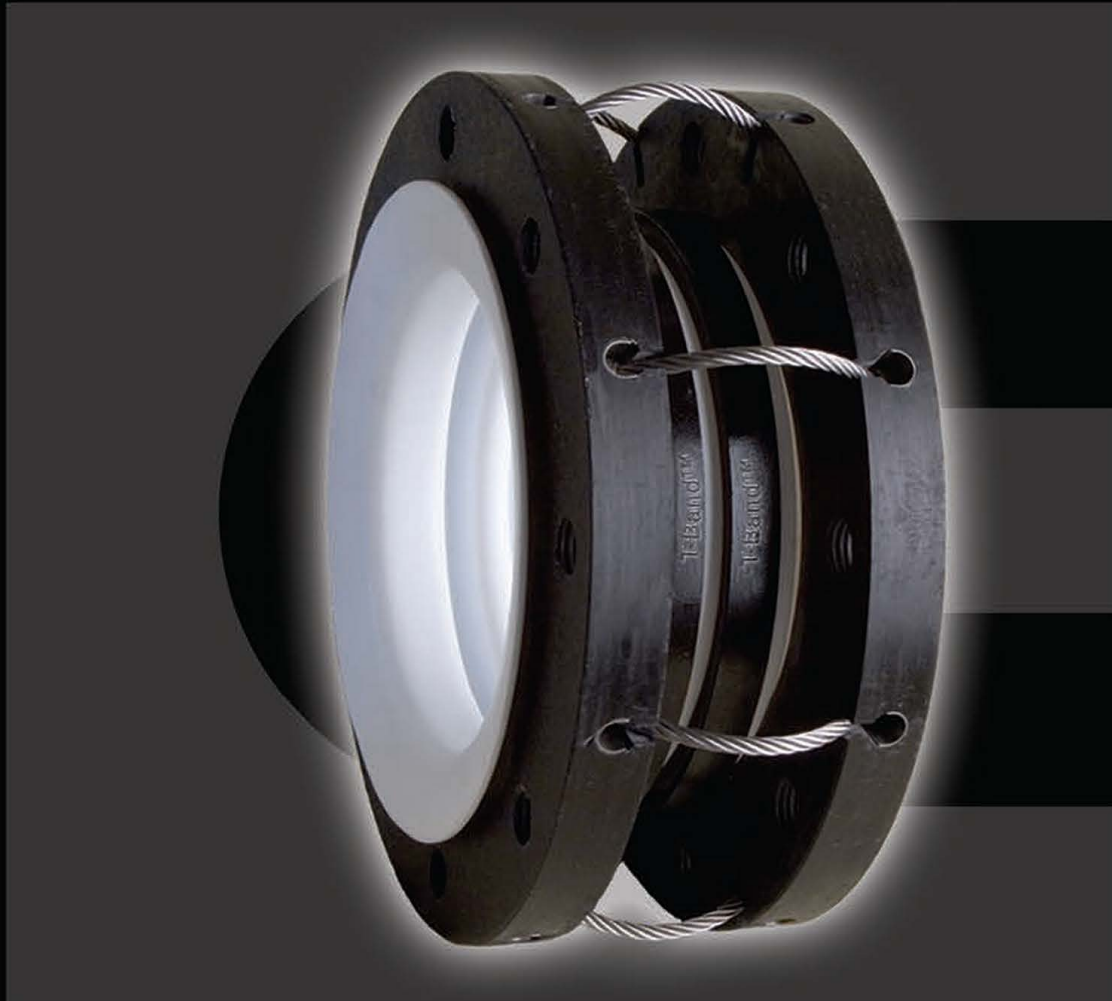


# FLEXIJOINT®



## *Condensed Brochure*

*\*\*\* For Full Version (72) Page Brochure Request "Flexijoint 1206" \*\*\**

**ETHYLENE™**  
an ANDRONACO INDUSTRIES company

**Flexijoint: The Severe Service Standard**

# FLEXIJOINT<sup>®</sup>

## 1 Pure 100% Virgin PTFE Resin

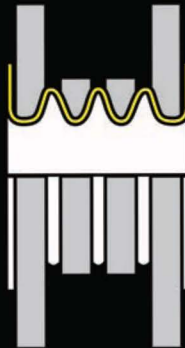
The unmatched performance of Flexijoint is due to its exclusive Fluoroforming<sup>™</sup> process, a development of Ethylene. The Fluoroforming<sup>™</sup> process employs only high molecular weight resin to utilize pure PTFE with no pigments or additives which might contaminate contacting fluids by leaching out and/or becoming vulnerable to blistering. In addition, high molecular weight with tightly controlled crystallinity, inherent in the Ethylene Fluoroforming<sup>™</sup> process, results in lower permeation rates, outstanding flex-life and maximum tensile strength.

