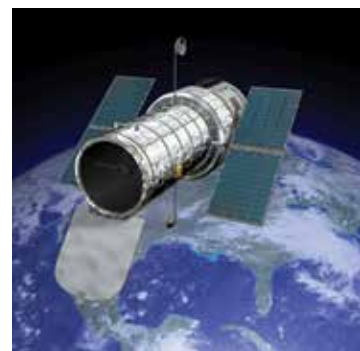


aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Fluoropolymer Extrusions

Fluid Handling & Electrical Insulation Products



ENGINEERING YOUR SUCCESS.

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Fluoropolymer Tubing

PFA
Tubing
A

The Parflex Division's fluoropolymer tubing operation, located at Parker TexLoc in Fort Worth, TX, specializes in the development and extrusion of fluoropolymer tubing for fluid handling applications. These products operate in high temperature applications up to 500°F (260°C) and in cryogenic applications with temperatures as low as -100°F (-75°C).

FEP
Tubing
B

TexLoc extrusions are resistant to UV radiation and moisture while offering the lowest coefficient of friction of any

material available. Additionally, all of the tubing products are made from resins and colors that are certified to be free of mercury, heavy metals and other materials that are restricted in accordance with the RoHS directive. In fact, the quality engineered into our products makes them suitable for critical applications in the medical, pharmaceutical and instrumentation markets.

All of the tables in this catalog are supplied with inch and mm sizes.

Working pressure is calculated at 73°F (23°C) using a Design Factor of 4 to 1. Special sizes, profiles, cut lengths and minimum continuous lengths are also available upon request.

Thank you for allowing us to serve your fluoropolymer needs.



PTFE
Tubing
C



**Parflex Division
Ravenna, Ohio**



**TexLoc Facility
Fort Worth, Texas**

PVDF
Tubing
D

ETFE
Tubing
E

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

Parflex PTFE, FEP and PFA are listed VW-1 in the burning test for Underwriters Laboratories and pass the UL-83 vertical flame test. In a flame situation, PTFE, FEP and PFA tubing resist combustion and do not promote flame spread.

Technical
Pages
F

Index
G

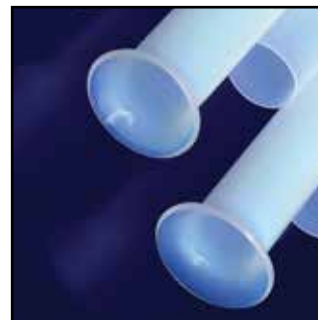


Catalog Overview

All of the tubing in this catalog 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 (see Chemical Resistance Summary, pg. F04). In addition, these chemically inert tubes are non-wetting and non-leaching making them ideal for a wide range of fluid and material handling applications.

Parker TexLoc fluoropolymer tubing is available in PTFE, FEP, PFA, High Purity PFA (H.P. PFA), ETFE and PVDF with some materials operating at temperatures up to 500°F/260°C. Each material has specific dominant characteristics, but all operate in high-temperature, corrosive environments.

Each catalog product page outlines Features, Certifications, Typical Applications and the Dimensional Data for each product. In addition, the following icons are used for quickly identifying typical markets. For markets not listed, contact Customer Service.



Tubing Pressure Ranges

Tubing pressures are calculated at 73°F (23°C) and vary by material, tubing size and wall thickness. Please contact Customer Service for specific pressures.

Icon Identification



Fluid
Handling



Life
Science



Industrial
Pneumatic



Industrial
Hydraulics



Food &
Beverage



Transportation



Electrical



Military



Semiconductor

All fluoropolymer tubing dimensions are continuously monitored to ensure an overall quality product. Most tubing sizes are packaged in convenient 25-ft., 50-ft., 100-ft. and 1,000-ft. lengths. Custom lengths are available upon request.

For detailed ordering information, please consult price list or contact Parker TexLoc.

Parker Hannifin Corporation | Parflex® Division, TexLoc | Fort Worth, Tx | www.texloc.com



Material Feature Overview

PFA
Tubing
A

High Purity PFA pg. A02

- H.P. PFA (High Purity Perfluoroalkoxy) has the highest molecular weight available.
- Withstands corrosive surfactants for longer periods of time than standard products.
- Lowest level of extractables.

FEP
Tubing
B

PFA pg. A04

- PFA (Perfluoroalkoxy) - When temperature and clarity are both factors, PFA is the resin of choice, offering the high-temperature attributes of PTFE, long continuous lengths, and almost as much clarity as FEP.
- High purity resins available.
- Low permeability.

PTFE
Tubing
C

FEP pg. B02

- FEP (Fluorinated Ethylene Propylene) offers the highest clarity in the fluoropolymer market and is a close second to PTFE in chemical resistance.
- FEP is available in long, continuous lengths (1,000 feet and longer) , unlike PTFE, where the lengths range from 200 to 1,000 feet depending on size and wall thickness.

PVDF
Tubing
D

PTFE pg. C02

- PTFE (Polytetrafluoroethylene) has the lowest coefficient of friction of any material known to man.
- PTFE tubing features unmatched chemical resistance and a non-stick surface that facilitates flow and eliminates media buildup.

ETFE
Tubing
E

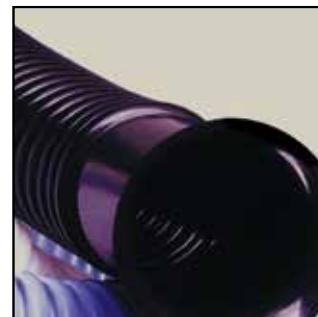
PVDF pg. D02

- PVDF (Polyvinylidene Fluoride) offers a combination of properties beneficial for use in many critical applications requiring chemical resistance with low permeability.
- PVDF exhibits low extractable levels while providing high mechanical strength and abrasion resistance.

Technical
Pages
F

ETFE pg. E02

- ETFE (Ethylene Tetrafluoroethylene) has the best abrasion resistance in the fluoropolymer family.



Fully Conductive and Conductive I.D. tubing in PTFE and PFA Full Conductive are available

Index
G

Smoothbore Tubing

Smoothbore



Smoothbore is available in Fractional, Metric and AWG sizes in a variety of wall thicknesses.

Features

- Low coefficient of friction
- Resists moisture
- ROHS compliant
- USP Class VI compliant
- FDA compliant
- VW-1 flammability rating
- Review material properties for additional features

Options

- High Purity PFA, PFA, FEP, PTFE, PVDF
- Static Dissipative in Conductive I.D. or Fully Conductive
- Custom extrusions available
- Custom colors available
- Sizes range from .015" O.D. up to 4.0" O.D.

Beading/Monofilament



Unlike a tube, beading is a solid polymer fiber. Beading/Monofilament is available in PTFE. See pg. C13

Features

- Handles temperatures up to 500°F
- Non-stick surface
- Low coefficient of friction
- Excellent electrical insulator

Options

- Custom extrusions available
- Custom colors available
- Sizes range from .015" O.D. up to .188" O.D.

Colortrax® (Custom order only)



Colortrax® tubing provides instant - positive identification of lines without obstructing the view of the media flowing through the tube. Also, because the stripe runs the entire length of the tube, operators can easily distinguish one line from another without having to search for identification labels. Available in PTFE.

Features

- Quick visual identification of lines
- Stripe is permanent, will not rub off
- Chemical resistant
- Handles temperatures up to 500°F
- Non-stick surface

Options

- Up to 10 striping colors per tube
- Sizes range from .062" O.D. up to 1" O.D.

Value Added Tubing Products

Convolute



Product offerings include MIL Spec Convolute (SAE AS81914), Convo-Tex®, Wire Wrapped Convolute, Low Profile Convo (larger inside diameter for increased flow) and Heavy Wall Convo (thicker wall to handle more pressure).

Features

- Available in PTFE, FEP, PFA and ETFE
- Seamless
- Very flexible
- Self draining
- Chemically inert
- Nonwetting
- USP Class VI compliant
- VW-1 flammability rating
- Review material properties for additional features

Options

- Low Profile
- Heavy Wall
- Close convolution, reverse convolution and split loom available
- PTFE and PFA convoluted tubing are available as a conductive tube to dissipate static build-up and reduce the risk of discharge or explosion
- Wire wrapped tubing
- Cuffing is available to create an attachable end for adding fittings or flanges
- Colors are available on request
- Sizes range from 1/8" O.D. up to 4" O.D.

Convolute Products	Page #	Continuous Use Temperature	Standard Color	Comment
PTFE Convo-Tex®	C24	-100° to 500°F -75° to 260°C	Natural/ Milky White	<ul style="list-style-type: none"> ▪ Parker Texloc standard convoluted tubing ▪ Static-Dissipative material available ▪ Available with a variety of cuffing styles ▪ Wire wrap available for increased flexibility and crush resistance
PTFE Low Profile	C26	-100° to 500°F -75° to 260°C	Natural/ Milky White	<ul style="list-style-type: none"> ▪ Larger inside diameter for increased flow ▪ Allows liquids to travel at a much faster rate ▪ Promotes easy cleaning
PTFE Heavy Wall	C26	-100° to 500°F -75° to 260°C	Natural/ Milky White	<ul style="list-style-type: none"> ▪ Heavier wall - up to 33% more PTFE ▪ Handles higher vacuum and pressures ▪ Increased wall aids in the process of adding fittings, flanges or flaring
FEP Convolute	B10	-100° to 400°F -75° to 204°C	Natural/ Clear	<ul style="list-style-type: none"> ▪ Long continuous lengths ▪ Translucent ▪ Sized on the inside diameter
FEP Convo-Flon™	B10	-100° to 400°F -75° to 204°C	Natural/ Clear	<ul style="list-style-type: none"> ▪ Long continuous lengths ▪ Translucent ▪ Sized on the outside diameter
SAE AS81914/1 SAE AS81914/2	C28	-100° to 500°F -75° to 260°C	Black	PTFE - /1 is standard convolution /2 is close convolution
SAE AS81914/3 SAE AS81914/4	B12	-100° to 400°F -75° to 204°C	Natural/ Clear	FEP - /3 is standard convolution /4 is close convolution Can be supplied in long, continuous lengths
SAE AS81914/5 SAE AS81914/6	E04	-148° to 348°F -100° to 176°C	Natural/ Clear	ETFE - /5 is close convolution /6 is standard convolution Extreme abrasion resistance

Value Added Tubing Products

Heat Shrinkable Tubing



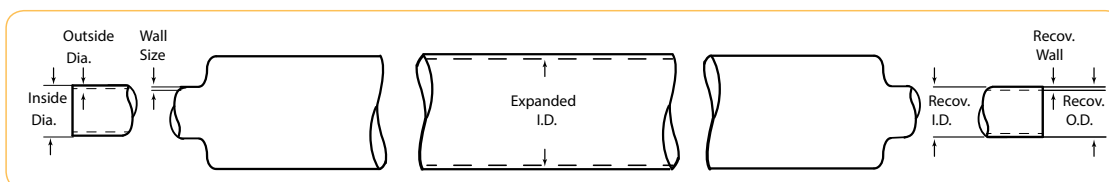
Texflour® Fluoropolymer Heat Shrinkable Tubing is supplied in an expanded state, allowing easy slippage over instruments, fittings and other protrusions. When heated, the tubing conforms to the size and shape of the original object, providing a protective covering.

Features

- Available in PTFE, FEP, ETFE and PFA
- Protects objects from abrasion, shock and high temperatures
- Most products meet AMS-DTL-23053
- Double shrink encapsulates objects to create a moisture barrier
- USP Class VI compliant

Options

- PTFE 2:1 PTFE 4:1
- FEP 1.3:1 FEP 1.67:1 FEP Roll Cover
- ETFE 1.5/1
- Double Shrink
- Custom heat shrink available
- Custom colors available
- Sizes range from .034" expanded I.D. up to 6" expanded I.D. depending on style



Standard Heat Shrink Products	Page #	Continuous Use Temperature	Shrink Temperature
PTFE 2:1 H.S., Standard Wall – Insulation	C19	-100°F to 500°F (-75°C to 260°C)	662°F (350°C) for 10/minutes
PTFE 2:1 H.S., Thin Wall – Insulation	C20		
PTFE 2:1 H.S., Light Wall – Insulation	C21		
PTFE 2:1 H.S., Fractional Insulation, SW & TW	C17		
PTFE 4:1 H.S., 4:1 Shrink	C22		
FEP H.S., 1.3:1 Shrink	B04	-100°F to 400°F (-75°C to 205°C)	1" Dia. and below – 410°F (210°C) Over 1" Dia. – 430°F (221°C)
FEP H.S., 1.6:1 Shrink	B06		
FEP Roll Cover	B08	-100°F to 400°F (-75°C to 205°C)	347°F (175°C) for 10/minutes
PTFE/FEP Double Shrink (PTFE Outside-FEP Inside)	B09	-100°F to 450°F (-75°C to 231°C)	680°F (360°C)
Custom Heat Shrink Products		Continuous Use Temperature	Shrink Temperature
PTFE 2:1 H.S., Heavy Wall, Quoted on Request	C17	-100°F to 500°F (-75°C to 260°C)	662°F (350°C) for 10/minutes
ETFE H.S., 1.5:1 Shrink, Quoted on Request	E02	-100°F to 302°F (-75°C to 150°C)	347°F (175°C) for 10/minutes
PFA Heat Shrink, Quoted on Request	*	-100°F to 500°F (-75°C to 260°C)	400°F (204°C) for 10/minutes

* Contact Customer Service

For detailed ordering information, please consult price list or contact Parker Texloc.

Value Added Tubing Products

Fully Conductive & Conductive I.D. Tubing

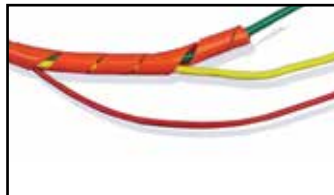


For insulation purposes the high resistivity of plastics is an advantage but, in some cases, it can be a serious disadvantage as it results in high, static charge, build up; this in turn can result in dust pick-up and/or spark generation. The established way of improving conductivity is by adding a conductive filler such as a high structure, carbon black. The addition of lubricants can minimize the generation of static while the addition of some semi-incompatible liquids can cause static to leak away.

Parker TexLoc offers a wide variety of anti-static and conductive convoluted tubing to fit each customer's specific needs. This tubing is supplied as a conductive liner or as a fully conductive tube.

Fully conductive tubes are available in TEXfluor® PTFE and PFA. Industrial grade conductivity conforms to SAE AS81914 and MIL-DTL-27267C, having a minimum conductance of 10-20 micro amps with 1,000 vdc applied over a 14" length.

Spiral Wrap



PTFE Spiral Wrap tubing provides harnessing for wire and cable while allowing leads at various points. See pg. C14.

Features

- Available in PTFE
- Extremely flexible
- Non-stick surface for easy cleaning
- VW-1 flammability rating

Options

- Available in Right or Left Hand cut
- Sizes range from 1/8" I.D. up to 1" I.D.

Value Added Tubing Products

Heat Shrinkable Tubing



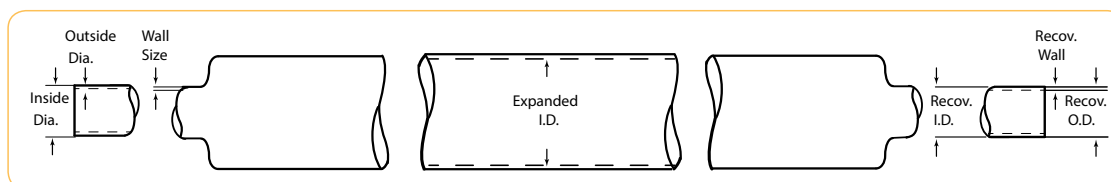
Texflour® Fluoropolymer Heat Shrinkable Tubing is supplied in an expanded state, allowing easy slippage over instruments, fittings and other protrusions. When heated, the tubing conforms to the size and shape of the original object, providing a protective covering.

Features

- Available in PTFE, FEP, ETFE and PFA
- Protects objects from abrasion, shock and high temperatures
- Most products meet AMS-DTL-23053
- Double shrink encapsulates objects to create a moisture barrier
- USP Class VI compliant

Options

- PTFE 2:1 PTFE 4:1
- FEP 1.3:1 FEP 1.67:1 FEP Roll Cover
- ETFE 1.5/1
- Double Shrink
- Custom heat shrink available
- Custom colors available
- Sizes range from .034" expanded I.D. up to 6" expanded I.D. depending on style



Standard Heat Shrink Products	Page #	Continuous Use Temperature	Shrink Temperature
PTFE 2:1 H.S., Standard Wall – Insulation	C19	-100 to 500°F/-75 to 260°C	662°F/350°C for 10/minutes
PTFE 2:1 H.S., Thin Wall – Insulation	C20		
PTFE 2:1 H.S., Light Wall – Insulation	C21		
PTFE 2:1 H.S., Fractional Insulation, SW & TW	C17		
PTFE 4:1 H.S., 4:1 Shrink	C22		
FEP H.S., 1.3:1 Shrink	B04	-100 to 400°F/-75 to 205°C	1" Dia. and below – 410°F/210°C Over 1" Dia. – 430°F/221°C
FEP H.S., 1.6:1 Shrink	B06		
FEP Roll Cover	B08	-100 to 400°F/-75 to 205°C	347°F/175°C for 10/minutes
PTFE/FEP Double Shrink (PTFE Outside-FEP Inside)	B09	-100 to 450°F/-75 to 231°C	680°F/360°C
Custom Heat Shrink Products		Continuous Use Temperature	Shrink Temperature
PTFE 2:1 H.S., Heavy Wall, Quoted on Request	C17	-100 to 500°F/-75 to 260°C	662°F/350°C for 10/minutes
ETFE H.S., 1.5:1 Shrink, Quoted on Request	E02	-100 to 302°F/-75 to 150°C	347°F/175°C for 10/minutes
PFA Heat Shrink, Quoted on Request	*	-100 to 500°F/-75 to 260°C	400°F/204°C for 10/minutes

* Contact Customer Service

For detailed ordering information, please consult price list or contact Parker Texloc.

Parker Hannifin Corporation | Parflex® Division, TexLoc | Fort Worth, Tx | www.texloc.com



Value Added Products

Corrugated



Tex-Flex™ FEP corrugated tubing from Parker TexLoc is capable of turning sharp corners with very small bend diameters without kinking. The bend diameter is almost 4x smaller than a typical smoothbore tube of the same size. See pg. B14.

Features

- Available in FEP, PFA & High Purity PFA
- Extremely flexible
- Non-stick surface for easy cleaning
- Chemical resistant

Options

- Cuffing is available to create an attachable end for adding fittings or flanges
- Sizes range from 1/4" I.D. up to 2-1/2" I.D.

Retractable Coils (Custom order only)



Parker TexLoc fluoroplastic coiled tubing is a spiral formed tube manufactured in FEP or PFA that consists of a single or double retractable coil in a single tube. FEP retractable tubes hold their shape and remain stable up to 200°F, PFA up to 300°F. See pg. B16.

Features

- Available in FEP, PFA & High Purity PFA Custom engineered to fit your application
- Chemical resistant
- >0.01% moisture absorption

Options

- Dual containment designs available
- lengths up to 4 feet compressed (12 feet expanded)
- Sizes range from 1/16" O.D. up to 2" O.D.

Paratubing (Custom order only)



Fluoroplastic Paratubing, from Parker TexLoc, is a unique tube consisting of 2 to 4 tubes longitudinally thermally welded to create one conduit consisting of multiple individual tubes. Paratubing offers the ability to run several fluid lines as one entity and then split the tubes apart for branching to different connectors when needed.

Features

- Handles temperatures up to 500°F
- Reduces tangling and kinking
- Clear tubes allow for operator inspection

Options

- FEP or PFA
- Custom extrusions available
- Custom colors available
- Sizes range from 1/16" O.D. up to 3" O.D.

Value Added Services

Secondary operations are offered on-site in Parker TexLoc's Value-Added Service department.

- | | | | |
|--------------------|---------------|----------------------|-----------------------------------|
| ▪ Beading | ▪ Drilling | ▪ Kitting | ▪ Tubing assemblies with fittings |
| ▪ Convoluting | ▪ Etching | ▪ Marking | ▪ Welded Tubing |
| ▪ Corrugating | ▪ Flanging | ▪ Perforations | ▪ Wire reinforcement |
| ▪ Cuffing | ▪ Flaring | ▪ Profiles | |
| ▪ Custom Assembly | ▪ Forming | ▪ Retractable Tubing | |
| ▪ Custom Shrinking | ▪ Heat Shrink | ▪ Scoring | |
| ▪ Cutting | ▪ Jacketing | ▪ Tube Slitting | |



Etching



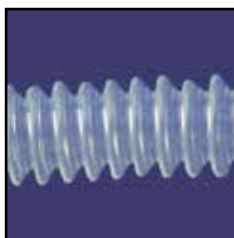
Assembling



Custom Shrinking



Convuluted Tubing



Corrugated Tubing



Forming



Tubing Assemblies



Scoring



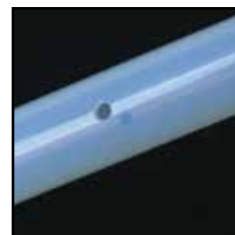
Profiles



Welded Tubing



Marking



Drilling



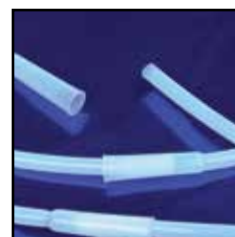
Cutting



Retractable Tubing



Kitting



Flaring/Flanging

For detailed ordering information, please consult price list or contact Parker Texloc.

Parker Hannifin Corporation | Parflex® Division, TexLoc | Fort Worth, Tx | www.texloc.com



Applications

Product Family	Type	Page	Part Number Series	Typical Applications		Typical Markets	
PFA	Smoothbore*	A05	104	Air Sampling Gas Purge Wet bench		Chemical Laboratory	Environmental Fluid Handling
		A05	204	Flow Monitoring Steam Plant		Semiconductor Instrumentation	Gas Service Pharmaceutical Life Science
	Convoluted*	B10	Custom	Fluid Transfer Gas Sampling		Semiconductor Instrumentation	Laboratory
	Retractable Coils	B16	704 705	Instrumentation Flow Monitoring System	Chemical Dispensers Heat Exchangers	Semiconductor Instrumentation	Laboratory
High Purity PFA	Smoothbore	A03	105	High purity applications DI recirculators DI water dispensers		Chemical Laboratory	Environmental Fluid Handling
		A03	205	Gas Transfer Wet bench		Semiconductor Instrumentation	Gas Service Pharmaceutical Life Science
FEP	Smoothbore	B03	103	Nitrogen Filling Downhole Pump	Hearing Aid Optical Sensors	UV Applications Chemical Instrumentation	Fluid Handling Gas Sampling Pharmaceutical
		B03	203	Ozone Sampling		Laboratory	Robotics
	Heat Shrink	B04 B06 B08	HS1.3 HS1.6 HS1.25	Protective Covering UV Light Covering Product Testing	Paper Rollers Ink Rollers	Food & Beverage	Life Science
		B09	TSSS TSSL	Protective Covering Wire Splices	Fitting Encapsulation		
	Convoluted	B10 B12	CV03 81914	Fluid Transfer Gas Sampling	Wire Harnessing		
	Corrugated	B14	CR03	Robots Fluid Handling	Automation		
Retractable Coils	B16	703	DI Water Heat Exchangers Instrumentation	Flow Monitoring System DI recirculators Pure Chemical Dispensers			
PTFE	Beading	C13	TFB	Pull Cord O-Ring Seals	Spacers Woven Filter	Chemical Instrumentation	Military Laboratory
	Smoothbore	C08	AWG TFH, TFS, TFT, TFL	Electrical Insulation Protective Cover	Circuit Board Wire Insulation	Food & Beverage	Fluid Handling
		C06	Fractional TFH, TFS, TFT, TFL			Electrical Insulation	Gas Sampling Laboratory
	Smoothbore*	C02 C02	101 201	Electrical Insulation Fluid Transfer			
	Spiral Cut	C14	TSWTF	Electrical Insulation Harnessing			
	Convoluted*	C24 C26 C28	CV01 CVL01 & CVH01 81914	Electrical Insulation Fluid Transfer Wire Harnessing			
	Heat Shrink	C16 C18 C22	Fractional HS2T AWG HS2T HS4T	Electrical Insulation Laboratory			
PVDF	Smoothbore	D02 D02	110 111	Thermal Cycling Outdoor/Extreme Conditions Applications with long cycle life	Water Systems	Chemical Gas	Food Environmental
ETFE	Heat Shrink	E02	HS1.5	Protective Covering Ink Rollers		Chemical Instrumentation	Life Science
	Convoluted	E04	81914	Fluid Transfer Wire Harnessing		Laboratory	Transportation Cryogenics

* Also available in conductive (static-dissipative) option

Chemical Resistance Summary



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

DO NOT USE FLUOROPLASTICS 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 Boranes (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.



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.



PFA
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Nomenclature

Smoothbore Fractional and Metric Tubing

105-0250062 - N T -				100	
		<u>Outside Diameter</u>	<u>Wall Thickness</u>		
		0250 = .250 inch 0700 = 7 mm	062 = .062 inch 100 = 1 mm		
				<u>Tube Packaging</u>	<u>Length</u>
				T = Bulk Default Configuration C = Tube Cut Job (followed by cut length in inches)	25 = 25 ft coil 50 = 50 ft coil 100 = 100 ft coil 1000 = 1000 ft coil Blank = No cut xx.xxx = Length (inch)
		<u>Tubing Color Options*</u>			
		N = Natural			
		0 = Black			
		1 = Brown			
		2 = Red			
		3 = Orange			
		4 = Yellow			
		5 = Green			
		6 = Blue			
		7 = Violet			
		8 = Gray			
		9 = White			
<u>Product Family</u>	<u>Resin Family</u>	<u>Configuration</u>			
1 = Fractional	01 = PTFE	Blank = No color			
2 = Metric	03 = FEP	C = Colored Solid Tube			
7 = Retractable Coil	04 = PFA	S = Colored Stripe on Tube			
9 = Custom	05 = PFA High Purity	L = Laser Marked			
	10 = PVDF: Flex				
	11 = PVDF: Super-Flex				
	12 = ETFE NONSTANDARD				
	13 = PEEK® NONSTANDARD				

Convolute and Corrugated Tubing

CV01- 1/8ID- 88-1.5-2C

<

Nomenclature

Heat Shrink, Electrical Insulation Tubing and Beading

HS2** T F T 1/8 - N T***

Special Configurations		Tubing Configurations		Tubing Color Options*		Configuration	
Blank if Smooth Bore		H = Heavy Wall		N = Natural		Blank = No color	
HS2 = 2:1 Ratio PTFE		S = Standard Wall		0 = Black		C = Colored Solid Tube	
HS4 = 4:1 Ratio PTFE		T = Thin Wall		1 = Brown		S = Colored Stripe on Tube	
HS1.3 = 1.3.1:1 Ratio FEP		L = Light Wall		2 = Red			
HS1.6 = 1.67:1 Ratio FEP		I = Industrial Wall		3 = Orange			
HS1.25 = 1.25:1 Ratio FEP		B = Beading		4 = Yellow			
TSW = Spiral Wrap				5 = Green			
				6 = Blue			
				7 = Violet			
				8 = Gray			
				9 = White			

*When ordering coiled tubing in colors, the color code is always followed by TC;
when ordering cut lengths, the color code is followed by CC....ie HS2TFT1/8-2TC ..ie HS1.3FEP24-OCC48.000.

**This first configuration is only used for heat shrinkable tubing or spiral wrap. For example, electrical insulation tubing part number would read TFT-1/8-NT.

***When changing to cut length, replace the T with C and specify the length in inches. If this part was cut to 4 feet, part number would read TFT-1/8-NC48.000.

Sizes for heat shrink designate the size of the heat shrink tube as stated by the applicable specification. The actual O.D. of the tubing does not always match the size. Review actual tables to see the true expanded dimension of the tube.

PFA PRODUCTS

High Purity PFA

Fractional Industrial Wall
Fractional Heavy Wall
Metric

Standard PFA

Industrial Wall
Heavy Wall
Metric

Retractable Coils, Convoluted and Corrugated are also available. Refer to FEP section.

