**Rubber Fab** 

# Sanitary Hose, Fittings & Adapters



# **About Rubber Fab**



Rubber Fab was founded in 1995 by Robert DuPont, Sr. and Patrick Parisi (former owners of Sani-Tech®) located in Andover, NJ. The business has grown through the market and sale of new, innovative products and was relocated to a new state of the art facility in Sparta, NJ in November 2008.

In April 2016, Rubber Fab became part of the Garlock family of companies in an acquisition with parent company EnPro Industries. Headquartered in Palmyra, NY, the Garlock family of companies is acknowledged as the global leader in high-performance fluid sealing and pipeline protection products for industry and infrastructure. Garlock products are at work in many critical and highly regulated industries, including Pharmaceutical, Food & Beverage, Chemical, Oil & Gas, and many others.

Rubber Fab is the leading innovator of high quality sanitary gaskets, hose, hose assemblies, tubing, pump, and filler machine components in a wide range of high purity and metal detectable/x-ray inspectable elastomeric materials. Rubber Fab manufactures, markets, and sells specialized trademarked products: Tuf-Steel, Tuf-Flex, Torque-Rite, Smart Gasket, Detectomer, and ADI Free.

# Rubber Fab

a Garlock Hygienic Technologies company

# **Sanitary Hose** Fittings & Adapters

The Ultimate Source for Manufacturers. Fabricators, and Design Engineers

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## **FDA Rubber Hose**

Rubber Fab FDA approved rubber hoses are designed to transport a wide variety of fluids without imparting odor or taste and are specifically designed for sanitary suction and discharge applications. FDA rubber hoses are recommended for the transfer of milk, juice, soft drinks, yogurt, pharmaceuticals, cosmetics, and oil based or water based products.

## RFFDAEOC DIVERSA-FLEX™



Food Grade FDA Smoothbore EPDM Lined Red Smooth/Glossy Outer Convoluted Rubber Cover Hose

TUBE: Smooth white EPDM, phthalate free, REACH compliant

**COVER:** Wide corrugated FDA rubber with red, low friction, smooth/glossy, UHMW cover

**REINFORCEMENT:** Synthetic plies,

steel wire helixes

**TEMPERATURE:** -40°F to 245°F

#### **RFFDAE**



Food Grade FDA EPDM Rubber Hose

TUBE: Smooth white EPDM
COVER: Grey EPDM rubber
REINFORCEMENT: Two polyester
spirals with dual helix wire
TEMPERATURE: -20°F to 300°F

## RFFDAELF



Food Grade FDA EPDM Rubber Lay Flat Hose

TUBE: Smooth white EPDM COVER: Grey EPDM rubber

REINFORCEMENT: Multiple textile plys

TEMPERATURE: -20°F to 300°F

#### RFF&B



Food Grade FDA Nitrile/PVC Blend Lined Food and Beverage Crush Resistant Hose

TUBE: Smooth white nitrile/PVC blend

**COVER:** Grey EPDM rubber

**REINFORCEMENT:** Synthetic high tensile textile with static conductive filament and monofilament helix

TEMPERATURE: -40°F to 230°F

#### **RFFDA**



Food Grade FDA Nitrile Rubber Hose

TUBE: Smooth white nitrile
COVER: White nitrile rubber
(abrasion and oil resistant)
REINFORCEMENT: Two polyester

spirals with dual helix wire TEMPERATURE: -40°F to 180°F

## **RFFDAC**



Food Grade FDA Chlorobutyl Lined Hose

TUBE: Smooth white chlorobutyl COVER: Grey EPDM rubber REINFORCEMENT: Two polyester spirals with dual helix wire TEMPERATURE: -40°F to 225°F

#### **RFFDABOC**



Food Grade FDA Bromobutyl Lined Hose

TUBE: Smooth white bromobutyl, phthalate free

**COVER:** Corrugated purple, low friction, smooth/glossy, UHMWPE cover, easy to clean, abrasion resistant

**REINFORCEMENT:** Synthetic plies, steel

wire helixes

**TEMPERATURE**: -40°F to 250°F



## RFFDAEOC DIVERSA-FLEX™



Food Grade FDA Smoothbore EPDM Lined Red Smooth/Glossy Outer Convoluted Rubber Cover Hose

TUBE: Smooth white EPDM, phthalate free, REACH compliant

**COVER:** Wide corrugated FDA rubber with red, low friction, smooth/glossy, UHMW cover **REINFORCEMENT:** Synthetic plies, steel wire helixes

TEMPERATURE: -40°F to 245°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
16RFFDAEOC	1.00	1.46	2.76	150	FULL	0.58
24RFFDAEOC	1.50	2.00	3.15	150	FULL	0.77
32RFFDAEOC	2.00	2.52	3.94	150	FULL	1.00
40RFFDAEOC	2.50	3.09	5.12	150	FULL	1.36
48RFFDAEOC	3.00	3.62	5.91	150	FULL	1.70
64RFFDAEOC	4.00	4.65	9.80	150	FULL	2.55

#### **Features**

- · Lightweight
- Flexible
- Low drag resistance
- · Cover is abrasion, oil, and chemical resistant
- Smooth glossy cover resists dirt and mold
- Ozone and fade resistance cover guards against premature aging
- · Easy to clean
- · Phthalate free
- · Static grounding available

#### Applications

- Milk transfer
- Water transfer
- Food and beverage transfer
- Non-fatty and non-oily food products
- Suction and discharge

#### **Hose Certifications**

- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- USDA

REACH Compliant



## RFFDAE



Food Grade FDA EPDM Rubber Hose

**TUBE: Smooth white EPDM COVER:** Grey EPDM rubber **REINFORCEMENT:** Two polvester spirals with dual helix wire TEMPERATURE: -20°F to 300°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFFDAE	0.50	0.97	1.50	300	FULL	0.30
12RFFDAE	0.75	1.27	2.50	300	FULL	0.44
16RFFDAE	1.00	1.50	3.00	300	FULL	0.57
24RFFDAE	1.50	2.09	4.50	300	FULL	0.91
32RFFDAE	2.00	2.63	6.00	250	FULL	1.30
40RFFDAE	2.50	3.17	8.00	200	FULL	1.74
48RFFDAE	3.00	3.72	10.00	200	FULL	2.42
64RFFDAE	4.00	4.78	14.00	150	FULL	3.22
96RFFDAE	6.00	6.79	28.00	100	FULL	5.35

#### **Features**

- · Smooth inner bore
- · Will not impart taste or odor
- Full vacuum
- · Abrasion resistant
- · Chemical and ozone resistant
- Static grounding available

#### **Applications**

- · Sanitary suction and discharge
- Hot air blower service for food applications
- · Food and beverage transfer
- Dairy
- CIP pharmaceutical
- Non-fatty and non-oily food products

- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- USDA
- Conforms to the construction criteria of the Grade A Pasteurized Milk Ordinance



## **RFFDAELF**



Food Grade FDA EPDM Rubber Lay Flat Hose

TUBE: Smooth white EPDM COVER: Grey EPDM rubber

**REINFORCEMENT:** Multiple textile plys

TEMPERATURE: -20°F to 300°F

Part Number	Hose ID Inch	Hose OD Inch	Max. Working Pressure @ 70°F psig	Weight Per Foot
16RFFDAELF	1.00	1.34	150	0.40
24RFFDAELF	1.50	1.88	150	0.55
32RFFDAELF	2.00	2.38	150	0.71
40RFFDAELF	2.50	2.88	150	0.88
48RFFDAELF	3.00	3.38	150	1.05
64RFFDAELF	4.00	4.38	150	1.38
96RFFDAELF	6.00	6.88	100	2.04

#### **Features**

- · Tubing lays flat for easy storage
- Lightweight
- Available in bulk or fabricated assemblies
- Contact Rubber Fab for available lengths and custom colors

#### **Applications**

- Milk transfer
- · Water transfer
- Food and beverage
- Cosmetics
- CIP pharmaceutical
- Chemical transfer
- Dairy
- Non-fatty and non-oily food products

#### **Hose Certifications**

- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- USDA
- Conforms to the construction criteria of the Grade A Pasteurized Milk Ordinance



## RFF&B



Food Grade FDA Nitrile/PVC Blend Lined Food and Beverage Crush Resistant Hose

TUBE: Smooth white nitrile/PVC blend

**COVER:** Grey EPDM rubber **REINFORCEMENT:** Synthetic high tensile textile with static conductive filament and monofilament helix

TEMPERATURE: -40°F to 230°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
12RFF&B	0.75	1.22	2.00	250	FULL	0.42
16RFF&B	1.00	1.48	3.00	250	FULL	0.52
24RFF&B	1.50	2.07	4.50	250	FULL	0.90
32RFF&B	2.00	2.62	6.00	250	FULL	1.21
40RFF&B*	2.50	3.25	12.00	250	FULL	1.81
48RFF&B	3.00	3.86	18.00	250	FULL	2.46
64RFF&B*	4.00	4.88	36.00	250	FULL	3.24

<sup>\*</sup> Consult Factory

Note: Not Recommended For Use In Carbonated Beverages Or Beer Brewing. For brewery applications, please refer to out FDABOC Hose.

#### **Features**

- · Crush and kink resistant
- Ultra smooth inner bore
- Full vacuum
- Abrasion resistant
- Chemical and ozone resistant
- Will not impart taste or odor
- Ultra smooth bacteria free tube

#### **Applications**

- Food and beverage transfer
- · Dairy and milk transfer
- Juice and soft drink transfer
- Suitable for many dry bulk products
- Pharmaceutical
- Water based products

- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- USDA
- Conforms to the construction criteria of the Grade A Pasteurized Milk Ordinance



## **RFFDA**



Food Grade FDA Nitrile Rubber Hose

TUBE: Smooth white nitrile COVER: White nitrile rubber (abrasion and oil resistant)

**REINFORCEMENT:** Two polyester spirals with dual helix wire

TEMPERATURE: -40°F to 180°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFFDA	0.50	0.97	1.50	200	FULL	0.35
12RFFDA	0.75	1.27	2.50	200	FULL	0.48
16RFFDA	1.00	1.56	3.00	200	FULL	0.75
24RFFDA	1.50	2.13	6.00	150	FULL	1.03
32RFFDA	2.00	2.63	7.00	150	FULL	1.44
40RFFDA	2.50	3.17	8.00	150	FULL	1.92
48RFFDA	3.00	3.69	9.00	150	FULL	2.43
64RFFDA	4.00	4.81	12.00	150	FULL	3.65

#### **Features**

- Ultra smooth inner bore
- Full vacuum
- Abrasion resistant cover
- · Chemical and ozone resistant
- · Will not impart taste or odor
- Static grounding available

#### **Applications**

- Oily food
- Potable water
- Sanitary suction and discharge
- Food and beverage transfer
- Dairy
- CIP pharmaceutical

#### **Hose Certifications**

- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- USDA
- Conforms to the construction criteria of the Grade A Pasteurized Milk Ordinance



## **RFFDAC**



Food Grade FDA Chlorobutyl Lined Hose

TUBE: Smooth white chlorobutyl

**COVER:** Grey EPDM rubber **REINFORCEMENT:** Two polyester spirals with dual helix wire

TEMPERATURE: -40°F to 225°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
16RFFDAC	1.00	1.620	3.00	200	FULL	0.70
24RFFDAC	1.50	2.13	4.50	200	FULL	0.98
32RFFDAC	2.00	2.64	6.00	200	FULL	1.37
40RFFDAC	2.50	3.16	7.50	200	FULL	1.77
48RFFDAC	3.00	3.70	9.00	200	FULL	2.23
64RFFDAC	4.00	4.73	12.00	200	FULL	3.18

#### **Features**

- Ultra smooth inner bore
- Full vacuum
- Abrasion resistant
- · Chemical and ozone resistant
- Will not impart taste or odor
- Static grounding available

#### **Applications**

- · Dairy and milk transfer
- · Juice and soft drink transfer
- · Wine and beer
- · Non-fatty or non-oily foods
- Cosmetics
- Pharmaceutical

- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- USDA
- Conforms to the construction criteria of the Grade A Pasteurized Milk Ordinance



## **RFFDABOC**



Food Grade FDA Smoothbore Bromobutyl Lined Purple Smooth/Glossy Outer Convoluted Rubber Cover Hose

## TUBE: Smooth white bromobutyl, phthalate free

**COVER:** Corrugated purple, low friction, smooth/glossy, UHMWPE cover, easy to clean, abrasion resistant

**REINFORCEMENT:** Synthetic plies, steel

wire helixes

TEMPERATURE: -40°F to 250°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
16RFFDABOC	1.00	1.46	2.76	250	FULL	0.56
24RFFDABOC	1.50	2.00	3.15	250	FULL	0.87
32RFFDABOC	2.00	2.52	3.94	250	FULL	1.10
40RFFDABOC	2.50	3.09	5.12	150	FULL	1.52
48RFFDABOC	3.00	3.62	5.91	150	FULL	1.92
64RFFDABOC	4.00	4.65	9.80	150	FULL	2.56

RFFDABOC Hose is bromobutyl lined, giving the hose higher operating temperatures and reduced permeability.

#### **Features**

- Extremely flexible
- Low friction cover
- · Non marking when dragged on floor
- Highly abrasion resistant
- Will not impart taste or odor
- · Resistant to CIP solutions

#### **Applications**

- Beer
- Ale
- Wine
- Spirits
- Beverage transfer
- · Non-oily liquids

#### **Hose Certifications**

- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- Phthalate Free
- USP Class VI



# AND NO GREAT BEER CAN BE BREWED WITHOUT QUALITY SANITARY SEALS AND HOSES. PILSNER WEIZLIN INDIA PALE ALE LAMBIC STOUT WHEAT BEER WWW.rubberfab.com Rubber Fab a Carlock Hygienic Technologies company

## **Wash Down Rubber Hose**

Efficient cleaning and sanitation is often neglected as it requires extra work and the positive effects are not immediately visible, however, failures in plant hygiene can cause high financial losses in the long run. Unsanitary conditions result in unattractive and tasteless product, spoilage of valuable product, and/or foodborne diseases.

## RFWDAM – Wash Down Hose with Microban®



Wash Down Rubber Hose with Microban®

TUBE: EPDM rubber
COVER: White EPDM rubber
REINFORCEMENT: Textile reinforced
TEMPERATURE: -40°F to 200°F

Part Number	Hose ID Inch	Hose OD Inch	Max. Working Pressure @ 70°F psig	Weight per Foot
08RFWDAM	0.50	0.84	300	0.26
12RFWDAM	0.75	1.17	300	0.42
16RFWDAM	1.00	1.47	300	0.62

Microban® antimicrobial protection is built into the hose to fight against damaging microbes. Microban technology works continuously, even in between cleanings, and won't wash off or wear away with normal use, keeping the hose cleaner longer.

#### **Features**

- Antimicrobial protection if exposed to floor contaminates, will not grow bacteria
- · Economical hose for wash down needs
- · Handles hot water
- Cover resistant to abrasion
- · Spiral construction provides excellent flexibility
- Ease of handling
- Suitable for animal, fish, and vegetable fat environments

#### **Applications**

- Food processing plants
- Dairies
- Creameries
- Breweries
- Food
- Beverage

## Wash Down Spray Nozzle



RFWD-SN-08FPT

#### **Available Hose Connections**

1/2" Male NPT x 1/2" Hose Barb 1/2" Male NPT x 3/4" Hose Barb 1/2" Male NPT x 1" Hose Barb

Rubber Fab's Wash Down Spray Nozzle is extremely robust and has a long service life due to its high-quality brass/stainless steel design. Additionally, it is protected against shock, heat and cold and has a rubber protection against any damage from caustic solutions and acids. The Wash Down Spray Nozzle helps to save considerable water and energy costs, which, along with its chemical-free cleaning capability, contributes to the protection of the environment. The flow can be adjusted from a fine spray to a concentrated jet, making the spray nozzle the right choice for a careful and efficient cleaning for nearly any professional application.

#### **Features**

- Cleans carefully and ecologically harmless
- Robust and with a long service life
- Resistant to caustic solutions and acids
- · Shock-, heat- and cold-proof
- Adjustable water jet
- Self closing
- Can be locked open with trigger lock tab

#### **Applications**

- Food Processing
- Beverage Processing
- Pharmaceutical Application
- Chemical Applications

#### **Specifications**

- Working pressure up to 25 bar/363 psi
- Water temperature max. +50°C/+122°F
- Flow rate of water 25 I/minute at 5 bar/72 psi
- Internal thread 1/2" Female NPT

<sup>\*</sup>Consult factory for spray nozzles

# **Smoothbore Fluoropolymer Hose**

Rubber Fab offers a full line of flexible smoothbore FEP, PFA, and PTFE lined sanitary hoses for Pharmaceutical, Food and Beverage, and Industrial applications. Smoothbore fluoropolymer lined hoses are recommended for sanitary, pharmaceutical processing, distillery flex connections, high purity, and high temperature applications.

## RFRTPOC DIVERSA-FLEX™



Smoothbore PTFE Lined Hose with Blue Smooth/Glossy Outer Convoluted Rubber Cover Hose

TUBE: Seamless white PTFE, phthalate free, REACH compliant

**COVER:** Wide corrugated FDA Rubber with blue, low friction, smooth/glossy,

UHMW cover

**REINFORCEMENT:** Synthetic plies,

wire helixes

TEMPERATURE: -40°F to 300°F

#### **RFRT**



Smoothbore FEP Lined EPDM Rubber Covered Hose

**TUBE: Seamless white FEP** 

**COVER:** EPDM rubber (abrasion resistant)

**REINFORCEMENT:** Multiple braids,

helical wire

TEMPERATURE: -40°F to 300°F

#### **RFRTP**



Smoothbore Heavy Wall PTFE Lined EPDM Rubber Hose

**TUBE: Seamless white HEAVY WALL PTFE** 

**COVER:** EPDM rubber (abrasion resistant)

**REINFORCEMENT:** Multiple braids,

helical wire

**TEMPERATURE:** -20°F to 300°F

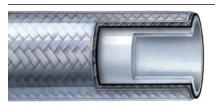
#### RFST



Smoothbore PTFE Lined Hose with Stainless Steel Braided Cover

TUBE: Seamless white PTFE COVER: Braided stainless steel TEMPERATURE: -20°F to 350°F

#### **RFSTS**



Smoothbore PTFE Lined Hose with Stainless Steel Braid and Clear Silicone Outer Cover

**TUBE: Seamless white PTFE** 

**COVER:** Braided stainless steel and

clear silicone outer cover

TEMPERATURE: -20°F to 350°F

## **RFSTB**



Smoothbore Black Conductive PTFE Lined Hose with Braided Stainless Steel Cover

TUBE: Black conductive PTFE
COVER: Braided stainless steel
TEMPERATURE: -20°F to 350°F

Also available with silicone outer cover **RFSTBS** 

## RFSF SUPREME-FLEX



Smoothbore PTFE Lined Hose with Silicone Outer Cover

**TUBE: Seamless white PTFE** 

**COVER:** White silicone

**REINFORCEMENT:** 304 stainless steel braid

TEMPERATURE: -100°F to 450°F

#### RFTFP TUF-FLEX



Smoothbore PTFE Lined Hose with Synthetic Plies and Stainless Steel Wire Helix

**TUBE: Seamless white PTFE** 

**COVER:** White silicone

**REINFORCEMENT:** Synthetic plies and

stainless steel wire helix

TEMPERATURE: -40°F to 300°F



## RFRTPOC DIVERSA-FLEX™



Smoothbore PTFE Lined Hose with Blue Smooth/Glossy Outer Convoluted Rubber Cover Hose

TUBE: Seamless white PTFE, phthalate free, REACH compliant Number Inch psig in. Hg. Per Foot 235 16RFRTPOC 1.00 1.45 5.12 **FULL** 0.52 24RFRTPOC 1.50 2.00 7.48 235 **FULL** 0.79 32RFRTP0C 2.00 2.60 9.84 235 **FULL** 1.28 40RFRTPOC 2.50 3.13 12.60 235 **FULL** 1.62 48RFRTPOC 3.00 3.58 14.96 235 **FULL** 1.89

Bend Radius

Inch

Hose OD

Hose ID

Inch

**COVER:** Wide corrugated FDA rubber with blue, low friction, smooth/glossy, UHMW cover

**REINFORCEMENT:** Synthetic plies, wire helixes

TEMPERATURE: -40°F to 300°F

#### **Features**

- Phthalate free
- Lightweight
- Flexible
- · Low drag resistance
- · Cover is abrasion, oil, and chemical resistant
- Smooth glossy cover resists dirt and mold
- Ozone and fade resistance cover guards against premature aging
- Easy to clean
- Resistant to mechanical stress
- · Static grounding available

#### **Applications**

- · Chemical and solvent suction and discharge
- Pharmaceutical processing
- Cosmetics
- · Food and beverage transfer
- Load cells
- Hot CIP solutions

#### **Hose Certifications**

Max. Working

Pressure @ 70°F

Vacuum Rating

@ 70°F

Weight

- USP Class VI
- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- REACH Compliant



## RFRT



Smoothbore FEP Lined EPDM Rubber Covered Hose

**TUBE: Seamless white FEP** 

**COVER:** EPDM rubber (abrasion resistant) **REINFORCEMENT:** Multiple braids,

helical wire

TEMPERATURE: -40°F to 300°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Pressure @ 70°F psig	wacuum Hating @ 70°F in. Hg.	Weight Per Foot
08RFRT	0.50	0.97	2.50	500	FULL	0.35
12RFRT	0.75	1.27	2.50	500	FULL	0.52
16RFRT	1.00	1.48	3.00	400	FULL	0.55
24RFRT	1.50	2.04	4.50	350	FULL	0.87
32RFRT	2.00	2.54	7.00	300	FULL	1.17
40RFRT	2.50	3.04	9.00	200	FULL	1.55
48RFRT	3.00	3.81	35.00	200	FULL	2.98
64RFRT	4.00	4.89	20.00	150	FULL	3.98

#### **Features**

- EPDM rubber outer cover has multiple textile plies along the entire length
- Double steel wire helix for improved bend radius and shape retention
- Liner is smooth FEP, bonded for full vacuum service
- Non-stick contact surface will not contaminate product
- Inert and resistant to most chemicals and reagents
- · Cleanable by CIP, COP methods
- · Ultra smooth bacteria free tube
- Static grounding available

#### **Applications**

- Pharmaceutical processing
- · Water, acid, and chemical transfer
- · Hot CIP solutions
- Distillery piping systems
- Electronic industries
- · Fluid transfer
- Food and beverage processing
- Load cells
- Cosmetics

- · Meets USP Class VI Standards
- FDA 21 CFR 177.1550
- FDA 21 CFR 177.2600
- 3-A Sanitary Standards



## **RFRTP**



Smoothbore Heavy Wall PTFE Lined EPDM Rubber Hose

TUBE: Seamless white **HEAVY WALL PTFE COVER**: EPDM rubber (abrasion resistant)

**REINFORCEMENT:** Multiple braids, helical

TEMPERATURE: -20°F to 300°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFRTP	0.53	1.00	1.80	600	FULL	0.46
12RFRTP	0.78	1.30	2.50	550	FULL	0.56
16RFRTP	1.03	1.54	3.40	530	FULL	0.79
24RFRTP	1.52	2.19	5.50	430	FULL	1.22
32RFRTP	2.02	2.73	8.00	430	FULL	1.84

#### **Features**

- Heavy wall PTFE liner provides good permeation resistance
- Resistant to ozone, chemical, and abrasion
- Double steel wire helix for improved bend radius and shape retention
- Outstanding flexibility
- Non-stick contact surface will not contaminate product
- Inert and resistant to most chemicals and reagents
- · Cleanable by CIP, SIP, and COP methods
- Ultra smooth bacteria free tube
- Static grounding available

#### **Applications**

- Pharmaceutical processing
- Chemical transfer
- Hot CIP solutions
- Distillery piping systems
- Fluid transfer
- Food and beverage processing
- Load cells
- Cosmetics

#### **Hose Certifications**

- USP Class VI
- FDA 21 CFR 177.1550
- FDA 21 CFR 177.2600
- 3-A Sanitary Standards



## **RFST**



Smoothbore PTFE Lined Hose with Stainless Steel Braided Cover

TUBE: Seamless white PTFE
COVER: Braided stainless steel
TEMPERATURE: -20°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
04RFST	0.25	0.37	3.00	3000	FULL	0.08
06RFST	0.38	0.51	5.00	2000	FULL	0.11
08RFST	0.50	0.63	6.50	1425	FULL	0.16
12RFST	0.75	0.88	8.20	1000	FULL	0.20
16RFST	1.00	1.19	12.00	1000	FULL	0.50
24RFST	1.50	1.76	20.00	1000	FULL	0.92

#### **Features**

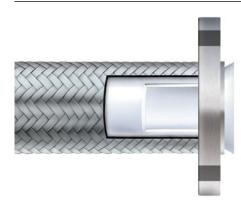
- Outer cover is stainless steel braid overwrap
- Smoothbore PTFE inner core
- Non-stick contact surface will not contaminate product
- Withstands high velocity and pressure surges
- Resists moisture
- Autoclavable

#### **Applications**

- Food and beverage processing
- Pharmaceutical processing
- Cosmetics
- Hot CIP solutions
- Chemical products
- Low pressure steam

- USP Class VI
- FDA 21 CFR 177.1550
- USDA

## **RFST – FLARE THRU**



Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
12RFSTFT*	0.75	0.88	8.20	275	FULL	0.20
16RFSTFT	1.00	1.19	12.00	275	FULL	0.50

<sup>\*</sup>Available in 150# flange style only.

Smoothbore Flared PTFE Lined Hose with Stainless Steel Braided Cover

TUBE: Seamless white PTFE COVER: Braided stainless steel

FITTINGS: Flare thru 150# flange

TEMPERATURE: -20°F to 350°F

#### **Features**

- Outer cover is stainless steel braid overwrap
- Smoothbore PTFE inner core
- No bacteria traps with flare thru assembly
- Non-stick contact surface will not contaminate product
- Withstands high velocity and pressure surges
- Resists moisture
- Autoclavable

#### **Applications**

- Food and beverage processing
- Pharmaceutical processing
- Cosmetics
- · Hot CIP solutions
- Chemical products
- Low pressure steam

#### **Hose Certifications**

- USP Class VI
- FDA 21 CFR 177.1550
- 3-A Sanitary Standards
- USDA



## **RFSTS**



Smoothbore PTFE Lined Hose with Stainless Steel Braid and Clear Silicone Outer Cover

**TUBE: Seamless white PTFE** 

**COVER:** Braided stainless steel and

clear silicone outer cover

TEMPERATURE: -20°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
04RFSTS	0.25	0.56	3.00	3000	FULL	0.12
06RFSTS	0.38	0.70	4.00	2000	FULL	0.13
08RFSTS	0.50	0.82	4.00	1425	FULL	0.16
12RFSTS	0.75	1.08	7.00	1000	FULL	0.20
16RFSTS	1.00	1.32	12.00	1000	FULL	0.50
24RFSTS	1.50	1.82	20.00	1000	FULL	0.92

Maximum length 20 feet.

