

# MIPR CORPORATION



FLANGED RUBBER PIPE CONNECTORS SERIES 3000



# Series 300 Performance Data

**Table 1: Comparison of Material Acoustical Impedances**

Material	Sound Velocity In. / Sec.	Density Lbs./In. <sup>3</sup>	Acoustical Impedance Lbs. / In. <sup>2</sup> Sec.	Relative Impedance
Steel	206,500	.283	58,440	551.3
Copper	140,400	.320	44,930	423.9
Cast Iron	148,800	.260	38,690	365.0
Lead	49,800	.411	20,470	193.1
Glass	216,000	.094	20,300	191.5
Concrete	198,000	.072	14,260	134.5
Water	56,400	.036	2,030	19.2
Pine	132,000	.0145	1,910	18.0
Cork	19,200	.0086	165	1.6
Rubber	2,400	.0442	106	1.0

NOTES: Acoustical impedance is defined as the product of material density times velocity of sound in that material. In acoustical systems low impedance corresponds to low sound transmission.  
Relative impedance is based on Rubber = 1.0

**Table 2: Available Styles and Materials**

310	310-R	320	Material Code	Cover Elastomer	Tube Elastomer	Maximum Operating Temp °F	F.S.A. Material Class
*	*	*	BB	Chlorobutyl	Chlorobutyl	250°	Special II
*	*	*	BT	Chlorobutyl	Teflon®	250°	Special II
*	*	*	EE	EPDM	EPDM	250°	Special II
*	*	*	NR	Neoprene	Natural	180°	Std. I
*	*	*	NH	Neoprene	CSM	212°	Std. II
*	*	*	NN	Neoprene	Neoprene	225°	Std. II
*	*	*	NP	Neoprene	Nitrile	212°	Std. II

Product "cover" can be CSM coated on special order.  
Style 310/NN meets ASTM, Class A. Type III and conforms to all USCG requirements.

NOTES: 1. Teflon is a registered trademark of the DuPont Company.  
2. Products with Teflon® "tubes" are not recommended with vacuum service.

**Reduce System Stress And Strain.** Rigid attachment of piping to critical or mechanical equipment can produce excessive loading. Thermal or mechanically created strain-stress-shock are cushioned and absorbed with the installation of a flexible Series 300 Rubber Pipe.

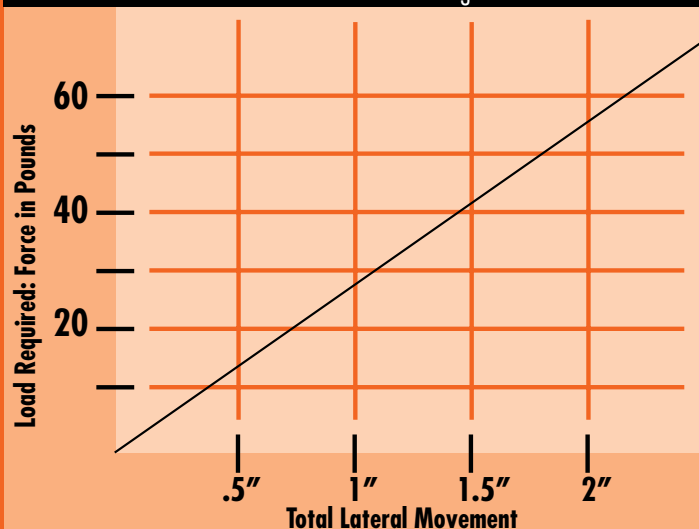
**Full Flow With Less Turbulence Or Material Entrapment.** The smooth bore of the Series 300 Rubber Pipe Connector allows full flow without turbulence. Metallic connectors depend upon bellows or convolutions to absorb motion. These bellows/ convolutions could create flow turbulence and also create an area for material entrapment or bacteria growth.

**Leak Free Without Gaskets Or Packing.** The full-face rubber flange of the Series 300 Rubber Pipe Connector is self gasketing. Additionally, the Style 310-R features a molded in place "O-Ring" on each flange-face for faster sealing with less torque at installation and less long-term maintenance. Unlike interlocked metallic connectors, the Series 300 features a onepiece seamless tube that does not require packing. Our rubber connector is suitable for all air, gas, and fluids, including "searching" thin fluids.

**Control Rod Assembly Usage.** Style 491 Control Units are designed to protect the Series 300 Pipe Connector from excessive elongation. Control rods must be used: (1) when the piping containing the rubber pipe connector is not anchored and, (2) when the rubber pipe connector is attached to resiliently supported pipe or equipment.

