international polymer solutions

PTFE PRESSURE REGULATOR

Our **IPS PTFE Pressure Regulator** is designed for use in high purity water and aggressive chemicals applications.

Designed with a 100% virgin PTFE wetted flow path, the unit is ideal for DI Water Systems and corrosive media found in solar, semiconductor, pharmaceutical and chemical process applications.

All configurations are fitted for Panel Mounting with easy-to-grip Adjustment Knob.

The Teflon coated stainless steel adjustment screw is configured for low torque reliable manual operation.

Other sizes and configurations are available on request.

Specification:

Materials of Construction:	Temperature Ranges:
• Wetted Surfaces: Machined 100% Virgin PTFE & TFM • Non Wetted Materials: PVDF, Brass, Polypro, SS • Regulating Springs: Coated Steel	• 32°F - 140°F (0°C - 60°C) Ambient • 32°F - 266°F (0°C - 130°C) Media

Pressure Ranges:

- Maximum Inlet Pressure: 90 psi.
- Two factory set pressure regulating options: LO = 0 to 40 psi and HI = 30 to 60 psi.
- Referenced pressure ranges are listed for normal media temperature conditions.
- Consult factory for pressure ranges when operating with media temperatures greater than 160°F.

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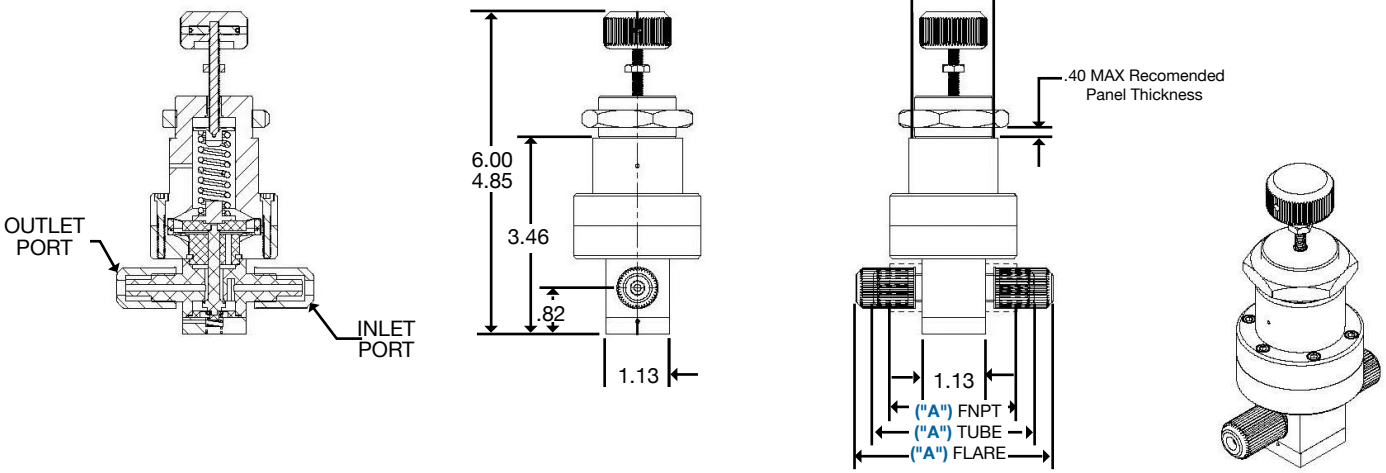

PTFE Pressure Regulator:
ORDERING FORMAT

PRG - 2 2 - P - HI

LO = Represents the factory set low pressure range of 0 psi to 40 psi.
HI = Represents the factory set high pressure range of 30 psi to 60 psi.

PORT SIZE & ORIFICE SIZE			PORT TYPE		"A" Dim
Callout	Port Size	Orifice Size	Callout	Port Type	Ref Inches
21	2 = (1/8")	1 = (1/16")	T	TUBE	2.85
43	4 = (1/4")	3 = (3/16")	T	TUBE	2.85
65	6 = (3/8")	5 = (5/16")	T	TUBE	2.95
22	2 = (1/8")	2 = (1/8")	P	FNPT	1.85
44	4 = (1/4")	4 = (1/4")	P	FNPT	2.25
64	6 = (3/8")	4 = (1/4")	P	FNPT	2.25
42	4 = (1/4")	2 = (1/8")	F	FLARE	3.45
64	6 = (3/8")	4 = (1/4")	F	FLARE	3.45

Turn the Adjustment Knob clockwise to increase the regulator outlet pressure.