High Purity PFA (Perfluoroalkoxy)

Working Temperature: 500°F (260°C)

Color: Clear with light blue or tint
See characteristics of PFA with these additional features:

- Lowest level of extractables
- Highest molecular weight available
- Withstands corrosive surfactants for longer periods of time
- Higher purity

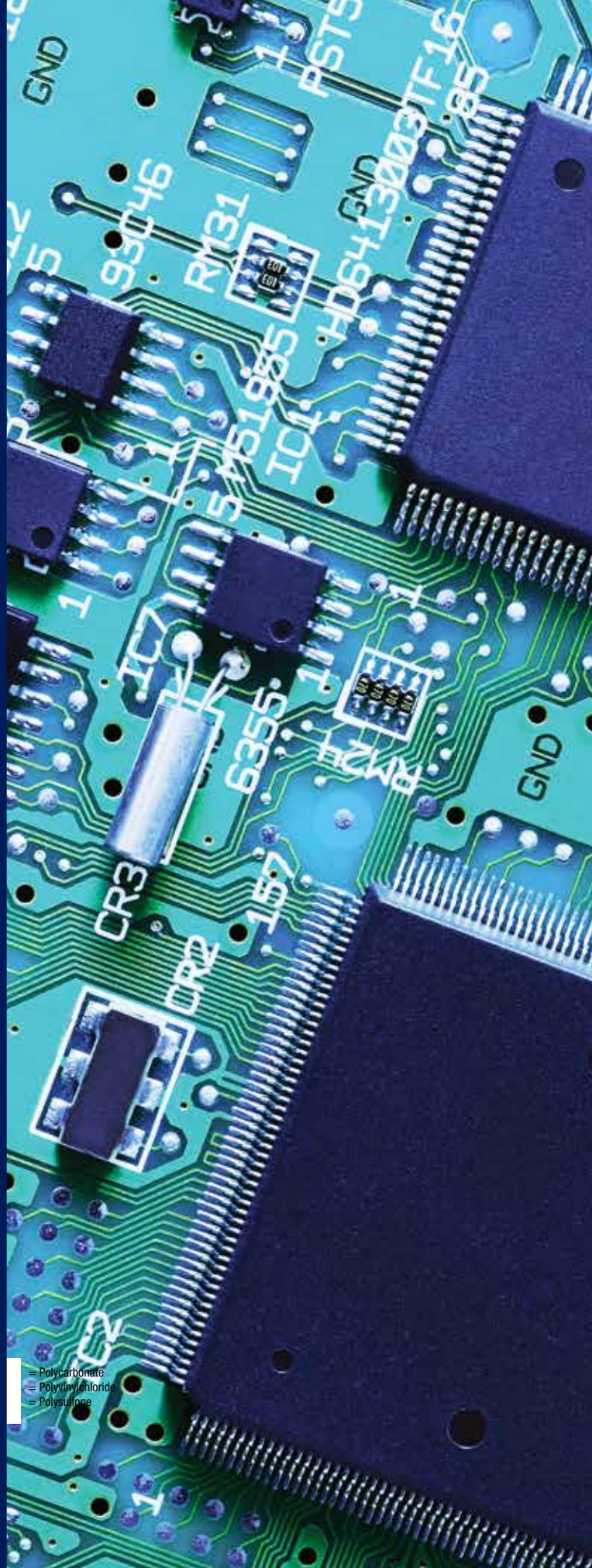
PFA (Perfluoroalkoxy)

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
- Nonwetting
- Good flexlife

= Polycarbonate
= Polyvinylchloride
= Polysulfone



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High Purity PFA Tubing

Series Fractional & Metric: 105, 205



Features

- Withstands corrosive surfactants for longer periods of time
- Highest molecular weight available
- Lowest level of extractables
- Low permeability
- Exceptional heat resistance
- Chemically inert
- Long continuous lengths
- Low coefficient of friction
- Self extinguishing
- Non leaching

Certifications/Compliance

- ASTM D3307-10
- VW-1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant

Applications/Markets



- Flow Monitoring
- Gas Transfer
- Food
- Wet Bench
- DI Water Dispensers
- DI Recirculators
- Heat Exchangers
- Pure Chemical Dispensers
- High Purity Applications

Order Information

Example: 105-0375031-N-100

105-0375031-N-100 – Fractional

105-0375031-N-100 – High Purity PFA

105-0375031-N-100 – Tube O.D. in millimeters (3/8")

105-0375031-N-100 – Tube Wall Thickness in millimeters (.031")

105-0375031-N-100 – Natural

105-0375031-N-100 – Package Quantity in feet (100')

Fittings

Fittings available for sizes 4mm up to 12mm

Parker Fittings available from:
Fluid System Connectors Division
Otsego, MI

(269) 694-2550

(269) 692-6634 FAX

FSC Product Families:

- Compression
- Compress-Align®
- Fast & Tite
- TrueSeal™

Notes

- Working Temperature:
-100°F to 500°F (-75°C to 260°C) Working pressure calculated using a Design Factor of 4 at 73°F (23°C)
- Custom packaging and sizes are quoted upon request
- Package quantities are not continuous









Options

- Smoothbore
- Convoluted
- Corrugated
- Retractable Coils









Colors

- Natural, Translucent









105 High Purity PFA Industrial Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
105-0125031	1/8	0.125	± 0.004	3.18	± 0.102	0.064	± 0.004	1.63	± 0.102	0.031	0.79	500	34	2000	138	0.500	13	28	0.009	0.013
105-0188031	3/16	0.188	± 0.005	4.78	± 0.127	0.125	± 0.005	3.18	± 0.127	0.031	0.79	320	22	1280	88	0.750	19	28	0.014	0.021
105-0250031	1/4	0.250	± 0.005	6.35	± 0.127	0.188	± 0.005	4.78	± 0.127	0.031	0.79	230	16	920	63	1.000	25	28	0.020	0.030
105-0375031	3/8	0.375	± 0.005	9.52	± 0.127	0.312	± 0.005	7.92	± 0.127	0.031	0.79	140	10	560	39	3.500	89	28	0.031	0.047

105 High Purity PFA Heavy Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
105-0250040	1/4	0.250	± 0.005	6.35	± 0.127	0.170	± 0.005	4.32	± 0.127	0.040	1.02	300	21	1200	83	0.938	24	28	0.025	0.037
105-0250047	1/4	0.250	± 0.005	6.35	± 0.127	0.156	± 0.005	3.96	± 0.127	0.047	1.19	370	26	1480	102	0.500	13	28	0.028	0.042
105-0250062	1/4	0.250	± 0.005	6.35	± 0.127	0.125	± 0.005	3.18	± 0.127	0.062	1.57	500	34	2000	138	0.625	16	28	0.034	0.051
105-0375062	3/8	0.375	± 0.005	9.52	± 0.127	0.250	± 0.005	6.35	± 0.127	0.062	1.57	320	22	1280	88	1.125	29	28	0.057	0.085
105-0500062	1/2	0.500	± 0.005	12.70	± 0.127	0.375	± 0.005	9.53	± 0.127	0.062	1.57	230	16	920	63	2.250	57	28	0.079	0.119
105-0750062	3/4	0.750	± 0.006	19.05	± 0.152	0.625	± 0.006	15.88	± 0.152	0.062	1.57	140	10	560	39	4.250	108	28	0.125	0.186
105-1000062	1	1.000	± 0.010	25.40	± 0.254	0.875	± 0.010	22.22	± 0.254	0.062	1.57	100	7	400	28	8.000	203	*	0.170	0.254

205 Metric High PFA Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	mm	mm	tol.	inch	tol.	mm	tol.	inch	tol.	mm	inch	bar 23°C	psi 73°F	bar 23°C	psi 73°F	mm	inch	at 73°F	kg. per m.	lb. per ft.
205-0300100	3	3	± 0.11	0.118	± 0.004	1	± 0.11	0.039	± 0.004	1	0.039	47	680	188	2720	13	0.500	28	0.014	0.009
205-0400100	4	4	± 0.11	0.157	± 0.004	2	± 0.11	0.079	± 0.004	1	0.039	34	500	138	2000	13	0.500	28	0.020	0.020
205-0600100	6	6	± 0.11	0.236	± 0.004	4	± 0.11	0.157	± 0.004	1	0.039	22	320	88	1280	22	0.875	28	0.034	0.023
205-0800100	8	8	± 0.11	0.315	± 0.004	6	± 0.11	0.236	± 0.004	1	0.039	16	230	63	920	35	1.375	28	0.047	0.032
205-1000100	10	10	± 0.11	0.393	± 0.004	8	± 0.11	0.315	± 0.004	1	0.039	12	180	50	720	51	2.000	28	0.061	0.041
205-1200100	12	12	± 0.15	0.472	± 0.006	10	± 0.15	0.394	± 0.006	1	0.039	10	140	39	560	89	3.500	28	0.074	0.050

For detailed ordering information, please consult price list or contact Parker Texloc.

PFA Tubing

Series Fractional & Metric: 104, 204



Features

- Virgin Perfluoroalkoxy
- Translucent
- High purity resins available
- Low permeability
- Exceptional heat resistance
- Chemically inert
- Long continuous lengths
- Low coefficient of friction
- Self extinguishing
- Non-wetting
- Non leaching

Certifications/Compliance

- ASTM D3307-10
- VW-1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant

Applications/Markets



- Air Sampling
- Gas Sampling
- Fluid Transfer
- Laboratory
- Wet Bench
- Flow Monitoring
- Steam Plant

Order Information

Example: 104-0188062-N-100

104-0188062-N-100 – Fractional

104-0188062-N-100 – PFA

104-0188062-N-100 – Tube O.D. in inches (3/16")

104-0188062-N-100 – Tube Wall Thickness in inches (.062")

104-0188062-N-100 – Natural

104-0188062-N-100 – Package Quantity in feet (100')

Fittings

Fittings available for sizes 3/32" up to 1"

Parker Fittings available from:
Fluid System Connectors Division
Otsego, MI

(269) 694-2550

(269) 692-6634 FAX

FSC Product Families:

- Compression
- Compress-Align®
- Fast & Tite
- TrueSeal™

Notes

- Working Temperature:
-100°F to 500°F (-75 to 260°C)
- Working pressure calculated using a Design Factor of 4 at 73°F (23°C)
- Custom packaging and sizes are quoted upon request
- Package quantities are not continuous

Options









- Smoothbore
- Convolute
- Corrugated
- Retractable Coils
- Heat Shrink

Colors









- ○ Natural, Translucent
- Colors available as custom run, see color code table

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			









104 PFA Industrial Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
104-0094031	3/32	0.094	±0.004	2.40	±0.102	0.031	±0.002	0.79	±0.051	0.031	0.79	680	47	2720	188	0.250	6	28	0.006	0.009
104-0125031	1/8	0.125	±0.004	3.18	±0.102	0.064	±0.004	1.63	±0.102	0.031	0.79	500	34	2000	138	0.375	10	28	0.009	0.013
104-0156031	5/32	0.157	±0.005	3.99	±0.127	0.094	±0.003	2.39	±0.076	0.031	0.79	390	27	1560	108	0.625	16	28	0.011	0.017
104-0188031	3/16	0.188	±0.005	4.78	±0.127	0.125	±0.005	3.18	±0.127	0.031	0.79	320	22	1280	88	0.625	16	28	0.014	0.021
104-0250031	1/4	0.250	±0.005	6.35	±0.127	0.188	±0.005	4.78	±0.127	0.031	0.79	230	16	920	63	0.875	22	28	0.020	0.030
104-0312031	5/16	0.312	±0.005	7.92	±0.127	0.250	±0.005	6.35	±0.127	0.031	0.79	180	12	720	50	1.750	44	28	0.025	0.038
104-0375031	3/8	0.375	±0.005	9.52	±0.127	0.312	±0.005	7.92	±0.127	0.031	0.79	140	10	560	39	3.250	83	28	0.031	0.047
104-0438031	7/16	0.438	±0.005	11.13	±0.127	0.375	±0.005	9.53	±0.127	0.031	0.79	120	8	480	33	3.250	83	28	0.037	0.055
104-0500031	1/2	0.500	±0.005	12.70	±0.127	0.438	±0.005	11.13	±0.127	0.031	0.79	100	7	400	28	4.750	121	28	0.043	0.063
104-0563031	9/16	0.563	±0.006	14.30	±0.152	0.500	±0.006	12.70	±0.152	0.031	0.79	80	6	320	22	5.000	127	28	0.048	0.072

104 PFA Heavy Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
104-0188062	3/16	0.188	±0.005	4.78	±0.127	0.062	±0.005	1.57	±0.127	0.062	1.57	680	47	2720	188	0.500	13	28	0.023	0.034
104-0250040	1/4	0.250	±0.005	6.35	±0.127	0.170	±0.005	4.32	±0.127	0.040	1.02	300	21	1200	83	0.875	22	28	0.025	0.037
104-0250047	1/4	0.250	±0.005	6.35	±0.127	0.156	±0.005	3.96	±0.127	0.047	1.19	370	26	1480	102	1.000	25	28	0.028	0.042
104-0250062	1/4	0.250	±0.005	6.35	±0.127	0.125	±0.005	3.18	±0.127	0.062	1.57	500	34	2000	138	0.500	13	28	0.034	0.051
104-0312062	5/16	0.312	±0.005	7.92	±0.127	0.188	±0.005	4.78	±0.127	0.062	1.57	390	27	1560	108	0.750	19	28	0.045	0.068
104-0375062	3/8	0.375	±0.005	9.52	±0.127	0.250	±0.005	6.35	±0.127	0.062	1.57	320	22	1280	88	1.250	32	28	0.057	0.085
104-0438062	7/16	0.438	±0.005	11.13	±0.127	0.312	±0.005	7.92	±0.127	0.062	1.57	270	19	1080	74	2.625	67	28	0.068	0.102
104-0500062	1/2	0.500	±0.005	12.70	±0.127	0.375	±0.005	9.53	±0.127	0.062	1.57	230	16	920	63	3.000	76	28	0.079	0.119
104-0750062	3/4	0.750	±0.006	19.05	±0.152	0.625	±0.006	15.88	±0.152	0.062	1.57	140	10	560	39	6.000	152	28	0.125	0.186
104-1000062	1	1.000	±0.010	25.40	±0.254	0.875	±0.010	22.22	±0.254	0.062	1.57	100	7	400	28	8.000	203	28	0.170	0.254

204 Metric PFA Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	mm	mm	tol.	inch	tol.	mm	tol.	inch	tol.	mm	inch	bar 23°C	psi 73°F	bar 23°C	psi 73°F	mm	inch	at 73°F	kg. per m.	lb. per ft.
204-0400100	4	4	± 0.11	.157	± 0.004	2	± 0.11	.079	0.250	1	0.039	34	500	138	2000	6	0.250	28	0.020	0.014
204-0600100	6	6	± 0.11	.236	± 0.004	4	± 0.11	.157	± 0.004	1	0.039	22	320	88	1280	25	1.000	28	0.034	0.023
204-0800100	8	8	± 0.11	.315	± 0.004	6	± 0.11	.236	± 0.004	1	0.039	16	230	63	920	51	2.000	28	0.047	0.032
204-1000100	10	10	± 0.11	.393	± 0.004	8	± 0.11	.315	± 0.004	1	0.039	12	180	50	720	70	2.750	28	0.061	0.041
204-1200100	12	12	± 0.15	.472	± 0.006	10	± 0.15	.393	± 0.006	1	0.039	10	140	39	560	89	3.500	28	0.074	0.050

For detailed ordering information, please consult price list or contact Parker Texloc.

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FEP PRODUCTS

Smoothbore

Fractional Industrial Wall
Fractional Heavy Wall
Metric

Heat Shrink

1.3:1
1.67:1
1.25:1 Roll Cover
Double Shrink

Convolute

FEP Convolute
Convo-Flon
SAE AS81914/3

Corrugated

Retractable Coils

FEP (Fluorinated Ethylene Propylene)

Working Temperature: 400°F (204°C)

Color: Clear

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



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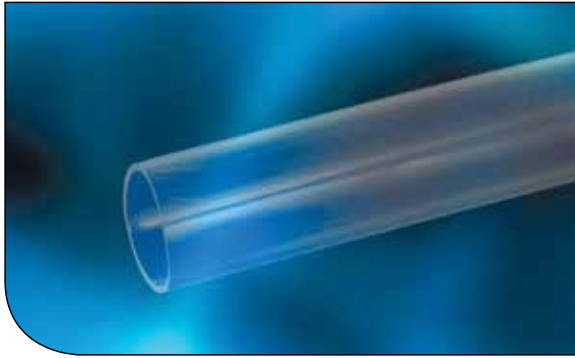
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FEP Tubing

Series Fractional & Metric: 103, 203



Features

- Virgin Fluorinated Ethylene Propylene resin
- Translucent
- Chemically inert
- Long continuous lengths
- Low coefficient of friction
- Self extinguishing
- Non-wetting
- Weldable

Certifications/Compliance

- ASTM D2116-07
- VW-1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant

Applications/Markets



- Nitrogen Transfer
- Ozone Sampling
- Optical Sensor
- Laboratory
- Down Hole Pump
- Food & Beverage
- Catheter Repair
- Syringe Tips

Order Information

Example: 103-0250031-N-100

103-0250031-N-100 – Fractional

103-0250031-N-100 – FEP

103-0250031-N-100 – Tube O.D. in inches (1/4")

103-0250031-N-100 – Tube Wall Thickness in inches (.031")

103-0250031-N-100 – Natural

103-0250031-N-100 – Package Quantity in feet (100')

Fittings

Fittings available for sizes 1/8" up to 1"

Parker Fittings available from:
Fluid System Connectors Division
Otsego, MI

(269) 694-2550

(269) 692-6634 FAX

FSC Product Families:

- Compression
- Compress-Align®
- Fast & Tite
- TrueSeal™

Notes

- Working Temperature:
-100°F to 400°F (-75°C to 204°C)
- Working pressure calculated using a Design Factor of 4 at 73°F (23°C)
- Custom packaging and sizes are quoted upon request
- Package quantities are not continuous

Options









- Smoothbore
- Convuluted
- Corrugated
- Retractable Coils
- Paratubing

Colors









- ○ Natural, Translucent
- Colors available as custom run, see color code table

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			









103 FEP Industrial Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
103-0094031	3/32	0.094	±0.005	2.40	±0.127	0.031	±0.002	0.79	±0.051	0.031	0.79	630	43	2520	174	0.500	13	28	0.006	0.009
103-0125031	1/8	0.125	±0.003	3.18	±0.076	0.062	±0.003	1.57	±0.076	0.031	0.79	470	32	1880	130	0.375	10	28	0.009	0.013
103-0156031	5/32	0.157	±0.005	3.99	±0.127	0.094	±0.005	2.39	±0.127	0.031	0.79	360	25	1440	99	0.375	10	28	0.011	0.017
103-0188031	3/16	0.188	±0.005	4.78	±0.127	0.125	±0.005	3.18	±0.127	0.031	0.79	290	20	1160	80	0.750	19	28	0.014	0.021
103-0250031	1/4	0.250	±0.005	6.35	±0.127	0.188	±0.005	4.78	±0.127	0.031	0.79	210	14	840	58	1.750	44	28	0.020	0.030
103-0312031	5/16	0.312	±0.005	7.92	±0.127	0.250	±0.005	6.35	±0.127	0.031	0.79	160	11	640	44	2.250	57	28	0.025	0.038
103-0375031	3/8	0.375	±0.005	9.52	±0.127	0.312	±0.005	7.92	±0.127	0.031	0.79	130	9	520	36	2.750	70	28	0.031	0.047
103-0438031	7/16	0.438	±0.005	11.13	±0.127	0.375	±0.005	9.52	±0.127	0.031	0.79	110	8	440	30	4.000	102	28	0.037	0.055
103-0500031	1/2	0.500	±0.006	12.70	±0.152	0.438	±0.006	11.13	±0.152	0.031	0.79	90	6	360	25	4.000	102	28	0.043	0.063
103-0563031	9/16	0.563	±0.006	14.30	±0.152	0.500	±0.006	12.70	±0.152	0.031	0.79	80	6	320	22	5.000	127	28	0.054	0.080

103 FEP Heavy Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.					Nominal I.D.					Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																						
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.		
103-0188062	3/16	0.188	±0.005	4.78	±0.127	0.064	±0.005	1.63	±0.127	0.062	1.57	630	43	2520	174	0.250	6	28	0.023	0.034		
103-0250040	1/4	0.250	±0.005	6.35	±0.127	0.170	±0.005	4.32	±0.127	0.040	1.02	280	19	1120	77	1.250	32	28	0.025	0.037		
103-0250047	1/4	0.250	±0.005	6.35	±0.127	0.156	±0.005	3.96	±0.127	0.047	1.19	340	23	1360	94	0.750	19	28	0.028	0.042		
103-0250062	1/4	0.250	±0.005	6.35	±0.127	0.125	±0.005	3.18	±0.127	0.062	1.57	470	32	1880	130	0.750	19	28	0.034	0.051		
103-0312062	5/16	0.312	±0.005	7.92	±0.127	0.188	±0.005	4.78	±0.127	0.062	1.57	360	25	1440	99	1.375	35	28	0.045	0.068		
103-0375062	3/8	0.375	±0.005	9.52	±0.127	0.250	±0.005	6.35	±0.127	0.062	1.57	290	20	1160	80	1.500	38	28	0.057	0.085		
103-0438062	7/16	0.438	±0.005	11.13	±0.127	0.312	±0.005	7.92	±0.127	0.062	1.57	250	17	1000	69	2.625	67	28	0.068	0.102		
103-0500062	1/2	0.500	±0.005	12.70	±0.127	0.375	±0.005	9.53	±0.127	0.062	1.57	210	14	840	58	2.125	54	28	0.079	0.119		
103-0625062	5/8	0.625	±0.006	15.88	±0.152	0.500	±0.006	12.70	±0.152	0.062	1.57	160	11	640	44	3.000	76	28	0.102	0.152		
103-0750062	3/4	0.750	±0.006	19.05	±0.152	0.625	±0.006	15.88	±0.152	0.062	1.57	130	9	520	36	6.000	152	28	0.125	0.186		
103-1000062	1	1.000	±0.010	25.40	±0.254	0.875	±0.010	22.22	±0.254	0.062	1.57	90	6	360	25	8.000	203	28	0.170	0.254		

203 Metric FEP Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	mm	mm	tol.	inch	tol.	mm	tol.	inch	tol.	mm	inch	bar 23°C	psi 73°F	bar 23°C	psi 73°F	mm	inch	at 73°F	kg. per m.	lb. per ft.
203-0300100	3	3	±0.11	0.118	±0.004	1	±0.11	0.039	±0.004	1	0.039	27	390	108	1560	6	0.250	28	0.014	0.009
203-0400100	4	4	±0.11	0.157	±0.004	2	±0.11	0.079	±0.004	1	0.039	20	290	80	1160	13	0.500	28	0.020	0.014
203-0500100	5	5	±0.11	0.197	±0.004	3	±0.11	0.118	±0.004	1	0.039	15	220	61	880	19	0.750	28	0.027	0.018
203-0600100	6	6	±0.13	0.236	±0.005	4	±0.13	0.157	±0.005	1	0.039	12	180	50	720	29	1.125	28	0.034	0.023
203-0700100	7	7	±0.13	0.276	±0.005	5	±0.13	0.197	±0.005	1	0.039	10	150	41	600	44	1.750	28	0.041	0.027
203-0800100	8	8	±0.13	0.315	±0.005	6	±0.13	0.236	±0.005	1	0.039	9	130	36	520	51	2.000	28	0.047	0.032
203-0900100	9	9	±0.13	0.354	±0.005	7	±0.13	0.275	±0.005	1	0.039	8	110	30	440	54	2.125	28	0.054	0.036
203-1000100	10	10	±0.13	0.393	±0.005	8	±0.13	0.315	±0.005	1	0.039	7	100	28	400	70	2.750	28	0.061	0.041
203-1200100	12	12	±0.15	0.472	±0.006	10	±0.15	0.394	±0.006	1	0.039	6	80	22	320	76	3.000	28	0.074	0.050

For detailed ordering information, please consult price list or contact Parker Texloc.

FEP Heat Shrinkable Tubing

Series 1.3:1 HS1.3FEP



Applications/Markets



- Protective Cover
- UV Light Covering
- Product Testing
- Rollers

Features

- Easier to shrink than PTFE
- Chemically inert
- Low coefficient of friction
- Superior dielectric strength
- Good heat resistance
- Self extinguishing
- Non-wetting

Certifications

- AMS-DTL-23053/11A, Class 1
- ASTM D2902 Type II
- ASTM D3296-03
- VW-1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant

Order Information

Example: HS1.3FEP24-0CC48.000

HS1.3FEP24-0CC48.000 – Heat Shrink

HS1.3FEP24-0CC48.000 – Shrink Ratio (1.3:1)

HS1.3FEP24-0CC48.000 – FEP

**HS1.3FEP24-0CC48.000 – Heat Shrink Size in AWG
(AWG 24) (For inch size use inch (3/8"))**

HS1.3FEP24-0CC48.000 – Black

HS1.3FEP24-0CC48.000 – Package Quantity in feet (48")

Notes

- Working Temperature: 400°F (204°C)
- Shrink Temperature:
1" Dia. and below : 410°F (210°C)
Over 1" Dia. : 430°F (221°C)
- *Dielectric Strength: $\geq 2,000$ V/M, per ASTM D 149 short term test of 10 MIL thickness (Volts/MIL)
- Heat Shrink tubing is available in stock packaging of 4-ft. straight lengths
- Minimum quantities may apply
- Custom packaging, sizes, lengths and colors are quoted upon request

Colors

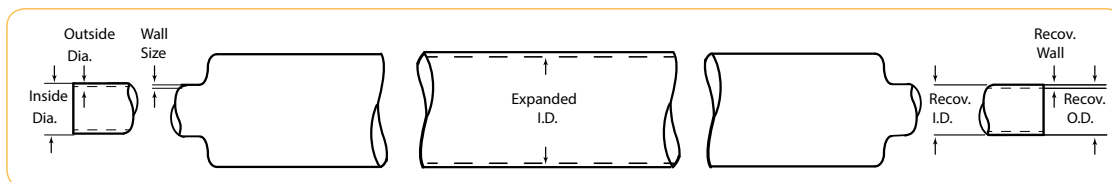
- ○ Natural, Translucent
- Colors available as custom run, see color code table

When ordering coiled tubing in colors, the color code is always followed by TC; when ordering cut lengths, the color code is followed by CC
ie HS1.3FEP24-2TC
ie HS1.3FEP24-0CC48.000

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

HS1.3FEP AWG Heat Shrink Tubing (1.3:1)

Part Number	Order Size AWG	Mil Spec*	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
			inch	mm	inch	mm	inch	mm
HS1.3FEP24	24	23053/11A-101	0.031	0.79	0.027	0.69	0.008 ± 0.002	0.20 ± 0.05
HS1.3FEP22	22	23053/11A-102	0.036	0.91	0.032	0.81	0.008 ± 0.002	0.20 ± 0.05
HS1.3FEP20	20	23053/11A-103	0.045	1.14	0.039	0.99	0.008 ± 0.002	0.20 ± 0.05
HS1.3FEP18	18	23053/11A-104	0.060	1.52	0.049	1.25	0.008 ± 0.002	0.20 ± 0.05
HS1.3FEP16	16	23053/11A-105	0.075	1.90	0.061	1.55	0.009 ± 0.002	0.23 ± 0.05
HS1.3FEP14	14	23053/11A-106	0.092	2.34	0.072	1.83	0.009 ± 0.002	0.23 ± 0.05
HS1.3FEP12	12	23053/11A-107	0.115	2.92	0.089	2.26	0.009 ± 0.002	0.23 ± 0.05
HS1.3FEP10	10	23053/11A-108	0.141	3.58	0.114	2.90	0.010 ± 0.003	0.25 ± 0.08
HS1.3FEP09	9	23053/11A-109	0.158	4.01	0.124	3.15	0.010 ± 0.003	0.25 ± 0.08
HS1.3FEP08	8	23053/11A-110	0.180	4.57	0.143	3.63	0.010 ± 0.003	0.25 ± 0.08
HS1.3FEP07	7	23053/11A-111	0.197	5.00	0.158	4.01	0.011 ± 0.004	0.28 ± 0.10
HS1.3FEP06	6	23053/11A-112	0.225	5.72	0.180	4.57	0.011 ± 0.004	0.28 ± 0.10
HS1.3FEP05	5	23053/11A-113	0.248	6.30	0.198	5.03	0.011 ± 0.004	0.28 ± 0.10
HS1.3FEP04	4	23053/11A-114	0.290	7.37	0.226	5.74	0.011 ± 0.004	0.28 ± 0.10
HS1.3FEP03	3	23053/11A-115	0.310	7.87	0.249	6.32	0.011 ± 0.004	0.28 ± 0.10
HS1.3FEP02	2	23053/11A-116	0.365	9.27	0.280	7.11	0.012 ± 0.004	0.31 ± 0.10
HS1.3FEP01	1	23053/11A-117	0.400	10.2	0.311	7.90	0.012 ± 0.004	0.31 ± 0.10
HS1.3FEP00	0	23053/11A-118	0.440	11.2	0.349	8.86	0.012 ± 0.004	0.31 ± 0.10



HS1.3FEP Fractional Heat Shrink Tubing (1.3:1)

Part Number	Order Size inch	Mil Spec*	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
			inch	mm	inch	mm	inch	mm
HS1.3FEP3/8	3/8	23053/11A-119	0.500	12.7	0.383	9.73	0.015 ± 0.004	0.38 ± 0.10
HS1.3FEP7/16	7/16	23053/11A-120	0.580	14.7	0.448	11.4	0.020 ± 0.004	0.51 ± 0.10
HS1.3FEP1/2	1/2	23053/11A-121	0.666	16.9	0.510	13.0	0.020 ± 0.004	0.51 ± 0.10
HS1.3FEP5/8	5/8	23053/11A-122	0.830	21.1	0.637	16.2	0.025 ± 0.004	0.64 ± 0.10
HS1.3FEP3/4	3/4	23053/11A-123	1.000	25.4	0.764	19.4	0.030 ± 0.004	0.76 ± 0.10
HS1.3FEP7/8	7/8	23053/11A-124	1.170	29.7	0.891	22.6	0.035 ± 0.004	0.89 ± 0.10
HS1.3FEP1.00	1	23053/11A-126	1.330	33.8	1.020	25.9	0.035 ± 0.004	0.89 ± 0.10
HS1.3FEP1.13	1-1/8	23053/11A-133	1.500	38.1	1.145	29.1	0.035 ± 0.004	0.89 ± 0.10
HS1.3FEP1.25	1-1/4	23053/11A-134	1.666	42.3	1.270	32.3	0.035 ± 0.004	0.89 ± 0.10
HS1.3FEP1.38	1-3/8	23053/11A-135	1.833	46.6	1.390	35.3	0.035 ± 0.004	0.89 ± 0.10
HS1.3FEP1.50	1-1/2	23053/11A-136	2.000	50.8	1.520	38.6	0.035 ± 0.004	0.89 ± 0.10

For detailed ordering information, please consult price list or contact Parker Texloc.

