



"Excellence in Manufacturing"

ISO 9001:2000 CERTIFIED



**EXPANSION JOINTS
AND FLEXIBLE CONNECTIONS
(Engineering Guide)**

FFTP

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REVISION



“ Excellence in Manufacturing ”

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OUR CUSTOMERS

INDUSTRIAL

American Cynamid Company
West Virginia Paper Company
Worthington Pump Company
Ingersoll-Rand Company
Hammermill Bond Company
Scott Paper Company
U.S. Steel Company
E.I. DuPont Company
Olin Mathieson Company
Union Cable & Chemical
General Electric
General Dynamics
F. & M. Schaeffer Brewing Co.
Bowers Corporation
Allied Chemical Corporation
Charles Pfizer & Co.
Owens-Illinois Glass Co.
Monsanto Chemical Company
Sylvania Electric Company
Bethlehem Steel Company
Southern Bell Telephone Co.
Weyerhaeuser Corporation
American Foundry & Mach. Co.
American Sugar Refining Co.
Continental Oil Company
Proctor & Gamble

Mobil Oil Company
Shell Oil Company
Sohio Chemical Corp.
Hudson Pulp & Paper Company

ENGINEERING & CONSTRUCTION

Gibbs & Hill Company
Roland Thompkins Company
Dorr-Oliver Company
Burns & Roe Company
Rust Engineering Company
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Stearns-Rogers
Ralph M. Parsons Company
Catalytic Construction Company
George A. Fuller Company
Turner Construction Company
Chemical Construction Company
Graver Tank Company
Blaw-Knox Construction
Ebasco
United Engineers
Dravo
Bechtel Corporation
Black & Veatch
Arthur G. McKee

SHIPBUILDING

Maryland Shipbuilding & Drydock Co.
Bethlehem Steel
Todd Shipyards
Norfolk Shipbuilding & Drydock Co.
Ellicott Machine
Savannah Machine & Foundry
American Shipbuilding
Avondale Ship
Newport News Ship & Drydock Co.
Alabama Shipbuilding & Drydock Co.
Seatrains Shipbuilding & Drydock Co.

MISCELLANEOUS

U.S. Navy
U.S. Air Force
N.A.S.A.
Federal Aviation Agency
U.S. Post Office
U.S. Army Engineers
New York City Housing Authority

Exclusive Combined Technologies

PTFE, Metal and Rubber Combination Expansion Joints

Unaflex® is one of the country's leading expansion joint manufacturers. Since 1972 Unaflex has been dedicated to state of the art technologies combined with proven processes. In the 2000's Unaflex is the industry leader in "Combined" technologies for the Expansion Joint and Flexible Hose Industries.

Our expertise and manufacturing capabilities include a full range of Rubber Expansion Joints, Flue Ducts, Expansion Joint Sound Absorbers, Custom Rubber Hose, Metal Hose, Pump Connectors, and Metal Bellows Type Expansion Joints....Now, all available in any combination of PTFE, Metal and Rubber, to suit your application.

This catalog outlines selection and installation of our Metal / Elastomeric/ PTFE Bellows type expansion joint, Metal/ Elastomeric/ PTFE Hose and Pump Connectors for use in pipe lines and process vessels to absorb motion and vibration in the system. Our designs incorporate the latest recommendation of the Expansion Joint Manufacturers association and the Fluid Sealing Association.

Unaflex® is a full service engineering organization offering a full range of products in the highest grades of elastomers and stainless steel as well as exotic alloys including Monel™, Inconel™, and Hastelloy™. Quality control is rigorous and complies with requirements of MIL-1-45208 and MIL-Q-9858. Our Expansion joints also comply with U.S. Coast Guard requirements. Certification is available.