#### **Features**

- Outer cover is stainless steel braid overwrap with clear silicone cover
- · Silicone cover acts as thermal insulator
- Lining is smooth PTFE inner core, non-stick surface
- Non-stick contact surface will not contaminate contacted substances
- Not affected by weather and will not age in service within the recommended temperature and pressure ratings
- Withstands high velocity and pressure surges
- Conductive black liner available
- Ease of cleanability
- Autoclavable
- · Can be steam cleaned

#### **Applications**

- Food processing
- Pharmaceutical processing
- Cosmetics
- Hot CIP solutions
- · Chemical products
- Low pressure steam

- USP Class VI
- FDA 21 CFR 177.1550
- 3-A Sanitary Standards
- USDA



## **RFSTB**



Smoothbore Black Conductive PTFE Lined Hose with Braided Stainless Steel Cover

TUBE: Black conductive PTFE COVER: Braided stainless steel TEMPERATURE: -20°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
04RFSTB	0.25	0.37	3.00	3000	FULL	0.08
06RFSTB	0.38	0.51	5.00	2000	FULL	0.11
08RFSTB	0.50	0.63	6.50	1425	FULL	0.16
12RFSTB	0.75	0.88	8.20	1000	FULL	0.20
16RFSTB	1.00	1.19	12.00	1000	FULL	0.50

#### **Features**

- · Conductive liner dissipates static electricity
- Outer cover is stainless steel braid overwrap
- Smoothbore PTFE inner core
- Non-stick contact surface will not contaminate product
- Withstands high velocity and pressure surges
- Resists moisture
- Autoclavable

#### **Applications**

- Food processing
- Pharmaceutical processing
- Cosmetics
- Hot CIP solutions
- Chemical products
- Low pressure steam

#### **Hose Certifications**

- FDA 21 CFR 177.1550
- USDA
- USP Class VI

## **RFSTBS**



Smoothbore Black Conductive PTFE Lined Hose with Braided Stainless Steel Cover and Clear Silicone Outer Cover

**TUBE: Black conductive PTFE** 

**COVER:** Braided stainless steel and clear silicone outer cover

TEMPERATURE: -20°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
04RFSTBS	0.25	0.56	3.00	3000	FULL	0.12
06RFSTBS	0.38	0.70	4.00	2000	FULL	0.13
08RFSTBS	0.50	0.82	4.00	1425	FULL	0.16
12RFSTBS	0.75	1.08	7.00	1000	FULL	0.20
16RFSTBS	1.00	1.32	12.00	1000	FULL	0.50

#### **Features**

- · Conductive liner dissipates static electricity
- Silicone cover acts as thermal insulator
- Lining is smooth PTFE inner core, non-stick surface
- Non-stick contact surface will not contaminate contacted substances
- Not affected by weather and will not age in service within the recommended temperature and pressure ratings
- Withstands high velocity and pressure surges
- · Ease of cleanability
- Autoclavable
- · Can be steam cleaned

#### **Applications**

- Food processing
- Pharmaceutical processing
- Cosmetics
- Hot CIP solutions
- Chemical products
- Low pressure steam

- FDA 21 CFR 177.1550
- USDA

## RFSF SUPREME-FLEX



Smoothbore PTFE Lined Hose with Silicone Outer Cover

**TUBE: Seamless white PTFE** 

**COVER:** White silicone

**REINFORCEMENT:** 304 stainless steel braid

TEMPERATURE: -100°F to 450°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
04RFSF	0.25	0.50	1.50	3250	FULL	0.13
06RFSF	0.37	0.65	2.00	2500	FULL	0.15
08RFSF	0.50	0.81	3.00	2000	FULL	0.18
12RFSF*	0.75	1.02	8.20	1000	FULL	0.34

<sup>\*</sup>Consult factory for availability

#### **Features**

- Superior flexibility
- · High pressure rating
- Lining is smoothbore PTFE
- Excellent chemical resistance
- Non-stick contact surface will not contaminate contacted surfaces
- Autoclavable
- · Steam cleanable at stated temperature and pressure rating
- Full vacuum rating
- · Will not impart taste or odor
- Ultra smooth bacteria free tube

#### **Applications**

- Load cell
- · CIP/SIP cleaning
- Filling equipment
- Sampling systems
- Fermentation lines
- Food and beverage processing
- Pharmaceutical processing
- Chemical transfer
- · Sanitary transfer

#### **Hose Certifications**

- USP Class VI
- FDA 21 CFR 177.1550
- 3-A Sanitary Standards
- USDA



## RFTFP TUF-FLEX®



Smoothbore PTFE Lined Hose with Synthetic Plies and Stainless Steel Wire Helix

**TUBE: Seamless white PTFE** 

**COVER:** White silicone

**REINFORCEMENT:** Synthetic plies and

stainless steel wire helix

TEMPERATURE: -40°F to 300°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFTFP	0.50	0.94	1.77	150	FULL	0.31
12RFTFP	0.75	1.18	2.76	150	FULL	0.41
16RFTFP	1.00	1.42	3.54	150	FULL	0.51
24RFTFP	1.50	1.97	5.51	105	FULL	0.84
32RFTFP	2.00	2.44	7.09	105	FULL	1.07

Rubber Fab recommends a Rubber Fab factory crimp for this product. Max length 32.5'

#### **Features**

- Extreme flexibility
- Superior cleanability
- Excellent thermal properties
- Ultra smooth bacteria free tube
- Static grounding available
- Resistant to repetitive dynamic cycling
- Autoclavable
- · Phthalate free

#### **Applications**

- Load cell
- · CIP/SIP cleaning
- Filling equipment
- Sampling systems
- Dosing and filling machines
- Fermentation lines
- Food and beverage processing
- Pharmaceutical processing
- · Chemical transfer

- USP Class VI
- FDA 21 CFR 177.1550
- 3-A Sanitary Standards



## **Convoluted PTFE Hose**

Rubber Fab convoluted PTFE hoses are manufactured with smooth, rounded, helical shaped convolutions which help to promote easy cleaning and self-draining for the ultimate high purity, convoluted hose. Rubber Fab convoluted hose's light weight, flexible characteristics provide a superior flex life. Also available in 150# flange, providing a 100% PTFE coverage on all wetted surfaces.

#### **RFCTLP**



Convoluted Low Profile PTFE Lined Hose with Braided Stainless Steel Cover

TUBE: Seamless white convoluted PTFE

**COVER:** Braided stainless steel **TEMPERATURE:** -20°F to 350°F

# RFCTLP FLARE THRU Convoluted Low Profile PTFE

Convoluted Low Profile PTFE
Lined Hose with Braided Stainless
Steel Cover with Flare Thru Assembly

TUBE: Seamless white convoluted PTFE

**COVER:** Braided stainless steel **TEMPERATURE:** -20°F to 350°F

#### **RFCTLPS**



Convoluted Low Profile PTFE Lined Hose with Braided Stainless Steel Cover and Silicone Outer Cover

**TUBE: Seamless white convoluted PTFE** 

**COVER:** Braided stainless steel **TEMPERATURE:** -20°F to 350°F

#### **RFCTLPB**

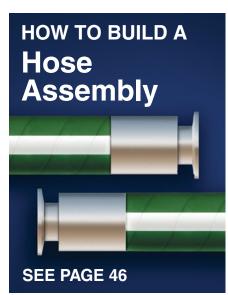


Convoluted Low Profile Black Conductive PTFE Hose with Braided Stainless Steel Cover

TUBE: Seamless black conductive convoluted PTFE

**COVER:** Braided stainless steel **TEMPERATURE:** -20°F to 350°F

RFCTLP - Flare thru





## **RFCTLP**



Convoluted Low Profile PTFE Lined Hose with Braided Stainless Steel Cover

TUBE: Seamless white convoluted PTFE

**COVER:** Braided stainless steel **TEMPERATURE:** -20°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFCTLP	0.47	0.75	2.00	1425	FULL	0.20
12RFCTLP	0.72	1.05	2.80	1300	FULL	0.30
16RFCTLP	0.97	1.35	4.00	1100	FULL	0.48
24RFCTLP	1.54	2.03	6.00	700	FULL	0.82
32RFCTLP	1.97	2.46	7.50	525	FULL	1.12
48RFCTLP	2.91	3.70	14.00	175	FULL	1.26
64RFCTLP	3.94	5.00	16.00	150	FULL	2.64

#### **Features**

- Lower convolutions for minimal pressure drop and ease of cleaning
- Outer cover is stainless steel braid overwrap
- Not affected by weather and will not age in service within the recommended temperature and pressure ratings
- Withstands high velocity and pressure surges
- Unaffected by continuous flexing or vibration when used in accordance with minimum bend radius specifications
- Autoclavable
- · Steam cleanable
- Available in bulk or fabricated assemblies
- Phthalate free

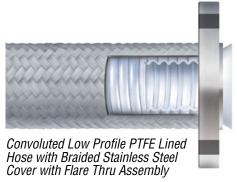
#### **Applications**

- Food processing
- Pharmaceutical processing
- Cosmetics
- Hot CIP solutions
- Chemical products
- · Low pressure steam

#### **Hose Certifications**

- USP Class VI
- FDA 21 CFR 177.1550
- USDA
- Meets REACH Standards

## RFCTLP - FLARE THRU



**TUBE: Seamless white convoluted PTFE** 

**COVER:** Braided stainless steel **TEMPERATURE:** -20°F to 350°F **FITTINGS:** Flare thru 150# flange

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFCTLP	0.47	0.75	2.00	500	FULL	0.20
12RFCTLP	0.72	1.05	2.80	500	FULL	0.30
16RFCTLP	0.97	1.35	4.00	500	FULL	0.48
24RFCTLP**	1.54	2.03	6.00	350	FULL	0.82
32RFCTLP**	1.97	2.46	7.50	250	22	1.14
48RFCTLP	2.91	3.70	14.00	175	20	1.26
64RFCTLP*	3.94	5.00	16.00	150	15	2.64

<sup>\*</sup> Available in 150# flange style only.

#### **Features**

- · Lower convolutions for minimal pressure drop and ease of cleaning
- Outer cover is stainless steel braid overwrap
- Not affected by weather and will not age in service within the recommended temperature and pressure ratings
- Withstands high velocity and pressure surges
- Unaffected by continuous flexing or vibration when used in accordance with minimum bend radius specifications
- Autoclavable
- Steam cleanable
- Phthalate free

#### **Applications**

- Food processing
- Pharmaceutical processing
- Cosmetics
- Hot CIP solutions
- · Chemical products
- · Low pressure steam

- USP Class VI
- FDA 21 CFR 177.1550
- USDA
- Meets REACH Standards

## **RFCTLPS**



Convoluted Low Profile PTFE Lined Hose with Braided Stainless Steel Cover and Silicone Outer Cover

**TUBE: Seamless white convoluted PTFE** 

**COVER:** Braided stainless steel **TEMPERATURE:** -20°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFCTLPS	0.47	0.94	2.00	1425	FULL	0.20
12RFCTLPS	0.72	1.24	2.80	1300	FULL	0.30
16RFCTLPS	0.97	1.54	4.00	1100	FULL	0.48
24RFCTLPS	1.54	2.22	6.00	700	FULL	0.82
32RFCTLPS	1.97	2.65	7.50	525	FULL	1.12
48RFCTLPS	CF	CF	CF	CF	CF	CF
64RFCTLPS	CF	CF	CF	CF	CF	CF

Maximum length 20 feet.

#### **Features**

- · Lower convolutions for minimal pressure drop and ease of cleaning
- Outer cover is stainless steel braid overwrap with clear silicone cover
- · Silicone cover acts as thermal insulator
- Not affected by weather and will not age in service within the recommended temperature and pressure ratings
- Withstands high velocity and pressure surges
- Unaffected by continuous flexing or vibration when used in accordance with minimum bend radius specifications
- Autoclavable
- Steam cleanable
- · Available in bulk or fabricated assemblies
- · Available with carbon conductive liner
- Phthalate free

#### **Applications**

- Food processing
- Pharmaceutical processing
- Cosmetics
- Hot CIP solutions
- Chemical products
- Low pressure steam

#### **Hose Certifications**

- USP Class VI
- FDA 21 CFR 177.1550
- USDA
- Meets REACH Standards

## **RFCTLPB**



Convoluted Low Profile Black Conductive PTFE Hose with Braided Stainless Steel Cover

TUBE: Seamless black conductive convoluted PTFE

**COVER:** Braided stainless steel **TEMPERATURE:** -20°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFCTLPB	0.47	0.75	2.00	1425	FULL	0.20
12RFCTLPB	0.72	1.05	2.80	1300	FULL	0.30
16RFCTLPB	0.97	1.35	4.00	1100	FULL	0.48
24RFCTLPB	1.54	2.03	6.00	700	FULL	0.82
32RFCTLPB	1.97	2.46	7.50	525	FULL	1.12
48RFCTLPB	2.91	3.70	14.00	175	FULL	1.26
64RFCTLPB	3.94	5.00	16.00	150	FULL	2.64

#### **Features**

- Lower convolutions allows for smooth product flow and ease of cleaning
- Outer cover is 316 stainless steel braid
- PTFE inner core provides outstanding corrosion resistance and material compatibility
- Unaffected by continuous flexing or vibration when used in accordance with minimum bend radius specifications
- Autoclavable
- · Tighter bend radius compared to smoothbore hose styles
- · Available in bulk or fabricated assemblies
- Phthalate free

#### **Applications**

- Food and beverage processing
- Pharmaceutical processing
- Corn processing
- Flavors
- Chemical processing
- Low pressure steam

- FDA 21 CFR 177.1550
- USDA
- USP Class VI

# Metal Hose and PTFE Lined Metal Hose

Rubber Fab corrugated metal hoses are flexible, corrosion resistant, high strength, and temperature resistant. They are used for cryogenics, pump connectors, vibration eliminators, pharmaceutical applications, steam, and flexible chemical transfer. Rubber Fab's PTFE lined flare thru hose is specifically designed for applications where dual containment is necessary, where a smooth continuous tube with no transition is required, and where elevated temperatures and working pressures are higher than a traditional PTFE hose withstands.

#### **RFSSH**



Stainless Steel Corrugated Hose

TUBE: 316L corrugated stainless steel 321 corrugated stainless steel

**COVER:** 304SS braided stainless steel

**TEMPERATURE:** 

316L SS Core -400°F to 800°F 321 SS Core -400°F to 1500°F

#### **TEMPERATURE CORRECTION CHART**

For RFSSH metal hose, as the operating temperature of the hose assembly increases, the maximum working pressure of the assembly decreases.

- Determine the maximum working temperature of the application.
- Locate this temperature on the chart and read across to metal alloy selected to find the proper factor.
- Multiply this factor by the maximum working pressure in the metal hose specification table.
- This number is your maximum safe working pressure at that elevated temperature.

#### TEMPERATURE CORRECTION FACTORS

Temp (°F)	304, 316L Stainless	321 Stainless
Room	1.00	1.00
150	0.96	0.97
200	0.92	0.94
250	0.91	0.92
300	0.86	0.88
350	0.85	0.86
400	0.82	0.83
450	0.80	0.81
500	0.77	0.78
600	0.73	0.74
700	0.69	0.70
800	0.64	0.66
900	-	0.62
1000	-	0.60
1100	-	0.58
1200	-	0.55
1300	-	0.50
1400	-	0.44
1500	-	0.40

#### FLEXIBLE:

RFSSH's assemblies exhibit amazing durability in applications of extreme flexure. Our larger diameter hose boasts a perfectly shaped omega profile to evenly distribute stress.

#### CLEAN:

RFSSH's inner core is exceptionally clean.

#### **LEAK PROOF:**

RFSSH hose assemblies have two pressure tight containment areas.

#### STRONG:

SSHT hose assemblies have a 500% greater fitting retention rate than assemblies made using a single weld process. We use twice as much welding material to create exceptionally strong assemblies.

#### **LONG SERVICE LIFE:**

Our forming process causes little work hardening of the base metal so our hose withstands more metal fatigue. We draw the corrugations into the hose instead of stretching the metal to form them.

#### **RESISTANT TO VIBRATION AND STRESS:**

We have achieved a uniform hose wall at critical stress points. This makes RFSSH far more durable.

#### SAFF.

RFSSH hose assemblies are pressure tested and subjected to separate quality checks. Our braid is made from 100,000 psi tensile strength wire per ASTM A580 for maximum safety.

#### **PURE:**

We use specified stainless steel welding rod to weld various grades of stainless steel. This makes our weld more corrosion resistant than the base stainless metal. We can argon purge our welds so that weld penetration is 100% and the weld is uniform and pure all the way through.

## **RFSSHT**



PTFE Lined Stainless Steel Corrugated Hose

TUBE: 316L corrugated stainless steel with seamless PTFE

321 corrugated stainless steel with seamless PTFE

**COVER:** Braided stainless steel **TEMPERATURE:** -20°F to 350°F

## **RFSSH**



Stainless Steel Corrugated Hose

TUBE: 316L corrugated stainless steel 321 corrugated stainless steel

**COVER:** 304SS braided stainless steel **TEMPERATURE**:

316L SS Core: -400°F to 800°F 321 SS Core: -400°F to 1500°F

See page XX for Temperature Correction Chart.

#### **PART NUMBER KEY:**

- 1 = No Outer Braid
- 2 = Single Outer Braid
- 3 = Double Outer Braid

This product is factory fabricated. Lengths longer than 10 feet, we do not deduct for fittings, making the hose longer than ordered. Please keep that in mind when ordering.

#### **Features**

- Available in no outer braid, 304SS single outer braid, and 304SS double outer braid for high pressure applications
- Hose inner core and outer braid are stainless steel
- Extremely flexible
- Size range: 1/4" to 14"
   Consult factory for more information
   on availability for 16", 18", 20", 22",
   and 24" sizes
- Degreasing available

#### **Applications**

- · High and low temperature
- Chemical transfer
- · Continuous steam
- Vibration absorber
- Load cell

- Assemblies made in accordance with ISO 10380 standards for metal hose assemblies
- Meets NAHAD specifications

04RFSSH1         0.25         0.40         145         4.0           04RFSSH2         0.25         0.45         2430         4.0           04RFSSH3         0.25         0.50         3190         4.0           06RFSSH1         0.375         0.59         80         6.0           06RFSSH2         0.375         0.69         2580         6.0           06RFSSH3         0.375         0.69         2580         6.0           08RFSSH1         0.50         0.77         80         6.0           08RFSSH2         0.50         0.83         1075         6.0           08RFSSH3         0.50         0.88         1500         6.0           12RFSSH1         0.75         1.02         60         8.0           12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           12RFSSH1         1.00         1.33         60         8.0           16RFSSH3         1.00         1.41         725         8.0           16RFSSH3         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49	Part Number	Hose ID Inch	Hose OD Inch	Max. Working Pressure @ 70°F psig	Bend Radius Inch
04RFSSH3         0.25         0.50         3190         4.0           06RFSSH1         0.375         0.59         80         6.0           06RFSSH2         0.375         0.69         2580         6.0           06RFSSH3         0.375         0.69         2580         6.0           08RFSSH1         0.50         0.77         80         6.0           08RFSSH3         0.50         0.83         1075         6.0           08RFSSH3         0.50         0.88         1500         6.0           12RFSSH1         0.75         1.02         60         8.0           12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           16RFSSH1         1.00         1.33         60         8.0           16RFSSH3         1.00         1.41         725         8.0           16RFSSH3         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH3         1.25         1.62         50         10.0           20RFSSH3         1.25         1.78	04RFSSH1	0.25	0.40	145	4.0
06RFSSH1         0.375         0.59         80         6.0           06RFSSH2         0.375         0.64         1450         6.0           06RFSSH3         0.375         0.69         2580         6.0           08RFSSH1         0.50         0.77         80         6.0           08RFSSH2         0.50         0.83         1075         6.0           08RFSSH3         0.50         0.88         1500         6.0           12RFSSH1         0.75         1.02         60         8.0           12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           16RFSSH1         1.00         1.33         60         8.0           16RFSSH3         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH3         1.50         2.9	04RFSSH2	0.25	0.45	2430	4.0
06RFSSH2         0.375         0.64         1450         6.0           06RFSSH3         0.375         0.69         2580         6.0           08RFSSH1         0.50         0.77         80         6.0           08RFSSH2         0.50         0.83         1075         6.0           08RFSSH3         0.50         0.88         1500         6.0           12RFSSH1         0.75         1.02         60         8.0           12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           16RFSSH2         1.00         1.33         60         8.0           16RFSSH3         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH3         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH3         1.50         1.98         35         10.0           24RFSSH3         1.50         2.9	04RFSSH3	0.25	0.50	3190	4.0
06RFSSH3         0.375         0.69         2580         6.0           08RFSSH1         0.50         0.77         80         6.0           08RFSSH2         0.50         0.83         1075         6.0           08RFSSH3         0.50         0.88         1500         6.0           12RFSSH1         0.75         1.02         60         8.0           12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           16RFSSH1         1.00         1.33         60         8.0           16RFSSH2         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH3         1.25         1.78         825         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH3         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           24RFSSH3         1.50         2.0	06RFSSH1	0.375	0.59	80	6.0
08RFSSH1         0.50         0.77         80         6.0           08RFSSH2         0.50         0.83         1075         6.0           08RFSSH3         0.50         0.88         1500         6.0           12RFSSH1         0.75         1.02         60         8.0           12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           16RFSSH1         1.00         1.33         60         8.0           16RFSSH2         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH1         1.50         1.88         35         10.0           24RFSSH3         1.50         1.95         500         10.0           24RFSSH3         1.50         2.95         800         10.0           24RFSSH3         1.50         2.95<	06RFSSH2	0.375	0.64	1450	6.0
08RFSSH2         0.50         0.83         1075         6.0           08RFSSH3         0.50         0.88         1500         6.0           12RFSSH1         0.75         1.02         60         8.0           12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           16RFSSH1         1.00         1.33         60         8.0           16RFSSH2         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH1         1.50         1.88         35         10.0           24RFSSH3         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           24RFSSH3         1.50         2.55         800         10.0           24RFSSH3         1.50         2.5	06RFSSH3	0.375	0.69	2580	6.0
08RFSSH3         0.50         0.88         1500         6.0           12RFSSH1         0.75         1.02         60         8.0           12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           16RFSSH1         1.00         1.33         60         8.0           16RFSSH2         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.62         50         10.0           20RFSSH3         1.25         1.78         825         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH3         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           24RFSSH3         1.50         2.05         800         10.0           24RFSSH3         1.50         2.05         800         10.0           24RFSSH3         2.00         2.4	08RFSSH1	0.50	0.77	80	6.0
12RFSSH1         0.75         1.02         60         8.0           12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           16RFSSH1         1.00         1.33         60         8.0           16RFSSH2         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH3         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           24RFSSH3         2.00         2.	08RFSSH2	0.50	0.83	1075	6.0
12RFSSH2         0.75         1.08         950         8.0           12RFSSH3         0.75         1.14         1250         8.0           16RFSSH1         1.00         1.33         60         8.0           16RFSSH2         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH1         1.50         1.88         35         10.0           24RFSSH3         1.50         1.95         500         10.0           24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH3         2.50         3.23         12         20.0           40RFSSH3         2.50         3.	08RFSSH3	0.50	0.88	1500	6.0
12RFSSH3         0.75         1.14         1250         8.0           16RFSSH1         1.00         1.33         60         8.0           16RFSSH2         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH1         1.50         1.88         35         10.0           24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH3         1.50         2.05         800         10.0           32RFSSH3         1.50         2.53         478         13.0           32RFSSH3         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH3         2.50	12RFSSH1	0.75	1.02	60	8.0
16RFSSH1         1.00         1.33         60         8.0           16RFSSH2         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH3         1.50         1.88         35         10.0           24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH3         2.00         2.45         15         13.0           32RFSSH1         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH3         3.00         3.	12RFSSH2	0.75	1.08	950	8.0
16RFSSH2         1.00         1.41         725         8.0           16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH1         1.50         1.88         35         10.0           24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH1         2.00         2.45         15         13.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH3         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH3         3.00         3.88         316         22.0           48RFSSH3         3.00	12RFSSH3	0.75	1.14	1250	8.0
16RFSSH3         1.00         1.49         1110         8.0           20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH1         1.50         1.88         35         10.0           24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH1         2.00         2.45         15         13.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH3         3.00         3.88         316         22.0           48RFSSH3         3.00         3.88         316         22.0           48RFSSH3         3.00 <td< td=""><td>16RFSSH1</td><td>1.00</td><td>1.33</td><td>60</td><td>8.0</td></td<>	16RFSSH1	1.00	1.33	60	8.0
20RFSSH1         1.25         1.62         50         10.0           20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH1         1.50         1.88         35         10.0           24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH3         1.50         2.05         800         10.0           32RFSSH1         2.00         2.45         15         13.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH3         3.00         3.88         316         22.0           48RFSSH3         3.00         3.88         316         22.0           48RFSSH3         4.00 <td< td=""><td>16RFSSH2</td><td>1.00</td><td>1.41</td><td>725</td><td>8.0</td></td<>	16RFSSH2	1.00	1.41	725	8.0
20RFSSH2         1.25         1.70         563         10.0           20RFSSH3         1.25         1.78         825         10.0           24RFSSH1         1.50         1.88         35         10.0           24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH1         2.00         2.45         15         13.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH3         3.00         3.78         10         22.0           48RFSSH3         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH1         4.00         4.85         8         27.0           64RFSSH3         4.00         5	16RFSSH3	1.00	1.49	1110	8.0
20RFSSH3         1.25         1.78         825         10.0           24RFSSH1         1.50         1.88         35         10.0           24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH1         2.00         2.45         15         13.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH3         3.00         3.88         316         22.0           48RFSSH3         3.00         3.88         316         22.0           48RFSSH3         3.00         3.88         316         22.0           48RFSSH3         4.00         4.85         8         27.0           64RFSSH3         4.00	20RFSSH1	1.25	1.62	50	10.0
24RFSSH1         1.50         1.88         35         10.0           24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH1         2.00         2.45         15         13.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH3         3.00         3.78         10         22.0           48RFSSH1         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH1         4.00         4.85         8         27.0           64RFSSH3         4.00         5	20RFSSH2	1.25	1.70	563	10.0
24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH1         2.00         2.45         15         13.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           40RFSSH3         3.00         3.78         10         22.0           48RFSSH2         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH4         4.00         4.85         8         27.0           64RFSSH3         4.00         4.98         232         27.0           64RFSSH3         4.00         5.10         371         27.0           80RFSSH1         5.00         5.90         6         31.0           80RFSSH3         5.00         6.	20RFSSH3	1.25	1.78		
24RFSSH2         1.50         1.95         500         10.0           24RFSSH3         1.50         2.05         800         10.0           32RFSSH1         2.00         2.45         15         13.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           40RFSSH3         3.00         3.78         10         22.0           48RFSSH2         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH4         4.00         4.85         8         27.0           64RFSSH3         4.00         4.98         232         27.0           64RFSSH3         4.00         5.10         371         27.0           80RFSSH1         5.00         5.90         6         31.0           80RFSSH3         5.00         6.	24RFSSH1	1.50	1.88	35	10.0
24RFSSH3         1.50         2.05         800         10.0           32RFSSH1         2.00         2.45         15         13.0           32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH3         3.00         3.78         10         22.0           48RFSSH2         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH4         4.00         4.85         8         27.0           64RFSSH3         4.00         4.98         232         27.0           64RFSSH3         4.00         5.10         371         27.0           80RFSSH3         5.00         6.03         191         31.0           80RFSSH3         5.00	24RFSSH2				
32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH1         3.00         3.78         10         22.0           48RFSSH2         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH3         3.00         3.98         506         22.0           64RFSSH3         4.00         4.85         8         27.0           64RFSSH3         4.00         4.98         232         27.0           64RFSSH3         4.00         5.10         371         27.0           80RFSSH3         5.00         5.90         6         31.0           80RFSSH2         5.00         6.03         191         31.0           80RFSSH3         5.00         6.15         306         31.0           96RFSSH2         6.00         7					
32RFSSH2         2.00         2.53         478         13.0           32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH1         3.00         3.78         10         22.0           48RFSSH2         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH3         3.00         3.98         506         22.0           64RFSSH3         4.00         4.85         8         27.0           64RFSSH3         4.00         4.98         232         27.0           64RFSSH3         4.00         5.10         371         27.0           80RFSSH3         5.00         5.90         6         31.0           80RFSSH2         5.00         6.03         191         31.0           80RFSSH3         5.00         6.15         306         31.0           96RFSSH2         6.00         7	32RFSSH1	2.00	2.45	15	13.0
32RFSSH3         2.00         2.61         638         13.0           40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH1         3.00         3.78         10         22.0           48RFSSH2         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH1         4.00         4.85         8         27.0           64RFSSH2         4.00         4.98         232         27.0           64RFSSH3         4.00         5.10         371         27.0           80RFSSH3         5.00         5.90         6         31.0           80RFSSH2         5.00         6.03         191         31.0           80RFSSH3         5.00         6.15         306         31.0           96RFSSH2         6.00         7.10         165         36.0           96RFSSH3         6.00         7.33         264         36.0           128RFSSH3         8.00					
40RFSSH1         2.50         3.23         12         20.0           40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH1         3.00         3.78         10         22.0           48RFSSH2         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH1         4.00         4.85         8         27.0           64RFSSH2         4.00         4.98         232         27.0           64RFSSH3         4.00         5.10         371         27.0           80RFSSH1         5.00         5.90         6         31.0           80RFSSH2         5.00         6.03         191         31.0           80RFSSH3         5.00         6.15         306         31.0           96RFSSH1         6.00         7.10         165         36.0           96RFSSH3         6.00         7.33         264         36.0           128RFSSH3         8.00         9.19         234         40.0           128RFSSH3         8.00 <td< td=""><td></td><td></td><td></td><td></td><td></td></td<>					
40RFSSH2         2.50         3.33         387         20.0           40RFSSH3         2.50         3.43         619         20.0           48RFSSH1         3.00         3.78         10         22.0           48RFSSH2         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH1         4.00         4.85         8         27.0           64RFSSH2         4.00         4.98         232         27.0           64RFSSH3         4.00         5.10         371         27.0           80RFSSH3         5.00         5.90         6         31.0           80RFSSH2         5.00         6.03         191         31.0           80RFSSH3         5.00         6.15         306         31.0           96RFSSH1         6.00         7.10         165         36.0           96RFSSH2         6.00         7.33         264         36.0           128RFSSH3         8.00         9.19         234         40.0           128RFSSH3         8.00         9.19         234         40.0           160RFSSH1         10.00					
40RFSSH3         2.50         3.43         619         20.0           48RFSSH1         3.00         3.78         10         22.0           48RFSSH2         3.00         3.88         316         22.0           48RFSSH3         3.00         3.98         506         22.0           64RFSSH1         4.00         4.85         8         27.0           64RFSSH2         4.00         4.98         232         27.0           64RFSSH3         4.00         5.10         371         27.0           80RFSSH3         5.00         5.90         6         31.0           80RFSSH2         5.00         6.03         191         31.0           80RFSSH3         5.00         6.15         306         31.0           96RFSSH1         6.00         6.87         5         36.0           96RFSSH2         6.00         7.10         165         36.0           96RFSSH3         6.00         7.33         264         36.0           128RFSSH3         8.00         9.19         234         40.0           128RFSSH3         8.00         9.28         374         40.0           160RFSSH1         10.00 <t< td=""><td></td><td></td><td></td><td>387</td><td></td></t<>				387	
48RFSSH2       3.00       3.88       316       22.0         48RFSSH3       3.00       3.98       506       22.0         64RFSSH1       4.00       4.85       8       27.0         64RFSSH2       4.00       4.98       232       27.0         64RFSSH3       4.00       5.10       371       27.0         80RFSSH1       5.00       5.90       6       31.0         80RFSSH2       5.00       6.03       191       31.0         80RFSSH3       5.00       6.15       306       31.0         96RFSSH1       6.00       6.87       5       36.0         96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         160RFSSH1       10.00       11.18       5       50.0         160RFSSH1       10.00       11.32       230       50.0         192RFSSH1       12.00       13.23       3       60.0         192RFSSH2       12.00       13.37       <	40RFSSH3			619	20.0
48RFSSH3       3.00       3.98       506       22.0         64RFSSH1       4.00       4.85       8       27.0         64RFSSH2       4.00       4.98       232       27.0         64RFSSH3       4.00       5.10       371       27.0         80RFSSH3       5.00       5.90       6       31.0         80RFSSH2       5.00       6.03       191       31.0         80RFSSH3       5.00       6.15       306       31.0         96RFSSH1       6.00       6.87       5       36.0         96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         160RFSSH1       10.00       11.18       5       50.0         160RFSSH2       10.00       11.32       230       50.0         192RFSSH2       12.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	48RFSSH1	3.00	3.78	10	22.0
48RFSSH3       3.00       3.98       506       22.0         64RFSSH1       4.00       4.85       8       27.0         64RFSSH2       4.00       4.98       232       27.0         64RFSSH3       4.00       5.10       371       27.0         80RFSSH3       5.00       5.90       6       31.0         80RFSSH2       5.00       6.03       191       31.0         80RFSSH3       5.00       6.15       306       31.0         96RFSSH1       6.00       6.87       5       36.0         96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         160RFSSH1       10.00       11.18       5       50.0         160RFSSH2       10.00       11.32       230       50.0         192RFSSH2       12.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	48RFSSH2	3.00	3.88	316	22.0
64RFSSH2       4.00       4.98       232       27.0         64RFSSH3       4.00       5.10       371       27.0         80RFSSH1       5.00       5.90       6       31.0         80RFSSH2       5.00       6.03       191       31.0         80RFSSH3       5.00       6.15       306       31.0         96RFSSH1       6.00       6.87       5       36.0         96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         128RFSSH3       8.00       9.28       374       40.0         160RFSSH1       10.00       11.18       5       50.0         192RFSSH2       10.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	48RFSSH3	3.00	3.98	506	22.0
64RFSSH3       4.00       5.10       371       27.0         80RFSSH1       5.00       5.90       6       31.0         80RFSSH2       5.00       6.03       191       31.0         80RFSSH3       5.00       6.15       306       31.0         96RFSSH1       6.00       6.87       5       36.0         96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         128RFSSH3       8.00       9.28       374       40.0         160RFSSH1       10.00       11.18       5       50.0         192RFSSH2       10.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	64RFSSH1	4.00		8	27.0
64RFSSH3       4.00       5.10       371       27.0         80RFSSH1       5.00       5.90       6       31.0         80RFSSH2       5.00       6.03       191       31.0         80RFSSH3       5.00       6.15       306       31.0         96RFSSH1       6.00       6.87       5       36.0         96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         128RFSSH3       8.00       9.28       374       40.0         160RFSSH1       10.00       11.18       5       50.0         192RFSSH2       10.00       11.32       230       50.0         192RFSSH2       12.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	64RFSSH2	4.00	4.98	232	27.0
80RFSSH2       5.00       6.03       191       31.0         80RFSSH3       5.00       6.15       306       31.0         96RFSSH1       6.00       6.87       5       36.0         96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         128RFSSH3       8.00       9.28       374       40.0         160RFSSH1       10.00       11.18       5       50.0         160RFSSH2       10.00       11.32       230       50.0         192RFSSH1       12.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	64RFSSH3	4.00	5.10	371	27.0
80RFSSH3       5.00       6.15       306       31.0         96RFSSH1       6.00       6.87       5       36.0         96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         128RFSSH3       8.00       9.28       374       40.0         160RFSSH1       10.00       11.18       5       50.0         160RFSSH2       10.00       11.32       230       50.0         192RFSSH1       12.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	80RFSSH1	5.00	5.90	6	31.0
80RFSSH3       5.00       6.15       306       31.0         96RFSSH1       6.00       6.87       5       36.0         96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         128RFSSH3       8.00       9.28       374       40.0         160RFSSH1       10.00       11.18       5       50.0         160RFSSH2       10.00       11.32       230       50.0         192RFSSH1       12.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	80RFSSH2	5.00	6.03	191	31.0
96RFSSH2       6.00       7.10       165       36.0         96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         128RFSSH3       8.00       9.28       374       40.0         160RFSSH1       10.00       11.18       5       50.0         160RFSSH2       10.00       11.32       230       50.0         192RFSSH1       12.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	80RFSSH3	5.00	6.15	306	31.0
96RFSSH3       6.00       7.33       264       36.0         128RFSSH1       8.00       9.09       6       40.0         128RFSSH2       8.00       9.19       234       40.0         128RFSSH3       8.00       9.28       374       40.0         160RFSSH1       10.00       11.18       5       50.0         160RFSSH2       10.00       11.32       230       50.0         192RFSSH1       12.00       13.23       3       60.0         192RFSSH2       12.00       13.37       161       60.0	96RFSSH1	6.00	6.87	5	36.0
128RFSSH1     8.00     9.09     6     40.0       128RFSSH2     8.00     9.19     234     40.0       128RFSSH3     8.00     9.28     374     40.0       160RFSSH1     10.00     11.18     5     50.0       160RFSSH2     10.00     11.32     230     50.0       192RFSSH1     12.00     13.23     3     60.0       192RFSSH2     12.00     13.37     161     60.0	96RFSSH2	6.00	7.10	165	36.0
128RFSSH2     8.00     9.19     234     40.0       128RFSSH3     8.00     9.28     374     40.0       160RFSSH1     10.00     11.18     5     50.0       160RFSSH2     10.00     11.32     230     50.0       192RFSSH1     12.00     13.23     3     60.0       192RFSSH2     12.00     13.37     161     60.0	96RFSSH3	6.00	7.33	264	36.0
128RFSSH3     8.00     9.28     374     40.0       160RFSSH1     10.00     11.18     5     50.0       160RFSSH2     10.00     11.32     230     50.0       192RFSSH1     12.00     13.23     3     60.0       192RFSSH2     12.00     13.37     161     60.0	128RFSSH1	8.00	9.09	6	40.0
160RFSSH1     10.00     11.18     5     50.0       160RFSSH2     10.00     11.32     230     50.0       192RFSSH1     12.00     13.23     3     60.0       192RFSSH2     12.00     13.37     161     60.0	128RFSSH2	8.00	9.19	234	40.0
160RFSSH2     10.00     11.32     230     50.0       192RFSSH1     12.00     13.23     3     60.0       192RFSSH2     12.00     13.37     161     60.0	128RFSSH3	8.00	9.28	374	40.0
192RFSSH1     12.00     13.23     3     60.0       192RFSSH2     12.00     13.37     161     60.0	160RFSSH1	10.00	11.18	5	50.0
192RFSSH1     12.00     13.23     3     60.0       192RFSSH2     12.00     13.37     161     60.0					
192RFSSH2 12.00 13.37 161 60.0					
EE 1111 JUIL   17.00   17.00   17   70.0	224RFSSH1	14.00	14.60	17	70.0
224RFSSH2 14.00 15.00 110 70.0					

