



SAN DIEGO SEAL, INC.

INDUSTRIAL & MARINE SEALING DEVICES

Spool Type-150, 200, 200XL

"Supreme" Arch-Type Expansion Joints are the **WORKHORSE** of our line. The arch design is the key that furnishes the flexibility required. Basic styles available in single, multiple or wide-arch constructions include:

- Style 150 for pressure and vacuum
- Style 200 for heavy duty pressure and vacuum
- Style 200XL for very high pressure service
- **Concentric**
- **Eccentric**

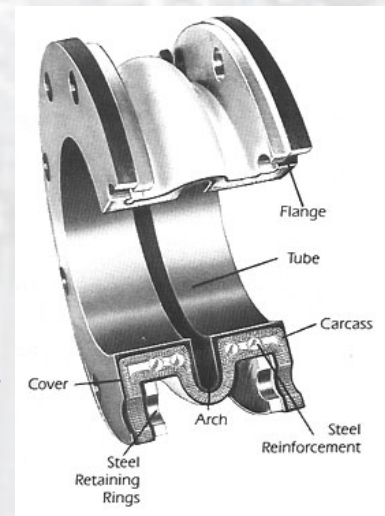


(Expansion Joints that handle up to 500°F are available)

Basic construction consists of tube, flange, carcass, internal steel reinforcements, cover and steel retaining rings, and hand wrapped finishes.

Expansion Joints can be made with:

- Filled arches
- Multiple arches
- Teflon™ (FEP) lined
- Sleeve ends
- Without arch
- Tapered (eccentric or concentric)
- Offset
- With enlarged arches and with special tube compounds for air, gas, oil, petroleum products, acids, slurries and chemicals of many kinds.

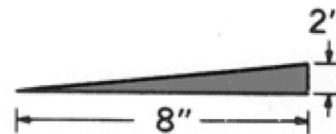
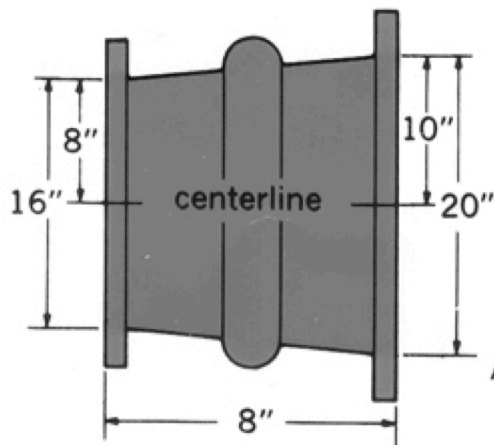
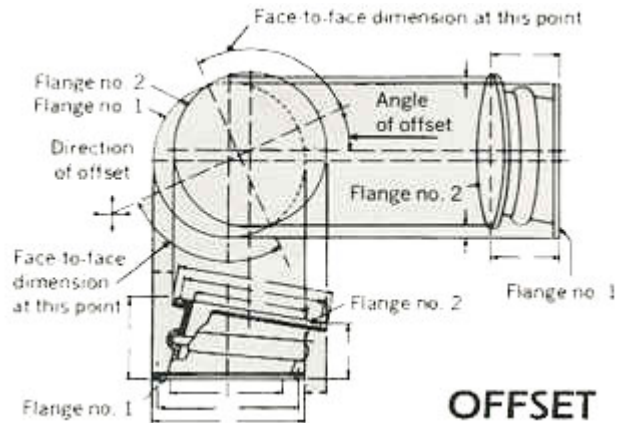


Fire retardant construction to ASTM F1123 specifications and readily available with complete testing and certification.

All "Supreme" Expansion Joint constructions can conform to U.S. Coast Guard requirements per customer request.

Tapered Configuration

Offset joints are custom-designed and built to remedy a specific misalignment of 1/8-inch or more, plus any non-parallelism of flange faces. They are available in our basic styles (150, 200 and 1000) as well as Navy style ASTM F1123. Conditions of offset and non-parallelism must be stated. Arrows indicating dimensions and other data that must accompany inquiry as well as points in **General Ordering information**. Offset joints can be made from targets supplied by customer. Flanges may be supplied blank for drilling on job sites.



Example:
 20" ID x 16" ID x 8" F-F
 $\text{Arctan}(2/8) = \text{Arctan}(0.25) = 14$ degrees
 Note: drawing not to scale

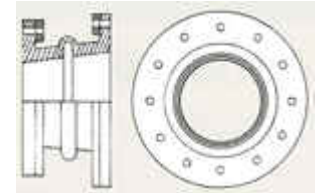
The degree of taper should not exceed 25° where a taper is more than 15°, a filled arch is recommended. Where a filled arch is utilized, the available movement will be decreased 50% from that of an open arch.