Exclusive to UNAFLEX®

*Elastomeric covering on solid PTFE and PTFE lined metallic Expansion Joints...
for environmentally corrosive applications.*

*Kevlar reinforcement overlay to increase working pressures and
provide additional safety factors for PTFE Expansion Joints.*

PTFE lined Flexible Hose, up to 48 inches in diameter and 50 feet in length

***Unaflex is under Federal Government procedures and regulations
Military Spec. Mil-1-45208***



DURA-PERM PTFE LINED SPOOL TYPE EXPANSION JOINTS



UNAFLEX® "DURA-PERM" Expansion Joints combined the best features of PTFE with the best features of elastomeric expansion joints. Joints are available in 1" to 96" I.D. in standard face-to-face dimensions, or special lengths. Also available in multiple arch configurations, or as straight pipe (see flexible pipe section).

NOTE: 1/2" to 1-1/2" sizes are flared to raise face dimension only.

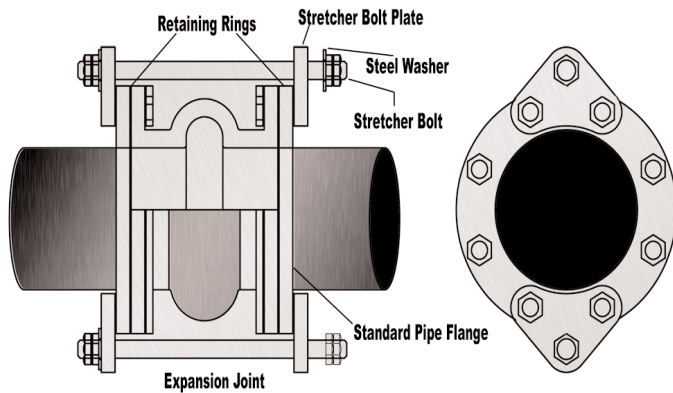
They are recommended for use in the chemical and pulp paper industries because of their capabilities to resist corrosive attack, high temperatures, and pressures.

- Chemical Resistance/ Anti-stick properties
- Noise and Vibration dampening/ High Flexibility
- Thermal Stability/ Resistance to age cracking
- High pressure rating/ Temperature rating to 400F

***NOTE:** Standard drilling: ANSI B16.1 -1975, ANSI B16.24-1971 Class 150#

JOINT SIZE I.D. (IN.)	Single Arch Recom- mended f-f (in.)	Double Arch Recom- mended f-f (in.)	Single Arch Axial Compression		Single Arch Axial Extension		Single Arch Axial Lateral		Working Pressures (psi)		
			Style 150-200	Style 200XL Wide Arch	Style 150-200	Style 200XL Wide Arch	Style 150-200	Style 200XL Wide Arch	Style 150	Style 200	Style 200 XL Wide Arch
1/2	6	10	1/2	1	1/4	1/2	1/2	3/4	165	200	225
3/4	6	10	1/2	1	1/4	1/2	1/2	3/4	165	200	225
1	6	10	1/2	1	1/4	1/2	1/2	3/4	165	200	225
1 1/4	6	10	1/2	1	1/4	1/2	1/2	3/4	165	200	225
1 1/2	6	10	1/2	1	1/4	1/2	1/2	3/4	165	200	225
2	6	10	1/2	1	1/4	1/2	1/2	3/4	165	200	225
2 1/2	6	10	1/2	1	1/4	1/2	1/2	3/4	165	200	225
3	6	12	1/2	1	1/4	1/2	1/2	3/4	165	200	225
4	6	12	1/2	1	1/4	1/2	1/2	3/4	165	200	225
5	6	12	1/2	1	1/4	1/2	1/2	3/4	140	200	225
6	6	12	1/2	1	1/4	1/2	1/2	3/4	140	200	225
8	6	12	3/4	1 1/2	3/8	1/2	1/2	1	140	190	225
10	8	12	3/4	1 1/2	3/8	3/4	1/2	1	140	190	225
12	8	12	3/4	1 1/2	3/8	3/4	1/2	1	140	190	225
14	8	12	3/4	1 1/2	3/8	3/4	1/2	1	85	130	150
16	8	12	3/4	1 1/2	3/8	3/4	1/2	1	65	110	150
18	8	12	3/4	1 1/2	3/8	3/4	1/2	1	65	110	150
20	8	14	7/8	1 3/4	7/16	3/4	1/2	1	65	110	150
22	10	14	7/8	1 3/4	7/16	3/4	1/2	1	65	100	150
24	10	14	7/8	1 3/4	7/16	3/4	1/2	1	65	100	150
26	10	14	1	1 3/4	1/2	3/4	1/2	1	55	90	125
28	10	14	1	1 3/4	1/2	3/4	1/2	1	55	90	125
30	10	14	1	1 3/4	1/2	3/4	1/2	1	55	90	125
34	10	14	1	1 3/4	1/2	3/4	1/2	1	55	90	125
36	10	14	1	1 3/4	1/2	3/4	1/2	1	55	90	125
40	10	14	1	1 3/4	1/2	3/4	1/2	1	55	90	125
42	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	55	80	100
44	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	55	80	100
48	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	55	80	100
50	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	55	80	100
54	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	55	80	100
56	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	55	80	100
60	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	55	80	100
62	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	55	80	100
66	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	55	80	100
72	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	45	70	100
78	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	45	70	100
84	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	45	70	100
96	12	16	1 1/8	1 3/4	1/2	3/4	1/2	1	45	70	100

