Food & Beverage Transfer

Hose • Tubing • Fittings

Parker

ENGINEERING YOUR SUCCESS.

Hose, Tubing & Fitting Solutions

Streamline food and beverage applications

Hose & Tubing

From the field to the shelf, Parker Hannifin is helping the world put food on the table. Parflex hose and tubing products keep seeders, tractors and harvest equipment running as well as, keeping production and assembly lines moving in food and beverage processing facilities.

Handling the extreme is what our engineers focus on every day. The products in this brochure operate in very high temperatures and inhibit contamination without compromising the integrity of the product. Many of the hoses offered are lined with a PTFE core and PAGE Flare-Seal hoses have the PTFE flared through the fitting to eliminate bacteria entrapment. PTFE is also non-leaching and very easy to clean.

Specialty hoses and tubing, designed for extreme flexibility, allow product to move through confined spaces without kinking or interrupting flow. Other hoses are designed to handle steam or vibration, without increasing fatigue. Special sanitary fittings lined with FEP eliminate heat build up and promote increased flow and easy cleaning.

Parker engineers continually review products and work to increase operator safety by making hoses lighter and easier to handle. Compared to rubber, a Parflex hose is considerably lighter, up to 70%. Jackets and fire sleeves keep hoses cool to the touch and tubing is transparent so operators can view the media moving through the tubing.

Hose • Tubing • Fittings

- FDA 21 CFR 177.1550, 177.2600
- NSF-51
- NSF-61
- RoHS

Tube Fittings

Parflex tubing products utilize the fitting solutions provided by the Fluid System Connectors Division. Their technically superior push-to-connect fittings, valves, cartridges, tubing, and accessories have been designed to engineer your success, offering you new ways to create value. Our partnership approach allows us to work together to create the solutions you need to operate more efficiently and effectively.

"Smoothbore" Hose

919

Chemical transfer lines, hot oils, adhesive dispensing, and/or compressed air and gases. 625-3000 psi. -100°F to 450°F. Sizes 3/16" - 1-1/8" I.D. dependent on type. Compliant with FDA standards.

Visit the webpage

STW

For chemical transfer lines, hot oils, adhesive dispensing, and/or compressed air and gases. 900-3000 psi. -100°F to 450°F. Sizes 1/4" - 1-1/2" I.D. Compliant with FDA, USP Class VI, ISO 10993.

Visit the webpage

919J/919U

Same applications as 919 except with silicone jacket protection. 1200 - 3000 psi. -40°F to 450°F. Sizes 3/16" - 5/8" I.D.919U - Same applications as 919 except with polyurethane jacket for protection. 1000 - 3000 psi. -40°F to 275°F. Sizes 3/16" - 7/8" I.D.

Visit the webpage

929

Tight bend radius. Increased wall thickness .040". General hydraulics, instrumentation lines, sampling/ analyzing lines, etc. 1200 - 3000 psi. -100°F to 450°F. Sizes 3/16" - 7/8" I.D.Compliant with FDA standards.

Visit the webpage

540P

540P - Specialty water hose. Non-leaching, low moisure permeability. 1250-2750 psi. -40°F to 150°F. Sizes 1/4" - 3/4" I.D. FDA compliant, polyethylene core tube. Polyurethane cover.

Thermoplastic

Visit the webpage

Flare-Seal®

Continuous PTFE through fittings - no area for bacterial entrapment. Sizes 1/2" - 4" I.D. Compliant with FDA, USP Class VI, ISO 10993. SCWV-FS - 150-500 psi. -65°F to 325°F. Stainless Steel Braid. PCWV-FS 100-300 psi. 0°F to 212°F. Polypropylene Braid.

Visit the webpage

"Convoluted" Hose

939

Exceptional kink resistance. Transfer lines for nearly all chemicals. 250 - 1500 psi. -100°F to 450°F. Sizes 3/8" - 2" I.D. Compliant with FDA standards.

Visit the webpage

SCW

Transfer lines for nearly all food and beverages. Sizes 1/4" - 2" I.D. Compliant with FDA, USP Class VI, ISO 10993. SCW 450 - 1500 psi. -100°F to 500°F. Stainless Steel Braid.