*Competitors which use paste extruded resin are NOT using Pure PTFE. They must mix a hydrocarbon such as Isopar to facilitate PTFE paste extruding.*

## 2 Uniform Wall Thickness

Ethylene's exclusive Fluoroforming<sup>™</sup> process guarantees multiple convolution walls of constant uniform thickness for any size. This relationship of heavy wall and geometry is one of the basic reasons for the outstanding performance of Flexijoints. Deep convolutions allow increased axial travel and also reduce the force necessary to produce movement or lateral misalignment. As a result, Flexijoints have a longer service life when compared to conventional blow molded or stretch molded expansion joints which introduce stress points and exhibit alarming thinning of the convolution wall and root.

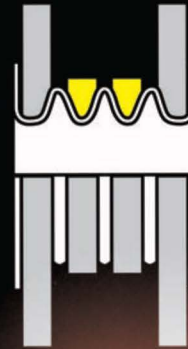
*Note: Blow-Molding is sometimes referred to as "Contour" molding by some manufacturers.*



## 3 T-Band<sup>™</sup>

### Root & Sidewall Support

Flexijoint T-Band<sup>™</sup> reinforcement on the outside of the convolutions supports the convolution root and sidewall for improved service life and increased safety in high pressure applications. As pressure and temperature increase, the sidewall of the PTFE convolutions conform to the contour of the T-Band<sup>™</sup>, improving stability under pressure.

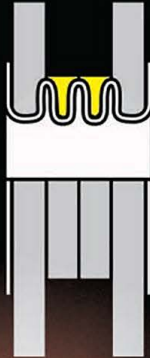


Actual Flexijoint

# Distinctive Features

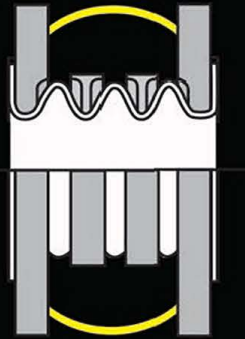
## 4 T-Band™ Protection From Over Compression

Flexijoint T-Band™ metal reinforcement on the outside of the convolutions not only contributes to the pressure rating of the Flexijoint but also limits the total axial movement in compression. The shoulders of the T-Band™ are designed to butt when maximum compression limit has been reached to provide protection from excessive compression for improved safety and increased service life.



## 5 LimitLinks™ Protection From Over Expansion

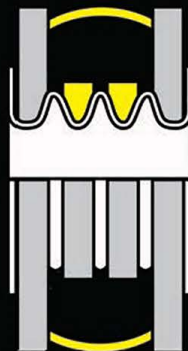
LimitLinks™ consist of stainless steel cables conforming to MIL-C5424, Government specification for Aircraft Cable, at the ends of which are stainless steel ball-shaped terminals that are swaged. The opposite ends of the LimitLink™ are firmly anchored in the Flexijoint flanges in a manner which limits over expansion of the Flexijoint but also leaves the terminals free to swivel as the flanges change position relative to each other during their adjustment to angular misalignment, parallel misalignment, purely axial motion or a combination of all three.



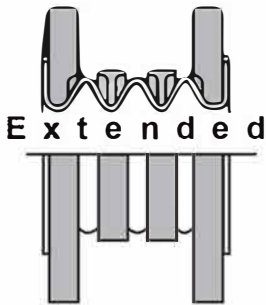
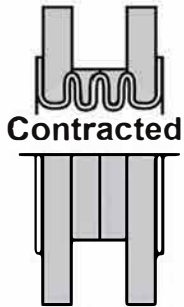
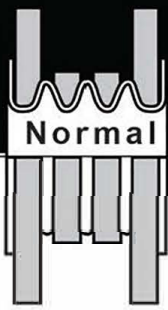
## 6 LimitLinks™ & T-Band™ Additional Benefits

LimitLinks™ provide easy installation even when the mating flange bolts don't align. They also won't get in the way and they never need to be removed for installation unlike competitors LimitBolt designed expansion joints which may void warranties.