SUGGESTIONS FOR INSTALLATION AND MAINTENANCE



Control Units- Excess elongation, caused by shifting of pipe lines may seriously damage rubber expansion joints. This damage can occur when: necessary support is not provided for the weight of the pipe line; low temperatures in the line are encountered; the lines on the pressure side of the air compressors are not anchored properly. Such destructive elongation can be controlled with UNAFLEX® control units.

In general, control units are always recommended as an additional safety factor, preventing damage to the connector and associated equipment. Our experts will recommend the units appropriate for your installation.

1. Clean all foreign matter and remove burrs or sharp edges from flanges.
2. All pipe lines should be properly supported, so that the expansion joints do not carry the pipe load.
3. Remove burrs or sharp edges from flanges.
4. Do not install joints on raised face flanges of more than 1/16".
5. All pipes are to be lined up accurately before installing expansion joints. Offset joints should be installed where misalignment is greater than the lateral movement allowed by the joint construction.
6. Bolts should be on the inside of the joint flange. Metal washer must be placed at the facing of the split retaining ring.
7. Bolts should be tightened by alternating around the flange and all tightened equally.
8. Slight gouges or abraded areas caused by tools or bolts during installation should be sealed with rubber cement and painted to prevent deterioration of the carcass.
9. Bolt tightness should be checked one week after going on stream and periodically thereafter.
10. If system is not anchored to insure against movement beyond maximum stated limits, a control unit must be used

Temperature Limits For Continuous Service		
Series	Temperature F	Elastomeric Cover
150	250	Neoprene or Nitrile
200	250	Neoprene or Nitrile
200XL	250	Neoprene or Nitrile
150 HT	300	Butyl or EPDM
200 HT	300	Butyl or EPDM
200XL/ HT	300	Butyl or EPDM
150 V	400	Viton
200 V	400	Viton
200XL/ V	400	Viton

