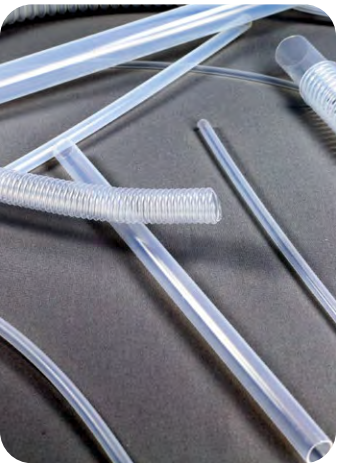
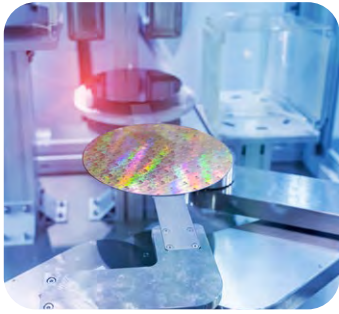
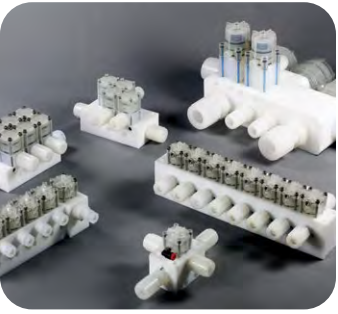




# High-Purity Fluid Handling Solutions for Microelectronics



**FURON**<sup>®</sup>  
Pure Performance

# PURITY PERFORMANCE INNOVATION

Saint-Gobain Performance Plastics is a world renowned manufacturer of high-performance fluoropolymer products for the most demanding fluid handling applications.

Through our **Furon®** and **Versilon®** product lines, we offer unmatched solutions to meet your needs in demanding markets such as microelectronics, where high purity, safety, and reliability are critical. With a strong engineering focus on Research and Development, we pioneer application-specific material solutions and novel processing techniques for a wide variety of high-purity systems.

Our experienced team of engineers works closely with our customers to develop molded, extruded, machined, and cleanroom assembled products, ensuring a rapid product development cycle. Whether you are updating a current OEM tool to stay ahead of the competition or launching the next generation product to your marketplace, Saint-Gobain presents a wealth of resources to meet your needs in every aspect of the product development and production process.

## We Offer

- Skilled senior-level engineering team with decades of experience in tool design, part design, materials processing, and materials selection for polymers and fluoropolymers
- Commitment to co-development solutions, supported by a dedicated Application Development Center that accelerates innovation through customization and rapid prototyping
- Vertically integrated clean manufacturing facilities, which provide complete process control from extruding and molding, to machining, to final assembly and test for reliable turnkey solutions

## Global Products – Local Support

We provide our worldwide customer base with technical support, customer service, and local inventory throughout North America, Asia and Europe, supported by manufacturing facilities in Europe and the United States.

## Ordering Information

You can contact our customer service department in one of the following countries:

- **China** (+8621) 5472 1568 | Sales.PPLCN@saint-gobain.com
- **Europe** (+33) 3 85 20 27 00 | MaconCSteam@saint-gobain.com
- **Japan** (+81) 3 6256 9703 | ls-japan@saint-gobain.com
- **Korea** (+82) 2 6098 0180 | LS-Korea@saint-gobain.com
- **Southeast Asia** (+66) 38 667 800 - 807 x7937 | cs.sgplsea@saint-gobain.com
- **Taiwan** (+886) 2 2503 4201 | Taiwan.ppl@saint-gobain.com
- **United States** (+1) 800-833-5661 | gardengrovequoteteam@saint-gobain.com

For additional information on our products, or to request literature or CAD drawings, please visit our website at [www.furon.com](http://www.furon.com)

## MANUFACTURING CAPABILITIES & EXPERTISE

Saint-Gobain's capabilities include extrusion, compression and injection, isostatic and endothermic molding for a wide range of polymers ranging from commodity grade resins to highly engineered polymers and fluoropolymers. Our extensive process knowledge coupled with assembly in a state-of-the-art, build-clean environment and premium raw material ensures our products meet or exceed the most stringent cleanliness requirements of the Semiconductor and other highly demanding industries.

We offer an extensive product line of high-purity fluid handling components. Featuring the Furon® and Versilon® lines of fluoropolymer-based fluid handling components, our standard product line includes pumps, valves, fittings, accessories such as pressure regulators and static mixers, high-purity piping, and high-purity tubing with simple and complex shapes, such as convoluted or corrugated. In addition to our standard products, we utilize our unparalleled expertise in designing custom fluid handling systems to our customers' exact requirements for each specific application. We are experienced at solving the most challenging fluid handling problems, from ultra-pure chemistry to abrasive slurries to extremely harsh or aggressive liquids coupled with demanding process conditions on flow, pressure and temperature.

## APPLICATIONS

### Chemical Delivery

- Superior flow performance
- High pressure capability

Chemical Delivery

BCD

### Wafer Processing

- Compact
- Meet or exceed industry requirement

Wafer Processing

WP

### Slurry

- Reduce impact on slurry
- Easy to clean

Slurry

CMP

### Precision Dispense

- Superior Accuracy & Precision
- Focus on repeatability

Precision Dispense

µL

### High Temperature

- Suitable with high temperature process
- Optimal safety

High Temperature

°F/°C



## VALVES

Our newest generation of **Furon valves** is constructed from high-purity, injection molded fluoropolymers including high-purity Perfluoroalkoxy (PFA). Our engineering expertise and patent-protected technologies allow us to provide the Semiconductor industry with valves that are 100% O-Ring free, metal free and/or maintenance free, ensuring optimal safety, system performance, and media purity.





## STANDARD VALVES



### FURON<sup>®</sup> UPX Valve

Configuration	2-Way or 3-Way
Orifice Size	1/4", 1/2", 3/4"
Standard	FlareGrip <sup>®</sup> II
Connection Types	FuseBond <sup>™</sup> Nippon Pillar Super 300 <sup>®</sup>
Connection Size	1/4", 3/8", 1/2", 3/4", 1"
Actuation Type	Pneumatic Manual Multi-Turn Manual Quarter-Turn
Max. Operating Pressure	100 PSIG (6.9 bar)
Max. Operating Temperature	230°F (110°C) 356°F (180°C) (High Temp)
C <sub>v</sub> Factor	0.8 – 7.0
Leak Detection Port	Yes

#### Features/Benefits:

- 100 PSIG rated forward and back-pressure in 2-way & 3-way configuration
- Metal-free & O-ring design
- Furon SCR spring and bellows protection specifically rated for concentrated HF & HCl and other aggressive applications
- True dual containment with leak detection



### FURON<sup>®</sup> Q-Valve

Configuration	2-Way
Orifice Size	1/4", 1/2", 3/4"
Standard	FlareGrip <sup>®</sup> II
Connection Types	FuseBond <sup>™</sup> Nippon Pillar Super 300 <sup>®</sup>
Connection Size	1/4", 3/8", 1/2", 3/4", 1"
Actuation Type	Pneumatic Manual Multi-Turn Manual Quarter-Turn
Max. Operating Pressure	80 PSIG (5.5 bar)
Max. Operating Temperature	203°F (95°C)
C <sub>v</sub> Factor	0.8 – 9.4
Leak Detection Port	Yes

#### Features/Benefits:

- 100% PFA, HP and virgin PTFE wetted flow path
- Integrated visual position indication
- Designed to be maintenance friendly
- Bi-directional flow
- Metal-free & O-ring design



# HIGH FLOW VALVES



## FURON<sup>®</sup> InLine Valve

Configuration	2-Way
Orifice Size	1"
Standard	FuseBond™
Connection Types	FlareGrip® II Nippon Pillar Super 300®
Connection Size	3/4", 1", 1-1/4"
Actuation Type	Pneumatic Manual Multi-Turn
Max. Operating Pressure	100 PSIG (6.9 bar)
Max. Operating Temperature	212°F (100°C)
C <sub>v</sub> Factor	Up to 15
Leak Detection Port	Yes

### Features/Benefits:

- 15 C<sub>v</sub> Flow Factor
- Fully swept, low shear internal flow path
- Quick-release, non metallic, 8-position mounting base
- 100% PFA HP and Virgin PTFE wetted flow path



## FURON<sup>®</sup> 2" HGVM Valve

Configuration	2-Way
Orifice Size	2"
Standard	FuseBond™
Connection Types	
Connection Size	1-1/2", 2"
Actuation Type	Pneumatic Manual Multi-Turn
Max. Operating Pressure	80 PSIG (5.5 bar)
Max. Operating Temperature	203°F (95°C)
C <sub>v</sub> Factor	52
Leak Detection Port	Yes

### Features/Benefits:

- Maximum flow rating of C<sub>v</sub> 52
- Fully swept flow path supports no-hold-up volume
- Visual position indication
- Leak detection capability