FEP Heat Shrinkable Tubing

Series 1.67:1 HS1.6FEP



Features

- Easier to shrink than PTFE
- Chemically inert
- Low coefficient of friction
- Superior dielectric strength
- Good heat resistance
- Self extinguishing
- Non-wetting

Certifications

- AMS-DTL-23053/11A, Class 2
- ASTM 2902 Type II
- ASTM D3296-03
- VW-1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant

Applications/Markets



- Protective Cover
- UV Light Covering
- Product Testing
- Rollers

Order Information

Example: HS1.6FEP3/32-NC48.000

HS1.6FEP3/32-NC48.000 – Heat Shrink

HS1.6FEP3/32-NC48.000 – Shrink Ratio (1.67:1)

HS1.6FEP3/32-NC48.000 – FEP

HS1.6FEP3/32-NC48.000 – Heat Shrink Size in inches (3/32")

HS1.6FEP3/32-NC48.000 – Natural

HS1.6FEP3/32-NC48.000 – Cut Tubing

HS1.6FEP3/32-NC48.000 – Package Quantity in feet (48")

Notes

- Working Temperature: 400°F (204°C)
- Shrink Temperature:
1" Dia. and below : 410°F (210°C)
Over 1" Dia. : 430°F (221°C)
- *Dielectric Strength: $\geq 2,000$ V/M, per ASTM D 149 short term test of 10 MIL thickness (Volts/MIL)
- Heat Shrink tubing is available in stock packaging of 4-ft. straight lengths
- Minimum quantities may apply
- Custom packaging, sizes, lengths and colors are quoted upon request

Colors

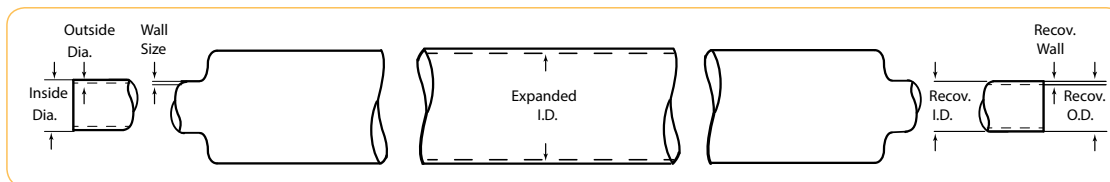
- ○ Natural, Translucent
- Colors available as custom run, see color code table

When ordering coiled tubing in colors, the color code is always followed by TC; when ordering cut lengths, the color code is followed by CC
ie HS1.6FEP3/32-2TC
ie HS1.6FEP3/32-0CC48.000

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

HS1.6FEP Fractional Heat Shrink Tubing (1.67:1)

Part Number	Order Size inch	Mil Spec*	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
			inch	mm	inch	mm	inch	mm
HS1.6FEP3/32	3/32	23053/11A-201	0.093	2.36	0.056	1.42	0.008 ± 0.003	0.20 ± 0.08
HS1.6FEP1/8	1/8	23053/11A-202	0.125	3.18	0.075	1.90	0.010 ± 0.003	0.25 ± 0.08
HS1.6FEP3/16	3/16	23053/11A-203	0.188	4.78	0.115	2.92	0.010 ± 0.003	0.25 ± 0.08
HS1.6FEP1/4	1/4	23053/11A-204	0.250	6.35	0.150	3.81	0.010 ± 0.003	0.25 ± 0.08
HS1.6FEP3/8	3/8	23053/11A-205	0.375	9.52	0.225	5.72	0.012 ± 0.003	0.31 ± 0.08
HS1.6FEP1/2	1/2	23053/11A-206	0.500	12.7	0.300	7.62	0.015 ± 0.004	0.38 ± 0.10
HS1.6FEP3/4	3/4	23053/11A-207	0.750	19.1	0.450	11.4	0.020 ± 0.004	0.51 ± 0.10
HS1.6FEP1.00	1	23053/11A-208	1.000	25.4	0.600	15.2	0.025 ± 0.005	0.64 ± 0.13
HS1.6FEP1.25	1-1/2	23053/11A-209	1.500	38.1	0.900	22.9	0.030 ± 0.005	0.76 ± 0.13
HS1.6FEP1.50	2	23053/11A-210	2.000	50.8	1.200	30.5	0.030 ± 0.005	0.76 ± 0.13



FEP Heat Shrinkable Roll Cover

Series 1.25:1 HS1.25FEP



Features

- Extends roller life
- Eliminates roller build up and picking
- Low coefficient of friction
- Flexible
- Good heat resistance

Certifications

- ASTM D2902 Type II
- VW-1, UL-83 (natural)

Applications/Markets



- Protective Cover
- Rollers

Order Information

Example: HS1.25FEP3.50-NC48.000

HS1.25FEP3.50-NC48.000 – Heat Shrink

HS1.25FEP3.50-NC48.000 – Shrink Ratio (1.25:1)

HS1.25FEP3.50-NC48.000 – FEP

HS1.25FEP3.50-NC48.000 – Heat Shrink Expanded

Size inches (3 1/2 in)

HS1.25FEP3.50-NC48.000 – Natural

HS1.25FEP3.50-NC48.000 – Cut Tubing

HS1.25FEP3.50-NC48.000 – Package Quantity in feet (48")

Notes

- Working Temperature: 347°F (175°C)
- Shrink Temperature:
347°F (175°C) for 10 minutes - For high temperatures 500°F (260°C), PFA roll covers are available
- Dielectric Strength: $\geq 2,000$ V/M, per ASTM D 149 short term test of 10 MIL thickness (Volts/MIL)
- Roll Cover is available in stock packaging of 4-ft. straight lengths
- Custom packaging, sizes, lengths and colors are quoted upon request
- For adhesion purposes, roll covers must be etched; Etching is available on the inside diameter, outside diameter or both
- Minimum quantities may apply

Colors

- ○ Natural, Translucent

HS1.25.1 FEP Roll Cover

Part Number	Order Size	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
		inch	mm	inch	mm	inch	mm
HS1.25FEP1/2	1/2	0.550	14.0	0.440	11.2	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP5/8	5/8	0.700	17.8	0.540	13.7	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP3/4	3/4	0.800	20.3	0.640	16.3	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP7/8	7/8	0.950	24.1	0.760	19.3	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP1.00	1	1.100	27.9	0.880	22.4	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP1.25	1 1/4	1.300	33.0	1.000	25.4	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP1.50	1-1/2	1.700	43.2	1.300	33.0	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP2.00	2	2.100	53.3	1.700	43.2	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP2.25	2-1/4	2.260	59.7	2.000	50.8	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP2.50	2-1/2	2.600	66.0	2.100	53.3	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP3.00	3	3.100	78.7	2.600	66.0	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP3.50	3-1/2	3.500	88.9	3.100	78.7	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP4.00	4	4.300	109.2	3.500	88.9	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP5.00	5	5.200	132.1	4.300	109.3	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP6.00	6	6.200	157.5	5.200	132.1	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP7.00	7	7.200	182.9	6.200	157.5	0.020 \pm 0.004	0.508 \pm 0.10
HS1.25FEP8.00	8	8.300	210.8	7.200	182.9	0.020 \pm 0.004	0.508 \pm 0.10

For detailed ordering information, please consult price list or contact Parker Texloc.

FEP/PTFE Heat Shrinkable Double Shrink

Series TSSS and TSSL



Features

- Double Shrink encapsulates your parts as the FEP melts during the PTFE shrinking process
- Protects cables, tubes and other objects from moisture and dirt
- Self extinguishing

Certifications

- VW-1, UL-83 (natural)

Applications/Markets



- Wire splices
- Encapsulates fittings

FEP/PTFE Double Shrink Tubing

Part Number	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
	inch	mm	inch	mm	inch	mm
Standard Wall						
TSSS036	0.036	0.91	0.00	0.00	0.023	0.584
TSSS060	0.060	1.52	0.00	0.00	0.028	0.711
TSSS130	0.130	3.30	0.00	0.00	0.032	0.813
TSSS160	0.160	4.06	0.00	0.00	0.032	0.813
TSSS190	0.190	4.83	0.061	1.55	0.035	0.889
TSSS250	0.250	6.35	0.125	3.18	0.035	0.889
TSSS350	0.350	8.89	0.190	4.83	0.035	0.889
TSSS450	0.450	11.4	0.312	7.92	0.055	1.400
TSSS700	0.700	17.8	0.440	11.2	0.055	1.400
TSSS950	0.950	24.1	0.680	17.3	0.065	1.650

Light Wall						
TSSL065	0.065	1.65	0.00	0.00	0.015	0.381
TSSL115	0.115	2.92	0.045	1.14	0.015	0.381
TSSL130	0.130	3.30	0.060	1.52	0.015	0.381
TSSL180	0.180	4.57	0.065	1.65	0.015	0.381
TSSL190	0.190	4.83	0.070	1.78	0.015	0.381
TSSL240	0.240	6.10	0.150	3.81	0.020	0.508
TSSL350	0.350	8.89	0.210	5.33	0.025	0.635
TSSL480	0.480	12.2	0.315	8.00	0.032	0.813
TSSL700	0.700	17.8	0.500	12.7	0.040	1.020
TSSL1000	1	25.4	0.700	17.8	0.045	1.140

Order Information

Example: TSSL036-NC48.000

TSSL036-NC48.000 – Double Shrink

TSSL036-NC48.000 – Light Wall

TSSL036-NC48.000 – Size in inches (0.036")

TSSL036-NC48.000 – Natural

TSSL036-NC48.000 – Cut Tubing

TSSL036-NC48.000 – Package Quantity in feet (48")

Notes

- Working Temperature: 450°F (231°C)
- Shrink Temperature: 680°F/360°C
- Longitudinal Change: +/- 10%
- Heat Shrink tubing is available in stock packaging of 4-ft. straight lengths
- Custom packaging, sizes, lengths and colors are quoted upon request
- Minimum quantities may apply

Colors

- ○ Natural, Translucent

FEP Convoluted Tubing

Series: CV03 and Convo-Flon™



Features

- Cuffs are sized on the I.D.
- Very flexible
- Long continuous lengths
- Translucent
- Chemically inert
- Good flexlife

Certifications/Compliance

- ASTM D3296-03
- VW-1, UL-83 (natural)

Applications/Markets



- Fluid Transport
- Vascular Graft
- Laboratory
- Robotics

Order Information

Example: CV03-1-1/2-NT

CV03-1-1/2-NT – Convoluted Tubing

CV03-1-1/2-NT – FEP

CV03-1-1/2-NT – Tube Size in inches (1-1/2")

CV03-1-1/2-NT – Natural

Notes

- Working Temperature: -100 to 400°F/-75 to 204°C

Colors

- ○ Natural, Translucent

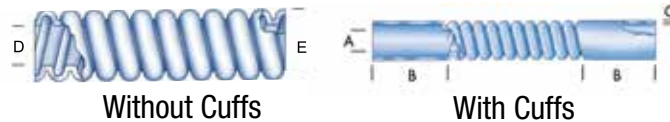
FEP Convoluted

(Standard tubing is natural)

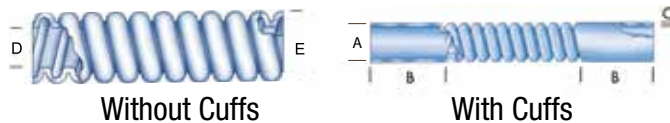
Part Number	Order Size	Standard Cuff I.D. "A"		Standard Cuff Length "B"		Wall Thickness "C"		Min. Inside Diameter "D"		Max. Inside Diameter		Max. Outside Diameter "E"		**Min. Bend Radius	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CV03-1/4-NT	1/4	1/4	6.35	3/4	19.1	0.020	0.508	0.251	6.38	0.265	6.73	0.405	10.3	0.365	9
CV03-5/16-NT	5/16	5/16	7.94	1	25.4	0.023	0.584	0.273	6.93	0.281	7.14	0.424	10.8	0.500	13
CV03-3/8-NT	3/8	3/8	9.53	1	25.4	0.023	0.584	0.364	9.25	0.375	9.53	0.530	13.5	0.875	22
CV03-1/2-NT	1/2	1/2	12.7	1	25.4	0.025	0.635	0.485	12.3	0.500	12.7	0.660	16.8	0.625	16
CV03-5/8-NT	5/8	5/8	15.9	1-1/4	31.8	0.025	0.635	0.609	15.5	0.625	15.9	0.780	19.8	1.500	38
CV03-3/4-NT	3/4	3/4	19.1	1-1/2	38.1	0.025	0.635	0.730	18.5	0.750	19.1	0.975	24.8	3.500	89
CV03-1.00-NT	1	1	25.4	2	50.8	0.030	0.762	0.975	24.8	1.000	25.4	1.260	32.0	2.250	57
CV03-1.25-NT	1-1/4	1-1/4	31.8	2-1/2	63.5	0.040	1.02	1.210	30.7	1.250	31.8	1.540	39.1	2.500	64
CV03-1.50-NT	1-1/2	1-1/2	38.1	2-1/2	63.5	0.045	1.14	1.490	37.8	1.530	38.9	1.940	49.2	3.000	76
CV03-2.00-NT	2	2	50.8	2-1/2	63.5	0.045	1.14	1.990	50.5	2.020	51.3	2.370	60.2	4.250	108
CV03-2.50-NT	2-1/2	2-1/2	63.5	3	73.2	0.065	1.65	2.440	61.9	2.500	63.5	3.000	76.2	6.500	165
CV03-3.00-NT	3	3	76.2	3	73.2	0.065	1.65	2.92	74.2	3.02	76.7	3.74	95.0	7.50	191

** Minimum 36" length.

Standard Cuffs for **FEP Convo** are sized on the **I.D.**



Standard Cuffs for **FEP Convo-Flon** are sized on the **O.D.**



FEP Convo-Flon™ Convoluted

(Standard tubing is natural)

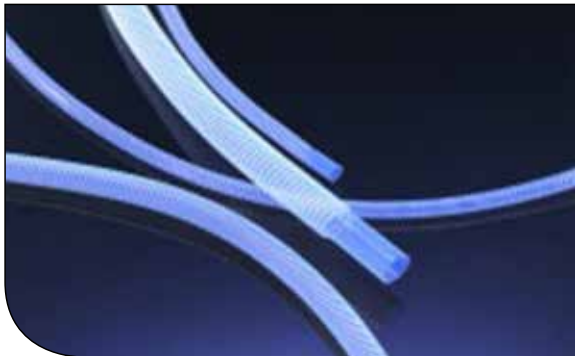
Part Number	Order Size	Standard Cuff O.D. "A"		Standard Cuff Length "B"		Wall Thickness "C"		Min. Inside Diameter "D"		Max. Inside Diameter		Max. Outside Diameter "E"		**Min. Bend Radius	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
Contact Customer Service	1/4 x 3/8	1/4	6.35	3/4	19.1	0.020	0.508	0.251	6.38	0.265	6.73	0.375	9.53	0.625	16
	3/8 x 1/2	5/16	7.94	1	25.4	0.023	0.584	0.364	9.25	0.375	9.53	0.500	12.7	0.875	22
	1/2 x 5/8	3/8	9.53	1	25.4	0.025	0.635	0.480	12.2	0.500	12.7	0.625	15.9	1.250	32
	5/8 x 3/4	1	25.4	2	50.8	0.025	0.635	0.609	15.5	0.625	15.9	0.750	19.1	1.500	38
	3/4 x 7/8	1-1/4	31.8	2-1/2	63.5	0.025	0.635	0.730	18.5	0.750	19.1	0.875	22.2	1.750	44
	.800 x 1	1-1/2	38.1	2-1/2	63.5	0.030	0.762	0.800	20.3	0.820	2.80	1.000	25.4	2.250	57
	1-1/4 1-1/2	Contact Customer Service for actual dimensions.													

** Minimum 36" length.

For detailed ordering information, please consult price list or contact Parker Texloc.

FEP Convoluted

Series SAE AS81914/3 and SAE AS81914/4



Applications/Markets



- Fluid Handling
- Harnesses
- Lab Equipment
- Robotics

Features

- Longer lengths than PTFE
- Excellent clarity
- Chemically inert
- Low coefficient of friction
- Superior dielectric strength
- Good heat resistance
- Self extinguishing
- Non-wetting

Certifications

- SAE AS81914/3
- SAE AS81914/4
- ASTM D3296-03
- FDA Compliant
- USP Class VI Compliant
- VW-1, UL-83 (natural)

Order Information

Example: 81914/3-1001-NT

81914/3-1001-NT – SAE AS81914 Convoluted

81914/3-1001-NT – **FEP**

81914/3-**1001**-NT – **Helical Convolutions**

81914/3-100**1**-NT – **Size (01=0.187")**

81914/3-1001-**NT** – **Color (N=Natural)**

81914/3-1001-**NT** – **"T" is bulk** (for cut tubing remove "T", add length, ie. 81914/3-1001-N1200 = 187" Convo, natural, cut 12" long)

Notes

- Working Temperature: 392°F (200°C)
- Tubing is provided in natural without cuffs direct from inventory
- Stock packaging is random coils
- Also available in close convolution 81914/4
- Minimum quantities may apply
- Custom packaging, sizes, lengths, cuffs and colors are quoted upon request

Colors

- ○ Natural, Translucent
- Colors available as custom run, see color code table

When ordering convoluted tubing in colors, the "N" designation for natural should be replaced by the correct color designator;

ie 81914/3-1001-0T (black bulk tubing)

ie 81914/3-1001-01200 (black tubing - 12 inches long)

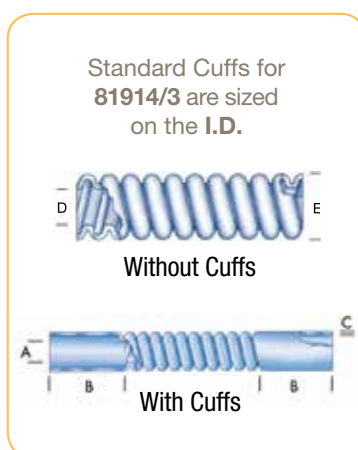
Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

FEP Convuluted Tubing (SAE AS81914/3)

(Standard tubing is natural)

Part Number	MIL Spec	Maximum Inside Diameter		Minimum Inside Diameter		Maximum Outside Diameter		Maximum Wall Thickness		Minimum Bend Radius		Pitch	Weight	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	±1	lb./100 ft.	kg./100 mtr.
81914/3-1001-NT	-01	0.188	4.78	0.181	4.60	0.320	8.13	0.018	0.457	.500	13	8	1.5	2.23
81914/3-1002-NT	-02	0.281	7.14	0.273	6.93	0.414	10.5	0.018	0.457	.750	19	8	1.7	2.53
81914/3-1003-NT	-03	0.312	7.93	0.306	7.77	0.450	11.4	0.018	0.457	.750	19	8	1.9	2.83
81914/3-1004-NT	-04	0.375	9.53	0.364	9.25	0.510	13.0	0.018	0.457	.875	22	8	2.2	3.27
81914/3-1005-NT	-05	0.437	11.1	0.427	10.9	0.571	14.5	0.018	0.457	.875	22	8	3.1	4.61
81914/3-1006-NT	-06	0.500	12.7	0.485	12.3	0.650	16.5	0.023	0.584	1.250	32	7	4.0	5.95
81914/3-1007-NT	-07	0.625	15.9	0.608	15.4	0.770	19.6	0.023	0.584	1.500	38	7	4.8	7.14
81914/3-1008-NT	-08	0.750	19.1	0.730	18.5	0.930	23.6	0.023	0.584	1.750	44	6	6.1	9.07
81914/3-1009-NT	-09	0.875	22.2	0.860	21.8	1.073	27.3	0.023	0.584	2.000	51	5	7.0	10.4
81914/3-1010-NT	-10	1.000	25.4	0.975	24.8	1.226	31.1	0.023	0.584	2.375	60	5	8.5	12.7
81914/3-1011-NT	-11	1.125	28.6	1.105	28.1	1.390	35.3	0.023	0.584	2.375	60	5	9.3	13.8
81914/3-1012-NT	-12	1.250	31.8	1.210	30.7	1.539	39.1	0.023	0.584	2.750	70	4	10.9	16.2
81914/3-1013-NT	-13	1.500	38.1	1.437	36.5	1.832	46.5	0.023	0.584	3.375	86	4	12.6	18.8
81914/3-1014-NT	-14	1.750	44.5	1.688	42.9	2.082	52.9	0.023	0.584	3.875	98	4	14.8	22.0
81914/3-1015-NT	-15	2.000	50.8	1.937	49.2	2.332	59.2	0.023	0.584	4.250	108	4	16.8	25.0

FEP convuluted tubing is provided in NATURAL without cuffs direct from the factory. Natural part numbers are designated with "NT" after the Mil Spec number (ie 81914/3-1014-NT).



For detailed ordering information, please consult price list or contact Parker Texloc.

Parker Hannifin Corporation | Parflex® Division, TexLoc | Fort Worth, Tx | www.texloc.com



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FEP/PFA Corrugated

Extra Flexible Fluoropolymer Tubing, Series CR03



Features

- Capable of turning sharp corners without reducing the inside diameter of the tube
- Extremely flexible
- Kink resistant
- Non stick surface allows for easy cleaning
- Excellent clarity
- Chemically inert
- Available in FEP, PFA and High Purity PFA

Certifications

- FEP - ASTM D3296-03
- PFA - ASTM D3307-10
- FDA Compliant
- USP Class VI Compliant
- VW-1, UL-83 (natural)

Applications/Markets



- Vacuum Applications
- Robotics
- Instrumentation
- DNA Sequencer
- Fluid Transfer
- Pharmaceutical
- Wet Bench

Order Information

Example: CR03-3/4-NT

CR03-3/4-NT – Corrugated Tubing

CR03-3/4-NT – FEP

CR03-3/4-NT – Tube I.D. when cuffed in inches (3/4")

CR03-3/4-NT – Color (N=Natural)

CR03-3/4-NT – "T" is bulk - for cuffed tubing add length, ie. CR03-3/4-N1200 = 1" Corr, natural, cut 12" long

Colors

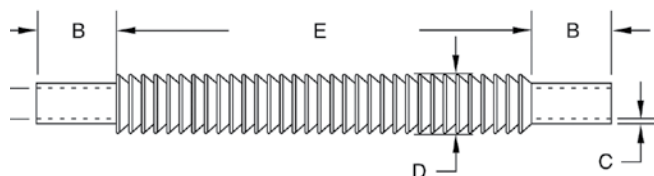
- ○ Natural, Translucent

Notes

- Working Temperature: 200°F (93°C) @ 0 pressure - For higher temperatures, request PFA Corrugated 300°F (148°C) @ 0 pressure
- Vacuum Service: 29.9 IN. Hg (759M Hg)
- Extension-Compression Length Ratio: Approximately 2:1
- Tubing is provided in natural without cuffs direct from inventory or with cuffs, as requested at time of order
- Stock packaging is random coils
- Minimum quantities may apply
- Corrugated tubing is also available in specialty configurations where corrugated and straight tubing run intermittently along the tube
- Custom packaging, sizes, lengths and colors are quoted upon request

FEP Tex-Flex™ Corrugated

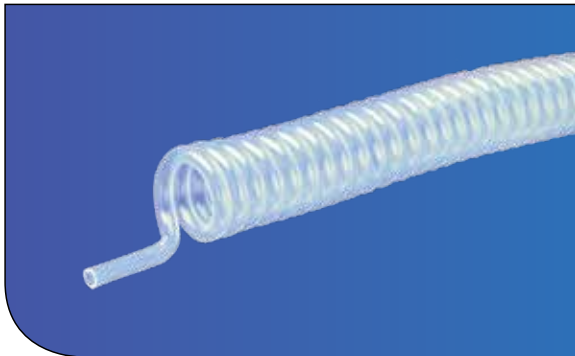
Part Number	Size To Order	Maximum Cuff I.D. "A"		Standard Cuff Length "B"		Wall Thickness "C"		Ref. Outside Diameter "D"		Corrugated Length "E"	Minimum Bend Radius	
		inch	mm	inch	mm	inch	mm	inch	mm	±1	inch	mm
CR03-1/4-NT	1/4	0.250	6.35	3/4	19.1	0.015	0.38	0.375	9.53	To be specified at time of order	0.125	3.18
CR03-3/8-NT	3/8	0.375	9.53	1	25.4	0.020	0.51	0.625	15.9		0.187	4.76
CR03-1/2-NT	1/2	0.500	12.7	1	25.4	0.025	0.64	0.750	19.0		0.250	6.35
CR03-5/8-NT	5/8	0.625	15.9	1	25.4	0.025	0.64	0.938	23.8		0.312	7.94
CR03-3/4-NT	3/4	0.750	19.1	1-1/2	38.1	0.030	0.76	1.063	26.9		0.375	9.53
CR03-7/8-NT	7/8	0.875	22.2	1-1/2	38.1	0.030	0.76	1.250	31.8		0.438	11.1
CR03-1.00-NT	1	1.000	24.8	2	50.8	0.035	0.89	1.438	36.5		0.500	12.7
CR03-1.25-NT	1-1/4	1.250	31.8	2	50.8	0.035	0.89	1.625	41.3		0.625	15.9
CR03-1.50-NT	1-1/2	1.500	38.1	2	50.8	0.035	0.89	1.813	46.1		0.750	19.1
CR03-2.00-NT	2	2.000	50.8	2	50.8	0.040	1.02	2.625	66.7		1.000	25.4
CR03-2.50-NT	2-1/2	2.5000	63.8	2-1/2	63.5	0.070	1.78	3.360	85.3		2.500	63.5



For detailed ordering information, please consult price list or contact Parker Texloc.

Retractable Coiled Tubing

Single or Dual Containment, Series 703, 704, 705



Features

- Extremely flexible
- Excellent clarity
- Chemically inert
- Low coefficient of friction
- Self extinguishing
- Non-wetting
- Available in FEP, PFA and High Purity PFA

Certifications

- FEP - ASTM D3296-03
- PFA - ASTM D3307-10
- FDA Compliant
- USP Class VI Compliant
- VW-1, UL-83 (natural)

Applications/Markets



- Fluid Handling
- Wet Bench
- Lab Equipment
- Gas Dispensing
- Medical

Order Information

Example: 704-0312062-xx0012

704-0312062-xx0012 – **Retractable tubing**

704-0312062-xx0012 – **PFA**

704-0312062-xx0012 – **Tube O.D. in inches (3/16")**

704-0312062-xx0012 – **Wall (0.062")**

704-0312062-xx0012 – **Custom Options** (when needed)

704-0312062-xx0012 – **Length 12"**

Fittings

Fittings available for sizes 3/16" up to 1/2"

Parker Fittings available from:
Fluid System Connectors Division
Otsego, MI

(269) 694-2550

(269) 692-6634 FAX

FSC Product Families:

- Compression
- Compress-Align®
- Fast & Tite
- TrueSeal™

Colors

- ○ Natural, Translucent

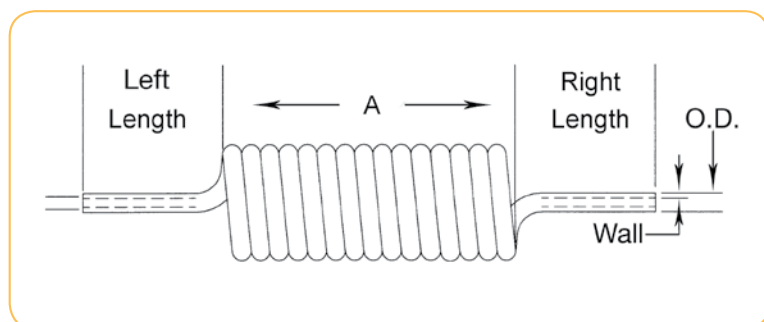
Notes

- Working Temperature: 200°F (93°C) @ 0 pressure - For higher temperatures, request PFA 300°F (148°C) @ 0 pressure; above these temperatures, the coils dimensions are not stable and the coils will lose their shape
- "X" denotes resin type - Replace "X" with 3 for FEP, 4 for PFA and 5 for HP PFA
- "xx" denotes custom options - Use when needed
- Standard left/right tail length is 6 inches
- Minimum quantities may apply
- Custom packaging, sizes, lengths and colors are quoted upon request



Retractable Tubing

Part Number	Size To Order O.D. x Wall	Coil Inside Diameter		Retracted Length "A"		Extended Length	
		inch	mm	inch	mm	inch	mm
70X-0188062-xx0003	3/16" x 1/16"	0.750	19.1	3	76	12	305
70X-0188062-xx0006	3/16" x 1/16"	0.750	19.1	6	152	24	610
70X-0188062-xx0012	3/16" x 1/16"	0.750	19.1	12	305	48	1219
70X-0188062-xx0018	3/16" x 1/16"	0.750	19.1	18	457	72	1829
70X-0250062-xx0003	1/4" x 1/8"	1	25.4	3	76	12	305
70X-0250062-xx0006	1/4" x 1/8"	1	25.4	6	152	24	610
70X-0250062-xx0012	1/4" x 1/8"	1	25.4	12	305	48	1219
70X-0250062-xx0018	1/4" x 1/8"	1	25.4	18	457	72	1829
70X-0312062-xx0003	5/16" x 3/16"	1.625	41.3	3	76	12	305
70X-0312062-xx0006	5/16" x 3/16"	1.625	41.3	6	152	24	610
70X-0312062-xx0012	5/16" x 3/16"	1.625	41.3	12	305	48	1219
70X-0312062-xx0018	5/16" x 3/16"	1.625	41.3	18	457	72	1829
70X-0375062-xx0003	3/8" x 1/4"	1.625	41.3	3	76	12	305
70X-0375062-xx0006	3/8" x 1/4"	1.625	41.3	6	152	24	610
70X-0375062-xx0012	3/8" x 1/4"	1.625	41.3	12	305	48	1219
70X-0375062-xx0018	3/8" x 1/4"	1.625	41.3	18	457	72	1829
70X-0438062-xx0003	7/16" x 5/16"	3	76.2	3	76	12	305
70X-0438062-xx0006	7/16" x 5/16"	3	76.2	6	152	24	610
70X-0438062-xx0012	7/16" x 5/16"	3	76.2	12	305	48	1219
70X-0500062-xx0003	1/2" x 3/8"	3	76.2	3	76	12	305
70X-0500062-xx0006	1/2" x 3/8"	3	76.2	6	152	24	610
70X-0500062-xx0012	1/2" x 3/8"	3	76.2	12	305	48	1219



For detailed ordering information, please consult price list or contact Parker Texloc.