Options: Flow liners are available in PTFE, Metallic, or Elastomeric type

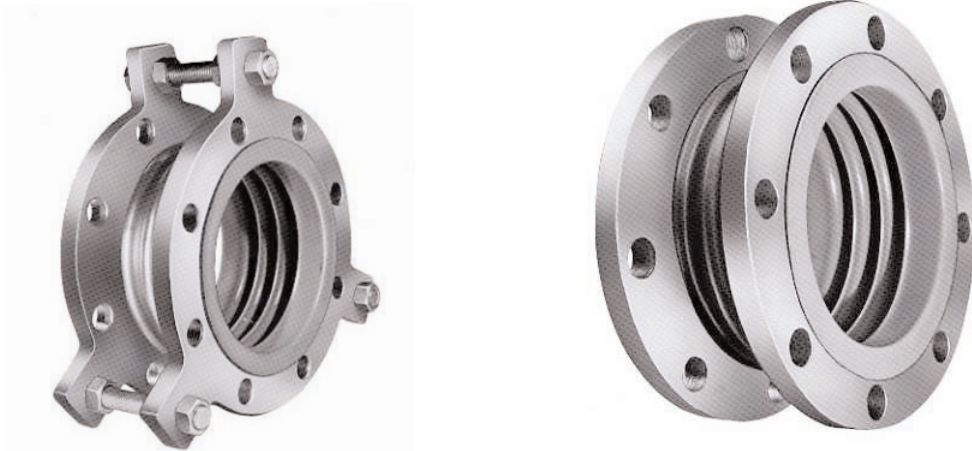
Special Constructions: Hinged, Gimbal, Dual, pressure balanced. (Consult Factory)

Construction Details (Styles 150, 200, and 200XL)

- 1). **Tube:** The tube is a single molded PTFE leakproof lining extending flange to flange. The outside of the PTFE tube is etched to adhere to the elastomeric overlay.
- 2). **Carcass:** This is a high strength woven polyester or Kevlar reinforcing fabric between the PTFE tube and the cover.
- 3). **Steel Reinforcements:** These are the chemically treated solid round endless rings or high tensile strength helical wire embedded in the carcass. The steel reinforcement provides additional strength for pressure and vacuum service.
- 4). **Cover:** This is the exterior elastomeric overlay designed to protect the carcass from external elements.

"UNALON"® Style 9500

HEAVY DUTY PTFE / METALLIC EXPANSION JOINTS



PATENT PENDING

The **UNALON 9500** series is an expansion joint that combines the properties of metal and PTFE into the most advanced, versatile expansion joint on the market today.

SAFETY

Unlike ordinary solid PTFE or Elastomeric type expansion joints, should up-set conditions exceeding 500F occur- Unalon series 9500 will maintain it's pressure carrying capacity up to 1200F long enough for system shut-down and replacement.

Construction Details

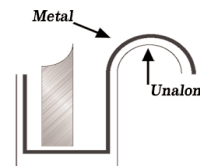
Unalon "T" (9500 series) PTFE or FEP tube formed into a stainless steel, Inconel, Monel or Hastelloy corrugated tube.

Flanges: Floating type (150#, 300#, or metric.)

Available in carbon steel, stainless steel or PTFE coated to meet your specific requirements.

Options: Gimbal-Hinged-Dual-Externally Pressurized-Pressure balanced.

NOTE: FOR ENVIRONMENTALLY CORROSIVE APPLICATIONS, LAMINATED ELASTOMERIC OR PTFE COVERS AVAILABLE.



- HIGH CORROSION CHEMICAL- PETROCHEMICAL SYSTEMS
- ABRASIVE INDUSTRIAL PROCESS PIPING SYSTEMS
- POWER GENERATING AND WASTE WATER TREATMENT PLANTS
- PULP/ PAPER SYSTEMS MARINE SERVICES
- POLLUTION CONTROL SYSTEMS

DESIGN MOVEMENTS:

Motions as described are for axial compressions and lateral offset.

Pipe Size (in.)	Overall Length (in.)	Aprox. Wt. (lbs.)	Axial		Lateral	
			*Deflection Force Lbs/in.	Max Movement (in.)	* Deflection Force Lbs./in.	Max Movement (in.)
3	6	13 3/4	750	1"	240	0.1
4	6	16	600	1"	780	0.1
5	6	21 3/4	440	1"	1100	0.1
6	6	26 1/2	550	1"	1800	0.1
8	8	48 1/2	1440	2"	1700	0.2
10	8	58 1/2	1850	2"	3500	0.2
12	8	89 1/2	2250	2"	5900	0.2
14	10	107	2300	2"	8700	0.2
16	10	138	2500	2"	7000	0.2
18	10	161	2700	2"	7500	0.2
20	12	167	2950	2"	10000	0.2
22	12	210	3100	2"	12000	0.2
24	12	225	3400	2"	14000	0.2
30	12	377	3600	2"	20000	0.2
36	12	516	3800	2"	26000	0.2
42	12	663	4200	2"	45000	0.2
48	12	781	6000	2"	50000	0.2

The Unalon 9500 Series will

- Absorbs Pipe Movements and Stress
- Isolates Mechanical Vibration
- Reduce System Noise
- Protect against Surge Forces

Available in different lengths for different movements capabilities, consult factory.

