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1. Introduction

- Micromold Products at a Glance

MICROMOLD Products at a Glance

The Company

Since 1950, MICROMOLD Products have manufactured a broad line of corrosion resistant plastic products for the process industries.

MICROMOLD specializes in standard and custom products made from PTFE, PFA, FEP and other high performance plastics such as Kynar® PVDF, polypropylene, PEEK, nylon, PCTFE, and UHMW polyethylene.

The company was one of the earliest processors of Chemours™ (formerly DuPont™) Teflon® resins and fabricators of Teflon® products, and has accumulated a wealth of know-how in this field. It has developed a number of proprietary manufacturing processes, with especially sophisticated capabilities in the manufacture of PTFE and other fluoropolymer machined parts and weldments.

The company's standard products are sold exclusively through process industry distributors. A complete product catalogue is available to qualified buyers and engineers.

The Products

The product line, which began with PTFE gaskets and seals, has grown to include a broad range of corrosion resistant plastic products for the process industries. These include such products as: a complete line of dip pipes and spargers, available in either solid PTFE, or PTFE lined and jacketed steel; complex reactor internals; PTFE valves; PTFE and Kynar® PVDF strainers; and the proprietary FLUOR-O-FLO® PTFE piping system.

The FLUOR-O-FLO® PTFE piping system has found broad application by the process industries in low pressure laboratory and process applications demanding extreme corrosion resistance, high temperature capability, and high purity. This solid PTFE system is often a solution where stainless steel, Hastelloy, or exotic metal systems will not suffice. The system is available in pipe sizes from 1/8" through 4".

MICROMOLD also makes a full line of CNC machined parts for process industry OEMs including virgin and reinforced PTFE, PEEK, and UHMW polyethylene ball valve seats, butterfly valve seats, pump seals, and instrumentation components. The company also makes a complete range of plastic screw machine parts for process industry OEMs and distributors.

2. Piping Systems & Accessories

2.1 FLUOR-O-FLO® NPT Threaded Piping System - PTFE

2.1-1 Sales Bulletin

2.1-1a Sales Bulletin - Installation Tool Kits

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2.3 FLUOR-O-FLO® Manifolds - PTFE

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2.4 FLUOR-O-FLO® Cam-Lock, Quick-Connect Coupling - PTFE

2.4-1 Sales Bulletin

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2.10 FLUOR-O-FLO® XPress Clamp-Joint Piping System - PTFE

2.10-1 Sales Bulletin

2.10-2 Product Specifications

2.10-3 Technical Bulletin - Installation Instructions

FLUOR-O-FLO® Virgin PTFE NPT Piping System

Schedule 80



The FLUOR-O-FLO® PTFE piping system is well suited for low pressure laboratory and process industry applications demanding:

- Extreme Corrosion Resistance
- High Temperature Capability
- High Purity

It is less expensive than PTFE lined piping systems, and has several application advantages: it is easier to cut to length and install; it is easier to reuse; and it is available in small pipe sizes.

Compared to systems made of nickel alloy, such as stainless steel or Hastelloy®, or of exotic metals, such as tantalum or zirconium, the FLUOR-O-FLO® system is often a more cost effective solution to handling difficult fluids.

FLUOR-O-FLO® system components can usually be shipped from stock.

Also available:

FLUOR-O-FLO® PTFE Threaded Piping System

- Product Specifications
- Installation Instructions
- Pressure Ratings
- Installation Tool Kits
- Sample Case

All pipe and fittings are solid virgin PTFE. To maximize creep resistance, FNPT fittings are made from special virgin PTFE: Micromold's MICROFLON™.

Available in pipe sizes ranging from 1/8" through 4". Pipe schedule is 80. Standard length is 8 feet. Other lengths available.

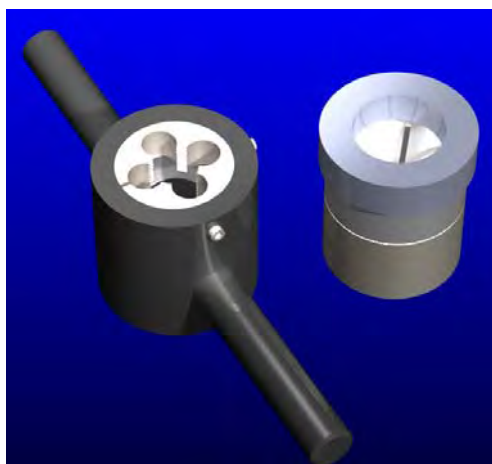
Standard NPT threaded fittings available include the following:

- Nipples
- 45° & 90° Elbows
- Street Elbows
- Straight Couplings
- Reducing Couplings
- Bushings
- Adapters
 - NPT to Hose Barbs
 - NPT to Tri-Clamp
- Plugs
- Unions
- Tees
- Caps
- Threaded Flanges
- Tank Adapters
- Manifolds
- Cam-Lock, Quick-Connect Coupling

Other fittings available on request

FLUOR-O-FLO®

PTFE Threaded Piping System Installation Tool Kits



Installation of our FLUOR-O-FLO® PTFE threaded piping system can now be done quickly and easily using our handy installation kit. The kit aids in making perfect NPT threads in the field, in about the same amount of time that powered threading tools take to thread steel.

Standard contractors' powered threading tools are not recommended for PTFE piping. They cause leakage at the joint by distorting and tearing the relatively soft material. Our kits are available for each size pipe we sell and contain one each of the following:

- Chamfering Tool
- NPT Threading Tool
- Formula 8 Paste (also available separately)

Kits are available for purchase.

FLUOR-O-FLO® system installation kits can usually be shipped from stock.

Kits available for pipe sizes ranging from 1/8" through 4".

Also available:
FLUOR-O-FLO® PTFE Piping System

- Sales Bulletin
- Product Specifications
- Installation Instructions
- Pressure Ratings

FLUOR-O-FLO® PTFE Products Sample Case



Our PTFE Products Sample Case is a marvelous selling tool, demonstrating the breadth of our NPT piping system components product lines and how they fit together. To make it easy for you, we offer the following terms :

- Very low monthly rental fee
- Returnable at any time
- Incentive credit against sales

For full terms and conditions, see the back side of this sales bulletin.

The sample kit includes the following examples of our threaded PTFE products and fittings:

- Y-Strainer
- Cam-Lock, Quick-Connect Coupling
- Plug Valve
- Tank Adapter (Bulkhead Fitting)
- Manifold
- Union
- Tees
- 90° Elbows
- Straight Couplings
- Reducing Couplings
- Bushings
- NPT to Tri-Clamp Adapter
- NPT to Hose Barbs
- Nipples
- Plugs
- Cap

As well as an explanatory poster with pressure rating chart.

Also available, Product Literature for our:

- FLUOR-O-FLO® PTFE Threaded Piping System
- FLUOR-O-VALVE™ PTFE Plug Valves
- FLUOR-O-SHIELD™ PVDF & PTFE Y-Strainers

FLUOR-O-FLO® PTFE Products Sample Case Terms and Conditions of Rental

Micromold's FLUOR-O-FLO® PTFE components sample case is intended for use by our distributor customers to support their end user or OEM sales efforts. Micromold rents the case to its distributors on the following basis:

INITIAL BILLING: Upon shipment of the sample case, the distributor is memo billed at the total net sales price of the samples in the case. The invoice is accompanied by a list of the samples with their discounted, net prices shown and totaled. There is no charge for the case. **Micromold will pay the freight costs for the initial delivery to the distributor.**

RENTAL PERIOD: The distributor may keep the samples for up to six months and, by agreement with Micromold's Customer Service department, may renew the agreement for an additional six months.

SAMPLES RETURN: The distributor may return the samples at any time. If all items in the sample case remain in resalable condition (as new), Micromold will issue credit against the memo billing. Micromold will bill the customer the net price for any items not in resalable condition. **The distributor is expected to pay the freight costs for the return of the sample case to Micromold.**

RENTAL AMOUNT: Each month the distributor keeps the samples, Micromold accrues in the distributor's receivable account a rental fee of \$10/month. The accumulated receivable is due and payable six months from the initial rental. If the rental is renewed, the rental is due six months from the renewal. When the samples are returned, the rental accrued is due at that time.

NON-RENEWAL: If, for whatever reason, Micromold decides not to renew the rental, the samples must be returned within 30 days. If the samples are not received timely, the full net sales price of the samples is due and payable.

INCENTIVE CREDIT: If, during the period of use or in the six month's after return of the samples, the distributor places an order (and takes and retains the shipment of that order) for sample case items whose total net distributor price equals or exceeds \$1,000, the distributor may request, and Micromold will issue credit for up to six months of the \$10 per month rental fee.



FLUOR-O-FLO® PTFE NPT Piping System

PTFE Schedule 80 Pipe
PTFE NPT Threaded Fittings



Also available:
FLUOR-O-FLO® PTFE Piping System

- Sales Bulletin
- Installation Instructions
- Pressure Ratings
- Installation Tool Kits
- Sample Case

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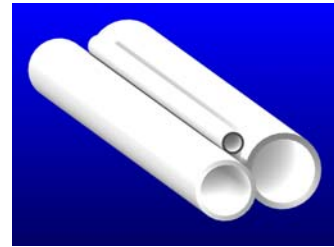
All sales are subject to separately published Terms and Conditions of Sale.



Pipe - Schedule 80

Nominal Pipe Size	Part No. (See Notes)	PIPE OD Min./Max.	Wall Min./Max.	Weight (lb./ft.)
1/8"	F-P01NN	0.405 / 0.435	0.095 / 0.155	0.1
1/4"	F-P02NN	0.540 / 0.570	0.119 / 0.179	0.2
3/8"	F-P03NN	0.675 / 0.705	0.126 / 0.186	0.2
1/2"	F-P04NN	0.840 / 0.870	0.147 / 0.207	0.3
3/4"	F-P06NN	1.050 / 1.085	0.154 / 0.234	0.5
1"	F-P08NN	1.315 / 1.350	0.179 / 0.259	0.7
1-1/4"	F-P10NN	1.660 / 1.695	0.191 / 0.271	0.9
1-1/2"	F-P12NN	1.900 / 1.935	0.200 / 0.280	1.2
2"	F-P16NN	2.375 / 2.415	0.218 / 0.338	1.6
2-1/2"	F-P20NN	2.875 / 2.935	0.276 / 0.396	2.4
3"	F-P24NN	3.500 / 3.575	0.300 / 0.450	3.3
4"	F-P32NN	4.500 / 4.575	0.337 / 0.487	4.8

Standard product is 8 feet long with ends unthreaded. Shorter lengths and lengths up to 20 feet or more are available upon request. NPT threading available for all lengths.

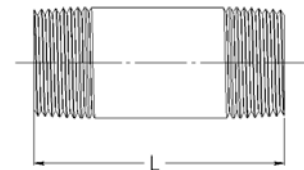
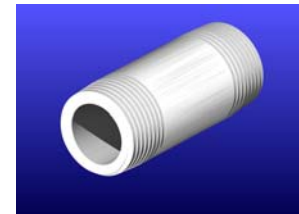


Note 1: For standard 8 foot lengths - replace NN with 96. For lengths other than standard, replace NN with length in inches.

Note 2: Add TBE for NPT Threaded Both Ends. Add TOE for NPT Threaded One End.

Nipples - Schedule 80

Nominal Pipe Size	CLOSE NIPPLES			SHORT NIPPLES			OTHER LENGTHS TO 12 INCHES (See Notes)	
	Part No.	L	Weight (lb.)	Part No.	L	Weight (lb.)	Part No.	Weight (lb./in.)
1/8"	F-N01C	3/4"	0.01	F-N01S	1-1/2"	0.01	F-N01NN	0.01
1/4"	F-N02C	7/8"	0.01	F-N02S	1-1/2"	0.02	F-N02NN	0.01
3/8"	F-N03C	1"	0.02	F-N03S	1-1/2"	0.03	F-N03NN	0.02
1/2"	F-N04C	1-1/8"	0.03	F-N04S	1-1/2"	0.04	F-N04NN	0.03
3/4"	F-N06C	1-3/8"	0.05	F-N06S	2"	0.08	F-N06NN	0.04
1"	F-N08C	1-1/2"	0.08	F-N08S	2"	0.11	F-N08NN	0.06
1-1/4"	F-N10C	1-5/8"	0.13	F-N10S	2-1/2"	0.20	F-N10NN	0.08
1-1/2"	F-N12C	1-3/4"	0.17	F-N12S	2-1/2"	0.24	F-N12NN	0.10
2"	F-N16C	2"	0.27	F-N16S	2-1/2"	0.33	F-N16NN	0.13
2-1/2"	F-N20C	2-1/2"	0.50	F-N20S	3"	0.60	F-N20NN	0.20
3"	F-N24C	2-5/8"	0.71	F-N24S	3"	0.82	F-N24NN	0.27
4"	F-N32C	2-7/8"	1.1	F-N32S	4"	1.6	F-N32NN	0.40



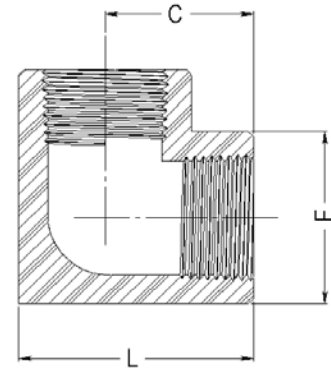
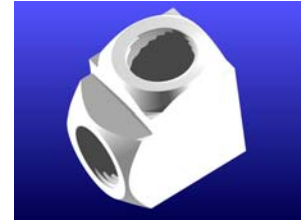
Note 1: Replace NN with length in inches.

Note 2: For Nipples over 12" long, use Threaded Pipe.



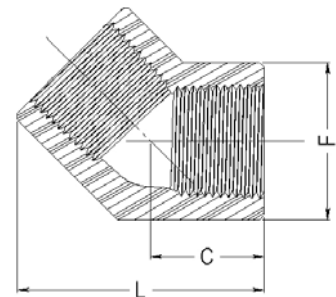
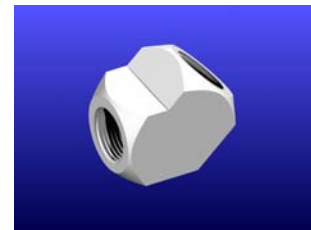
Elbows - 90°

Nominal Pipe Size	Part No.	L	C	F	Weight (lb.)
1/8"	F-90E01	1"	11/16"	5/8"	0.03
1/4"	F-90E02	1-1/4"	13/16"	7/8"	0.07
3/8"	F-90E03	1-3/8"	7/8"	1"	0.09
1/2"	F-90E04	1-13/16"	1-7/32"	1-3/16"	0.17
3/4"	F-90E06	2"	1-5/16"	1-3/8"	0.23
1"	F-90E08	2-3/8"	1-1/2"	1-3/4"	0.44
1-1/4"	F-90E10	2-11/16"	1-11/16"	2"	0.68
1-1/2"	F-90E12	3-1/8"	1-15/16"	2-3/8"	0.95
2"	F-90E16	3-5/8"	2-3/16"	2-7/8"	1.5
2-1/2"	F-90E20	4-3/8"	2-5/8"	3-1/2"	2.3
3"	F-90E24	5"	3"	4"	3.4
4"	F-90E32	6-3/8"	3-13/16"	5-1/8"	6.7



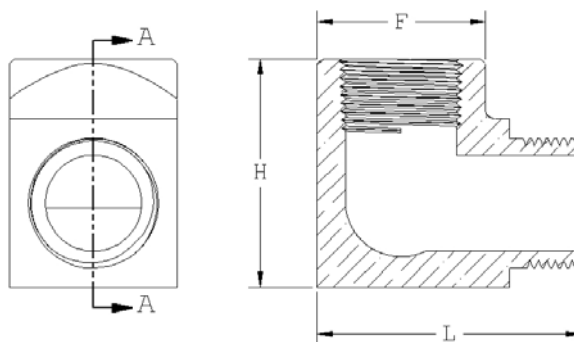
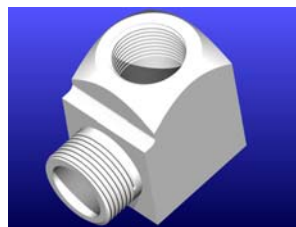
Elbows - 45°

Nominal Pipe Size	Part No.	L	C	F	Weight (lb.)
1/8"	F-45E01	1-3/16"	9/16"	5/8"	0.02
1/4"	F-45E02	1-3/8"	5/8"	7/8"	0.06
3/8"	F-45E03	1-1/2"	21/32"	1"	0.08
1/2"	F-45E04	2-3/32"	31/32"	1-3/16"	0.15
3/4"	F-45E06	2-1/4"	1-1/32"	1-3/8"	0.16
1"	F-45E08	2-9/16"	1-1/8"	1-3/4"	0.31
1-1/4"	F-45E10	2-21/32"	1-5/32"	2"	0.49
1-1/2"	F-45E12	3-5/16"	1-7/16"	2-3/8"	0.69
2"	F-45E16	3-3/4"	1-19/32"	2-7/8"	1.2
2-1/2"	F-45E20	5"	2-7/32"	3-1/2"	1.8
3"	F-45E24	5-1/8"	2-5/32"	4"	2.7
4"	F-45E32	6-11/32"	2-21/32"	5-1/8"	5.7



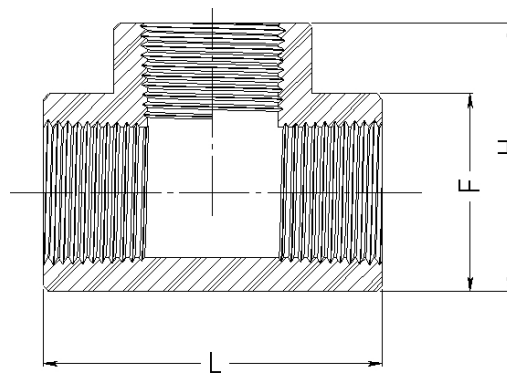
Street Elbows

Nominal Pipe Size	Part No.	L	H	F	Weight (lb.)
1/8"	F-90E01S	1-3/8"	1"	5/8"	0.04
1/4"	F-90E02S	1-11/16"	1-1/4"	7/8"	0.06
3/8"	F-90E03S	1-7/8"	1-3/8"	1"	0.10
1/2"	F-90E04S	2-3/16"	1-13/16"	1-3/16"	0.21
3/4"	F-90E06S	2-3/8"	2"	1-3/8"	0.27
1"	F-90E08S	2-7/8"	2-3/8"	1-3/4"	0.48
1-1/4"	F-90E10S	3-1/8"	2-11/16"	2"	0.63
1-1/2"	F-90E12S	3-5/8"	3-1/8"	2-3/8"	1.0
2"	F-90E16S	4-1/8"	3-5/8"	2-7/8"	1.5
2-1/2"	F-90E20S	5-1/4"	4-3/8"	3-1/2"	2.2
3"	F-90E24S	5-3/4"	5"	4"	3.3
4"	F-90E32S	6-3/4"	6-3/8"	5-1/8"	6.4



Tees

Nominal Pipe Size	Part No.	L	H	F	Weight (lb.)
1/8"	F-TE01	1-3/8"	1"	5/8"	0.04
1/4"	F-TE02	1-5/8"	1-1/4"	7/8"	0.06
3/8"	F-TE03	1-3/4"	1-3/8"	1"	0.10
1/2"	F-TE04	2-7/16"	1-13/16"	1-3/16"	0.21
3/4"	F-TE06	2-5/8"	2"	1-3/8"	0.27
1"	F-TE08	3"	2-3/8"	1-3/4"	0.48
1-1/4"	F-TE10	3-3/8"	2-11/16"	2"	0.63
1-1/2"	F-TE12	3-7/8"	3-1/8"	2-3/8"	1.0
2"	F-TE16	4-3/8"	3-5/8"	2-7/8"	1.5
2-1/2"	F-TE20	5-1/4"	4-3/8"	3-1/2"	2.2
3"	F-TE24	6"	5"	4"	3.3
4"	F-TE32	7-5/8"	6-3/8"	5-1/8"	6.4

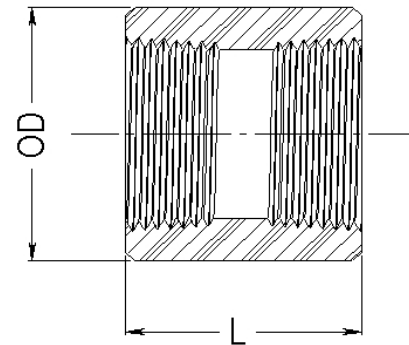
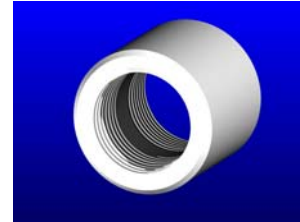


Note: Reducing Tees are made to the same dimensions.



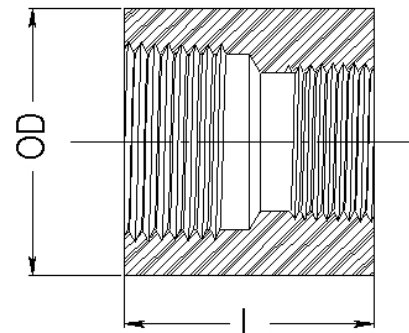
Straight Couplings

Nominal Pipe Size	Part No.	OD	L	Weight (lb.)
1/8"	F-SC01	5/8"	15/16"	0.03
1/4"	F-SC02	7/8"	1-1/8"	0.04
3/8"	F-SC03	1"	1-1/4"	0.05
1/2"	F-SC04	1-3/16"	1-3/8"	0.07
3/4"	F-SC06	1-3/8"	1-1/2"	0.11
1"	F-SC08	1-3/4"	1-5/8"	0.20
1-1/4"	F-SC10	2"	2"	0.29
1-1/2"	F-SC12	2-3/8"	2-1/8"	0.40
2"	F-SC16	2-7/8"	2-1/2"	0.50
2-1/2"	F-SC20	3-1/2"	2-5/8"	0.72
3"	F-SC24	4"	3-1/4"	1.0
4"	F-SC32	5-1/8"	4-1/4"	1.9



Reducing Couplings

Nominal Pipe Size	Part No.	OD	L	Weight (lb.)
1/8"	Contact Factory			
1/4"	F-RC02NN	7/8"	1-1/8"	0.04
3/8"	F-RC03NN	1"	1-1/4"	0.05
1/2"	F-RC04NN	1-3/16"	1-3/8"	0.07
3/4"	F-RC06NN	1-3/8"	1-1/2"	0.11
1"	F-RC08NN	1-3/4"	1-5/8"	0.20
1-1/4"	F-RC10NN	2"	2"	0.29
1-1/2"	F-RC12NN	2-3/8"	2-1/8"	0.40
2"	F-RC16NN	2-7/8"	2-1/2"	0.50
2-1/2"	F-RC20NN	3-1/2"	2-5/8"	0.72
3"	F-RC24NN	4"	3-1/4"	1.0
4"	F-RC32NN	5-1/8"	4-1/4"	1.9

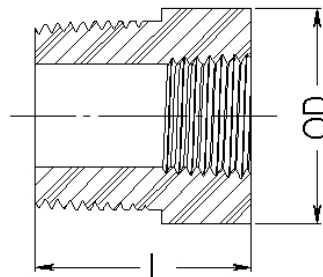
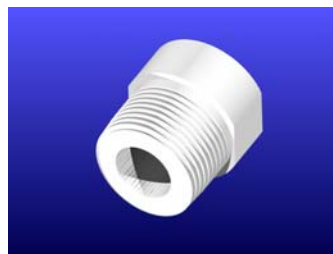


Note: Replace NN with minor pipe size expressed in the number of eighths. For example, for 1/4" x 1/8" size, use F-RC0201



Bushings

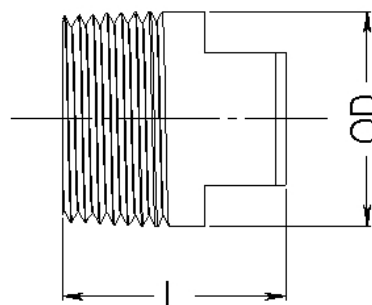
Male Pipe Size	Part No.	OD	L	Weight (lb.)
1/8"	Contact Factory			
1/4"	F-RB02NN	11/16"	1"	0.01
3/8"	F-RB03NN	15/16"	1-1/8"	0.02
1/2"	F-RB04NN	1"	1-1/4"	0.03
3/4"	F-RB06NN	1-1/4"	1-3/8"	0.05
1"	F-RB08NN	1-1/2"	1-1/2"	0.10
1-1/4"	F-RB10NN	1-13/16"	1-1/2"	0.18
1-1/2"	F-RB12NN	2-3/16"	1-5/8"	0.30
2"	F-RB16NN	2-3/4"	1-3/4"	0.60
2-1/2"	F-RB20NN	3-1/4"	2-3/8"	0.92
3"	F-RB24NN	3-7/8"	2-1/2"	1.3
4"	F-RB32NN	5"	2-5/8"	2.8



Note: Replace NN with FNPT size expressed in the number of eighths. For example, for 1/2" MNPT X 1/4" FNPT, use F-RB0402.

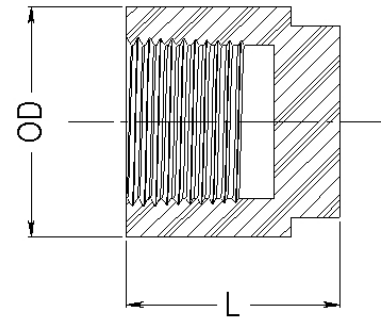
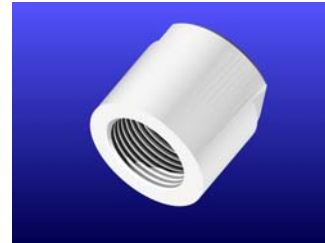
Plugs

Nominal Pipe Size	Part No.	OD	L	Weight (lb.)
1/8"	F-PL01	0.405	3/4"	0.01
1/4"	F-PL02	0.540	13/16"	0.01
3/8"	F-PL03	0.675	7/8"	0.02
1/2"	F-PL04	0.840	1"	0.04
3/4"	F-PL06	1.050	1-1/4"	0.08
1"	F-PL08	1.315	1-3/8"	0.15
1-1/4"	F-PL10	1.660	1-5/8"	0.23
1-1/2"	F-PL12	1.900	1-3/4"	0.36
2"	F-PL16	2.375	1-7/8"	0.60
2-1/2"	F-PL20	2.875	2-1/8"	0.85
3"	F-PL24	3.500	2-3/8"	1.2
4"	F-PL32	4.500	2-1/2"	3.0



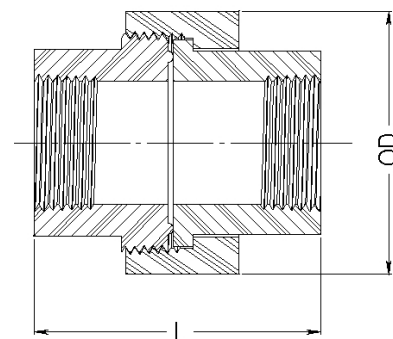
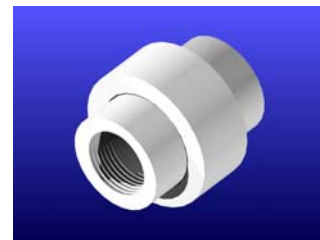
Caps

Nominal Pipe Size	Part No.	OD	L	Weight (lb.)
1/8"	F-CA01	5/8"	13/16"	0.02
1/4"	F-CA02	7/8"	15/16"	0.04
3/8"	F-CA03	1"	1"	0.05
1/2"	F-CA04	1-3/16"	1-1/32"	0.08
3/4"	F-CA06	1-3/8"	1-7/32"	0.09
1"	F-CA08	1-3/4"	1-5/8"	0.20
1-1/4"	F-CA10	2"	1-5/8"	0.24
1-1/2"	F-CA12	2-3/8"	1-3/4"	0.30
2"	F-CA16	2-7/8"	2"	0.55
2-1/2"	F-CA20	3-1/2"	2-3/32"	0.80
3"	F-CA24	4"	2-1/2"	1.3
4"	F-CA32	5-1/8"	2-1/2"	2.9



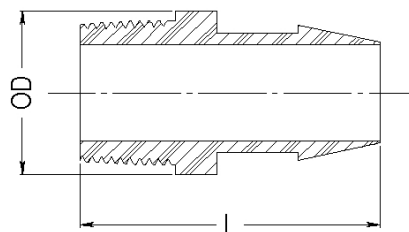
Unions

Nominal Pipe Size	Part No.	OD	L	Weight (lb.)
1/8"	F-UN01	1-5/8"	1-1/4"	0.08
1/4"	F-UN02	1-5/8"	1-1/2"	0.13
3/8"	F-UN03	1-7/8"	1-5/8"	0.16
1/2"	F-UN04	2-1/8"	1-3/4"	0.20
3/4"	F-UN06	2-1/4"	2-1/8"	0.30
1"	F-UN08	2-5/8"	2-1/2"	0.45
1-1/4"	F-UN10	2-5/8"	2-3/4"	0.59
1-1/2"	F-UN12	2-15/16"	3-3/16"	0.73
2"	F-UN16	3-5/16"	3-3/4"	1.0
2-1/2"	F-UN20	3-7/16"	4-5/8"	1.4
3"	F-UN24	3-3/4"	5-1/8"	2.0
4"	F-UN32	3-3/4"	6-1/4"	3.5



Male NPT to Hose Barbs

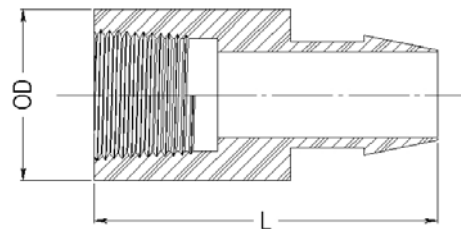
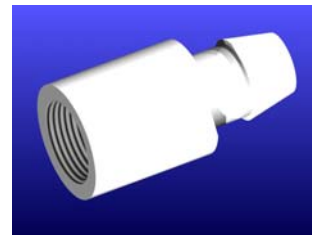
Nominal Pipe Size	Part No.	OD	L	Weight (lb.)
1/8"	F-MH01 <u>NN</u>	9/16"	1-3/8"	0.01
1/4"	F-MH02 <u>NN</u>	11/16"	1-3/4"	0.02
3/8"	F-MH03 <u>NN</u>	13/16"	2"	0.03
1/2"	F-MH04 <u>NN</u>	1"	2-1/4"	0.05
3/4"	F-MH06 <u>NN</u>	1-1/4"	2-5/8"	0.08
1"	F-MH08 <u>NN</u>	1-1/2"	2-3/4"	0.11
1-1/4"	Contact Factory			
1-1/2"				
2"				
2-1/2"				
3"				
4"				



Note: Replace NN with Hose Barb size expressed in the number of eighths. For example, for 1/2" MNPT X 1/2" Hose Barb, use F-MH0404.

Female NPT to Hose Barbs

Nominal Pipe Size	Part No.	OD	L	Weight (lb.)
1/8"	F-FH01 <u>NN</u>	5/8"	1-5/8"	0.01
1/4"	F-FH02 <u>NN</u>	7/8"	1-7/8"	0.02
3/8"	F-FH03 <u>NN</u>	1"	2-1/8"	0.03
1/2"	F-FH04 <u>NN</u>	1-3/16"	2-3/8"	0.06
3/4"	F-FH06 <u>NN</u>	1-3/8"	3"	0.09
1"	F-FH08 <u>NN</u>	1-3/4"	3-1/2"	0.13
1-1/4"	Contact Factory			
1-1/2"				
2"				
2-1/2"				
3"				
4"				

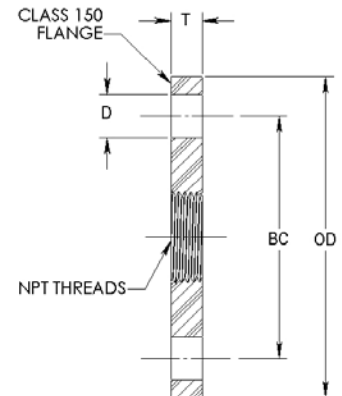
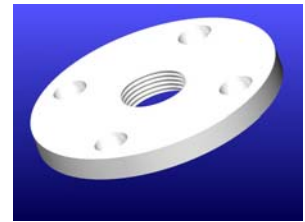


Note: Replace NN with Hose Barb size expressed in the number of eighths. For example, for 1/2" FNPT X 1/2" Hose Barb, use F-FH0404.



Female NPT Threaded Flanges - ANSI Class 150

Nominal Pipe Size	Part No.	OD	T	Number Bolt Holes	D	BC	Weight (lb.)
1/8"	Contact Factory						
1/4"							
3/8"							
1/2"	F-FL04	3-1/2"	3/4"	4	5/8"	2-3/8"	0.50
3/4"	F-FL06	3-7/8"	3/4"	4	5/8"	2-3/4"	0.70
1"	F-FL08	4-1/4"	3/4"	4	5/8"	3-1/8"	0.80
1-1/4"	F-FL10	4-5/8"	1"	4	5/8"	3-1/2"	1.05
1-1/2"	F-FL12	5"	1"	4	5/8"	3-7/8"	1.40
2"	F-FL16	6"	1"	4	3/4"	4-3/4"	1.90
2-1/2"	F-FL20	7"	1-1/4"	4	3/4"	5-1/2"	3.13
3"	F-FL24	7-1/2"	1-1/4"	4	3/4"	6"	3.60
4"	F-FL32	9"	1-1/2"	8	3/4"	7-1/2"	6.50

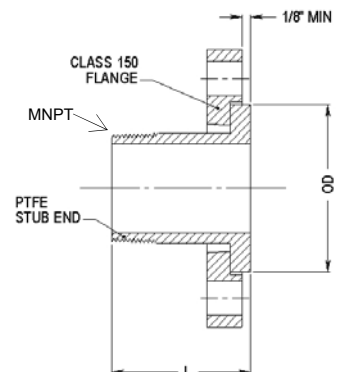
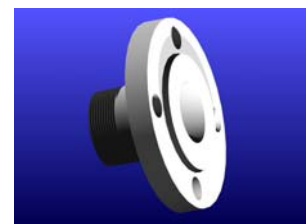


Note: Other flange materials available, *Contact Factory*

Product Specifications 2.1-2

Male NPT to Flange Adapters

	PTFE STUB END ONLY				STUB END WITH PVC FLANGE		STUB END WITH PVDF FLANGE	
Nominal Pipe Size	Part No.	OD	L	Weight (lb.)	Part No.	Weight (lb.)	Part No.	Weight (lb.)
1/8"	Contact Factory							
1/4"								
3/8"								
1/2"	F-FLS04	1-3/8"	2-1/2"	0.10	F-FLA04C	0.26	F-FLA04F	0.29
3/4"	F-FLS06	1-11/16"	2-1/2"	0.14	F-FLA06C	0.36	F-FLA06F	0.41
1"	F-FLS08	2"	3"	0.22	F-FLA08C	0.50	F-FLA08F	0.58
1-1/4"	F-FLS10	2-1/2"	3"	0.31	F-FLA10C	0.64	F-FLA10F	0.73
1-1/2"	F-FLS12	2-7/8"	3"	0.38	F-FLA12C	0.79	F-FLA12F	0.89
2"	F-FLS16	3-5/8"	3"	0.57	F-FLA16C	1.2	F-FLA16F	1.4
2-1/2"	F-FLS20	4-1/8"	4"	1.0	F-FLA20C	2.0	F-FLA20F	2.2
3"	F-FLS24	5"	4"	1.4	F-FLA24C	2.5	F-FLA24F	2.7
4"	F-FLS32	6-3/16"	4"	2.0	F-FLA32C	3.4	F-FLA32F	3.8

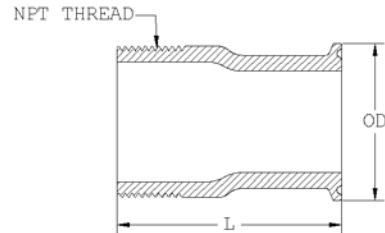


Note: Other flange materials available, *Contact Factory*



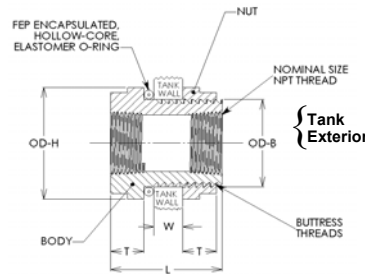
Adapters - Male NPT to Tri-Clamp

Nominal Pipe Size	Part No.	OD	L	Weight (lb.)
1/8" X 1/8"	F-TCA01NN	0.992"	2-1/8"	0.1
1/4" X 1/4"	F-TCA02NN	0.992"	2-3/16"	0.1
3/8" X 3/8"	F-TCA03NN	0.992"	2-1/4"	0.1
1/2" X 1/2"	F-TCA04NN	0.992"	2-3/8"	0.1
3/4" X 3/4"	F-TCA06NN	0.992"	2-3/8"	0.1
1" X 1"	F-TCA08NN	1.984"	2-3/4"	0.2
1-1/2" X 1-1/2"	F-TCA12NN	1.984"	3-1/8"	0.2
2" X 2"	F-TCA16NN	2.515"	3-3/8"	0.4
2-1/2" X 2-1/2"	F-TCA20NN	3.050"	3-7/8"	0.7
3" X 3"	F-TCA24NN	3.579"	3-7/8"	0.9
4" X 4"	F-TCA32NN	4.682"	4-1/4"	1.5



Note: Replace NN with Tri-Clamp size expressed in the number of eighths. For example, for 1/2" MNPT X 1/2" Tri-Clamp, use F-TCA0404.

Tank Adapters (Bulkhead Fittings)



Nominal Pipe Size	PTFE Part No. (Note 1)	PVDF FNPT Threaded Part No.	PVDF IPS Socket Weld Part No.	PVDF Metric Socket Weld Part No.	OD-H	T	OD-B	L	W MAX (Note 2)	MIN. TANK DIA. (Note 3)	Weight (lb.)
1/8"	F-TA01	N/A	N/A	N/A	1-5/8"	1/2"	1-1/8"	1-3/4"	1/2"	12"	0.20
1/4"	F-TA02	N/A	N/A	N/A	1-11/16"	1/2"	1-3/16"	1-3/4"	1/2"	13"	0.20
3/8"	F-TA03	FK-TA03FT	FK-TA03SI	FK-TA03SM	1-13/16"	1/2"	1-9/32"	1-3/4"	1/2"	15"	0.20
1/2"	F-TA04	FK-TA04FT	FK-TA04SI	FK-TA03SM	2-1/16"	5/8"	1-1/2"	2-1/8"	5/8"	19"	0.35
3/4"	F-TA06	FK-TA06FT	FK-TA06SI	FK-TA06SM	2-3/8"	3/4"	1-13/16"	2-1/2"	3/4"	25"	0.55
1"	F-TA08	FK-TA08FT	FK-TA08SI	FK-TA08SM	2-5/8"	3/4"	2-1/16"	2-1/2"	3/4"	32"	0.65
1-1/4"	F-TA10	FK-TA10FT	FK-TA10SI	FK-TA10SM	2-7/8"	3/4"	2-3/8"	2-1/2"	3/4"	44"	0.70
1-1/2"	F-TA12	FK-TA12FT	FK-TA12SI	FK-TA12SM	3-1/8"	3/4"	2-5/8"	2-1/2"	3/4"	53"	0.80
2"	F-TA16	FK-TA16FT	FK-TA16SI	FK-TA16SM	3-5/8"	7/8"	3-1/8"	2-7/8"	7/8"	73"	1.15
2-1/2"	F-TA20	FK-TA20FT	FK-TA20SI	FK-TA20SM	4-1/4"	1-1/8"	3-5/8"	3-3/8"	7/8"	97"	2.01
3"	F-TA24	FK-TA24FT	FK-TA24SI	FK-TA24SM	5-1/8"	1-1/4"	4-1/2"	3-3/4"	1"	146"	2.95
4"	F-TA32	FK-TA32FT	FK-TA32SI	FK-TA32SM	6-1/4"	1-3/8"	5-1/2"	4"	1"	216"	4.52

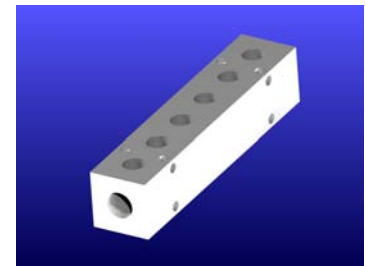
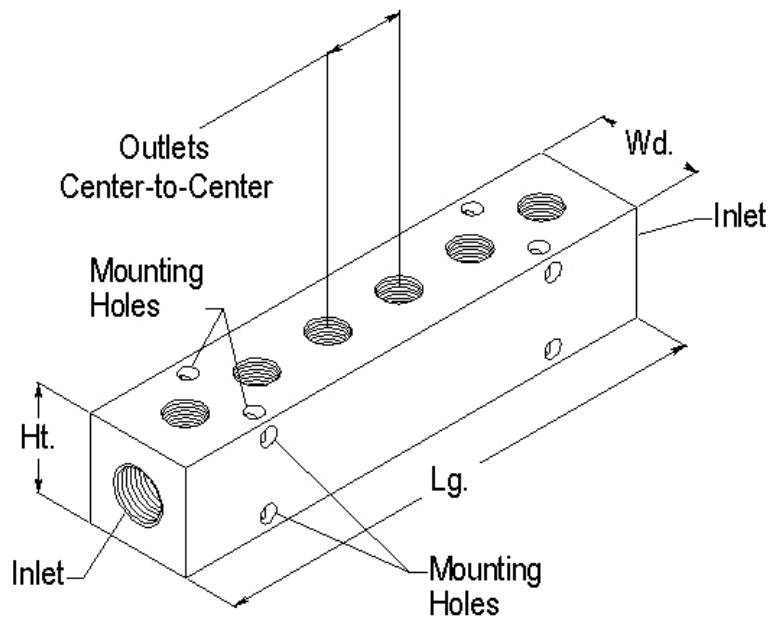
Note 1: Standard fitting includes FEP encapsulated, 0.210" diameter, silicone o-ring. PFA encapsulation, PTFE, or other o-ring materials available.

Note 2: Body can be made longer to accommodate thicker tank walls.

Note 3: As supplied, fittings are suitable for use with flat-wall or most cylindrical, smooth-wall tanks to min. dia. shown. Custom adapters are available to permit use with smaller diameter tanks.



Manifolds

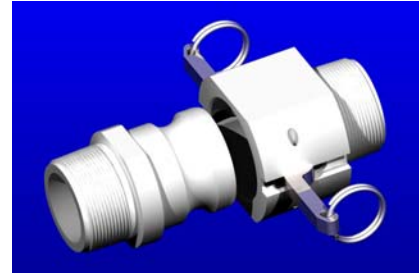


Nominal Size			Overall Size				
No. of Outlets	Inlet NPT Pipe Size	Outlet NPT Pipe Size	Part No	Lg. x Wd. x Ht.	Outlets, Center to Center	Mounting Hole Size	Weight (lb.)
2	1/4"	1/8"	F-MA0202C01	1-3/4" x 1" x 1"	3/4"	0.17"	0.1
2	3/8"	1/4"	F-MA020302	2-3/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	0.3
2	1/2"	3/8"	F-MA020403	2-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	0.4
4	1/4"	1/8"	F-MA040201	3-1/4" x 1" x 1"	3/4"	0.17"	0.2
4	3/8"	1/4"	F-MA040302	4-1/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	0.5
4	1/2"	3/8"	F-MA040403	4-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	0.7
6	1/4"	1/8"	F-MA060201	4-3/4" x 1" x 1"	3/4"	0.17"	0.3
6	3/8"	1/4"	F-MA060302	5-7/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	0.6
6	1/2"	3/8"	F-MA060403	6-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	1.0
8	1/4"	1/8"	F-MA080201	6-1/4" x 1" x 1"	3/4"	0.17"	0.4
8	3/8"	1/4"	F-MA080302	7-5/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	0.8
8	1/2"	3/8"	F-MA080403	8-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	1.4
10	1/4"	1/8"	F-MA100201	7-3/4" x 1" x 1"	3/4"	0.17"	0.6
10	3/8"	1/4"	F-MA100302	9-3/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	1.0
10	1/2"	3/8"	F-MA100403	10-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	1.7



Cam-Lock, Quick-Connect Coupling

Nominal Pipe Size	Part No.	Basic Body Size	A	B	C	D	E	F	G	H	Weight (lbs.)	Fit ASTM Size Shown
Half-Coupling Type: Male w/Female NPT Threads												
1/4"	CLMFT02	X	1.95	0.83	1.56	0.72	1.40	N/A	N/A	N/A	0.16	No ASTM Size
3/8"	CLMFT03											
1/2"	CLMFT04											
3/4"	CLMFT06	Y	2.43	1.05	1.82	0.88	1.69	N/A	N/A	N/A	0.22	1"
1"	CLMFT08											
1-1/4"	CLMFT10	Z	3.46	1.46	2.90	1.75	2.63	N/A	N/A	N/A	0.71	2"
1-1/2"	CLMFT12											
2"	CLMFT16											
Half-Coupling Type: Male w/Male NPT Threads												
1/4"	CLMMT02	X	2.31	1.18	1.56	0.55	1.40	N/A	N/A	N/A	0.14	No ASTM Size
3/8"	CLMMT03											
1/2"	CLMMT04											
3/4"	CLMMT06	Y	3.21	1.84	1.82	0.88	1.58	N/A	N/A	N/A	0.24	1"
1"	CLMMT08											
1-1/4"	CLMMT10	Z	3.91	1.91	2.90	1.75	2.63	N/A	N/A	N/A	0.73	2"
1-1/2"	CLMMT12											
2"	CLMMT16											
Half-Coupling Type: Female w/Female NPT Threads												
1/4"	CLFFT02	X	2.15	1.30	N/A	0.72	N/A	1.75	2.45	3.62	0.40	No ASTM Size
3/8"	CLFFT03											
1/2"	CLFFT04											
3/4"	CLFFT06	Y	2.74	1.69	N/A	0.88	N/A	2.00	2.26	4.75	0.64	1"
1"	CLFFT08											
1-1/4"	CLFFT10	Z	3.13	2.23	N/A	1.75	N/A	3.00	3.90	7.80	1.38	2"
1-1/2"	CLFFT12											
2"	CLFFT16											
Half-Coupling Type: Female w/Male NPT Threads												
1/4"	CLFMT02	X	2.18	1.30	N/A	0.55	N/A	1.75	2.45	3.62	0.31	No ASTM Size
3/8"	CLFMT03											
1/2"	CLFMT04											
3/4"	CLFMT06	Y	2.97	1.69	N/A	0.88	N/A	2.00	2.26	4.75	0.56	1"
1"	CLFMT08											
1-1/4"	CLFMT10	Z	3.48	2.23	N/A	1.75	N/A	3.00	3.90	7.80	1.37	2"
1-1/2"	CLFMT12											
2"	CLFMT16											



See detailed drawing on next page.

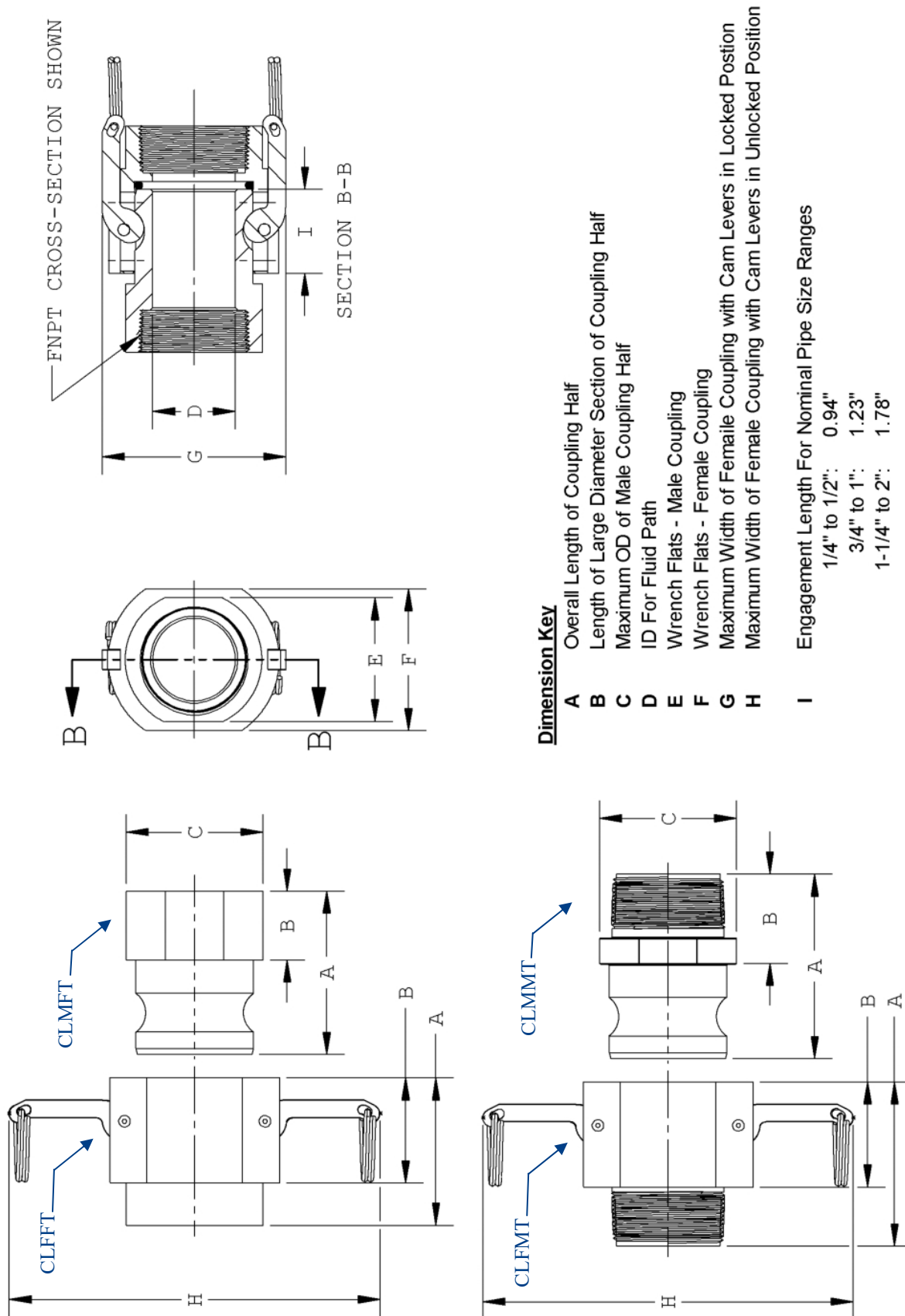
Notes:

- All dimensions given above in inches except weights, which are given in pounds.
- Female half-couplings of either thread type may be combined with male half-couplings of either thread type.
- We recommend purchasing both a male and a female end for use as a pair.** Half-couplings within each of the three basic body size ranges may be interchanged if needed to mate disparate pipe sizes. Thus, P/N CLFFT02, an X size female half coupling with 1/4" female NPT threads may be combined with P/N CLMMT04, an X size male half-coupling with 1/2" male NPT threads. **Nominal sizes 3/4" and 1" can be connected to 1" industry standard systems. Nominal sizes 1-1/4", 1-1/2" and 2" can be connected to 2" industry standard systems.** To connect other nominal sizes to commercially available industry standard systems please contact factory.
- For pressure versus temperature ratings for each size, see Micromold's FLUOR-O-FLO® PTFE Threaded Piping System Pressure Rating Chart at <http://catalog.micromold.com/asset/fof-pressure-graph-technical-bulletin.pdf>. For pressure ratings, follow the curve for the largest Nominal Pipe Size in the Basic Body Size. (i.e. for Basic Body Size X use 1/2" Nominal Pipe Size.)