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PTFE PRODUCTS

Smoothbore

Fractional Industrial Wall
Fractional Heavy Wall
Metric
Fractional Electrical Insulation
AWG Electrical Insulation

Spiral Wrap

Beading

Convolute

Convo-Tex®
Low Profile
Heavy Wall
SAE AS81914/1

Heat Shrink

2:1 AWG
2:1 Fractional
4:1 Fractional

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
- Nonwetting
- Excellent flexlife
- Laser markable



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PTFE Tubing

Series Fractional & Metric: 101, 201



Features

- Virgin Polytetrafluoroethylene resin
- Chemically inert
- Lowest coefficient of friction
- Superior dielectric strength
- Exceptional heat resistance
- Self extinguishing
- Non-wetting
- Excellent flexlife
- Laser markable

Applications/Markets



- Cable Liner
- Electrical Insulation
- Oxygen Sensor
- Paint Transfer
- Gas Sampling
- Laboratory

Certifications/Compliance

- AMS 3653E
- VW1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant

Order Information

Example: 101-0188062-0TC-100

101-0188062-0TC-100 – PTFE

101-**0188**062-0TC-100 – **Tube O.D.** in inches (**3/16"**)

101-0188**062**-0TC-100 – **Tube Wall Thickness** in inches (**.062"**)

101-0188062-**0TC**-100 – **Black**

101-0188062-**0TC**-100 – **Bulk Tubing**

101-0188062-0**TC**-100 – **Solid Color Tube**

101-0188062-0TC-**100** – **Package Quantity** in feet (**100'**)

Fittings

Fittings available for sizes 3/32" up to 1.1"

Parker Fittings available from:
Fluid System Connectors Division
Otsego, MI

(269) 694-2550

(269) 692-6634 FAX

FSC Product Families:

- Compression
- Compress-Align®
- Fast & Tite
- TrueSeal™

Notes








- Working Temperature: 500°F (260°C)
- Working pressure calculated using a Design Factor of 4 at 73°F (23°C)
- Custom packaging and sizes are quoted upon request
- Package quantities are not continuous

Colors

- ○ Natural, Translucent
- Colors available as custom run, see color code table

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			









101 PTFE Industrial Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
101-0094031	3/32	0.094	± 0.005	2.40	± 0.13	0.031	± 0.002	0.79	± 0.05	0.031	0.79	390	27	1560	108	0.500	13	28	0.006	0.009
101-0125031	1/8	0.125	± 0.005	3.18	± 0.13	0.063	± 0.003	1.57	± 0.05	0.031	0.79	290	20	1160	80	0.500	13	28	0.009	0.013
101-0156031	5/32	0.156	± 0.005	3.99	± 0.13	0.094	± 0.004	2.39	± 0.08	0.031	0.79	220	15	880	61	0.625	16	28	0.011	0.017
101-0188031	3/16	0.188	± 0.005	4.78	± 0.13	0.125	± 0.005	3.18	± 0.13	0.031	0.79	180	12	720	50	0.750	19	28	0.014	0.021
101-0250031	1/4	0.250	± 0.005	6.35	± 0.13	0.190	± 0.005	4.83	± 0.13	0.031	0.79	130	9	520	36	1.000	25	28	0.020	0.030
101-0312031	5/16	0.312	± 0.005	7.92	± 0.13	0.250	± 0.007	6.35	± 0.18	0.031	0.79	100	7	400	28	2.250	57	28	0.026	0.038
101-0375031	3/8	0.375	± 0.005	9.52	± 0.13	0.312	± 0.006	7.92	± 0.15	0.031	0.79	80	6	320	22	2.750	70	28	0.032	0.047
101-0438031	7/16	0.438	± 0.005	11.13	± 0.13	0.375	± 0.007	9.52	± 0.18	0.031	0.79	70	5	280	19	4.000	102	28	0.037	0.056
101-0500031	1/2	0.500	± 0.006	12.70	± 0.15	0.438	± 0.008	11.13	± 0.20	0.031	0.79	60	4	240	17	4.000	102	28	0.043	0.064
101-0563031	9/16	0.563	± 0.007	14.30	± 0.18	0.500	± 0.010	12.70	± 0.25	0.031	0.79	55	4	220	15	5.000	127	28	0.049	0.073
101-0625031	5/8	0.625	± 0.007	15.88	± 0.18	0.563	± 0.010	14.30	± 0.25	0.031	0.79	50	3	200	14	5.500	140	28	0.054	0.081
101-0688031	11/16	0.688	± 0.010	17.48	± 0.25	0.625	± 0.012	15.88	± 0.31	0.031	0.79	45	3	180	12	6.250	159	28	0.060	0.090
101-0750032	3/4	0.750	± 0.010	19.05	± 0.25	0.688	± 0.012	17.48	± 0.31	0.032	0.81	40	3	160	11	6.500	165	28	0.068	0.101
101-0830040	0.830	0.830	± 0.014	21.08	± 0.36	0.750	± 0.014	19.05	± 0.36	0.040	1.02	45	3	180	12	8.000	203	28	0.093	0.139
101-0965045	0.965	0.965	± 0.016	24.51	± 0.41	0.875	± 0.016	22.22	± 0.41	0.045	1.14	45	3	180	12	12.000	305	28	0.122	0.182
101-1100050	1.100	1.100	± 0.020	27.94	± 0.51	1.000	± 0.020	25.40	± 0.51	0.050	1.27	40	3	160	11	18.000	457	28	0.155	0.231









Continued on next page

For detailed ordering information, please consult price list or contact Parker Texloc.

101 PTFE Heavy Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.					Nominal I.D.					Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																						
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.		
101-0188062	3/16	.188	± .005	4.78	± 0.13	0.063	± 0.003	1.57	± 0.05	0.062	1.57	390	27	1560	108	0.250	6	28	0.023	0.034		
101-0250047	1/4	.250	± .005	6.35	± 0.13	0.157	± 0.005	3.99	± 0.13	0.047	1.19	210	14	840	58	0.625	16	28	0.028	0.042		
101-0250062	1/4	.250	± .005	6.35	± 0.13	0.125	± 0.005	3.18	± 0.13	0.062	1.57	290	20	1160	80	0.500	13	28	0.034	0.051		
101-0312062	5/16	.312	± .005	7.92	± 0.13	0.188	± 0.006	4.76	± 0.15	0.062	1.57	222	15	888	61	0.875	22	28	0.046	0.068		
101-0375062	3/8	.375	± .005	9.52	± 0.13	0.250	± 0.005	6.35	± 0.13	0.062	1.57	180	12	720	50	1.000	25	28	0.057	0.085		
101-0438062	7/16	.438	± .005	11.13	± 0.13	0.312	± 0.007	7.92	± 0.18	0.062	1.57	150	10	600	41	2.250	57	28	0.069	0.103		
101-0500062	1/2	.500	± .005	12.70	± 0.13	0.375	± 0.005	9.52	± 0.13	0.062	1.57	130	9	520	36	2.250	57	28	0.080	0.120		
101-0563062	9/16	.563	± .007	14.30	± 0.18	0.437	± 0.008	11.13	± 0.20	0.062	1.57	110	8	440	30	2.750	70	28	0.092	0.137		
101-0625062	5/8	.625	± .007	15.88	± 0.18	0.500	± 0.010	12.70	± 0.25	0.062	1.57	100	7	400	28	3.000	76	28	0.103	0.154		
101-0688062	11/16	.688	± .010	17.48	± 0.25	0.563	± 0.010	14.30	± 0.25	0.062	1.57	90	6	360	25	5.000	127	28	0.115	0.171		
101-0750062	3/4	.750	± .010	19.05	± 0.25	0.625	± 0.010	15.88	± 0.25	0.062	1.57	80	6	320	22	6.000	152	28	0.126	0.188		
101-0875062	7/8	.875	± .014	22.22	± 0.36	0.750	± 0.014	19.05	± 0.36	0.062	1.57	70	5	280	19	7.250	184	28	0.149	0.222		
101-1000062	1	1.000	± .016	25.40	± 0.25	0.875	± 0.016	22.22	± 0.36	0.062	1.57	100	6.9	400	28	8.000	203	28	0.172	0.256		

201 Metric PTFE Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	mm	mm	tol.	inch	tol.	mm	tol.	inch	tol.	mm	inch	bar 23°C	psi 73°F	bar 23°C	psi 73°F	mm	inch	at 73°F	kg. per m.	lb. per ft.
201-0300100	3	3	± 0.11	0.118	± 0.004	1	± 0.11	0.039	± 0.004	1	0.039	27	390	108	1560	13	0.500	28	0.014	0.009
201-0400100	4	4	± 0.11	0.157	± 0.004	2	± 0.11	0.074	± 0.004	1	0.039	20	290	80	1160	13	0.500	28	0.020	0.014
201-0500100	5	5	± 0.11	0.197	± 0.004	3	± 0.11	0.118	± 0.004	1	0.039	15	220	61	880	19	0.750	28	0.027	0.018
201-0600100	6	6	± 0.13	0.236	± 0.005	4	± 0.13	0.157	± 0.005	1	0.039	12	180	50	720	25	1.000	28	0.034	0.023
201-0700100	7	7	± 0.13	0.276	± 0.005	5	± 0.13	0.197	± 0.005	1	0.039	10	150	41	600	38	1.500	28	0.041	0.027
201-0800100	8	8	± 0.13	0.315	± 0.005	6	± 0.13	0.236	± 0.005	1	0.039	9	130	36	520	51	2.000	28	0.048	0.032
201-0900100	9	9	± 0.13	0.354	± 0.005	7	± 0.13	0.276	± 0.005	1	0.039	8	110	30	440	57	2.250	28	0.055	0.037
201-1000100	10	10	± 0.13	0.394	± 0.005	8	± 0.13	0.315	± 0.005	1	0.039	7	100	28	400	64	2.500	28	0.061	0.041
201-1200100	12	12	± 0.15	0.472	± 0.006	10	± 0.15	0.394	± 0.006	1	0.039	6	80	22	320	76	3.000	28	0.075	0.050
201-1400100	14	14	± 0.15	0.551	± 0.006	12	± 0.15	0.472	± 0.006	1	0.039	70	5	19	280	89	3.500	28	0.089	0.060
201-1600100	16	16	± 0.15	0.630	± 0.006	14	± 0.15	0.551	± 0.006	1	0.039	60	4	17	240	108	4.250	28	0.102	0.069

For detailed ordering information, please consult price list or contact Parker Texloc.

PTFE Tubing

Series Fractional: TFL, TFS, TFT



Features

- Virgin Polytetrafluoroethylene resin
- Chemically inert
- Lowest coefficient of friction
- Superior dielectric strength
- Exceptional heat resistance
- Self extinguishing
- Non-wetting
- Excellent flexlife
- Laser markable

Applications/Markets



- Electrical Insulation
- Protective Cover
- Cable Liner
- Spacer

Certifications/Compliance

- AMS 3653E
- VW1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant
- **Light Wall** (TFL) – ASTM D3295 Class 1, AMS 3654C
- **Thin Wall** (TFT) – ASTM D3295 Class 2, AMS 3655B
- **Standard Wall** (TFS) – ASTM D3295 Class 3, MIL-I-22129C

Order Information

Example: TFS1/2-NT

TFS1/2-NT – PTFE

TFS1/2-NT – Standard Wall

TFS1/2-NT – Tube O.D. in inches (1/2")

TFS1/2-NT – Natural

TFS1/2-NT – Bulk Tubing

Fittings

Fittings available for sizes 3/32" up to 1.1"

Parker Fittings available from:
Fluid System Connectors Division
Otsego, MI

(269) 694-2550

(269) 692-6634 FAX

FSC Product Families:

- Compression
- Compress-Align®
- Fast & Tite
- TrueSeal™

Notes





- Working Temperature: 500°F (260°C)
- Package quantities are not continuous - Fractional tubing is supplied in random length coils, with a minimum coil length of 15 feet.
- Custom packaging, sizes and lengths are quoted upon request.

Colors

- ○ Natural, Translucent
- Colors available as custom run, see color code table

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

TFS, TFT & TFL PTFE Fractional Tubing

Size	Nominal I.D.		Standard Wall			Thin Wall			Light Wall			Standard Packaging
			Part Number	Nominal Wall		Part Number	Nominal Wall		Part Number	Nominal Wall		
			#			#			#			
inch	inch	mm	Natural	inch	mm	Natural	inch	mm	Natural	inch	mm	
1/8	0.125	3.18	TFS1/8	0.020	0.51	TFT1/8	0.015	0.38	TFL1/8	0.008	0.20	Random Length Coil
3/16	0.188	4.78	TFS3/16	0.020	0.51	TFT3/16	0.015	0.38	TFL3/16	0.010	0.25	Random Length Coil
1/4	0.250	6.35	TFS1/4	0.020	0.51	TFT1/4	0.015	0.38	TFL1/4	0.010	0.25	Random Length Coil
5/16	0.318	7.92	TFS5/16	0.020	0.51	TFT5/16	0.015	0.38	TFL5/16	0.012	0.30	Random Length Coil
3/8	0.381	9.52	TFS3/8	0.025	0.64	TFT3/8	0.015	0.38	TFL3/8	0.015	0.38	Random Length Coil
7/16	0.444	11.13	TFS7/16	0.025	0.64	TFT7/16	0.018	0.46	TFL7/16	0.018	0.46	Random Length Coil
1/2	0.507	12.70	TFS1/2	0.025	0.64	TFT1/2	0.018	0.46	TFL1/2	0.018	0.46	Random Length Coil
5/8	0.632	15.88	TFS5/8	0.025	0.64	TFT5/8	0.020	0.51	-	-	-	Random Length Coil
3/4	0.760	19.05	TFS3/4	0.030	0.76	TFT3/4	0.025	0.64	-	-	-	Random Length Coil
7/8	0.885	22.22	TFS7/8	0.035	0.89	-	-	-	-	-	-	Random Length Coil
1	1.010	25.40	TFS1.00	0.035	0.89	-	-	-	-	-	-	Random Length Coil

For detailed ordering information, please consult price list or contact Parker Texloc.

PTFE Tubing

Series AWG: TFH, TFS, TFT, TFL



Features

- Virgin Polytetrafluoroethylene resin
- Chemically inert
- Lowest coefficient of friction
- Superior dielectric strength
- Exceptional heat resistance
- Self extinguishing
- Non-wetting
- Excellent flexlife
- Laser markable

Applications/Markets



- Electrical Insulation
- Protective Cover
- Circuit Board
- Wire Insulation
- Strain Relief
- Introducer
- Stent Delivery

Certifications/Compliance

- AMS 3653E
- VW1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant
- **Light Wall** (TFL) – ASTM D3295 Class 1, AMS 3654C, UL-224 150V 200°C
- **Thin Wall** (TFT) – ASTM D3295 Class 2, AMS 3655B, UL-224 300V 200°C, CSA 9032-01 300V
- **Standard Wall** (TFS) – ASTM D3295 Class 3, MIL-I-22129C, UL-224 600V 200°C, CSA 9032-01 600V
- **Heavy Wall** (TFH) – ASTM D3295, Class 4

Order Information

Example: TFH13-2TC

TFH13-2TC – PTFE

TFH13-2TC – Heavy Wall

TFH13-2TC – AWG Size

TFH13-2TC – Red

TFH13-2TC – Bulk Tubing

TFH13-2TC – Solid Color Tube

Notes





- Working Temperature: 500°F (260°C)
- AWG Spaghetti tubing is supplied in random lengths with a minimum length of 25 feet
- Continuous lengths and colors quoted upon request
- AWG spaghetti tubing is also available in FEP and PFA
- Consult factory for pricing and minimum lengths

Colors

- ○ Natural, Translucent
- Colors available as custom run, see color code table

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

TFH PTFE AWG Heavy Wall

Part Number	Order Size	Nominal I.D.		Minimum I.D.		Maximum I.D.		Nominal Wall		Standard Packaging
#										
	AWG	inch	mm	inch	mm	inch	mm	inch	mm	
TFH24	24	0.022	0.56	0.020	0.51	0.026	0.66	0.016 ± 0.003	0.41 ± 0.08	1,000 ft. Spool
TFH23	23	0.026	0.66	0.023	0.58	0.029	0.74	0.016 ± 0.003	0.41 ± 0.08	1,000 ft. Spool
TFH22	22	0.028	0.71	0.025	0.64	0.032	0.81	0.016 ± 0.003	0.41 ± 0.08	1,000 ft. Spool
TFH21	21	0.032	0.81	0.029	0.74	0.035	0.89	0.016 ± 0.003	0.41 ± 0.08	1,000 ft. Spool
TFH20	20	0.034	0.86	0.032	0.81	0.040	1.02	0.018 ± 0.003	0.46 ± 0.08	1,000 ft. Spool
TFH19	19	0.038	0.97	0.036	0.91	0.044	1.12	0.020 ± 0.004	0.51 ± 0.10	1,000 ft. Spool
TFH18	18	0.042	1.07	0.040	1.02	0.049	1.25	0.020 ± 0.004	0.51 ± 0.10	1,000 ft. Spool
TFH17	17	0.048	1.22	0.045	1.14	0.054	1.37	0.020 ± 0.004	0.51 ± 0.10	1,000 ft. Spool
TFH16	16	0.053	1.35	0.051	1.30	0.061	1.55	0.020 ± 0.004	0.51 ± 0.10	1,000 ft. Spool
TFH15	15	0.059	1.50	0.057	1.45	0.067	1.70	0.020 ± 0.004	0.51 ± 0.10	1,000 ft. Spool
TFH14	14	0.066	1.68	0.064	1.63	0.074	1.88	0.020 ± 0.004	0.51 ± 0.10	500 ft. Spool
TFH13	13	0.076	1.93	0.072	1.83	0.082	2.08	0.020 ± 0.004	0.51 ± 0.10	500 ft. Spool
TFH12	12	0.085	2.16	0.081	2.06	0.091	2.31	0.020 ± 0.004	0.51 ± 0.10	500 ft. Spool
TFH11	11	0.095	2.41	0.091	2.31	0.101	2.57	0.020 ± 0.004	0.51 ± 0.10	500 ft. Spool
TFH10	10	0.106	2.69	0.102	2.59	0.112	2.84	0.025 ± 0.005	0.64 ± 0.13	500 ft. Spool
TFH09	9	0.118	3.00	0.114	2.90	0.124	3.15	0.025 ± 0.005	0.64 ± 0.13	500 ft. Spool
TFH08	8	0.133	3.38	0.129	3.28	0.141	3.58	0.030 ± 0.005	0.76 ± 0.13	Random Length Coil
TFH07	7	0.148	3.76	0.144	3.66	0.158	4.01	0.030 ± 0.005	0.76 ± 0.13	Random Length Coil
TFH06	6	0.166	4.22	0.162	4.11	0.178	4.52	0.030 ± 0.005	0.76 ± 0.13	Random Length Coil
TFH05	5	0.185	4.70	0.182	4.62	0.196	4.98	0.032 ± 0.005	0.81 ± 0.13	Random Length Coil

Certifications

- ASTM D3295 Class 4
- AMS 3653E
- FDA Compliant
- USP Class VI Compliant

For detailed ordering information, please consult price list or contact Parker Texloc.

PTFE Tubing

Series AWG: TFH, TFL, TFS, TFT (cont.)

TFS PTFE AWG Standard Wall



Part Number	Order Size	Nominal I.D.		Minimum I.D.		Maximum I.D.		Nominal Wall		Standard Packaging
#										
	AWG	inch	mm	inch	mm	inch	mm	inch	mm	
TFS30	30	0.012	0.31	0.010	0.25	0.015	0.38	.009 ± .002	0.23 ± 0.51	1,000 ft. Spool
TFS28	28	0.015	0.38	0.013	0.33	0.018	0.46	.009 ± .002	0.23 ± 0.51	1,000 ft. Spool
TFS26	26	0.018	0.46	0.016	0.41	0.022	0.56	.009 ± .002	0.23 ± 0.51	1,000 ft. Spool
TFS24	24	0.022	0.56	0.020	0.51	0.026	0.66	.012 ± .003	0.31 ± 0.08	1,000 ft. Spool
TFS23	23	0.026	0.66	0.023	0.58	0.029	0.74	.012 ± .003	0.31 ± 0.08	1,000 ft. Spool
TFS22	22	0.028	0.71	0.025	0.64	0.032	0.81	.012 ± .003	0.31 ± 0.08	1,000 ft. Spool
TFS21	21	0.032	0.81	0.029	0.74	0.035	0.89	.012 ± .003	0.31 ± 0.08	1,000 ft. Spool
TFS20	20	0.034	0.86	0.032	0.81	0.040	1.02	.016 ± .003	0.41 ± .008	1,000 ft. Spool
TFS19	19	0.038	0.97	0.036	0.91	0.044	1.12	.016 ± .003	0.41 ± .008	1,000 ft. Spool
TFS18	18	0.042	1.07	0.040	1.02	0.049	1.25	.016 ± .003	0.41 ± .008	1,000 ft. Spool
TFS17	17	0.048	1.22	0.045	1.14	0.054	1.37	.016 ± .003	0.41 ± .008	1,000 ft. Spool
TFS16	16	0.053	1.35	0.051	1.30	0.061	1.55	.016 ± .003	0.41 ± .008	1,000 ft. Spool
TFS15	15	0.059	1.50	0.057	1.45	0.067	1.70	.016 ± .003	0.41 ± .008	500 ft. Spool
TFS14	14	0.066	1.68	0.064	1.63	0.074	1.88	.016 ± .003	0.41 ± .008	500 ft. Spool
TFS13	13	0.076	1.93	0.072	1.83	0.082	2.08	.016 ± .003	0.41 ± .008	500 ft. Spool
TFS12	12	0.085	2.16	0.081	2.06	0.091	2.31	.016 ± .003	0.41 ± .008	500 ft. Spool
TFS11	11	0.095	2.41	0.091	2.31	0.101	2.57	.016 ± .003	0.41 ± .008	500 ft. Spool
TFS10	10	0.106	2.69	0.102	2.59	0.112	2.84	.016 ± .003	0.41 ± .008	500 ft. Spool
TFS09	9	0.118	3.00	0.114	2.90	0.124	3.15	.020 ± .004	0.51 ± .010	Random Length Coil
TFS08	8	0.133	3.38	0.129	3.28	0.141	3.58	.020 ± .004	0.51 ± .010	Random Length Coil
TFS07	7	0.148	3.76	0.144	3.66	0.158	4.01	.020 ± .004	0.51 ± .010	Random Length Coil
TFS06	6	0.166	4.22	0.162	4.11	0.178	4.52	.020 ± .004	0.51 ± .010	Random Length Coil
TFS05	5	0.185	4.70	0.182	4.62	0.196	4.98	.020 ± .004	0.51 ± .010	Random Length Coil
TFS04	4	0.208	5.28	0.204	5.18	0.224	5.69	.020 ± .004	0.51 ± .010	Random Length Coil
TFS03	3	0.234	5.94	0.229	5.82	0.249	6.32	.020 ± .004	0.51 ± .010	Random Length Coil
TFS02	2	0.263	6.68	0.258	6.55	0.278	7.06	.020 ± .004	0.51 ± .010	Random Length Coil
TFS01	1	0.294	7.47	0.289	7.34	0.311	7.90	.020 ± .004	0.51 ± .010	Random Length Coil
TFS00	0	0.330	8.38	0.325	8.25	0.347	8.81	.020 ± .004	0.51 ± .010	Random Length Coil

Certifications

- ASTM D3295 Class 3
- MIL-I-22129C
- AMS 3653E
- UL-224 600V 200°C
- CSA 9032-01 600V
- FDA Compliant



TFT PTFE AWG Thin Wall

Part Number	Order Size	Nominal I.D.		Minimum I.D.		Maximum I.D.		Nominal Wall		Standard Packaging
#										
	AWG	inch	mm	inch	mm	inch	mm	inch	mm	
TFT32	32	.010	0.25	.008	0.20	.012	0.31	0.007 ± 0.002	0.18 ± 0.05	1,000 ft. Spool Only
TFT30	30	.012	0.31	.010	0.25	.015	0.38	0.009 ± 0.002	0.23 ± 0.05	1,000 ft. Spool
TFT28	28	.015	0.38	.013	0.33	.018	0.46	0.009 ± 0.002	0.23 ± 0.05	1,000 ft. Spool
TFT26	26	.018	0.46	.016	0.41	.022	0.56	0.009 ± 0.002	0.23 ± 0.05	1,000 ft. Spool
TFT24	24	.022	0.56	.020	0.51	.026	0.66	0.010 ± 0.003	0.25 ± 0.08	1,000 ft. Spool
TFT23	23	.026	0.66	.023	0.58	.029	0.74	0.010 ± 0.003	0.25 ± 0.08	1,000 ft. Spool
TFT22	22	.028	0.71	.025	0.64	.032	0.81	0.010 ± 0.003	0.25 ± 0.08	1,000 ft. Spool
TFT21	21	.032	0.81	.029	0.74	.035	0.89	0.010 ± 0.003	0.25 ± 0.08	1,000 ft. Spool
TFT20	20	.034	0.86	.032	0.81	.040	1.02	0.012 ± 0.003	0.31 ± 0.08	1,000 ft. Spool
TFT19	19	.038	0.97	.036	0.91	.044	1.12	0.012 ± 0.003	0.31 ± 0.08	1,000 ft. Spool
TFT18	18	.042	1.07	.040	1.02	.049	1.25	0.012 ± 0.003	0.31 ± 0.08	1,000 ft. Spool
TFT17	17	.048	1.22	.045	1.14	.054	1.37	0.012 ± 0.003	0.31 ± 0.08	1,000 ft. Spool
TFT16	16	.053	1.35	.051	1.30	.061	1.55	0.012 ± 0.003	0.31 ± 0.08	1,000 ft. Spool
TFT15	15	.059	1.50	.057	1.45	.067	1.70	0.012 ± 0.003	0.31 ± 0.08	1,000 ft. Spool
TFT14	14	.066	1.68	.064	1.63	.074	1.88	0.012 ± 0.003	0.31 ± 0.08	500 ft. Spool
TFT13	13	.076	1.93	.072	1.83	.082	2.08	0.012 ± 0.003	0.31 ± 0.08	500 ft. Spool
TFT12	12	.085	2.16	.081	2.06	.091	2.31	0.012 ± 0.003	0.31 ± 0.08	500 ft. Spool
TFT11	11	.095	2.41	.091	2.31	.101	2.57	0.012 ± 0.003	0.31 ± 0.08	500 ft. Spool
TFT10	10	.106	2.69	.102	2.59	.112	2.84	0.012 ± 0.003	0.31 ± 0.08	500 ft. Spool
TFT09	9	.118	3.00	.114	2.90	.124	3.15	0.015 ± 0.003	0.38 ± 0.08	500 ft. Spool
TFT08	8	.133	3.38	.129	3.28	.141	3.58	0.015 ± 0.003	0.38 ± 0.08	Random Length Coil
TFT07	7	.148	3.76	.144	3.66	.158	4.01	0.015 ± 0.003	0.38 ± 0.08	Random Length Coil
TFT06	6	.166	4.22	.162	4.11	.178	4.52	0.015 ± 0.003	0.38 ± 0.08	Random Length Coil
TFT05	5	.185	4.70	.182	4.62	.196	4.98	0.015 ± 0.003	0.38 ± 0.08	Random Length Coil
TFT04	4	.208	5.28	.204	5.18	.224	5.69	0.015 ± 0.003	0.38 ± 0.08	Random Length Coil
TFT03	3	.234	5.94	.229	5.82	.249	6.32	0.015 ± 0.003	0.38 ± 0.08	Random Length Coil
TFT02	2	.263	6.68	.258	6.55	.278	7.06	0.015 ± 0.003	0.38 ± 0.08	Random Length Coil
TFT01	1	.294	7.47	.289	7.34	.311	7.90	0.015 ± 0.003	0.38 ± 0.08	Random Length Coil
TFT00	0	.330	8.38	.325	8.25	.347	8.81	0.015 ± 0.003	0.38 ± 0.08	Random Length Coil

Certifications

- ASTM D3295 Class 2
- AMS 3653E
- AMS 3655B
- UL-224 300V 200°C
- CSA 9032-01 300V
- FDA Compliant
- USP Class VI Compliant

For detailed ordering information, please consult price list or contact Parker Texloc.



PTFE Tubing

Series AWG: TFH, TFL, TFS, TFT (cont.)

