



THE LA FAVORITE EXPERIENCE

In today's highly competitive and ever changing power generation market La Favorite prides itself on being able to offer our customers a dynamic service of direct industrial rubber product manufacture and supply and comprehensive field inspection and service expertise. These, combined with part and service warranties as well as ongoing technical support has allowed La Favorite to support their customers from outage pre planning through full operations.



Spool Type Expansion Joints

In a perfect world "standard construction" would always work. The reality is this isn't always the case. Piping can shift and move over time due to usage conditions. Older components are changed out with newer, more efficient equipment creating different and unique connectivity issues.

La Favorite Industries excels in the design and construction of unique spool expansion joints for a wide range of customer applications. We work closely with our customers to address their situation and formulate a solution.

33 Shady St Paterson, NJ 07524

973.279.1266

sales@lafavorite.com

SPOOL JOINT CONSTRUCTION MATERIALS

Tube & Liners

The protective, seamless, leakproof inner lining of La Favorite rubber expansion joints prevents corrosives and abrasive elements from reaching the inner carcass of the joint. Lining selection is dependent on service conditions, which should be known before ordering. Our sales department can make proper recommendations concerning lining selection. Available materials include natural rubber, chlorobutyl, neoprene, hypalon, Buna N, EPDM or teflon for severe chemical service.

Fabric Reinforcement

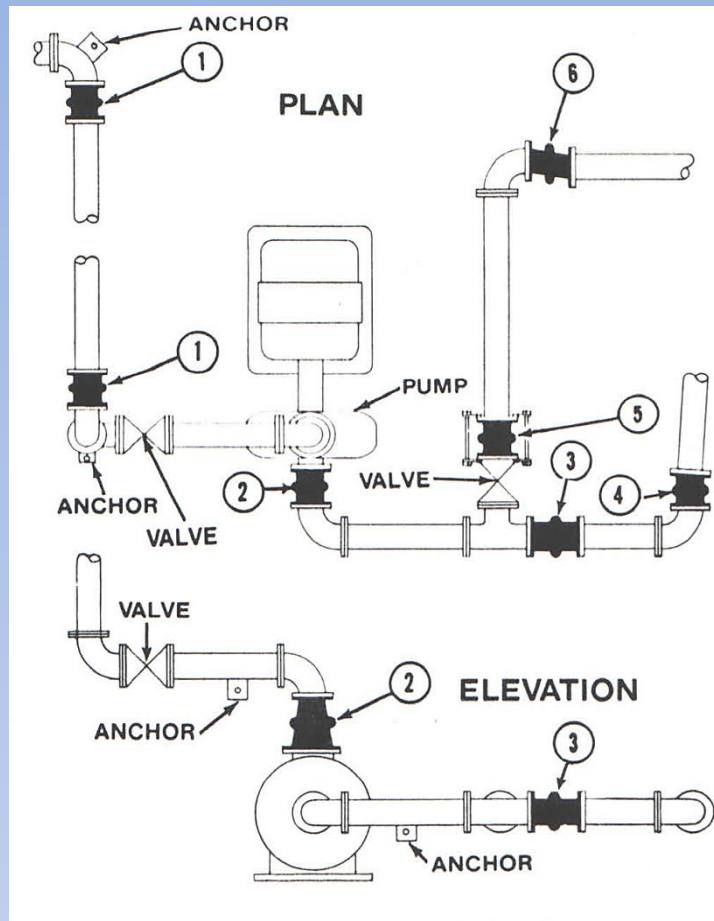
Located between the tube and cover, the fabric provides strength for the joint. It is composed of multiple plies of high strength fabric, impregnated with rubber. It is then vulcanized into a strong tough carcass.

Metal Reinforcement

All standard joints are reinforced with steel to provide strength under high operating pressures. Smaller sizes use spiral wound wire while larger units employ endless steel rings. All steel reinforcement is embedded in the carcass of the joint and therefore is protected from corrosives.

The Arch – Filled or Unfilled

The convolution or corrugation known commonly as the arch is what allows the expansion joint to absorb movements. Standard construction calls for an unfilled or open arch. This provides the joint with maximum movement capability. In some cases, however, a filled arch is specified where the flowing medium, usually a slurry, may clog an open arch. Construction of filled arch joints is similar to standard joints except that the arch space is occupied by a soft rubber filler which is protected by the tube, giving the joint a smooth bore. Movement capability is reduced by 50% with a filled arch and must be taken into account when ordering.