T-Bands™ cover approximately 75% of the outside of the convolution when not compressed to provide protection from external damage such as falling tools or weld splatter.



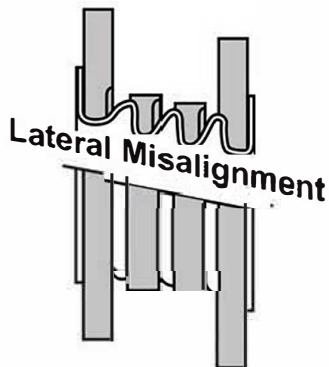
Cross-Section



## LENGTHS (NORMAL, CONTRACTED, EXTENDED)\*

SIZE In.	2 convolutions		3 convolutions		4 convolutions		5 convolutions		6 convolutions	
	NORMAL LENGTH	PLUS OR MINUS TRAVEL	NORMAL LENGTH	PLUS OR MINUS TRAVEL	NORMAL LENGTH	PLUS OR MINUS TRAVEL	NORMAL LENGTH	PLUS OR MINUS TRAVEL	NORMAL LENGTH	PLUS MIN TRA
1/2	1.63	0.31	2.17	0.47	2.68	0.63	3.23	0.79	3.78	0.95
3/4	1.63	0.31	2.20	0.47	2.72	0.63	3.27	0.79	3.82	0.95
1	1.75	0.35	2.32	0.51	2.91	0.67	3.50	0.83	4.06	0.99
1-1/4	1.78	0.35	2.38	0.51	2.95	0.67	3.56	0.83	4.17	1.00
1-1/2	1.81	0.35	2.40	0.51	3.00	0.67	3.62	0.87	4.21	1.00
2	1.88	0.35	2.50	0.51	3.13	0.71	3.74	0.87	4.37	1.00
2-1/2	2.13	0.39	2.80	0.59	3.54	0.83	4.25	0.98	4.90	1.00
3	2.20	0.39	2.91	0.63	3.62	0.83	4.37	1.02	5.08	1.00
4	2.28	0.43	3.07	0.67	3.82	0.87	4.57	1.10	5.35	1.00
5	2.41	0.47	3.22	0.69	4.03	0.91	4.84	1.16	5.63	1.00
6	2.53	0.47	3.38	0.72	4.19	0.97	5.03	1.19	5.88	1.00
8	2.75	0.53	3.66	0.78	4.59	1.06	5.50	1.31	6.41	1.00
10	2.97	0.56	3.94	0.84	4.94	1.13	5.94	1.41	6.91	1.00
12	3.19	0.59	4.25	0.91	5.31	1.22	6.38	1.53	7.44	1.00
14	3.38	0.63	4.47	0.97	5.59	1.28	6.72	1.59	7.84	1.00
16	3.69	0.69	4.91	1.06	6.13	1.41	7.34	1.75	8.56	2.00
18	4.00	0.75	5.34	1.16	6.69	1.53	8.03	1.91	9.34	2.00
20	4.16	0.78	5.53	1.19	6.94	1.59	8.31	1.97	9.69	2.00
24	4.66	0.88	6.22	1.34	7.78	1.78	9.31	2.22	10.88	2.00
28	5.12	1.00	6.89	1.50	8.56	2.00	10.31	2.44	12.00	2.00
30	5.63	1.06	7.53	1.63	9.41	2.16	11.31	2.69	13.19	3.00
32	5.63	1.06	7.53	1.63	9.41	2.16	11.31	2.69	13.19	3.00
36	6.31	1.25	8.44	1.84	10.53	2.41	12.63	2.84	14.75	3.00
42	7.00	1.38	9.38	2.00	11.69	2.69	14.00	3.38	16.38	4.00

