AISI 316)	1.4501 (Super DUPLEX)
Hardness		HB	220	200	240
Tensile strength		MPa	700	750	770
Diameter		mm	8 (R4678.0)	8 (S-R4698.0)	8 (R4638.0)
Hole depth		mm	3xD (24)	8xD (64)	5xD (40)
Cutting speed	v_c	m/min	99	74	57
Feed	f	mm/rev	0.16	0.14	0.12
Coolant			Emulsion 8% through coolant	Emulsion 8% through coolant	Emulsion 8% through coolant

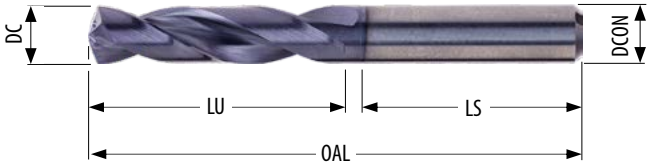
R467

Force M Drill Oil Feed 3×D

R467	M1.1	M1.2	M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1	S4.2
	■117	■99	■104	■85	■71	■87	■75	■68	■60	■52	■55	■45	■40	◪60	◪56	◪45	◪40	◪35	◪32

R467	HM	DIN 6537 K	3XD	140°	TiAlN	DIN 6535HA	CTW™			

DORMER



R467

FORCE M

3.00 - 16.00

DC [inch]	DC [mm]	DC decimal [inch]	LU [mm]	OAL [mm]	LS [mm]	DCON [mm]	R467
	3.00	0.1181	20	62	36	6	**R4673.0**
	3.10	0.1220	20	62	36	6	**R4673.1**
1/8	3.18	0.1250	20	62	36	6	**R4671/8**
	3.20	0.1260	20	62	36	6	**R4673.2**
	3.30	0.1299	20	62	36	6	**R4673.3**
	3.40	0.1339	20	62	36	6	**R4673.4**
29	3.45	0.1360	20	62	36	6	**R467N29**
	3.50	0.1378	20	62	36	6	**R4673.5**
9/64	3.57	0.1406	20	62	36	6	**R4679/64**
	3.60	0.1417	20	62	36	6	**R4673.6**
	3.70	0.1457	20	62	36	6	**R4673.7**
	3.80	0.1496	24	66	36	6	**R4673.8**
	3.90	0.1535	24	66	36	6	**R4673.9**
5/32	3.97	0.1563	24	66	36	6	**R4675/32**
	4.00	0.1575	24	66	36	6	**R4674.0**
	4.05	0.1594	24	66	36	6	**R4674.05**
	4.10	0.1614	24	66	36	6	**R4674.1**
	4.20	0.1654	24	66	36	6	**R4674.2**
	4.30	0.1693	24	66	36	6	**R4674.3**
11/64	4.37	0.1719	24	66	36	6	**R46711/64**
	4.40	0.1732	24	66	36	6	**R4674.4**
	4.50	0.1772	24	66	36	6	**R4674.5**
	4.60	0.1811	24	66	36	6	**R4674.6**
	4.70	0.1850	24	66	36	6	**R4674.7**
3/16	4.76	0.1875	28	66	36	6	**R4673/16**
	4.80	0.1890	28	66	36	6	**R4674.8**
	4.90	0.1929	28	66	36	6	**R4674.9**
	5.00	0.1969	28	66	36	6	**R4675.0**
	5.05	0.1988	28	66	36	6	**R4675.05**
	5.10	0.2008	28	66	36	6	**R4675.1**
7	5.11	0.2010	28	66	36	6	**R467N7**
13/64	5.16	0.2031	28	66	36	6	**R46713/64**
	5.20	0.2047	28	66	36	6	**R4675.2**
5	5.22	0.2055	28	66	36	6	**R467N5**
	5.30	0.2087	28	66	36	6	**R4675.3**
	5.40	0.2126	28	66	36	6	**R4675.4**