MICROMOLD PRODUCTS, INC. 7 Odell Plaza #133, Yonkers, NY 10701 • Tel: (914) 969-2850

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FLUOR-O-FLO® NPT Threaded Piping System - PTFE

Engineering Specifications

All pipe in sizes 1/8" through 4" shall be schedule 80 suitable for NPT threading, and shall be made from virgin PTFE (polytetrafluoroethylene) resin conforming to ASTM D4894 Type V. Fittings having only male NPT threaded end connections shall be made from virgin PTFE resin conforming to ASTM D4894 Type V, or ASTM D4894 Type I Grade 1, and shall have pressure ratings equal to or greater than that of the schedule 80 pipe. Fittings having any female NPT threaded end connections shall be made from MICROFLON™ low-creep virgin PTFE resin conforming to ASTM D4894 Type III, Grade 1, and shall have pressure ratings equal to or greater than that of the schedule 80 pipe. The PTFE resin used by Micromold Products, Inc. conforms to FDA requirements as described in Title 21 CFR Part 177.1550, Perfluorocarbon Resins.

Installation shall be performed in accordance with Micromold's Technical Bulletin: "FLUOR-O-FLO® PTFE Piping System Installation Instructions."

For further information regarding these and other related products, please refer to other MICROMOLD PRODUCTS' publications:

- Technical Bulletin, Pressure Ratings, FLUOR-O-FLO® PTFE Piping System.
- Sales Bulletin, FLUOR-O-FLO® PTFE NPT Piping System.
- Sales Bulletin, FLUOR-O-FLO® PTFE Tank Adapters (Bulk-head Fittings).
- Sales Bulletin, FLUOR-O-FLO® PTFE Manifolds.
- Sales Bulletin, FLUOR-O-FLO® PTFE Cam-Lock, Quick-Connect Coupling.
- Sales Bulletin, FLUOR-O-FLO® PVDF & PTFE Y-Strainers.
- Sales Bulletin, FLUOR-O-FLO® PVDF & PTFE Basket Strainers.
- Sales Bulletin, FLUOR-O-FLO® PTFE Plug Valves.



FLUOR-O-FLO® NPT Threaded Piping System - PTFE

Engineering Specifications

All pipe in sizes 1/8" through 4" shall be schedule 80 suitable for NPT threading, and shall be made from virgin PTFE (polytetrafluoroethylene) resin conforming to ASTM D4894 Type V. Fittings having only male NPT threaded end connections shall be made from virgin PTFE resin conforming to ASTM D4894 Type V, or ASTM D4894 Type I Grade 1, and shall have pressure ratings equal to or greater than that of the schedule 80 pipe. Fittings having any female NPT threaded end connections shall be made from MICROFLON™ low-creep virgin PTFE resin conforming to ASTM D4894 Type III, Grade 1, and shall have pressure ratings equal to or greater than that of the schedule 80 pipe. The PTFE resin used by Micromold Products, Inc. conforms to FDA requirements as described in Title 21 CFR Part 177.1550, Perfluorocarbon Resins.

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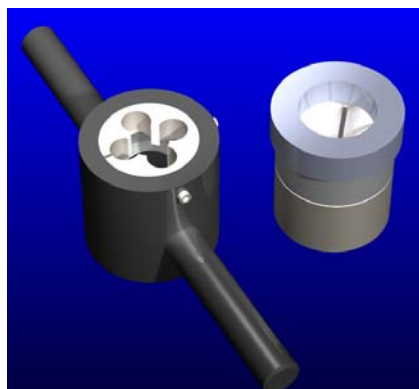
- Technical Bulletin, Pressure Ratings, FLUOR-O-FLO® PTFE Piping System.
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- Sales Bulletin, FLUOR-O-FLO® PTFE Plug Valves.



FLUOR-O-FLO® PTFE NPT Piping System Installation Instructions

Schedule 80

The following information is intended to assist users of the FLUOR-O-FLO® PTFE NPT Piping System in achieving trouble free installation of system components using our Installation Tool Kit. This bulletin covers the following aspects of installation:



The best way to install our FLUOR-O-FLO® PTFE NPT Piping System is by using our manual Installation Kit designed for that purpose. Our observations and feedback from job-sites leads us to recommend against using power threading equipment.

This guide is designed to be used with our installation kits and covers all aspects of the installation.

Contents	Page
Cutting and Chamfering Pipe	2
Threading Pipe	2
Joints Using PTFE Based Paste Sealant	3
Joints Using Thread Seal Tape	3
Testing the Joints	4
Pipe Support	4
Thermal Expansion	4
Bulkhead Fittings/Tank Adapters	5

Also available:
FLUOR-O-FLO® PTFE Piping System

- Sales Bulletin
- Product Specifications
- Pressure Ratings
- Installation Tool Kits Sales Bulletin

Cutting and Chamfering Pipe

Cutting: PTFE (also referred to as TFE) pipe may be cut by any normal pipe cutting technique such as saw, pipe cutter, etc. Ends should be square, and the OD chamfered slightly to enable clean start-up of threading die.

Chamfering: The accuracy of the chamfer is not critical. The following rules can be used for guidance (the chamfer is designed to be a minimum of one thread depth, but not so much as to lose more than 1-1/2 threads of engagement).

- As noted above, our observations and feedback from job-sites leads us to recommend against using power threading equipment. To help ensure a leak-proof joint we recommend manual threading tools (such as MICROMOLD's installation kits) that have guide sleeves to keep the pipe aligned with the threading die.
- Our chamfering tools do not accommodate 1/8" and 1/4" nominal pipe sizes. We suggest chamfering these up to 1/16" by hand, for example, with sandpaper or a file.
- 3/8" pipe from 1/8" to 3/8" nominal pipe size should be chamfered with our tool a minimum of 1/16", generally no more than 3/32".
- Pipe from 1/2" through 2" should be chamfered with our tool a minimum of 3/32", generally no more than 1/8".
- Pipe from 2-1/2" nominal and over should be chamfered a minimum of 1/8", generally no more than 5/32".

Threading Pipe

- If possible, gently secure the pipe in a vise. Otherwise, hold the pipe and prevent it from rotating while threading.
- Push straight on the handles, avoiding side pressure. Advance the die so that its trailing face is flush with the end of pipe.
- Rotate the tool clockwise continuously using the handles until the thread is completed. Do not stop or reverse rotational direction.
- To provide support and prevent distortion of the pipe, it helps to install a snug, not tight fitting, plug in the end to be threaded.
- Carefully brush off any chips or ribbons of PTFE or other contaminants that may be adhering to the threads. Failure to do so will result in leaky joints.
- The die is set properly at the factory. Although usually not necessary, should die adjustment be needed, contact the factory.



Joints Using PTFE Based Paste Sealant

Teflon® PTFE Paste Sealant:

We strongly recommend use of a PTFE based paste sealant. There are two products we recommend:

- Formula-8® manufactured by Fluoramics, Inc., Mahwah, NJ – 800-922-0075. A tube of this sealant is normally included with our installation kit and additional tubes are available through distributors. The manufacturer indicates this sealant is
 - o Non-toxic, non-contaminating, and inert to most chemicals except strong alkalis
 - o Usable over a wide range of temperatures from -400°F to +500°FHowever, it is not approved for applications requiring FDA conformance.
- Never-Seez® White Food Grade paste sealant with PTFE. This sealant is made by Bostik, Inc., Middleton, MA – 800-726-7845. The manufacturer indicates that this sealant
 - o Meets FDA requirements where incidental food contact is possible
 - o Is approved by the U. S. Department of Agriculture for use in establishments operating under the Federal Meat and Poultry Products Inspection Program
 - o Certified per NSF H-1 for food industry lubricants.

If pipe is to be threaded in the field, it important to follow the instructions above for chamfering and threading. Then use the following procedures:

- Apply the paste over all the male threads.
- Gently, hand-tighten the joints making sure the parts are not cross threaded. (Hand-tighten does not mean to go as far as a strong person can go. Just make it snug.) Then continue to tighten for one full turn. Small sizes can be done by hand. Use of emery paper can be helpful to avoid slippage. For larger sizes a strap wrench is helpful. Be careful since excessive tightening can result in leaky joints.
- Re-tightening: Wait one full day and then retighten one full turn. Make sure the system is not under pressure when tightening threads.



Joints Using Thread Seal Tape

In general, we recommend using a PTFE based paste for sealing most FOF NPT connections. Instructions for use of paste sealant follow and if adhered to, leak tight joints can be accomplished quite easily.

However, there are a few applications for which a paste sealant may not qualify. For example, while the pastes are compatible with most chemicals, there are a few that attack the solvent carrier used in the sealant (primarily strong alkalis). Also, the pastes may not qualify for certain applications requiring FDA conformance.

In the event paste is not suitable, virgin PTFE pipe joint sealing tape may be used. However, with sealing tape obtaining leak tight joints can be challenging. The installer needs to adhere especially carefully to the instructions below for the application of PTFE thread tape.

- If pipe is to be threaded in the field, it important to follow the instructions above for chamfering and threading.
- For PTFE to PTFE joints the following procedures have been tested and work well:
 - o Clean the threads: Make sure that the joints are absolutely clean and free from dirt or strings left over from threading
 - o Wrap the tape: Wrap ½" wide thread tape as follows:
 - ◆ Hold the male NPT thread facing toward you
 - ◆ Start wrapping tightly about one full thread from the end in the clockwise direction. Keep the edge of the tape parallel to the face of the fitting.
 - ◆ Make three tight wraps each covering the previous wrap. Again, keep the tape edge parallel to the face of the fitting. Do not overlap the wraps so they cover additional threads.
 - o Joining the parts: Gently, hand-tighten the joints making sure the parts are not cross threaded. (Again, hand-tighten does not mean to go as far as a strong person can go. Just make it snug.) Then continue to tighten for one full turn. Small sizes can be done by hand. Use of emery paper can be helpful to avoid slippage. For larger sizes a strap wrench is helpful. Be careful since excessive tightening can result in leaky joints.
 - o Re-tightening: Wait one full day and then retighten one full turn. Make sure the system is not under pressure when tightening threads.
- For PTFE to metal pipe joints, follow the same procedure as above, but use four wraps. Again, wait one full day and then retighten one full turn.

NOTE: Never use thread tape and paste sealant together.

Testing the Joints

Testing of joints before placing in service is always a good idea; for potentially hazardous applications it is absolutely essential.

- Systems to be used in gas service, and those exposed only to low pressures may be tested with low-pressure (5 psi) air using liquid soap at all joints to detect leaks identified by soap bubbles.
- Systems to be used at or near rated pressures should be hydrostatically tested at pressures 1.5 times the highest pressure to which they will be exposed, but in no case, higher than 1.5 times higher than the rated pressure of the pipe.

Pipe Support

PTFE has a lower tensile strength than metals or most other plastics, so hanger supports must be placed closer together than with other materials. The simplest solution is often to place the pipe on a continuous support such as stainless steel or PVC plastic angle or channel.



Thermal Expansion

PTFE has an unusually high coefficient of thermal expansion. For example, when heated from 50°F to 77°F, an unconstrained 100 foot length of PTFE pipe will lengthen almost 7 inches, 30 times more than steel. Installations should be designed accordingly. Approximate linear expansion of PTFE pipe, in units of inches of expansion per 10°F temperature change per 100 feet of pipe, is as follows:

Temperature Range (°F)	Coefficient of Linear Expansion (in. /10°F/ 100 feet)
-300° to 50°	0.4
50° to 68°	1.1
68° to 77°	5.3
77° to 500°	1.2

Bulkhead Fittings / Tank Adapters

Tank Wall Hole

The diameter of the hole through the tank wall should be equal to, or up to 1/32" larger than the nominal Body OD. Do not exceed this size or the o-ring may not seal properly.

Inserting the Fitting

The fitting, together with the o-ring, should be installed from the inside of the tank.

Sealing Surface

The o-ring sealing surface should be smooth and free from sharp edges, burrs and deep scratches. Ideally, it should have a 20 micro-inch or smoother finish although depending upon the characteristics of the surface, the o-ring will often achieve a seal against rougher surfaces.

Tightening the Nut

When tightening the nut, bring it to the point at which the o-ring seal is just in contact with the tank wall. Then tighten it approximately as shown in the following table:

Nominal Pipe Size	Tighten Unit
1/8" - 1/2"	2/3 of a Turn
3/4" - 2-1/2"	1/2 of a Turn
3" - 4"	1/3 of a Turn

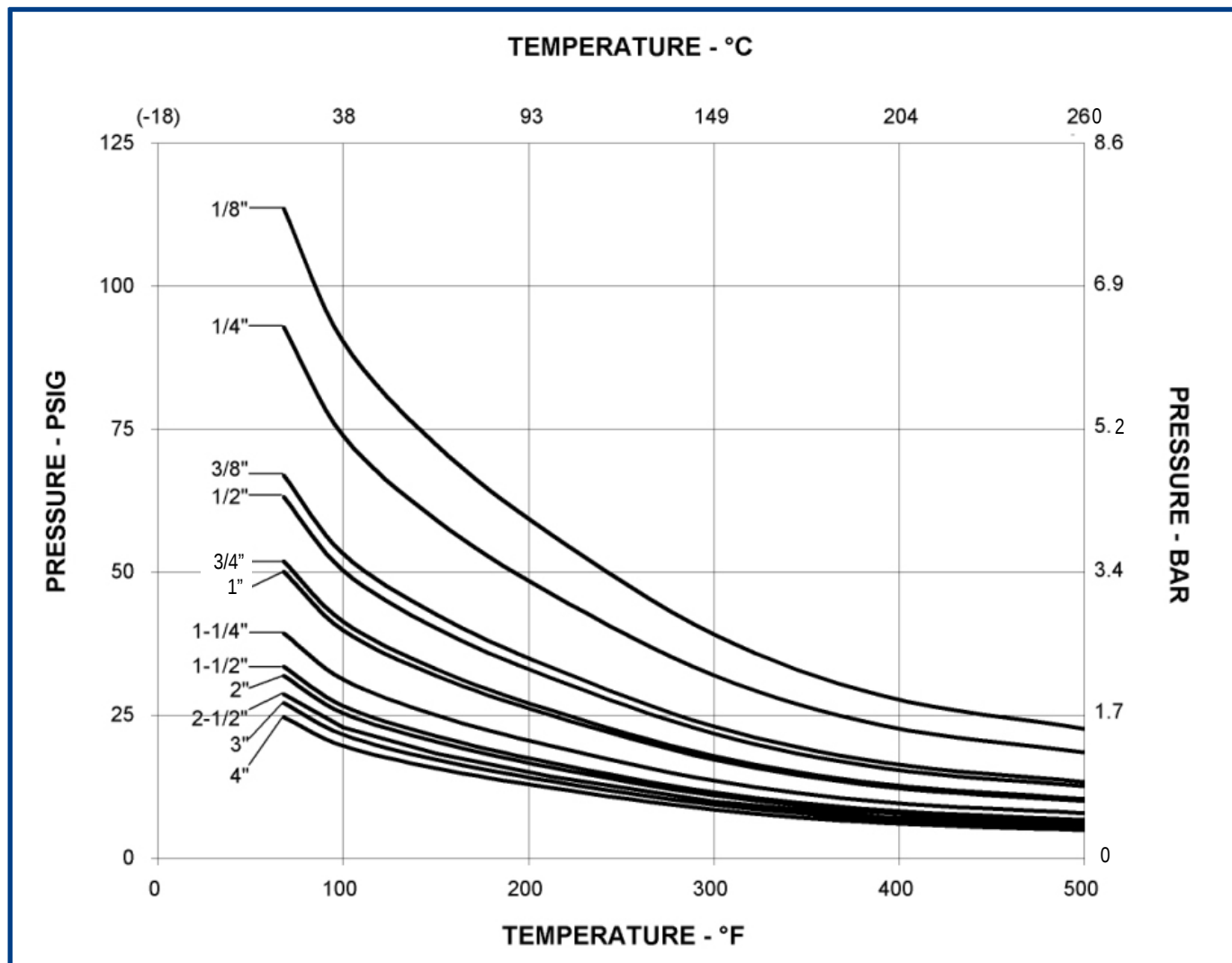
Achieving the Seal

Sealing to a less than smooth surface with Teflon® FEP or PFA encapsulated o-rings is different from sealing with rubber o-rings. A rubber o-ring will immediately deform into surface imperfections; Teflon® takes time. Thus, the o-ring may leak when installed. To correct this situation, allow the o-ring to settle in place overnight. This allows the Teflon® to cold-flow into the voids. Alternatively, you can heat the o-ring, allowing it to flow more quickly. If a seal is not achieved, it may help to take-up a little more on the nut.



FLUOR-O-FLO® PTFE NPT Piping System

Pressure Ratings for PTFE Schedule 80 Pipe and NPT Pipe Fittings



When subjected to long-term stress, PTFE has a tendency to creep ("cold flow"). For that reason, PTFE pipe is recommended for use only in relatively low pressure applications. To provide designers with guidelines for suitable use we have prepared the long-term continuous service pressure ratings shown in the chart above. The process we used to develop these ratings is summarized on the reverse side.

It should be noted that pressures considerably higher than those shown in the chart can be handled for short periods. Also, considerably higher pressures can be handled at lower temperatures. These service conditions are discussed on the reverse side.

Because individual service conditions vary, and because we have no control over individual applications and installations, we can not guarantee the ratings in particular use. It is up to the user to determine suitability for a specific application.

For hazardous service conditions, we strongly recommend that the user de-rate the system. For unusual or demanding applications, we recommend and encourage the user to contact the factory.



Long-Term Continuous Service Pressure Ratings

The pressure ratings in the chart were calculated using Barlow's formula as found in ASTM D2837 and in ISO R161:

$$P = \frac{2ST}{D-T}$$

Where:

- P = Rated Pressure (PSIG)
- S = Allowable Hoop Stress (PSI)
- T = Minimum Wall Thickness of Pipe (Inches)
- D = Average Outside Diameter of Pipe (Inches)

1) First, we developed values for Hydrostatic Design Stress which produce a 5% deformation in the PTFE in 100,000 hours. They were developed by:

a) Extrapolating to 100,000 hours a log-log plot of test data published by PTFE resin suppliers for tensile stresses which produce 5% strain in 0 to 1,000 hours plus. These data are available from more than one resin manufacturer for temperatures of 20°C, 100°C, and 200°C. The most conservative values from the published data were used.

b) Interpolating these data to provide values for other temperatures in the desired range from room temperature to 500°F.

2) Then, we applied a safety factor of 2.5 (minimum) to derive values for the Hydrostatic Design Basis.

The rating formula requires use of an Allowable Hoop Stress for the pipe material. We developed values for Allowable Hoop Stress of PTFE using procedures similar to those outlined in ASTM D2837, "Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials":

We believe these values for the Hydrostatic Design Basis are reasonable values to use for the Allowable Hoop Stress in Barlow's formula to determine long-term continuous service pressure ratings for the FLUOR-O-FLO® PTFE NPT piping system.

Other Service Conditions

• Short-Term Surge Pressures

Because in the short-term, creep is much less a factor for PTFE than in the long-term, PTFE is capable of withstanding far higher short-term than long-term stress. Thus, the FLUOR-O-FLO® PTFE NPT piping system is capable of handling considerably higher short-term surge pressures than the long-term continuous pressure ratings in the chart.

• Low Temperature Applications

PTFE creeps far less at low temperatures than at high temperatures. As a result, over the long-term, the FLUOR-O-FLO® PTFE NPT piping system can handle much higher pressures at conditions below room temperature than at the temperatures rated in the chart.

For more information on these or other special service conditions, please contact factory.



FLUOR-O-FLO®

PTFE & PVDF Tank Adapters (Bulkhead Fittings)



- Quick and Easy Connection to Any Type of Tank.
- Sealing Flexibility
- Extreme Corrosion Resistance

Micromold's FLUOR-O-FLO® PTFE and PVDF bulkhead fittings allow quick, easy connection of Micromold's FLUOR-O-FLO® PTFE or other piping system to any type of tank: plastic, metal, or lined. The fittings may be installed without adapters in either flat wall tanks, or most cylindrical tanks. For use with small diameter cylindrical tanks, we can supply custom adapters.

To maximize creep resistance, FLUOR-O-FLO® PTFE bulkhead fittings (and all female FLUOR-O-FLO® fittings) are made from Micromold's MICROFLON™, a special virgin PTFE. PVDF fittings are made from natural virgin materials. Standard fittings are supplied with Teflon® FEP encapsulated, hollow core, silicone o-rings. PFA encapsulated, or PTFE, or other o-ring materials can be supplied.

Available in pipe sizes ranging from 1/8" through 4". For PTFE fittings, connecting joint is female NPT threaded. PVDF fittings are available NPT threaded, or socket weld for IPS or metric pipe.

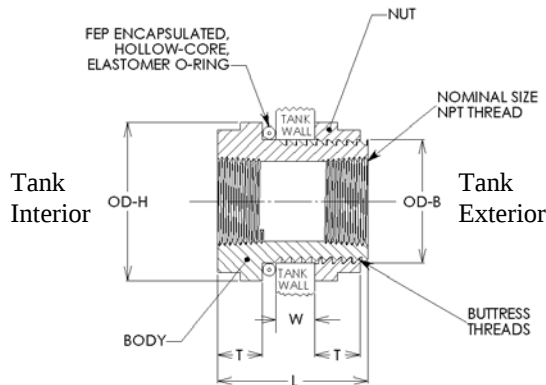
May be used with tanks having walls up to 1/2" thick for 1/8" NPT fittings, and up to 1" thick for 4" NPT fittings. Fittings for heavier tank walls are available.

To provide the best possible seal, standard fittings are supplied with special FEP encapsulated o-rings which seal to the interior tank wall. The special silicone hollow core o-ring provides sealing flexibility, and also compensates for any creep relaxation which may occur in the fitting body. The FEP encapsulation of the o-ring maintains the superior corrosion resistance of the fitting. For high temperature service, FEP or PFA encapsulated Viton™ or solid PTFE o-rings can be substituted. Buttress form threads are used on the lock-nut to allow the compressive forces needed to obtain a proper seal of the o-ring against many difficult to seal interior tank surfaces.

Call today for our
FLUOR-O-FLO® Tank Adapters
Product Specifications



FLUOR-O-FLO® PTFE & PVDF Tank Adapters (Bulkhead Fittings)



Nominal Pipe Size	PTFE Part No. (Note 1)	PVDF FNPT Threaded Part No.	PVDF IPS Socket Weld Part No.	PVDF Metric Socket Weld Part No.	OD-H	T	OD-B	L	W MAX (Note 2)	MIN. TANK DIA. (Note 3)	Weight (lb.)
1/8"	F-TA01	N/A	N/A	N/A	1-5/8"	1/2"	1-1/8"	1-3/4"	1/2"	12"	0.20
1/4"	F-TA02	N/A	N/A	N/A	1-11/16"	1/2"	1-3/16"	1-3/4"	1/2"	13"	0.20
3/8"	F-TA03	FK-TA03FT	FK-TA03SI	FK-TA03SM	1-13/16"	1/2"	1-9/32"	1-3/4"	1/2"	15"	0.20
1/2"	F-TA04	FK-TA04FT	FK-TA04SI	FK-TA04SM	2-1/16"	5/8"	1-1/2"	2-1/8"	5/8"	19"	0.35
3/4"	F-TA06	FK-TA06FT	FK-TA06SI	FK-TA06SM	2-3/8"	3/4"	1-13/16"	2-1/2"	3/4"	25"	0.55
1"	F-TA08	FK-TA08FT	FK-TA08SI	FK-TA08SM	2-5/8"	3/4"	2-1/16"	2-1/2"	3/4"	32"	0.65
1-1/4"	F-TA10	FK-TA10FT	FK-TA10SI	FK-TA10SM	2-7/8"	3/4"	2-3/8"	2-1/2"	3/4"	44"	0.70
1-1/2"	F-TA12	FK-TA12FT	FK-TA12SI	FK-TA12SM	3-1/8"	3/4"	2-5/8"	2-1/2"	3/4"	53"	0.80
2"	F-TA16	FK-TA16FT	FK-TA16SI	FK-TA16SM	3-5/8"	7/8"	3-1/8"	2-7/8"	7/8"	73"	1.15
2-1/2"	F-TA20	FK-TA20FT	FK-TA20SI	FK-TA20SM	4-1/4"	1-1/8"	3-5/8"	3-3/8"	7/8"	97"	2.01
3"	F-TA24	FK-TA24FT	FK-TA24SI	FK-TA24SM	5-1/8"	1-1/4"	4-1/2"	3-3/4"	1"	146"	2.95
4"	F-TA32	FK-TA32FT	FK-TA32SI	FK-TA32SM	6-1/4"	1-3/8"	5-1/2"	4"	1"	216"	4.52

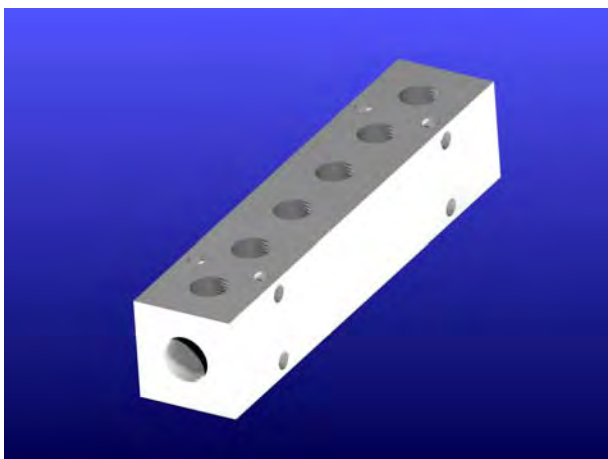
Note 1: Standard fitting includes FEP encapsulated, 0.210" diameter, silicone o-ring. PFA encapsulation, PTFE, or other o-ring materials available.

Note 2: Body can be made longer to accommodate thicker tank walls.

Note 3: As supplied, fittings are suitable for use with flat-wall or most cylindrical, smooth-wall tanks to min. dia. shown. Custom adapters are available to permit use with smaller diameter tanks.

Call today for our FLUOR-O-FLO®
Tank Adapters Sales Bulletin

FLUOR-O-FLO® PTFE Manifolds



Material:	PTFE
No. of Outlets:	2 through 10 are standard, others available on special order.
Inlet NPT Pipe Size:	1/4", 3/8", and 1/2"
Outlet NPT Pipe Size:	1/8", 1/4", and 3/8"
Overall Size:	1-3/4" x 1" x 1" through 10-3/4" x 1-1/2" x 1-1/2"

• Space Efficiency & Neatness

PTFE Manifolds reduce the number of cumbersome and bulky connections and help you tackle your space problems with ease. Lessen design and fabrication problems in process equipment, as well as in laboratory environments—anywhere highly corrosive fluids need to be controlled.

• Cost & Energy Savings

Since they shorten and condense flow paths, you can expect a reduction in pressure drop as well as more easily balanced flow conditions. This reduction in complexity and number of connections not only reduces initial costs, it can also reduce leaks and maintenance costs down the road.

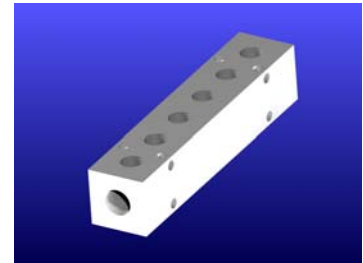
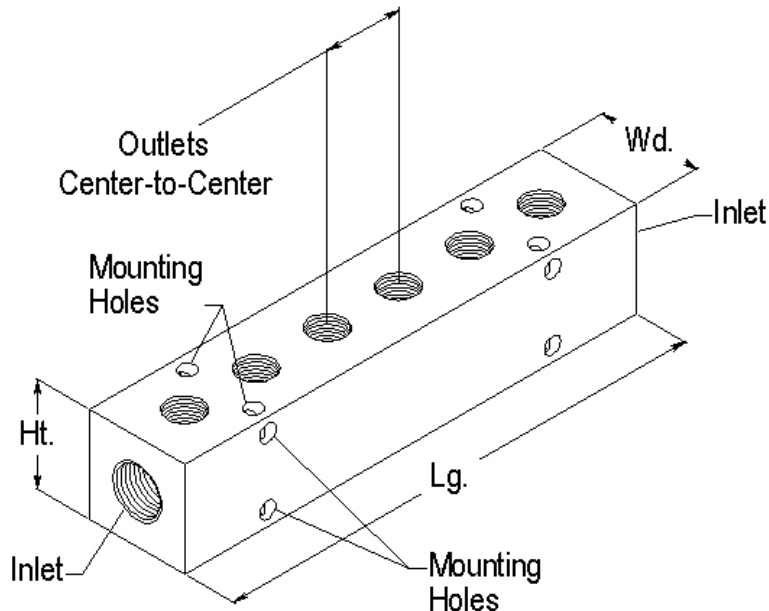
• Custom Sizes & Configurations

Manifolds can be custom-made to suit your design constraints. If you would like assistance in determining what manifold configurations are possible, please contact us.

Call today for our
FLUOR-O-FLO® PTFE
Manifolds Product Specifications



FLUOR-O-FLO® PTFE Manifolds



Call today for our
FLUOR-O-FLO® PTFE
Manifolds Sales Bulletin

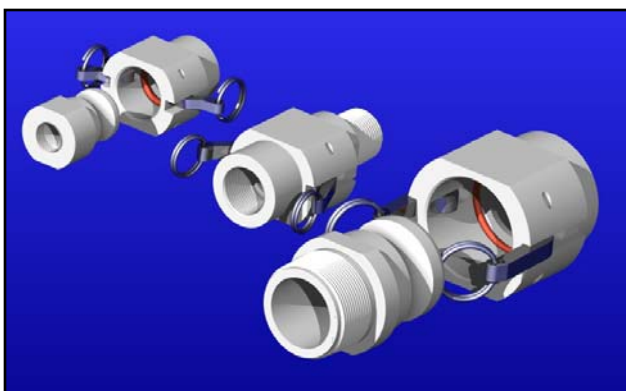
Nominal Size			Overall Size				
No. of Outlets	Inlet NPT Pipe Size	Outlet NPT Pipe Size	Part No.	Lg. x Wd. x Ht.	Outlets, Center to Center	Mounting Hole Size	Weight (lb.)
2	1/4"	1/8"	F-MA020201	1-3/4" x 1" x 1"	3/4"	0.17"	0.1
2	3/8"	1/4"	F-MA020302	2-3/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	0.3
2	1/2"	3/8"	F-MA020403	2-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	0.4
4	1/4"	1/8"	F-MA040201	3-1/4" x 1" x 1"	3/4"	0.17"	0.2
4	3/8"	1/4"	F-MA040302	4-1/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	0.5
4	1/2"	3/8"	F-MA040403	4-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	0.7
6	1/4"	1/8"	F-MA060201	4-3/4" x 1" x 1"	3/4"	0.17"	0.3
6	3/8"	1/4"	F-MA060302	5-7/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	0.6
6	1/2"	3/8"	F-MA060403	6-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	1.0
8	1/4"	1/8"	F-MA080201	6-1/4" x 1" x 1"	3/4"	0.17"	0.4
8	3/8"	1/4"	F-MA080302	7-5/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	0.8
8	1/2"	3/8"	F-MA080403	8-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	1.4
10	1/4"	1/8"	F-MA100201	7-3/4" x 1" x 1"	3/4"	0.17"	0.6
10	3/8"	1/4"	F-MA100302	9-3/8" x 1-1/4" x 1-1/4"	7/8"	0.20"	1.0
10	1/2"	3/8"	F-MA100403	10-3/4" x 1-1/2" x 1-1/2"	1"	0.20"	1.7



FLUOR-O-FLO® PTFE Cam-Lock, Quick-Connect Coupling

With Male or Female NPT Connections*

Made from MICROFLON™ Creep-Resistant PTFE



FLUOR-O-FLO® PTFE Cam-Lock, Quick-Connect Coupling is ideal for applications demanding:

- Extreme Corrosion Resistance
- High Purity
- Rapid Connect and Disconnect

Possessing the corrosion resistance of PTFE and convenient attachment features of the cam-lock, quick-connect coupling, it is the first of its kind. This coupling is the latest addition to the complete line of FLUOR-O-FLO® PTFE NPT threaded piping system components.

This coupling neatly compliments the threaded piping system since it speeds installation by providing points in the system that are independent of thread tightening angles.

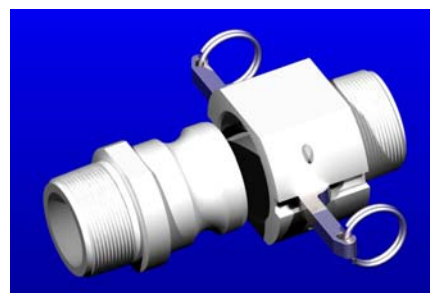
The coupling also provides an easy attachment point for components, such as tanks and hoses, that must be periodically removed or replaced.

The internal FEP-encapsulated silicone o-rings ensure that all wetted parts are fluoropolymer -- which ensures process purity and corrosion resistance in all process conditions. Mix and match female and male threaded half-couplings for installation flexibility.

- To maximize creep resistance all coupling bodies are made from special solid virgin PTFE: Micromold's MICROFLON™. Sealing is done with FEP encapsulated O-Rings. Thus, all wetted surfaces are fluoropolymer and extremely corrosion resistant.
- The cam locking levers are stainless steel and can be replaced if needed.
- Available in pipe sizes ranging from 1/4" through 2". Wall thickness is Schedule 80 minimum.
- All sizes are available with male and female NPT thread connection options.
- Within three basic body sizes ranges, male and female half-couplings can be combined to connect different size pipes.

*Other connections, such as hose barbs, available. Contact factory.

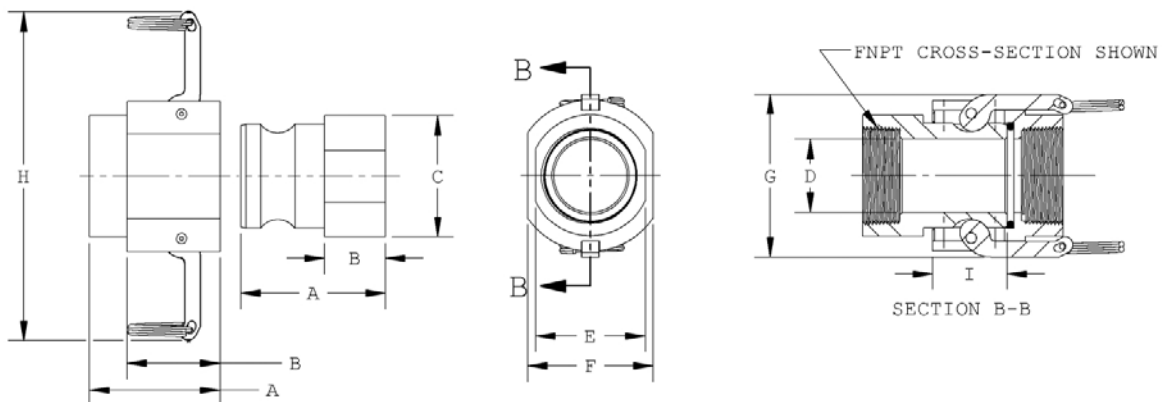
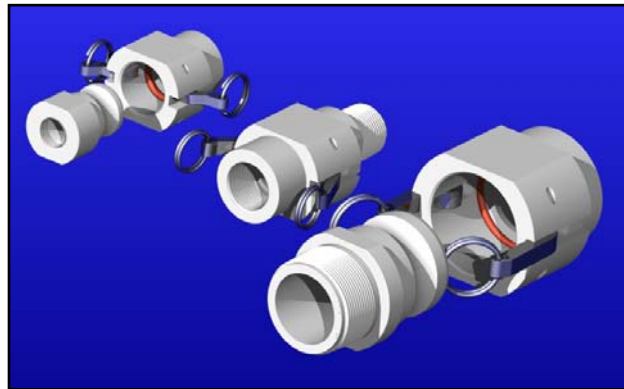
Call today for our
PTFE Cam-Lock, Quick-Connect Coupling
Product Specifications



FLUOR-O-FLO® PTFE Cam-Lock, Quick-Connect Coupling

With Male or Female NPT Connections*

Made from MICROFLON™ Creep-Resistant PTFE



*Other connections, such as hose barbs, available. Contact factory.

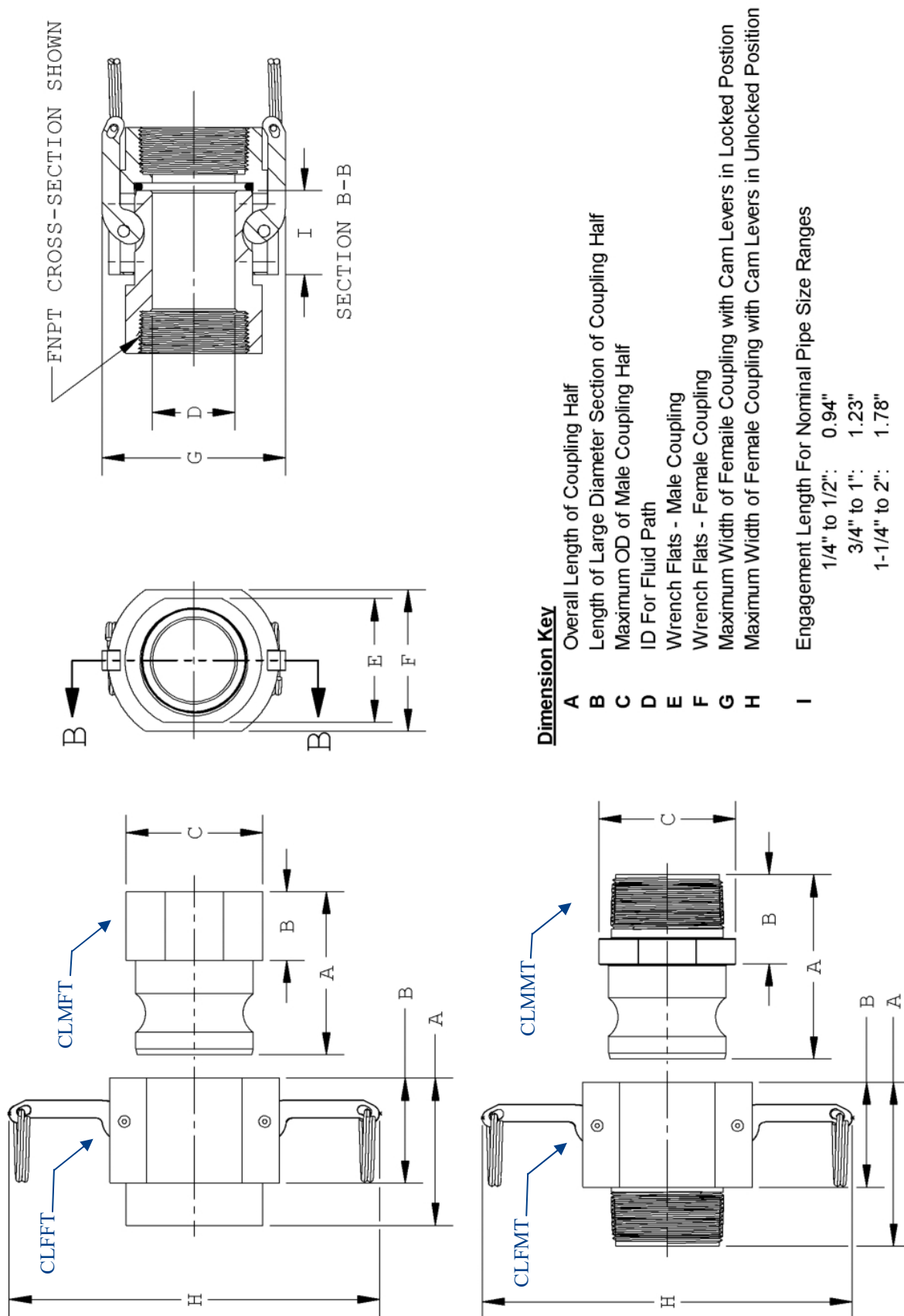
Call today for our
PTFE Cam-Lock, Quick-Connect Coupling
Sales Bulletin

Nominal Pipe Size (Inches)	Part Number	Basic Body Size	A	B	C	D	E	F	G	H	Weight (lbs.)	Fit ASTM Size Shown
Half-Coupling Type: Male w/Female NPT Threads												
1/4"	CLMFT02	X	2.31	0.83	1.56	0.30	1.40	N/A	N/A	N/A	0.16	No ASTM Size
3/8"	CLMFT03					0.42						
1/2"	CLMFT04					0.55						
3/4"	CLMFT06	Y	3.21	1.05	1.82	0.74	1.58	N/A	N/A	N/A	0.22	1"
1"	CLMFT08					0.85						
1-1/4"	CLMFT10	Z	3.91	1.46	2.90	1.28	2.63	N/A	N/A	N/A	0.71	2"
1-1/2"	CLMFT12					1.50						
2"	CLMFT16					1.70						
Half-Coupling Type: Male w/Male NPT Threads												
1/4"	CLMMT02	X	2.31	1.18	1.56	0.30	1.40	N/A	N/A	N/A	0.14	No ASTM Size
3/8"	CLMMT03					0.42						
1/2"	CLMMT04					0.55						
3/4"	CLMMT06	Y	3.21	1.84	1.82	0.74	1.58	N/A	N/A	N/A	0.24	1"
1"	CLMMT08					0.85						
1-1/4"	CLMMT10	Z	3.91	1.91	2.90	1.28	2.63	N/A	N/A	N/A	0.73	2"
1-1/2"	CLMMT12					1.50						
2"	CLMMT16					1.70						
Half-Coupling Type: Female w/Female NPT Threads												
1/4"	CLFFT02	X	2.18	1.30	N/A	0.30	N/A	1.75	2.45	3.62	0.40	No ASTM Size
3/8"	CLFFT03					0.42						
1/2"	CLFFT04					0.55						
3/4"	CLFFT06	Y	2.97	1.69	N/A	0.74	N/A	2.00	2.26	4.75	0.64	1"
1"	CLFFT08					0.88						
1-1/4"	CLFFT10	Z	3.48	2.23	N/A	1.28	N/A	3.00	3.90	7.80	1.38	2"
1-1/2"	CLFFT12					1.50						
2"	CLFFT16					1.75						
Half-Coupling Type: Female w/Male NPT Threads												
1/4"	CLFMT02	X	2.18	1.30	N/A	0.30	N/A	1.75	2.45	3.62	0.31	No ASTM Size
3/8"	CLFMT03					0.42						
1/2"	CLFMT04					0.55						
3/4"	CLFMT06	Y	2.97	1.69	N/A	0.74	N/A	2.00	2.26	4.75	0.56	1"
1"	CLFMT08					0.88						
1-1/4"	CLFMT10	Z	3.48	2.23	N/A	1.28	N/A	3.00	3.90	7.80	1.37	2"
1-1/2"	CLFMT12					1.50						
2"	CLFMT16					1.75						

Notes:

- All dimensions given above in inches except weights, which are given in pounds.
- Female half-couplings of either thread type may be combined with male half-couplings of either thread type.
- We recommend purchasing both a male and a female end for use as a pair.** Half-couplings within each of the three basic body size ranges may be interchanged if needed to mate disparate pipe sizes. Thus, P/N CLFFT02, an X size female half coupling with 1/4" female NPT threads may be combined with P/N CLMMT04, an X size male half-coupling with 1/2" male NPT threads. **Nominal sizes 3/4" and 1" can be connected to 1" industry standard systems. Nominal sizes 1-1/4", 1-1/2" and 2" can be connected to 2" industry standard systems.** To connect other nominal sizes to commercially available industry standard systems please contact factory.
- For pressure versus temperature ratings for each size, see Micromold's FLUOR-O-FLO® PTFE Threaded Piping System Pressure Rating Chart at <http://catalog.micromold.com/asset/fof-pressure-graph-technical-bulletin.pdf>. For pressure ratings, follow the curve for the largest Nominal Pipe Size in the Basic Body Size. (i.e. for Basic Body Size X use 1/2" Nominal Pipe Size.)





Engineering Specifications

All pipe in sizes 1/8" through 2" shall be schedule 80 suitable for NPT threading, and shall be made from virgin PTFE (polytetrafluoroethylene) resin conforming to ASTM D4894 Type V. Fittings having only male NPT threaded end connections shall be made from virgin PTFE resin conforming to ASTM D4894 Type V, or ASTM D4894 Type I Grade 1, and shall have pressure ratings equal to or greater than that of the schedule 80 pipe. Fittings having any female NPT threaded end connections shall be made from MICROFLON™ low-creep virgin PTFE resin conforming to ASTM D4894 Type III, Grade 1, and shall have pressure ratings equal to or greater than that of the schedule 80 pipe.

As in the FLUOR-O-FLO® PTFE Piping System manufactured by Micromold Products, Inc., installation shall be performed in accordance with Micromold's Technical Bulletin: "FLUOR-O-FLO® PTFE Piping System Installation Instructions."

For further information regarding these and other related products, please refer to other MICROMOLD PRODUCTS' publications:

- Technical Bulletin, Pressure Ratings, FLUOR-O-FLO® PTFE Piping System.
- Technical Bulletin, Installation Instructions, FLUOR-O-FLO® PTFE Piping System.
- Sales Bulletin, FLUOR-O-FLO® PTFE NPT Piping System.
- Sales Bulletin, FLUOR-O-FLO® PTFE Tank Adapters (Bulk-head Fittings).
- Sales Bulletin, FLUOR-O-FLO® PTFE Manifolds.
- Sales Bulletin, FLUOR-O-FLO® PTFE Cam-Lock, Quick-Connect Coupling.
- Sales Bulletin, FLUOR-O-FLO® PVDF & PTFE Y-Strainers.
- Sales Bulletin, FLUOR-O-FLO® PVDF & PTFE Basket Strainers.
- Sales Bulletin, FLUOR-O-FLO® PTFE Plug Valves.



FLUOR-O-FLO® XPress PTFE Clamp-Joint Piping System For Drainline & Process Applications



Materials

- All wetted surfaces are PTFE or FEP
- Pipe and fittings are PTFE
- Couplings use multiple FEP encapsulated, silicone elastomer o-ring seals
- Clamps are stainless steel

Fittings

- Couplings
- P-Traps for sink drainage
- Elbows - 90°, 45°, 22-1/2°
- Tees – straight and reducing
- Laterals – straight and reducing
- Caps
- Concentric reducers
- Adapters: Sanitary, Flanged, NPT, Metric, Other - contact factory
- Sight flow tubes

Sizes

- Currently available in 1", 1-1/2" and 2" nominal sizes
- For other sizes, please contact factory
- Pipe ODs conform to IPS diameters
- Standard pipe lengths are 8 feet and 16 feet.
- **Other lengths are available**

The FLUOR-O-FLO® XPress PTFE Piping System is an ideal solution to drainage and other low pressure systems for difficult-to-handle fluids, providing:

- **Safety**
- **Flexibility**
- **Extreme Corrosion Resistance**

The system includes pipe and fittings that are connected using coupling-clamps uniquely designed for PTFE joints*. They incorporate multiple o-ring seals designed to take advantage of the natural deformation (creep) of PTFE, eliminating the need to retighten joints. The joints are strong, reliable and leak tight.

The system is ideally suited for drainage applications in which highly aggressive fluids must be handled. These especially include laboratories in the pharmaceutical industry in which tough solvents and sometimes unpredicted fluid mixtures must be drained. Applications also include drain lines for concentrated acids and alkalis. The system is also well suited to other low-pressure process industry applications where the corrosion resistance and purity of PTFE are desirable.

Call today for our
**FLUOR-O-FLO® XPress PTFE
Clamp-Joint Piping System
Product Specifications
and Installation Instructions**

* Refer to U.S. Patent Number 6,976,712

FLUOR-O-FLO® XPress
PTFE Clamp-Joint Piping System
For Drainline & Process Applications



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*Refer to U.S. Patent Number 6,976,712

All sales are subject to separately published Terms and Conditions of Sale.

Call today for our
FLUOR-O-FLO® XPress PTFE
Clamp-Joint Piping System
Sales Bulletin and
Installation Instructions

Pipe

Nominal Size	Part No. (Note 1)	Minimum OD*	Minimum Wall (Note 2)
1"	XP-TUB08NN	1.315"	0.125"
1-1/2"	XP-TUB12NN	1.900"	0.125"
2"	XP-TUB16NN	2.375"	0.125"

Note 1: For standard 8 foot lengths, replace NN with 96, 16 foot lengths replace NN with 192. For lengths other than standard, replace NN with lengths in inches.

Note 2: FLUOR-O-FLO® XPress PTFE Pipe ODs and Wall Thicknesses given are minimums. In practice, both are typically extruded oversize. For further information, please contact factory.

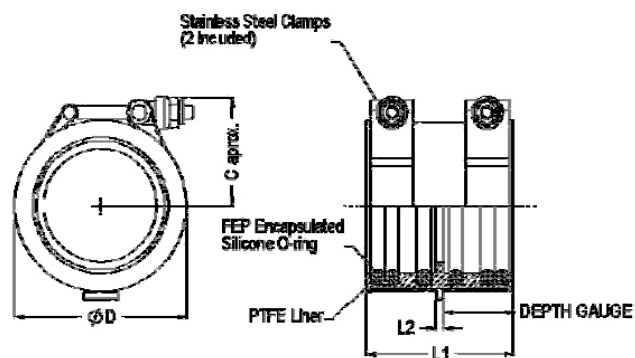
Unless otherwise noted, fittings or fitting connections have same nominal wall thickness as above.



- Standard lengths are 8ft. or 16ft.
- Short lengths and lengths up to 20ft. or more are available upon request.