Turn the Adjustment Knob counter- clockwise to decrease the regulator outlet pressure.

Do not over torque the Adjustment Knob against the travel stop.

IPS Product Notes:

1. Please email Customer Service at info@ipolymer.com
2. Call us for special applications. We can manufacture our regulators with special mounting and interface dimensions.
3. Upon request, alternate material selection from those listed will allow for expanding temperature ratings or other performance characteristics.
4. Unauthorized disassembly of this product will void the original factory one-year product warranty. For further details please contact your local Distributor or our factory directly.

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Pressure Relief Valve

Our **IPS Pressure Relief Valve (PRV)** is constructed with a 100% pure PTFE Valve Body and Valve Plug. The single O-Ring design allows user selection of EP, Viton or Kalrez (FFKM eq.) depending on the flowing media.

The IPS PRV is factory configured for a 10 psi to 90 psi pressure range.

The relief valve is fully adjustable within this range by simply adjusting the upper Socket Hex Adjustment Screw and locking in place with the associated locking nut.

Our IPS Pressure Relief Valve is configured with three Upper Housing and Lower Base options: Polyvinylidene Fluoride (“PVDF”), Polypropylene (“PP”) or Anodized Aluminum (“AA”) as shown.

Applications

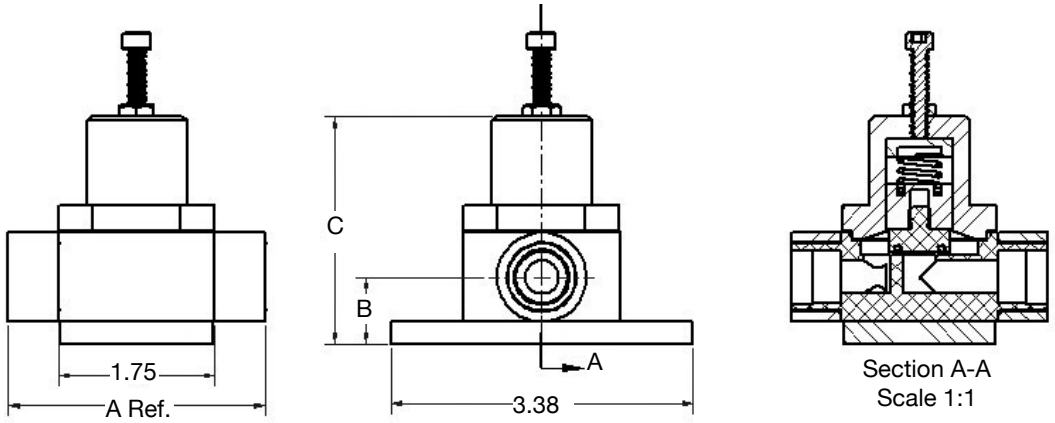
- Pump Pressure Relief
- Expansion Container Pressure Relief
- Flow Channel Pressure Relief
- Safety Relief from water hammer
- System protection for individual low pressure component in circuit

Features:

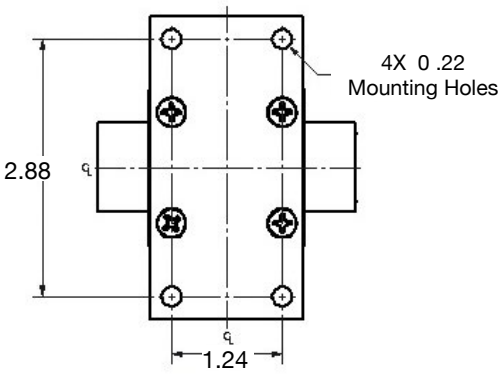
- All Wetted High-Purity Flow Path
- Ideal for Harsh Chemicals
- Fully Adjustable within a 80 psi selected range
- Teflon Coated Spring is isolated from media

Call Factory with Special Requests

Temperature Range	
Ambient	
AA	0°C - 150°C
PVDF	0°C - 120°C
PP	0°C - 60°C
Media	
AA	0°C - 150°C
PVDF	0°C - 120°C
PP	0°C - 60°C



