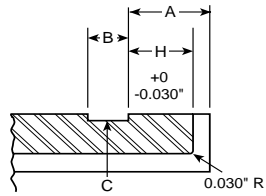
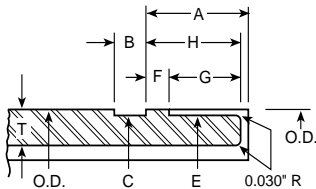


# Machining for Rubber Lining (MRL)

## RUBBER OR URETHANE LINED PIPE



FOR ABRASION RESISTANCE ONLY



FOR CORROSION AND/OR ABRASION RESISTANCE

**NOTE:** Dimensions apply to steel pipe and Victaulic fittings. \*Based on nominal dimensions (without tolerances).

**Column 1** – Nominal IPS Pipe Size. Nominal Metric (ISO) Pipe Size.

**Column 2** – IPS Outside Diameter. Metric (ISO) Outside Diameter. The outside diameter of cut grooved pipe shall not vary more than the tolerance listed. For IPS pipe, the maximum allowable tolerance from square cut ends is 0.030\* for 2 - 3 1/2"; 0.045\* for 4 - 6"; and 0.060\* for sizes 8" O.D. and above measured from true square line. For (ISO) metric pipe, the maximum allowable tolerance from square cut ends is 0.76 mm for sizes 20 - 80 mm; 1.14 mm for sizes 100 - 150 mm; and 1.52 mm for sizes 200 mm and above, measured from the true square line.

**Column 3** – Gasket Seat. The pipe surface shall be free from indentations and projections from the end of the pipe to the groove, to provide a leak-tight seat for the gasket. All loose paint, scale, dirt, chips, grease, and rust must be removed. Rubber lining must be ground flush with pipe O.D. to a smooth finish for proper gasket seating.

It continues to be Victaulic's recommendation that pipe be square cut. Beveled pipe may not be used. Gasket seat "A" is measured from the end of the rubber lining.

**Column 4** – Groove Width. Bottom of groove to be free of loose dirt, chips, rust and scale that may interfere with proper coupling assembly. Maximum permissible radius at bottom of groove is 0.025" (0.64 mm).

**Column 5** – Groove Diameter. The groove must be of uniform depth for the entire pipe circumference. Groove must be maintained within the "C" diameter tolerance listed.

**Column 6** – Lead edge of groove to end of pipe after machining to allow rubber lining.

**Column 7** – Diameter of undercut at the pipe end provided for lining overlap. (Corrosion and/or abrasion only).

**Column 8** – Metal thickness between groove and lining undercut. (This dimension must be maintained for proper joint strength.)

**Column 9** – Length of undercut provided for lining overlap. (Corrosion and/or abrasion only). For reference only. Dimension "F" must be maintained.

Rubber or urethane lined pipe, connected with Victaulic couplings, has proven to be a most practical and economical method of conveying corrosive and abrasive fluids and slurries, showing savings in maintenance cost over unlined metal pipe in such services. The use of rubber-lined metal pipe combines the high-corrosive and abrasive-resistant properties of rubber or urethane with the rigidity and strength of metal.

Urethane or rubber-lined pipe is available with Victaulic grooved ends from leading companies in different types of linings, ranging from flexible semi-hard for straight corrosive services, to soft lining for handling abrasive solids in water. The type of lining selected for a particular operation is determined by the conditions under which the system will operate.

