

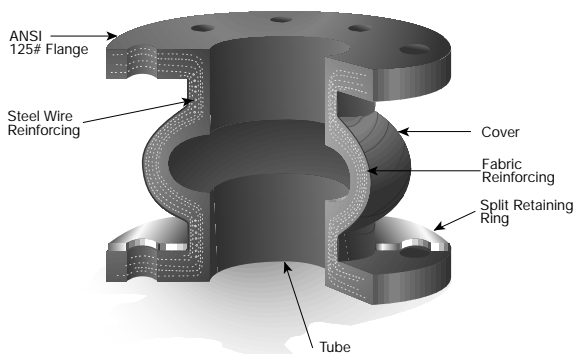
# J-1 Expansion Joints

- ▶ 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.



## Materials of Construction

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



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 and 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 stainless 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.

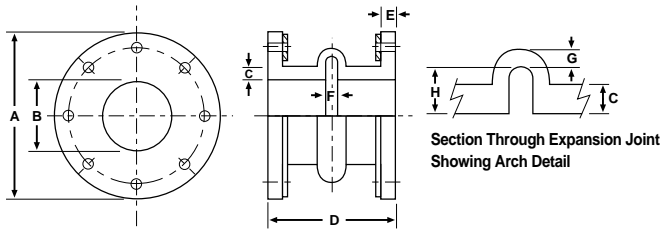
J-1 Expansion Joints are available with a single arch, double arches, or triple arches to meet the face-to-face and movement requirements of the installation. The arches, along with the flexibility of the elastomer construction, allows the J-1 to provide stress relief in piping systems due to the thermal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

## 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



## Dimensions Single and Multiple Arch Expansion Joints

Size	A	B	C	E	F	G	H	Bolt Circle Dia.	Number 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.

## 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.

# T-205 Teflon<sup>®</sup> Lined

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



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

Redflex<sup>®</sup> Teflon<sup>®</sup> 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<sup>®</sup> J-1 Expansion Joints. Refer to the J-1 Expansion Joint for dimension information— see page 7.

## Materials of Construction

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- ▶ PTFE Teflon<sup>®</sup>, backed and reinforced with polyester fabric and Chlorobutyl cover

## Dimensions and Movement T-205 Teflon<sup>®</sup> Lined

Size	Allowable Movement								Force Pounds to Cause Movement			Pressure Ratings		
	Single Arch				Triple Arch							Standard Pressure psi	Pressure & Vacuum psi/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	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	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	165/15"	200
2"	6"	7/16"	1/4"	1/2"	12"	1-5/16"	3/4"	1-1/2"	185	138	350	165	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	165/15"	200
3"	6"	7/16"	1/4"	1/2"	12"	1-5/16"	3/4"	1-1/2"	278	207	412	165	165/15"	200
4"	6"	7/16"	1/4"	1/2"	12"	1-5/16"	3/4"	1-1/2"	371	276	476	165	165/15"	200
5"	6"	7/16"	1/4"	1/2"	12"	1-5/16"	3/4"	1-1/2"	463	344	546	140	140/15"	190
6"	6"	7/16"	1/4"	1/2"	12"	1-5/16"	3/4"	1-1/2"	556	413	617	140	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	100/15"	190
10"	8"	11/16"	3/8"	1/2"	14"	2-1/16"	1-1/8"	1-1/2"	1214	861	809	140	100/15"	190
12"	8"	11/16"	3/8"	1/2"	14"	2-1/16"	1-1/8"	1-1/2"	1456	1033	948	85	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	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	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	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	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	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	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	55/15"	90
42"	12"	1"	9/16"	1/2"	20"	3"	1-11/16"	1-1/2"	4732	3253	3423	55	55/15"	80
48"	12"	1"	9/16"	1/2"	20"	3"	1-11/16"	1-1/2"	5408	3717	3866	55	55/15"	80
54"	12"	1"	9/16"	1/2"	20"	3"	1-11/16"	1-1/2"	6085	4182	4303	55	55/15"	80
60"	12"	1"	9/16"	1/2"	20"	3"	1-11/16"	1-1/2"	6761	4651	4736	55	55/15"	80
72"	12"	1"	9/16"	1/2"	20"	3"	1-11/16"	1-1/2"	8113	5581	5477	45	45/15"	70
84"	12"	1"	9/16"	1/2"	20"	3"	1-11/16"	1-1/2"	9465	6511	6425	45	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 Hypalon®

### ▶ FLANGES

Zinc Chromate-Coated Steel

### ▶ OPERATING CONDITIONS

1-1/2" — 12" max. working pressure

14" — 20" max. working pressure: Style I

14" — 20" max. working pressure: Style II

Maximum Vacuum

Neoprene: Maximum Temperature

Chlorobutyl, EPDM: Maximum Temperature

225 psi

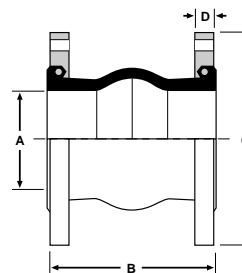
60 psi

100 psi

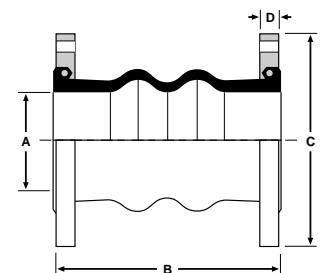
28" Hg

212°F

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°