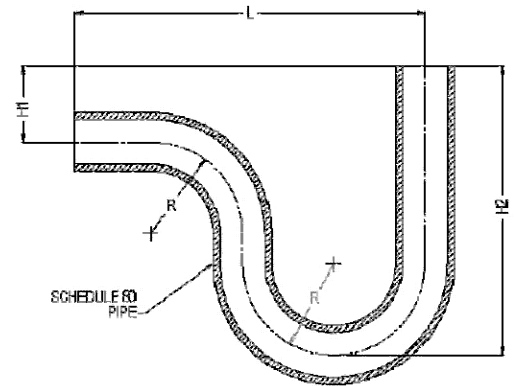
Coupling - Clamps

Nominal Size	Part No.	OD	L1	L2	C
1"	XP-CC08	1-7/8"	2-5/8"	1/8"	1-1/2"
1-1/2"	XP-CC12	2-1/2"	2-5/8"	1/8"	1-3/4"
2"	XP-CC16	3"	2-5/8"	1/8"	2"



P - Traps

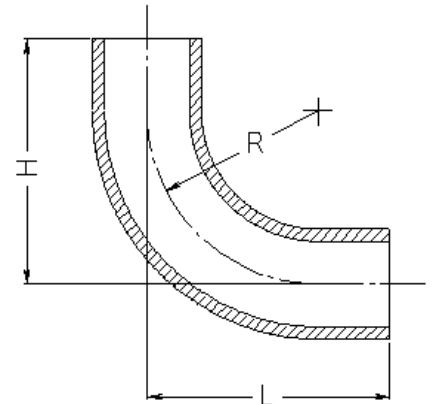
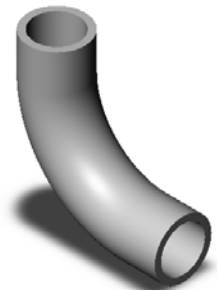
Nominal Size	Part No.	L	H1	H2	R
1-1/2"	XP-PT12	11-1/2"	2-1/2"	9-1/2"	3"
2"	XP-PT16	15"	3"	12"	4"



Product Specifications 2.10-2

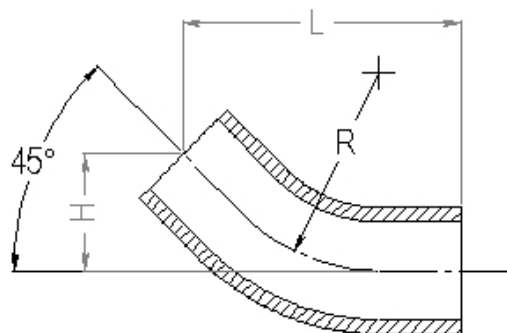
Elbows - 90°

Nominal Size	Part No.	L	H	R
1"	XP-90E08	3-1/2"	3-1/2"	2"
1-1/2"	XP-90E12	4-1/4"	4-1/4"	3"
2"	XP-90E16	5-1/2"	5-1/2"	4"



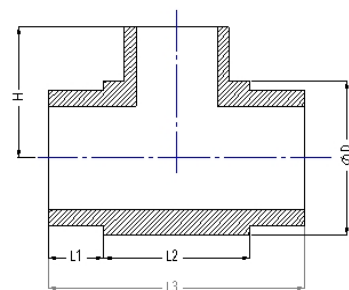
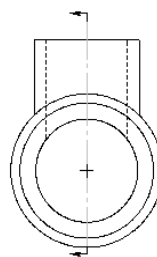
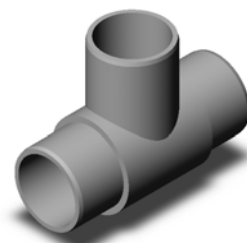
Elbows - 45°

Nominal Size	Part No.	L	H	R
1"	XP-45E08	4"	1-5/8"	2"
1-1/2"	XP-45E12	4-11/16"	1-15/16"	3"
2"	XP-45E16	5-3/8"	2-1/4"	4"



Tees - Straight

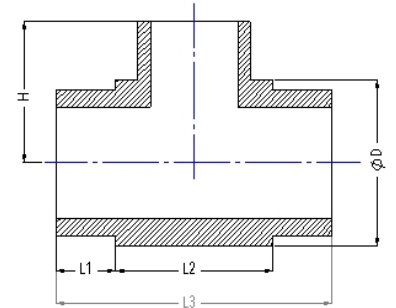
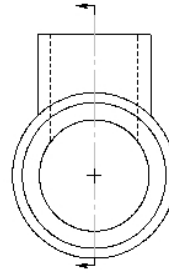
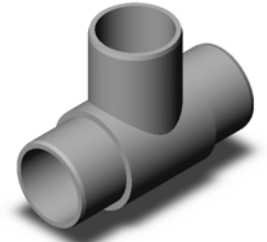
Nominal Size	Part No.	L1	L2	L3	OD	H
1"	XP-TE08	1-1/4"	1-7/8"	4-3/8"	1-1/2"	2-1/4"
1-1/2"	XP-TE12	1-1/4"	2-3/8"	4-7/8"	2-1/4"	2-9/16"
2"	XP-TE16	1-1/4"	2-7/8"	5-3/8"	2-3/4"	2-7/8"



Tees - Reducing

Nominal Size* (Run x Branch)	Part No.	L1	L2	L3	OD	H
1-1/2" X 1"	XP-TER1208	1-1/4"	1-7/8"	4-3/8"	2-1/4"	2-5/8"
2" X 1"	XP-TER1608	1-1/4"	1-7/8"	4-3/8"	2-3/4"	2-7/8"
2" X 1-1/2"	XP-TER1612	1-1/4"	2-7/8"	5-3/8"	2-3/4"	2-7/8"

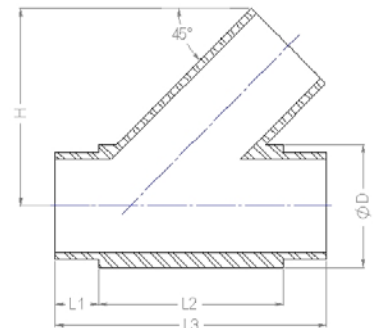
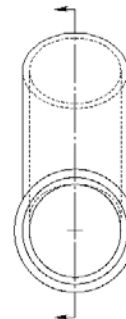
* Other reductions available, contact factory



Product Specifications 2.10-2

Laterals - Straight

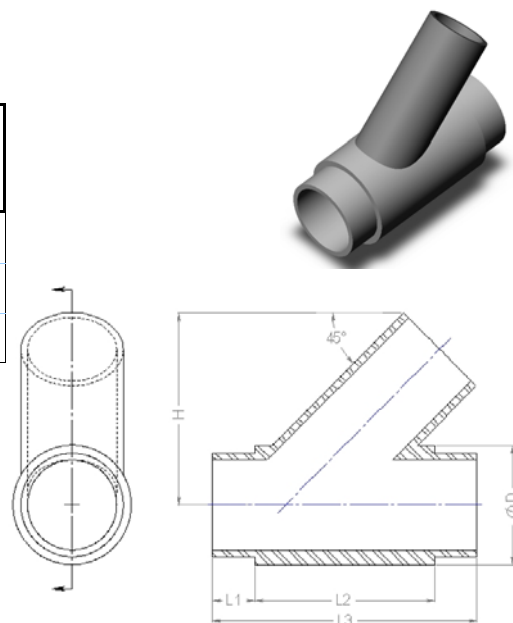
Nominal Size	Part No.	L1	L2	L3	OD	H
1"	XP-LAS08	1-1/4"	2-3/4"	5-1/4"	1-1/2"	3-1/8"
1-1/2"	XP-LAS12	1-1/4"	3-5/8"	6-1/8"	2-1/4"	3-3/4"
2"	XP-LAS16	1-1/4"	4-1/4"	6-3/4"	2-3/4"	4-3/8"



Laterals - Reducing

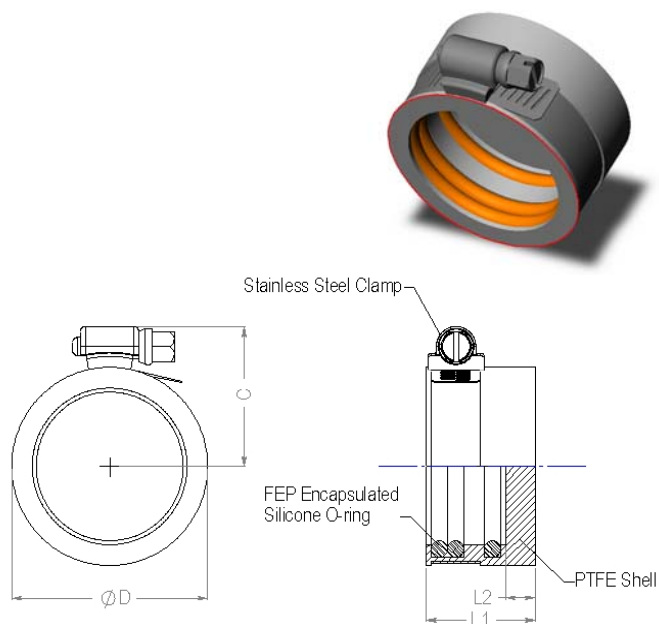
Nominal Size* (Run x Branch)	Part No.	L1	L2	L3	OD	H
1-1/2" X 1"	XP-LAR1208	1-1/4"	2-3/4"	5-1/4"	2-1/4"	3-1/2"
2" X 1"	XP-LAR1608	1-1/4"	2-1/2"	5"	2-3/4"	3-3/4"
2" X 1-1/2"	XP-LAR1612	1-1/4"	3-3/8"	5-7/8"	2-3/4"	4"

* Other reductions available, contact factory



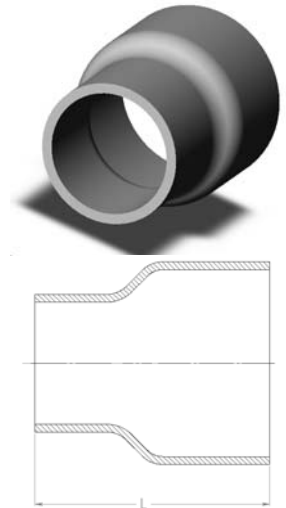
Caps

Nominal Size	Part No.	OD	L1	L2	C
1"	XP-CAP08	2-1/8"	1-5/8"	3/8"	1-1/2"
1-1/2"	XP-CAP12	2-3/4"	1-5/8"	3/8"	1-3/4"
2"	XP-CAP16	3-1/4"	1-5/8"	3/8"	2"



Concentric Reducers

Nominal Size	Part No.	L
1-1/2" X 1"	XP-CR1208	3"
2" X 1-1/2"	XP-CR1612	3"
2" X 1"	XP-CR1608	3-3/8"

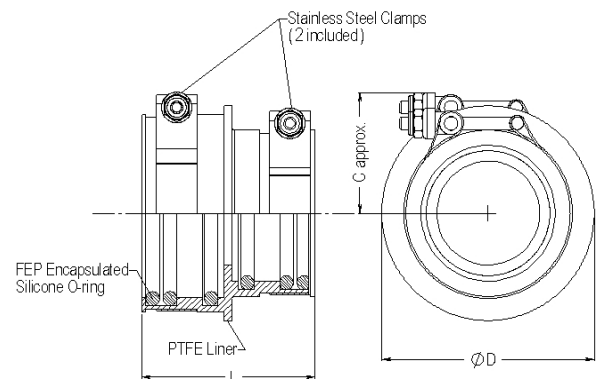


Product Specifications 2.10-2

Reducing Coupling - Clamps

Nominal Size*	Part No.	OD	C	L
1-1/2" X 1"	XP-RCCL1208	2-3/4"	1-3/4"	2-5/8"
2" X 1-1/2"	XP-RCCL1612	3-1/4"	2"	2-5/8"

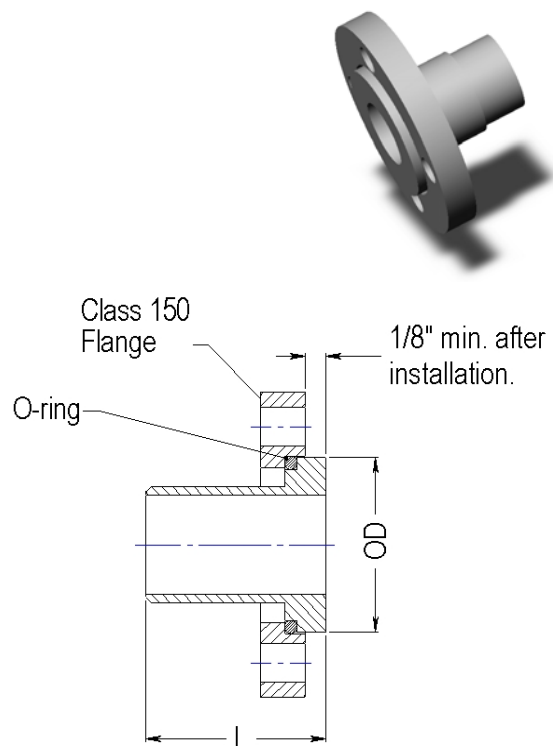
* Other reductions available, contact factory



Adapters - Flange

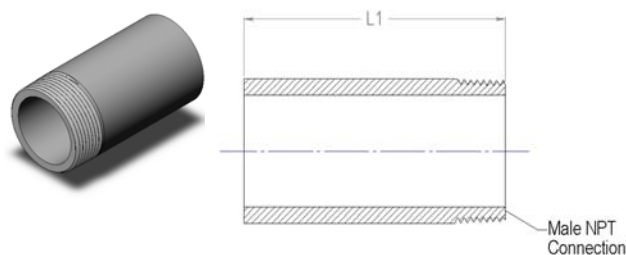
Stub End PTFE			
Nominal Size	Part No.	OD	L
1"	XP-FLS08	2-1/8"	3"
1-1/2"	XP-FLS12	2-7/8"	3"
2"	XP-FLS16	3-1/2"	3"
Stub End With PVC* Flange			
1"	XP-FLA08C	2-1/8"	3"
1-1/2"	XP-FLA12C	2-7/8"	3"
2"	XP-FLA16C	3-1/2"	3"
Stub End With PVDF* Flange			
1"	XP-FLA08F	2-1/8"	3"
1-1/2"	XP-FLA12F	2-7/8"	3"
2"	XP-FLA16F	3-1/2"	3"

* Other flange materials available, contact factory

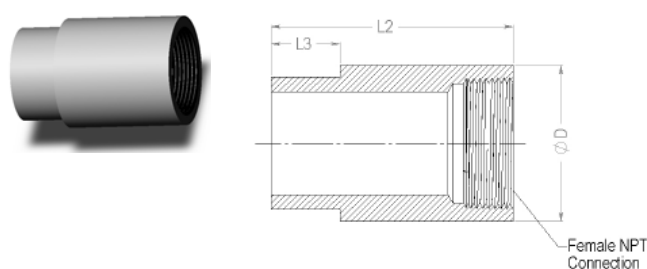


Adapters - NPT

Male NPT Connection



Female NPT Connection



XP to Male NPT		
Nominal Size	Part No.	L1
1"	XP-MNPT08	3"
1-1/2"	XP-MNPT12	3"
2"	XP-MNPT16	3"

XP to Female NPT				
Nominal Size	Part No.	L2	L3	OD
1"	XP-FNPT08	3"	1-1/4"	1-7/8"
1-1/2"	XP-FNPT12	3"	1-1/4"	2-3/8"
2"	XP-FNPT16	3"	1-1/4"	2-7/8"

NOTE: Use these adapters to connect your XP system to the PTFE pipe or fittings from MICROMOLD'S FLUOR-O-FLO® NPT threaded piping system. This gives you great flexibility to deal with special needs such as tight corners and attachment of small NPT devices.



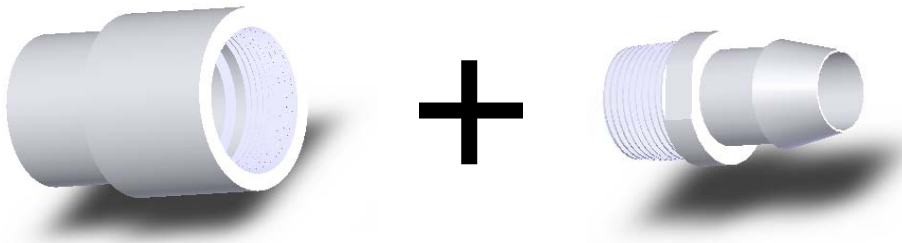
Adapters - Tri-Clamp

Nominal Size* (Tri-Clamp by XP)	Part No.	L1	L2	L3	OD Nominal	OD2
1" X 1"	XP-TCA08	*	*	2-1/4"	1.315"	1.984"
1-1/2" X 1-1/2"	XP-TCA12	1-1/4"	1-1/4"	2-7/8"	1.900"	1.984"
2" X 2"	XP-TCA16	1-1/4"	1-1/4"	2-7/8"	2.385"	2.515"



* 1" size has no conical reduction, i.e. is straight.

Adapters - Pipe to Hose End (Barbs)



Interfacing your XP system to a hose is easily done using an XP to Female NPT Adapter plus one of our FLUOR-O-FLO® system Male NPT Hose End Adapters. These Adapters are available in sizes from up to 1" (longer on request). In some cases, a reducing bushing may also be required.



Tank Adapters (Bulkhead Fittings)

Nominal Pipe Size	Part No. (Note 1)	L	T	P	OD-H	OD-B (Note 2)	W Max. (Note 3)	Min. Tank Dia. (Note 4)
1" X 1"	XP-BA08	3-7/8"	3/4"	1-1/4"	2-5/8"	2-1/16"	3/4"	32"
1-1/2" X 1-1/2"	XP-BA12	3-7/8"	3/4"	1-1/4"	3-1/8"	2-5/8"	3/4"	53"
2" X 2"	XP-BA16	4-1/4"	7/8"	1-1/4"	3-5/8"	3-1/8"	7/8"	73"

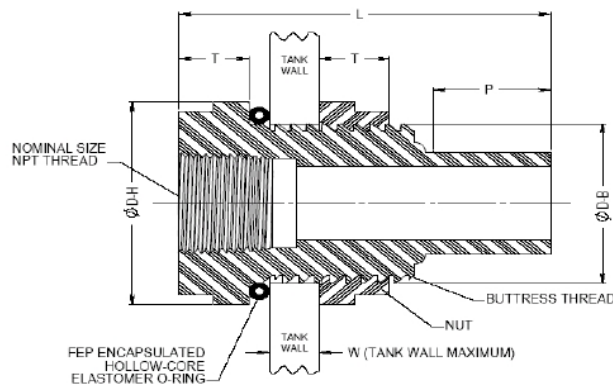


Note 1: Standard fittings include FEP encapsulated, 0.210 diameter, silicone o-ring, other materials available.

Note 2: Through hole diameter should be equal to, or up to 1/32" larger than OD-B.

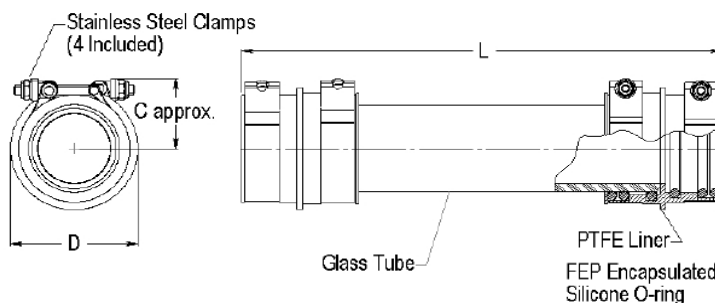
Note 3: Body can be manufactured longer to accommodate thicker walls.

Note 4: As supplied, fittings are suitable for use with flat-wall or most cylindrical, smooth-wall tanks to minimum diameter shown. Custom adapters are available to permit use with smaller diameter tanks.



Sight Flow Tubes

Nominal Size	Part No.	D	C	L
1"	XP-SF08	2-1/4"	1-1/2"	11-1/2"
1-1/2"	XP-SF12	2-7/8"	1-3/4"	11-1/2"
2"	XP-SF16	3-3/8"	2"	12"



FLUOR-O-FLO® XPress Clamp-Joint Piping System - PTFE

Engineering Specifications

All pipe in sizes 1" through 2" shall be made from virgin PTFE (polytetrafluoroethylene) resin conforming to ASTM D4894 Type V.

All fittings shall be made from virgin PTFE resin conforming to ASTM D4894 Type V or ASTM D4894 Type I, II, or III, and shall have wall thickness equal to or greater than that of the pipe.

All Coupling-Clamps shall have 100% PTFE, FEP or PFA primary and secondary fluid contact areas. Sealing forces on Coupling-Clamp shall be exerted by double stainless-steel clamps capable of exerting two fully independent clamping forces, one at each end of the Coupling-Clamp. The forces shall be transmitted to the PTFE, FEP, or PFA contact areas via elastomeric o-rings that will maintain sealing pressure as the PTFE pipe being sealed shrinks slightly under the radial clamping load.

As in the FLUOR-O-FLO® XPress PTFE piping System manufactured by Micromold Products, Inc. (Refer to U.S. Patent Number 6,976,712), installation shall be performed in accordance with Micromold's Technical Bulletin: FLUOR-O-FLO® XPress PTFE Clamp-Joint Piping System Installation Instructions.

Pressure Rating: Maximum pressure in service not to exceed 15psi (or 35 feet of water) at ambient temperatures.

For further information regarding these and other related products, please refer to other MICROMOLD PRODUCTS' publications:

- Technical Bulletin, Pressure Ratings, FLUOR-O-FLO® PTFE Threaded Piping System.
- Sales Bulletin, FLUOR-O-FLO® XPress PTFE Clamp-Joint Piping System for Drainline & Process Applications.
- Sales Bulletin, FLUOR-O-VALVE™ PTFE Plug Valves.
- Sales Bulletin, FLUOR-O-SHIELD™ PVDF & PTFE Y-Strainers.
- Sales Bulletin, FLUOR-O-SHIELD™ PVDF & PTFE Basket Strainers.



FLUOR-O-FLO® XPress Clamp-Joint Piping System - PTFE

Engineering Specifications

All pipe in sizes 1" through 2" shall be made from virgin PTFE (polytetrafluoroethylene) resin conforming to ASTM D4894 Type V.

All fittings shall be made from virgin PTFE resin conforming to ASTM D4894 Type V or ASTM D4894 Type I, II, or III, and shall have wall thickness equal to or greater than that of the pipe.

All Coupling-Clamps shall have 100% PTFE, FEP or PFA primary and secondary fluid contact areas. Sealing forces on Coupling-Clamp shall be exerted by double stainless-steel clamps capable of exerting two fully independent clamping forces, one at each end of the Coupling-Clamp. The forces shall be transmitted to the PTFE, FEP, or PFA contact areas via elastomeric o-rings that will maintain sealing pressure as the PTFE pipe being sealed shrinks slightly under the radial clamping load.

As in the FLUOR-O-FLO® XPress PTFE piping System manufactured by Micromold Products, Inc. (Refer to U.S. Patent Number 6,976,712), installation shall be performed in accordance with Micromold's Technical Bulletin: FLUOR-O-FLO® XPress PTFE Clamp-Joint Piping System Installation Instructions.

Pressure Rating: Maximum pressure in service not to exceed 15psi (or 35 feet of water) at ambient temperatures.

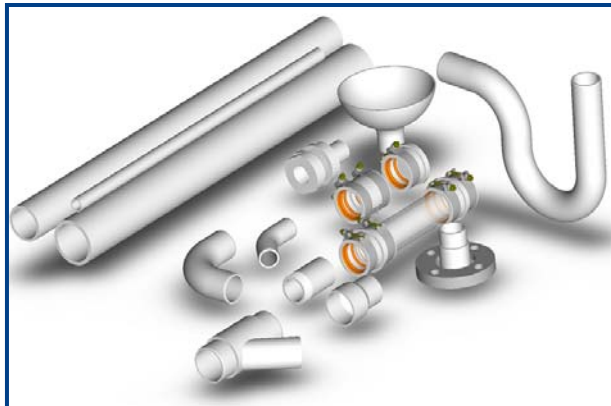
For further information regarding these and other related products, please refer to other MICROMOLD PRODUCTS' publications:

- Technical Bulletin, Pressure Ratings, FLUOR-O-FLO® PTFE Threaded Piping System.
- Sales Bulletin, FLUOR-O-FLO® XPress PTFE Clamp-Joint Piping System for Drainline & Process Applications.
- Sales Bulletin, FLUOR-O-VALVE™ PTFE Plug Valves.
- Sales Bulletin, FLUOR-O-SHIELD™ PVDF & PTFE Y-Strainers.
- Sales Bulletin, FLUOR-O-SHIELD™ PVDF & PTFE Basket Strainers.



FLUOR-O-FLO® XPress PTFE Clamp-Joint Piping System Installation Instructions

The following information is intended to assist users of the FLUOR-O-FLO® XPress PTFE Piping System (FOF-XP)* in achieving trouble free installation of system components. This bulletin covers the following aspects of installation:



Contents	Page
Cutting Pipe	2
Beveling Pipe	2
Pressure Rating	2
Joints - FOF-XP Coupling - Clamp	2
Joints - Other	3
Testing	3
Pipe Support	3
Thermal Expansion	3

*Refer to U.S. Patent Number 6,976,712

Cutting Pipe

To make proper joints, the tube end needs to be cut square, with no roughness, chips or strings. To accomplish this, we recommend using the REED No. TC3QP Tube Cutter with the REED 30-40P cutter wheel.*

Beveling Pipe

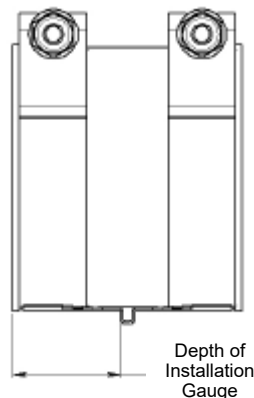
To ensure the tubing fits smoothly into the FLUOR-O-FLO® XPress Coupling-Clamp without damage to the clamp's o-rings, the ends of the tubing should be beveled. For this, we recommend using the REED No. DEB4 Deburring Tool.*

Pressure Rating

Maximum pressure in service not to exceed 15psi (or 35 feet of water) at ambient temperatures.

Joints: FOF-XP Coupling Clamps

Step 1: The patented Coupling-Clamp contains a built-in gauge to show the depth of installation - the distance from the step in the stainless steel strap to the open end of the coupling is the proper depth (see diagram). Hold the step against the open end of the pipe and mark the installation depth on the pipe with a fine-point ink or china marker.



Step 2: Smear the tube end with Formula-8® Teflon® PTFE paste sealant available from Micromold.*

Step 3: Push the Coupling-Clamp over the tube end until it “hits bottom”. Using the ink or china mark, confirm that the tube is installed full depth.

Step 4: Tighten the clamp nut to a torque of 70 inch-lbs.

This clamp pressure will deform the o-ring seals. It will also deform the tube slightly creating a slight bell-shape behind the open end. This pressure and deformation will hold the tube firmly in place and provide a leak-tight joint that does not require retorquing.

*Installation tools and supplies shown are commercial items that can be obtained from MICROMOLD PRODUCTS. They are also widely available from plumbing supply houses or industry catalogues. Instructional videos are available at <https://micromold.com/clamp-joint-piping-video.html>



Joints: Other

- **PVC or PVDF Flanged Adapters** – Adapters supplied by Micromold that incorporate PVC or PVDF flanges include a back-up, non-sealing, elastomer o-ring. These flanges should be tightened in accordance with the manufacturer's recommended torque as shown on the flange. Because the back-up o-ring compensates for PTFE's creep, these joints do not need retorquing.
- **Stainless or Plain Steel Flanged Adapters** – Adapters incorporating steel or stainless flanges should be tightened in accordance with standard procedures for PTFE lined pipe, including retorquing.
- **Other Joints** – All other joints should be retightened 24 to 48 hours after initial installation.

Testing

The FOF-XP system should be tested in accordance with applicable code requirements. All sections should be tested at a minimum 10 foot head of water (4.3 psi) and a maximum 35 foot head of water (15 psi). To be sure that normal creep is allowed for, we recommend testing be deferred until 24 hours after installation. (See **JOINTS – Other** above.) The system should not be tested with compressed air or gas.

Pipe Support

PTFE has a lower tensile strength than metals or most other plastics so, for horizontal runs, hanger supports must be placed closer together than with other materials. The simplest solution is usually to place the piping on a continuous support such as a stainless steel, aluminum, or fiberglass angle. For gravity flow systems, a minimum slope of 1/8" per foot should be provided. Vertical runs should be supported at the base and at each connection. Supports should be of a type that will not constrain normal movement caused by lengthwise thermal expansion and contraction of the piping (see below).

Thermal Expansion

PTFE has an unusually high coefficient of thermal expansion. For example, when heated from 50°F to 77°F, an unconstrained 100 foot length of PTFE pipe will lengthen almost 7 inches, 30 times more than steel. Installations should be designed accordingly. Approximate linear expansion of PTFE pipe, in units of inches of expansion per 10°F temperature change per 100 feet of pipe, is as follows:

Temperature Range (°F)	Coefficient of Linear Expansion (in./10°F/100feet)
-300° to 50°	0.4
50° to 68°	1.1
68° to 77°	5.3
77° to 500°	1.2

Expansion can often be taken-up sufficiently by relying on the inherent flexibility of PTFE that already exists in a system where direction changes. For long straight runs, changes in direction can be added to serve as expansion loops. For further information, please contact the factory.



3. Valves

3.1 FLUOR-O-FLO® Plug Valves - PTFE

3.1-1 Sales Bulletin

3.1-2 Product Specifications



MICROMOLD PRODUCTS, INC.

7 Odell Plaza #133
email: mpi@micromold.com
(914) 969-2850

Yonkers, NY 10701
www.micromold.com
FAX (914) 969-2736

FLUOR-O-FLO®

Virgin PTFE Full Port 2-Way NPT Plug Valve



- The 2-way full port plug valves are available in sizes 1/8" through 1".
- Standard connections are Female NPT.
- Custom connections include:
 - Flanged
 - Tri-Clamp
 - True-Union
 - Hose Barb
 - Flare or Compression Tube Fittings
 - Male NPT
 - PFA Butt Weld

Micromold's female NPT threaded plug valves provide a simple but flexible solution to flow-control where the superior properties of virgin PTFE are needed to handle corrosive or high-purity fluids. The smooth, one-piece plug design eliminates entrapment cavities common in ball valves. These valves are designed to complement Micromold's FLUOR-O-FLO® PTFE NPT piping system.

The valves feature quarter-turn construction. The self-lubricating, self-cleaning wiping action of the one-piece-plug in one-piece-body design is simpler and more reliable than more complex ball valve designs. Sealing surfaces of the plug valve are micro-polished. Valves are individually tested in accordance with MSS-SP-82-1992-BW. They are also suitable for vacuum service.

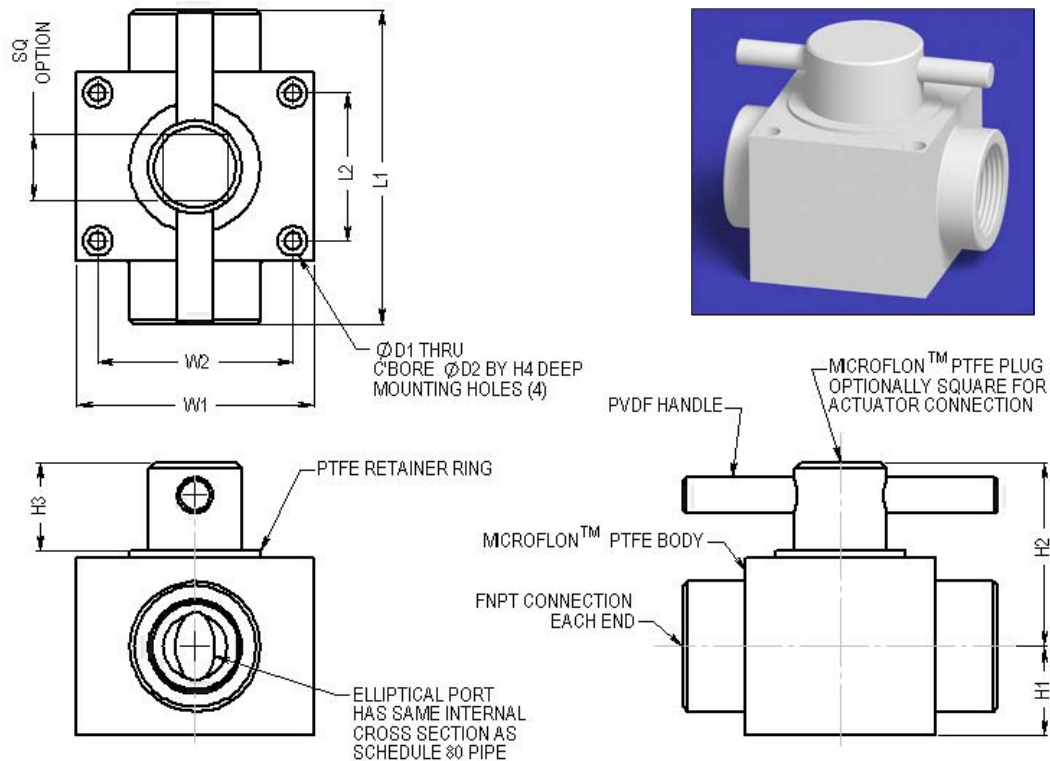
For manual operation, the valves are equipped with a Kynar® PVDF handle. For remote operation, custom connectors to your actuator are available. Low breakaway and moving torque allows use of smaller, lower-cost actuators. Integral mounting holes in the valve body of the 2-Way Full Port Valve allow simple but rugged attachment to panels, piping supports, or actuators.

Call today for our
FLUOR-O-FLO®
PTFE Valve
Product Specifications



FLUOR-O-FLO®

Virgin PTFE Full Port 2-Way NPT Plug Valve



Nominal Size	Part No.	L1 (inches)	L2 (inches)	W1 (inches)	W2 (inches)	Ø D1 (inches)	Ø D2 (inches)	H1 (inches)	H2 (inches)	H3 (inches)	H4 (inches)	SQ Option
1/8"	FV-PV01	2.18	0.72	1.50	1.10	0.12	0.28	0.63	1.32	0.63	0.18	0.36
1/4"	FV-PV02	2.18	0.72	1.50	1.10	0.12	0.28	0.63	1.32	0.63	0.19	0.36
3/8"	FV-PV03	3.32	1.56	2.50	2.06	0.17	0.31	0.94	1.94	0.93	0.25	0.67
1/2"	FV-PV04	3.32	1.56	2.50	2.08	0.17	0.31	0.94	1.94	0.93	0.25	0.69
3/4"	FV-PV06	3.36	1.56	2.50	2.06	0.20	0.31	1.13	2.40	1.20	0.25	0.85
1"	FV-PV08	4.35	2.13	3.50	3.00	1.27	0.38	1.38	2.92	1.48	0.25	1.06

- Valves are available in 1/8" through 1"
- Standard connections are Female NPT; custom connections including Flanged, Tri-Clamp, True-Union, Hose-Barb, Flare or Compression Tube Fittings, Male NPT, and PFA butt-weld available on special order
- Valves are full-port with the through orifice equal to the area of schedule 80 pipe
- Quarter Turn Actuation
- Pressure ratings are equal to Micromold's FLUOR-O-FLO®

PTFE piping system. Pressure rating chart available on request.

- Service temperatures – ambient to 300°F
- Wetted parts are made from Micromold's MICROFLON™ virgin PTFE providing superior resistance to creep
- Suitable for vacuum service
- Valves are individually tested in accordance with MSS-SP-82 -1992-BW
- See reverse side for torque ratings.

Call today for our FLUOR-O-FLO® PTFE Valve Sales Bulletin



Quarter Turn Valves Comparative Break Torques (inch-pounds)			
	<u>MICROMOLD</u>	<u>XOMOX</u>	<u>ITT</u>
Nominal Size (inches)	Solid PTFE Plug Valves	PTFE Sleeved Lined Steel Plug Valves	Tefzel Lined Steel Ball Valves
1/4"	6	NA	NA
1/2"	45	140	NA
3/4"	50	140	120
1"	75	400	120
1-1/2"	85	800	130
2"	120	1100	280



4. Strainers

4.1 FLUOR-O-FLO® Y-Strainers - PVDF & PTFE

4.1-1 Sales Bulletin

4.1-2 Product Specifications

4.1-3a Technical Bulletin - Installation and Maintenance Guide

4.1-3b Technical Bulletin - O-Ring Replacement

4.2 FLUOR-O-FLO® Basket Strainers - PVDF & PTFE

4.2-1 Sales Bulletin

4.2-2 Product Specifications

4.2-3a Technical Bulletin - Installation and Maintenance Guide

4.2-3b Technical Bulletin - O-Ring Replacement

4.3 FLUOR-O-FLO® Baffle Strainers - PTFE, PVDF, also PPL

4.3-1 Sales Bulletin

4.3-2 Product Specifications

4.4 Strainer Replacement Parts

4.4-1 Sales Bulletin

4.4-2 Product Specifications

4.9 4.9-3 Technical Bulletin - Strainer Screens



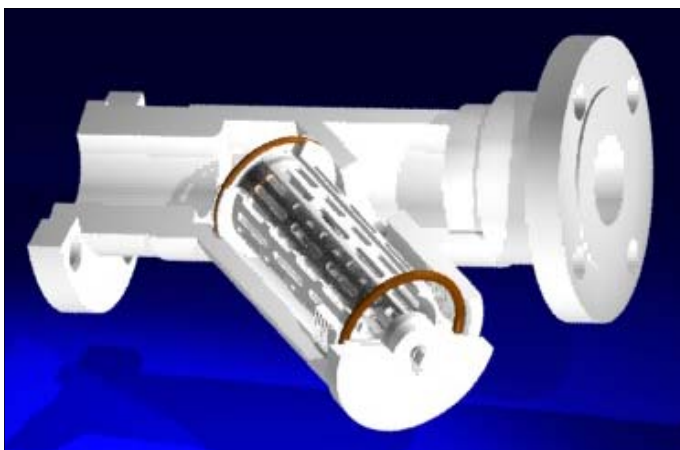
MICROMOLD PRODUCTS, INC.

7 Odell Plaza #133
email: mpi@micromold.com
(914) 969-2850

Yonkers, NY 10701
www.micromold.com
FAX (914) 969-2736

FLUOR-O-FLO® PVDF & PTFE Y-Strainers

Removable PTFE Strainer Cartridge with Fluoropolymer Screen Flanged • NPT • Socket Weld • Tri-Clamp



- Available Nominal Size Ranges: PVDF-1/8" through 4"
PTFE-1/8" through 3"
- Standard end connections include:
 - * ANSI Class 150 flanged
 - * Socket – IPS or metric sizes (PVDF units only)
 - * Female NPT
 - * Tri-Clamp
 - * Other connections available include ISO metric flanges, and true-union
- Particle sizes strained: 1 to 25,400 microns (0.00003" to 1") using either membranes, mesh screens, or drilled holes. Please refer to our *Strainer Screens Technical Bulletin* for details.
- Minimum 2:1 open area ratio when used with 48% or higher open area mesh
- All wetted materials are fluoroplastic:
 - * Body and Connections: Kynar® PVDF or MICROFLON™ special Virgin PTFE
 - * Screen: ETFE or alternates
 - * Cartridges and Drain Plugs: PTFE
 - * Seals: FEP encapsulated silicone rubber o-ring. PFA encapsulated or other o-ring materials can be supplied.

Micromold's FLUOR-O-FLO® PVDF and PTFE Y-Strainers are especially well suited for use in removing suspended solids from extremely corrosive or high-purity fluid streams. They help prevent damage to sensitive downstream process components such as pumps, valves, instruments, and spray nozzles. The benefits of our special design include:

- All fluoroplastic construction that provides far greater corrosion resistance and higher operating temperature capability than PVC, CPVC, or polypropylene units
- Available with a variety of end connections and screen mesh sizes
- Both PTFE and PVDF strainers feature a removable, and easily cleaned PTFE cartridge with fluoropolymer screen. Teflon® FEP encapsulated silicone rubber o-ring seal combined with machined seat on cartridge prevents blow-by
- Knurled cap for easy strainer cartridge removal and clean-out. Teflon® FEP encapsulated silicone rubber o-ring seal combined with machined seat on cap prevents external leakage
- PTFE plug allows drainage of residual liquids before cartridge removal
- Installation can be either horizontal or vertical

For similar benefits where greater strainer capacity is needed, ask about Micromold's FLUOR-O-FLO® Basket Strainers.

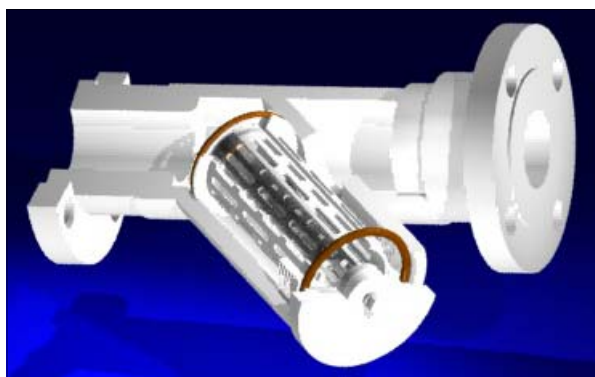
Also available:
**FLUOR-O-FLO® PVDF & PTFE
Y-Strainers**

- Product Specifications
- Installation and Maintenance Guide
- Strainer Screens Technical Bulletin

FLUOR-O-FLO®
PVDF & PTFE Y-Strainers

Removable PTFE Strainer Cartridge with Fluoropolymer Screen

Flanged • NPT • Tri-Clamp • Socket Weld



Micromold's Y-Strainers remove particles or debris from process lines handling extremely corrosive or high-purity fluids. To ensure maximum corrosion resistance and purity, all wetted materials are fluoroplastics.

PVDF Y-Strainers are available in 1/8" through 4" and PTFE Y-Strainers are available in 1/8" through 3" pipe sizes.

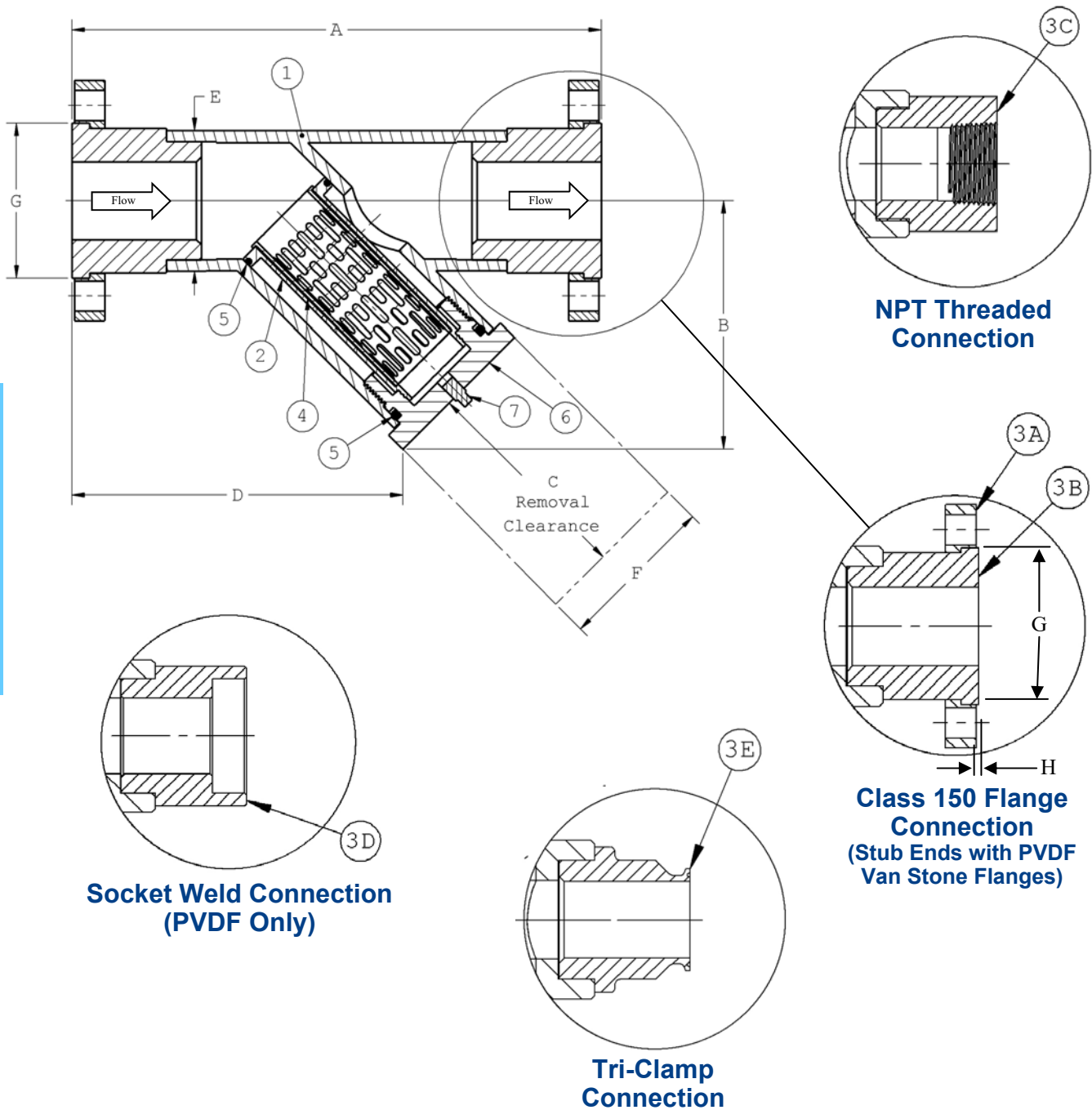
Easily cleaned, removable PTFE cartridges securely support ETFE screens in standard 11, 17, 30 or 51 mesh sizes. Standard PEEK screens available in mesh sizes ranging from 400 to 65 (12 to 155 microns). Other mesh sizes and types available on special order.

Open area ratio of screen to pipe meets or exceeds 2:1 for all sizes when used with a mesh having a minimum 48% open area.

Standard end connections fit NPT threaded, Tri-Clamp, flanged, and socket- or butt-weld (PVDF only) piping systems. We can provide virtually any connection (True-Union, etc.) on special order.

Units may be installed either horizontally or vertically.

-
- Also available:
- FLUOR-O-FLO® PVDF & PTFE Y-Strainers**
- Sales Bulletin
 - Installation and Maintenance Guide
 - Strainer Screens Technical Bulletin



Connection Availability and Size Ranges

Strainer Material	NPT	Flanged	Socket Weld	Tri-Clamp
PVDF	1/8" – 4"	1/2" – 4"	3/8" – 4"	1/2" – 4"
PTFE	1/8" – 3"	1/2" – 3"	N/A	1/2" – 3"

All flanges are Van Stone type with stub ends (rotatable)



Dimensions*

Nominal Pipe Size	A	B	C	D	E (PVDF)	E (PTFE)	F	G	H	PLUG NPT
1/8	8.3	2.8	2.9	4.7	1.32	1.50	1.60	NA	NA	1/8
1/4	8.3	2.8	2.9	4.7	1.32	1.50	1.60	NA	NA	1/8
3/8	8.3	2.8	2.9	4.7	1.32	1.50	1.60	NA	NA	1/8
1/2	8.3	2.8	2.9	4.7	1.32	1.50	1.60	1.62	0.065	1/8
3/4	9.9	3.5	3.7	5.5	1.90	2.00	2.20	1.99	0.065	1/8
1	9.9	3.5	3.7	5.5	1.90	2.00	2.20	2.37	0.065	1/8
1-1/4	11.1	5.5	5.8	7.4	2.88	2.88	3.00	2.74	0.065	1/8
1-1/2	11.1	5.5	5.8	7.4	2.88	2.88	3.00	3.12	0.065	1/8
2	12.2	6.3	6.2	7.7	3.50	3.75	3.94	3.87	0.065	1/8
3	14.7	8.9	8.7	9.9	5.00	5.25	5.44	5.12	0.065	1/4
4	17.3	11.5	10.7	11.9	6.63	N/A	7.20	6.63	0.065	1/4
* All dimensions shown in inches										

Construction

Item No.	PVDF Y-Strainers	PTFE Y-Strainers
1	PVDF Body	MICROFLON™ PTFE Body
2	PTFE Cartridge	PTFE Cartridge
3A	PVDF Flange (Other materials available)	PVDF Flange (Other materials available)
3B	PVDF Stub End	PTFE Stub End
3C	PVDF NPT Connector	PTFE NPT Connector
3D	PVDF Socket Weld Connector	Not Available
3E	PVDF Tri-Clamp Connector	PTFE Tri-Clamp Connector
4	Fluoropolymer Screen	Fluoropolymer Screen
5	FEP Encapsulated Silicone Rubber O-Ring	FEP Encapsulated Silicone Rubber O-Ring
6	PVDF Knurled Cap	PTFE Knurled Cap
7	PTFE Drain Plug	PTFE Drain Plug

Engineering Specifications

FLOUR-O-FLO® Y-Strainers shall be (PVDF or virgin PTFE) construction with (socket weld, NPT threaded, Tri-Clamp, or flanged) end connections. The strainers shall have covers removable without the use of tools to facilitate cleaning, and have an FEP encapsulated silicone rubber o-ring seal. Strainer to have a (1/8" or 1/4") NPT removable drain plug. Strainers to have a minimum 2:1 ratio of open area to the size-corresponding cross-sectional pipe area when used with a mesh screen having a minimum open area of 48%. Strainers shall have a removable PTFE strainer cartridge with FEP encapsulated silicone rubber o-ring seal that is secured to and removable with the cover. Strainer cartridges shall have perforated PTFE inner and outer cartridge components to secure screen mesh. As manufactured by MICROMOLD PRODUCTS, INC.



PVDF Y-Strainer Part Numbers and Pressure Ratings*

Nominal Size		FNPT Thread- ed	IPS Socket Weld	Metric Socket Weld	ANSI Class 150 Flanged	Tri-Clamp	Pressure Ratings (psi)
(in.)	(mm)						
1/8"	NA	S-YK01FTNNN	S-YK01SINNN	N/A	N/A	N/A	150
1/4"	NA	S-YK02FTNNN	S-YK02SINNN	N/A	N/A	N/A	150
3/8"	16	S-YK03FTNNN	S-YK03SINNN	S-YK03SMNNN	N/A	N/A	150
1/2"	20	S-YK04FTNNN	S-YK04SINNN	S-YK04SMNNN	S-YK04FLNNN	S-YK04TCNNN	150
3/4"	25	S-YK06FTNNN	S-YK06SINNN	S-YK06SMNNN	S-YK06FLNNN	S-YK06TCNNN	150
1"	32	S-YK08FTNNN	S-YK08SINNN	S-YK08SMNNN	S-YK08FLNNN	S-YK08TCNNN	150
1-1/4"	40	S-YK10FTNNN	S-YK10SINNN	S-YK10SMNNN	S-YK10FLNNN	S-YK10TCNNN	150
1-1/2"	50	S-YK12FTNNN	S-YK12SINNN	S-YK12SMNNN	S-YK12FLNNN	S-YK12TCNNN	150
2"	63	S-YK16FTNNN	S-YK16SINNN	S-YK16SMNNN	S-YK16FLNNN	S-YK16TCNNN	100
3"	90	S-YK24FTNNN	S-YK24SINNN	S-YK24SMNNN	S-YK24FLNNN	S-YK24TCNNN	60
4"	110	S-YK32FTNNN	S-YK32SINNN	S-YK32SMNNN	S-YK32FLNNN	S-YK32TCNNN	60

PTFE Y-Strainer Part Numbers and Pressure Ratings*

Nominal Size		FNPT Thread- ed	ANSI Class 150 Flanged	Tri-Clamp	Pressure Ratings (psi)
(in.)	(mm)				
1/8"	NA	S-YT01FTNNN	N/A	N/A	65
1/4"	NA	S-YT02FTNNN	N/A	N/A	65
3/8"	16	S-YT03FTNNN	N/A	N/A	65
1/2"	20	S-YT04FTNNN	S-YT04FLNNN	S-YT04TCNNN	65
3/4"	25	S-YT06FTNNN	S-YT06FLNNN	S-YT06TCNNN	50
1"	32	S-YT08FTNNN	S-YT08FLNNN	S-YT08TCNNN	50
1-1/4"	40	S-YT10FTNNN	S-YT10FLNNN	S-YT10TCNNN	35
1-1/2"	50	S-YT12FTNNN	S-YT12FLNNN	S-YT12TCNNN	35
2"	63	S-YT16FTNNN	S-YT16FLNNN	S-YT16TCNNN	30
3"	90	S-YT24FTNNN	S-YT24FLNNN	S-YT24TCNNN	25

Standard Mesh Specifications

Particle sizes strained: 1 to 25,400 microns (0.00003" to 1") using either membranes, mesh screens, or drilled holes. Please refer to our *Strainer Screens Technical Bulletin* for details.

*NNN refers to mesh size of screen. Pressure Ratings are maximum long-term operating pressures at room temperature.



