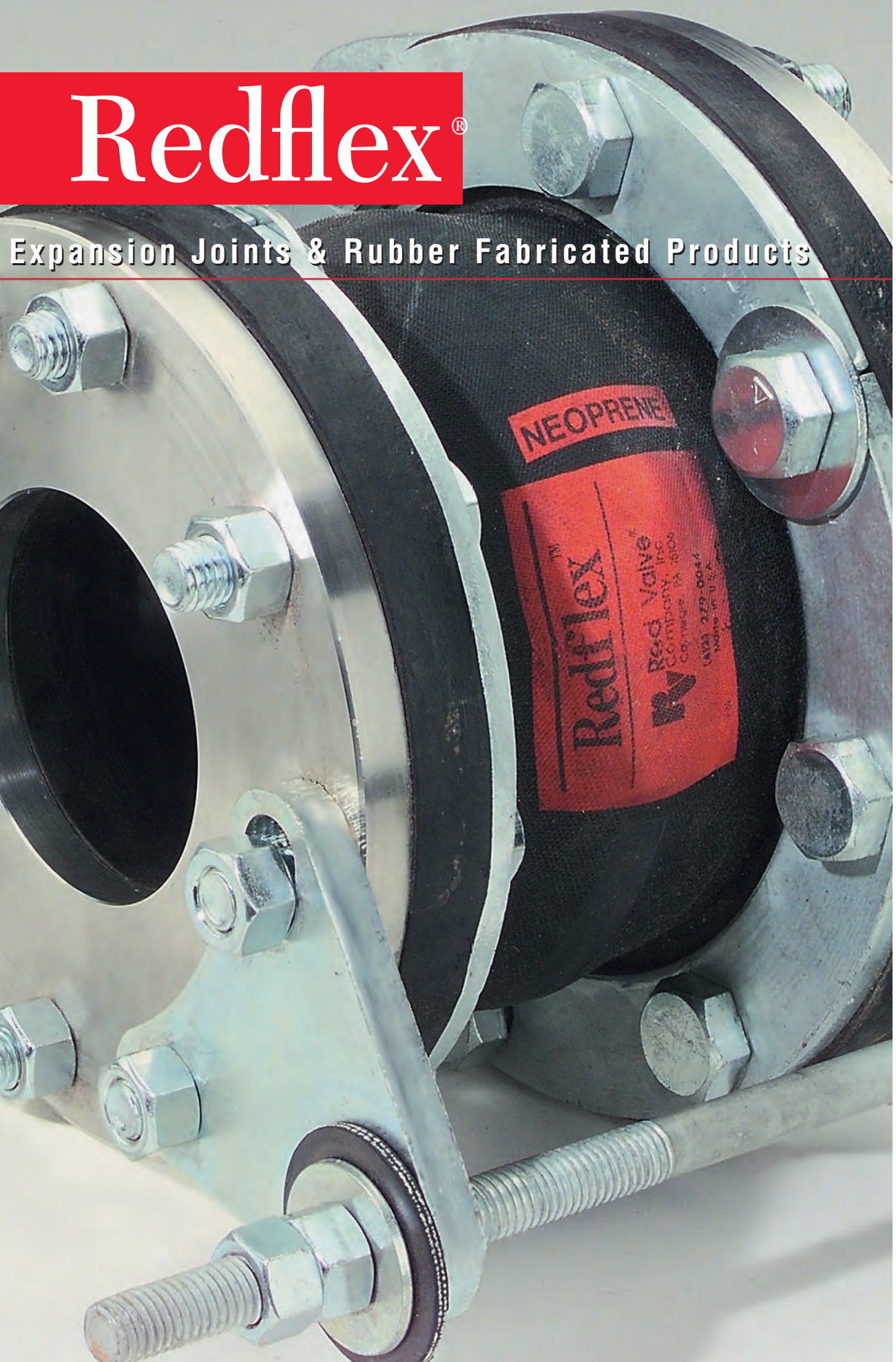
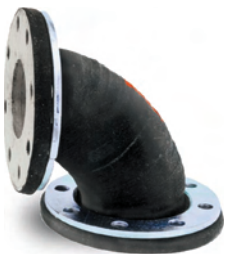
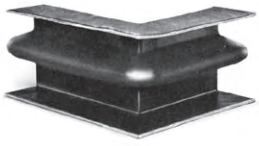
Redflex®

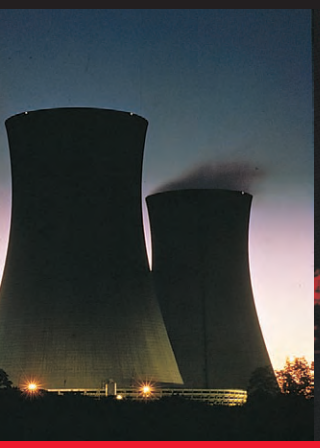
Expansion Joints & Rubber Fabricated Products







From the World Leader in Expansio



Redflex® Expansion Joints and rubber fittings are designed to alleviate piping stress, compensate for movement, reduce noise, and isolate vibration. Made in the U.S.A. by Red Valve Company, Redflex® Expansion Joints can be custom-built in a variety of styles and configurations to accommodate pipe size reduction, misalignments and offsets. Red Valve offers flanged and slip-on connections, single or multiple arches, and a range of elastomers to meet process conditions, including Teflon®-lined joints for severely corrosive applications.

The Redflex® product line also includes rubber fittings, rubber elbows, vibration pipe, and rubber pipe to accommodate radius turns. In addition, the company manufactures many custom rubber fabricated products.

- Expansion Joints
- Rubber Fittings
- Vibration Pipe
- Flanged or Slip On

Sewage Treatment

Redflex® Rubber Products are used throughout the wastewater treatment process, and are one of the most widely used product lines in sewage treatment plants around the world.

- Aeration
- Odor Control
- Raw Sewage
- Grit Removal
- Blowers
- Sludge Pumps
- Centrifugal Pumps
- Activated Sludge

n Joints

- Rubber Elbows
- Ducting Joints
- Teflon® Lined
- Sizes 1" to 108"

Industrial

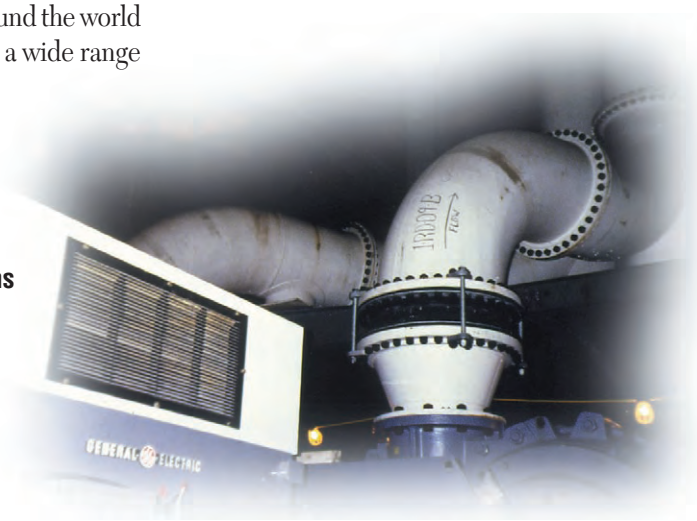
The durable, all elastomer construction of Redflex® Expansion Joints and Rubber Fittings provide protection to industrial piping systems in the most demanding applications against movement, stress, abrasion, and corrosion.

- Pulp & Paper Mills
- Chemical Processing
- Oil Refineries
- Leather Tanning
- Cement Production
- Food & Pharmaceutical

Power Generation

Whether a plant is coal fired, combined cycle, or co-generation, power plants around the world use Redflex® Rubber Products on a wide range of applications.

- Scrubber Systems
- Cooling Water
- Pumps
- Ash Slurry
- Condenser-Turbine Connections
- I.D. and F.D. Fans
- Preheaters
- Precipitators



HVAC

Redflex® Rubber Products are ideal for HVAC systems for use on chilled water lines, condenser piping, water chiller inlets, and adjacent to compressors to stop the transmission of vibration.

- Schools
- Stores
- Hotels & Motels
- Commercial Office Buildings
- Hospitals
- Stadiums

Marine

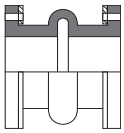
Redflex® Rubber Products are installed aboard many different types of marine vessels to absorb the transmission of vibration from pumps and blowers to increase operating efficiency.

- Unaffected by Saltwater Environment
- Reduce Electrolysis
- Reduce Maintenance

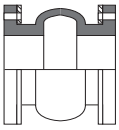
Redflex® Expansion Joints

Types of Expansion Joints

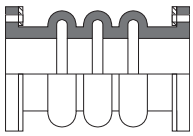
Many types of joints, connectors, and pipe are available to meet almost any installation requirement.



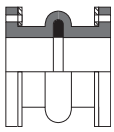
Standard — Single Arch for use where the initial misalignment of the pipes to be connected does not exceed 1/8". Flanges must be parallel.



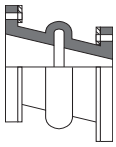
Wide Arch — Same face-to-face as standard Expansion Joint, but with greater movement capability. Can be used in place of multiple arches.



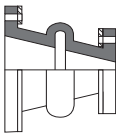
Multiple Arch — Standard joint with two or three arches. Recommended for greater movement where face to face dimensions are not limited.



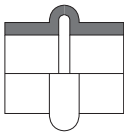
Filled Arch — Joints can be provided with filled arches to create a smooth bore to eliminate the possibility of buildup. The soft rubber filler restricts the movement of the joint to 50% of what the would be with open arches.



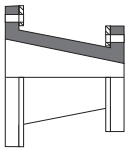
Offset — Used where initial misalignment of the axis of two pipes exceed 1/8" and where flanges are out of parallel.



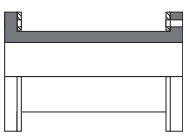
Tapered — Concentric or eccentric configurations are used to connect flanges with different diameters – whether parallel or offset — with initial alignment less than 1/8". Particularly suited for centrifugal pump installations.

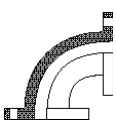


Slip-on — All standard joints are available with sleeve ends. Designed for slipping over pipe ends, special F-to-F dimensions are available.



Reducers — Concentric or eccentric reducers are used to connect flanges with different diameters — whether parallel or offset — where expansion or contraction of the joint will not occur.

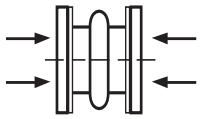




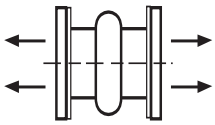
Rubber Pipe & Fittings — Replaces steel or cast iron pipe in straight runs or specified bends in working pressures up to 250 psi. Vibration pipe is used to control vibration and reduce noise from pumps and compressors. Rubber and Vibration Pipe are both available in slip-on ends for low pressures. Fittings are available in 45° and 90° elbows, Y connectors, and T's.

Joint Movements

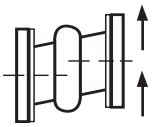
Expansion Joints compensate for movements caused by thermal expansion and contraction, seismic events, machinery, and line pressure.



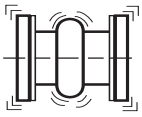
Axial Compression — The dimensional reduction or shortening in the face-to-face parallel length of the joint measured along the longitudinal axis.



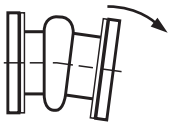
Axial Elongation — The dimensional increase or lengthening of face-to-face parallel length of the joint measured along the longitudinal axis.



Lateral or Transverse Deflection — The movement or relating displacement of the two ends of the joint perpendicular to its longitudinal axis.



Vibration — The ability of a flexible connector to absorb mechanical oscillations in the system, usually high frequency.



Angular Movement — The angular displacement of the longitudinal axis of the expansion joint from its initial straight line position, measured in degrees. This is a combination of axial elongation and axial compression.

Torsional Movement — The twisting of one end of an expansion joint with respect to the other end about its longitudinal axis. Such movement is measured in degrees.

