

Flexible Rubber Pipe Connectors

INTRODUCTION

The two previous chapters have dealt primarily with rubber expansion joints manufactured in single or multiple arch type design. This arch design provides substantial flexibility to allow the expansion joint to absorb pipe movements, whether induced by thermal changes or other mechanical means. In certain applications, the features provided by arch type construction may not be of primary importance, and it is possible to manufacture no-arch type expansion joints. It is more common, however, the specify flanged pipe connectors having a substantially longer length than an expansion joint of the same pipe size, and this chapter covers the construction, usage and dimensions of these pipe connectors.

A. DEFINITION

A flexible rubber pipe connector is a reinforced straight rubber pipe fabricated of natural or synthetic elastomers and fabrics primarily designed to absorb noise and vibration in a piping system.

B. PERFORMANCE CHARACTERISTICS

- 1. Sound Limiting Characteristic.** Rubber pipe connectors are frequently used in air-conditioning and heating installations because of their ability to limit or interrupt the transmission of sound from operating equipment to the piping system.
- 2. Temperature Limits.** Standard Class I materials of construction are limited to 180°F. Standard Class II materials of construction are limited to 230°F. Special Class II materials of construction are available for temperatures over 230°F.
- 3. Pressure Characteristics.** Flexible rubber pipe can be furnished in either 150 PSIG or 250 PSIG working pressure construction designs, in both Standard Classes I and II, and Special Class II materials. See Tables I & III.
- 4. Resistance To Fluids.** Rubber pipe corrosion resistance is the same as for elastomeric expansion joints. See Chapter 3, Section E and Table I.

C. CONSTRUCTION DETAILS

- 1. Tube, Cover and Carcass.** Details concerning the tube, cover and carcass fabric reinforcement are the same as for expansion joints.
- 2. Metal Reinforcement.** Helical-wound, steel reinforcement wire is imbedded in the carcass to provide strength for high pressure operations and to prevent collapse under vacuum. See Figure this page.

D. DIMENSIONS

The connector length recommended gives the optimum noise and vibration control for most applications utilizing this construction, individually manufactured depending on the application.

E. TYPES OF PIPE CONNECTORS

Flexible rubber pipe is available in Flanged Type.

- 1. Flanged Type.** The most common type of rubber pipe incorporates a full face flange integral with the body of the pipe. The flange is drilled to conform to the bolt pattern of the companion metal flanges of the pipeline (See Appendix A). This type of a rubber faced flange, backed with a retaining ring, is of sufficient thickness to form a tight seal against the companion flange without the use of a gasket.

F. ANCHORING AND CONTROL UNITS

Flexible rubber connectors should always be installed in piping systems that are properly anchored so that the connectors are not required to absorb compression or elongation piping movements. If axial forces can act in the system to compress or elongate the connector, control units will be required to prevent axial movement. In general, control units are always recommended as an additional safety factor, preventing damage to the connector and associated equipment.