



Easy-Flex Series 301EF

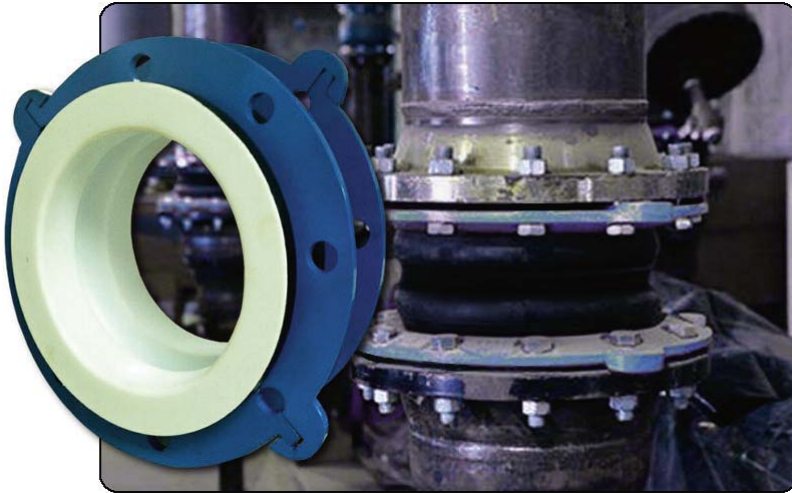
RUBBER EXPANSION JOINTS

Engineered Solutions For Pipe Motion

Canada 
www.thorburnflex.com

Easy-Flex Series 301EF Rubber Expansion Joints

Thorburn's Easy-Flex Series 301 EF rubber expansion joints are capable of absorbing movement in all directions (axial, lateral & angular), unexpected shock, ground settling and induced movements caused by pumps, blowers or other agitating equipment.



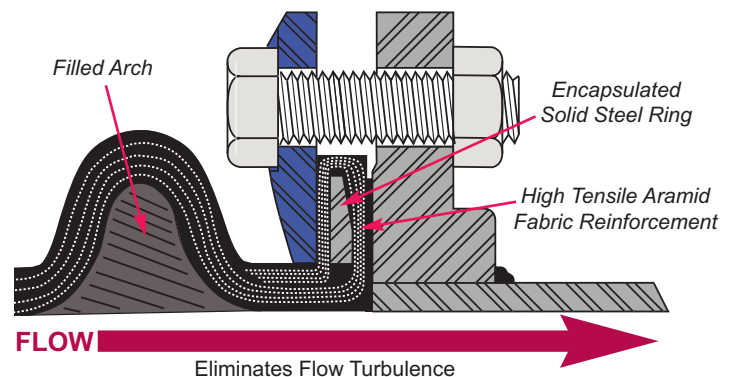
Easy-Flex 301EF Double Arch Rubber Expansion Joint

Easy-Flex 301EF PTFE Lined Single Arch Rubber Expansion Joint

Thorburn's Easy-Flex Series 301EF have interlocking flanges which are compatible of mating with lap-joint stub ends, raised face or flat full face type flanges. The standard floating flanges are drilled as per ANSI B16.5 Class 150 epoxy-coated carbon steel. Galvanized, stainless steel and other alloy type materials and flange drillings are also available.

Features

- **Low spring rates**
Enhanced flexibility
- **Swivel Flanges & Short Face-to-face**
For easy plumb-up and installation
- **The 301EF Expansion Joint ID = The Pipe ID**
This feature combined with swivel flanges and superior sealing force make it ideally suited for HDPE piping systems
- **Superior abrasion, erosion & corrosion resistance**
Ideal for sea water, slurry and other abrasive media
- **Filled or open arch design**
Less force for given movement for filled arch
100% decrease in turbulence
Self cleaning wide arch
Single & multi-arch design
- **Vibration and sound absorption**
Absorbs transmission of vibration without stress
- **Freedom from embrittlement**
Flexing keeps the rubber "alive" & eliminates flex induced cracking
- **Great recovery from movement**
Continues to return to its original position
- **NSF-61 compliant rubber materials available**
Thorburn's Nitrile blended tube is made of NSF-61 certified materials and compatible for use in potable water systems
- **FDA compliant rubber materials available**
Thorburn's white EPDM and Nitrile blended tubes are manufactured to comply with FDA requirements and are ideal for handling food & drinking water systems.