# MANIFOLD VALVES



## FURON® HPV & HPVM Mini Valve

Configuration	2-Way or 3-Way
Orifice Size	1/8"
Standard	Nippon Pillar Super 300®
Connection Types	
Connection Size	1/8"
Actuation Type	Pneumatic Manual Multi-Turn Manual Toggle
Max. Operating Pressure	80 PSIG (5.5 bar)
Max. Operating Temperature	203°F (95°C)
C <sub>v</sub> Factor	0.06
Leak Detection Port	OPTIONAL

### Features/Benefits:

- True 1/8" orifice valve
- Pressure rated up to 80 PSIG
- Lowest internal volume in the industry for a 1/8" valve
- Tested for more than 1 million cycles
- Compatible integration into our custom manifold solutions
- Optimum C<sub>v</sub>



## FURON® HPVM Valve

Configuration	2-Way or 3-Way
Orifice Size	1/4"
Standard	FlareGrip® II FuseBond™
Connection Types	Nippon Pillar Super 300®
Connection Size	1/4", 3/8"
Actuation Type	Pneumatic Manual Quarter-Turn: Electrical, 24 VDC Manual Multi-Turn: Electrical, 115 VAC
Max. Operating Pressure	80 PSIG (5.5 bar)
Max. Operating Temperature	203°F (95°C)
C <sub>v</sub> Factor	0.7
Leak Detection Port	YES/NO

### Features/Benefits:

- High-purity PFA or PTFE wetted flow path and PTFE diaphragm
- 80 PSIG (5.5 bar) forward/back pressure rating
- Available in pneumatic normally closed, normally open, multi-turn, toggle and quarter-turn actuation



## FURON® CDV Valve

Configuration	2-Way or 3-Way
Orifice Size	1/2"
Standard	FlareGrip® II FuseBond™
Connection Types	Nippon Pillar Super 300®
Connection Size	1/2", 3/4"
Actuation Type	Pneumatic Manual Multi-Turn Manual Quarter-Turn
Max. Operating Pressure	80 PSIG (5.5 bar)
Max. Operating Temperature	203°F (95°C)
C <sub>v</sub> Factor	3.0
Leak Detection Port	Yes

### Features/Benefits:

- High-purity PFA wetted flow path with virgin PTFE diaphragm
- 90 PSIG (6.2 bar) rated forward and back pressure
- 2-way and 3-way configurations
- Available in pneumatic normally closed, normally open, multi-turn, and toggle actuation







## FURON® J-Valve

Configuration	2-Way
Orifice Size	3/4"
Standard	FlareGrip® II
Connection Types	FuseBond™ Nippon Pillar Super 300®
Connection Size	3/4", 1"
Actuation Type	Pneumatic Manual Multi-Turn
Max. Operating Pressure	85 PSIG (5.9 bar)
Max. Operating Temperature	203°F (95°C)
C <sub>v</sub> Factor	5.2 - 7.2
Leak Detection Port	Yes

### Features/Benefits:

- Maximum flow rating of C<sub>v</sub> 7.2
- Fully swept flow path supports no-hold-up volume
- Visual position indication
- Leak detection capability



## FURON® RDVM & SMDVM Self-Manifolding Valves

Configuration	2-Way
Orifice Size	1"
Standard	FlareGrip® II
Connection Types	
Connection Size	1/2", 3/4", 1", 1-1/4"
Actuation Type	Pneumatic Manual Multi-Turn
Max. Operating Pressure	100 PSIG (6.9 bar)
Max. Operating Temperature	212°F (100°C)
C <sub>v</sub> Factor	Up to 15
Leak Detection Port	Yes

### Features/Benefits:

- Maximum flow rating of C<sub>v</sub> 15
- Minimal inventory requirements
- Available in pneumatic or manual-actuated versions
- Flexible design to meet a wide range of customer requirements
- May be assembled without special tools





# CHECK VALVES



## FURON<sup>®</sup> Mini Check Valve

Configuration	2-Way
Orifice Size	1/16", 1/8", 3/16", 1/4", 3/8"
Standard	FlareGrip <sup>®</sup> II
Connection Types	Nippon Pillar Super 300 <sup>®</sup>
Connection Size	1/8", 1/4", 3/8", 1/2"
Actuation Type	Media
Max. Operating Pressure	120 PSIG (8.3 bar)
Max. Operating Temperature	203°F (95°C)
C <sub>v</sub> Factor	0.1 – 1.9

### Features/Benefits:

- Injection molded, high purity PFA and PTFE wetted flow path
- Cracking pressure less than 1 PSIG (0.07 bar)
- High-purity PFA spring
- O-ring free design



## FURON<sup>®</sup> Large Check Valve

Configuration	2-Way
Orifice Size	1/2", 3/4", 1"
Standard	FlareGrip <sup>®</sup> II
Connection Types	Nippon Pillar Super 300 <sup>®</sup> FuseBond <sup>™</sup>
Connection Size	1/2", 3/4", 1"
Actuation Type	Media
Max. Operating Pressure	150 PSIG (10.3 bar)
Max. Operating Temperature	250°F (121°C)
C <sub>v</sub> Factor	3.7 – 13

### Features/Benefits:

- 100% high-purity PFA construction
- High flow capability (3.7 - 13 C<sub>v</sub>)
- Cracking pressure less than 1 PSIG (0.07 bar)
- High-purity PFA spring
- O-ring free design



## FURON<sup>®</sup> 2" Check Valve

Configuration	2-Way
Orifice Size	2"
Standard	FuseBond <sup>™</sup>
Connection Type	
Connection Size	1-1/2", 2"
Actuation Type	Media
Max. Operating Pressure	100 PSIG (6.8 bar)
Max. Operating Temperature	250°F (121°C)
C <sub>v</sub> Factor	32

### Features/Benefits:

- 100% high-purity fluoropolymer construction
- High flow capability (32 C<sub>v</sub>)
- Zero dead volume body seal with no wetted thread areas
- Cracking pressure less than 1 PSIG (0.07 bar)
- O-ring free design



# SPECIALTY VALVES



## FURON<sup>®</sup> SCM (Stopcock) Valve

Configuration	2-Way or 3-Way
Orifice Size	5/32", 5/16"
Standard	FlareGrip <sup>®</sup> II
Connection Types	Male NPT
Connection Size	1/4", 3/8", 1/2"
Actuation Type	Manual
Max. Operating Pressure	45 PSIG (3 bar)
Max. Operating Temperature	140°F (60°C)
C <sub>v</sub> Factor	0.44–4.68
Leak Detection Port	No

### Features/Benefits:

- 100% high-purity PTFE and PFA wetted flow path
- O-ring free design
- 3-way valves available in both "L" and "T" configuration
- Panel mount versions are available



## FURON<sup>®</sup> Metering Valve

Configuration	2-Way
Orifice Size	1/16"
Standard	Grab Seal <sup>™</sup>
Connection Types	Male NPT Female NPT
Connection Size	1/8", 1/4"
Actuation Type	Manual Multi-Turn
Max. Operating Pressure	75 PSIG (5.2 bar)
Max. Operating Temperature	212°F (100°C)
C <sub>v</sub> Factor	0.2 – 0.5
Leak Detection Port	No

### Features/Benefits:

- 100% virgin PTFE wetted parts for high-purity and corrosion resistance
- Fine thread on needle stem allows for precise metering and flow control
- Straight through flow path



## FURON<sup>®</sup> Precision Plug Valve

Configuration	2-Way
Orifice Size	1/16", 1/8", 3/16", 1/4"
Standard	Grab Seal <sup>™</sup>
Connection Types	Female NPT
Connection Size	1/8", 1/4", 3/8", 1/2"
Actuation Type	Manual Multi-Turn
Max. Operating Pressure	75 PSIG (5.2 bar)
Max. Operating Temperature	212°F (100°C)
C <sub>v</sub> Factor	0.2 – 0.5
Leak Detection Port	No

### Features/Benefits:

- 100% virgin PTFE wetted parts for high-purity and corrosion resistance
- Bubble tight sealing
- Suitable for both liquid and gas applications
- Straight through flow path minimizes pressure drop







## FURON® Suckback Valve

Configuration	2-Way
Orifice Size	1/4", 1/2"
Standard	FlareGrip® II
Connection Types	Nippon Pillar Super 300® Female NPT Tube End
Connection Size	1/4", 3/8", 1/2", 3/4"
Actuation Type	Pneumatic
Max. Operating Pressure	60 PSIG (4.1 bar)
Max. Operating Temperature	212°F (100°C)
C <sub>v</sub> Factor	0.8 – 3.2
Leak Detection Port	Yes

### Features/Benefits:

- All virgin PTFE/high-purity molded PFA wetted flow path
- Eliminates dripping of dispense media from nozzles
- Adjustable suckback capacity permits precise metering of dispense media
- Repeatability of suckback amount allows identical dispense media over time