#### **METAL HOSE GLOSSARY OF TERMS**

#### **BEND RADIUS:**

**Constant Flexing:** The minimum radius of a bend measured to the assembly's centerline to maximize assembly life and to be used in motion calculations.

Static Bend: The radius of a bend measured to the assembly's centerline to which an assembly may be bent for installation. The assembly should be subjected to no further motion other that vibration.

#### **BRAID:**

Tubular sheath of braided wires made to fit snugly over the hose and welded at the ends of the assembly. Braid is the pressure member of the assembly and prevents elongation of the corrugations under pressure.

#### **CONSTRUCTION:**

**Annular:** Convolutions that are a complete circle or ring.

**Helical:** Convolutions that are continuous and spiral along the length of the hose.

#### **FAILURES (TYPICAL):**

Abrasion: Failure caused by rubbing.

**Braid Wear:** Failure caused by motion between the braid and the corrugations.

**Carbide Precipitation:** Corrosion that occurs between dissimilar metals on the less noble of the metals.

**Fatigue:** Failure caused by flexing which results in the break down of the metal structure.

**Squirm:** Failure caused by excessive internal pressure that causes the corrugations to break out and shoot into an "S" OR "U" shape.

**Torque:** Excessive twisting of the assembly causing metal fatigue and failure.

#### **FLOW RATE**

The volume of media being conveyed in a given time period.

#### FREQUENCY:

The rate of vibration or flexure of an assembly in a given period of time.

#### **HARMONIC RESONANCE:**

The sympathetic vibration of convolutions caused by buffeting of the convolutions by a high velocity gas or steam flow.

#### I FNGTH

**Live:** The length of the exposed hose and braid excluding weld rings and fittings.

**Overall:** The total length of the assembly including end fittings.

#### **MOTION:**

**Angular Motion:** Motion that occurs when one end of an assembly is deflected in a simple bend. In these applications, care must be taken not to unload the braid by expansion.

Offset Motion: Motion that occurs when the ends of an assembly are displaced laterally to each other in a plane perpendicular to the longitudinal axis with the ends remaining parallel. The offset radius should never be greater than 25% of the minimum centerline bend radius.

**Radial Motion:** Motion that occurs when the centerline of the assembly is bent in a circular arc.

**Random Motion:** Motion that occurs non-cyclically as when an assembly is handled manually.

#### PRESSURE:

**Pressure Drop:** The amount of pressure lost by the medium as it travels through the hose. In long assemblies, pressure loss can be estimated to three times that of comparably sized pipe.

**Maximum Working Pressure:** The maximum operating pressure to which the hose assembly should be subjected to.

**Burst Pressure:** The pressure at which the hose assembly can be expected to rupture or the braid fail in tensile. This pressure is determined in a laboratory setting at 70°F and the hose installed in a straight line.

**Deformation Pressure:** The pressure at which the hose corrugations will permanently deform regardless of the external braiding.

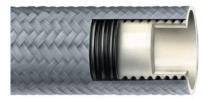
**Test Pressure:** The maximum pressure a hose can be tested at before damage will occur. It is not recommended that hydrostatic testing by conducted above 120% of the maximum working pressure, or 150% of the actual operating pressure of the particular application, whichever is less.

**Pulsating Pressure:** A rapid change in pressure above and below the normal base pressure.

**Shock Pressure:** Also called surge pressure. A sudden increase in pressure, which causes a shock wave through the assembly.

**NOTE:** For applications that experience pulsating, shock, or surge pressures, the peak pressure should not exceed 50% of the maximum working pressure and the braid must be tight to the hose with no slack after installation.

## **RFSSHT**



PTFE Lined Stainless Steel Corrugated Hose

TUBE: 316L corrugated stainless steel with seamless PTFE 321 corrugated stainless steel with seamless PTFE

COVER: Braided stainless steel
TEMPERATURE: -20°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot Flanged Assembly	Weight Per Additonal Foot
16RFSSHT	0.88	1.59	12	750	29	3.53	1.03
24RFSSHT	1.38	2.27	15	565	29	5.79	1.96
32RFSSHT	1.87	2.91	21	500	29	9.49	2.67
48RFSSHT	2.79	3.69	28	288	29	14.44	2.64
64RFSSHT*	3.76	4.84	46	250	20	21.57	3.17
96RFSSHT*	5.68	7.16	65	175	22	39.94	6.74
128RFSSHT*	7.71	9.31	89	212	20	62.50	9.50

<sup>\*</sup> Available in 150# flange style only. Lengths longer than 10 feet, we do not deduct for fittings, making the hose longer than ordered. Please keep that in mind when ordering.

#### **Features**

- Smooth inner surface
- · Bacteria free contact surface
- High purity
- Flare thru design eliminates metal corrosion and process contamination
- Available with optional 1/8" vent port

#### **Applications**

- · High and low temperature
- Chemical transfer
- Continuous steam
- · Vibration absorber
- Load cell

#### **Hose Certifications**

 Manufactured using FDA and 3-A compliant resin

#### **End Fittings**

• PTFE Flare thru 150# flange

# **Sight Glass**

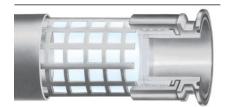
Sanitary sight glass assemblies are used widely in the food, dairy, beverage, biotech, pharmaceutical, and all other sanitary process industries to view products and fluids. Sanitary sight glass assemblies are placed inline with rigid pipe lines where product visibility is needed. Tank unloading, processing, and product transfer are a few of the many areas where sanitary sight glass assemblies are used inline with product transfer lines. Sanitary sight glass assemblies are available in a range of sight glass types including FEP, Polysulfone, and Pyrex®. Sanitary sight glass assembly end connections are available as radially crimped connections and unitized nonmetallic connections depending on the sight glass materials.

#### **RFSG**



Non-Caged FEP Sight Gauge
TEMPERATURE: -25°F to 300°F
END CONNECTIONS: 316L stainless
steel sanitary Tri-Clamp®

## RFCSG



Caged FEP Sight Gauge
TEMPERATURE: -25°F to 300°F
END CONNECTIONS: 316L stainless
steel sanitary Tri-Clamp®

## **RFPSSG**



Polysulfone Sight Gauge
TEMPERATURE: -20°F to 240°F
MOLDED END CONNECTIONS:
Mini Tri-Clamp®

#### **RFBSG**



Bolted Sight Gauge

**TEMPERATURE:** Acrylic insert 180°F Pyrex® insert is dependent on temperature rating of gasket used in fitting connection

#### **RFACSG**



Clear Acrylic Sight Tube
Made from ASTM 5436-D, FDAconforming acrylic and can be clamped
into sanitary lines seamlessly.

# View Ports/ End Caps

Rubber Fab offers an array of View Port and end cap sight glass options.

#### **View Ports**



The strongest, most secure sanitary sight glass available, View Port's mechanically prestressed windows are available in a sanitary clamp design for sight ports in processing applications or inline visual flow indicators.

## **Acrylic End Caps**



Rubber Fab offers acrylic sanitary fitting end caps for Bevel Seat, Tri-Clamp<sup>®</sup>, and I-Line fittings.

## Polysulfone End Caps



Rubber Fab offers polysulfone sanitary fitting end caps.

\*Also available in Lexan

## **RFSG**



Non-Caged FEP Sight Gauge
TEMPERATURE: -25°F to 300°F

END CONNECTIONS: 316L stainless steel sanitary Tri-Clamp® Consult factory for other end connection options

**Note:** ID is nominal bore only. Consult factory for fitting ID dimension. Rubber Fab recommends a Rubber Fab factory crimp for this product.

Part Number	Hose ID Inch	Hose OD Inch	Wall Thickness	Max. Working Pressure @ 70°F
08RFSG	0.50	0.75	0.125	150 psi
12RFSG	0.75	1.00	0.125	130 psi
16RFSG	1.00	1.25	0.125	125 psi
24RFSG	1.50	1.75	0.125	105 psi
32RFSG	2.00	2.35	0.175	72 psi
40RFSG	2.37	2.65	0.140	50 psi
48RFSG	2.87	3.23	0.180	40 psi

#### **Features**

- · Liquid level indicators
- Sturdy, favorable in high stress applications
- High and low temperature rated
- Smooth, non-stick surface cleans easily and promotes minimal pressure drop
- Non-contaminating
- Will not impart taste or odor
- Shatterproof tube
- Will not discolor
- Unaffected by ultraviolet or sunlight

#### Certifications

- 3-A Sanitary Standards
- USDA
- FDA
- USP Class VI



## **RFCSG**



Caged FEP Sight Gauge

TEMPERATURE: -25°F to 300°F

END CONNECTIONS: 316L stainless steel sanitary Tri-Clamp®

Part Number	Hose ID Inch	Hose OD Inch	Wall Thickness	Max. Working Pressure @ 70°F
16RFCSG	1.00	1.25	0.125	250 psi
24RFCSG	1.50	1.75	0.125	200 psi
32RFCSG	2.00	2.35	0.175	100 psi

This product is factory fabricated. Consult factory for individual length limits.

#### **Features**

- High pressure
- Liquid level indicators
- Sturdy, favorable in high stress applications
- High and low temperature rated
- Smooth, non-stick surface cleans easily and promotes minimal pressure drop
- Non-contaminating
- Will not impart taste or odor
- Shatterproof tube
- Will not discolor
- Unaffected by ultraviolet or sunlight

#### **Certifications**

- 3-A Sanitary Standards
- FDA 21 CFR 177.1550
- USDA
- USP Class VI



## **RFPSSG**



Polysulfone Sight Gauge
TEMPERATURE: -20°F to 240°F

MOLDED END CONNECTIONS:

Mini Tri-Clamp®

Part Number	Hose ID Inch	Hose OD Inch	TC Size	Max. Working Pressure @ 70°F
08RFPSSG08TC08TCM	0.50	0.63	0.50	176 psi
24RFPSSG24TC24TCM	1.36	1.61	1.50	125 psi
32RFPSSG32TC32TCM	1.86	2.11	2.00	125 psi
40RFPSSG40TC40TCM	2.36	2.61	2.50	62 psi

This product is factory fabricated.

#### **Features**

- · Light weight
- Perfect surface connection prevents bacteria trap

#### Certifications

• FDA 21 CFR 177.1655

## **RFBSG**



#### Bolted Sight Gauge

**TEMPERATURE:** Temperature rating for the borosilicate insert is dependent on temperature rating of gasket used in fitting connection. RFBSG comes standard with buna gasket and a temperature rating of 250°.

Borosilicate insert: 250°F Acrylic insert: 180°F

Part Number	ID Inch	OAL Inch	# of Bolts	Max. Working Pressure @ 70°F Pyrex PSI	Max. Working Pressure @ 70°F Acrylic PSI
08RFBSG	0.50	3.00	4	378	1400
12RFBSG	0.75	3.00	4	325	450
16RFBSG	1.00	3.63	4	215	439
24RFBSG	1.50	3.63	4	150	306
32RFBSG	2.00	3.63	4	130	234
40RFBSG	2.50	3.63	6	100	160
48RFBSG	3.00	3.63	6	95	234
64RFBSG	4.00	3.63	8	60	n/a
96RFBSG	6.00	4.63	8	33	n/a

This product is factory fabricated.

#### **Features**

- Provides fast, continuous inspection from all angles
- Available with borosilicate or acrylic inserts
- Includes buna gasket. Also available with FKM fluoroelastomer and silicone
- · Bevel Seat, Buttweld, I-Line, or Q-Line end configurations available

#### **Certifications**

• 3-A Sanitary Standards



## **RFACSG**



#### Clear Acrylic Sight Tubes

Made from ASTM 5436-D, FDAconforming acrylic and can be clamped into sanitary lines seamlessly.

Not recommended for use with abrasive products. Do not use 2 bolt high-pressure clamps. Minimum length is 1.25" OAL

Length			Wax. Cold Working Pressure PSI	Pressure PSI @ Max. Allowable	Inside Diameter (Reference	Outside Diameter (Reference
Part Number	Clamp Size	(inches)	@70°F	Temp. @140°F	ID)	OD)
24RFACSG-5.875	1.5"	5.875	145	100	1.295"	2"
32RFACSG-5.875	2"	5.875	145	100	1.835"	2.625"
48RFACSG-7.50	3"	7.500	120	75	2.817"	3.625"
64RFACSG-7.625	4"	7.625	75	30	3.750"	4.750"

#### Note:

Standard length shown, other lengths available upon request. Maximum length for 1 1/2" and 2" sizes = 48". Maximum lengths for 3" and 4" sizes = 7.625"

#### **Features**

- Ideal for simple sight requirements as well as tank level indication
- Economical option to standard stainless steel sight glasses
- Standard clamp torque is required (25 in/lbs)
- Pressure ratings absent thermal shock

#### Certifications

• CFR 177.1010

## **View Ports**



View Port sight glasses meet the USP Type 1 standard for pharmaceutical use.

Described as offering the optics of glass and the strength of steel, these glass elements provide a level of safety, and a useful service life, well beyond that provided by conventional tempered glass or plastic in sanitary service. Even at the most extreme temperatures (as high as 536° F) or in overpressure situations, sudden, total failure that involve leakage or explosive shattering of the glass, essentially never occurs.

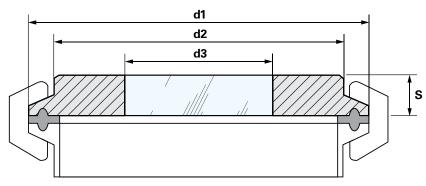
#### **AVAILABLE IN:**

Sanitary Tri-Clamp® Bevel Seat I-Line

Part Number	d1 Inch	d2 Inch	d3 Inch	S Inch	psig @ 536°F
RFVP-075-2205DSS	0.98	0.71	0.39	0.39	230
RFVP-150-2205DSS	1.99	1.61	0.98	0.39	230
RFVP-200-2205DSS	2.52	2.05	1.18	0.39	200
RFVP-250-2205DSS	3.05	2.72	1.38	0.39	200
RFVP-300-2205DSS	3.58	2.99	1.57	0.39	150
RFVP-400-2205DSS	4.69	4.02	2.17	0.47	150
RFVP-600-2205DSS	6.57	5.98	2.95	0.63	90
RFVP-800-2205DSS	8.56	7.80	3.94	0.71	90
RFVP-1000-2205DSS	10.55	9.65	4.72	0.79	90
RFVP-1200-2205DSS	12.56	11.81	5.51	0.87	80

#### Note:

Temperature and pressure apply to View Port only.







#### **Applications**

View Ports are manufactured to fit sanitary clamp connections. With simple, fast installation and no risk of breakage, this sleek, compact, one piece design provides a cleaner look, less bacteria traps, and unsurpassed safety. The View Port sight glass can be used as a viewable port mounted on a ferrule, a "cross" for inline visual flow indication or as a light port. Many other connection types are also available. Materials available include 2205 Duplex Stainless Steel, Hastelloy, Monel, and Inconel.

#### **Approvals & Technical Data**

- USP Class VI (tested to confirm biocompatibility)
- BPE Compliant and TÜV Approved
- Sight glass fused to metal conforming to DIN7079
- Borosilicate glass to USP Type I and DIN7080
- Standard surface finish of 10 Ra μ-in (0.25μm)
- Material to ASTM/ASME, TÜV and DIN/EN standards
- Certificate of Conformity to EN 10204-3.1B or 3.1A
- Pressure Equipment Directive 97/23/EG

## **Acrylic and Lexan End Caps**



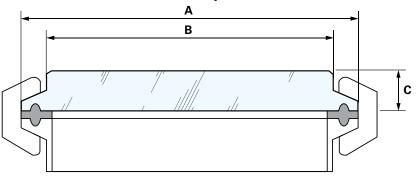


Size Inch	Part Number	A Dimension	B Dimension	C Dimension
1	16AMP-100-XX	1.98	1.23	0.35
1-1/2	16AMP-150-XX	1.98	1.23	0.35
2	16AMP-200-XX	2.52	1.76	0.35
2-1/2	16AMP-250-XX	3.00	2.29	0.35
3	16AMP-300-XX	3.58	2.80	0.35
4	16AMP-400-XX	4.68	3.92	0.35
6	16AMP-600-XX	6.57	5.03	0.60
8	16AMP-800-XX	8.57	7.20	0.50
10	16AMP-1000-XX	10.57	9.20	0.50
12	16AMP-1200-XX	12.57	11.20	0.50

Replace XX with AC for Acrylic or LX for Lexan

Also available in Bevel Seat or I-Line styles.





## **Polysulfone End Caps**





Size Inch	Part Number	A Dimension	B Dimension	C Dimension
1	16AMP-100-PS	1.98	1.23	0.35
1-1/2	16AMP-150-PS	1.98	1.23	0.35
2	16AMP-200-PS	2.52	1.76	0.35

Available in Bevel Seat or I-Line styles.

## **Metal Detection Tube**

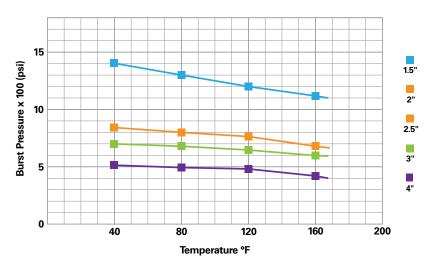
Rubber Fab's Metal Detection tubes are used as a metal detection machine component for viscous products such as liquids, slurries, syrups, pastes, and many other pumped products. When metal is detected in the product flow, a reject signal is channeled to one of the available output relays. The output relay can be used to activate a ball valve, control a visual or audio alarm, or send a signal to a PLC and release the rejected product, therefore minimizing product loss and costly downtime.

Size in Inches	Part Number
1-1/2	24RFKMD24TC24TCSS
2	32RFKMD32TC32TCSS
2-1/2	40RFKMD40TC40TCSS
3	48RFKMD48TC48TCSS
4	64RFKMD64TC64TCSS

Rubber Fab recommends a Rubber Fab factory crimp for this product.

Rubber Fab's sanitary metal detection tube assemblies are manufactured using steam cleanable USDA, FDA approved schedule 80 PVDF pipe suitable for system temperatures of -40°F to 240°F, and 316L sanitary Tri-Clamp® connections.





#### Notes:

- 1: Burst pressure based on tensile strength: B.P. = 2(T.S. x Wall)/OD
- 2: To calculate working pressure, divide burst pressure by a safety factor of 3.
- 3: Pressure calculated for tubing only. Connections and ends must be calculated separately.

## **Laser Engraved Connections Available**



## **Silicone Hose**

Rubber Fab's high purity platinum-cured and peroxide-cured silicone hoses are clean room produced for critical pharmaceutical, medical, cosmetic, and food applications.