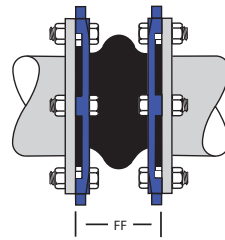
High Pressure Sealing Force

Thorburn's Style 301EF employs a solid steel ring that is wrapped in high tensile aramid fabric reinforcement at the base of the rubber flange. The solid steel ring stops the aramid fabric reinforcement from "pulling out" of the flanges, a common problem with inferior sphere type rubber expansion joints. The solid steel ring also provides superior sealing force when compressed against the mating flange during installation. This feature prevents the distortion of sealing surfaces if the installation tolerances are exceeded providing a leak tight, high pressure sealing force. Thorburn's Style 301EF solid steel ring makes it ideally suited for mating with raised face, flat face and odd shaped flanges (butterfly valve).

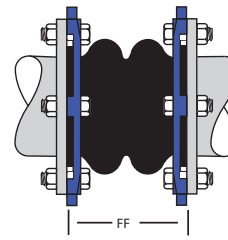
Easy-Flex Series 301EF Rubber Expansion Joints

Easy-Flex Series 301EF Technical Data

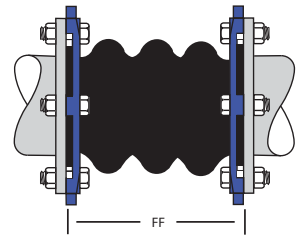
- Movements and forces listed below are for single open arch
- Tolerances as per FSA Technical Handbook 7.1 Edition
- Maximum Working Pressures with 4 to 1 Safety Factor
- Pressures will be reduced depending on reinforcement
- Sizes up to 48 inches (1219 mm)
- Pressures up to 300 psi (20 bar)
- 4:1 Safety Factor
- Rated full vacuum for all sizes
- Available in a variety of tube reinforcement and covers



Easy-Flex 301EF Single Arch Rubber Expansion Joint



Easy-Flex 301EF Double Arch Rubber Expansion Joint



Easy-Flex 301EF Triple Arch Rubber Expansion Joint

301EFL - Long Face-To-Face

NPS	Face-To-Face			Design Movement For Single Open Arch					Spring Rate For Single Open Arch				Working Pressure	Weight
	1 Arch	2 Arches	3 Arches	Axial Compression	Axial Extension	Lateral Deflection	Angular	Torsional	Axial Compression	Axial Extension	Lateral	Angular		
inch	inch	inch	inch	inch	inch	inch	deg	deg	lb/in	lb/in	lb/in	lb*in/deg	PSI	lbs
1.5	6	12	16	1.75	0.75	0.75	26.0	2.0	265	344	398	0.11	300	12
2	6	12	16	1.75	0.75	0.75	24.0	2.0	317	413	476	0.23	300	15
2.5	6	12	16	1.75	0.75	0.75	22.0	2.0	398	517	596	0.38	300	17
3	6	12	16	1.75	0.75	0.75	20.0	2.0	506	659	760	0.60	300	19
4	6	12	16	1.75	0.75	0.75	19.0	2.0	636	827	954	1.4	300	23
5	6	12	16	1.75	0.75	0.75	15.0	2.0	769	1,000	1,154	2.8	300	25
6	6	12	16	1.75	0.75	1.00	12.0	2.0	904	1,175	1,356	4.8	300	29
8	6	12	18	1.75	0.75	1.00	10.0	2.0	1,049	1,363	1,573	9.5	300	36
10	8	16	20	1.75	0.75	1.00	9.0	2.0	1,196	1,556	1,795	18.2	300	51
12	8	16	20	1.75	0.75	1.00	8.0	2.0	1,346	1,751	2,020	32	300	72
14	8	16	20	1.75	0.75	1.00	7.0	2.0	1,504	1,955	2,256	44	300	81
16	8	16	20	1.75	0.75	1.00	6.0	2.0	1,661	2,160	2,492	57	300	94
18	8	16	20	1.75	0.75	1.00	6.0	2.0	1,823	2,369	2,734	80	300	105
20	8	16	20	1.75	0.75	1.00	5.0	2.0	1,969	2,560	2,954	114	300	123
22	10	16	22	1.75	0.75	1.00	5.0	2.0	2,111	2,745	3,167	154	300	135
24	10	16	22	1.75	1.00	1.00	5.0	2.0	2,239	2,911	3,359	206	300	157
26	10	16	22	1.75	1.00	1.00	4.0	2.0	2,381	3,096	3,572	219	200	182
28	10	16	22	1.75	1.00	1.00	4.0	2.0	2,532	3,292	3,798	287	200	189
30	10	16	22	1.75	1.00	1.00	4.0	2.0	2,687	3,493	4,030	328	200	207
32	10	16	22	1.75	1.00	1.00	4.0	2.0	2,827	3,675	4,241	417	200	229
34	10	16	22	1.75	1.00	1.00	3.0	2.0	3,002	3,902	4,502	484	200	256
36	10	18	22	2.25	1.00	1.00	3.0	2.0	3,164	4,112	4,745	633	200	285
40	10	18	22	2.25	1.00	1.00	3.0	2.0	3,326	4,325	4,990	782	200	324
42	12	18	22	2.25	1.00	1.00	3.0	2.0	3,534	4,595	5,301	872	200	347
48	12	18	22	2.25	1.00	1.00	3.0	2.0	3,740	4,862	5,611	1,369	200	452

