A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

D-O-L FxE expansion couplings are a bolted, split-sleeve design that provides for expansion and contraction at the coupled joint. These couplings are furnished with restraint rings that, when affixed to one of the pipe ends, ensures the expansion coupling is in the proper position over the pipe ends. FxE Type 1 will provide for axial expansion up to 1.5"/38 mm , while the Type 2 will provide for axial expansion up to 4"/102 mm. The amount of expansion desired at a pipe joint determines the width of the D-O-L FxE coupling to use.

Depend-O-Lok FxE couplings provide an economical, effective method of accommodating pipeline expansion and contraction. Since 1981 Depend-O-Lok FxE has been continually improved to provide engineers, contractors, OEMs and system owners with an even greater choice of strong, reliable expansion couplings.

The D-O-L FxE Type 1 & Type 2 couplings are designed to seal and provide for axial movement at the pipe joint. It is important to note that the FxE expansion coupling is not a restrained joint. Please refer to the latest edition of AWWA Manual M11 "Steel Water Pipe: A Guide for Design and Installation" for proper support and restraint design considerations.

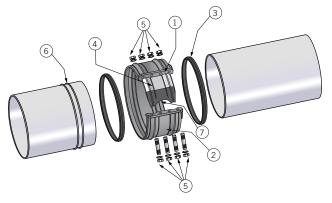
Thermal expansion and contraction is a reality that engineers must often deal with in their design of structures and piping systems. Depend-O-Lok products offer several solutions that are designed to provide engineers with effective, long term and economical ways of providing for thermal expansion and contraction of pipelines.

For quotations, ordering or technical information call 770-840-0662 or FAX 770-840-8312.



### EXPANSION COUPLING COMPONENTS AND BENEFITS

- 1 Closure Plates simplify installation versus traditional sleeve couplings, and enable the coupling to seal with fewer bolts. They also allow the coupling to be provided in multiple segments for ease of handling.
- 2 Split-sleeve (body) has a low profile that permits the coupling to pass through tighter openings than traditional sleeve type products and allows for assembly in close quarters. Harness lugs, if required, can be shorter.
- 3 O-rings. Proven effective during more than 80 years of use.
- 4 Sealing Plate/Pad ensures a tight seal on joints across the split in the sleeve (body) to create the lateral seal.
- **5 Bolts and Nuts** are sized to provide yield strength greater than the hoop strength of the coupling body, and utilize flat washers. Stainless steel or hot dipped galvanized bolting are available.
- **6 Restraint Rings** (provided) are welded to one pipe end providing a means to hold the D-O-L coupling in the proper position.
- **7 Teflon^ Shoulder** on Type 2 Expansion couplings provides for smooth expansion and contraction of the pipe end and a good surface for maintaining a sealed joint.



^ Teflon is a registered trademark of Dupont.

JOB/OWNER	CONTRACTOR	ENGINEER
System No.	Submitted By	Spec Sect Para Para
Location	Date	Approved
		Date

### \\_ictaulic

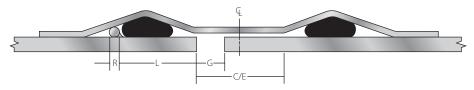
A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

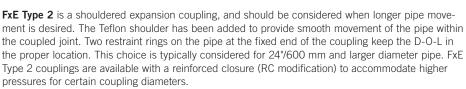
#### **DESIGN DATA**

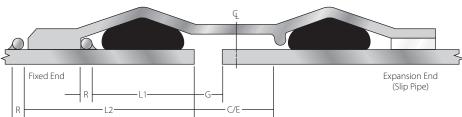
Depend-O-Lok couplings are designed to accommodate expansion and contraction from thermal changes or other causes on an assortment of pipe types; carbon steel, stainless steel, polyethylene, PVC and FRP. D-O-L expansion couplings used in conjunction with "fixed" and "sliding" supports work together to make the most economical expansion system available. The entire system goes together quickly and requires little maintenance.

The Victaulic Depend-O-Lok design offers two design considerations to accommodate movement of pipe.

**FxE Type 1** is the basic Depend-O-Lok bolted, split-sleeve coupling that allows for expansion and contraction at the pipe joint. The coupling is typically considered for lower pressure applications involving 20" or smaller diameter pipe.