#### **RFSB**



Smoothbore Platinum Cured Silicone Hose with Braid Reinforcement

**TUBE:** Smoothbore platinum cured silicone

**COVER:** Platinum cured silicone **REINFORCEMENT:** Polyester braid

**COLOR:** Translucent

TEMPERATURE: -100°F to 350°F

## **RFSBX**



Smoothbore Peroxide Cured Silicone Hose with Braid Reinforcement

**TUBE:** Smoothbore peroxide cured silicone

**COVER:** Peroxide cured silicone **REINFORCEMENT:** Polyester braid

**COLOR:** Translucent

TEMPERATURE: -80°F to 350°F

#### **RFSBHP**



Smoothbore Platinum Cured High Pressure Silicone Hose with Double Braid Reinforcement

**TUBE: Smoothbore platinum cured** silicone

**COVER:** Smoothbore white platinum

silicone

**REINFORCEMENT:** Polyester braid

COLOR: White

TEMPERATURE: -100°F to 350°F

#### RFS4P



Smoothbore Platinum Cured Silicone Hose with 4-Ply Reinforcement

**TUBE: Smoothbore platinum cured** silicone

**COVER:** Platinum cured silicone **REINFORCEMENT:** 4-Ply polyester

braid

**COLOR:** Translucent white TEMPERATURE: -100°F to 350°F

#### **RFSV**



Smoothbore Platinum Cured Silicone Hose with Wire Reinforcement

TUBE: Smoothbore platinum cured silicone

**COVER:** Platinum cured silicone REINFORCEMENT: 4-Plv. polvester braid with stainless steel helix wire

COLOR: Translucent white TEMPERATURE: -100° to 350°F

## **RFSVOC**



Smoothbore Platinum Cured Silicone Hose with Wire Reinforcement and Silicone Outer Convoluted Cover

**TUBE: Smoothbore platinum cured** silicone

**COVER:** Corrugated platinum cured silicone

**REINFORCEMENT:** 4-Ply, polyester braid with stainless steel helix wire

**COLOR:** Translucent white TEMPERATURE: -100° to 350°F

## **RFSB**



Smoothbore Platinum Cured Silicone Hose with Braid Reinforcement

**TUBE: Smoothbore platinum cured silicone** 

**COVER:** Platinum cured silicone **REINFORCEMENT:** Polyester braid

**COLOR:** Translucent

TEMPERATURE: -100°F to 400°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Weight Per Foot
04RFSB	0.25	0.50	1.00	140	0.08
06RFSB	0.38	0.63	1.00	140	0.10
08RFSB	0.50	0.88	3.00	105	0.21
10RFSB	0.63	0.99	3.00	100	0.24
12RFSB	0.75	1.13	4.00	90	0.29
16RFSB	1.00	1.41	6.00	60	0.40

RFSB is manufactured in 25 and 50 foot lengths.

#### **Features**

- Ultra flexible
- Hardness value 65 Shore A
- Sterilizable by autoclave, CIP, SIP (up to 15 PSI of steam), and gamma radiation processes
- · Will not impart taste or odor
- Clean room manufactured
- Non-toxic
- Non-pyrogenic
- Lot and batch traceable
- Resists temperature extremes and ozone

#### **Applications**

- Pharmaceutical processing
- Bio medical
- Laboratory
- Cosmetic
- Peristaltic pump applications
- Ultra pure liquid transfer
- Food processing
- Wash down stations
- Skid systems
- Veterinary pharmaceuticals
- Load cell applications
- Pharmaceutical skid transfer

#### **Hose Certifications**

- USP Class VI
- European Pharmacopoeia 3.1.9
- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- NSF 51 Core
- ISO 10993
- ADI Free<sup>®</sup>



## **RFSBX**



Smoothbore Peroxide Cured Silicone Hose with Braid Reinforcement

**TUBE:** Smoothbore peroxide cured silicone

**COVER:** Peroxide cured silicone **REINFORCEMENT:** Polyester braid

**COLOR:** Translucent

TEMPERATURE: -80°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Weight Per Foot
04RFSBX	0.25	0.52	1.00	208	0.09
06RFSBX	0.38	0.66	3.00	166	0.13
08RFSBX	0.50	0.80	3.00	141	0.17
12RFSBX	0.75	1.10	5.00	91	0.28
16RFSBX	1.00	1.38	6.00	75	0.36

RFSBX is manufactured in 25 and 50 foot lengths. Medical Grade is available, please consult factory for price.

#### **Features**

- Open mesh polyester braiding incorporated within the walls of silicone hose
- Translucent natural color for visual contact with the flow
- Will not impart taste or odor
- All ingredients are non-toxic and FDA sanctioned for use with food contact surfaces

#### **Applications**

- Adhesive lines
- Beverage service
- Bottle filling
- Chemical feeds
- · Deionized water transfer
- Fermenter lines
- Hot fill lines
- Food handling
- Laboratory
- Resin feeds
- Stirring vessels
- Viscous material handling

- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- Meets NSF 51 requirements
- FDA sanctioned for use with food contact surfaces
- ADI Free<sup>®</sup>



## **RFSBHP**



Smoothbore Platinum Cured High Pressure Silicone Hose with Double Braid Reinforcement

TUBE: Smoothbore platinum cured silicone
COVER: Smoothbore platinum silicone
REINFORCEMENT: Polyester braid

**COLOR:** White

TEMPERATURE: -100°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Weight Per Foot
08RFSB-HP	0.50	0.89	2.50	150	0.21
12RFSB-HP	0.75	1.18	3.00	188	0.29
16RFSB-HP	1.00	1.43	3.50	125	0.40

RFSBHP is manufactured in 25 and 50 foot lengths.

#### **Features**

- Smoothbore with braid reinforcement for increased working pressures
- Superior flexibility
- Sterilizable/autoclavable
- · Will not impart taste or odor
- Lot and batch traceability
- Resists temperature exfremes, ozone radiation, moisture, and environmental exposure
- Hardness value: core 70 Shore A, outer cover 60 Shore A
- · Cleanroom manufactured and packaged

#### **Applications**

- · Pharmaceutical skid transfer
- Pharmaceutical processing
- Load cell
- Vessel or tank transfer
- Media dispensing
- Laboratory use
- Water for injection (WFI)
- Bioreactor process lines
- Cosmetic processing
- Pump cultures

#### **Hose Certifications**

- USP Class VI
- European Pharmacopoeia 3.1.9
- FDA 177.2600
- · 3-A Sanitary Standards
- NSF 51
- ISO 10993
- ADI Free<sup>®</sup>



## RFS4P



Smoothbore Platinum Cured Silicone Hose with 4-Ply Reinforcement

**TUBE: Smoothbore platinum cured silicone** 

**COVER:** Platinum cured silicone

**REINFORCEMENT:** 4-Ply polyester braid

**COLOR:** Translucent white **TEMPERATURE:** -100°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Burst Pressure @ 70°F psig	Weight Per Foot
08RFS4P	0.50	0.92	2.50	150	600	0.28
12RFS4P	0.75	1.17	4.50	150	600	0.36
16RFS4P	1.00	1.42	9.00	150	600	0.44
24RFS4P	1.50	1.92	12.00	150	600	0.69
32RFS4P	2.00	2.42	CF	125	500	0.88
40RFS4P	2.50	2.92	CF	125	500	1.05
48RFS4P	3.00	3.42	CF	100	400	1.23
64RFS4P	4.00	4.42	CF	100	400	CF

1/2" is manufactured in 13.12' lengths. 3/4" - 2" is manufactured in 19.685' lengths. 3" - 4" is manufactured in 13.12' lengths. CF = Consult Factory

#### **Features**

- Ultra flexible
- Sterilizable by autoclave, CIP, SIP, and gamma radiation processes
- Hardness value of 70 Shore A
- · Will not impart taste or odor
- · Clean room manufactured
- Non-toxic
- Non-pyrogenic
- Lot and batch traceable
- · Resists temperature extremes and ozones

#### **Applications**

- Food processing
- Medical/surgical applications
- Dairy
- Beverage
- Fermentation
- Biotechnology
- Pharmaceutical processing
- Load cells
- · Cell cultures
- WFI transfer
- Pump applications
- Not intended for steam applications

- USP Class VI
- European Pharmacopoeia 3.1.9
- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- ADI Free<sup>®</sup>



## **RFSV**



Smoothbore Platinum Cured Silicone Hose with Wire Reinforcement

TUBE: Smoothbore platinum cured silicone

**COVER:** Platinum cured silicone

REINFORCEMENT: 4-Ply, polyester braid

with stainless steel helix wire **COLOR**: Translucent white

TEMPERATURE: -100°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFSV	0.500	0.886	2.00	150	FULL	0.28
12RFSV	0.750	1.134	2.50	150	FULL	0.36
16RFSV	1.000	1.386	3.50	150	FULL	0.44
24RFSV	1.500	1.886	4.00	150	FULL	0.69
32RFSV	2.000	2.386	6.00	125	FULL	0.88
40RFSV	2.500	2.988	11.00	125	FULL	1.05
48RFSV	3.000	3.488	13.00	100	CF	1.23
64RFSV	4.000	4.488	CF	100	CF	1.71

1/2" is manufactured in 13.12' lengths. 3/4" - 2" is manufactured in 19.685' lengths. 3" - 4" is manufactured in 13.12' lengths. CF = Consult Factory

#### **Features**

- Ultra flexible
- Sterilizable by autoclave, CIP, SIP, and gamma radiation processes
- Hardness value 70 Shore A
- · Will not impart taste or odor
- Clean room manufactured
- Non-toxic
- Non-pyrogenic
- Lot and batch traceable
- Resists temperature extremes and ozones

#### **Applications**

- Pharmaceutical processing
- Bio medical
- Laboratory
- Cosmetic
- Ultra pure liquid transfer
- Food processing
- Wash down stations
- Veterinary pharmaceuticals
- Load cell applications
- Pharmaceutical skid transfer

#### **Hose Certifications**

- USP Class VI
- European Pharmacopoeia 3.1.9
- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- NSF 51 Core
- ISO 10993
- ADI Free®



## **RFSVOC**



Smoothbore Platinum Cured Silicone Hose with Wire Reinforcement and Silicone Outer Convoluted Cover

**TUBE: Smoothbore platinum cured silicone** 

**COVER:** Corrugated platinum cured silicone

REINFORCEMENT: 4-Ply, polyester braid

with stainless steel helix wire **COLOR:** Translucent white

TEMPERATURE: -100°F to 350°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
08RFSVOC	0.50	0.91	2.00	150	FULL	0.21
12RFSV0C	0.75	1.16	2.50	150	FULL	0.31
16RFSVOC	1.00	1.41	3.50	150	FULL	0.39
24RFSV0C	1.50	1.91	4.00	150	FULL	0.63
32RFSV0C	2.00	2.41	6.00	125	FULL	0.78

1/2" is manufactured in 13.12' lengths. 3/4" - 2" is manufactured in 19.685' lengths. CF = Consult Factory

#### **Features**

- Smooth inner bore
- Ultra flexible
- Sterilizable by autoclave, CIP, SIP, and gamma radiation
- · Hardness value of 70 Shore A
- · Will not impart taste or odor
- Clean room manufactured
- Non-toxic
- Non-pyrogenic
- Lot and batch traceable
- · Resists temperature extremes and ozones

#### **Applications**

- Pharmaceutical processing
- Biomedical
- Laboratory
- Cosmetic
- Ultra pure liquid transfer
- Food processing
- Wash down stations
- Skid systems
- Veterinary pharmaceuticals
- Load cell applications

- USP Class VI
- European Pharmacopoeia 3.1.9
- FDA 21 CFR 177.2600
- 3-A Sanitary Standards
- NSF 51 Core
- ISO 10993
- ADI Free<sup>®</sup>



# **FDA PVC Hose**

Rubber Fab FDA PVC hoses are designed to transport a wide variety of fluids without imparting odor or taste. Non-toxic, non-pyrogenic, and alkaline resistant, these features render our hoses ideal for food/beverage, laboratory, and surgical/hospital applications.

#### **RFPB**



FDA Smoothbore PVC Hose with Braid Reinforcement

TUBE: Smoothbore FDA PVC
COVER: Smoothbore FDA PVC
REINFORCEMENT: Polyester textile

inner braid

**COLOR:** Transparent

**TEMPERATURE**: 25°F to 150°F

#### **RFPVV**



Smoothbore FDA PVC Hose with Spiral PVC Reinforcement

TUBE: Smoothbore FDA PVC
COVER: Smoothbore FDA PVC
REINFORCEMENT: Clear PVC helical
reinforcement

COLOR: Translucent

TEMPERATURE: 25°F to 150°F

#### **RFPVW**



Smoothbore FDA PVC Hose with Wire Reinforcement

TUBE: Smoothbore FDA PVC COVER: Smoothbore FDA PVC REINFORCEMENT: Steel wire reinforcement

COLOR: Transparent

TEMPERATURE: 25°F to 150°F

## **RFPC**



Smoothbore FDA PVC Hose
TUBE: Smoothbore FDA PVC
COVER: Smoothbore FDA PVC

**COLOR:** Transparent

TEMPERATURE: 25°F to 150°F

#### **RFPBW**



Smoothbore FDA PVC Hose with Braid and Wire Reinforcement

TUBE: Smoothbore FDA PVC
COVER: Smoothbore FDA PVC
REINFORCEMENT: Polyester textile
inner braid and steel wire reinforcement

**COLOR:** Transparent

TEMPERATURE: 15°F to 150°F

# In addition to bulk hose and crimped assemblies, Rubber Fab also offers PVC hose assemblies with hytrel unitized ends.







## **RFPB**



FDA Smoothbore PVC Hose with Braid Reinforcement

**TUBE: Smoothbore FDA PVC COVER:** Smoothbore FDA PVC

**REINFORCEMENT:** Polyester textile inner

braid

**COLOR:** Transparent

**TEMPERATURE:** 25°F to 150°F

Part Number	Hose ID Inch	Hose OD Inch	Max. Working Pressure @ 70°F psig	Weight Per Foot
02RFPB	0.13	0.33	350	0.04
03RFPB*	0.19	0.41	350	0.06
04RFPB	0.25	0.50	350	0.08
05RFPB*	0.31	0.56	275	0.09
06RFPB	0.38	0.63	275	0.11
08RFPB	0.50	0.81	250	0.17
10RFPB	0.63	1.00	225	0.26
12RFPB	0.75	1.13	200	0.30
16RFPB	1.00	1.38	150	0.38
20RFPB*	1.25	1.75	125	0.64
24RFPB	1.50	2.00	100	0.75
32RFPB	2.00	2.50	75	0.96

<sup>\*</sup> Bulk hose only.

#### **Features**

- · Will not impart taste or odor
- Non-toxic
- Non-pyrogenic
- Alkaline resistant
- Clear and flexible
- Available in bulk or fabricated assemblies

#### **Applications**

- · Chemical processing and transfer
- Pharmaceutical manufacturing
- Food and syrup handling
- Beverage transfer
- Dairy processing
- Air lines
- · Pump feed and discharge
- · Laboratory and research
- Instrumentation
- General water suction and discharge
- Irrigation systems
- Hydraulics and pneumatics
- Spray systems
- Filters

#### **Hose Certifications**

- Meets FDA CFR Title 21 170-199
- 3-A Sanitary Standards
- Phthalate Free
- NSF 51
- RoHS
- USDA
- USP Class VI



## RFPB - Food Grade PVC Braided Hose Assembly with Unitized Ends



Part Number	Hose ID Inch	Hose OD Inch	Tri-Clamp <sup>®</sup> Size	FPT Size	MPT Size	Working Pressure*
02RFPB	0.13	0.33	Mini	N/A	N/A	350
04RFPB	0.25	0.50	Mini & 1	1/2	1/4 & 1/2	350
06RFPB	0.38	0.63	Mini & 1	3/8	1/2	275
08RFPB	0.50	0.75	Mini, 1 & Maxi	1/2	1/2	250
10RFPB	0.63	0.88	Mini & 1	N/A	N/A	225
12RFPB	0.75	1.13	1 & Maxi	N/A	3/4 & 1	200
16RFPB	1.00	1.38	1-1/2 & 2	N/A	N/A	150
20RFPB	1.25	1.63	1-1/2	N/A	N/A	125
24RFPB	1.50	2.00	2	N/A	2	100
1856RFPB	1.86	2.37	2 & 2-1/2	N/A	N/A	75
32RFPB	2.00	2.50	2-1/2	N/A	N/A	75

<sup>\*</sup>at 68°F

#### Note:

Safety factor of 3:1 working pressure for tubing only.

The fittings chart above reflects molded, unitized connections only. Consult factory for assembly part numbers. Also available stainless steel crimped connections, I-Line, Q-Line, and Bevel Seat with nut.

## **RFPVV**



Smoothbore FDA PVC Hose with Spiral PVC Reinforcement

TUBE: Smoothbore FDA PVC
COVER: Smoothbore FDA PVC
REINFORCEMENT: Clear PVC helical

reinforcement **COLOR:** Translucent

TEMPERATURE: 25°F to 150°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
12RFPVV	0.75	0.94	3.00	105	28	0.20
16RFPVV	1.00	1.25	3.00	100	28	0.27
20RFPVV*	1.25	1.50	3.00	95	28	0.30
24RFPVV	1.50	1.81	4.00	85	28	0.40
32RFPVV	2.00	2.38	5.00	80	28	0.60
40RFPVV	2.50	2.88	7.00	75	28	0.85
48RFPVV	3.00	3.44	8.00	65	28	1.15
64RFPVV	4.00	4.50	10.00	50	28	1.75
80RFPVV*	5.00	5.51	28.00	40	28	2.41
96RFPVV	6.00	6.59	48.00	30	28	3.28
128RFPVV	8.00	8.85	60.00	25	28	5.67

<sup>\*</sup> Bulk hose only.

#### **Features**

- · Will not impart taste or odor
- Non-toxic
- Non-pyrogenic
- Alkaline resistant
- Flexible
- Available in bulk or fabricated assemblies

#### **Applications**

- · Chemical processing and transfer
- Pharmaceutical manufacturing
- Food and syrup handling
- Beverage transfer
- Dairy processing
- Air lines
- Pump feed and discharge
- Laboratory and research
- Instrumentation
- General water suction and discharge
- Irrigation systems
- Vacuum lines
- Hydraulics and pneumatics
- Spray systems
- Filters

#### **Hose Certifications**

- Meets FDA CFR Title 21 170-199
- Meets 3-A Sanitary Standards
- Meets USDA
- Phthalate Free



## **RFPVV** – PVC Spiral Reinforced Assembly with Unitized Ends



Part	Hose ID	Hose OD	Tri-Clamp <sup>®</sup>	Working	
Number	Inch	Inch	Size	Pressure*	
40RFPVV	2.50	2.88	3	75	

<sup>\*</sup>at 68°F

#### Note:

Safety factor of 3:1 working pressure for tubing only.

The fittings chart above reflects molded, unitized connections only.

Consult factory for assembly part numbers.

Also available stainless steel crimped connections, I-Line, Q-Line, and Bevel Seat with nut.

## **RFPVW**



Smoothbore FDA PVC Hose with Wire Reinforcement

TUBE: Smoothbore FDA PVC COVER: Smoothbore FDA PVC REINFORCEMENT: Steel wire

reinforcement

**COLOR:** Transparent

TEMPERATURE: 25°F to 150°F

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Vacuum Rating @ 70°F in. Hg.	Weight Per Foot
04RFPVW	0.25	0.46	1.00	150	FULL	0.07
06RFPVW	0.38	0.60	1.50	100	FULL	0.11
08RFPVW	0.50	0.75	2.00	100	FULL	0.15
10RFPVW	0.63	0.89	2.50	50	FULL	0.19
12RFPVW	0.75	1.03	3.00	70	FULL	0.24
16RFPVW	1.00	1.30	4.00	100	FULL	0.44
20RFPVW*	1.25	1.61	5.00	70	FULL	0.50
24RFPVW	1.50	1.86	6.00	50	FULL	0.58
32RFPVW	2.00	2.39	8.00	50	FULL	0.84
36RFPVW*	2.25	2.75	9.00	50	FULL	1.16
40RFPVW	2.50	3.00	10.00	50	FULL	1.38
48RFPVW	3.00	3.50	12.00	50	FULL	1.62

<sup>\*</sup> Bulk hose only.

#### **Features**

- Clear and flexible
- · Will not impart taste or odor
- Non-toxic
- Non-pyrogenic
- Alkaline resistant
- · Available in bulk or fabricated assemblies
- Static grounding available

#### **Applications**

- Chemical processing and transfer
- Pharmaceutical manufacturing
- Food and syrup handling
- Beverage transfer
- Dairy processing
- Air lines
- · Laboratory and research
- Instrumentation
- General water suction and discharge
- Irrigation systems
- Hydraulics and pneumatics

#### **Hose Certifications**

- USP Class VI
- FDA CFR Title 21 170-199
- 3-A Sanitary Standards
- NSF/ANSI STD 51
- RoHS
- USDA
- Phthalate Free



## RFPVW - Food Grade PVC Wire Reinforced Vacuum Hose Assembly with Unitized Ends



Part Number	Hose ID Inch	Hose OD Inch	Tri-Clamp <sup>®</sup> Size	FPT Size	MPT Size	Working Pressure*
06RFPVW	0.38	0.63	Mini & 1	3/8	1/2	150
08RFPVW	0.50	0.75	Mini & 1	1/2	1/2	150
10RFPVW	0.63	0.88	Mini & 1	N/A	N/A	150
12RFPVW	0.75	1.00	1 & Maxi	N/A	3/4 & 1	150
16RFPVW	1.00	1.25	1-1/2 & 2	N/A	N/A	100
20RFPVW	1.25	1.56	1-1/2	N/A	N/A	100
24RFPVW	1.50	1.89	2	N/A	2	100
32RFPVW	2.00	2.36	2-1/2	N/A	N/A	100

<sup>\*</sup>at 68°F

#### Note:

Safety factor of 3:1 working pressure for tubing only.

The fittings chart above reflects molded, unitized connections only. Consult factory for assembly part numbers. Also available stainless steel crimped connections, I-Line, Q-Line, and Bevel Seat with nut.

## **RFPC**



Smoothbore FDA PVC Hose

**TUBE: Smoothbore FDA PVC COVER:** Smoothbore FDA PVC

**COLOR:** Transparent

TEMPERATURE: 25°F to 150°F

#### **Features**

- · Phthalate free
- Non-pyrogenic and non-hemolytic
- Ultra smooth interior
- Superior flexibility
- Lot and batch traceable
- · Contains no BPA
- Excellent chemical resistance
- Lot-to-lot consistency for reproducible results
- Slips easily over fittings and grips securely
- Available: bulk, spooled, with molded or crimped ends

#### **Applications**

- · Laboratory research
- Analytical instruments
- Peristaltic and vacuum pumps
- Food and beverage
- Pharmaceuticals
- Biologics
- Medical device
- Brewery consumer products
- Environmental
- Raw milk
- Consumer products
- Ideal for condensers, incubators, desiccators, gas lines, and drain lines

#### **Quality Standards**

- USP Class VI
- FDA 21 CFR Part 175.300
- FDA 21 CFR Part 181.27
- FDA 21 CFR Part 178.2010
- FDA 21 CFR Part 178.3297
- Meets 3-A Sanitary Standards
- ADI Free<sup>®</sup>
- REACH Compliant
- RoHS Compliant
- Meets USDA

Part Number	ID Inch	OD Inch	Wall Inch	Bend Radius Inch	Max WP @ 72°F psig	Vacuum Rating @ 72°F in. Hg.	Weight Per 50 Foot Coil
RFPC-125-187	1/8	3/16	1/32	1/2	44	25.0	0.41
RFPC-125-250	1/8	1/4	1/16	3/8	68	29.9	0.99
RFPC-156-218	5/32	7/32	1/32	3/4	38	15.0	0.49
RFPC-156-250	5/32	1/4	3/64	1	CF	20.0	0.81
RFPC-170-250	.170	.250	.04	CF	42	CF	0.71
RFPC-187-312	3/16	5/16	1/16	5/8	55	29.9	1.32
RFPC-187-375	3/16	3/8	3/32	1/2	70	29.9	2.25
RFPC-187-437	3/16	7/16	1/8	3/8	80	29.9	3.30
RFPC-240-370	.240	.370	.065	CF	CF	CF	1.67
RFPC-250-375	1/4	3/8	1/16	1	55	25.0	1.65
RFPC-250-437	1/4	7/16	3/32	3/4	60	29.9	2.72
RFPC-250-500	1/4	1/2	1/8	5/8	70	29.9	4.00
RFPC-312-437	5/16	7/16	1/16	1-3/8	50	15.0	1.98
RFPC-375-500	3/8	1/2	1/16	1-3/4	40	10.0	2.32
RFPC-375-562	3/8	9/16	3/32	1-3/8	50	25.0	3.70
RFPC-375-625	3/8	5/8	1/8	1-1/8	65	29.9	5.28
RFPC-437-625	7/16	5/8	3/32	1-3/4	45	18.0	4.22
RFPC-500-625	1/2	5/8	1/16	2-7/8	30	6.0	2.97
RFPC-500-687	1/2	11/16	3/32	2-1/8	40	15.0	4.69
RFPC-500-750	1/2	3/4	1/8	1-3/4	45	25.0	6.60
RFPC-500-1000	1/2	1	1/4	2-1/2	67	29.9	15.83
RFPC-562-750	9/16	3/4	3/32	2-1/2	40	10.0	5.21
RFPC-625-875	5/8	7/8	1/8	2-3/8	40	15.0	7.92
RFPC-625-1000	5/8	1	3/16	2	49	25.0	12.86
RFPC-687-937	11/16	15/16	1/8	1-3/4	35	21.0	8.60
RFPC-750-1000	3/4	1	1/8	3-1/4	35	10.0	9.23
RFPC-750-1062	3/4	1-1/16	5/32	4	40	15.0	11.96
RFPC-750-1125	3/4	1-1/8	3/16	4-1/2	40	13.0	14.80
RFPC-875-1125	7/8	1-1/8	1/8	4-1/8	30	10.0	10.56
RFPC-1000-1125	1	1-1/8	1/16	3-1/2	18	5.0	5.61
RFPC-1000-1250	1	1-1/4	1/8	5-1/8	28	5.0	11.88
RFPC-1000-1375	1	1-3/8	3/16	5-1/2	45	8.0	18.80

CF = Consult Factory

### **RFPBW**



Smoothbore FDA PVC Hose with Braid and Wire Reinforcement

**COVER:** Smoothbore FDA PVC **REINFORCEMENT:** Polyester textile inner braid and steel wire reinforcement

**COLOR:** Transparent

TEMPERATURE: 15°F to 150°F

**TUBE: Smoothbore FDA PVC** 

Part Number	Hose ID Inch	Hose OD Inch	Bend Radius Inch	Max. Working Pressure @ 70°F psig	Standard Length Coils in ft	Weight Per Pkg (lbs)
08RFPBW	0.50	0.906	2.00	250	25/25/100	6.5/13/26
12RFPBW	0.75	1.196	2.50	225	25/50/100	10/20/40
16RFPBW	1.00	1.464	3.50	225	25/50/100	13.3/26.5/53
20RFPBW	1.25	1.780	4.50	175	25/50	18.5/37
24RFPBW	1.50	2.030	5.50	175	25/50	21.5/43
32RFPBW	2.00	2.600	7.00	150	25/50	32/64

#### **Features**

- · Kink resistant
- Non-marking
- Self-extinguishing
- Chemical resistant
- Available in standard coil lengths

#### **Applications**

- Chemical processing and transfer
- Air lines
- Water transfer
- · Liquid food transfer
- Pressure and vacuum

#### **Hose Certifications**

- Meets FDA CFR Title 21 170-199
- Meets 3-A Sanitary Standards
- Meets USDA
- Phthalate Free



## **Unitized Ends**

Unitized molded ends provide state-of-theart sanitary connective technology due to its barbless, crevice-free smooth inner bore construction. The smooth I.D. eliminates bacteria traps and assures maximum, free flow. Non-metallic, platinum-cured silicone sanitary ends provide a built-in male sanitary gasket, eliminating the need for an independent gasket which can be difficult to align during installation.



Mini Tri-Clamp®



Tri-Clamp®

## **PFA Tubing**

PFA is the tubing of choice for applications involving extreme chemical resistance combined with high temperature exposure. PFA tubing is suitable for even the most demanding applications.