301EFS- Short Face-To-Face

1.5	4	7	12	0.438	0.250	0.438	18.5	2.0	255	338	203	0.17	300	11
2	4	7	12	0.438	0.250	0.438	14.5	2.0	338	420	255	0.35	300	14
2.5	4	7	12	0.438	0.250	0.438	10.0	2.0	420	521	315	0.54	300	16
3	4	7	12	0.438	0.250	0.438	7.5	2.0	503	621	375	0.9	300	18
4	4	7	12	0.438	0.250	0.438	6.0	2.0	608	828	548	2.1	300	21
5	4	7	12	0.438	0.250	0.438	5.5	2.0	840	1032	675	4.2	300	24
6	4	7	12	0.438	0.250	0.438	5.0	2.0	1050	1239	795	7.2	300	28
8	5	9	14	0.688	0.375	0.500	4.5	2.0	1133	1379	885	14.3	300	33
10	5	9	14	0.688	0.375	0.500	4.0	2.0	1440	1722	1095	27.3	300	47
12	5	9	14	0.688	0.375	0.500	3.75	2.0	1725	2067	1305	48	300	66

Note: Flange dimensions are in accordance with 125/150 pound standard drilling of: ANSI B16.1, B16.24, B16.51, MSS SP-44. Other flange types available upon request.

Special notes on movement capability: 1) Filled arch construction reduces above movements by 50%. 2) To calculate movement of multiple arch type for compression extension and lateral movements, take movement shown in the above table and multiply by the number of arches. 3) The degree of angular movement is based on the maximum extension shown. 4) Movement capability shown is non-concurrent percentage used in one movement position and must be deducted from the other movement position so that sum of movements doesn't exceed 100%. 5) Movements shown are based on proper installation practices. See Thorburn installation maintenance guide for details.

Special notes on Spring Rates: 1) Forces required to move Thorburn Easy-Flex 301EF are based on zero pressure conditions and room temperature in the pipeline. 2) These forces should be considered only as approximates, compensation must be made for more accurate forces based on materials of construction and actual service conditions. 3) Filled arch spring rates are approximately 4 times that of a single open arch. 4) Multi-arch spring rates are equal to a single arch divided by number of arches.

