



Downstream Oil & Gas Parflex Division

Multitube, Heated Enclosures,
Hose and Tubing



ENGINEERING YOUR SUCCESS.

MULTITUBE®
Products

PTFE
Hose

Metal
Hose

Fluoropolymer
Tubing

From offshore FPSO's in the North Sea, to the desert regions of the Persian Gulf, our designs stand the performance test of time in extreme conditions.

Parker Hannifin Corporation has produced thermal insulated and heat traced tubing products for the chemical processing and refinery market for over 40 years. No matter where you produce, Parker is there.

We pride ourselves on superior project vendor support, with on-time shipments above 93%, and developing solutions for the most complex problems our customers face. From the smallest projects, a few kilometers, to hundreds of kilometers, we are your global partner for mission-critical instrumentation.

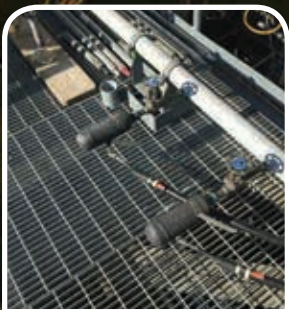


Impulse/Differential
Pressure
Heat Tracing



Multitube® CEMS and Analyzer Umbilicals

Used to extract stack gas from a probe located at the top of a smokestack. The umbilical transports flue gas by vacuuming it to an analyzer where the stack gas can be verified. Custom heated CEMS umbilicals typically consist of two separate sections: the heated core (sample transport tubes, heating element, temperature sensors) and the non-heated probe support bundle section (tubes for calibration/air purge, electric wires, temperature sensor and wires, and thermocouple cables for the probe).



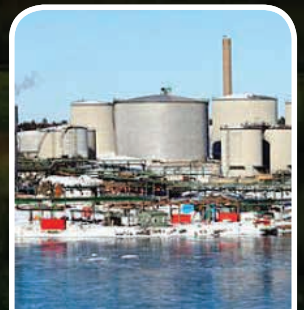
Pipe Steam Tracing
&
Condensate Return



Sample Obtainment
System
Heat Traced Line



Environmental
Monitoring
Systems (CEMS)



Heat Tracing
&
Freeze Protection

Refineries: Processing

Temptube®



Preinsulated tubing - Transfer of fluids or gases up to 400°F while maintaining an outer jacket surface temperature of 140°F. Insulated bundles rated up to 1200°F. Also available as a custom bundle.

Typically used in steam supply lines, condensate return lines, cooling water lines, lubrication lines, refrigeration lines and liquid nitrogen lines.

Steam Trace Light Trace (LT) & Heavy Trace (HT) Maximum Internal Exposure Temperature up to 400°F



Temtrace® **LT** - Permits use of higher pressure steam to heat trace instrument lines. Single or multiple tubes designed to utilize saturated steam pressures to 230 PSIG (15.8 BAR) and 400°F without generating a process tube temperature in excess of 200°F or a jacket surface temperature greater than 140°F.

HT - Heavy Steam Trace Tubing is used with high temperature steam to heat trace instrument size lines when elevated temperatures are required. Designed to be used with steam pressures of 15 PSIG (1 BAR) to 230 PSIG (15.8 BAR) and maintain process tube temperatures from 200°F, at -40°F ambient, to 355°F, at 80°F ambient. Maximum Temperature Rating (MTR*) of 400°F.

*Maximum Temperature Rating for both is the maximum allowable temperature of the tracing fluid.

Electric Trace Self Regulating Low temperature (SL) and High temperature (SH)



Temtrace® **SL** - Maintain temperatures up to 150°F and withstands maximum internal exposure to 185°F. Designed to provide freeze protection and low temperature maintenance for gases, liquids or viscous materials. With outdoor temperatures of -40°F, SL-Temtrace™ will maintain a process fluid or gas at 40°F to 400°F while maintaining an outer jacket surface temperature of 140°F. Heated cables are available in 120V and 208-277 volt, with heat outputs of 3, 5, 8 and 10 watt/ft.