#### **Temperature**

-300°F to 500°F

#### **Features**

- 100% virgin grade high performance resins used to resist stress cracking
- Chemically inert to nearly all industrial chemicals and solvents
- · Higher thermal stability than with FEP
- Lower permeability than with FEP
- Translucent
- Moisture absorption nearly zero
- FDA compliant for food contact
- Non-flammable
- Tubing is suitable for use with flare or conventional fittings
- Tubing is available in coiled hose and convoluted constructions
- Low permeation PFA tubing and pipe are also available

#### **Applications**

- Chemical process
- · Heat exchangers
- Laboratory
- Semiconductor
- Flow monitoring
- Emissions monitoring
- Double containment systems
- Food processing
- Electrical insulation

#### **Packaging**

- Per customer's specifications
- Clean room packed
- · Available pre-flared and pre-cut

#### **Certifications**

- PFA is approved for use in food contact applications in compliance with FDA 21 CFR 177.1550
- PFA tubing meets or exceeds the requirements listed in ASTM D 6867-03
- USP Class VI

Standard Wall Tubing Part Number	ID Inch	OD Inch	Wall Inch	Bend Radius Inch	Max WP @ 72°F psig
RFPFA-062-125	1/16	1/8	1/32	1/2	449
RFPFA-093-156	3/32	5/32	1/32	1/2	360
RFPFA-125-187	1/8	3/16	1/32	3/4	299
RFPFA-187-250	3/16	1/4	1/32	1	225
RFPFA-250-312	1/4	5/16	1/32	1-3/4	179
RFPFA-312-375	5/16	3/8	1/32	2-1/2	150
RFPFA-375-437	3/8	7/16	1/32	3-1/2	128
RFPFA-437-500	7/16	1/2	1/32	4	112
RFPFA-500-562	1/2	9/16	1/32	CF	CF
Heavy Wall Tubing Part Number					
RFPFA-062-187	1/16	3/16	1/16	1/2	617
RFPFA-125-250	1/8	1/4	1/16	1/2	454
RFPFA-187-312	3/16	5/16	1/16	1	371
RFPFA-250-375	1/4	3/8	1/16	1	310
RFPFA-312-437	5/16	7/16	1/16	2	265
RFPFA-375-500	3/8	1/2	1/16	2	232
RFPFA-500-625	1/2	5/8	1/16	3	186
RFPFA-625-750	5/8	3/4	1/16	6	155
RFPFA-875-100	7/8	1	1/16	22	116
RFPFA-100-1125*	1	1-1/8	1/16	CF	105
RFPFA-1125-1250**	1-1/8	1-1/4	1/16	CF	84
RFPFA-1250-1375**	1-1/4	1-3/8	1/16	CF	CF
Special Size Tubing Part Number				•	
RFPFA-170-250	.170	.250	.040	1	300
RFPFA-156-250	.156	.250	.047	3/4	352
RFPFA-100-110*	1	1.10	.050	CF	CF
_					
Metric Size Tubing Part Number	0	4	4	1 4 4 /0	400
RFPFA-2MM-4MM	2mm	4mm	1mm	1-1/2	468
RFPFA-3MM-5MM	3mm	5mm	1mm	CF	CF
RFPFA-4MM-6MM	4mm	6mm	1mm	1-3/4	312
RFPFA-5MM-7MM	5mm	7mm	1mm	CF 0.1/0	CF
RFPFA-6MM-8MM	6mm	8mm	1mm	2-1/2	234
RFPFA-6MM-9MM	6mm	9mm	1.5mm	CF	CF
RFPFA-7MM-9MM	7mm	9mm	1mm	CF	CF
RFPFA-8MM-10MM	8mm	10mm	1mm	2-3/4	187
RFPFA-9MM-11MM	9mm	11mm	1mm	CF	CF 150
RFPFA-10MM-12MM	10mm	12mm	1mm	4	156
RFPFA-11MM-13MM	11mm	13mm	1mm	CF	CF
RFPFA-12MM-14MM	12mm	14mm	1mm	CF	CF
RFPFA-14MM-16MM	14mm	16mm	1mm	CF	CF

CF = Consult Factory

<sup>\*</sup> Only available in straight lengths OR reels

<sup>\*\*</sup> Only available in straight lengths

## **FEP Tubing**

FEP tubing is an economical choice for tubing applications requiring chemical resistance in combination with broad temperature exposure. FEP tubing and pipe offer excellent clarity which makes them ideal for sight glass and other flow monitoring applications. Additionally, the outstanding UV transmission rate of FEP makes the tubing a clear choice for UV water purification systems in straight lengths or coiled hose constructions.

#### **Temperature**

-100°F to 400°F

#### **Features**

- 100% virgin grade high performance resins used to resist stress cracking
- Chemically inert to most industrial chemicals and solvents
- High thermal stability
- Excellent UV transmission
- Low permeability
- Moisture absorption nearly zero
- FDA compliant for food contact
- · Non-flammable
- Self extinguishing
- Superior electrical insulation properties
- FEP Tubing is also available in coiled hose, convoluted tubing, and heat-shrink constructions

#### **Applications**

- · Chemical process
- Aguatic
- Laboratory
- UV water purification systems
- Ground water monitoring
- · Ground remediation
- Food processing
- Electrical insulation
- Telecommunications
- Conduit
- · Heat exchangers

#### **Packaging**

- Per customer's specifications
- · Clean room packed
- · Available pre-flared and pre-cut
- Sterilization
- Available DI washed and nitrogen packed

#### **Certifications**

- FEP tubing & pipe meet the requirements of USP Class VI Standards
- FEP tubing and pipe are approved for use in food contact applications in compliance with FDA 21 CFR 177.1550
- FEP tubing meets or exceeds the requirements listed in ASTM D3296-03

Standard	Wall	Tubing
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Standard Wan Tubing		i		1	
Part Number	ID Inch	OD Inch	Wall Inch	Bend Radius Inch	Max WP @ 72°F psig
RFFEP-062-125	1/16	1/8	1/32	1/2	445
RFFEP-062-187	1/16	3/16	1/16	1/2	612
RFFEP-125-250	1/8	1/4	1/16	1/2	460
RFFEP-125-187	1/8	3/16	1/32	3/4	296
RFFEP-187-312	3/16	5.16	1/16	1	368
RFFEP-187-156	3/32	5.32	1/32	CF	CF
RFFEP-187-250	3/16	1/4	.030	1	223
RFFEP-250-312	1/4	5/16	.030	1-3/4	178
RFFEP-250-375	1/4	3/8	1/16	1	307
RFFEP-312-375	5/16	3/8	.030	2-1/2	148
RFFEP-375-437	3/8	7/16	.030	3-1/2	127
RFFEP-375-500	3/8	1/2	.062	2	230
RFFEP-437-500	7/16	1/2	.030	6	111
RFFEP-500-625	1/2	5/8	.062	3	184
RFFEP-625-750	5/8	3/4	1/16	6	153
RFFEP-875-1000*	7/8	1	.062	22	115
RFFEP-100-1125*	1	1-1/8	.062	CF	75
RFFEP-1125-1250**	1-1/8	1-1/4	1/16	CF	70

#### **Metric Size Tubing**

- · · · · · · · · · · · · · · · · · · ·					
RFFEP-2MM-4MM	2mm	4mm	1mm	1-1/2	464
RFFEP-3MM-5MM	3mm	5mm	1mm	CF	CF
RFFEP-4MM-6MM	4mm	6mm	1mm	1-3/4	309
RFFEP-5MM-7MM	5mm	7mm	1mm	CF	CF
RFFEP-6MM-8MM	6mm	8mm	1mm	2-1/2	232
RFFEP-7MM-9MM	7mm	9mm	1mm	CF	CF
RFFEP-8MM-10MM	8mm	10mm	1mm	2-3/4	186
RFFEP-9MM-11MM	9mm	11mm	1mm	CF	CF
RFFEP-10MM-12MM	10mm	12mm	1mm	4	155
RFFEP-11MM-13MM	11mm	13mm	1mm	CF	CF
RFFEP-12MM-14MM	12mm	14mm	1mm	CF	CF

CF = Consult Factory

<sup>\*</sup> Only available in straight lengths OR reels

<sup>\*\*</sup> Only available in straight lengths

## **PTFE Tubing**

PTFE tubing is the most flexible of all fluoropolymer tubing offered. It has the broadest temperature range of any fluoropolymer and can resist highly corrosive liquids and gases even at elevated temperatures.

#### **Temperature**

-410°F to 500°F

#### **Features**

- 100% virgin grade PTFE resins
- Most flexible fluoropolymer tubing as compared with: FEP, PFA, HP PFA, UHP PFA, ETFE, ECTFE
- Chemically inert and resistant to nearly all industrial chemicals and solvents
- · Low permeability
- Smooth non-stick surface finish
- Lowest coefficient of friction
- Excellent electrical properties
- Non-flammable
- Non-toxic
- FDA compliant

#### **Applications**

- Laboratory
- Chemical process
- Emissions monitoring
- · Analytical and process equipment

#### **Packaging**

- Continuous coils or pre-cut lengths
- Clean room packaging

#### Certifications

FDA 21 CFR 177.1550

#### Standard Wall Tubing

Part Number	ID Inch	OD Inch	Wall Inch	Bend Radius Inch	Max WP @ 72°F psig
RFPTFE-062-125	1/16	1/8	1/32	1/2	300
RFPTFE-125-250	1/8	1/4	1/16	1/2	310
RFPTFE-125-187	1/8	3/16	1/32	3/4	200
RFPTFE-156-250	5/32	1/4	.040	1	200
RFPTFE-170-250	.170	.250	.040	1	200
RFPTFE-187-312	3/16	5/16	1/16	CF	CF
RFPTFE-187-250	3/16	1/4	.030	1	150
RFPTFE-250-312	1/4	5/16	.030	1-3/4	257
RFPTFE-250-375	1/4	3/8	1/16	3/4	207
RFPTFE-312-375	5/16	3/8	1/32	CF	CF
RFPTFE-375-500	3/8	1/2	1/16	2-1/2	155
RFPTFE-437-500	7/16	1/2	1/32	6	75

#### **Metric Size Tubing**

RFPTFE-2MM-4MM	2mm	4mm	1mm	CF	CF
RFPTFE-4MM-6MM	4mm	6mm	1mm	1	208
RFPTFE-6MM-8MM	6mm	8mm	1mm	1.5	156
RFPTFE-8MM-10MM	8mm	10mm	1mm	2	125
RFPTFE-10MM-12MM	10mm	12mm	1mm	4	104

PTFE tubing is suitable for use with conventional fittings. CF = Consult Factory

## **RFSC Silicone Tubing**

Cryogenic

Electrical

High temperature

Platinum-cured silicone tubing is clean-room produced for critical pharmaceutical, biomedical, cosmetic, and food applications.

#### **Temperature**

-100°F to 400°F

#### **Features**

- Extremely flexible
- Will not impart taste or odor
- Non-pyrogenic
- Lot and batch traceable
- Ultra pure medical grade
- Resists temperature extremes, chemical attack, ozone, radiation, and moisture

#### Applications

- Bio process equipment
- USP water
- Hot WFI
- · Sterile transfer
- · Cell culture media
- · Aseptic fill & transfer

#### Certifications

- USP Class VI
- Cytotoxicity Criteria
- FDA CFR 177-2600
- ADI Free<sup>®</sup>
- Meets 3-A Sanitary Standards
- CGMP (Current Good Manufacturing Practices)

Part Number	ID Inch	OD Inch	Wall Inch	Part Number	ID Inch	OD Inch	Wall Inch
02RFSC2	.125	.250	.063	06RFSC3	.375	.563	.094
02RFSC3	.125	.313	.094	06RFSC4	.375	.625	.125
03RFSC2	.188	.313	.063	08RFSC3	.500	.688	.094
03RFSC3	.188	.375	.094	08RFSC4	.500	.750	.125
03RFSC4	.188	.438	.125	09RFSC3	.563	.750	.094
04RFSC2	.250	.375	.063	10RFSC4	.625	.875	.125
04RFSC3	.250	.438	.094	10RFSC5	.625	1.00	.188
04RFSC4	.250	.500	.125	12RFSC4	.750	1.00	.125
05RFSC2	.313	.438	.063	14RFSC2	.875	1.00	.063
05RFSC3	.313	.500	.094	16RFSC4	1.00	1.25	.125
06RFSC2	.375	.500	.063	16RFSC5	1.00	1.375	.188

Available: bulk, spools, and molded, reusable, and crimped end connections



## **PVDF (Kynar®)**

PVDF (Kynar-Flex®) is an abrasion resistant fluoropolymer acceptable for use in applications requiring chemical resistance with low permeability. PVDF has excellent chemical resistance, is UV, ozone, and abrasion resistant.

Temperature	Standard Wall Tubing	l	l	l	Bend	Max	Vacuum	Weight
-20°F to 212°F	Part Number	ID Inch	OD Inch	Wall Inch	Radius Inch	WP @ 72°F psig	Rating @ 72°F in. Hg.	Per 50 Foot Coil
Factures	RFPVDF-125-187	1/8	3/16	1/32	3/4	168	29.9	0.59
<ul><li>Features</li><li>Strength and toughness</li></ul>	RFPVDF-187-250	3/16	1/4	1/32	1	126	29.9	0.84
<ul> <li>Weather resistant</li> </ul>	RFPVDF-250-312	1/4	5/16	1/32	1-3/4	101	29.9	1.06
<ul><li>UV resistant</li><li>Radiation resistant</li></ul>	RFPVDF-312-375	5/16	3/8	1/32	2-1/2	84	29.9	1.32
<ul> <li>High thermal stability</li> </ul>								
<ul><li>Fungus resistant</li><li>Ozone resistant</li></ul>	<b>Custom Size Tubing</b>							
	RFPVDF-170-250	.170	.250	.040	1	155	29.9	1.02
Applications	RFPVDF-156-250	5/32	1/4	.047	3/4	177	29.9	1.16
<ul><li>Food and beverage</li><li>Bags</li></ul>								
<ul> <li>Battery binders and separators</li> </ul>	<b>Heavy Wall Tubing</b>							
<ul><li>Fabricated vessels</li><li>Filters</li></ul>	RFPVDF-125-250	1/8	1/4	1/16	1/2	260	29.9	1.43
Multi-layered pipe	RFPVDF-250-375	1/4	3/8	1/16	1	174	29.9	2.38
<ul><li>Pumps</li><li>Tanks</li></ul>	RFPVDF-375-500	3/8	1/2	1/16	2	130	29.9	3.33
<ul> <li>Tubing</li> </ul>								
<ul><li>Valves</li><li>Vessels</li></ul>								
	Metric Size Tubing							
Certification	RFPVDF-2MM-4MM	2mm	4mm	1mm	CF	CF	29.9	0.57
Meets USP Class VI Standards     Kypar-Flav® is approved for use	RFPVDF-4MM-6MM	4mm	6mm	1mm	CF	CF	29.9	0.94

6mm

8mm

8mm

10mm

10mm | 12mm |

1mm

1mm

1mm

CF

CF

CF

CF

CF

CF

29.9

29.9

29.9

1.32

1.70

2.08

CF = Consult Factory

RFPVDF-6MM-8MM

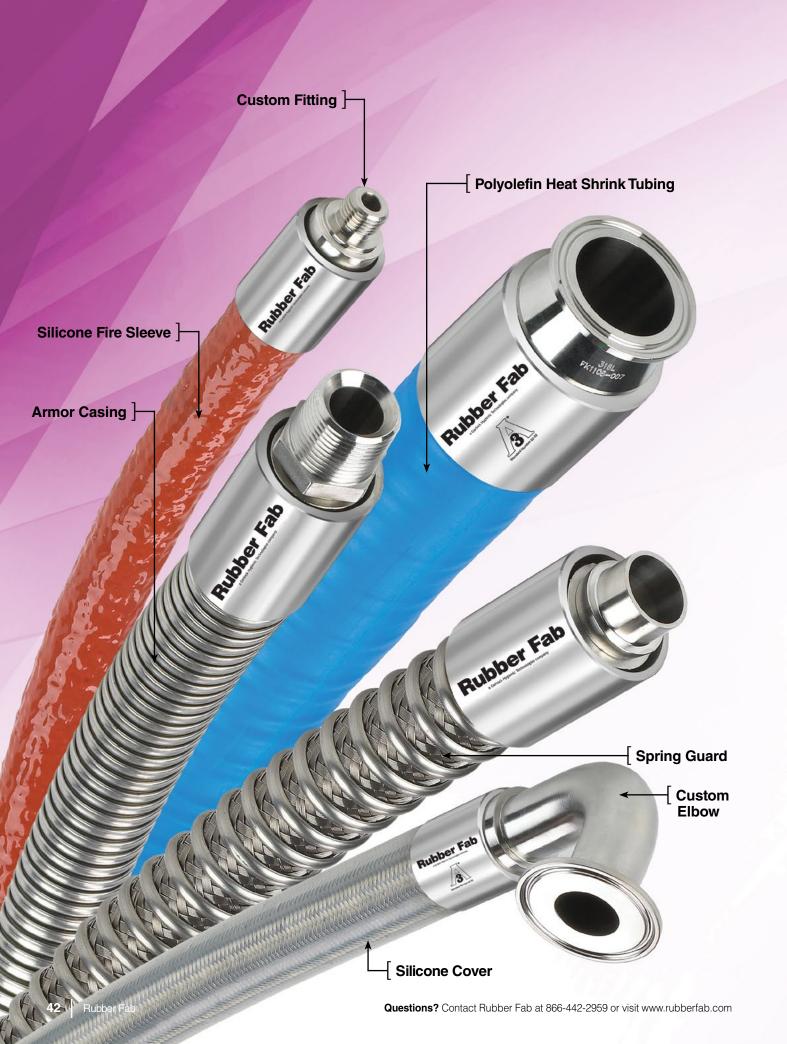
RFPVDF-8MM-10MM

RFPVDF-10MM-12MM

 Kynar-Flex<sup>®</sup> is approved for use in food contact applications in compliance with FDA 21 CFR 177.2600

• NSF-51 and 61

Kynar® and Kynar-Flex® is a registered trademark of Alkema



## **Accessories**

Rubber Fab offers the following accessories and hose enhancements to meet specific needs during certain operations. Other hose covers and accessories are available.

### **Armor Casing**



Armor Casing is a highly flexible, heavy duty metal casing which protects the hose against rough handling and over bending. Armor can be applied over the entire length of the hose or as an armor cuff. Armor cuffs can be applied in 12"-18" lengths to each end of the hose to prevent kinking and hose stress.

#### Silicone Fire Sleeve



#### TEMPERATURE:

Continuous: -65°F to 500°F Intermittent: -65°F to 2000°F

### TESTED IN ACCORDANCE WITH:

UL-73, NFPA-250, ASTM-E84

Silicone Fire Sleeve has a coating of specially compounded silicone rubber bonded to a low-density high bulk fiberglass sleeve. This unique combination offers a temporary barrier to flame penetration and provides long term mechanical/environmental protection. Applications include steel manufacturing plants, foundries, glass factories, and welding/cutting shops.

### Silicone Cover



A clear silicone cover provides protection during extreme environmental exposure. Provides ease of cleanability when over a braided stainless steel hose. Cover also serves as a "to the touch" thermal insulator.

## Polyolefin Heat Shrink Tubing



TEMPERATURE: -65°F to 275°F

Polyolefin Heat Shrink Tubing provides easy cleaning of the outer hose surface and is extremely beneficial in applications where cleanliness is essential, such as food and pharmaceutical processes.

Polyolefin Heat Shrink Tubing also provides coloring for product line identification and is available in clear, brown, black, white, red, yellow, green, and blue.

### **Spring Guard**



Spring Guard is used to prolong the life of hose lines exposed to rugged operating conditions, such as severe flexing. Spring Guard prevents kinking and protects against abrasion.

### **Stainless Steel Braid**



304 Stainless Steel braided sleeving provides protection against temperature and abrasion. Available to go over 1/2"-4" hose.

### Golden Bridge



The Golden Bridge is a heavy duty, safety yellow, hose support that easily bolts together over any hose or stainless steel piping system. A series of bridges elevate the hose or pipe off the floor keeping the hose clean, reducing wear and tear on the cover, and preventing damage to the sanitary end connections. See page 44 for more information.

### **Vibration Isolator**



Rubber Fab's flexible silicone joints, installed between pumps (or other sources of vibration) and fixed sanitary pipelines, absorb vibration that can weaken or damage critical pipeline systems, and because they are flexible, slight misalignment of connections is not a problem. See rubberfab.com for more information.



## Rubber Fab's Golden Bridge Hose Support

Rubber Fab's new and improved Golden Bridge hose support system has a new two piece design made with an impact and abrasion resistant thermo plastic, making it lightweight, yet strong as ever.

The Golden Bridge is a heavy duty, safety yellow, hose support that easily bolts together over any hose or stainless steel piping system. A series of bridges elevate the hose or pipe off the floor keeping it clean, reducing wear and tear on the cover, and preventing damage to the sanitary end connections. And when it's time for wash down, the Golden Bridge prevents damming allowing C.I.P. solutions and wash water to reach the floor drain. A benefit that helps prevent bacterial growth on the hose.

The Rubber Fab Golden Bridge provides safety features that are a must in any active production facility. The open-face "handle" design is

easy to grab for hose positioning and the safety yellow coating is not only easy to clean, it's hard to miss!

#### **FEATURES**

- Safety yellow for high visibility
- · Easy installation new two piece design
- Supports and elevates hose and sanitary stainless steel piping systems
- Eliminates hose abrasion
- Protects hose fittings from damage
- Open face design eliminates bacterial entrapment during wash down allowing wash fluids to reach floor drain
- Raised design lifts hose and stainless steel piping off floor stopping damming and preventing bacterial growth
- Easy grip handle aides in hose and ss pipe movement, placement and handling
- Protects floor from damage

#### **MATERIAL AVAILABLE**

High Impact/Abrasion Resistant HDPE Thermo Plastic



Part Number	Hose Size Inch	Inch	Weight lbs
GOLDENBRIDGE-8-16-NM	1.35 to 1.60 OD	8	1.00
GOLDENBRIDGE-8-24-NM	1.97 to 2.20 OD	8	1.00
GOLDENBRIDGE-8-32-NM	2.48 to 2.70 OD	8	1.00
GOLDENBRIDGE-10-40-NM	3.10 to 3.30 OD	10	1.35
GOLDENBRIDGE-10-48-NM	3.52 to 3.90 OD	10	1.35
GOLDENBRIDGE-10-64-NM	4.60 to 4.90 OD	10	1.35

#### Note

Please consult factory for additional sizes. Minimums may apply.

# Selection, Design and Installation Notes: STAMPED

Selection of the proper hose assembly for any given application should take into account the following seven considerations. They are known by the acronym STAMPED.

## S SIZE

Hose inside diameter, outside diameter and overall length.

## T TEMPERATURE

Maximum temperature of the material being conveyed and of the application environment

## **A** APPLICATION

External conditions/environment such as abrasion, bend radius, climate/temperature, crushing, flexing, kinking, and exposure to chemicals, oil, ozone, and ultraviolet light.

## M MEDIA

Type and concentration of material being conveyed and compatibility with the hose

## P PRESSURE

Maximum system pressure, including pressure spikes.

## E ENDS

Style, type, attachment method, pressure rating, and material compatibility of end couplings and connections.

## **D** DELIVERY

Testing, packaging, and delivery requirements.

**Other Considerations:** Abrasion, color, conductivity/nonconductivity, suction/vacuum; industry or regulatory specifications or standards.



# How To Build A Hose Assembly

Ordering Rubber Fab Hose Assemblies and understanding a Rubber Fab Part Number



#### **Example part#:**

## 16RFRT16TC16TCSSAR-36

When you break it down, what does this part# mean?

16 RFRT 16TC 16TC SS AR - 36

16 Hose ID – Size in 16th of an Inch

ID for this hose is 1 inch

**RFRT** Rubber Fab Hose Type

This hose is RFRT – Smoothbore FEP Lined EPDM Rubber Hose

**16TC 16TC** Size and Style of Fitting Ends

Both fittings on this hose are 1 inch Sanitary Tri-Clamp®

SS Fitting Material

The fittings for this hose are 316L Stainless Steel

AR Accessory (not pictured in example)

This armor casing accessory will cover the length of live hose

-36 Overall Assembly Length in Inches

The overall length of this hose is 36 inches

## **Ordering Hose Assemblies**

#### Hose I.D. In 16th of inch

= .125" 02 .25" 04 = .375" 06 = .50" 80 .75" 12 = 1.00" 16 20 = 1.25" = 1.50" 24 = 2.00" 32 = 2.50" 40 48 3.00" 64 = 4.00" 6.00" 96

#### **Rubber Fab Hose Type**

#### **FDA Rubber Hose**

8.00"

RFFDAEOC RFFDAELF RFFBB RFFDA RFFDAOC RFFDAC RFFDABOC

128 =

#### **Washdown Hose**

**RFWDAM** 

#### Smoothbore

RFRTPOC RFRT RFRTP RFRTPW RFST RFSTFT RFSTS RFSTB

**RFSTBS** 

**RFSF** 

**RFTFP** 

#### **Convoluted Fluoropolymer**

RFCTLP
RFCTLPS
RFCTLPB
RFCTLPP
RFCTLPP

**RFCTLPPB** 

#### **Metal Hose**

RFSSH RFSSHT

#### Sight Glass

RFSG RFCSG RFPSSG RFBSG

#### **Metal Detection Tube**

**RFKMD** 

#### Silicone

RFSB RFSBX RFSBHP RFS4P RFSV

**RFSVOC** 

#### **FDA PVC Hose**

RFPB RFPVV RFPVW RFPC

### Size and Style of Fitting Ends

BB = Hose Barb X Hose Barb
BSN = Bevel Seat Nut
BWP = Buttweld Pipe
BWT = Buttweld Tube

CTA = Compression Tube Adapter
CTAFN = Compression Tube Adapter
Ferrule and Nut

CTC = Compression Tube Connector

CTCFN = Compression Tube

Connector Ferrule and Nut

**FCL** Female Camlock FIL Female I-Line **FJIC** Female JIC w/nut **FPT** Female Pipe Thread **FUA** Female Union Adapter JPF John Perry Female JPM John Perry Male LJF Lap Joint Flange **MBS** Male Bevel Seat

MCL = Male Camlock

MIL = Male I-Line

MPT = Male Pipe Thread

MTC = Maxi Tri-Clamp®

MUA = Male Union Adapter

QL = Q-Line

RTC = Reuseable Tri-Clamp®

SL = Sani-Lock®

SSTEF = PTFE Encapsulated
TC = Sanitary Tri-Clamp® &
Mini Tri-Clamp®

 $TC45 = 45^{\circ} TC Elbow$  $TC90 = 90^{\circ} TC Elbow$ 

#### **Fitting Material**

4 = 304SS Material or 304SS 150# Flanges 6 = 316SS Material or 316SS 150# Flanges

AL = Aluminum

BR = Brass

CS = Carbon Steel

FL = Flare Thru

HC22 = Hastelloy C22

HC276 = Hastelloy C276 K = Kynar® (PVDF) M = Molded Ends

MO = Monel

PP = Polypropylene PS = Polysulfone

PVC = PVC

SS = 316L Stainless Steel SSEP = 316L Stainless Steel, Electropolished

#### Accessory

AC = Armor Cuff

AR = Armor

D = Donut

FS = Fire Sleeve

GB = Golden Bridge

GR = Grounded

PO = Polyolifin Shrin

PO = Polyolifin Shrink Wrap

SB = Stainless Braid SG = Spring Guard SL = Silicone Cover

TSW = PTFE/FEP Shrink Wrap

## **Bend Radius**

Flexibility and minimum bend radius are important factors in hose design and selection if it is known that the hose will be subjected to sharp curvatures in normal use. When bent at too sharp of an angle, the hose may kink or flatten in the cross-section. The reinforcement may also be unduly stressed or distorted and the hose life thereby shortened.

Adequate flexibility means the hose should be able to conform to the smallest anticipated bend radius without over stress. The minimum bend radius is generally specified for each hose in this catalog. This is the radius to which the hose can be bent in service without damage or appreciably shortening its life. The radius is measured to the inside of the curvature.

#### **BEND RADIUS:**

For fluoropolymer hose and all rubber hose the radius of a bent section of hose measured to the innermost surface of the curved portion (R1).

For metal hose the radius of a bent section of hose measured to the hose centerline (R2).

#### **MINIMUM BEND RADIUS:**

The smallest radius at which a hose can be used.

#### **FORCE TO BEND:**

The amount of stress required to induce bending around a specified radius— a measurement of stiffness.