TFL PTFE AWG Light Wall

Part Number	Order Size	Nominal I.D.		Minimum I.D.		Maximum I.D.		Nominal Wall		Standard Packaging
#										
	AWG	inch	mm	inch	mm	inch	mm	inch	mm	
TFL32	32	0.010	0.25	0.008	0.20	0.012	0.31	0.005 ± 0.002	0.13 ± 0.05	1,000 ft. Spool Only
TFL30	30	0.012	0.31	0.010	0.25	0.015	0.38	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL28	28	0.015	0.38	0.013	0.33	0.018	0.46	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL26	26	0.018	0.46	0.016	0.41	0.022	0.56	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL24	24	0.022	0.56	0.020	0.51	0.026	0.66	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL23	23	0.026	0.66	0.023	0.58	0.029	0.74	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL22	22	0.028	0.71	0.025	0.64	0.032	0.81	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL21	21	0.032	0.81	0.029	0.74	0.035	0.89	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL20	20	0.034	0.86	0.032	0.81	0.040	1.02	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL19	19	0.038	0.97	0.036	0.91	0.044	1.12	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL18	18	0.042	1.07	0.040	1.02	0.049	1.25	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL17	17	0.048	1.22	0.045	1.14	0.054	1.37	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL16	16	0.053	1.35	0.051	1.30	0.061	1.55	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL15	15	0.059	1.50	0.057	1.45	0.067	1.70	0.006 ± 0.002	0.13 ± 0.05	1,000 ft. Spool
TFL14	14	0.066	1.68	0.064	1.63	0.074	1.88	0.008 ± 0.002	0.20 ± 0.05	500 ft. Spool
TFL13	13	0.076	1.93	0.072	1.83	0.082	2.08	0.008 ± 0.002	0.20 ± 0.05	500 ft. Spool
TFL12	12	0.085	2.16	0.081	2.06	0.091	2.31	0.008 ± 0.002	0.20 ± 0.05	500 ft. Spool
TFL11	11	0.095	2.41	0.091	2.31	0.101	2.57	0.008 ± 0.002	0.20 ± 0.05	500 ft. Spool
TFL10	10	0.106	2.69	0.102	2.59	0.112	2.84	0.008 ± 0.002	0.20 ± 0.05	500 ft. Spool
TFL09	9	0.118	3.00	0.114	2.90	0.124	3.15	0.008 ± 0.002	0.20 ± 0.05	500 ft. Spool
TFL08	8	0.133	3.38	0.129	3.28	0.141	3.58	0.008 ± 0.002	0.20 ± 0.05	Random Length Coil
TFL07	7	0.148	3.76	0.144	3.66	0.158	4.01	0.008 ± 0.002	0.20 ± 0.05	Random Length Coil
TFL06	6	0.166	4.22	0.162	4.11	0.178	4.52	0.010 ± 0.003	0.25 ± 0.08	Random Length Coil
TFL05	5	0.185	4.70	0.182	4.62	0.196	4.98	0.010 ± 0.003	0.25 ± 0.08	Random Length Coil
TFL04	4	0.208	5.28	0.204	5.18	0.224	5.69	0.010 ± 0.003	0.25 ± 0.08	Random Length Coil
TFL03	3	0.234	5.94	0.229	5.82	0.249	6.32	0.010 ± 0.003	0.25 ± 0.08	Random Length Coil
TFL02	2	0.263	6.68	0.258	6.55	0.278	7.06	0.010 ± 0.003	0.25 ± 0.08	Random Length Coil
TFL01	1	0.294	7.47	0.289	7.34	0.311	7.90	0.012 ± 0.003	0.31 ± 0.08	Random Length Coil
TFL00	0	0.330	8.38	0.325	8.25	0.347	8.81	0.012 ± 0.003	0.31 ± 0.08	Random Length Coil

Certifications

- ASTM D3295 Class 1
- AMS 3653E
- AMS 3654C
- UL-224 150V 200°C
- FDA Compliant
- USP Class VI Compliant



PTFE Beading

Series Fractional: TFB



Applications/Markets



- Pull Cord
- O-Ring Seals
- Spacers
- Woven Filter

TFB PTFE Beading

Part Number	Diameter		Tolerance		Standard Packaging
#	⊙				
	inch	mm	inch	mm	
TFB015	0.015	0.38	± 0.002	± 0.05	1,000 ft. Spool
TFB020	0.020	0.51	± 0.002	± 0.05	1,000 ft. Spool
TFB025	0.025	0.64	± 0.002	± 0.05	1,000 ft. Spool
TFB028	0.028	0.71	± 0.002	± 0.05	1,000 ft. Spool
TFB031	0.031	0.79	± 0.002	± 0.05	1,000 ft. Spool
TFB035	0.035	0.89	± 0.002	± 0.05	1,000 ft. Spool
TFB039	0.039	0.99	± 0.002	± 0.05	1,000 ft. Spool
TFB043	0.043	1.09	± 0.002	± 0.05	1,000 ft. Spool
TFB047	0.047	1.19	± 0.002	± 0.05	1,000 ft. Spool
TFB050	0.050	1.27	± 0.002	± 0.05	1,000 ft. Spool
TFB055	0.055	1.40	± 0.003	± 0.08	1,000 ft. Spool
TFB060	0.060	1.52	± 0.003	± 0.08	1,000 ft. Spool
TFB062	0.062	1.57	± 0.003	± 0.08	1,000 ft. Spool
TFB070	0.070	1.78	± 0.003	± 0.08	1,000 ft. Spool
TFB072	0.072	1.83	± 0.003	± 0.08	1,000 ft. Spool
TFB078	0.078	1.98	± 0.004	± 0.10	500 ft. Spool
TFB080	0.080	2.03	± 0.004	± 0.10	500 ft. Spool
TFB084	0.084	2.13	± 0.004	± 0.10	500 ft. Spool
TFB090	0.090	2.29	± 0.004	± 0.10	500 ft. Spool
TFB094	0.094	2.39	± 0.004	± 0.10	500 ft. Spool
TFB100	0.100	2.54	± 0.004	± 0.10	500 ft. Spool
TFB109	0.109	2.77	± 0.004	± 0.10	500 ft. Spool
TFB115	0.115	2.92	± 0.004	± 0.10	500 ft. Spool
TFB125	0.125	3.18	± 0.004	± 0.10	Random Length
TFB150	0.150	3.81	± 0.004	± 0.10	Random Length
TFB188	0.188	4.78	± 0.004	± 0.10	Random Length

Features

- Virgin Polytetrafluoroethylene resin
- Chemically inert
- Lowest coefficient of friction
- Superior dielectric strength
- Exceptional heat resistance
- Self extinguishing
- Non-wetting
- Excellent flexlife
- Laser markable

Certifications

- ASTM D1710, Type 1, Grade 1, Class B
- ASTM D3295
- VW1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant

Notes

- Working Temperature: -100°F to 500°F (-75°C to 260°C)
- Package quantities are not continuous

Colors

- ○ Natural, Translucent
- Colors available as custom run, see color code table

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

Order Information

Example: TFB028-NT

TFB028-NT – PTFE Beading

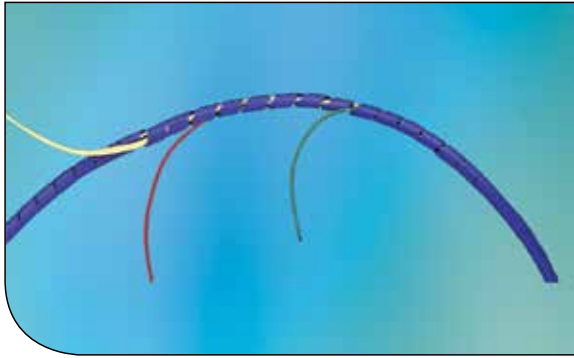
TFB028-NT – Beading O.D. in inches (.028")

TFB028-NT – Natural

TFB028-NT – Bulk Tubing

PTFE Spiral Cut Cable Wrap

Series: TSWTF



Applications/Markets



- Cable harnessing
- Wiring closets
- Aerospace
- Automotive

Order Information

Example: TSWTF-3/8-5T

TSWTF-3/8-5T – Spiral Wrap

TSWTF-3/8-5T – Material (PTFE)

TSWTF-3/8-5T – O.D. in inches (.375")

TSWTF-3/8-5T – Green

TSWTF-3/8-5T – Bulk Tubing

Features

- Provides harnessing for wires and cable while allowing leads at various points
- Exceptional heat resistance
- Self extinguishing
- Flexible
- Superior dielectric strength

Certifications

- A-A-59602
- AMS 3653E
- ASTM D3295
- VW1, UL-83 (natural)

Notes




- Available in left- or right-hand cut. Please specify with proper suffix at end of part number (i.e. TSWTF-18-NT-R)
- Working Temperature: 500°F (260°C)
- 100 ft. is the minimum item quantity sold
- Stock packaging for sizes 1/8" to 1/2" is 100- and 500-ft. non-continuous spools and, for sizes greater than 1/2", 100-ft. non-continuous spools
- Custom packaging, sizes and colors are available upon request
- Spiral cut cable wrap is also quoted in FEP upon request
- Package quantities are not continuous
- Colors available as custom run, see color code table

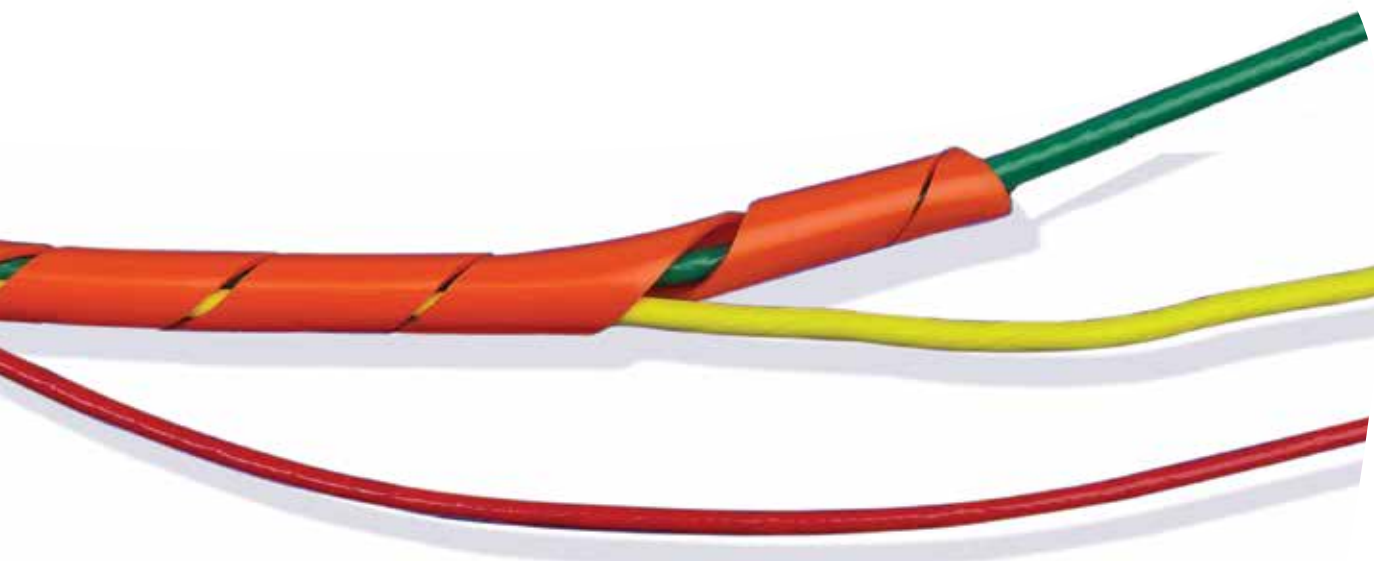
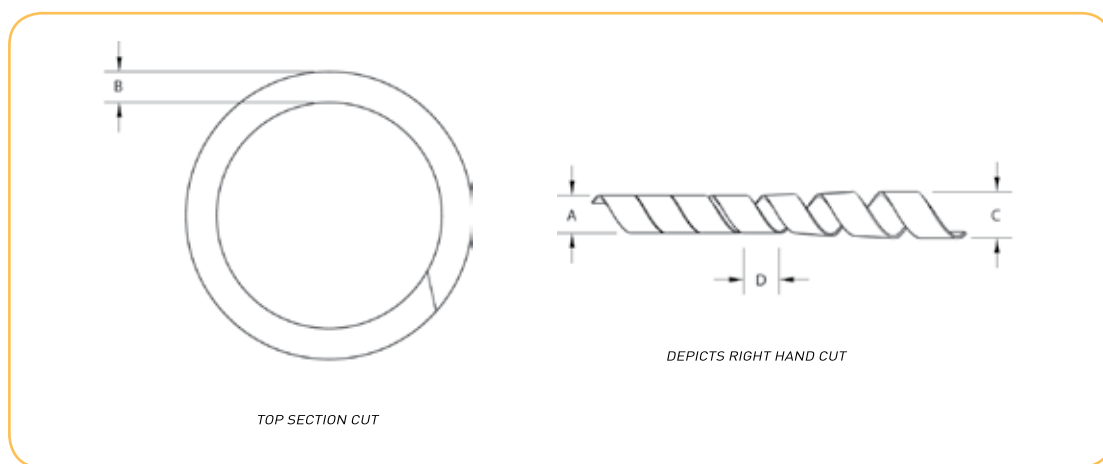
Colors

- ○ Natural, Translucent
- Colors available as custom run, see color code table

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

PTFE Spiral Wrap

Part Number	O.D. "A"		tolerance O.D.		Wall "B"		tolerance Wall		Pitch "D"		tolerance Pitch		Max Bundle O.D. "C"	
#														
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
TSWTF-1/8-NT	0.125	3.18	± 0.005	0.127	0.020	0.508	± 0.008	0.203	0.212	5.38	± 0.015	0.381	1/2	12.70
TSWTF-3/16-NT	0.188	4.78	± 0.005	0.127	0.030	0.762	± 0.008	0.203	0.312	7.92	± 0.015	0.381	1	25.40
TSWTF-1/4-NT	0.250	6.35	± 0.005	0.127	0.030	0.762	± 0.008	0.203	0.375	9.52	± 0.015	0.381	2	50.80
TSWTF-3/8-NT	0.375	9.52	± 0.005	0.127	0.030	0.762	± 0.008	0.203	0.437	11.10	± 0.015	0.381	2-1/2	63.50
TSWTF-1/2-NT	0.500	12.70	± 0.005	0.127	0.030	0.762	± 0.008	0.203	0.562	14.27	± 0.015	0.381	3	76.20
TSWTF-3/4-NT	0.750	19.05	± 0.005	0.127	0.040	1.02	± 0.008	0.203	0.875	22.22	± 0.015	0.381	4	101.60
TSWTF-1.00-NT	1	25.40	± 0.005	0.127	0.040	1.02	± 0.008	0.203	1	25.40	± 0.015	0.381	6	152.40



For detailed ordering information, please consult price list or contact Parker Texloc.

PTFE Heat Shrinkable Tubing

Series 2:1 Fractional: HS2TFS, HS2TFT, HS2TFL, HS2TFI



Applications/Markets



- Electrical Insulation
- Protective Cover
- Electronic Harness
- Laboratory

Order Information

Example: HS2TFI7/8-NT

HS2TFI7/8-NT – Heat Shrink

HS2TFI7/8-NT – Shrink Ratio (2:1)

HS2TFI7/8-NT – PTFE

HS2TFI7/8-NT – Wall Type (Industrial Wall)

HS2TFI7/8-NT – Heat Shrink Size in inches (7/8")

HS2TFI7/8-NT – Natural

HS2TFI7/8-NT – Bulk Tubing

Notes

- Working Temperature: -100°F to 500°F (-75°C to 260°C)
- Shrink Temperature: 662°F (350°C) for 10 minutes per AMS-DTL-23053/12A
- *Dielectric Strength: $\geq 1,400$ V/M, per ASTM D 149 short term test of 10 MIL thickness (Volts/MIL)
- PTFE Fractional Heat Shrink tubing is available in stock packaging of 4-ft. straight lengths
- Minimum quantities may apply
- Custom packaging, sizes, lengths and colors are quoted upon request

Features

- Virgin Polytetrafluoroethylene resin
- 2:1 Shrink Ratio
- Chemically inert
- Lowest coefficient of friction
- Superior dielectric strength
- Exceptional heat resistance
- Self extinguishing
- Non-wetting

Certifications

- ASTM D2902 Type I
- AMS 3653E
- VW1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant
- **Light Wall** (HS2TFL) – AMS-DTL-23053/12A Class 4
- **Thin Wall** (HS2TFT) – AMS-DTL-23053/12A Class 3, AMS 3585
- **Standard Wall** (HS2TFS) – AMS-DTL-23053/12A Class 2, AMS 3586
- **Heavy Wall** (HS2TFH) – AMS-DTL-23053/12A Class 1 (Custom Order only)

Colors

- ○ Natural, Opaque to translucent
- Colors available as custom run, see color code table

When ordering coiled tubing in colors, the color code is always followed by TC; when ordering cut lengths, the color code is followed by CC

ie HS2TFI7/8-2TC ie HS2TFI7/8-0CC48.000

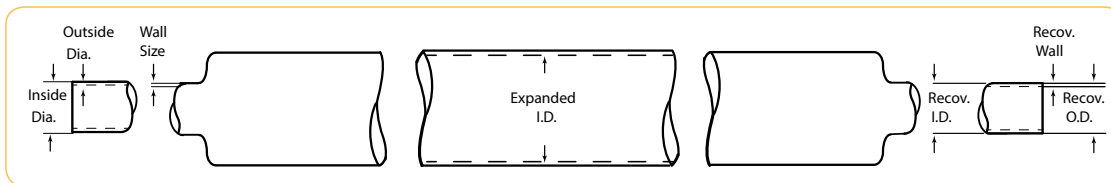
Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

HS2TFS & HS2TFT PTFE Fractional Heat Shrink Tubing (2:1) SW & TW

Order Size	Minimum Expanded I.D.		Maximum Recovered I.D.		Standard Wall				Thin Wall			
					Mil Spec*	Part Number	Nominal Recovered Wall		Mil Spec*	Part Number	Nominal Recovered Wall	
	inch	mm	inch	mm			inch	mm			inch	mm
1/8	0.215	05.5	0.130	3.3	23053/12A-215	HS2TFS1/8	0.020 ± 0.004	0.51 ± 0.10	23053/12A-319	HS2TFT1/8	0.015 ± 0.003	0.38 ± 0.08
1/4	0.410	10.4	0.260	6.6	23053/12A-222	HS2TFS1/4	0.020 ± 0.004	0.51 ± 0.10	23053/12A-326	HS2TFT1/4	0.015 ± 0.004	0.38 ± 0.10
5/16	0.470	11.9	0.329	8.4	23053/12A-225	HS2TFS5/16	0.020 ± 0.004	0.51 ± 0.10	23053/12A-329	HS2TFT5/16	0.015 ± 0.004	0.38 ± 0.10
3/8	0.560	14.2	0.399	10.1	23053/12A-228	HS2TFS3/8	0.025 ± 0.006	0.64 ± 0.15	-	HS2TF 3/8	0.015 ± 0.004	0.38 ± 0.10
7/16	0.655	16.6	0.462	11.7	23053/12A-229	HS2TFS7/16	0.025 ± 0.006	0.64 ± 0.15	-	HS2TFT7/16	0.018 ± 0.004	0.46 ± 0.10
1/2	0.750	19.1	0.524	13.3	23053/12A-230	HS2TFS1/2	0.025 ± 0.006	0.64 ± 0.15	-	HS2TFT1/2	0.018 ± 0.004	0.46 ± 0.10
5/8	0.930	23.6	0.655	16.6	23053/12A-231	HS2TFS5/8	0.030 ± 0.006	0.76 ± 0.15	-	HS2TF 5/8	0.020 ± 0.004	0.51 ± 0.10
3/4	1.125	28.6	0.786	20.0	23053/12A-232	HS2TFS3/4	0.035 ± 0.008	0.89 ± 0.20	-	HS2TFT3/4	0.025 ± 0.004	0.64 ± 0.10
7/8	1.310	33.2	0.911	23.1	23053/12A-233	HS2TFS7/8	0.035 ± 0.008	0.89 ± 0.20	-	HS2TFT7/8	0.025 ± 0.004	0.64 ± 0.10
1	1.500	38.1	1.036	26.3	23053/12A-234	HS2TFS1.00	0.035 ± 0.008	0.89 ± 0.20	-	HS2TFT1.00	0.025 ± 0.004	0.64 ± 0.10

HS2TFL PTFE Fractional Heat Shrink Tubing (2:1) LW

Order Size	Minimum Expanded I.D.		Maximum Recovered I.D.		Light Wall			
					Mil Spec*	Part Number	Nominal Recovered Wall	
	inch	mm	inch	mm			inch	mm
1/8	0.215	5.5	0.130	3.3	23053/12A-415	HS2TFL1/8	0.008 ± 0.002	0.20 ± 0.05
1/4	0.410	10.4	0.260	6.6	23053/12A-422	HS2TFL1/4	0.010 ± 0.003	0.25 ± 0.08
5/16	0.470	11.9	0.329	8.4	23053/12A-425	HS2TFL5/16	0.012 ± 0.003	0.31 ± 0.08



HS2TFI PTFE Fractional Heat Shrink Tubing (2:1), Ind. Heavy Wall

Part Number	Order Size	Mil Spec*	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
			inch	mm	inch	mm	inch	mm
HS2TFI1/8	1/8	23053/12A-101	0.166	4.2	0.130	3.3	0.030 ± 0.005	0.76 ± 0.13
HS2TFI3/16	3/16	23053/12A-102	0.250	6.4	0.193	4.9	0.030 ± 0.005	0.76 ± 0.13
HS2TFI1/4	1/4	23053/12A-103	0.333	8.4	0.257	6.5	0.030 ± 0.005	0.76 ± 0.13
HS2TFI5/16	5/16	23053/12A-104	0.415	10.5	0.320	8.1	0.030 ± 0.005	0.76 ± 0.13
HS2TFI3/8	3/8	23053/12A-105	0.498	12.6	0.383	9.7	0.030 ± 0.005	0.76 ± 0.13
HS2TFI7/16	7/16	23053/12A-106	0.580	14.7	0.448	11.4	0.030 ± 0.006	0.76 ± 0.15
HS2TFI1/2	1/2	23053/12A-107	0.666	16.9	0.510	13.0	0.030 ± 0.006	0.76 ± 0.15
HS2TFI9/16	9/16	23053/12A-108	0.748	19.0	0.572	14.5	0.030 ± 0.006	0.76 ± 0.15
HS2TFI5/8	5/8	23053/12A-109	0.830	21.1	0.637	16.2	0.030 ± 0.006	0.76 ± 0.15
HS2TFI11/16	11/16	23053/12A-110	0.915	23.2	0.700	17.8	0.032 ± 0.006	0.81 ± 0.15
HS2TFI3/4	3/4	23053/12A-111	1.000	25.4	0.764	19.4	0.040 ± 0.007	1.02 ± 0.18
HS2TFI7/8	7/8	23053/12A-112	1.170	29.7	0.891	22.6	0.045 ± 0.007	1.14 ± 0.18
HS2TFI1.00	1	23053/12A-113	1.330	33.8	1.020	25.9	0.050 ± 0.008	1.27 ± 0.20

For detailed ordering information, please consult price list or contact Parker Texloc.

PTFE Heat Shrinkable Tubing

Series 2:1 AWG: HS2TFS, HS2TFT, HS2TFL



Applications/Markets



- Electrical Insulation
- Protective Cover
- Electronic Harness
- Laboratory

Order Information

Example: HS2TFS15-4TC-500

HS2TFS15-4TC-500 – Heat Shrink

HS2TFS15-4TC-500 – Shrink Ratio (2:1)

HS2TFS15-4TC-500 – PTFE

HS2TFS15-4TC-500 – Wall Type (Standard Wall)

HS2TFS15-4TC-500 – Heat Shrink Size in AWG (AWG15)

HS2TFS15-4TC-500 – Yellow

HS2TFS15-4TC-500 – Bulk Tubing

HS2TFS15-4TC-500 – Solid Color

HS2TFS15-4TC-500 – Package Quantity in feet (500')

Notes

- Working Temperature: -100°F to 500°F (-75°C to 260°C)
- Shrink Temperature: 662°F (350°C) for 10 minutes per AMS-DTL-23053/12A
- *Dielectric Strength: $\geq 1,400$ V/M, per ASTM D 149 short term test of 10 MIL thickness (Volts/MIL)
- PTFE AWG Heat Shrink tubing is available in stock packaging of 4-ft. straight lengths
- Minimum quantities may apply
- Custom packaging, sizes, lengths and colors are quoted upon request

Features

- Virgin Polytetrafluoroethylene resin
- 2:1 Shrink Ratio
- Chemically inert
- Lowest coefficient of friction
- Superior dielectric strength
- Exceptional heat resistance
- Self extinguishing
- Non-wetting

Certifications

- ASTM D2902 Type I
- AMS 3653E
- VW1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant
- **Light Wall** (HS2TFL) – AMS-DTL-23053/12A Class 4
- **Thin Wall** (HS2TFT) – AMS-DTL-23053/12A Class 3, AMS 3585
- **Standard Wall** (HS2TFS) – AMS-DTL-23053/12A Class 2, AMS 3586
- **Heavy Wall** (HS2TFH) – AMS-DTL-23053/12A Class 1 (Custom Order only)

Colors

- ○ Natural, Opaque to translucent
- Colors available as custom run, see color code table

When ordering coiled tubing in colors, the color code is always followed by TC; when ordering cut lengths, the color code is followed by CC

ie HS2TFS15-2TC

ie HS2TFS15-0CC48.000

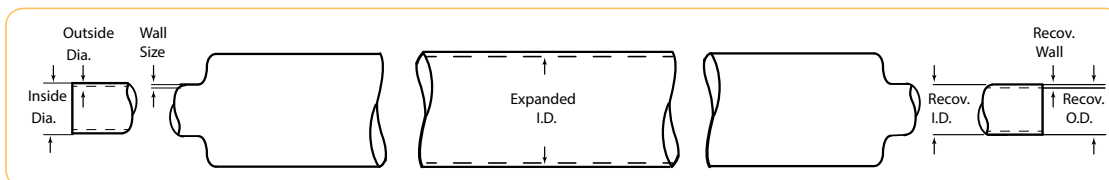
Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

HS2TFS Standard Wall (2:1)

Part Number	Order Size	Mil Spec*	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
			inch	mm	inch	mm	inch	mm
HS2TFS24	24	23053/12A-201	0.050	1.27	0.027	0.69	0.012 ± 0.002	0.31 ± 0.05
HS2TFS22	22	23053/12A-202	0.055	1.40	0.032	0.81	0.012 ± 0.002	0.31 ± 0.05
HS2TFS20	20	23053/12A-203	0.060	1.52	0.039	0.99	0.016 ± 0.003	0.41 ± 0.08
HS2TFS19	19	23053/12A-204	0.065	1.65	0.043	1.09	0.016 ± 0.003	0.41 ± 0.08
HS2TFS18	18	23053/12A-205	0.076	1.93	0.049	1.25	0.016 ± 0.003	0.41 ± 0.08
HS2TFS17	17	23053/12A-206	0.085	2.16	0.054	1.37	0.016 ± 0.003	0.41 ± 0.08
HS2TFS16	16	-	0.093	2.36	0.061	1.55	0.016 ± 0.003	0.41 ± 0.08
HS2TFS15	15	23053/12A-207	0.110	2.79	0.067	1.70	0.016 ± 0.003	0.41 ± 0.08
HS2TFS14	14	23053/12A-208	0.120	3.05	0.072	1.83	0.016 ± 0.003	0.41 ± 0.08
HS2TFS13	13	23053/12A-210	0.140	3.56	0.080	2.03	0.016 ± 0.003	0.41 ± 0.08
HS2TFS12	12	23053/12A-211	0.150	3.81	0.089	2.26	0.016 ± 0.003	0.41 ± 0.08
HS2TFS11	11	23053/12A-212	0.170	4.32	0.101	2.57	0.016 ± 0.003	0.41 ± 0.08
HS2TFS10	10	23053/12A-213	0.191	4.85	0.112	2.84	0.016 ± 0.003	0.41 ± 0.08
HS2TFS09	9	23053/12A-214	0.205	5.21	0.124	3.15	0.020 ± 0.004	0.51 ± 0.10
HS2TFS08	8	23053/12A-216	0.240	6.10	0.141	3.58	0.020 ± 0.004	0.51 ± 0.10
HS2TFS07	7	23053/12A-217	0.270	6.86	0.158	4.01	0.020 ± 0.004	0.51 ± 0.10
HS2TFS06	6	23053/12A-218	0.302	7.67	0.178	4.52	0.020 ± 0.004	0.51 ± 0.10
HS2TFS05	5	23053/12A-219	0.320	8.13	0.198	5.03	0.020 ± 0.004	0.51 ± 0.10
HS2TFS04	4	23053/12A-220	0.370	9.40	0.224	5.69	0.020 ± 0.004	0.51 ± 0.10
HS2TFS03	3	23053/12A-221	0.390	9.91	0.249	6.32	0.020 ± 0.004	0.51 ± 0.10
HS2TFS02	2	23053/12A-223	0.430	10.9	0.278	7.06	0.020 ± 0.004	0.51 ± 0.10
HS2TFS01	1	23053/12A-224	0.450	11.4	0.311	7.90	0.020 ± 0.004	0.51 ± 0.10
HS2TFS00	0	23053/12A-226	0.470	11.9	0.347	8.81	0.020 ± 0.004	0.51 ± 0.10

Certifications

- AMS-DTL-23053/12A, Class 3
- AMS 3585
- ASTM D2902 Type I
- FDA Compliant
- USP Class VI Compliant



PTFE Heat Shrinkable Tubing

Series 2:1 AWG: HS2TFS, HS2TFT, HS2TFL (cont.)

HS2TFT Thin Wall (2:1)

Part Number	Order Size AWG	Mil Spec*	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
			inch	mm	inch	mm	inch	mm
HS2TFT30	30	23053/12A-301	0.034	0.86	0.015	0.38	0.009 ± 0.002	0.23 ± 0.05
HS2TFT28	28	23053/12A-302	0.038	0.97	0.018	0.46	0.009 ± 0.002	0.23 ± 0.05
HS2TFT26	26	23053/12A-303	0.046	1.16	0.022	0.56	0.010 ± 0.003	0.25 ± 0.08
HS2TFT24	24	23053/12A-304	0.050	1.27	0.027	0.69	0.010 ± 0.002	0.25 ± 0.08
HS2TFT22	22	23053/12A-305	0.055	1.40	0.032	0.81	0.012 ± 0.003	0.31 ± 0.08
HS2TFT20	20	23053/12A-306	0.060	1.52	0.039	0.99	0.012 ± 0.003	0.31 ± 0.08
HS2TFT19	19	23053/12A-307	0.065	1.65	0.043	1.09	0.012 ± 0.003	0.31 ± 0.08
HS2TFT18	18	23053/12A-308	0.076	1.93	0.049	1.25	0.012 ± 0.003	0.31 ± 0.08
HS2TFT17	17	23053/12A-309	0.085	2.16	0.054	1.37	0.012 ± 0.003	0.31 ± 0.08
HS2TFT16	16	23053/12A-310	0.093	2.36	0.061	1.55	0.012 ± 0.003	0.31 ± 0.08
HS2TFT15	15	23053/12A-311	0.110	2.79	0.067	1.70	0.012 ± 0.003	0.31 ± 0.08
HS2TFT14	14	23053/12A-312	0.120	3.05	0.072	1.83	0.012 ± 0.003	0.31 ± 0.08
HS2TFT13	13	23053/12A-313	0.140	3.56	0.080	2.03	0.012 ± 0.003	0.31 ± 0.08
HS2TFT12	12	23053/12A-314	0.150	3.81	0.089	2.26	0.012 ± 0.003	0.31 ± 0.08
HS2TFT11	11	23053/12A-316	0.170	4.32	0.101	2.57	0.012 ± 0.003	0.31 ± 0.08
HS2TFT10	10	23053/12A-317	0.191	4.85	0.112	2.84	0.012 ± 0.003	0.31 ± 0.08
HS2TFT09	9	23053/12A-318	0.205	5.21	0.124	3.15	0.015 ± 0.004	0.38 ± 0.10
HS2TFT08	8	23053/12A-320	0.240	6.10	0.141	3.58	0.015 ± 0.004	0.38 ± 0.10
HS2TFT07	7	23053/12A-321	0.270	6.86	0.158	4.01	0.015 ± 0.004	0.38 ± 0.10
HS2TFT06	6	23053/12A-322	0.302	7.67	0.178	4.52	0.015 ± 0.004	0.38 ± 0.10
HS2TFT05	5	23053/12A-323	0.320	8.13	0.198	5.03	0.015 ± 0.004	0.38 ± 0.10
HS2TFT04	4	23053/12A-324	0.370	9.40	0.224	5.69	0.015 ± 0.004	0.38 ± 0.10
HS2TFT03	3	23053/12A-325	0.390	9.91	0.249	6.32	0.015 ± 0.004	0.38 ± 0.10
HS2TFT02	2	23053/12A-327	0.430	10.9	0.278	7.06	0.015 ± 0.004	0.38 ± 0.10
HS2TFT01	1	23053/12A-328	0.450	11.4	0.311	7.90	0.015 ± 0.004	0.38 ± 0.10
HS2TFT00	0	23053/12A-330	0.470	11.9	0.347	8.81	0.015 ± 0.004	0.38 ± 0.10

*Dielectric Strength: ≥ 1,400 V/M, per ASTM D 149 short term test of 10 MIL thickness (Volts/MIL)

Certifications

- AMS-DTL-23053/12A, Class 3
- AMS 3585
- ASTM D2902 Type I
- FDA Compliant
- USP Class VI Compliant

HS2TFL Light Wall (2:1)