**IMPORTANT NOTE:** D-O-L FxE couplings are designed for use where deflection at the joint is not a factor. **If expansion and deflection occur at the same time, please contact Victaulic for details.** 

When FxE Type 2 coupling is used on carbon steel pipe, the D-O-L coupling will be furnished with a stainless steel cladding that is to be shop welded onto the expansion end of the pipe. This cladding provides a smooth surface for long term, reliable performance.

#### **Segmented Couplings**

All FxE couplings are available in two or more segments. This offers an advantage with larger couplings because it reduces shipping and handling costs versus traditional sleeve type couplings. Segmented couplings have the additional advantage of reducing the down time to replace an old coupling on existing pipe. The pipe does not have to be moved to allow for flange ring, gasket, and sleeve installation as with traditional sleeve couplings.



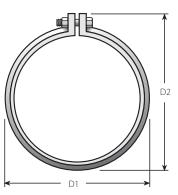
RC STYLE

A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

#### **DIMENSIONS**



W = Coupling body width D1 = Maximum coupling diameter arch to arch D2 = Maximum coupling diameter including closure plate



Formula: P = 2std

#### Where:

s = 18,000 psi allowable stress for carbon steel s = 15,000 psi allowable stress for stainless steeld = pipe O.D. (in.)

P = maximum working pressure (psig) t = coupling body (sleeve) wall thickness (in.) NOTE: Chart pressures are for Depend-O-Lok FxE expansion couplings. For restrained joints, please refer to section 60.11 for additional information.

#### Gauge:

 $10 = 0.134 \, \text{in} / 3.4 \, \text{mm}$   $12 = 0.105 \, \text{in} . / 2.7 \, \text{mm}$  $11 = 0.120 \,\text{in}/3.1 \,\text{mm}$   $14 = 0.075 \,\text{in}/1.9 \,\text{mm}$ 

#### STANDARD DESIGNS FOR DEPEND-O-LOK FXE (EXPANSION) COUPLINGS **ASTM A36 CARBON STEEL**

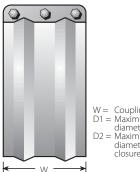
Size	Design Pressure Class	Bo Dime	ody nsions s/mm †	Dimer Inche		Style	No. of Segments	Max. Allowable Axial Movement †
Nominal Pipe Size In./mm	psi	Thick.	Nom. Width (W)	D1	D2	Туре	Std.	(C/E) In./mm
24	100 - 250 689 - 1724	³⁄₁6 5	12 305	26.13 664	27.75 705	2	1	2 51
610	300 2068	1½ 6	12 305	26.25 667	28.63 727	2 RC	1	2 51
30	100 - 200 689 - 1379	<sup>3</sup> / <sub>16</sub> 5	12 305	32.13 816	33.75 857	2	1	2 51
762	250 - 300 1724 - 2068	1/ <sub>4</sub> 6	12 305	32.25 819	34.63 880	2 RC	1	2 51
	100 - 150 689 - 1034	<sup>3</sup> / <sub>16</sub> 5	12 305	38.13 969	40.25 1022	2	1	2 51
36 914	200 1379	1/ <sub>4</sub> 6	12 305	38.25 972	40.38 1026	2	1	2 51
	250 - 300 1724 - 2068	<sup>3</sup> / <sub>8</sub> 10	12 305	38.50 978	43.25 1099	2 RC	2	2 51
	100 - 150 689 - 1034	<sup>3</sup> / <sub>16</sub> 5	12 305	44.13 1121	46.25 1175	2	1	2 51
42 1067	200 1379	1¼ 6	12 305	44.25 1124	46.63 1184	2 RC	1	2 51
	250 - 300 1724 - 2068	<sup>3</sup> / <sub>8</sub> 10	12 305	44.50 1130	49.25 1251	2 RC	2	2 51
48	100 - 150 689 - 1034	1/4	12 305	50.25 1276	52.38 1330	2	1	2 51
1219	200 - 250 1379 - 1724	<sup>3</sup> / <sub>8</sub> 10	12 305	50.50 1283	55.25 1403	2 RC	2	2 51
	100 689	1¼ 6	12 305	56.25 1429	58.30 1481	2	1	2 51
54 1372	150 1034	1½ 6	12 305	56.25 1429	58.63 1489	2 RC	1	2 51
	200 - 250 1379 - 1724	<sup>3</sup> / <sub>8</sub> 10	12 305	56.50 1435	61.25 1556	2 RC	2	2 51
	100 - 150 689 - 1034	1/ <sub>4</sub> 6	12 305	62.25 1581	66.50 1689	2	2	2 51
60 1524	150 1034	1/ <sub>4</sub> 6	12 305	62.25 1581	67.00 1702	2 RC	2	2 51
	200 1379	<sup>3</sup> / <sub>8</sub> 10	12 305	62.50 1588	67.25 1708	2 RC	2	2 51
66	100 689	1/ <sub>4</sub> 6	12 305	68.25 1734	73.00 1854	2 RC	2	2 51
1676	150 - 200 1034 - 1379	<sup>3</sup> / <sub>8</sub> 10	12 305	68.50 1740	73.25 1861	2 RC	2	2 51
72 1829	100 - 150 689 - 1034	<sup>3</sup> / <sub>8</sub> 10	12 305	74.50 1892	79.25 2013	2 RC	2	2 51
78 1981	100 - 150 689 - 1034	<sup>3</sup> / <sub>8</sub> 10	12 305	80.50 2045	85.25 2165	2 RC	2	2 51
84 2134	100 - 150 689 - 1034	<sup>3</sup> / <sub>8</sub> 10	12 305	86.50 2197	91.25 2318	2 RC	2	2 51
90 2286	100 - 150 689 - 1034	<sup>3</sup> / <sub>8</sub> 10	12 305	92.50 2350	97.25 2470	2 RC	2	2 51
96 2438	100 689	<sup>3</sup> / <sub>8</sub> 10	12 305	98.50 2502	103.25 2623	2 RC	2	2 51
108 2743	100 689	<sup>3</sup> / <sub>8</sub> 10	12 305	110.50 2807	115.25 2927	2 RC	2	2 51
120 3048	100 689	<sup>3</sup> / <sub>8</sub> 10	12 305	122.50 3112	127.25 3232	2 RC	2	2 51

