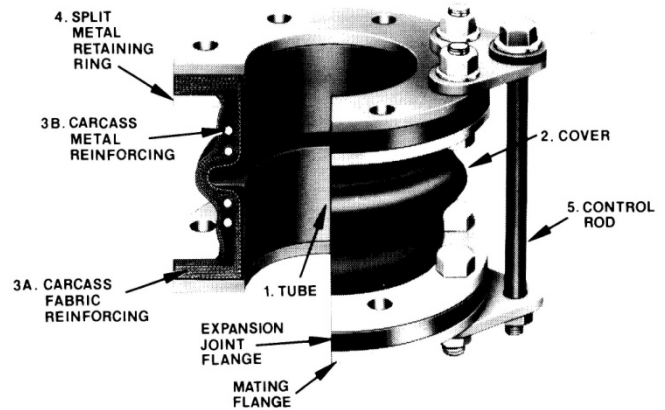


# Rubber Expansion Joint

## 3. Construction Details of Rubber Expansion Joint Component

**1. Tube.** A protective, leakproof lining made of synthetic or natural rubber as the service dictates. This is a seamless tube that extends through the bore to the outside edges of the flanges. Its purpose is to eliminate the possibility of the materials being handled penetrating the carcass and weakening the fabric. These tubes can be designed to cover service conditions for chemical petroleum, sewage, gaseous and abrasive materials.

**2. Cover.** The exterior surface of the joint is formed from natural or synthetic rubber, depending on service requirements. The prime function of the cover is to protect the carcass from outside damage or abuse. Special polymers can be supplied to resist chemicals, oils, sunlight, acid fumes and ozone. Also, a protective coating may be applied to the exterior of the joint for additional protection.



Cross Sectional View Of Standard Spool  
"Arch" Type Expansion Joint

**3. Carcass.** The carcass or body of the expansion joint consists of fabric and, when necessary, metal reinforcement.

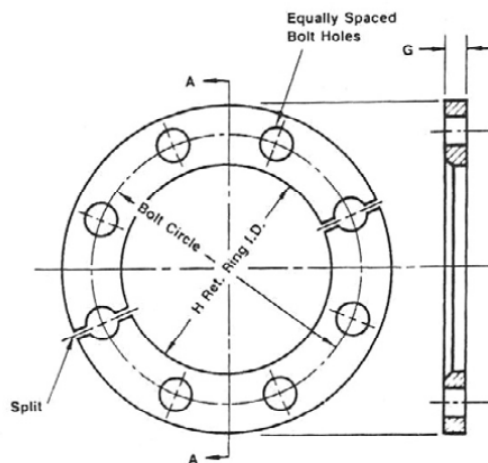
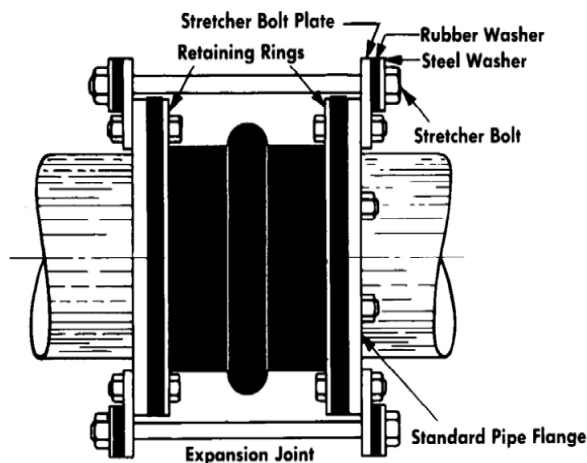
**3.A. Fabric Reinforcement.** The carcass fabric reinforcement is the flexible and supporting member between the tube and cover. Standard constructions normally utilize high quality synthetic fabric. Natural fabrics can also be used at some pressures and temperatures. All fabric plies are impregnated with rubber or synthetic compounds to permit flexibility between the fabric plies.

**3.B. Metal Reinforcement.** Wire or solid steel ring imbedded in the carcass are frequently used as strengthening members of the joint. The use of metal sometimes raises the rated working pressure and can supply rigidity to the joint for vacuum service.

**4. Split Metal Retaining Rings.** Retaining rings must be used to distribute the bolting load and assure a pressure tight seal. They are coated for corrosion resistance and drilled as specified. The rings are installed directly against the back of the flanges of the joint and bolted through to the mating flange of the pipe. Steel washer are recommended under the bolt heads against the retaining rings. Rings are normally 3/8" thick, but can vary due to conditions. The ring I.D. edge installed next to the rubber flange should be broken or beveled to prevent cutting of the rubber. Special retaining rings may be required for many of the expansion joint types depicted in this Chapter.

**5. Control Unit Assemblies.** See Chapter IV for information regarding the definition, purpose and recommendations concerning the use of control rod assemblies. Many manufacturers presently brand their expansion joint products with the following label identification:

**WARNING "Control Units Must Be Used To Protect This Part From Excessive Movement If Piping is Not Properly Anchored."**



Retaining Rings For Standard Spool  
"Arch" Type Expansion Joints