Part Number	Order Size AWG	Mil Spec*	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
			inch	mm	inch	mm	inch	mm
HS2TFL24	24	23053/12A-404	0.050	1.27	0.025	0.64	0.006 ± 0.002	0.15 ± 0.05
HS2TFL22	22	23053/12A-405	0.055	1.40	0.031	0.79	0.006 ± 0.002	0.15 ± 0.05
HS2TFL20	20	23053/12A-406	0.060	1.52	0.038	0.97	0.006 ± 0.002	0.15 ± 0.05
HS2TFL19	19	23053/12A-407	0.065	1.65	0.043	1.09	0.006 ± 0.002	0.15 ± 0.05
HS2TFL18	18	23053/12A-408	0.076	1.93	0.046	1.17	0.006 ± 0.002	0.15 ± 0.05
HS2TFL17	17	23053/12A-409	0.085	2.16	0.054	1.37	0.006 ± 0.002	0.15 ± 0.05
HS2TFL16	16	23053/12A-410	0.093	2.36	0.057	1.45	0.006 ± 0.002	0.15 ± 0.05
HS2TFL15	15	23053/12A-411	0.110	2.79	0.063	1.60	0.006 ± 0.002	0.15 ± 0.05
HS2TFL14	14	23053/12A-412	0.120	3.05	0.072	1.83	0.008 ± 0.002	0.20 ± 0.05
HS2TFL13	13	23053/12A-413	0.140	3.56	0.080	2.03	0.008 ± 0.002	0.20 ± 0.05
HS2TFL12	12	23053/12A-414	0.150	3.81	0.089	2.26	0.008 ± 0.002	0.20 ± 0.05
HS2TFL11	11	23053/12A-416	0.170	4.32	0.099	2.51	0.008 ± 0.002	0.20 ± 0.05
HS2TFL10	10	23053/12A-417	0.191	4.85	0.110	2.79	0.008 ± 0.002	0.20 ± 0.05
HS2TFL09	9	23053/12A-418	0.205	5.21	0.122	3.10	0.008 ± 0.002	0.20 ± 0.05
HS2TFL08	8	23053/12A-420	0.240	6.10	0.139	3.53	0.008 ± 0.002	0.20 ± 0.05
HS2TFL07	7	23053/12A-421	0.270	6.86	0.154	3.91	0.008 ± 0.002	0.20 ± 0.05
HS2TFL06	6	23053/12A-422	0.302	7.67	0.172	4.37	0.010 ± 0.003	0.25 ± 0.08
HS2TFL05	5	23053/12A-423	0.320	8.13	0.192	4.88	0.010 ± 0.003	0.25 ± 0.08
HS2TFL04	4	23053/12A-424	0.370	9.40	0.214	5.44	0.010 ± 0.003	0.25 ± 0.08
HS2TFL03	3	23053/12A-425	0.390	9.91	0.241	6.12	0.010 ± 0.003	0.25 ± 0.08
HS2TFL02	2	23053/12A-427	0.430	10.9	0.270	6.88	0.010 ± 0.003	0.25 ± 0.08
HS2TFL01	1	23053/12A-428	0.450	11.4	0.301	7.65	0.010 ± 0.003	0.25 ± 0.08
HS2TFL00	0	23053/12A-430	0.470	11.9	0.347	8.81	0.012 ± 0.003	0.31 ± 0.08

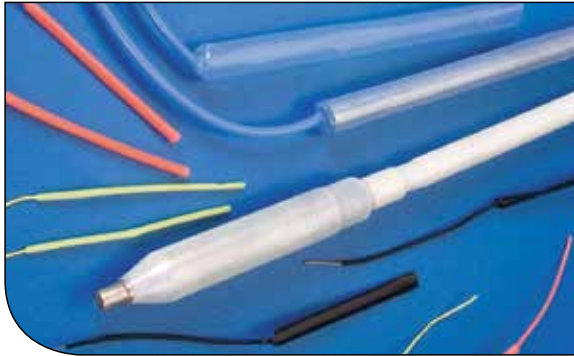
*Dielectric Strength: ≥ 1,400 V/M, per ASTM D 149 short term test of 10 MIL thickness (Volts/MIL)

Certifications

- AMS-DTL-23053/12A, Class 4
- ASTM D2902 Type I
- FDA Compliant
- USP Class VI Compliant

PTFE Heat Shrinkable Tubing

Series 4:1 HS4TFI



Features

- Virgin Polytetrafluoroethylene resin
- 4:1 Shrink Ratio
- Chemically inert
- Lowest coefficient of friction
- Superior dielectric strength
- Exceptional heat resistance
- Self extinguishing
- Non-wetting

Certifications

- AMS-DTL-23053/12A, Class 5
- ASTM D2902 Type I
- AMS 3584A
- VW1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant

Applications/Markets



- Electrical Insulation
- Protective Cover
- Rollers
- Bulb Protection

Order Information

Example: HS4TFI5/8-NT

HS4TFI5/8-NT – Heat Shrink

HS4TFI5/8-NT – Shrink Ratio (4:1)

HS4TFI5/8-NT – PTFE

HS4TFI5/8-NT – Wall Type (Industrial Wall)

HS4TFI5/8-NT – Heat Shrink Size in inches (5/8")

HS4TFI5/8-NT – Natural

HS4TFI5/8-NT – Bulk Tubing

Notes

- Working Temperature: 500°F (260°C)
- Shrink Temperature: 662°F (350°C) for 10 minutes per AMS-DTL-23053/12A
- For full recovery, expanded diameter should be 50% larger than the diameter of the object to be recovered over
- *Dielectric Strength: $\geq 1,400$ V/M, per ASTM D 149 short term test of 10 MIL thickness (Volts/MIL)
- PTFE Fractional Heat Shrink tubing is available in stock packaging of 4-ft. straight lengths
- Minimum quantities may apply
- Custom packaging, sizes, lengths and colors are quoted upon request

Colors

- ○ Natural, Opaque to translucent
- Colors available as custom run, see color code table

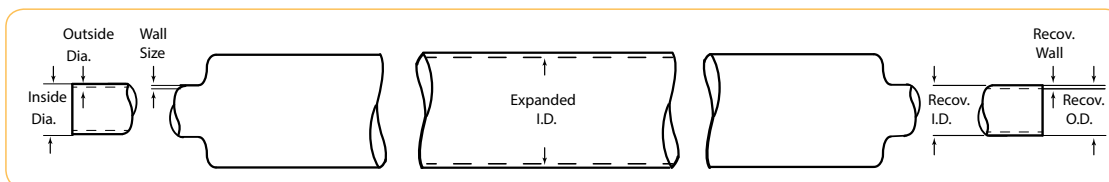
When ordering coiled tubing in colors, the color code is always followed by TC; when ordering cut lengths, the color code is followed by CC

ie HS4TFI5/8-2TC ie HS4TFI5/8-0CC48.0000

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

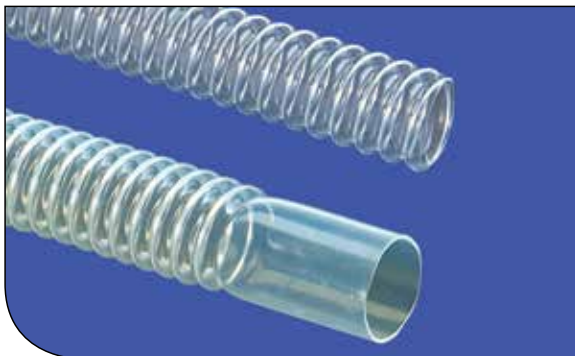
HS4TFI PTFE Industrial Wall Heat Shrink Tubing (4:1)

Part Number	Order Size inch	Mil Spec*	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
			inch	mm	inch	mm	inch	mm
HS4TFI5/64	5/64	23053/12A-501	0.078	1.98	0.025	0.64	0.009 ± 0.002	0.23 ± 0.05
HS4TFI1/8	1/8	23053/12A-502	0.125	3.18	0.037	0.94	0.012 ± 0.002	0.31 ± 0.05
HS4TFI3/16	3/16	23053/12A-503	0.187	4.75	0.050	1.27	0.012 ± 0.002	0.31 ± 0.05
HS4TFI1/4	1/4	23053/12A-504	0.250	6.35	0.063	1.60	0.012 ± 0.002	0.31 ± 0.05
HS4TFI5/16	5/16	23053/12A-505	0.312	7.92	0.078	1.98	0.012 ± 0.002	0.31 ± 0.05
HS4TFI3/8	3/8	23053/12A-506	0.375	9.52	0.096	2.44	0.012 ± 0.002	0.31 ± 0.05
HS4TFI7/16	7/16	23053/12A-507	0.438	11.1	0.112	2.84	0.012 ± 0.002	0.31 ± 0.05
HS4TFI1/2	1/2	23053/12A-508	0.500	12.7	0.144	3.66	0.015 ± 0.004	0.38 ± 0.10
HS4TFI5/8	5/8	23053/12A-510	0.625	15.9	0.178	4.52	0.015 ± 0.004	0.38 ± 0.10
HS4TFI3/4	3/4	23053/12A-512	0.750	19.1	0.224	5.70	0.015 ± 0.004	0.38 ± 0.10
HS4TFI7/8	7/8	23053/12A-513	0.875	22.2	0.244	6.20	0.015 ± 0.004	0.38 ± 0.10
HS4TFI1.00	1	23053/12A-514	1.000	25.4	0.278	7.06	0.015 ± 0.004	0.38 ± 0.10
HS4TFI1.25	1-1/4	23053/12A-515	1.250	31.8	0.347	8.81	0.015 ± 0.004	0.38 ± 0.10



PTFE Convoluted

Series Convo-Tex®



Features

- Chemically inert
- Low coefficient of friction
- Very flexible
- Self extinguishing
- Nonwetting

Certifications

- AMS 3653E
- VW1, UL-83 (natural)
- FDA Compliant
- USP Class VI Compliant

Applications/Markets



- Fluid Transport
- Wire Harness
- Protection/Cable Core
- Robotics

Order Information

Example: CV01-1/8-NT

CV01-1/8-NT – Convoluted

CV01-1/8-NT – PTFE

CV01-1/8-NT – Size to Order (1/8")

CV01-1/8-NT – Color (N=Natural)

CV01-1/8-NT- "T" is bulk (for cuffed tubing, remove "T" and add length, ie. CV01-1/8-N1200 = 1" Convo, natural, cut 12" long)

Notes

- Working Temperature: -100 to 500°F/-75 to 260°C
- Standard cuffs for Convo-Tex are sized on the Inside Diameter
- Wire wrap reinforcement can be added for increased pressure applications or when a tighter bend radius is needed
- Minimum quantities may apply
- Custom packaging, sizes, lengths and colors are quoted upon request

Colors

- ○ Natural, Opaque to Translucent
- Colors available as custom run, see color code table

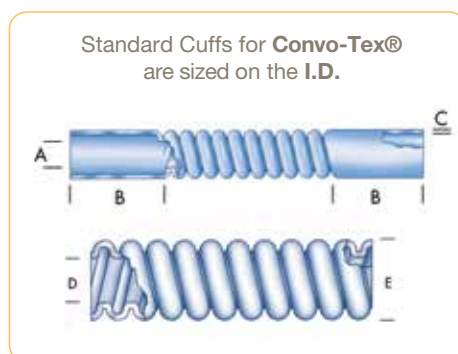
Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

PTFE Convo-Tex® Convoluteds

(Standard tubing is natural)

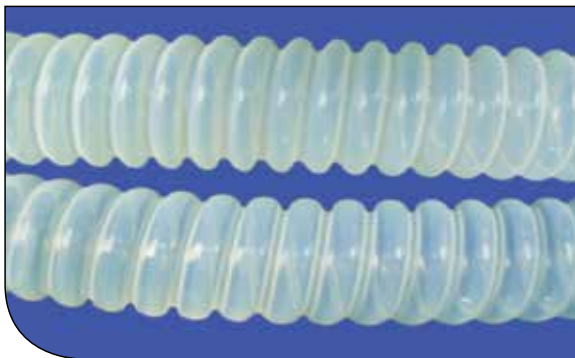
Part Number	Size To Order	Standard Cuff I.D. "A"		Standard Cuff Length "B"		Wall Thickness "C"		Min. Inside Diameter "D"		Max. Inside Diameter "D"		Max. Outside Diameter "E"		**Min. Bend Radius	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CV01-1/8-NT	CONV-2	1/8	3.18	3/4	19.1	0.010	0.25	0.130	3.3	0.140	3.6	0.235	5.9	3/8	9.5
CV01-1/4-NT	CONV-4	1/4	6.35	3/4	19.1	0.015	0.38	0.181	4.6	0.188	4.8	0.320	8.1	1/2	12.7
CV01-5/16-NT	CONV-5	5/16	7.94	1	25.4	0.020	0.51	0.273	6.9	0.281	7.1	0.414	10.5	3/4	19.1
CV01-3/8-NT	CONV-6	3/8	9.53	1	25.4	0.020	0.51	0.303	7.7	0.312	7.9	0.450	11.4	1-3/4	44.4
CV01-1/2-NT	CONV-8	1/2	12.7	1	25.4	0.020	0.51	0.425	10.8	0.437	11.1	0.590	15.0	1-1/4	31.2
CV01-5/8-NT	CONV-10	5/8	15.9	1-1/4	31.8	0.025	0.64	0.485	12.3	0.500	12.7	0.660	16.8	1-1/2	38.1
CV01-3/4-NT	CONV-12	3/4	19.1	1-1/2	38.1	0.023	0.58	0.608	15.4	0.625	15.9	0.780	19.8	1-3/4	44.4
CV01-1.00-NT	CONV-16	1	25.4	2	50.8	0.030	0.76	0.849	21.6	0.875	22.2	1.100	27.9	2-1/4	57.2
CV01-1.25-NT	CONV-20	1-1/4	31.8	2-1/2	63.5	0.035	0.89	1.150	29.2	1.190	30.2	1.560	39.6	2-3/4	69.9
CV01-1.50-NT	CONV-24	1-1/2	38.1	2-1/2	63.5	0.040	1.02	1.410	35.8	1.490	37.8	1.910	48.5	3	76.2
CV01-2.00-NT	CONV-32	2	50.8	2-1/2	63.5	0.043	1.09	1.955	49.7	1.985	50.4	2.450	62.2	4-1/4	107.9
CV01-2.50-NT	CONV-40	2-1/2	63.5	2-1/2	63.5	0.062	1.57	2.460	62.5	2.540	64.5	3.210	81.6	5	127
CV01-3.00-NT	CONV-48	3	76.2	2-1/2	63.5	0.070	1.78	2.940	74.7	3.060	77.7	3.750	95.3	7	177.8
CV01-4.00-NT	CONV-64	4	101.6	2-1/2	63.5	0.070	1.78	3.940	100.1	4.060	103.1	4.750	120.6	9	228.6

** Minimum 36" length.



PTFE Convoluted

Series Low Profile and Heavy Wall



Applications/Markets



- Fluid Handling
- Harnesses
- Lab Equipment
- Robotics

Order Information

Example: CVH01-1/8-NT

CVH01-1/8-NT – CVH - Heavywall Convoluted
– CVL Low Profile Convoluted

CVH01-1/8-NT – **PTFE**

CVH01-**1/8**-NT – **Size to Order (1/8")**

CVH01-1/8-**NT** – **Color (N=Natural)**

CVH01-1/8-NT- "**T**" is **bulk** (for cuffed tubing, remove "**T**" and add length, ie. CVH01-1/8-N1200 = 1" Heavy Wall Convo, natural, cut 12" long)

Notes

- Working Temperature: 500°F (260°C)
- Standard cuffs for Convo-Tex are sized on the Inside Diameter
- Wire wrap reinforcement can be added for increased pressure applications or when a tighter bend radius is needed
- Minimum quantities may apply
- Custom packaging, sizes, lengths, cuffs and colors are quoted upon request

Features

- Chemically inert
- Low coefficient of friction
- Very flexible
- Self extinguishing
- Non-wetting

Low Profile

- Larger inside diameter
- Increased Flow

Heavy Wall

- Reinforces the strength of the tube allowing for braiding or covering, flanging or flaring
- Handles higher vacuum

Certifications

- AMS 3653E
- VW1, UL-83
- FDA Compliant
- USP Class VI Compliant

Colors

- ○ Natural, Opaque to Translucent
- Colors available as custom run, see color code table

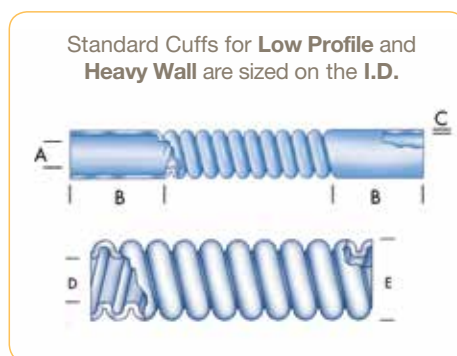
Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

PTFE Low Profile Convoluted

(Standard tubing is natural)

Part Number	Size To Order	Min. Inside Diameter		Max. Inside Diameter		Max. Outside Diameter		Wall Thickness		**Min. Bend Radius	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CVL01-3/8-NT	3/8	0.394	10.0	0.406	10.3	0.560	14.2	0.023	0.58	1/2	13
CVL01-1/2-NT	1/2	0.490	12.5	0.510	13.0	0.700	17.8	0.025	0.64	3/4	19
CVL01-3/4-NT	3/4	0.740	18.8	0.760	19.3	0.980	24.9	0.035	0.89	1.88	48
CVL01-1.00-NT	1	0.990	25.1	1.010	25.7	1.260	32.0	0.035	0.89	2-1/4	57
CVL01-1.25-NT	1-1/4	1.210	30.7	1.250	31.8	1.539	39.1	0.035	0.89	3	76
CVL01-1.50-NT	1-1/2	1.520	38.6	1.540	39.1	1.870	47.5	0.044	1.12	3-1/2	89
CVL01-1.75-NT	1-3/4	1.690	42.9	1.750	44.5	2.100	53.3	0.040	1.02	4-1/4	108
CVL01-2.00-NT	2	2.010	51.1	2.030	51.6	2.370	60.2	0.043	1.09	4-3/4	121

** Minimum 36 length.



PTFE Heavy Wall Convoluted

(Standard tubing is natural)

Part Number	Size To Order	Min. Inside Diameter		Max. Inside Diameter		Max. Outside Diameter		Wall Thickness		**Min. Bend Radius	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CVH01-1/4-NT	1/4	0.257	6.5	0.265	6.7	0.415	10.5	0.025	0.38	3/4	19
CVH01-3/8-NT	3/8	0.335	8.5	0.345	8.8	0.510	13.0	0.025	0.64	1	25
CVH01-1/2-NT	1/2	0.454	11.5	0.466	11.8	0.700	17.8	0.035	0.89	1-1/2	38
CVH01-3/4-NT	3/4	0.683	17.4	0.701	17.8	1.010	25.7	0.500	1.27	1.88	48
CVH01-1.00-NT	1	0.841	21.4	0.859	21.8	1.210	30.7	0.053	1.35	2-1/2	64
CVH01-1.25-NT	1-1/4	1.125	28.6	1.145	29.1	1.610	40.9	0.062	1.57	3.13	79
CVH01-1.50-NT	1-1/2	1.420	36.1	1.480	37.6	1.880	47.8	0.062	1.57	3-3/4	95
CVH01-1.75-NT	1-3/4	1.540	39.1	1.600	40.6	2.100	53.3	0.062	1.57	4-1/2	114
CVH01-2.00-NT	2	1.770	45.0	1.830	46.5	2.432	61.8	0.062	1.57	4-3/4	120
CVH01-2.50-NT	2-1/2	2.460	62.5	2.540	64.5	3.210	81.5	0.062	1.57	5	127
CVH01-3.00-NT	3	2.940	74.7	3.060	77.7	3.750	95.3	0.062	1.57	7	178
CVH01-4.00-NT	4	3.90	100	4.060	103	4.750	121	0.070	1.77	9	229

** Minimum 36 length.

PTFE Convuluted

Series SAE AS81914/1 and SAE AS81914/2



Features

- Chemically inert
- Low coefficient of friction
- Very flexible
- Self extinguishing
- Non-wetting

Certifications

- AMS 3653E
- SAE AS81914/1
- SAE AS81914/2
- FDA Compliant

Applications/Markets



- Fluid Handling
- Harnesses
- Crush Resistant Cover
- Robotics

Order Information

Example: 81914/1-1010-0TC

81914/1-1010-0TC – SAE AS81914 Convuluted

81914/**1**-1010-0TC – **PTFE**

81914/1-**1010**-0TC – **Helical Convolutions**

81914/1-10**10**-0TC – **Size (10=1.000")**

81914/1-1010-**0TC** – **Color (0=Black)**

81914/1-1010-**0TC** – **"T" is bulk -** (for cuffed tubing, remove "T" and add length, ie. 81914/1-1010-01200 = 187" Convo, black, cut 12" long

Notes

- Working Temperature: 500°F (260°C)
- Tubing is provided in black without cuffs direct from inventory
- Stock packaging is random coils
- Also available in close convolution 81914/2
- Minimum quantities may apply
- Custom packaging, sizes, lengths, cuffs and colors are quoted upon request

Colors

- ● Black
- Colors available as custom run, see color code table

When ordering convoluted tubing in colors, the "N" designation for natural should be replaced by the correct color designator;

ie 81914/1-101-0T (black bulk tubing)

ie 81914/1-101-01200 (black tubing - 12 inches long)

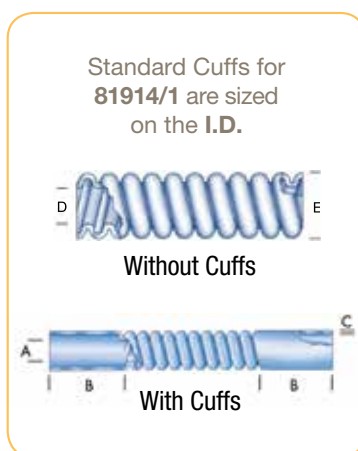
Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

PTFE Convoluted Tubing (SAE AS81914/1)

(Standard tubing is black)

Part Number	MIL Spec*	Maximum Inside Diameter		Minimum Inside Diameter		Maximum Outside Diameter		Maximum Wall Thickness		Minimum Bend Radius		Pitch ±1	Weight	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		lb./100 ft.	kg./100 mtr.
81914/1-1001-OTC	-1	0.188	4.78	0.181	4.6	0.320	8.13	0.023	0.584	1/2	13	8	2	2.98
81914/1-1002-OTC	-2	0.281	7.14	0.273	6.93	0.414	10.5	0.027	0.686	3/4	19	7.5	2.9	4.31
81914/1-1003-OTC	-3	0.312	7.93	0.303	7.7	0.450	11.4	0.027	0.686	7/8	22	7.5	3.6	5.36
81914/1-1004-OTC	-4	0.375	9.53	0.364	9.25	0.530	13.5	0.029	0.737	1	25	7	4.2	6.25
81914/1-1005-OTC	-5	0.437	11.1	0.425	10.8	0.590	15.0	0.029	0.737	1-1/4	32	7	4.9	7.29
81914/1-1006-OTC	-6	0.500	12.7	0.485	12.3	0.660	16.8	0.029	0.737	1-1/2	38	7	5.2	7.74
81914/1-1007-OTC	-7	0.625	15.9	0.608	15.4	0.780	19.9	0.035	0.889	1-3/4	44	7	6.9	10.3
81914/1-1008-OTC	-8	0.750	19.1	0.730	18.5	0.975	24.8	0.035	0.889	1.88	48	6	10.4	15.5
81914/1-1009-OTC	-9	0.875	22.2	0.850	21.6	1.100	27.9	0.035	0.889	2-1/4	57	6	11.3	16.8
81914/1-1010-OTC	-10	1.000	25.4	0.975	24.8	1.260	32.0	0.035	0.889	2-1/2	64	4.5	12.6	18.8
81914/1-1011-OTC	-11	1.125	28.6	1.100	27.9	1.390	35.3	0.035	0.889	2-3/4	70	4.5	13.8	20.5
81914/1-1012-OTC	-12	1.250	31.8	1.210	30.7	1.539	39.1	0.035	0.889	3	76	4	15.5	23.1
81914/1-1013-OTC	-13	1.500	38.1	1.440	36.6	1.810	46.0	0.040	1.020	3.75	95	4	21.7	32.3
81914/1-1014-OTC	-14	1.750	44.5	1.690	42.9	2.100	53.3	0.045	1.140	4.25	108	4	25.3	37.6
81914/1-1015-OTC	-15	2.000	50.8	1.940	49.3	2.350	59.7	0.045	1.140	4.75	121	4	29	43.2

*PTFE convoluted tubing is provided in BLACK without cuffs direct from the factory. Black part numbers are designated with "OT" and Natural part numbers are designated with "NT" after the Mil Spec number (ie 81914/1-1014-OT).



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PVDF PRODUCTS

PVDF Smoothbore

Fractional Flex® Industrial Wall
Fractional Flex® Heavy Wall

Fractional SuperFlex® Industrial Wall
Fractional SuperFlex® Heavy Wall

PVDF (Polyvinylidene Fluoride)

Working Temperature: 265°F (130°C)
Color: Varies

- Very good chemical resistance
- Excellent resistance to creep and fatigue
- UV Resistant
- Weldable
- Exceptional corrosion resistance for chlorine, fluorine or bromine environments



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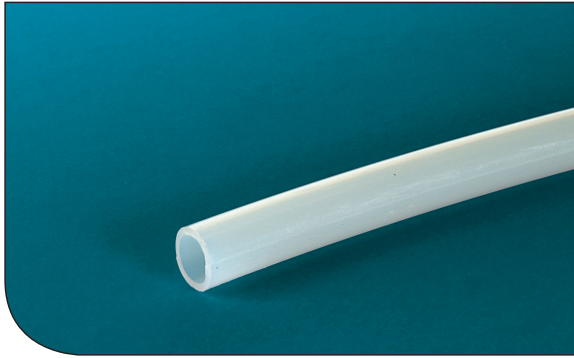
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PVDF Tubing Polyvinylidene Fluoride

Series PVDF Flex: 110, Series PVDF Super-Flex™: 111



Features

- Low extractable levels
- High mechanical strength
- Good chemical resistance
- High abrasion resistance
- Exceptional thermal stability
- Low permeability
- Self extinguishing
- Weather resistant

Certifications

- ASTM D3222
- FDA Compliant
- RoHS
- VW-1, UL-83

Applications/Markets



- Applications with long cycle life
- Gas
- Food
- Thermal cycling
- Outdoor/extreme conditions
- Water systems
- Ground water monitoring
- Fluid handling

Order Information

Example: 110-0312062-NT-100

110-0312062-NT-100 – PVDF Flex

110-**0312062**-NT-100 – **Tube O.D.** in inches (**5/16"**)

110-0312**062**-NT-100 – **Tube Wall Thickness** in inches (**.062"**)

110-0312062-**NT**-100 – **Natural**

110-0312062-**NT**-100 – **Bulk Tubing**

110-0312062-NT-**100** – **Package Quantity** in feet (**100'**)

Notes

- Working Temperature: -80°F to 265°F (-62°C to 130°C)
- Vacuum rating is 28 inHg at 73°F
- Working pressure calculated using a Design Factor of 4 at 73°F (23°C) (Actual performance may vary with different media and working conditions) Working pressure is reduced with rising temperature. This effect is more pronounced with 111 SuperFlex®. See example below.
- Custom packaging and sizes are quoted upon request

Fittings

Fittings available for sizes 1/8" up to 1"

Parker Fittings available from:
Fluid System Connectors Division
Otsego, MI

(269) 694-2550

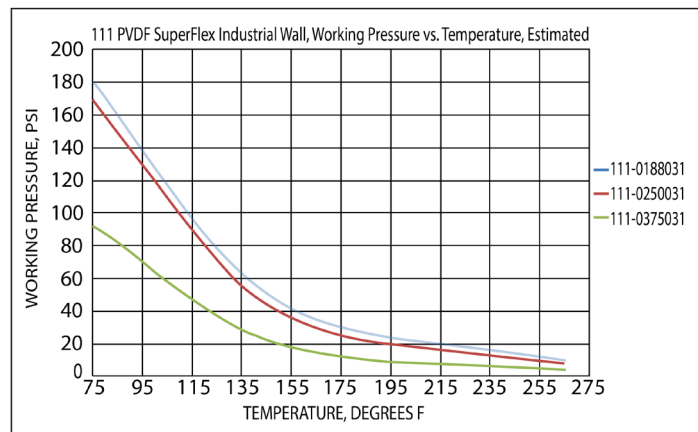
(269) 692-6634 FAX

FSC Product Families:

- Compression
- Compress-Align®
- TrueSeal™

Colors

- ○ Natural (off-white)



110 PVDF Flex™ Industrial Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
110-0125031	1/8	0.125	± 0.005	3.18	± 0.13	0.062	± 0.005	1.57	± 0.13	0.031	0.79	267	18.4	1068	73.6	0.500	13	28	0.007	0.011
110-0188031	3/16	0.188	± 0.005	4.78	± 0.13	0.125	± 0.005	3.18	± 0.13	0.031	0.79	180	12.4	720	49.6	0.750	19	28	0.012	0.018
110-0250031	1/4	0.250	± 0.005	6.35	± 0.13	0.188	± 0.005	4.78	± 0.13	0.031	0.79	170	11.7	680	46.8	1.000	25	28	0.016	0.025
110-0375031	3/8	0.375	± 0.005	9.52	± 0.13	0.312	± 0.005	7.92	± 0.13	0.031	0.79	92	6.34	459	31.6	2.500	64	28	0.026	0.039
110-0500031	1/2	0.500	± 0.005	12.70	± 0.13	0.438	± 0.005	11.13	± 0.13	0.031	0.79	83	5.7	332	22.9	4.000	102	28	0.035	0.053

110 PVDF Flex™ Heavy Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
110-0250047	1/4	0.250	± 0.005	6.35	± 0.13	0.156	± 0.005	3.96	± 0.13	.047	1.19	208	14.3	832	57.4	0.750	19	28	0.023	0.034
110-0250062	1/4	0.250	± 0.005	6.35	± 0.13	0.125	± 0.005	3.18	± 0.13	.062	1.57	330	22.8	1320	91.0	0.500	13	28	0.028	0.042
110-0312062	5/16	0.312	± 0.005	7.92	± 0.13	0.188	± 0.005	4.78	± 0.13	.062	1.57	224	15.4	896	61.8	0.875	22	28	0.038	0.056
110-0375062	3/8	0.375	± 0.005	9.52	± 0.13	0.250	± 0.005	6.35	± 0.13	.062	1.57	219	15.1	876	60.4	1.000	25	28	0.047	0.070
110-0500062	1/2	0.500	± 0.005	12.70	± 0.13	0.370	± 0.005	9.40	± 0.13	.062	1.57	169	11.7	676	46.6	2.000	51	28	0.066	0.098
110-0625062	5/8	0.625	± 0.005	15.88	± 0.13	0.500	± 0.005	12.70	± 0.13	.062	1.57	136	9.3	544	37.5	3.000	76	28	0.085	0.126
110-0750062	3/4	0.750	± 0.006	19.05	± 0.15	0.625	± 0.006	15.88	± 0.15	.062	1.57	114	7.9	456	31.4	6.000	152	28	0.103	0.154
110-1000062	1	1.000	± 0.010	25.40	± 0.25	0.875	± 0.008	22.22	± 0.25	.062	1.57	86	5.9	344	23.7	8.000	203	28	0.141	0.210

111 PVDF Super-Flex™ Industrial Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
111-0188031	3/16	0.188	± 0.005	4.78	± 0.13	0.125	± 0.005	3.18	± 0.13	0.031	0.79	180	12.4	720	50	0.750	19	28	0.012	0.018
111-0250031	1/4	0.250	± 0.005	6.35	± 0.13	0.188	± 0.005	4.78	± 0.13	0.031	0.79	170	11.7	680	47	0.750	19	28	0.016	0.025
111-0375031	3/8	0.375	± 0.005	9.53	± 0.13	0.312	± 0.005	7.92	± 0.13	0.031	0.79	93	6.4	372	26	2.500	64	28	0.026	0.039

111 PVDF Super-Flex™ Heavy Wall Fractional Size Tubing

Part Number	Order Size	Nominal O.D.				Nominal I.D.				Reference Wall		Working Pressure		Burst Pressure		Min. Bend Radius		Vac. Rating	Weight	
#																				
	inch	inch	tol.	mm	tol.	inch	tol.	mm	tol.	inch	mm	psi 73°F	bar 23°C	psi 73°F	bar 23°C	inch	mm	at 73°F	lb. per ft.	kg. per m.
111-0250062	1/4	0.250	± 0.005	6.35	± 0.13	0.125	± 0.005	3.18	± 0.13	0.062	1.57	330	22.8	1320	91	0.375	10	28	0.028	0.042
111-0375062	3/8	0.375	± 0.005	9.52	± 0.13	0.250	± 0.005	6.35	± 0.13	0.062	1.57	224	15.4	896	62	0.750	19	28	0.047	0.070
111-0500062	1/2	0.500	± 0.005	12.7	± 0.13	0.375	± 0.005	9.52	± 0.13	0.062	1.57	169	11.7	676	47	1.500	38	28	0.066	0.098

For detailed ordering information, please consult price list or contact Parker Texloc.