## ANGULAR & LATERAL MISALIGNMENT



SIZE In.	2 convolutions		3 convolutions		4 convolutions		5 convolutions		6 convolutions	
	ANGULAR	LATERAL	ANGULAR	LATERAL	ANGULAR	LATERAL	ANGULAR	LATERAL	ANGULAR	LAT
1/2	19°	0.24	28°	0.35	37°	0.47	45°	0.55	53°	0.63
3/4	17°	0.24	25°	0.35	34°	0.47	41°	0.59	49°	0.63
1	16°	0.24	24°	0.39	31°	0.51	39°	0.63	45°	0.63
1-1/4	14°	0.24	21°	0.39	28°	0.51	34°	0.63	41°	0.63
1-1/2	13°	0.24	20°	0.39	26°	0.51	32°	0.67	40°	0.63
2	12°	0.28	17°	0.39	23°	0.51	29°	0.67	34°	0.63
2-1/2	11°	0.31	17°	0.47	22°	0.59	28°	0.75	33°	0.63
3	10°	0.31	15°	0.47	20°	0.63	25°	0.79	30°	0.63
4	9°	0.31	13°	0.51	17°	0.67	21°	0.83	26°	0.63
5	8°	0.34	11°	0.53	15°	0.69	19°	0.88	23°	1.00
6	7°	0.38	10°	0.53	14°	0.72	17°	0.91	20°	1.00
8	6°	0.41	9°	0.59	12°	0.78	15°	0.97	18°	1.00
10	5°	0.44	8°	0.63	11°	0.84	13°	1.06	16°	1.00
12	5°	0.47	7°	0.69	10°	0.91	12°	1.13	14°	1.00
14	5°	0.47	7°	0.72	9°	0.97	12°	1.19	14°	1.00
16	5°	0.53	7°	0.78	9°	1.06	11°	1.31	13°	1.00
18	4°	0.56	7°	0.88	9°	1.16	11°	1.44	13°	1.00
20	4°	0.59	6°	0.91	8°	1.19	10°	1.50	12°	1.00
24	4°	0.66	6°	1.00	8°	1.34	10°	1.66	12°	2.00
28	4°	0.75	6°	1.14	8°	1.46	10°	1.81	12°	2.00
30	4°	0.81	6°	1.19	8°	1.63	10°	2.00	12°	2.00
32	4°	0.81	6°	1.19	8°	1.63	10°	2.00	12°	2.00
36	4°	0.94	6°	1.38	8°	1.81	10°	2.25	12°	2.00
42	2°	1.00	4°	1.50	6°	2.00	8°	2.50	10°	3.00

# JOINT<sup>®</sup> Action Guide

S OR MINUS LEVEL	7 convolutions		8 convolutions		9 convolutions		10 convolutions		11 convolutions		12 convolutions	
	NORMAL LENGTH	PLUS OR MINUS TRAVEL	NORMAL LENGTH	PLUS OR MINUS TRAVEL	NORMAL LENGTH	PLUS OR MINUS TRAVEL	NORMAL LENGTH	PLUS OR MINUS TRAVEL	NORMAL LENGTH	PLUS OR MINUS TRAVEL	NORMAL LENGTH	PLUS OR MINUS TRAVEL
94	4.31	1.06	4.84	1.22	5.39	1.38	5.94	1.54	6.50	1.69	7.06	1.84
94	4.37	1.10	4.92	1.26	5.47	1.42	6.00	1.57	6.56	1.72	7.13	1.88
98	4.65	1.14	5.22	1.30	5.81	1.50	6.42	1.65	7.00	1.81	7.59	2.00
02	4.76	1.18	5.35	1.38	5.94	1.54	6.54	1.69	7.13	1.88	7.72	2.06
02	4.80	1.22	5.41	1.38	6.02	1.57	6.63	1.73	7.25	1.91	7.88	2.09
06	4.96	1.26	5.59	1.46	6.22	1.57	6.85	1.77	7.47	2.00	8.09	2.19
22	5.67	1.42	6.38	1.61	7.05	1.81	7.80	2.05	8.50	2.25	9.19	2.47
26	5.81	1.46	6.57	1.65	7.28	1.89	7.99	2.09	8.72	2.31	9.44	2.56
30	6.10	1.54	6.89	1.73	7.64	1.97	8.41	2.20	9.19	2.44	9.94	2.69
38	6.44	1.63	7.25	1.84	8.06	2.06	8.84	2.31	9.66	2.56	10.44	2.81
44	6.72	1.69	7.56	1.91	8.41	2.16	9.25	2.41	10.09	2.66	10.94	2.91
56	7.34	1.84	8.25	2.09	9.16	2.34	10.09	2.63	11.00	2.91	11.94	3.19
59	7.91	1.97	8.88	2.25	9.88	2.53	10.84	2.81	11.84	3.09	12.81	3.38
81	8.50	2.13	9.56	2.44	10.63	2.75	11.72	3.03	12.81	3.34	13.88	3.66
91	8.97	2.25	10.09	2.56	11.19	2.88	12.31	3.19	13.44	3.50	14.56	3.81
09	9.81	2.44	11.03	2.81	12.25	3.16	13.47	3.50	14.69	3.88	15.94	4.25
28	10.69	2.69	12.03	3.06	13.38	3.44	14.72	3.81	16.06	4.19	17.41	4.56
38	11.09	2.78	12.47	3.16	13.88	3.56	15.25	3.97	16.63	4.38	18.00	4.81
66	12.22	3.09	14.00	3.56	15.53	4.00	17.09	4.44	18.63	4.88	20.19	5.31
95	13.74	3.43	15.43	3.94	17.20	4.45	18.86	4.88	20.63	5.38	22.31	5.87
22	15.06	3.75	16.94	4.28	18.84	4.81	20.75	5.34	22.66	5.88	24.56	6.44
22	15.06	3.75	16.94	4.28	18.84	4.81	20.75	5.34	22.66	5.88	24.56	6.44
63	16.88	4.25	18.94	4.81	21.06	5.44	23.13	6.19	25.25	6.94	27.31	7.69
00	18.69	4.69	21.06	5.38	23.38	6.00						