SCHEMATIC DESCRIPTIONS

1. To absorb axial pipeline motion, these joints when properly distributed between anchors insure efficiency and long life. Alignment guides are required for long spans
2. La Favorite rubber expansion joints, when placed as illustrated, damp out pump and compressor vibration, preventing the transfer of noise throughout the system. The rubber joint also prevents damage to the system by electrolysis.
3. Because of their elasticity, La Favorite rubber expansion joints reduce surge and water hammer noise.
4. Pipe line misalignment due to load stresses, wear, or settling can be compensated for by La Favorite rubber expansion joints.
5. In the case where pipe lines cannot be properly anchored, control units will be necessary to limit movement in excess of design tolerances of the expansion joint.
6. La Favorite produces custom expansion joints to customer dimensional specifications for installations where there is an unusual amount of permanent pipe misalignment, thus permitting modernization of present systems.

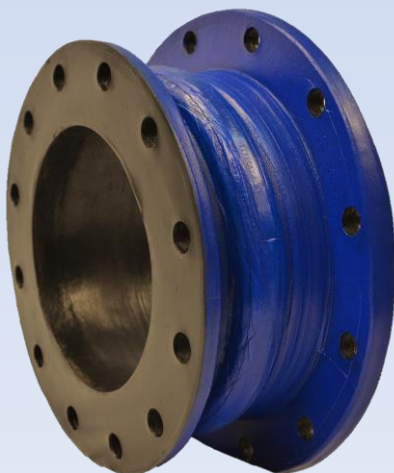
DESIGN OF EXPANSION JOINT CONSTRUCTION

Nominal Pipe Size I.D. of Expansion Joint (In Inches)	Style 9030 Pressure Design		Style 9060 Pressure and Vacuum Design		Style 9060 H.P. High Pressure Design	
	Positive PSIG	Negative PSIG	Positive PSIG	Negative PSIG	Positive PSIG	Negative PSIG
1 to 4	165	26	140	26	200	26
5 to 12	140	26	140	26	190	26
14	85	15	65	26	130	26
16 to 20	65	15	50	26	110	26
22 to 24	65	15	45	26	100	26
26 to 40	55	15	45	26	90	26
42 to 66	55	15	40	26	80	26
68 to 96	45	15	40	26	70	26
98 to 108	40	15	40	26	60	26

DESIGN STYLES

MULTIPLE ARCH

- For greater movement where face-to-face dimensions are not limited.
- Can be adapted for many different applications.
- Same allowable pressures as standard single arch style.
- Highly flexible. To compute permissible movement, multiply capacity of comparable single arch by the total number of arches. (No more than 4 arches per joint are recommended)
- Available in sizes up to 84" I.D.
- Available with filled* or open arch and in variable face to face dimensions.
- Modifications to standard design can increase pressure and temperature ratings.



PRESSURE TERMINOLOGY

1. Operating Pressure. The actual pressure at which the system works under normal conditions. This pressure may be positive or negative (vacuum).
2. Design Pressure. The highest or most severe pressure expected during operation. Sometimes used as the calculated operating pressure plus an allowance for safety margin.
3. Surge Pressure. Operating pressure plus the increment above operating pressure that the expansion joint will be subjected to for very short time durations due to pump starts, valve closings, etc.
4. Maximum Allowable Working Pressure. This term is used to define the maximum continuous operating pressure recommended for a specific expansion joint.
5. Test Pressure. The hydrostatic test pressure used to demonstrate system capability. Normally 1.5 times maximum allowable working pressure.



ECCENTRIC AND CONCENTRIC REDUCERS

- To connect flanges of different diameters, parallel or offset.
- Commonly found in centrifugal pump upgrade installations.
- Available Variations:
 - o Filled Arch
 - o Single, Multiple or No Arch
 - o Oversized Arch
 - o Special Linings
- Custom tooling is rapidly available for any construction specification need.

FIELD SERVICE SPECIALISTS

La Favorite is proud to offer its expertise in all manner of field services for our expansion joints.

We have worked closely with our customers to oversee complicated installations from the outage preplanning stages through project oversight during change outs. Our product technical knowledge, combined with our field experience allows us to offer a comprehensive package of product and service to our customers.

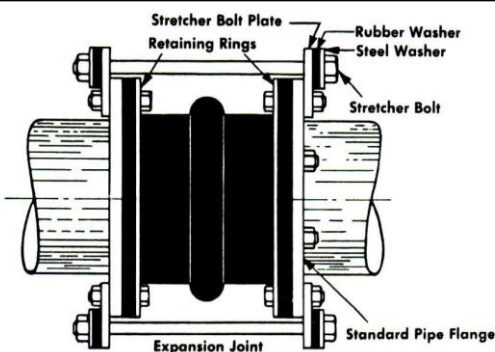
We have aided our customers in evaluating expansion joints currently in service to develop a service life projection. We analyze all aspects of service conditions, construction materials and “as found” dimensions to optimize the performance of future expansion joints put into service.

These have resulted in high confidence performance expectations and ease of installation versus “force fitting” off the shelf expansion joints with standard dimensions.