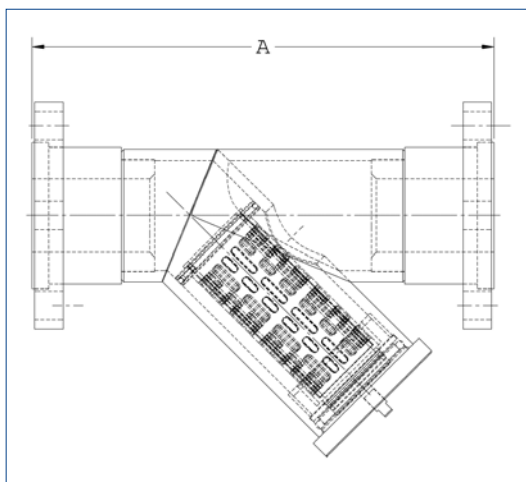
**FLUOR-O-FLO®
PVDF & PTFE Y-Strainers**
INSTALLATION AND MAINTENANCE GUIDE



Installation Tips

- 1. Flow Orientation:** Cartridge/Cap projection will point downstream.
- 2. Axial Alignment:** To avoid damage to the housing - ensure that the inlet and outlet piping centerlines are in alignment. For flanged units, ensure connecting flanges are parallel with the strainer's sealing surfaces.
- 3. Connection Spacing:** Observe end-connection spacing, given in table to the right. For flanged units, do not rely on bolts to draw connecting pipes to strainer. Err on the side of less, rather than more spacing to minimize stresses on the housing welds. Allowance for NPT thread, or Socket Weld insertion will further reduce the spacing.
- 4. Flanged Connection Gaps or Misalignment:** If the gap between rigidly mounted inlet and outlet piping flanges is too large to accommodate the strainer (e.g., gap of 1/16" or more), or if the inlet and outlet piping flanges are not carefully aligned (e.g. angular deviation of 2° or more), Micromold can make spacers to fill the gap, fix the alignment, or both. For information on purchasing such spacers, provide the centerline distance plus the angular gap to be filled to your distributor who will provide you with a quotation from Micromold.
If the gap is less than 1/16" or the misalignment is less than 2°, 1/16" gaskets at each end are satisfactory to fill the gap/misalignment.
- 5. NPT Threaded Connections:** When tightening male NPT threaded pipe or fittings into the female NPT threads of the basket strainer, it is important to minimize the stress on the outlet bosses. To accomplish this, while using a wrench to tighten the male NPT side, grip the strainer side using a strap wrench around the strainer's female NPT outlet boss.

NOTE: We strongly recommend use of Formula-8 Teflon PTFE paste sealant, available from Micromold, on PTFE-to-PTFE NPT threaded joints.



Operating Pressures

Maximum operating pressure varies with temperature, strainer size and material. As a general rule, maximum long-term operating pressures at room temperature are shown in the table below. Short-term operating pressures can be substantially higher with PTFE units since creep would not be a factor. For guidance in higher temperature environments, contact the factory.

End Connection Spacing and Maximum Long-Term Operating Pressures at Room Temperature

Nominal Size		End Connection Spacing Dim A	PVDF Y-Strainer	PTFE Y-Strainer
(in.)	(mm)	(inches)	(PSI)	(PSI)
1/8"	NA	7.4	150	65
1/4"	NA	7.4	150	65
3/8"	16	7.4	150	65
1/2"	20	7.4	150	65
3/4"	25	9.9	150	50
1"	32	9.9	150	50
1-1/4"	40	10.6	150	35
1-1/2"	50	10.6	150	35
2"	63	12.2	100	30
3"	90	14.7	60	25
4"	110	17.3	60	N/A

O-ring Replacement: For O-ring replacement, please refer to our Technical Bulletin 4.1-3b Strainer O-Ring Replacement, which can be found in the Literature Tab of our website www.micromold.com.

O-ring AS 568 Dash Numbers

Nominal Size		PVDF and PTFE Y-Strainer	PVDF Y-Strainer	PTFE Y-Strainer
(in.)	(mm)	Cartridge ¹ O-ring	Cap ² O-ring	Cap ² O-ring
1/8"	NA	-116	-118	-119
1/4"	NA	-116	-118	-119
3/8"	16	-116	-118	-119
1/2"	20	-116	-118	-119
3/4"	25	-125	-221	-221
1"	32	-125	-221	-221
1-1/4"	40	-226	-228	-228
1-1/2"	50	-226	-228	-228
2"	63	-231	-335	-335
3"	90	-242	-346	-346
4"	110	-356 - N/A	-358	N/A

¹Standard cartridge o-ring: FEP encapsulated hollow-core silicone rubber

²Standard cap o-ring: FEP encapsulated solid-core silicone rubber.

FLUOR-O-FLO®
PVDF & PTFE Basket and Y-Strainers

O-RING REPLACEMENT

Detailed instructions for replacement of Cap and Cartridge O-rings for Micromold Products PVDF and PTFE Basket and Y-Strainers

Introduction

The standard strainer Cap and Cartridge o-rings are FEP encapsulated silicone rubber

- FEP provides maximum corrosion resistance equal to the extreme corrosion resistance of PTFE, at up to the maximum service temperatures of the strainers. The FEP wall is thin, about 0.010", so it should be handled with care
- Silicone rubber provides the needed elasticity and resilience, again at the needed high temperatures.

Alternate materials are available on request.

These o-rings come in two configurations

- Hollow-core for the Cartridges which allows for the best fit where the standard commercial piping may be slightly out of round
- Solid-core for the Caps where the seal is made to an accurately machined surface.

While these o-rings will normally last indefinitely, care must be taken when a Cartridge is removed. If tools are used around the Cartridges, it is important to avoid contact with the o-rings or sealing surfaces that might abrade, scratch, or otherwise cause damage. The following procedures will guide o-ring replacement.

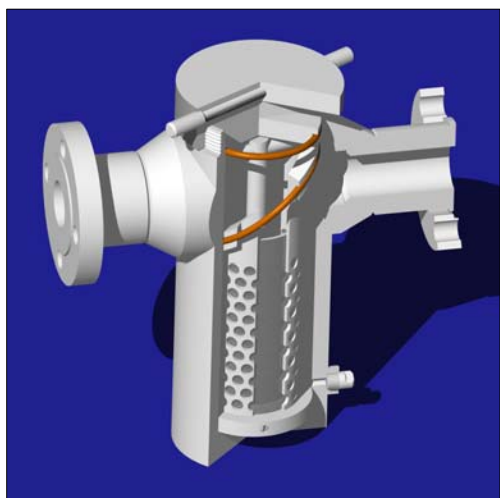
Replacement Process

1. Carefully remove the existing o-ring. Avoid using sharp tools that might scratch the sealing surfaces of the o-ring groove. For example, pry out the o-ring using a soft plastic bar (e.g., ½" diameter PTFE rod), that has a chisel shaped end whose tip is rounded to a 1/64" minimum radius. Micromold can supply these on request.
2. Be sure the o-ring being used for replacement matches the material, size, and configuration as called out in Micromold's Technical Bulletins 4.1-3a & 4.2-3a, PVDF & PTFE Y- and Basket Strainer, Installation and Maintenance Guides which can be found in the Literature Tab of our website www.micromold.com.
3. Prepare a bath of boiling water for heating the o-ring.
4. Immerse the o-ring in the boiling water for several minutes. This softens and increases the elasticity of the FEP encapsulation.
5. Remove the o-ring from the boiling water and, using two hands and moderate force, stretch the hot o-ring slightly. Operators can use nitrile gloves. (In our factory, we use 5 mil gloves.)
6. Fit the o-ring onto the Cap or Cartridge chamfer, and then roll it into the o-ring groove.
7. Place the Cartridge assembly with the installed o-ring into the boiling water. Since the FEP has a "memory", the boiling water causes the o-ring to shrink into its groove.
8. Replace the Cartridge assembly into the strainer and tighten the Cap.
9. Because the surface of the FEP is tougher than the surface of a typical rubber o-ring, it may take time for it to reach a snug fit into any surface imperfections in the groove or its opposing sealing surface. Allow the installed Cartridge to rest for roughly twenty-four hours so it adapts to the imperfections.

FLUOR-O-FLO® PVDF & PTFE Basket Strainers

Removable PTFE Strainer Cartridge with Fluoropolymer Screen

Flanged • NPT • Socket Weld • Tri-Clamp



- Available in nominal sizes 1/2" through 3"
- Standard end connections include:
 - * ANSI Class 150 flanged
 - * Socket – IPS or metric sizes (PVDF units only)
 - * Female NPT
 - * Tri-Clamp
 - * Other connections available include ISO metric flanges and true-union
- Particle sizes strained: 1 to 25,400 microns (0.00003" to 1") using either membranes, mesh screens, or drilled holes. Please refer to our *Strainer Screens Technical Bulletin* for details.
- Minimum 6:1 open area ratio when used with 48% or higher open area mesh
- All wetted materials are fluoroplastic:
 - * Body and Connections: Kynar® PVDF or Virgin PTFE
 - * Screen: ETFE or alternates
 - * Cartridges and Drain Plugs: PTFE
 - * Seals: FEP encapsulated silicone rubber o-ring. PFA encapsulated or other o-ring materials can be supplied.

Micromold's PVDF and PTFE Basket Strainers have construction similar to our Y-Strainers, but with higher particulate holding capacity. They are especially well suited for use in removing large volumes of suspended or waste solids from corrosive or high-purity fluid streams. They help prevent damage to sensitive downstream process components such as pumps, valves, instruments, and spray nozzles. The benefits of our special design include:

• **Extreme Corrosion Resistance** -

All fluoroplastic construction that provides superior corrosion resistance when compared with PVC, CPVC, or polypropylene units. Teflon® FEP encapsulated o-ring seals prevent blow-by and external leakage.

• **Convenience** - Screw top allows easy strainer cartridge removal and clean-out. Drain-plug allows drainage of residual liquids before cartridge removal. Both PTFE and PVDF strainers feature a removable, and easily cleaned PTFE cartridge with Fluoropolymer screen and FEP encapsulated silicone o-ring to prevent blow by.

• **Flexibility** - Available with a wide range of mesh screens and connections.

Also available:

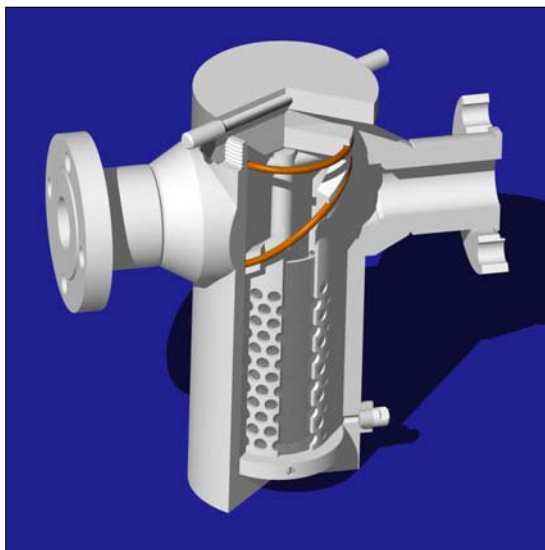
FLUOR-O-FLO® PVDF & PTFE Basket Strainers

- Product Specifications
- Installation and Maintenance Guide
- Strainer Screens Technical Bulletin

FLUOR-O-FLO®
PVDF & PTFE Basket Strainers

Removable PTFE Strainer Cartridge with Fluoropolymer Screen

Flanged • NPT • Tri-Clamp • Socket Weld



Micromold's Basket Strainers remove particles or debris from process lines handling extremely corrosive or high-purity fluids. They are similar in construction to our Y-Strainers, but with about three times the particulate capacity.

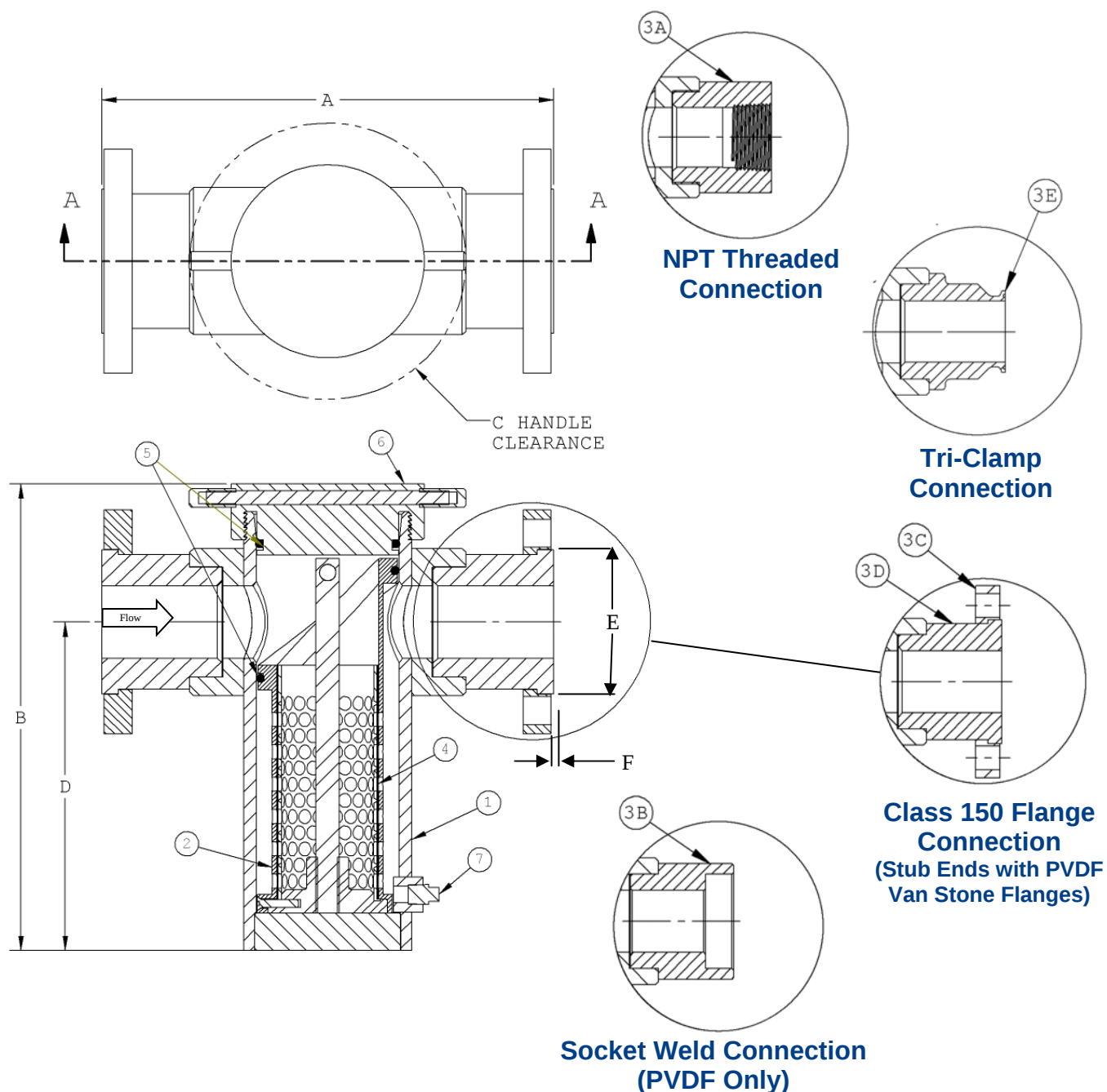
To ensure maximum corrosion resistance and purity, all wetted materials are fluoroplastics. Both PVDF and PTFE Basket Strainers are available in 1/2" through 3" pipe sizes.

Easily cleaned, removable PTFE cartridges securely support ETFE screens in standard 11, 17, 30 or 51 mesh sizes. Standard PEEK screens available in mesh sizes ranging from 400 to 65 (12 to 155 microns). Other mesh sizes and types available on special order.

Open area ratio of screen to pipe meets or exceeds 6:1 for all sizes when used with 48% or higher open area mesh as compared with 2:1 for our Y-Strainer product lines.

Standard end connections fit NPT threaded, flanged, Tri-Clamp, and socket- or butt-weld (PVDF units only) piping systems. We can provide virtually any connection (True-Union, etc.) on special order.

-
- Also available:
- FLUOR-O-FLO® PVDF & PTFE Basket Strainers**
- Sales Bulletin
 - Installation and Maintenance Guide
 - Strainer Screens Technical Bulletin



Connection Availability & Size Ranges

Strainer Material	NPT/ Flanged/ Tri-Clamp	Socket Weld
PVDF	1/2" – 3"	1/2" – 3" (20 - 90 mm)
PTFE	1/2" – 3"	N/A

All flanges are Van Stone type with stub ends (rotatable)



Dimensions

Nominal Size		A (in.)	B (in.)	C (in.)	D PVDF (in.)	D PTFE (in.)	E (in.)	F (in.)	PLUG NPT (in.)
(in.)	(mm)								
1/2"	20	10.3	7.7	7.5	5.1	4.8	1.62	0.065	1/4
3/4"	25	10.3	7.7	7.5	5.1	4.8	1.99	0.065	1/4
1"	32	10.3	7.7	7.5	5.1	4.8	2.37	0.065	1/4
1-1/4"	40	12.1	12.5	8.5	8.8	8.8	2.74	0.065	1/4
1-1/2"	50	12.1	12.5	8.5	8.8	8.8	3.12	0.065	1/4
2"	63	12.1	12.5	8.5	8.8	8.8	3.87	0.065	1/4
3"	90	14.6	16.4	10.6	10.8	11.6	5.12	0.065	1/4

Construction

Item No.	PVDF Basket Strainers	PTFE Basket Strainers
1	PVDF Body	MICROFLON™ PTFE Body
2	Removable PTFE Cartridge	Removable PTFE Cartridge
3A	PVDF NPT Connector	PTFE NPT Connector
3B	PVDF Socket Weld Connector	N/A
3C	PVDF Flange (Other materials available)	PVDF Flange (Other materials available)
3D	PVDF Stub End	PTFE Stub End
3E	PVDF Tri-Clamp Connector	PTFE Tri-Clamp Connector
4	Fluoropolymer Screen	Fluoropolymer Screen
5	FEP Encapsulated Silicone Rubber O-Ring	FEP Encapsulated Silicone Rubber O-Ring
6	PVDF Cap w/Handles	PTFE Cap w/Handles
7	PTFE Drain Plug	PTFE Drain Plug

Engineering Specifications

FLOUR-O-FLO® basket strainers shall be (PVDF or virgin PTFE) construction with (socket weld, NPT threaded, Tri-Clamp, or flanged) end connections. The strainers shall have covers removable without the use of tools to facilitate cleaning, and have an FEP encapsulated silicone rubber o-ring seal. Basket strainers to have a minimum 6:1 ratio of open area to the size-corresponding cross-sectional pipe area when used with a mesh screen having a minimum open area of 48%. Basket strainers shall have a removable PTFE strainer cartridge with FEP encapsulated silicone rubber o-ring seal and having a handle to facilitate removal. Removable PTFE strainer cartridges shall have perforated PTFE inner and outer cartridge components to secure screen mesh. As manufactured by MICROMOLD PRODUCTS, INC.



PVDF Basket Strainer Part Numbers and Pressure Ratings*

Nominal Size		ANSI Class 150 Flanged	NPT Threaded	Tri-Clamp	IPS Socket Weld (in. sizes)	Metric Socket Weld (mm sizes)	Pressure Ratings (psi)
(in.)	(mm)						
1/2"	20	S-BK04FLNNN	S-BK04FTNNN	S-BK04TCNNN	S-BK04SINNN	S-BK04SMNNN	150
3/4"	25	S-BK06FLNNN	S-BK06FTNNN	S-BK06TCNNN	S-BK06SINNN	S-BK06SMNNN	150
1"	32	S-BK08FLNNN	S-BK08FTNNN	S-BK08TCNNN	S-BK08SINNN	S-BK08SMNNN	150
1-1/4"	40	S-BK10FLNNN	S-BK10FTNNN	S-BK10TCNNN	S-BK10SINNN	S-BK10SMNNN	100
1-1/2"	50	S-BK12FLNNN	S-BK12FTNNN	S-BK12TCNNN	S-BK12SINNN	S-BK12SMNNN	100
2"	63	S-BK16FLNNN	S-BK16FTNNN	S-BK16TCNNN	S-BK16SINNN	S-BK16SMNNN	100
3"	90	S-BK24FLNNN	S-BK24FTNNN	S-BK24TCNNN	S-BK24SINNN	S-BK24SMNNN	60

PTFE Basket Strainer Part Numbers and Pressure Ratings*

Nominal Size		ANSI Class 150 Flanged	NPT Threaded	Tri-Clamp	Pressure Ratings (psi)
(in.)	(mm)				
1/2"	20	S-BT04FLNNN	S-BT04FTNNN	S-BT04TCNNN	50
3/4"	25	S-BT06FLNNN	S-BT06FTNNN	S-BT06TCNNN	50
1"	32	S-BT08FLNNN	S-BT08FTNNN	S-BT08TCNNN	50
1-1/4"	40	S-BT10FLNNN	S-BT10FTNNN	S-BT10TCNNN	35
1-1/2"	50	S-BT12FLNNN	S-BT12FTNNN	S-BT12TCNNN	35
2"	63	S-BT16FLNNN	S-BT16FTNNN	S-BT16TCNNN	35
3"	90	S-BT24FLNNN	S-BT24FTNNN	S-BT24TCNNN	25

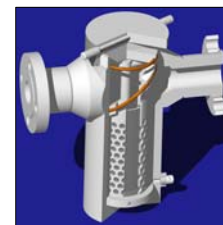
Standard Mesh Specifications

Particle sizes strained: 1 to 25,400 microns (0.00003" to 1") using either membranes, mesh screens, or drilled holes. Please refer to our *Strainer Screens Technical Bulletin* for details.

*NNN refers to mesh size of screen. Pressure Ratings are maximum long-term operating pressures at room temperature.



FLUOR-O-FLO®
PVDF & PTFE Basket Strainers
INSTALLATION AND MAINTENANCE GUIDE

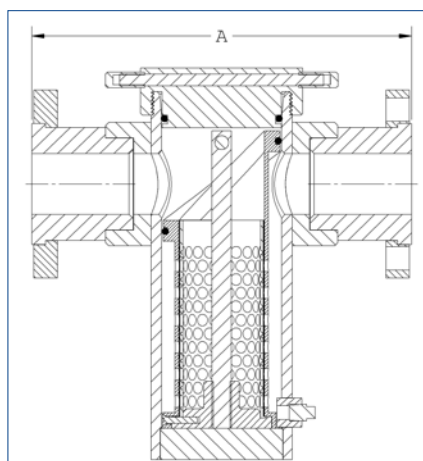


Installation Tips

- 1. Flow Orientation:** Observe flow direction--Inlet and outlet markings are on the connecting bosses.
- 2. Axial Alignment:** To avoid damage to the housing - ensure that the inlet and outlet piping centerlines are in alignment. For flanged units, ensure connecting flanges are parallel with the strainer's sealing surfaces.
- 3. Connection Spacing:** Observe end-connection spacing, given in table to the right. For flanged units, do not rely on bolts to draw connecting pipes to strainer. Err on the side of less, rather than more spacing to minimize stresses on the housing welds. Allowance for NPT thread, or Socket Weld insertion will further reduce the spacing.
- 4. Flanged Connection Gaps or Misalignment:** If the gap between rigidly mounted inlet and outlet piping flanges is too large to accommodate the strainer (e.g., gap of 1/16" or more), or if the inlet and outlet piping flanges are not carefully aligned (e.g. angular deviation of 2° or more), Micromold can make spacers to fill the gap, fix the alignment, or both. For information on purchasing such spacers, provide the centerline distance plus the angular gap to be filled to your distributor who will provide you with a quotation from Micromold. If the gap is less than 1/16" or the misalignment is less than 2°, 1/16" gaskets at each end are satisfactory to fill the gap/misalignment.

- 5. NPT Threaded Connections:** When tightening male NPT threaded pipe or fittings into the female NPT threads of the basket strainer, it is important to minimize the stress on the outlet bosses. To accomplish this, while using a wrench to tighten the male NPT side, grip the strainer side using a strap wrench around the strainer's female NPT outlet boss.

NOTE: We strongly recommend use of Formula-8 Teflon PTFE paste sealant, available from Micromold, on PTFE-to-PTFE NPT threaded joints.



Operating Pressures

Maximum operating pressure varies with temperature, strainer size and material. As a general rule, maximum long-term operating pressures at room temperature are shown in the table below. Short-term operating pressures can be substantially higher with PTFE units since creep would not be a factor. For guidance in higher temperature environments, contact the factory.

End Connection Spacing and Maximum Long-Term Operating Pressures at Room Temperature

Nominal Size		End Connection Spacing Dim A	PVDF Strainer	PTFE Strainer
(in.)	(mm)	(inches)	(PSI)	(PSI)
1/2"	20	10.3	150	50
3/4"	25	10.3	150	50
1"	32	10.3	150	50
1-1/4"	40	12.1	100	35
1-1/2"	50	12.1	100	35
2"	63	12.1	100	35
3"	90	14.6	60	25

O-ring Replacement: For O-ring replacement, please refer to our Technical Bulletin 4.2-3b Strainer O-Ring Replacement, which can be found in the Literature Tab of our website www.micromold.com.

O-ring AS 568 Dash Numbers

Nominal Size		PVDF and PTFE Basket Strainer	PVDF and PTFE Basket Strainer
(in.)	(mm)	Cartridge ¹ O-ring	Cap ² O-ring
1/2"	20	-335	-333
3/4"	25	-335	-333
1"	32	-335	-333
1-1/4"	40	-344	-341
1-1/2"	50	-344	-341
2"	63	-344	-341
3"	90	-361	-356

¹Standard cartridge o-ring: FEP encapsulated hollow-core silicone rubber

²Standard cap o-ring: FEP encapsulated solid-core silicone rubber.

FLUOR-O-FLO®
PVDF & PTFE Basket and Y-Strainers

O-RING REPLACEMENT

Detailed instructions for replacement of Cap and Cartridge O-rings for Micromold Products PVDF and PTFE Basket and Y-Strainers

Introduction

The standard strainer Cap and Cartridge o-rings are FEP encapsulated silicone rubber

- FEP provides maximum corrosion resistance equal to the extreme corrosion resistance of PTFE, at up to the maximum service temperatures of the strainers. The FEP wall is thin, about 0.010", so it should be handled with care
- Silicone rubber provides the needed elasticity and resilience, again at the needed high temperatures.

Alternate materials are available on request.

These o-rings come in two configurations

- Hollow-core for the Cartridges which allows for the best fit where the standard commercial piping may be slightly out of round
- Solid-core for the Caps where the seal is made to an accurately machined surface.

While these o-rings will normally last indefinitely, care must be taken when a Cartridge is removed. If tools are used around the Cartridges, it is important to avoid contact with the o-rings or sealing surfaces that might abrade, scratch, or otherwise cause damage. The following procedures will guide o-ring replacement.

Replacement Process

1. Carefully remove the existing o-ring. Avoid using sharp tools that might scratch the sealing surfaces of the o-ring groove. For example, pry out the o-ring using a soft plastic bar (e.g., ½" diameter PTFE rod), that has a chisel shaped end whose tip is rounded to a 1/64" minimum radius. Micromold can supply these on request.
2. Be sure the o-ring being used for replacement matches the material, size, and configuration as called out in Micromold's Technical Bulletins 4.1-3a & 4.2-3a, PVDF & PTFE Y- and Basket Strainer, Installation and Maintenance Guides which can be found in the Literature Tab of our website www.micromold.com.
3. Prepare a bath of boiling water for heating the o-ring.
4. Immerse the o-ring in the boiling water for several minutes. This softens and increases the elasticity of the FEP encapsulation.
5. Remove the o-ring from the boiling water and, using two hands and moderate force, stretch the hot o-ring slightly. Operators can use nitrile gloves. (In our factory, we use 5 mil gloves.)
6. Fit the o-ring onto the Cap or Cartridge chamfer, and then roll it into the o-ring groove.
7. Place the Cartridge assembly with the installed o-ring into the boiling water. Since the FEP has a "memory", the boiling water causes the o-ring to shrink into its groove.
8. Replace the Cartridge assembly into the strainer and tighten the Cap.
9. Because the surface of the FEP is tougher than the surface of a typical rubber o-ring, it may take time for it to reach a snug fit into any surface imperfections in the groove or its opposing sealing surface. Allow the installed Cartridge to rest for roughly twenty-four hours so it adapts to the imperfections.

FLUOR-O-FLO®
PTFE, PVDF & PPL Baffle Strainers

To Fit Plastic Lined Tees



With our Baffle Strainers, you can turn any plastic lined Tee into a simple in-line strainer. We make PTFE, PVDF and PPL baffle strainers to fit your plastic lined Tee, allowing you to quickly and easily protect pumps, valves and other sensitive components. This is cheap insurance which comes in a wide range of pipe sizes and hole patterns available to suit the needs of your system. For high-flow conditions, we can reinforce the baffle strainer with support struts. Standard hole size is 1/4". Other hole sizes and other configurations such as ETFE mesh are available.

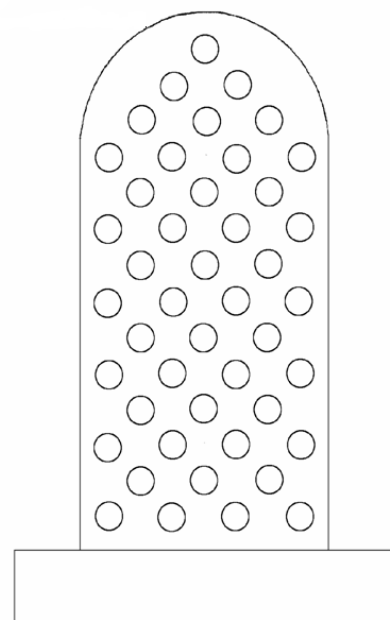
- Available in nominal pipe sizes 1" through 6", larger on request.
- Standard hole pattern: 1/4"Ø, 30% open area. Other patterns available.
- Strainers are made to fit TEEs supplied by customer. We can provide TEEs on request.
- Available in solid PTFE, PVDF or PPL. Other materials on request.

Call today for our
Baffle Strainers Product Specifications
and Strainer Screens
Technical Bulletin

FLUOR-O-FLO®

PTFE, PVDF & PPL Baffle Strainers

To Fit Plastic Lined Tees



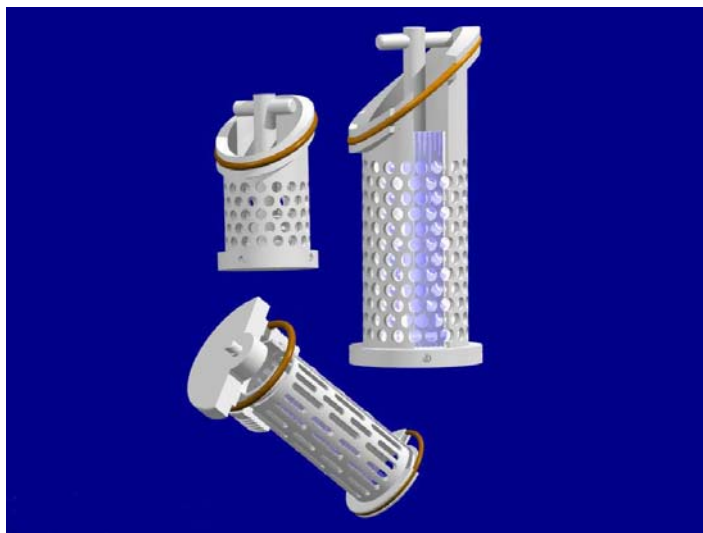
Product Specifications 4.3-2

Nominal Pipe Size	PTFE Part Number	Kynar® Part Number	PPL Part Number
1"	BFT08	BFK08	BFP08
1-1/2"	BFT12	BFK12	BFP12
2"	BFT16	BFK16	BFP16
2-1/2"	BFT20	BFK20	BFP20
3"	BFT24	BFK24	BFP24
4"	BFT32	BFK32	BFP32
6"	BFT48	BFK48	BFP48

Call today for our
Baffle Strainers Sales Bulletin and
Strainer Screens Technical Bulletin

Strainer Replacement Parts

For Our Y-Strainer and Basket Strainer Lines



- Standard cartridge o-ring for all strainers is FEP encapsulated silicon hollow-core. Other materials available on request.
- Standard cap o-ring for all strainers is FEP encapsulated silicon solid-core. Other materials available on request.
- Cartridge Assemblies are supplied with cartridge o-ring, and choice of mesh sizes below:

30 mesh (0.023 in. hole size)

11 mesh (0.071 in hole size)

17 mesh (0.039 in. hole size)

51 mesh (0.012 in. hole size)

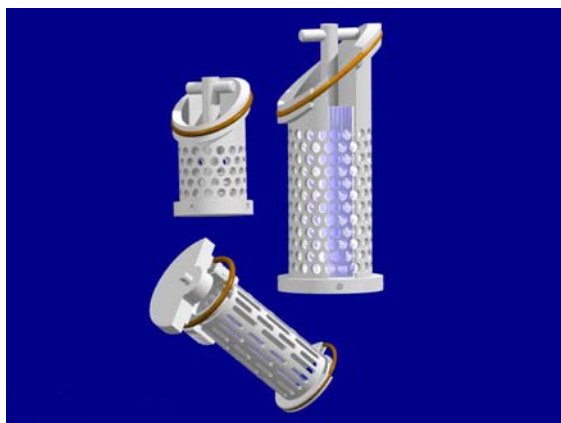
Other mesh sizes available, please contact factory.

For your convenience, we supply FEP Encapsulated O-Rings and Cartridge Assemblies for our Y-Strainer and Basket Strainer product lines.

Call today for our
Strainer Replacement Parts
Product Specifications and
Strainer Screens Technical Bulletin

Strainer Replacement Parts

For Our Y-Strainer and Basket Strainer Lines



Note 1: Standard cartridge o-ring for all strainers is FEP encapsulated silicon hollow core. Other materials available on request.

Note 2: Standard cap o-ring for all strainers is FEP encapsulated silicon solid-core. Other materials available on request.

Note 3: Cap/Cartridge Assemblies are supplied with drain plug, cap o-ring, cartridge o-ring, and choice of mesh. To specify mesh, substitute NNN in part number with 2 or 3 digit number corresponding to mesh size below:

30 mesh (0.023 in. hole size)
 11 mesh (0.071 in. hole size)
 17 mesh (0.039 in. hole size)
 51 mesh (0.012 in. hole size)

Other mesh sizes available, please contact factory.

PVDF & PTFE Y-Strainers Replacement Parts Part Numbers

Nominal Pipe Size (in)/[mm]	Cartridge O-Ring Part No. (Note 1)	PVDF Y-Strainer Cap O-Ring Part No. (Note 2)	PTFE Y-Strainer Cap O-Ring Part No. (Note 2)	PVDF Y-Strainer Cap/Cartridge Assembly Part No. (Note 3)	PTFE Y-Strainer Cap/Cartridge Assembly Part No. (Note 3)
1/8 [NA]	FESHC116	FESSC118	FESSC119	YK04CNNN	YS04CNNN
1/4 [NA]	FESHC116	FESSC118	FESSC119	YK04CNNN	YS04CNNN
3/8 [16]	FESHC116	FESSC118	FESSC119	YK04CNNN	YS04CNNN
1/2 [20]	FESHC116	FESSC118	FESSC119	YK04CNNN	YS04CNNN
3/4 [25]	FESHC125	FESSC220	FESSC221	YK08CNNN	YS08CNNN
1 [32]	FESHC125	FESSC220	FESSC221	YK08CNNN	YS08CNNN
1-1/4 [40]	FESHC226	FESSC228	FESSC228	YK12CNNN	YS12CNNN
1-1/2 [50]	FESHC226	FESSC228	FESSC228	YK12CNNN	YS12CNNN
2 [63]	FESHC231	FESSC335	FESSC335	YK16CNNN	YS16CNNN
3 [90]	FESHC243	FESSC346	FESSC346	YK24CNNN	YS24CNNN
4 [110]	FESHC356	FESSC358	N/A	YK32CNNN	N/A

Call today for our
 Strainer Replacement Parts Sales Bulletin and
 Strainer Screens Technical Bulletin

PVDF & PTFE Basket Strainers Replacement Parts Part Numbers

Nominal Pipe Size (inches)	Cartridge O-Ring Part No. (Note 1)	Cap O-Ring Part No. (Note 2)	Cartridge Assembly Part No. (Note 3)
1/2"	FESHC335	FESSC333	BSK-C-08-NNN
3/4"	FESHC335	FESSC333	BSK-C-08-NNN
1"	FESHC335	FESSC333	BSK-C-08-NNN
1-1/2"	FESHC344	FESSC341	BSK-C-16-NNN
2"	FESHC344	FESSC341	BSK-C-16-NNN
3"	FESHC361	FESSC356	BSK-C-24-NNN

Note 1: Standard cartridge o-ring for all strainers is FEP encapsulated silicon hollow core. Other materials available on request.

Note 2: Standard cap o-ring for all strainers is FEP encapsulated silicon solid-core. Other materials available on request.

Note 3: Cartridge Assemblies are supplied with cartridge o-ring, and choice of mesh. To specify mesh, substitute NNN in part number with 2 or 3 digit number corresponding to mesh size below:

30 mesh (0.023 in. hole size)
 11 mesh (0.071 in hole size)
 17 mesh (0.039 in. hole size)
 51 mesh (0.012 in hole size)

Other mesh sizes available, please contact factory.



5. Lined Pipe Accessories

5.1 FLUOR-O-FLO® Dip Pipes & Spargers - PTFE Lined and Jacketed Steel

5.1-1 Sales Bulletin

5.1-2 Product Specifications

5.1-3a Technical Bulletin - Dip Pipe Steel Tube Material

5.1-3b Technical Bulletin - Dip Tubes in Agitated Service

5.2 FLUOR-O-FLO® Dip Pipes, Spargers & Steam Jets - Solid Plastic

5.2-1 Sales Bulletin

5.2-2 Product Specifications (under construction)

5.3 FLUOR-O-FLO® Mixing Tee Injection Nozzles

5.3-1 Sales Bulletin

5.3-2 Product Specifications (under construction)

5.4 FLUOR-O-FLO® Thermowells - PTFE or PVDF Jacketed Carbon Steel, Tantalum Tipped

5.4-1 Sales Bulletin (under construction)

5.4-2 Product Specifications (under construction)

5.5 FLUOR-O-FLO® Thermowells - Solid Plastic

5.5-1 Sales Bulletin (under construction)

5.5-2 Product Specifications (under construction)

5.6 FLUOR-O-FLO® Nozzle Liners - PTFE

5.6-1 Sales Bulletin

5.6-2 Product Specifications

5.7 FLUOR-O-FLO® Tri-Clamp Sanitary Dip Tubes and Spargers

5.7-1 Sales Bulletin (under construction)

5.7-2 Product Specifications (under construction)

Strainer Screens

For FLUOR-O-FLO® Fluoroplastic

Y-Strainers • Basket Strainers • In-Line Strainers

Screens for Micromold FLUOR-O-FLO® fluoroplastic Y, basket, and in-line type strainers are available in a wide variety of sizes and materials.

Particle sizes strained: 1 to 25,400 microns (0.00004" to 1") using either porous membranes, monofilament mesh screens, or drilled holes.

Standard screens: Standard mesh screens are shown in the table following. Coarse mesh available in ETFE, finer mesh available in PEEK:

Material	Nominal Particle Size		Approximate Mesh Size (Holes/Lineal inch)
	(Microns)	(Inches)	
ETFE	1,800	0.071	11
	1,000	0.039	17
	590	0.023	30
	300	0.012	51
PEEK	155	0.0061	65
	85	0.0033	80
	35	0.0014	345
	12	0.0005	400

Chemical resistance:

- ETFE: At ambient temperatures, same as PTFE. Consult factory for higher temperatures.
- PEEK: At ambient temperatures, compatible with almost all chemicals. Consult factory for further details including higher temperatures.

Non-standard options:

- In stock leftovers: We often have leftovers from special jobs. If you don't see what you want, just ask.
- Additional mesh sizes: On special order, other ETFE and PEEK mesh sizes are available.
- Other screen materials: Woven mesh, perforated, and porous membrane screens are available in a variety of other materials and sizes (e.g., PTFE, Hastelloy, Alloy 20, Monel, Tantalum).

For additional information on any of the above, please contact the factory.

FLUOR-O-FLO® Dip Pipes & Spargers

PTFE Lined and Jacketed Steel



Materials

Liners, Jackets and Seals

Virgin PTFE

Pipe and Flanges

Carbon steel is standard.
Stainless steel, Monel, or
other special materials are available.

Sizes Flanges

Up to 10" 150 lb. is standard. 300 lb.
or special flanges are available.

Pipe Sizes

1/2" through 6" are standard.
Larger sizes and specials available.

Lengths

Lengths to 15 feet are standard.
Longer lengths available.

Styles Standard Units

Double, single, and reducing
flanged styles available.

Curved Units

Sizes up to 3" are standard.
Above 3", contact factory.

Reinforced Units

Double-walled steel pipe for extra
strength.

• High Quality Materials

Only pure virgin PTFE is used. No FEP, PFA, or other welding aids are employed. Our standard Sch. 40 and Sch. 80 steel pipe conforms to grade ASTM A106B. We also offer options such as DOM high strength steel conforming to AISI 1026, Type 316 Stainless Steel, as well as Monel® and other less commonly used metals.

• High Quality Construction

All PTFE welds are subjected to extreme stress tests to validate their integrity and ensure long service life.

• Built-in Reduction

Units fit large nozzles without need for reducing flanges, resulting in fewer joints, less headroom, and lower installed cost.

• Better Seals

Sealing faces are machined to a uniform thickness to ensure highest seal integrity.

• Improved Sparger Design

Sparger extensions are solidly fused to the liners and jackets; and they fit more applications because, unlike some other industry designs, the extensions are smaller in diameter than the PTFE jacket.

• More Robust Bends

Our curved units are stronger than others in the industry whose steel pipes stop before the bend. In our units the steel extends fully through the bend.

• Quick Deliveries

Our unique manufacturing processes allow fast deliveries and reliable service.

Call today for our
PTFE Lined & Jacketed
Steel Dip Pipes & Spargers
Product Specifications
and Technical Bulletins



FLUOR-O-FLO® Dip Pipes & Spargers

PTFE Lined and Jacketed Steel



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• DDH Series Reinforced Dip Pipes	8
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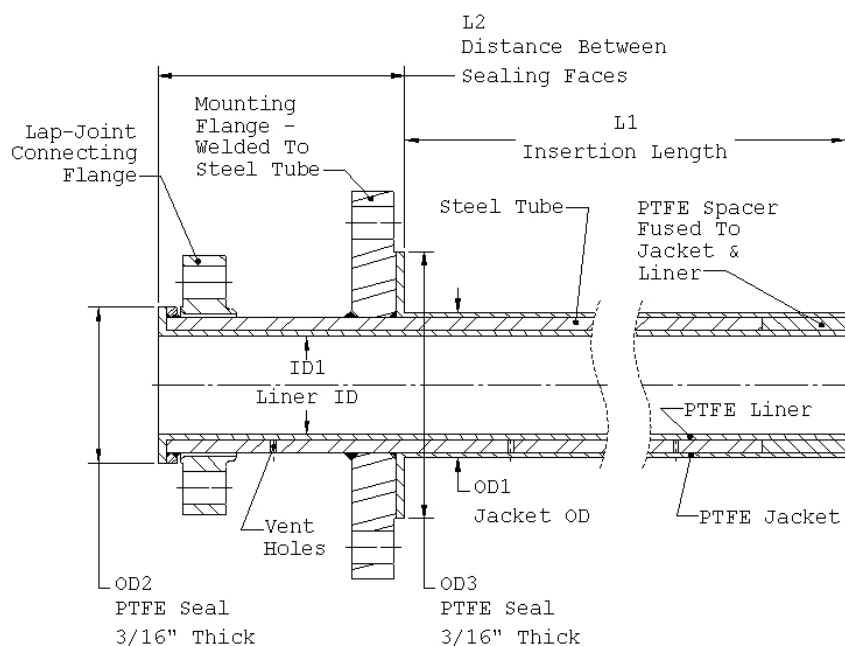
High Quality Materials

Only pure virgin PTFE is used. No FEP, PFA, or other welding aids are employed. Our standard Sch. 40 and Sch. 80 steel pipe conforms to grade ASTM A106B. We also offer options such as DOM high strength steel conforming to AISI 1026, Type 316 Stainless Steel, as well as Monel® and other less commonly used metals.

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Steel Dip Pipe & Spargers
Sales Bulletin and
Technical Bulletins



DDF Series Double Flanged Dip Pipes



Standard Double-Flanged Dip Pipes

PART NUMBER: The PART NUMBER (DDF-NS-MF-L1) defines the series (first three characters), the nominal tube and connecting flange size **NS**, the mounting (or nozzle) flange size **MF**, and the insertion length **L1**. Use a decimal number to indicate **NS**. Then, replace **MF** with the decimal number to indicate the nominal size of the mounting flange and replace **L1** with the insertion length in inches.

For example, a 1-1/2" Double-Flange Dip Pipe with a 4" mounting flange x 60" insertion length would be **DDF-1.5-4-60**

NOTES

1. Standard flanges have ANSI Class 150 drilling. Class 300 and other sizes available.
2. Standard tolerance on inserted length is $\pm 1/2"$. Closer tolerances available, contact factory.
3. Standard distance (L2) between flange sealing faces is 5". Spacing is increased when a reinforcing collar is used, see table on the next page. To order non-standard spacing, contact the factory.
4. Most dimensions are governed by connecting flange size as shown in the Standard Dimension table on the next page.
5. Maximum standard overall length is 16 feet. For longer lengths, contact factory.
6. For service conditions exceeding 350 F°, or 150 PSI, or vacuum service, contact factory.

Part Number Key

DDF - NS - MF - L1

Series	Connecting Flange and Nominal Tube Size	Mounting Flange	Length
DDF	0.5 - 6	1 - 10	Decimal Inches



STANDARD DIMENSIONS

Connecting Flange & Nominal Tube Size	PTFE Jacket OD (OD1)	PTFE Liner ID (ID1)	PTFE Seal OD Minimum (OD2)	Steel Tube ⁶
1/2" ¹	1"	7/16"	1-1/4"	Sch. 40
3/4"	1-1/4"	5/8"	1-9/16"	Sch. 40
1" ²	1-1/2"	3/4"	1-7/8"	Sch. 80
1-1/2" ³	2"	1	2-11/16"	Sch.40
1-1/2"	2-1/4"	1-1/8"	2-11/16"	Sch. 80
2"	2-3/4"	1-5/8"	3-7/16"	Sch.80
3" ⁴	3-3/4"	2-1/2"	4-5/8"	DOM
3" ⁵	3-15/16"	2-1/2"	4-5/8"	Sch. 80
4"	5-1/8"	3-1/2"	5-15/16"	Sch. 80
6"	6"	4"	8"	DOM

Note 1: This size used with nozzles that are 1.049" ID or greater.

Note 2: This size used with nozzles that are 1.610" ID or greater.

Note 3: This size used with nozzles that are 2.067" ID or greater.

Note 4: This size used with nozzles that are 3.826" ID or greater.

Note 5: This size used with nozzles that are 4.000" ID or greater.

Note 6: Steel tubes:

- Sch. 40 and Sch.80 steel pipe conforms to grade ASTM A106B (Refer to Technical Bulletin 5.1-3a)
- DOM steel tubes conform to A513 grade 1020 or 1026 high strength steel (Refer to Technical Bulletin 5.1-3a).

Reinforcing Collar

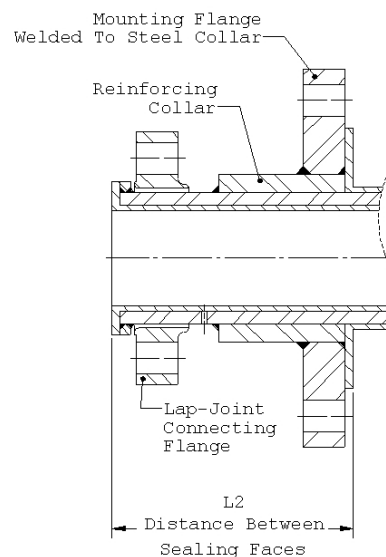
Our reinforcing collar is a special feature for double-flanged dip pipes and spargers where the length to diameter ratio is high. The collar eliminates the welds that weaken the steel tube at the point where it is normally joined to the mounting flange. The collar also serves to reinforce the connection between the mounting flange and the steel tube. Dimension L2 is lengthened to accommodate the collar.

SIZES FOR DIP TUBES WITH COLLARS

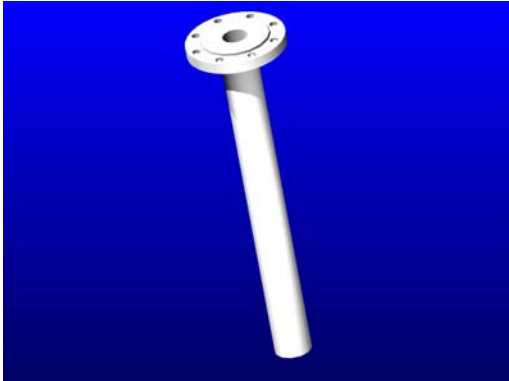
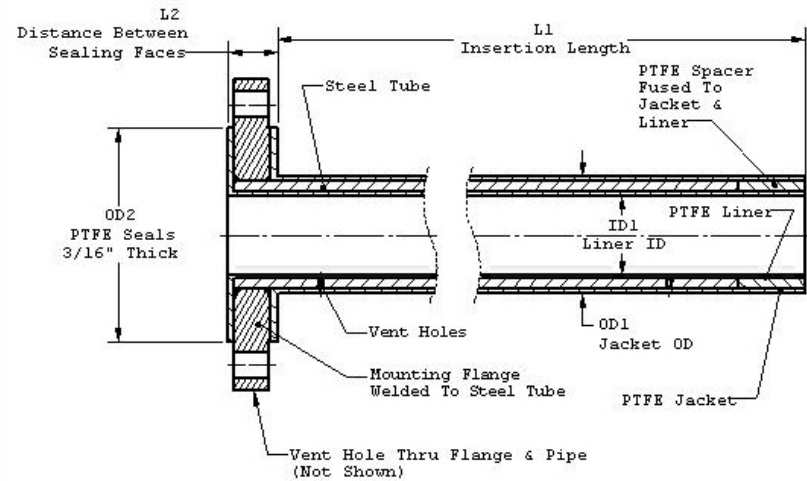
Nominal Tube Size	Collar Used On Dip Pipes Where Insertion Length (L1) Exceeds	Distance Between Sealing Faces (L2)
1/2"	24"	6"
3/4"	36"	6"
1"	48"	6"
1-1/2"	60"	7"
2"	72"	7"
3"	96"	8"
4"	120"	9"

MOUNTING FLANGE SEAL DIAMETERS

Flange Size	PTFE Seal OD Minimum (OD3)
1"	1-7/8"
1-1/2"	2-11/16"
2"	3-7/16"
3"	4-5/8"
4"	5-15/16"
6"	8"
8"	10-1/16"
10"	12-1/4"



DSF Series Single-Flanged Dip Pipes



Standard Single-Flanged Dip Pipes

PART NUMBER: The PART NUMBER (DSF-NS-MF-L1) defines the series (first three characters), the nominal tube size **NS**, the mounting (or nozzle) flange size **MF** and the insertion length **L1**. Use a decimal number to indicate the **NS**. Then, replace the **MF** with the decimal number to indicate the nominal size of the mounting flange and replace **L1** with the insertion length in inches. For example, a 3/4" Single-Flange Dip Pipe with a 2" flange x 30" insertion length would be **DSF-0.75-2-30**

Notes

- 1. Standard flanges have ANSI Class 150 drilling. Class 300 and other sizes available.
- 2. Standard tolerance on inserted length is $\pm 1/2"$. Closer tolerances available, contact factory.
- 3. Most dimensions are governed by connecting flange size as shown in the Standard Dimension table on the next page.
- 4. Maximum standard overall length is 16 feet. For longer lengths, contact factory.
- 5. For service conditions exceeding 350 F°, or 150 PSI, or vacuum service, contact factory.