## FURON® Pressure Relief Valve (HPVM-RV)

Configuration	2-Way
Orifice Size	1/4"
Standard	FlareGrip® II
Connection Types	Nippon Pillar Super 300®
Connection Size	1/4", 3/8"
Actuation Type	Media
Max. Operating Pressure	80 PSIG (5.5 bar)
Max. Operating Temperature	203°F (95°C)
C <sub>v</sub> Factor	Up to 0.82
Leak Detection Port	No

### Features/Benefits:

- All virgin PTFE/high-purity molded PFA wetted flow path
- Protects upstream equipment from overpressure conditions
- Adjustable pressure relief setting from 10–90 PSIG
- Ideal for corrosive or aggressive media



## FURON® Dilution Drain Valve

Configuration	2-Way
Orifice Size	1/2"
Standard	FlareGrip® II
Connection Types	
Connection Size	1/2", 3/4"
Actuation Type	Media
Max. Operating Pressure	60 PSIG (4.1 bar)
Max. Operating Temperature	302°F (150°C)
C <sub>v</sub> Factor	2.5

### Features/Benefits:

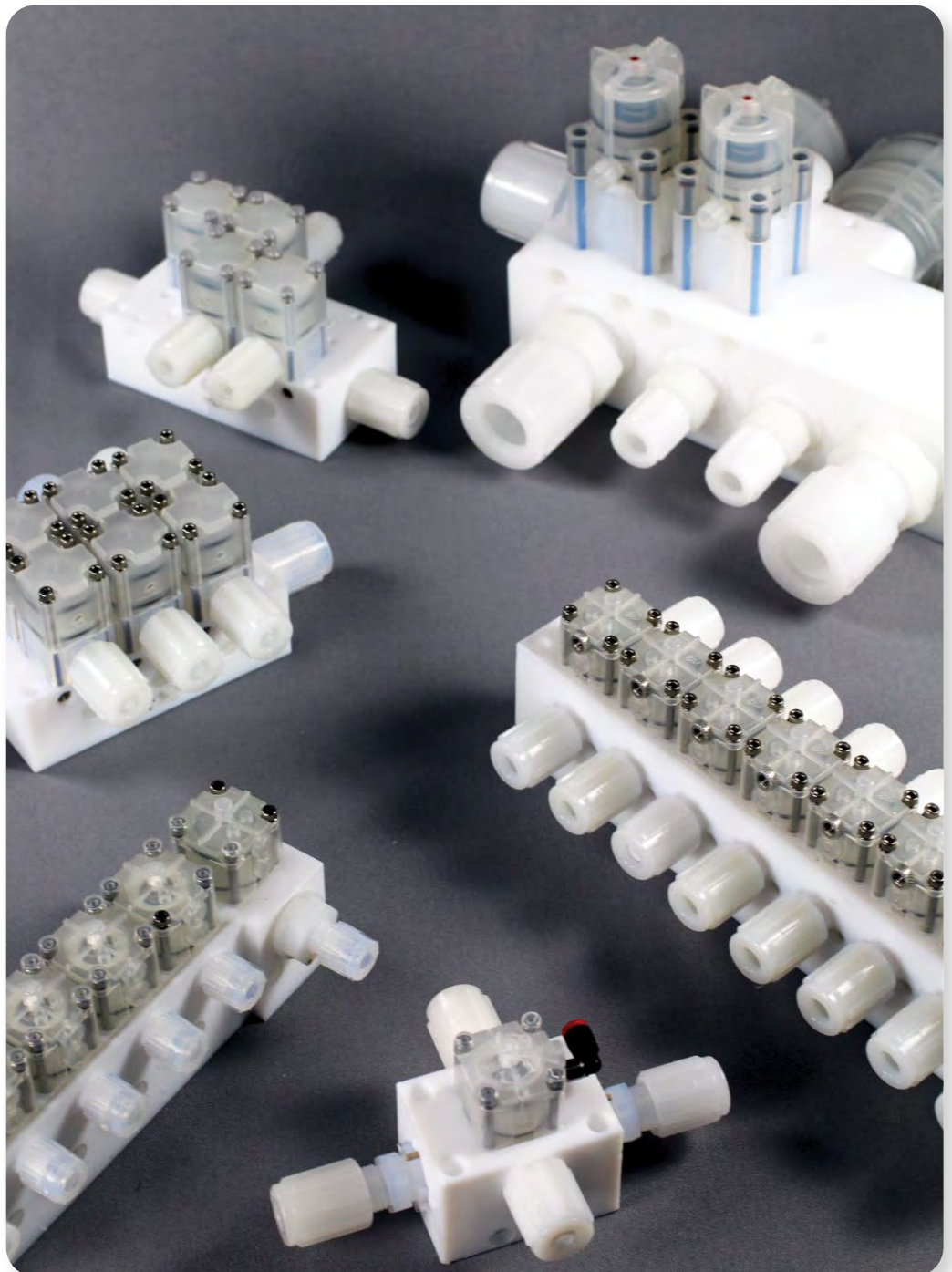
- Metal free design
- Simple & compact design
- Adjustable dilution ratio

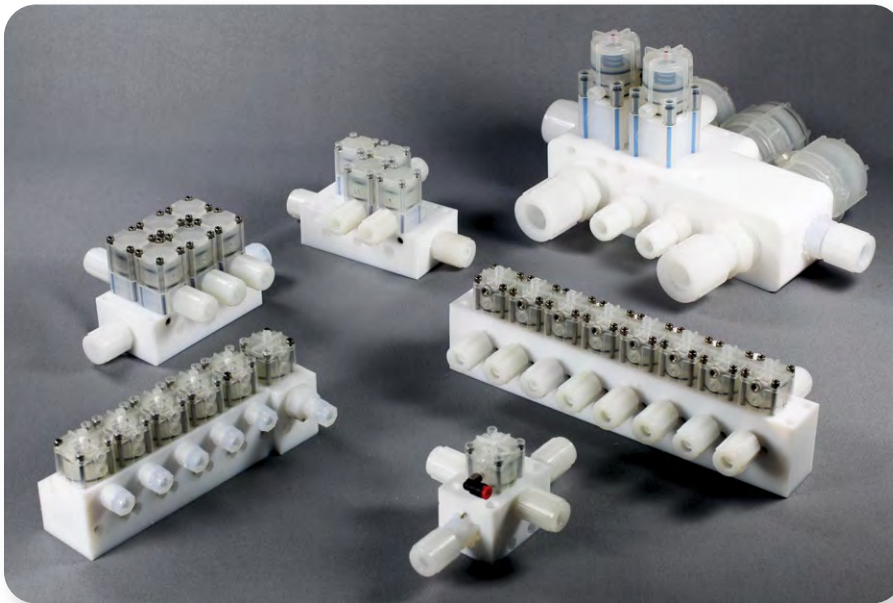


## MANIFOLDS

The **Furon integrated manifold** product line features multiple function components in a single, pre-tested package that is easily installed into your system. Saint-Gobain valves are engineered to provide exceptional durability and reliability and deliver superior performance in countless combinations and configurations while providing an optimum cost of ownership for end user. Our dedicated manifold resources will support you in the development of all critical fluid applications.

Every Furon integrated manifold system benefits from 100% fluoropolymer wetted flow paths and cleanroom assembly, ensuring world-class quality and reliability. In addition, the Furon integrated manifold systems provide a substantial reduction in footprint and allow you to reduce the number of connections in your system, reducing potential leak and entrapment points for safer operation.





Configuration	2-Way or 3-Way
Orifice Size	3/16" to 2"
Standard	FlareGrip <sup>®</sup> II
Connection Types	FuseBond <sup>™</sup> Nippon Pillar Super 300 <sup>®</sup>
Connection Size	1/8" to 2"
Actuation Type	Pneumatic Toggle Manual Quarter-Turn Manual Multi-Turn
Max. Operating Pressure	100 PSIG (6.8 bar)
Max. Operating Temperature	Up to 356°F (180°C) for High Temp Version
C <sub>v</sub> Factor	0.5 to 52
Leak Detection Port	Yes

**Features/Benefits:**

- Custom engineered to end user's exact specification
- Space savings more than 50% compared to discrete valves
- Significantly reduces number of connections between valves
- Endless design possibilities integrating a wide variety of valves and other flow components such as check valve, pressure regulators, static mixers



**FURON<sup>®</sup> Manifold Vessels (Integrated)**

Configuration	2-Way or 3-Way
Orifice Size	Up to 1"
Standard	FlareGrip <sup>®</sup> II
Connection Types	FuseBond <sup>™</sup> Nippon Pillar Super 300 <sup>®</sup>
Connection Size	Up to 1"
Actuation Type	Pneumatic Manual Quarter-Turn Manual Multi-Turn
Max. Operating Pressure	85 PSIG (5.9 bar)
Max. Operating Temperature	212 °F (100 °C)
C <sub>v</sub> Factor	Up to 7.2
Leak Detection Port	Yes

**Features/Benefits:**

- Custom engineered to end user's exact specification
- Pre-tested
- Significantly reduces number of connections between valves
- Endless design possibilities integrating a wide variety of valves and other flow components such as check valve, pressure regulators, static mixers