Visit the webpage

SCWV

Heavy Wall for extra flexibility. Transfer lines for nearly all food and beverages. Sizes 1/2" - 4" I.D. Compliant with FDA, USP Class VI, ISO 10993. SCWV 150 - 1500 psi. -100°F to 500°F. Stainless Steel Braid.

Visit the webpage

Food Grade Tubing

Fluoropolymer

Parflex 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.

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.

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. Best flex life & lowest coefficient of friction. Sizes from .010" I.D. up to 2" O.D.

Visit the webpage

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. Best clarity. Long, continuous lengths (1,000 feet and longer). Sizes from .010" I.D. up to 2" O.D.

Visit the webpage

PFA

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

Visit the webpage

High Purity PFA

Offered in smoothbore tubing, convoluted, corrugated, retractable coils and heat shrinkable tubing. Highest molecular weight. Best purity. Lowest level of extractables. Low permeation. Sizes from .010" I.D. up to 2" O.D.

Visit the webpage

Parflex PTFE, FEP and PFA tubing complies with European Standard RoHs and the tubing is also FDA compliant to FDA regulation 21 CFR 177.1550, making these products suitable for use in food and beverage applications.





Thermoplastic

Polyethylene

- Parflex polyethylene tubing meets FDA, NSF Standard 51 for food contact applications and NSF-61 for potable water applications.
- E-Series tubing is made of 100% virgin resin material.
- Polyethylene tubing meets ASTM D-1693 (10% IGEPAL) for stress crack resistance.
- Parflex also offers special PE tubing: PEFR (flame retardant) and HDPE (high density).

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Polypropylene

- Polypropylene tubing meets FDA, NSF Standard 51 for food contact applications.
- Polypropylene tubing exhibits excellent chemical resistance to chlorinated water applications.
- Black Polypropylene tubing is commonly used in outdoor applications where UV light stabilization is required.

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Polyvinyl Chloride (PVC)

- PVC tubing is made from 100% virgin resin material and meets FDA specifications for materials in contact with food and drugs.
- PVC tubing is a very flexible, 70 durometer tubing. It is crystal-clear and ideal for situations where visible fluid flow is necessary (i.e. sight gauges for tank identification).

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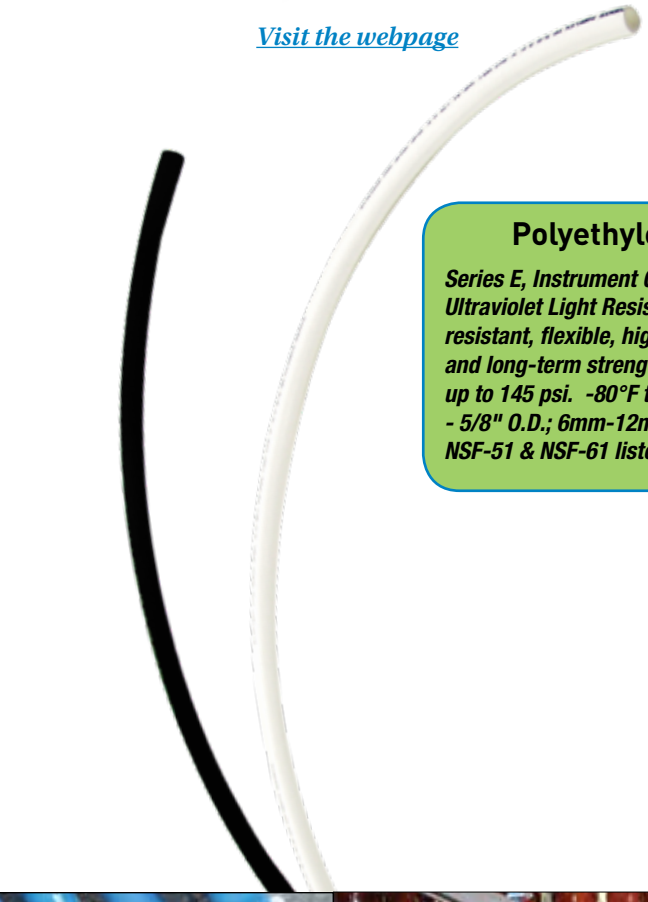

Polyethylene Tubing

Series E, Instrument Grade; Series EB, Ultraviolet Light Resistant - Chemically resistant, flexible, high-dimensional stability and long-term strength. Working pressure up to 145 psi. -80°F to 150°F. Sizes 1/4" - 5/8" O.D.; 6mm-12mm. FDA compliant. NSF-51 & NSF-61 listed. Assorted colors.