Materials of Construction

- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®

- **Class I** — to 180°F
  Pure Gum Rubber, Neoprene, Hypalon®, Buna-N

  Class II — to 250°F
  Chlorobutyl, EPDM, Viton-lined®, Teflon®-lined

  Class III — to 400°F
  Solid Viton®

Accessories

Anchoring

It is absolutely necessary that rigid metal pipe on both ends of the expansion joint or any flexible connector be properly anchored to eliminate the danger of excessive movement. It cannot be emphasized too strongly that rubber expansion joints and connectors, by virtue of their design and function, are not designed to take end thrusts and in all cases where such forces are likely to occur, proper anchoring is essential. Anchors should always be installed. An expansion joint should never be used to support the piping.

Retaining Rings

Materials of Construction

▶ Galvanized Steel, 304 SS, or 316 SS

Galvanized 3/8" split steel retaining rings should be installed on rubber-flanged expansion joints to assure a pressure-tight seal. These are placed directly against the inside of the flange to prevent damage to the rubber surface when bolts are tightened, and also to provide equal distribution of bolting stresses. These rings are split and drilled to match the rubber flange holes.

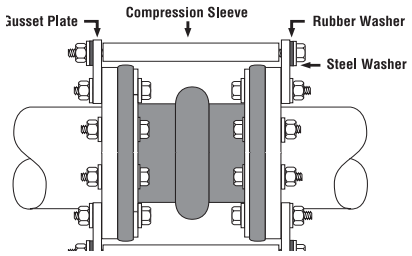
Outside diameter is the same as standard flange, and contains the same number of bolt holes. Those used on joint sizes up to 20" are two-piece, four segments per joint. Four-piece rings, eight segments per joint, are used on all larger sizes.

Dimensions Split Steel Retaining Rings

Joint Size	Number Bolts	Bolt Hole Diameter
1"-1-1/2"	4	5/8"
2"-4"	8	3/4"
5"-8"	8	7/8"
10"-12"	12	1"
14"	12	1-1/8"
16"	16	1-1/8"
18"	16	1-1/4"
20"	20	1-1/4"
24"	20	1-3/8"
30"	28	1-3/8"
36"	32	1-5/8"
42"	36	1-5/8"
48"	44	1-5/8"
54"	44	2"
60"	52	2"
72"	60	2"

Control Units

Expansion joints, vibration pipe, and reducers installed in piping systems must be rigidly anchored on both sides of the unit to control expansion and contraction. The anchoring must be capable of withstanding the line thrusts generated by the internal pressure or wide temperature fluctuations. In addition, **Control Units are recommended to be installed.** The illustration below exhibits the details of a control unit as presently used.



The table below indicates the number of rods to be used for anchoring purposes by size and working pressure ratings. Now designers can select the proper number of rods required for expansion joints for all pressure ranges. The calculation of the rods is based on an allowable stress of 65% of yield of the rod from ASTM A-307-68 steel.

NOTE: Increasing the number of control rods **does not** increase the pressure rating of the expansion joints.

Maximum Surge or Test Pressure of the System

Test Pressure is defined as 1-1/2 times the working pressure

Size in.	Gusset Plate Thickness in.	Rod Diameter in.	Pressure psig Number of Rods 2	3	4	6	8
1"	3/8"	5/8"	949	*	*	*	*
1-1/2"	3/8"	5/8"	510	*	*	*	*
2"	3/8"	5/8"	661	*	*	*	*
2-1/2"	3/8"	5/8"	529	*	*	*	*
3"	3/8"	5/8"	441	*	*	*	*
4"	3/8"	5/8"	311	467	622	*	*
5"	1/2"	5/8"	235	353	470	*	*
6"	1/2"	5/8"	186	278	371	*	*
8"	9/16"	3/4"	163	244	326	*	*
10"	3/4"	1"	163	244	325	488	*
12"	3/4"	1"	160	240	320	481	*
14"	3/4"	1"	112	167	223	335	*
16"	3/4"	1-1/8"	113	170	227	340	
18"	3/4"	1-1/8"	94	141	187	281	
20"	3/4"	1-1/8"	79	118	158	236	
24"	1"	1-1/4"	74	110	147	221	
30"	1-1/4"	1-1/2"	70	105	141	211	
36"	1-1/2"	1-5/8"	69	103	138	207	
42"	1-1/2"	1-5/8"	48	72	96	144	
48"	1-1/2"	1-5/8"	40	60	81	121	
54"	1-7/8"	2"	43	64	86	128	
60"	1-7/8"	2"	35	53	71	106	
66"	1-7/8"	2"	30	44	59	89	
72"	1-7/8"	2"	25	38	50	75	
78"	2"	2-1/4"	28	42	56	84	
84"	2"	2-1/4"	24	37	49	73	

Consult factory for number of rods needed for higher pressure applications.

J-1 Expansion Joints

- **Single, or multiple arches available**
- **Full face integral flanges, no gaskets necessary**
- **Sizes 1” to 108”**
- **Heavy-duty, steel wire reinforced construction**
- **Made in U.S.A.**

The J-1 Expansion Joint is the most common type of joint used to compensate for pipeline movement and vibration. The construction of the J-1 is very much like a heavy-duty truck tire: layers of high-quality elastomers are reinforced with steel wires and synthetic fabrics. The inner layer forms a tube that extends through the inside of the joint, and across the face of the end flanges. This layer is chosen based on its chemical compatibility, abrasion resistance and temperature rating to the process material. The middle layer of the joint contains the bias-ply synthetic fabric reinforcement that gives the joint its form and pressure rating, and a layer(s) of wire reinforcement for added strength. The outer layer of the joint is chosen to be compatible with the environment in which the joint is to be installed, usually Neoprene or Butyl. This allows the joint to stand up to occasional contact with oils, corrosion, and weathering.

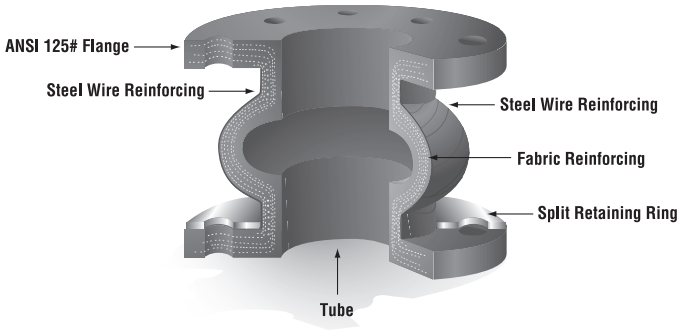
The J-1 features full-face integral flanges that eliminate the need for additional gaskets when installing the joint. The flanges are drilled to mate with ANSI 125/150 flanges, with special drilling available upon request. Galvanized or stain-less steel retaining rings can be provided to protect the flange and distribute forces evenly. Redflex® J-1 Joints can also be manufactured to meet Coast Guard and Military standards as well.

J-1 Expansion Joints are available with a single arch, double arches, or triple arches to meet the face-to-face and move-ment requirements of the installation. The arches, along with the flexibility of the elastomer construction, allows the J-1 to provide stress relief in piping systems due to the thermal expansion and contraction, and mechanical movements and vibration.

Materials of Construction

▷ **ELASTOMERS**

Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®

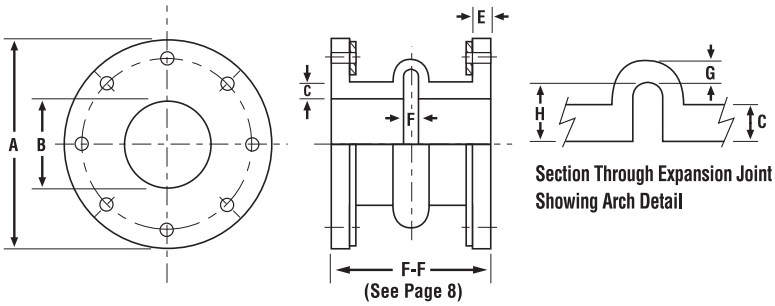


Specifications for J-1 Expansion Joint

The Expansion Joint shall consist of an inner tube, body, and outer cover, and shall have flanged ends. The tube shall be natural rubber or synthetic material as specified in the Purchase Order. The body shall consist of fabric and rubber compounds reinforced with steel wire for strength. The body materials shall be compatible with the tube and shall be suitable for the specified service conditions. The cover shall be formed from natural or synthetic rubber suitable to external service to resist weather, ozone, and corrosive fumes. Flanges shall be constructed integrally with the body to resist stresses. Flanges shall be full-pattern so that gaskets are not necessary. Flanges shall be drilled to ANSI B 16.5, Class 150#, or as specified in the Purchase Order. The Expansion Joint shall be available with a single arch or multiple arches, and open arch or filled arch construction. Joint shall be manufactured in the U.S.A., and manufacturer must be a member of the Fluid Sealing Association.

All Expansion Joints shall be Redflex Type J-1 as manufactured by the Red Valve Company, Inc. of Carnegie, PA 15106.

J-1 Dimensions



Section Through Expansion Joint Showing Arch Detail

(See Page 8)

Dimensions Single and Multiple Arch Expansion Joints

Size	A	B	C	E	F	G	H	Bolt Circle Dia.	# of Bolts	Bolt Dia.	Drilled Hole	**Approximate Weight		
												Exp. Joint	Ret. Rings	Set of Rods
*1"	4-1/4"	1"	5/8"	9/16"	1/2"	7/16"	1-1/8"	3-1/8"	4	1/2"	5/8"	2	2	13
*1-1/4"	4-5/8"	1-1/4"	5/8"	9/16"	1/2"	7/16"	1-1/8"	3-1/2"	4	1/2"	5/8"	2-1/2	3	13
*1-1/2"	5"	1-1/2"	5/8"	9/16"	1/2"	7/16"	1-1/8"	3-7/8"	4	1/2"	5/8"	3	3	13
2"	6"	2"	3/4"	9/16"	1/2"	1/2"	1-1/4"	4-3/4"	4	5/8"	3/4"	4	3	13
2-1/2"	7"	2-1/2"	3/4"	9/16"	1/2"	1/2"	1-1/4"	5-1/2"	4	5/8"	3/4"	4-1/2	5	13
3"	7-1/2"	3"	3/4"	9/16"	1/2"	1/2"	1-1/4"	6"	4	5/8"	3/4"	5-1/4	5	13
4"	9"	4"	7/8"	9/16"	1/2"	1/2"	1-1/4"	7-1/2"	8	5/8"	3/4"	7	7	16
5"	10"	5"	7/8"	9/16"	1/2"	1/2"	1-1/4"	8-1/2"	8	3/4"	7/8"	8-1/4	8	16
6"	11"	6"	7/8"	5/8"	1/2"	1/2"	1-1/4"	9-1/2"	8	3/4"	7/8"	9-3/4	9	16
8"	13-1/2"	8"	7/8"	3/4"	3/4"	5/8"	1-1/2"	11-3/4"	8	3/4"	7/8"	15	13	20
10"	16"	10"	1"	3/4"	3/4"	11/16"	1-1/2"	14-1/4"	12	7/8"	1"	21	17	32
12"	19"	12"	1-3/16"	3/4"	3/4"	11/16"	1-1/2"	17"	12	7/8"	1"	28	24	32
14"	21"	14"	1-3/16"	7/8"	3/4"	3/4"	2"	18-3/4"	12	1"	1-1/8"	39	27	40
16"	23-1/2"	16"	1-3/16"	7/8"	3/4"	3/4"	2"	21-1/4"	16	1"	1-1/8"	45-1/2	33	40
18"	25"	18"	1-3/16"	7/8"	3/4"	3/4"	2"	22-3/4"	16	1-1/8"	1-1/4"	50-1/2	32	42
20"	27-1/2"	20"	1-1/4"	1"	7/8"	3/4"	2"	25"	20	1-1/8"	1-1/4"	61	38	42
24"	32"	24"	1-1/4"	1"	7/8"	3/4"	2"	29-1/2"	20	1-1/4"	1-3/8"	75	50	64
26"	34-1/4"	26"	1-3/8"	1"	1"	3/4"	2-1/4"	31-3/4"	24	1-1/4"	1-3/8"	85-1/2	56	64
28"	36-1/2"	28"	1-3/8"	1"	1"	3/4"	2-1/4"	34"	28	1-1/4"	1-3/8"	93	60	64
30"	38-3/4"	30"	1-3/8"	1"	1"	3/4"	2-1/4"	36"	28	1-1/4"	1-3/8"	101-1/2	65	64
36"	46"	36"	1-3/8"	1"	1"	3/4"	2-1/4"	42-3/4"	32	1-1/2"	1-5/8"	137-1/2	94	86
42"	53"	42"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	49-1/2"	36	1-1/2"	1-5/8"	182-1/2	119	88
48"	59-1/2"	48"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	56"	44	1-1/2"	1-5/8"	211	143	88
54"	66-1/4"	54"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	62-3/4"	44	1-3/4"	2"	265-1/2	171	174
60"	73"	60"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	69-1/4"	52	1-3/4"	2"	309	205	174
72"	86-1/2"	72"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	82-1/2"	60	1-3/4"	2"	385	284	174
78"	93"	78"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	88-3/4"	60	2"	2-1/4"	410	314	206
84"	99-3/4"	84"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	95-1/2"	64	2"	2-1/4"	480	343	226
90"	106-1/2"	90"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	102"	68	2-1/8"	2-3/8"	600	360	281
96"	113-1/4"	96"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	108-1/2"	68	2-1/4"	2-1/2"	650	435	366
108"	126-3/4"	108"	1-1/2"	1-3/16"	1-1/8"	7/8"	2-1/2"	120-3/4"	72	2-1/4"	2-1/2"	700	510	375