# PUMPS

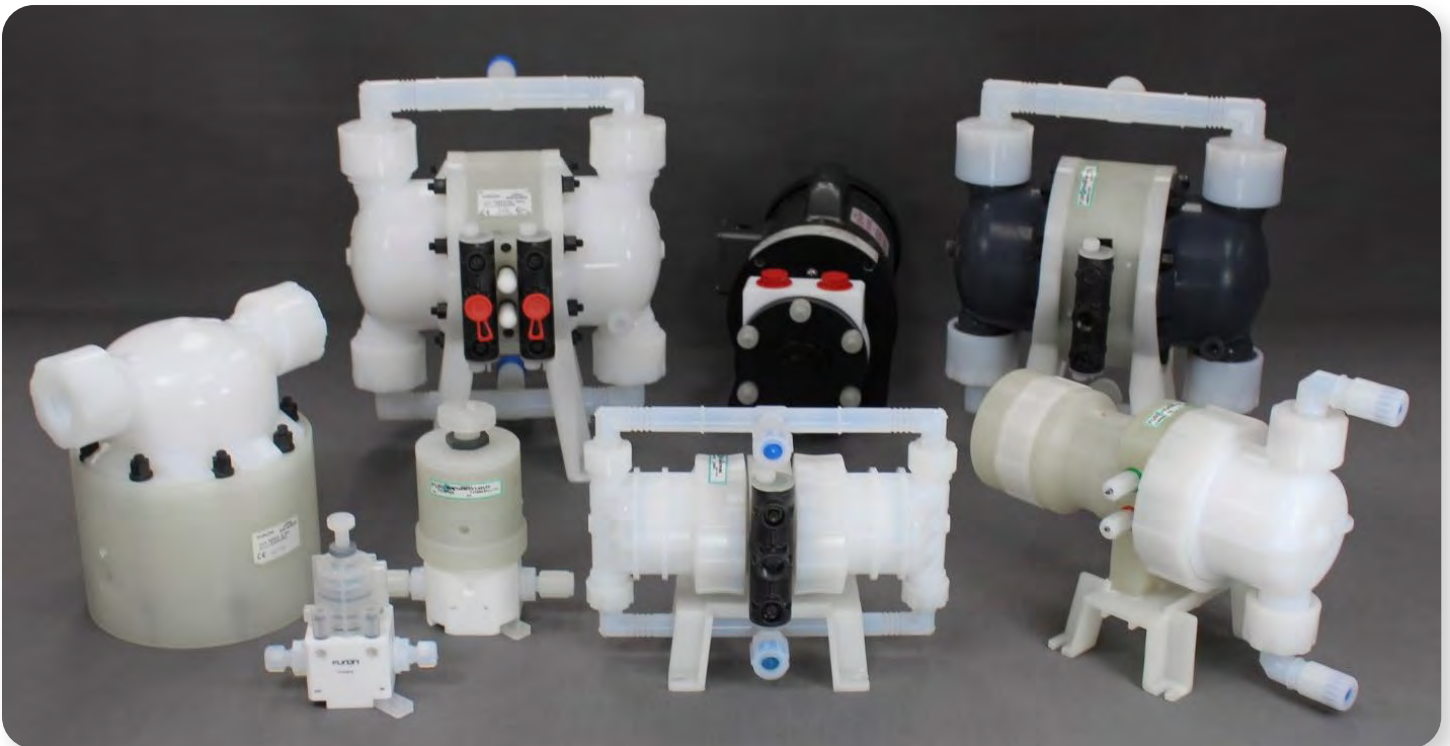
Saint-Gobain is a global leader in dependable, fluoropolymer-based pumps designed specifically for delivery of high-purity and/or aggressive fluids.

## Distribution Pumps

- Pneumatically-operated **Furon A2 pumps** feature 100% metal free & O-Ring free construction, eliminating any possibility of ionic contamination caused by exposure of corrosive chemicals to such components.
- **Furon High Temperature pumps** are manufactured from advanced engineering thermoplastics including fiber reinforcement to enable premium performance even at elevated temperature.
- **Furon High Flow pumps** are self-priming, providing an easy installation and set up for a high purity 100% metal-free pump and provides an adjustable high flow rate.
- **Furon PV series pumps** offer a cost-effective solution for handling corrosive or aggressive media in your drain, sump or industrial applications.
- **Furon A2 Dampeners** are suitable for dampening aggressive chemicals or slurries, reducing pump pulsation up to 85% of their nominal value and directly adapt to the pump stroke and line pressure
- **Furon Turbo pumps** are magnetically-driven turbine pumps engineered to boost fluid pressure in deionized (DI) water applications, and with other low viscosity fluids.

## Dosing Pumps

- **Furon MDP** and **Furon PPRD pumps** provide a solution for dosing a fraction of a microliter up to 80 milliliters per stroke with an emphasis of reproducibility. They also feature an embedded microprocessor-based controller for unmatched driving & control capabilities from your tool.





## FURON<sup>®</sup> A2 Pump - Distribution

<b>Pump Mechanism</b>	Bellows
<b>Max. Flow Rate</b>	4 GPM (15 lpm) 8 GPM (30 lpm) 16 GPM (60 lpm)
<b>Connection Type</b>	FlareGrip <sup>®</sup> II Tube End
<b>Connection Size</b>	1/2", 3/4", 1"
<b>Max Suction Head</b>	10 feet (3 m) 12 feet (3.5 m) 14 feet (4 m)
<b>Max. Back Pressure</b>	80 PSIG (5.5 bar)
<b>Max. Air Pressure</b>	80 PSIG (5.5 bar)
<b>Max. Operating Temperature</b>	212°F (100°C)

### Features/Benefits:

- Constructed from 100% high-purity fluoropolymer materials
- 100% Elastomer free
- Field-proven reliability in aggressive chemicals and slurries
- 2-year warranty, extendable to 6 years with preventive maintenance
- Designed to be maintenance friendly
- Flexible driving system

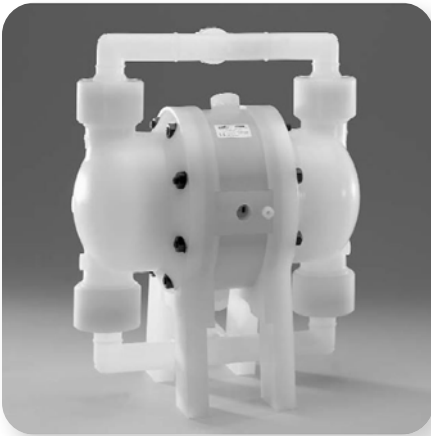


## FURON<sup>®</sup> High Temperature Pump - Distribution

<b>Pump Mechanism</b>	Bellows
<b>Max. Flow Rate</b>	5 GPM (20 lpm) 13 GPM (50 lpm)
<b>Connection Type</b>	Flare Tube End
<b>Connection Size</b>	3/4", 1"
<b>Max Suction Head</b>	12 feet (3.6 m) 14 feet (4.2 m)
<b>Max. Back Pressure</b>	72.5 PSIG (5 bar)
<b>Max. Air Pressure</b>	72.5 PSIG (5 bar)
<b>Max. Operating Temperature</b>	350°F (180°C)

### Features/Benefits:

- Capable of handling media temperatures up to 350°F (180°C)
- Designed to be maintenance friendly
- Flow rates up to 13 GPM (50 lpm)
- 100% high-purity PTFE/PFA construction



## FURON<sup>®</sup> High Flow Pumps - Distribution

<b>Pump Mechanism</b>	Bellows
<b>Max. Flow Rate</b>	26 GPM (100 lpm)
<b>Connection Type</b>	Flare Tube
<b>Connection Size</b>	1"
<b>Max Suction Head</b>	13 feet (4 m)
<b>Max. Back Pressure</b>	58 PSIG (4 bar)
<b>Max. Air Pressure</b>	72.5 PSIG (5 bar)
<b>Max. Operating Temperature</b>	212°F (100°C)

### Features/Benefits:

- 100% high purity PFA and PTFE wetted flow path
- Self-priming
- Liquid O-ring-free design
- Maintenance friendly design
- No metal parts
- Adjustable pump rate up to 100 lpm (26 gpm)



## FURON<sup>®</sup> A2 Dampener

<b>End Connection Orientation</b>	Straight/Straight Straight/Elbow Elbow/Elbow
<b>Connection Type</b>	Flare Tube End
<b>Connection Size</b>	1/2", 3/4", 1"
<b>Max. Liquid Pressure</b>	80 PSIG (5.5 bar)
<b>Max. Air Pressure</b>	80 PSIG (5.5 bar)
<b>Max. Operating Temperature</b>	212°F (100°C)

### Features/Benefits:

- Metal free dampener
- HP PFA/PTFE flow path
- O-ring-free flow path concept (tongue & groove concept)
- Warranty up to 5 years
- Flexible connection system compatible with all fitting types