Polypropylene Tubing

Series PP, Laboratory Grade-FDA, NSF Listed; Flexible tubing for high temperatures and pressures. Excellent resistance to hot water and stress cracking. Working pressure up to 350 psi. 0°F to 200°F. Sizes 1/8" - 5/8" O.D. White PP Series meets FDA and NSF-51 specifications. Black and white.

Clear Vinyl Tubing

Series PV - PVC tubing with exceptional purity, clarity and flexibility. Ideal for use in contact with food and drugs for human consumption. Working pressure up to 75 psi. Sizes 1/8" - 2-1/2" O.D. -40°F to 150°F. FDA Compliant. Clear.





FOOD PROCESSING
Meeting Stringent Sanitary and Aseptic Standards

Prestolok® Metal Fittings for Pneumatic Automation Applications in Food Processing

Silicone Free push-to-connect fitting with FKM seal offering excellent resistance to aggressive wash-down environments. The smooth surface design reduces retention zones for safe and easy cleaning. Available in NPT, BSPT, BSPP and Metric threads.

Prestolok® PLM
Electroless Nickel Plated
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Prestolok® PLS
Stainless Steel
Visit the webpage

FC-705
Visit the webpage

Complete offering of metal flow controls and function fittings

FDA RoHs

Tubing Compatibility

Compatible
MG Metal Gripper Collet
TS Tube Support Recommended

Product Line	Parflex Thermoplastic Tubing – Industrial Tubing Series: Polyethylene E & EB	Polyethylene PEFR	Polyethylene HDPE	Nylon N	Nylon PAT	Nylon NR	Polypropylene PP & PPB	Polyurethane 95U (90-95 Shore A)	Polyurethane 95FR (Weld Tubing)	Clear Vinyl	Parflex Fluoropolymer: PFA Fluoropolymer	FEP Fluoropolymer	PTFE Fluoropolymer
PLM													
PLS													
LIQUIfit™													
TrueSeal™						MG		TS	TS	TS			

WATER AND BEVERAGE
Keeping it Clean, Keeping it Safe

Thermoplastic Fittings and Valves
Potable Water and Beverage Dispensing

TrueSeal™ push- to-connect fittings available in Acetal, Polypropylene and Kynar® materials are ideal for water treatment and harsh chemical environments. TrueSeal™ has a metal gripper collet with EPDM seals to meet NSF requirements.

LIQUIfit™ has a stainless steel grab ring with EPDM seals and is manufactured from bio-base polymers suitable for contact with water, beverages and food.

Polypropolyene Ball Valves and check valves are available in a variety of sizes and configurations to help isolate and control the systems.

TrueSeal™
Acetal
Visit the webpage

TrueSeal™
Kynar®
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LIQUIfit
Visit the webpage

FDA · NSF Certified to NSF/ANSI 61 - C HOT - · NSF COMPONENT - NSF 51 - · RoHs

LIQUIfit™
Check Valve

Check Valve

Polypropylene
Ball Valve

LIQUIfit™
Ball Valve

Temperature/Pressure

Product Line	Temperature	Tube Sizes/PSI													
		1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"	4mm	6mm	8mm	10mm	12mm	14mm	16mm
PLM	-4° to +250°F		290		290		290	290	290	290	290	290	290	290	
PLS	-4° to +245°F		290	290	290	290	290	290	290	290	290	290	290		
LIQUIfit™	35° to +200°F				230	230	190	160	230	230	230	190	160		
TrueSeal™ Acetal	-20° to +180°F				300	300	300	250							
TrueSeal™ Polypropylene	0° to +225°F				150	150	150	150							
TrueSeal™ Kynar	0° to +275°F				300		300								
Polypropylene Ball Valves	35° to +200°F				150	150	150	150							

Tubing Properties - Quick Reference

Fluoropolymers

PTFE (Polytetrafluoroethylene)
Working Temperature: 500°F (260°C)

Color: Opaque to translucent

- Chemically inert
- Lowest coefficient of friction
- Superior dielectric strength
- Exceptional heat resistance
- Self extinguishing
- Non-wetting
- Excellent flex life
- Laser markable

PFA (Perfluoroalkoxy)
Working Temperature: 500°F (260°C)