DC [inch]	DC [mm]	DC decimal [inch]	LU [mm]	OAL [mm]	LS [mm]	DCON [mm]	R467
	5.50	0.2165	28	66	36	6	**R4675.5**
7/32	5.56	0.2188	28	66	36	6	**R4677/32**
	5.60	0.2205	28	66	36	6	**R4675.6**
	5.70	0.2244	28	66	36	6	**R4675.7**
	5.80	0.2283	28	66	36	6	**R4675.8**
	5.90	0.2323	28	66	36	6	**R4675.9**
15/64	5.95	0.2344	28	66	36	6	**R46715/64**
	6.00	0.2362	28	66	36	6	**R4676.0**
	6.05	0.2382	34	79	36	8	**R4676.05**
	6.10	0.2402	34	79	36	8	**R4676.1**
	6.20	0.2441	34	79	36	8	**R4676.2**
	6.30	0.2480	34	79	36	8	**R4676.3**
1/4	6.35	0.2500	34	79	36	8	**R4671/4**
	6.40	0.2520	34	79	36	8	**R4676.4**
	6.50	0.2559	34	79	36	8	**R4676.5**
	6.60	0.2598	34	79	36	8	**R4676.6**
	6.70	0.2638	34	79	36	8	**R4676.7**
17/64	6.75	0.2656	34	79	36	8	**R46717/64**
	6.80	0.2677	34	79	36	8	**R4676.8**
	6.90	0.2717	34	79	36	8	**R4676.9**
	7.00	0.2756	34	79	36	8	**R4677.0**
	7.10	0.2795	41	79	36	8	**R4677.1**
9/32	7.14	0.2813	41	79	36	8	**R4679/32**
	7.20	0.2835	41	79	36	8	**R4677.2**
	7.30	0.2874	41	79	36	8	**R4677.3**
	7.40	0.2913	41	79	36	8	**R4677.4**
	7.50	0.2953	41	79	36	8	**R4677.5**
19/64	7.54	0.2969	41	79	36	8	**R46719/64**
	7.60	0.2992	41	79	36	8	**R4677.6**
	7.70	0.3031	41	79	36	8	**R4677.7**
	7.80	0.3071	41	79	36	8	**R4677.8**
	7.90	0.3110	41	79	36	8	**R4677.9**
5/16	7.94	0.3125	41	79	36	8	**R4675/16**
	8.00	0.3150	41	79	36	8	**R4678.0**
	8.05	0.3169	47	89	40	10	**R4678.05**
	8.10	0.3189	47	89	40	10	**R4678.1**
	8.20	0.3228	47	89	40	10	**R4678.2**
	8.30	0.3268	47	89	40	10	**R4678.3**
21/64	8.33	0.3281	47	89	40	10	**R46721/64**
	8.40	0.3307	47	89	40	10	**R4678.4**
	8.50	0.3346	47	89	40	10	**R4678.5**
	8.60	0.3386	47	89	40	10	**R4678.6**
	8.70	0.3425	47	89	40	10	**R4678.7**
11/32	8.73	0.3438	47	89	40	10	**R46711/32**
	8.80	0.3465	47	89	40	10	**R4678.8**
	8.90	0.3504	47	89	40	10	**R4678.9**
	9.00	0.3543	47	89	40	10	**R4679.0**
	9.10	0.3583	47	89	40	10	**R4679.1**
23/64	9.13	0.3594	47	89	40	10	**R46723/64**
	9.20	0.3622	47	89	40	10	**R4679.2**
	9.30	0.3661	47	89	40	10	**R4679.3**
	9.40	0.3701	47	89	40	10	**R4679.4**
	9.50	0.3740	47	89	40	10	**R4679.5**
3/8	9.53	0.3750	47	89	40	10	**R4673/8**
	9.60	0.3780	47	89	40	10	**R4679.6**
	9.70	0.3819	47	89	40	10	**R4679.7**
	9.80	0.3858	47	89	40	10	**R4679.8**
	9.90	0.3898	47	89	40	10	**R4679.9**
25/64	9.92	0.3906	47	89	40	10	**R46725/64**
	10.00	0.3937	47	89	40	10	**R46710.0**
	10.05	0.3957	55	102	45	12	**R46710.05**
	10.10	0.3976	55	102	45	12	**R46710.1**
	10.20	0.4016	55	102	45	12	**R46710.2**
	10.30	0.4055	55	102	45	12	**R46710.3**

