



# Elastomeric Bearing Assemblies

## Typical Applications

For nearly 50 years, elastomeric bearing assemblies have been used in the construction of new bridges and the rehabilitation of existing structures.

Other applications include: buildings and arenas, shear-key bumpers, seismic isolation protection and vibration devices for machinery.

## General

Versiflex™ elastomeric bearing assemblies are custom molded using neoprene or natural rubber and are categorized into three basic designs: non-reinforced, laminated and sliding bearing assemblies. Rotation and displacement of elastomeric bearing devices are accommodated by deformation of the elastomer. Bearing assemblies may be molded with holes, slots, skewed ends, clipped corners and/or sealing ribs and may also be circular in shape.

## Manufacturing Capabilities

Versiflex™ elastomeric bearing assemblies and all associated steel components are molded and manufactured to precise tolerances. Versiflex™ elastomeric bearing assemblies can be produced up to 75 inches (1900 mm) by 65 inches (1700mm) in plan and 18 inches (455 mm) in height. In addition to physical property tests on the polymer compounds, specified testing is also performed in-house, including vertical and horizontal load testing, rotation testing, peel testing and coefficient-of-friction testing.

## Neoprene

Shear Modulus (D4014)					CA	HI
Nominal (psi) +/-15%	110	130	160	210	110	155
Range	94-127	111-150	132-178	170-230	100-120	132-178
DSB Compound Number	650-89	656-7	660-36	671-2	655-37	660HI
AASHTO Grade	3	3	3	3	3	3

Originals ASTM D412						
Durometer +/-5	50	55	60	70	55	60
Min Tensile (psi)	2250	2250	2250	2250	2250	2250
Min Elongation (%)	400	400	350	300	400	400

Heat Age 70h at 100C ASTM D593				
Duro Change	+15	+15	+15	+15
Tensile Change (%)	-15	-15	-15	-15
Elongation Change (%)	-40	-40	-40	-40

Compression Set 22h at 100C				
ASTM D395 (%)	35% max	35% max	35% max	35% max

Low Temperature Brittleness D746				
-40F	no cracks	no cracks	no cracks	no cracks

Low Temperature Crystalization 14 days at -15F				
Ratio	<4	<4	<4	<4

Ozone D1149, 100h at 100F				
100pphm, 20% strain	no cracks	no cracks	no cracks	no cracks

# Elastomeric Bearing Assemblies

## Natural Rubber

### Shear Modulus (D4014)

Nominal (psi) +/-15%	110	130	160	200
Range	94-127	111-150	132-178	170-230
DSB Compound Number	950-18	955-5	960-19	970
AASHTO Grade	5	5	5	5

### Originals ASTM D412

Durometer +/-5	50	55	60	70
Min Tensile (psi)	2250	2250	2250	2250
Min Elongation (%)	450	450	400	300

### Heat Age 168h at 158F ASTM D593

Duro Change	+10	+10	+10	+10
Tensile Change (%)	-25	-25	-25	-25
Elongation Change (%)	-25	-25	-25	-25

### Compression Set 22h at 158F

ASTM D395 (%)	25% max	25% max	25% max	25% max
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### Low Temperature Brittleness D746

-70F	no crack	no crack	no crack	no crack
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### Low Temperature Crystallization 28 days at -35F

Ratio	<4	<4	<4	<4
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### Ozone D1149, 100h at 100F

50pphm, 20% strain	no crack	no crack	no crack	no crack
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## PTFE Properties

		Coefficient of Friction				
		Pressure (ksi)	0.5	1.0	2.0	>3.0
Type PTFE	Temperature (°F)					
Dimpled Lubricated	68	0.04	0.030	0.025	0.020	
	-13	0.06	0.045	0.040	0.030	
	-49	0.10	0.075	0.060	0.050	
Unfilled or Dimpled Unlubricated	68	0.08	0.070	0.050	0.030	
	-13	0.20	0.180	0.130	0.100	
	-49	0.20	0.180	0.130	0.100	
Filled	68	0.24	0.170	0.090	0.060	
	-13	0.44	0.320	0.250	0.200	
	-49	0.65	0.550	0.450	0.350	
Woven	68	0.08	0.070	0.060	0.045	
	-13	0.20	0.180	0.130	0.100	
	-49	0.20	0.180	0.130	0.100	