Working temperatures from -300° F to +400° F

Working pressure: 50 -150 -300 psi available (Please Specify)

*Deflection Force / Spring Rate

Forces required to move expansion joints are based on atmospheric pressure conditions and room temperatures in the pipe line. These forces should be considered only as approximates.

WARNINGS: Safety Shields must be used at all times in hazardous services to protect against serious personal injury in the event of expansion joint failure. Liner sleeves must be used in abrasive service or where sharpened edged solids are or may be present.

"UNALON" Styles 112 & 113



Style 112

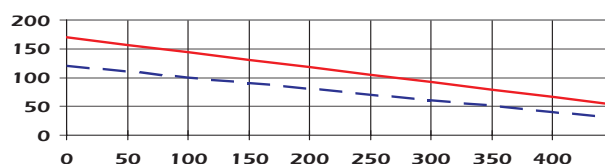


Style 113

DESCRIPTION

Unaflex "Multi-Purpose" PTFE Expansion Joints styles 112 and 113 are solid-molded of PTFE and specially designed to withstand the higher pressures and temperatures in today's piping systems. Their design allows a shorter face-to-face dimension, making them ideal for installation where space limitations are a factor. They are lightweight in design and corrosion resistant. Available in sizes 1" to 48" I.D. and for temperatures ranging from -300° F to +400° F.

PERFORMANCE CURVE OF WORKING PRESSURE VS. OPERATING TEMPERATURES (ALL SIZES)



EXPANSION JOINT DATA

STYLE 112 (2 CONVOLUTIONS)							STYLE 113 (3 CONVOLUTIONS)						
Nominal Size (in.)	Movements (in.)		Van Stone O.D. (in.)	Max. Mis Align. (in.)	Shipping Wt. (lbs.)	Liner Length (in)	Nominal Size (in.)	Movements (in.)		Van stone O.D. (in.)	Max. Mis Align. (in.)	Shipping Wt. (lbs.)	Liner Length (in)
	Neutral Length	Max Travel						Neutral Length	Max Travel				
1	1 5/16	3/16	2	1/8	3 1/2	1 3/4	1	1 13/16	7/16	2	1/4	3 1/2	2 1/2
1 1/2	1 1/2	1/4	2 7/8	1/8	5	2	1 1/2	2	1/2	2 7/8	1/4	5 1/2	2 3/4
2	1 7/8	1/4	3 5/8	1/8	9	2 3/8	2	2 3/4	3/4	3 5/8	3/8	9 1/2	3 3/4
2 1/2	1 15/16	5/16	4 1/8	1/8	11 1/2	2 1/2	2 1/2	3	1	4 1/8	3/8	12	4 1/4
3	2 7/16	5/16	5	3/16	16	3	3	3 5/8	1	5	1/2	16 1/2	4 7/8
4	2 5/8	1/2	6 3/16	1/4	19 1/2	3 3/8	4	3 3/4	1 1/8	6 13/16	1/2	21 1/2	5 1/8
5	3 1/6	11/16	7 5/16	1/4	27 1/2	4	5	4	1	7 5/16	1/2	29 1/2	5 1/4
6	2 13/16	7/16	8 1/2	1/4	32 1/2	3 1/2	6	4	1 1/8	8 1/2	9/16	34 1/2	5 3/8
8	3 11/16	13/16	10 5/8	1/4	49 1/2	4 3/4	8	5 7/16	1 11/16	10 5/8	9/16	52 1/2	7 1/2
10	4	1	12 3/4	1/4	69 1/2	5 1/4	10	5	1 3/8	12 3/4	9/16	71 1/2	6 5/8
12	4 1/8	1	15	1/4	105	5 3/8	12	5 1/4	1 3/8	15	9/16	110	6 7/8

Vacuum Service

Maximum temperature for full vacuum (29.9 hg.)