Temtrace® **SH** - Maintain temperatures up to 250°F and withstands an internal exposure temperature of 400°F. Designed to provide temperature maintenance for gases, liquids or other process materials. Has a maximum temperature rating of 250°F (121.1°C), when power to the heating cable is on, and can be steam cleaned at 400°F (204°C), when power to the heating cable is off.



Freeze Protection

Intermittent (IS) and Continuous Steam (CS) Purge



Designed to provide a freeze protection temperature of 40°F at the lowest specified ambient temperature. Maximum steam purge temperature up to 1100°F while ensuring freeze protection during the winter through the use of self-regulating heating cables. Cables are available in 120V and 208-277 volt, with heat outputs of 5, 10, 15 and 20 watt/ft.

IS - Intermittent - Freeze protection bundles designed for intermittent high-temperature steam purge. Bundles can be steam purged for a period of 5 minutes once a day.

CS - Continuous - Internal bundle tubes can be steam purged for any duration required without effecting performance to the heating element.



Typical Applications

- Steam Supply Lines
- Condensation Return Lines
- Water Shelter Condensation Return Umbilicals
- High Temperature Differential Pressure Umbilicals
- Smoke Stack Monitoring Lines
- Cooling Water Lines

Process Control and Environmental Monitoring Systems

Constant Wattage - CL/CH



Consists of a process tube traced with a constant wattage heating cable and heat transfer foil wrap. **CL**-Low process temperature maintenance from 160°F to 250°F. **CH**-For temperature maintenance from 160°F at -40°F ambient temperature to 400°F at 80°F ambient. Maximum temperature rating is the maximum allowable temperature of the tracing fluid. Temperatures in excess of this may damage product.

Mineral Insulated



Designed for freeze protection & viscosity maintenance 40°F to 80°F at ambient temp down to -60°F; process temperature maintenance from 120°F to 170°F at -60°F; process temperature maintenance 260°F to 310°F at 80°F. Standard product has a maximum temperature rating of 400°F. Higher temperature bundles available. Use for analyzer, impulse and instrument lines; small diameter process lines; stack gas sampling lines.

Robotics - Laboratory

Metal & Plastic Bundles



Bundled tubing is an ideal alternative for applications where multiple lengths of tubing are currently being installed independently. Manufactured with or without protective, galvanized steel armor and a protective outer jacket. Plastic and metal tubes are uniquely identified using a number code printed along the entire length of each tube.

PJ - Plastic, Jacketed
PA - Plastic Armored
PAJ - Plastic, Armor, Jacketed

MJ - Metal, Jacketed
MA - Metal Armored
MAJ - Metal, Armor, Jacketed



Options

Process Tube Material

(selections dependent on bundle design)

- Copper Type DHP Alloy No 122. ASTM B68/B75
- Welded Stainless Steel, Type 316/316L ASTM A269
- Welded Stainless Steel, Type 304 ASTM A269
- Smls 316/316L ASTM A269
- Smls 304 ASTM A269
- Smls Monel Type 400
- Smls Hastelloy C22
- Smls 316H ASTM A213
- Smls Incoloy 825
- Electropolish Smls 316/316L ASTM A 269 (10Ra Max)
- Smls 316/316L ASTM A213
- Silco Smls 316/316L ASTM A269
- Fluoropolymer PFA, FEP & PTFE
- 919 PTFE SS Braided Hose
- Custom Tube Material

Jacket Material

- Fire Resistant PVC
- Fire Resistant Thermo Elastomer
- Fire Resistant Polyurethane
- Polyurethane
- Fire Resistant Polyethylene
- LDPE
- PVDF

Accessories

- Sealant
- Heat Shrinkable Boots
- Kits
 - End Seal
 - Splice Boot
 - Connection End Termination
- Thermostats

Heated Cables

- Cables with heat outputs of 3, 5 and 8 watts/ft have a T3 rating.
- Cables with heat outputs of 10, 15 and 20 watts/ft have a T2D rating.
- Parflex standard designs come with an internal tinned copper braid on the heating cable for grounding purposes and a Fluoropolymer jacket over the heating cable to provide additional protection against many harsh environments.