<sup>†</sup> Standard body width is 12", which allow 2" of movement. Victaulic also offers 14" and 16", which allow 3" and 4" of movement respectively.

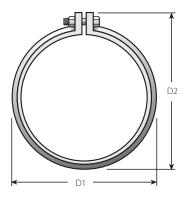


A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

#### **DIMENSIONS**



W = Coupling body width D1 = Maximum coupling diameter arch to arch D2 = Maximum coupling diameter including closure plate



### STANDARD DESIGNS FOR DEPEND-O-LOK FXE (EXPANSION) COUPLINGS ASTM A240 316L STAINLESS STEEL

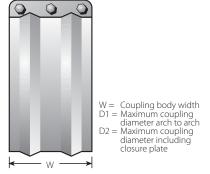
Size	Design Pressure Class	Boo Dimen Inches	dy sions	Dimer Inche		Style	No. of Segments	Max. Allowable Axial Movement
Nominal Pipe Size In./mm	psi	Thick.	Nom. Width (W)	D1	D2	Туре	Std.	(C/E) In./mm
3 76	25 - 200 172 - 1379	14 ga. 2	5.25 133	4.13 105	5.13 130	1	1	0.75 19
4 102	25 - 200 172 - 1379	14 ga. 2	5.25 133	5.13 130	6.13 156	1	1	0.75 19
6 152	25 - 200 172 - 1379	12 ga. 3	8 203	7.25 184	8.25 210	1	1	1.25 32
8 203	25 - 200 172 - 1379	11 ga. 3	10 254	9.25 235	10.38 264	1	1	1.50 38
10 254	25 - 200 172 - 1379	10 ga. 3	10 254	11.25 286	12.38 314	1	1	1.50 38
12 305	25 - 200 172 - 1379	10 ga. 3	10 254	13.25 337	14.38 365	1	1	1.50 38
14 356	25 - 200 172 - 1379	10 ga. 3	10 254	15.25 387	16.38 416	1	1	1.50 38
16 406	25 - 200 172 - 1379	<sup>3</sup> / <sub>16</sub> 5	10 254	17.38 441	18.50 470	1	1	1.50 38
18 457	25 - 200 172 - 1379	<sup>3</sup> /16 5	10 254	19.38 492	20.50 521	1	1	1.50 38
20 508	25 - 200 172 - 1379	<sup>3</sup> / <sub>16</sub> 5	10 254	21.38 543	22.50 572	1	1	1.50 38
24 610	25 - 200 172 - 1379	<sup>3</sup> / <sub>16</sub> 5	12 305	25.88 657	27.50 699	2	1	2.00 51
30	25 - 150 172 - 1034	<sup>3</sup> / <sub>16</sub> 5	12 305	31.88 810	33.50 851	2	1	2.00 51
762	200 1379	1½ 6	12 305	32.00 813	33.63 854	2	1	2.00 51
36 914	25 - 200 172 - 1379	1/4 6	12 305	38.00 965	39.63 1007	2	1	2.00 51
42	25 - 150 172 - 1034	1/4 6	12 305	44.00 1118	45.63 1159	2	1	2.00 51
1067	200 1379	<sup>3</sup> / <sub>8</sub> 10	12 305	44.25 1124	48.25 1226	2 RC	2	2.00 51
48	25 - 150 172 - 1034	1/4 6	12 305	50.00 1270	51.63 1311	2	1	2.00 51
1219	200 1379	<sup>3</sup> / <sub>8</sub> 10	12 305	50.25 1276	54.25 1378	2 RC	2	2.00 51
54	25 - 100 172 - 689	1/4 6	12 305	56.00 1422	58.50 1486	2	1	2.00 51
1372	150 - 200 1034 - 1379	<sup>3</sup> / <sub>8</sub> 10	12 305	56.25 1429	61.25 1556	2 RC	2	2.00 51