## FURON® PV Series Pumps - Distribution

<b>Pump Mechanism</b>	Bellows
<b>Max. Flow Rate</b>	8 GPM (30 lpm) 16 GPM (60 lpm)
<b>Connection Type</b>	FlareGrip® II Tube End
<b>Connection Size</b>	3/4", 1"
<b>Max Suction Head</b>	12 feet (3.5 m) 14 feet (4 m)
<b>Max. Back Pressure</b>	80 PSIG (5.5 bar)
<b>Max. Air Pressure</b>	80 PSIG (5.5 bar)
<b>Max. Operating Temperature</b>	212°F (100°C)

### Features/Benefits:

- Cost effective solution for handling corrosive or aggressive media in industrial applications
- Ideal for sump or drain application
- 100% PTFE/PFA construction
- 2-year warranty, extendable to 6 years with preventive maintenance
- Flexible driving system

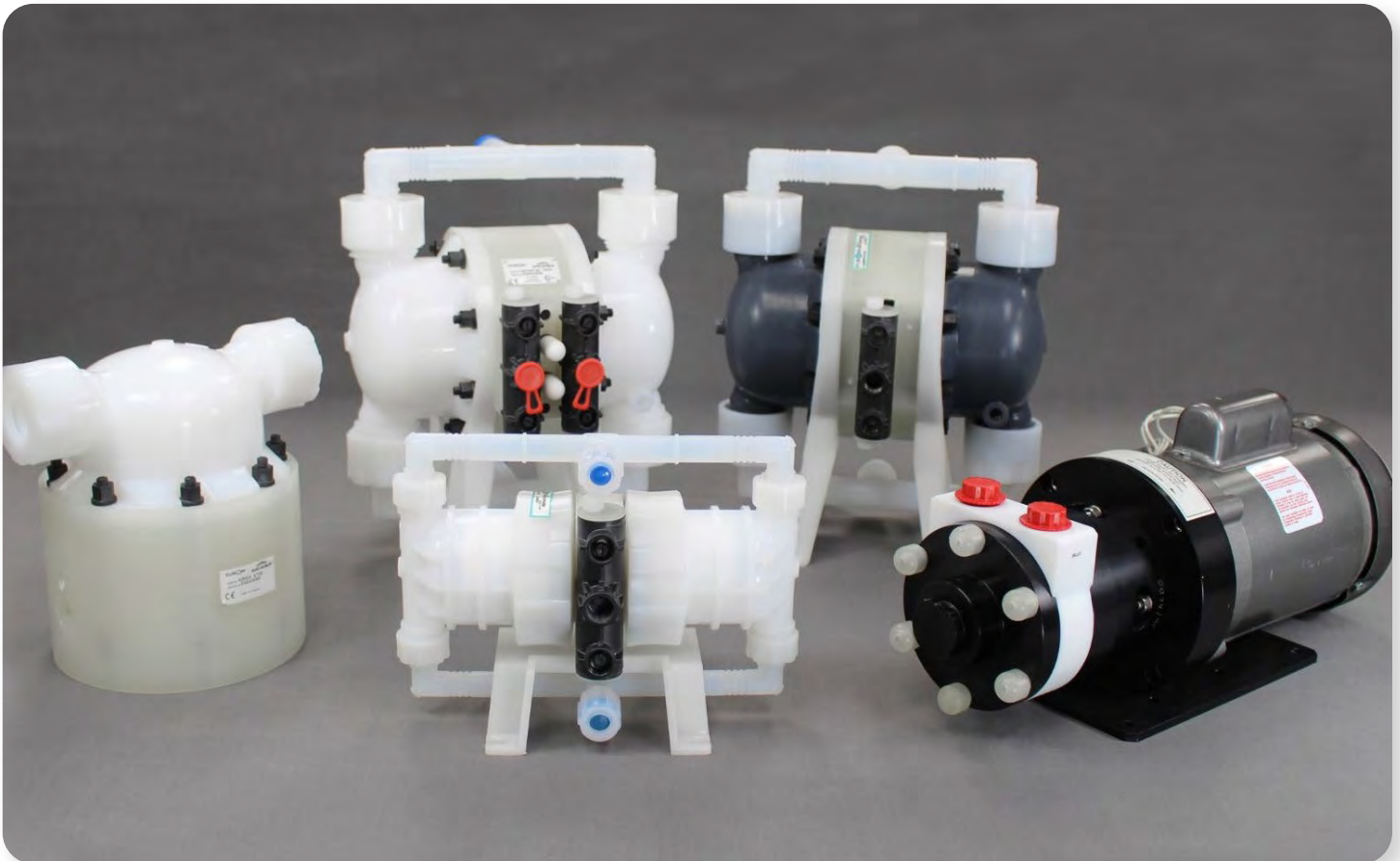


## FURON® Turbo Pump - Booster

<b>Pump Mechanism</b>	Impeller
<b>Control Mechanism</b>	Magnetic Drive Motor
<b>Max. Discharge Flow Rate</b>	4.5 GPM (18 lpm)
<b>Required Inlet Fluid Pressure</b>	15–60 PSIG (1–4 bar)
<b>Max. Media Temperature</b>	122°F (50°C)
<b>Max. Power Consumption</b>	7.4 Amps

### Features/Benefits:

- Seal-free magnetically coupled turbine pump
- High output pressure
- Ideal for use as a booster pump in DI water systems
- PTFE and alumina ceramic wetted parts







## FURON® PPRD Pump - Dosing

Pump Mechanism	Bellows
Control Mechanism	Pneumatic
Dispense Volume	6 – 40 mL (PPRD1) 8 – 80 mL (PPRD2)
Max. Dispense Speed	0.5 GPM (120 l/hr) 1 GPM (240 l/hr)
Accuracy	± 1%
Max. Suction Head	6' (1.83 m)
Max. Back Pressure	60 PSIG (4.1 bar)
Max. Air Pressure	70 PSIG (4.8 bar)
Max. Air Consumption	3.5 SCFM (6 m³/h)
Max. Operating Temperature	212°F (100°C)

### Features/Benefits:

- Designed for dosing small amounts of liquid (up to 80 mL)
- High-purity PTFE/PFA construction
- Accuracy ±1% per dose
- Suitable for use with aggressive or corrosive media



## FURON® MDP Pump - Dosing

Pump Mechanism	Rolling Diaphragm
Control Mechanism	Pneumatic
Dispense Volume	0 – 10.0 mL 0 – 0.5 mL
Accuracy	±1%
Max. Suction Head	6' (1.83 m)
Max. Discharge Pressure	60 PSIG (4.1 bar)
Max. Air Pressure	60 PSIG (4.1 bar)
Max. Air Consumption	0.46 SCFM
Max. Operating Temperature	122°F (50°C)

### Features/Benefits:

- Efficiently dispenses small amounts of liquid (up to 10 mL)
- Suitable for use in aggressive, corrosive, and ultrapure liquids
- Easy manual adjustments for shot size and dispense speed
- Compact footprint



## ACCESSORIES

Decades of interaction with industry users combined with our premium engineering knowledge led Saint-Gobain to develop a wide range of specific components ranging from gauge protectors to precision pressure regulators, all of which are crucial to customers' applications in the semiconductor industry.

Our broad product offering provides you with a comprehensive single source for high-purity fluid handling products. Our vast experience in injection molding of PFA and processing PTFE, coupled with state-of-the-art equipment assures an accurate and repeatable manufacturing process. This assures that our products meet or exceed the most stringent semiconductor industry standards for purity and ionic extractables to satisfy your critical fluid handling requirements.





## FURON® UPBM Back Pressure Regulator

Actuation Type	Manual & Pneumatic
Orifice Size	1/4", 1/2"
Standard Connection Types	FlareGrip® II FuseBond™ Nippon Pillar Super 300® Female NPT
Connection Size	1/4", 3/8", 1/2", 3/4"
Max. Operating Temperature	194°F (90°C)
Max. Operating Pressure	90 PSIG (6.2 bar)
Pressure Regulation Range	10–60 PSIG (0.7–4.0 bar)

### Features/Benefits:

- Maintains pre-determined pressure on the inlet side (back pressure)
- Designed for fluid temperatures up to 194°F (90°C)
- Composed of all virgin PTFE and PFA wetted flow paths
- Integral leak detection port is standard



## FURON® UPRP Precision Pressure Regulator (1/4")

Actuation	Manual & Pneumatic
Orifice Size	1/4"
Standard Connection Types	FlareGrip® II FuseBond™ Nippon Pillar Super 300®
Connection Sizes	1/4", 3/8", 1/2"
Max. Operating Temperature	194°F (90°C)
Max. Operating Pressure	90 PSIG (6.2 bar)
Pressure Regulation Range	10 – 60 PSIG (0.7 – 4.0 bar)

### Features/Benefits:

- Designed for fluid temperatures up to 194°F (90°C)
- Composed of all virgin PTFE/Fluoroloy®T and PFA wetted flow paths
- Integral leak detection port is standard
- PTFE isolation bellows provides secondary containment