PORT	A	B	C
1/4" Pipe	2.87	0.75	2.55
1/4" Tube	3.44	0.75	2.55
1/4" Flared	4.07	0.75	2.55
3/8" Pipe	2.87	0.75	2.55
3/8" Tube	3.44	0.75	2.55
3/8" Flared	4.09	0.75	2.55
1/2" Pipe	3.25	0.84	2.73
1/2" Tube	3.65	0.84	2.73
1/2" Flared	4.34	0.84	2.73



Pressure Relief Valve: ORDERING FORMAT

PRV – 4 4 P – EP – AA

Porting w/ Max Orifice

PIPE	
44	1/4" FNPT & 0.250" Orifice
66	3/8" FNPT & 0.375" Orifice
88	1/2" FNPT & 0.500" Orifice
TUBE	
43	1/4" TUBE & 0.188" Orifice
65	3/8" TUBE & 0.313" Orifice
87	1/2" TUBE & 0.436" Orifice
FLARE	
42	1/4" FLARE & 0.125" Orifice
64	3/8" FLARE & 0.250" Orifice
86	1/2" FLARE & 0.375" Orifice

Upper Housing & Base Plate
AA = Anodized Aluminum
PP = Polypropylene
PVDF = Polyvinylidene Fluoride

O-Ring Type
EP = Ethylene Propylene
KA = Kalrez (FFKM eq.)
VT = Viton

Port Connection
P = FNPT
T = Tube
FF = Flared

Sanitary End and Male NPT Connections are available as special orders

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PTFE Aspirators

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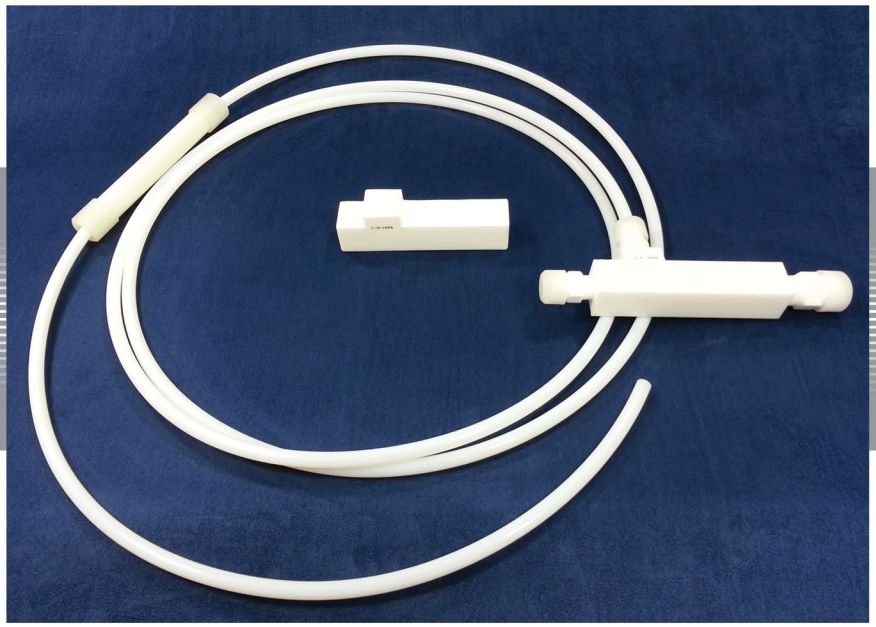


The **IPS PTFE Air & Liquid Aspirators** are manufactured from virgin PTFE (Teflon® - E.I. Dupont) and are designed for efficient and rapid siphoning of hard to handle chemicals.

Our IPS Air Aspirator uses clean dry shop air (CDA) or Nitrogen to initiate and sustain a natural or forced siphon. Applications include the draining and mixing of containment vessels and the removal of saturated waste chemistry. Air Aspirators are also used where recovery recirculation is desired in process chemistries.

Our IPS Liquid Aspirators use common city water or DI Water to aspirate and dilute harsh chemical baths. One common application is the dilution siphoning of Sulfuric Acid (H_2SO_4) used for chemical cleaning and etching.

Air & Liquid Aspirators are sold as standalone siphoning bodies or as Aspirator Kits. Kits include 8 feet of PTFE Tubing and Compression Fittings. Our CHK Kit includes a special PTFE check valve mounted on the siphon port to prevent possible back flow.

Essentially, an IPS Aspirator is a low cost 100% PTFE Venturi vacuum pump.