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ETFE PRODUCTS

ETFE Heat Shrink
1.5:1

ETFE Convoluted
SAE AS81914/5

ETFE (Ethylene Tetrafluoroethylene)

Working Temperature: 302°F (150°C)

Color: Clear

- Best abrasion resistance
- Chemically inert
- Excellent tear resistance
- Low permeability
- Superior impact strength to PTFE
- Excellent for cryogenic applications



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ETFE Industrial Wall Heat Shrink

Series HS1.5ETFE



Features

- Superior abrasion resistance
- Greater tensile strength than other heat shrink products
- Self extinguishing

Certifications

- AMS DTL 23053/14A, Class 1

Applications/Markets



- Wire splices
- Rollers
- Protective covering
- Robotics

Order Information

Example: HS1.5ETFE3/32-NC48.000

HS1.5ETFE3/32-NC48.000 – 1.5:1 Heat Shrink

HS1.5ETFE3/32-NC48.000 – ETFE

HS1.ETFE3/32-NC48.000 – Size in inch (0.094")

HS1.ETFE3/32-NC48.000 – Natural

HS1.5ETFE3/32-NC48.000 – Cut Tubing

HS1.5ETFE3/32-NC48.000 – Package Quantity in inch (48")

Notes

- Working Temperature: 302°F (150°C)
- Shrink Temperature
347°F (175°C) for 10 minutes
- *Dielectric Strength: $\geq 2,000$ V/M, per ASTM D 149 short term test of 10 MIL thickness (Volts/MIL)
- Heat Shrink tubing is available in stock packaging of 4-ft. straight lengths
- Minimum quantities may apply
- Custom packaging, sizes, lengths and colors are quoted upon request

Colors

- ○ Natural, Opaque to translucent
- Colors available as custom run, see color code table

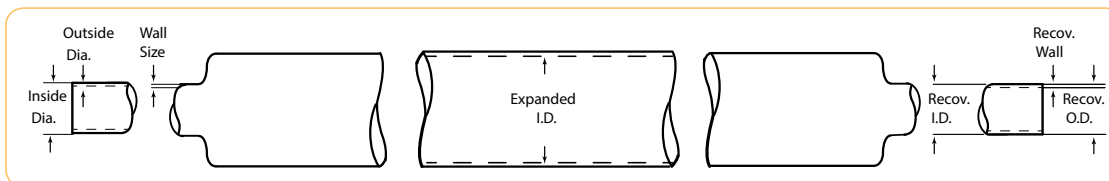
When ordering coiled tubing in colors, the color code is always followed by TC; when ordering cut lengths, the color code is followed by CC

ie HS1.ETFE3/32-2TC ie HS1.ETFE3/32-0CC48.0000

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

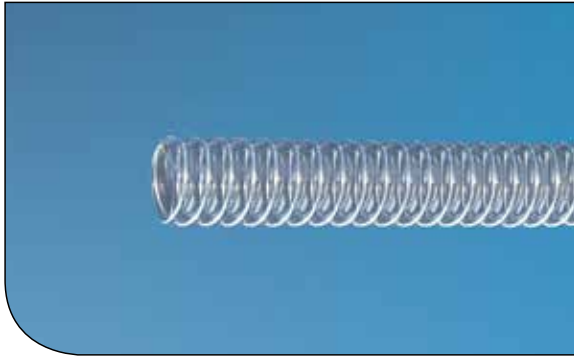
HS1.5ETFE HEAT SHRINK

Part Number	Size	Mil Spec*	Minimum Expanded I.D.		Maximum Recovered I.D.		Nominal Recovered Wall	
			inch	mm	inch	mm	inch	mm
HS1.5ETFE3/32	3/32	23053/14-001	0.093	2.36	0.062	1.57	0.010 ± 0.003	0.25 ± 0.08
HS1.5ETFE1/8	1/8	23053/14-002	0.125	3.18	0.083	2.11	0.010 ± 0.003	0.25 ± 0.08
HS1.5ETFE3/16	3/16	23053/14-003	0.188	4.78	0.125	3.18	0.011 ± 0.003	0.25 ± 0.08
HS1.5ETFE1/4	1/4	23053/14-004	0.250	6.35	0.166	4.22	0.013 ± 0.003	0.33 ± 0.08
HS1.5ETFE3/8	3/8	23053/14-005	0.375	9.52	0.250	6.35	0.013 ± 0.003	0.33 ± 0.08
HS1.5ETFE1/2	1/2	23053/14-006	0.500	12.7	0.345	8.76	0.013 ± 0.003	0.33 ± 0.08
HS1.5ETFE3/4	3/4	23053/14-007	0.750	19.1	0.500	12.7	0.018 ± 0.004	0.46 ± 0.10
HS1.5ETFE1.00	1	23053/14-008	1.000	25.4	0.665	16.9	0.022 ± 0.004	0.51 ± 0.10
HS1.5ETFE1.25	1-1/4	23053/14-009	1.250	31.8	0.835	21.2	0.030 ± 0.004	0.76 ± 0.10
HS1.5ETFE1.50	1-1/2	23053/14-010	1.500	38.1	1.000	25.4	0.030 ± 0.004	0.76 ± 0.10



ETFE Convuluted

Series SAE AS81914/6 and SAE AS81914/5



Features

- Chemically inert
- Increased abrasion resistance
- Low coefficient of friction
- Very flexible
- Self extinguishing
- Nonwetting

Certifications

- SAE AS81914/6
- SAE AS81914/5
- FDA Compliant

Applications/Markets



- Fluid Handling
- Harnesses
- Crush Resistant Cover
- Robotics

Order Information

Example: 81914/6-1006-NT

81914/6-1006-NT – SAE AS81914 Convuluted

81914/6-1006-NT – **ETFE**

81914/6-1006-NT – **Helical Convolutions**

81914/6-1006-NT – **Size (6=0.625")**

81914/6-1006-NT – **Color (N=Natural)**

81914/6-1006-NT – "T" is bulk - for cut tubing add length,
ie. 81914/6-1006-N1200 = .625" Convo, natural, cut 12" long

Colors

- ○ Translucent
- Colors available as custom run, see color code table

Color Code					
○	N	Natural	●	5	Green
●	0	Black	●	6	Blue
●	1	Brown	●	7	Violet
●	2	Red	●	8	Gray
●	3	Orange	○	9	White
●	4	Yellow			

Notes

- Working Temperature: 302°F (150°C)
- Tubing is provided in black without cuffs direct from inventory
- Stock packaging is random coils
- Also available in close convolution 81914/5
- Minimum quantities may apply
- Custom packaging, sizes, lengths, cuffs and colors are quoted upon request

ETFE Convoluted Tubing (SAE AS81914/6)

(Standard tubing is natural)

Part Number	MIL Spec*	Maximum Inside Diameter		Minimum Inside Diameter		Maximum Outside Diameter		Maximum Wall Thickness		Minimum Bend Radius		Pitch	Weight	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		lb./100 ft.	kg./100 mtr.
81914/6-1001-NT	-1	0.188	4.78	0.181	4.60	0.320	8.13	0.018	0.457	.500	31	8	1.2	1.79
81914/6-1002-NT	-2	0.281	7.14	0.273	6.93	0.414	10.5	0.018	0.457	.750	19	8	1.4	2.08
81914/6-1003-NT	-3	0.312	7.93	0.306	7.77	0.450	11.4	0.018	0.457	.750	19	8	1.5	2.23
81914/6-1004-NT	-4	0.375	9.53	0.359	9.12	0.510	13.0	0.018	0.457	.880	22	8	1.8	2.68
81914/6-1005-NT	-5	0.437	11.1	0.427	10.9	0.571	14.5	0.018	0.457	.880	22	8	2.5	3.72
81914/6-1006-NT	-6	0.500	12.7	0.485	12.3	0.650	16.5	0.023	0.584	1.250	32	7	3.2	4.76
81914/6-1007-NT	-7	0.625	15.9	0.608	15.4	0.770	19.6	0.023	0.584	1.500	38	7	3.9	5.8
81914/6-1008-NT	-8	0.750	19.1	0.730	18.5	0.930	23.6	0.023	0.584	1.750	44	6	4.9	7.29
81914/6-1009-NT	-9	0.875	22.2	0.860	21.8	1.073	27.3	0.023	0.584	2.000	51	5	5.6	8.33
81914/6-1010-NT	-10	1.000	25.4	0.975	24.8	1.226	31.1	0.023	0.584	2.370	60	5	6.8	10.12
81914/6-1011-NT	-11	1.125	28.6	1.105	28.1	1.390	35.3	0.023	0.584	2.370	60	5	7.5	11.16
81914/6-1012-NT	-12	1.250	31.8	1.205	30.7	1.539	39.1	0.023	0.584	2-.750	70	4	8.8	13.09
81914/6-1013-NT	-13	1.500	38.1	1.437	36.5	1.832	46.5	0.023	0.584	3.380	86	4	10.2	15.18
81914/6-1014-NT	-14	1.750	44.5	1.688	42.9	2.082	52.9	0.023	0.584	3.880	99	4	11.9	17.71
81914/6-1015-NT	-15	2.000	50.8	1.937	49.2	2.332	59.2	0.023	0.584	4.250	108	4	13.5	20.01

*ETFE convoluted tubing is provided in NATURAL without cuffs direct from the factory. Natural part numbers are designated with "NT" after the Mil Spec number (ie 81914/6-1014-NT)

[illegible]

TECHNICAL INFO

Property Quick Reference

Property Comparison Chart

Chemical Resistance Guide

Parker Safety Guide

Parker Offer of Sale

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Property Quick Reference

PFA
Tubing
A

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
- Nonwetting
- Good flexlife

PTFE
Tubing
B

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
- Nonwetting
- Excellent flexlife
- Laser markable

PTFE
Tubing
C

High Purity PFA (Perfluoroalkoxy)

Working Temperature: 500°F (260°C)

Color: Clear with light blue or tint

See characteristics of PFA with these additional features:

- Lowest level of extractables
- Highest molecular weight available
- Withstands corrosive surfactants for longer periods of time
- Higher flow
- Higher purity

PVDF
Tubing
D

PVDF (Polyvinylidene Fluoride)

Working Temperature: 265°F (130°C)

Color: Varies

- Very good chemical resistance
- Excellent resistance to creep and fatigue
- UV Resistant
- Weldable
- Exceptional corrosion resistance for chlorine, fluorine, or bromine environments

ETFE
Tubing
E

FEP (Fluorinated Ethylene Propylene)

Working Temperature: 400°F (204°C)

Color: Clear

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

ETFE (Ethylene Tetrafluoroethylene)

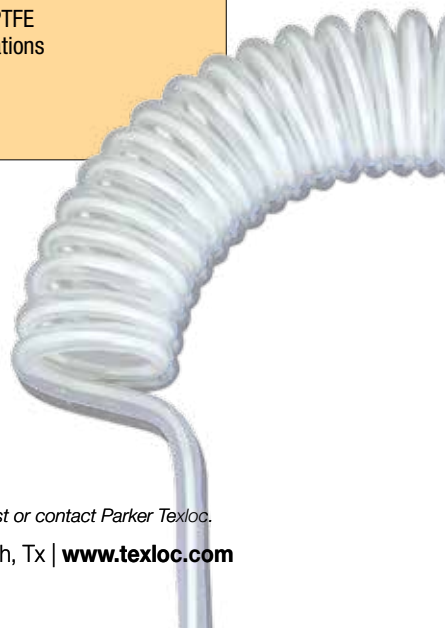
Working Temperature: 302°F (150°C)

Color: Clear

- Best abrasion resistance
- Chemically inert
- Excellent tear resistance
- Low permeability
- Superior impact strength to PTFE
- Excellent for cryogenic applications

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Property Comparison

The table below lists a generally accepted summary of properties that we believe to be reliable. Please note that many of these resins are produced in several varieties and property characteristics may vary. Therefore, determination of resin is dependent on the application and this table is only meant to serve as a general guideline.

Properties*	ASTM or Unit	PTFE	FEP	PFA	High Purity PFA	PVDF	ETFE
MECHANICAL PROPERTIES							
Specific Gravity	D792 D3307	2.13-2.22 -	2.12-2.17 -	2.12-2.17 -	- 2.14-2.16	1.76-1.82 -	1.74 -
Elongation %	D638 D3307	200-450 -	250-330 -	280-400 -	- 370	100-800 -	430 -
Tensile Strength (psi)	D638(psi) D3307(psi)	2500 -	3400 -	3600 -	- 3600	3200 -	5000 -
Flexural Strength (psi)	D790	no break	no break	no break	no break	1500-5000	5500
Compressive Strength (psi)	D695	700-900	725-2200	725-810	na	2000-6000	2500
Tensile Elastic Modulus (Young's Modulus) (psi)	D638	57,000 -	50,000 -	72,500-87,000	na	35,000-220,000	116,030
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 -	90,000-168,000 280,00-110,000	130,534 - -
Flex Life (MIT cycles)	D2176	>1,000,000	5,000-80,000	10,000-500,000	2000 x 10 ³	na	na
Hardness Durometer Shore D	D2240	D50-65	D55	D55-D60	D60	D55-D75	D67
Coefficient of Friction	(on steel)	0.02	0.05	0.04-0.06	0.05	0.33-0.49	0.20
Abrasion Resistance 1000 cycles	Taber	8-90	14-20	0.00-96.75	na	16-33	0.005
Impact Strength IZOD. 73°F/23°C notched ft/lbs/in	D256	3	no break	no break	no break	4	no break
THERMAL PROPERTIES							
Melting Point	°C °F	327 621	260 500	305 582	305 582	125 257	260 500
Upper Service Temperature(20000h)	°C °F	260 500	204 400	260 500	260 500	130 260	180 356
Flammability	UL 94	V-0	V-0	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	1.00-1.25	1.65
Thermal Conductivity Cal-cm/sec-cm ² , °C		6 x 10 ⁻⁴	6 x 10 ⁻⁴	6 x 10 ⁻⁶	na	na	5.7 x 10 ⁻⁴
Linear Coefficient of Thermal Expansion Min/in°F 73.4-140°F	D696	55.6	46.1-58.3	66.7	na	7.00-10.8	9.4 (10 ⁻⁵ /°C)
Heat of Fusion	BTU/LB	29-37	4-35	13	na	0.28-0.36	20
Heat of Combustion	BTU/LB °F	2200	2200	2300	na	na	8100
Low Temperature Embrittlement	°C °F	-268 -450	-268 -450	-268 -450	-268 -450	-62 -80	-76 -105
ELECTRICAL PROPERTIES							
Dielectric Constant	D150/10 ³ Hz D150/10 ⁶ Hz	2.1 2.1	2.1 2.1	2.1 2.1	2.1 2.1	3.5 10.6	2.6
Dielectric Strength	D149/125 MIL D149/10 MIL	500 ≥1400	508 ≥610	500 ≥1400	500 - 600 na	0.8 1.5	na
Volume Resistivity	D257/ohm-cm	>10 ¹⁸	>10 ¹⁸	>10 ¹⁸	na	2 x 10 ¹⁴	10 ¹⁷
Surface Resistivity	D257/ohm-cm	>10 ¹⁸	>10 ¹⁷	>10 ¹⁷	na	5 x 10 ¹⁴	>10 ¹⁵
GENERAL PROPERTIES							
Chemical/Solvent Resistance	D543	Excellent	Excellent	Excellent	Excellent	Very Good	Excellent
Refractive Index		1.35	1.338	1.34	1.34	1.42	1.447
Limiting Oxygen Index, %	D2868	>95	>95	≥95	na	42/75 ²	31
Water Contact Angle	Angle to Level	110	114	115	na	92	na
Water Absorption 24h,%	D570	<0.01	<0.01	<0.03	<0.01	0.03-0.05	0.03
Weatherability		Excellent	Excellent	Excellent	Excellent	Excellent	Excellent

*General resin properties; Tubing properties may vary.

Working pressures are at 73°F (23°C). Pressure ratings are also effected by diameter of tubing and wall thickness. Actual performance may vary with different media and working conditions. Use this information for comparison only.

For detailed ordering information, please consult price list or contact Parker Texloc.

Parker Hannifin Corporation | Parflex® Division, TexLoc | Fort Worth, Tx | www.texloc.com



F03

PFA
Tubing
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Chemical Resistance Guide

PTFE, FEP, PFA Chemical Resistance Guide

This chart is intended to be used as a general guide only. Since each pair of ratings listed is for ideal conditions, all factors affecting chemical resistance must be considered. **First letter of each pair applies to conditions at 68°F/20°C, the second to those at 122°F/50°C.**

Chemical	LDPE	HDPE	PP/PA	PMP	FEP PFA PTFE	PC	PVC	PSF
Acetaldehyde	GN	GF	GN	GN	EE	FN	GN	NN
Acetamide, Sat.	EE	EE	EE	EE	EE	NN	NN	NN
Acetic Acid, 5%	EE	EE	EE	EE	EE	EG	EE	EE
Acetic Acid, 50%	EE	EE	EE	EE	EE	EG	EG	GG
Acetone	EE	EE	EE	EE	EE	NN	NN	NN
Acetonitrile	EE	EE	FN	FN	EE	NN	NN	NN
Acrylonitrile	EE	EE	FN	FN	EE	NN	NN	NN
Adipic Acid	EG	EE	EE	EE	EE	EE	GG	EG
Alanine	EE	EE	EE	EE	EE	NN	NN	NN
Allyl Alcohol	EE	EE	EE	EE	EE	GF	GF	GF
Aluminum Hydroxide	EG	EE	EG	EG	EE	FN	EG	GG
Aluminum Salts	EE	EE	EE	EE	EE	EG	EE	EE
Amino Acids	EE	EE	EE	EE	EE	EE	EE	EE
Ammonia	EE	EE	EE	EE	EE	NN	EG	GF
Ammonium Acetate, Sat.	EE	EE	EE	EE	EE	EE	EE	EE
Ammonium Glycolate	EG	EE	EG	EG	EE	GF	EE	GG
Ammonium Hydroxide, 5%	EE	EE	EE	EE	EE	FN	EE	GG
Ammonium, Hydroxide, 30%	EG	EE	EG	EG	EE	NN	EG	GG
Ammonium Oxalate	EG	EE	EG	EG	EE	EE	EE	EE
Ammonium Salts	EE	EE	EE	EE	EE	EG	EG	EE
n-Amyl Acetate	GF	EG	GF	GF	EE	NN	NN	NN
Amyl Chloride	NN	FN	NN	NN	EE	NN	NN	NN
Aniline	EG	EG	GF	GF	EE	FN	NN	NN
Benzaldehyde	EG	EE	EG	EG	EE	FN	NN	FF
Benzene	FN	GG	GF	GF	EE	NN	NN	NN
Benzoic Acid, Sat.	EE	EE	EG	EG	EE	EG	EG	FF
Benzyl Acetate	EG	EE	EG	EG	EE	FN	NN	NN
Benzyl Alcohol	NN	FN	NN	NN	EE	GF	GF	NN
Bromine	NN	FN	NN	NN	EE	FN	GN	NN
Bromobenzene	NN	FN	NN	NN	EE	NN	NN	NN
Bromoform	NN	NN	NN	NN	EE	NN	NN	NN
Butadiene	NN	FN	NN	NN	EE	NN	FN	NN
n-Butyl Acetate	GF	EG	GF	GF	EE	NN	NN	NN
n-Butyl Alcohol	EE	EE	EE	EG	EE	GF	GF	GF
sec-Butyl Alcohol	EG	EE	EG	EG	EE	GF	GG	GF
tert-Butyl Alcohol	EG	EE	EG	EG	EE	GF	EG	GF
Butyric Acid	NN	FN	NN	NN	EE	FN	GN	GG
Calcium Hydroxide, Conc.	EE	EE	EE	EE	EE	NN	EE	GG
Calcium Hypochlorite, Sat.	EE	EE	EE	EG	EE	FN	GF	EE
Carbazole	EE	EE	EE	EE	EE	NN	NN	NN
Carbon Disulfide	NN	NN	NN	NN	EE	NN	NN	NN
Carbon Tetrachloride	FN	GF	GF	NN	EE	NN	GF	NN
Cedarwood Oil	NN	FN	NN	NN	EE	GF	FN	FF
Cellosolve Acetate	EG	EE	EG	EG	EE	FN	FN	NN
Chlorine, 10% in Air	GN	EF	GN	GN	EE	EG	EE	NN
Chlorine, 10% (Moist)	GN	GF	FN	GN	EE	GF	EG	NN
Chloroacetic Acid	EE	EE	EG	EG	EE	FN	FN	NN
p-Chloroacetophenone	EE	EE	EE	EE	EE	NN	NN	NN
Chloroform	FN	GF	GF	NN	EE	NN	NN	NN
Chromic Acid, 10%	EE	EE	EE	EE	EE	GF	EG	NN
Chromic Acid, 50%	EE	EE	GF	GF	EE	FN	EF	NN
Cinnamon Oil	NN	FN	NN	NN	EE	GF	NN	FF
Citric Acid, 10%	EE	EE	EE	EE	EE	EG	GG	EE
Cresol	NN	FN	GF	NN	EE	NN	NN	NN
Cyclohexane	FN	FN	FN	NN	EE	EG	GF	NN
Decalin	GF	EG	GF	FN	EE	NN	EG	NN
o-Dichlorobenzene	FN	FF	FN	FN	EE	NN	NN	NN
p-Dichlorobenzene	FN	GF	GF	GF	EE	NN	NN	NN
Diethyl Benzene	NN	FN	NN	NN	EE	FN	NN	NN
Diethyl Ether	NN	FN	NN	NN	EE	NN	FN	NN

LDPE = Low Density Polyethylene
HDPE = High Density Polyethylene
PP/PA = Polypropylene/Polyallomer
PMP = Polymethylpentene

FEP
PFA
PTFE = Fluoroplastics / Fluoropolymers

PC = Polycarbonate
PVDC = Polyvinylchloride
PSF = Polysulfone

E = Excellent
F = Fair
G = Good
N = Not recommended

Chemical Resistance Guide (cont.)

PTFE, FEP, PFA Chemical Resistance Guide

This chart is intended to be used as a general guide only. Since each pair of ratings listed is for ideal conditions, all factors affecting chemical resistance must be considered. *First letter of each pair applies to conditions at 68°F/20°C, the second to those at 122°F/50°C.*

Chemical	LDPE	HDPE	PP/PA	PMP	FEP PFA PTFE	PC	PVC	PSF
Diethyl Ketone	GF	GG	GG	GF	EE	NN	NN	NN
Diethyl Malonate	EE	EE	EE	EG	EE	FN	GN	FF
Diethylene Glycol	EE	EE	EE	EE	EE	GF	FN	GG
Diethylene Glycol Ethyl Ether	EE	EE	EE	EE	EE	FN	FN	FF
Dimethyl Formamide	EE	EE	EE	EE	EE	NN	FN	NN
Dimethylsulfoxide	EE	EE	EE	EE	EE	NN	NN	NN
1,4-Dioxane	GF	GG	GF	GF	EE	GF	FN	GF
Dipropylene Glycol	EE	EE	EE	EE	EE	GF	GF	GG
Ether	NN	FN	NN	NN	EE	NN	FN	NN
Ethyl Acetate	EE	EE	EE	EG	EE	NN	NN	NN
Ethyl Alcohol (absolute)	EG	EE	EG	EG	EE	EG	EG	EG
Ethyl Alcohol, 40%	EG	EE	EG	EG	EE	EG	EE	EG
Ethyl Benzene	FN	GF	FN	FN	EE	NN	NN	NN
Ethyl Benzoate	FF	GG	GF	GF	EE	NN	NN	NN
Ethyl Butyrate	GN	GF	GN	FN	EE	NN	NN	NN
Ethyl Chloride	FN	FF	FN	FN	EE	NN	NN	NN
Ethyl Cyanoacetate	EE	EE	EE	EE	EE	FN	FN	FF
Ethyl Lactate	EE	EE	EE	EE	EE	FN	FN	FF
Ethylene Chloride, Liquid	GN	GF	FN	NN	EE	NN	NN	NN
Ethylene Glycol	EE	EE	EE	EE	EE	GF	EE	EE
Ethylene Glycol Methyl Ether	EE	EE	EE	EE	EE	FN	FN	FF
Ethylene Oxide	FF	GF	FF	FN	EE	FN	FN	EE
Fluorides	EE	EE	EE	EE	EE	EE	EE	EE
Fluorine	FN	GN	FN	FN	EG	GF	EG	NN
Formaldehyde, 10%	EE	EE	EE	EG	EE	EG	GF	GF
Formaldehyde, 40%	EG	EE	EG	EG	EE	EG	GF	GF
Formic Acid, 3%	EG	EE	EG	EG	EE	EG	GF	GG
Formic Acid, 50%	EG	EE	EG	EG	EE	EG	GF	GG
Formic Acid, 98-100%	EG	EE	EG	EF	EE	EF	FN	FF
Fuel Oil	FN	GF	EG	GF	EE	EG	EE	EG
Gasoline	FN	GG	GF	GF	EE	FF	GN	FF
Glacial Acetic Acid	EG	EE	EG	EG	EE	NN	EG	FN
Glycerin	EE	EE	EE	EE	EE	EE	EE	EE
n-Heptane	FN	GF	FF	FF	EE	EG	GF	EG
Hexane	NN	GF	GF	FN	EE	FN	GN	EG
Hydrochloric Acid, 1-5%	EE	EE	EE	EG	EE	EE	EE	EE
Hydrochloric Acid, 20%	EE	EE	EE	EG	EE	GF	EG	EE
Hydrochloric Acid, 35%	EE	EE	EG	EG	EE	NN	GF	EE
Hydrofluoric Acid, 4%	EG	EE	EG	EG	EE	GF	GF	GF
Hydrofluoric Acid, 48%	EE	EE	EE	EE	EE	NN	GF	FN
Hydrogen Peroxide, 3%	EE	EE	EE	EE	EE	EE	EE	EE
Hydrogen Peroxide, 30%	EG	EE	EG	EG	EE	EE	EE	EE
Hydrogen Peroxide, 90%	EG	EE	EG	EG	EE	EE	EG	EE
Isobutyl Alcohol	EE	EE	EE	EG	EE	EG	EG	EG
Isopropyl Acetate	GF	EG	GF	GF	EE	NN	NN	NN
Isopropyl Alcohol	EE	EE	EE	EE	EE	EE	EG	EE
Isopropyl Benzene	FN	GF	FN	NN	EE	NN	NN	NN
Kerosene	FN	GG	GF	GF	EE	EE	EE	GF
Lactic Acid, 3%	EG	EE	EG	EG	EE	EG	GF	EE
Lactic Acid, 85%	EE	EE	EG	EG	EE	EG	GF	EE
Methoxyethyl Oleate	EG	EE	EG	EG	EE	FN	NN	NN
Methyl Alcohol	EE	EE	EE	EE	EE	GF	EF	GF
Methyl Ethyl Ketone	EG	EE	EG	NN	EE	NN	NN	NN
Methyl Isobutyl Ketone	GF	EG	GF	FF	EE	NN	NN	NN
Methyl Propyl Ketone	GF	EG	GF	FF	EE	NN	NN	NN
Methylene Chloride	FN	GF	FN	FN	EE	NN	NN	NN
Mineral Oil	GN	EE	EE	EG	EE	EG	EG	EE
Nitric Acid, 1-10%	EE	EE	EE	EE	EE	EG	EG	EF
Nitric Acid, 50%	GG	GN	FN	GN	EE	GF	GF	GF
Nitric Acid, 70%	FN	GN	NN	GF	EE	NN	FN	NN

For detailed ordering information, please consult price list or contact Parker Texloc.

Chemical Resistance Guide (cont.)