## FURON® UPRP Precision Pressure Regulator (1")

Actuation	Pneumatic
Orifice Size	1"
Standard Connection Types	FlareGrip® II Nippon Pillar Super 300®
Connection Sizes	3/4", 1"
Max. Operating Temperature	194°F (90°C)
Max. Operating Pressure	90 PSIG (6.2 bar)
Pressure Regulation Range	10 – 60 PSIG (0.7 – 4.0 bar)

### Features/Benefits:

- Designed for fluid temperatures up to 194°F (90°C)
- Composed of all virgin PTFE/Fluoroloy®T and PFA wetted flow paths
- Integral leak detection port is standard
- PTFE isolation bellows provides secondary containment



## FURON® UPRM Pressure Regulator

Actuation	Manual & Pneumatic
Orifice Size	1/4", 1/2"
Standard Connection Types	FlareGrip® II FuseBond™ Nippon Pillar Super 300® FNPT
Connection Sizes	1/4", 3/8", 1/2", 3/4"
Max. Operating Temperature	194°F (90°C)
Max. Operating Pressure	90 PSIG (6.2 bar)
Pressure Regulation Range	10 – 60 PSIG (0.7 – 4.0 bar)

### Features/Benefits:

- All fluoropolymer wetted surfaces
- Integral leak port detection
- Precise construction maintains predetermined output pressure
- Non-metallic external surfaces
- Handles fluid temperatures up to 194°F (90°C)
- All fluoropolymer wetted surfaces







## FURON<sup>®</sup> Static Mixer

Max. Flow Rate	1/2": 5.3 GPM (20 l/min) 1": 13.2 GPM (50 l/min)
Max. Pressure Drop	1/2": 9.0 PSID 1": 10.0 PSID
C <sub>v</sub>	1/2": 1.75 1": 4.1
Media Operating Temperature	41°F to 212°F (5°C) to (100°C)
Media Operating Pressure	90 PSIG (6 bar) max. at room temperature

### Features/Benefits:

- Mixes two or more chemistries with no moving parts
- Ideal for high-purity mixing applications
- Constructed from 100% virgin PTFE and high-purity PFA
- Compact design



## FURON<sup>®</sup> Aspirator (Air & Liquid Actuated)

Actuation	Air or Liquid
Input Media Pressure	5 to 60 PSIG (0.34 to 4.1 bar)
Flow at Outlet Port*	0.5 to 2.5 GPM (1.9 to 9.5 LPM)
Standard Connection Types	Flare FNPT
Connection Sizes	3/8", 1/2"

### Features/Benefits:

- 100% PTFE wetted parts
- Extremely reliable - no moving parts
- Easy to use & install



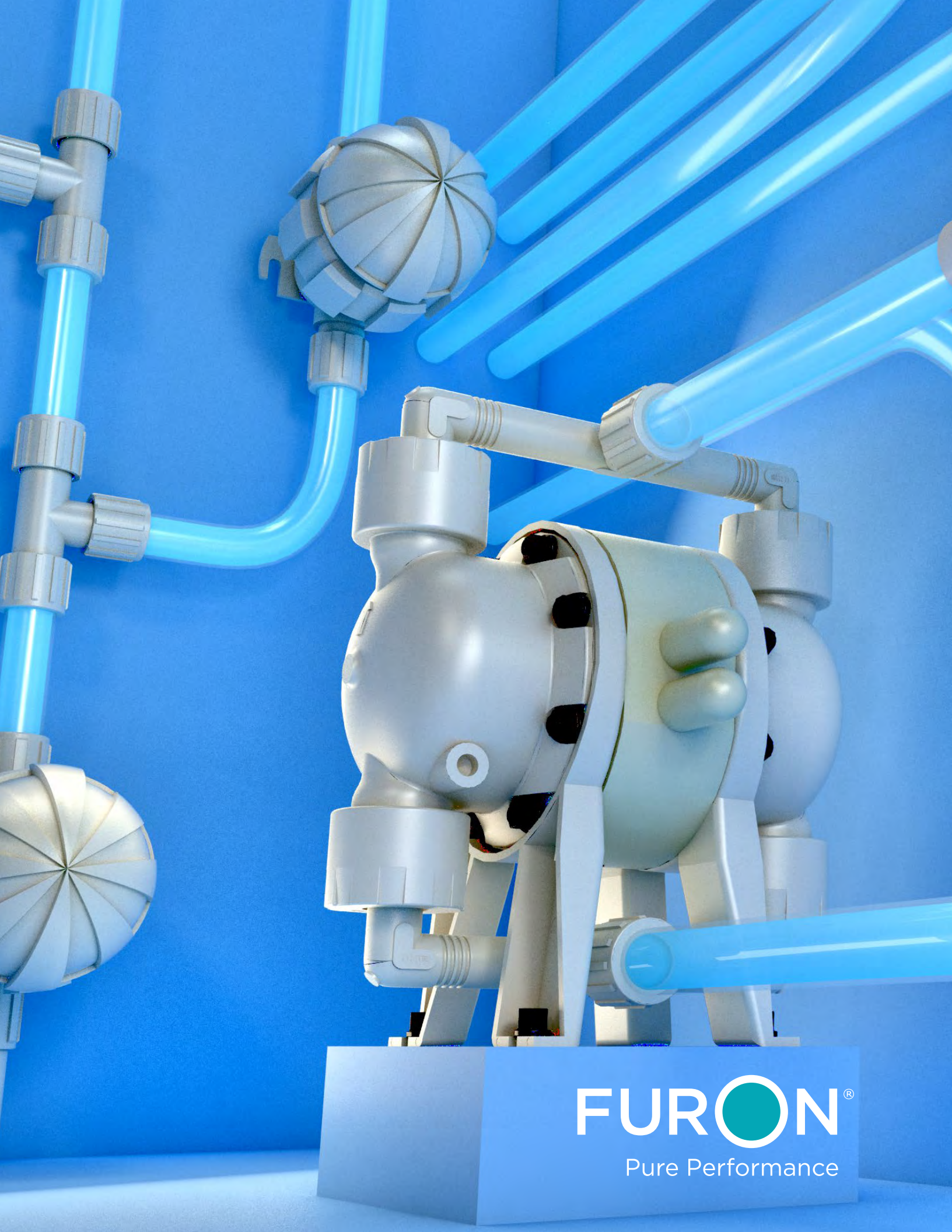
## FURON<sup>®</sup> Gauge Protectors (Molded Diaphragms)

Max. Media Temperature	302°F (150°C)
Max. Media Pressure	120 PSIG (8 bar)
Accuracy	5% of Full Scale
End Connection	1/4" FNPT
Gauge Connection	1/4" FNPT
Fill Fluid	DI Water (standard)
Materials	PTFE/PFA

### Features/Benefits:

- Proprietary diaphragm seals with zero hold-up volume or elastomers
- Variety of optional mounts including fuse bonded flow-thru tee option
- 100% non-metallic construction
- All molded high-purity PFA body; PTFE diaphragm
- Single or double diaphragm construction





**FURON**<sup>®</sup>  
Pure Performance



## FITTINGS

Saint-Gobain's **Furon fitting line** offers a broad range of high-purity fluoropolymer fittings for the semiconductor industry. Our fitting product portfolio, which offers unique flexibility and modularity in your high-purity PFA pipe manifold systems, includes:

- **Furon FlareGrip II®** and **Furon FuseBond™** - industry standard fittings
- **Furon Dual Containment** and **Furon Grab Seal™** - fittings for specific applications
- **Furon No-O-Ring Union** - unique patent protected fittings

We offer decades of experience of injection molding of PFA and processing of PTFE, coupled with state-of-the-art equipment to assure accurate repeatable processes. This ensures our products meet or exceed the most stringent semiconductor industry standards for purity and ionic extractables to satisfy critical fluid handling requirements.