General Specification:	
Pressure Rating	10 - 60 psi
Temperature Rating	
Ambient	32°F - 160°F (0°C - 72°C)
Media	0°F - 260°F (-18°C - 127°C)

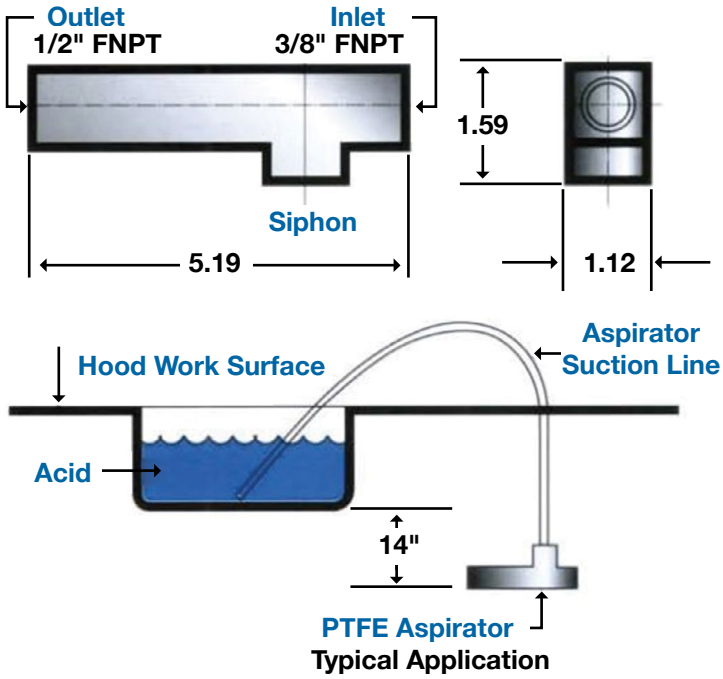
Performance Specification:

Inlet Pressure	Air 3/8" Suction	Air 1/2" Suction	Liq. 3/8" Suction	Liq. 1/2" Suction
50 psi	6.3	7.2	13.0	13.3
40 psi	5.3	5.8	11.3	11.5
30 psi	4.0	4.5	8.9	8.9
20 psi	3.0	3.0	6.4	6.5
10 psi	1.5	1.5	3.8	3.8

Value represented in inches of Mercury

PERFORMANCE RECOMMENDATIONS:

- The Minimum Pressure to initiate a siphon is 5 psi. This pressure is a function of the fluid viscosity and ambient conditions.
- The 1/2" Aspirator will siphon with a slightly greater vacuum compared to the 3/8" Aspirator.
- Overall performance will vary based on the viscoity of the media being siphoned.
- Air Aspirators must be mounted at least 14" below the suction point (siphon point). Liquid Aspirators can be mounted level with the suction/siphon point.
- For continuous flow applications, it is best to actuate an Air Aspirator with 30 to 50 psi of CDA for 10 to 15 seconds then turn off the air supply and allow the Air Aspirator to work by pure suction (siphoning action only).
- Back pressure on the Outlet Port will decrease the ability of the Aspirators to create a proper siphon.



Typical Application

PTFE Aspirator: ORDERING FORMAT

xx – A – 18 x 6 – xxx

Aspirator Type

A = Air (aspirator body only)
KA = Air Kit ((see description below))
L = Liquid (aspirator body only)
KL = Liquid Kit ((see description below))

Siphon Port Size (FNPT)

6 = 3/8" Siphon with a 3/8" Inlet & 1/2" Outlet
8 = 1/2" Siphon with a 3/8" Inlet & 1/2" Outlet

Additional Options for Kit

CHK = Kit with Check Valve
PRO = Kit with Poly Fittings

Spare Part No.	Accessory Description
AH-1	Handle - 3/8" Suction Port
AH-2	Handle - 1/2" Suction Port

DESCRIPTION OF ASPIRATOR KITS:

Standard Kit includes: Aspirator Body & Handle, 8 ft of PTFE Tubing and 3 PTFE Compression Fittings for Inlet, Outlet & Siphon Ports (one each).

Check Valve Kit includes: Aspirator Body & Handle, 8 ft of PTFE Tubing, 2 PTFE Compression Fittings for Inlet & Outlet, and PTFE Check Valve mounted on Siphon Port.

Poly Fitting Kit includes: Aspirator Body & Handle, 8 ft of PTFE Tubing, 2 Poly Compression Fittings for Inlet & Outlet, and PTFE Compression Fitting for Siphon Port.