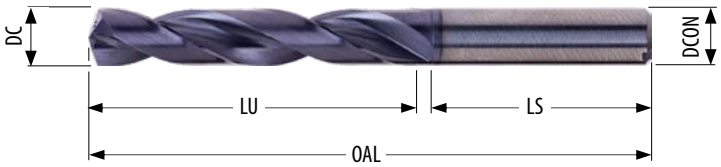
DC [inch]	DC [mm]	DC decimal [inch]	LU [mm]	OAL [mm]	LS [mm]	DCON [mm]	R467
13/32	10.32	0.4063	55	102	45	12	**R46713/32**
	10.40	0.4094	55	102	45	12	**R46710.4**
	10.50	0.4134	55	102	45	12	**R46710.5**
	10.60	0.4173	55	102	45	12	**R46710.6**
27/64	10.72	0.4219	55	102	45	12	**R46727/64**
	10.80	0.4252	55	102	45	12	**R46710.8**
	10.90	0.4291	55	102	45	12	**R46710.9**
	11.00	0.4331	55	102	45	12	**R46711.0**
7/16	11.11	0.4375	55	102	45	12	**R4677/16**
	11.20	0.4409	55	102	45	12	**R46711.2**
	11.30	0.4449	55	102	45	12	**R46711.3**
	11.40	0.4488	55	102	45	12	**R46711.4**
	11.50	0.4528	55	102	45	12	**R46711.5**
29/64	11.51	0.4531	55	102	45	12	**R46729/64**
	11.60	0.4567	55	102	45	12	**R46711.6**
	11.80	0.4646	55	102	45	12	**R46711.8**
15/32	11.91	0.4688	55	102	45	12	**R46715/32**
	12.00	0.4724	55	102	45	12	**R46712.0**
	12.05	0.4744	60	107	45	14	**R46712.05**
	12.10	0.4764	60	107	45	14	**R46712.1**
	12.20	0.4803	60	107	45	14	**R46712.2**
31/64	12.30	0.4844	60	107	45	14	**R46731/64**
	12.50	0.4921	60	107	45	14	**R46712.5**
	12.70	0.5000	60	107	45	14	**R46712.7**
1/2	12.70	0.5000	60	107	45	14	**R4671/2**
	12.80	0.5039	60	107	45	14	**R46712.8**
	13.00	0.5118	60	107	45	14	**R46713.0**
33/64	13.10	0.5156	60	107	45	14	**R46733/64**
	13.30	0.5236	60	107	45	14	**R46713.3**
17/32	13.49	0.5313	60	107	45	14	**R46717/32**
	13.50	0.5315	60	107	45	14	**R46713.5**
	13.80	0.5433	60	107	45	14	**R46713.8**
35/64	13.89	0.5469	60	107	45	14	**R46735/64**
	14.00	0.5512	60	107	45	14	**R46714.0**
	14.25	0.5610	65	115	48	16	**R46714.25**
9/16	14.29	0.5625	65	115	48	16	**R4679/16**
	14.50	0.5709	65	115	48	16	**R46714.5**
37/64	14.68	0.5781	65	115	48	16	**R46737/64**
	14.80	0.5827	65	115	48	16	**R46714.8**
	15.00	0.5906	65	115	48	16	**R46715.0**
19/32	15.08	0.5938	65	115	48	16	**R46719/32**
	15.10	0.5945	65	115	48	16	**R46715.1**
	15.30	0.6024	65	115	48	16	**R46715.3**
39/64	15.48	0.6094	65	115	48	16	**R46739/64**
	15.50	0.6102	65	115	48	16	**R46715.5**
	15.80	0.6220	65	115	48	16	**R46715.8**
5/8	15.88	0.6250	65	115	48	16	**R4675/8**
	16.00	0.6299	65	115	48	16	**R46716.0**

R463 Force M Drill Oil Feed 5×D

R463	M1.1	M1.2	M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1	S4.2
	■111	■94	■99	■81	■67	■83	■71	■65	■57	■49	■52	■43	■38	◪57	◪53	◪43	◪38	◪33	◪30

