From the outside, an elastomeric expansion joint looks to simply be made out of molded rubber. Part of the reason expansion joints are used in such a wide variety of applications is that the interior construction of a joint can be custom-designed to handle your specific application – materials of construction will depend on size, temperature, application, media, pressure (S.T.A.M.P.).

**Layers of Construction**

**Tube**

- Synthetic or natural rubber forms seamless, leak-proof lining
- Extends fully through bore to outer flange edge
- Common materials include chlorobutyl, neoprene, natural rubber, EPDM, Viton* and Hypalon*

**Body or Carcass**

- When wrapped or plied, reinforcements provide support and flexibility between tube and cover
- Fabric reinforcement: polyester or other suitable fabrics impregnated with specified elastomers
- Metal reinforcement: bonded rectangular steel rings [exclusive to Garlock], or continuous strands of wire and round steel body rings
- Metal reinforcement rings provide longer service life, extra safety protection, and extra rigidity, allowing higher pressure ratings
Cover

- Homogeneous layer of synthetic or natural rubber
- Chlorobutyl is standard; other elastomers available to meet your specific application
- Rubber or other weather-resistant coating protects carcass from corrosion or damage

Metal Flow Liners

- Must be used in all applications; provides metal surface to distribute bolting pressure equally, preventing flange damage during bolt tightening
- Install against external flange surface
- Standard material: mild steel with corrosion-resistant coating; galvanized or stainless steel also available
- Extends service life by providing protection from abrasive materials or solids, especially in high velocity applications
- Flanged at one end, installed at the head of the flow, tapered to a 5° angle, allows lateral deflection
- Liner flange thickness: 10 gauge | Liner body thickness: 12 gauge
  Available in 304/316 stainless steel; also: titanium, Hastelloy C
  Special metal liner configurations also available for reducing or multiple arch design.

Control Units

- Recommended on most applications to prevent damage due to excessive pipe movements
- Consists of two or more tie rods connected between pipe flanges
- Triangular end plates (gussets) have two holes for bolting securely to flange, and one hole to accommodate the connecting tie rod
- Spherical washers are incorporated to accommodate moderate piping alignments, but also assists with angular, torsional and lateral movements
- Each rod incorporates double nuts on each end to keep the expansion joint from over-
When excessive axial compression is a concern, compression nuts can be incorporated to restrict movements as needed and to protect the expansion joint from damage. NOT designed to replace pipeline anchoring.

Accessories

Fire Resistant Covers

Recommended on applications where flammable liquids are being used or in fire water systems. Consists of several layers of fiberglass fabric with a surface cover of silver-colored high temperature resistant silicone aluminum-glass fabric. Tested to ISO 1554 at 800°C for 30 mins for fire resistance. Split design which allows for easy installation or inspection. Cover is oil resistant and provides added protection against weathering and aging of the expansion joints.

Metal Retaining Rings

Must be used in all applications; provides metal surface to distribute bolting pressure equally, preventing flange damage during bolt tightening. Install against external flange surface. Standard material: mild steel with corrosion-resistant coating; galvanized or stainless steel also available.