OPTIONAL LIQUID ASPIRATOR DILUTION ORIFICE PLATE:

Add to end of Part No.	PTFE Orifice Plate at Siphon Port
-02	(2 - 3): 1 Dilution Orifice
-05	(4 - 6): 1 Dilution Orifice
-10	(8-12): 1 Dilution Orifice

These Dilution Ratios are approximate. Field results will vary with fluid viscosity, tempatures, orientation of the Liquid Aspirator device. The addition of an orifice plate decreases the siphoning rate.

IPS Product Notes:

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Check Valves

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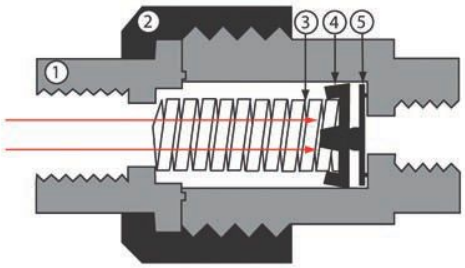
Our **IPS Check Valve** feature all PTFE wetted surfaces for excellent performance in all high purity applications. Our PTFE design resists chemical corrosion and other elements within a harsh process environments.

IPS Check Valves are commonly found as backflow preventers in clean processes. They are a simple and ideal device where directional flow control is a must.

Depending on the check valve size selected and cracking pressure, some external non-wetted components may include Polypropylene or PVDF. The special internal control spring for 3 psi to 6 psi (nominal 5 psi) cracking pressure is machined virgin PTFE. Whereas, for higher cracking pressures the spring construction is doubled Teflon Coated Stainless Steel precision ground.

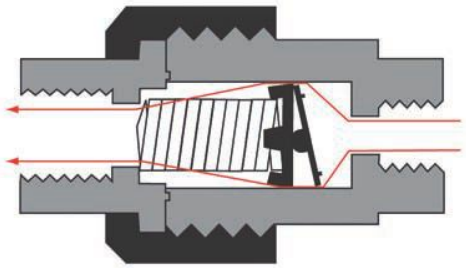
Please contact us with your special application requirements. Special PEEK, PVDF and Polypro configurations are available upon request.

Stop Flow



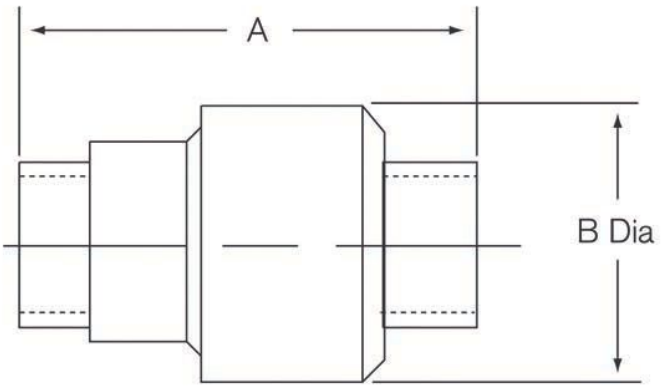
1. Body
2. Nut
3. Spring
4. Diffuser
5. Poppet

Through Flow



Specifications

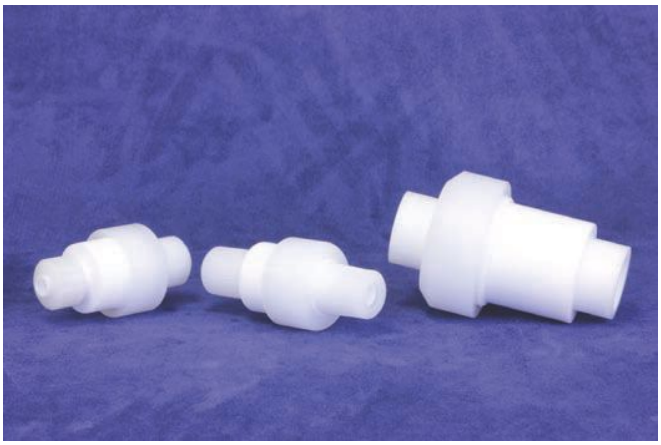
	- 05	- 10	- 20
Cracking Pressure	3 psi to 6 psi	7 psi to 13 psi	17 psi to 23 psi
Max Operating Pressure	50 psi	50 psi	50 psi
Media Temperature	230° F / 110° C	230° F / 110° C	230° F / 110° C
Ambient Temperature	140° F / 60° C	140° F / 60° C	140° F / 60° C