R463	HM	DIN 6537 L	5XD	140°	TiAlN	DIN 6535HA	CTW™			

DORMER



R463

FORCE M

3.00 - 16.00

DC [inch]	DC [mm]	DC decimal [inch]	LU [mm]	OAL [mm]	LS [mm]	DCON [mm]	R463
	3.00	0.1181	28	66	36	6	**R4633.0**
	3.10	0.1220	28	66	36	6	**R4633.1**
1/8	3.18	0.1250	28	66	36	6	**R4631/8**
	3.20	0.1260	28	66	36	6	**R4633.2**
	3.30	0.1299	28	66	36	6	**R4633.3**
	3.40	0.1339	28	66	36	6	**R4633.4**
29	3.45	0.1360	28	66	36	6	**R463N29**
	3.50	0.1378	28	66	36	6	**R4633.5**
9/64	3.57	0.1406	28	66	36	6	**R4639/64**
	3.60	0.1417	28	66	36	6	**R4633.6**
	3.70	0.1457	28	66	36	6	**R4633.7**
	3.80	0.1496	36	74	36	6	**R4633.8**
	3.90	0.1535	36	74	36	6	**R4633.9**
5/32	3.97	0.1563	36	74	36	6	**R4635/32**
	4.00	0.1575	36	74	36	6	**R4634.0**
	4.05	0.1594	36	74	36	6	**R4634.05**
	4.10	0.1614	36	74	36	6	**R4634.1**
	4.20	0.1654	36	74	36	6	**R4634.2**
	4.30	0.1693	36	74	36	6	**R4634.3**
11/64	4.37	0.1719	36	74	36	6	**R46311/64**
	4.40	0.1732	36	74	36	6	**R4634.4**
	4.50	0.1772	36	74	36	6	**R4634.5**
	4.60	0.1811	36	74	36	6	**R4634.6**
	4.70	0.1850	36	74	36	6	**R4634.7**
3/16	4.76	0.1875	44	82	36	6	**R4633/16**
	4.80	0.1890	44	82	36	6	**R4634.8**
	4.90	0.1929	44	82	36	6	**R4634.9**
	5.00	0.1969	44	82	36	6	**R4635.0**
	5.05	0.1988	44	82	36	6	**R4635.05**
	5.10	0.2008	44	82	36	6	**R4635.1**
7	5.11	0.2010	44	82	36	6	**R463N7**
13/64	5.16	0.2031	44	82	36	6	**R46313/64**
	5.20	0.2047	44	82	36	6	**R4635.2**
5	5.22	0.2055	44	82	36	6	**R463N5**
	5.30	0.2087	44	82	36	6	**R4635.3**
	5.40	0.2126	44	82	36	6	**R4635.4**