Color: Clear with light blue or tint

- *High purity resins available*
- Low permeation resins available
- Use when you need the temperature range of PTFE and the clarity of FEP
- Exceptional heat resistance
- Self extinguishing
- Non-wetting
- Good flex life

FEP (Fluorinated Ethylene Propylene)
Working Temperature: 400°F (204°C)

Color: Clear

- Excellent chemical resistance
- Non-wetting
- Weldable
- Tubes can be sealed by melting
- Long continuous lengths
- Low refractive index
- Improved clarity over PFA
- Lower cost alternative to PFA

Thermoplastics

PP (Polypropylene)
Working Temperature: 200°F (93°C)

Color: White or Black

- Acid and chemically resistant
- Excellent compatibility with high temperature water
- Low water absorption (less than .01%)
- Good compatibility with vegetable oils
- Excellent resistance to environmental stress cracking

PE (Polyethylene)
Working Temperature: 150°F (65°C)

Color: Wide range of colors

- 100% virgin resin
- Flexible
- Chemical resistant
- High molecular weight resin provides increased dimensional stability, uniformity and long-term strength

PV (Vinyl)
Working Temperature: 150°F (65°C)

Color: Clear

- Made from a virgin clear PVC (polyvinyl chloride) resin; specifically formulated for exceptional purity, clarity and flexibility
- 70 durometer for soft, easy handling and bending without tubing collapse

For chemical compatibility of thermoplastic tubing, please consult Parflex Catalog 4660, available online at www.parker.com/pfd

Fluoropolymer Material Overview

General Property Comparisons of Fluoropolymer Tubing

Properties*	ASTM or Unit	PTFE	FEP	PFA	High Purity PFA
MECHANICAL PROPERTIES					
Specific Gravity	D792 D3307	2.13-2.22 -	2.12-2.17 -	2.12-2.17 -	- 2.14-2.16
Elongation %	D638 D3307	200-450 -	250-330 -	280-400 -	- 370
Tensile Strength (psi)	D638(psi) D3307(psi)	2000-7000 -	2800-4000 -	4000-5000 -	- 4693
Flexural Strength (psi)	D790	no break	no break	no break	no break
Compressive Strength (psi)	D695	700-900	725-2200	725-810	na
Tensile Elastic Modulus (Young's Modulus) (psi)	D638	57,000 -	50,000 -	72,500-87,000	na
Flexural Modulus	D790(psi) D790 103MPa (103kgf/cm2)	71,000-85,000 0.5-0.6 (5.0-6.0)	78,000-92,000 0.5-0.6 (5.5-6.4)	94,000-99,000 0.6-0.7 (6.6-7.0)	- 647-686 -
Flex Life (MIT cycles)	D2176	>1,000,000	5,000-80,000	10,000-500,000	2000 x 10^3
Hardness Durometer Shore D	D2240	D50-65	D55	D55-D60	D60
Coefficient of Friction	(on steel)	0.02	0.05	0.04-0.06	0.05
Abrasion Resistance 1000 cycles	Taber	8-90	14-20	0.00-96.75	na
Impact Strength IZO.D. 73°F/23°C notched ft/lbs/in	D256	3	no break	no break	no break
THERMAL PROPERTIES					
Melting Point	°C °F	327 621	260 500	305 582	305 582
Upper Service Temperature (20000h)	°C °F	260 500	204 400	260 500	260 500
Flammability	UL 94	V-0	V-0	V-0	V-0
Thermal Conductivity BTU-in/hr-ft^2, °F		1.7-2.08	1.4	1.3	na
Thermal Conductivity Cal-cm/sec-cm^2, °C		6 x 10-4	6 x 10-4	6 x 10-6	na
Linear Coefficient of Thermal Expansion Min/in°F 73.4-140°F	D696	55.6	46.1-58.3	66.7	na
Heat of Fusion	BTU/LB	29-37	4-35	13	na
Heat of Combustion	BTU/LB °F	2200	2200	2300	na
Low Temperature Embrittlement	°C °F	-268 -450	-268 -450	-268 -450	-268 -450
ELECTRICAL PROPERTIES					
Dielectric Constant	D150/10^3Hz D150/10^6Hz	2.1 2.1	2.1 2.1	2.1 2.1	2.1 2.1
Dielectric Strength	D149/125 MIL D149/10 MIL	500 ≥1400	508 >610	500 ≥1400	500 - 600 na
Volume Resistivity	D257/ohm-cm	>10^{18}	>10^{18}	>10^{18}	na
Surface Resistivity	D257/ohm-cm	>10^{18}	>10^{17}	>10^{17}	na
GENERAL PROPERTIES					
Chemical/Solvent Resistance	D543	Excellent	Excellent	Excellent	Excellent
Refractive Index		1.35	1.338	1.34	1.34
Limiting Oxygen Index, %	D2868	>95	>95	≥95	na
Water Contact Angle	Angle to Level	110	114	115	na
Water Absorption 24h,%	D570	<0.01	<0.01	<0.03	<0.01
Weatherability		Excellent	Excellent	Excellent	Excellent