Custom configurations are available

Inlet & Outlet Port Size	A*	B
2	2.13	1.25
4	2.49	1.25
6	2.75	1.75
8	3.13	1.75
12	4.40	2.75
16	4.95	2.75

*Tube and Flare ends slightly longer



Check Valve: ORDERING FORMAT

*Orifice Size cannot be larger than Inlet & Outlet Port Size

CV – 2 – 2 – P – 05

Check Valve

Orifice Size*
2 = 1/8"
4 = 1/4"
6 = 3/8"
8 = 1/2"
12 = 3/4"
16 = 1"

Inlet & Outlet Size
2 = 1/8"
4 = 1/4"
6 = 3/8"
8 = 1/2"
12 = 3/4"
16 = 1"

End Connection
P = FNPT
T = Tube
F = Flared
M = MNPT

Cracking Pressure
05 = 3 psi to 6 psi
10 = 7 psi to 13 psi
20 = 17 psi to 23 psi

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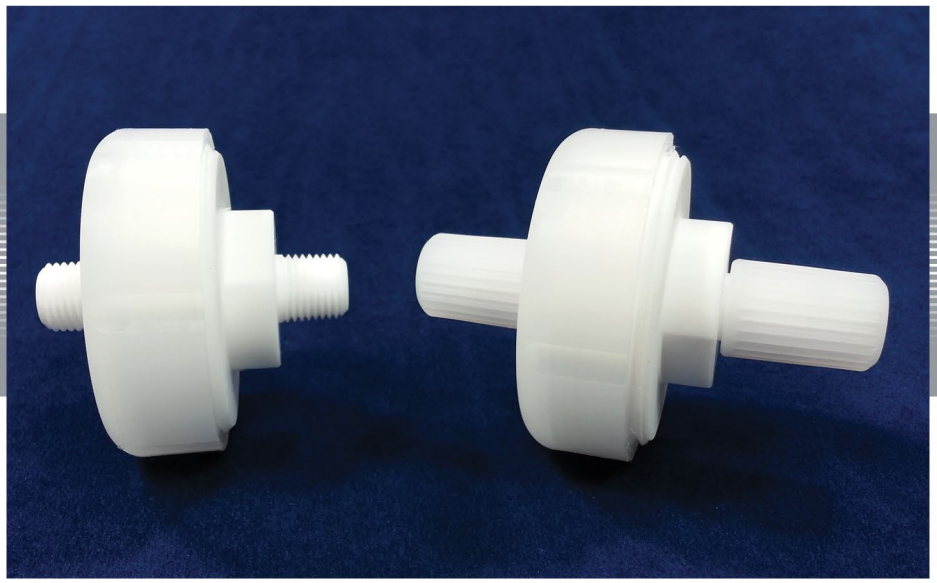
Teflon Disc Filter



The **IPS Teflon Disc Filter (TDF)** has been designed to fulfill the special requirements of inline microfiltration for sensitive medias. All contact surfaces are constructed so that nothing but PTFE comes into contact with the media being filtered. The Disc Filter utilizes replaceable Zitex™ filter elements which form a continuous mat of PTFE fibers. These fibers are fused together to form a screen-like membrane structure. The resultant membrane is hydrophobic and hence aqueous suspensions must be filtered at high rates to overcome surface tension. Because of the non-stick characteristics of PTFE, the natural lubricity of all wetted surfaces, and the easy replacement of filter elements, entrapped contaminates may be easily removed.

Specifications:	
Pressure Rating	0 - 60 psi
Temperature Rating	
Ambient	32°F - 160°F (0°C - 72°C)
Media	0°F - 260°F (-18°C - 127°C)

PTFE Zitex Disc Filter	Size	Nominal Pore (MICRONS)
Ultra Fine Zitex PTFE Disc Filter	47mm	1.5
Fine Zitex PTFE Disc Filter	47mm	4.5
Medium Zitex PTFE Disc Filter	47mm	15
Course Zitex PTFE Disc Filter	47mm	25