60	25 - 100 172 - 689	1/ <sub>4</sub> 6	12 305	62.00 1575	67.00 1702	2	2	2.00 51
1524	150 1034	<sup>3</sup> / <sub>8</sub> 10	12 305	62.25 1581	67.25 1708	2 RC	2	2.00 51
66	25 - 50 172 - 345	1/4 6	12 305	68.00 1727	73.00 1854	2	2	2.00 51
1676	100 - 150 689 - 1034	<sup>3</sup> / <sub>8</sub> 10	12 305	68.25 1734	73.25 1861	2 RC	2	2.00 51

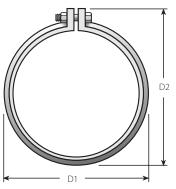
Shaded areas are gauge/mm. All unshaded areas are in./mm.

Table continued on next page

A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

#### **DIMENSIONS**





### STANDARD DESIGNS FOR DEPEND-O-LOK FXE (EXPANSION) COUPLINGS ASTM A240 316L STAINLESS STEEL

Size	Design Pressure Class	Boo Dimen Inches	sions	Dimer Inche		Style	No. of Segments	Max. Allowable Axial Movement
Nominal Pipe Size In./mm	psi	Thick.	Nom. Width (W)	D1	D2	Туре	Std.	(C/E) In./mm
72	25 - 50 172 - 345	1½ 6	12 305	74.00 1880	79.00 2007	2	2	2.00 51
1829	100 - 150 689 - 1034	<sup>3</sup> / <sub>8</sub> 10	12 305	74.25 1886	79.25 2013	2 RC	2	2.00 51
78	25 - 50 172 - 345	½ 6	12 305	80.00 2032	85.00 2159	2	2	2.00 51
1981	100 - 150 689 - 1034	<sup>3</sup> / <sub>8</sub> 10	12 305	80.25 2038	85.25 2165	2 RC	2	2.00 51
84	25 - 50 172 - 345	½ 6	12 305	86.00 2184	91.00 2311	2	2	2.00 51
2134	100 689	<sup>3</sup> / <sub>8</sub> 10	12 305	86.25 2191	91.25 2318	2 RC	2	2.00 51
90	25 - 50 172 - 345	½ 6	12 305	92.00 2337	97.00 2464	2	2	2.00 51
2286	100 689	<sup>3</sup> / <sub>8</sub> 10	12 305	92.25 2343	97.25 2470	2 RC	2	2.00 51
96	25 - 50 172 - 345	½ 6	12 305	98.00 2489	103.00 2616	2	2	2.00 51
2438	100 689	<sup>3</sup> / <sub>8</sub> 10	12 305	98.25 2496	103.25 2623	2 RC	2	2.00 51

A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

#### AIR PIPING

#### STAINLESS SYSTEMS

Stainless steel pipe is becoming increasingly popular in water and wastewater treatment plant design. Prior to 1981, stainless steel couplings were not readily available and were overly expensive. Since then Depend-O-Lok stainless steel couplings have been available to provide owners with a total stainless steel system at a reasonable price. Now engineers can design entire stainless steel systems that offer long term economy without the need for carbon steel couplings or ductile iron flanges in contact with the stainless steel pipe.