Bring In A Complete System

Parflex Multitube® provides system solutions to the Oil and Gas market with a fully integrated heated enclosure line and sun shades to protect field mounted instrumentation from harsh environment.

Parflex Engineered Systems Solutions helps you reduce field installation labor costs and simplify the project management at your plants by providing petrochemical customers with fully integrated pressure and differential pressure instruments as part of our heated tubing bundle system for Low Pressure, Medium Pressure and High Pressure applications.

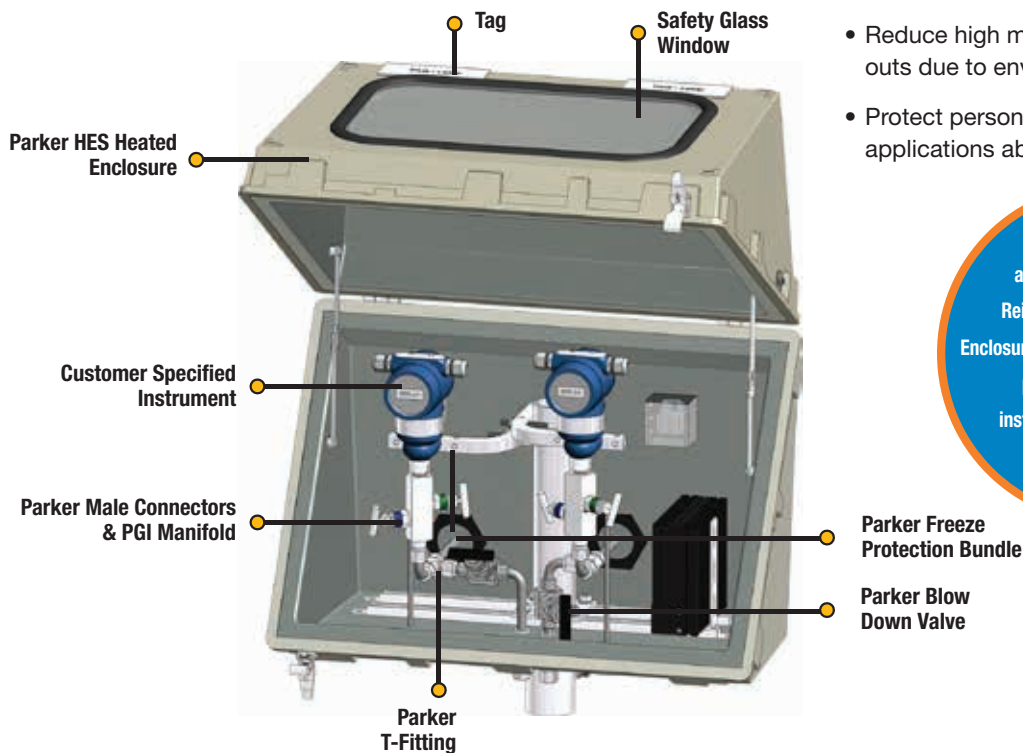
Parker is able to supply a range of robust Fiber Reinforced Polyester (FRP) enclosures and protective sun shades to protect field mounted instrumentation from harsh environments. An enclosure or sun shade covering the instrument will protect it from severe weather, extreme radiant sun heat or sub-zero temperatures. It also prevents damage to the instrument from airborne dirt/dust particles, falling debris or even accidental breakage.

Features

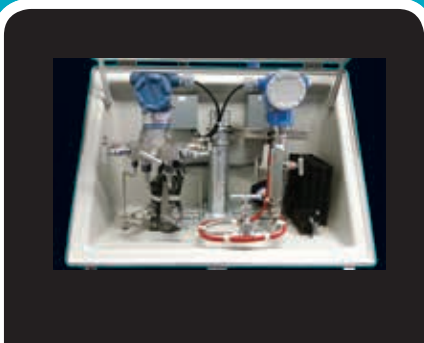
- Available with a wide range of Parker PGI manifolds
- Single, Double or Triple instrument mount boxes available
- Weight saving - FRP enclosures are 25% of the weight of the equivalent steel units
- Excellent corrosion and chemical resistance
- Suitable for all proprietary instruments

Benefits

- Enclosures protect and extend the life of instruments
- Reduce high maintenance costs with fewer change outs due to environment exposure
- Protect personnel from high temperature applications above 140°F, per NEC 427.12.