Add for Durcor Flanges
+0.42
+0.42
+0.40
+0.37
+0.62
+1.00
+1.00
+0.93
+0.87
+0.81
+1.00
+0.93
+1.06
+1.50
+1.68
+1.75
+1.56
+2.00
+2.25
+2.50
+2.31
+2.31
+3.50
+3.18

**\* Durcor<sup>®</sup> Advanced Structural Composite Flanges are thicker than alloy flanges. Add thickness to "Normal Length" dimensions.**  
 For more information on Durcor<sup>®</sup>-62" see "Flexjoint with Durcor<sup>®</sup>-62" Advanced Composite Flanges" Brochure

S OR MINUS LEVEL	7 convolutions		8 convolutions		9 convolutions		10 convolutions		11 convolutions		12 convolutions	
	ANGULAR	LATERAL	ANGULAR	LATERAL	ANGULAR	LATERAL	ANGULAR	LATERAL	ANGULAR	LATERAL	ANGULAR	LATERAL
67	60°	0.83	67°	0.94	74°	1.02	79°	1.14	84°	1.28	89°	1.41
67	56°	0.83	62°	0.94	68°	1.06	74°	1.14	80°	1.28	86°	1.41
75	52°	0.87	58°	0.98	64°	1.14	70°	1.26	76°	1.38	82°	1.50
75	47°	0.91	53°	1.02	58°	1.14	64°	1.30	70°	1.41	76°	1.53
79	44°	0.91	49°	1.02	55°	1.14	60°	1.30	65°	1.41	70°	1.53
83	39°	0.94	44°	1.06	49°	1.18	54°	1.34	59°	1.50	64°	1.66
91	38°	1.06	43°	1.22	48°	1.38	53°	1.50	58°	1.66	63°	1.81
94	34°	1.10	39°	1.26	43°	1.42	47°	1.57	51°	1.72	55°	1.88
98	30°	1.14	34°	1.30	38°	1.46	41°	1.61	44°	1.78	47°	1.94
03	26°	1.22	30°	1.38	33°	1.56	37°	1.72	40°	1.88	44°	2.09
09	24°	1.25	27°	1.44	30°	1.63	33°	1.81	36°	2.00	39°	2.19
19	21°	1.38	24°	1.56	27°	1.78	29°	1.97	31°	2.16	33°	2.34
28	18°	1.47	21°	1.69	23°	1.91	26°	2.13	28°	2.34	31°	2.56
38	17°	1.59	19°	1.81	22°	2.06	24°	2.28	26°	2.50	28°	2.72
44	16°	1.69	19°	1.91	21°	2.16	23°	2.41	25°	2.66	27°	2.91
56	16°	1.84	18°	2.09	20°	2.38	22°	2.63	24°	2.88	26°	3.13
72	15°	2.00	17°	2.28	20°	2.53	22°	2.88	24°	3.16	26°	3.44
78	14°	2.09	16°	2.38	18°	2.69	20°	2.97	22°	3.31	24°	3.63
00	14°	2.34	15°	2.66	17°	3.00	19°	3.34	21°	3.69	23°	4.06
20	14°	2.56	15°	2.95	17°	3.39	19°	3.70	21°	4.05	24°	4.44
44	14°	2.81	15°	3.19	17°	3.69	19°	4.06	21°	4.50	23°	4.94
44	14°	2.81	15°	3.19	17°	3.69	19°	4.06	21°	4.50	23°	4.94
69	14°	3.19	15°	3.56	17°	4.06	19°	4.50	21°	4.94	23°	5.38
00	12°	3.50	13°	4.00	15°	4.56						