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P/N	DESCRIPTION	INLET/OUTLET
TDF-47-XXX-4T	Filter Assembly 47mm (1.85)	1/4 Tube
TDF-47-XXX-4FP	Filter Assembly 47mm (1.85)	1/4 FNPT
TDF-47-XXX-4MP	Filter Assembly 47mm (1.85)	1/4 MNPT
TDF-47-XXX-4FF	Filter Assembly 47mm (1.85)	1/4 Flared

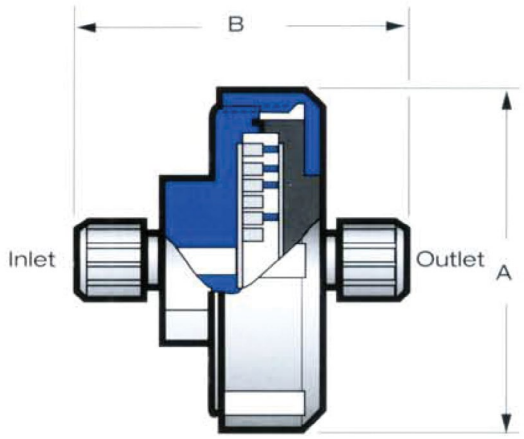
NOTE: "-XXX" REPRESENTS THE LAST 3 DIGITS OF THE FILTER MEMBRANE PART NUMBER.

EXAMPLE: FOR 1/4 FNPT ASSEMBLY WITH FM104 MEMBRANE. THE P/N IS: TDF-47-104-4FP

IPS NO.	Max. Function Pore Size (microns)	Nominal Thickness	Flow Rates			Initiation Pressure for Water	Ethanol Bubble Point	Approx. Pore Vol.	Pore Density
			Water*		Air**				
		in	A	B	secs	psi	psi	%	
G-110	1 - 2	0.010	20 - 30	80 - 120	5 - 6	5.5 - 6.5	1.00 - 1.40	40	Ultra Fine
G-108	3 - 5	0.008	30 - 50	120 - 200	4 - 5	3.5 - 4.5	0.80 - 1.20	45	Fine
A-145	10 - 20	0.0045	30 - 80	120 - 320	1.50 - 2.50	.90 - 1.8	0.40 - 0.70	65	Medium
A-135	20 - 30	0.005	110 - 155	440 - 620	.40 - .70	.60 - 1.2	0.25 - 0.40	65	Coarse

*Water Flow Rate: A = Gallons/minute/ft2 @ 13.5 psi., B = Ml/minute/cm2 @70 cmHg.
**Air Flow Rate: G-Series = 100 cc/1.0 in^2/20 oz. (Gurley Test), A-Series = 100cc/1.0 in^2/@Δ P 0.176 psi (Gurley Test).
Pressure differential necessary to overcome hydrophobic and internal resistance.
Data shown is representative and not to be used as material specifications.

SIZE	A	B
4T	2.50	2.17
4FP	2.50	2.29
4MP	2.50	2.29
4FF	2.50	3.17



Zitex™ is the registered trademark of Saint-Gobain.

IPS Product Notes:

1. Please email Customer Service at info@ipolymer.com
2. Call us for special applications. We can manufacture our Disc Filters with special mounting and interface dimensions.
3. Upon request, alternate material selection from those listed will allow for expanding temperature ratings or other performance characteristics.
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IPS PTFE Chemical Injection Control Valve

International Polymer Solutions Inc. is proud to introduce our new line of PTFE Chemical Injection Control Valves.

Offering precision performance under extreme conditions, our all-wetted PTFE design is ideally suited for chemical wet process in water, wastewater, pharmaceutical, life science and general chemical handling applications. The PTFE construction guarantees best-in-class inert characteristics for high purity applications and exceptional chemical resistant behavior for corrosive applications.

With a wide range of options available, our IPS Chemical Injection Control Valve can solve the most challenging Chemical Dosing problem. Whether injecting Fluoride, Chlorine, Chlorine Dioxide, Ammonia, Sulfuric Acid, Nitric Acid, Peracetic Acid or any number of other process chemistries, our PTFE Chemical Injection Control Valve will self-regulate and control the dosing flow rate to gallons per hour (GPH) of injected chemistry.

Our IPS PTFE Chemical Injection Control Valve is factory configured with a PTFE Pressure Regulator allowing for a wide range of inlet source pressures from fixed Chemical Storage Tanks and Vessels. The days of manually adjusting over time for large inlet pressure variation are gone. The Control Valve design incorporates a quarter-turn tapered orifice which modulates the media flow up to a 10:1 ratio.