Concentric

"SUPREME" Tapered Spool-Type Expansion Joints are available in three types: Style 150 for pressure and vacuum; Style 200 for heavy duty vacuum and pressure; and Style 200XL for extra high-pressure applications.

Tapered joints are used to connect flanges with different diameters, whether parallel or offset, with initial misalignment less than 1/8 inch.

Tapered joints can be made with the following variations: With filled arch, sleeve ends, without arch: with special tube materials; with larger arch; with straight section on smaller end of joint to assure clearance of bolts on eccentric type joints and on joints with considerable taper.

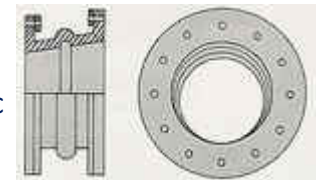


Both concentric and eccentric shapes are available in a wide variety of sizes. As with the regular Expansion joints, when piping is not anchored, control units must be used to prevent over-elongation of the joints.

For determining operating characteristic, use the largest I.D. dimension of the expansion joint for specifying refer to chart on "**DIMENSIONS**" page.

Eccentric

Where a proposed taper is greater than 25°, we recommend a steel reducer be utilized and a spool-type expansion joint be used in the adjacent piping. The above guides are generally applicable to concentric tapers. Where an eccentric taper exceeds 25° consult UNAFLEX® engineering department.



Note: Flexible Rubber Pipe can also be supplied in the tapered construction.

Construction Details

Tube

The tube is a single piece of leak-proof lining extending flange-to-flange. It can be furnished in natural rubber, neoprene, chlorobutyl, Hypalon®, Viton®, Nitrile®, or other compounds as desired. All of our rubber compounds are specifically formulated to provide maximum sound and heat insulation as well as abrasion resistance.

Carcass

This is a strong, bias-ply construction, high-strength woven polyester reinforcing fabric between the tube and cover. The fabric will not rot or mildew and is thoroughly impregnated with a special friction compound to give maximum adhesion under pressure, vacuum and stress conditions.

Steel Reinforcements

These are the chemically treated solid-round, endless steel rings embedded in the carcass, giving maximum strength to the expansion joint while under pressure or vacuum service. Round rings, as opposed to square or rectangular rings, are used so there will be no sharp edges which could cut into the reinforcing carcass while flexing causing premature wear to the expansion joint.

Cover

This is the exterior surface of the expansion joint, compounded of fire-retardant neoprene to withstand aging, cracking and corrosion. To further protect the exterior of the expansion joint, and to help resist acid and ozone attack, a special coating of yellow halon paint is applied.

Flanges

Flanges are full-faced and made an integral part of the joint to insure a tight reliable seal. No gaskets are necessary. They are drilled to conform to the bolt holes of the companion metal flanges of the pipe line.

Steel Retaining Rings

Steel retaining rings are made of flat-rolled steel, split, beveled and plated, and are required for installation.

Hand Wrapped Finish

Hand wrapping the finish (although more time consuming in construction) insures individual attention so that maximum pressure for curing has been obtained.

- **Style 150**-For pressure/vacuum service
- **Style 189**-For high temperature and low spring rate, pressure limited to 25 psi.
- **Style 200**-For heavy duty high pressure/vacuum service
- **Style 200XL**-For very high pressures. Consult factory for construction details
- **Style 1000**-Wide arch offers more movement. Hand wrapped build process offers a large variety of construction variations.
- **Style 1100**-Wide arch offers more movement. molded design keeps cost low.

Drilling Information

Styles 189, 150, 200, 200XL, 1000

UNAFLEX® style 150, 200 and 1000 joints from 2" to 48" are certified by ABSA

Joint Size I.D. (in.)	Single Arch	Double Arch	Triple Arch
	Min. f-f (in.)	Min. f-f (in.)	Min. f-f (in.)
1/2 to 6	6	10/12*	12/16*
8	6	10/12*	14/18*
10	8	12/16*	14/20*
12	8	12/16*	14/20*
14 to 20	8	12/16*	16/20*
22 to 24	10	14/16*	18/22*
26 to 34	10	14/16*	18/22*
36 to 40	10	14/16*	18/22*
42 to 144	12	14/18*	18/22*

* Wide Arch Style 1000

Note: *These face-to-face dimensions are only a guide. Consult factory for special requirements*