**Filled Arch Only — Other sizes available with filled arches, but allowable movement is reduced by half. **Pounds*

Pressure Ratings

Joint Size	Standard Pressure psi	Standard Vacuum in./Hg	High Pressure psi
1"-4"	165	30"	200
5"-6"	140	30"	190
8"-12"	140	30"	190
14"	85	15"	130
16"-20"	65	15"	110
22"-24"	65	15"	100
26"-40"	55	15"	90
42"-66"	55	15"	80
72"-up	45	15"	70

All J-1 Expansion Joints can be manufactured for 30" Hg vacuum service.

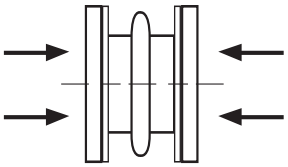
J-1 Movement Data

Allowable Movement

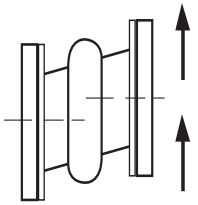
Size	Single Arch				Double Arch				Triple Arch			
	F-F	Com-press	Exten-sion	Deflec-tion	F-F	Comp-press	Exten-sion	Deflec-tion	F-F	Compress	Extension	Deflec-tion
*1”	6”	7/16”	1/4”	1/2”	10”	7/8”	1/2”	1”	12”	1-3/16”	3/4”	1-1/2”
*1-1/2”	6”	7/16”	1/4”	1/2”	10”	7/8”	1/2”	1”	12”	1-3/16”	3/4”	1-1/2”
*2”	6”	7/16”	1/4”	1/2”	10”	7/8”	1/2”	1”	12”	1-3/16”	3/4”	1-1/2”
2-1/2”	6”	7/16”	1/4”	1/2”	10”	7/8”	1/2”	1”	12”	1-3/16”	3/4”	1-1/2”
3”	6”	7/16”	1/4”	1/2”	10”	7/8”	1/2”	1”	12”	1-3/16”	3/4”	1-1/2”
4”	6”	7/16”	1/4”	1/2”	10”	7/8”	1/2”	1”	12”	1-3/16”	3/4”	1-1/2”
5”	6”	7/16”	1/4”	1/2”	10”	7/8”	1/2”	1”	12”	1-3/16”	3/4”	1-1/2”
6”	6”	7/16”	1/4”	1/2”	10”	7/8”	1/2”	1”	12”	1-3/16”	3/4”	1-1/2”
8”	6”	11/16”	3/8”	1/2”	10”	1-3/8”	3/4”	1”	14”	2-1/16”	1-1/8”	1-1/2”
10”	8”	11/16”	3/8”	1/2”	12”	1-3/8”	3/4”	1”	16”	2-1/16”	1-1/8”	1-1/2”
12”	8”	11/16”	3/8”	1/2”	12”	1-3/8”	3/4”	1”	16”	2-1/16”	1-1/8”	1-1/2”
14”	8”	11/16”	3/8”	1/2”	12”	1-3/8”	3/4”	1”	16”	2-1/16”	1-1/8”	1-1/2”
16”	8”	11/16”	3/8”	1/2”	12”	1-3/8”	3/4”	1”	16”	2-1/16”	1-1/8”	1-1/2”
18”	8”	11/16”	3/8”	1/2”	12”	1-3/8”	3/4”	1”	16”	2-1/16”	1-1/8”	1-1/2”
20”	8”	13/16”	7/16”	1/2”	12”	1-5/8”	7/8”	1”	16”	2-7/16”	1-5/16”	1-1/2”
24”	10”	13/16”	7/16”	1/2”	14”	1-5/8”	7/8”	1”	18”	2-7/16”	1-5/16”	1-1/2”
30”	10”	15/16”	1/2”	1/2”	14”	1-7/8”	1”	1”	18”	2-13/16”	1-1/2”	1-1/2”
36”	10”	15/16”	1/2”	1/2”	14”	1-7/8”	1”	1”	18”	2-13/16”	1-1/2”	1-1/2”
42”	12”	1”	9/16”	1/2”	14”	2”	1-1/8”	1”	20”	3”	1-11/16”	1-1/2”
48”	12”	1”	9/16”	1/2”	16”	2”	1-1/8”	1”	20”	3”	1-11/16”	1-1/2”
54”	12”	1”	9/16”	1/2”	16”	2”	1-1/8”	1”	20”	3”	1-11/16”	1-1/2”
60”	12”	1”	9/16”	1/2”	16”	2”	1-1/8”	1”	20”	3”	1-11/16”	1-1/2”
72”	12”	1”	9/16”	1/2”	16”	2”	1-1/8”	1”	20”	3”	1-11/16”	1-1/2”
84”	12”	1”	9/16”	1/2”	16”	2”	1-1/8”	1”	20”	3”	1-11/16”	1-1/2”
90”	12”	1”	9/16”	1/2”	16”	2”	1-1/8”	1”	20”	3”	1-11/16”	1-1/2”
96”	12”	1”	9/16”	1/2”	16”	2”	1-1/8”	1”	20”	3”	1-11/16”	1-1/2”
108”	12”	1”	9/16”	1/2”	16”	2”	1-1/8”	1”	20”	3”	1-11/16”	1-1/2”

*NOTE: Allowable movement is reduced by 50% with filled arches. *Available with filled arches only.*

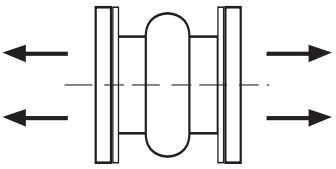
Types of Movement



Axial Compression



Lateral Deflection



Axial Extension

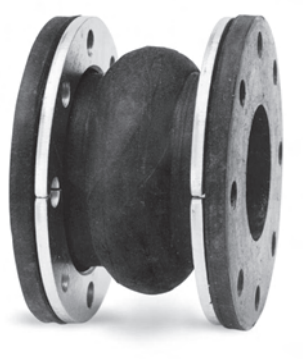
Force Pounds to Cause Movement

Size	Compress	Extend	Deflect
*1”	103	76	175
*1-1/2”	154	115	262
2”	185	138	350
2-1/2”	232	172	381
3”	278	207	412
4”	371	276	476
5”	463	344	546
6”	556	413	617
8”	971	689	753
10”	1214	861	809
12”	1456	1033	948
14”	1274	904	1117
16”	1456	1033	1286
18”	1638	1163	1420
20”	2152	1505	1588
24”	2582	1807	1706
30”	3311	2297	2075
36”	3973	2756	3164
42”	4732	3253	3423
48”	5408	3717	3866
54”	6085	4182	4303
60”	6761	4651	4736
72”	8113	5581	5477
84”	9465	6511	6425
90”	6085	4182	4303
96”	10817	7441	7375
108”	12169	8372	8325

Forces to compress, deflect, and elongate the J-1 Expansion Joints are based upon zero pressure conditions. This data should be used as approximate only. The force to deflect an expansion joint is defined as the total load required to deflect the expansion joint a distance equal to the maximum rated movement of the product. This force figure is expressed in pounds for compression, elongation, and lateral movements.

J-1W Wide Arch

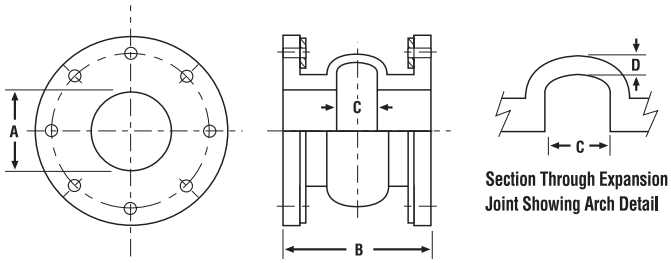
- **Same face-to-face as J-1**
- **Up to 3x more movement**
- **Less force required to move**
- **Saves space over multiple arch J-1**
- **Multiple wide arch available**
- **Made in U.S.A.**



Redflex® J-1W Wide Arch Expansion Joints are engineered to permit greater movement capabilities than standard J-1 Expansion Joints. J-1W Expansion Joints can be used to alleviate more extreme expansion and compression stresses, without the need for double or triple arches, since the J-1W has the **same face-to-face dimensions as the standard J-1 Single Arch Expansion Joint.** The wide arch design also reduces the amount of force required to cause movement in the expansion joint while allowing the J-1W to be used under the same working pressures as the standard J-1. These features and benefits of the J-1W Wide Arch Expansion Joint result in a cost savings for both new installations and for replacement operations.

Materials of Construction

- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®
- **VACUUM RATING**
  15 in. Hg. — Full Vacuum Available



Section Through Expansion Joint Showing Arch Detail

Dimensions and Movement J-1W Wide Arch Expansion Joint

Size A	B	C	D	Axial Compress	Force Pounds to Move	Axial Elongation	Force Pounds to Move	Lateral Deflection	Force Pounds to Move	Standard Working Pressure (psi)
*1”	6”	2”	1”	1-3/4”	144	3/4”	106	3/4”	245	165
*1-1/4”	6”	2”	1”	1-3/4”	180	3/4”	134	3/4”	306	165
*1-1/2”	6”	2”	1”	1-3/4”	216	3/4”	161	3/4”	367	165
*2”	6”	2”	1”	1-3/4”	130	3/4”	97	3/4”	245	165
2-1/2”	6”	2”	1”	1-3/4”	162	3/4”	120	3/4”	267	165
3”	6”	2”	1”	1-3/4”	195	3/4”	145	3/4”	288	165
4”	6”	2”	1”	1-3/4”	260	3/4”	193	3/4”	333	165
5”	6”	2”	1”	1-3/4”	324	3/4”	241	3/4”	382	140
6”	6”	2”	1”	1-3/4”	389	3/4”	289	1”	432	140
8”	6”	2”	1”	1-3/4”	777	3/4”	482	1”	527	140
10”	8”	2”	1”	1-3/4”	850	3/4”	603	1”	566	140
12”	8”	2”	1”	1-3/4”	892	3/4”	633	1”	664	140
14”	8”	3”	1-1/4”	2”	1019	7/8”	723	1-1/8”	782	85
16”	8”	3”	1-1/4”	2”	1019	7/8”	723	1-1/8”	900	65
18”	8”	3”	1-1/4”	2”	1147	7/8”	814	1-1/8”	994	65
20”	8”	3”	1-1/4”	2”	1506	7/8”	1054	1-1/8”	1112	65
24”	10”	3”	1-1/4”	2”	1807	1”	1265	1-1/8”	1194	65
26”	10”	3”	1-1/4”	2”	**	1”	**	1-1/8”	**	55
28”	10”	3”	1-1/4”	2”	**	1”	**	1-1/8”	**	55
30”	10”	3”	1-1/4”	2”	**	1”	**	1-1/8”	**	55
36”	10”	3”	1-1/4”	2”	**	1”	**	1-1/8”	**	55
42”	12”	3”	1-1/4”	2”	**	1”	**	1-1/8”	**	55
48”	12”	3”	1-1/4”	2”	**	1”	**	1-1/8”	**	55
54”	12”	3”	1-1/4”	2”	**	1”	**	1-1/8”	**	55

**Filled arch only*
On larger sizes, consult factory.

Movements shown are calculated per arch — for multiple arches, multiply movements by the number of arches required.