1	2		3										4										5										6										7										8										9										10																	
			Pipe Outside Diameter Inches/mm										Gasket Seat A										Groove Width B										Groove Dia. C										H										E (Mean Dia.)										F +0.030 -0.000										G (Ref.)										Min. Allow. Wall Thick. T							
	Basic	Tolerance	Basic	Tol. +0.00 (+0.00)	Basic	Tol. +0.00 (+0.00)	Basic	Tol. +0.00 (+0.00)	Basic	Tol. +0.00 (+0.00)	Basic	Tol. +0.00 (+0.00)	H +0.000 -0.030	E (Mean Dia.)	F +0.030 -0.000	G (Ref.)	Min. Allow. Wall Thick. T																																																																									
1	1.315	+0.013	-0.013	0.562	-0.030	0.312	-0.030	1.190	-0.015	0.437	1.190	0.188	0.250	0.133																																																																												
25	33.4	+0.33	-0.33	14.27	-0.76	7.92	-0.76	30.23	-0.38	11.10	30.23	4.78	6.35	3.38																																																																												
1 1/4	1.660	+0.016	-0.013	0.562	-0.030	0.312	-0.030	1.535	-0.015	0.437	1.535	0.188	0.250	0.140																																																																												
32	42.2	+0.41	-0.33	14.27	-0.76	7.92	-0.76	38.99	-0.38	11.10	38.99	4.78	6.35	3.56																																																																												
1 1/2	1.900	+0.019	-0.019	0.562	-0.030	0.312	-0.030	1.775	-0.015	0.437	1.775	0.188	0.250	0.145																																																																												
40	48.3	+0.48	-0.48	14.27	-0.76	7.92	-0.76	45.09	-0.38	11.10	45.09	4.78	6.35	3.68																																																																												
2	2.375	+0.024	-0.024	0.562	-0.030	0.312	-0.030	2.250	-0.015	0.437	2.250	0.188	0.250	0.154																																																																												
50	60.3	+0.61	-0.61	14.27	-0.76	7.92	-0.76	57.15	-0.38	11.10	57.15	4.78	6.35	3.91																																																																												
2 1/2	2.875	+0.029	-0.029	0.562	-0.030	0.312	-0.030	2.720	-0.018	0.437	2.720	0.188	0.250	0.188																																																																												
65	73.0	+0.74	-0.74	14.27	-0.76	7.92	-0.76	69.09	-0.46	11.10	69.09	4.78	6.35	4.78																																																																												
3 O.D.	3.000	+0.030	-0.030	0.562	-0.030	0.312	-0.030	2.845	-0.018	0.437	2.845	0.188	0.250	0.188																																																																												
	76.1	+0.76	-0.76	14.27	-0.76	7.92	-0.76	72.26	-0.46	11.10	72.26	4.78	6.35	4.78																																																																												
3	3.500	+0.035	-0.031	0.562	-0.030	0.312	-0.030	3.344	-0.018	0.437	3.344	0.188	0.250	0.188																																																																												
80	88.9	+0.89	-0.79	14.27	-0.76	7.92	-0.76	84.94	-0.46	11.10	84.94	4.78	6.35	4.78																																																																												
3 1/2	4.000	+0.040	-0.031	0.562	-0.030	0.312	-0.030	3.834	-0.020	0.437	3.834	0.188	0.250	0.188																																																																												
90	101.6	+1.02	-0.79	14.27	-0.76	7.92	-0.76	97.38	-0.51	11.10	97.38	4.78	6.35	4.78																																																																												
4	4.500	+0.045	-0.031	0.562	-0.030	0.344	-0.030	4.334	-0.020	0.437	4.334	0.188	0.250	0.203																																																																												
100	114.3	+1.14	-0.79	14.27	-0.76	8.73	-0.76	110.08	-0.51	11.10	110.08	4.78	6.35	5.16																																																																												
5	5.563	+0.056	-0.031	0.562	-0.030	0.344	-0.030	5.395	-0.022	0.437	5.395	0.188	0.250	0.203																																																																												
125	141.3	+1.42	-0.79	14.27	-0.76	8.73	-0.76	137.03	-0.56	11.10	137.03	4.78	6.35	5.16																																																																												
6 1/2 O.D.	6.500	+0.063	-0.031	0.562	-0.030	0.344	-0.030	6.330	-0.022	0.437	6.330	0.188	0.250	0.219																																																																												