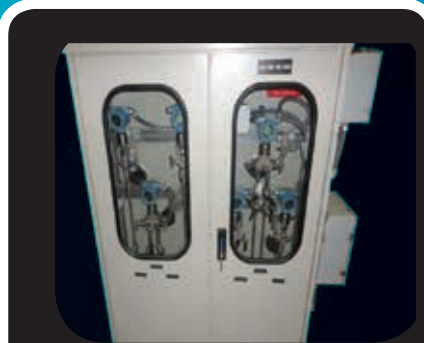


Parker supplies a variety of robust Fiber Reinforced Polyester (FRP) Enclosures and Protective Shades to protect field mounted instrumentation from harsh environments.



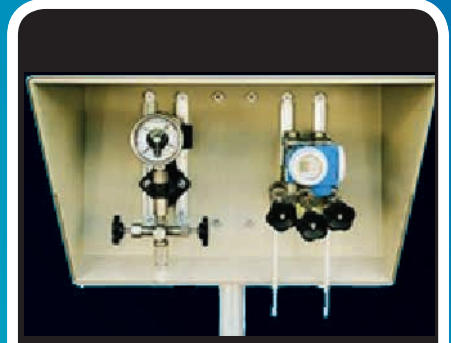
'HES' Heated Enclosure Systems

Available with fully fitted packages that are ready to install on site. The manifolds, instrument (sourced or free-issued), fittings and heating systems can be pre-fitted by Parker's assembly service team and delivered fully pressured tested and certified. Upon arrival, the enclosure can be mounted straight on to a 2" NB pipe stand at the installation point.