Two Convolutions

1" TO 6" 375°F

8" TO 10" 250°F

Three Convolutions

1" TO 4" 375°F

5" TO 6" 300°F

8" TO 10" 125°F

Note: For greater pressure or safety requirements than shown, special Viton/Kevlar™ overlays are available. Optional flow liners are available. Optional flow liners are available in.

PTFE

Metallic

Elastomeric

Consult our engineering department for further details.

**Spring Rates for
Style 112 & 113
PTFE Expansion Joints**

Nominal Size (I.D.)	Spring Rates (lbs./in.)
1	110
1-1/2	125
2	130
2-1/2	160
3	175
4	205
5	235
6	265
8	325
10	385
12	450

Special PTFE Products

- **Large diameter solid PTFE joints similar to styles 112 and 113 available in sizes to 124' diameter.**
- **PTFE lined metal hose - superior strength combined with chemicals resistance.**
- **Corrugated PTFE sleeves- built to your specifications.**
- **PTFE lined flue duct- for superior resistance to corrosive ducting applications.**
- **PTFE tubing-various diameters and lengths, complete fittings also available.**
- **PTFE Gasket material-precut or roll form**

Recommended Installation Instructions For All Styles

DO'S

- Inspect for damage during shipment, i.e. dents, broken hardware, water marks on carton, etc...
- Store in clean dry area where it will not be exposed to heavy traffic or damaging environment.
- Use only designated lifting lugs,
- Make the piping system fit the expansion joint by stretching, compressing or offsetting the joint to fit the piping, it may be overstressed when the system is in service.
- It is good practice to leave one flange loose until the expansion joint has been fitted into position. Make necessary adjustments of loose flanges before welding.
- Install joint with arrow pointing in the direction of flow
- Install single Van Stone liners pointing in the direction of flow. Be sure to install a gasket between the metallic liner and Van Stone flange as well as between the mating flange and liner.
- With telescoping Van Stone liners, install the smallest I.D. liner pointing in the direction of flow.
- Remove all shipping devices after the installation is complete and before any pressure test of the fully installed system.
- Remove any foreign material that may have become lodged between the convolution.
- Refer to EJMA standards for proper guides.

DONT'S

- Do not drop or strike carton.
- Do not remove shipping bars until installation.
- Do not use hanger lugs as lifting lugs without approval of manufacturer.
- Do not use chains or any lifting device directly on the bellows or bellow cover.
- Protect with wet chloride-free asbestos.
- Do not use cleaning agents that contain chlorides.
- Do not allow weld spatter to hit unprotected bellows.
- Do not use steel wool or wire brushes on bellows
- Do not force-rotate one end of an expansion joint alignment of bolt holes. Ordinary bellows are not capable of absorbing torque.
- Do not hydrostatic pressure test or evacuate the system before proper installation of all guides and anchors.
- Pipe hangers are not adequate guides
- Do not exceed a pressure of 1 1/2 times the rated working pressure of the expansion joint.
- Do not use shipping bars to retain the pressure thrust if tested prior to installation.

The manufacturer's warranty may be voided if improper installation procedures have been used.

PTFE Lined Serpent Rubber Hose



S-250 SERIES

Unaflex® combines the advantages of lightweight yet durable rubber hose, with PTFE's unsurpassed resistance to virtually all chemicals except molten Alkali metals such as Potassium, Lithium, and Radium, as well as Fluorochemicals. Serpent PTFE lined hose is an excellent choice for transfer service of acids, ester, acetone, aromatic hydrocarbons, organic chemicals and alcohols. Unaflex hose is steam cleanable for short durations and is excellent for food handling services.