# FLEXIJOINT® V



## ISOSTATIC MOLDED TUBING

Ethylene employs only 100% virgin, high molecular weight PTFE resin in its isostatic tube molding process. **No pigments, additives or lubricants whatsoever, just Pure PTFE resin.**

*It all starts the*



## Fluoroforming™

All Flexijoints are made by the exclusive Fluoroforming™ process, a development of Ethylene. The proprietary technique utilizes hydraulics to influence the isostatically molded tube to “form” convolutions of uniform thickness and precise geometry. Deep convolutions allow increased axial travel while reducing the force necessary to produce axial movement and lateral misalignment.

Combine all the distinctive features;  
 - 100% Pure PTFE  
 - T-Band™ root and sidewall support  
 - T-Band™ protection from over-compression  
 - LimitLink™ protection from over-expansion with the Fluoroforming™ process, and the relationship of these features provide the basis for the outstanding performance of Flexijoints.



Ethylene's Fluoroforming™ process forms convolutions of uniform thickness and precise geometry.



**High Performing  
Severe Service  
Longest Flex-Life**

*The*

# s. Competition

## PASTE EXTRUDED TUBING

In the "Paste Extruding" process, solvent based hydrocarbon additives must be added to PTFE as a lubricant in order to facilitate the extrusion process. These solvents are not only hazardous but could also contaminate contacting fluids by leaching out or could be vulnerable to blistering. Paste extruded expansion joints are NOT Pure PTFE.



*with resin...*

*process...*

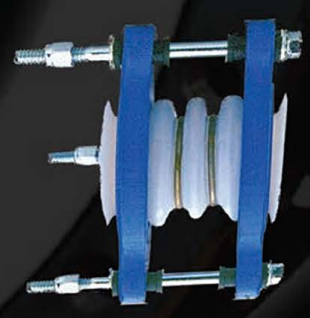
## Blow Molding (Contour Molding)

"Blow Molding", sometimes referred to as "Contour" molding by some manufacturers is a very economical means of manufacturing expansion joints. The process, during which a plastic parison (hollow tube) is heated above the transition temperature and is placed between two halves of a mold (cavity) and forced to assume the shape of that mold cavity by the use of air pressure. Wall thickness distribution is severely effected as shown in the expansion joint cross-section on right and below.

Contour Molding (Blow Molding) is an excellent low cost technique for products such as plastic milk jugs or soda bottles where yielding of the plastic is not a potential liability....



Severe thinning is evident by the translucency of the convolutions above. Permanently yielding (stretching) PTFE beyond its elastic limit will compromise the materials mechanical integrity and can cause sudden premature failure.



Blow Molding (Contour Molding) severely affects wall thickness uniformity and geometry as shown below



**Economical  
Light-Duty Service  
Limited Flex-Life**

*End Result...*

3

# FLEXIJOINT® Styles



**LimitBolt**



**FlexArmor®**



**Durcor®-62™  
Composite Flanges**



**AntiSquirm™**



**LimitLink™**



**AnchorBase™**



**Hinged**



**Universal**



**Gimballed**

**ETHYLENE™**  
an ANDRONACO INDUSTRIES company

4855 Broadmoor Ave. - Kentwood, MI 49512  
Ph (616)554-0900 FAX (616)554-3464  
www.ethylene.com



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