 Due to the large volumes of air involved in jobsite air testing and the nature of pressurized air or gas, Victaulic urges Engineers and Contractors to limit jobsite test pressure to 25 psi or less.

#### **O-RING GASKET MATERIAL FOR AIR SERVICE**

#### EPDM

Temperature range -30°F to +230°F/-34°C to +110°C. Excellent resistance to the deteriorative effects of ozone, oxygen, heat and most chemicals.

#### Silicone

Temperature range  $-30^{\circ}F$  to  $+350^{\circ}F/-34^{\circ}C$  to  $+177^{\circ}C$ . Excellent resistance to ozone. Good resistance to many chemicals.

#### Fluoroelastomer

Temperature range  $-20^{\circ}$ F to  $+300^{\circ}$ F/ $-28^{\circ}$ C to  $+149^{\circ}$ C. Outstanding resistance to heat and chemicals.

Note: Other gasket compounds are available if required. Contact Victaulic.

A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

#### **WATER PIPING**

#### **TESTING**

Depend-O-Lok couplings are designed and built to seal air and water at a wide range of pressures. Our couplings are randomly tested at the plant to 150 psi.

#### STANDARD APPLICATIONS

Piping in:

- Water Plants
- Wastewater Plants
- Penstocks

#### **VACUUM SERVICE**

The arched shape of the D-O-L body creates high section modulus. Depend-O-Lok couplings are an excellent choice for vacuum and negative pressure (submerged) service.

#### O-RING GASKET MATERIAL FOR WATER & SEWAGE SERVICE

#### Isoprene

Temperature range  $-40^{\circ}$ F to  $+160^{\circ}$ F/ $-40^{\circ}$ C to  $+71^{\circ}$ C. Excellent resistance to water, salt water, and sewage. Good resistance to oxygen and dilute acids.

#### EPDM

Temperature range  $-30^{\circ}$ F to  $+230^{\circ}$ F/ $-34^{\circ}$ C to  $+110^{\circ}$ C. Excellent resistance to water and salt water.

#### Nitrile

Temperature range  $-20^{\circ}$ F to  $+180^{\circ}$ F/ $-28^{\circ}$ C to  $+82^{\circ}$ C. Excellent resistance to petroleum oils and gasolines. Good resistance to hydrocarbons, acids and bases.

Note: Other gasket compounds are available if required. Contact Victaulic.

A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

#### THERMAL EXPANSION AND CONTRACTION

Controlling the thermal expansion and contraction of a pipeline or a piping system is a critical element in a good design. The proper combination of expansion joints with fixed and sliding supports will allow the piping system to operate through the full temperature range and the various phases of operation without over-stressing the piping or supports.

Pipe Material	Coefficient of Expansion (e)	Rule of Thumb In./°F/Ft.	Modulus of Elasticity (E) psi
Carbon Steel	0.0000065"/ " /degree	1/125/100	29,000,000
Stainless Steel	0.0000099"/ " /degree	1/85/100	28,000,000
Fiberglass	0.00001"/ " /degree	1/82/100	1,350,000
PVC	0.0000372"/ " /degree	1/22/100	350,000

"Rule of Thumb" – For AWWA C220 S.S. 316 Pipe, the Rule of Thumb is 1/85/100. This means the change in length is 1" per 85°F temperature change per 100 feet of pipe length.

#### Example:

#### Assume:

- 1. Change in temperature ( $\Delta \tau$ ) = 200 degrees
- 2. Pipe is 24" O.D. x 0.188 wall S.S.
- 3. Pipe length is 40' (480")

#### Calculation:

Change in length =  $\varepsilon \tau l$ 

= 0.0000099 x 200 x 480

= 0.9504"

The expanded pipe length would be 480.9504" or 40.08'.

The force generated by the 200 degree  $\Delta \tau = E \, \epsilon \, \tau$ 

= 28,000,000 x .0000099 x 200

= 55,440 lbs./sq. inch

The cross sectional area of the above referenced pipe wall is 14.026 sq. in.

 $14.026 \times 55440 = 777,601$  pounds end load.