Control Units

Safety units can be provided by La Favorite to protect the rubber expansion joint from damage caused by axial loads in the system without sacrifice in vibration isolation. This abnormal movement may also arise due to failure of a pipe support, unusually low temperatures, or incorrect anchorage of lines on the pressure side of air compressors and pumps.

La Favorite control unit are often used in air-conditioning and heating systems where a temperature differential is encountered in normal operation. All units consist of gusset or stretcher bolt plates. These plates are then connected by means of stretcher bolts which prevent excessive extension of the rubber joint. Rubber washers backed by metal washers are placed under the bolt head and nut to dampen vibration. Excessive compression can also be controlled by special design.



SPOOL JOINT CONSTRUCTION MATERIALS

Face to Face (Length)

The face to face dimension is the distance between the two flanges measured on the outside of each.

Although standards have been established for this dimension, it is not absolute. La Favorite can custom furnish expansion joints in almost any face to face dimension, depending on your individual installation requirements.

The Cover

This outer skin protects the carcass of the joint in much the same way as the tube does. All La Favorite joints use neoprene as the standard cover material. Neoprene provides maximum protection against the effects of weathering and ozone. We can offer a wide array of other cover material options such as Buna N, or EPDM at request based on unique service conditions.

The Flange

The smooth durable rubber facing of the flanges forms a tight seal with the companion flange thereby eliminating the need for a gasket. The inner flange structure is of multiple fabric plies that are integrated with the body. The bolt holes are completely surrounded by fabric which insures against tears or blowouts and are sealed to prevent wicking into the interior of the expansion joints.

The Retaining Rings

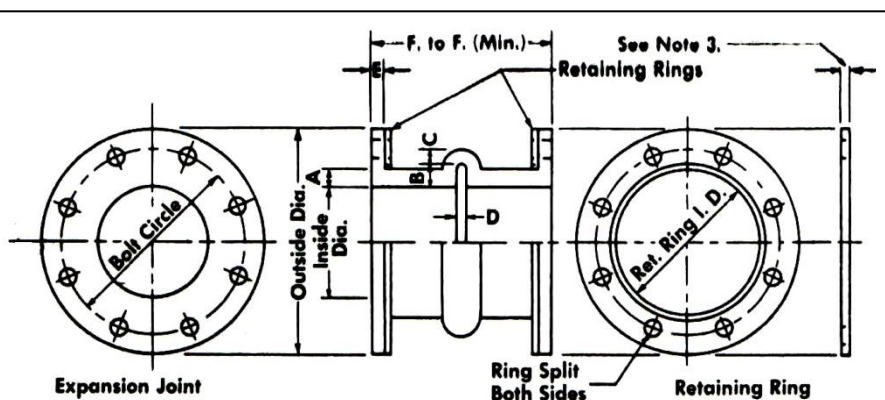
For expansion joints of circular or rectangular cross section, split retaining rings are required and can be supplied to provide equal distribution of bolting loads. Placed directly against the rear of the expansion joint flange, they are bolted through it to the companion flange. They can be supplied either black steel or plated.