Construction Features:

Tube: Smooth, non-stick PTFE or FEP tube.

Carcass: Rubber, reinforced with spirals of yarn and double spiral helix wire for maximum flexibility.

Cover: Standard Neoprene or EPDM for abrasion, weather and ozone resistance. Also pinpricked to allow for slight permeation through the outer cover if it should occur.

Lengths: Standard in 50 or 60 foot lengths. Shorter lengths available with built-in integral duck and rubber flanges with beaded ends where all wetted surfaces are PTFE.

Temperature Resistance: Up to 350° F with EPDM, up to 400° F with Viton and Kevlar reinforcement. Pressure ratings must be reduced as temperatures increase over 212° F.

Sizes: Serpent PTFE lined Rubber Hose is available in a wide range of sizes including large bore capacity up through 48" ID contact Factory with your requirements.

Fittings: Unaflex® has the capabilities to build a duck and rubber flange or beaded end into the hose which allows the PTFE liner to extend up the face of the flange or beaded end. These are tough, durable fittings which have unique properties. Stainless steel swaged fittings are also available.

Specifications For Una-Chem S-250 Series

Part Number	Size ID (in)	Size Nominal (In.)	Working Pressure (psi)	Minimum Recomm. Bend Radius (in)	Approx. Weight Per Foot (lbs.)	Vacuum Rating In. (hg.)
S-250-50	1/2	1.04	200	3	0.47	30
S-250-75	3/4	1.29	200	6	0.60	30
S-250-100	1	1.54	200	9	0.73	30
S-250-125	1 1/4	1.8	200	11	0.90	30
S-250-150	1 1/2	2.05	200	12	1.04	30
S-250-200	2	2.55	200	16	1.32	30
S-250-300	3	3.64	200	30	2.00	30
S-250-400	4	4.68	200	40	3.08	30

PTFE / Rubber Vibration Sound Absorbers



Styles 3150 TFE and 3250 TFE

This series is manufactured with integral PTFE and elastomeric flanges to accommodate standard, metric or special drilled flanged. Helical wire reinforcement embedded into the carcass provides additional strength and vacuum capabilities. PTFE, FEP, or PFE PTFE can be provided for the tube to meet unique service conditions. Carbon steel retaining rings are required for installation. Beaded ends are also available



Available in lengths up to 50 feet.

*Diameter up to 48" available

Joint size (I.D.) *	Face to Face		Style 3150 (150 psi U.S.A. Drilling)						Style 3250 (250 psi U.S.A. Drilling)					
	Min. (in.)	Max (in.)	Ring I.D. (in.)	Flange Diam. (in.)	Thickness (in.)	Bolt Circle Diam. (in.)	Bolt Holes No.	Bolt Holes Daim. (in.)	Ring I.D. (in.)	Flange Diam. (in.)	Thickness (in.)	Bolt Circle Diam. (in.)	Bolt Holes No.	Bolt Holes Daim. (in.)
1 1/2	12	24	2 7/8	5	11/16	3 7/8	4	5/8	2 7/8	6 1/8	23/32	4 1/2	4	7/8
2	12	24	3 5/8	6	11/16	4 3/4	4	3/4	3 5/8	6 1/2	23/32	5	8	3/4
3	12	36	4 5/8	7 1/2	27/32	6	4	3/4	4 5/8	8 1/4	27/32	6 5/8	8	7/8
4	12	36	5 7/8	9	27/32	7 1/2	8	3/4	5 7/8	10	7/8	7 7/8	8	7/8
5	12	36	6 7/8	10	15/16	8 1/2	8	7/8	6 7/8	11	15/16	9 1/4	8	7/8
6	18	36	7 7/8	11	31/32	9 1/2	8	7/8	7 7/8	12 1/2	15/16	10 5/8	12	7/8
8	24	48	9 7/8	13 1/2	31/32	11 3/4	8	7/8	9 7/8	15	1 1/16	13	12	1
10	24	48	12 1/8	16	1 3/16	14 1/4	12	1	12 1/8	17 1/2	1 11/32	15 1/4	16	1 1/8
12	24	48	14 1/2	19	1 7/32	17	12	1	14 1/8	20 1/2	1 11/32	17 3/4	16	1 1/4

