



It is important to NOT connect rigid piping directly to the tank. Polyethylene tanks expand and contract due to temperature, pressure, and changes in volume (filling & emptying). These changes may cause the tank to crack or the fitting to fail if the proper attachments are not installed in the correct locations.

*(Picture 1, Fitting Failure) (Picture 2, Cracked Tank)*



Picture 1

Over tightening of bands and straps can cause similar problems. In order to prevent this, don't tighten the restraints so much that you can't remove them. Just make sure it is snug.



Picture 2

**Expansion Joints: (See Picture 3 For Example)**

Expansion joints are used to absorb vibrations coming from the pumps through the hard plumbing directly contacting the tank and its fittings. A full faced flange should be used when using expansion joints. If you are using an expansion joint, the pipe support needs to be placed after the flex. An isolation valve should be placed between the tank and expansion joint.

Flexible connections can be used to help with plumbing issues. This type of connection includes, but is not limited to, hose and expansion joints, which allows movement between the tank fittings, plumbing, and pump. The location most crucial for the flexible connectors is the lower third of the tank. In a polyethylene tank, this is the area where the most movement occurs.



Picture 3

Spring supports can be used under the pumps and valves to help dampen vibrations and movement. Supports need to be adequately designed to stand up to the job's demands.

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## Single Wide Arch

### Style 1101

36" ID X 10" FF Style 1101 single (1) wide arch expansion joint



## Double Wide Arch

### Style 1102

36" ID X 15" FF Style 1102,1202 double (2) wide arch expansion



## Triple Wide Arch

### Style 1103

36" ID X 20" FF Style 1103,1203 triple (3) wide arch expansion joint



## Quadruple Wide Arch

### Style 1104

36" ID X 24" FF Style 1104,1204 quadruple (4) wide arch expansion joint



72" ID X 12" FF Style 1101 with INT-WB integral gusset/retaining ring control unit



72" ID X 16" FF Style 1102,1202 with INT-WB integral gusset/retaining ring control unit



72" ID X 22" FF Style 1103,1203 with INT-WB integral gusset/retaining ring control unit



72" ID X 26" FF Style 1104,1204 with INT-WB integral gusset/retaining ring control unit



Style 1101 assembly with W/B 4-rod control unit



Style 1102,1202 assembly with W/B 4-rod control unit



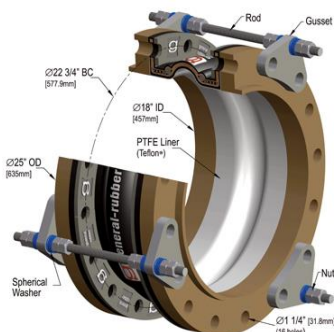
Style 1103,1203 assembly with W/B 4-rod control unit



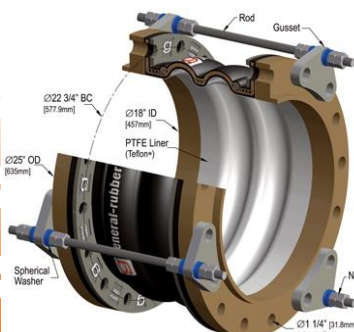
Style 1104,1204 assembly with W/B 4-rod control unit



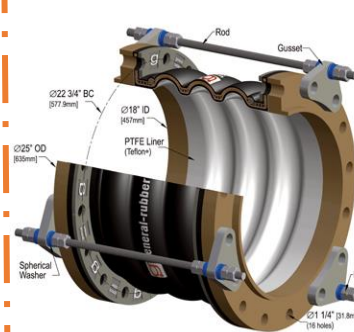
Style 1101 assembly with SW/SW 3-rod control unit and optional PTFE liner



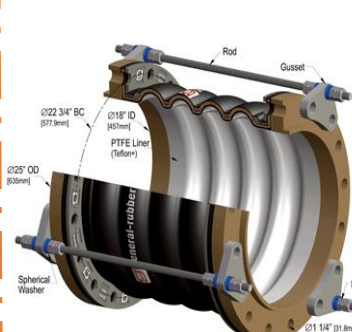
Style 1102,1202 assembly with SW/SW 3-rod control unit and optional PTFE liner



Style 1103,1203 assembly with SW/SW 3-rod control unit and optional PTFE liner



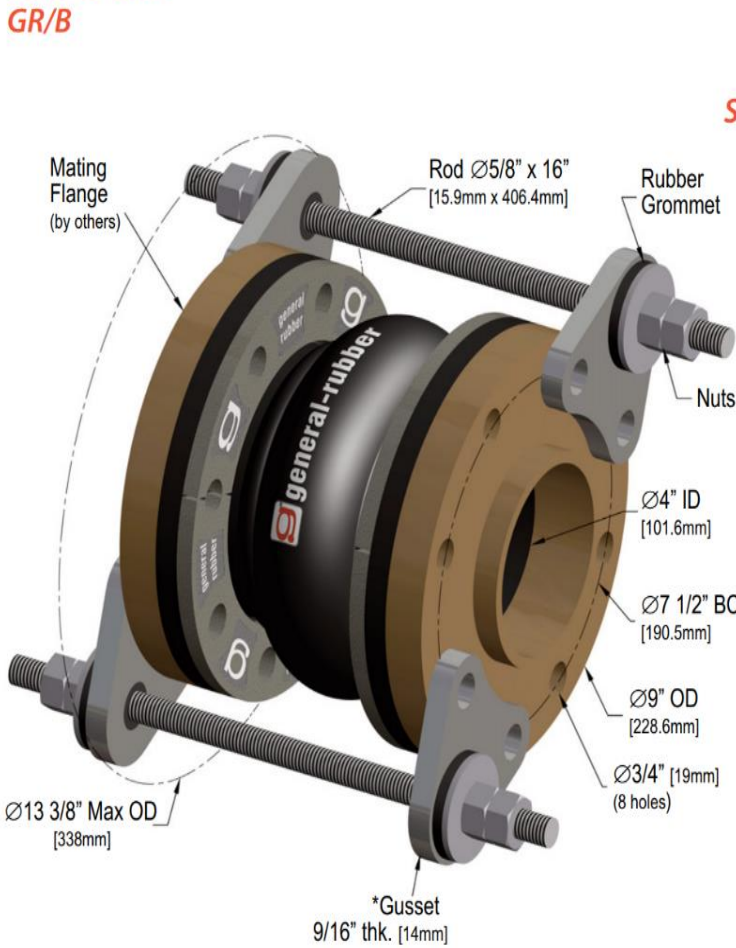
Style 1104,1204 assembly with SW/SW 3-rod control unit and optional PTFE liner