J-10 Expansion Joints

- **Connects unequal pipe sizes with equal centerlines**
- **Absorbs thermal expansion and contraction**
- **Eliminates vibration and noise**
- **Noncorrosive**
- **Shock resistant**
- **Made in U.S.A.**

Red Valve Company's J-10 Concentric Reducer provides all of the benefits of a Redflex® Expansion Joint, with the ability to mate unequal size pipes. J-10 Concentric Reducers can be used as pipe reducers or increasers, expansion joints, flexible connectors and vibration eliminators. These tapers were designed to replace metal reducers in the pipeline. They are available in single, double, and triple arches, in either open or filled models. The multiple arches are used in applications where expansion or contraction will occur. The advantage to the all-rubber J-10 Reducers over metal reducers is the flexibility and durability of the elastomer. Filled reducers are usually used on slurry and abrasive applications to prevent the collection of material which can settle in the arches.

The Redflex® J-10 Concentric Reducer eliminates noise and isolates vibration in the pipeline, reduces stress, eliminates electrolysis and protects against start-up surges. Concentric reducers save installation space and reduce costs.

Red Valve Company manufactures concentric reducers to meet your exact piping needs. A complete chart of standard dimensions are listed on the next page. The flanges are designed to meet ANSI Class 125 drilling. J-10 Reducers are available in a variety of elastomers to satisfy the chemical compatibility and temperature of the process fluid.

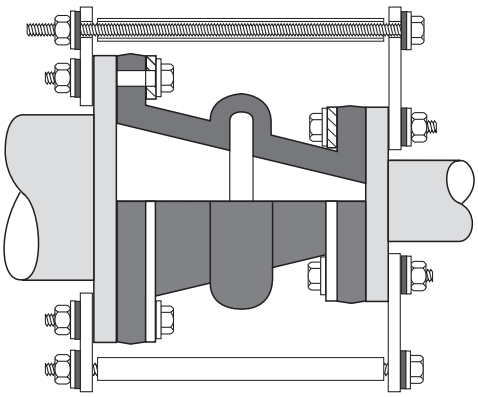
Piping systems must be anchored when using concentric reducers. Standard control rods cannot be used to prevent overextension or elongation. This is particularly of concern in larger diameter sizes, over 12", where the smaller end joint control rods have a lever effect. Special design control rods with backup plates may need to be engineered.

Materials of Construction

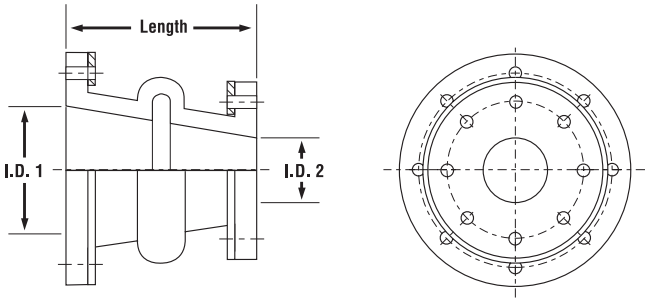
- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®
- **CONTROL RODS**
  Galvanized Steel, Stainless Steel
- **RETAINING RINGS**
  Galvanized Steel, Stainless Steel
- **WORKING PRESSURE**
  Standard pressure rating: 50 psi
  High pressure rating: 75 psi
- **VACUUM RATING**
  15 in. Hg

  Full Vacuum Available

Control Rod Configuration



J-10 Dimensions



Dimensions and Movement J-10 Concentric Reducers

Joint Size I.D. 1 x I.D. 2 x Length	Open Arch Movement Capability: From Neutral Position						Filled Arch Movement Capability: From Neutral Position					
	Axial Compress	Axial Extend	Lateral Deflect	Angular Deflect	Degrees Torsion	Thrust Factor	Axial Compress	Axial Extend	Lateral Deflect	Angular Deflect	Degrees Torsion	Thrust Factor
*2 x 1 x 6	1/2”	1/4”	1/2”	18.4°	3°	12.69	1/4”	1/8”	9/32”	9.5°	1.8°	3.14
*2 x 1-1/2 x 6	1/2”	1/4”	1/2”	15.9°	3°	14.32	1/4”	1/8”	9/32”	8.1°	1.8°	3.14
2-1/2 x 2 x 6	1/2”	1/4”	1/2”	12.5°	3°	17.87	1/4”	1/8”	9/32”	6.4°	1.8°	4.97
3 x 1 x 6	1/2”	1/4”	1/2”	12.5°	3°	17.87	1/4”	1/8”	9/32”	6.4°	1.8°	7.06
3 x 2 x 6	1/2”	1/4”	1/2”	11.3°	3°	19.79	1/4”	1/8”	9/32”	5.7°	1.8°	7.06
4 x 2 x 6	1/2”	1/4”	1/2”	9.5°	3°	23.92	1/4”	1/8”	9/32”	4.8°	1.8°	12.57
4 x 2-1/2 x 6	1/2”	1/4”	1/2”	8.8°	3°	26.15	1/4”	1/8”	9/32”	4.4°	1.8°	12.57
4 x 3 x 6	1/2”	1/4”	1/2”	8.2°	3°	28.46	1/4”	1/8”	9/32”	4.1°	1.8°	12.57
5 x 4 x 6	1/2”	1/4”	1/2”	6.4°	3°	38.70	1/4”	1/8”	9/32”	3.2°	1.8°	19.63
6 x 3 x 6	1/2”	1/4”	1/2”	6.4°	3°	38.70	1/4”	1/8”	9/32”	3.2°	1.8°	28.27
6 x 4 x 6	1/2”	1/4”	1/2”	5.7°	3°	44.41	1/4”	1/8”	9/32”	2.9°	1.8°	28.27
6 x 5 x 6	1/2”	1/4”	1/2”	5.2°	3°	50.51	1/4”	1/8”	9/32”	2.6°	1.8°	28.27
8 x 4 x 6	3/4”	3/8”	1/2”	7.1°	3°	63.49	3/8”	3/16”	9/32”	3.6°	1.8°	50.27
8 x 5 x 6	3/4”	3/8”	1/2”	6.6°	3°	70.76	3/8”	3/16”	9/32”	3.6°	1.8°	50.27
8 x 6 x 6	3/4”	3/8”	1/2”	6.1°	3°	78.42	3/8”	3/16”	9/32”	3.1°	1.8°	50.27
10 x 6 x 8	3/4”	3/8”	1/2”	5.3°	3°	94.90	3/8”	3/16”	9/32”	2.8°	1.8°	78.54
10 x 8 x 6	3/4”	3/8”	1/2”	4.8°	3°	112.95	3/8”	3/16”	9/32”	2.4°	1.8°	78.54
12 x 6 x 12	3/4”	3/8”	1/2”	4.8°	3°	113.10	3/8”	3/16”	9/32”	2.4°	1.8°	
12 x 8 x 10	3/4”	3/8”	1/2”	4.3°	3°	132.57	3/8”	3/16”	9/32”	2.2°	1.8°	
12 x 10 x 8	3/4”	3/8”	1/2”	3.9°	3°	153.76	3/8”	3/16”	9/32”	1.9°	1.8°	
14 x 8 x 14	3/4”	3/8”	1/2”	3.9°	2°	177.09	3/8”	3/16”	9/32”	1.9°	1.2°	
14 x 10 x 8	3/4”	3/8”	1/2”	3.6°	2°	201.46	3/8”	3/16”	9/32”	1.8°	1.2°	
14 x 12 x 8	3/4”	3/8”	1/2”	3.3°	2°	277.40	3/8”	3/16”	9/32”	1.7°	1.2°	
16 x 8 x 12	3/4”	3/8”	1/2”	3.3°	2°	227.40	3/8”	3/16”	9/32”	1.7°	1.2°	
16 x 12 x 8	3/4”	3/8”	1/2”	3.1°	2°	254.91	3/8”	3/16”	9/32”	1.5°	1.2°	
16 x 14 x 8	3/4”	3/8”	1/2”	2.9°	2°	283.99	3/8”	3/16”	9/32”	1.4°	1.2°	
18 x 12 x 12	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	
18 x 14 x 8	3/4”	3/8”	1/2”	2.7°	1°	314.65	3/8”	3/16”	9/32”	1.3°	.6°	
18 x 16 x 8	3/4”	3/8”	1/2”	2.6°	1°	346.88	3/8”	3/16”	9/32”	1.3°	.6°	
20 x 10 x 20	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	
20 x 14 x 12	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	
20 x 16 x 10	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	
20 x 18 x 8	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	
24 x 18 x 12	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	
24 x 20 x 12	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	
30 x 20 x 18	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	
30 x 24 x 10	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	

**Filled Arch Only*
Other sizes available, consult factory.

J-11 Expansion Joints

- **Connects unequal pipe sizes with offset centerlines**
- **Absorbs thermal expansion and contraction**
- **Eliminates vibration and noise**
- **Noncorrosive**
- **Shock resistant**
- **Made in U.S.A.**

Materials of Construction

- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®
- **CONTROL RODS AND RETAINING RINGS**
  Galvanized Steel, Stainless Steel
- **WORKING PRESSURE**
  Standard pressure rating: 50 psi
  High pressure rating: 75 psi
- **VACUUM RATING**
  15 in. Hg
  Full vacuum available

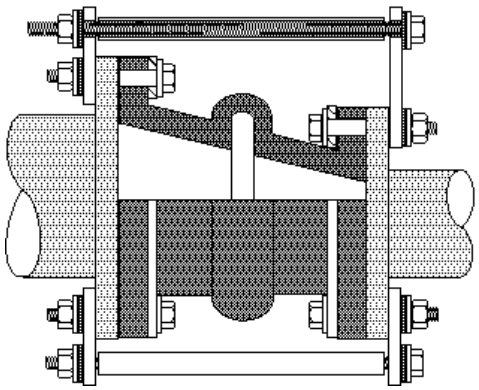
Red Valve Company's J-11 Eccentric Reducer provides all of the benefits of Redflex® Expansion Joint line with the ability to mate unequal size pipes. Red Valve Company's J-11 Eccentric Reducers can be used as pipe reducers or increasers, expansion joints, flexible connectors and vibration eliminators. These tapers were designed to replace metal reducers in the pipeline. They are available in single, double, and triple arches, in either open or filled models. The multiple arches are used in applications where expansion or contraction will occur. The advantage to the all-rubber J-11 Reducers over metal reducers is the flexi-bility and durability of the elastomer. Filled reducers are usually used on slurry and abrasive applications to prevent the collection of material which can settle in the arches.

The Redflex® J-11 Eccentric Reducer eliminates noise and isolates vibration in the pipeline, reduces stress, eliminates electrolysis and protects against start-up surges. Eccentric reducers save installation space and reduce costs.