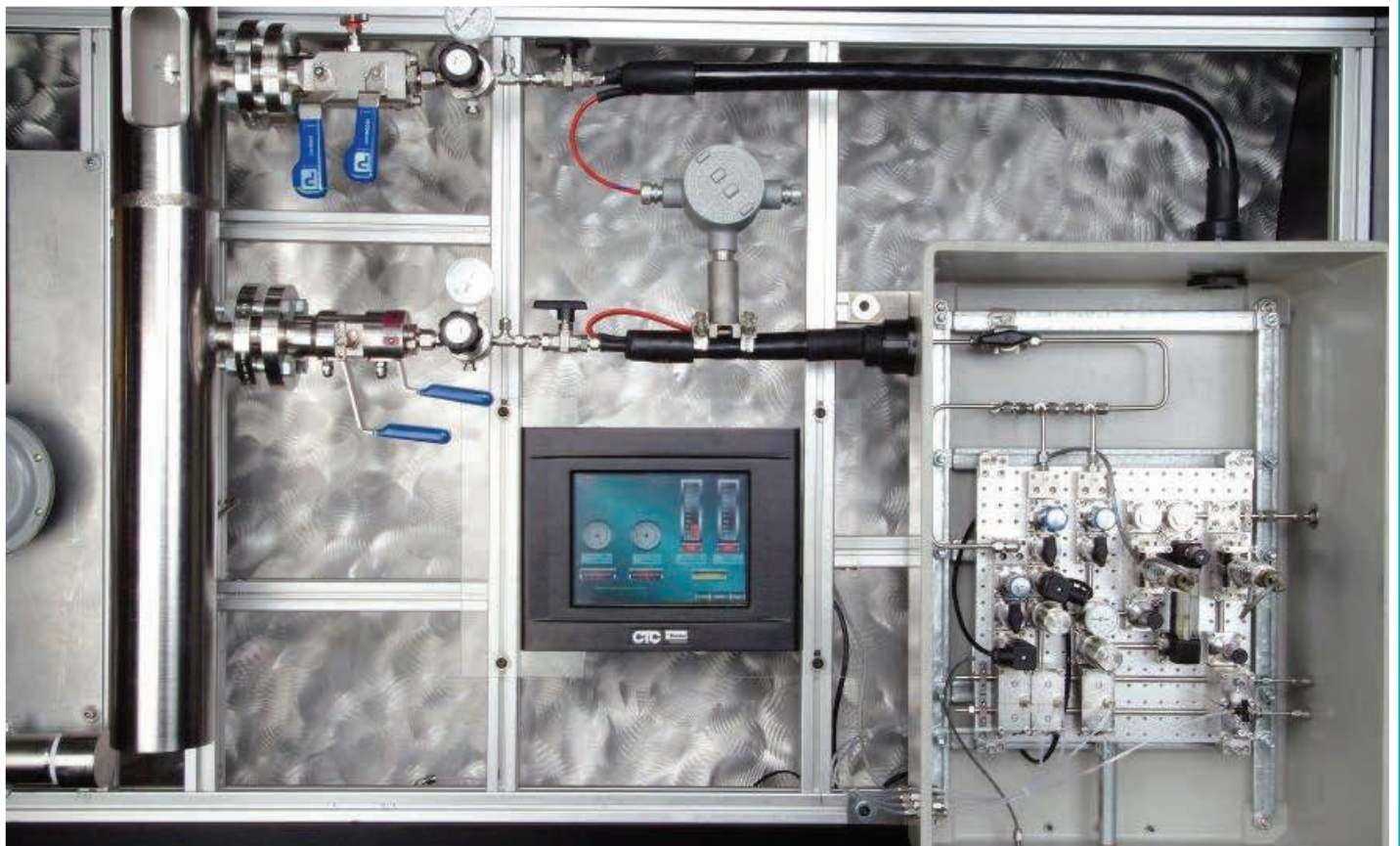
Accessories & Custom Design Solutions

If you are exploring cost & space saving options, we can help engineer a solution. Parker offers accessories and modular custom designed enclosures. Large panel instrument systems can be customized, allowing you to house multiple instruments at a centralized point within your plant and simplifying long-term operational usage and maintenance.



Sun Shade Protection

Parker offers a full range of sun shades to provide UV / Solar Protection to your instruments. Sunshades are made from fiber reinforced polyester material to withstand impact damage. Traditional pipe mounting brackets or wall mounting kits are available.



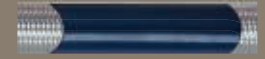
PTFE Hose

Download CAT 5162 from www.parker.com/pfd for additional information

PTFE "Smoothbore" Hose



Smoothbore Natural



Smoothbore Static-Dissipative

919 919B	625-3000 psi. -100°F to 450°F. Sizes 3/16" - 1-1/8" I.D. dependent on type. 919B - Static Dissipative. 304 SS Braid.
919J 919U	Added jacket protection. 919J - Silicone. 1200 - 3000 psi. -40°F to 450°F. Sizes 3/16" - 5/8" I.D. 919U - Polyurethane. 1000 - 3000 psi. -40°F to 275°F. Sizes 3/16" - 7/8" I.D.
STW STB	True bore hose. Larger inside diameter to speed up the flow of the media through the tube. 900 - 3000 psi. -100°F to 450°F. Sizes 1/8" - 1-1/2" I.D. STB - Static Dissipative. 316 SS Braid.
High Pressure PTFE Hose	High pressure PTFE hose. Static Dissipative. 3000 - 5500 psi. -100°F to 400°F. Sizes 15/64" - 29/32" I.D. dependent on type. 304 SS Braid. 943B - 3000 psi. 944B - 4000-4500 psi. 950B - 4000 psi. 955B - 5500 psi.
929 929B	Tight bend radius. Increased wall thickness .040". 1000 - 3000 psi. -100°F to 450°F. Sizes 3/16" - 7/8" I.D. 929B - Static Dissipative. Sizes 3/16" - 1" I.D. 304 SS Braid.
929BJ	Same applications as 929B except with silicone jacket protection. Static dissipative core tube. Steam cleanable. 1200 - 3000 psi. -100°F to 450°F. Sizes 3/16" - 13/32" I.D.