DC [inch]	DC [mm]	DC decimal [inch]	LU [mm]	OAL [mm]	LS [mm]	DCON [mm]	R463
	5.50	0.2165	44	82	36	6	**R4635.5**
7/32	5.56	0.2188	44	82	36	6	**R4637/32**
	5.60	0.2205	44	82	36	6	**R4635.6**
	5.70	0.2244	44	82	36	6	**R4635.7**
	5.80	0.2283	44	82	36	6	**R4635.8**
	5.90	0.2323	44	82	36	6	**R4635.9**
15/64	5.95	0.2344	44	82	36	6	**R46315/64**
	6.00	0.2362	44	82	36	6	**R4636.0**
	6.05	0.2382	53	91	36	8	**R4636.05**
	6.10	0.2402	53	91	36	8	**R4636.1**
	6.20	0.2441	53	91	36	8	**R4636.2**
	6.30	0.2480	53	91	36	8	**R4636.3**
1/4	6.35	0.2500	53	91	36	8	**R4631/4**
	6.40	0.2520	53	91	36	8	**R4636.4**
	6.50	0.2559	53	91	36	8	**R4636.5**
	6.60	0.2598	53	91	36	8	**R4636.6**
	6.70	0.2638	53	91	36	8	**R4636.7**
17/64	6.75	0.2656	53	91	36	8	**R46317/64**
	6.80	0.2677	53	91	36	8	**R4636.8**
	6.90	0.2717	53	91	36	8	**R4636.9**
	7.00	0.2756	53	91	36	8	**R4637.0**
	7.10	0.2795	53	91	36	8	**R4637.1**
9/32	7.14	0.2813	53	91	36	8	**R4639/32**
	7.20	0.2835	53	91	36	8	**R4637.2**
	7.30	0.2874	53	91	36	8	**R4637.3**
	7.40	0.2913	53	91	36	8	**R4637.4**
	7.50	0.2953	53	91	36	8	**R4637.5**
19/64	7.54	0.2969	53	91	36	8	**R46319/64**
	7.60	0.2992	53	91	36	8	**R4637.6**
	7.70	0.3031	53	91	36	8	**R4637.7**
	7.80	0.3071	53	91	36	8	**R4637.8**
	7.90	0.3110	53	91	36	8	**R4637.9**
5/16	7.94	0.3125	53	91	36	8	**R4635/16**
	8.00	0.3150	53	91	36	8	**R4638.0**
	8.05	0.3169	61	103	40	10	**R4638.05**
	8.10	0.3189	61	103	40	10	**R4638.1**
	8.20	0.3228	61	103	40	10	**R4638.2**
	8.30	0.3268	61	103	40	10	**R4638.3**
21/64	8.33	0.3281	61	103	40	10	**R46321/64**
	8.40	0.3307	61	103	40	10	**R4638.4**
	8.50	0.3346	61	103	40	10	**R4638.5**
	8.60	0.3386	61	103	40	10	**R4638.6**
	8.70	0.3425	61	103	40	10	**R4638.7**
11/32	8.73	0.3438	61	103	40	10	**R46311/32**
	8.80	0.3465	61	103	40	10	**R4638.8**
	8.90	0.3504	61	103	40	10	**R4638.9**
	9.00	0.3543	61	103	40	10	**R4639.0**
	9.10	0.3583	61	103	40	10	**R4639.1**
23/64	9.13	0.3594	61	103	40	10	**R46323/64**
	9.20	0.3622	61	103	40	10	**R4639.2**
	9.30	0.3661	61	103	40	10	**R4639.3**
	9.40	0.3701	61	103	40	10	**R4639.4**
	9.50	0.3740	61	103	40	10	**R4639.5**
3/8	9.53	0.3750	61	103	40	10	**R4633/8**
	9.60	0.3780	61	103	40	10	**R4639.6**
	9.70	0.3819	61	103	40	10	**R4639.7**
	9.80	0.3858	61	103	40	10	**R4639.8**
	9.90	0.3898	61	103	40	10	**R4639.9**
25/64	9.92	0.3906	61	103	40	10	**R46325/64**
	10.00	0.3937	61	103	40	10	**R46310.0**
	10.05	0.3957	70	118	45	12	**R46310.05**
	10.10	0.3976	70	118	45	12	**R46310.1**
	10.20	0.4016	70	118	45	12	**R46310.2**
	10.30	0.4055	70	118	45	12	**R46310.3**