Part Number Key			
DSF - NS - MF - L1			
Series	Nominal Tube Size	Connecting/ Mounting Flange	Length
DSF	0.5 - 6	1 - 10	Decimal Inches



STANDARD DIMENSIONS

Nominal Tube Size	Connecting Flange Size	PTFE Jacket OD (OD1)	PTFE Liner ID (ID1)	PTFE Seals OD Minimum (OD2)	Steel Tube ⁵ Thickness
1/2" ¹	1"	1"	7/16"	1-7/8"	Sch. 40
1/2"	1-1/2"	1"	7/16"	2-11/16"	Sch. 40
1/2"	2"	1"	7/16"	3-7/16"	Sch. 40
1/2"	3"	1"	7/16"	4-5/8"	Sch. 40
1/2"	4"	1"	7/16"	5-15/16"	Sch. 40
1/2"	6"	1"	7/16"	8"	Sch. 40
1/2"	8"	1"	7/16"	10-1/16"	Sch. 40
1/2"	10"	1"	7/16"	12-1/4"	Sch. 40
3/4"	1-1/2"	1-1/4"	5/8"	2-11/16"	Sch. 40
3/4"	2"	1-1/4"	5/8"	3-7/16"	Sch. 40
3/4"	3"	1-1/4"	5/8"	4-5/8"	Sch. 40
3/4"	4"	1-1/4"	5/8"	5-15/16"	Sch. 40
3/4"	6"	1-1/4"	5/8"	8"	Sch. 40
3/4"	8"	1-1/4"	5/8"	10-1/16"	Sch. 40
3/4"	10"	1-1/4"	5/8"	12-1/4"	Sch. 40
1" ²	1-1/2"	1-1/2"	3/4"	2-11/16"	Sch. 80
1"	2"	1-1/2"	3/4"	3-7/16"	Sch. 80
1"	3"	1-1/2"	3/4"	4-5/8"	Sch. 80
1"	4"	1-1/2"	3/4"	5-15/16"	Sch. 80
1"	6"	1-1/2"	3/4"	8"	Sch. 80
1"	8"	1-1/2"	3/4"	10-1/16"	Sch. 80
1"	10"	1-1/2"	3/4"	12-1/4"	Sch. 80
1-1/2" ³	2"	2"	1"	3-7/16"	Sch. 40
1-1/2"	3"	2-1/4"	1-1/8"	4-5/8"	Sch. 80
1-1/2"	4"	2-1/4"	1-1/8"	5-15/16"	Sch. 80
1-1/2"	6"	2-1/4"	1-1/8"	8"	Sch. 80
1-1/2"	8"	2-1/4"	1-1/8"	10-1/16"	Sch. 80
1-1/2"	10"	2-1/4"	1-1/8"	12-1/4"	Sch. 80
2"	3"	2-3/4"	1-5/8"	4-5/8"	Sch. 80
2"	4"	2-3/4"	1-5/8"	5-15/16"	Sch. 80
2"	6"	2-3/4"	1-5/8"	8"	Sch. 80
2"	8"	2-3/4"	1-5/8"	10-1/16"	Sch. 80
2"	10"	2-3/4"	1-5/8"	12-1/4"	Sch. 80
3" ⁴	4"	3-3/4"	2-1/2"	5-15/16"	DOM
3"	6"	3-15/16"	2-1/2"	8"	Sch. 80
3"	8"	3-15/16"	2-1/2"	10-1/16"	Sch. 80
3"	10"	3-15/16"	2-1/2"	12-1/4"	Sch. 80
4"	6"	5-1/8"	3-1/2"	8"	Sch. 80
4"	8"	5-1/8"	3-1/2"	10-1/16"	Sch. 80
4"	10"	5-1/8"	3-1/2"	12-1/4"	Sch. 80
6"	8"	6"	4"	10-1/16"	DOM
6"	10"	6"	4"	12-1/4"	DOM

Note 1: This size used with nozzles that are 1.049" ID or greater.

Note 2: This size used with nozzles that are 1.610" ID or greater.

Note 3: This size used with nozzles that are 2.067" ID or greater.

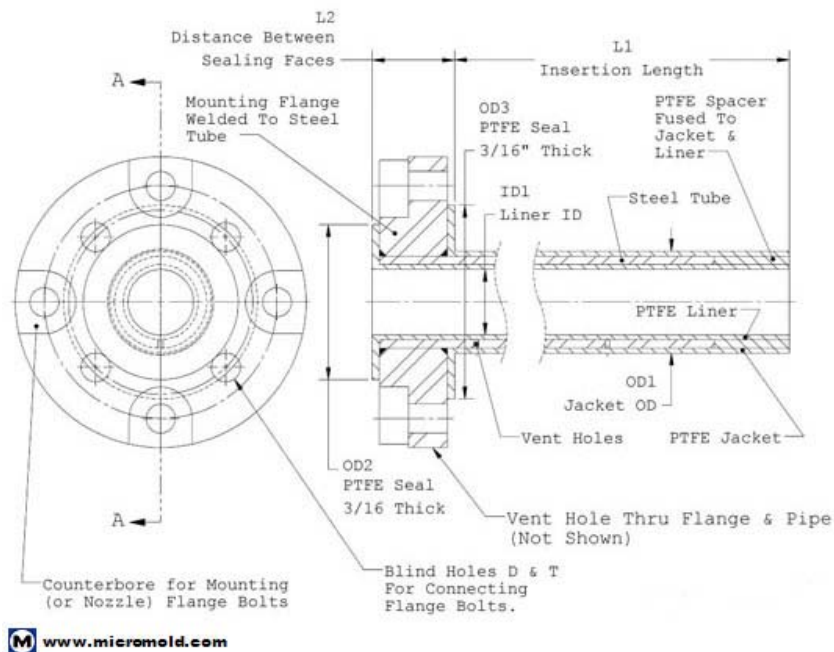
Note 4: This size used with nozzles that are 3.826" ID or greater.

Note 5: Steel tubes:

- Sch. 40 and Sch.80 steel pipe conforms to grade ASTM A106B (Refer to Technical Bulletin 5.1-3a)
- DOM steel tubes conform to A513 grade 1020 or 1026 high strength steel (Refer to Technical Bulletin 5.1-3a).



DRF Series Reducing Flange Dip Pipes



Standard Reducing-Flanged Dip Pipes

PART NUMBER: The PART NUMBER (DRF-NS-MF-L1) defines the series (first three characters), the nominal tube and connecting flange size **NS**, the mounting (or nozzle) flange size **MF** and the insertion length **L1**. Use a decimal number to indicate the **NS**. Then, replace the **MF** with a decimal number to indicate the nominal size of the mounting flange and replace **L1** with the insertion length in inches.

For example, a 3/4" Reducing-Flange Dip Pipe with a 2" mounting flange x 30" insertion length would be **DRF-0.75-2-30**

Notes

1. Standard flanges have ANSI Class 150 drilling. Class 300 and other sizes available.
2. Standard tolerance on inserted length is $\pm 1/2"$. Closer tolerances available, contact factory.
3. Distance (L2) between sealing faces is determined by combination of Nominal Size and Mounting Flange Size. Contact factory for details..
4. Most dimensions are governed by connecting flange size as shown in the Standard Dimension table on the next page.
5. Maximum standard overall length is 16 feet. For longer lengths, contact factory.
6. For service conditions exceeding 350 F°, or 150 PSI, or vacuum service, contact factory.

Part Number Key

DRF - NS - MF - L1			
Series	Connecting Flange and Nominal Tube Size	Mounting Flange	Length
DRF	0.5 - 6	1 - 10	Decimal Inches



STANDARD DIMENSIONS

Connecting Flange & Nominal Tube Size	PTFE Jacket OD (OD1)	PTFE Liner ID (ID1)	PTFE Seal OD Minimum (OD2)	Steel Tube ⁵
1/2" ¹	1"	7/16"	1-1/4"	Sch. 40
3/4"	1-1/4"	5/8"	1-9/16"	Sch. 40
1" ²	1-1/2"	3/4"	1-7/8"	Sch. 80
1-1/2" ³	2"	1	2-11/16"	Sch. 40
1-1/2"	2-1/4"	1-1/8"	2-11/16"	Sch. 80
2"	2-3/4"	1-5/8"	3-7/16"	Sch. 80
3" ⁴	3-3/4"	2-1/2"	4-5/8"	DOM
3"	3-15/16"	2-1/2"	4-5/8"	Sch. 80
4"	5-1/8"	3-1/2"	5-15/16"	Sch. 80
6"	6"	4"	8"	DOM

Note 1: This size used with nozzles that are 1.049" ID or greater.

Note 2: This size used with nozzles that are 1.610" ID or greater.

Note 3: This size used with nozzles that are 2.067" ID or greater.

Note 4: This size used with nozzles that are 3.826" ID or greater.

Note 5: Steel tubes:

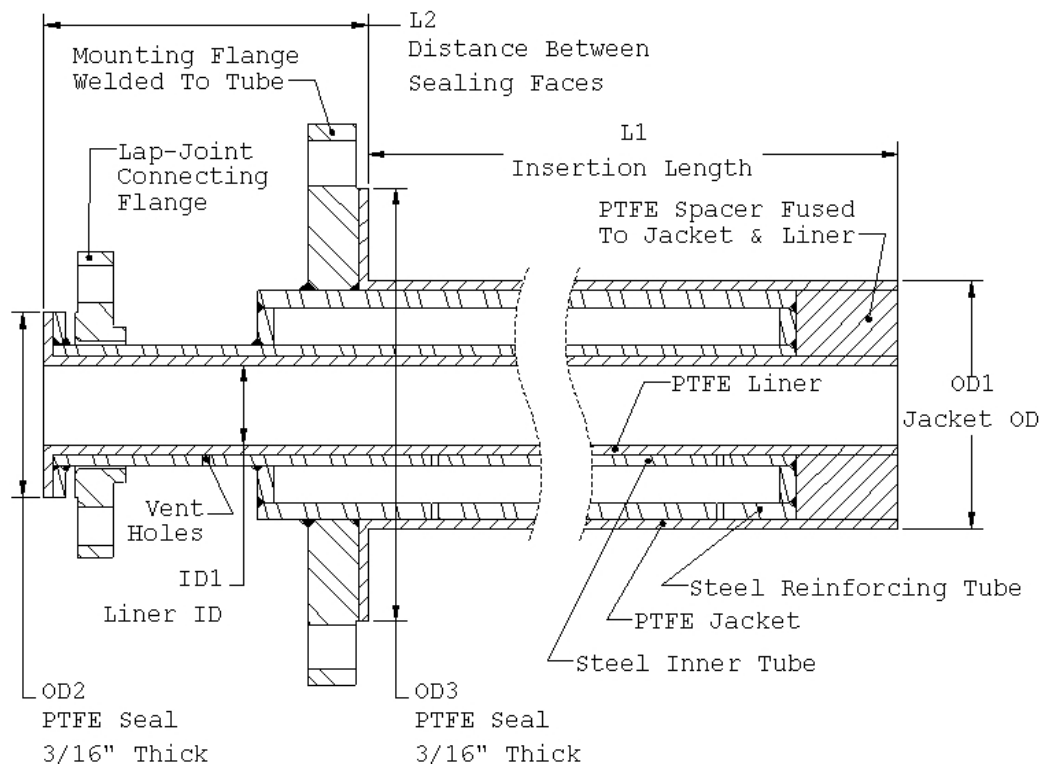
- Sch. 40 and Sch. 80 steel pipe conforms to grade ASTM A106B (Refer to Technical Bulletin 5.1-3a)
- DOM steel tubes conform to A513 grade 1020 or 1026 high strength steel (Refer to Technical Bulletin 5.1-3a).

MOUNTING FLANGE SEAL DIAMETERS

Flange Size	PTFE Seal OD Minimum (OD3)
1"	1-7/8"
1-1/2"	2-11/16"
2"	3-7/16"
3"	4-5/8"
4"	5-15/16"
6"	8"
8"	10-1/16"
10"	12-1/4"



DDH Series Reinforced Dip Pipes



Reinforced Dip Pipes

PART NUMBER: The PART NUMBER (DDH-NS-MF-L1) defines the series (first three characters), the nominal tube and connecting flange size **NS**, the mounting (or nozzle) flange size **MF**, and the insertion length **L1**. Use a decimal number to indicate **NS**. Then, replace **MF** with a decimal number to indicate the nominal size of the mounting flange and replace **L1** with the insertion length in inches.

For example, a 1-1/2" Reducing-Flange Dip Pipe with a 6" mounting flange x 80" insertion length would be **DDH-1.5-6-80**

Notes

1. Standard flanges have ANSI Class 150 drilling. Class 300 and other sizes available.
2. Standard tolerance on inserted length is $\pm 1/2"$. Closer tolerances available, contact the factory.
3. Standard distance (L2) between flange sealing faces is shown in the L2 Distance table on the next page. To order non-standard spacing, contact the factory.
4. Most dimensions are governed by connecting flange size as shown in the Standard Dimension table on the next page.
5. Maximum standard overall length is 16 feet. For longer lengths, contact factory.
6. For service conditions exceeding 350 F°, or 150 PSI, or vacuum service, contact factory.

Part Number Key

DDH - NS - MF - L1			
Series	Connecting Flange and Nominal Tube Size	Mounting Flange	Length
DDH	0.5 - 6	1.5 - 10	Decimal Inches



STANDARD DIMENSIONS

Connecting Flange & Nominal Tube Size	PTFE Jacket OD (OD1)	PTFE Liner ID (ID1)	PTFE Seal OD Minimum (OD2)	Inner Steel Tube Thickness	Outer Steel Tube Thickness
1/2"	2-1/4"	7/16"	1-1/4"	Sch. 40	1-1/2" Sch. 80
3/4"	2-1/4"	5/8"	1-9/16"	Sch. 40	1-1/2" Sch. 80
1"	2-3/4"	3/4"	1-7/8"	Sch. 80	2" Sch. 80
1-1/2"	2-3/4"	1-1/8"	2-11/16"	Sch. 80	2" Sch. 80
2"	3-3/4"	1-5/8"	3-7/16"	Sch. 80	DOM
3"	5-1/8"	2-1/2"	4-5/8"	DOM	4" Sch. 80
4"	6"	3-1/2"	5-15/16"	Sch. 80	DOM

L2 DISTANCE

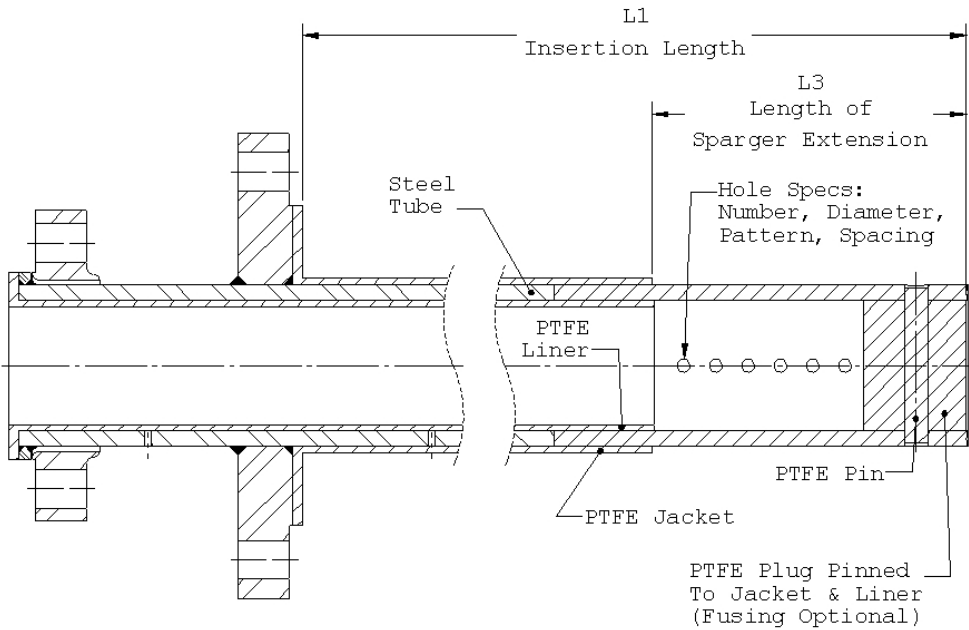
Connecting Flange Size	Minimum Distance Between Sealing Faces (L2)
1/2"	6"
3/4"	6"
1"	6"
1-1/2"	7"
2"	7"
3"	8"
4"	9"

MOUNTING FLANGE SEAL DIAMETERS

Flange Size	PTFE Seal OD Minimum (OD3)
1-1/2"	2-11/16"
2"	3-7/16"
3"	4-5/8"
4"	5-15/16"
6"	8"
8"	10-1/16"
10"	12-1/4"



S Series Spargers



Double-Flanged Sparger

(Spargers are also available in single-flanged and reducing-flanged.)

SPARGERS: For Spargers, add to a dip pipe PART NUMBER the suffix **S**.
Note 1: Customer to specify hole pattern, size and configuration. For more than 20 holes, contact factory.
Note 2: Customer to specify sparger extension length (L3).

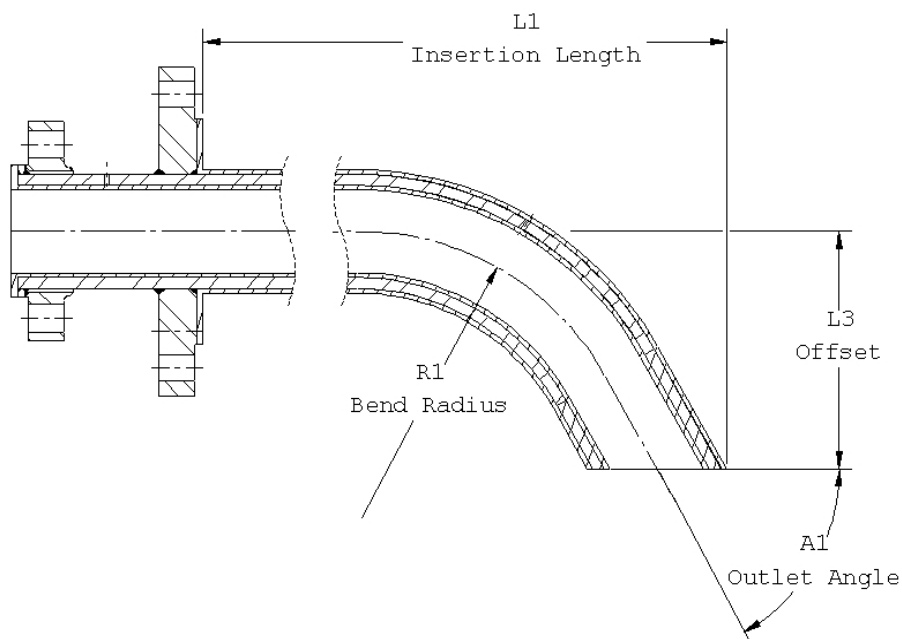
For example, a 3/4" Nominal Size Double-Flanged Sparger with a 1-1/2" mounting flange and a 6' length would be **DDF-0.75-1.5--72-S**

Part Number Key

DXX - NS - MF - L1 - S				
Series	Connecting Flange and Nominal Tube Size	Mounting Flange	Length	Suffix
DDF, DSF, DRF, DDH	0.5 - 6	1 - 10	Decimal Inches	S



C Series Curved Dip Pipes



Product Specifications 5.1-2

Double-Flanged Curved Dip Pipe

(Curved units are also available in single-flanged and reducing-flanged.)

For Curved Dip Pipes, add to a dip pipe PART NUMBER the suffix **C**. For example, a 3/4" Nominal Size curved, Double-Flanged Dip Pipe with a 1-1/2" mounting flange and 6' length would be **DDF-0.75-1.5-72-C**

Please supply the desired insertion length (L1), and the offset distance (L3). The factory will verify that the desired geometry can be achieved within the constraints of minimum bend radius shown below. You may also wish to provide us with the inner diameter and length of the tank nozzle. We will verify that the dip pipe will fit through it.

MINIMUM BEND RADII FOR CURVED DIP PIPES

Nominal Tube Size	Minimum Bend Radius R1
1/2"	5
3/4"	7
1"	7
1-1/2"	8
2"	12
3"	15
4"	20

Part Number Key				
DXX - NS - MF - L1 - C				
Series	Connecting Flange and Nominal Tube Size	Mounting Flange	Length	Suffix
DDF, DSF, DRF	0.5 - 6	1 - 10	Decimal Inches	C



Dip Pipe Steel Tube Material

Comparison of ASTM/AISI 1026 DOM Steel Tube and A-106-B Schedule 80 Steel Pipe in Dip Pipes

1026 DOM Steel Tubing far exceeds the strength of the A-106-B Schedule 80 Steel Pipe commonly used in the process industry. Tensile and yield strength parameters are key factors affecting the ability of a dip pipe to withstand side thrust forces in agitated service.

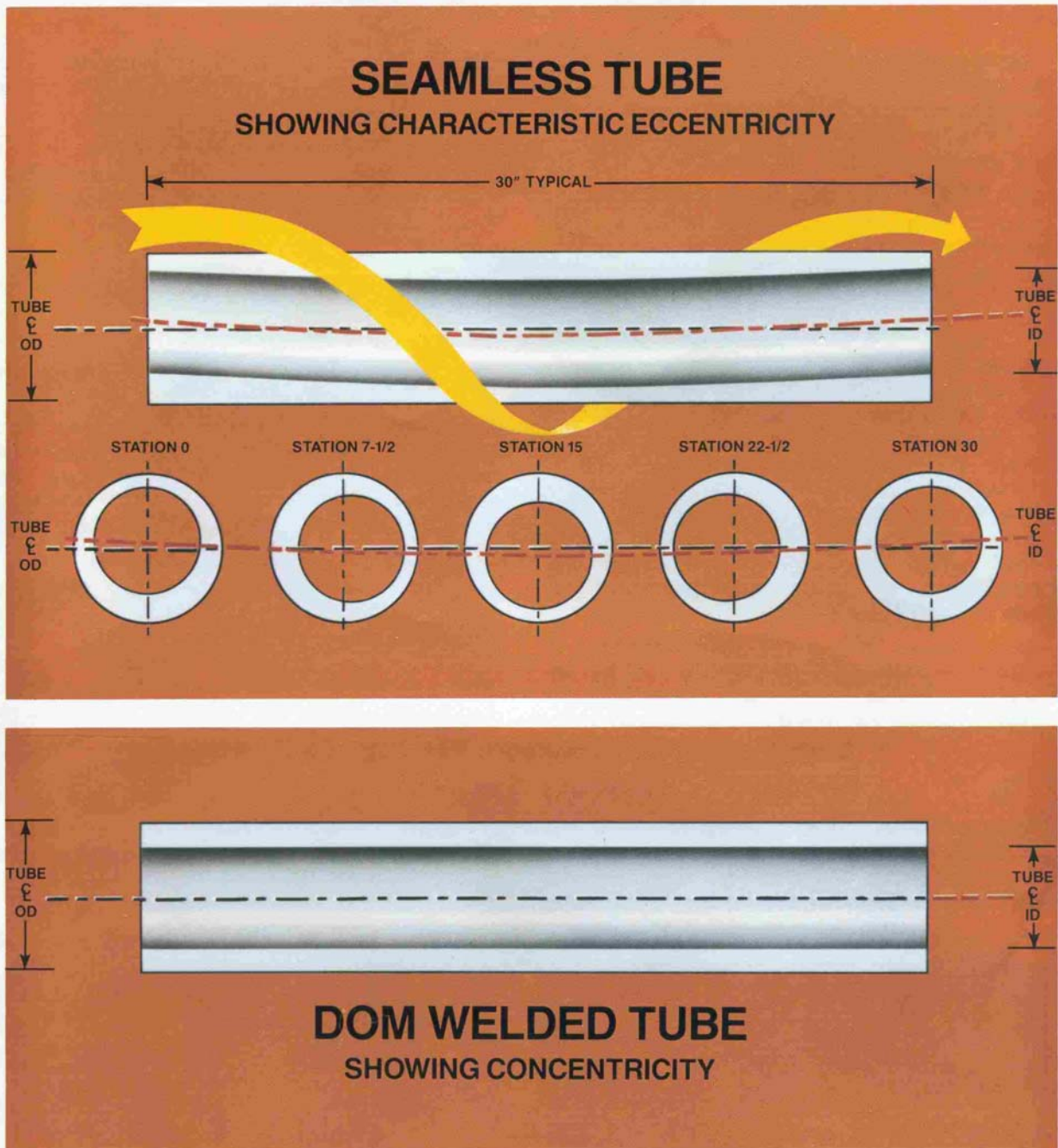
According to ASTM specifications and real world testing, minimum yield and tensile strengths of the two materials are given in Table 1.

Table 1: Tensile and Yield Strength of A-106-B versus 1026 DOM Steel Tubing

Material	Minimum Yield (PSI)	Minimum Tensile (PSI)
ASTM-A-106-B SCHEDULE 80 STEEL PIPE	30,000	60,000
ASTM/AISI-1026 DOM STEEL TUBING	72,000	87,000
1026 DOM TYPICAL TEST RESULTS ¹	88,000	103,000

In addition to the obvious basic material strength advantage of the 1026 DOM, the manufacturing process also results in better concentricity and a more uniform wall. This, in turn, results in much more uniform strength in the finished dip pipe. This is graphically illustrated on the following page.

¹Test Report: PTCAlliance, Alliance, Ohio



SPIRALING ECCENTRICITY OF SEAMLESS TUBING AND CONCENTRICITY OF COPPER-WELD DOM TUBING, FIG. F: To some degree, spiraling eccentricity occurs in all seamless steel tubing as a natural consequence of the rotary piercing process. The effect may be compared to gun barrel rifling. The eccentric spiral makes a complete revolution in approximately every 30" (approximately 76 cm) of tube length. In contrast, Copperweld DOM tubing is concentric, with uniform wall thickness throughout its length. For illustrative purposes, degree of eccentricity is exaggerated.

Graphic courtesy of Copperweld Tubing Group from brochure [DOM TUBING Size Range/Technical Data](#)



Dip Tubes In Agitated Service

Analyzing The Capacity

To facilitate analysis of the capacity of a vertical dip pipe to withstand agitated service, please provide the following information:

1. About the Process Fluid (If significant variations are expected, please provide details.)
 - a. Specific Gravity
 - b. Dynamic Viscosity (centipoise)
 - c. Velocity of fluid past tip of the dip tube (feet/sec.) or, the agitator rotational speed (RPM), the agitator blade diameter, and the location of the dip pipe tip.

2. About the Dip Tube
 - a. Nominal size of the Micromold dip tube (Connecting Flange x Nozzle Flange)
 - b. Length of the tube
 - i. Below the nozzle flange (in.)
 - ii. Immersed in fluid (in.).



FLUOR-O-FLO®
**Solid Plastic Dip Pipes,
Spargers and Steam Jets**

PTFE • PVDF • Polypropylene



Standard Sizes

Schedule 80 Pipe:

- 1/8" through 4"

Tubing:

- 1-1/4" x 1/2"
- 1-3/8" x 3/4"
- 1-3/4" x 1"
- 2-1/4" x 1-1/2"
- 3" x 2"

- Other tube sizes available, contact factory.

Lengths:

- Up to 15 feet standard. Longer lengths available.

Flange Sizes:

- 1/2" through 12"
- 150 lb. and 300 lb.
- Special flange sizes available, contact factory.
- Double flange units available, contact factory.

Micromold's solid plastic dip pipes, spargers and steam jets give you the ultimate in corrosion resistance, at continuous service temperatures up to 500 degrees Fahrenheit. In many applications they will last longer than lined steel, or exotic metal units, and are available at a lower initial cost.

We offer standard and custom sizes and configurations to fit your needs. For units in agitated service ask for information on our PTFE Lined & Jacketed steel units.

Bent units are available plain, or with stainless steel or Monel® inserts at the elbow.

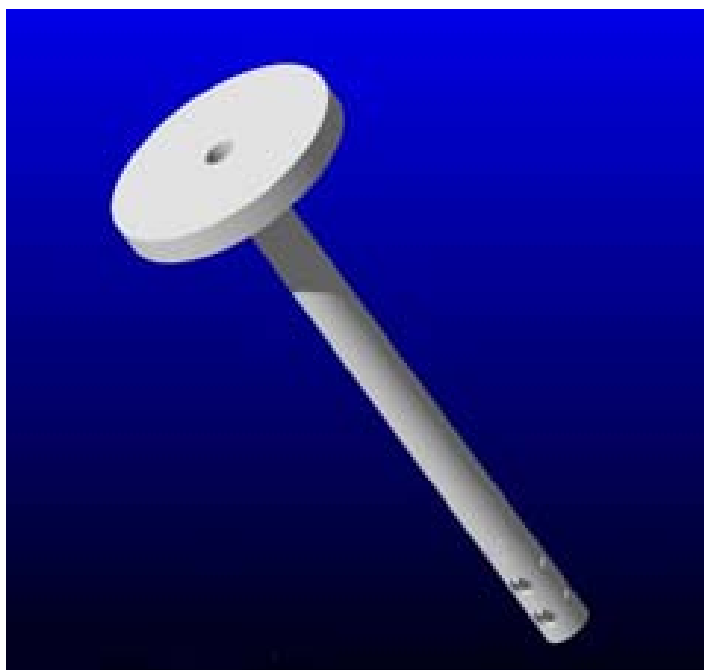
For tubes used in agitated service, we can help you design, and will custom fabricate, supports made from solid PTFE or other corrosion resistant plastics for attachment to baffles or other reactor internals.

We also manufacture a line of PTFE lined and jacketed steel dip pipes and spargers. Please contact the factory for Sales Bulletin and Product Specifications.

Call today for our
**Solid Plastic Dip Pipes, Spargers and
Steam Jets Product Specifications and
Technical Bulletins**

FLUOR-O-FLO®
Mixing Tee Injection Nozzles

PTFE • PVDF • Polypropylene



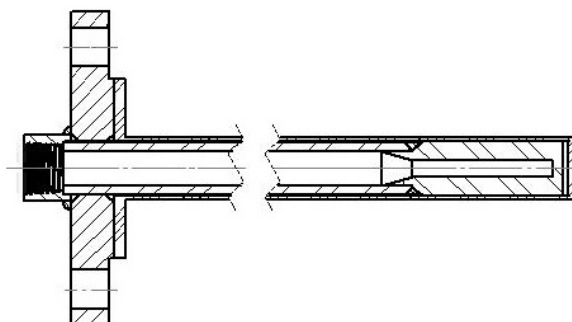
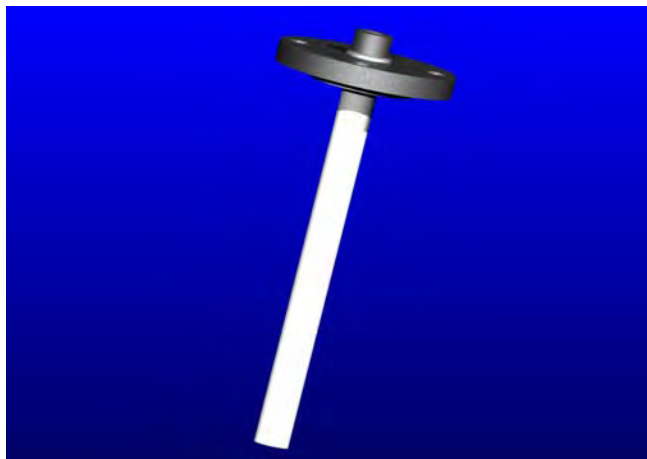
When inserted in a standard plastic lined Tee, our PTFE Injection or Mixing Tee nozzles allow injection of acid, or any difficult-to-handle fluid, into the fluid stream of your system. Our solid PTFE nozzles are optimized for uniform dispersal into the system and are available for 1" to 8" sizes for standard and reducing tees. Also available in PVDF and Polypropylene.

We also offer in PTFE lined and jacketed steel.

Please contact the factory for Product Specifications and Pricing.

Thermowells

PTFE or PVDF Jacketed Stainless Steel



- Standard units are flanged to install on either 1" or 1-1/2" Class 150 full-face flanges. Other flanged connections are available, such as ring style, Class 300 or ISO Metric sizes
- Where additional strength is needed, we can custom build larger diameter units (up to 4")
- We can perform analysis of the effect of agitation, and design a well to accommodate
- Maximum service temperature – 350°F
- For faster heat transfer, units are also available with Tantalum tips which are sealed to the PTFE jacket
- Thermowells are also available in solid plastic Virgin PTFE or PVDF

Micromold's PTFE or PVDF jacketed stainless steel Thermowells are uniquely suited to protect temperature sensors in highly corrosive or high purity environments. Standard sensor wells are 0.260" diameter and 0.385" diameter to accommodate all standard thermocouple tips. Virtually any length needed can be provided (from 2-1/2" up to 180" insertion length).

Standard units are made using stainless steel type 304L or 316L schedule 80 pipe as the structural material. They are also available in carbon steel. Other metals such as Monel or Hastelloy are available on request.

Flanges have a PTFE facing that provides an integral connection to the thermowell jacket, and a leak tight seal to the tank nozzle or pipe flange.

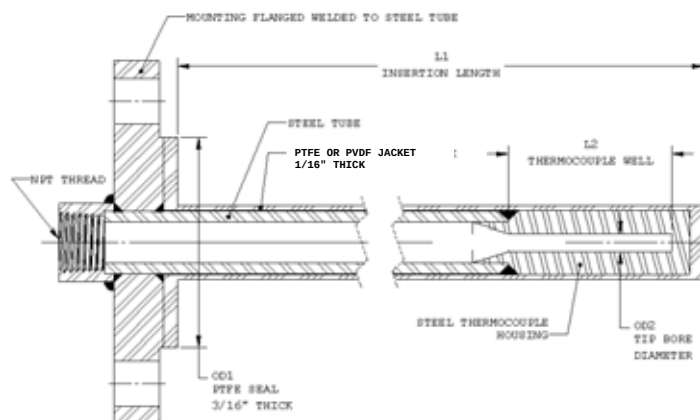
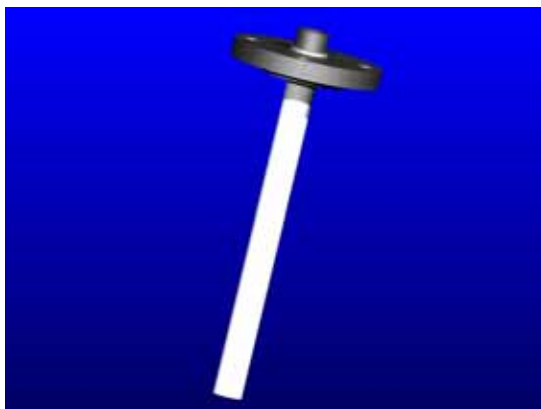
A 1/2" female NPT half coupling is located on top of the flange to accommodate the standard 1/2" NPT nipples commonly used to support the sensor body. The sensor element can be easily inserted or removed from a pipe or vessel without compromising your process.

These Thermowells are made by the company with in-depth expertise in the design and manufacture of PTFE lined and jacketed steel dip pipes and spargers.

Call today for our
Thermowells Product Specifications

Thermowells

PTFE or PVDF Jacketed Steel



Materials:

Available in solid PTFE, Monel, PVDF, or jacketed steel pipe. For other materials, contact factory.

Liners, Jackets and Seals:

Virgin PTFE, Monel, or PVDF.

Connection:

Available in a wide variety of connection options, such as 3/4, or 1 NPT, socket weld, weld-in, raised face flanged, or Tri-Clamp. Other threaded sizes, connection options are available, contact factory.

Insertion Length:

Insertion depths can be accommodated by specifying the length that runs from the base of your threads to the tip of your thermowell. For maximum performance, this length must equal or exceed the length of the stem or bulb. We can accommodate all sizes.

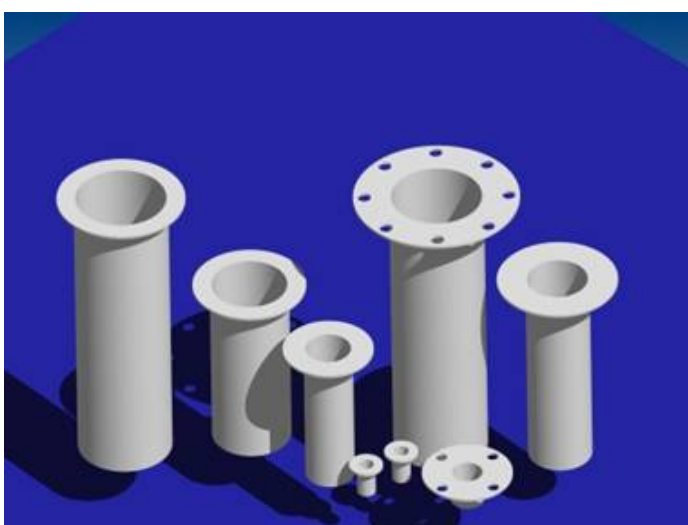
Bore:

This section that holds your temperature elements can be modified to fit your needs.

Call today for our
Thermowells Sales Bulletin

FLUOR-O-FLO® Nozzle Liners

Solid Virgin PTFE



Nozzle Size

Standard liners fit nozzles from 1/2" to 18" pipe size. Special sizes available on request.

Length

Up to 4" nominal pipe size, lengths available to 15 feet. Over 4" nominal size, lengths available to 30".

Flange Diameter

Minimum diameter of flange of standard liners corresponds to the raised face of ANSI Class 150 flanges. Full face or other special flange diameters available on request.

Thickness

Wall thickness of standard liners increases with liner size, from a minimum of 1/16" wall up to 1/4" wall. Nonstandard wall thickness available on request. Seal thickness equal to wall thickness standard, other seal thicknesses available on request.

End

Square cut end is standard. Diagonal cut available on request.

• Complete Protection

Use our liners to protect nozzles of glass lined vessels:

- Prevent chipping from insertion and use of dip pipes, spargers, instrumentation, or dropped or mishandled tools
- Reduce scaling and buildup of solids.

Also use our liners to protect surfaces of unlined nozzles or tanks from corrosive fluids, abrasive slurries, or erosive high velocity fluid streams.

And you can use them to line bellows type expansion joints and flexible couplings:

- Eliminate erosion of bellows convolutes and of the rounded corners at I.D. of flared ends
- Eliminate caking and buildup of solids in convolutes.

• Widest Range of Sizes

Standard product line includes nominal sizes up to 18", in the length you need.

We can also custom make virtually any special size you need to meet the widest range of requirements:

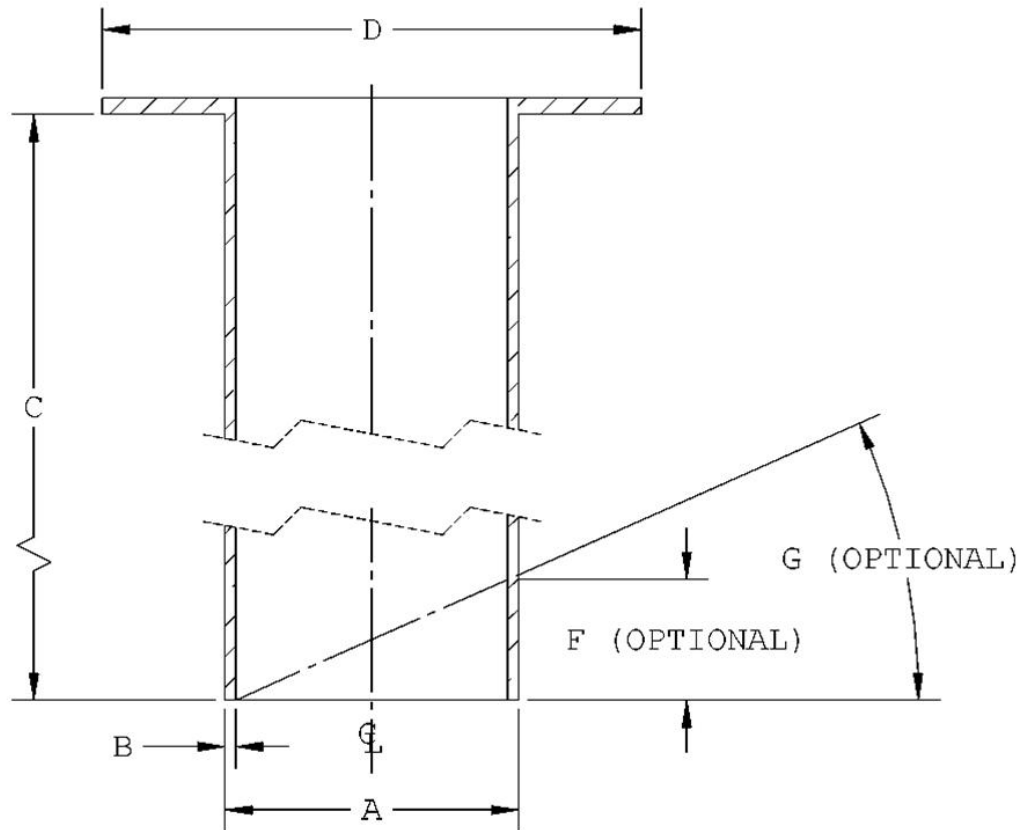
- Nonstandard diameters
- Heavy wall thicknesses
- Full face flanges.

For worksheet, see reverse side.

Call today for our
Nozzle Liners
Product Specifications



Nozzle Liner Worksheet



<u>Dimension</u>	<u>Description</u>	<u>Size</u>
------------------	--------------------	-------------

Required Data: _____

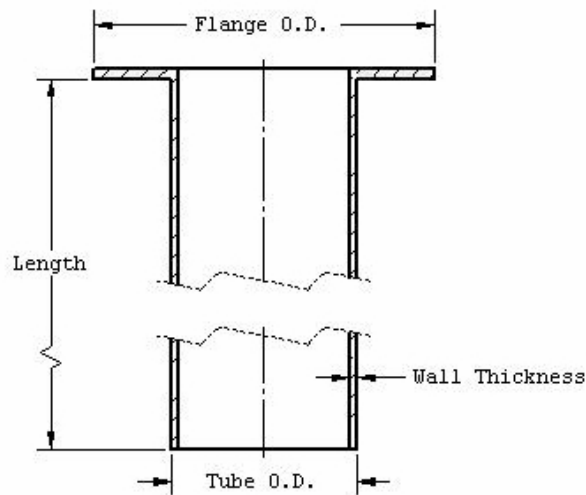
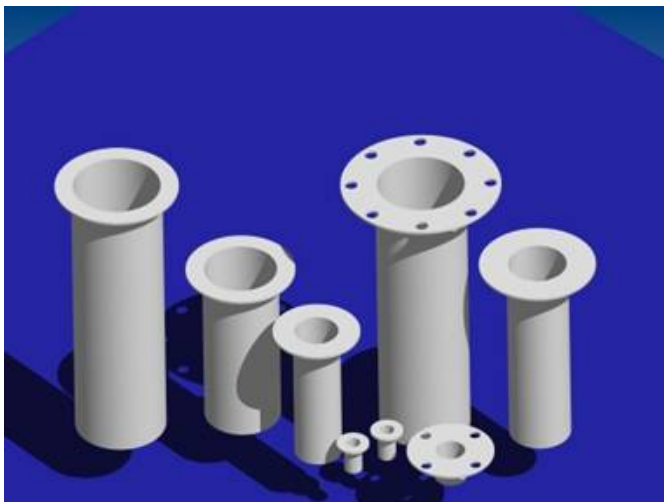
A	Sleeve O.D. (smaller than the nozzle I.D. by 1/8" or more)	_____ (max.—18" pipe size)
B	Sleeve wall thickness	_____
C	Sleeve length (excluding flange)	_____ (max.—30")
D	Flange O.D.	_____ (max.—21")
E	Flange thickness	_____

Optional Data: _____

F	Diagonal cut	_____
	—or—	
G	Diagonal angle	_____



FLUOR-O-FLO®
Nozzle Liners
Solid Virgin PTFE



Nozzle Size

Standard liners fit nozzles from 1/2" to 18" pipe size. Special sizes available on request.

Length

Up to 4" nominal pipe size, lengths available to 15 feet. Over 4" nominal size, lengths available to 30".

Flange Diameter

Minimum diameter of flange of standard liners corresponds to the raised face of ANSI Class 150 flanges. Full face or other special flange diameters available on request.

Thickness

Wall thickness of standard liners increases with liner size, from a minimum of 1/16" wall up to 1/4" wall. Nonstandard wall thickness available on request. Seal thickness equal to wall thickness standard, other seal thicknesses available on request.

End

Square cut end is standard. Diagonal cut available on request.

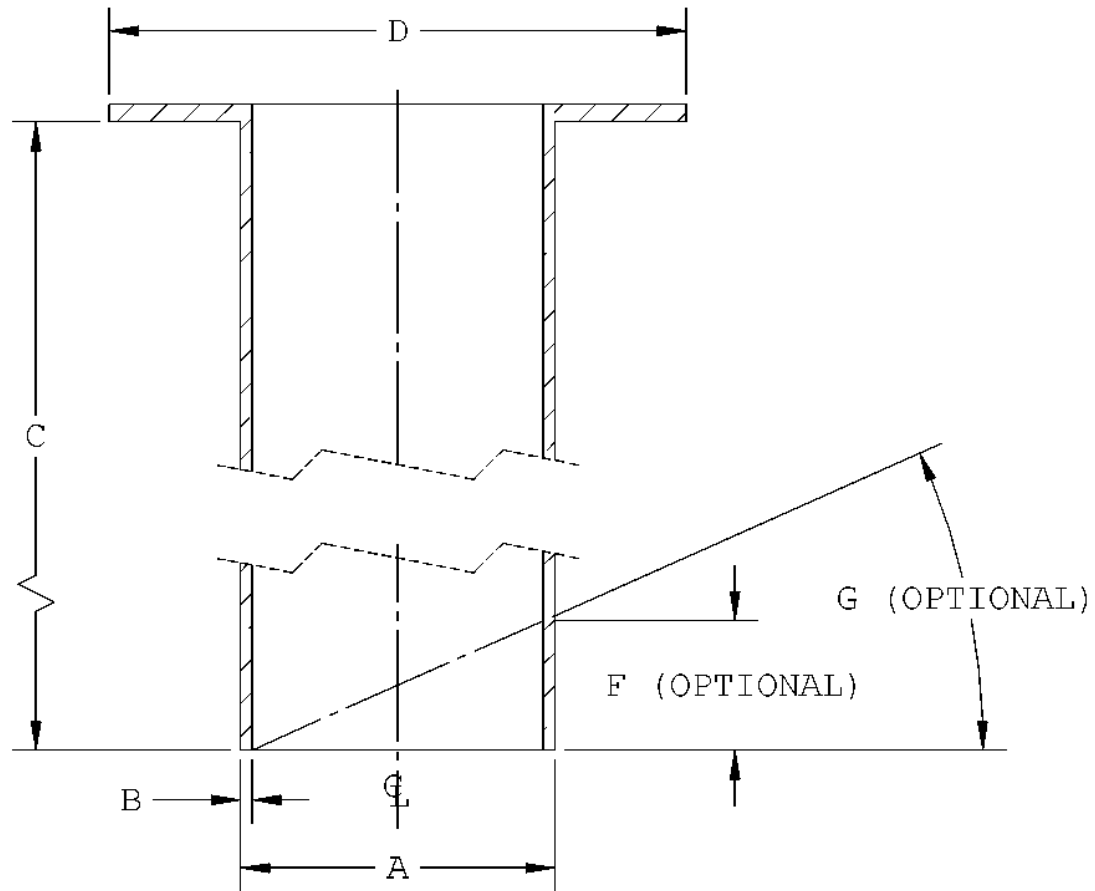
Nominal Pipe Size	Tube O.D.	Flange O.D.	(T) Wall Thickness	(L) Max. Length
1/2"	9/16"	1-3/8"	1/16"	15 ft.
3/4"	3/4"	1-11/16"	1/16"	15 ft.
1"	7/8"	2"	1/16"	15 ft.
1-1/2"	1-3/8"	2-7/8"	1/8"	15 ft.
2"	1-7/8"	3-5/8"	1/8"	15 ft.
3"	2-3/4"	5"	1/8"	15 ft.
4"	3-1/2"	6-3/16"	1/8"	15 ft.
6"	5-5/8"	8-1/2"	5/32"	30 in.
8"	7-1/2"	10-5/8"	5/32"	30 in.
10"	9-1/2"	12-3/4"	3/16"	30 in.
12"	11-1/2"	15"	7/32"	30 in.
14"	12-5/8"	16-1/4"	7/32"	30 in.
16"	14-5/8"	18-1/2"	1/4"	30 in.
18"	16-5/8"	20-1/2"	1/4"	30 in.

NOTE: Custom sizes, heavier wall thickness, diagonal cuts available on request. Contact factory

Call today for our
Nozzle Liners Sales Bulletin

For worksheet, see reverse side.

Nozzle Liner Worksheet



<u>Dimension</u>	<u>Description</u>	<u>Size</u>
------------------	--------------------	-------------

Required Data: _____

A	Sleeve O.D. (smaller than the nozzle I.D. by 1/8" or more)	_____ (max.—18" pipe size)
B	Sleeve wall thickness	_____
C	Sleeve length (excluding flange)	_____ (max.—30")
D	Flange O.D.	_____ (max.—21")
E	Flange thickness	_____

Optional Data: _____

F	Diagonal cut —or—	_____
G	Diagonal angle	_____



6. Tanks

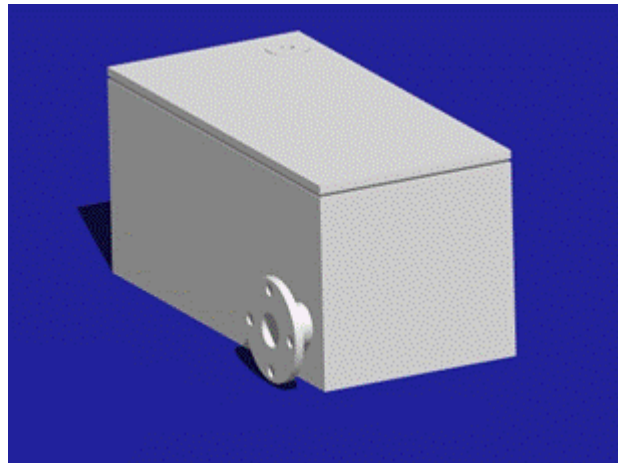
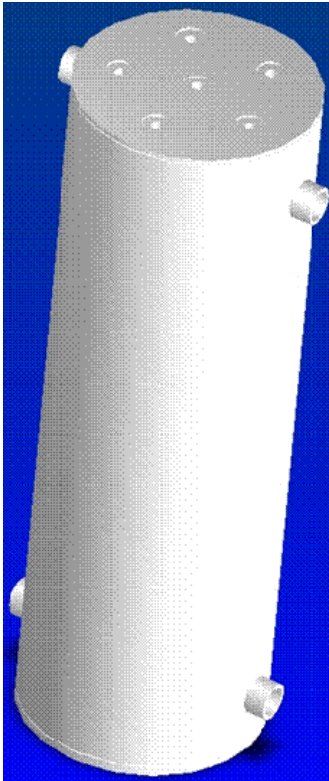
6.1 Cylindrical or Rectangular Tanks - PTFE, PFA, PVDF

6.1-1 Sales Bulletin

6.1-2 Product Specifications (under construction)

Tanks

PTFE • PVDF • PFA



For the ultimate in corrosion resistance we fabricate a variety of tanks from PTFE, PFA and PVDF. Since we engineer and produce all our tanks in-house to your specifications, difficult fit-up and connection problems are easily solved. We can provide lids or covers with or without hinges. Lids and tank bodies can be provided with connections or almost any style—flanged, NPT threaded, Tri-Clamp, etc.

If desired, we'll design and fabricate tank stands plus needed mounting and reinforcing hardware from virtually any material such as steel, aluminum, or plastics, including PTFE or PFA. We pride ourselves on our ability to quickly design and produce tanks to meet your requirements.