## FURON® FlareGrip® II

Configurations	Unions (Union Adapters, Reducers, Panel, Straight Tube Union) Elbows (45° Union, Adapters, Reducers) Tees (Union, Reducer, Branch, Run)
Body Material	High-Purity PFA
Nut Material	PVDF, PFA, ETFE
Connection Sizes	1/8", 1/4", 3/8", 1/2", 3/4", 1"
Max. Operating Pressure	150 PSIG (10.3 bar)
Max. Operating Temperature	302°F (150°C)

### Features/Benefits:

- Available in a large variety of size and configuration
- Interchangeable and compatible with most industry fluid handling systems
- Minimal dead space for fluid entrapment



## FURON® Dual Containment Fitting

Configurations	Path Through Flare Fitting Front Seal Bulkhead Rear Seal Bulkhead
Body Material	High-Purity PFA
Nut Material	PVDF, PFA, ETFE
Connection Sizes	1/2", 3/4", 1"

### Features/Benefits:

- Available in a large variety of size and configuration
- Optimal safety for your process and users



## FURON® FuseBond™ Fitting

Configurations	Unions (Union Adapters, Reducers, No O-ring, Union) Elbows (45° Union, Adapters, Reducers) Tees (Union, Reducer, Branch)
Body Material	High-Purity PFA
Nut Material	N/A
Connection Sizes	1/4", 1/2", 3/4", 1", 2"

### Features/Benefits:

- Lower hold-up volume due to reduced fitting size
- Manufactured from 100% virgin high-purity PFA
- O-ring free unions feature leak-tight patent-protected tongue and groove seal and are rated for 120 PSIG system pressure at 300°F (148°C)



## FURON® Grab Seal™ Fitting

Configurations	Unions (Union Adapters, Reducers, Panel, Straight Tube Union) Elbows (45° Union, Adapters, Reducers) Tees (Union, Reducer, Branch, Run)
Body Material	High-Purity PFA
Nut Material	ETFE
Connection Sizes	1/8", 1/4", 3/8", 1/2", 3/4", 1"

### Features/Benefits:

- Single design for ease of installation
- No special tools required





## FURON<sup>®</sup> No O-Ring Fitting

Configurations	Straight Tube Union
Body Material	High-Purity PFA
Nut Material	ETFE
Pipe Connection Sizes	1/2", 3/4", 1", 2"
Max. Operating Pressure	150 PSIG (10.3 bar)
Max. Operating Temperature	302°F (150°C)

### Features/Benefits:

- Molded from virgin premium high-purity PFA
- Ideally used with Versilon™ HP PFA Pipe
- Patent protected tongue and groove seal
- Universal chemical resistance and compatibility
- High pressure capability
- Retains seal integrity over countless disassemblies/reassemblies
- No dead space





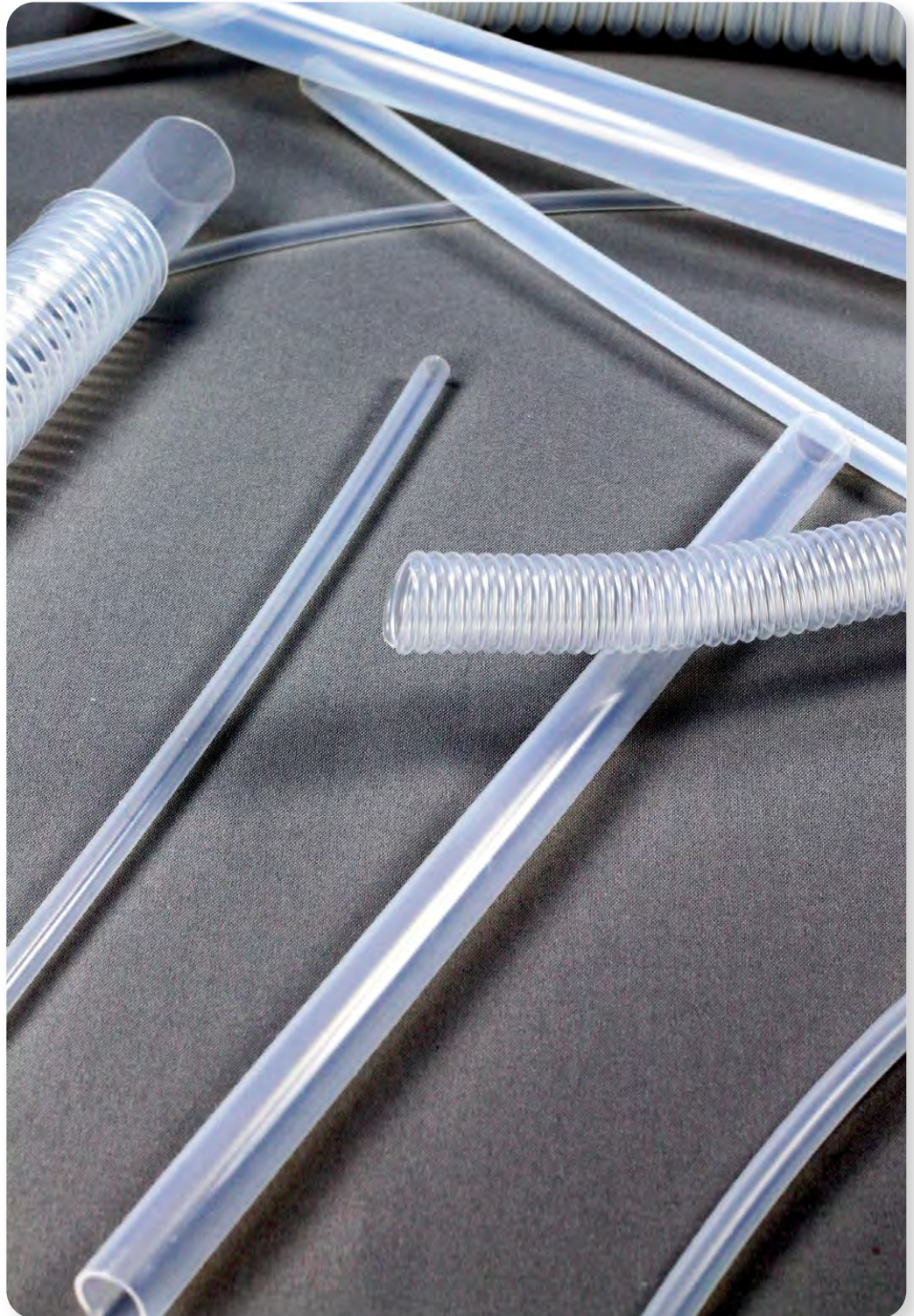


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Pure Performance

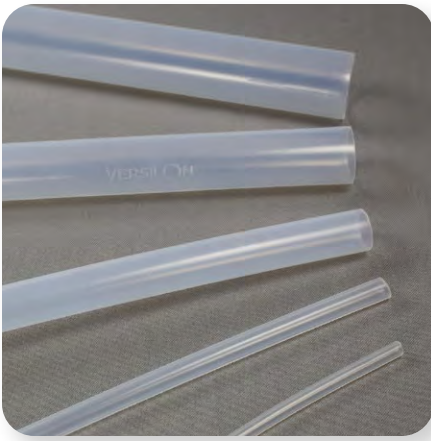


## TUBING & HOSE

Saint-Gobain offers a wide range of tubing for demanding fluid transfer applications in a variety of industries. For the semiconductor industry, our **Versilon**® brand fluoropolymer tubing offers a range of sizes from a fraction of an inch up to several inches as well as a variety of shapes from very basic to very complex, including convoluted, corrugated or multi-lumen tubing. The Versilon WTLCTPFA hose is designed to satisfy the semiconductor market on many levels: safety, performance, cleanliness and wide temperature capability range.





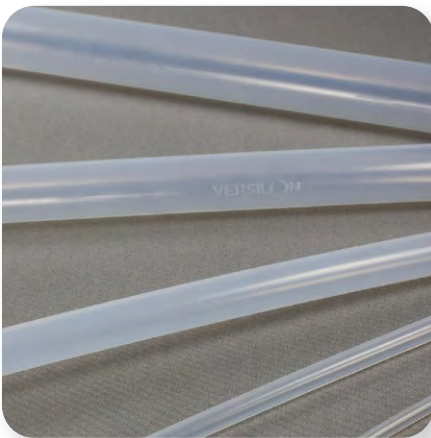


## VERSILON<sup>®</sup> HP PFA 400 Tubing

Material	High-Purity PFA
Max. Operating Pressure	250 PSIG (17.2 bar)
Max. Operating Temperature	500°F (260°C)
Standard Sizes (OD)	1/8", 1/4", 3/8", 1/2", 3/4" 1", 1-1/4", 1-1/2"
Wall Thickness	0.030" – 0.093"

### Features/Benefits:

- Non-contaminating laser scribing for positive identification of size, material and 100% lot traceability
- Controlled production environment for premium purity
- Tube ends capped to prevent ID contamination
- Site redundancy for a safer & nimble production capability



## VERSILON<sup>®</sup> HP PFA 400 Straight Tubing

Material	High-Purity PFA
Max. Operating Pressure	250 PSIG (17.2 bar)
Max. Operating Temperature	500°F (260°C)
Standard Sizes (OD)	1/8", 1/4", 3/8", 1/2", 3/4" 1", 1-1/4", 1-1/2"
Wall Thickness	0.030" – 0.093"

### Features/Benefits:

- Straight length of 10 feet (standard or custom length) to facilitate product integration in your equipment
- 100% virgin high-purity ultra clean PFA resin - Specific material grade available
- Non-destructive/non-contaminating laser scribing for positive identification of size, material and 100% lot traceability