Quarter-Turn Actuation Options:

- Electromechanical 4 to 20ma Control Signal
- Electromechanical On/Off with Return Spring
- Pneumatic On/Off with Return Spring
- Manual Actuation with Topside Hand Lever

Porting Options:

- ½" FNPT Connection
- ½" ANSI 150# Flange Connection
- ½" Mini Sanitary Connection
- 1" Ladish Sanitary Connection

Inlet Pressure Regulation:

- 2 psi to 20 psi Fixed Set Point Pressure Regulation to Control Valve
- Source Pressure at Pressure Regulator Inlet from set point up to 80 psi

Control Valve Flow Characteristics:

- Configurable Fixed Tapered Orifice on PTFE Ball
- Flow Configuration A: 2 to 12 GPH max (with zero flow when closed)
- Flow Configuration B: 4 to 32 GPH max (with zero flow when closed)
- Flow Configuration C: 6 to 60 GPH max (with zero flow when closed)
- Flow Configuration D: 10 to 100 GPH max (with zero flow when closed)
- Liquid Tight ANSI/FCI 70-2:2006 Class V Valve Seat Leakage (< 0.0002 GPH)

Call IPS with your unique Flow Requirements

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Highlights:

- PTFE design optimized for inert high purity, chemical resistance and food safe use
- Ideally suited for harsh chemical media and elevated media temperatures
- All sealing surfaces are PTFE hard seated or diaphragm seals
- Actuation is rated for a continuous control duty cycle

General Parameters:

Orifice Cv (depending on design)	0.02 - 0.50
Media Temperature (range)	0 - 100°C / 32 - 212°F
Ambient Temperature (range)	0 - 50°C / 32 - 122°F
Maximum Port Pressure Rating (psi)	at Regulator inlet 80 psi
Backpressure (psi)	at Ball Valve outlet 20 psi

Options Available on Request:

- Special Port Configurations
- End of Travel Limit Switches
- Continuous Position Feedback
- Special Mounting Configurations
- Custom Orifice Flow Patterns

Call IPS with your unique Valve Requirements

ORDERING FORMAT

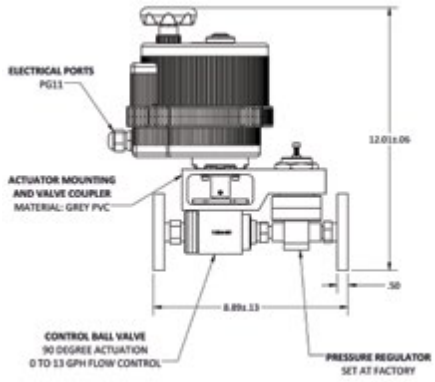
ICV – 88 – A – A – 420 – 1A

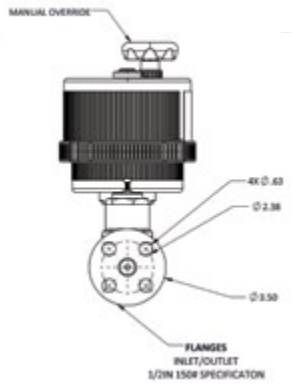
End Connection:
A = ½" ANSI 150# Flange
M = ½" Mini Sanitary Connection
L = 1" Ladish Sanitary Connection
F = ½" FNPT Port Connection

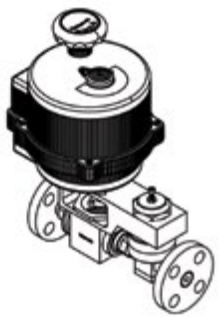
Flow Configuration:
A = Flow A: 2 - 12 GPH
B = Flow B: 4 - 32 GPH
C = Flow C: 6 - 60 GPH
D = Flow D: 10 - 100 GPH

Actuator Type:
420 = 4-20ma Electromechanical
OOE = On/Off Electromechanical
OOP = On/Off Pneumatic
MAN = Manual Actuator

Power Configuration *(if Electromechanical)*:
1A = 115VAC Power to Electromechanical Actuator
2A = 230VAC Power to Electromechanical Actuator
1D = 12VDC Power to Electromechanical Actuator
2D = 24VDC Power to Electromechanical Actuator







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4. Unauthorized disassembly of this product will void the original factory one-year product warranty. For further details please contact your local Distributor or our factory directly.

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