Call today for our
Tanks Product Specifications

7. Spacers, Flanges & Gaskets

7.1 FLUOR-O-FLO® Spacers and Flanges - PTFE, PVDF, also PPL, CPVC

7.1-1 Sales Bulletin

7.1-2 Product Specifications

7.2 FLUOR-O-FLO® Armored Spacers - PTFE, PVDF, also PPL, CPVC

7.2-1 Sales Bulletin

7.2-2 Product Specifications

7.3 FLUOR-O-FLO® PTFE Lined Steel Straight-Bore Reducing Flanges

7.3-1 Sales Bulletin

7.3-2 Product Specifications

7.4 FLUOR-O-FLO® Spectacle Line-Blinds - PTFE Lined Steel and Solid Plastic PTFE, PVDF, also PPL, CPVC

7.4-1 Sales Bulletin

7.4-2 Product Specifications

7.5 FLUOR-O-FLO® Filler Flanges/Compensation Rings - PTFE

7.5-1 Sales Bulletin (under construction)

7.5-2 Product Specifications

7.20 FLUOR-O-FLO® Gaskets - PTFE

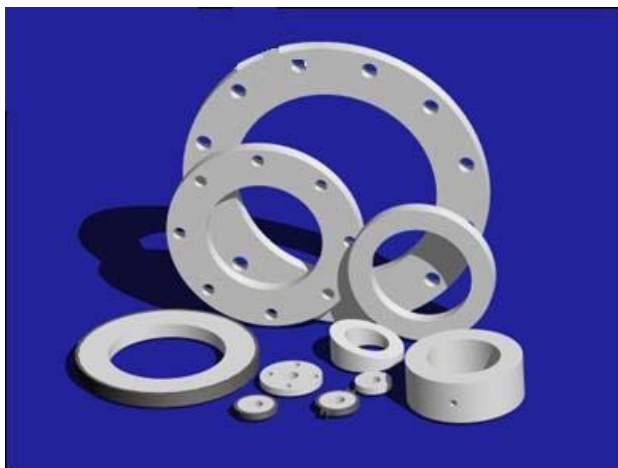
7.20-1 Sales Bulletin

7.20-2 Product Specifications



FLUOR-O-FLO® Spacers & Flanges

PTFE • PVDF • also PPL • CPVC



Micromold offers the plastic-lined pipe distributor the most complete line of spacers and flanges in the industry with the fastest service. And we are pleased to handle your requirements for specials as well.

Doing business with Micromold is easy - from our comprehensive price list, simply select the style and size you need and call or FAX us your order. Frequently, we ship the same day; for Class 150 PTFE ring spacers, on request, we guarantee same day shipment.

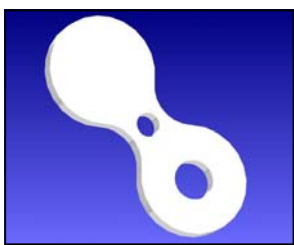
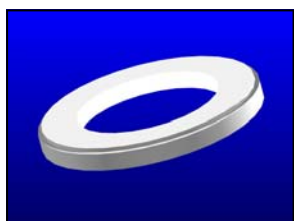
Since 1950, Micromold has been satisfying the special needs of the process industry distributors. Let us serve you.

Materials:	Virgin PTFE, PVDF. Also PPL or CPVC. Other materials on request.
Styles:	Ring, Full Face, Reducing, Blind, Orifice, Tapered, Conical Bore, Armored, Filler Flanges, Spectacle Line-Blinds
Pipes Sizes:	1/2" through 12", larger on request.
Flange Sizes:	Class 150, 300 and ISO metric sizes
Lengths:	To 12", longer on request.

Call today for our
Spacers & Flanges
Product Specifications

FLUOR-O-FLO® Spacers & Flanges

PTFE • PVDF • also PPL • CPVC



Call today for our
Spacers & Flanges Sales Bulletin

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- Standard Full-Face Flanges - SF Series 3

Specialty Spacers & Flanges

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- Reducing Full-Face Flanges - SRF Series 5
- Blind Ring Spacers - SBR Series 6
- Blind Full-Face Flanges - SBF Series 7
- Orifice Ring Spacers - SOR Series 8
- Orifice Full-Face Flanges - SOF Series 9
- Conical-Bore Ring Spacers - SCR Series 10
- Conical-Bore Full-Face Flanges - SCF Series 11
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Line-Blinds

- Spectacle Line-Blinds - SLB Series 19

Dimensions of Basic Spacers & Flanges

- Size Table 20

All sales are subject to separately published Terms and Conditions of Sale.



SR Series Ring Spacers

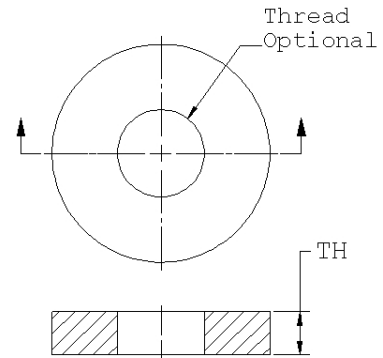
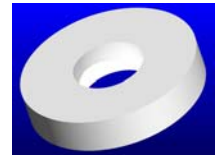
Standard Class 150 (150 lb.) Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (two characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating. For example, a 3/4" Class 150 PTFE Ring Spacer x 1" thick would be **SRT-0.75-1**

Options

NPT THREADING: For NPT threaded spacers, add to the BASE PART NUMBER the suffix **NPT**. For example, a 2" Class 150 PTFE threaded Ring Spacer x 1-1/2" thick would be **SRT-2-1.5-NPT**. See table below for minimum thickness required for the threads.

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE threaded Ring Spacer x 1-1/2" thick would be **SRT-2-1.5-NPT-300**



For dimensions, see the
SIZE TABLE
on page 20.

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
SR	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	SRT-0.5-TH	SRK-0.5-TH	SRP-0.5-TH	SRC-0.5-TH
3/4"	SRT-0.75-TH	SRK-0.75-TH	SRP-0.75-TH	SRC-0.75-TH
1"	SRT-1-TH	SRK-1-TH	SRP-1-TH	SRC-1-TH
1-1/2"	SRT-1.5-TH	SRK-1.5-TH	SRP-1.5-TH	SRC-1.5-TH
2"	SRT-2-TH	SRK-2-TH	SRP-2-TH	SRC-2-TH
2-1/2"	SRT-2.5-TH	SRK-2.5-TH	SRP-2.5-TH	SRC-2.5-TH
3"	SRT-3-TH	SRK-3-TH	SRP-3-TH	SRC-3-TH
4"	SRT-4-TH	SRK-4-TH	SRP-4-TH	SRC-4-TH
6"	SRT-6-TH	SRK-6-TH	SRP-6-TH	SRC-6-TH
8"	SRT-8-TH	SRK-8-TH	SRP-8-TH	SRC-8-TH
10"	SRT-10-TH	SRK-10-TH	SRP-10-TH	SRC-10-TH
12"	SRT-12-TH	SRK-12-TH	SRP-12-TH	SRC-12-TH
14"	SRT-14-TH	SRK-14-TH	SRP-14-TH	SRC-14-TH
16"	SRT-16-TH	SRK-16-TH	SRP-16-TH	SRC-16-TH
18"	SRT-18-TH	SRK-18-TH	SRP-18-TH	SRC-18-TH
20"	SRT-20-TH	SRK-20-TH	SRP-20-TH	SRC-20-TH
24"	SRT-24-TH	SRK-24-TH	SRP-24-TH	SRC-24-TH

For larger sizes, contact factory

Minimum Thickness for NPT Threads

NPT Thread	Minimum Thickness
1/8"	1/2"
1/4"	3/4"
3/8"	3/4"
1/2"	1"
3/4"	1"
1"	1"
1-1/4"	1"
1-1/2"	1-1/2"
2"	1-1/2"
2-1/2"	2"
3"	2"
4"	2"
6"	2"
8"	2-1/2"
10"	2-1/2"
12"	2-1/2"



SF Series Full-Face Flanges

Standard Class 150 (150 lb.) Full-Face Flanges

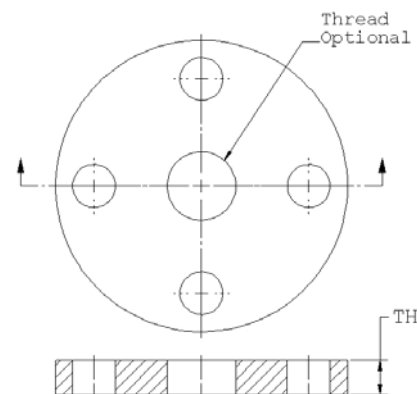
BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (two characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating. For example, a 3/4" Class 150 PTFE Full-Face Flange x 1" thick would be **SFT-0.75-1**

Options

NPT THREADING: For NPT threaded flanges, add to the BASE PART NUMBER the suffix **NPT**. For example, a 2" Class 150 PTFE threaded Full-Face Flange x 1-1/2" thick would be **SFT-2-1.5-NPT**
See table below for minimum thickness required for the threads.

CLASS 300 (300 lb.) FLANGES: For Class 300 flanges, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE threaded Full-Face Flange x 1-1/2" thick would be **SFT-2-1.5-NPT-300**

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
SF	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300



For dimensions, see the
SIZE TABLE
on page 20.

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	SFT-0.5-TH	SFK-0.5-TH	SFP-0.5-TH	SFC-0.5-TH
3/4"	SFT-0.75-TH	SFK-0.75-TH	SFP-0.75-TH	SFC-0.75-TH
1"	SFT-1-TH	SFK-1-TH	SFP-1-TH	SFC-1-TH
1-1/2"	SFT-1.5-TH	SFK-1.5-TH	SFP-1.5-TH	SFC-1.5-TH
2"	SFT-2-TH	SFK-2-TH	SFP-2-TH	SFC-2-TH
2-1/2"	SFT-2.5-TH	SFK-2.5-TH	SFP-2.5-TH	SFC-2.5-TH
3"	SFT-3-TH	SFK-3-TH	SFP-3-TH	SFC-3-TH
4"	SFT-4-TH	SFK-4-TH	SFP-4-TH	SFC-4-TH
6"	SFT-6-TH	SFK-6-TH	SFP-6-TH	SFC-6-TH
8"	SFT-8-TH	SFK-8-TH	SFP-8-TH	SFC-8-TH
10"	SFT-10-TH	SFK-10-TH	SFP-10-TH	SFC-10-TH
12"	SFT-12-TH	SFK-12-TH	SFP-12-TH	SFC-12-TH
14"	SFT-14-TH	SFK-14-TH	SFP-14-TH	SFC-14-TH
16"	SFT-16-TH	SFK-16-TH	SFP-16-TH	SFC-16-TH
18"	SFT-18-TH	SFK-18-TH	SFP-18-TH	SFC-18-TH
20"	SFT-20-TH	SFK-20-TH	SFP-20-TH	SFC-20-TH
24"	SFT-24-TH	SFK-24-TH	SFP-24-TH	SFC-24-TH

For larger sizes, contact factory

Minimum Thickness for NPT Threads

NPT Thread	Minimum Thickness
1/8"	1/2"
1/4"	5/8"
3/8"	3/4"
1/2"	7/8"
3/4"	1"
1"	1-1/8"
1-1/2"	1-1/8"
2"	1-1/4"
2-1/2"	1-3/4"
3"	1-3/4"
4"	1-7/8"
6"	2-1/8"
8"	2-1/2"
10"	2-1/2"
12"	2-1/2"



SRR Series Reducing Ring Spacers

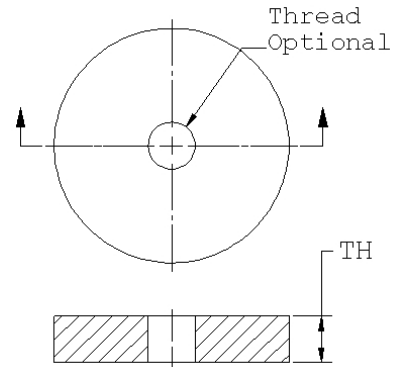
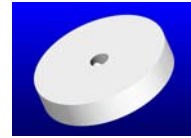
Standard Class 150 (150 lb.) Reducing Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, the reduced center hole pipe size **RR** and the thickness **TH**. Use a decimal number to indicate the nominal size. Replace **RR** in the part number with the reduction pipe size in decimals. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating. For example, a 3/4" x 1/2" Class 150 PTFE Reducing Ring Spacer x 1" thick would be **SRRT-0.75-0.5-1**

Options

NPT THREADING: For NPT threaded spacers, add to the BASE PART NUMBER the suffix **NPT**. For example, a 2" x 3/4" Class 150 PTFE threaded Reducing Ring Spacer x 1-1/2" thick would be **SRRT-2-0.75-1.5-NPT**. See table below for minimum thickness required for the threads.

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" x 1" Class 300 PTFE threaded Reducing Ring Spacer x 1-1/2" thick would be **SRRT-2-1-1.5-NPT-300**



For dimensions, see the
SIZE TABLE
on page 20.

Part Number Key

Series	Material	Nominal Size	RR	Thickness	Option
SRR	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	0.5 - 24 Decimal Inches	Decimal Inches	Class 300

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	NA	NA	NA	NA
3/4"	SRRT-0.75-RR-TH	SRRK-0.75-RR-TH	SRRP-0.75-RR-TH	SRRC-0.75-RR-TH
1"	SRRT-1-RR-TH	SRRK-1-RR-TH	SRRP-1-RR-TH	SRRC-1-RR-TH
1-1/2"	SRRT-1.5-RR-TH	SRRK-1.5-RR-TH	SRRP-1.5-RR-TH	SRRC-1.5-RR-TH
2"	SRRT-2-RR-TH	SRRK-2-RR-TH	SRRP-2-RR-TH	SRRC-2-RR-TH
2-1/2"	SRRT-2.5-RR-TH	SRRK-2.5-RR-TH	SRRP-2.5-RR-TH	SRRC-2.5-RR-TH
3"	SRRT-3-RR-TH	SRRK-3-RR-TH	SRRP-3-RR-TH	SRRC-3-RR-TH
4"	SRRT-4-RR-TH	SRRK-4-RR-TH	SRRP-4-RR-TH	SRRC-4-RR-TH
6"	SRRT-6-RR-TH	SRRK-6-RR-TH	SRRP-6-RR-TH	SRRC-6-RR-TH
8"	SRRT-8-RR-TH	SRRK-8-RR-TH	SRRP-8-RR-TH	SRRC-8-RR-TH
10"	SRRT-10-RR-TH	SRRK-10-RR-TH	SRRP-10-RR-TH	SRRC-10-RR-TH
12"	SRRT-12-RR-TH	SRRK-12-RR-TH	SRRP-12-RR-TH	SRRC-12-RR-TH
14"	SRRT-14-RR-TH	SRRK-14-RR-TH	SRRP-14-RR-TH	SRRC-14-RR-TH
16"	SRRT-16-RR-TH	SRRK-16-RR-TH	SRRP-16-RR-TH	SRRC-16-RR-TH
18"	SRRT-18-RR-TH	SRRK-18-RR-TH	SRRP-18-RR-TH	SRRC-18-RR-TH
20"	SRRT-20-RR-TH	SRRK-20-RR-TH	SRRP-20-RR-TH	SRRC-20-RR-TH
24"	SRRT-24-RR-TH	SRRK-24-RR-TH	SRRP-24-RR-TH	SRRC-24-RR-TH

For larger sizes, contact factory

Minimum Thickness for NPT Threads

NPT Thread	Minimum Thickness
1/8"	1/2"
1/4"	5/8"
3/8"	3/4"
1/2"	7/8"
3/4"	1"
1"	1-1/8"
1-1/2"	1-1/8"
2"	1-1/4"
2-1/2"	1-3/4"
3"	1-3/4"
4"	1-7/8"
6"	2-1/8"
8"	2-1/2"
10"	2-1/2"
12"	2-1/2"



SRF Series Reducing Full-Face Flanges

Standard Class 150 (150 lb.) Reducing Full-Face Flanges

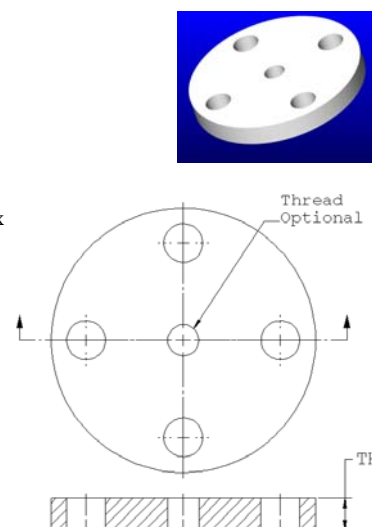
BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, the reduced center hole pipe size **RR** and the thickness **TH**. Use a decimal number to indicate the nominal size. Replace **RR** in the part number with the reduction pipe size in decimals. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating. For example, a 3/4" x 1/2" Class 150 PTFE Reducing Full-Face Flange x 1" thick would be **SRFT-0.75-0.5-1**

Options

NPT THREADING: For NPT threaded flanges, add to the BASE PART NUMBER the suffix **NPT**. For example, a 2" x 3/4" Class 150 PTFE threaded Reducing Full-Face Flange x 1-1/2" thick would be **SRFT-2-0.75-1.5-NPT**. See table below for minimum thickness required for the threads.

CLASS 300 (300 lb.) FLANGES: For Class 300 flanges, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" x 1" Class 300 PTFE threaded Reducing Full-Face Flange x 1-1/2" thick would be **SRFT-2-1-1.5-NPT-300**

Part Number Key					Option
Series	Material	Nominal Size	RR	Thickness	
SRR	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	0.5 - 24 Decimal Inches	Decimal Inches	Class 300



For dimensions, see the
SIZE TABLE
on page 20.

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	NA	NA	NA	NA
3/4"	SRFT-0.75-RR-TH	SRFK-0.75-RR-TH	SRFP-0.75-RR-TH	SRFC-0.75-RR-TH
1"	SRFT-1-RR-TH	SRFK-1-RR-TH	SRFP-1-RR-TH	SRFC-1-RR-TH
1-1/2"	SRFT-1.5-RR-TH	SRFK-1.5-RR-TH	SRFP-1.5-RR-TH	SRFC-1.5-RR-TH
2"	SRFT-2-RR-TH	SRFK-2-RR-TH	SRFP-2-RR-TH	SRFC-2-RR-TH
2-1/2"	SRFT-2.5-RR-TH	SRFK-2.5-RR-TH	SRFP-2.5-RR-TH	SRFC-2.5-RR-TH
3"	SRFT-3-RR-TH	SRFK-3-RR-TH	SRFP-3-RR-TH	SRFC-3-RR-TH
4"	SRFT-4-RR-TH	SRFK-4-RR-TH	SRFP-4-RR-TH	SRFC-4-RR-TH
6"	SRFT-6-RR-TH	SRFK-6-RR-TH	SRFP-6-RR-TH	SRFC-6-RR-TH
8"	SRFT-8-RR-TH	SRFK-8-RR-TH	SRFP-8-RR-TH	SRFC-8-RR-TH
10"	SRFT-10-RR-TH	SRFK-10-RR-TH	SRFP-10-RR-TH	SRFC-10-RR-TH
12"	SRFT-12-RR-TH	SRFK-12-RR-TH	SRFP-12-RR-TH	SRFC-12-RR-TH
14"	SRFT-14-RR-TH	SRFK-14-RR-TH	SRFP-14-RR-TH	SRFC-14-RR-TH
16"	SRFT-16-RR-TH	SRFK-16-RR-TH	SRFP-16-RR-TH	SRFC-16-RR-TH
18"	SRFT-18-RR-TH	SRFK-18-RR-TH	SRFP-18-RR-TH	SRFC-18-RR-TH
20"	SRFT-20-RR-TH	SRFK-20-RR-TH	SRFP-20-RR-TH	SRFC-20-RR-TH
24"	SRFT-24-RR-TH	SRFK-24-RR-TH	SRFP-24-RR-TH	SRFC-24-RR-TH

For larger sizes, contact factory

Minimum Thickness for NPT Threads

NPT Thread	Minimum Thickness
1/8"	1/2"
1/4"	5/8"
3/8"	3/4"
1/2"	7/8"
3/4"	1"
1"	1-1/8"
1-1/2"	1-1/8"
2"	1-1/4"
2-1/2"	1-3/4"
3"	1-3/4"
4"	1-7/8"
6"	2-1/8"
8"	2-1/2"
10"	2-1/2"
12"	2-1/2"



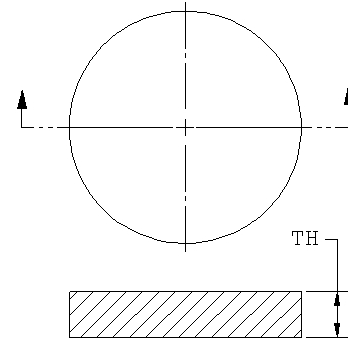
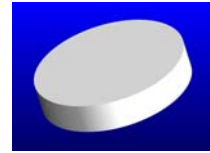
SBR Series Blind Ring Spacers

Standard Class 150 (150 lb.) Blind Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating. For example, a 3/4" Class 150 PTFE Blind Ring Spacer x 1" thick would be **SBRT-0.75-1**

Options

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Blind Ring Spacer x 1-1/2" thick would be **SBRT-2-1.5-300**



For dimensions, see the
SIZE TABLE
on page 20.

Part Number Key

Series	Material	Nominal Size	Thickness	Option
SBR	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	Class 300

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	SBRT-0.5-TH	SBRK-0.5-TH	SBRP-0.5-TH	SBRC-0.5-TH
3/4"	SBRT-0.75-TH	SBRK-0.75-TH	SBRP-0.75-TH	SBRC-0.75-TH
1"	SBRT-1-TH	SBRK-1-TH	SBRP-1-TH	SBRC-1-TH
1-1/2"	SBRT-1.5-TH	SBRK-1.5-TH	SBRP-1.5-TH	SBRC-1.5-TH
2"	SBRT-2-TH	SBRK-2-TH	SBRP-2-TH	SBRC-2-TH
2-1/2"	SBRT-2.5-TH	SBRK-2.5-TH	SBRP-2.5-TH	SBRC-2.5-TH
3"	SBRT-3-TH	SBRK-3-TH	SBRP-3-TH	SBRC-3-TH
4"	SBRT-4-TH	SBRK-4-TH	SBRP-4-TH	SBRC-4-TH
6"	SBRT-6-TH	SBRK-6-TH	SBRP-6-TH	SBRC-6-TH
8"	SBRT-8-TH	SBRK-8-TH	SBRP-8-TH	SBRC-8-TH
10"	SBRT-10-TH	SBRK-10-TH	SBRP-10-TH	SBRC-10-TH
12"	SBRT-12-TH	SBRK-12-TH	SBRP-12-TH	SBRC-12-TH
14"	SBRT-14-TH	SBRK-14-TH	SBRP-14-TH	SBRC-14-TH
16"	SBRT-16-TH	SBRK-16-TH	SBRP-16-TH	SBRC-16-TH
18"	SBRT-18-TH	SBRK-18-TH	SBRP-18-TH	SBRC-18-TH
20"	SBRT-20-TH	SBRK-20-TH	SBRP-20-TH	SBRC-20-TH
24"	SBRT-24-TH	SBRK-24-TH	SBRP-24-TH	SBRC-24-TH

For larger sizes, contact factory



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SBF Series Blind Full-Face Flanges

Standard Class 150 (150 lb.) Blind Full-Face Flanges

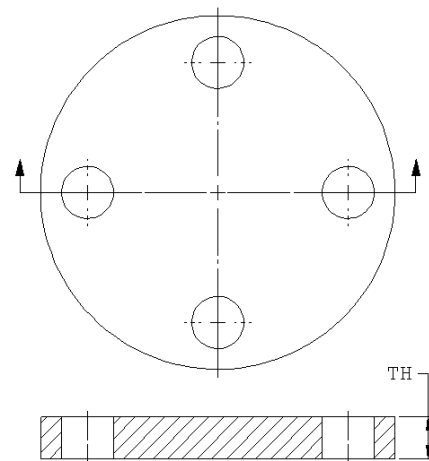
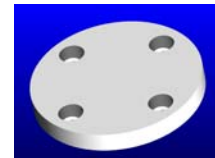
BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating.

For example, a 3/4" Class 150 PTFE Blind Full-Face Flange x 1" thick would be **SBFT-0.75-1**

Options

CLASS 300 (300 lb.) FLANGES: For Class 300 flanges, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Blind Full-Face Flange x 1-1/2" thick would be **SBFT-2-1.5-300**

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
SBF	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300



For dimensions, see the
SIZE TABLE
on page 20.

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	SBFT-0.5-TH	SBFK-0.5-TH	SBFP-0.5-TH	SBFC-0.5-TH
3/4"	SBFT-0.75-TH	SBFK-0.75-TH	SBFP-0.75-TH	SBFC-0.75-TH
1"	SBFT-1-TH	SBFK-1-TH	SBFP-1-TH	SBFC-1-TH
1-1/2"	SBFT-1.5-TH	SBFK-1.5-TH	SBFP-1.5-TH	SBFC-1.5-TH
2"	SBFT-2-TH	SBFK-2-TH	SBFP-2-TH	SBFC-2-TH
2-1/2"	SBFT-2.5-TH	SBFK-2.5-TH	SBFP-2.5-TH	SBFC-2.5-TH
3"	SBFT-3-TH	SBFK-3-TH	SBFP-3-TH	SBFC-3-TH
4"	SBFT-4-TH	SBFK-4-TH	SBFP-4-TH	SBFC-4-TH
6"	SBFT-6-TH	SBFK-6-TH	SBFP-6-TH	SBFC-6-TH
8"	SBFT-8-TH	SBFK-8-TH	SBFP-8-TH	SBFC-8-TH
10"	SBFT-10-TH	SBFK-10-TH	SBFP-10-TH	SBFC-10-TH
12"	SBFT-12-TH	SBFK-12-TH	SBFP-12-TH	SBFC-12-TH
14"	SBFT-14-TH	SBFK-14-TH	SBFP-14-TH	SBFC-14-TH
16"	SBFT-16-TH	SBFK-16-TH	SBFP-16-TH	SBFC-16-TH
18"	SBFT-18-TH	SBFK-18-TH	SBFP-18-TH	SBFC-18-TH
20"	SBFT-20-TH	SBFK-20-TH	SBFP-20-TH	SBFC-20-TH
24"	SBFT-24-TH	SBFK-24-TH	SBFP-24-TH	SBFC-24-TH

For larger sizes, contact factory



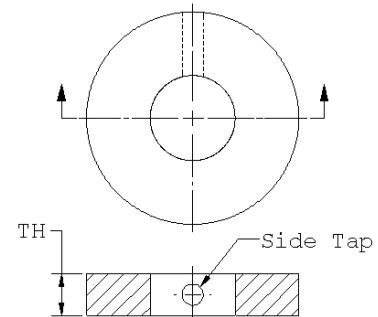
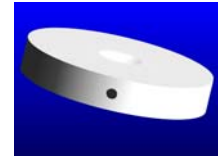
SOR Series Orifice Ring Spacers

Standard Class 150 (150 lb.) Orifice Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, the thickness **TH**, and the side tap size **ST**. Use a decimal number to indicate the nominal size. For thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Then replace **ST** in the part number with the side tap size in decimals. See **NPT Side Tap Thickness Requirements Table** below for the maximum NPT tap possible for various thicknesses. Note that the **Class** (or **lb.**) designation does not imply a pressure rating. For example, a 3/4" Class 150 PTFE Orifice Ring Spacer x 1" thick with a 1/4" side tap would be **SORT-0.75-1-0.25**. See table below for minimum thickness required for size tap thread size.

Options

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Orifice Ring Spacer x 1-1/2" thick with a 1/2" side tap would be **SORT-2-1.5-0.5-300**



For dimensions, see the **SIZE TABLE** on page 20.

Part Number Key

Series	Material	Nominal Size	Thickness	Option
SOR	T = PTFE, K = PVDF P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	Class 300

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	NA	NA	NA	NA
3/4"	SORT-0.75-TH-ST	SORK-0.75-TH-ST	SORP-0.75-TH-ST	SORC-0.75-TH-ST
1"	SORT-1-TH-ST	SORK-1-TH-ST	SORP-1-TH-ST	SORC-1-TH-ST
1-1/2"	SORT-1.5-TH-ST	SORK-1.5-TH-ST	SORP-1.5-TH-ST	SORC-1.5-TH-ST
2"	SORT-2-TH-ST	SORK-2-TH-ST	SORP-2-TH-ST	SORC-2-TH-ST
2-1/2"	SORT-2.5-TH-ST	SORK-2.5-TH-ST	SORP-2.5-TH-ST	SORC-2.5-TH-ST
3"	SORT-3-TH-ST	SORK-3-TH-ST	SORP-3-TH-ST	SORC-3-TH-ST
4"	SORT-4-TH-ST	SORK-4-TH-ST	SORP-4-TH-ST	SORC-4-TH-ST
6"	SORT-6-TH-ST	SORK-6-TH-ST	SORP-6-TH-ST	SORC-6-TH-ST
8"	SORT-8-TH-ST	SORK-8-TH-ST	SORP-8-TH-ST	SORC-8-TH-ST
10"	SORT-10-TH-ST	SORK-10-TH-ST	SORP-10-TH-ST	SORC-10-TH-ST
12"	SORT-12-TH-ST	SORK-12-TH-ST	SORP-12-TH-ST	SORC-12-TH-ST
14"	SORT-14-TH-ST	SORK-14-TH-ST	SORP-14-TH-ST	SORC-14-TH-ST
16"	SORT-16-TH-ST	SORK-16-TH-ST	SORP-16-TH-ST	SORC-16-TH-ST
18"	SORT-18-TH-ST	SORK-18-TH-ST	SORP-18-TH-ST	SORC-18-TH-ST
20"	SORT-20-TH-ST	SORK-20-TH-ST	SORP-20-TH-ST	SORC-20-TH-ST
24"	SORT-24-TH-ST	SORK-24-TH-ST	SORP-24-TH-ST	SORC-24-TH-ST

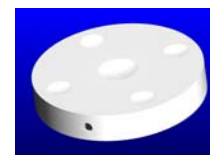
For larger sizes, contact factory

Minimum Thickness For NPT Side Tap

Side Tap	Minimum Thickness
1/8"	1"
1/4"	1"
3/8"	1-1/2"
1/2"	1-1/2"
3/4"	1-1/2"
1"	2"
1-1/4"	2-1/2"
1-1/2"	2-1/2"
2"	3"



SOF Series Orifice Full-Face Flanges



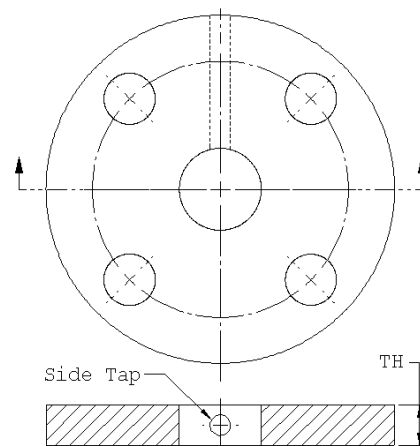
Standard Class 150 (150 lb.) Full-Face Flanges

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, the thickness **TH**, and the side tap size **ST**. Use a decimal number to indicate the nominal size. For thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Then replace **ST** in the part number with the side tap size in decimals. Note that the **Class (or lb.)** designation does not imply a pressure rating. For example, a 3/4" Class 150 PTFE Orifice Full-Face Flange x 1" thick with a 1/4" side tap would be **SOFT-0.75-1-0.25**. See table below for minimum thickness required for size tap thread size.

Options

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Orifice Full-Face Flange x 1-1/2" thick with a 1/2" side tap would be **SOFT-2-1.5-0.5-300**

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
SOF	T = PTFE, K = PVDF P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300



For dimensions, see the
SIZE TABLE
on page 20.

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	NA	NA	NA	NA
3/4"	SOFT-0.75-TH-ST	SOFK-0.75-TH-ST	SOFP-0.75-TH-ST	SOFC-0.75-TH-ST
1"	SOFT-1-TH-ST	SOFK-1-TH-ST	SOFP-1-TH-ST	SOFC-1-TH-ST
1-1/2"	SOFT-1.5-TH-ST	SOFK-1.5-TH-ST	SOFP-1.5-TH-ST	SOFC-1.5-TH-ST
2"	SOFT-2-TH-ST	SOFK-2-TH-ST	SOFP-2-TH-ST	SOFC-2-TH-ST
2-1/2"	SOFT-2.5-TH-ST	SOFK-2.5-TH-ST	SOFP-2.5-TH-ST	SOFC-2.5-TH-ST
3"	SOFT-3-TH-ST	SOFK-3-TH-ST	SOFP-3-TH-ST	SOFC-3-TH-ST
4"	SOFT-4-TH-ST	SOFK-4-TH-ST	SOFP-4-TH-ST	SOFC-4-TH-ST
6"	SOFT-6-TH-ST	SOFK-6-TH-ST	SOFP-6-TH-ST	SOFC-6-TH-ST
8"	SOFT-8-TH-ST	SOFK-8-TH-ST	SOFP-8-TH-ST	SOFC-8-TH-ST
10"	SOFT-10-TH-ST	SOFK-10-TH-ST	SOFP-10-TH-ST	SOFC-10-TH-ST
12"	SOFT-12-TH-ST	SOFK-12-TH-ST	SOFP-12-TH-ST	SOFC-12-TH-ST
14"	SOFT-14-TH-ST	SOFK-14-TH-ST	SOFP-14-TH-ST	SOFC-14-TH-ST
16"	SOFT-16-TH-ST	SOFK-16-TH-ST	SOFP-16-TH-ST	SOFC-16-TH-ST
18"	SOFT-18-TH-ST	SOFK-18-TH-ST	SOFP-18-TH-ST	SOFC-18-TH-ST
20"	SOFT-20-TH-ST	SOFK-20-TH-ST	SOFP-20-TH-ST	SOFC-20-TH-ST
24"	SOFT-24-TH-ST	SOFK-24-TH-ST	SOFP-24-TH-ST	SOFC-24-TH-ST

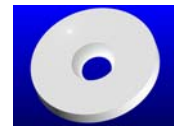
For larger sizes, contact factory

Minimum Thickness For NPT Side Tap

Side Tap	Minimum Thickness
1/8"	1"
1/4"	1"
3/8"	1-1/2"
1/2"	1-1/2"
3/4"	1-1/2"
1"	2"
1-1/4"	2-1/2"
1-1/2"	2-1/2"
2"	3"



SCR Series Conical-Bore Ring Spacers

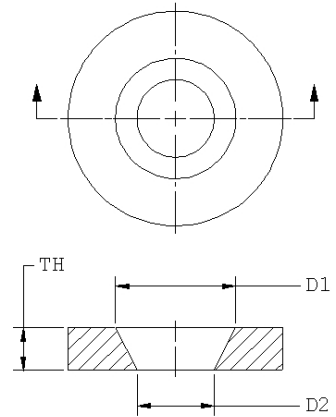


Standard Class 150 (150 lb.) Conical-Bore Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, the thickness **TH**, the major diameter **D1**, and the minor diameter **D2**. Use a decimal number to indicate the nominal size. For thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Then replace **D1** and **D2** in the part number with the major and minor diameters in decimals. Note that the **Class** (or **lb.**) designation does not imply a pressure rating. For example, a 3/4" Class 150 PTFE Conical-Bore Ring Spacer x 1" thick x 1-1/4" major diameter **D1** x 3/4" minor diameter **D2** would be **SCRT-0.75-1-1.25-0.75**

Options

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Conical-Bore Ring Spacer x 1-1/2" thick x 2-1/2" major diameter **D1** x 2" minor diameter **D2** would be **SCRT-2-1.5-2.5-2-300**



For dimensions, see the
SIZE TABLE
on page 20.

Part Number Key

Series	Material	Nominal Size	Thickness
SCR	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches

Option

Class
300

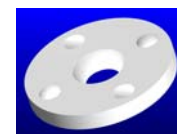
BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	SCRT-0.5-TH-D1-D2	SCRK-0.5-TH-D1-D2	SCR-0.5-TH-D1-D2	SCRC-0.5-TH-D1-D2
3/4"	SCRT-0.75-TH-D1-D2	SCRK-0.75-TH-D1-D2	SCR-0.75-TH-D1-D2	SCRC-0.75-TH-D1-D2
1"	SCRT-1-TH-D1-D2	SCRK-1-TH-D1-D2	SCR-1-TH-D1-D2	SCRC-1-TH-D1-D2
1-1/2"	SCRT-1.5-TH-D1-D2	SCRK-1.5-TH-D1-D2	SCR-1.5-TH-D1-D2	SCRC-1.5-TH-D1-D2
2"	SCRT-2-TH-D1-D2	SCRK-2-TH-D1-D2	SCR-2-TH-D1-D2	SCRC-2-TH-D1-D2
2-1/2"	SCRT-2.5-TH-D1-D2	SCRK-2.5-TH-D1-D2	SCR-2.5-TH-D1-D2	SCRC-2.5-TH-D1-D2
3"	SCRT-3-TH-D1-D2	SCRK-3-TH-D1-D2	SCR-3-TH-D1-D2	SCRC-3-TH-D1-D2
4"	SCRT-4-TH-D1-D2	SCRK-4-TH-D1-D2	SCR-4-TH-D1-D2	SCRC-4-TH-D1-D2
6"	SCRT-6-TH-D1-D2	SCRK-6-TH-D1-D2	SCR-6-TH-D1-D2	SCRC-6-TH-D1-D2
8"	SCRT-8-TH-D1-D2	SCRK-8-TH-D1-D2	SCR-8-TH-D1-D2	SCRC-8-TH-D1-D2
10"	SCRT-10-TH-D1-D2	SCRK-10-TH-D1-D2	SCR-10-TH-D1-D2	SCRC-10-TH-D1-D2
12"	SCRT-12-TH-D1-D2	SCRK-12-TH-D1-D2	SCR-12-TH-D1-D2	SCRC-12-TH-D1-D2
14"	SCRT-14-TH-D1-D2	SCRK-14-TH-D1-D2	SCR-14-TH-D1-D2	SCRC-14-TH-D1-D2
16"	SCRT-16-TH-D1-D2	SCRK-16-TH-D1-D2	SCR-16-TH-D1-D2	SCRC-16-TH-D1-D2
18"	SCRT-18-TH-D1-D2	SCRK-18-TH-D1-D2	SCR-18-TH-D1-D2	SCRC-18-TH-D1-D2
20"	SCRT-20-TH-D1-D2	SCRK-20-TH-D1-D2	SCR-20-TH-D1-D2	SCRC-20-TH-D1-D2
24"	SCRT-24-TH-D1-D2	SCRK-24-TH-D1-D2	SCR-24-TH-D1-D2	SCRC-24-TH-D1-D2

For larger sizes, contact factory



SCF Series Conical-Bore Full-Face Flanges



Standard Class 150 (150 lb.) Conical-Bore Full-Face Flanges

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, the thickness **TH**, the major diameter **D1**, and the minor diameter **D2**. Use a decimal number to indicate the nominal size. For thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Then replace **D1** and **D2** in the part number with the major and minor diameters in decimals. Note that the **Class** (or **lb.**) designation does not imply a pressure rating.

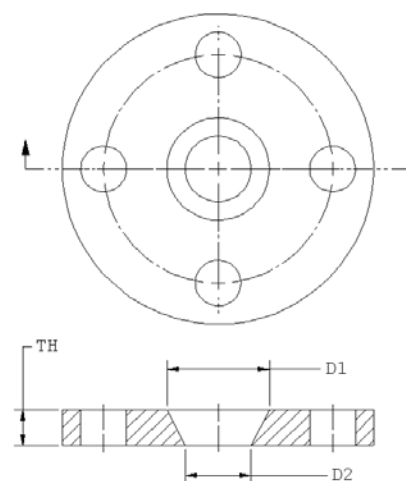
For example, a 3/4" Class 150 PTFE Conical-Bore Full-Face Flange x 1" thick x 1-1/4" major diameter **D1** x 3/4" minor diameter **D2** would be **SCFT-0.75-1-1.25-0.75**

Options

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Conical-Bore Full-Face Flanges x 1-1/2" thick x 2-1/2" major diameter **D1** x 2" minor diameter **D2** would be

SCFT-2-1.5-2.5-2-300

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
SCF	T = PTFE, K = Kynar, P = Polypropylene, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300



For dimensions, see the
SIZE TABLE
on page 20.

BASE PART NUMBERS

Nominal Size	PTFE	PVDF (Kynar®)	Polypropylene	CPVC
1/2"	SCFT-0.5-TH-D1-D2	SCFK-0.5-TH-D1-D2	SCFP-0.5-TH-D1-D2	SCFC-0.5-TH-D1-D2
3/4"	SCFT-0.75-TH-D1-D2	SCFK-0.75-TH-D1-D2	SCFP-0.75-TH-D1-D2	SCFC-0.75-TH-D1-D2
1"	SCFT-1-TH-D1-D2	SCFK-1-TH-D1-D2	SCFP-1-TH-D1-D2	SCFC-1-TH-D1-D2
1-1/2"	SCFT-1.5-TH-D1-D2	SCFK-1.5-TH-D1-D2	SCFP-1.5-TH-D1-D2	SCFC-1.5-TH-D1-D2
2"	SCFT-2-TH-D1-D2	SCFK-2-TH-D1-D2	SCFP-2-TH-D1-D2	SCFC-2-TH-D1-D2
2-1/2"	SCFT-2.5-TH-D1-D2	SCFK-2.5-TH-D1-D2	SCFP-2.5-TH-D1-D2	SCFC-2.5-TH-D1-D2
3"	SCFT-3-TH-D1-D2	SCFK-3-TH-D1-D2	SCFP-3-TH-D1-D2	SCFC-3-TH-D1-D2
4"	SCFT-4-TH-D1-D2	SCFK-4-TH-D1-D2	SCFP-4-TH-D1-D2	SCFC-4-TH-D1-D2
6"	SCFT-6-TH-D1-D2	SCFK-6-TH-D1-D2	SCFP-6-TH-D1-D2	SCFC-6-TH-D1-D2
8"	SCFT-8-TH-D1-D2	SCFK-8-TH-D1-D2	SCFP-8-TH-D1-D2	SCFC-8-TH-D1-D2
10"	SCFT-10-TH-D1-D2	SCFK-10-TH-D1-D2	SCFP-10-TH-D1-D2	SCFC-10-TH-D1-D2
12"	SCFT-12-TH-D1-D2	SCFK-12-TH-D1-D2	SCFP-12-TH-D1-D2	SCFC-12-TH-D1-D2
14"	SCFT-14-TH-D1-D2	SCFK-14-TH-D1-D2	SCFP-14-TH-D1-D2	SCFC-14-TH-D1-D2
16"	SCFT-16-TH-D1-D2	SCFK-16-TH-D1-D2	SCFP-16-TH-D1-D2	SCFC-16-TH-D1-D2
18"	SCFT-18-TH-D1-D2	SCFK-18-TH-D1-D2	SCFP-18-TH-D1-D2	SCFC-18-TH-D1-D2
20"	SCFT-20-TH-D1-D2	SCFK-20-TH-D1-D2	SCFP-20-TH-D1-D2	SCFC-20-TH-D1-D2
24"	SCFT-24-TH-D1-D2	SCFK-24-TH-D1-D2	SCFP-24-TH-D1-D2	SCFC-24-TH-D1-D2

For larger sizes, contact factory



STR Series Tapered Ring Spacers

Standard Class 150 (150 lb.) Tapered Ring Spacers

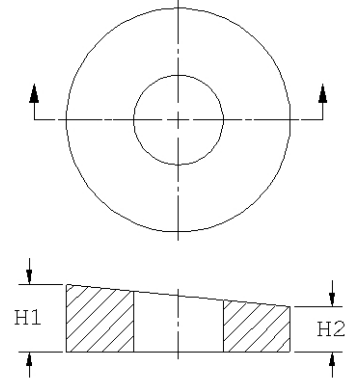
BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, the maximum thickness **H1**, and the minimum thickness **H2**. Use a decimal number to indicate the nominal size. Then replace **H1** and **H2** in the part number with the maximum and minimum thicknesses in decimals. For maximum thicknesses over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating.

For example, a 3/4" Class 150 PTFE Tapered Ring Spacer x 1" thick (**H1**) x 3/4" thick (**H2**) would be **STRT-0.75-1-0.75**

Options

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Tapered Ring Spacer x 1-1/2" thick (**H1**) x 1" thick (**H2**) would be **STRT-2-1.5-1-300**

DOUBLE TAPER: For Double Tapered Spacers, contact the factory.



For dimensions, see the
SIZE TABLE
on page 20.

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
STR	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	STRT-0.5-H1-H2	STRK-0.5-H1-H2	STRP-0.5-H1-H2	STRC-0.5-H1-H2
3/4"	STRT-0.75-H1-H2	STRK-0.75-H1-H2	STRP-0.75-H1-H2	STRC-0.75-H1-H2
1"	STRT-1-H1-H2	STRK-1-H1-H2	STRP-1-H1-H2	STRC-1-H1-H2
1-1/2"	STRT-1.5-H1-H2	STRK-1.5-H1-H2	STRP-1.5-H1-H2	STRC-1.5-H1-H2
2"	STRT-2-H1-H2	STRK-2-H1-H2	STRP-2-H1-H2	STRC-2-H1-H2
2-1/2"	STRT-2.5-H1-H2	STRK-2.5-H1-H2	STRP-2.5-H1-H2	STRC-2.5-H1-H2
3"	STRT-3-H1-H2	STRK-3-H1-H2	STRP-3-H1-H2	STRC-3-H1-H2
4"	STRT-4-H1-H2	STRK-4-H1-H2	STRP-4-H1-H2	STRC-4-H1-H2
6"	STRT-6-H1-H2	STRK-6-H1-H2	STRP-6-H1-H2	STRC-6-H1-H2
8"	STRT-8-H1-H2	STRK-8-H1-H2	STRP-8-H1-H2	STRC-8-H1-H2
10"	STRT-10-H1-H2	STRK-10-H1-H2	STRP-10-H1-H2	STRC-10-H1-H2
12"	STRT-12-H1-H2	STRK-12-H1-H2	STRP-12-H1-H2	STRC-12-H1-H2
14"	STRT-14-H1-H2	STRK-14-H1-H2	STRP-14-H1-H2	STRC-14-H1-H2
16"	STRT-16-H1-H2	STRK-16-H1-H2	STRP-16-H1-H2	STRC-16-H1-H2
18"	STRT-18-H1-H2	STRK-18-H1-H2	STRP-18-H1-H2	STRC-18-H1-H2
20"	STRT-20-H1-H2	STRK-20-H1-H2	STRP-20-H1-H2	STRC-20-H1-H2
24"	STRT-24-H1-H2	STRK-24-H1-H2	STRP-24-H1-H2	STRC-24-H1-H2

For larger sizes, contact factory

Note: If you prefer to supply one thickness and the angle of taper, we will calculate the other thickness.



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STF Series Tapered Full-Face Flanges

Standard Class 150 (150 lb.) Tapered Full-Face Flanges

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, the maximum thickness **H1**, and the minimum thickness **H2**. Use a decimal number to indicate the nominal size. Then replace **H1** and **H2** in the part number with the maximum and minimum thicknesses in decimals. For maximum thicknesses over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating.

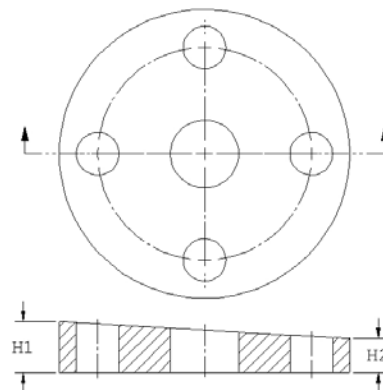
For example, a 3/4" Class 150 PTFE Tapered Full-Face Flange x 1" thick (**H1**) x 3/4" thick (**H2**) would be **STFT-0.75-1-0.75**

Options

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Tapered Full-Face Flange x 1-1/2" thick (**H1**) x 1" thick (**H2**) would be **STFT-2-1.5-1-300**

DOUBLE TAPER: For Double Tapered Flanges, contact the factory.

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
STF	T = PTFE, K = PVDF P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300



For dimensions, see the
SIZE TABLE
on page 20.

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	STFT-0.5-H1-H2	STFK-0.5-H1-H2	STFP-0.5-H1-H2	STFC-0.5-H1-H2
3/4"	STFT-0.75-H1-H2	STFK-0.75-H1-H2	STFP-0.75-H1-H2	STFC-0.75-H1-H2
1"	STFT-1-H1-H2	STFK-1-H1-H2	STFP-1-H1-H2	STFC-1-H1-H2
1-1/2"	STFT-1.5-H1-H2	STFK-1.5-H1-H2	STFP-1.5-H1-H2	STFC-1.5-H1-H2
2"	STFT-2-H1-H2	STFK-2-H1-H2	STFP-2-H1-H2	STFC-2-H1-H2
2-1/2"	STFT-2.5-H1-H2	STFK-2.5-H1-H2	STFP-2.5-H1-H2	STFC-2.5-H1-H2
3"	STFT-3-H1-H2	STFK-3-H1-H2	STFP-3-H1-H2	STFC-3-H1-H2
4"	STFT-4-H1-H2	STFK-4-H1-H2	STFP-4-H1-H2	STFC-4-H1-H2
6"	STFT-6-H1-H2	STFK-6-H1-H2	STFP-6-H1-H2	STFC-6-H1-H2
8"	STFT-8-H1-H2	STFK-8-H1-H2	STFP-8-H1-H2	STFC-8-H1-H2
10"	STFT-10-H1-H2	STFK-10-H1-H2	STFP-10-H1-H2	STFC-10-H1-H2
12"	STFT-12-H1-H2	STFK-12-H1-H2	STFP-12-H1-H2	STFC-12-H1-H2
14"	STFT-14-H1-H2	STFK-14-H1-H2	STFP-14-H1-H2	STFC-14-H1-H2
16"	STFT-16-H1-H2	STFK-16-H1-H2	STFP-16-H1-H2	STFC-16-H1-H2
18"	STFT-18-H1-H2	STFK-18-H1-H2	STFP-18-H1-H2	STFC-18-H1-H2
20"	STFT-20-H1-H2	STFK-20-H1-H2	STFP-20-H1-H2	STFC-20-H1-H2
24"	STFT-24-H1-H2	STFK-24-H1-H2	STFP-24-H1-H2	STFC-24-H1-H2

For larger sizes, contact factory

Note: If you prefer to supply one thickness and the angle of taper, we will calculate the other thickness.



SAR Series Armored Ring Spacers

Standard Class 150 (150 lb.) Armored Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating.

For example, a 3/4" Class 150 PTFE Armored Ring Spacer x 1" thick would be **SART-0.75-1**

Options

LOCATING TABS: For optional locating tabs, add to the Base Part Number the suffix **TAB**.

For example, a 3/4" Class 150 PTFE Armored Ring Spacer x 1" thick would be **SART-0.75-1-TAB**

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Armored Ring Spacer x 1-1/2" thick with **TAB** option would be **SART-2-1.5-TAB-300**

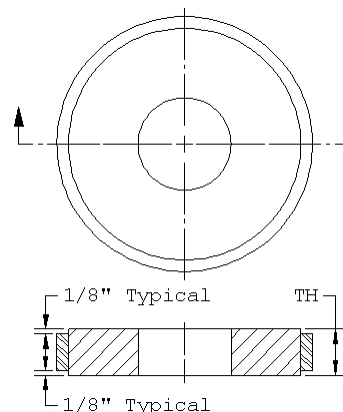
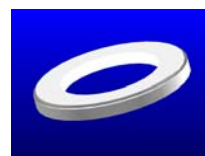
Steel jacket coated with dark blue, rust resistant enamel. Other colors on request.