DC [inch]	DC [mm]	DC decimal [inch]	LU [mm]	OAL [mm]	LS [mm]	DCON [mm]	R463
13/32	10.32	0.4063	70	118	45	12	**R46313/32**
	10.40	0.4094	70	118	45	12	**R46310.4**
	10.50	0.4134	70	118	45	12	**R46310.5**
	10.60	0.4173	70	118	45	12	**R46310.6**
27/64	10.72	0.4219	70	118	45	12	**R46327/64**
	10.80	0.4252	70	118	45	12	**R46310.8**
	10.90	0.4291	70	118	45	12	**R46310.9**
	11.00	0.4331	70	118	45	12	**R46311.0**
7/16	11.11	0.4375	70	118	45	12	**R4637/16**
	11.20	0.4409	70	118	45	12	**R46311.2**
	11.30	0.4449	70	118	45	12	**R46311.3**
	11.40	0.4488	70	118	45	12	**R46311.4**
	11.50	0.4528	70	118	45	12	**R46311.5**
29/64	11.51	0.4531	70	118	45	12	**R46329/64**
	11.60	0.4567	70	118	45	12	**R46311.6**
	11.80	0.4646	70	118	45	12	**R46311.8**
15/32	11.91	0.4688	70	118	45	12	**R46315/32**
	12.00	0.4724	70	118	45	12	**R46312.0**
	12.05	0.4744	76	124	45	14	**R46312.05**
	12.20	0.4803	76	124	45	14	**R46312.2**
31/64	12.30	0.4844	76	124	45	14	**R46331/64**
	12.50	0.4921	76	124	45	14	**R46312.5**
	12.70	0.5000	76	124	45	14	**R46312.7**
1/2	12.70	0.5000	76	124	45	14	**R4631/2**
	12.80	0.5039	76	124	45	14	**R46312.8**
	13.00	0.5118	76	124	45	14	**R46313.0**
33/64	13.10	0.5156	76	124	45	14	**R46333/64**
	13.30	0.5236	76	124	45	14	**R46313.3**
17/32	13.49	0.5313	76	124	45	14	**R46317/32**
	13.50	0.5315	76	124	45	14	**R46313.5**
	13.80	0.5433	76	124	45	14	**R46313.8**
35/64	13.89	0.5469	76	124	45	14	**R46335/64**
	14.00	0.5512	76	124	45	14	**R46314.0**
	14.25	0.5610	82	133	48	16	**R46314.25**
9/16	14.29	0.5625	82	133	48	16	**R4639/16**
	14.50	0.5709	82	133	48	16	**R46314.5**
37/64	14.68	0.5781	82	133	48	16	**R46337/64**
	14.80	0.5827	82	133	48	16	**R46314.8**
	15.00	0.5906	82	133	48	16	**R46315.0**
19/32	15.08	0.5938	82	133	48	16	**R46319/32**
	15.10	0.5945	82	133	48	16	**R46315.1**
	15.30	0.6024	82	133	48	16	**R46315.3**
39/64	15.48	0.6094	82	133	48	16	**R46339/64**
	15.50	0.6102	82	133	48	16	**R46315.5**
	15.80	0.6220	82	133	48	16	**R46315.8**
5/8	15.88	0.6250	82	133	48	16	**R4635/8**
	16.00	0.6299	82	133	48	16	**R46316.0**

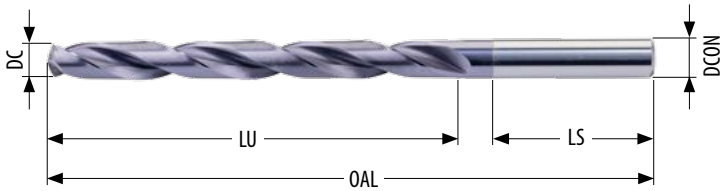
R469

Force M Drill Oil Feed 8xD

R469	M1.1	M1.2	M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1	S4.2
	■94	■79	■83	■68	■57	■70	■60	■54	■48	■42	■44	■36	■32	◪48	◪45	◪36	◪32	◪28	◪26