PTFE Lined Metal Pump Connectors

Unalon Series 8000 TFE combines the corrosion resistance of PTFE with the pressure and safety characteristics of stainless steel. Corrugated hose and braid available with standard, metric or special flanges. Units can also be provided with floating flanges to facilitate installation. For environmentally corrosive applications, these units can also be provided with vulcanized elastomeric coverings on the outer braid. lengths up to 50' available.

Flanged Metal Pump Connectors Specifications

Part Number	Flange IPS and Nominal Hose I.D. (in.)	Overall Length (in.)	Max Working Pressure at Room Temp. (psi)	Approx. Wt. Per Unit	Part Number	Flange IPS and Nominal Hose I.D. (in.)	Overall Length (in.)	Max Working Pressure at Room Temp. (psi)	Approx. Wt. (lbs.) Per Unit
8202	2 1/2	9	250	16	8006	6	11	200	40
8003	3	9	250	19	8008	8	12	200	62
8203	3 1/2	9	250	23	8010	10	13	150	101
8004	4	9	250	19	8012	12	14	125	153
8005	5	11	200	32	8014	14	14	100	200

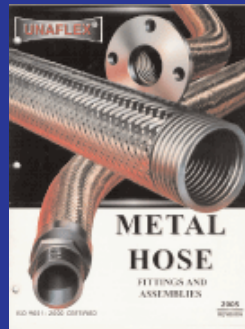
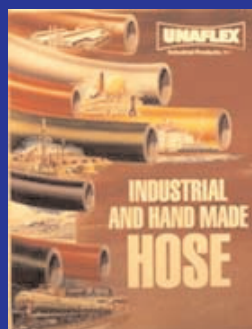
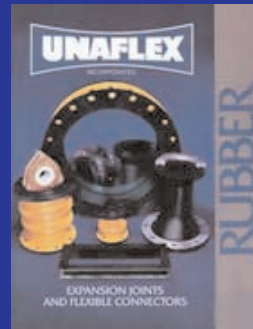
WARNING: Safety shields must be used at all times in hazardous service to protect against serious personal injury in the event of expansion joint failure. Liner sleeves must be used in abrasive service or where sharp-edged solids are or may be used.

UNAFLEX®

"Excellence In Manufacturing"

3901 NE 12th Avenue
Pompano Beach, Florida 33064
Phone: Toll Free (800) 327.1286
Phone: (954) 943.5002
Fax: (954) 941.7968
E-mail: sales@unaflex.com
www.unaflex.com

1715 Hwy 29 South
Anderson, South Carolina, 29626
Phone: Toll Free (800) 327.1286
Phone: (864) 222.1710
Fax: (864) 222.1306
E-mail: sales@unaflex.com
www.unaflex.com



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All merchandise sold by us is subject to this Standard Warranty. Our products are warranted to be free from defects in material or workmanship. Our liability for breach of any and all warranties, expressed or implied, is limited to refunding our invoice price of the product, or at our option, to replacement of the product. If any product manufactured by Unaflex Incorporated is found by us to be defective either in material or workmanship, under proper usage and service, the invoice price will be refunded or at our option will be replaced free of charge including transportation charges but not cost of installation. The refund of the invoice price or the replacement of the product is the maximum liability of the company. The sale of our products under any other warranty or guarantee, expressed or implied, is not authorized by the company.



誥鑫企業有限公司
ARITH COMPANY LTD.

地址：台北市復興北路427巷30號
電話：(02)2717-5038
傳真：(02)2717-5039
e-mail: taipei@arith.com.tw
網址： <http://www.arith.com.tw>