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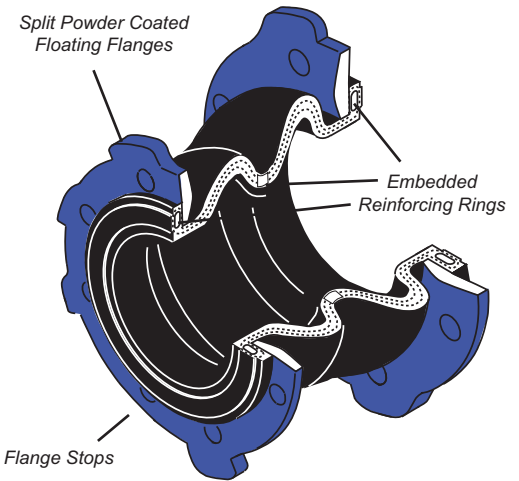
Easy-Flex Style 301EF-CR & 301EF-ER Concentric & Eccentric Reducer Expansion Joints

Thorburn's Style 301EF Concentric and Eccentric reducer expansion joints are specifically developed to connect piping of unequalled diameters. These reducers were designed to replace and address the limitations found in metal reducers in a pipeline.

Thorburn Easy-Flex 301EF-CR
 Double Arch Concentric Reducer
 Rubber Expansion Joint

NPS	Face-To-Face			Design Movement For Single Open Arch				Working Pressure
	1 Arch	2 Arches	3 Arches	Axial Compression	Axial Extension	Lateral Deflection	Angular	
inch	inch	inch	inch	inch	inch	inch	deg	PSI
2 X 1.5	6	10	14	1.25	0.75	0.75	26.0	250
3 X 2	6	10	14	1.25	0.75	0.75	24.0	250
4 X 3	7	11	15	1.25	0.75	0.75	20.0	250
5 X 4	8	12	16	1.25	0.75	0.75	19.0	250
6 X 5	9	13	17	1.25	0.75	0.75	15.0	250
8 X 6	11	15	19	1.25	0.75	1.00	12.0	250
10 X 8	12	16	20	1.25	0.75	1.00	10.0	250
12 X 10	14	18	22	1.75	0.75	1.00	9.0	250
14 X 12	14	18	22	1.75	0.75	1.00	8.0	250
16 X 14	16	20	24	1.75	0.75	1.00	7.0	250
18 X 16	16	20	24	1.75	0.75	1.00	6.0	180

Note: 1. For movement compatibility see Technical Data 2. Other size configurations available
 3. Available with Filled Arches 4. Full Vacuum rating for all sizes



How to Order Easy Flex 301EF Rubber Expansion Joints

Part Number Example & Description

(Part number must follow the order listed below)

301EFL-6X12-D-O-M-C-F-S6-CR-2-S6-SW

301EFL	301EFL Easy-Flex Style Long Face-to-Face
6X12	Size - ID X Length "F"
D	Number of Arches - Double
O	Arch Type - Open
M	Tube Material - NSF-61 Certified for Potable Water Service
C	Cover Material - Neoprene
F	Interlocking Flange Rings
S6	Interlocking Flange Material - 316SS
CR	Control Rod
2	Quantity of Control Rods - QTY 2
S6	Control Rod Material - 316SS
SW	Spherical Washers

Ordering Codes	
301 STYLES 301EFS = Short Face-to-Face 301EFL = Long Face-to-Face 301EF-CR = Concentric Reducer 301EF-ER = Eccentric Reducer	ARCH TYPE F = Filled O = Open
ARCHES N = No Arch S = Single D = Double T = Triple Q = Quadruple	INTERLOCKING FLANGE RINGS F = Interlocking Flange Rings
TUBE & COVER MATERIAL A = Natural Rubber B = Pure Gum C = Neoprene D = Nitrile E = Butyl F = Hypalon H = EPDM I = Viton J = PTFE Lined to 14" >16" FEP Lined L = Silicone M = Nitrile NSF-61 Certified Tube Only X = Specify	CONTROL RODS CR = Control Rod None = Leave Blank
	FLANGE & ROD MATERIAL Standard Material is plated steel. For other materials insert the following suffix after code. S4 = 304SS S6 = 316SS X = Specify
	ACCESSORIES SW = Spherical Washers PS = Pipe Sleeves None - Leave Blank



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