Fluoropolymer Chemical Resistance Summary

Within normal use temperatures, Fluoropolymers are attacked by so few chemicals that it is easier to describe the exceptions rather than list the chemicals with which Fluoropolymers are compatible.

DO NOT USE FLUOROPOLYMERS WITH THE FOLLOWING:

- Alkali metals such as elemental sodium, potassium, lithium, etc. The alkali metals remove fluorine from the polymer molecule.
- Extremely potent oxidizers, fluorine (F2) and related compounds (e.g., chlorine trifluoride, ClF3). These can be handled by TexFluor™, but only with great care, as fluorine is absorbed into the resins, and the mixture becomes sensitive to a source of ignition such as impact.
- 80% NaOH (Sodium Hydroxide) or KOH (Potassium Hydroxide), metal hydrides such as Borances (e.g., B2H6), Aluminum Chloride, Ammonia (NH3), certain Amines (R-NH2) and imines (R=NH) and 70% Nitric Acid at temperatures near the suggested service limit.

Government & Agency Compliance	
Agency and Specifications	**Approved Parflex Products**
Dry Food Contact:	
FDA, CFR21 Part 177	E, PP, PV, 540P, 919, 919J, 919U, 929, 939, STW, SCW, PCW, SCWV, PCWV, SCWV, PCWV-FS, SCWV-FS
HOSE	
Fluoropolymer	
Smoothbore PTFE Hose	919
	919J
	919U
	929
	STW
Convoluted PTFE Hose	939
	PCW
	SCW
	SCWV
	PCWV
Flare-Seal PTFE Hoses	PCWV-FS
	SCWV-FS
Thermoplastic	
Specialty Water	540P
TUBING	
Fluoropolymer Tubing	
PTFE Tubing	Series 101, 201
FEP Tubing	Series 103, 203
PFA Tubing	Series 104, 204
Thermoplastic Tubing	
Polypropylene Tubing	Series PP
Vinyl Tubing	Series PV
Potable **Water, Liquid Foods:**	
NSF Standard 51* NSF Standard 61*	E and PP Series Tubing E Series Tubing

*Indicates that products shown have been tested and certified by NSF International to the requirements of NSF Standards 51 and 61. NSF does not express or imply an approval on any product.

Parker Safety Guide for Selecting and Using Hose, Tubing, Fittings and Related Accessories

Publication No. 4400-B.1 Rev A 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.
- Electrocution from high voltage electric powerlines.
- 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 Parker Fluid Connectors Group is approved for in-flight aerospace applications. For hoses and fittings used in in-flight aerospace applications, please contact Parker Aerospace Group.

Products in this brochure are not a complete representation of our product line, but are the most widely used products for food and beverage applications. Please contact the division to determine the suitability of other products for these or related applications.

Parker Fluid Connectors Group
North American Divisions & Distribution Service Centers

Your complete source for quality tube fittings, hose & hose fittings, brass & composite fittings, quick-disconnect couplings, valves and assembly tools, locally available from a worldwide network of authorized distributors.

Fittings:
Available in inch and metric sizes covering SAE, BSP, DIN, GAZ, JIS and ISO thread configurations, manufactured from steel, stainless steel, brass, aluminum, nylon and thermoplastic.

Hose, Tubing and Bundles:
Available in a wide variety of sizes and materials including rubber, wire-reinforced, thermoplastic, hybrid and custom compounds.

Worldwide Availability:
Parker operates Fluid Connectors manufacturing locations and sales offices throughout North America, South America, Europe and Asia-Pacific.

For information, call toll free...

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