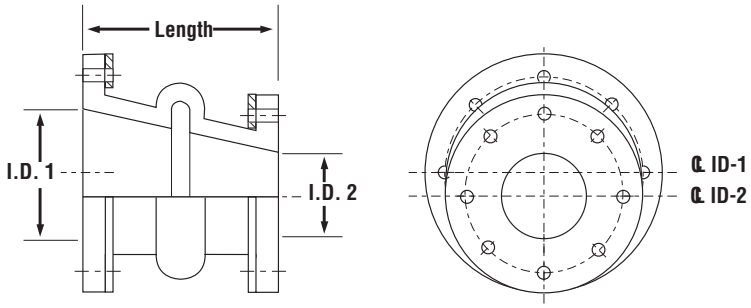
Red Valve Company manufactures eccentric reducers to meet your exact piping needs. A complete chart of standard dimensions are listed on the next page. The flanges are designed to meet ANSI Class 125 drilling. J-11 Reducers are available in a variety of elastomers to satisfy the chemical compatibility and temperature of the process fluid.

Piping systems must be anchored when using eccentric reducers. Standard control rods cannot be used to prevent overextension or elongation. **This is particularly of concern in larger diameter sizes, over 12", where the smaller end joint control rods have a lever effect.** Special design control rods with backup plates may need to be engineered.

Control Rod Configuration



J-11 Dimensions



Dimensions and Movement J-11 Eccentric Reducers

Joint Size I.D. 1 x I.D. 2 x Length	Open Arch Movement Capability: From Neutral Position						Filled Arch Movement Capability: From Neutral Position					
	Axial Compress	Axial Extend	Lateral Deflect	Angular Deflect	Degrees Torsion	Thrust Factor	Axial Compress	Axial Extend	Lateral Deflect	Angular Deflect	Degrees Torsion	Thrust Factor
*2 x 1 x 6	1/2”	1/4”	1/2”	18.4°	3°	12.69	1/4”	1/8”	9/32”	9.5°	1.8°	3.14
*2 x 1-1/2 x 6	1/2”	1/4”	1/2”	15.9°	3°	14.32	1/4”	1/8”	9/32”	8.1°	1.8°	3.14
3 x 2 x 6	1/2”	1/4”	1/2”	11.3°	3°	19.79	1/4”	1/8”	9/32”	5.7°	1.8°	7.06
4 x 2 x 6	1/2”	1/4”	1/2”	9.5°	3°	23.92	1/4”	1/8”	9/32”	4.8°	1.8°	12.57
4 x 2-1/2 x 6	1/2”	1/4”	1/2”	8.8°	3°	26.15	1/4”	1/8”	9/32”	4.4°	1.8°	12.57
4 x 3 x 6	1/2”	1/4”	1/2”	8.2°	3°	28.46	1/4”	1/8”	9/32”	4.1°	1.8°	12.57
6 x 3 x 6	1/2”	1/4”	1/2”	6.4°	3°	38.70	1/4”	1/8”	9/32”	3.2°	1.8°	28.27
6 x 4 x 6	1/2”	1/4”	1/2”	5.7°	3°	44.41	1/4”	1/8”	9/32”	2.9°	1.8°	28.27
6 x 5 x 6	1/2”	1/4”	1/2”	5.2°	3°	50.51	1/4”	1/8”	9/32”	2.6°	1.8°	28.27
8 x 4 x 8	3/4”	3/8”	1/2”	7.1°	3°	63.49	3/8”	3/16”	9/32”	3.6°	1.8°	50.27
8 x 5 x 8	3/4”	3/8”	1/2”	6.6°	3°	70.76	3/8”	3/16”	9/32”	3.6°	1.8°	50.27
8 x 6 x 6	3/4”	3/8”	1/2”	6.1°	3°	78.42	3/8”	3/16”	9/32”	3.1°	1.8°	50.27
10 x 6 x 8	3/4”	3/8”	1/2”	5.3°	3°	94.90	3/8”	3/16”	9/32”	2.8°	1.8°	78.54
10 x 8 x 8	3/4”	3/8”	1/2”	4.8°	3°	112.95	3/8”	3/16”	9/32”	2.4°	1.8°	78.54
12 x 6 x 16	3/4”	3/8”	1/2”	4.8°	3°	113.10	3/8”	3/16”	9/32”	2.4°	1.8°	113.10
12 x 8 x 8	3/4”	3/8”	1/2”	4.3°	3°	132.57	3/8”	3/16”	9/32”	2.2°	1.8°	113.10
12 x 10 x 8	3/4”	3/8”	1/2”	3.9°	3°	153.76	3/8”	3/16”	9/32”	1.9°	1.8°	113.10
14 x 8 x 10	3/4”	3/8”	1/2”	3.9°	2°	177.09	3/8”	3/16”	9/32”	1.9°	1.2°	153.94
14 x 10 x 12	3/4”	3/8”	1/2”	3.6°	2°	201.46	3/8”	3/16”	9/32”	1.8°	1.2°	153.94
14 x 12 x 8	3/4”	3/8”	1/2”	3.3°	2°	277.40	3/8”	3/16”	9/32”	1.7°	1.2°	153.94
16 x 10 x 12	3/4”	3/8”	1/2”	3.3°	2°	227.40	3/8”	3/16”	9/32”	1.7°	1.2°	201.06
16 x 12 x 14	3/4”	3/8”	1/2”	3.1°	2°	254.91	3/8”	3/16”	9/32”	1.5°	1.2°	201.06
20 x 16 x 12	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	254.47
24 x 12 x 20	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	254.47
24 x 18 x 10	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	254.47
24 x 20 x 16	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	254.47
30 x 20 x 24	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	254.47
30 x 24 x 22	3/4”	3/8”	1/2”	2.9°	1°	283.99	3/8”	3/16”	9/32”	1.4°	.6°	254.47

**Filled Arch Only*
Longer face-to-face or size not listed, consult factory.

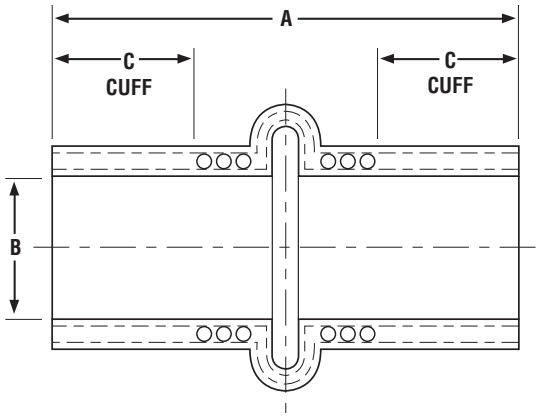
SL-50 Expansion Joint

- **Single Arch**
- **Slips over pipe for easy connection**
- **Designed for low pressure systems**
- **Vibration and sound elimination**
- **Absorbs movement in pipeline**
- **No gaskets required**
- **Made in U.S.A.**

The SL-50 Expansion Joint is designed to be quickly installed onto standard Schedule 40 pipe. The SL-50 uses slip-on connections with stainless steel mounting bands for a secure connection.

The SL-50 features an inner tube that is chosen to be compatible with the process material, a middle layer containing fabric and wire reinforcement, and an outer layer to protect the joint from occasional contact with oils, corrosion, and weathering.

The SL-50 can be constructed in custom lengths, with custom cuff I.D.'s, and in custom configurations.



Materials of Construction

- **ELASTOMERS**

  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®

Dimensions SL-50/100 and SL-53

Size	B Actual I.D.	C Cuff	Length A			Compression		Extension		Deflection		Working Pressure
			SL-100	SL-50	SL-53	SL-50	SL-53	SL-50	SL-53	SL-50	SL-53	psi
***1"**	1-5/16"	2"	6"	6"	9"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	75
***1-1/2"**	1-7/8"	2"	6"	6"	9"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	75
***2"**	2-3/8"	2"	6"	6"	9"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	75
2-1/2"	2-7/8"	2"	6"	6"	9"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	75
3"	3-1/2"	2"	6"	6"	9"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	75
4"	4-1/2"	2"	6"	6"	9"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	75
6"	6-5/8"	2"	6"	6"	10"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	75
8"	8-5/8"	2"	6"	6"	10"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	50
10"	10-3/4"	2"	6"	6"	10"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	50
12"	12-3/4"	2"	6"	6"	10"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	50
14"	14"	3"	10"	10"	14"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	25
16"	16"	3"	10"	10"	14"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	25
18"	18"	3"	10"	10"	14"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	25
20"	20"	3"	10"	10"	14"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	25
24"	24"	3"	10"	10"	14"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	25
36"	36"	4"	12"	12"	16"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	10
48"	48"	4"	12"	12"	16"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	10
60"	60"	4"	12"	12"	16"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	10
72"	72"	4"	12"	12"	16"	1"	3"	1/2"	1-1/2"	1/2"	1-1/2"	10

**Filled Arch Only*

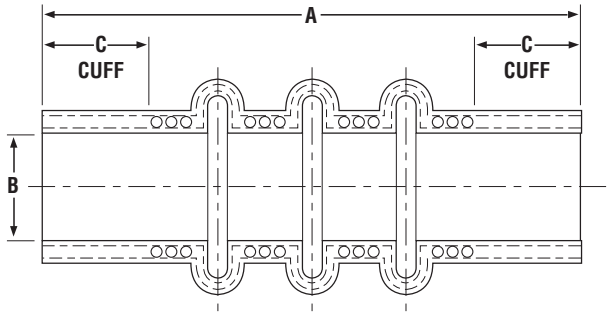
SL-53 Expansion Joint

- **Triple Arch**
- **Slips over pipe for easy connection**
- **Designed for low pressure systems**
- **More lateral movement than SL-50**
- **Vibration and sound elimination**
- **Absorbs movement in pipeline**
- **Made in U.S.A.**

The Slip-On Series SL-53 Triple Arch Expansion Joints are designed to allow for greater contraction, expansion, and lateral movement than the SL-50. The internal diameter of the SL-53 is equal to the outside diameter of replacement pipes. The SL-53 slips over the ends of an open pipe and is secured by clamps.

Construction consists of a tube made of natural or synthetic rubber, a hand fabricated body consisting of high quality synthetic fabric for reinforcement, and a cover wrap used to protect the unit against occasional contact with oil, weathering, ozone, and corrosives.

The SL-53 Triple Arch Expansion Joint is simple and economical to use. The SL-53 Expansion Joint will absorb movement from vibration, thermal expansion and contraction, and allow for misalignment of piping.



Materials of Construction

- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®

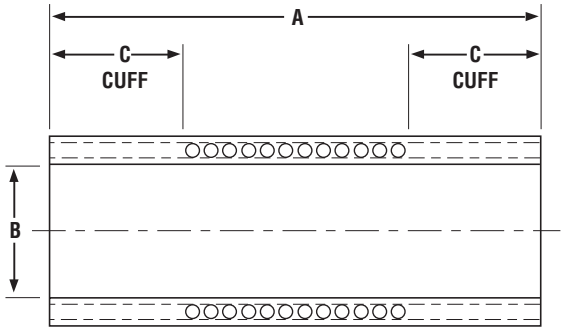
For dimensions of the SL-53, see page 14.

SL-100 Vibration Pipe

- **Designed for low pressure systems**
- **Slips over pipe for easy connection**
- **Vibration and sound elimination**
- **Absorbs movement in pipeline**
- **Made in U.S.A.**

The Slip-On SL-100 provides a very simple and effective way to reduce vibration and movement in low-pressure applications. The slip-on configuration of the SL-100 allows a section of pipe to be removed, and the rubber connector to be slipped into place. Stainless steel bands are provided for a secure connection.

The SL-100 acts as a rubber isolator to prevent vibration from being transmitted from moving parts, such as pumps or compressors. By isolating vibration, it also eliminates much of the noise that is transmitted as well. The flexibility of the joint can help compensate for movement between two pipes.



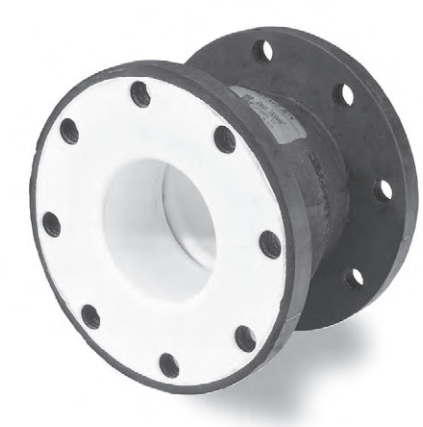
Materials of Construction

- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®

For dimensions of the SL-100, see page 14.