#### **MAXIMUM RATED WORKING PRESSURE:**

The maximum pressure hoses should be subjected to on a continuous basis.

#### **MAXIMUM RATED TEST PRESSURE:**

The maximum rated pressure is multiplied by 150%.

#### **NOMINAL RATED BURST PRESSURE:**

The average pressure at which the core or braid will rupture at ambient temperature.

#### PRESSURE/TEMPERATURE CORRECTION:

Hose pressure capabilities decrease as the temperature increases. Consult factory to determine pressure rating at elevated temperatures.

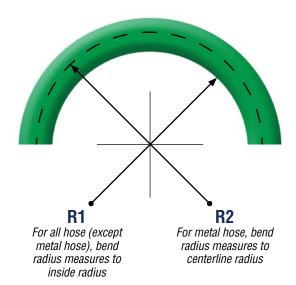
#### **BEND RADIUS FORMULA:**

Formula to determine minimum hose length given bend radius and degree of bend required.

$$L = \frac{A}{360} \times 2\pi B$$

- L = Minimum length of hose to make bend (bend must be made equal along this portion of hose length).
- A = Angle of bend
- **B** = Given bend radius of hose

 $\pi = 3.14$ 



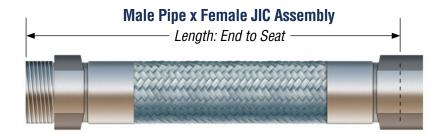
## **Tolerances**

The overall length tolerance for hose assemblies are:

- +/- 1/4" on assemblies 6 to 24 inches overall length.
- +/- 1/2" on assemblies 24 to 60 inches overall length.

Not to exceed +/- 1% on assemblies over 60 inches overall length.

## **Measuring Hose Assemblies**







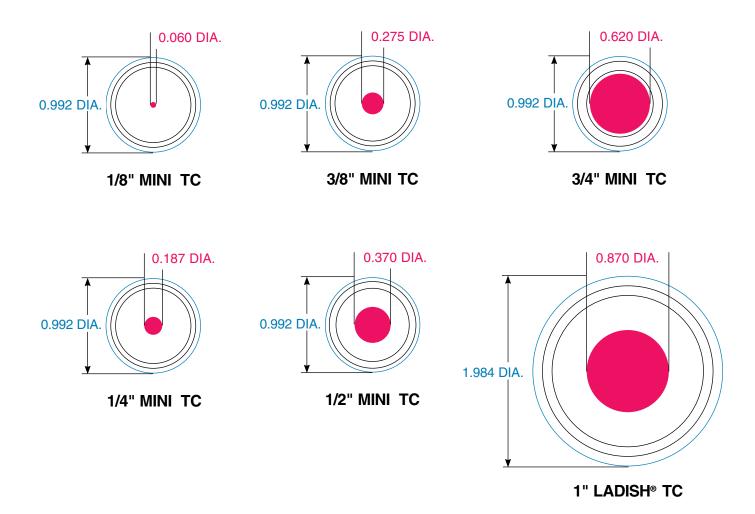




These actual size drawings are provided to eliminate sizing errors when specifying sanitary fittings. The outside diameter is the same for 1/8", 1/4", 3/8", 1/2", and 3/4" ID, "mini" sizes (0.992" OD). The same holds true for the 1" and 1-1/2" ID sizes (1.984" OD).

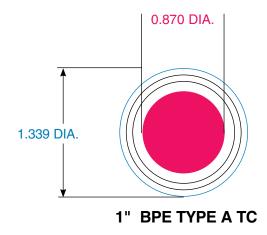
The 2", 2-1/2", 3", 4", and 6" ID have specific OD diameters.

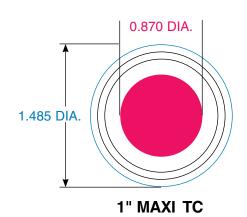
For your convenience and ordering accuracy, all of these drawings may be used as sizing ID and OD patterns.

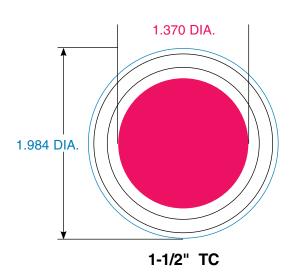


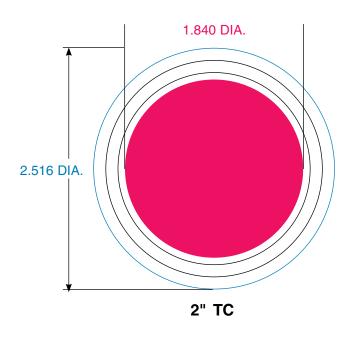
#### NOTE:

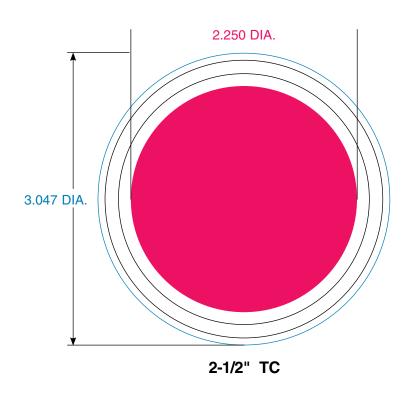
- ID measurements are indicated in red
- OD measurements are indicated in blue

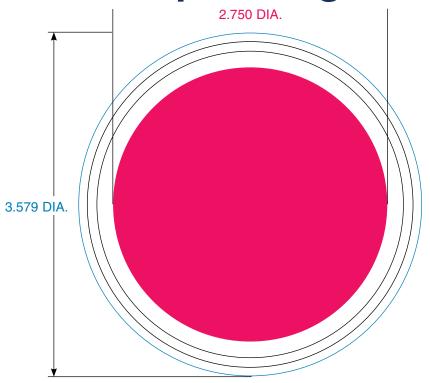


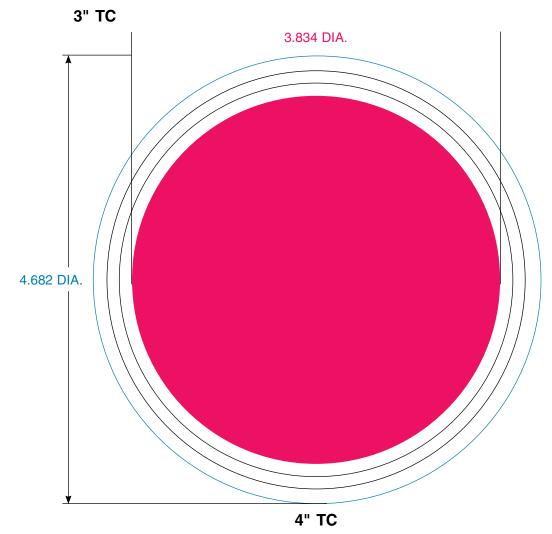


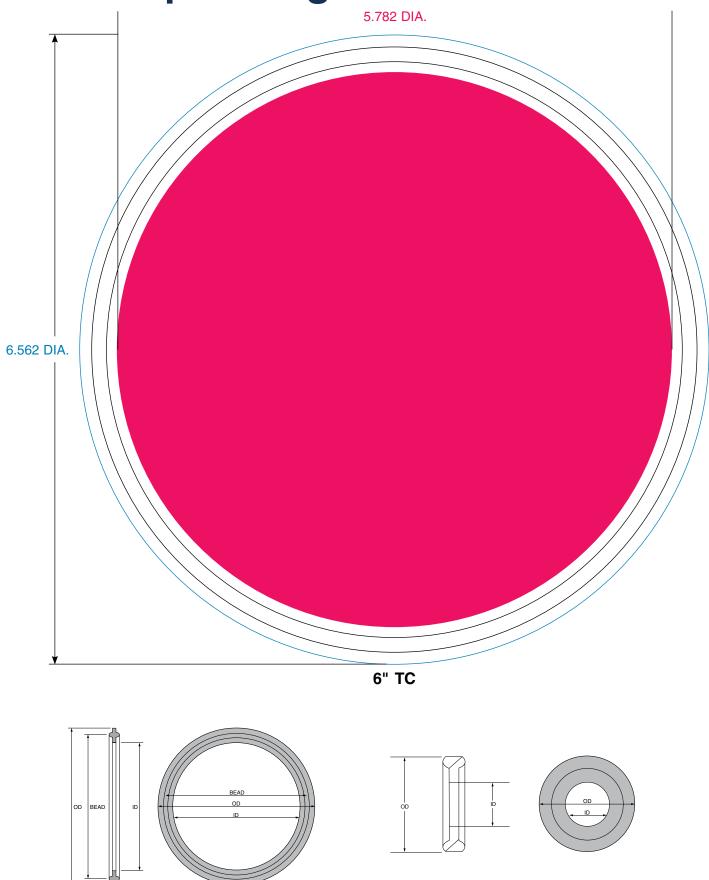












## Dimensional Chart for Tri-Clamp<sup>®</sup> Gaskets

IC	)	C	D	Bead		Series A DIN32676	Series B ISO1127	Series C ASME BPE	ISO 2852	SMS 3019	BS 4825-3	SCH 5 BS	Special Size
inch	mm	inch	mm	inch	mm								
0.17	4.20	0.86	21.80	0.80	20.20								Х
0.19	4.80	0.86	21.80	0.80	20.20			1/4"					
0.24	6.20	0.86	21.80	0.80	20.20	DN06							
0.28	7.20	0.86	21.80	0.80	20.20		DN06						
0.31	8.00	0.86	21.80	0.80	20.20			3/8"					
0.32	8.20	0.86	21.80	0.80	20.20	DN08							
0.38	9.60	0.86	21.80	0.80	20.20			1/2"			1/2"		
0.41	10.50	0.86	21.80	0.80	20.20		DN08						
0.48	12.20	0.86	21.80	0.80	20.20								Х
0.56	14.20	0.86	21.80	0.80	20.20		DN10						
0.63	16.00	0.86	21.80	0.80	20.20			3/4"			3/4"		
0.88	22.30	1.34	34.00	0.80	20.20			1" Type A					
		* 21	l.8mm ga	skets do	not have	a ferrule bead	(Including 1"	Type A). 21	.8mm sizes u	ıtilize size: 13	 ИННМ-304-05	0/075	
0.39	10.00	1.34	34.00	1.08	27.50					DN12			
0.40	10.20	1.34	34.00	1.08	27.50	DN10			DN12				
0.41	10.50	1.34	34.00	1.08	27.50								Х
0.43	10.90	1.34	34.00	1.08	27.50				DN12.7				
0.56	14.20	1.34	34.00	1.08	27.50				5777277				Х
0.61	15.40	1.34	34.00	1.08	27.50				DN17.2				,
0.64	16.20	1.34	34.00	1.08	27.50	DN15			3.7.7.2	DN18			
0.72	18.30	1.34	34.00	1.08	27.50	Bitio				Bitio			Х
0.72	19.50	1.34	34.00	1.08	27.50				DN21.3				
0.80	20.20	1.34	34.00	1.08	27.50	DN20			DIVE 1.0				
0.88	22.30	1.34	34.00	1.08	27.50	DINZU							X
0.00	22.30	1.54	34.00	1.00		izes utilize cla	mp size: 12M	    LILIM 204 24¤	m (Including	1" Time (A)			^
0.40	10.20	2.00	50.50	1.71	43.50	Sizes utilize cial	TIP SIZE. TOW	11 11 1101-304-3411		Type A)			х
0.56	14.20	2.00	50.50	1.71	43.50								X
0.64	16.20	2.00	50.50	1.71	43.50								X
0.64	18.30	2.00	50.50	1.71	43.50		DN15						^
				1.71			DIVIS						X
0.80	20.20	2.00	50.50		43.50			411					^
0.88	22.30	2.00	50.50	1.71	43.50			1"	DNOS	DNOF			
0.90	22.80	2.00	50.50	1.71	43.50				DN25	DN25			V
0.90	22.90	1.49	37.70	1.25	31.75		Dillo						X
0.94	23.90	2.00	50.50	1.71	43.50		DN20						
1.03	26.20	2.00	50.50	1.71	43.50	DN25							
1.18	29.90	2.00	50.50	1.71	43.50		DN25						
1.20	30.50	2.00	50.50	1.71	43.50							1"	
1.24	31.50	2.00	50.50	1.71	43.50				DN33.7	DN33.7			
1.27	32.50	2.00	50.50	1.71	43.50	DN32							
1.38	35.00	2.00	50.50	1.71	43.50			1.5"			1.5"		
1.41	35.80	2.00	50.50	1.71	43.50				DN38	DN38			
1.50	38.20	2.00	50.50	1.71	43.50	DN40							
1.52	38.60	2.00	50.50	1.71	43.50								Х
						Above sizes	utilize clamp	size: 13MHHN		0			
1.49	37.80	2.52	64.00	2.22	56.50				DN40				
1.52	38.60	2.52	64.00	2.22	56.50		DN32						
1.75	44.50	2.52	64.00	2.22	56.50		DN40						
1.78	45.30	2.52	64.00	2.22	56.50							1.5"	
1.88	47.70	2.52	64.00	2.22	56.50			2"			2"		
1.92	48.80	2.52	64.00	2.22	56.50				DN51	DN51			
1.98	50.20	2.52	64.00	2.22	56.50	DN50							
						Above size	s utilize clan	np size: 13MH	HM-304-200				

II	D	c	DD	В	ead	Series A DIN32676	Series B ISO1127	Series C ASME BPE	ISO 2852	SMS 3019	BS 4825-3	SCH 5 BS	Special Size
inch	mm	inch	mm	inch	mm								
2.22	56.50	3.05	77.50	2.78	70.50		DN50						
2.26	57.40	3.05	77.50	2.78	70.50							2"	
2.38	60.40	3.05	77.50	2.78	70.50			2.5"			2.5"		
2.38	60.50	3.05	77.50	2.78	70.50				DN63.5	DN63.5			
						Above size	s utilize clam	p size: 13MHH	M-304-250				
2.61	66.20	3.58	91.00	3.29	83.50	DN65							
2.64	67.00	3.58	91.00	3.29	83.50				DN70				
2.72	69.00	3.58	91.00	3.29	83.50							2.5"	
2.85	72.30	3.58	91.00	3.29	83.50		DN65						
2.88	73.10	3.58	91.00	3.29	83.50			3"	DN76.1	DN76.1	3"		
					,	Above size	s utilize clam	p size: 13MHH	M-304-300				
3.20	81.20	4.17	106.00	3.82	97.00	DN80							
3.33	84.50	4.17	106.00	3.82	97.00		DN80						
3.35	85.10	4.17	106.00	3.82	97.00				DN88.9	DN88.9		3"	
						Above sizes	utilize clamp	size: 13MHHN	1-V-304-300				
3.84	97.60	4.67	119.00	4.33	110.00			4"			4"		
3.85	97.80	4.67	119.00	4.33	110.00				DN101.6	DN101.6			
3.94	100.20	4.67	119.00	4.33	110.00	DN100							
						Above size	s utilize clam	p size: 13MHH	M-304-400				
4.33	109.90	5.12	130.00	4.80	122.00		DN100						
4.35	110.50	5.12	130.00	4.80	122.00				DN114.3	DN114.3		4"	
						Above sizes	utilize clamp	size: 13MHHN	л-V-304-400				
4.86	123.50	5.68	144.20	5.29	134.30			5"*					
						Above size	s utilize clam	p size: 13MHH	M-304-500				
4.93	125.20	6.10	155.00	5.75	146.00	DN125							
5.30	134.70	6.10	155.00	5.75	146.00		DN125						
5.35	135.90	6.10	155.00	5.75	146.00				DN139.7	DN139.7		5"*	
					l l	Above sizes	utilize clamp	size: 13MHHN	/-V-304-500				
5.79	147.10	6.57	167.00	6.16	156.50			6"					
						Above size	s utilize clam	p size: 13MHH	M-304-600				
5.91	150.20	7.20	183.00	6.85	174.00	DN150							
6.43	163.30				174.00		DN150		DN168.3	DN168.3		6"	
0.10	100.00			0.00		Above sizes		size: 13MHHN		21110010			
7.78	197.60	8.56	217.40	8.15	207.00	1.0 0.200		8"*					
7.70	.57.00	3.00		3.10		Ahove size	s utilize clam	p size: 13MHH	M-304-800				
7.88	200.20	9.19	233.50	8.86	225.00	DN200	C dunzo ordin	D 3120. 101VII II I	00 1 000				
8.43	214.10	9.19	233.50	8.86	225.00	514200	DN200		DN219.1	DN219.1		8"	
0.40	217.10	0.10	200.00	0.00	220.00	Ahove sizes		size: 13MHHN		DITEIO			
9.77	248.20	10.66	271.00	10.14	257.60	DN250*	June Glarip	10"*	. • 504 600				
3.11	270.20	10.00	27 1.00	10.14	201.00		s utilize clamr	size: 13MHHI	M-304-1000				
10.49	266.50	11.32	287.60	11.00	279.40	Above sizes	James Garri	JOIZO. TOWN IT II	7, 007 1000			10"	
10.43	200.50	11.02	201.00	11.00	213.40	Ahove sizes	utilize clama	size: 13MHHM	-V-304-1000			10	
11 01	300.00	12.56	210.00	10 17	309.00	DN300*	unize ciamp	12"*	- v-304-1000				
11.81	300.00	12.56	319.00	12.17	309.00		utilizo elem		M-304 1200				
12.44	216.00	12.21	220 10	12.02	328.42	ADOVE SIZES	o unite ciam	size: 13MHHI 	vi-304-1200			12"	
12.44	316.00	13.31	338.10	12.93	320.42	Above sizes	utilizo olomo	cizo: 12MULIM	V 204 1200			12	
			rv standa			ADOVE SIZES	umze ciamp	size: 13MHHM	ı- v-304- I∠00				

<sup>\*</sup> Not included in the sanitary standard

## **Steam Table Guide**

Gauge psi	Temp °F								
5	227	45	293	85	328	150	366	230	399
6	230	46	294	86	328	152	367	232	400
7	232	47	295	87	329	154	368	324	400
8	235	48	296	88	330	156	369	235	401
9	237	49	297	89	331	158	370	237	402
10	240	50	298	90	331	160	371	239	402
11	242	51	299	91	332	162	372	241	403
12	244	52	300	92	333	164	372	243	404
13	246	53	301	93	333	166	373	245	404
14	248	54	302	94	334	168	374	247	405
15	250	55	303	95	335	170	375	249	406
16	252	56	304	96	335	172	376	251	406
17	254	57	305	97	336	174	377	253	407
18	255	58	306	98	337	176	378	255	408
19	257	59	306	99	337	178	379	257	408
20	259	60	307	100	338	180	380	259	409
21	261	61	308	102	339	182	380	261	410
22	262	62	309	104	341	184	381	263	410
23	264	63	310	106	342	186	382	265	411
24	265	64	311	108	343	188	383	267	412
25	267	65	312	110	344	190	384	269	412
26	268	66	313	112	345	192	385	271	413
27	270	67	314	114	347	194	385	273	414
28	271	68	314	116	348	196	386	275	414
29	273	69	315	118	349	198	387	277	415
30	274	70	316	120	350	200	388	279	415
31	276	71	317	122	351	202	389	281	416
32	277	72	318	124	352	204	389	283	417
33	278	73	319	126	353	206	390	285	417
34	280	74	319	128	355	208	391	295	420
35	281	75	320	130	356	210	392	305	423
36	282	76	321	132	357	212	392	355	437
37	283	77	322	134	358	214	393	375	442
38	285	78	322	136	359	216	394	385	445
39	286	79	323	138	360	218	395	405	449
40	287	80	324	140	361	220	395	455	461
41	288	81	325	142	362	222	396	510	472
42	289	82	326	144	363	224	397	560	482
43	290	83	326	146	364	226	398	585	486
44	291	84	327	148	365	228	398		

## Fittings & Adapters

We offer a full line of sanitary hose fittings, adapters, and accessories. Fittings are available in 316L stainless steel, 304 stainless steel, electropolished, and in exotic materials such as Hastelloy C22, C276, and Alloy 20. DIN style fittings also available.







Tri-Clamp® x Barb for Rubber (HBL Long Barb)



Mini Tri-Clamp®



Reducing Tri-Clamp®



Reusable Tri-Clamp®

### **Bevel Seat**



Bevel Seat with Nut

## **Hose Splice**



Tri-Clamp® x Barb for Silicone (HBS Short Barb)



Maxi Tri-Clamp®



PTFE Lined Tri-Clamp® Not available electropolished



90° Tri-Clamp® (45° also available)

## **Crimp Collars**



## **NPT Fittings**



Female Pipe Thread



Male Pipe Thread

Consult factory for other threaded fittings.

#### **Camlock**





PTFE Lined Female Camlock



Male Camlock

## **Compression Fittings**



Compression Tube Adapter



Compression Tube Adapter with Ferrule and Nut



Compression Tube Connector



Compression Tube Connector with Ferrule and Nut

## **Flanges**



Lap Joint Flange Retainer (Insert)



PTFE Encapsulated Lap Joint Flange Retainer (Insert)

### **JIC Fittings**



Female JIC



Male JIC



Male JIC Union Adapter x FPT



Male JIC Union Adapter x MPT

### **I-Line**



Female I-Line



Male I-Line

### **Buttweld**



Buttweld Tube Also Available: Buttweld Pipe Consult factory for details.

### **Adapters**



14MPHR – Hose Barb x TC Adapter





**21MP** – Male Pipe Thread x TC Adapter





**22MP** – Female Pipe Thread x TC Adapter



## Tri-Clamp® x Hose Barb

Hose ID Inch	Part Number	Description	Fitting ID Inch	Flange Diameter Inch	Fitting Overall Length
1/4	04HB-08TC-SS	.25in Hose Barb x .5in Mini Tri-Clamp <sup>®</sup> , 316SS	0.19	0.99	1.31
1/4	04HB-12TC-SS	.25in Hose Barb x .75in Mini Tri-Clamp <sup>®</sup> , 316SS	0.19	0.99	1.31
1/4	04HB-16TC-SS	.25in Hose Barb x 1in Tri-Clamp <sup>®</sup> , 316SS	0.19	1.98	1.46
3/8	06HB-08TC-SS	.375in Hose Barb x .5in Mini Tri-Clamp <sup>®</sup> , 316SS	0.28	0.98	1.50
3/8	06HB-12TC-SS	.375in Hose Barb x .75in Mini Tri-Clamp <sup>®</sup> , 316SS	0.28	0.99	1.50
3/8	06HB-16TC-SS	.375in Hose Barb x 1in Tri-Clamp®, 316SS	0.28	1.98	1.84
1/2	08HB-08TC-SS	.5in Hose Barb x .5in Mini Tri-Clamp <sup>®</sup> , 316SS	0.37	0.98	1.81
1/2	08HB-12TC-SS	.5in Hose Barb x .75in Mini Tri-Clamp <sup>®</sup> , 316SS	0.37	0.98	1.81
1/2	08HB-16TC-SS	.5in Hose Barb x 1in Tri-Clamp®, 316SS	0.37	1.98	2.00
5/8	10HB-12TC-SS	.625in Hose Barb x .75in Mini Tri-Clamp <sup>®</sup> , 316SS	0.48	0.98	1.78
3/4	12HB-12TC-SS	.75in Hose Barb x .75in Mini Tri-Clamp <sup>®</sup> , 316SS	0.62	0.98	2.10
3/4	12HB-16TC-SS	.75in Hose Barb x 1in Tri-Clamp®, 316SS	0.62	1.98	2.09
1	16HB-16TC-SS	1in Hose Barb x 1in Tri-Clamp <sup>®</sup> , 316SS	0.87	1.98	2.29
1	16HB-24TC-SS	1in Hose Barb x 1.5in Tri-Clamp®, 316SS	0.87	1.98	2.29
1-1/2	24HBL-24TC-SS	1.5in Long Hose Barb x 1.5in Tri-Clamp <sup>®</sup> , 316SS	1.36	1.98	3.13
1-1/2	24HBL-32TC-SS	1.5in Long Hose Barb x 2in Tri-Clamp <sup>®</sup> , 316SS	1.37	2.52	8.13
1-1/2	24HBS-24TC-SS	1.5in Short Hose Barb x 1.5in Tri-Clamp <sup>®</sup> , 316SS	1.38	1.98	2.33
1-1/2	24HBS-32TC-SS	1.5in Short Hose Barb x 2in Tri-Clamp®, 316SS	1.37	2.52	2.00
2	32HBL-32TC-SS	2in Long Hose Barb x 2in Tri-Clamp®, 316SS	1.84	2.52	3.80
2	32HBS-32TC-SS	2in Short Hose Barb x 2in Tri-Clamp®, 316SS	1.84	2.52	2.39
2-1/2	40HBL-40TC-SS	2.5in Long Hose Barb x 2.5in Tri-Clamp <sup>®</sup> , 316SS	2.23	3.05	4.19
3	48HBL-48TC-SS	3in Long Hose Barb x 3in Tri-Clamp®, 316SS	2.75	3.58	4.34
3	48HBS-48TC-SS	3in Short Hose Barb x 3in Tri-Clamp®, 316SS	2.75	3.58	3.39
4	64HBL-64TC-SS	4in Long Hose Barb x 4in Tri-Clamp <sup>®</sup> , 316SS	3.75	4.68	5.00
4	64HBS-64TC-SS	4in Short Hose Barb x 4in Tri-Clamp®, 316SS	3.81	4.68	4.18
6	96HBL-96TC-SS	6in Long Hose Barb x 6in Tri-Clamp®, 316SS	5.75	6.57	6.00
6	96HBS-96TC-SS	6in Silicone Hose Barb x 6in Tri-Clamp®, 316SS	5.75	6.57	5.00

#### Also available:

304 Stainless Steel

DIN style fittings

Step up and step down fittings in all sizes.

Consult factory for more information.

#### Note:

Tri-Clamps® larger than 1in have hose barbs that are specially designed for a hose type.

HBL = Long Barb

Long Barbs are used for PTFE lined and FDA Rubber hoses.

HBS = Short Barb

Short Barbs are used for Silicone and PVC hoses.