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
SAR	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300

BASE PART NUMBERS

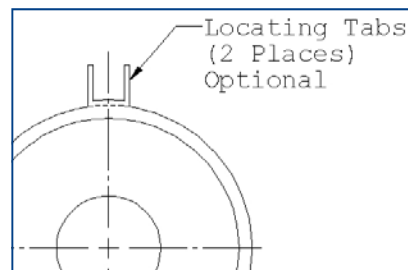
Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	SART-0.5-TH	SARK-0.5-TH	SARP-0.5-TH	SARC-0.5-TH
3/4"	SART-0.75-TH	SARK-0.75-TH	SARP-0.75-TH	SARC-0.75-TH
1"	SART-1-TH	SARK-1-TH	SARP-1-TH	SARC-1-TH
1-1/2"	SART-1.5-TH	SARK-1.5-TH	SARP-1.5-TH	SARC-1.5-TH
2"	SART-2-TH	SARK-2-TH	SARP-2-TH	SARC-2-TH
2-1/2"	SART-2.5-TH	SARK-2.5-TH	SARP-2.5-TH	SARC-2.5-TH
3"	SART-3-TH	SARK-3-TH	SARP-3-TH	SARC-3-TH
4"	SART-4-TH	SARK-4-TH	SARP-4-TH	SARC-4-TH
6"	SART-14-TH	SARK-14-TH	SARP-14-TH	SARC-14-TH
8"	SART-16-TH	SARK-16-TH	SARP-16-TH	SARC-16-TH
10"	SART-18-TH	SARK-18-TH	SARP-18-TH	SARC-18-TH
12"	SART-20-TH	SARK-20-TH	SARP-20-TH	SARC-20-TH
14"	SART-14-TH	SARK-14-TH	SARP-14-TH	SARC-14-TH
16"	SART-16-TH	SARK-16-TH	SARP-16-TH	SARC-16-TH
18"	SART-18-TH	SARK-18-TH	SARP-18-TH	SARC-18-TH
20"	SART-20-TH	SARK-20-TH	SARP-20-TH	SARC-20-TH
24"	SART-24-TH	SARK-24-TH	SARP-24-TH	SARC-24-TH

For larger sizes, contact factory



For dimensions, see the
SIZE TABLE
on page 20.

Steel armor wall thickness is equal
to or greater than the wall thickness
of Schedule 80 Pipe.



For reducing, orifice, tapered or
conical bore configuration,
contact factory.



SAF Series Armored Full-Face Flanges

Standard Class 150 (150 lb.) Armored Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating.

For example, a 3/4" Class 150 PTFE Armored Full-Face Flange x 1" thick would be **SAFT-0.75-1**

Options

LOCATING TABS: For optional locating tabs, add to the Base Part Number the suffix **TAB**.

For example, a 3/4" Class 150 PTFE Armored Full-Face Flange x 1" thick would be **SAFT-0.75-1-TAB**

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Armored Full-Face Flange x 1-1/2" thick with **TAB** option would be **SAFT-2-1.5-TAB-300**

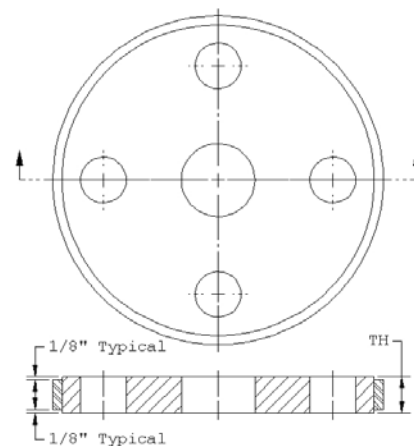
Steel jacket coated with dark blue, rust resistant enamel. Other colors on request.

Part Number Key				Option	
Series	Material	Nominal Size	Thickness	Class	
SAF	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300	

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	SAFT-0.5-TH	SAFK-0.5-TH	SAFP-0.5-TH	SAFC-0.5-TH
3/4"	SAFT-0.75-TH	SAFK-0.75-TH	SAFP-0.75-TH	SAFC-0.75-TH
1"	SAFT-1-TH	SAFK-1-TH	SAFP-1-TH	SAFC-1-TH
1-1/2"	SAFT-1.5-TH	SAFK-1.5-TH	SAFP-1.5-TH	SAFC-1.5-TH
2"	SAFT-2-TH	SAFK-2-TH	SAFP-2-TH	SAFC-2-TH
2-1/2"	SAFT-2.5-TH	SAFK-2.5-TH	SAFP-2.5-TH	SAFC-2.5-TH
3"	SAFT-3-TH	SAFK-3-TH	SAFP-3-TH	SAFC-3-TH
4"	SAFT-4-TH	SAFK-4-TH	SAFP-4-TH	SAFC-4-TH
6"	SAFT-6-TH	SAFK-6-TH	SAFP-6-TH	SAFC-6-TH
8"	SAFT-8-TH	SAFK-8-TH	SAFP-8-TH	SAFC-8-TH
10"	SAFT-10-TH	SAFK-10-TH	SAFP-10-TH	SAFC-10-TH
12"	SAFT-12-TH	SAFK-12-TH	SAFP-12-TH	SAFC-12-TH
14"	SAFT-14-TH	SAFK-14-TH	SAFP-14-TH	SAFC-14-TH
16"	SAFT-16-TH	SAFK-16-TH	SAFP-16-TH	SAFC-16-TH
18"	SAFT-18-TH	SAFK-18-TH	SAFP-18-TH	SAFC-18-TH
20"	SAFT-20-TH	SAFK-20-TH	SAFP-20-TH	SAFC-20-TH
24"	SAFT-24-TH	SAFK-24-TH	SAFP-24-TH	SAFC-24-TH

For larger sizes, contact factory



For dimensions, see the
SIZE TABLE
on page 20.

Steel armor wall thickness is equal to or greater than the wall thickness of Schedule 80 Pipe.

For reducing, orifice, tapered or conical bore configuration, contact factory.



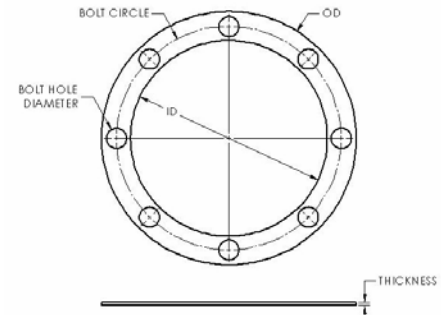
FF Series Filler Flanges/Compensation Rings

Standard Class 150 (150 lb.) PTFE Filler Flanges/Compensation Rings

Filler Flanges are used to connect flanges with raised faces or sealing surfaces-especially those of plastic lined steel pipe-to flat faced plastic flanges. Without filler flanges, when the bolts are tightened on such a joint, the plastic flange will, most likely, break. The filler flange fills the gap that lies between the OD of the raised surface and the OD of the flange, flattening the face in contact with the plastic flange.

BASE PART NUMBER: The BASE PART NUMBER defines the Series (two characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size and thickness. For example, a 3/4" PTFE Filler Flange x 1/8" thick would be **FFT-0.75-0.125**.

Note: Other materials available, contact Factory.



Part Number Key

Series	Material	Nominal Size	Thickness
FF	T = PTFE	0.5 - 24 Decimal Inches	Decimal Inches

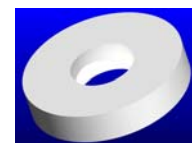
BASE PART NUMBERS

Nominal Size	PTFE Part No.	OD	ID	Bolt Circle	Bolt Hole Diameter	No. of Holes
1/2"	FFT-0.5-TH	3-1/2"	1-5/8"	2-3/8"	5/8"	4
3/4"	FFT-0.75-TH	3-7/8"	2"	2-3/4"	5/8"	4
1"	FFT-1-TH	4-1/4"	2-3/8"	3-1/8"	5/8"	4
1-1/4"	FFT-1.25-TH	4-5/8"	2-3/4"	3-1/2"	5/8"	4
1-1/2"	FFT-1.5-TH	5"	3-1/8"	3-7/8"	5/8"	4
2"	FFT-2-TH	6"	3-7/8"	4-3/4"	3/4"	4
2-1/2"	FFT-2.5-TH	7"	4-5/8"	5-1/2"	3/4"	4
3"	FFT-3-TH	7-1/2"	5-1/8"	6"	3/4"	4
4"	FFT-4-TH	9"	6-5/8"	7-1/2"	3/4"	8
5"	FFT-5-TH	10"	7-1/2"	8-1/2"	7/8"	8
6"	FFT-6-TH	11"	8-1/2"	9-1/2"	7/8"	8
8"	FFT-8-TH	13-1/2"	10-3/4"	11-3/4"	7/8"	8
10"	FFT-10-TH	16"	13-1/8"	14-1/4"	1"	12
12"	FFT-12-TH	19"	15-7/8"	17"	1"	12
14"	FFT-14-TH	21"	17-1/2"	18-3/4"	1-1/8"	12
16"	FFT-16-TH	23-1/2"	20"	21-1/4"	1-1/8"	16
18"	FFT-18-TH	25"	22-3/8"	23-3/4"	1-1/4"	16
20"	FFT-20-TH	27-1/2"	23-5/8"	25"	1-1/4"	20
24"	FFT-24-TH	32"	28"	29-1/2"	1-3/8"	20

For larger sizes, contact factory



SMR Series ISO Metric Ring Spacers



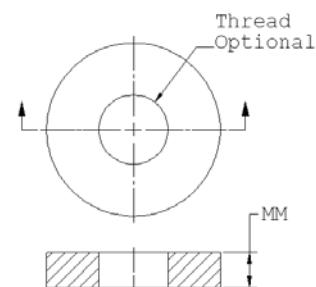
Standard PN Designated Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the **PN** designation, the DN size, and the thickness **MM**. Replace the **PN** in the part number with the desired PN designation. For thicknesses up to 150 millimeters, replace the **MM** with the thickness in millimeters. For thicknesses over 150 mm, contact factory. Note that the PN / DN designation defines the spacer's dimensions only and does not imply a pressure rating. For example, a PN 10, DN 32 PTFE Ring Spacer x 50 mm thick would be **SMRT-10-32-50**

Notes

1. The OD of the spacers is tangent to the ID of the bolt holes of a similar size full-face flange.
2. Unless otherwise specified by the customer, the spacer's ID conforms to the ID of the comparable ISO type 01 or type 12 (slip-on) flange.
3. For other options and types of spacers, contact the factory.

Part Number Key				
Series	Material	PN Designation	DN Size	Thickness
SMR	T = PTFE, K = PVDF, P = PPL, C = CPVC	6 - 420	10 - 600	MM



For spacer dimensions, contact the factory.

BASE PART NUMBERS

Nominal DN (mm)	PTFE	PVDF	PPL	CPVC
10	SMRT-PN-10-MM	SMRK-PN-10-MM	SMRP-PN-10-MM	SMRC-PN-10-MM
15	SMRT-PN-15-MM	SMRK-PN-15-MM	SMRP-PN-15-MM	SMRC-PN-15-MM
20	SMRT-PN-20-MM	SMRK-PN-20-MM	SMRP-PN-20-MM	SMRC-PN-20-MM
25	SMRT-PN-25-MM	SMRK-PN-25-MM	SMRP-PN-25-MM	SMRC-PN-25-MM
32	SMRT-PN-32-MM	SMRK-PN-32-MM	SMRP-PN-32-MM	SMRC-PN-32-MM
40	SMRT-PN-40-MM	SMRK-PN-40-MM	SMRP-PN-40-MM	SMRC-PN-40-MM
50	SMRT-PN-50-MM	SMRK-PN-50-MM	SMRP-PN-50-MM	SMRC-PN-50-MM
65	SMRT-PN-65-MM	SMRK-PN-65-MM	SMRP-PN-65-MM	SMRC-PN-65-MM
80	SMRT-PN-80-MM	SMRK-PN-80-MM	SMRP-PN-80-MM	SMRC-PN-80-MM
100	SMRT-PN-100-MM	SMRK-PN-100-MM	SMRP-PN-100-MM	SMRC-PN-100-MM
125	SMRT-PN-125-MM	SMRK-PN-125-MM	SMRP-PN-125-MM	SMRC-PN-125-MM
150	SMRT-PN-150-MM	SMRK-PN-150-MM	SMRP-PN-150-MM	SMRC-PN-150-MM
200	SMRT-PN-200-MM	SMRK-PN-200-MM	SMRP-PN-200-MM	SMRC-PN-200-MM
250	SMRT-PN-250-MM	SMRK-PN-250-MM	SMRP-PN-250-MM	SMRC-PN-250-MM
300	SMRT-PN-300-MM	SMRK-PN-300-MM	SMRP-PN-300-MM	SMRC-PN-300-MM
350	SMRT-PN-350-MM	SMRK-PN-350-MM	SMRP-PN-350-MM	SMRC-PN-350-MM
400	SMRT-PN-400-MM	SMRK-PN-400-MM	SMRP-PN-400-MM	SMRC-PN-400-MM
450	SMRT-PN-450-MM	SMRK-PN-450-MM	SMRP-PN-450-MM	SMRC-PN-450-MM
500	SMRT-PN-500-MM	SMRK-PN-500-MM	SMRP-PN-500-MM	SMRC-PN-500-MM
600	SMRT-PN-600-MM	SMRK-PN-600-MM	SMRP-PN-600-MM	SMRC-PN-600-MM

For larger sizes, contact factory



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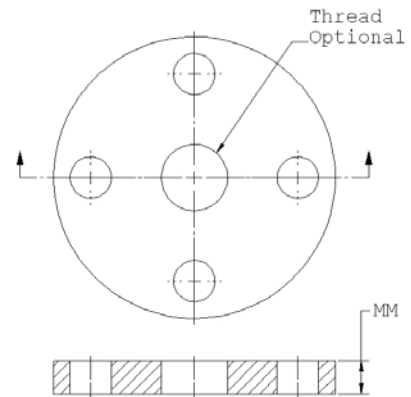
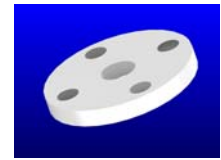
SMF Series ISO Metric Full-Face Flanges

Standard PN Designated Flanges

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the **PN** designation, the DN size, and the thickness **MM**. Replace the **PN** in the part number with the desired PN designation. For thicknesses up to 150 millimeters, replace the **MM** with the thickness in millimeters. For thicknesses over 150 mm, contact factory. Note that the PN / DN designation defines the flange's dimensions only and does not imply a pressure rating. For example, a PN 10, DN 32 PTFE Flange x 50 mm thick would be **SMFT-10-32-50**

Notes

1. Unless otherwise specified by the customer, the flange's ID conforms to the ID of the comparable ISO type 01 or type 12 (slip-on) flange.
2. For other options and types of flanges, contact the factory.



For flange dimensions,
contact the factory.

Part Number Key

Series	Material	PN Designation	DN Size	Thickness
SMF	T = PTFE, K = PVDF, P = PPL C = CPVC	6 - 420	10 - 600	MM

BASE PART NUMBERS

Nominal DN (mm)	PTFE	PVDF	PPL	CPVC
10	SMFT-PN-10-MM	SMFK-PN-10-MM	SMFP-PN-10-MM	SMFC-PN-10-MM
15	SMFT-PN-15-MM	SMFK-PN-15-MM	SMFP-PN-15-MM	SMFC-PN-15-MM
20	SMFT-PN-20-MM	SMFK-PN-20-MM	SMFP-PN-20-MM	SMFC-PN-20-MM
25	SMFT-PN-25-MM	SMFK-PN-25-MM	SMFP-PN-25-MM	SMFC-PN-25-MM
32	SMFT-PN-32-MM	SMFK-PN-32-MM	SMFP-PN-32-MM	SMFC-PN-32-MM
40	SMFT-PN-40-MM	SMFK-PN-40-MM	SMFP-PN-40-MM	SMFC-PN-40-MM
50	SMFT-PN-50-MM	SMFK-PN-50-MM	SMFP-PN-50-MM	SMFC-PN-50-MM
65	SMFT-PN-65-MM	SMFK-PN-65-MM	SMFP-PN-65-MM	SMFC-PN-65-MM
80	SMFT-PN-80-MM	SMFK-PN-80-MM	SMFP-PN-80-MM	SMFC-PN-80-MM
100	SMFT-PN-100-MM	SMFK-PN-100-MM	SMFP-PN-100-MM	SMFC-PN-100-MM
125	SMFT-PN-125-MM	SMFK-PN-125-MM	SMFP-PN-125-MM	SMFC-PN-125-MM
150	SMFT-PN-150-MM	SMFK-PN-150-MM	SMFP-PN-150-MM	SMFC-PN-150-MM
200	SMFT-PN-200-MM	SMFK-PN-200-MM	SMFP-PN-200-MM	SMFC-PN-200-MM
250	SMFT-PN-250-MM	SMFK-PN-250-MM	SMFP-PN-250-MM	SMFC-PN-250-MM
300	SMFT-PN-300-MM	SMFK-PN-300-MM	SMFP-PN-300-MM	SMFC-PN-300-MM
350	SMFT-PN-350-MM	SMFK-PN-350-MM	SMFP-PN-350-MM	SMFC-PN-350-MM
400	SMFT-PN-400-MM	SMFK-PN-400-MM	SMFP-PN-400-MM	SMFC-PN-400-MM
450	SMFT-PN-450-MM	SMFK-PN-450-MM	SMFP-PN-450-MM	SMFC-PN-450-MM
500	SMFT-PN-500-MM	SMFK-PN-500-MM	SMFP-PN-500-MM	SMFC-PN-500-MM
600	SMFT-PN-600-MM	SMFK-PN-600-MM	SMFP-PN-600-MM	SMFC-PN-600-MM

For larger sizes, contact factory



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SLB Series Spectacle Line-Blinds

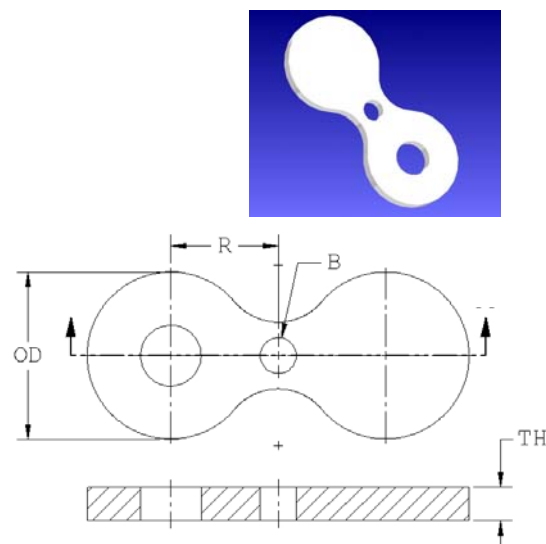
Standard Class 150 (150 lb.) Spectacle Line-Blinds

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating. For example, a standard 3/4" Class 150 PTFE Spectacle Blind would be **SLBT-0.75-TH**

Options

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Spectacle Line Blind x 1-1/2" thick would be **SLBT-2-1.5-300**

Part Number Key				Option
Series	Material	Nominal Size	Thickness	
SLB	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	Class 300



For dimensions, see the table below.

For PTFE Lined Steel Spectacle Line-Blinds, see separate bulletin.

BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC	Diameter (OD)	Diameter (B)	Radius (R)
1/2"	SLBT-0.5-TH	SLBK-0.5-TH	SLBP-0.5-TH	SLBC-0.5-TH	1-3/4"	5/8"	1-13/16"
3/4"	SLBT-0.75-TH	SLBK-0.75-TH	SLBP-0.75-TH	SLBC-0.75-TH	2-1/8"	5/8"	1-3/8"
1"	SLBT-1-TH	SLBK-1-TH	SLBP-1-TH	SLBC-1-TH	2-1/2"	5/8"	1-9/16"
1-1/2"	SLBT-1.5-TH	SLBK-1.5-TH	SLBP-1.5-TH	SLBC-1.5-TH	3-1/4"	5/8"	1-15/16"
2"	SLBT-2-TH	SLBK-2-TH	SLBP-2-TH	SLBC-2-TH	4"	3/4"	2-3/8"
2-1/2"	SLBT-2.5-TH	SLBK-2.5-TH	SLBP-2.5-TH	SLBC-2.5-TH	4-3/4"	3/4"	2-3/4"
3"	SLBT-3-TH	SLBK-3-TH	SLBP-3-TH	SLBC-3-TH	5-1/4"	3/4"	3"
4"	SLBT-4-TH	SLBK-4-TH	SLBP-4-TH	SLBC-4-TH	6-3/4"	3/4"	3-3/4"
6"	SLBT-6-TH	SLBK-6-TH	SLBP-6-TH	SLBC-6-TH	8-5/8"	7/8"	4-3/4"
8"	SLBT-8-TH	SLBK-8-TH	SLBP-8-TH	SLBC-8-TH	10-7/8"	7/8"	5-7/8"
10"	SLBT-10-TH	SLBK-10-TH	SLBP-10-TH	SLBC-10-TH	13-1/4"	1"	7-1/8"
12"	SLBT-12-TH	SLBK-12-TH	SLBP-12-TH	SLBC-12-TH	16"	1"	8-1/2"
14"	SLBT-14-TH	SLBK-14-TH	SLBP-14-TH	SLBC-14-TH	17"	1-1/8"	9-3/8"
16"	SLBT-16-TH	SLBK-16-TH	SLBP-16-TH	SLBC-16-TH	19"	1-1/8"	10-5/8"
18"	SLBT-18-TH	SLBK-18-TH	SLBP-18-TH	SLBC-18-TH	21"	1-1/8"	11-3/8"
20"	SLBT-20-TH	SLBK-20-TH	SLBP-20-TH	SLBC-20-TH	23"	1-1/4"	12-1/2"
24"	SLBT-24-TH	SLBK-24-TH	SLBP-24-TH	SLBC-24-TH	27"	1-3/8"	14-3/4"

For larger sizes, contact factory



Sizes of MICROMOLD

Class 150 and 300 Spacers and Flanges

ID			OD & Bolt Holes									
Class 150 & 300			Class 150					Class 300				
					Bolt Holes					Bolt Holes		
Pipe Size	Old Std.	New Std.	Ring Type OD	Full-Face OD	No.	Dia.	Bolt Circle	Ring Type OD	Full-Face OD	No.	Dia.	Bolt Circle
1/2"	1/2"	27/32"	1-7/8"	3-1/2"	4	5/8"	2-3/8"	2-1/8"	3-3/4"	4	5/8"	2-5/8"
3/4"	3/4"	1-1/16"	2-1/4"	3-7/8"	4	5/8"	2-3/4"	2-5/8"	4-5/8"	4	3/4"	3-1/4"
1"	1"	1-5/16"	2-1/2"	4-1/4"	4	5/8"	3-1/8"	2-7/8"	4-7/8"	4	3/4"	3-1/2"
1-1/4"	1-1/4"	1-21/32"	3"	4-5/8"	4	5/8"	3-1/2"	3-1/4"	5-1/4"	4	3/4"	3-7/8"
1-1/2"	1-1/2"	1-29/32"	3-1/4"	5"	4	5/8"	3-7/8"	3-3/4"	6-1/8"	4	7/8"	4-1/2"
2"	2"	2-3/8"	4"	6"	4	3/4"	4-3/4"	4-3/8"	6-1/2"	8	3/4"	5"
2-1/2"	2-1/2"	2-7/8"	4-7/8"	7"	4	3/4"	5-1/2"	5-1/8"	7-1/2"	8	7/8"	5-7/8"
3"	3"	3-1/2"	5-1/4"	7-1/2"	4	3/4"	6"	5-7/8"	8-1/4"	8	7/8"	6-5/8"
4"	4"	4-1/2"	6-1/2"	9"	8	3/4"	7-1/2"	7-1/8"	10"	8	7/8"	7-7/8"
5"	5"	5-9/16"	7-1/2"	10"	8	7/8"	8-1/2"	8-1/2"	11"	8	7/8"	9-1/4"
6"	6"	6-5/8"	8-1/2"	11"	8	7/8"	9-1/2"	9-7/8"	12-1/2"	12	7/8"	10-5/8"
8"	8"	8-5/8"	10-1/2"	13-1/2"	8	7/8"	11-3/4"	12-1/8"	15"	12	1"	13"
10"	10"	10-3/4"	13"	16"	12	1"	14-1/4"	14-1/4"	17-1/2"	16	1-1/8"	15-1/4"
12"	12"	12-3/4"	16"	19"	12	1"	17"	16-5/8"	20-1/2"	16	1-1/4"	17-3/4"
14"	14"	14"	17"	21"	12	1-1/8"	18-3/4"	19-1/8"	23"	20	1-1/4"	20-1/4"
16"	16"	16"	19"	23-1/2"	16	1-1/8"	21-1/4"	21-1/4"	25-1/2"	20	1-3/8"	22-1/2"
18"	18"	18"	21"	25"	16	1-1/4"	22-3/4"	23-1/2"	28"	24	1-3/8"	24-3/4"
20"	20"	20"	23"	27-1/2"	20	1-1/4"	25"	25-5/8"	30-1/2"	24	1-3/8"	27"
24"	24"	24"	27"	32"	20	1-3/8"	29-1/2"	30-3/8"	36"	24	1-5/8"	32"

Note: Unless otherwise specified, spacers and flanges are manufactured to Old Standard

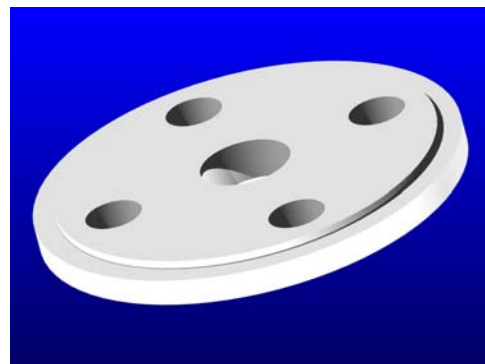
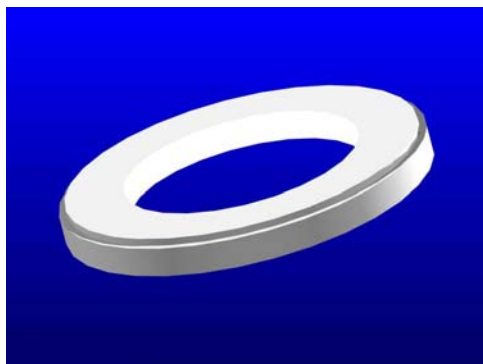


MICROMOLD PRODUCTS, INC. 7 Odell Plaza #133, Yonkers, NY 10701 • Tel: (914) 969-2850

FAX: (914) 969-2736 • Email: webinfo@micromold.com • Web: www.micromold.com

FLUOR-O-FLO® Armored Spacers

PTFE • PVDF • also PPL • CPVC



- Pipe sizes from 1/2" through 12", larger on request
- Class 150 and 300, and ISO metric sizes
- Lengths to 12", longer on request
- Steel armor thickness is 1/4" or greater
- Steel armor coated with rust resistant primer

Micromold armored spacers complement plastic-lined piping systems by serving the same functions as solid plastic spacers, but with the pressure rating of steel pipe. They can also be used in place of lined spools or distance pieces at a fraction of the cost.

Ring, full-face, reducing, orifice, tapered and conical-bore configurations are available to suit your application. To ease installation, all sizes can be supplied with locator tabs. Most sizes are available from stock, or can be made quickly to suit your requirements.

Call today for our
Spacers & Flanges
Product Specifications





FLUOR-O-FLO®

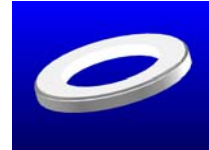
Armored Ring Spacers

PTFE • PVDF • also PPL • CPVC

Standard Class 150 (150 lb.) Armored Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating.

For example, a 3/4" Class 150 PTFE Armored Ring Spacer x 1" thick would be **SART-0.75-1**



Options

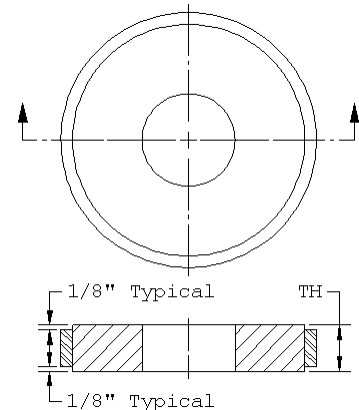
LOCATING TABS: For optional locating tabs, add to the Base Part Number the suffix **TAB**.

For example, a 3/4" Class 150 PTFE Armored Ring Spacer x 1" thick would be **SART-0.75-1-TAB**

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Armored Ring Spacer x 1-1/2" thick with **TAB** option would be **SART-2-1.5-TAB-300**

Steel jacket coated with dark blue, rust resistant enamel. Other colors on request.

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
SAR	T = PTFE, K = PVDF P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300

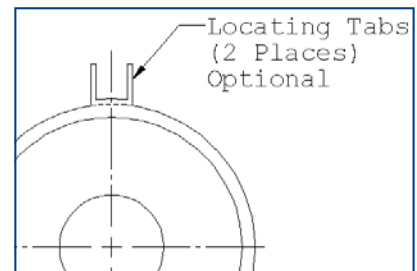


BASE PART NUMBERS

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	SART-0.5-TH	SARK-0.5-TH	SARP-0.5-TH	SARC-0.5-TH
3/4"	SART-0.75-TH	SARK-0.75-TH	SARP-0.75-TH	SARC-0.75-TH
1"	SART-1-TH	SARK-1-TH	SARP-1-TH	SARC-1-TH
1-1/2"	SART-1.5-TH	SARK-1.5-TH	SARP-1.5-TH	SARC-1.5-TH
2"	SART-2-TH	SARK-2-TH	SARP-2-TH	SARC-2-TH
2-1/2"	SART-2.5-TH	SARK-2.5-TH	SARP-2.5-TH	SARC-2.5-TH
3"	SART-3-TH	SARK-3-TH	SARP-3-TH	SARC-3-TH
4"	SART-4-TH	SARK-4-TH	SARP-4-TH	SARC-4-TH
6"	SART-6-TH	SARK-6-TH	SARP-6-TH	SARC-6-TH
8"	SART-8-TH	SARK-8-TH	SARP-8-TH	SARC-8-TH
10"	SART-10-TH	SARK-10-TH	SARP-10-TH	SARC-10-TH
12"	SART-12-TH	SARK-12-TH	SARP-12-TH	SARC-12-TH
14"	SART-14-TH	SARK-14-TH	SARP-14-TH	SARC-14-TH
16"	SART-16-TH	SARK-16-TH	SARP-16-TH	SARC-16-TH
18"	SART-18-TH	SARK-18-TH	SARP-18-TH	SARC-18-TH
20"	SART-20-TH	SARK-20-TH	SARP-20-TH	SARC-20-TH
24"	SART-24-TH	SARK-24-TH	SARP-24-TH	SARC-24-TH

For larger sizes, contact factory

Steel armor thickness is equivalent to or greater than the wall thickness of Schedule 80 Pipe.



For reducing, orifice, tapered or conical bore configuration, contact factory.

Call today for our
Spacers & Flanges
Sales Bulletin



Standard Class 150 (150 lb.) Armored Ring Spacers

BASE PART NUMBER: As shown below, the BASE PART NUMBER defines the Series (three characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size. Then, for thicknesses up to 6", replace the **TH** with the decimal thickness. For thickness over 6", contact factory. Note that the **Class** (or **lb.**) designation does not imply a pressure rating.

For example, a 3/4" Class 150 PTFE Armored Full-Face Flange x 1" thick would be **SAFT-0.75-1**

Options

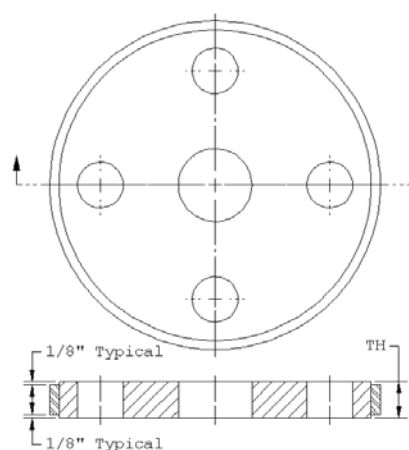
LOCATING TABS: For optional locating tabs, add to the Base Part Number the suffix **TAB**.

For example, a 3/4" Class 150 PTFE Armored Full-Face Flange x 1" thick would be **SAFT-0.75-1-TAB**

CLASS 300 (300 lb.) SPACERS: For Class 300 spacers, add to the BASE PART NUMBER the suffix **300**. For other classes, contact the factory. For example, a 2" Class 300 PTFE Armored Full-Face Flange x 1-1/2" thick with **TAB** option would be **SAFT-2-1.5-TAB-300**

Steel jacket coated with dark blue, rust resistant enamel. Other colors on request.

Part Number Key				Option
Series	Material	Nominal Size	Thickness	Class
SAF	T = PTFE, K = PVDF, P = PPL, C = CPVC	0.5 - 24 Decimal Inches	Decimal Inches	300

**BASE PART NUMBERS**

Nominal Size	PTFE	PVDF	PPL	CPVC
1/2"	SAFT-0.5-TH	SAFK-0.5-TH	SAFP-0.5-TH	SAFC-0.5-TH
3/4"	SAFT-0.75-TH	SAFK-0.75-TH	SAFP-0.75-TH	SAFC-0.75-TH
1"	SAFT-1-TH	SAFK-1-TH	SAFP-1-TH	SAFC-1-TH
1-1/2"	SAFT-1.5-TH	SAFK-1.5-TH	SAFP-1.5-TH	SAFC-1.5-TH
2"	SAFT-2-TH	SAFK-2-TH	SAFP-2-TH	SAFC-2-TH
2-1/2"	SAFT-2.5-TH	SAFK-2.5-TH	SAFP-2.5-TH	SAFC-2.5-TH
3"	SAFT-3-TH	SAFK-3-TH	SAFP-3-TH	SAFC-3-TH
4"	SAFT-4-TH	SAFK-4-TH	SAFP-4-TH	SAFC-4-TH
6"	SAFT-6-TH	SAFK-6-TH	SAFP-6-TH	SAFC-6-TH
8"	SAFT-8-TH	SAFK-8-TH	SAFP-8-TH	SAFC-8-TH
10"	SAFT-10-TH	SAFK-10-TH	SAFP-10-TH	SAFC-10-TH
12"	SAFT-12-TH	SAFK-12-TH	SAFP-12-TH	SAFC-12-TH
14"	SAFT-14-TH	SAFK-14-TH	SAFP-14-TH	SAFC-14-TH
16"	SAFT-16-TH	SAFK-16-TH	SAFP-16-TH	SAFC-16-TH
18"	SAFT-18-TH	SAFK-18-TH	SAFP-18-TH	SAFC-18-TH
20"	SAFT-20-TH	SAFK-20-TH	SAFP-20-TH	SAFC-20-TH
24"	SAFT-24-TH	SAFK-24-TH	SAFP-24-TH	SAFC-24-TH

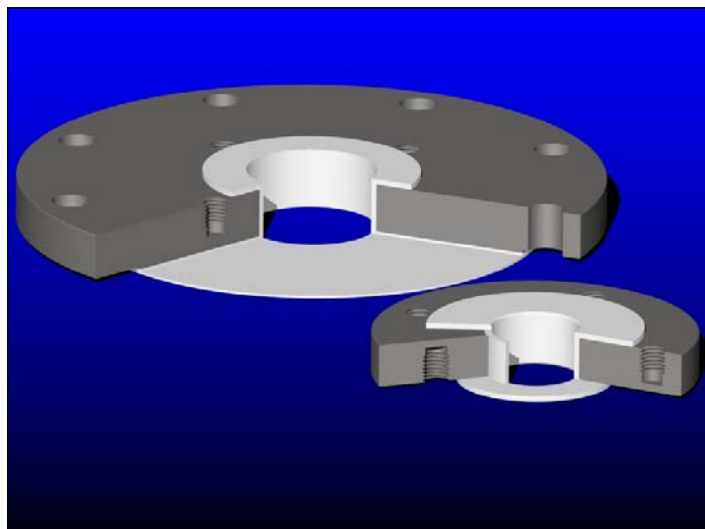
For larger sizes, contact factory

Steel armor thickness is equivalent to or greater than the wall thickness of Schedule 80 Pipe.

For reducing, orifice, tapered or conical bore configuration, contact factory.



FLUOR-O-FLO®
**Class 150 PTFE Lined Steel
Straight-Bore Reducing Flanges**



Our FLUOR-O-FLO PTFE lined steel straight-bore reducing flanges are used for connecting different size flanges of PTFE lined steel pipe or solid PTFE. While a full range of sizes are available, non-standard sizes are our specialty.

In the picture at the left, the larger image is a cut-away of a Type S reducing flange and the smaller image shows a Type C. Please see below for further information.

For dimension table and part numbers, please see our Class 150 PTFE Lined Steel Straight-Bore Reducing Flanges Product Specifications.

- Standard sizes from 1" x 1/2" up to 14" x 1/2".
- Other sizes, contact factory.
- Type C with two sets of blind threaded holes is used when larger nominal size is close to the smaller nominal size (eg. 12" x 10").
- Type S with one set of blind threaded holes and one set of plain through holes, is used for other combinations (eg. 12" x 8", 12" x 6", etc.).
- Standard products correspond to ASME 16.5 Class 150 sizes. Other classes (eg. Class 300) or ISO metric sizes are available.
- Carbon steel is either ASTM A105 or ASTM A516 grade 70.
- Stainless steel and other metals are available.

Call today for our
PTFE Lined Steel Straight-Bore
Reducing Flanges
Product Specifications

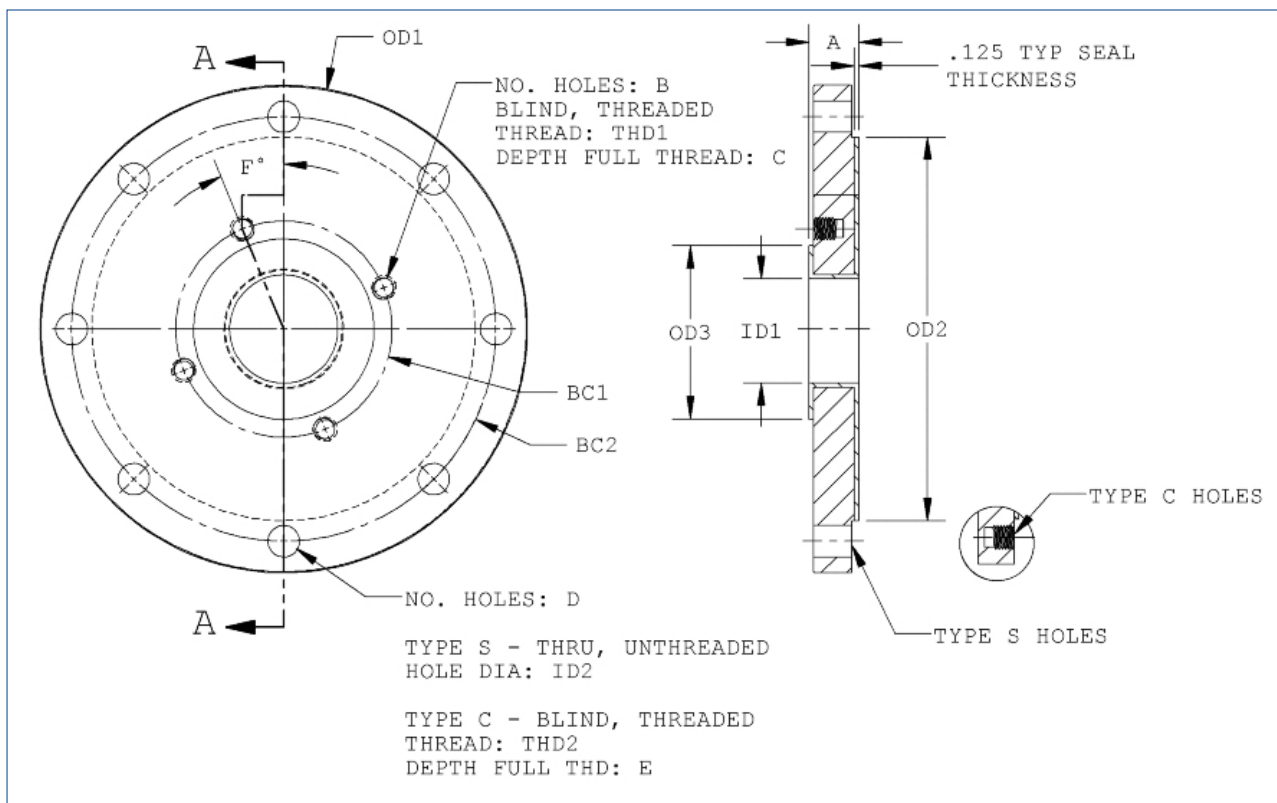
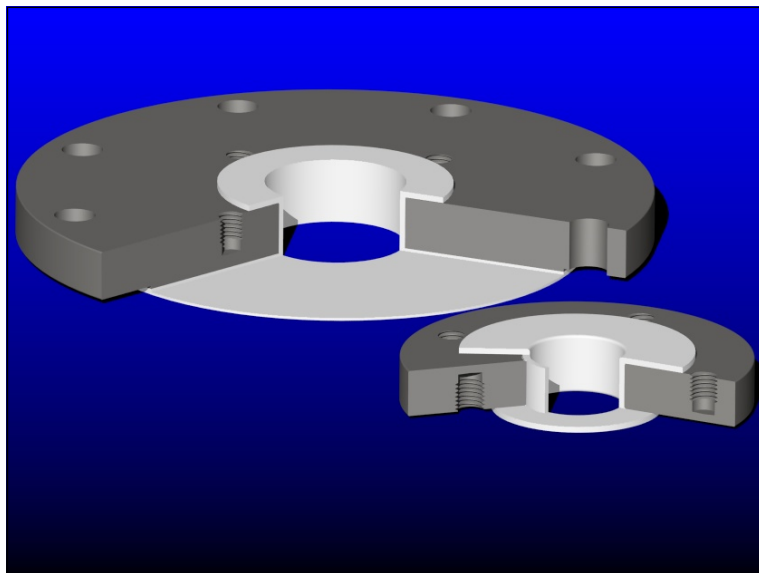


FLUOR-O-FLO® Class 150 PTFE Lined Steel Straight-Bore Reducing Flanges

Perfect for connecting different size flanges or systems, our PTFE lined flanges are compact and sturdy for years of trouble free service.

The larger image is a cut-away of our Type S reducing flanges and the smaller image shows Type C.

See next page for dimension table and part numbers.



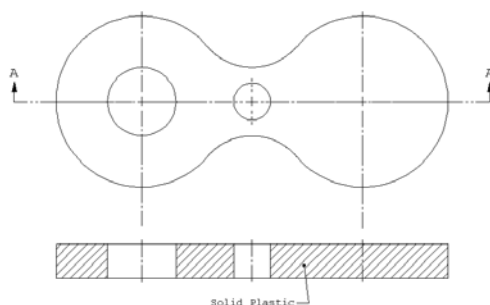
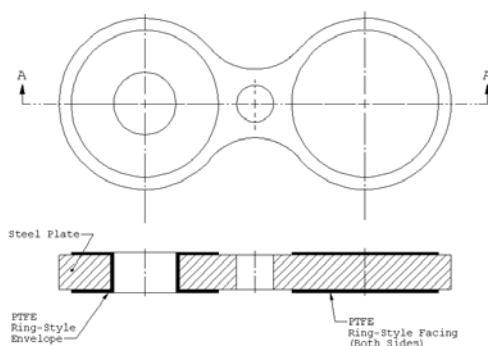
7.3-2 Class 150 PTFE Lined Steel Straight-Bore Reducing Flanges Product Specifications

Part Number	Nominal Size	TYPE	A	B	C	BC1	THD1	D	E	BC2	THD2	ID2	OD1	OD2	OD3	ID1	F
LRFS-150-010005	1" x 1/2"	C	1.38	4	1/2	2.38	1/2-13	4	1/2	3.12	1/2-13	—	4.25	1.88	1.26	0.5	45.0
LRFS-150-010007	1" x 3/4"	C	1.38	4	1/2	2.75	1/2-13	4	1/2	3.12	1/2-13	—	4.25	1.88	1.57	0.8	45.0
LRFS-150-015010	1-1/2" x 1"	C	1.38	4	1/2	3.12	1/2-13	4	1/2	3.88	1/2-13	—	5.00	2.69	1.88	1.0	45.0
LRFS-150-020010	2" x 1"	C	1.25	4	1/2	3.12	1/2-13	4	5/8	4.75	5/8-11	—	6.00	3.44	1.88	1.0	45.0
LRFS-150-020005	2" x 1/2"	C	1.25	4	1/2	2.38	1/2-13	4	5/8	4.75	5/8-11	—	6.00	3.44	1.26	0.5	45.0
LRFS-150-025020	2-1/2" x 2"	C	1.25	4	5/8	4.75	5/8-11	4	5/8	5.50	5/8-11	—	7.00	3.94	3.44	2.0	45.0
LRFS-150-030010	3" x 1"	S	1.19	4	1/2	3.12	1/2-13	4	—	6.00	—	0.75	7.50	4.63	1.88	1.0	45.0
LRFS-150-030015	3" x 1-1/2"	C	1.25	4	1/2	3.88	1/2-13	4	5/8	6.00	5/8-11	—	7.50	4.63	2.69	1.5	45.0
LRFS-150-030020	3" x 2"	C	1.25	4	5/8	4.75	5/8-11	4	5/8	6.00	5/8-11	—	7.50	4.63	3.44	2.0	45.0
LRFS-150-030025	3" x 2-1/2"	C	1.25	4	5/8	5.50	5/8-11	4	5/8	6.00	5/8-11	—	7.50	4.63	3.94	2.5	45.0
LRFS-150-040010	4" x 1"	S	1.19	4	1/2	3.12	1/2-13	8	—	7.50	—	0.75	9.00	5.94	1.88	1.0	22.5
LRFS-150-040015	4" x 1-1/2"	S	1.19	4	1/2	3.88	1/2-13	8	—	7.50	—	0.75	9.00	5.94	2.69	1.5	22.5
LRFS-150-040020	4" x 2"	C	1.25	4	5/8	4.75	5/8-11	8	5/8	7.50	5/8-11	—	9.00	5.94	3.44	2.0	22.5
LRFS-150-040030	4" x 3"	C	1.25	4	5/8	6.00	5/8-11	8	5/8	7.50	5/8-11	—	9.00	5.94	4.63	3.0	22.5
LRFS-150-050040	5" x 4"	C	1.50	8	5/8	7.50	5/8-11	8	3/4	8.50	3/4-10	—	10.00	7.06	5.94	4.0	22.5
LRFS-150-060010	6" x 1"	S	1.25	4	1/2	3.12	1/2-13	8	—	9.50	—	0.875	11.00	8.00	1.88	1.0	22.5
LRFS-150-060015	6" x 1-1/2"	S	1.25	4	1/2	3.88	1/2-13	8	—	9.50	—	0.875	11.00	8.00	2.69	1.5	22.5
LRFS-150-060020	6" x 2"	S	1.25	4	5/8	4.75	5/8-11	8	—	9.50	—	0.875	11.00	8.00	3.44	2.0	22.5
LRFS-150-060030	6" x 3"	S	1.25	4	5/8	6.00	5/8-11	8	—	9.50	—	0.875	11.00	8.00	4.63	3.0	22.5
LRFS-150-060040	6" x 4"	C	1.50	8	5/8	7.50	5/8-11	8	3/4	9.50	3/4-10	—	11.00	8.00	5.94	4.0	22.5
LRFS-150-060050	6" x 5"	C	1.50	8	3/4	8.50	3/4-10	8	3/4	9.50	3/4-10	—	11.00	8.00	7.06	5.0	22.5
LRFS-150-080015	8" x 1-1/2"	S	1.37	4	1/2	3.88	1/2-13	8	—	11.75	—	0.875	13.50	10.07	2.69	1.5	22.5
LRFS-150-080020	8" x 2"	S	1.37	4	5/8	4.75	5/8-11	8	—	11.75	—	0.875	13.50	10.07	3.44	2.0	22.5
LRFS-150-080030	8" x 3"	S	1.37	4	5/8	6.00	5/8-11	8	—	11.75	—	0.875	13.50	10.07	4.63	3.0	22.5
LRFS-150-080040	8" x 4"	S	1.37	8	5/8	7.50	5/8-11	8	—	11.75	—	0.875	13.50	10.07	5.94	4.0	22.5
LRFS-150-080060	8" x 6"	C	1.50	8	3/4	9.50	3/4-10	8	3/4	11.75	3/4-10	—	13.50	10.07	8.00	6.0	22.5
LRFS-150-100040	10" x 4"	S	1.44	8	5/8	7.50	5/8-11	12	—	14.25	—	1	16.00	12.25	5.94	4.0	7.5
LRFS-150-100060	10" x 6"	S	1.44	8	3/4	9.50	3/4-10	12	—	14.25	—	1	16.00	12.25	8.00	6.0	7.5
LRFS-150-100080	10" x 8"	C	1.63	8	3/4	11.75	3/4-10	12	7/8	14.25	7/8-9	—	16.00	12.25	10.07	8.0	7.5
LRFS-150-120060	12" x 6"	S	1.50	8	3/4	9.50	3/4-10	12	—	17.00	—	1	19.00	14.50	8.00	6.0	7.5
LRFS-150-120080	12" x 8"	S	1.50	8	3/4	11.75	3/4-10	12	—	17.00	—	1	19.00	14.50	10.07	8.0	7.5
LRFS-150-120100	12" x 10"	C	1.75	12	7/8	14.25	7/8-9	12	7/8	17.00	7/8-9	—	19.00	14.50	12.25	10.0	15.0
LRFS-150-140080	14" x 8"	S	1.63	8	3/4	11.75	3/4-10	12	—	18.75	—	1.125	21.00	15.75	10.07	8.0	7.5



FLUOR-O-FLO® Spectacle Line-Blinds PTFE Lined Steel

Solid PTFE • PVDF • also PPL • CPVC



Use Micromold's Spectacle Line-Blinds when you need:

- Low cost shutoff
- Security of absolute shutoff
- Visible proof of shutoff
- Class 150 or other sizes
- Corrosion resistance of PTFE or other polymers.

Micromold's simple design permits quick, easy installation and use of line-blinds with plastic lined or other piping systems at low cost. Our spectacle design features a pivot hole, allowing easy swing of line-to-blind and back. Further, when making the swing, two opposite flange bolts can be left in place. This reduces alignment problems, and speeds reconnection of flanges. The result is maximum security with minimum process downtime.

For lined steel units, all linings are made from PTFE. Where conditions permit, use lower cost solid plastic units.

**Call today for our
Spectacle Line-Blinds
Product Specifications**

Standard units are made in pipe sizes from 1/2" through 12". Larger sizes are available on request. Standard units are made to fit between ANSI Class 150 flanges. Units to fit ANSI Class 300 through Class 2500 or other flanges are also available.

For standard lined steel units, steel plate thickness is equal to, or greater than, the thickness of ANSI B16.5 standard blind flanges.

Non-standard thickness is available. A516 grade 70 steel plate is standard. Units made from stainless steel, Monel® or other corrosion resistant or high strength metals are available. Ring style construction is standard. Full face construction is available.