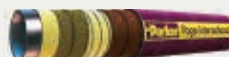
Specialty Fluoropolymer Hose

**RCTW
RCTB**

Rubber covered fluoropolymer hose. Handles full vacuum. 150 - 500 psi. -40°F to 300°F. Sizes 1/2" - 4" I.D. EPDM cover. RCTW - FEP core tube. RCTB - PFA core tube, Static Dissipative.



Natural



Static-Dissipative



PTFE "Convolute" Hose



Convolute Natural



Convolute Static-Dissipative

939 939B

Exceptional kink resistance. Transfer lines for nearly all chemicals. 250 - 1500 psi. -100°F to 450°F. Sizes 3/8" - 2" I.D. 304SS Braid. 939B - Static Dissipative.

SCW SCB

Exceptional kink resistance. Transfer lines for nearly all chemicals. 450 - 1500 psi. -100°F to 500°F. Sizes 1/4" - 2" I.D. 316SS Braid. SCB - Static Dissipative.

PCW PCB

Personal handling safety. Exceptional kink resistance. 200 - 350 psi. 0°F to 212°F. Sizes 1/4" - 2" I.D. PP Braid. PCB - Static Dissipative.

SCWV SCBV SCWV-FS SCBV-FS

Heavy wall convoluted. 150 - 1500 psi. -100°F to 500°F. Sizes 1/2" - 4" I.D. 316SS Braid. SCBV- Static Dissipative.

FS design = flare through design - continues PTFE through fitting.

PCWV PCBV PCWV-FS PCBV-FS

Heavy wall convoluted with polypropylene braid. 100 - 300 psi. 0°F to 212°F. Sizes 1/2" - 4" I.D. PCBV - Static Dissipative.

FS design = flare through design - continues PTFE through fitting.

Typical Applications

- Down Hole
- Chemical Transfer
- Fluid Handling
- High temperature Applications
- Corrosive Applications
- Sampling/Analyzing Lines



SBFW SBFB

Extra Flexible hose with half the min. bend radius of conventional smoothbore hose. 250-300 psi. -65°F to 325°F. Sizes 3/8" - 1-1/2" I.D. 316 SS Braid. USP Class VI Certified. PFA core tube.

Metal Hose

Download CAT 4690/MH from www.parker.com/pfd for additional information

Parflex metal hose assemblies are designed for applications where chemicals and temperature extremes, either from media or atmosphere, are present. Factory welded and ready to install, Parflex metal hose assemblies are leak-free, full vacuum hose solutions.

Any hose assembly is only as good as its weakest link. In the case of a metal hose assembly, the weakest link can be the welding process. The proprietary methods of seam and butt welding, as well as fitting attachment, utilized in Parflex assemblies are second to none and yield a consistent, reliable, leak-free connection.

Features

- Excellent chemical resistance
- Operates in high temperatures
- Sizes 1/4" I.D. up to 6" I.D. (for sizes over 2" I.D., contact Customer Service)
- Hydroformed design yields a uniform wall thickness, promoting even distribution of stress during flexing and reduces concentrated residual stress
- Full Vacuum - Maintains its shape under full vacuum, other hose types collapse
- Fire safety – Maintains its integrity up to 1200°F
- Zero permeation
- Leak-free fitting weld connection



9A - Standard

Available as metal hose only or with single/double braid. High temperature transfer for nearly all chemicals. -380°F to 1200°F. Sizes 1/4" - 6" I.D. Vacuum (30in/Hg) to 2700 psi depending on assembly specifications.

9M - Ultra Flexible

Compressed corrugations for increased flexibility. Available as metal hose only or with single/double braid. High temperature transfer for nearly all chemicals. -380°F to 1200°F. Sizes 1/4" - 6" I.D. Vacuum (30in/Hg) to 2700 psi depending on assembly specifications.