From the above example, it can be seen that the pipe will become over-stressed if provisions are not made to accommodate the expansion/contraction.

Change in length =  $\varepsilon \tau l$ 

- $\epsilon$  Coefficient of expansion
- $\tau$  Change in temperature, °F
- 1 Length in inches of pipe

The Gap shown in the drawing (G=0.625") is the Design Gap and assumes installation at  $70^{\circ}\text{F}$ .

Actual gap should be adjusted according to actual temperature of the pipe at time of installation and the actual length of pipe that is protected by the coupling. Contact Victaulic for installation gap chart; call 770-840-0662, or FAX 770-840-8312.

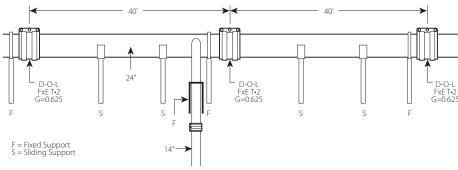


FIGURE 1

A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

#### SUPPORT THRUST DATA

The support system of a pipeline design is a critical aspect. It must allow the pipe to move freely along its' axis as it expands and contracts and, at the same time, support the pipe and anchor it firmly at strategic locations. An efficient support system uses a combination of "sliding" and "fixed" supports. The force generated by the change in temperature is great (see Figure 1) and causes the pipe to move in and out of the expansion coupling. The resistance of the coupling (the force required to move the pipe in the coupling) must be taken into account to properly design the support bracing and anchoring.

Victaulic takes the position that the D-O-L EXE or FXE coupling, by itself, will only provide minimum, if any, pipe restraint. Proper support and restraint must be provided to ensure that pipe separation will not occur.

Size		_	Force in Kips Pipe Type	_	_
Pipe O.D. inches/mm	Stainless Steel	Carbon Steel	Ductile Iron	Fiberglass	Plastic
4 114.3	0.098	0.110	0.148	0.098	0.056
6 168.3	0.207	0.233	0.314	0.207	0.103
8 219.1	0.342	0.386	0.520	0.342	0.164
10 273.0	0.517	0.585	0.790	0.517	0.236
12 323.9	0.709	0.804	1.085	0.709	0.306
14 355.6	0.847	0.962	1.293	0.847	0.354
16 406.4	1.076	1.237	1.669	1.076	0.442
18 457.0	1.323	1.527	2.061	1.323	0.522
20 508.0	1.587	1.838	2.482	1.587	0.597
24 610.0	2.217	2.679	3.483	2.217	0.701
30 762.0	3.322	3.888	5.089	3.322	0.728
36 914.0	4.580	5.191	7.329	4.580	0.998
42 1067.0	5.957	7.066	9.560	5.957	1.302
48 1219.2	7.419	8.867	11.943	7.419	1.629
54 1371.6	8.932	10.764	14.482	8.932	2.038
60 1524.0	10.462	12.723	17.247	10.462	2.488
68 1727.2	11.974	14.711	19.843	11.974	_
72 1828.8	13.436	16.693	22.393	13.436	_
84 2133.6	16.071	20.505	_	16.071	_
96 2438.4	18.458	23.886	_	18.458	_
108 2743.2	20.612	27.438	_	20.612	_
120 3048.0	23.185	31.667	_	23.185	_
132 3352.8	23.946	34.212	_	23.946	_
144 3657.6	24.429	36.644	_	24.429	_

#### NOTES

Forces listed in the Support Thrust Data table above are considered the maximum required to move pipe within Depend-O-Lok FxE expansion coupling, and should not be interpreted as coupling restraint ability. Pipe ends are to be clean and smooth.

 $\label{thm:coupling} \mbox{Values listed are for D-O-L FxE expansion coupling in low pressure service.}$ 

A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

#### RESTRAINT RING WELDING DATA

#### METHOD OF "FIXING" THE COUPLING TO THE PIPE

#### • Carbon Steel and Stainless Steel

Restraint ring is skip-welded to one pipe end.

#### FRP Pipe

The pipe end is built up thick enough to have a groove cut into the pipe that will accept the shoulder.

#### • Polyethylene Pipe

Expansion coupling is manufactured with a shoulder that sits in a groove that has been cut into the pipe or the D-O-L Coupling is furnished with bosses attached to one edge. After installation, holes are drilled into the pipe through each boss and a "set screw" is threaded through the boss into the wall of the pipe.