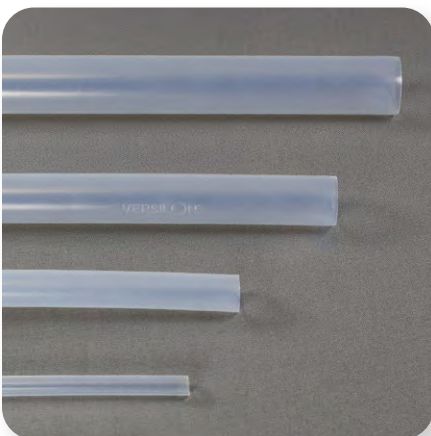


## VERSILON<sup>®</sup> HP PFA 400 UC Tubing

Material	High-Purity PFA
Max. Operating Pressure	250 PSIG (17.2 bar)
Max. Operating Temperature	500°F (260°C)
Standard Sizes (OD)	1/8", 1/4", 3/8", 1/2", 3/4" 1", 1-1/4", 1-1/2"
Wall Thickness	0.030" – 0.093"

### Features/Benefits:

- Dedicated raw material with less than 5 ppb iron
- Non-contaminating laser scribing for positive identification of size, material and 100% lot traceability
- Improved surface roughness from inner tube
- Site redundancy for safer & nimble production capability
- Tube ends capped to prevent ID contamination



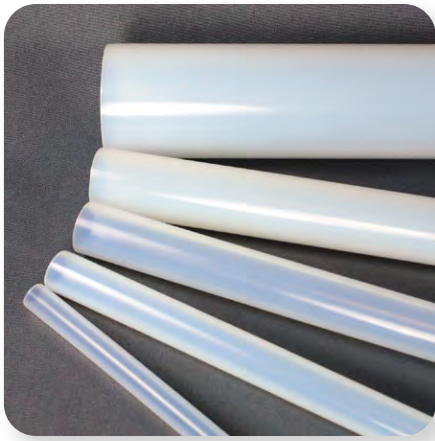
## VERSILON<sup>®</sup> HP PFA 400 UC Straight Tubing

Material	High-Purity PFA
Max. Operating Pressure	250 PSIG (17.2 bar)
Max. Operating Temperature	500°F (260°C)
Standard Sizes (OD)	1/8", 1/4", 3/8", 1/2", 3/4" 1", 1-1/4", 1-1/2"
Wall Thickness	0.030" – 0.093"

### Features/Benefits:

- Dedicated raw material with less than 5 ppb iron
- Non-contaminating laser scribing for positive identification of size, material and 100% lot traceability
- Improved surface roughness from inner tube
- Site redundancy for safer & nimble production capability
- Tube ends capped to prevent ID contamination



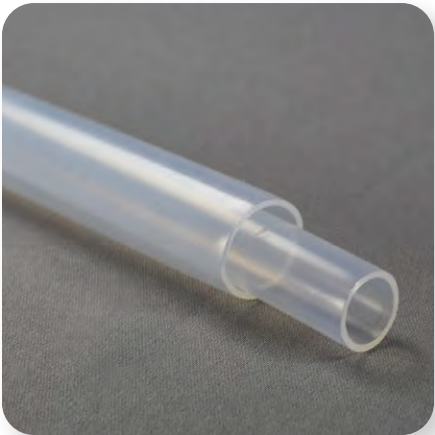


## VERSILON<sup>®</sup> HP PFA Pipe

Material	High-Purity PFA
Max. Operating Pressure	250 PSIG (17.2 bar)
Max. Operating Temperature	500°F (260°C)
Standard Sizes (OD)	1/8", 1/4", 3/8", 1/2", 3/4", 1", 1-1/4", 1-1/2", 2", 3", 4", 5", 6"
Wall Thickness	0.068" – 0.154"
Standard Length	10' (3m)

### Features/Benefits:

- Manufactured from virgin high-purity PFA
- Nominal sizes standard in 10' lengths
- Custom packaging and conditioning
- Site redundancy for safer & nimble production capability



## VERSILON<sup>®</sup> HP PFA Coax

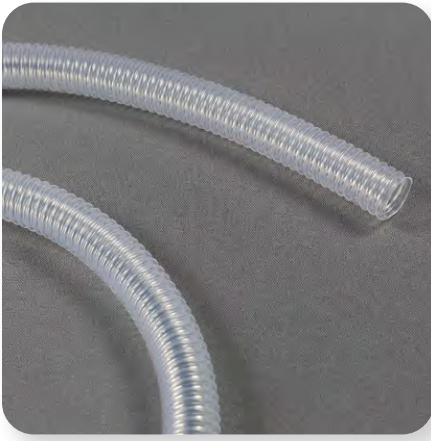
Material	High-Purity PFA Inner Tube
Max. Operating Pressure	250 PSIG (17.2 bar)
Max. Operating Temperature	400°F (204°C)
Standard Sizes (OD)	1/8", 1/4", 3/8", 1/2", 3/4", 1", 1-1/4"
Wall Thickness	0.030" – 0.060"
Max Continuous Length	500' (152.4 m)

### Features/Benefits:

- Saves installation time
- Continuous lengths up to 500'
- Provides superior chemically resistant dual containment
- Compatible with Furon Dual Containment flare fittings
- Custom material & dimension for outer tube





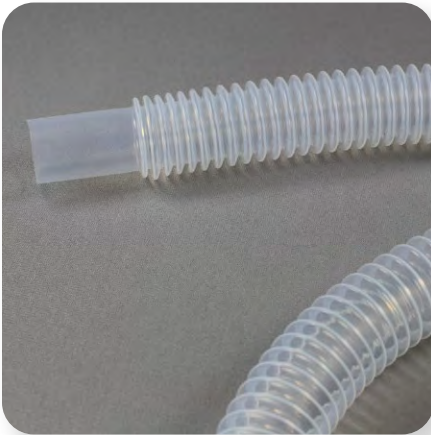


## VERSILON® ConvoFlex™

Material	FEP, PFA, PTFE
Standard Sizes (OD)	From 1/4" to 4"
Max Continuous Length	500' (152.4 m)

### Features/Benefits:

- Highly flexible
- Self draining
- Produced in continuous roll and can be cut at will

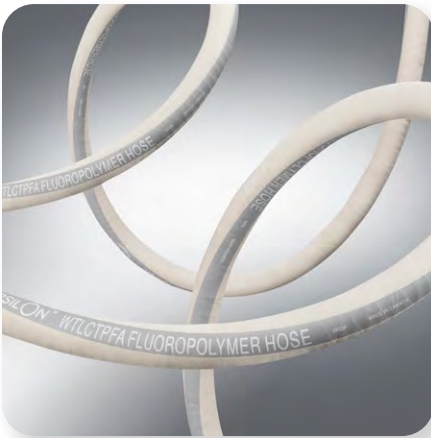


## VERSILON® CT-Flex™

Material	FEP, PFA
Standard Sizes (OD)	From 1/4" to 2"
Max Continuous Length	12' (3.6 m)

### Features/Benefits:

- Cuff and corrugation location are fully adjustable to match customer need
- Does not kink
- Higher resistance to vacuum or pressure than convoluted tubing
- Cuff end for easy & safe installation



## VERSILON® WTLCTPFA Hose

Material	Inner core: PFA, Exterior: Polyester pycords, EPDM rubber, carbon steel wires
Max. Operating Pressure	500 PSI (3.45 MPa)
Max. Operating Temperature	350°F (117°C)
Standard Sizes (OD)	1.3", 1.56", 2.13", 2.68"
Max Continuous Length	100' (30.48 m)

### Features/Benefits:

- Reduced extractables: lower levels of extractable fluoride ions reduce silicone wafer corrosion
- Superior chemical and heat resistance
- Wide temperature range
- Durable, kink resistant, with no external wire reinforcement to potentially fray
- Easy to clean non-stick smooth tube for assured sterility
- Can be cleaned with steam, caustics, solvents or other cleaning agents









FURON<sup>®</sup>  
Pure Performance

# A WORLD LEADER IN HIGH PERFORMANCE MATERIALS



**Saint-Gobain Performance Plastics** is the world's leading producer of engineered high-performance polymer products for all industries. With more than 50 locations in 75 countries, Saint-Gobain is positioned to provide innovative products and comprehensive service to a worldwide customer base.

Through a broad range of capabilities that rely on superior engineering and customer support, Saint-Gobain helps customers achieve safety regulations, performance and brand assurance

Our product applications include those in the electronics, food & beverage, and chemical sectors. We are helping customers in all of these industries achieve goals in innovation, efficiency, sustainability and product integrity through customized solutions such as flexible tubing, hoses, fittings, pumps, valves and manifolds.

**Parent company, Compagnie de Saint-Gobain is one of the world's top 100 industrial corporations and a leader in the development and production of engineered materials. Established in France in 1665 the company is a leading producer of flat glass, packaging, insulation, building materials, abrasives, reinforcements, industrial ceramics and piping.**

For additional Saint-Gobain microelectronics literature, technical information or news, scan the QR codes below.



Saint-Gobain High-Purity Electronics Products



LinkedIn Saint-Gobain Semiconductor

US PATENTS: 6,000,416; 5,261,492; 5,645,301; 5,498,036; 5,575,311; 5,967,173; 5,652,391; 5,993,176; 7,335,003

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