T-205 Teflon® Lined

- **Teflon® lined expansion joint**
- **Safer elastomer/fabric reinforced design**
- **Non-corrosive Teflon® lining**
- **No gaskets required**
- **Made in U.S.A.**



Materials of Construction

- PTFE Teflon®, backed and reinforced with polyester fabric and Chlorobutyl cover

The Redflex® T-205 Teflon® Lined Expansion Joint provides the maximum amount of corrosion and chemical resistance available in an expansion joint. The solid PTFE Teflon® core extends through the entire length of the joint and covers both end flanges completely. The Teflon® is backed by a fabricated rubber body, reinforced with high-strength synthetic fabric and steel wire. The cover material is select-ed to suit service characteristics and coated with special paint to resist weathering, ozone, or acid fumes. Teflon® lined expansion joints are available with single, double, triple, or wide arches.

Redflex® Teflon® Lined Expansion Joints with elastomer and fabric body are suitable for 180°F applications. Chlorobutyl and polyester body construction is supplied for 180°F to 250°F services.

Retaining rings and pipe anchors must be used to prevent flange damage and to provide equal distribution of bolting stresses. Control units are also recommended to prevent possible damage from excessive elongation or movement.

Dimensions, pressure ratings, and movement limitations are identical to those for standard Redflex® J-1 Expansion Joints. Refer to the J-1 Expansion Joint for dimension information

Dimensions and Movement T-205 Teflon® Lined

Size	Allowable Movement								Force Pounds to Cause Movement			Pressure Ratings		
	Single Arch				Triple Arch							Standard Pressure psi	Vacuum Hg	High Pressure psi
	F-F	Compress	Extend	Deflect	F-F	Compress	Extend	Deflect	Compress	Extend	Deflect			
*1”	6”	7/16”	1/4”	1/2”	12”	1-5/16”	3/4”	1-1/2”	103	76	175	165	15”	200
*1-1/4”	6”	7/16”	1/4”	1/2”	12”	1-5/16”	3/4”	1-1/2”	154	115	262	165	15”	200
*1-1/2”	6”	7/16”	1/4”	1/2”	12”	1-5/16”	3/4”	1-1/2”	154	115	262	165	15”	200
2”	6”	7/16”	1/4”	1/2”	12”	1-5/16”	3/4”	1-1/2”	185	138	350	165	15”	200
2-1/2”	6”	7/16”	1/4”	1/2”	12”	1-5/16”	3/4”	1-1/2”	232	172	381	165	15”	200
3”	6”	7/16”	1/4”	1/2”	12”	1-5/16”	3/4”	1-1/2”	278	207	412	165	15”	200
4”	6”	7/16”	1/4”	1/2”	12”	1-5/16”	3/4”	1-1/2”	371	276	476	165	15”	200
5”	6”	7/16”	1/4”	1/2”	12”	1-5/16”	3/4”	1-1/2”	463	344	546	140	15”	190
6”	6”	7/16”	1/4”	1/2”	12”	1-5/16”	3/4”	1-1/2”	556	413	617	140	15”	190
8”	6”	11/16”	3/8”	1/2”	14”	2-1/16”	1-1/8”	1-1/2”	971	689	753	140	15”	190
10”	8”	11/16”	3/8”	1/2”	14”	2-1/16”	1-1/8”	1-1/2”	1214	861	809	140	15”	190
12”	8”	11/16”	3/8”	1/2”	14”	2-1/16”	1-1/8”	1-1/2”	1456	1033	948	85	15”	130
14”	8”	11/16”	3/8”	1/2”	16”	2-1/16”	1-1/8”	1-1/2”	1274	904	1117	65	15”	110
16”	8”	11/16”	3/8”	1/2”	16”	2-1/16”	1-1/8”	1-1/2”	1456	1033	1286	65	15”	110
18”	8”	11/16”	3/8”	1/2”	16”	2-1/16”	1-1/8”	1-1/2”	1638	1163	1420	65	15”	110
20”	8”	13/16”	7/16”	1/2”	16”	2-7/16”	1-5/16”	1-1/2”	2152	1505	1588	65	15”	110
24”	10”	13/16”	7/16”	1/2”	18”	2-7/16”	1-5/16”	1-1/2”	2582	1807	1706	65	15”	100
30”	10”	15/16”	1/2”	1/2”	18”	2-13/16”	1-1/2”	1-1/2”	3311	2297	2075	55	15”	90
36”	10”	15/16”	1/2”	1/2”	18”	2-13/16”	1-1/2”	1-1/2”	3973	2756	3164	55	15”	90
42”	12”	1”	9/16”	1/2”	20”	3”	1-11/16”	1-1/2”	4732	3253	3423	55	15”	80
48”	12”	1”	9/16”	1/2”	20”	3”	1-11/16”	1-1/2”	5408	3717	3866	55	15”	80
54”	12”	1”	9/16”	1/2”	20”	3”	1-11/16”	1-1/2”	6085	4182	4303	55	15”	80
60”	12”	1”	9/16”	1/2”	20”	3”	1-11/16”	1-1/2”	6761	4651	4736	55	15”	80
72”	12”	1”	9/16”	1/2”	20”	3”	1-11/16”	1-1/2”	8113	5581	5477	45	15”	70
84”	12”	1”	9/16”	1/2”	20”	3”	1-11/16”	1-1/2”	9465	6511	6425	45	15”	70

Molded Expansion Joints

- **Rotating steel flanges ease installation**
- **Shallow spherical arch design for slurry service**
- **Requires no gaskets or back-up rings**
- **Heavy steel flanges withstand misalignment**

The molded M-150 and D-30 Redflex Expansion Joints are an economical way to alleviate pipeline stress. This unique design features a flexible rubber arch section with two independent steel flanges drilled to ANSI 125# dimensions. The steel flanges rotate freely, allowing the joint to be installed where pipe flanges have rotated out of alignment. The flexibility of the rubber allows the joint to compensate for movement in any direction as well as absorb vibration.

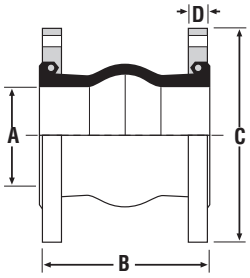
The arch section is constructed of multiple layers of rubber reinforced with nylon tire cord. The arches of the M-150 and D-30 are shallow and spherically shaped to prevent any possibility of buildup, making these joints extremely well-suited for slurry service. The smooth passage also provides a non-turbulent flow path through the joint.

The steel flanges are drilled to ANSI 125# dimensions, and eliminate the need for backup rings. The flanges are coated with three layers of chromate for a smooth, noncorrosive finish and are available threaded or with through-holes.

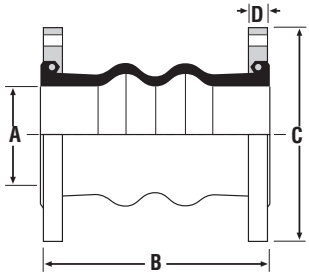
Materials of Construction

- **ELASTOMERS**
  Neoprene, Chlorobutyl, EPDM or Buna-N/Nitrile
- **FLANGES**
  Zinc Chromate-Coated Steel
- **OPERATING CONDITIONS**

1-1/2" – 12" max. working pressure	225 psi
14" – 20" max. working pressure	125 psi
Maximum Vacuum	28" Hg
Neoprene, Buna-N: Maximum Temperature	212˚F
Chlorobutyl, EPDM: Maximum Temperature	225˚F



M-150
Single Arch



D-30
Double Arch

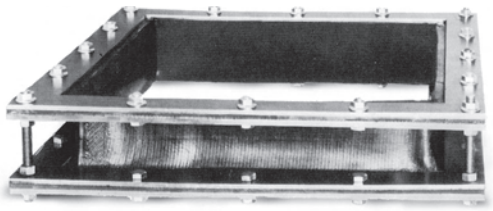
Dimensions and Movement D-30 ANSI Class 150 Flanges

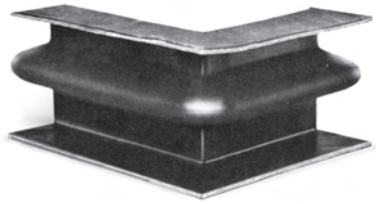
Size	A	B		C	D	*Weight		Elongation		Compression		Deflection		Angular	
		M-150	D-30			M-150	D-30	M-150	D-30	M-150	D-30	M-150	D-30	M-150	D-30
1"	1"	6"	N/A	4 1/4"	9/16"	3.8	N/A	3/8"	N/A	1/2"	N/A	1/2"	N/A	37°	N/A
1-1/4"	1-1/4"	6"	7"	4 5/8"	9/16"	5.0	5.3	3/8"	7/16"	1/2"	7/8"	1/2"	7/8"	31°	45°
1-1/2"	1-1/2"	6"	7"	5"	11/16"	6.1	6.8	3/8"	7/16"	1/2"	7/8"	1/2"	7/8"	27°	45°
2"	2"	6"	7"	6"	13/16"	12.3	9.0	3/8"	7/16"	1/2"	7/8"	1/2"	7/8"	20°	45°
2 1/2"	2-1/2"	6"	7"	7"	7/8"	12.3	13.3	3/8"	7/16"	1/2"	7/8"	1/2"	7/8"	17°	43°
3"	3"	6"	7"	7-1/2"	7/8"	14.0	14.3	3/8"	7/16"	1/2"	7/8"	1/2"	7/8"	14°	38°
4"	4"	6"	9"	9"	7/8"	18.3	20.3	1/2"	11/16"	3/4"	1-5/16"	1/2"	1"	14°	34°
5"	5"	6"	9"	10"	15/16"	22.8	24.5	1/2"	11/16"	3/4"	1-5/16"	1/2"	1"	11°	29°
6"	6"	6"	9"	11"	1"	26.8	29.5	1/2"	11/16"	3/4"	1-5/16"	1/2"	1"	9°	25°
8"	8"	6"	13"	13-1/2"	1-1/8"	40.6	43.8	1/2"	7/8"	3/4"	1-3/4"	1/2"	1-5/16"	7°	19°
10"	10"	8"	13"	16"	1-3/16"	56.6	64.1	5/8"	7/8"	1"	1-3/4"	3/4"	1-5/16"	7°	15°
12"	12"	8"	13"	19"	1-13/16"	83.0	95	5/8"	7/8"	1"	1-3/4"	3/4"	1-5/16"	6°	13°
14"	14"	8"	13-2/4"	21"	1-13/16"	115.0	135	5/8"	7/8"	1"	1-3/4"	3/4"	1"	5°	9°
16"	16"	8"	13-3/4"	23-1/2"	1-13/16"	165.0	175	5/8"	7/8"	1"	1-3/4"	3/4"	1"	4°	8°
18"	18"	8"	13-3/4"	25"	1-13/16"	168.0	180	5/8"	7/8"	1"	1-3/4"	3/4"	1"	4°	7°
20"	20"	8"	13-3/4"	27-1/2"	1-13/16"	170.0	185	5/8"	7/8"	1"	1-3/4"	3/4"	1"	3°	7°

**Pounds*

Square Ducting Expansion

- **Lightweight construction**
- **Maximum flexibility**
- **Eliminates gaskets**
- **Absorbs fan vibrations**
- **Abrasion resistant**
- **Made in U.S.A.**





Redflex® Ducting Expansion Joints are designed for use on lightweight ductwork commonly found in odor control, air handling, and vapor/heat/dust recovery systems. The flex-ible rubber construction of the joints accommodates motion caused by axial, lateral, torsional, and angular movements concurrently. The rubber also helps to absorb the vibration of fans, reducing stress on the ductwork.