#### • PVC Pipe

PVC ring is furnished with the coupling that sits in a groove that has been cut into the pipe wall on one side of the pipe joint or the D-O-L Coupling is manufactured with a shoulder that sits in a groove that has been cut into the pipe.

### FXE RESTRAINT RING DATA ASTM A36 FOR CARBON STEEL PIPE

Size		Restraint Rir Dimensions Inches/mm	ĭ
Nominal Pipe Size In./mm	Dia. (R)	Location (L1)	Location (L2)

Type	2	<b>Expansion</b>	Cour	oling

71		1 0	
24	0.25	3.25	5
600	6	83	127
30	0.25	3.25	5
750	6	83	127
36	0.38	3.25	5.13
900	10	83	130
42	0.38	3.25	5.13
1050	10	83	130
48	0.38	3.25	5.13
1200	10	83	130
54	0.38	3.25	5.38
1375	10	83	137
60	0.38	3.25	5.38
1575	10	83	137
66	0.38	3.25	5.38
1675	10	83	137
72	0.38	3.25	5.38
1875	10	83	137
78	0.38	3.25	5.38
1981	10	83	137
84	0.38	3.25	5.38
2150	10	83	137
90	0.38	3.25	5.38
2286	10	83	137
96	0.38	3.25	5.38
2450	10	83	137
108	0.38	3.25	5.38
2750	10	83	137
120	0.38	3.25	5.38
3050		83	137

This data applies to welding grade ASTM A108 grade 1018 carbon steel restraint rings to carbon steel pipe.

A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

### FXE RESTRAINT RING DATA ASTM A316L FOR STAINLESS STEEL PIPE

Size	Stainless Steel §	Restraint Ring Dimensions Inches/mm		
Nominal Pipe Size In./mm	Restraint Ring Diameter In./mm	Location (L1)	Location (L2)	
Type 1 Expansion	n Couplings			
3 80	0.13 3.2	1.25 32	_	
4 100	0.19 4.8	1.13 29	_	
6 150	0.19 4.8	1.75 44	_	
8 200	0.25 6.4	2.00 51	_	
10 250	0.25 6.4	2.00 51	_	
12 300	0.25 6.4	2.00 51	_	
14 350	0.25 6.4	2.00 51	_	
16 400	0.25 6.4	2.00 51	_	
18 450	0.25 6.4	2.00 51	_	
20 500	0.25 6.4	2.00 51	_	
Type 2 Expansion	n Couplings			
24 600	0.25 6.4	3.25 83	5.00 127	
30	0.25	3.25 83	5.00 127	
750	6.4	3.25 83	5.00 127	
36 900	0.25 6.4	3.25 83	5.00 127	
42	0.25	3.25 83	5.00 127	
1050	6.4	3.25 83	5.00 127	
48	0.25	3.25 83	5.00 127	
1200	6.4	3.25 83	5.00 127	
54	0.25	3.25 83	5.25 133	
1375	6.4	3.25 83	5.25 133	
60	0.25	3.25 83	5.25 133	
1575	6.4	3.25 83	5.25 133	

This data applies to welding grade ASTM A276 316L stainless steel restraint rings to stainless steel pipe.

A COUPLING SYSTEM THAT PERMITS PIPELINE EXPANSION AND CONTRACTION. SIMPLE, ECONOMICAL, AND DEPENDABLE.

#### **FXE RESTRAINT RING DATA ASTM A316L FOR STAINLESS STEEL PIPE**

Size	Stainless Steel §	Restraint Ring Dimensions Inches/mm		
Nominal Pipe Size In./mm	Restraint Ring Diameter In./mm	Location (L1)	Location (L2)	
66	0.25	3.25 83	5.25 133	
1675	6.4	3.25 83	5.25 133	
72	0.25	3.25 83	5.25 133	
1875	6.4	3.25 83	5.25 133	
78	0.25	3.25 83	5.25 133	
1981	6.4	3.25 83	5.25 133	
84	0.25	3.25 83	5.25 133	
2150	6.4	3.25 83	5.25 133	
90	0.25	3.25 83	5.25 133	
2286		3.25 83	5.25 133	
96	96 0.25	3.25 83	5.25 133	
2450	6.4	3.25 83	5.25 133	

This data applies to welding grade ASTM A276 316L stainless steel restraint rings to stainless steel pipe.

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.