## Reusable Tri-Clamp® Fittings

Hose ID Inch	Part Number	Description	Fitting ID Inch	Flange Diameter Inches	Fitting Overall Length
1/4	04HB-08RTC-SS	.25in HB x .5in Mini TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.18	0.98	1.80
1/4	04HB-12RTC-SS	.25in HB x .75in Mini TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.18	0.98	1.80
3/8	06HB-08RTC-SS	.375in HB x .5in Mini TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.32	0.98	2.00
3/8	06HB-12RTC-SS	.375in HB x .75in Mini TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.32	0.98	2.00
1/2	08HB-08RTC-SS	.5in HB x .5in Mini TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.38	0.98	2.16
1/2	08HB-12RTC-SS	.5in HB x .75in Mini TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.38	0.98	2.16
5/8	10HB-12RTC-SS	.625in HB x .75in Mini TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.50	0.98	2.25
5/8	10HB-16RTC-SS	.625in HB x 1in Tri Clamp Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.50	1.98	2.25
3/4	12HB-12RTC-SS	.75in HB x .75in Mini TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.63	0.98	2.25
3/4	12HB-16RTC-SS	.75in HB x 1in TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.63	1.98	2.25
1	16HB-16RTC-SS	1in HB x 1in TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.87	1.98	2.50
1	16HB-24RTC-SS	1in HB x 1.5in TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	0.87	1.98	2.50
1.5	24HBS-24RTC-SS	1.5in Short HB x 1.5in TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	1.37	1.98	2.65
2	32HBS-32RTC-SS	2in Short HB x 2in TC Reusable Fitting w/Delrin Nut and Sleeve, 316SS	1.75	2.52	3.78





## Tri-Clamp® Elbow x Hose Barb

Hose ID Inch	Part Number	Description	Elbow ID Inch	Face to Centerline Dimension	Centerline to End of Barb
3/8	06HB-08TC90-SS	.375in Hose Barb x .5in Mini Tri-Clamp® 90 Degree Elbow, 316SS	0.37	1.63	4.96
1/2	08HB-08TC45-SS	.5in Hose Barb x .5in Mini Tri-Clamp® 45 Degree Elbow, 316SS	0.37	1.18	2.42
1/2	08HB-08TC90-SS	.5in Hose Barb x .5in Mini Tri-Clamp® 90 Degree Elbow, 316SS	0.37	1.26	2.50
1/2	08HB-12TC45-SS	.5in Hose Barb x .75in Mini Tri-Clamp® 45 Degree Elbow, 316SS	0.37	1.18	2.42
1/2	08HB-12TC90-SS	.5in Hose Barb x .75in Mini Tri-Clamp® 90 Degree Elbow, 316SS	0.37	1.25	2.50
3/4	12HB-12TC45-SS	.75in Hose Barb x .75in Mini Tri-Clamp® 45 Degree Elbow, 316SS	0.62	0.97	2.47
3/4	12HB-12TC90-SS	.75in Hose Barb x .75in Mini Tri-Clamp® 90 Degree Elbow, 316SS	0.62	1.63	3.13
3/4	12HB-16TC45-SS	.75in Hose Barb x 1in Tri-Clamp® 45 Degree Elbow, 316SS	0.62	0.97	2.47
3/4	12HB-16TC90-SS	.75in Hose Barb x 1in Tri-Clamp® 90 Degree Elbow, 316SS	0.62	1.63	3.13
1	16HB-16TC45-SS	1in Hose Barb x 1in Tri-Clamp® 45 Degree Elbow, 316SS	0.87	CF	CF
1	16HB-16TC90-SS	1in Hose Barb x 1in Tri-Clamp® 90 Degree Elbow, 316SS	0.87	2.01	3.80
1-1/2	24HBL-24TC45-SS	1.5in Long Hose Barb x 1.5in Tri-Clamp® 45 Degree Elbow, 316SS	1.37	1.44	4.06
1-1/2	24HBL-24TC90-SS	1.5in Long Hose Barb x 1.5in Tri-Clamp® 90 Degree Elbow, 316SS	1.37	2.75	5.36
1-1/2	24HBS-24TC45-SS	1.5in Short Hose Barb x 1.5in Tri-Clamp® 45 Degree Elbow, 316SS	1.37	3.80	4.25
1-1/2	24HBS-24TC90-SS	1.5in Short Hose Barb x 1.5in Tri-Clamp® 90 Degree Elbow, 316SS	1.37	2.75	4.54
2	32HBL-32TC45-SS	2in Long Hose Barb x 2in Tri-Clamp® 45 Degree Elbow, 316SS	1.87	4.06	5.81
2	32HBL-32TC90-SS	2in Long Hose Barb x 2in Tri-Clamp® 90 Degree Elbow, 316SS	1.87	3.50	6.50
2	32HBS-32TC45-SS	2in Short Hose Barb x 2in Tri-Clamp® 45 Degree Elbow, 316SS	1.87	1.75	3.64
2	32HBS-32TC90-SS	2in Short Hose Barb x 2in Tri-Clamp® 90 Degree Elbow, 316SS	1.87	3.50	5.39
3	48HBL-48TC45-SS	3in Long Hose Barb x 3in Tri-Clamp® 45 Degree Elbow, 316SS	2.87	2.36	7.38
3	48HBL-48TC90-SS	3in Long Hose Barb x 3in Tri-Clamp® 90 Degree Elbow, 316SS	2.87	5.00	9.34
3	48HBS-48TC45-SS	3in Short Hose Barb x 3in Tri-Clamp® 45 Degree Elbow, 316SS	2.87	2.36	5.75
3	48HBS-48TC90-SS	3in Short Hose Barb x 3in Tri-Clamp® 90 Degree Elbow, 316SS	2.87	5.00	8.16
4	64HBL-64TC45-SS	4in Long Hose Barb x 4in Tri-Clamp® 45 Degree Elbow, 316SS	3.83	3.125	7.90
4	64HBL-64TC90-SS	4in Long Hose Barb x 4in Tri-Clamp® 90 Degree Elbow, 316SS	3.83	6.63	11.00
4	64HBS-64TC45-SS	4in Short Hose Barb x 4in Tri-Clamp® 45 Degree Elbow, 316SS	3.83	3.125	6.30
4	64HBS-64TC90-SS	4in Short Hose Barb x 4in Tri-Clamp® 90 Degree Elbow, 316SS	3.83	6.63	9.80

#### Also available:

Step up and step down elbow fittings in all sizes. Consult factory for more information.

HBL= Long Barb

Long Barbs are used for PTFE lined and FDA Rubber hoses.

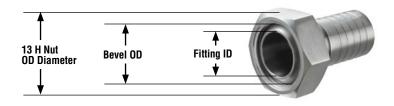
HBS= Short Barb

Short Barbs are used for Silicone and PVC hoses.

CF = Consult Factory







## **Bevel Seat Fittings**

Hose ID Inch	Part Number	Description	Fitting ID Inch	Bevel OD Inch	Fitting Overall Length	13H NUT Part Number	13H NUT Width	13H NUT OD Diameter
1	16HB-16BSI-SS	1in Hose Barb x Bevel Seat Insert, 316SS	0.87	1.32	2.57	16BSNUT-SS	0.91	1.81
1-1/2	24HBL-24BSI-SS	1.5in Long Hose Barb x Bevel Seat Insert, 316SS	1.37	1.85	3.13	24BSNUT-SS	0.97	2.41
2	32HBL-32BSI-SS	2in Long Hose Barb x Bevel Seat Insert, 316SS	1.87	2.38	3.80	32BSNUT-SS	1.06	3.00
2-1/2	40HBL-40BSI-SS	2.5in Long Hose Barb x Bevel Seat Insert, 316SS	2.37	2.91	4.05	40BSNUT-SS	1.19	3.59
3	48HBL-48BSI-SS	3in Long Hose Barb x Bevel Seat Insert, 316SS	2.87	3.44	4.75	48BSNUT-SS	1.26	4.19
4	64HBL-64BSI-SS	4in Long Hose Barb x Bevel Seat Insert, 316SS	3.83	4.51	6.01	64BSNUT-SS	1.50	5.44

Also requires 13H nut sold separately.





## **Female Pipe Thread (FPT)**

Hose ID Inch	Part Number	Description	Fitting Inside Barb Diameter Inch	Fitting Inside FPT Diameter Inch	Fitting FPT Outside Diameter Inch	Fitting Overall Length
1/4	04HB-04FPT-SS	.25in Hose Barb x Female Pipe Thread, 316SS	0.19	0.43	0.75	1.63
3/8	06HB-06FPT-SS	.375in Hose Barb x Female Pipe Thread, 316SS	0.28	0.58	0.87	1.73
1/2	08HB-08FPT-SS	.5in Hose Barb x Female Pipe Thread, 316SS	0.39	0.71	1.06	2.25
3/4	12HB-12FPT-SS	.75in Hose Barb x Female Pipe Thread, 316SS	0.63	0.92	1.31	2.61
1	16HB-16FPT-SS	1in Hose Barb x Female Pipe Thread, 316SS	0.86	1.14	1.62	2.84
1-1/2	24HBL-24FPT-SS	1.5in Long Hose Barb x Female Pipe Thread, 316SS	1.36	1.69	3.03	3.17
2	32HBL-32FPT-SS	2in Long Hose Barb x Female Pipe Thread, 316SS	1.75	2.00	2.50	3.89



## **Male Pipe Thread (MPT)**

Hose ID Inch	Part Number	Description	Fitting Inside Diameter Inch	Threaded Outside Diameter Inch	Fitting Overall Length
1/4	04HB-04MPT-SS	.25in Hose Barb x Male Pipe Thread, 316SS	0.19	0.54	1.63
3/8	06HB-06MPT-SS	.375in Hose Barb x Male Pipe Thread, 316SS	0.28	0.68	1.76
1/2	08HB-08MPT-SS	.5in Hose Barb x Male Pipe Thread, 316SS	0.39	0.85	2.34
3/4	12HB-12MPT-SS	.75in Hose Barb x Male Pipe Thread, 316SS	0.63	1.03	2.53
1	16HB-16MPT-SS	1in Hose Barb x Male Pipe Thread, 316SS	0.84	1.31	2.92
1-1/2	24HBL-24MPT-SS	1.5in Long Hose Barb x Male Pipe Thread, 316SS	1.63	1.89	4.17
2	32HBL-32MPT-SS	2in Long Hose Barb x Male Pipe Thread, 316SS	1.75	2.36	4.58



## **Compression Tube Adapter**

Hose ID Inch	Part Number	Description	Fitting ID Inch	Flange OD Inch	Fitting Overall Length
1/4	04HB-04CTA-SS	.25in Hose Barb x CTA, 316SS	0.19	0.25	1.75
3/8	06HB-06CTA-SS	.375in Hose Barb x CTA, 316SS	0.28	0.38	2.07
1/2	08HB-08CTA-SS	.5in Hose Barb x CTA, 316SS	0.38	0.50	2.57
3/4	12HB-12CTA-SS	.75in Hose Barb x CTA, 316SS	0.62	0.75	2.86
1	16HB-16CTA-SS	1in Hose Barb x CTA, 316SS	0.86	1.00	3.33



## **Compression** Tube Adapter w/Ferrule & Nut

Hose ID Inch	Part Number	Description	Fitting ID Inch	Flange OD Inch	Fitting Overall Length
1/4	04HB-04CTAFN-SS	.25in Hose Barb x CTA w/Ferrule & Nut, 316SS	0.19	0.25	1.75
3/8	06HB-06CTAFN-SS	.375in Hose Barb x CTA w/Ferrule & Nut, 316SS	0.28	0.38	2.07
1/2	08HB-08CTAFN-SS	.5in Hose Barb x CTA w/Ferrule & Nut, 316SS	0.38	0.50	2.57
3/4	12HB-12CTAFN-SS	.75in Hose Barb x CTA w/Ferrule & Nut, 316SS	0.62	0.75	2.86
1	16HB-16CTAFN-SS	1in Hose Barb x CTA w/Ferrule & Nut, 316SS	0.86	1.00	3.33



## **Compression Tube Connector**

Hose ID Inch	Part Number	Description	Fitting Tube ID Inch	Fitting Barb ID Inch	Fitting Overall Length
1/4	04HB-04CTC-SS	.25in Hose Barb x CTC, 316SS	0.26	0.19	1.43
3/8	06HB-06CTC-SS	.375in Hose Barb x CTC, 316SS	0.38	0.28	1.71
1/2	08HB-08CTC-SS	.5in Hose Barb x CTC, 316SS	0.50	0.39	2.05
3/4	12HB-12CTC-SS	.75in Hose Barb x CTC, 316SS	0.75	0.65	2.50
1	16HB-16CTC-SS	1in Hose Barb x CTC, 316SS	1.00	0.87	2.61



## **Compression Tube Connector w/Ferrule & Nut**

Hose ID Inch	Part Number	Description	Fitting Tube ID Inch	Fitting Barb ID Inch	Fitting Overall Length
1/4	04HB-04CTCFN-SS	.25in Hose Barb x CTC w/Ferrule & Nut, 316SS	0.26	0.19	1.43
3/8	06HB-06CTCFN-SS	.375in Hose Barb x CTC w/Ferrule & Nut, 316SS	0.38	0.28	1.71
1/2	08HB-08CTCFN-SS	.5in Hose Barb x CTC w/Ferrule & Nut, 316SS	0.50	0.39	2.05
3/4	12HB-12CTCFN-SS	.75in Hose Barb x CTC w/Ferrule & Nut, 316SS	0.75	0.65	2.81
1	16HB-16CTCFN-SS	1in Hose Barb x CTC w/Ferrule & Nut, 316SS	1.00	0.87	2.96



## **Lap Joint Flange Insert**

Nominal Pipe Size Inch	Part Number	Description	ID Inch	Fitting Face Diameter Inch	Overall Length
1/2	08HB-08LJFR-SS	.5in Hose Barb x Lap Joint Flange Insert, 316SS	0.38	1.38	2.29
3/4	12HB-12LJFR-SS	.75in Hose Barb x Lap Joint Flange Insert, 316SS	0.63	1.68	2.38
1	16HB-16LJFR-SS	1in Hose Barb x Lap Joint Flange Insert, 316SS	0.84	2.00	3.15
1-1/2	24HBL-24LJFR-SS	1.5in Long Hose Barb x Lap Joint Flange Insert, 316SS	1.36	2.87	3.65
2	32HBL-32LJFR-SS	2in Long Hose Barb x Lap Joint Flange Insert, 316SS	1.75	3.63	4.15
2-1/2	40HBL-40LJFR-SS	2.5in Long Hose Barb x Lap Joint Flange Insert, 316SS	2.22	4.12	5.22
3	48HBL-48LJFR-SS	3in Long Hose Barb x Lap Joint Flange Insert, 316SS	2.87	4.98	5.39
4	64HBL-64LJFR-SS	4in Long Hose Barb x Lap Joint Flange Insert, 316SS	CF	CF	CF

CF = Consult Factory

#### Insert also available:

PTFE Encapsulated.

Consult factory for dimensions and sizes available.



## 150# Ansi Flange

Nominal Pipe Size Inch	Part Number	Description	Outside Flange Diameter Inch	Flange Thickness Inch	Number of Holes	Diameter Bolts Inch	Bolt Circle Inch
1/2	08-150LJF-SS	.5in 150# Lap Joint Ansi Flange, 316SS	3-1/2	7/16	4	1/2	2-3/8
3/4	12-150LJF-SS	.75in 150# Lap Joint Ansi Flange, 316SS	3-7/8	1/2	4	1/2	2-3/4
1	16-150LJF-SS	1in 150# Lap Joint Ansi Flange, 316SS	4-1/4	9/16	4	1/2	3-1/8
1-1/2	24-150LJF-SS	1.5in 150# Lap Joint Ansi Flange, 316SS	5	11/16	4	1/2	3-7/8
2	32-150LJF-SS	2in 150# Lap Joint Ansi Flange, 316SS	6	3/4	4	5/8	4-3/4
2-1/2	40-150LJF-SS	2.5in 150# Lap Joint Ansi Flange, 316SS	7	7/8	4	5/8	5-1/2
3	48-150LJF-SS	3in 150# Lap Joint Ansi Flange, 316SS	7-1/2	15/16	4	5/8	6
4	64-150LJF-SS	4in 150# Lap Joint Ansi Flange, 316SS	9	15/16	8	5/8	7-1/2

Flange also available: 304 Stainless Steel Carbon Steel Polypropylene Kynar®





Retainer (Insert)



## Female JIC Fittings w/Nut

Hose ID Inch	Part Number	Description	Fitting Tube ID Inch	Barb ID Inch	Fitting Overall Length
1/4	04HB-04FJICI-SS	.25in Hose Barb x Female JIC w/Nut, 316SS	0.18	0.18	1.07
3/8	06HB-06FJICI-SS	.375in Hose Barb x Female JIC w/Nut, 316SS	0.28	0.28	1.38
1/2	08HB-08FJICI-SS	.5in Hose Barb x Female JIC w/Nut, 316SS	0.38	0.38	1.68
3/4	12HB-12FJICI-SS	.75in Hose Barb x Female JIC w/Nut, 316SS	0.64	0.64	1.98
1	16HB-16FJICI-SS	1in Hose Barb x Female JIC w/Nut, 316SS	0.86	0.86	2.14
1-1/2	24HB-24FJICI-SS	1.5in Hose Barb x Female JIC w/Nut, 316SS	1.27	1.27	2.78
2	32HB-32FJICI-SS	2in Hose Barb x Female JIC w/Nut, 316SS	1.75	1.75	3.61

#### Also available:

HBL and HBS style barb.



## Male JIC Union Adapter x MPT

Hose ID Inch	Part Number	Description	Male 37° Flare	Male NPT Size	Fitting Overall Length
1/4	04MUA-04MPT-SS	.25in Male JIC Union Adapter x Male Pipe Thread, 316SS	1/4	1/4 - 18	1.42
3/8	06MUA-06MPT-SS	.375in Male JIC Union Adapter x Male Pipe Thread, 316SS	3/8	3/8 - 18	1.43
1/2	08MUA-08MPT-SS	.5in Male JIC Union Adapter x Male Pipe Thread, 316SS	1/2	1/2 - 14	1.79
3/4	12MUA-12MPT-SS	.75in Male JIC Union Adapter x Male Pipe Thread, 316SS	3/4	3/4 - 14	2.06
1	16MUA-16MPT-SS	1in Male JIC Union Adapter x Male Pipe Thread, 316SS	1	1 - 11-1/2	2.30
1-1/2	24MUA-24MPT-SS	1.5in Male JIC Union Adapter x Male Pipe Thread, 316SS	1-1/2	1-1/2 - 11-1/2	2.68
2	32MUA-32MPT-SS	2in Male JIC Union Adapter x Male Pipe Thread, 316SS	2	2 - 11-1/2	3.11

#### Also available:

Step up and step down in all sizes. Consult factory for more information.

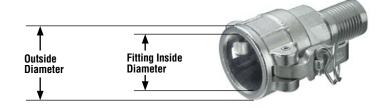


## Male JIC Union Adapter x FPT

Hose ID Inch	Part Number	Description	Male 37° Flare	Female NPT Size	Fitting Overall Length
1/4	04MUA-04FPT-SS	.25in Male JIC Union Adapter x Female Pipe Thread, 316SS	1/4	1/4 - 18	1.39
3/8	06MUA-06FPT-SS	.375in Male JIC Union Adapter x Female Pipe Thread, 316SS	3/8	3/8 - 18	1.46
1/2	08MUA-08FPT-SS	.5in Male JIC Union Adapter x Female Pipe Thread, 316SS	1/2	1/2 - 14	1.79
3/4	12MUA-12FPT-SS	.75in Male JIC Union Adapter x Female Pipe Thread, 316SS	3/4	3/4 - 14	2.06
1	16MUA-16FPT-SS	1in Male JIC Union Adapter x Female Pipe Thread, 316SS	1	1 - 11-1/2	2.35
1-1/2	24MUA-24FPT-SS	1.5in Male JIC Union Adapter x Female Pipe Thread, 316SS	1-1/2	1-1/2 - 11-1/2	2.62
2	32MUA-32FPT-SS	2in Male JIC Union Adapter x Female Pipe Thread, 316SS	2	2 - 11-1/2	2.97

#### Also available:

Step up and step down in all sizes. Consult factory for more information.



## **Female Camlock Fittings**

Hose ID Inch	Part Number	Description	Fitting ID Inch
3/4	12HB-12FCL-SS	.75in Hose Barb x .75in Female Camlock, Locking, Swivel, 316SS	1.30
1	16HB-16FCL-SS	1in Hose Barb x 1in Female Camlock, Locking, Swivel, 316SS	1.48
1-1/2	24HBL-24FCL-SS	1.5in Long Hose Barb x 1.5in Female Camlock, Locking, Swivel, 316SS	2.15
2	32HBL-32FCL-SS	2in Long Hose Barb x 2in Female Camlock, Locking, Swivel, 316SS	2.53
2-1/2	40HBL-40FCL-SS-NL	2.5in Long Hose Barb x 2.5in Female Camlock, Non-Locking, 316SS	3.00
3	48HBL-48FCL-316	3in Long Hose Barb x 3in Female Camlock, Locking, 316SS	3.65
4	64HBL-64FCL-316-NS	4in Long Hose Barb x 4in Female Camlock, Locking, 316SS	4.75

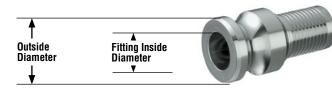






#### **Also available:** HBS style barb. Non-swivel fittings.

Reusable Camlock Screens, Perforated Plates, Sock Screens and Orifice Plates are available in 1"-4".



## **Male Camlock Fittings**

Hose ID Inch	Part Number	Description	Flange OD Inch
3/4	12HB-12MCL-SS	.75in Hose Barb x Male Camlock, 316SS	1.26
1	16HB-16MCL-SS	1in Hose Barb x Male Camlock, 316SS	1.44
1-1/2	24HBL-24MCL-SS	1.5in Long Hose Barb x Male Camlock, 316SS	2.10
2	32HBL-32MCL-SS	2in Long Hose Barb x Male Camlock, 316SS	2.48
2-1/2	40HBL-40MCL-SS	2.5in Long Hose Barb x Male Camlock, 316SS	2.90
3	48HBL-48MCL-SS	3in Long Hose Barb x Male Camlock, 316SS	3.59
4	64HBL-64MCL-SS	4in Long Hose Barb x Male Camlock, 316SS	4.70

#### Also available:

HBS style barb.



### **Female I-Line**

Hose ID Inch	Part Number	Description	Fitting ID Inch	Flange OD Inch	Fitting Overall Length
1	16HB-16FMIL-SS	1in Hose Barb x Female I-Line, 316SS	0.87	1.99	3.08
1-1/2	24HBL-24FMIL-SS	1.5in Long Hose Barb x Female I-Line, 316SS	1.38	1.99	4.07
2	32HBL-32FMIL-SS	2in Long Hose Barb x Female I-Line, 316SS	1.84	2.64	4.54
2-1/2	40HBL-40FMIL-SS	2.5in Long Hose Barb x Female I-Line, 316SS	2.23	3.31	5.35
3	48HBL-48FMIL-SS	3in Long Hose Barb x Female I-Line, 316SS	2.75	3.87	5.56
4	64HBL-64FMIL-SS	4in Long Hose Barb x Female I-Line, 316SS	3.75	4.87	6.35

Consult factory for short barb style.





### **Male I-Line**

Hose ID Inch	Part Number	Description	Fitting ID Inch	Flange OD Inch	Fitting Overall Length
1	16HB-16MIL-SS	1in Hose Barb x Male I-Line, 316SS	0.87	1.99	3.08
1-1/2	24HBL-24MIL-SS	1.5in Long Hose Barb x Male I-Line, 316SS	1.38	1.99	4.07
2	32HBL-32MIL-SS	2in Long Hose Barb x Male I-Line, 316SS	1.84	2.64	4.54
2-1/2	40HBL-40MIL-SS	2.5in Long Hose Barb x Male I-Line, 316SS	2.23	3.31	5.35
3	48HBL-48MIL-SS	3in Long Hose Barb x Male I-Line, 316SS	2.75	3.87	5.56
4	64HBL-64MIL-SS	4in Long Hose Barb x Male I-Line, 316SS	3.75	4.87	6.35

Consult factory for short barb style.



### **Q-Line**

Q-Line fittings also available, consult factory for sizing and availability.

## **John Perry**

John Perry fittings also available, consult factory for sizing and availability.





#### **Buttweld Tube**

Hose ID Inch	Part Number	Description	Fitting Tube ID Inch	Barb ID Inch	Fitting Overall Length
1/4	04HB-04BWT-SS	.25in Hose Barb x .25in Buttweld Tube, 316SS	0.15	0.16	1.13
3/8	06HB-06BWT-SS	.375in Hose Barb x .375in Buttweld Tube, 316SS	0.28	0.28	1.38
1/2	08HB-08BWT-SS	.5in Hose Barb x .5in Buttweld Tube, 316SS	0.37	0.37	1.75
3/4	12HB-12BWT-SS	.75in Hose Barb x .75in Buttweld Tube, 316SS	0.62	0.62	2.00
1	16HB-16BWT-SS	1in Hose Barb x 1in Buttweld Tube, 316SS	0.87	0.87	2.29
1-1/2	24HBL-24BWT-SS	1.5in Long Hose Barb x 1.5in Buttweld Tube, 316SS	1.37	1.37	3.13
1-1/2	24HBS-24BWT-SS	1.5in Short Hose Barb x 1.5in Buttweld Tube, 316SS	1.37	1.37	2.29
2	32HBL-32BWT-SS	2in Long Hose Barb x 2in Buttweld Tube, 316SS	1.84	1.84	3.50
2	32HBS-32BWT-SS	2in Short Hose Barb x 2in Buttweld Tube, 316SS	1.84	1.84	2.39
2-1/2	40HBL-40BWT-SS	2.5in Long Hose Barb x 2.5in Buttweld Tube, 316SS	2.36	2.23	4.19
2-1/2	40HBS-40BWT-SS	2.5in Short Hose Barb x 2.5in Buttweld Tube, 316SS	2.25	2.25	2.88
3	48HBL-48BWT-SS	3in Long Hose Barb x 3in Buttweld Tube, 316SS	2.87	2.67	4.66
3	48HBS-48BWT-SS	3in Short Hose Barb x 3in Buttweld Tube, 316SS	2.87	2.75	3.39
4	64HBL-64BWT-SS	4in Long Hose Barb x 4in Buttweld Tube, 316SS	3.83	3.75	5.00
4	64HBS-64BWT-SS	4in Short Hose Barb x 4in Buttweld Tube, 316SS	3.83	3.81	3.68
6	96HBL-96BWT-SS	6in Long Hose Barb x 6in Buttweld Tube, 316SS	5.75	5.75	6.00
6	96HBS-96BWT-SS	6in Short Hose Barb X 6in Buttweld Tube, 316SS	5.75	5.75	5.00

#### Also available:

Buttweld pipe, consult factory for sizing and availability.