PTFE, FEP, PFA Chemical Resistance Guide

This chart is intended to be used as a general guide only. Since each pair of ratings listed is for ideal conditions, all factors affecting chemical resistance must be considered. *First letter of each pair applies to conditions at 68°F/20°C, the second to those at 122°F/50°C.*

Chemical	LDPE	HDPE	PP/PA	PMP	FEP PFA PTFE	PC	PVC	PSF
Nitrobenzene	NN	FN	NN	NN	EE	NN	NN	NN
n-Octane	EE	EE	EE	EE	EE	GF	FN	GF
Orange Oil	FN	GF	GF	FF	EE	FF	FN	FF
Ozone	EG	EE	EG	EE	EE	EG	EG	EE
Perchloric Acid	GN	GN	GN	GN	GF	NN	GN	NN
Perchloroethylene	NN	NN	NN	NN	EE	NN	NN	NN
Phenol, Crystals	GN	GF	GN	FG	EE	EN	FN	FF
Phosphoric Acid, 1-5%	EE	EE	EE	EE	EE	EE	EE	EE
Phosphoric Acid, 85%	EE	EE	EG	EG	EE	EE	EG	EE
Pine Oil	GN	EG	EG	GF	EE	GF	FN	FF
Potassium Hydroxide, 1%	EE	EE	EE	EE	EE	FN	EE	EE
Potassium Hydroxide, Conc.	EE	EE	EE	EE	EE	NN	EG	EE
Propane Gas	NN	FN	NN	NN	EE	FN	EG	FF
Propylene Glycol	EE	EE	EE	EE	EE	GF	FN	GG
Propylene Oxide	EG	EE	EG	EG	EE	GF	FN	GG
Resorcinol, Sat.	EE	EE	EE	EE	EE	GF	FN	NN
Resorcinol, 5%	EE	EE	EE	EE	EE	GF	GN	NN
Salicylaldehyde	EG	EE	EG	EG	EE	GF	FN	FF
Salicylic Acid, Powder	EE	EE	EE	EG	EE	EG	GF	EE
Salicylic Acid, Sat.	EE	EE	EE	EE	EE	EG	GF	EE
Salt Solutions, Metallic	EE	EE	EE	EE	EE	EE	EE	EE
Silver Acetate	EE	EE	EE	EE	EE	EG	GG	EE
Silver Nitrate	EG	EE	EG	EE	EE	EE	EG	EE
Sodium Acetate, Sat.	EE	EE	EE	EE	EE	EG	GF	EE
Sodium Hydroxide, 1%	EE	EE	EE	EE	EE	FN	EE	EE
Sodium Hydroxide, 50% to Sat.	GG	EE	EE	EE	EE	NN	NN	EG
Sodium Hypochlorite, 15%	EE	EE	EE	EE	EE	GF	EE	EE
Stearic Acid, Crystals	EE	EE	EE	EE	EE	EG	EG	GG
Sulfuric Acid, 1-6%	EE	EE	EE	EE	EE	EE	EG	EE
Sulfuric Acid, 20%	EE	EE	EG	EG	EE	EG	EG	EE
Sulfuric Acid, 60%	EG	EE	EG	EG	EE	GF	EG	EE
Sulfuric Acid, 98%	GG	GG	FN	GG	EE	NN	GN	NN
Sulfuric Dioxide, Liq., 46psi	NN	FN	NN	NN	EE	GN	FN	GG
Sulfuric Dioxide, wet or dry	EE	EE	EE	EE	EE	EG	EG	GG
Sulfur Salts	FN	GF	FN	FN	EE	FN	NN	GG
Tartaric Acid	EE	EE	EE	EE	EE	EG	EG	EE
Tetrahydrofuran	FN	GF	GF	FF	EE	NN	NN	NN
Thionyl Chloride	NN	NN	NN	NN	EE	NN	NN	NN
Toluene	FN	GG	GF	FF	EE	FN	NN	NN
Tributyl Citrate	GF	EG	GF	GF	EE	NN	FN	FF
Trichloroethane	NN	FN	NN	NN	EE	NN	NN	NN
Trichloroethylene	NN	FN	NN	NN	EE	NN	NN	NN
Triethylene Glycol	EE	EE	EE	EE	EE	EG	GF	EE
Tripropylene Glycol	EE	EE	EE	EE	EE	EG	GF	EE
Turpentine	FN	GG	GF	FF	EE	FN	GF	NN
Undecyl Alcohol	EF	EG	EG	EG	EE	GF	EF	FF
Urea	EE	EE	EE	EG	EE	NN	GN	NN
Vinylidene Chloride	NN	FN	NN	NN	EE	NN	NN	NN
Xylene	GN	GF	FN	FN	EE	NN	NN	NN
Zinc Stearate	EE	EE	EE	EE	EE	EE	EG	EE

FEP
PFA
PTFE

= Fluoroplastics / Fluoropolymers

PC
PVDC
PSF

= Polycarbonate
= Polyvinylchloride
= Polysulfone

E
F
G
N

= Excellent
= Fair
= Good
= Not recommended

LDPE
HDPE
PP/PA
PMP

= Low Density Polyethylene
= High Density Polyethylene
= Polypropylene/Polyallomer
= Polymethylpentene



Parker Hannifin Corporation | Parflex® Division, TexLoc | Fort Worth, Tx | www.texloc.com

Parker Safety Guide

For selecting and using Hose, Tubing, Fittings, and Related Accessories



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

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WARNING: Failure or improper selection or improper use of hose, tubing, fittings, assemblies 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.
- 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. Only Hose from Parker's Stratoflex Products Division is approved for in flight aerospace applications.

1.0 GENERAL INSTRUCTIONS

1.1 Scope: This safety guide provides instructions for selecting and using (including assembling, installing, and maintaining) these Products. For convenience, all rubber and/or thermoplastic products commonly called "hose" or "tubing" are called "Hose" in this safety guide. All assemblies made with Hose are called "Hose Assemblies". All products commonly called "fittings", "couplings" or "adapters" are called "Fittings". All related accessories (including crimping and swaging machines and tooling) are called "Related Accessories". This safety guide is a supplement to and is to be used with the specific Parker publications for the specific Hose, Fittings and Related Accessories that are being considered for use. Parker publications are available at www.parker.com. SAE J1273 (www.sae.org) and ISO 17165 2 (www.ansi.org) also provide recommended practices for hydraulic Hose Assemblies.

1.2 Fail-Safe: Hose, Hose Assemblies and Fittings can and do fail without warning for many reasons. Design all systems and equipment in a fail safe mode, so that failure of the Hose, Hose Assembly or Fitting will not endanger persons or property.

1.3 Distribution: Provide a copy of this safety guide to each person responsible for selecting or using Hose and Fitting products. Do not select or use Parker Hose or Fittings without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the Products.

1.4 User Responsibility: Due to the wide variety of operating conditions and applications for Hose and Fittings, Parker does not represent or warrant that any particular Hose or Fitting is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the Products.
- Assuring that the user's requirements are met and that the application presents no health or safety hazards.
- Providing all appropriate health and safety warnings on the equipment on which the Products are used.
- Assuring compliance with all applicable government and industry standards.

1.5 Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the Products being considered or used, or call 1 800 CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2.0 HOSE AND FITTING SELECTION INSTRUCTIONS

2.1 Electrical Conductivity: Certain applications require that the Hose be nonconductive to prevent electrical current flow. Other applications require the Hose and the Fittings and the Hose/Fitting interface to be sufficiently conductive to drain off static electricity. Extreme care must be exercised

when selecting Hose and Fittings for these or any other applications in which electrical conductivity or nonconductivity is a factor.

The electrical conductivity or nonconductivity of Hose and Fittings is dependent upon many factors and may be susceptible to change. These factors include but are not limited to the various materials used to make the Hose and the Fittings, Fitting finish (some Fitting finishes are electrically conductive while others are nonconductive), manufacturing methods (including moisture control), how the Fittings contact the Hose, age and amount of deterioration or damage or other changes, moisture content of the Hose at any particular time, and other factors.

The following are considerations for electrically nonconductive and conductive Hose. For other applications consult the individual catalog pages and the appropriate industry or regulatory standards for proper selection.

2.1.1 Electrically Nonconductive Hose: Certain applications require that the Hose be nonconductive to prevent electrical current flow or to maintain electrical isolation. For applications that require Hose to be electrically nonconductive, including but not limited to applications near high voltage electric lines, only special nonconductive Hose can be used. The manufacturer of the equipment in which the nonconductive Hose is to be used must be consulted to be certain that the Hose and Fittings that are selected are proper for the application. Do not use any Parker Hose or Fittings for any such application requiring nonconductive Hose, including but not limited to applications near high voltage electric lines, unless (i) the application is expressly approved in the Parker technical publication for the product, (ii) the Hose is marked "nonconductive", and (iii) the manufacturer of the equipment on which the Hose is to be used specifically approves the particular Parker Hose and Fittings for such use.

2.1.2 Electrically Conductive Hose: Parker manufactures special Hose for certain applications that require electrically conductive Hose.

Parker manufactures special Hose for conveying paint in airless paint spraying applications. This Hose is labeled "Electrically Conductive Airless Paint Spray Hose" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in all airless paint spraying applications. Do not use any other Hose for airless paint spraying, even if electrically conductive. Use of any other Hose or failure to properly connect the Hose can cause a fire or an explosion resulting in death, personal injury, and property damage.

Parker manufactures a special Hose for certain compressed natural gas ("CNG") applications where static electricity buildup may occur. Parker CNG Hose assemblies comply with the requirements of ANSI/IAS NGV 4.2-1999; CSA 12.52-M99, "Hoses for Natural Gas Vehicles and Dispensing Systems" (www.ansi.org). This Hose is labeled "Electrically Conductive for CNG Use" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in, for example, high velocity

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CNG dispensing or transfer. Do not use any other Hose for CNG applications where static charge buildup may occur, even if electrically conductive. Use of other Hoses in CNG applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury, and property damage. Care must also be taken to protect against CNG permeation through the Hose wall. See section 2.6, Permeation, for more information. Parker CNG Hose is intended for dispenser and vehicle use at a maximum temperature of 180°F (82°C). Parker CNG Hose should not be used in confined spaces or unventilated areas or areas exceeding 180°F (82°C). Final assemblies must be tested for leaks. CNG Hose Assemblies should be tested on a monthly basis for conductivity per ANSI/IAS NGV 4.2-1999; CSA 12.52-M99.

Parker manufactures special Hose for aerospace in flight applications. Aerospace in flight applications employing Hose to transmit fuel, lubricating fluids and hydraulic fluids require a special Hose with a conductive inner tube. This Hose for in flight applications is available only from Parker's Stratoflex Products Division. Do not use any other Parker Hose for in flight applications, even if electrically conductive. Use of other Hoses for in flight applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury and property damage. These Hose assemblies for in flight applications must meet all applicable aerospace industry, aircraft engine and aircraft requirements.

2.2 Pressure: Hose selection must be made so that the published maximum working pressure of the Hose and Fittings are equal to or greater than the maximum system pressure. The maximum working pressure of a Hose Assembly is the lower of the respective published maximum working pressures of the Hose and the Fittings used. Surge pressures or peak transient pressures in the system must be below the published maximum working pressure for the Hose. Surge pressures and peak pressures can usually only be determined by sensitive electrical instrumentation that measures and indicates pressures at millisecond intervals. Mechanical pressure gauges indicate only average pressures and cannot be used to determine surge pressures or peak transient pressures. Published burst pressure ratings for Hose is for manufacturing test purposes only and is no indication that the Product can be used in applications at the burst pressure or otherwise above the published maximum recommended working pressure.

2.3 Suction: Hoses used for suction applications must be selected to insure that the Hose will withstand the vacuum and pressure of the system. Improperly selected Hose may collapse in suction application.

2.4 Temperature: Be certain that fluid and ambient temperatures, both steady and transient, do not exceed the limitations of the Hose. Temperatures below and above the recommended limit can degrade Hose to a point where a failure may occur and release fluid. Properly insulate and protect the Hose Assembly when routing near hot objects (e.g. manifolds). Do not use any Hose in any application where failure of the Hose could result in the conveyed fluids (or vapors or mist from the conveyed fluids) contacting any open flame, molten metal, or other potential fire ignition source that could cause burning or explosion of the conveyed fluids or vapors.

2.5 Fluid Compatibility: Hose Assembly selection must assure compatibility of the Hose tube, cover, reinforcement, and Fittings with the fluid media used. See the fluid compatibility chart in the Parker publication for the product being considered or used. This information is offered only as a guide. Actual service life can only be determined by the end user by testing under all extreme conditions and other analysis. Hose that is chemically compatible with a particular fluid must be assembled using Fittings and adapters containing likewise compatible seals.

2.6 Permeation: Permeation (that is, seepage through the Hose) will occur from inside the Hose to outside when Hose is used with gases, liquid and gas fuels, and refrigerants (including but not limited to such materials as helium, diesel fuel, gasoline, natural gas, or LPG). This permeation may result in high concentrations of vapors which are potentially flammable, explosive, or toxic, and in loss of fluid. Dangerous explosions, fires, and other hazards can result when using the wrong Hose for such applications. The system designer must take into account the fact that this permeation will take place and must not use Hose if this permeation could be hazardous. The system designer must take into account all legal, government, insurance, or any other special regulations which govern the use of fuels and refrigerants. Never use a Hose even though the fluid compatibility is acceptable without considering the potential hazardous effects that can result from permeation through the Hose Assembly.

Permeation of moisture from outside the Hose to inside the Hose will also occur in Hose assemblies, regardless of internal pressure. If this moisture permeation would have detrimental effects (particularly, but not limited to refrigeration and air conditioning systems), incorporation of sufficient drying capacity in the system or other appropriate system safeguards should be selected and used.

2.7 Size: Transmission of power by means of pressurized fluid varies with pressure and rate of flow. The size of the components must be adequate to keep pressure losses to a minimum and avoid damage due to heat generation or excessive fluid velocity.

2.8 Routing: Attention must be given to optimum routing to minimize inherent problems (kinking or flow restriction due to Hose collapse, twisting of the Hose, proximity to hot objects or heat sources). For additional routing recommendations see SAE J1273 and ISO 17165-2. Hose Assemblies have a finite life and if possible, should be installed in a manner that allows for ease of inspection and future replacement. Rubber Hose because of its relative short life, should not be used in residential and commercial buildings for HVAC (heating, ventilating and air conditioning) applications.

2.9 Environment: Care must be taken to insure that the Hose and Fittings are either compatible with or protected from the environment (that is, surrounding conditions) to which they are exposed. Environmental conditions including but not limited to ultraviolet radiation, sunlight, heat, ozone, moisture, water, salt water, chemicals and air pollutants can cause degradation and premature failure.

2.10 Mechanical Loads: External forces can significantly reduce Hose life or cause failure. Mechanical loads which must be considered include excessive flexing, twist, kinking, tensile or side loads, bend radius, and vibration. Use of swivel type Fittings or adapters may be required to insure no twist is put into the Hose. Unusual applications may require special testing prior to Hose selection.

2.11 Physical Damage: Care must be taken to protect Hose from wear, snagging, kinking, bending smaller than minimum bend radius and cutting, any of which can cause premature Hose failure. Any Hose that has been kinked or bent to a radius smaller than the minimum bend radius, and any Hose that has been cut or is cracked or is otherwise damaged should be removed and discarded.

2.12 Proper End Fitting: See instructions 3.2 through 3.5. These recommendations may be substantiated by testing to industry standards such as SAE J517 for hydraulic applications, or MIL-A-5070, AS1339, or AS3517 for Hoses from Parker's Stratoflex Products Division for aerospace applications.

2.13 Length: When establishing a proper Hose length, motion absorption, Hose length changes due to pressure, and Hose and machine tolerances and movement must be considered.

2.14 Specifications and Standards: When selecting Hose and Fittings, government, industry, and Parker specifications and recommendations must be reviewed and followed as applicable.

2.15 Hose Cleanliness: Hose components may vary in cleanliness levels. Care must be taken to insure that the Hose Assembly selected has an adequate level of cleanliness for the application.

2.16 Fire Resistant Fluids: Some fire resistant fluids that are to be conveyed by Hose require use of the same type of Hose as used with petroleum base fluids. Some such fluids require a special Hose, while a few fluids will not work with any Hose at all. See instructions 2.5 and 1.5. The wrong Hose may fail after a very short service. In addition, all liquids but pure water may burn fiercely under certain conditions, and even pure water leakage may be hazardous.

2.17 Radiant Heat: Hose can be heated to destruction without contact by such nearby items as hot manifolds or molten metal. The same heat source may then initiate a fire. This can occur despite the presence of cool air around the Hose.

2.18 Welding or Brazing: When using a torch or arc welder in close proximity to hydraulic lines, the hydraulic lines should be removed or shielded with appropriate fire resistant materials. Flame or weld spatter could burn through the Hose and possibly ignite escaping fluid resulting in a catastrophic failure. Heating of plated parts, including Hose Fittings and adapters, above 450°F (232°C) such as during welding, brazing or soldering may emit deadly gases.

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2.19 Atomic Radiation: Atomic radiation affects all materials used in Hose assemblies. Since the long-term effects may be unknown, do not expose Hose assemblies to atomic radiation.

2.20 Aerospace Applications: The only Hose and Fittings that may be used for in flight aerospace applications are those available from Parker's Stratoflex Products Division. Do not use any other Hose or Fittings for in flight applications. Do not use any Hose or Fittings from Parker's Stratoflex Products Division with any other Hose or Fittings, unless expressly approved in writing by the engineering manager or chief engineer of Stratoflex Products Division and verified by the user's own testing and inspection to aerospace industry standards.

2.21 Unlocking Couplings: Ball locking couplings or other Fittings with quick disconnect ability can unintentionally disconnect if they are dragged over obstructions, or if the sleeve or other disconnect member, is bumped or moved enough to cause disconnect. Threaded Fittings should be considered where there is a potential for accidental uncoupling.

3.0 HOSE AND FITTING ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1 Component Inspection: Prior to assembly, a careful examination of the Hose and Fittings must be performed. All components must be checked for correct style, size, catalog number, and length. The Hose must be examined for cleanliness, obstructions, blisters, cover looseness, kinks, cracks, cuts or any other visible defects. Inspect the Fitting and sealing surfaces for burrs, nicks, corrosion or other imperfections. Do NOT use any component that displays any signs of nonconformance.

3.2 Hose and Fitting Assembly: Do not assemble a Parker Fitting on a Parker Hose that is not specifically listed by Parker for that Fitting, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division. Do not assemble a Parker Fitting on another manufacturer's

Hose or a Parker Hose on another manufacturer's Fitting unless (i) the engineering manager or chief engineer of the appropriate Parker division approves the Assembly in writing or that combination is expressly approved in the appropriate Parker literature for the specific Parker product, and (ii) the user verifies the Assembly and the application through analysis and testing. For Parker Hose that does not specify a Parker Fitting, the user is solely responsible for the selection of the proper Fitting and Hose Assembly procedures. See instruction 1.4.

To prevent the possibility of problems such as leakage at the Fitting or system contamination, it is important to completely remove all debris from the cutting operation before installation of the Fittings. The Parker published instructions must be followed for assembling the Fittings on the Hose. These instructions are provided in the Parker Fitting catalog for the specific Parker Fitting being used, or by calling 1 800 CPARKER, or at www.parker.com.

3.3 Related Accessories: Do not crimp or swage any Parker Hose or Fitting with anything but the listed swage or crimp machine and dies in accordance with Parker published instructions. Do not crimp or swage another manufacturer's Fitting with a Parker crimp or swage die unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.

3.4 Parts: Do not use any Parker Fitting part (including but not limited to socket, shell, nipple, or insert) except with the correct Parker mating parts, in accordance with Parker published instructions, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.

3.5 Field Attachable/Permanent: Do not reuse any field attachable Hose Fitting that has blown or pulled off a Hose. Do not reuse a Parker permanent Hose Fitting (crimped or swaged) or any part thereof. Complete Hose Assemblies may only be reused after proper inspection under section 4.0. Do not assemble Fittings to any previously used hydraulic Hose that was in service, for use in a fluid power application.

3.6 Pre-Installation Inspection: Prior to installation, a careful examination of the Hose Assembly must be performed. Inspect the Hose Assembly for any damage or defects. DO NOT use any Hose Assembly that displays any signs of nonconformance.

3.7 Minimum Bend Radius: Installation of a Hose at less than the minimum listed bend radius may significantly reduce the Hose life. Particular

attention must be given to preclude sharp bending at the Hose to Fitting juncture. Any bending during installation at less than the minimum bend radius must be avoided. If any Hose is kinked during installation, the Hose must be discarded.

3.8 Twist Angle and Orientation: Hose Assembly installation must be such that relative motion of machine components does not produce twisting.

3.9 Securement: In many applications, it may be necessary to restrain, protect, or guide the Hose to protect it from damage by unnecessary flexing, pressure surges, and contact with other mechanical components. Care must be taken to insure such restraints do not introduce additional stress or wear points.

3.10 Proper Connection of Ports: Proper physical installation of the Hose Assembly requires a correctly installed port connection insuring that no twist or torque is transferred to the Hose when the Fittings are being tightened or otherwise during use..

3.11 External Damage: Proper installation is not complete without insuring that tensile loads, side loads, kinking, flattening, potential abrasion, thread damage or damage to sealing surfaces are corrected or eliminated. See instruction 2.10.

3.12 System Checkout: All air entrapment must be eliminated and the system pressurized to the maximum system pressure (at or below the Hose maximum working pressure) and checked for proper function and freedom from leaks. Personnel must stay out of potential hazardous areas while testing and using.

3.13 Routing: The Hose Assembly should be routed in such a manner so if a failure does occur, the escaping media will not cause personal injury or property damage. In addition, if fluid media comes in contact with hot surfaces, open flame or sparks, a fire or explosion may occur. See section 2.4.

3.14 Ground Fault Equipment Protection Devices (GFEPDs): WARNING! Fire and Shock Hazard: To minimize the danger of fire if the heating cable of a Multitube bundle is damaged or improperly installed, use a Ground Fault Equipment Protection Device. Electrical fault currents may be insufficient to trip a conventional circuit breaker.

For ground fault protection, the IEEE 515:1989 (www.ansi.org) standard for heating cables recommends the use of GFEPDs with a nominal 30 milliamperere trip level for "piping systems in classified areas, those areas requiring a high degree of maintenance, or which may be exposed to physical abuse or corrosive atmospheres".

4.0 HOSE AND FITTING MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1 Even with proper selection and installation, Hose life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a possible Hose failure, and experience with any Hose failures in the application or in similar applications should determine the frequency of the inspection and the replacement for the Products so that Products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.7.

4.2 Visual Inspection Hose/Fitting: Any of the following conditions require immediate shut down and replacement of the Hose Assembly:

- Fitting slippage on Hose;
- Damaged, cracked, cut or abraded cover (any reinforcement exposed);
- Hard, stiff, heat cracked, or charred Hose;
- Cracked, damaged, or badly corroded Fittings;
- Leaks at Fitting or in Hose;
- Kinked, crushed, flattened or twisted Hose; and
- Blistered, soft, degraded, or loose cover.

4.3 Visual Inspection All Other: The following items must be tightened, repaired, corrected or replaced as required:

- Leaking port conditions;
- Excess dirt buildup;
- Worn clamps, guards or shields; and

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- System fluid level, fluid type, and any air entrapment.

4.4 Functional Test: Operate the system at maximum operating pressure and check for possible malfunctions and leaks. Personnel must avoid potential hazardous areas while testing and using the system. See section 2.2.

4.5 Replacement Intervals: Hose assemblies and elastomeric seals used on Hose Fittings and adapters will eventually age, harden, wear and deteriorate under thermal cycling and compression set. Hose Assemblies and elastomeric seals should be inspected and replaced at specific replacement intervals, based on previous service life, government or industry recommendations, or when failures could result in unacceptable downtime, damage, or injury risk. See section 1.2. Hose and Fittings may be subjected to internal mechanical and/or chemical wear from the conveying fluid and may fail without warning. The user must determine the product life under such circumstances by testing. Also see section 2.5.

See section 1.2.

4.6 Hose Inspection and Failure: Hydraulic power is accomplished by utilizing high pressure fluids to transfer energy and do work. Hoses, Fittings and Hose Assemblies all contribute to this by transmitting fluids at high pressures. Fluids under pressure can be dangerous and potentially lethal and, therefore, extreme caution must be exercised when working with fluids under pressure and handling the Hoses transporting the fluids. From time to time, Hose Assemblies will fail if they are not replaced at proper time intervals. Usually these failures are the result of some form of misapplication, abuse, wear or failure to perform proper maintenance. When Hoses fail, generally the high pressure fluids inside escape in a stream which may or may not be visible to the user. Under no circumstances should the user attempt to locate the leak by "feeling" with their hands or any other part of their body. High pressure fluids can and will penetrate the skin and cause severe tissue damage and possibly loss of limb. Even seemingly minor hydraulic fluid injection injuries must be treated immediately by a physician with knowledge of the tissue damaging properties of hydraulic fluid.

If a Hose failure occurs, immediately shut down the equipment and leave the area until pressure has been completely released from the Hose Assembly. Simply shutting down the hydraulic pump may or may not eliminate the pressure in the Hose Assembly. Many times check valves, etc., are employed in a system and can cause pressure to remain in a Hose Assembly even when pumps or equipment are not operating. Tiny holes in the Hose, commonly known as pinholes, can eject small, dangerously powerful but hard to see streams of hydraulic fluid. It may take several minutes or even hours for the pressure to be relieved so that the Hose Assembly may be examined safely.

Once the pressure has been reduced to zero, the Hose Assembly may be taken off the equipment and examined. It must always be replaced if a failure has occurred. Never attempt to patch or repair a Hose Assembly that has failed. Consult the nearest Parker distributor or the appropriate Parker division for Hose Assembly replacement information.

Never touch or examine a failed Hose Assembly unless it is obvious that the Hose no longer contains fluid under pressure. The high pressure fluid is extremely dangerous and can cause serious and potentially fatal injury.

4.7 Elastomeric seals: Elastomeric seals will eventually age, harden, wear and deteriorate under thermal cycling and compression set. Elastomeric seals should be inspected and replaced.

4.8 Refrigerant gases: Special care should be taken when working with refrigeration systems. Sudden escape of refrigerant gases can cause blindness if the escaping gases contact the eye and can cause freezing or other severe injuries if it contacts any other portion of the body.

4.9 Compressed natural gas (CNG): Parker CNG Hose Assemblies should be tested after installation and before use, and at least on a monthly basis per ANSI/IAS NGV 4.2-1999; CSA 12.52-M99 Section 4.2 "Visual Inspection Hose/Fitting". The recommended procedure is to pressurize the Hose and check for leaks and to visually inspect the Hose for damage.

Caution: Matches, candles, open flame or other sources of ignition shall not be used for Hose inspection. Leak check solutions should be rinsed off after use.

5.0 HOSE STORAGE

5.1 Age Control: Hose and Hose Assemblies must be stored in a manner that facilitates age control and first-in and first-out usage based on manufacturing date of the Hose and Hose Assemblies. The shelf life of rubber Hose or Hose Assemblies that have passed visual inspection and a proof test is 10 years (40 quarters) from the date of manufacture. The shelf life of thermoplastic and polytetrafluoroethylene Hose or Hose Assemblies is considered to be unlimited.

5.2 Storage: Stored Hose and Hose Assemblies must not be subjected to damage that could reduce their expected service life and must be placed in a cool, dark and dry area with the ends capped. Stored Hose and Hose Assemblies must not be exposed to temperature extremes, ozone, oils, corrosive liquids or fumes, solvents, high humidity, rodents, insects, ultraviolet light, electromagnetic fields or radioactive materials.

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Aerospace

Key Markets

Aftermarket services
Commercial transports
Engines
General & business aviation
Helicopters
Launch vehicles
Military aircraft
Missiles
Power generation
Regional transports
Unmanned aerial vehicles

Key Products

Control systems & actuation products
Engine systems & components
Fluid conveyance systems & components
Fluid metering, delivery & atomization devices
Fuel systems & components
Fuel tank inerting systems
Hydraulic systems & components
Thermal management
Wheels & brakes



Automation

Key Markets

Alternative energy
Conveyor & material handling
Factory automation
Food & beverage
Life sciences & medical
Machine tools
Packaging machinery
Paper machinery
Plastics machinery
Primary metals
Safety & security
Semiconductor & electronics
Transportation & automotive

Key Products

AC/DC drives & systems
Air preparation
Electric actuators, gantry robots & slides
Human machine interfaces
Inverters
Manifolds
Miniature fluidics
Pneumatic actuators & grippers
Pneumatic valves & controls
Rotary actuators
Stepper motors, servo motors, drives & controls
Structural extrusions
Vacuum generators, cups & sensors



Climate & Industrial Controls

Key Markets

Agriculture
Air conditioning
Construction Machinery
Food & beverage
Industrial machinery
Life sciences
Oil & gas
Precision cooling
Process
Refrigeration
Transportation

Key Products

Accumulators
Advanced actuators
CO₂ controls
Electronic controllers
Filter driers
Hand shut-off valves
Heat exchangers
Hose & fittings
Pressure regulating valves
Refrigerant distributors
Safety relief valves
Smart pumps
Solenoid valves
Thermostatic expansion valves



Filtration

Key Markets

Aerospace
Food & beverage
Industrial plant & equipment
Life sciences
Marine
Mobile equipment
Oil & gas
Power generation & renewable energy
Process
Transportation
Water Purification

Key Products

Analytical gas generators
Compressed air filters & dryers
Engine air, coolant, fuel & oil filtration systems
Fluid condition monitoring systems
Hydraulic & lubrication filters
Hydrogen, nitrogen & zero air generators
Instrumentation filters
Membrane & fiber filters
Microfiltration
Sterile air filtration
Water desalination & purification filters & systems



Fluid Connectors

Key Markets

Aerial lift
Agriculture
Bulk chemical handling
Construction machinery
Food & beverage
Fuel & gas delivery
Industrial machinery
Life sciences
Marine
Mining
Mobile
Oil & gas
Renewable energy
Transportation

Key Products

Check valves
Connectors for low pressure fluid conveyance
Deep sea umbilicals
Diagnostic equipment
Hose couplings
Industrial hose
Mooring systems & power cables
PTFE hose & tubing
Quick couplings
Rubber & thermoplastic hose
Tube fittings & adapters
Tubing & plastic fittings



Hydraulics

Key Markets

Aerial lift
Agriculture
Alternative energy
Construction machinery
Forestry
Industrial machinery
Machine tools
Marine
Material handling
Mining
Oil & gas
Power generation
Refuse vehicles
Renewable energy
Truck hydraulics
Turf equipment

Key Products

Accumulators
Cartridge valves
Electrohydraulic actuators
Human machine interfaces
Hybrid drives
Hydraulic cylinders
Hydraulic motors & pumps
Hydraulic systems
Hydraulic valves & controls
Hydrostatic steering
Integrated hydraulic circuits
Power take-offs
Power units
Rotary actuators
Sensors



Instrumentation

Key Markets

Alternative fuels
Biopharmaceuticals
Chemical & refining
Food & beverage
Marine & shipbuilding
Medical & dental
Microelectronics
Nuclear Power
Offshore oil exploration
Oil & gas
Pharmaceuticals
Power generation
Pulp & paper
Steel
Water/wastewater

Key Products

Analytical Instruments
Analytical sample conditioning products & systems
Chemical injection fittings & valves
Fluoropolymer chemical delivery fittings, valves & pumps
High purity gas delivery fittings, valves, regulators & digital flow controllers
Industrial mass flow meters/ controllers
Permanent no-weld tube fittings
Precision industrial regulators & flow controllers
Process control double block & bleeds
Process control fittings, valves, regulators & manifold valves



Seals

Key Markets

Aerospace
Chemical processing
Consumer
Fluid power
General industrial
Information technology
Life sciences
Microelectronics
Military
Oil & gas
Power generation
Renewable energy
Telecommunications
Transportation

Key Products

Dynamic seals
Elastomeric o-rings
Electro-medical instrument design & assembly
EMI shielding
Extruded & precision-cut, fabricated elastomeric seals
High temperature metal seals
Homogeneous & inserted elastomeric shapes
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Fort Worth, TX 76106
phone 817.625.5081 800.423.6551
fax 817.624.9095 800.438.9562
email: texlocquote@parker.com