R469

DORMER



R469

FORCE M

3.00 - 16.00

*All items available upon request

DC [inch]	DC [mm]	DC decimal [inch]	LU [mm]	OAL [mm]	LS [mm]	DCON [mm]	R469*
	3.00	0.1181	37	79	36	6	**R4693.0**
	3.10	0.1220	37	79	36	6	**R4693.1**
1/8	3.18	0.1250	37	79	36	6	**R4691/8**
	3.20	0.1260	37	79	36	6	**R4693.2**
	3.30	0.1299	37	79	36	6	**R4693.3**
	3.40	0.1339	37	79	36	6	**R4693.4**
	3.50	0.1378	37	79	36	6	**R4693.5**
9/64	3.57	0.1406	37	79	36	6	**R4699/64**
	3.60	0.1417	37	79	36	6	**R4693.6**
	3.70	0.1457	37	79	36	6	**R4693.7**
	3.80	0.1496	48	90	36	6	**R4693.8**
	3.90	0.1535	48	90	36	6	**R4693.9**
5/32	3.97	0.1563	48	90	36	6	**R4695/32**
	4.00	0.1575	48	90	36	6	**R4694.0**
	4.10	0.1614	48	90	36	6	**R4694.1**
	4.20	0.1654	48	90	36	6	**R4694.2**
	4.30	0.1693	48	90	36	6	**R4694.3**
11/64	4.37	0.1719	48	90	36	6	**R46911/64**
	4.40	0.1732	48	90	36	6	**R4694.4**
	4.50	0.1772	48	90	36	6	**R4694.5**
	4.60	0.1811	48	90	36	6	**R4694.6**
	4.70	0.1850	62	104	36	6	**R4694.7**
3/16	4.76	0.1875	62	104	36	6	**R4693/16**
	4.80	0.1890	62	104	36	6	**R4694.8**
	4.90	0.1929	62	104	36	6	**R4694.9**
	5.00	0.1969	62	104	36	6	**R4695.0**
	5.10	0.2008	62	104	36	6	**R4695.1**
13/64	5.16	0.2031	62	104	36	6	**R46913/64**
	5.20	0.2047	62	104	36	6	**R4695.2**
	5.30	0.2087	62	104	36	6	**R4695.3**
	5.40	0.2126	62	104	36	6	**R4695.4**
	5.50	0.2165	62	104	36	6	**R4695.5**
7/32	5.56	0.2188	62	104	36	6	**R4697/32**
	5.60	0.2205	62	104	36	6	**R4695.6**
	5.70	0.2244	62	104	36	6	**R4695.7**
	5.80	0.2283	62	104	36	6	**R4695.8**

DC [inch]	DC [mm]	DC decimal [inch]	LU [mm]	OAL [mm]	LS [mm]	DCON [mm]	R469*
	5.90	0.2323	62	104	36	6	**R4695.9**
15/64	5.95	0.2344	62	104	36	6	**R46915/64**
	6.00	0.2362	62	104	36	6	**R4696.0**
	6.10	0.2402	84	126	36	8	**R4696.1**
	6.20	0.2441	84	126	36	8	**R4696.2**
	6.30	0.2480	84	126	36	8	**R4696.3**
1/4	6.35	0.2500	84	126	36	8	**R4691/4**
	6.40	0.2520	84	126	36	8	**R4696.4**
	6.50	0.2559	84	126	36	8	**R4696.5**
	6.60	0.2598	84	126	36	8	**R4696.6**
	6.70	0.2638	84	126	36	8	**R4696.7**
17/64	6.75	0.2656	84	126	36	8	**R46917/64**
	6.80	0.2677	84	126	36	8	**R4696.8**
	6.90	0.2717	84	126	36	8	**R4696.9**
	7.00	0.2756	84	126	36	8	**R4697.0**
	7.10	0.2795	84	126	36	8	**R4697.1**
9/32	7.14	0.2813	84	126	36	8	**R4699/32**
	7.20	0.2835	84	126	36	8	**R4697.2**
	7.30	0.2874	84	126	36	8	**R4697.3**
	7.40	0.2913	84	126	36	8	**R4697.4**
	7.50	0.2953	84	126	36	8	**R4697.5**
19/64	7.54	0.2969	84	126	36	8	**R46919/64**
	7.60	0.2992	84	126	36	8	**R4697.6**
	7.70	0.3031	84	126	36	8	**R4697.7**
	7.80	0.3071	84	126	36	8	**R4697.8**
	7.90	0.3110	84	126	36	8	**R4697.9**
5/16	7.94	0.3125	84	126	36	8	**R4695/16**
	8.00	0.3150	84	126	36	8	**R4698.0**
	8.10	0.3189	106	152	40	10	**R4698.1**
	8.20	0.3228	106	152	40	10	**R4698.2**
	8.30	0.3268	106	152	40	10	**R4698.3**
21/64	8.33	0.3281	106	152	40	10	**R46921/64**
	8.40	0.3307	106	152	40	10	**R4698.4**
	8.50	0.3346	106	152	40	10	**R4698.5**
	8.60	0.3386	106	152	40	10	**R4698.6**
	8.70	0.3425	106	152	40	10	**R4698.7**
11/32	8.73	0.3438	106	152	40	10	**R46911/32**
	8.80	0.3465	106	152	40	10	**R4698.8**
	8.90	0.3504	106	152	40	10	**R4698.9**
	9.00	0.3543	106	152	40	10	**R4699.0**
	9.10	0.3583	106	152	40	10	**R4699.1**
23/64	9.13	0.3594	106	152	40	10	**R46923/64**
	9.20	0.3622	106	152	40	10	**R4699.2**
	9.30	0.3661	106	152	40	10	**R4699.3**
	9.40	0.3701	106	152	40	10	**R4699.4**
	9.50	0.3740	106	152	40	10	**R4699.5**
3/8	9.53	0.3750	106	152	40	10	**R4693/8**
	9.60	0.3780	106	152	40	10	**R4699.6**
	9.70	0.3819	106	152	40	10	**R4699.7**
	9.80	0.3858	106	152	40	10	**R4699.8**
	9.90	0.3898	106	152	40	10	**R4699.9**
25/64	9.92	0.3906	106	152	40	10	**R46925/64**
	10.00	0.3937	106	152	40	10	**R46910.0**
	10.20	0.4016	128	180	45	12	**R46910.2**
	10.30	0.4055	128	180	45	12	**R46910.3**
13/32	10.32	0.4063	128	180	45	12	**R46913/32**
	10.40	0.4094	128	180	45	12	**R46910.4**
	10.50	0.4134	128	180	45	12	**R46910.5**
27/64	10.72	0.4219	128	180	45	12	**R46927/64**
	10.80	0.4252	128	180	45	12	**R46910.8**
	11.00	0.4331	128	180	45	12	**R46911.0**
7/16	11.11	0.4375	128	180	45	12	**R4697/16**
	11.20	0.4409	128	180	45	12	**R46911.2**
	11.30	0.4449	128	180	45	12	**R46911.3**