## 14MPHR- 316 Stainless Steel Tri-Clamp® Adapters

Part Number	Part Description
14MPHR-02HB-08TC-SS	14MPHR .125in Hose Barb x .5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-02HB-12TC-SS	14MPHR .125in Hose Barb x .75in Tri-Clamp®, 316SS
14MPHR-02HB-16TC-SS	14MPHR .125in Hose Barb x 1in Tri-Clamp, 316SS
14MPHR-02HB-24TC-SS	14MPHR .125in Hose Barb x 1.5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-03HB-08TC-SS	14MPHR .187in Hose Barb x .5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-03HB-12TC-SS	14MPHR .187in Hose Barb x .75in Tri-Clamp® 316SS
14MPHR-03HB-24TC-SS	14MPHR .187in Hose Barb x 1.5in Tri-Clamp® 316SS
14MPHR-04HB-08TC-SS	14MPHR .25in Hose Barb x .5in Tri-Clamp® 316SS
14MPHR-04HB-12TC-SS	14MPHR .25in Hose Barb x .75in Tri-Clamp® 316SS
14MPHR-04HB-16TC-SS	14MPHR .25in Hose Barb x 1in Tri-Clamp,® 316SS
14MPHR-04HB-24TC-SS	14MPHR .25in Hose Barb x 1.5in Tri-Clamp, 316SS
14MPHR-05HB-08TC-SS	14MPHR .312in Hose Barb x .5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-06HB-08TC-SS	14MPHR .375in Hose Barb x .5in Tri-Clamp, 316SS
14MPHR-06HB-12TC-SS	14MPHR .375in Hose Barb x .75in Tri-Clamp® 316SS
14MPHR-06HB-16TC-SS	14MPHR .375in Hose Barb x 1in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-06HB-24TC-SS	14MPHR .375in Hose Barb x 1.5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-06HB-32TC-SS	14MPHR .375in Hose Barb x 2in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-06HB-48TC-SS	14MPHR .375in Hose Barb x 3in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-08HB-08TC-SS	14MPHR .5in Hose Barb x .5in Tri-Clamp, 316SS
14MPHR-08HB-12TC-SS	14MPHR .5in Hose Barb x .75in Tri-Clamp, 316SS
14MPHR-08HB-16TC-SS	14MPHR .5in Hose Barb x 1in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-08HB-24TC-SS	14MPHR .5in Hose Barb x 1.5in Tri-Clamp®, 316SS
14MPHR-08HB-32TC-SS	14MPHR .5in Hose Barb x 2in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-10HB-08TC-SS	14MPHR .625in Hose Barb x .5in Tri-Clamp,® 316SS
14MPHR-10HB-12TC-SS	14MPHR .625in Hose Barb x .75in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-10HB-16TC-SS	14MPHR .625in Hose Barb x 1in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-10HB-24TC-SS	14MPHR .625in Hose Barb x 1.5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-12HB-12TC-SS	14MPHR .75in Hose Barb x .75in Tri-Clamp® 316SS
14MPHR-12HB-16TC-SS	14MPHR .75in Hose Barb x 1in Tri-Clamp,® 316SS
14MPHR-12HB-24TC-SS	14MPHR .75in Hose Barb x 1.5in Tri-Clamp <sup>®</sup> 316SS
14MPHR-12HB-32TC-SS	14MPHR .75in Hose Barb x 2in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-14HB-24TC-SS	14MPHR .875in Hose Barb x 1.5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-16HB-16TC-SS	14MPHR 1in Hose Barb x 1in Tri-Clamp® 316SS
14MPHR-16HB-24TC-SS	14MPHR 1in Hose Barb x 1.5in Tri-Clamp,® 316SS
14MPHR-16HB-32TC-SS	14MPHR 1in Hose Barb x 2in Tri-Clamp® 316SS
14MPHR-20HB-24TC-SS	14MPHR 1.25in Hose Barb x 1.5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-24HB-24TC-SS	14MPHR 1.5in Hose Barb x 1.5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-24HB-32TC-SS	14MPHR 1.5in Hose Barb x 2in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-32HB-32TC-SS	14MPHR 2in Hose Barb x 2in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-32HB-40TC-SS	14MPHR 2in Hose Barb x 2.5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-40HB-40TC-SS	14MPHR 2.5in Hose Barb x 2.5in Tri-Clamp <sup>®</sup> , 316SS
14MPHR-48HB-48TC-SS	14MPHR 3in Hose Barb x 3in Tri-Clamp <sup>®</sup> , 316SS







#### Also available:

Step up and step down adapters in all sizes and in these materials: 304 Stainless Steel Polypropylene Kynar® Hastelloy Exotic Metals **Electropolished Finish** 



## 16AMP- 316 Stainless Steel Tri-Clamp® End Cap

Part Number	Part Description
16AMP-075-316	.5in/.75in 316SS Tri-Clamp® End Cap
16AMP-150-316	1.5in 316SS Tri-Clamp® End Cap
16AMP-200-316	2in 316SS Tri-Clamp® End Cap
16AMP-250-316	2.5in 316SS Tri-Clamp® End Cap
16AMP-300-316	3in 316SS Tri-Clamp® End Cap
16AMP-400-316	4in 316SS Tri-Clamp® End Cap
16AMP-600-316	6in 316SS Tri-Clamp® End Cap
16AMP-800-316	8in 316SS Tri-Clamp® End Cap
16AMP-1000-316	10in 316SS Tri-Clamp® End Cap
16AMP-050/075-316L-HDL	.5in/.75in 316SS Tri-Clamp® End Cap with Handle
16AMP-100/150-316L-HDL	1in/1.5in 316SS Tri-Clamp® End Cap with Handle
16AMP-200-316L-HDL	2in 316SS Tri-Clamp® End Cap with Handle
16AMP-250-316L-HDL	2.5in 316SS Tri-Clamp® End Cap with Handle
16AMP-300-316L-HDL	3in 316SS Tri-Clamp® End Cap with Handle
16AMP-075-K	.75in PVDF Tri-Clamp® End Cap
16AMP-150-K	1.5in PVDF Tri-Clamp® End Cap
16AMP-200-K	2in PVDF Tri-Clamp® End Cap
16AMP-250-K	2.5in PVDF Tri-Clamp® End Cap
16AMP-300-K	3in PVDF Tri-Clamp® End Cap
16AMP-400-K	4in PVDF Tri-Clamp® End Cap
16AMP-075-PP	.75in Polypro Tri-Clamp® End Cap
16AMP-150-PP	1.5in Polypro Tri-Clamp® End Cap
16AMP-200-PP	2in Polypro Tri-Clamp® End Cap
16AMP-250-PP	2.5in Polypro Tri-Clamp® End Cap
16AMP-300-PP	3in Polypro Tri-Clamp® End Cap
16AMP-400-PP	4in Polypro Tri-Clamp® End Cap
16AMP-600-PP	6in Polypro Tri-Clamp <sup>®</sup> End Cap





#### Also available:

Step up and step down adapters in all sizes and in these materials: 304 Stainless Steel Polypropylene Kynar® Hastelloy Exotic Metals Electropolished Finish



## 21MP Adapters (Tri-Clamp® x Male Pipe Thread)

Part Number	Part Description
21MP-08TC-04MPT-SS	.5in Mini Tri-Clamp® x .25in Male Pipe Thread Adapter, 316SS
21MP-08TC-06MPT-SS	.5in Mini Tri-Clamp® x .375in Male Pipe Thread Adapter, 316SS
21MP-08TC-08MPT-SS	.5in Mini Tri-Clamp® x .5in Male Pipe Thread Adapter, 316SS
21MP-08TC-12MPT-SS	.5in Mini Tri-Clamp® x .75in Male Pipe Thread Adapter, 316SS
21MP-12TC-02MPT-SS	.75in Mini Tri-Clamp® x .125in Male Pipe Thread Adapter, 316SS
21MP-12TC-04MPT-SS	.75in Mini Tri-Clamp® x .25in Male Pipe Thread Adapter, 316SS
21MP-12TC-06MPT-SS	.75in Mini Tri-Clamp® x .375in Male Pipe Thread Adapter, 316SS
21MP-12TC-08MPT-SS	.75in Mini Tri-Clamp® x .5in Male Pipe Thread Adapter, 316SS
21MP-12TC-12MPT-SS	.75in Mini Tri-Clamp® x .75in Male Pipe Thread Adapter, 316SS
21MP-12TC-16MPT-SS	.75in Mini Tri-Clamp® x 1in Male Pipe Thread Adapter, 316SS
21MP-16TC-04MPT-SS	1in Tri-Clamp® x .25in Male Pipe Thread Adapter, 316SS
21MP-16TC-06MPT-SS	1in Tri-Clamp® x .375in Male Pipe Thread Adapter, 316SS
21MP-16TC-08MPT-SS	1in Tri-Clamp® x .5in Male Pipe Thread Adapter, 316SS
21MP-16TC-12MPT-SS	1in Tri-Clamp® x .75in Male Pipe Thread Adapter, 316SS
21MP-16TC-16MPT-SS	1in Tri-Clamp® x 1in Male Pipe Thread Adapter, 316SS
21MP-16TC-20MPT-SS	1in Tri-Clamp® x 1.25in Male Pipe Thread Adapter, 316SS
21MP-16TC-24MPT-SS	1in Tri-Clamp® x 1.5in Male Pipe Thread Adapter, 316SS
21MP-16TC-32MPT-SS	1in Tri-Clamp® x 2in Male Pipe Thread Adapter, 316SS
21MP-24TC-04MPT-SS	1.5in Tri-Clamp® x .25in Male Pipe Thread Adapter, 316SS
21MP-24TC-08MPT-SS	1.5in Tri-Clamp® x .5in Male Pipe Thread Adapter, 316SS
21MP-24TC-12MPT-SS	1.5in Tri-Clamp® x .75in Male Pipe Thread Adapter, 316SS
21MP-24TC-16MPT-SS	1.5in Tri-Clamp® x 1in Male Pipe Thread Adapter, 316SS
21MP-24TC-20MPT-SS	1.5in Tri-Clamp® x 1.25in Male Pipe Thread Adapter, 316SS
21MP-24TC-24MPT-SS	1.5in Tri-Clamp® x 1.5in Male Pipe Thread Adapter, 316SS
21MP-24TC-32MPT-SS	1.5in Tri-Clamp® x 2in Male Pipe Thread Adapter, 316SS
21MP-32TC-04MPT-SS	2in Tri-Clamp® x .25in Male Pipe Thread Adapter, 316SS
21MP-32TC-08MPT-SS	2in Tri-Clamp® x .5in Male Pipe Thread Adapter, 316SS
21MP-32TC-12MPT-SS	2in Tri-Clamp® x .75in Male Pipe Thread Adapter, 316SS
21MP-32TC-20MPT-SS	2in Tri-Clamp® x 1.25in Male Pipe Thread Adapter, 316SS
21MP-32TC-24MPT-SS	2in Tri-Clamp® x 1.5in Male Pipe Thread Adapter, 316SS
21MP-32TC-32MPT-SS	2in Tri-Clamp® x 2in Male Pipe Thread Adapter, 316SS
21MP-40TC-32MPT-SS	2.5in Tri-Clamp® x 2in Male Pipe Thread Adapter, 316SS
21MP-48TC-32MPT-SS	3in Tri-Clamp® x 2in Male Pipe Thread Adapter, 316SS





#### Also available:

Exotic Metals Electropolished Finish

Step up and step down adapters in all sizes and in these materials: 304 Stainless Steel Polypropylene Kynar® Hastelloy



## 22MP Adapters (Tri-Clamp® x Female Pipe Thread)

Part Number	Part Description
22MP-08TC-02FPT-SS	.5in Mini Tri-Clamp® x .125in Female Pipe Thread Adapter, 316SS
22MP-08TC-04FPT-SS	.5in Mini Tri-Clamp® x .25in Female Pipe Thread Adapter, 316SS
22MP-08TC-06FPT-SS	.5in Mini Tri-Clamp® x .375in Female Pipe Thread Adapter, 316SS
22MP-08TC-08FPT-SS	.5in Mini Tri-Clamp® x .5in Female Pipe Thread Adapter, 316SS
22MP-08TC-12FPT-SS	.5in Mini Tri-Clamp® x .75in Female Pipe Thread Adapter, 316SS
22MP-08TC-16FPT-SS	.5in Mini Tri-Clamp® x 1in Female Pipe Thread Adapter, 316SS
22MP-12TC-02FPT-SS	.75in Mini Tri-Clamp® x .125in Female Pipe Thread Adapter, 316SS
22MP-12TC-04FPT-SS	.75in Mini Tri-Clamp® x .25in Female Pipe Thread Adapter, 316SS
22MP-12TC-06FPT-SS	.75in Mini Tri-Clamp® x .375in Female Pipe Thread Adapter, 316SS
22MP-12TC-08FPT-SS	.75in Mini Tri-Clamp® x .5in Female Pipe Thread Adapter, 316SS
22MP-12TC-12FPT-SS	.75in Mini Tri-Clamp® x .75in Female Pipe Thread Adapter, 316SS
22MP-12TC-16FPT-SS	.75in Mini Tri-Clamp® x 1in Female Pipe Thread Adapter, 316SS
22MP-16TC-04FPT-SS	1in Tri-Clamp® x .25in Female Pipe Thread Adapter, 316SS
22MP-16TC-06FPT-SS	1in Tri-Clamp® x .375in Female Pipe Thread Adapter, 316SS
22MP-16TC-08FPT-SS	1in Tri-Clamp® x .5in Female Pipe Thread Adapter, 316SS
22MP-16TC-12FPT-SS	1in Tri-Clamp® x .75in Female Pipe Thread Adapter, 316SS
22MP-16TC-16FPT-SS	1in Tri-Clamp® x 1in Female Pipe Thread Adapter, 316SS
22MP-16TC-24FPT-SS	1in Tri-Clamp® x 1.5in Female Pipe Thread Adapter, 316SS
22MP-16TC-32FPT-SS	1in Tri-Clamp® x 2in Female Pipe Thread Adapter, 316SS
22MP-24TC-04FPT-SS	1.5in Tri-Clamp® x .25in Female Pipe Thread Adapter, 316SS
22MP-24TC-08FPT-SS	1.5in Tri-Clamp® x .5in Female Pipe Thread Adapter, 316SS
22MP-24TC-12FPT-SS	1.5in Tri-Clamp® x .75in Female Pipe Thread Adapter, 316SS
22MP-24TC-16FPT-SS	1.5in Tri-Clamp® x 1in Female Pipe Thread Adapter, 316SS
22MP-24TC-24FPT-SS	1.5in Tri-Clamp® x 1.5in Female Pipe Thread Adapter, 316SS
22MP-24TC-32FPT-SS	1.5in Tri-Clamp® x 2in Female Pipe Thread Adapter, 316SS
22MP-24TC-40FPT-SS	1.5in Tri-Clamp® x 2.5in Female Pipe Thread Adapter, 316SS
22MP-32TC-08FPT-SS	2in Tri-Clamp® x .5in Female Pipe Thread Adapter, 316SS
22MP-32TC-12FPT-SS	2in Tri-Clamp® x .75in Female Pipe Thread Adapter, 316S
22MP-32TC-16FPT-SS	2in Tri-Clamp® x 1in Female Pipe Thread Adapter, 316SS
22MP-32TC-24FPT-SS	2in Tri-Clamp® x 1.5in Female Pipe Thread Adapter, 316SS
22MP-32TC-32FPT-SS	2in Tri-Clamp® x 2in Female Pipe Thread Adapter, 316SS
22MP-40TC-40FPT-SS	2.5in Tri-Clamp® x 2.5in Female Pipe Thread Adapter, 316SS

3in Tri-Clamp® x 3in Female Pipe Thread Adapter, 316SS





#### Also available:

22MP-48TC-48FPT-SS

Step up and step down adapters in all sizes and in these materials: 304 Stainless Steel Polypropylene Kynar® Hastelloy Exotic Metals Electropolished Finish





## **Sanitary Clamps**

## **Single Pin Sanitary Hinge Clamp**



Size Inch	Part Number	A Dimension Inch	Max psi @70°F
1/2 & 3/4	13MHHM-304-050/075	1.13	1500
34MM	13MHHM-304-34MM	1.50	750
1 & 1-1/2	13MHHM-304-100/150	2.13	500
2	13MHHM-304-200	2.66	450
2-1/2	13MHHM-304-250	3.19	400
3 13MHHM-304-300 4 13MHHM-304-400		3.72	350
		4.83	300
5	13MHHM-304-500	5.63	200
6	13MHHM-304-600	6.69	150
8	13MHHM-304-800	8.69	100
10 13MHHM-304-1000		10.70	75
12	13MHHM-304-1200	12.70	50

## **Single Pin Gold Clamp For Inline Identification**



Size Inch	Part Number	A Dimension Inch	Max psi @70°F
1/2 & 3/4	13MHHM-304-050/075-GLD	1.13	1500
1 & 1-1/2	13MHHM-304-100/150-GLD	2.12	500
2	13MHHM-304-200-GLD	2.65	450
2-1/2	13MHHM-304-250-GLD	3.19	400
3	13MHHM-304-300-GLD	3.72	350
4	13MHHM-304-400-GLD	4.82	300
5	13MHHM-304-500-GLD	5.63	200
6	13MHHM-304-600-GLD	6.70	150
8	13MHHM-304-800-GLD	8.70	100
10	13MHHM-304-1000-GLD	10.70	75
12	13MHHM-304-1200-GLD	12.70	50

## **Double Pin Sanitary Hinge Clamp**



Size Inch	Part Number	A Dimension Inch	Max psi @70°F
1/2 & 3/4	13MHHM-DP-075	1.13	1500
1 & 1-1/2	13MHHM-DP-150	2.12	500
2	13MHHM-DP-200	2.65	450
2-1/2 13MHHM-DP-250		3.19	400
3	13MHHM-DP-300	3.72	350
4	13MHHM-DP-400	4.82	300
6	13MHHM-DP-600	6.70	150
8	13MHHM-DP-800	8.70	100
10	13MHHM-DP-1000	10.70	75

## **High Pressure Clamp**



Size Inch	Part Number	A Dimension Inch	Max psi @70°F
1/2 & 3/4	13MHP-304-075	1.13	2200
1 & 1-1/2	13MHP-304-150	2.05	600
2	13MHP-304-200	2.58	550
2-1/2	13MHP-304-250	3.11	450
3	13MHP-304-300	3.64	350
4	13MHP-304-400	4.74	300
5	13MHP-304-500	5.83	400
6	13MHP-304-600	6.63	-

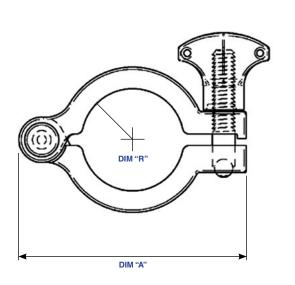
## **Three Segment Clamp**

Three Segment Clamps are also available, consult factory for sizing and availability.

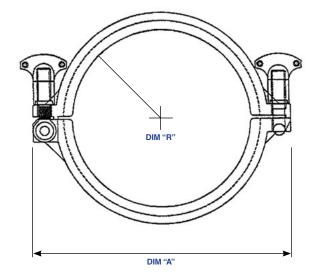
## **Non-Metallic Clamp**



Size Inch	Part Number	A Dim. Inch	B Dim. Inch	R Dim. Inch	Max psi
1/2 & 3/4	13MHHM-NGW-050/075	2.17	0.75	0.39	150
1 & 1-1/2	13MHHM-NGW-150	3.94	0.75	0.89	150
2	13MHHM-NGW-200	4.64	0.75	1.26	150
2-1/2	13MHHM-NGW-250	5.20	0.75	1.50	150
3	13MHHM-NGW-300	5.75	0.75	1.77	150
4	13MHHM-NGW-400	6.66	0.75	2.25	150
6	13MHHM-NGW-600	8.81	0.96	3.14	150
8	13MHHM-NGW-800	11.14	0.96	4.32	150







## **Torque Tee**

Rubber Fab's Torque Tee and universal torque socket are designed to aid in clamp installation and removal. Available with a family of components, the Torque Tee handle creates effective tightening leverage and aids in reaching tight spaces, including over head and behind tanks.

#### **Features**

- Works with standard hinge clamp wing nuts
- Works with Rubber Fab's Torque-Rite<sup>®</sup>
- T-shape creates effective leverage
- Fast easy one handed tightening in the right direction
- Provides an audible click when any factory preset torque is reached
- Flanged reversing collar disengages the ratchet mechanism and locks the tool for conventional backing off and loosening
- All mechanisms are sealed in die cast handle
- Consult factory for other torques







Picture Reference	Product	Part Number
1	Tee Handle 30 IN LBS	TR-30-TEE-CP
2	Tee Handle 50 IN LBS	TR-50-TEE-CP
3	Universal Socket	WN/TR SOCKET
4	3 PC Extension Kit	TR-EXT25-SET
5	1/4" Swivel Joint	TR-SWIVEL25
6	1/4" Palm Wrench	TR-PW25
7	Torque-Rite® 30 IN LBS	TR-30
Not Shown	Torque-Rite <sup>®</sup> 50 IN LBS	TR-50

## **Torque-Rite®**

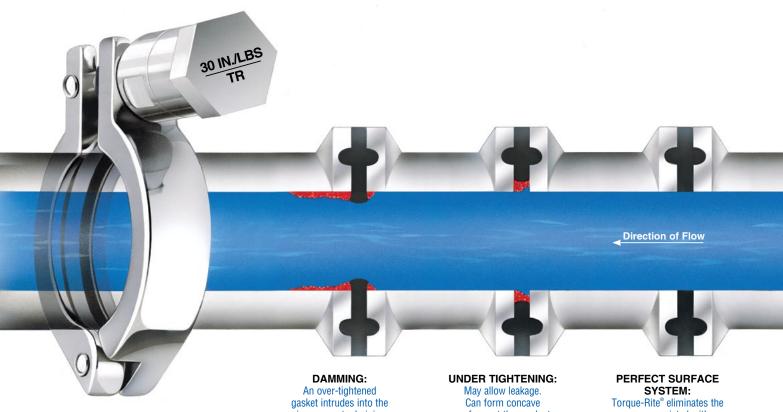
Torque-Rite® allows you to control compression and expansion while maintaining constant inch/pounds force insuring a perfect surface ID. Torque-Rite® eliminates the problems associated with over or under tightening a seal which can lead to an unsanitary system. Compression control is easy! When tightened, the Torque-Rite's® self-limiting internal mechanism will make an audible "click" signaling the user they have reached proper inch/pounds force. The Torque-Rite® has a built-in manual override feature. If further tightening is attempted, there will be more "clicks" but no additional application of force on the sanitary gasket.

#### Features:

- An audible "click" indicating correct inch/pounds force
- Maintains constant 30 or 50 inch/pounds force
- · Manual override feature
- Retrofits all sanitary clamps, mini-6"
- Works in rupture disk applications
- Works with Smart Gasket® thermocouple clamps
- User friendly
- Consult factory for additional custom torque nuts

Torque-Rite® is a registered trademark of Rubber Fab Torque-Rite® United States Patent Number 6,082,941.

Part Number	Product
TR-30	Torque-Rite® 30 IN LBS
TR-50	Torque-Rite® 50 IN LBS



#### pipe, prevents draining, and allows deposits to

build up behind the seal.

surfaces at the product side of the gasket affecting free drainage and cleaning.

concerns associated with over and under tightening a seal and insures that the gasket ID matches pipe ID

## Smart Clamp<sup>™</sup>

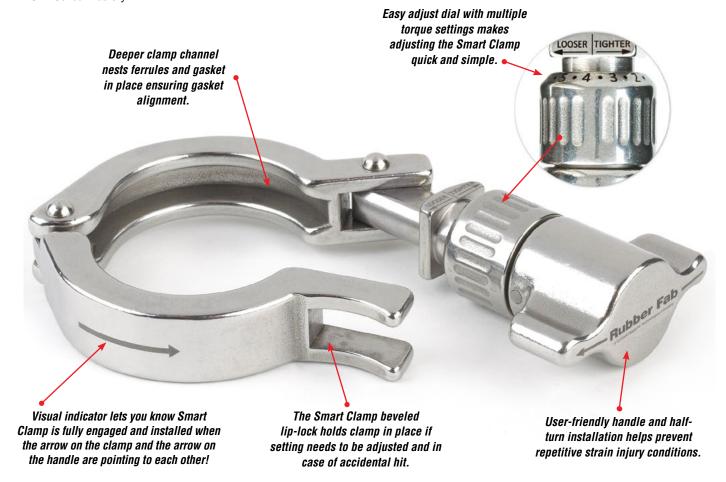
The "Half-Turn" Sanitary Clamp

Rubber Fab is proud to introduce the next generation of sanitary hinge clamps — the one-piece, completely unitized, Smart Clamp $^{\text{\tiny M}}$ . With features that include half-turn installation and faster uptime, the benefits of Rubber Fab's Smart Clamp $^{\text{\tiny M}}$  far exceed any other sanitary clamp.



		Dimension in Inches		Service Pres	ssure Rating	
Size Inch	Part Number	"A"	"B"	"C"	@ 70°F psi	@ 250°F psi
1/2 & 3/4	SMARTCLAMP-050/075	CF	CF	CF	1500	1200
34MM	SMARTCLAMP-34MM	1.50	3.88	3.50	500	250
1 & 1-1/2	SMARTCLAMP-100/150	2.90	4.00	4.25	500	250
2	SMARTCLAMP-200	2.72	4.50	4.75	450	250
2.5	SMARTCLAMP-250	3.25	4.75	5.50	500	200
3	SMARTCLAMP-300	3.76	5.00	5.75	350	150
3 Sch 5	SMARTCLAMP-300-V	4.32	5.38	6.25	350	150
4	SMARTCLAMP-400	4.89	5.50	6.87	200	125
6	SMARTCLAMP-600	6.77	6.50	9.00	100	50

CF = Consult Factory



## **Value Added Services**

### **Electropolishing**



Electrochemical in nature, electropolishing uses a combination of rectified current and a blended chemical electrolyte bath to remove flaws from the surface of a metal part.

Electropolish is available for Rubber Fab's stainless steel fittings and adapters.

#### **Passivation**

Passivation involves a shielding outer-layer of corrosion which can be applied as a micro-coating. As a technique, passivation is the use of a light coat of protective material such as metal oxide to create a shell against corrosion.

## **Pressure Testing**

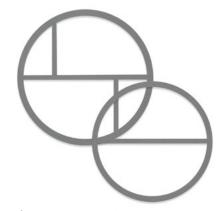
Rubber Fab has the capability to pressure test hose and assemblies for you if needed. This service is available upon request.

### **Private Labeling**



Rubber Fab will print your logo and contact information on Rubber Fab's product labels providing a reorder point for your customer.

### **Custom Fabrication**



- Custom machined fittings and gaskets
- Spool pieces
- Waterjet custom parts
- Tanks/Vessels

Rubber Fab is your complete resource for custom fittings and sanitary gaskets. We will review your part drawing or sample fitting and give you a prompt quotation. Rubber Fab creates custom parts from Tuf-Steel's® heat resistant sheet and rod. Please contact Rubber Fab's Technical Sales team for all of your application needs.

### 360° Radial Crimp



Rubber Fab's hose fabrication team offers 360° radial crimping to our sanitary hose for a positive lock that enables the assembly to be used to the maximum working pressure of the particular hose style and size without fitting pull-off or blowing off.



## Laser Engraved Barcoding



Use etched collars to communicate your most critical information. Part numbers, sizes, service dates, and usage recommendations are just a few examples. Laser etched collars present a sharp, legible, professional image. Include your company name, application specific information such as serial numbers or maintenance codes, and more.

## Barcoded Packaging Labels



Barcodes are used to track anything from products to people to even military equipment. Use barcoded labeling to communicate your most critical information. Part numbers, sizes, packaging information and usage recommendations are just a few examples. Printed barcode labels present a sharp, legible, professional image.

## Laser Etched Hose Crimping Collars



- Sharper and more legible than traditional acid-etched parts or handwritten labels.
- Print logos, barcoding, and QR coding.
- Use product serialization (incremental counting) for tracking purposes.
- Use etched collars to communicate your most critical information. Part numbers, sizes, service dates, and usage recommendations are just a few examples.

## **Laser-Etched Tags**



- Easy to attach to hoses
- Inexpensive way to identify
- Etch critical date, i.e., hose maintenance and replacement dates, part numbers, logos, pressure and temperature ratings, contents, suction or discharge service

## Quality Assurance Documentation

Material Test Reports (MTRs) for complete lot and batch traceability for stainless steel parts fittings and adapters.

Rubber Fab ships products with a certificate of conformance.

It is Rubber Fab's quality policy to provide the highest quality products, which consistently meet the product specifications developed by Rubber Fab and their customers, both internal and external. We are committed to the continuous improvement of our quality system. We will meet and exceed the expectations of our customers.

Rubber Fab Gaskets Meet the Most Stringent Standards For Purity:

- U.S. Pharmacopeia Class VI Certification\*
- Cytotoxicity Criteria\*
- Title 21CFR177.2600 and 177.1550
- USDA and 3-A Sanitary Standards
- Current Good Manufacturing Practices (CGMP)
- ASME-BPE Standards
- ISO9001:2000 and QS-9000:1998
- Animal Derived Ingredient Free\*
- \*Buna does not pass U.S. Pharmacopeia Class VI Certification And Cytotoxicity and is not ADI Free®.

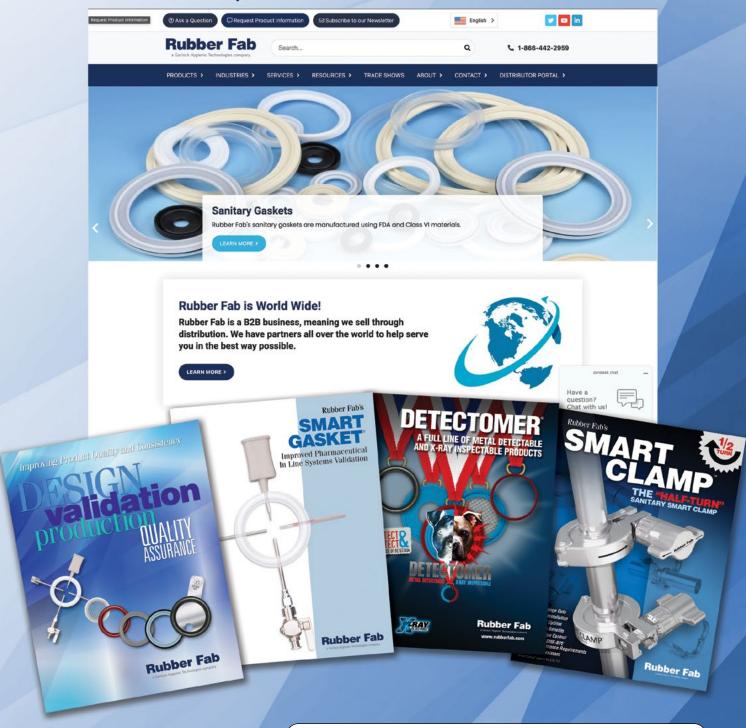
### **Limited Warranty**

Rubber Fab warrants their products to be free of material and workmanship defects for a period of 3 months from the time of delivery. Any product deemed to be defective in that time period by Rubber Fab's quality assurance department will be replaced or repaired or at Rubber Fab's discretion refund the purchase price. This is the limit of our liability. Defective products must be returned with an authorized material return authorization number. The product(s) must be returned prepaid freight. Freight charges will be refunded if credit is allowed against the warranty.

Rubber Fab does not make or imply any other warranty and does not accept consequencial damages.

Rubber Fab does not warrant the suitability of materials for specific applications.

## For the latest in products, specifications, and dimensions, please visit www.rubberfab.com



## **Rubber Fab**

a Garlock Hygienic Technologies company

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