	165.1	+1.60	-0.79	14.27	-0.76	8.73	-0.76	160.78	-0.56	11.10	160.78	4.78	6.35	5.56																																																																												
6	6.625	+0.063	-0.031	0.562	-0.030	0.344	-0.030	6.455	-0.022	0.437	6.455	0.188	0.250	0.219																																																																												
150	168.3	+1.60	-0.79	14.27	-0.76	8.73	-0.76	163.96	-0.56	11.10	163.96	4.78	6.35	5.56																																																																												
8	8.625	+0.063	-0.031	0.625	-0.030	0.469	-0.030	8.441	-0.025	0.500	8.441	0.219	0.281	0.238																																																																												
200	219.1	+1.60	-0.79	15.88	-0.76	11.91	-0.76	214.40	-0.64	12.70	214.40	5.56	7.14	6.05																																																																												
10	10.750	+0.063	-0.031	0.625	-0.030	0.469	-0.030	10.562	-0.027	0.500	10.562	0.219	0.281	0.250																																																																												
250	273.0	+1.60	-0.79	15.88	-0.76	11.91	-0.76	268.28	-0.69	12.70	268.28	5.56	7.14	6.35																																																																												
12	12.750	+0.063	-0.031	0.625	-0.030	0.469	-0.030	12.531	-0.030	0.500	12.531	0.219	0.281	0.279																																																																												
300	323.9	+1.60	-0.79	15.88	-0.76	11.91	-0.76	318.29	-0.76	12.70	318.29	5.56	7.14	7.09																																																																												
14	14.000	+0.063	-0.031	0.938	-0.030	0.500	-0.030	13.781	-0.030	0.813	13.781	0.344	0.469	0.281																																																																												
350	355.6	+1.60	-0.79	23.83	-0.76	12.70	-0.76	350.04	-0.76	20.65	350.04	8.74	11.91	7.14																																																																												
16	16.000	+0.063	-0.031	0.938	-0.030	0.500	-0.030	15.781	-0.030	0.813	15.781	0.344	0.469	0.312																																																																												
400	406.4	+1.60	-0.79	23.83	-0.76	12.70	-0.76	400.84	-0.76	20.65	400.84	8.74	11.91	7.92																																																																												
18	18.000	+0.063	-0.031	1.000	-0.030	0.500	-0.030	17.781	-0.030	0.875	17.781	0.344	0.531	0.312																																																																												
450	457.2	+1.60	-0.79	25.40	-0.76	12.70	-0.76	451.64	-0.76	22.23	451.64	8.74	13.49	7.92																																																																												
20	20.000	+0.063	-0.031	1.000	-0.030	0.500	-0.030	19.781	-0.030	0.875	19.781	0.344	0.531	0.312																																																																												
500	508.0	+1.60	-0.79	25.40	-0.76	12.70	-0.76	502.44	-0.76	22.23	502.44	8.74	13.49	7.92																																																																												
22	22.000	+0.063	-0.031	1.000	-0.060	0.500	-0.030	21.656	-0.030	0.875	21.656	0.344	0.531	0.375																																																																												
550	559.0	+1.60	-0.79	25.40	-1.52	12.70	-0.76	550.06	-0.76	22.23	550.06	8.74	13.49	9.53																																																																												
24	24.000	+0.063	-0.031	1.000	-0.060	0.500	-0.030	23.656	-0.030	0.875	23.656	0.344	0.531	0.375																																																																												
600	610.0	+1.60	-0.79	25.40	-1.52	12.70	-0.76	600.86	-0.76	22.23	600.86	8.74	13.49	9.53																																																																												
30	30.000	+0.063	-0.031	1.750	-0.060	0.625	-0.030	29.500	-0.063	1.625	29.500	0.563	1.063	0.625																																																																												
750	762.0	+1.60	-0.79	44.45	-1.52	15.88	-0.76	749.30	-1.60	41.28	749.30	14.30	27.00	15.88																																																																												
36	36.000	+0.093	-0.031	1.750	-0.060	0.625	-0.030	35.500	-0.063	1.625	35.500	0.563	1.063	0.625																																																																												
900	914.4	+2.36	-0.79	44.45	-1.52	15.88	-0.76	901.7	-1.60	41.28	901.7	14.30	27.00	15.88																																																																												