DC [inch]	DC [mm]	DC decimal [inch]	LU [mm]	OAL [mm]	LS [mm]	DCON [mm]	R469*
	11.50	0.4528	128	180	45	12	**R46911.5**
29/64	11.51	0.4531	128	180	45	12	**R46929/64**
	11.80	0.4646	128	180	45	12	**R46911.8**
15/32	11.91	0.4688	128	180	45	12	**R46915/32**
	12.00	0.4724	128	180	45	12	**R46912.0**
	12.20	0.4803	151	202	48	14	**R46912.2**
31/64	12.30	0.4844	151	202	48	14	**R46931/64**
	12.50	0.4921	151	202	48	14	**R46912.5**
1/2	12.70	0.5000	151	202	48	14	**R4691/2**
	12.80	0.5039	151	202	48	14	**R46912.8**
	13.00	0.5118	151	202	48	14	**R46913.0**
33/64	13.10	0.5156	151	202	48	14	**R46933/64**
17/32	13.49	0.5313	151	202	48	14	**R46917/32**
	13.50	0.5315	151	202	48	14	**R46913.5**
35/64	13.89	0.5469	151	202	48	14	**R46935/64**
	14.00	0.5512	151	202	48	14	**R46914.0**
	14.25	0.5610	172	227	48	16	**R46914.25**
9/16	14.29	0.5625	172	227	48	16	**R4699/16**
	14.50	0.5709	172	227	48	16	**R46914.5**
37/64	14.68	0.5781	172	227	48	16	**R46937/64**
	15.00	0.5906	172	227	48	16	**R46915.0**
19/32	15.08	0.5938	172	227	48	16	**R46919/32**
	15.10	0.5945	172	227	48	16	**R46915.1**
39/64	15.48	0.6094	172	227	48	16	**R46939/64**
	15.50	0.6102	172	227	48	16	**R46915.5**
5/8	15.88	0.6250	172	227	48	16	**R4695/8**
	16.00	0.6299	172	227	48	16	**R46916.0**