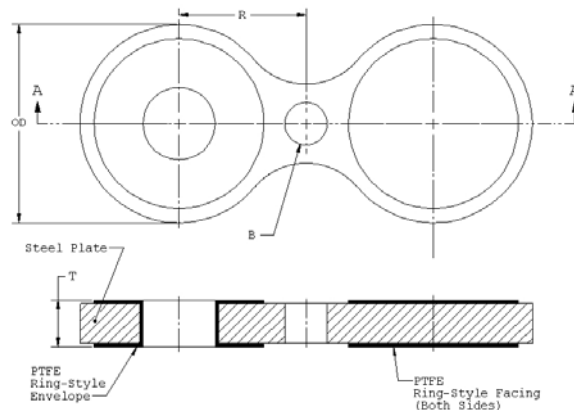
Spectacle Line-Blinds in solid plastic are made from PTFE, PVDF, PPL, or CPVC. Thickness as required.

FLUOR-O-FLO® Spectacle Line-Blinds

PTFE Lined Steel

Solid PTFE • PVDF • also PPL • CPVC

PTFE Lined Steel



Standard Units:

- Fit between ANSI Class 150 flanges
- 1/2" through 12" pipe sizes
- Thickness corresponds to ANSI Class 150 flanges
- A516 grade 70 carbon steel
- Ring style construction
- PTFE/A516 grade 70 carbon steel

Special Units Available:

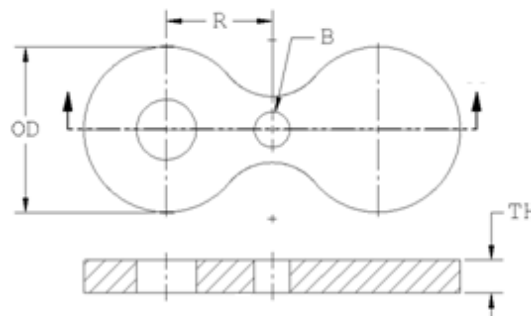
- Fit ANSI Class 300 through Class 2500 flanges, or other special flanges
- Larger sizes
- Thinner or thicker units
- Stainless steel, Monel®, or other metals
- Full face construction

Call today for our
Spectacle Line-Blinds
Sales Bulletin

Standard Dimensions To Fit Between ANSI Class 150 Flanges

Nominal Pipe Size	Part Number	Overall			Bolt Hole	
		Thick. (T)	Dia. (OD)	Steel Plate Thick.	Dia. (B)	Radius (R)
1/2"	SLBS-0.5-0.63	5/8"	1-3/4"	1/2"	5/8"	1-3/16"
3/4"	SLBS-0.75-0.63	5/8"	2-1/8"	1/2"	5/8"	1-3/8"
1"	SLBS-1-0.75	3/4"	2-1/2"	5/8"	5/8"	1-9/16"
1-1/4"	SLBS-1.25-0.75	3/4"	2-7/8"	5/8"	5/8"	1-3/4"
1-1/2"	SLBS-1.5-0.88	7/8"	3-1/4"	3/4"	5/8"	1-15/16"
2"	SLBS-2-0.88	7/8"	4"	3/4"	3/4"	2-3/8"
2-1/2"	SLBS-2.5-1	1"	4-3/4"	7/8"	3/4"	2-3/4"
3"	SLBS-3-1.13	1-1/8"	5-1/4"	1"	3/4"	3"
4"	SLBS-4-1.13	1-1/8"	6-3/4"	1"	3/4"	3-3/4"
5"	SLBS-5-1.13	1-1/8"	7-5/8"	1"	7/8"	4-1/4"
6"	SLBS-6-1.13	1-1/8"	8-5/8"	1"	7/8"	4-3/4"
8"	SLBS-8-1.25	1-1/4"	10-7/8"	1-1/8"	7/8"	5-7/8"
10"	SLBS-10-1.38	1-3/8"	13-1/4"	1-1/4"	1"	7-1/8"
12"	SLBS-12-1.38	1-3/8"	16"	1-1/4"	1"	8-1/2"



Solid PTFE • PVDF • also PPL • CPVC**Standard Units:**

- Fit between ANSI Class 150 flanges
- 1/2" through 12" pipe sizes
- Thickness corresponds to ANSI Class 150 flanges
- Ring style construction
- Solid Plastic: PTFE, PVDF, also PPL, CPVC

Special Units Available:

- Fit ANSI Class 300 through Class 2500 flanges, or other special flanges
- Larger sizes
- Thinner or thicker units
- Full face construction

Other materials on request

**Standard Dimensions
To Fit Between ANSI Class 150 Flanges**

Nominal Pipe Size	PTFE Part Number	PVDF Part Number	PPL Part Number	CPVC Part Number	Overall	Bolt Hole	
					Dia. (OD)	Dia. (B)	Radius (R)
1/2"	SLBT-0.5-TH	SLBK-0.5-TH	SLBP-0.5-TH	SLBC-0.5-TH	1-3/4"	5/8"	1-13/16"
3/4"	SLBT-0.75-TH	SLBK-0.75-TH	SLBP-0.75-TH	SLBC-0.75-TH	2-1/8"	5/8"	1-3/8"
1"	SLBT-1-TH	SLBK-1-TH	SLBP-1-TH	SLBC-1-TH	2-1/2"	5/8"	1-9/16"
1-1/2"	SLBT-1.5-TH	SLBK-1.5-TH	SLBP-1.5-TH	SLBC-1.5-TH	3-1/4"	5/8"	1-15/16"
2"	SLBT-2-TH	SLBK-2-TH	SLBP-2-TH	SLBC-2-TH	4"	3/4"	2-3/8"
2-1/2"	SLBT-2.5-TH	SLBK-2.5-TH	SLBP-2.5-TH	SLBC-2.5-TH	4-3/4"	3/4"	2-3/4"
3"	SLBT-3-TH	SLBK-3-TH	SLBP-3-TH	SLBC-3-TH	5-1/4"	3/4"	3"
4"	SLBT-4-TH	SLBK-4-TH	SLBP-4-TH	SLBC-4-TH	6-3/4"	3/4"	3-3/4"
6"	SLBT-6-TH	SLBK-6-TH	SLBP-6-TH	SLBC-6-TH	8-5/8"	7/8"	4-3/4"
8"	SLBT-8-TH	SLBK-8-TH	SLBP-8-TH	SLBC-8-TH	10-7/8"	7/8"	5-7/8"
10"	SLBT-10-TH	SLBK-10-TH	SLBP-10-TH	SLBC-10-TH	13-1/4"	1"	7-1/8"
12"	SLBT-12-TH	SLBK-12-TH	SLBP-12-TH	SLBC-12-TH	16"	1"	8-1/2"
14"	SLBT-14-TH	SLBK-14-TH	SLBP-14-TH	SLBC-14-TH	17"	1-1/8"	9-3/8"
16"	SLBT-16-TH	SLBK-16-TH	SLBP-16-TH	SLBC-16-TH	19"	1-1/8"	10-5/8"
Note: Replace TH with thickness in inches							

Call today for our
Spectacle Line-Blinds
Sales Bulletin





FLUOR-O-FLO® Filler Flanges/Compensation Rings

PTFE

Standard Class 150 (150 lb.) PTFE Filler Flanges/Compensation Rings

Filler Flanges are used to connect flanges with raised faces or sealing surfaces-especially those of plastic lined steel pipe-to flat faced plastic flanges. Without filler flanges, when the bolts are tightened on such a joint, the plastic flange will, most likely, break. The filler flange fills the gap that lies between the OD of the raised surface and the OD of the flange, flattening the face in contact with the plastic flange.

BASE PART NUMBER: The BASE PART NUMBER defines the Series (two characters), the material (one character), the nominal size, and the thickness **TH**. Use a decimal number to indicate the nominal size and thickness. For example, a 3/4" PTFE Filler Flange x 1/8" thick would be **FFT-0.75-0.125**.

Note: Other materials available, contact Factory.

Part Number Key			
Series	Material	Nominal Size	Thickness
FF	T = PTFE	0.5 - 24 Decimal Inches	Decimal Inches

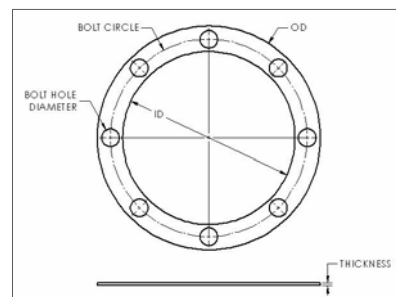
BASE PART NUMBERS

Nominal Size	PTFE Part No.	OD	ID	Bolt Circle	Bolt Hole Diameter	No. of Holes
1/2"	FFT-0.5-TH	3-1/2"	1-9/16"	2-3/8"	5/8"	4
3/4"	FFT-0.75-TH	3-7/8"	1-7/8"	2-3/4"	5/8"	4
1"	FFT-1-TH	4-1/4"	2-9/32"	3-1/8"	5/8"	4
1-1/4"	FFT-1.25-TH	4-5/8"	2-11/16"	3-1/2"	5/8"	4
1-1/2"	FFT-1.5-TH	5"	3-1/16"	3-7/8"	5/8"	4
2"	FFT-2-TH	6"	3-13/16"	4-3/4"	3/4"	4
2-1/2"	FFT-2.5-TH	7"	4-9/16"	5-1/2"	3/4"	4
3"	FFT-3-TH	7-1/2"	5-1/8"	6"	3/4"	4
4"	FFT-4-TH	9"	6-7/16"	7-1/2"	3/4"	8
5"	FFT-5-TH	10"	7-7/16"	8-1/2"	7/8"	8
6"	FFT-6-TH	11"	8-1/2"	9-1/2"	7/8"	8
8"	FFT-8-TH	13-1/2"	10-3/4"	11-3/4"	7/8"	8
10"	FFT-10-TH	16"	13-1/16"	14-1/4"	1"	12
12"	FFT-12-TH	19"	15-3/4"	17"	1"	12
14"	FFT-14-TH	21"	17"	18-3/4"	1-1/8"	12
16"	FFT-16-TH	23-1/2"	19-1/2"	21-1/4"	1-1/8"	16
18"	FFT-18-TH	25"	21-1/4"	22-3/4"	1-1/4"	16
20"	FFT-20-TH	27-1/2"	23-1/2"	25"	1-1/4"	20
24"	FFT-24-TH	32"	27-3/4"	29-1/2"	1-3/8"	20

For larger sizes, contact factory

Call today for our
Spacers & Flanges Sales Bulletin
and Product Specifications

All sales are subject to separately published Terms and Conditions of Sale.



FLUOR-O-FLO® PTFE Gaskets

Envelope and Solid • Donut • Style 1, 2, 3 • Sanitary



Since 1950, Micromold has been a leading manufacturer of PTFE gaskets for the process industries:

- All standard styles, sizes and fillers
- Custom gaskets to your specification
- Rapid deliveries
- Competitive prices

Call today for our
PTFE Gaskets
Product Specifications



PTFE Gaskets

Envelope & Solid • Donut
Style 1, 2, 3 • Sanitary



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Call today for our
PTFE Gaskets
Sales Bulletin

All sales are subject to separately published Terms and Conditions of Sale.

Sizes of MICROMOLD

Class 150 and 300 PTFE Gaskets

ID			OD & Bolt Holes									
Class 150 & 300			Class 150					Class 300				
					Bolt Holes					Bolt Holes		
Pipe Size	Old Std.	New Std.	Ring Type OD	Full-Face OD	No.	Dia.	Bolt Circle	Ring Type OD	Full-Face OD	No.	Dia.	Bolt Circle
1/2"	1/2"	27/32"	1-7/8"	3-1/2"	4	5/8"	2-3/8"	2-1/8"	3-3/4"	4	5/8"	2-5/8"
3/4"	3/4"	1-1/16"	2-1/4"	3-7/8"	4	5/8"	2-3/4"	2-5/8"	4-5/8"	4	3/4"	3-1/4"
1"	1"	1-5/16"	2-1/2"	4-1/4"	4	5/8"	3-1/8"	2-7/8"	4-7/8"	4	3/4"	3-1/2"
1-1/4"	1-1/4"	1-21/32"	3"	4-5/8"	4	5/8"	3-1/2"	3-1/4"	5-1/4"	4	3/4"	3-7/8"
1-1/2"	1-1/2"	1-29/32"	3-1/4"	5"	4	5/8"	3-7/8"	3-3/4"	6-1/8"	4	7/8"	4-1/2"
2"	2"	2-3/8"	4"	6"	4	3/4"	4-3/4"	4-3/8"	6-1/2"	8	3/4"	5"
2-1/2"	2-1/2"	2-7/8"	4-7/8"	7"	4	3/4"	5-1/2"	5-1/8"	7-1/2"	8	7/8"	5-7/8"
3"	3"	3-1/2"	5-1/4"	7-1/2"	4	3/4"	6"	5-7/8"	8-1/4"	8	7/8"	6-5/8"
4"	4"	4-1/2"	6-1/2"	9"	8	3/4"	7-1/2"	7-1/8"	10"	8	7/8"	7-7/8"
5"	5"	5-9/16"	7-1/2"	10"	8	7/8"	8-1/2"	8-1/2"	11"	8	7/8"	9-1/4"
6"	6"	6-5/8"	8-1/2"	11"	8	7/8"	9-1/2"	9-7/8"	12-1/2"	12	7/8"	10-5/8"
8"	8"	8-5/8"	10-1/2"	13-1/2"	8	7/8"	11-3/4"	12-1/8"	15"	12	1"	13"
10"	10"	10-3/4"	13"	16"	12	1"	14-1/4"	14-1/4"	17-1/2"	16	1-1/8"	15-1/4"
12"	12"	12-3/4"	16"	19"	12	1"	17"	16-5/8"	20-1/2"	16	1-1/4"	17-3/4"
14"	14"	14"	17"	21"	12	1-1/8"	18-3/4"	19-1/8"	23"	20	1-1/4"	20-1/4"
16"	16"	16"	19"	23-1/2"	16	1-1/8"	21-1/4"	21-1/4"	25-1/2"	20	1-3/8"	22-1/2"
18"	18"	18"	21"	25"	16	1-1/4"	22-3/4"	23-1/2"	28"	24	1-3/8"	24-3/4"
20"	20"	20"	23"	27-1/2"	20	1-1/4"	25"	25-5/8"	30-1/2"	24	1-3/8"	27"
24"	24"	24"	27"	32"	20	1-3/8"	29-1/2"	30-3/8"	36"	24	1-5/8"	32"

Fillers: Common fillers used in Micromold PTFE Envelope Gaskets

CNA Compressed non-asbestos sheet (physical properties conform to ASTM F104 Class P-1141-A)

NA Compressible non-asbestos sheet

CLT CNA core faced on both sides with NA

CRT Corrugated cold rolled (or stainless) steel core faced on both sides with NA

NEO Neoprene rubber

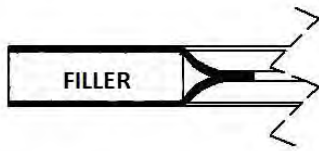


MICROMOLD PRODUCTS, INC. 7 Odell Plaza #133, Yonkers, NY 10701 • Tel: (914) 969-2850

FAX: (914) 969-2736 • Email: webinfo@micromold.com • Web: www.micromold.com

Slit Envelope Gaskets

(See Page 2 for Gasket Sizes)



- Available in standard sizes from 1/2" through 18"
- Class 150 ring gasket standard
- Full face gaskets and Class 300 sizes also available

Standard Fillers

- CNA
- NA
- NEO
- CLT
- CRT (cold rolled or stainless steel)
- Others (e.g., Silicone, Viton, EPDM, etc.) available

Machined Envelope Gaskets

(See Page 2 for Gasket Sizes)



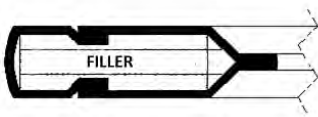
- Available in standard sizes from 1/2" through 18"
- Class 150 ring gasket standard
- Full face gaskets and Class 300 sizes also available

Standard Fillers

- CNA
- NA
- NEO
- CLT
- CRT (cold rolled or stainless steel)
- Others (e.g., Silicone, Viton, EPDM, etc.) available

Double Jacketed Envelope Gaskets

(ID Jacket Slit, OD Jacket Machined)



- Available in standard sizes from 1/2" through 18"
- Class 150 ring gasket standard
- Class 300 sizes also available

Standard Fillers

- NA
- NEO
- CLT

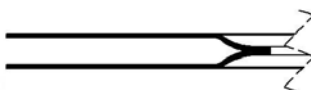
Contact Factory for information on other filler materials and Sodium Etching services.

PTFE Envelopes with No Fillers

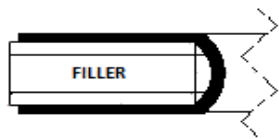


- Class 150 ring type gasket standard
- 300 class sizes also available

Contact Factory for information on special sizes or materials.



Formed Shield Envelope Gaskets - Round or Oval



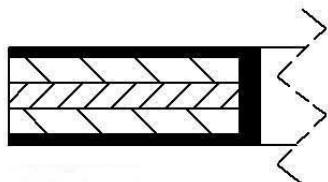
Contact factory for informations on special sizes or materials

Standard Fillers

- CNA
- NA
- NEO
- CLT
- CRT (cold rolled or stainless steel)
- Others (e.g., Silicone, Viton, EPDM, etc.) available

Teflon coverage limited to 1-3/4" maximum; filler extends to OD.

Donut Adapter Gaskets



Standard Configuration - Machined envelope with filler of 1/8" mild steel between two layers of 1/16" NA.

Other Fillers

- Type 304 stainless steel in place of mild steel . . . Contact Factory.

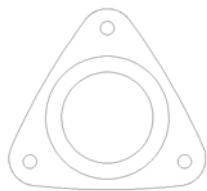
Style 1, 2, or 3 Gaskets With PTFE Machined Envelope

Contact factory for information on special sizes or materials

Standard Filler

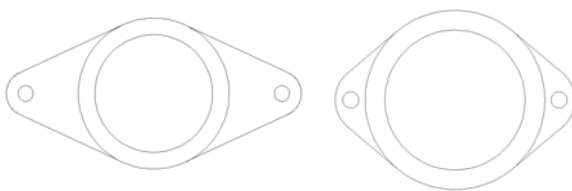
- NA
- Other fillers available

Style 1



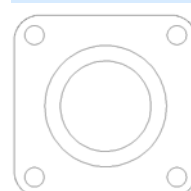
Sizes 1" to 3"

Style 2



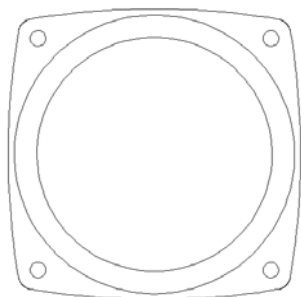
Sizes 1" to 6"

Style 3



Sizes 1" to 3"

QVF Gaskets



Machined envelope

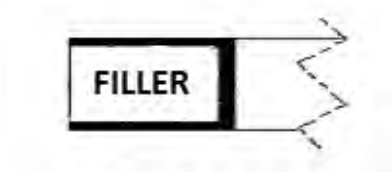
Contact factory for information on special sizes or materials.

Standard Fillers

- CNA
- NA
- NEO
- Others (e.g., Silicone, Viton, EPDM, etc.) available



Quick Connect Coupling Gaskets



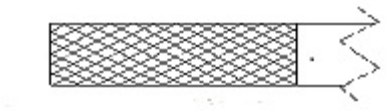
PTFE Machined envelope

Standard Fillers

- NEO: Neoprene rubber
- Others (e.g., Silicone, Viton, EPDM, etc) available

Solid PTFE Gaskets - Ring and Full Face

(See Page 2 for Gasket Sizes)

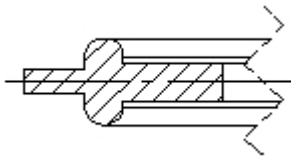


- Class 150 Virgin PTFE Ring Gasket standard
- Also available
 - Class 300 class sizes
 - Full Face Gaskets
 - 25% Glass filled PTFE

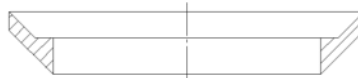
Contact factory for information on special sizes or materials.

Tri-Clamp and Other PTFE Sanitary Gaskets

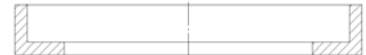
Tri-Clamp



Bevel Seat



John Perry



I-Line



Davis



8. Custom Fabrication

8.1 Custom Plastic Fabrication

Custom Plastic Fabrication

Building specialty products for the process industries since 1950



PTFE Liquid Distributor with Hold-down Legs
13-1/2" OD x 6" high

“The Micromold staff were instrumental in helping me identify what could work, and transforming my ideas into reality.”

Micromold Customer

Micromold has been producing hundreds of specialty products for process industry customers since 1950. Our motto is “If you can imagine it, we can build it.”

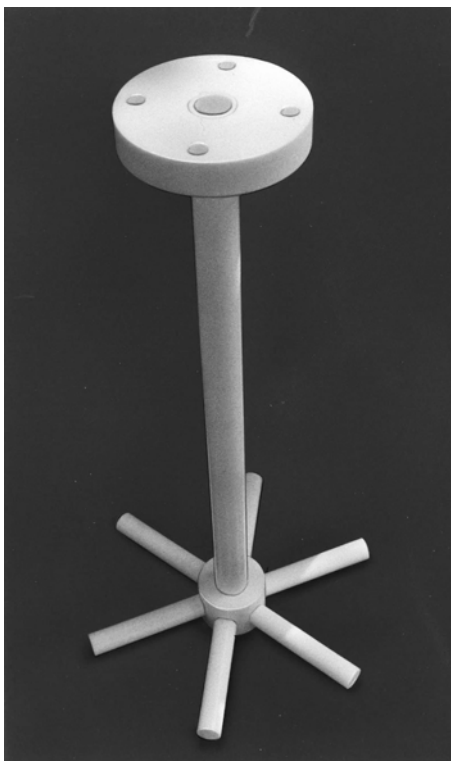
Make us part of your team! Our highly skilled staff can take your rough concept or problem description, and turn it into a finished solution, surprisingly fast. We can guarantee that the final product will meet your high standards of quality and performance.

The following pictures illustrate only a fraction of the specialty products we have completed throughout the years. For many of these – and especially for corrosion resistant plastics such as PTFE, Kynar®, and polypropylene – we have developed proprietary know how, such as specialized forming, welding and machining techniques, which can be applied to solving your most challenging application requirements.

The next time that you need a specialized plastic fabrication just give us a call, or fax us a sketch. We’re sure you’ll be pleased with our response.

Why Choose Micromold for Your Next Specialty Project?

- **Expertise:** Micromold staff have years of experience working with all the engineering and high performance plastics.
- **Quality:** Exceptional products and service.
- **Support:** High skilled staff ready to volunteer their time in helping you figure out what you need.



LIQUID DISTRIBUTOR
34" high, PTFE

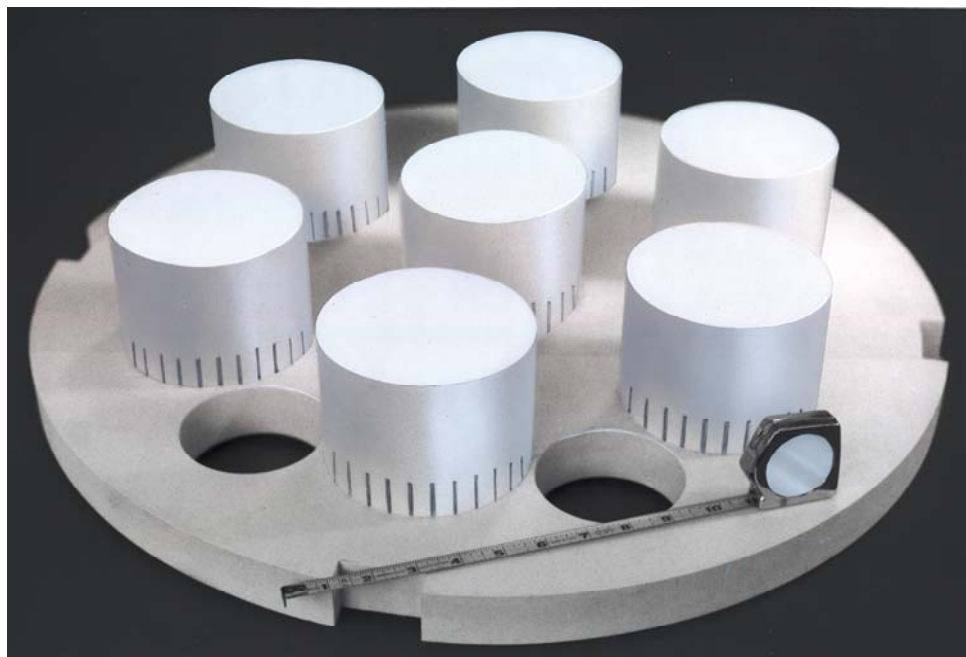


BAFFLE STRAINER
6" 150 lb., PTFE lined steel

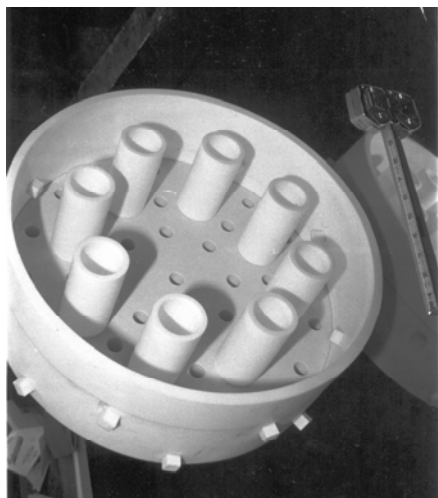


CLAMP ASSEMBLY
4" i.d.,
PTFE

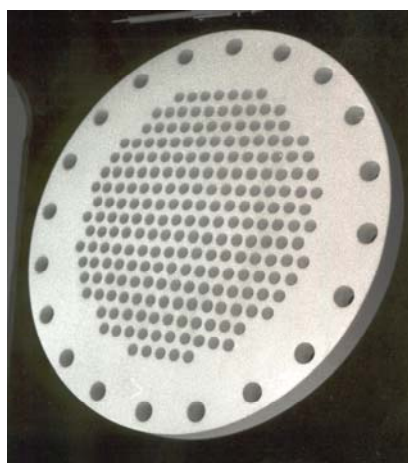




BUBBLE TRAY
21" diameter, PTFE



DISTRIBUTER TRAY
16" diameter, PTFE



PACKING SUPPORT PLATE
22" diameter, PTFE



REACTOR END PLATES
6" and 10" 150 lb., PVDF



9. Misc

- 9.1 Terms and Conditions of Sale
- 9.2 Size Chart for Gaskets, Spacers and Flanges
- 9.3 International Warranty
- 9.4 PTFE Typical Properties
- 9.5 Spots on PTFE Fabrications



Terms and Conditions of Sale

All sales by Micromold Products, Inc. are subject to the following terms and conditions. Any terms or conditions of sale from the purchaser shall be of no effect.

1. Prices

Price List Prices: Prices in our price lists are subject to change without notice. Where possible, we will attempt to notify catalogue holders in advance of price changes.

Quoted Prices: Price quotations are firm for 30 days.

2. Minimums

Minimum Item Purchase Quantities: For items in our price lists, except for a few items requiring us to specially purchase non-stock materials, we have no minimum item quantities.

Minimum Orders: We have no minimum order. However, in order to offset the cost of processing small orders, we add a \$15.00 handling charge to orders for less than \$100.00 merchandise (net) for shipment to one location at one time.

3. Orders

Phone Orders: To prevent misunderstandings, we prefer email or FAX orders rather than phone orders. For phone orders, we regard it as the responsibility of the individual phoning in the order to verify that the communication is accurate.

Confirming Orders: In order to expedite shipment, it is our policy to process customer's orders as they are first received. Because we often ship before confirming paperwork arrives, we do not guarantee to check confirming orders for differences from original orders.

4. Shipments

All merchandise is shipped F.O.B. Yonkers, New York. Where possible, unless special routing is requested, we use UPS or UPS Freight. These carriers pick up and deliver regularly at our factory. For orders under \$500.00, we may add charges for the special handling which occurs in the following non-routine situations:

- Special Routing requested by customer - \$10.00
- Freight prepaid and billed to the customer (other than UPS Freight) - \$15.00
- International shipments (for preparation of documents) - \$15.00

5. Drop Shipments:

We have no extra charge for drop shipments. On request, we will use either packing lists supplied by the customer, or blank forms - not identifying Micromold Products - supplied by us.

6. Claims

We regard it as the customer's responsibility to settle claims for loss or damage with the carrier. We will provide assistance in such cases to help establish the claim, and to repair or replace merchandise quickly. Claims of short shipment must be made within 10 days of receipt. In the event of damage or shortage, we advise all customers that, until all claims are resolved, it is imperative that original packaging be retained as evidence.

7. Billing Terms

For purchasers with established credit, our terms are net 30 days. As described in our Credit Application,

(Continued on page 2)

we reserve the right to add a 1.5% per month charge to past due accounts. To establish an open account, we ask that all customers complete and return our Credit Application.

8. Returns

Stock Products: Certain commonly purchased price list items are stock products. Reasonable quantities of such products may be returned for a merchandise credit, subject to a 25% restocking charge. Contact factory for details.

Standard Products - Non-stock: Other items appearing in our price lists are standard products readily available on a short lead time basis, but are made to order and, therefore, are considered non-stock. Returns of such products are subject to individual negotiation.

All merchandise returned for credit must be unused, and in clean, reasonable condition, with freight charges prepaid.

Non-standard Products: Non-standard or custom made products are not returnable.

For any parts or materials that have been in service the sender must submit MSDS documents for all contact chemicals and certify in writing that all contact chemicals have been neutralized prior to Micromold issuing a Return Authorization.

9. Warranty

Our products are warranted for two years after shipment by us to the extent that we will, at our option, either repair or replace without charge, products determined by us to have manufacturing defects. Alternatively, if in our judgement, repair or replacement is not the best option, we may choose to issue a merchandise credit. For this warranty to be effective, we must be given the opportunity to inspect the product. At our option, we will perform such inspection either upon return of the product to us, or at the point of installation.

If essential information about an application is given to us, we may be able to comment as to our opinion regarding the usefulness of our product in the service described. However, this warranty should not be interpreted as including any warranty for fitness of service.

NO WARRANTY IS INCLUDED COVERING ANY EXPENSE FOR REMOVAL, REINSTALLATION, OR OTHER CONSEQUENTIAL DAMAGES ARISING FROM ANY APPLICATION OF OUR PRODUCTS, WHETHER OR NOT DEFECTIVE. THE WARRANTIES INCLUDED HERE ARE THE ONLY ONES WE MAKE, AND ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, STATUTORY, OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



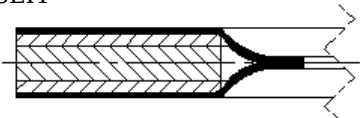
Sizes of MICROMOLD Class 150 and 300 PTFE Gaskets, Spacers and Flanges

9.2

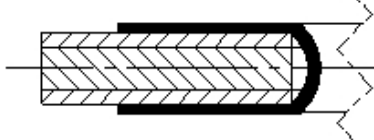
ID			OD & Bolt Holes									
Class 150 & 300			Class 150					Class 300				
			Bolt Holes					Bolt Holes				
Pipe Size	Old Std.	New Std.	Ring Type OD	Full- Face OD	No.	Dia.	Bolt Circle	Ring Type OD	Full- Face OD	No.	Dia.	Bolt Circle
1/2"	1/2"	27/32"	1-7/8"	3-1/2"	4	5/8"	2-3/8"	2-1/8"	3-3/4"	4	5/8"	2-5/8"
3/4"	3/4"	1-1/16"	2-1/4"	3-7/8"	4	5/8"	2-3/4"	2-5/8"	4-5/8"	4	3/4"	3-1/4"
1"	1"	1-5/16"	2-1/2"	4-1/4"	4	5/8"	3-1/8"	2-7/8"	4-7/8"	4	3/4"	3-1/2"
1-1/4"	1-1/4"	1-21/32"	3"	4-5/8"	4	5/8"	3-1/2"	3-1/4"	5-1/4"	4	3/4"	3-7/8"
1-1/2"	1-1/2"	1-29/32"	3-1/4"	5"	4	5/8"	3-7/8"	3-3/4"	6-1/8"	4	7/8"	4-1/2"
2"	2"	2-3/8"	4"	6"	4	3/4"	4-3/4"	4-3/8"	6-1/2"	8	3/4"	5"
2-1/2"	2-1/2"	2-7/8"	4-7/8"	7"	4	3/4"	5-1/2"	5-1/8"	7-1/2"	8	7/8"	5-7/8"
3"	3"	3-1/2"	5-1/4"	7-1/2"	4	3/4"	6"	5-7/8"	8-1/4"	8	7/8"	6-5/8"
4"	4"	4-1/2"	6-1/2"	9"	8	3/4"	7-1/2"	7-1/8"	10"	8	7/8"	7-7/8"
5"	5"	5-9/16"	7-1/2"	10"	8	7/8"	8-1/2"	8-1/2"	11"	8	7/8"	9-1/4"
6"	6"	6-5/8"	8-1/2"	11"	8	7/8"	9-1/2"	9-7/8"	12-1/2"	12	7/8"	10-5/8"
8"	8"	8-5/8"	10-1/2"	13-1/2"	8	7/8"	11-3/4"	12-1/8"	15"	12	1"	13"
10"	10"	10-3/4"	13"	16"	12	1"	14-1/4"	14-1/4"	17-1/2"	16	1-1/8"	15-1/4"
12"	12"	12-3/4"	16"	19"	12	1"	17"	16-5/8"	20-1/2"	16	1-1/4"	17-3/4"
14"	14"	14"	17"	21"	12	1-1/8"	18-3/4"	19-1/8"	23"	20	1-1/4"	20-1/4"
16"	16"	16"	19"	23-1/2"	16	1-1/8"	21-1/4"	21-1/4"	25-1/2"	20	1-3/8"	22-1/2"
18"	18"	18"	21"	25"	16	1-1/4"	22-3/4"	23-1/2"	28"	24	1-3/8"	24-3/4"
20"	20"	20"	23"	27-1/2"	20	1-1/4"	25"	25-5/8"	30-1/2"	24	1-3/8"	27"
24"	24"	24"	27"	32"	20	1-3/8"	29-1/2"	30-3/8"	36"	24	1-5/8"	32"

PTFE Envelope Gasket Construction:

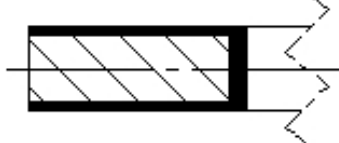
SLIT



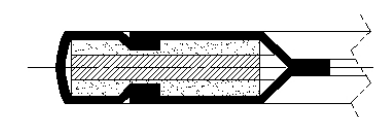
FORMED SHIELD



MACHINED



DOUBLE JACKET



Note: Unless otherwise specified, gaskets, spacers and flanges are manufactured to Old Standard.

Fillers: Common fillers used in Micromold PTFE Envelope Gaskets

- CNA** Compressed non-asbestos sheet (physical properties conform to ASTM F104 Class P-1141-A)
- NA** Compressible non-asbestos sheet
- CLT** CNA core faced on both sides with NA
- CRT** Corrugated cold rolled (or stainless) steel core faced on both sides with NA
- NEO** Neoprene rubber



INTERNATIONAL WARRANTY

LIMITED WARRANTY APPLYING TO INTERNATIONAL SHIPMENTS

Our products are warranted for two years after shipment by us to the extent that we will, at our option, either repair or replace without charge, products determined by us to have manufacturing defects. Alternatively, if in our judgment, repair or replacement is not the best option, we may choose to issue a merchandise credit not to exceed the total cost charged to the buyer for the goods including shipping and insurance.

For our warranty to be in effect, we require the customer to inspect the merchandise for defects within ten (10) calendar days of receipt and notify us in writing of any suspected defects within twenty (20) calendar days of receipt. The notification shall include reasonable evidence to confirm the defect such as dimensional, pictorial, and test data.

Should a hidden defect be discovered within the warranty period, the customer shall notify us in writing within ten (10) days of discovery. The notification shall include reasonable evidence to confirm the defect such as dimensional, pictorial and test data.

This warranty does not cover failures due to incorrect installation (including stress from misalignment or over-torque of bolts), or due to subjecting the merchandise to pressures (including water hammer), temperatures or combinations of pressures and temperatures higher than those stipulated in our product specifications. This warranty does not cover damage due to incorrect installation or maintenance such as scratched sealing surfaces resulting from incorrect cleaning procedures or other abuse.

If essential information about an application is given to us, we may be able to comment as to our opinion regarding the usefulness of our product in the service described. However, this warranty should not be interpreted as including any warranty for fitness of service.

NO WARRANTY IS INCLUDED COVERING ANY EXPENSE FOR REMOVAL, REINSTALLATION, OR OTHER CONSEQUENTIAL DAMAGES ARISING FROM ANY APPLICATION OF OUR PRODUCTS, WHETHER OR NOT DEFECTIVE. THE WARRANTIES INCLUDED HEREIN ARE THE ONLY ONES WE MAKE, AND ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED.

PROPERTIES OF **Polytetrafluoroethylene (PTFE)**

Representative Values

Values represent typical test results compiled from industry sources. Values for virgin and compounded PTFE vary depending upon resin characteristics, resin processing methods, resin test methods, fabrication techniques, and application conditions. Without further evaluation these data are not intended for use in specifications or as design criteria. Customers should make their own determination of PTFE’s suitability for their application. Please refer to the DISCLAIMER following this table.

If you are making design decisions that depend on the precision or accuracy of this data, we recommend that you contact Micromold Products to discuss your requirements. We will be happy to provide further information and design assistance.

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PROPERTY	REFERENCE	UNITS	VALUES
Mechanical Properties			
Tensile Strength			
• 23°C (73°F)	ASTM D638 / DIN53455	MPa (psi)	13.8 to 41.4 (2,000) to (6,000) Tests under DIN53455 show significantly higher values than those under ASTM D638. Tests of ram extruded PTFE show significantly lower values than those of molded or paste extruded materials.
• 250°C (482°F)	ASTM D638	MPa (psi)	12.4 (1,800)
• -253°C (-423°F)		MPa (psi)	123 (17,900)
Break Elongation			
• 23°C (73°F)	ASTM D638/ DIN53455	%	150 – 600 Tests under DIN53455 show significantly higher values than those under ASTM D638. Tests of ram extruded PTFE show significantly lower values than those of molded or paste extruded materials.
• 250°C (482°F)	ASTM D638	% min	480
• -253°C (-423°F)		% min	3
Impact Strength, Izod			
• -60°C (-76°F)	ASTM D256	J/m (ft-lb/in)	10.9 (2.0)
• +23°C (+73°F)	ASTM D256	J/m (ft-lb/in)	16.3 (3.0)
• +80°C (+176°F)	ASTM D256	J/m (ft-lb/in)	32.7 (6.0)
• -253°C (-423 °F)		J/m (ft-lb/in)	7.6 (1.4)
Hardness			
• 23°C (73°F)	ASTM D2240	Shore D	60
• 300°C (572°F)	ASTM D2240	Shore D	20
Compressive Strength (10 x 20 mm sample)			
• 0.2% offset	ASTM D695	MPa (psi)	7.6 (1,100)
• 1% strain	ASTM D695	MPa (psi)	5.0 (725)
• 25% strain	ASTM D695	MPa (psi)	28.2 (4,089)
Modulus of Elasticity	ASTM D638	MPa (psi)	390 to 600 (56,000 to 87,000)
Flexural Modulus			
• 20°C (68°F)	ASTM D790	MPa (psi)	427 to 510 (62,000 to 74,000)
• -253°C (-423°F)		MPa (psi)	510 (74,000)



PROPERTY	REFERENCE	UNITS	VALUES
Compressive Modulus			
• 20°C (68°F)		MPa (psi)	690 (100,000)
• -253°C (-423°F)		MPa (psi)	6,200 (900,000)
Flexural Strength	ASTM D790		No Break
Poisson's Ratio			
• 23°C (73°F)			0.46
• Higher temperatures			0.50
Deformation Under Load			
• 23°C (73°F), 3.4 MPa (500 psi), 24 hours	ASTM D621	%	<0.5
• 23°C (73°F), 6.9 MPa (1000 psi), 24 hours	ASTM D621	%	2
• 23°C (73°F), 14 MPa (2000 psi), 24 hours	ASTM D621	%	10
Specific Gravity	ASTM D792	g/cm ³	2.13 – 2.19
Water Absorption, 24 hrs, 1/8 in thick	ASTM D570	%	0.01
Refractive Index	ASTM D542		1.35
Weldability (Also see below for discussion of Modified vs. Plain Virgin PTFE)			• Satisfactory PTFE butt and lap joints can be made by heat fusing thin films • Also, high quality, full strength fused joints may be made using FEP or PFA thin films. • In contrast, quality FEP or PFA stick welds are more difficult to achieve.
Surface Properties			
Static Coefficient of Friction, 21 – 327°C (70 – 621°F)			0.05 – 0.08
Angle of Contact			0°=Perfect Wetting, 180°=Perfect Non-Wetting
• Toluene			43°
• Water			108°
• Mercury			150°
Critical Surface Tension	ASTM D2578	m ² /mJ	19.4
PV (Pressure–Velocity) Limit			
• 3.05 m/min (10 ft/min)		kg/cm ² -m/min (lb/in ² -ft/min)	277 (1,200)



PROPERTY	REFERENCE	UNITS	VALUES
• 30.5 m/min (100 ft/min)		kg/cm ² -m/min (lb/in ² -ft/min)	415 (1,800)
• 305 m/min (1000 ft/min)		kg/cm ² -m/min (lb/in ² -ft/min)	578 (2,500)
Wear Factor (K)		10 ⁻⁸ mm ³ /Nm (10 ⁻¹⁰ in ³ -min/ft-lb-hr)	5,035 (2,500)
Abrasion resistance	Sand Slurry Abrasion Test, 1750 rpm in 50/50 sand/ water mix	relative weight loss (Carbon steel is rated at 100)	78

Electrical Properties

Dielectric Strength, min.			
• Short time, 0.25mm (10 mil) thick	ASTM D149	volts/mm (volts/mil)	80,000 (2,000)
• Short time, 3.2mm (1/8 in) thick	ASTM D149	volts/mm (volts/mil)	24,000 (600)
• Step-by-Step, 3.2mm (1/8 in) thick	ASTM D149	volts/mm (volts/mil)	17,200 (430)
Arc Resistance	ASTM D495	seconds	> 300 (doesn't track)
Volume Resistivity	ASTM D257	cm-ohm	>10 ¹⁸
Surface Resistance		ohms	10 ¹⁷
Relative Permittivity (Dielectric Constant), max, 1kHz	ASTM D150		< 2.1
Dissipation Factor, max, 1kHz	ASTM D150		< 0.0005

Thermal Properties

Coefficient of Linear Thermal Expansion			
• -184 – 10°C (-300 – 50°F)	ASTM D696	10 ⁻⁵ mm/mm/°C (10 ⁻⁵ in/in/°F)	7.1 (3.9)
• 10 - 20°C (50 – 68°F)	ASTM D696	10 ⁻⁵ mm/mm/°C (10 ⁻⁵ in/in/°F)	15.2 (8.4)
• 20 - 25°C (68 – 77°F)	ASTM D696	10 ⁻⁵ mm/mm/°C (10 ⁻⁵ in/in/°F)	79.0 (43.9)
• 25 – 149°C (77 – 300°F)	ASTM D696	10 ⁻⁵ mm/mm/°C (10 ⁻⁵ in/in/°F)	13.5 (7.5)
• 149 - 288°C (300 – 550°F)	ASTM D696	10 ⁻⁵ mm/mm/°C (10 ⁻⁵ in/in/°F)	28.7 (15.9)
Thermal Conductivity			
-128 – 182°C (-198 – 360°F)	ASTM C177	W/m-K (BTU/hr/ft ² /°F/in)	0.25 (1.7)



PROPERTY	REFERENCE	UNITS	VALUES
• -253°C (-429°F)	ASTM C177	W/m-K (BTU/hr/ft ² /°F/in)	0.13 (0.88)
Heat Distortion Temperature			
• 0.46 MPa (66 psi)	ASTM D648	°C (°F)	121 (250)
• 1.82 MPa (264 psi)	ASTM D648	°C (°F)	55 (132)
Specific Heat			
• 20°C (68°F)	ASTM D4591	kJ/kg-K (BTU/lb-°F)	1.4 (0.33)
• 260°C (500°F)		kJ/kg-K (BTU/lb-°F)	1.5 (0.37)
Maximum Continuous Service Temperature - with minimal load		°C (°F)	315 (600)
Glass Transition Temperature		°C (°F)	126 (260)
Relative Temperature Index	UL-746	°C (°F)	180 (356)
Melting Point		°C (°F)	Does not melt. There is no liquid phase.
Gel Point		°C (°F)	327 (621)
Cryogenic Properties			
• Above -268°C (-450°F)			Strong, tough, flexible, low coefficient of friction
• Above -79°C (-110 °F)			Very flexible
Chemical Resistance			
Resistant to all chemicals, including any acid, base, solvent, or any other corrosive or aggressive chemical except the following			No chemicals attack PTFE even at extremes of 0 to 14 pH, except those below
Turbulent liquid or gaseous fluorine			Elemental fluorine and a few compounds that release it at high temperatures are not compatible with PTFE
Molten or dissolved alkali metals: sodium, potassium, lithium, calcium, magnesium			Alkali metals attack PTFE
Permeability			Approximately 10% of 600 industrial chemicals may permeate PTFE products. Tests show that, in many cases, permeation of PTFE is less than permeation of similar fluoroplastics such as PFA and FEP. Design and processing can reduce permeation.



PROPERTY	REFERENCE	UNITS	VALUES
Radiation Resistance			
UV Radiation			
• UV-A, wavelengths 400 – 315 nm		nm	Transmits UV-A rays– No degradation
• UV-B, wavelengths 315 – 280 nm		nm	Transmits UV-B rays– No degradation
• UV-C, wavelengths 280 – 100 nm		nm	Longer than 200, UV-C is mostly transmitted, and absorption appears insufficient to cause degradation. Shorter than 200, we know PTFE degrades at 185 (the shorter of the two wavelengths emitted by mercury vapor lamps). However, as wavelengths shorten, there is decreasing transmittance. We can speculate that, in the shorter regions - say less than 160 - degradation is limited to surface erosion, and commercial applications of parts thicker than film may be feasible.
High Energy Radiation (e.g., x-rays, gamma rays, electron beam)			
• More than $2 - 7 \times 10^4$ rads exposure in air			Breaks carbon-carbon bonds resulting in physical damage
• More than $2 - 7 \times 10^5$ rads exposure in a vacuum			Breaks carbon-carbon bonds resulting in physical damage
Selected Flammable Classifications		NOTE: <i>The following classifications are frequently under review and revision. Please contact Micromold for the current status</i>	
Flash Ignition Temperature Method	ASTM D1929	°C (°F)	530-550 (986-1,022)
Self Ignition Temperature Method	ASTM D1929	°C (°F)	520-560 (968-1,040)
Auto Ignition Temperature Method	ASTM D1929		High temperature
Limiting Oxygen Index	ASTM D2863		>95
Flame Spread	NFPA 262-1990, UL-910 Plenum Test		Limited
Smoke Generation	NFPA 262-1990, UL-910 Plenum Test		Low



PROPERTY	REFERENCE	UNITS	VALUES
Limited Combustible Material	NFPA 220		Complies
Hazard Classification	NFPA	Flammability	1
Hazard Classification	HMIS® III, ACA (American Coatings Association)	Flammability	1
Flammability	UL-94		V-0
Sanitary Classifications			
• FDA	21 CFR 177.1550, Perfluorocarbon Resins		PTFE resins processed by Micromold comply
• USDA			PTFE resins processed by Micromold comply
• NSF	NSF 14, 61, et al		Selected products made from or containing PTFE resins comply
• 3A	3-A Standard 20		Selected products made from or containing PTFE resins comply
• USP	Class VI		Selected products made from or containing PTFE resins comply
Other Regulatory Classifications			
OSHA Hazard Communication Standard	29 CFR 1910.1200		Not classified as hazardous
EU RoHS (Restriction of Hazardous Substances) directive	2011/65/EU		Products supplied by Micromold can be certified as compliant with the EU RoHS directives. Please contact the factory.
EU REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) regulation	(EC) No 1907/2006		Products supplied by Micromold can be certified as compliant with the REACH regulations. Please contact the factory.
Modified vs. Plain Virgin PTFE	ASTM D 4894, Type III		A small amount (<1%) of perfluoropropylvinylether (PPVE) is polymerized with PTFE. That impedes crystallinity, increases the amount of and improves the properties of the amorphous content. With amounts so small, modified resins remain classified as Virgin PTFE
Deformation Under Load			
• 23°C (73°F)			Reduced by about 40 to 50%



PROPERTY	REFERENCE	UNITS	VALUES
• 150°C (302°F)			Reduced by 60% or more
Permeability			For many gases and vapors, reduced by 20 to 30%
Dielectric Strength			About the same or slightly improved
Fusing and Welding			High quality welds with strong joints are possible using fusing and FEP or PFA stick welding
Tensile Strength			About the same or slightly improved
Elongation at Break			Increased by 25% or more at ambient and lower temperatures
Modulus of Elasticity			Especially at higher temperatures, increased 60 to 100% or more
Surface Finish			Smoother machined finishes are possible

Effect of Compounding Virgin PTFE Resin with Fillers

Deformation under load			Reduced by up to 50%
Compressive Strength			Increased 5 to 10 times
Wear Resistance			Increased up to 1000 times
Coefficient of Linear Thermal Expansion			Reduced by up to 80%
Thermal Conductivity			Can be increased by up to 5 times
Volume Resistivity and Surface Resistance			Can be Reduced
Tensile Strength			Generally reduced
Break Elongation			Generally reduced
Regulatory compliance			Some, but not all, compounds are FDA / USDA compliant
Compounding of Modified PTFE			Most of the properties improved by compounding are even more so when the base resin is modified PTFE

Effects of Crystallinity

High Crystallinity via slow cooling affects ...			
• Flexural modulus			Increased
• Permeability			Reduced
• Deformation Under Load			Reduced
Low Crystallinity via rapid cooling (<i>Practical only in thin sections</i>) affects ...			
• Flex life			Increased
• Tensile strength			Increased



We welcome comments, suggestions, and questions concerning this table. Please email mpi@micromold.com

DISCLAIMER: The information in the table above comes from many sources, some from tests made years ago but which Micromold believes to be accurate within reason. **HOWEVER, WE MAKE NO WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THIS MATERIAL FOR THE USER'S PARTICULAR PURPOSE OR APPLICATION.**



SPOTS ON PTFE FABRICATIONS

Most of our PTFE fabrications are made from PTFE resins conforming to ASTM D4894, Standard Specification for Polytetrafluoroethylene (PTFE) Granular Molding and Ram Extrusion Materials.

With respect to spots occurring on items made from such resins, the relevant ASTM Standard Specifications are:

- ASTM D1710 for Extruded PTFE Rod, Heavy Walled Tubing and Basic Shapes
- ASTM D3294 for PTFE Resin Molded Sheet and Molded Basic Shapes
- ASTM D6457 for Extruded and Compression Molded (PTFE) Rod and Heavy-Walled Tubing

The following excerpts are from those specs with relevant terms highlighted:

COLOR

- 1) D1710 & D6457, Paragraph 8.1
 - a) “Type I shall be white translucent, **but may have occasional spots.**”
- 2) D3294 Paragraph 9.1
 - a) “Type I shall be white to translucent, **but often have occasional spots.**”
- 3) Note that Type I covers **premium** products, the best classification in the spec. Type I may be made from either virgin (Grade 1), or repro. (Grade 2)

VISUAL INSPECTION

- 1) D1710 & D6457, Paragraph 12.1
 - a) ... “**Occasional superficial flaws** in PTFE rod or heavy-walled tubing should be interpreted as not affecting the physical and electrical properties.”