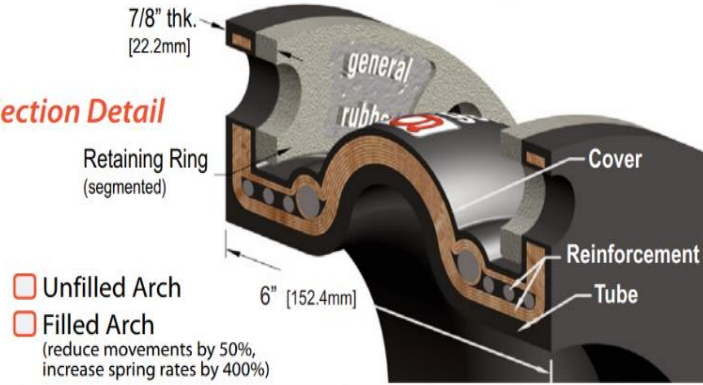
Shown with  
Control Unit  
GR/B

# Style 1101 Rubber Expansion Joint

4" ID x 6" F/F (DN100mm x 152mm) - 150-lb Drilling | 1101-0004-3.16



## Section Detail



- Unfilled Arch
- Filled Arch  
(reduce movements by 50%,  
increase spring rates by 400%)

	Pure Gum	Neoprene	Butyl	Nitrile (Buna-N)	EPDM	Viton® (FKM)
Tube	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tire Cord:	° F [° C]	° F [° C]	° F [° C]	° F [° C]	° F [° C]	° F [° C]
<input type="checkbox"/> Polyester	180 [82]	225 [107]	250 [121]	210 [99]	250 [121]	250 [121]
<input type="checkbox"/> Kevlar®	180 [82]	225 [107]	300 [149]	210 [99]	350 [177]	400 [204]

Maximum Temperature rating based on lowest temperature material selected. EPDM or Butyl w/Polyester Tire Cord rated 300°F (149°C) for Air Service up to 25 psig (1.7 barg)

## Bill of Materials

ITEM	MATERIAL	FINISH
Retaining Ring	<input type="checkbox"/> Carbon Steel	Hot Dipped Galvanized
	<input type="checkbox"/> Stainless Steel	Plain
Gusset	<input type="checkbox"/> Carbon Steel	Hot Dipped Galvanized
	<input type="checkbox"/> Stainless Steel	Plain
Rods	<input type="checkbox"/> ASTM A193 B7 Alloy Steel	Hot Dipped Galvanized
	<input type="checkbox"/> ASTM A193 B8M 316 SS	Plain
Nuts	<input type="checkbox"/> ASTM A194 2H Steel	Hot Dipped Galvanized
	<input type="checkbox"/> ASTM A194 8M 316 SS	Plain
Spherical Washers	<input type="checkbox"/> Stainless Steel	Plain
Metal Reinforcement	High Tensile Steel	Rubber Embedded
Textile Reinforcement	Tire Cord	RFL Coating

MOVEMENT (non-concurrent)					SPRING RATE					PRESSURE		WEIGHT	
Comp. in [mm]	Ext. in [mm]	Lateral in [mm]	Angular deg.	Torsional deg.	Comp. lb/in [N/mm]	Ext. lb/in [N/mm]	Lateral lb/in [N/mm]	Angular ft-lb/deg [N-m/deg]	Torsional ft-lb/deg [N-m/deg]	Pressure psig [barg]	Vacuum in-Hg [barg]	RBJ with Rings lbs [kg]	Control Unit lbs [kg]
1 3/4 [44]	7/8 [22]	1 [25]	22	3.6	550 [96]	710 [124]	590 [103]	1.9 [2.58]	3.5 [4.75]	225 [15.5]	30 [-1]	14 [6]	11 [5]

## Optional Control Units

No Control Units

Outer Washer / Grommet Inner Bare (GR/B) (shown above)

Inner Nuts (GR/W)



Spherical Washer (GR-SW/B)



Spherical Washer (GR-SW/SW)



Integral Ring (INT-W/B)



Integral Ring (INT-W/W)



Integral Ring, Spherical Washer (INT-SW/SW)



\*No. of Rods:  2 Rods / 225 psig

\*Gusset thickness and pressure listed above are for carbon steel gussets and ASTM A193 B7 rods.

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