Size I.D.	Flange O.D.	Bolt Circle	Bolt Holes		Ret. Ring I.D.	A	B	C	D	E	F. to F. (Min.)			Movement Limits	
			No.	Diam.							1 Arch	2 Arches	3 Arches	Axial Comp. Inches	Axial Extens. Inches
1	4 1/4	3 1/8	4	5/8	2 3/8	5/8	1 1/8	7/16	1/2	9/16	6	10	12	7/16	1/4
1 1/4	4 5/8	3 1/2	4	5/8	2 5/8	5/8	1 1/8	7/16	1/2	9/16	6	10	12	7/16	1/4
1 1/2	5	3 7/8	4	5/8	2 7/8	5/8	1 1/8	7/16	1/2	9/16	6	10	12	7/16	1/4
2	6	4 3/4	4	3/4	3 5/8	3/4	1 1/4	1/2	1/2	9/16	6	10	12	7/16	1/4
2 1/2	7	5 1/2	4	3/4	4 1/8	3/4	1 1/4	1/2	1/2	9/16	6	10	12	7/16	1/4
3	7 1/2	6	4	3/4	4 5/8	3/4	1 1/4	1/2	1/2	9/16	6	10	12	7/16	1/4
4	9	7 1/2	8	3/4	5 7/8	7/8	1 1/4	1/2	1/2	9/16	6	10	12	7/16	1/4
5	10	8 1/2	8	7/8	6 7/8	7/8	1 1/4	1/2	1/2	9/16	6	10	12	7/16	1/4
6	11	9 1/2	8	7/8	7 7/8	7/8	1 1/4	1/2	1/2	5/8	6	10	12	7/16	1/4
8	13 1/2	11 3/4	8	7/8	9 7/8	7/8	1 1/2	5/8	3/4	3/4	6	10	14	11/16	3/8
10	16	14 1/4	12	1	12 1/8	1	1 1/2	11/16	3/4	3/4	8	12	14	11/16	3/8
12	19	17	12	1	14 1/2	1 3/16	1 1/2	11/16	3/4	3/4	8	12	14	11/16	3/8
14	21	18 3/4	12	1 1/8	16 1/2	1 3/16	2	3/4	3/4	7/8	8	12	16	11/16	3/8
16	23 1/2	21 1/4	16	1 1/8	18 1/2	1 3/16	2	3/4	3/4	7/8	8	12	16	11/16	3/8
18	25	22 3/4	16	1 1/4	20 1/2	1 3/16	2	3/4	3/4	7/8	8	12	16	11/16	3/8
20	27 1/2	25	20	1 1/4	22 5/8	1 1/4	2	25/32	7/8	1	8	12	16	13/16	7/16
22	29 1/2	27 1/4	20	1 3/8	24 5/8	1 1/4	2	25/32	7/8	1	10	14	18	13/16	7/16
24	32	29 1/2	20	1 3/8	26 5/8	1 1/4	2	25/32	7/8	1	10	14	18	13/16	7/16
26	34 1/4	31 3/4	24	1 3/8	28 7/8	1 3/8	2 1/4	13/16	1	1	10	14	18	15/16	1/2
28	36 1/2	34	28	1 3/8	30 7/8	1 3/8	2 1/4	13/16	1	1	10	14	18	15/16	1/2
30	38 3/4	36	28	1 3/8	32 7/8	1 3/8	2 1/4	13/16	1	1	10	14	18	15/16	1/2
34	43 3/4	40 1/2	32	1 5/8	37	1 3/8	2 1/4	13/16	1	1	10	14	18	15/16	1/2
36	46	42 3/4	32	1 5/8	39	1 3/8	2 1/4	13/16	1	1	10	14	18	15/16	1/2
40	50 3/4	47 1/4	36	1 5/8	43	1 3/8	2 1/4	13/16	1	1	10	14	18	15/16	1/2
42	53	49 1/2	36	1 5/8	45 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
44	55 1/4	51 3/4	40	1 3/4	47 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
48	59 1/2	56	44	1 5/8	51 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
50	61 3/4	58 1/4	44	1 7/8	53 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
54	66 1/4	62 3/4	44	2	57 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
56	68 3/4	65	48	1 7/8	59 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
60	73	69 1/4	52	2	63 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
62	75 3/4	71 3/4	52	2	65 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
66	80	76	52	2	69 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
72	86 1/2	82 1/2	60	2	75 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
78	93	88 3/4	60	2 1/8	81 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16
84	99 3/4	95 1/2	64	2 1/8	87 1/4	1 1/2	2 1/2	29/32	1 1/8	1 3/16	12	14	18	1 1/16	9/16

NOTE: Above Drilling denotes ANSI 150lb drilling pattern

Any required drilling specification can be accommodated

RED JOINT I.D. SIZE Denotes 1914 American Standard Drilling pattern



1. All dimensions shown in table are given in inches.
2. Expansion joints are supplied with unfilled arches unless requested otherwise.
3. Thickness of Retaining Rings is 3/8"
4. Minimum Face to Face can be made smaller by reducing or elimination of arch opening (Dimension D)
5. Traverse deflection 1/2" per arch on all sizes
6. Filled Arches reduce movements by 50%



33 Shady Street
Paterson, NJ 07524

Phone 973.279.1622
Fax 973.279.3447
sales@lafavorite.com
lafavorite.com

Expansion Joint Information

In order to better serve our customers we have established a form for collecting pertinent information regarding expansion joints. Determining this information will save time and allow us to offer the most accurate quote.

Please refer to the diagram and dimensional chart on the back page for clarification and comparison.

Type of Industry (power generation, marine, paper & pulp, etc) _____

Joint Inner Diameter: _____
If Reducer: Concentric or Eccentric Second Inner Diameter: _____

Face to Face Dimension: _____

Flange Dimensions: _____ Flange Drilling Style: (ANSI 125, ANSI 300, etc.) _____

Custom Flange Drilling Measurements:

Flange Outer Diameter: _____ Bolt Circle Diameter: _____

Hole Diameter: _____ # of Holes: _____

Pressure and/or Vacuum: _____

Substance to be handled (Flow Medium): _____

Movements: Axial: _____ Lateral: _____ Angular: _____

Applicable Specifications and Documentation (If Required):

Retaining Rings: (Reusable or Replaced): _____

Operating Environment (Inside, Outside, Oily, Extreme Ambient Heat/Cold, etc.):

Special Conditions (Offsets, non-parallel flanges, etc): _____

Testing and Certifications: _____

Existing Joint Information: _____

Please feel free to fax or email this information to us at the following:

Fax: 973-279-3447

Email: sales@lafavorite.com