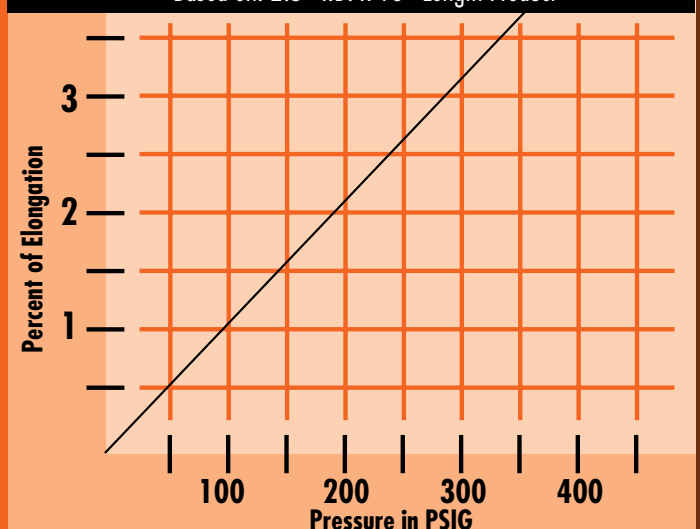
**Force Required for Lateral Displacement**

Based on: 2.5" I.D. x 18" Length Product

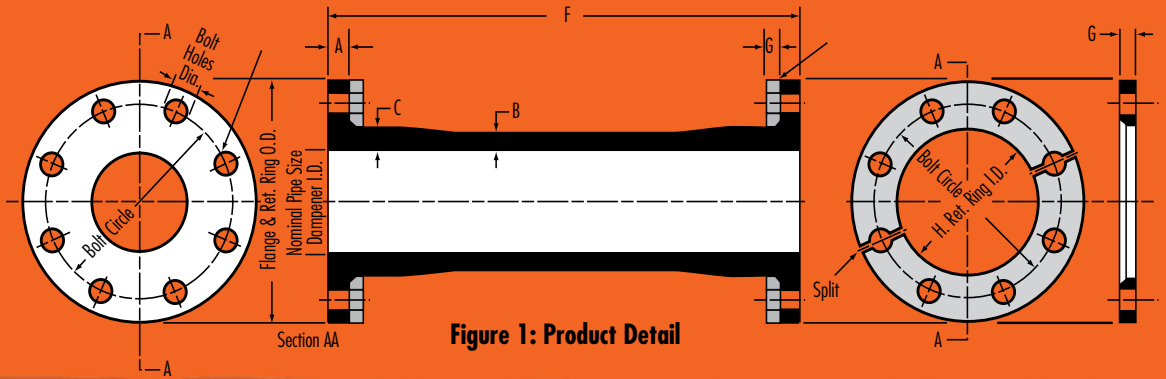


**Pressure-Elongation Curve**

Based on: 2.5" I.D. x 18" Length Product



# Series 300 Performance Data continued



**Figure 1: Product Detail**

**Table 3: Sizes • Movements • Flange Dimensions • Weights • Pressures**

Nominal Pipe Size: Pipe I.D.	Neutral Length	Movement Capability From Neutral				125/150# Flange Dimensions				Rubber Pipe Dimensions		Approx. Weight (lbs)		Operating Pressures <sup>3</sup>		
		In. of Axial Compression	In. of Axial Extension	± In. of Lateral Deflection	± In. of Angular Deflection	Flange O.D.	Bolt Circle	# of Holes	Size of Holes	"A" Flange Thickness	"B" Body Thickness	Style 310-R	Retaining Rings (set)	Style 310-R	Style 310	Style 320
<b>.75</b>	12*	.158	.158	1.97	21.8°	3.875	2.750	4	0.625	0.591	0.472	2.4	1.5			
	18	.236	.236	2.96	31.0°											
<b>1</b>	12*	.158	.158	1.77	17.7°	4.250	3.120	4	0.625	0.591	0.551	3.3	1.9			
	18	.236	.236	2.66	25.6°											
<b>1.25</b>	12*	.158	.158	1.58	14.0°	4.625	3.500	4	0.625	0.591	0.551	4.0	2.4	300		300
	18	.236	.236	2.36	20.6°											
<b>1.5</b>	12*	.158	.158	1.39	11.3°	5.000	3.880	4	0.625	0.591	0.551	4.3	2.6			
	18	.236	.236	2.09	16.7°											
<b>2</b>	12*	.158	.158	1.18	9.1°	6.000	4.750	4	0.750	0.591	0.551	5.6	2.6	250		
	18	.236	.236	1.77	13.5°											
<b>2.5</b>	12*	.158	.158	.98	7.0°	7.000	5.500	4	0.750	0.591	0.551	6.9	5.3	200		
	18	.236	.236	1.48	10.5°											
<b>3</b>	12*	.158	.158	.79	5.7°	7.500	6.000	4	0.750	0.591	0.551	8.6	5.6	150		
	18	.236	.236	1.18	8.5°											
<b>3.5</b>	12	.158	.158	.59	5.1°	8.500	7.000	8	0.750	0.591	0.669	9.7	6.5			250
	18*	.236	.236	.89	7.6°											
<b>4</b>	12	.158	.158	.59	4.6°	9.000	7.500	8	0.750	0.591	0.669	10.9	7.3	175		
	18*	.236	.236	.89	6.8°											
<b>5</b>	12	.158	.158	.45	3.7°	10.000	8.500	8	0.875	0.591	0.669	13.5	7.9			
	18*	.236	.236	.67	5.5°											