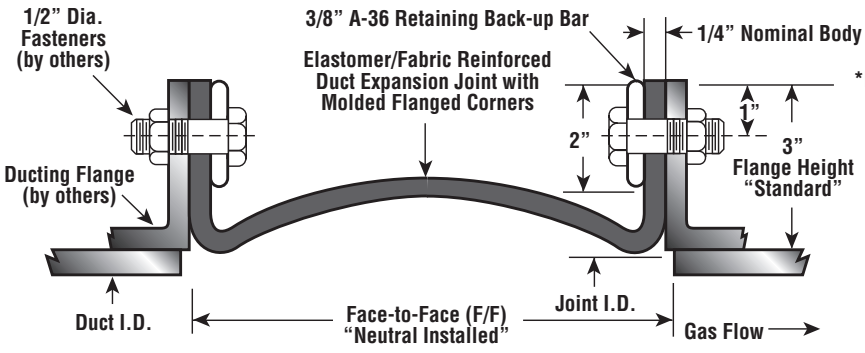
The joints can be provided with a single arch for maximum expansion/contraction compensation, or with a smooth bore for reduced turbulence. The joints are manufactured with 3" high integral flanges that eliminate the need for gaskets by forming a tight seal against the mating pipe. Corners are fully molded with no splices for added strength.

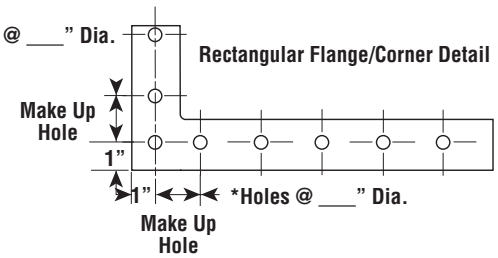
Flanged joints are provided with backing bars in carbon steel or stainless steel for an easy connection to mating flanges.

Materials of Construction

- **ELASTOMERS**

  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®





Maximum Movement Capabilities In Inches

Movement At Shown Face-to-Face	6" Face-to-Face			9" Face-to-Face			12" Face-to-Face			16" Face-to-Face		
	Axial Compress	Axial Extension	Lateral Deflect	Axial Compress	Axial Extension	Lateral Deflect	Axial Compress	Axial Extension	Lateral Deflect	Axial Compress	Axial Extension	Lateral Deflect
	1.5"	0.5"	1"	3"	1"	2"	4"	1"	2.5"	6"	1"	3.5"

Round Ducting Expansion

- **Lightweight construction**
- **Maximum flexibility**
- **Eliminates gaskets**
- **Absorbs fan vibrations**
- **Abrasion resistant**
- **Made in U.S.A.**

Redflex® also offers a wide variety of round expansion joints designed for use on low pressure round ducting systems with a maximum pressure to 10 psi.

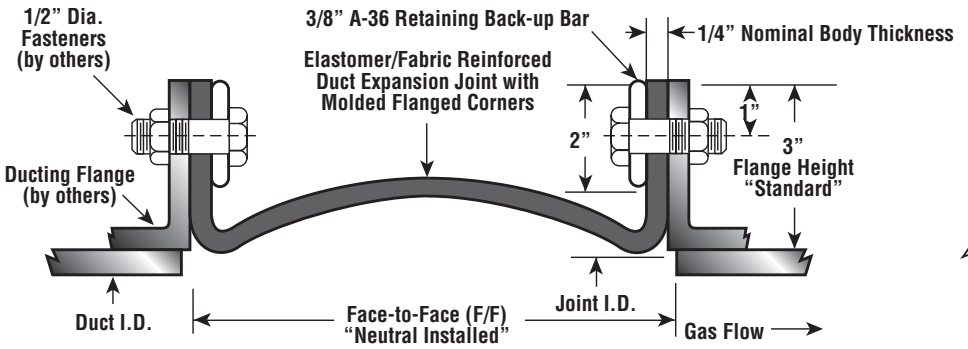
Round Ducting Joints are often utilized in lightweight air handling systems such as pricepitators, scrubbers, fans and big hoses to absorb vibration, thermal movements and misalignments.

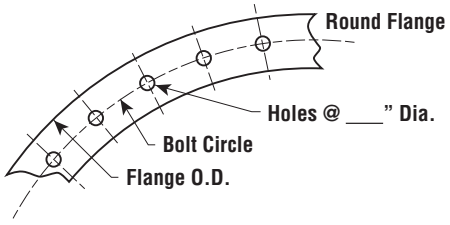
This type of expansion joint is available in a variety of material configurations such as Neoprene, EPDM, Chlorobutyl, Hypalon® or Viton® flow elastomers with fiberglass, fiberglass/Kevlar®, or polyester reinforcement.

Flanged style of ducting expansion joints are drilled to ANSI 125/150#, but PS 15-69 and other drillings are available. Round Duct Expansion Joints can also be manufactured with a slip-on connection where no mating flange exists. The Joint is manufactured to the exact out-side diameter of the duct, and simply slipped onto the pipe. Stainless steel bands hold the joint securely in place.

Materials of Construction

- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®



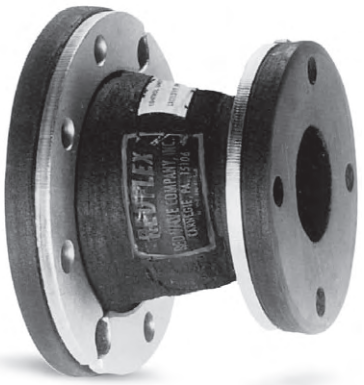


Maximum Movement Capabilities In Inches

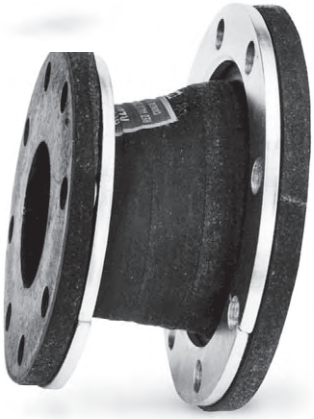
Movement At Shown Face-to-Face	6" Face-to-Face			9" Face-to-Face			12" Face-to-Face			16" Face-to-Face		
	Axial Compress	Axial Extension	Lateral Deflect	Axial Compress	Axial Extension	Lateral Deflect	Axial Compress	Axial Extension	Lateral Deflect	Axial Compress	Axial Extension	Lateral Deflect
	1.5"	0.5"	1"	3"	1"	2"	4"	1"	2.5"	6"	1"	3.5"

Redflex® R-4 & R-5 Reducers

- **Connects unequal pipe sizes**
- **Reduces vibration and noise**
- **Non-corrosive**
- **Shock resistant**
- **Made in U.S.A.**



R-4



R-5

Red Valve Company's Redflex® Concentric and Eccentric Reducers can be used as pipe reducers or increasers, flexible connectors, or vibration and noise reducers. These reducers are designed to replace metal reducers used on pipelines from pumps, compressors, and other equipment. Like Redflex® pipe, elbows, and other flexible connectors, they prevent damage to equipment and compensate for minor misalignments.

The inner lining of the reducer is natural rubber, Chlorobutyl, Buna-N, Hypalon®, or Viton®. The body is constructed of multiple plies of strong Nylon fabric impregnated with rubber or synthetic compounds. Steel wire is embedded in the body of the reducer for additional strength. A protective cover of natural or synthetic rubber provides resistance to deterioration from weather and ozone. A Neoprene cover is normally used.

A special high-temperature construction is available for temperatures up to 400°F.

Red Valve Company manufactures concentric reducers to meet your exact piping needs. The flanges are designed to meet ANSI Class 125 drilling. Split steel rings must be installed on the inside of the flange.

As with standard expansion joints, when piping is not anchored, control units must be used with the reducer joint to prevent over-elongation.

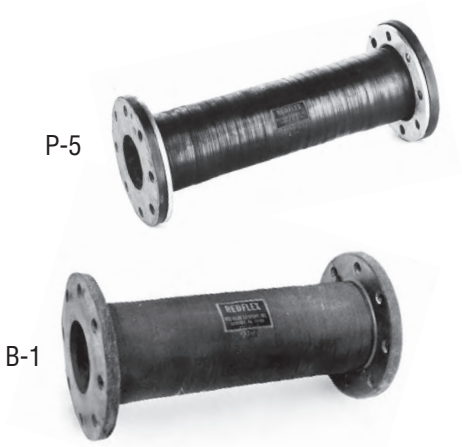
Dimensions of the R-4 Reducers correspond to dimensions of the J-10 Concentric Expansion Joints. For dimensions, please refer to the chart on page 11. Dimensions of the R-5 Reducers correspond to dimensions of the J-11 Eccentric Expansion Joints. For dimensions, please refer to the chart on page 13.

Materials of Construction

- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®
- **CONTROL RODS**
  Galvanized Steel, Stainless Steel
- **RETAINING RINGS**
  Galvanized Steel, Stainless Steel
- **WORKING PRESSURE**
  50 psi in all sizes — Higher pressures, consult factory

Redflex® Rubber Pipe

- **Used to absorb vibration**
- **Available with arches for special applications**
- **Can be bent to connect offset pipes**
- **Made in U.S.A.**



Redflex® P-5 Vibration Pipe offers a workable solution to the problem of controlling vibration and reducing noise from pumps, compressors, and other equipment. It minimizes water hammer and eliminates electrolysis. It is also available with arches for special applications.

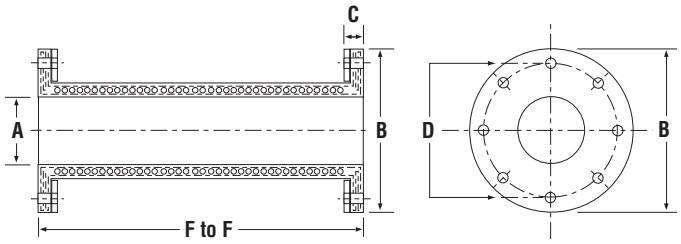
Redflex® B-1 Rubber Pipe is an economical, abrasion-resistant replacement for steel and cast iron pipe, either in straight lengths or where a specified radius is required. B-1 Rubber Pipe may be used in conveying ore, corrosive chemicals, sand, and other abrasive slurries. B-1 Pipe is available for working pressures from 25 to 150 psi.

Redflex® Rubber Pipe is available with ANSI Class 125 flange drilling, and can be used on 30" Hg vacuum. Stand-ard construction of Redflex® Rubber Pipe is a rubber tube with Nylon fabric reinforcement for maximum continuing temperatures to 180°F. The pipe is covered with synthetic rubber to protect against abrasion and aging.

It is absolutely necessary that rigid metal pipe on both ends of the pipe be properly anchored to eliminate the danger of excessive elongation. If the pipeline is not anchored, control units should be used. Rubber pipe can elongate 7% or better under pressure.

Materials of Construction

- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®



Dimensions and Specifications Redflex® Rubber Pipe

I.D. A	Minimum F to F	Maximum F to F	Flange O.D. B	Flange Thickness C	Bolt Circle Diameter D	Holes	
						No.	Daimeter
1-1/2"	12"	24"	5"	11/16"	3-7/8"	4	5/8"
2"	12"	24"	6"	11/16"	4-3/4"	4	3/4"
3"	12"	36"	7-1/2"	27/32"	6"	4	3/4"
4"	12"	36"	9"	27/32"	7-1/2"	8	3/4"
5"	12"	36"	10"	15/16"	8-1/2"	8	7/8"
6"	18"	36"	11"	31/32"	9-1/2"	8	7/8"
8"	24"	48"	13-1/2"	31/32"	11-3/4"	8	7/8"
10"	24"	48"	16"	1-3/16"	14-1/4"	12	1"
12"	24"	48"	19"	1-7/32"	17"	12	1"

Minimum Pipe Lengths for Specified Bends

Pipe I.D.	Minimum Radius	Pipe Lengths					
		15°	30°	45°	60°	75°	90°
2"	20"	1' 8"	2' 1"	2' 6"	2' 11"	3' 4"	3' 10"
3"	30"	2'	2' 8"	3' 4"	4"	4' 8"	5' 4"
4"	40"	3'	3' 10"	4' 9"	5' 7"	6'	7' 4"
5"	60"	3' 5"	4' 8"	6"	7' 4"	8' 8"	9' 11"
6"	72"	4' 2"	5' 9"	7' 4"	8' 10"	10' 5"	12'
8"	96"	5'	7' 1"	9' 2"	11' 4"	13' 5"	15' 6"
10"	120"	5' 10"	8' 6"	11' 1"	13' 9"	16' 4"	19'
12"	144"	6' 7"	9' 8"	12' 10"	16'	19' 2"	22' 3"

Redflex® Rubber Fittings

- **Withstands abrasion**
- **Connects misaligned piping**
- **Smooth port provides unrestricted flow**
- **Reduces noise and vibration**
- **Noncorrosive**

Redflex® Rubber Fittings are strong, durable, and flexible. They reduce noise and vibration from pumps, compressors, and other equipment, and allow for minor misalignment where abrasion or corrosion will damage normal piping.