9H - High Pressure

Specially designed to maintain extreme pressure and flexibility. Available with single/double braid. High temperature transfer for nearly all chemicals. -380°F to 1200°F. Sizes 1/4" - 1-1/2" I.D. Vacuum (30in/Hg) to 5800 psi depending on assembly specifications.

Typical Applications

- High-Temp Applications
- Chemical Transfer
- Power Gen - Fuel Rail on
- Gas Turbines
- Solvent & Steam Lines
- Hot Oil & Lube Lines



Fluoropolymer Tubing

Download CAT 4150-55 from www.parker.com/pfd for additional information

Parflex fluoropolymer tubing is produced at the Parflex manufacturing facility in Fort Worth, Texas.

Fluoropolymer tubing features a low coefficient of friction and anti-stick properties, high temperature capabilities and the most corrosion and chemical resistance of all polymers. Within normal use temperatures, fluoropolymers are attacked by so few chemicals that it is easier to describe the exceptions rather than list the chemicals they are compatible with. These chemically inert tubes are non-wetting and non-leaching, making them ideal for a wide range of fluid and material handling applications.

Parflex fluoropolymer tubing is available in PTFE, FEP, PFA and PVDF with some materials operating at temperatures up to 500°F/260°C. Each material has specific dominant characteristics such as increased clarity, long lengths and increased mechanical strength. Custom sizes and designs available.

Typical Applications

- High-Temp Applications
- Corrosive Applications
- Chemical Transfer
- Fluid Handling
- Down Hole Testing
- Peristaltic Pump
- Analytical Instruments

PTFE

Offered in beading, smoothbore tubing, convoluted and heat shrinkable tubing. PTFE tubing features unmatched chemical resistance and a non-stick surface that facilitates flow and eliminates media buildup. Lowest coefficient of friction. Sizes from .010" I.D. up to 4" O.D.

FEP

Offered in smoothbore tubing, convoluted, corrugated, retractable coils and heat shrinkable tubing. FEP tubing features the highest clarity and is a close second to PTFE in chemical resistance. Available in long, continuous lengths (1,000 feet and longer). Sizes from .010" I.D. up to 4" O.D.

PFA

Offered in smoothbore tubing, convoluted, corrugated, retractable coils and heat shrinkable tubing. When temperature and clarity are both factors, PFA is the resin of choice. Offers the high-temperature attributes of PTFE, long continuous lengths, and almost as much clarity as FEP.

PVDF

Offered in smoothbore tubing. PVDF features low extracable levels and high mechanical strength. Used in applications requiring chemical resistance with low permeability. Exceptional abrasion resistance. Available in flexible and super flexible smoothbore tubing.



Safety First

Download the complete guide - "Parker Safety Guide for Selecting Hose, Tubing, Fittings and Accessories" from www.parker.com/pfd for additional information

Parker Safety Guide for Selecting and Using Hose, Tubing, Fittings and Related Accessories Publication No. 4400-B.1 Revised: November 2015

WARNING: Failure or improper selection or improper use of hose, tubing, fittings, assemblies, valves, connectors, conductors or related accessories ("Products") can cause death, personal injury and property damage. Possible consequences of failure or improper selection or improper use of these Products include, but are not limited to:

- Fittings thrown off at high speed.
- High velocity fluid discharge.
- Explosion or burning of the conveyed fluid.
- Electrocutation from high voltage electric power lines.
- Contact with suddenly moving or falling objects that are controlled by the conveyed fluid.
- Injections by high-pressure fluid discharge.
- Dangerously whipping Hose.
- Tube or pipe burst.
- Weld joint fracture.
- Contact with conveyed fluids that may be hot, cold, toxic or otherwise injurious.
- Sparking or explosion caused by static electricity buildup or other sources of electricity.
- Sparking or explosion while spraying paint or flammable liquids.
- Injuries resulting from inhalation, ingestion or exposure to fluids.

Before selecting or using any of these Products, it is important that you read and follow the instructions below. No product from any division in Fluid Connector Group is approved for in-flight aerospace applications. For hoses and fittings used in in-flight aerospace applications, please contact Parker Aerospace Group.