# Series 300 Performance Data continued

**Table 3: Sizes • Movements • Flange Dimensions • Weights • Pressures**

Nominal Pipe Size: Pipe I.D.	Neutral Length	Movement Capability From Neutral				125/150# Flange Dimensions				Rubber Pipe Dimensions		Approx. Weight (lbs)		Operating Pressures <sup>3</sup>		
		In. of Axial Compression	In. of Axial Extension	± In. of Lateral Deflection	± In. of Angular Deflection	Flange O.D.	Bolt Circle	# of Holes	Size of Holes	"A" Flange Thickness	"B" Body Thickness	Style 310-R	Retaining Rings (set)	Style 310-R	Style 310	Style 320
6	12	.158	.158	.45	3.1°	11.000	9.500	8	0.875	0.591	0.709	18.9	9.1	150	150	250
	18	.236	.236	.67	4.6°							19.9	9.1			
	24*	.315	.315	.89	6.1°							24.1	9.1			
	30	.354	.354	1.12	6.8°							27.2	9.1			
	36	.433	.433	1.34	8.3°							31.5	9.1			
	48	.472	.472	1.55	9.9°							39.0	9.1			
8	12	.118	.118	.35	1.7°	13.500	11.750	8	0.875	0.591	0.787	23.4	14.0	150	150	250
	18	.158	.158	.53	2.3°							29.4	14.0			
	24*	.236	.236	.71	3.4°							35.7	14.0			
	30	.276	.276	.89	4.0°							40.2	14.0			
	36	.354	.354	1.06	5.1°							47.4	14.0			
	48	.472	.472	1.42	6.8°							59.4	14.0			
10	12	.118	.118	.32	1.4°	16.000	14.250	12	1.000	0.787	0.866	26.0	17.0	150	150	250
	18	.158	.158	.47	1.8°							37.0	17.0			
	24*	.236	.236	.63	2.7°							48.7	17.0			
	30	.276	.276	.79	3.2°							59.0	17.0			
	36	.354	.354	.95	4.1°							70.0	17.0			
	48	.472	.472	1.26	5.5°							92.0	17.0			
12	12	.118	.118	.24	1.1°	19.000	17.000	12	1.000	0.787	0.984	36.0	24.1	150	150	250
	18	.158	.158	.36	1.5°							51.0	24.1			
	24*	.236	.236	.47	2.3°							66.5	24.1			
	30	.276	.276	.59	2.7°							81.0	24.1			
	36	.354	.354	.71	3.4°							96.0	24.1			
	48	.472	.472	.95	4.2°							126.0	24.1			
14	12	.118	.118	.24	1.0°	21.000	18.750	12	1.125	0.787	0.984	58.0	26.8	125*	125	200
	18	.158	.158	.36	1.3°							83.0	26.8			
	24*	.236	.236	.47	2.0°							108.0	26.8			
	30	.276	.276	.59	2.3°							133.0	26.8			
	36	.354	.354	.71	2.9°							157.0	26.8			
	48	.472	.472	.95	3.9°							208.0	26.8			
16	12	.118	.118	.24	0.7°	23.500	21.250	16	1.125	0.787	0.984	83.0	32.1	100*	100	150
	18	.158	.158	.36	1.3°							118.0	32.1			
	24*	.236	.236	.47	1.7°							153.0	32.1			
	36	.354	.354	.71	2.6°							233.0	32.1			
	48	.472	.472	.95	3.4°							294.0	32.1			
	18	12	.112	.112	.18							0.9°	25.000			
18		.118	.118	.24	1.2°	157.5	34.6									
24*		.236	.236	.24	1.5°	205.0	34.6									
36		.354	.354	.36	2.3°	300.0	34.6									
48		.472	.472	.48	3.1°	394.0	34.6									
20	24*	.236	.236	.24	1.4°	27.500	25.000	20	1.250	1.000	1.000	270.0	35.9	100*	100	150
	36	.354	.354	.36	2.1°							394.0	35.9			
	48	.472	.472	.48	2.7°							519.0	35.9			

NOTES:\*1. For optimum noise and vibration absorption, use this or longer length

2. The degree of angular movement is based on the maximum rated extension.

3. Pressure rating is based on 170°F. operating temperature. Vacuum rating is 26" Hg in all cases except where \* appears.

**Larger I.D. or length sizes are available upon special request.**