Standard construction is a rubber tube with cotton duck reinforcement and a synthetic cover for use with maximum continuing temperatures up to 180°F. For extra strength, spiralled steel wires are embedded in the body of the elbow from flange to flange. Redflex® Rubber Fittings have a 50 psi working pressure standard, maximum of 75 psi, and can withstand 10" Hg vacuum. Can be manufactured with full vacuum upon request.

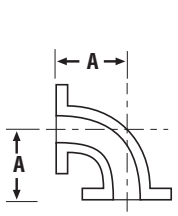
Materials of Construction

- **ELASTOMERS**
  Pure Gum Rubber, Neoprene, Hypalon®, Chlorobutyl, Buna-N, EPDM, and Viton®

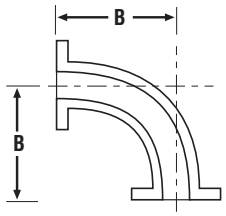
90° Elbow

90° Long Elbow

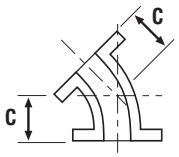
45° Elbow



90° Standard Elbow



90° Long Radius Elbow



45° Elbow

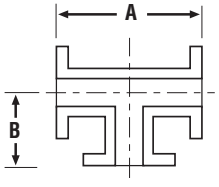
Dimensions and Movement Redflex® Elbows

Size I.D.	Flange Thickness	Flange O.D.	Center to Flange A 90° Elbow	Center to Flange B 90° Long Rad.	Center to Flange C 45° Elbow	Allowable Movement		
						Extend	Compress	Deflection
2"	5/8"	6"	4-1/2"	6-1/2"	2-1/2"	1/2"	1/2"	1/2"
2-1/2"	5/8"	7"	5"	7"	3"	1/2"	1/2"	1/2"
3"	3/4"	7-1/2"	5-1/2"	7-3/4"	3"	1/2"	1/2"	1/2"
4"	3/4"	9"	6-1/2"	9"	4"	1/2"	1/2"	1/2"
5"	3/4"	10"	7-1/2"	10-1/4"	4-1/2"	3/4"	3/4"	3/4"
6"	3/4"	11"	8"	11-1/2"	5"	3/4"	3/4"	3/4"
8"	3/4"	13-1/2"	9"	14"	5-1/2"	3/4"	3/4"	3/4"
10"	3/4"	16"	11"	16-1/2"	6-1/2"	3/4"	3/4"	3/4"
12"	3/4"	19"	12"	19"	7-1/2"	3/4"	3/4"	3/4"
14"	3/4"	21"	14"	22-1/2"	7-1/2"	3/4"	3/4"	3/4"

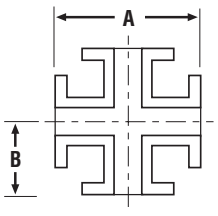
Tee

Cross

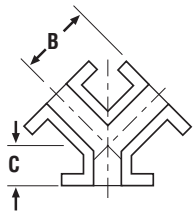
True Y



Tee



Cross



True Y

Dimensions and Movement Redflex® Fittings

Size I.D.	Flange Thickness	Flange O.D.	A	B	C	Allowable Movement		
						Extend	Compress	Deflection
2"	5/8"	6"	9"	4-1/2"	2-1/2"	1/2"	1/2"	1/2"
2-1/2"	5/8"	7"	10"	5"	2-1/2"	1/2"	1/2"	1/2"
3"	3/4"	7-1/2"	11"	5-1/2"	3"	1/2"	1/2"	1/2"
4"	3/4"	9"	13"	6-1/2"	3"	1/2"	1/2"	1/2"
5"	3/4"	10"	15"	7-1/2"	3-1/2"	3/4"	3/4"	3/4"
6"	3/4"	11"	16"	8"	3-1/2"	3/4"	3/4"	3/4"
8"	3/4"	13-1/2"	18"	9"	4-1/2"	3/4"	3/4"	3/4"
10"	3/4"	16"	22"	11"	5"	3/4"	3/4"	3/4"
12"	3/4"	19"	24"	12"	5-1/2"	3/4"	3/4"	3/4"
14"	3/4"	21"	28"	14"	6"	3/4"	3/4"	3/4"

Application Data Sheet

NAME

YOUR NAME	COMPANY NAME
MAILING ADDRESS	
CITY	STATE ZIP
PHONE NUMBER	FAX NUMBER

	ITEM NO./TAG NO. QUANTITY REQUIRED	ITEM NO./TAG NO. QUANTITY REQUIRED	ITEM NO./TAG NO. QUANTITY REQUIRED
SIZES			
PIPE SIZE OF APPLICATION: Nominal pipe size or the inside diameter of the connecting pipe flange.	INCHES	INCHES	INCHES
INSTALLED LENGTH: Is there space between connecting pipe flanges? Indicate the limitations, if any.	INCHES	INCHES	INCHES

FLOWING MEDIUM						
FLOWING MEDIUM: Indicate chemical. If flowing medium is corrosive, abrasive, or viscous, explain in detail.						
TYPE OF MEDIUM: Indicate if liquid, gas, slurry, solids, etc.						
TEMPERATURE OF FLOWING MEDIUM: Indicate both operating and maximum temperatures at the expansion joint.	OPERATE F	MAXIMUM F	OPERATE F	MAXIMUM F	OPERATE F	MAXIMUM F
TEMPERATURE OF SURROUNDING ATMOSPHERE: Indicate both minimum and maximum temperatures of atmosphere at the expansion joint.	MINIMUM F	MAXIMUM F	MINIMUM F	MAXIMUM F	MINIMUM F	MAXIMUM F
TIME DURATION AT MAXIMUM TEMPERATURE: Indicate length of time.						
VELOCITY OF FLOWING MEDIUM: In feet per minute.	FT./MIN		FT./MIN		FT./MIN	

PRESSURES						
OPERATING PRESSURE AT THE JOINT: Actual pressure in which system works in normal conditions.	POSITIVE PSIG	NEGATIVE "Hg	POSITIVE PSIG	NEGATIVE "Hg	POSITIVE PSIG	NEGATIVE "Hg
DESIGN PRESSURE OF THE SYSTEM: Highest/most severe pressure expected during operation.	POSITIVE PSIG	NEGATIVE "Hg	POSITIVE PSIG	NEGATIVE "Hg	POSITIVE PSIG	NEGATIVE "Hg
SURGE PRESSURE OF THE SYSTEM: Increased pressure due to pump starts, valve closings, etc.	POSITIVE PSIG	NEGATIVE "Hg	POSITIVE PSIG	NEGATIVE "Hg	POSITIVE PSIG	NEGATIVE "Hg
TEST PRESSURE OF THE SYSTEM: Hydrostatic test used to demonstrate system capability.	POSITIVE PSIG	NEGATIVE "Hg	POSITIVE PSIG	NEGATIVE "Hg	POSITIVE PSIG	NEGATIVE "Hg
TYPE OF PRESSURE: Constant, intermittent, shock, pulsating, etc.						

MOVEMENTS			
AXIAL COMPRESSION AT JOINT: In inches as a result of pipe extension - expansion	INCHES	INCHES	INCHES
ACTUAL ELONGATION AT JOINT: In inches as a result of pipe contraction..	INCHES	INCHES	INCHES
LATERAL DEFLECTION AT JOINT: In inches.	INCHES	INCHES	INCHES
ANGULAR MOVEMENT AT JOINT: In degrees.	DEGREES	DEGREES	DEGREES
TORSIONAL MOVEMENT AT JOINT: In degrees.	DEGREES	DEGREES	DEGREES

MISCELLANEOUS			
PIPE FLANGE DRILLING: Indicate specific standard such as 150# ANSI B16.5 If special, provide: Flange O.D., Bolt, Circle, Number and Size of Holes.	SPECIFICATION	SPECIFICATION	SPECIFICATION
MATING PIPE FLANGE THICKNESS: In Inches.	INCHES	INCHES	INCHES
RETAINING RINGS: Are required on all installations. Reusable, they need not be ordered with replacement or spare expansion joints.	YES OR NO	YES OR NO	YES OR NO
CONTROL UNIT ASSEMBLIES: Are recommended for use in all expansion joint applications. Control units must be used when piping support or anchoring is insufficient.	YES OR NO	YES OR NO	YES OR NO
HYDROSTATIC TEST OF JOINT REQUIRED BY MANUFACTURER OF PRODUCT:	YES OR NO	YES OR NO	YES OR NO

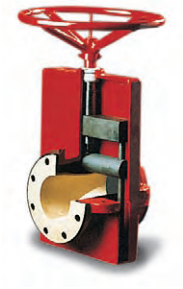
The World Leader In Pinch Valve Technology

SERIES 5200

Red Valve's 5200 Control Valve — offering maximum durability with precise control. The self-cleaning elastomer sleeve trim offers a 20:1 turndown ratio and 0.89 recovery factor, while eliminating cavitation and scaling and bridging of slurries.

PRESSURE SENSORS

Providing a full 360° pressure reading, Red Valve Pressure Sensors are the industry standard for protecting instrumentation and ensuring accurate, dependable pressure measurement.

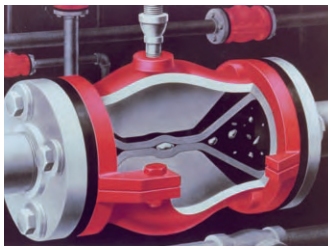


SERIES 75 PINCH VALVES

Our Manual Pinch Valve has the same face-to-face dimensions as gate, plug, and ball valves, and provides bubbletight, bi-directional shutoff. Full port, no packing to maintain ever.

FLEXGATE® SLURRY KNIFE GATE

Red Valve's Flexgate Slurry Knife Gate Valve is a heavy-duty, rugged valve engineered for operator dependability, low maintenance, and excellent abrasion



AIR OPERATED

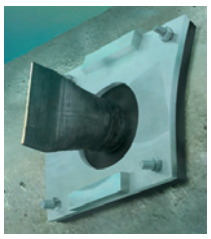
First introduced by Red Valve, the Type A, Miniflex, and Megaflex Pinch Valves are the most economical large- and small-diameter automatic valves on the market today. 1/8"-72".

SERIES 39

Designed with our revolutionary Tideflex® Check Valve technology, the Series 39 Inline Check Valve provides maintenance-free backflow prevention on slurries and other hard-to-handle flow media.

TIDEFLEX® CHECK VALVES

The revolutionary Tideflex® Check Valve stands alone as the product of choice for backflow prevention, replacing high-maintenance flap gates. 1"-96".



EFFLUENT DIFFUSERS

Marine and inland installations the world over have proven that Tideflex® diffuser systems increase performance while eliminating maintenance.

TIDEFLEX® TF-A

Our new Coarse Bubble Air Diffuser improves mixing by increasing jet velocity, while preventing backflow and plugging of the diffuser manifold.

DOMEFLEX™

The new Domeflex™ Fine Bubble Diffuser uses an integrated check valve for backflow prevention, and a heavy-duty membrane that resists fouling and tearing.

Red Valve Company, Inc.

600 N. Bell Avenue
Carnegie, PA 15106

PHONE:
412/279-0044

FAX:
412/278-7878

www.redvalve.com

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